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June 26, 2014

Naval Facilities Engineering Command, Mid-Atlantic
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Attn: Mr. Mark Hutchinson
Code EV31

Re: Contract N62470-10-D-3000
Delivery Order WE05
Final Environmental Condition of Property Report
Disposal of NIOC Sugar Grove, Sugar Grove, West Virginia

Dear Mr. Hutchinson:

Enclosed are two bound copy of the Final Environmental Condition of Property (ECP) Report for the Disposal of NIOC Sugar Grove, Sugar Grove, West Virginia. The bound copies include a CD with an electronic file version. One additional electronic file version has also been provided. Additional copies of this Final ECP Report have been distributed as indicated below. This Final Report incorporates comments provided by NAVFAC Mid-Atlantic Environmental, Legal Counsel, and NIOC Sugar Grove on the Draft Environmental Condition of Property Report dated 12 May 2014.

Baker appreciates the opportunity to provide continued support for the Navy. Should you have any questions, please contact me at (412) 375-3003 or Mr. Jason Oliver at (757) 631-5251.

Sincerely,

Michael Baker Jr., Inc.



Richard P. Aschenbrenner, P.G.
Project Manager

Enclosures

cc: Ms. Kirsten Johnson, NAVFAC Mid-Atlantic Code OPHRAQ6 (cover letter only)
Mr. Steven White, NAVFAC Mid-Atlantic Code AM (3 hardcopies and 2 electronic copies)
Ms. LT Celeste Renoewick, NIOC Sugar Grove Public Works Department Officer (1 hardcopy
and 1 electronic copy)

FINAL

ENVIRONMENTAL CONDITION OF PROPERTY REPORT

for:

**THE DISPOSAL OF NAVY INFORMATION OPERATIONS
COMMAND
SUGAR GROVE,
Sugar Grove, West Virginia**

for

**NAVAL FACILITIES ENGINEERING COMMAND
MID-ATLANTIC FACILITIES**

Submitted to:



Department of the Navy
Naval Facilities Engineering Command Mid-Atlantic
Norfolk, Virginia

Contract No. N62470-10-D-3000

DO-WE05

June 2014

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FINAL

ENVIRONMENTAL CONDITION OF PROPERTY REPORT

for:

**THE DISPOSAL OF
NAVY INFORMATION OPERATIONS COMMAND SUGAR GROVE,
Sugar Grove, West Virginia**

Prepared for:

**DEPARTMENT OF THE NAVY
MID-ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
*Norfolk, Virginia***

Under the:

**CONTRACT N62470-10-D-3000
DELIVERY ORDER WE05**

Prepared by:

**MICHAEL BAKER JR., INC.
*Virginia Beach, Virginia***

June 2014

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LIST OF ACRONYMS AND ABBREVIATIONS

ACM	Asbestos Containing Material
ADA	Americans with Disabilities ACT
AFFF	Aqueous Film-Forming Foaming Agents
APH	Adsorbed-Phase Hydrocarbon
AST	Aboveground Storage Tank
ASTM	American Society for Testing and Materials
ATG	Automatic Tank Gauge
Baker	Michael Baker Jr., Inc.
BER	Business Environmental Risk
BEQ	Bachelor Enlist Quarters
bgs	Below Ground Surface
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
CDA	Circularly Disposed Antenna Arrays
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System
CESQG	Conditionally Exempt Small Quantity Generator
CFR	Code of Federal Regulations
CORRACTS	Corrective Action Sites
CPSC	Consumer Product Safety Commission
CREC	Controlled Recognized Environmental Condition
CWA	Clean Water Act
DIPE	Diisopropyl Ether
DO	Delivery Order
DoN	Department of the Navy
DPH	Dissolved-Phase Hydrocarbon
DMM	Discarded Military Munitions
EBS	Environmental Baseline Survey
ECHO	Enforcement and Compliance History Online
ECP	Environmental Condition of Property
EDR	Environmental Data Resources, Inc.
ER	Environmental Restoration
ERM	Environmental Resources Management Inc.
ERNS	Emergency Response Notification System
°F	Degrees Fahrenheit
FAR	Federal Acquisition Regulation
FEMA	Federal Emergency Management Agency
FINDS	Facility Index System
FRP	Fiberglass-Reinforced Plastic
gpm	Gallons Per Minute
HMIRS	Hazardous Materials Information Reporting System
HREC	Historical Recognized Environmental Condition

HTRW	Hazardous, Toxic, or Radioactive Waste
I & I	Inflow and Infiltration
iNFADS	Internet Naval Facilities Assets Data Store
INRMP	Integrated Natural Resources Management Plan
IR	Installation Restoration
IPaC	Information, Planning, and Conservation System
LAS	Land Application Site
LBP	Lead-Based Paint
LP	Liquid Propane
LTANK	Leaking Storage Tank
LUC	Land Use Control
LUST	Leaking Underground Storage Tank
MC	Munitions Constituents
MEC	Munitions and Explosives of Concern
mg/cm ²	Milligram per Square Centimeter
mg/kg	Milligram per Kilogram
MMRP	Military Munitions Response Program
MRA	Munition Response Area
MRS	Munition Response Site
msl	Mean Sea Level
MTBE	Methyl Tertiary Butyl Ether
MWR	Morale, Welfare, and Recreation
NAVFAC	Naval Facilities Engineering Command
NAVRADSTA	Naval Radio Station
NAVRAMP	Navy Radon Assessment and Mitigation Program
NAVSECGRU	Naval Security Group Command
NEESA	Navy Energy and Environmental Support Activity
NETWARCOM	Naval Network Warfare Command
NEX	Navy Exchange
NFESC	Naval Facilities Engineering Service Center
NFRAP	No Further Remedial Action Planned
NIOC	Navy Information Operations Command
NOV	Notice of Violation
NPDES	National Pollution Discharge Elimination System
NPL	National Priority List
NRC	National Response Center
NSGA	Naval Security Group Activity
OPNAVINST	Office of the Chief of Naval Operations Instruction
OWS	Oil-Water Separator
PA	Preliminary Assessment
PAH	Polycyclic Aromatic Hydrocarbons
PC	Point Count
PCB	Polychlorinated Biphenyl
pCi/L	Picocuries Per Liter
PFC	Perfluorinated Chemicals

PFOA	Perfluorooctanoic Acid	
PFOS	Perfluorooctane Sulfonate	Polarized Light Microscopy
POL	Petroleum, Oil, and Lubricants	
POV	Privately Owned Vehicle	
ppm	Parts Per Million	
PPV	Public/ Private Venture	
PSH	Phase-Separated Hydrocarbon	
PST	Petroleum Storage Tank	
PVC	Polyvinyl chloride	
PWD	Public Works Department	
RCRA	Resource Conservation and Recovery Act	
REC	Recognized Environmental Condition	
RI	Remedial Investigation	
RMD	Radiation Monitoring Devices, Inc.	
SHPO	State Historic Preservation Office	
SOW	Scope of Work	
TPH	Total Petroleum Hydrocarbon	
TSI	Thermal System Insulation	
µg/L	Micrograms per Liter	
USC	United States Code	
USEPA	United States Environmental Protection Agency	
USFWS	United States Fish and Wildlife Service	
USGS	United States Geological Survey	
UST	Underground Storage Tank	
UXO	Unexploded Ordnance	
VPH	Vapor-Phase Hydrocarbon	
WP	Work Plan	
WVDEP	West Virginia Department of Environmental Protection	
WVDOT	West Virginia Department of Transportation	
WVGWQS	West Virginia Groundwater Quality Standard	
WWTP	Wastewater Treatment Plant	
XRF	X-Ray Fluorescence	

EXECUTIVE SUMMARY

Michael Baker Jr., Inc. (Baker) has been retained by the U.S. Department of the Navy (DoN), under contract with the Naval Facilities Engineering Command (NAVFAC) Mid-Atlantic Division, Contract Number N62470-10-D-3000, Delivery Order (DO) WE05, to conduct an Environmental Condition of Property (ECP) survey for the disposal of portions of Navy Information Operations Command (NIOC) Sugar Grove, Sugar Grove, West Virginia.

NIOC Sugar Grove is located in Sugar Grove, Pendleton County, West Virginia. The investigation area consists of the 118-acre lower base complex portion of NIOC Sugar Grove. The lower base complex contains a full range of facilities that support approximately 450 personnel, including barracks, privatized housing, administrative space, classrooms, retail space, indoor recreational space, storage space, public works shops, as well as a fire station and police station. Sugar Grove is near the city of Brandywine, West Virginia, about 3-hours west of Washington, D.C., and approximately one hour west of Harrisonburg, Virginia. Figure 1-1 depicts an aerial site location map and Figure 1-2 depicts a site location map for the NIOC Sugar Grove Support Area, Sugar Grove, West Virginia.

The Sugar Grove facility was originally developed by the Naval Research Laboratory in the early 1960s for a radio telescope, but this project was halted in 1962. In 1962, in response to a request from Senator Robert C. Byrd to find other uses for the Sugar Grove facility, the Navy proposed the site for use as a radio receiving station, due in part to its unique location within the 13,000 square miles National Radio Quiet Zone; in March 1965 work was begun to convert the site to a radio receiving station. Naval Radio Station (NAVRADSTA) Sugar Grove was activated on 10 May 1969 as a radio receiving station. On 8 November 1969 two Wullenweber Circularly Disposed Antenna Arrays (CDAAs) were completed which provided increased capacity for reception of ship-shore and overseas circuits. Two domed antennas, a parabolic antenna, approximately 70 radio receivers, and numerous other communications devices were also constructed at the facility. Operational use of NAVRADSTA Sugar Grove officially began on 30 December 1969 and it became the primary east coast receiving site for ship-shore and overseas traffic. On 1 December 1969 Naval Security Group Detachment Sugar Grove was established which later became Naval Security Group Activity (NSGA) Sugar Grove when the Naval Radio Station was closed on 1 October 1992, after the removal of the CDAAs. On 1 October 2005, NSGA was changed to Navy Information Operations Command (NIOC) as part of the integration of the Naval Security Group Command (NAVSECGRU) functions into Naval Network Warfare Command (NETWARCOM). On 22

April 2013, the Chief of Naval Operations approved the disestablishment of NIOC Sugar Grove to be effective 30 September 2015.

It is the intent of the Navy to dispose of the 118-acre lower base complex at NIOC Sugar Grove. The primary objective of this ECP is to determine if there are any hazardous / toxic wastes or materials currently located within the 118-acre facility since the Navy can be held responsible for these materials on properties transferred by the Navy under the strict liability provisions of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The ECP will establish a determination of the potential presence / absence of hazardous or toxic wastes, asbestos containing materials (ACM), or other materials within the site to help minimize the risk to the Navy and identify if there are any environmental issues present so a decision can be made if cleanup is required or the property can be transferred as is. The findings in this ECP Report are based on information obtained through record review, interviews, and a site inspection. Conclusions are based on existing site conditions, interpretation of site history, and interpretation of the available site use information. This ECP Report was prepared in general accordance with the American Society for Testing and Materials Standard (ASTM) *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, E 1527-13, the DoN Environmental Policy Memorandum 06-06: *Streamlined Environmental Procedures Applicable to Non-BRAC Real Estate Actions*, dated 5 July 2006, and the *Navy Real Estate Procedural Manual P-73*, Chapter 3, Section V – Environmental Guidelines, 13 October 2010 (DoN, 2010).

The ECP Report summarizes the findings relative to the identification of recognized environmental conditions (RECs) for the 118-acre lower base Support Area of DoN owned property located at NIOC Sugar Grove, Sugar Grove, West Virginia. Based on the evaluation of records reporting the historical use of the site, a site inspection, and database searches, two RECs and three historical recognized environmental conditions (HRECs) were identified on the 118-acre lower base portion of DoN owned property located at NIOC Sugar Grove, Sugar Grove, West Virginia.

Recognized Environmental Conditions

The Support Area Burn Pits (Site 2) and the Support Area Landfill (Site 3) at NIOC Sugar Grove are the two RECs identified at NIOC Sugar Grove (see Figure 5-1 for the location of the two identified RECs).

- The Support Area Burn Pits (Site 2) are located in the western portion of the installation, near the intersection of Simmons and Hedrick Drive. In the late 1960's, three or four burn pits,

approximately ten by eight feet in area and approximately six feet deep were used for the disposal of municipal solid waste, scrap metal, paper, wood, and cardboard generated at the installation. The waste was reportedly burned within the pits and once the pits were filled they were capped with approximately two feet of soil. The use of Site 2 was discontinued in 1970 and since no hazardous waste was reportedly disposed within the burn pits, no further action was recommended under the Navy Installation Restoration (IR) Program (NEESA, 1988).

- The Support Area Landfill (Site 3) is located in the northwestern portion of the installation, approximately 400 feet northeast of Site 2. In 1970, waste disposal activities were shifted from Site 2 to the Site 3. Waste was disposed of at Site 3 in trenches approximately 30 feet long by 12 feet wide to an approximate depth of eight feet. Reportedly, the trenches may have been excavated to the underlying shale deposits. The waste reportedly disposed of within the pits included primarily household municipal solid waste, scrap metal, scrap wood, empty paint cans, empty drums of paint thinner, and air conditioning filters. Once pits were filled, they were capped with approximately one foot of soil. The use of the landfill was discontinued in 1978 and since no hazardous waste was reportedly disposed within the landfill, no further action was recommended under the Navy IR Program (NEESA, 1988).

Although no further action was recommended for Site 2 and Site 3 under the Navy IR Program, the only documentation regarding these sites identified during the ECP investigation was limited to the *Preliminary Assessment Report, Naval Radio Station Sugar Grove, West Virginia 26816*, Naval Energy and Environmental Support Activity (NEESA), March 1988. Note that no environmental media sampling was conducted as part of the Preliminary Assessment. No additional documentation or records from the United States Environmental Protection Agency (USEPA), West Virginia Department of Environmental Protection (WVDEP), or other regulatory agencies were provided that indicate regulatory acceptance of the no further action recommendation; therefore, there is no documentation that can be used as a basis for identifying these sites as a HRECs or controlled recognized environmental conditions (CRECs).

Land Use Controls (LUCs) for soil and groundwater to restrict access, ground disturbing activity, groundwater use, and general land use are recommended by the Navy IR Program for Site 2 (The Support Area Burn Pits) and Site 3 (The Support Area Landfill). The LUCs are recommended to assure protection of human health and the environment, and should be maintained by the new owner until proper coordination with WVDEP and Navy to establish any updated environmental condition.

There are currently no structures located within the suspected boundaries of Support Area Burn Pits (Site 2) and Support Area Landfill (Site 3). A small portion of Site 3 is potentially located just within the right outfield of the baseball field.

Historic Recognized Environmental Conditions

Three underground storage tank (UST) sites were identified as HRECs at NIOC Sugar Grove.

- UST 200 was a 1,000-gallon, steel heating oil tank installed in 1975 located directly west of Building 20. In April 1995, during the tank removal a small volume of heating oil discharged into the tank excavation pit; approximately three cubic yards of contaminated soil was excavated during the tank removal.
- USTs 201/202 are fiberglass-reinforced plastic (FRP) tanks currently located southeast of Building 22. These USTs provide fuel storage for a privately owned vehicle (POV) fueling dispensing facility operated by the Navy Exchange (NEX). The current FRP USTs were installed in 1986-1987 to replace two steel USTs that had reportedly leaked (Environmental Science & Engineering, Inc., 1996a). Conflicting records and field evidence cannot confirm whether the existing USTs are single-walled or double-walled, so the assumption is that they are single-walled. When the current FRP USTs were installed in 1986-1987, they retained the same tank identification as the previous steel USTs. In 1993, during the replacement of the fuel dispensers and piping, hydrocarbon/ fuel odors were noted near the pump island. On 2 March 1993, WVDEP issued a Confirmed Release Notice to Comply. Groundwater monitoring wells were installed to monitor groundwater contamination and soil was excavated in 1995 in the vicinity of the former pump island (located south of Building 22). The monitoring wells have since been abandoned.
- USTs 205/206 were previously located near the southwest corner of Building 63. UST 205 was an unregulated 4,000-gallon heating oil tank and UST 206 was a regulated 550-gallon diesel tank. Both USTs were removed in 1995. During closure activities, soil samples indicated total petroleum hydrocarbon (TPH) impact in the tank basin and along the product supply line. Approximately 33 cubic yards of potentially TPH contaminated soil were excavated and backfilled with clean soil during the tank and piping removal. The WVDEP inspector onsite at the time indicated that a site assessment was required for both tanks. The resulting site

assessment report recommended no further action at the UST 205/206 site (Environmental Science & Engineering, Inc., 1996b).

All three of these HRECs were addressed under WVDEP Leak Identification Number 93-048. A Review of Closure letter and Review of Confirmed Release Review, both dated 8 December 2004 were issued by WVDEP indicating that the no additional investigation or remedial action was warranted for the three UST sites. Full documentation pertaining to the investigation and closure of Leak Identification Number 93-048 is included with the ECP Report as Appendix H.

Asbestos Containing Material Survey

An ACM survey of the facility buildings was conducted as part of the ECP survey and previous ACM reports for the buildings included in the Public Private Venture (PPV) housing lease were reviewed. Although the presence of ACM is not a REC, it is a business environmental risk (BER) due to the capital costs and potential liability associated with the identification, abatement, encapsulation/removal, and disposal of ACM. The ACM survey conducted as part of the ECP investigation identified ACM within the PWD/ MWR Gym/ Bowling alley (Building 20), the Youth Center (Building 26), the Administration Building (Building 63), and the Racquetball Court (Building 70). Reviews of previous ACM reports for the buildings included in the PPV housing lease indicate that ACM is present in the Pitsenbarger (Buildings 101-110), Eckard (Buildings 111-118), and Redwood (Buildings 121-123) housing groups. All ACM identified by the ACM survey and identified in previous reports was reportedly in good condition, appears to present minimal potential hazard to building occupants and can be managed in-place. If areas of damaged ACM are identified, they should be immediately repaired. If renovation or demolition activities are scheduled, any ACM that could potentially be disturbed should be properly abated and disposed of in accordance with local, state, and federal regulations.

Additional Environmental Concerns

The following additional environmental concerns were noted at NIOC Sugar Grove:

- According to USEPA, Pendleton County, West Virginia is listed in Radon Zone 1 with a predicted average indoor radon screening level greater than the USEPA action level of 4 pCi/L; meaning there is a high potential for indoor radon within the area (USEPA, 2010). As part of the Navy Radon Assessment and Mitigation Program (NAVRAMP), radon screening of both the non-housing facilities and residential housing units at NIOC Sugar Grove was conducted in the early 1990s. Radon screening results in residential housing indicated a single unit with a radon

level above the USEPA radon action level of 4 pCi/ L (DoN, 1991). Housing Unit 123A, at 192 Armentrout Drive, had a radon concentration level of 6.8 pCi/ L with a follow up confirmation result of 9.8 pCi/ L. An active radon mitigation system was installed in Housing Unit 123A and follow up testing results were below the USEPA action level. Based on these results and a review of radon data, there is a high potential for the presence of radon at NIOC Sugar Grove.

- Notification to West Virginia Department of Health would be required for the potable water treatment plant if population of lower base drops below 25. The state would then reclassify the system and regulatory permitting and/or monitoring requirements would be reduced or eliminated. 5090 sampling requirements, however, may still apply. The potable water treatment facility could be abandoned in place or removed.
- The extended aeration wastewater treatment plant (WWTP) consists of two package units. Per WVDEP, the Navy could operate one unit as the base population decreases and could only shut down the WWTP completely when all sewer flows have been eliminated. The WWTP itself will need to be pumped out and replaced with clean water at closure. Per WVDEP, if the wastewater/ sewer system experiences inflow and infiltration (I&I) the Navy would need to route this I&I in a manner acceptable to the State upon the closure of the WWTP. Prior approval from the WVDEP would be required to close the polishing lagoon. The lagoon will need to be evaluated to determine the presence of settled solids and/or sediment it contains. Dewatering may be necessary.

Data Gaps

During the records review process and site inspection, four data gaps were identified. The data gaps identified are as follows:

- During the records review process, no documentation was encountered on the environmental disposition or condition of the wastewater treatment plant lagoon. The lagoon was originally constructed as the polishing lagoon for the wastewater treatment plant constructed in the 1960's. The polishing lagoon was used for the final treatment of waste water prior to final discharge by allowing the settling of any remaining solids from the pretreated water as well as natural biological treatment of the water and sludge via aerobic/ anaerobic breakdown. A new aeration wastewater treatment plant was constructed in 1997 and the use of the lagoon as part of the treatment process was suspended. According to interviews with site personnel and a letter dated

3 April 1998 from the WVDEP, the lagoon is currently used as an equalization lagoon/infiltration basin which serves as temporary storage of excess combined sewage/ storm water during storm events when inflow at the new aeration treatment plant exceeds the plant's treatment capacity. The area associated with the wastewater treatment lagoon is identified as a non-discharge area (ND-001) within the NIOC Sugar Grove National Pollution Discharge Elimination System (NPDES) permit WV0103110. During the ECP investigation, no documentation was encountered to determine the current environmental disposition of the lagoon or to determine whether or not the lagoon has had any impact to the environment, particularly groundwater.

- During the records review process, no documentation was encountered regarding the presence of lead-based paint within the facility buildings at NIOC Sugar Grove. A lead-based paint (LBP) survey was not performed as part of this ECP investigation, however available records were reviewed regarding the presence of LBP within the buildings located at NIOC Sugar Grove. The Consumer Product Safety Commission (CPSC) banned the use of lead paint in residential and public buildings in 1977 under Title 16 Code of Federal Regulation (CFR), part 1303. Eight facility buildings were identified with construction prior to 1978, including: PW Maintenance Shop/Gym/Bowling (Building 20), the Plumbing Maintenance Shop (Building 22), the water treatment pump house (Building 25), the Youth Center (Building 26), the Emergency Vehicle Garage (Building 29), the NEX/Commissary/Bath House (Building 30), the Administration Building (Building 63), and an equipment shed (Building 66). The presence of LBP within these buildings would represent a BER due to the capital costs and potential liability associated with identification, abatement, and disposal of LBP. If these buildings undergo any future renovation/ demolition, additional LBP inspections would be required to determine the presence of LBP and all materials should be handled and disposed of in accordance with local, state, federal regulations.
- In a letter dated 28 July 2004 from the WVDEP, the No Further Action status of the Leak ID 93-048 was contingent on the abandonment of all monitoring wells located near USTs 201/202. A letter from the DoN, dated 24 November 2004, documented the closure of the wells by Mid-Atlantic Associates, Inc. The Review of Closure letter and Review of Confirmed Release Review were issued by WVDEP on 8 December 2004 indicating that No Further Action was required. During the ECP site inspection, three monitoring wells were observed in the vicinity of UST site 201/202. According to site personnel, two of the monitoring wells appear to have been installed in 1993 as leak detection for the USTs 201/ 202 system. These two wells are considered a part of

the UST system and may remain while the USTs are in service and closed when the UST system is decommissioned or removed. The third well is a temporary monitoring well that was installed as part of the investigation for Leak ID 93-048. If this monitoring well is no longer being used to gather hydrogeologic data or monitor groundwater conditions, then it should be abandoned in accordance with Title 47 of West Virginia Code of State Rules, Series 60, Section 47-60-19.

- During the site inspection two oil-water separators (OWSs) were observed at NIOC Sugar Grove, but there was limited information available on these OWSs. The New Fire Station OWS is located at the southwest corner of the New Fire Station (Building 39). According to interviews with site personnel, the Fire Station OWS collects from drains on the interior of the building and drains to the sanitary system. No other specifications on the construction or capacity were available during the site inspection. The Bachelor Enlisted Quarters (BEQ) OWS is located west of the BEQ (Building 40) and was previously used as a wash rack for personnel staying at the BEQ. The OWS appears to be constructed of concrete; however no additional specifications on the capacity or drainage were available during the site inspection. According to site personnel, the BEQ OWS has been disabled. If the BEQ OWS is no longer in use, it should be properly closed in accordance with local, state, and federal requirements to prevent potential illicit discharges to the storm water system.

This ECP Report was prepared in general accordance with the ASTM Standard E 1527-13, the DoN Environmental Policy Memorandum 06-06: *Streamlined Environmental Procedures Applicable to Non-BRAC Real Estate Actions*, dated 5 July 2006, and the *Navy Real Estate Procedural Manual P-73*, Chapter 3, Section V – Environmental Guidelines (DoN, 2010). The review of available information completed for this ECP Report was limited to data that was reasonably ascertainable. The information obtained was publicly available, was obtained within the cost and time constraints under the scope of services for this project, and practically reviewable. Media sampling and the chemical analysis of soils, surface water, and groundwater was not performed as part of this survey. In addition, the possibility of vapor intrusion or drinking water quality was not evaluated during this ECP survey.

1.0 INTRODUCTION

Michael Baker Jr., Inc. (Baker) has been retained by the U.S. Department of the Navy (DoN), under contract with the Naval Facilities Engineering Command (NAVFAC) Mid-Atlantic Division, Contract Number N62470-10-D-3000, Delivery Order (DO) WE05, to conduct an Environmental Condition of Property (ECP) survey for the disposal of portions of Navy Information Operations Command (NIOC) Sugar Grove, Sugar Grove, West Virginia. The Scope of Work (SOW), dated 17 July 2013, is included as Appendix A. The Project Plans, submitted as part of the work effort to outline the steps proposed to accomplish this ECP are included as Appendix B.

1.1 Background

NIOC Sugar Grove consists of two noncontiguous sites. The Support Area, also referred to as the lower base serves as the support site for the Operational Area where mission operations are conducted. The Support Area is the focus of this ECP report. The Operational Area is located approximately two miles south of the Support Area off of West Virginia Route 21.

The NIOC Sugar Grove Support Area, hereafter identified in this ECP Report as the “subject property” is located in Sugar Grove, Pendleton County, West Virginia. The investigation area consists of the 118-acre lower base complex portion of NIOC Sugar Grove. The Support Area complex contains a full range of facilities that support approximately 450 personnel, including barracks, privatized housing, administrative space, classrooms, retail space, indoor recreational space, storage space, public works shops, as well as a fire station and police station. Sugar Grove is near the city of Brandywine, West Virginia, about 3-hours west of Washington, D.C., and approximately 1 hour west of Harrisonburg, Virginia. Figure 1-1 depicts a regional location map and Figure 1-2 depicts a site location map for NIOC Sugar Grove Support Area, Sugar Grove, West Virginia. A D-size facility site location plan is included in Appendix C.

Naval Radio Station (NAVRADSTA) Sugar Grove was activated on 10 May 1969 as a radio receiving station. The facility was originally developed in the early 1960s for a radio telescope, but this project was halted in 1962. In 1962, in response to a request from Senator Robert C. Byrd to find other uses for the Sugar Grove facility, the Navy proposed the site to be used as a radio receiving station, due in part to its unique location within the 13,000 square miles National Radio Quiet Zone and in March 1965 work was begun to convert the site to a radio receiving station. On 8 November 1969 two Wullenweber Circularly Disposed Antenna Arrays (CDAAs) were completed which provided increased capacity for reception of ship-shore and overseas circuits. Two domed antennas, a parabolic antenna, approximately 70 radio

receivers, and numerous other communications devices were also constructed at the facility. Operational use of NAVRADSTA Sugar Grove officially began on 30 December 1969 and it became the primary east coast receiving site for ship-shore and overseas traffic. On 1 December 1969 Naval Security Group Detachment Sugar Grove was established and became a Naval Security Group Activity (NSGA) Sugar Grove when the Naval Radio Station was closed on 1 October 1992, after the removal of the CDAAs. On 1 October 2005, NSGA was changed to Navy Information Operations Command as part of the integration of the Naval Security Group Command (NAVSECGRU) functions into Naval Network Warfare Command (NETWARCOM). On 22 April 2013, the Chief of Naval Operations approved the disestablishment of NIOC Sugar Grove to be effective 30 September 2015.

The primary objective of the ECP Report is to determine if there are any hazardous / toxic wastes or materials currently located within the 118-acre lower base complex located at NIOC Sugar Grove since the Navy can be held responsible for these materials on properties transferred by the Navy under the strict liability provisions of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The intent of this ECP Report is to make a determination of the potential presence / absence of hazardous or toxic wastes or other materials within the subject property to help minimize the risk to the Navy. The determination is based on a review of various sources of available information regarding environmentally significant historic and current uses of the parcel; and an evaluation of available environmental reports with the objective being the identification and definition of areas where potentially hazardous and/or toxic substances, as well as petroleum, oils and lubricants (POL), may have been stored, disposed of, released or migrated to the subject property. The ECP Report summarizes readily available, factual, environmentally relevant information obtained during record/document searches, a site inspection, and interviews.

This ECP Report was prepared in general accordance with the American Society for Testing and Materials (ASTM) *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, Standard E 1527-13, the DoN Environmental Policy Memorandum 06-06: *Streamlined Environmental Procedures Applicable to Non-BRAC Real Estate Actions*, dated 5 July 2006, and the *Navy Real Estate Procedural Manual P-73*, Chapter 3, Section V – Environmental Guidelines, (DoN, 2010).

In accordance with the ASTM Standard E 1527-13, this ECP Report summarizes the findings relative to the identification of recognized environmental conditions (RECs). REC is defined as the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any

release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. RECs may be further classified as historical recognized environmental conditions (HRECs) or controlled recognized environmental conditions (CRECs). HREC is identified as a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls. CREC is identified as a condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority, with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (e.g., property use restrictions, activity and use limitations, institutional controls, or engineering controls).

In addition to RECs, HRECs, and CRECs, this ECP report also discusses and identifies business environmental risks (BERs). BER is a risk which can have a material environmental or environmentally-driven impact on the business associated with the current or planned use of a parcel of commercial real estate, not necessarily limited to those environmental issues required to be investigated in accordance with the ASTM Standard E 1527-13 or that may be outside of CERCLA liability. Consideration of BER issues may involve addressing one or more considerations not included within the scope of ASTM Standard E 1527-13. The following non-scope issues which may present a potential BER are discussed in this ECP report:

- *In situ* asbestos-containing building materials (Section 5.4)
- Lead-Based Paint (Section 5.5)
- Radon (Section 5.10)
- Protected, threatened, and endangered species (Section 5.11)
- Wetlands (Section 5.12.1)
- Cultural and historic resources (Section 5.12.4)

Asbestos containing materials (ACM) and lead-based paint (LBP) may present additional capital costs and potential liability associated with identification, abatement, encapsulation/removal, and disposal. In addition, these materials may potentially present a REC in the future if they are released to the environment. The presence of wetlands; cultural and historic resources; and protected, threatened, and endangered species may impede, restrict, or eliminate the future use of the real property or potentially increase the cost of planned development.

1.2 Environmental Condition of Property Organization

This ECP Report for the lower base complex at NIOC Sugar Grove, Sugar Grove, West Virginia is organized into the following sections:

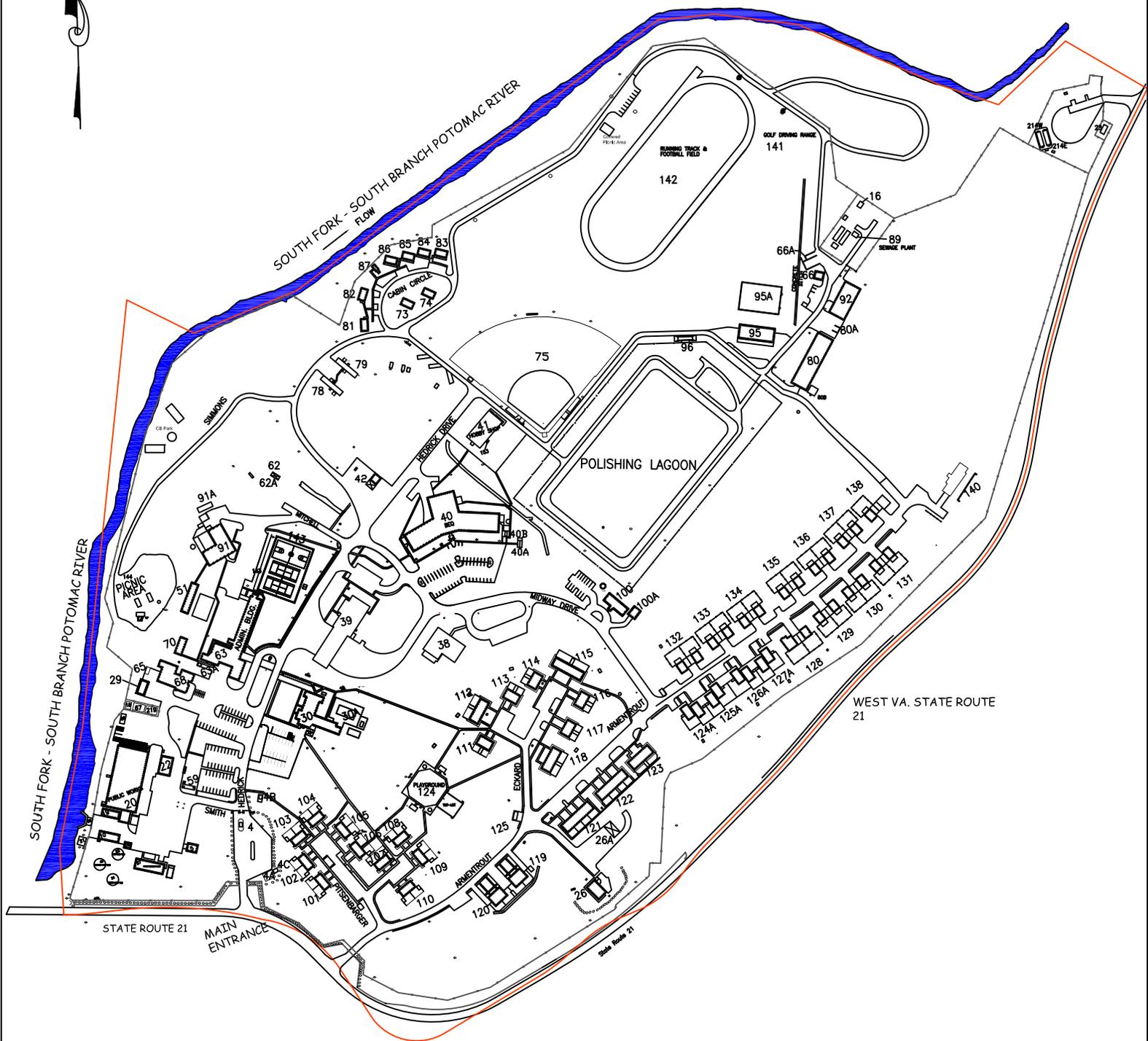
- Executive Summary: Provides a brief overview of the ECP Report and the conclusions and findings from the investigation.
- Section 1.0 – Introduction: Provides background information about the subject property, discusses the objectives of the ECP Report, and the content/structure of this report.
- Section 2.0 – Survey Methodology: Describes the procedures and steps taken for conducting the ECP survey.
- Section 3.0 – Past and Current Use: Describes the historic and current use of the property and adjacent properties.
- Section 4.0 – Environmental Setting: Provides a discussion of the environmental setting of the area including location, climatology, physiography, geology, hydrogeology, and topography.
- Section 5.0 – Environmental Conditions: Discusses historical and present environmental conditions on and adjacent to the subject property.
- Section 6.0 – Conclusions: Discusses significant findings of the overall ECP Report and any RECs, HRECs, and CRECs to the subject property.
- Section 7.0 Certifications: The Project Manager responsible for the preparation of this report endorses this section to declare his/her position as an Environmental Professional and that all appropriate inquiries of this investigation are in conformance with the standards and practices set forth in 40 Code of Federal Regulations (CFR) Part 312.
- Section 8.0 – References: The references section contains a listing of all data sources used during the ECP survey to develop the report.



LEGEND

**FIGURE 1-1
AERIAL SITE LOCATION MAP
ENVIRONMENTAL CONDITION OF PROPERTY
DISPOSAL OF NIOC SUGAR GROVE
SUGAR GROVE, WEST VIRGINIA**

NOT TO SCALE



LEGEND

**FIGURE 1-2
SITE LOCATION MAP
ENVIRONMENTAL CONDITION OF PROPERTY
DISPOSAL OF NIOC SUGAR GROVE
SUGAR GROVE, WEST VIRGINIA**

2.0 SURVEY METHODOLOGY

2.1 Approach and Rationale

The preparation of this ECP Report followed an established set of procedures to obtain information detailing past and current activities that may have a potential environmental impact on or around the property. This report meets the substantive requirements of applicable standards and guidance documents.

To determine the presence or absence of environmental conditions at the property, the following procedures were performed:

Record Review: Reasonably ascertainable records related to hazardous substances, petroleum products, CERCLA, and the Resource Conservation and Recovery Act (RCRA) in connection with the property were collected and reviewed, as well as pertinent Navy, other federal, state, and local databases. A list of records reviewed is included in Appendix J and additional supporting documents and reports are included in Appendix K. In addition to available records, Environmental Data Resources, Inc. (EDR) of Milford, Connecticut was subcontracted to provide additional research services. EDR provided a series of search reports of available state and federal records for the property. The search reports meet or exceed the regulatory records search requirements of the DoN Environmental Policy Memorandum 06-06: *Streamlined Environmental Procedures Applicable to Non-BRAC Real Estate Actions*, dated 5 July 2006. The EDR reports are included as Appendix I of this report. In addition to the EDR records, any additional documentation supporting the disposition of the subject property is included as Appendix K of this report.

Site Inspection: A site inspection of the property was conducted on 12 - 22 November 2013. The photographs taken of the property are included in Appendix D of this report. The checklists completed during the site inspection are included in Appendix E of this report.

Interviews: Personnel that were knowledgeable of the past/current activities at the property were contacted and interviewed. Personnel knowledgeable of operations from various facilities located on the base were interviewed during the site inspection. Personnel from various Public Works Departments; recycling; vehicle maintenance facilities; Morale, Welfare, and Recreation (MWR); the Medical Center; water/ wastewater treatment; and the public/ private venture (PPV) housing partner were interviewed. Additional personnel from NAVFAC Mid-Atlantic were also

contacted as necessary. Site interview forms are included as Appendix F of this report. Persons contacted and interviewed as part of this investigation are listed in Table 2-1.

Table 2-1: Environmental Condition of Property Personnel Interview Log, NIOC Sugar Grove, West Virginia				
Name (s)	Title	Facility	Years On Site	Date Interviewed
Lt. Celeste Renoewick	PWD Officer	PWD	1	18 Nov 2013
Jennings (Jay) Smith	Deputy PWD Officer	PWD	15	18 Nov 2013
Robert (Bob) Hammer	Environmental Manager	PWD		12-20 Nov 2013
Steven Niethamer	Former Environmental Manager	Environmental		14 Nov 2013, 20 Nov 2013
Jim Moats	MWR Manager	MWR Auto Shop MWR Gym Swimming Pool MWR Bowling Alley		18 Nov 2013 19 Nov 2013 20 Nov 2013
Julie Smith	Housing Director	Navy PPV		14 Nov 2013
Charlotte Thompson Sam Moats	Lincoln District Manager Maintenance Supervisor	Lincoln PPV		14 Nov 2013
Jason	Lincoln Maintenance	Lincoln Storage Garage		19 Nov 2013
Donna Jurgensen	NEX Manager	NEX/ Fuel Island		20 Nov 2013
Ken Jones	Support Services Specialist	Naval Branch Clinic		15 Nov 2013
SCPO Goss POFC Snyder	NCOIC	Vehicle Maintenance and Recycling Center		18 Nov 2013
Bob Dyer	Water Treatment and Wastewater Treatment Supervisor	Water Treatment and Wastewater Treatment	27	15 Nov 2013
Benny	Plumbing Shop Supervisor	PWD Plumbing Shop	17	20 Nov 2013
Josh Crawford	Engineer	Facilities		19 Nov 2013
Johnny Simpson	Assistant Fire Chief	Fire Station		19 Nov 2013

Evaluation and Report Preparation: Data gathered during the record review, site inspection, and interviews were evaluated and organized into a format designed to summarize the ECP findings and state any RECs with potential risks or liabilities at the subject property.

2.2 Guidance Documents

This ECP investigation was performed in general accordance with the ASTM Standard E 1527-13, the DoN Environmental Policy Memorandum 06-06: *Streamlined Environmental Procedures Applicable to Non-BRAC Real Estate Actions*, dated 5 July 2006, and the *Navy Real Estate Procedural Manual P-73*, Chapter 3, Section V – Environmental Guidelines (DoN, 2010). In addition, this ECP Report includes a

review of current and historic activities, conditions at the property and surrounding properties, including a non-intrusive visual inspection of the property; review of local, state, and federal regulatory database records; review of available historic records; and a survey of adjacent land uses.

The findings within this ECP Report are based on information that was practically reviewable per ASTM E 1527-13, meaning that only relevant data relating to the property has been incorporated into the findings, disregarding extraordinary analysis of irrelevant data. The investigation conducted for this ECP Report was limited to data that was reasonably ascertainable. The information obtained was publicly available, was obtained within the cost and time constraints under the scope of services for this project, and practically reviewable. As such, the possibility of vapor intrusion or drinking water quality was not evaluated. Media sampling and the chemical analysis of soils, surface water, and groundwater was not performed as part of this survey. ACM surveys were conducted on facility buildings constructed prior to 1986 on the installation. ACM surveys were not conducted on the buildings located within the housing portion of the base covered under the PPV lease with Lincoln Military Housing.

2.3 Document Review

A search of available federal and state environmental records was obtained from EDR and is presented in Appendix I. The search reports meet or exceed the regulatory records search requirements of the DoN Environmental Policy Memorandum 06-06: *Streamlined Environmental Procedures Applicable to Non-BRAC Real Estate Actions*, dated 5 July 2006. Due to discrepancies in the location of some facilities in the databases arising from incorrect or incomplete addresses, some facilities may be listed as unmappable (refer to Section 5.14). A review of the regulatory information from this database search for possible RECs within the minimum search distance from the subject property is presented in Section 5.14.1.

The following federal, state, and tribal environmental databases were reviewed during the preparation of this report:

- Federal National Priority List (NPL) site list;
- Federal Delisted NPL site list;
- Federal Comprehensive Environmental Response, compensation and Liability Information System (CERCLIS) list;
- Enforcement and Compliance History Online (ECHO);
- No Further Remedial Action Planned (NFRAP) list;
- Federal RCRA Corrective Action Sites (CORRACTS) facilities list;
- Federal RCRA non-CORRACTS Treatment, Storage and Disposal facilities list;
- Federal RCRA generators list;

- Federal institutional controls / engineering controls registries;
- Federal Emergency Response Notification System (ERNS) list;
- State- and tribal-equivalent CERCLIS;
- State and tribal landfill and/or solid waste disposal site lists;
- State and tribal registered storage tank lists;
- State and tribal Leaking Storage Tank (LTANK) list;
- State and tribal Leaking Underground Storage Tank (LUST) list;
- State and tribal institutional control / engineering control registries;
- State and tribal voluntary cleanup sites;
- State and tribal Brownfield sites; and
- National Response Center (NRC) database.

The following related reports were reviewed as a part of preparation of this ECP Report and are included electronically in Appendix K:

- Michael Baker Jr., Inc., (Baker), 2004, *Asbestos and Lead-Based Paint Inspection and Risk Assessment for Military Family Housing, Naval Security Group Activity Sugar Grove, Sugar Grove, West Virginia*, N62470-01-D-3010, February, 2004.
- Michael Baker Jr., Inc., (Baker) 2005, *Final Phase I- Environmental Baseline Survey, Privatization of Family Housing for Mid-Atlantic Sites- Hampton Roads Activities*, Section 12, N62470-01-D-3010 DO-001, 11 February 2005.
- Naval Energy and Environmental Support Activity (NEESA), 1988. *Preliminary Assessment Report, Naval Radio Station Sugar Grove, West Virginia 26816*, NEESA 13-138PA, Port Hueneme, California 93043, March 1988.
- Department of Navy (DoN), 1991, Commander, Atlantic Division, Naval Facilities Engineering Command, *Navy Radon Assessment and Mitigation Program (NAVRAMP) Screening Results: Radon Screening Results for Naval Radio Station, Sugar Grove*, 14 February 1991.

3.0 PAST AND CURRENT USE

3.1 Property

NIOC Sugar Grove consists of two noncontiguous sites. The Support Area, also referred to as the lower base serves as the support site for the Operational Area where mission operations are conducted. The Support Area is the focus of this ECP report. The Operational Area is located approximately two miles south of the Support Area off of West Virginia Route 21.

The NIOC Sugar Grove Support Area is an approximately 118-acre facility located in Pendleton County, West Virginia on the South Fork of the South Branch of the Potomac River Valley. Since the early 1960s the lower base complex of NIOC Sugar Grove has served as a support site for the Operational Area radio receiving station. The Support Area complex contains a full range of facilities that support approximately 450 personnel, including barracks, privatized housing, administrative space, classrooms, retail space, indoor recreational space, storage space, public works shops, as well as a fire station and police station.

All municipal services are provided for military personnel and their families and civilian workers at the facility, including: water treatment, wastewater collection and treatment, storm water collection, solid waste management, natural gas distribution, and electricity distribution are provided through the Public Works Department (PWD).

A review of the historical aerial photographs was conducted for Support Area of NIOC Sugar Grove and the surrounding property. The land encompassing the facility appears to have been primarily cleared agricultural land prior in 1960, with limited development in the southwest corner of the facility. The surrounding property to the north and west appear to have been primarily cleared agricultural and rural housing in the 1960's and the property to the south and west appear to be undeveloped forested land. A full series of aerial photos from 1960 to 2011 are included in the EDR Report (Appendix I).

3.2 Adjacent Property

The land use immediately surrounding NIOC Sugar Grove is generally undeveloped forested lands and low density rural housing. The undeveloped forested land near the facility is primarily comprised of the George Washington National Forest. The area consists primarily of mountains with some farmlands for crops, pastures, and poultry production. The population in the adjacent towns of Brandywine and Sugar Grove is estimated at less than 500 people.

NIOC Sugar Grove is comprised of two noncontiguous sites, including the Support Area and the Operational Area. It should be noted that only the Support Area is the property included within this ECP report and that the Operational Area is not an adjacent property to the NIOC Sugar Grove Support Area.

4.0 ENVIRONMENTAL SETTING

The following sections describe the environmental setting of the property and surrounding areas, and include information on location, climate, physiography, geology, hydrogeology, and topography.

4.1 Location

NIOC Sugar Grove is located in Sugar Grove, Pendleton County, West Virginia near the city of Brandywine, West Virginia. The facility is approximately 3-hours west of Washington, D.C., and approximately 1 hour west of Harrisonburg, Virginia. The property is located at approximately 38° 34' 10.92"N, 79° 16' 21.72"W (Zone 17, 650480.6, 4270235.0) at an average approximate elevation of 1,703 feet above mean sea level (msl) (EDR, Appendix I). Figure 1-1 depicts a regional location map and Figure 1-2 depicts a site location map for NIOC Sugar Grove Support Area, Sugar Grove, West Virginia. A D-size facility site location plan is included in Appendix C.

4.2 Climatology

The seasonal weather in Sugar Grove, West Virginia is typically moderate. Summers are generally warm with occasional extended hot periods while winters are generally mild with extended cold periods. The average annual temperature is approximately 60 degrees Fahrenheit (°F) with highs recorded as high as 101 °F and lows recorded as low as -20 °F. In July the average daily high temperature is 84 °F. In winter the average daily low is 20.8 °F. The average relative humidity is approximately 60 percent in the afternoon and approximately 90 percent at dawn. There are on average 152 sunny days per year, with the percentage of possible sunshine of 65 percent in summer and 50 percent in winter. Average annual rainfall is 34.1 inches with rain evenly distributed throughout the year. Thunderstorms occur approximately 44 days each year, primarily in the summer months. Average seasonal snowfall is 28.5 inches. Prevailing wind is predominantly from the northwest with an average maximum wind speed of 8 miles per hour in spring. Climate data was summarized from the West Virginia State Climate Office and Meteorology at Marshall University of Huntington, West Virginia and the National Climatic Data Center of Asheville, North Carolina.

4.3 Physiography

NIOC Sugar Grove is located in the Ridge and Valley Physiographic Province. The Ridge and Valley Physiographic Province is characterized by series of elongated parallel ridges and valleys underlain by folded Paleozoic sedimentary rock. The Ridge and Valley Province spans between the Blue Ridge

Mountains and the Appalachian Plateau and extends approximately 1,200 miles from the Saint Lawrence Valley in southeastern New York to central Alabama. The characteristic topography of the region is the result of the differential erosion. Ridges are generally composed of sandstones and other resilient rock while valleys are generally composed of limestone, dolomite, and shale. There are three parallel ridges and valleys oriented roughly southwest to northeast in Pendleton County, West Virginia which are drained by the tributaries to the South Branch Potomac River. NIOC Sugar Grove is located in the easternmost valley in Pendleton County along the South Fork of the South Branch of the Potomac River.

4.4 Geology

NIOC Sugar Grove is located in the Ridge and Valley Physiographic Province. The local bedrock is generally shallow and composed primarily of interbedded shale, sandstone, and limestone which has been steeply folded and highly faulted. The Harrell Shale and Mahantango formation underlay NIOC Sugar Grove (USGS, 2007). The Harrell shale is of Devonian age and characterized as a dark grey to black thinly laminated to fissile shale which may become more calcareous near the base. The Mahantango Formation is characterized by thickly laminated marine shale, siltstone, very fine sandstone, and some limestone. These formations weather to form the local soils.

There are ten distinct soil series that occur on NIOC Sugar Grove, including: the Potomac fine sandy loam, Potomac cobbly silty loam, Tioga loam, Purdy silt loam, Tyler silt loam, Allegheny loam, and four members of the Monongahela silt loam. These soils are characterized as very deep to moderately deep, with moderate permeability, and well to excessively drained soils with various types of alluvial deposition of weathered parent rock consisting of sandstones and shale within a river floodplain or terraces (USDA, 2013). The location of the soil series at NIOC Sugar Grove are presented on Figure 4-1.

4.5 Hydrogeology and Hydrology

Local hydrogeology is likely varied and exists within the underlying faulted and fractured rock and localized sand and gravel aquifers. Local aquifers are typically poor and are characterized by low yields. Wells drilled in the Harrell shale (Brallier formation) and Mahantango formation range from five to 962 feet with a median depth of 75 feet. Well yields from these wells range from 0 to 75 gallons per minute (gpm). Groundwater near the facility, in the alluvial valley bordered by the South Fork of the South Branch of the Potomac River, is generally encountered between five and 40 feet below ground surface (bgs). Well depths in the alluvial valley range from four to 35 feet with yields ranging from 0 to 40 gpm (NEESA, 1988).

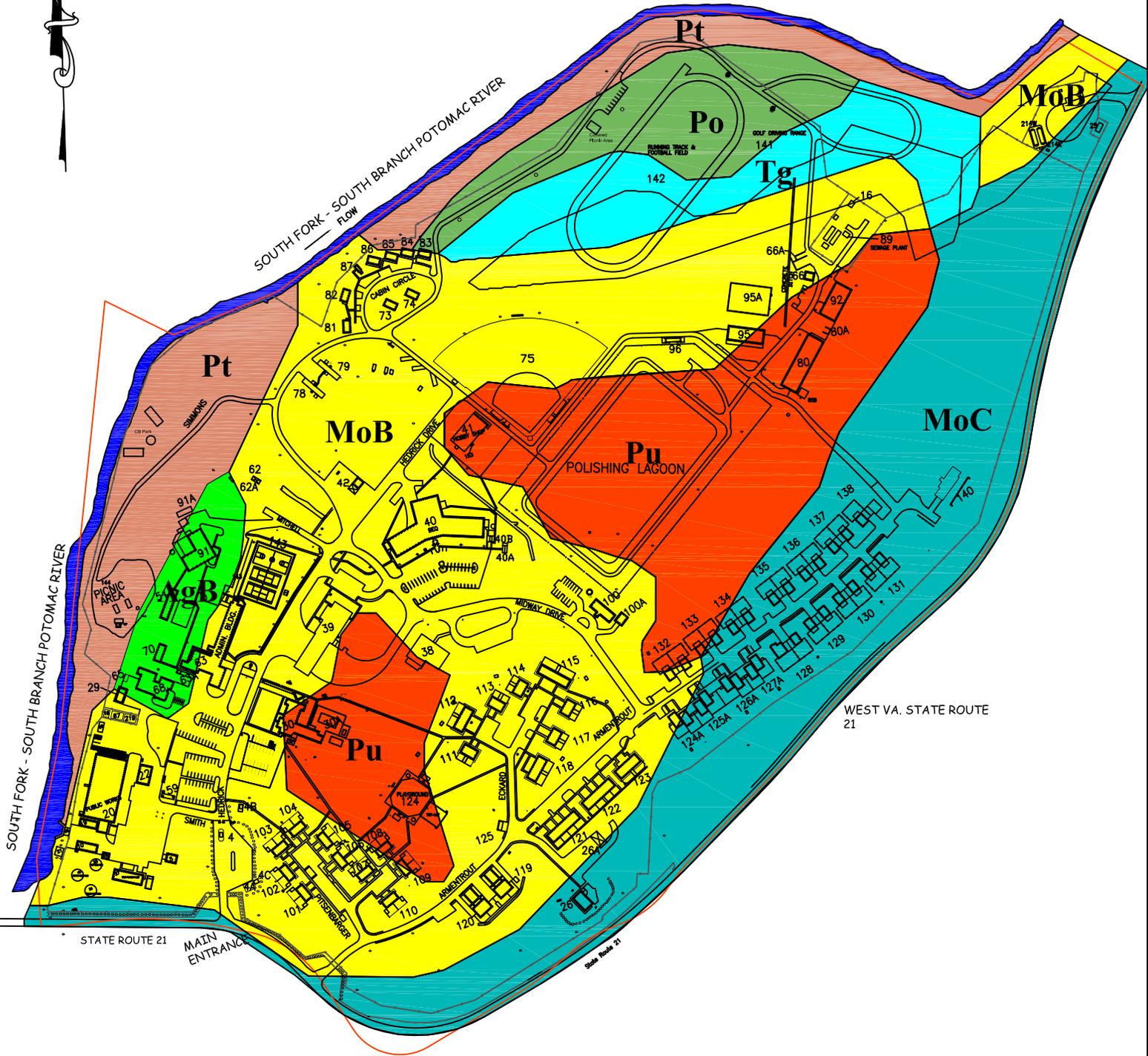
NIOC Sugar Grove is located in the Chesapeake Bay watershed on the headwaters of the Potomac River. The South Fork of the South Branch of the Potomac River follows most of the western boundary of the facility. The South Fork of the South Branch of the Potomac ultimately flows into the South Branch Potomac River. The South Branch Potomac River merges with the North Branch Potomac River in Green Spring, West Virginia where it travels approximately 300 miles to the Chesapeake Bay. The Chesapeake Bay ultimately drains into the Atlantic Ocean approximately 65 miles south of the mouth of the Potomac River.

NIOC Sugar Grove is located within the United States Geologic Society (USGS) Hydrologic Region 2, which includes the Mid-Atlantic States. The facility falls within Sub-region 207, which includes the Potomac River Basin, covering an area approximately 14,600 square miles. The South Branch Potomac (cataloging unit 0207001) is located within West Virginia covers approximately 1,490 square miles.

4.6 Topography

NIOC Sugar Grove is located in a valley between mountain ridges along the eastern bank of the South Branch of the South Fork of the Potomac River at an elevation of approximately 1,700 feet above sea level. The facility is generally flat and drains to the South Fork of the South Branch of the Potomac River. The topographic relief across the facility is approximately 15 feet with an average slope of three percent (NEESA, 1988).

A review of the historical topographic maps indicates that there are no real changes with regard to topography and topographical features at NIOC Sugar Grove. Historical and current topographical maps are provided in the EDR Report presented as Appendix I.



Baker

LEGEND

-  Property Boundary
-  AgB - Allegheny loam, 3-8% slopes
-  MoB - Monongahela silt loam, 3-8% slopes
-  MoC - Allegheny silt loam, 8-15% slopes
-  Po - Potomac fine sandy loam
-  Pt - Potomac very cobbly fine sandy loam
-  Pu - Purdy silt loam
-  Tg - Tioga loam
-  Water

FIGURE 4-1
SOIL MAP
ENVIRONMENTAL CONDITION OF PROPERTY
DISPOSAL OF NIOC SUGAR GROVE
SUGAR GROVE, WEST VIRGINIA

NOT TO SCALE

Source: United States Department of Agriculture, Natural Resources Conservation Service, Web Soil Survey, Pendleton County, West Virginia (WV071).

5.0 ENVIRONMENTAL CONDITIONS

5.1 Hazardous Substances / Waste / Waste Management

The following sections provide information on the storage and disposition of hazardous substances, waste, and waste management at NIOC Sugar Grove. No onsite testing or media sampling was conducted to detect the presence of hazardous substances or petroleum products on the subject property.

5.1.1 Hazardous Substances

Under Title 42 U.S.C. Chapter 103, CERCLA, Section 101(14) defines hazardous substances to include the following:

- A. Any substance designated pursuant to section 311(b)(2)(A) of the Federal Water Pollution Control Act [33 U.S.C. 1321(b)(2)(A)],
- B. Any element, compound, mixture, solution, or substance designated pursuant to section 9602 of this title,
- C. Any hazardous waste having the characteristics identified under or listed pursuant to section 3001 of the Solid Waste Disposal Act [42 U.S.C. 6921] (but not including any waste the regulation of which under the Solid Waste Disposal Act [42 U.S.C. 6901 et seq.] has been suspended by Act of Congress),
- D. Any toxic pollutant listed under section 307(a) of the Federal Water Pollution Control Act [33 U.S.C. 1317(a)],
- E. Any hazardous air pollutant listed under section 112 of the Clean Air Act [42 U.S.C. 7412]
- F. Any imminently hazardous chemical substance or mixture with respect to which the Administrator has taken action pursuant to section 7 of the Toxic Substances Control Act [15 U.S.C. 2606].

The definition of a hazardous substance specifically excludes petroleum products and crude oil. ASTM E1527-13, however, includes petroleum products within the scope of an environmental site assessment due to the current and historic wide use of petroleum products and potential environmental impacts of an environmental release or spill. In addition, federal and state laws may impose liability for a release or spill, and petroleum products may become hazardous wastes or subject to corrective action under RCRA Subtitle I when spilled or released to the environment. Spills to surface waters could also result in cleanup liability pursuant to the Oil Pollution Act of 1990 and the Clean Water Act (CWA). Due to these

reasons, petroleum products will be discussed in the context of hazardous substances within this ECP report.

Interviews with site personnel, observations made during the site inspection, and documents reviewed did not identify any recent or historic releases of hazardous substances. Hazardous substances and petroleum products located on the installation are generally stored in small quantities for their intended applications. Hazardous substances and petroleum products observed at the installation are generally stored in small quantities within designated flammable/ corrosive lockers throughout the installation. Flammable/ corrosive lockers are kept secured at all times. During the ECP site inspection, flammable and corrosive lockers and the following contents were identified at the following buildings (refer to Figure 1-2 or Appendix C for the building locations):

- Building 10 – PWD Wood Shop; flammable locker with lubricants and solvents, compressed gasses in rear of building.
- Building 20 – PWD; corrosive locker with new batteries
- Building 20 – PWD (back of building); two flammable lockers labeled acetylene and oxygen.
- Building 20 – MWR indoor endless pool, chlorine and water conditioners
- Building 20 – MWR Bowling Alley; lane conditioning oil and solvents
- Building 22 – PWD Plumbing Shop; gasoline, lubricants, oils, polyvinyl chloride (PVC) pipe glue
- Building 30 – Navy Exchange (NEX), cleaning supplies and hair dyes inside of the building. Three compressed gas cylinder cages with liquid propane directly north of the building.
- Building 39 – Fire Station; gasoline, two-cycle oil mixed gasoline, and diesel
- Building 40 – Bachelor Enlisted Quarters (BEQ); dishwasher detergents and cleaning chemicals stored in a corrosives locker
- Building 87 – MWR Cabins, empty.
- Building 91 – Robert C. Byrd Community Center; dishwasher and cleaning chemicals
- Building 95 – The Recycling Center, lubricants and oils
- Building 100A – Housing Office Storage Shed, paint, aerosols, gasoline

A brief description of the facilities with storage of hazardous materials exceeding a small flammable locker is as follows (refer to Figure 1-2 or Appendix C for the building locations):

Building 20: Paint Storage:

Paints and solvents are located within a designated storage room inside of Building 20. In addition, two flammable lockers are located within the paint storage room. One flammable locker contains aerosol spray paints and the other contains solvents and paint removers.

Building 27: Water Treatment Plant:

Chemicals for the water treatment facility are stored within a designated area within the water treatment facility. Liquid sodium hypochlorite, aluminum chloride hydroxide sulfate (*DelPAC*), and chlorine is stored within the building. A six month supply is typically stored within the building for the treatment of the water at the installation.

Building 30A: The Swimming Pool:

Pool chemicals are stored within a shed and a corrosives locker at the swimming pool. Sodium hypochlorite, pH balancers, acid, and water conditioners are stored for use on the swimming pool.

Building 41: The MWR Hobby Shop:

The MWR Hobby shop is a full service automotive garage available to personnel on the installation. There is one flammable locker outside, east of the building with small quantities of gasoline for the rental equipment. There are two flammable lockers within the building, one with gasoline and the other with new antifreeze, oil, detergent, and paints. There is a corrosives locker within the building with solvents. A parts washer is located within the building in the northern end of the building. A 500-gallon aboveground storage tank (AST) containing used oil is located on the southeast side of the building. Safety-Kleen Systems Incorporated is contracted for the maintenance and cleaning of the parts washer and emptying the used oil AST.

Building 80: Vehicle Maintenance Facility:

The Vehicle Maintenance Facility is a full service automotive facility for the Navy. Operational level maintenance is conducted on the government vehicles located at NIOC Sugar Grove. Operational level maintenance typically includes: oil changes, topping off vehicle fluids, and battery maintenance. Anything above operational level maintenance is contracted to a third party, full maintenance garage. Located within the building are three flammable storage lockers with gasoline, solvents, and chemicals. In the north end of the building is a battery maintenance center where automotive batteries are charged and maintained. Currently only gel cell batteries are being maintained, no wet cell acid batteries were observed. A parts washer is located within the building. Three 500-gallon ASTs (250, 251, and 252)

containing used oil are located on the southwestern corner of the building. Safety-Kleen is contracted for the maintenance of the part washer and emptying the ASTs. Directly behind Building 80 is a universal storage container (80B) that is used for the storage of new materials and new drums of automotive oils.

Building 16: Wastewater Treatment Plant:

Chemicals for the wastewater treatment plant (WWTP) are stored within Building 16. Building 16 is located at the northeastern section of the WWTP, north of Building 89. Solid sodium hypochlorite, pucks and/ or granules are stored for the disinfection of the effluent wastewater. De-chlorination pucks (Dechlor) are stored for de-chlorination of the effluent prior to final discharge. A ten month supply is typically stored within the building for the treatment of the wastewater at the installation.

5.1.2 *Hazardous and Universal Waste*

NIOC Sugar Grove is identified as a conditionally exempt small quantity generator (CESQG) under permit number WV0170090005. A CESQG may generate 100 kilograms or less per month of hazardous waste or 1 kilogram or less of acutely hazardous waste. In addition, all hazardous wastes must be identified, the installation may not accumulate more than 1,000 kilograms of hazardous waste at any time, and hazardous waste is delivered to a facility authorized to manage it.

It is the policy at NIOC Sugar Grove, that no hazardous waste materials are stored at the Support Area of the installation. All hazardous waste materials are transported to the Operational Site, approximately five miles south for storage until the materials can be disposed of in accordance with applicable regulations. No hazardous wastes were observed at NIOC Sugar Grove during the site inspection.

Universal waste accumulation was not observed at NIOC Sugar Grove. Universal waste typically includes: used batteries, pesticides, mercury thermostats, and mercury containing light bulbs. According to interviews with site personnel, all universal wastes are transferred to the Operational Area for storage and disposal. No universal wastes are accumulated or stored within the Support Area of the installation.

According to interviews with site personnel, hazardous and universal wastes have never been stored at the Support Area of the installation. These waste materials have always been transferred to the Operational Area of the installation for storage and disposal.

5.1.3 Municipal Solid Waste

Municipal solid waste consists of the typical household and office refuse generated through typical daily activities. Historically municipal solid waste was disposed of in one of the two sites located within the NIOC Sugar Grove Support Area. The Support Area Burn Pits site (Site 2) was opened in the late 1960s in the western portion of the installation near the MWR cabins. Household municipal solid waste, scrap metal, paper, wood, and cardboard was disposed of in pits and then burned. The use this site was discontinued in 1970 and waste disposal was shifted to the Support Area Landfill (Site 3) approximately 400 feet to the northeast. Household municipal solid waste, scrap metal, scrap wood, empty paint cans, empty drums of paint thinner, and air conditioning filters were reportedly disposed of in trenches approximately 30 feet long by 12 feet wide to an approximate depth of eight feet. The use of this site was discontinued in 1978 (NEESA, 1988). Although a third site is located at the Operational Area of the installation that was reportedly operated from 1968 to 1975, it is not currently known if any municipal solid waste materials from the Support Area were transferred to the Operational Area for disposal. These sites are addressed under the Navy Installation Restoration (IR) Program; refer to Section 5.2 Environmental Restoration/ Installation Restoration for additional information on these sites and the IR Program.

Municipal solid waste is currently removed by a third-party contractor. The residential area has curbside trash pickup by a third-party contractor. Waste and recycling dumpsters are located near most buildings. All municipal solid waste is picked up on a weekly basis from the installation by a contractor. In addition, the installation operates a Recycling Center at Building 95 where residents can drop off recyclable materials for recycling.

5.1.4 Bio-hazardous Waste

There is a Branch Medical Clinic located on the first floor of the Administration Building, Building 63. A small amount of bio-hazardous medical waste is generated by the Branch Medical Clinic. All bio-hazardous waste is stored in appropriate containers within the clinic and picked up by a contractor. MedPro Waste Disposal of Aurora, Illinois is contracted for the pickup and disposal of all bio-hazardous waste and picks up from the Branch Medical Clinic at regularly scheduled intervals. Pharmaceutical wastes are maintained on site in appropriate containers until they can be delivered back to Branch Medical Headquarters in Quantico, Virginia for proper disposal.

5.1.5 Waste Management

All hazardous and universal wastes are transferred to the Operational Area of NIOC Sugar Grove for storage and disposal. Municipal solid wastes, bio-hazardous waste, and other general refuse is picked up from the base on regular scheduled intervals by contractors.

NIOC Sugar Grove operates a recycling center at Building 95 in the northern section of the base. The recycling center processes locally generated recyclable waste including aluminum, steel, cardboard, and glass. Once recyclable waste is processed it is hauled from the facility for final disposition.

The WWTP, Building 89 is an extended aeration sewage treatment facility and occasionally requires the cleaning and removal of the sewage sludge/ biosolids from the treatment facility. The sewage sludge/ biosolids are pumped using a vacuum truck and removed from the WWTP on an as-required basis. The sewage sludge/ biosolids are hauled to a National Pollution Discharge Elimination System (NPDES) permitted (WV0103110) land application site (LAS) at the Operational Area of the installation approximately five miles south of the Support Area.

The extended aeration WWTP currently utilized by the installation was constructed in 1997 to replace an existing WWTP that was constructed in the 1960s. The former WWTP was removed, but the polishing lagoon was left in place. Refer to Figure 1-2 for the location of the polishing lagoon. The polishing lagoon was previously used for the final treatment of waste water prior to final discharge by allowing the settling of any remaining solids from the pretreated water as well as natural biological treatment of the water and sludge via aerobic/ anaerobic decomposition. According to interviews with site personnel and a letter dated 3 April 1998 from the West Virginia Department of Environmental Protection (WVDEP), the lagoon is currently used as an equalization lagoon/ infiltration basin which serves as temporary storage of excess combined sewage/ storm water during storm events when inflow at the new extended aeration WWTP exceeds the plants treatment capacity. The area associated with the wastewater treatment lagoon is identified as a non-discharge area (ND-001) within the NIOC Sugar Grove NPDES permit WVG551203. During the ECP investigation, no documentation was encountered to determine the current environmental disposition of the lagoon or to determine whether or not the lagoon has had any impact to the environment, particularly groundwater.

The extended aeration WWTP consists of two package units. Per WVDEP, the Navy could operate one unit as the base population decreases and could only shut down the WWTP completely when all sewer

flows have been eliminated. The WWTP itself will need to be pumped out and replaced with clean water at closure. Per WVDEP, if the wastewater/ sewer system experiences inflow and infiltration (I&I) the Navy would need to route this I&I in a manner acceptable to the State upon the closure of the WWTP. Prior approval from the WVDEP would be required to close the polishing lagoon. The lagoon will need to be evaluated to determine the presence of settled solids and/or sediment it contains. Dewatering may be necessary.

5.1.6 Emerging Contaminants

USEPA defines an “emerging contaminant” as a chemical or material that is characterized by a perceived, potential or real threat to human health or the environment or by a lack of published health standards. A contaminant may also be “emerging” because a new source or a new pathway to humans has been discovered or a new detection method or treatment technology has been developed (USEPA, 2013). A class of emerging contaminants identified by USEPA is perfluorinated chemicals (PFCs) which are common components of firefighting/suppression foaming agents or aqueous film-forming foaming agents (AFFF). Two classes of PFCs used in AFFF are based on perfluorooctane sulfonates (PFOS) and perfluorooctanoic acid (PFOA). Since about 2002, manufacturing has ceased on these PFOS based PFCs based on concerns that they are environmentally persistent compounds, may bioaccumulate, and have some degree of toxicity. In addition, these and other PFCs may also biodegrade into compounds that are also persistent, bioaccumulative, and toxic. Findings on PFOS led USEPA to review similar chemicals, including PFOA to determine whether they might present concerns similar to those associated with PFOS. The USEPA is still in the process of reviewing PFOA.

Based on information provided by the NIOC Sugar Grove Fire Department, only response and readiness training occurs at the NIOC Support Area. No live fire drills are conducted on the facility, historically or presently. While the facility uses AFFF, it is not stored within the NIOC Support Area and has never been released within the NIOC Support Area.

5.2 Environmental Restoration / Installation Restoration

There are two former Environmental Restoration (ER) / IR sites located within the boundaries of NIOC Sugar Grove within the Support Area. Figure 5-1 depicts the approximate location of the two ER sites. A description of these sites is presented in the following sections.

5.2.1 Site 2, Support Area Burn Pits

Site 2, the Support Area Burn Pits is located in the western portion of the installation, near the intersection of Simmons and Hedrick Drive, west of MWR cabins 78 and 79, and north of Building 62. The location and approximate boundary of Site 2 is shown on Figure 5-1. In the late 1960's, three or four burn pits were used for the disposal of waste generated at the installation. The waste reportedly disposed of within the pits included primarily household municipal solid waste, scrap metal, paper, wood, and cardboard. The pits were approximately ten by eight feet in area and approximately six feet deep. Waste was disposed of in the pits and then burned within the pits. Once pits were filled they were capped with approximately two feet of soil. The use of Site 2 was discontinued in 1970 and since no hazardous waste was reportedly disposed within the burn pits, no further action was recommended under the Navy IR Program (NEESA, 1988).

Although no further action was recommended for Site 2 under the Navy IR Program, the only documentation regarding the Support Area Burn Pits identified during the ECP investigation was limited to the *Preliminary Assessment Report, Naval Radio Station Sugar Grove, West Virginia 26816*, Naval Energy and Environmental Support Activity (NEESA), March 1988. It is worth note that no environmental media sampling was identified as part of the Preliminary Assessment (PA). No additional documentation or records from the United States Environmental Protection Agency (USEPA), WVDEP, or other regulatory agencies were provided that indicate regulatory acceptance of the no further action recommendation.

Land Use Controls (LUCs) for soil and groundwater to restrict access, ground disturbing activity, groundwater use, and general land use are recommended by the Navy IR Program for Site 2 (The Support Area Burn Pits). The LUCs are recommended to assure protection of human health and the environment, and should be maintained by the new owner until proper coordination with WVDEP and Navy to establish any updated environmental condition.

There are currently no structures located within the suspected boundaries of Support Area Burn Pits (Site 2) as depicted on Figure 5-1. Pictures of the area around the location of Site 2 are located in Appendix D.

5.2.2 Site 3, Support Area Landfill

Site 3, the Support Area Landfill is located in the northwestern portion of the installation, east of Cabin Circle, approximately 400 feet northeast of Site 2, extending into the outfield of the baseball field. The location and approximate boundary of Site 3 is shown on Figure 5-1. Waste disposal activities were shifted from Site 2 to the Support Area Landfill (Site 3) in 1970. Waste was disposed of in at Site 3 in trenches approximately 30 feet long by 12 feet wide to an approximate depth of eight feet. Reportedly, the trenches may have been excavated to the underlying shale deposits. The waste reportedly disposed of within the pits included primarily household municipal solid waste, scrap metal, scrap wood, empty paint cans, empty drums of paint thinner, and air conditioning filters. The waste was not reported to have been burned. Once pits were filled, they were capped with approximately one foot of soil. The use of the landfill was discontinued in 1978 and since no hazardous waste was reportedly disposed within the landfill, no further action was recommended under the Navy IR Program (NEESA, 1988).

Although no further action was recommended for the Support Area Landfill under the Navy IR Program, the only documentation regarding the landfill identified during the ECP investigation was limited to the *Preliminary Assessment Report, Naval Radio Station Sugar Grove, West Virginia 26816*, NEESA, March 1988. Note that no environmental media sampling was identified as part of the PA. No additional documentation or records from the USEPA, WVDEP, or other regulatory agencies were provided that indicate regulatory acceptance of the no further action recommendation.

LUCs for soil and groundwater to restrict access, ground disturbing activity, groundwater use, and general land use are recommended by the Navy IR Program for Site 3 (The Support Area Landfill). The LUCs are recommended to assure protection of human health and the environment, and should be maintained by the new owner until proper coordination with WVDEP and Navy to establish any updated environmental condition.

There are currently no structures located within the suspected boundaries the Support Area Landfill (Site 3) as depicted in Figure 5-1. A small portion of the site is potentially located just within the right outfield of the baseball field. Pictures of the area around the location of Site 2 are located in Appendix D.

5.3 Polychlorinated Biphenyls

Polychlorinated Biphenyls (PCBs) are potentially toxic substances that were widely used as dielectric and coolant fluids. They were commonly used in electrical transformers, capacitors, and electric motors. The production of PCBs has been banned in the United States since 1979.

The DoN currently owns and operates all of the oil-filled electrical operational equipment at the NIOC Sugar Grove Support Area. In 2006 an Environmental Liability Report was prepared for NIOC Sugar Grove. The Environmental Liability Report documented 73 electronic transformers at the installation, but eliminated them from cost determination because all of the transformers were documented as PCB-free, containing less than 50 parts per billion of PCBs (AGVIO-CH2M Hill, 2006).

According to the Naval Facilities Engineering Service Center (NFESC) PCB Inventory Database, NIOC Sugar Grove is a PCB-free activity as of 28 April 1997. No documentation was identified during the ECP investigation to indicate that there have been any historical releases of PCBs at the NIOC Sugar Grove Support Area.

Two Quarterly Inspection of PCB Transformers documents were located during the ECP investigation. An undated inspection report indicated that there were three PCB containing transformers located at the NIOC Sugar Grove Support Area at the time of the inspection, including one Westinghouse transformer (serial number 57B13198) at Building 26 and two pole mounted Westinghouse transformers (serial numbers 57B18191 and 57B18189). A third pole mounted transformer was identified in housing, though it was noted as removed on 16 November 1988. A subsequent inspection document dated 1 October 1990 identified only the three remaining PCB containing transformers. A memorandum, dated 17 August 1990, was encountered during the ECP investigation that called for the replacement of the PCB containing transformers located in housing. It is unknown when the PCB containing transformer at Building 26 was replaced. During the ECP site inspection no PCB containing transformers were observed at the NIOC Sugar Grove Support Area.

5.4 Asbestos-Containing Material

An ACM survey of facility buildings on the installation constructed prior to 1986 was conducted as part of the ECP survey. The purpose of the ACM survey is to determine the presence and approximate quantity of ACM with the buildings and determine the condition of these materials. ACM in building materials that is in good condition and non-friable (not able to be crushed or pulverized by hand) typically

present minimal health risks for the building occupants. ACM that is damaged, in poor condition, and/ or friable (materials that can be crushed or pulverized by hand) may present risks to the health of the building occupants; therefore it is important to monitor the condition of all ACMs. All ACM present at NIOC Sugar Grove is actively managed in place and its condition is regularly monitored. The ACM can be managed in place within the building as long as it is in good condition and does not pose health risks to the building occupants. These materials should be abated prior to any renovation or demolition activity.

It should also be noted that the ACM inspections conducted as part of this ECP survey were strictly limited to non-destructive testing and sampling. In Addition, roofing materials/areas were not sampled due to concerns about potentially compromising integrity of the roofing systems. Inspections were limited to generally accessible areas. Areas behind walls, areas where materials would have to be damaged to gain access, and areas in confined locations were not inspected as part of the ACM survey. There is the potential for ACM to be present in these locations. These areas should be inspected prior to any renovation/ demolition activities to confirm the absence or presence of ACM.

The ACM survey was conducted from 12 - 15 November 2013 by Environmental Resources Management Inc. (ERM) of Charleston, West Virginia, a sub consultant to Baker. A complete list of all facility buildings located at NIOC Sugar Grove was obtained from the internet Navy Facilities Asset Data Store (iNFADS) and filtered for the buildings constructed prior to 1986. Eight buildings were identified in the *Final Work Plan, Environmental Condition of Property, Disposal of NIOC Sugar Grove, Sugar Grove, West Virginia* (Baker, 2013), included in Appendix B. Two additional buildings were added for investigation during the site inspection. Building 70, the racquetball court was added because even though the construction date was indicated as after 1987, asbestos had been previously identified within the building. Building 26 was added to the investigation because the exported iNFADS data indicated the construction date as 2005; however Building 26 was constructed in 1905. The ten buildings where ACM surveys were conducted are listed in Table 5-1.

Table 5-1: Buildings Where ACM Surveys Were Conducted, NIOC Sugar Grove, West Virginia				
Building Number	Building Description	Location	Building Size (square feet)	Year of Construction
20	PW Maint Shop/ Gym/ Bowling	Hedrick Dr.	26999	1961
22	Plumbing Maint Shop	Hedrick Dr.	2750	1959
25	Pump House/Filter/Chlorine	Hedrick Dr.	330	1961
26	Youth Center/ Farm House	Armentrout Rd.	2460	1905
29	Emergency Vehicle Garage	Hedrick Dr.	1344	1959
30	NEX/ Commissary/ Bath house	Hedrick Dr.	6522	1974
63	Administration building	Hedrick Dr.	20040	1968
66	Equipment Shed	Hedrick Dr.	525	1975
68	Old Fire Station	Hedrick Dr.	6996	1986
70	Racquetball Court	Hedrick Dr.	1100	1987

The last full facility ACM inspection was conducted in 1998 by Cape Environmental. The drawings and figures from the 1998 ACM inspection were available on site at the time of the ECP site inspection and were available to ERM during the ACM inspection conducted as part of this ECP investigation. All materials identified within the Cape 1998 report were verified and samples were collected to confirm the presence of asbestos within the identified ACM or determine if the material had been removed or replaced. Roofing materials and flashing were not sampled as part of the ECP ACM inspection. These materials were presumed to be ACM if they were ACM during the Cape 1998 report.

The ERM full ACM Survey Report is provided in Appendix G. The ACM survey conducted as part of this ECP survey was limited to the facility buildings. The housing area included under the PPV lease was not included in the survey. Previous investigations and documentation were used to determine the potential presence of ACM in PPV housing. The following sections provide a summary ACM at NIOC Sugar Grove:

5.4.1 *Building 20 – PWD/ MWR Gym/ Bowling Alley*

A total of 61 samples were collected throughout the PWD/ MWR Gym/ Bowling alley (Building 20). Samples collected include: floor tile, ceiling tile, covebase, and thermal system insulation (TSI) throughout the building. Asbestos was detected in the following samples:

- Room 110, the grey/ brown floor tile and mastic. 3% chrysotile was detected in the floor tile and 4% chrysotile was detected in the mastic using polarized light microscopy (PLM) analysis. The mastic was further analyzed using a Point Count (PC) method and the sample results ranged from 0.25% to 3% chrysotile. The ACM was reported to be non-friable and in good condition.
- Room 110, the yellow floor tile and mastic. 5% chrysotile was detected in the floor tile and 2% chrysotile was detected in the mastic. The ACM was reported to be non-friable and in good condition.
- Bowling alley, the brown floor tile. 6% chrysotile was detected in the floor tile. The ACM was reported to be non-friable and in good condition.
- Gym hallway and room 107, tan floor tile. 2% chrysotile was detected in the floor tile. The floor tile was further analyzed with PC analysis and the results ranged from <0.25% to 0.5% chrysotile. The PC analysis indicates that the floor tile is not a regulated ACM since the results are below 1.0% asbestos. The floor tile was reported to be non-friable and in good condition.

5.4.2 Building 22 – Plumbing Maintenance Shop

A total of nine samples were collected from the Plumbing Maintenance Shop (Building 22). Samples included the building insulation throughout the building and TSI on the north wall of the building. Asbestos was not detected in any of the samples collected from Building 22.

5.4.3 Building 25 – Pump House

A total of two samples were collected from the Pump House (Building 25). Both samples were window glazing. Asbestos was not detected in either of the two samples collected at Building 25.

Although it was not tested as part of this ECP investigation, the built-up roofing material and flashing at Building 25 are assumed to be ACM. Approximately 1,482 square feet of built-up roofing material and an unspecified quantity of flashing were identified. These materials tested positive for ACM during the Cape 1998 inspection. Therefore, these roofing materials are presumed to be ACM.

5.4.4 Building 26 – Youth Center

A total of 24 samples were collected from the Youth Center (Building 26). Samples collected include: floor tile, resilient linoleum flooring, covebase, mastic, and transite. Asbestos was detected in the following samples:

- Basement, resilient linoleum flooring. 10% chrysotile was detected in the resilient linoleum sheet flooring. The resilient linoleum sheet flooring was reported to be non-friable and in good condition.

5.4.5 Building 29 – Emergency Vehicle Garage

A total of six samples were collected from the Emergency Vehicle Garage (Building 29). Samples included the building insulation throughout the building. Asbestos was not detected in any of the samples collected from Building 29.

5.4.6 Building 30 – NEX/ Commissary

A total of 29 samples were collected from the NEX/ Commissary (Building 30). Samples collected include: floor tile, ceiling tile, covebase, and TSI throughout the building. Asbestos was not detected in any of the 29 samples collected from Building 30.

Although it was not tested as part of this ECP investigation, the flashing at Building 30 is assumed to be ACM. Approximately 1,000 square feet of flashing was identified that tested positive for ACM during the Cape 1998 inspection. Therefore, the flashing is presumed to be ACM.

5.4.7 Building 63 – Administration Building

A total of 122 samples were collected throughout the Administration Building (Building 63). Samples collected include: floor tile, resilient linoleum sheet flooring, ceiling tile, covebase, ceiling plaster, and TSI throughout the building. Asbestos was detected in the following samples:

- First floor, west stairwell, chapel stairs, mastic. 10% chrysotile was detected in the mastic beneath the tile. The mastic was reported to be non-friable and in good condition.
- Room 124, Branch Clinic, mastic. < 1% chrysotile was detected in the mastic beneath the tile. The PC analysis indicates that the floor tile is not a regulated ACM since the results are below 1.0% asbestos. The mastic was reported to be non-friable and in good condition.
- Second floor, east hall, floor tile. 2%-3% chrysotile was detected in grey floor tile underneath of a blue floor tile. The floor tile was further analyzed with PC analysis and the results ranged from <0.25% to 1.6% chrysotile. The floor tile was reported to be non-friable and in good condition.

Although it was not tested as part of this ECP investigation, the flashing at Building 61 is assumed to be ACM. Approximately 4,200 square feet of flashing was identified that tested positive for ACM during the Cape 1998 inspection. Therefore, the flashing is presumed to be ACM.

5.4.8 Building 66 – Equipment Shed

No potential ACM was identified and sampled within the Equipment Shed (Building 66). No samples were collected within Building 66.

5.4.9 Building 68 – The Old Fire Station

A total of three samples were collected from the Old Fire Station (Building 68). Samples included TSI throughout the building. Asbestos was not detected in any of the samples collected from Building 68.

5.4.10 Building 70 – Racquetball Court

A total of nine samples were collected throughout the Racquetball Court (Building 70). Samples collected include: floor tile, ceiling tile, and covebase, primarily in the entryway, stairs, and observation room. Asbestos was detected in the following samples:

- In the entryway, stairs, and observation room, mastic. 2% chrysotile was detected in the mastic using PLM methods. The remaining mastic was analyzed using PC methods with samples ranging from 2.9% to 3.5% chrysotile. The mastic, located beneath the white/ grey floor tile was reported to be non-friable and in good condition.

5.4.11 Public / Private Venture Housing

Buildings and homes covered under the Lincoln Military Housing PPV lease were not included in the ACM survey conducted by ERM, as a subcontractor to Baker. Records and previous investigations were reviewed to determine the potential presence of ACM within base housing. A copy of the *Asbestos and Lead-Based Paint Inspection and Risk Assessment for Military Family Housing, Naval Security Group Activity Sugar Grove, Sugar Grove, West Virginia* (Baker, 2004) and the *Final Phase I- Environmental Baseline Survey, Privatization of Family Housing for Mid-Atlantic Sites- Hampton Roads Activities, Section 12* (Baker, 2005) reports are included in Appendix K.

An ACM survey was conducted on 13-21 October 2003 within the residential housing units at NIOC Sugar Grove (Baker, 2004). During the 2003 ACM survey, the housing area was divided into seven sites,

sites A through G, based on age, type of construction, and construction materials. These seven sites were later grouped into five housing areas with the results reported in the *Final Phase I- Environmental Baseline Survey, Privatization of Family Housing for Mid-Atlantic Sites- Hampton Roads Activities* (Section 12, Baker, 2005). The five housing groups are presented on Figure 5-2 and were identified as the following:

- Pitsenbarger Family Housing - Buildings 101 – 110
- Eckard Family Housing - Buildings 111 - 118
- Redwoods Family Housing – Buildings 121 - 123
- New Family Housing Area - Buildings 124 - 138
- Officer Housing - Buildings 119, 120, and 140

The individual housing units surveyed were selected randomly from the sites/ housing group as a representative of the housing groups of similar age and construction. The sites and housing units where the 2003 ACM surveys were conducted are identified in Table 5-2.

Table 5-2: Housing Units Surveyed for Asbestos Containing Materials in 2003, NIOC Sugar Grove, West Virginia			
Site(s)	Year of Construction	Housing Group	Housing Units Surveyed for ACM
A	1968	Pitsenbarger Family Housing	103A (3BR) and 106B (3BR)
B	1970	Eckard Family Housing	112A (2BR), 114A (4BR), 115A (4HC), and 117B (3BR)
C	1970	Officer Housing	119A (3BR) and 120A (4BR)
D	1978	Redwoods Family Housing	121B (4BR), 123A (2BR)
E, F, and G	1994-1998	New Family Housing	No units assessed based on date of construction.

A summary of the findings from the 2003 ACM survey, as reported in the *Asbestos and Lead-Based Paint Inspection and Risk Assessment for Military Family Housing, Naval Security Group Activity Sugar Grove, Sugar Grove, West Virginia* (Baker, 2004), is presented in the following paragraphs. It should be noted that only nondestructive sampling was conducted and there is still potential for undocumented ACM within the walls or other non-accessible locations within the buildings. Figure 5-2 depicts the location of these housing groups.

Pitsenbarger Family Housing (103A and 106B):

Five building materials were identified as ACM within unit 103A, as follows:

- White with grey wallboard located throughout the house. The wallboard covers approximately 6,100 square feet and was in undamaged condition at the time of the 2003 investigation.
- 12 x 12-inch, smooth, tan with brown stripes vinyl floor tile located within a bathroom, closets, the kitchen, living room, and utility room. The flooring covers approximately 550 square feet and was in undamaged condition at the time of the 2003 investigation.
- White-grey fabric rope gasket located in the mechanical room. Approximately 2 square feet with some localized damage at the time of the 2003 investigation.
- White, grey, and tan stone patterned vinyl sheeting located within the bathroom. The flooring covers approximately 30 square feet and was in undamaged condition at the time of the 2003 investigation.
- Black under-sink acoustical coating in the kitchen. The coating covers approximately 4 square feet and was in undamaged condition at the time of the 2003 investigation.

Four building materials were identified as ACM within unit 106B, as follows.

- White with grey wallboard located throughout the house. The wallboard covers approximately 5,800 square feet and was in undamaged condition at the time of the 2003 investigation.
- 12 x 12-inch, smooth, tan with brown stripes vinyl floor tile located within a bathroom, closets, the kitchen, living room, and utility room. The flooring covers approximately 550 square feet and was in undamaged condition at the time of the 2003 investigation.
- White-grey fabric rope gasket located in the mechanical room. Approximately 2 square feet with some localized damage at the time of the 2003 investigation.
- Black under-sink acoustical coating in the kitchen. The coating covers approximately 4 square feet and was in undamaged condition at the time of the 2003 investigation.

Eckard Family Housing (112A, 114A, 115A, and 117B):

The 12 x 12-inch, smooth, tan with brown stripes vinyl floor tile located within the bedrooms, closets, hallways, and living room within unit 112A, 114A, 115A, and 117B was identified as an ACM.

- Unit 112A: 1,109 square feet of floor tile was present with some localized damage.
- Unit 114A: 796 square feet of floor tile was present and was undamaged.
- Unit 115A: 625 square feet of floor tile was present and was undamaged.

- Unit 117B: 978 square feet of floor tile was present and was undamaged.

Redwoods Family Housing (121B, 123A):

Five distinct vinyl floor tiles and vinyl floor sheeting were identified as ACM within units 121B and 123A during a previous investigation; however these materials were not identified within the housing units at the time of the 2003 survey. No other materials sampled within unit 121B were identified as ACM. 12 x 12-inch, white with grey specks, vinyl floor tile located within the bedrooms, closets, hallway, living room, and utility room was identified as ACM within unit 123A. The vinyl floor tile in 123A covers approximately 770 square feet and was in undamaged condition at the time of the 2003 investigation.

New Family Housing:

No investigations were performed on the units within the New Family Housing Group based on their date of construction of 1994-1998.

Officer Housing (119A and 120A):

An ACM survey was conducted within unit 119A and 120A, no building materials were identified as ACM during the 2003 investigation.

5.5 Lead-Based Paint

A LBP survey was not performed as part of this ECP Report. LBP is defined as paint containing 1.0 milligram per square centimeter (mg/cm²) of lead. The Consumer Product Safety Commission (CPSC) banned the use of lead paint in residential and public buildings in 1977 under Title 16 CFR, part 1303, “*Ban of Lead-Containing Paint and Certain Consumer Products Bearing Lead-Containing Paint*”. Table 5-3 presents a list of buildings located at NIOC Sugar Grove that were constructed prior to 1978 where there is the potential presence of LBP.

No records or documentation regarding the presence of LBP within these facility buildings was identified during this ECP survey. Based on the date of construction for the buildings identified within Table 5-3, there is the potential for the presence of LBP on and within these buildings. During the site inspection of this ECP survey, all coated/ painted surfaces were observed in intact and good condition. While there is potential for presence of LBP at these buildings, coated surfaces were observed in good condition and there is likely minimal health risk to building occupants. Should these buildings undergo any future renovation/ demolition, additional LBP inspections should be conducted to determine the presence of

LBP and all materials should be handled and disposed of in accordance with local, state, federal regulations.

Table 5-3: Construction Prior to 1978, Potentially Containing Lead-Based Paint, NIOC Sugar Grove, West Virginia				
Building Number	Building Description	Location	Building Size (square feet)	Year of Construction
20	PW Maintenance Shop/ Gym/ Bowling	Hedrick Dr.	26999	1961
22	Plumbing Maintenance Shop	Hedrick Dr.	2750	1959
25	Pump House/Filter/Chlorine	Hedrick Dr.	330	1961
26	Youth Center/ Farm House	Armentrout Rd.	2460	1905
29	Emergency Vehicle Garage	Hedrick Dr.	1344	1959
30	NEX/ Commissary/ Bath house	Hedrick Dr.	6522	1974
63	Administration building	Hedrick Dr.	20040	1968
66	Equipment Shed	Hedrick Dr.	525	1975

5.5.1 Lead Based Paint in Public / Private Venture Housing

A LBP survey was conducted on 13-21 October 2003 within the residential housing units at NIOC Sugar Grove (Baker, 2004) in conjunction with the ACM Survey. The LBP survey was conducted using a Radiation Monitoring Devices, Inc. (RMD) LPA-1B X-ray fluorescence (XRF) analyzer to field analyze coated surfaces for the presence of lead in paint. The XRF inspections involved the analysis of any/all unique homogeneous coated surfaces identified within the housing units. A total of 1,955 unique surfaces were analyzed for the presence of LBP during the 2003 investigation. In addition, as part of a risk assessment 102 dust-wipe and 102 drip-line soil samples were collected and analyzed for the presence of lead. Analysis and samples were collected from representative units based on unit type and date of construction, and grouped into seven sites, Sites A through G. These seven sites were later grouped into five housing areas with the results reported in the *Final Phase I- Environmental Baseline Survey, Privatization of Family Housing for Mid-Atlantic Sites- Hampton Roads Activities*, Section 12 (Baker, 2005). The five housing groups including the following:

- Pitsenbarger Family Housing - Buildings 101 – 110
- Eckard Family Housing - Buildings 111 - 118
- Redwoods Family Housing – Buildings 121 - 123
- New Family Housing Area - Buildings 124 - 138

- Officer Housing - Buildings 119, 120, and 140

A summary of the findings from the 2003 LBP survey risk assessment sample results are presented in the following paragraphs:

Pitsenbarger Family Housing:

A total of 253 unique XRF readings were collected in two housing units representing 3-bedroom housing units. A total of 29 unique painted homogeneous components were identified and tested within these units. Lead was not identified in any of the painted surfaces within the housing units.

A total of 48 dust wipe samples were collected and 48 soil samples were collected. Lead was not identified in any of the sample results indicating that there are no LBP hazards in the dust or soil.

Eckard Family Housing:

A total of 779 unique XRF readings were collected in four housing units: one 2-bedroom, one 3-bedroom, and two 4-bedroom units. A total of 27 unique painted homogeneous components were identified and tested within a 2-bedroom unit. A total of 30 unique painted homogeneous components were identified and tested within a 3-bedroom unit. A total of 36 unique painted homogeneous components were identified and tested within a 4-bedroom unit. A total of 36 unique painted homogeneous components were identified and tested within a 4-bedroom Americans with Disabilities Act (ADA) compliant unit. Lead was not identified in any of the painted surfaces within the housing units.

A total of 12 dust wipe samples were collected and 12 soil samples were collected. Lead was not identified in any of the sample results indicating that there are no LBP hazards in the dust or soil.

Redwoods Family Housing:

A total of 469 unique XRF readings were collected in two housing units: one 2-bedroom and one 4-bedroom unit. A total of 20 unique painted homogeneous components were identified and tested within the 2-bedroom unit and a total of 28 unique painted homogeneous components were identified and tested within the 4-bedroom unit. Lead was not identified in any of the painted surfaces within the housing units.

A total of 30 dust wipe samples were collected and 30 soil samples were collected. Lead was not identified in any of the sample results indicating that there are no LBP hazards in the dust or soil.

New Family Housing:

LBP survey and risk assessment investigations were not performed on the units within the New Family Housing Group based on their date of construction of 1994-1998.

Officer Housing:

A total of 469 unique XRF readings were collected in two housing units: one 3-bedroom and one 4-bedroom unit. A total of 40 unique painted homogeneous components were identified and tested within the 3-bedroom unit and total of 40 unique painted homogeneous components were identified and tested within the 4-bedroom unit. Lead was not identified in any of the painted surfaces within the housing units.

A total of 12 dust wipe samples were collected and 12 soil samples were collected. Lead was not identified in any of the sample results indicating that there are no LBP hazards in the dust or soil.

5.6 Pesticides and Herbicides

Pesticides and herbicides were not observed on site at NIOC Sugar Grove at the time of the site inspection. Based on interviews with site personnel, all pesticide and herbicide application conducted on the facility is performed by properly licensed base personnel. All pesticides and herbicides used by base personnel are stored within the Operational Area of the installation. Third-party contractors are used for the application of pesticides and herbicides within the PPV Housing area. No materials, other than small quantities of household materials, are stored at the installation.

5.7 Munitions and Explosives of Concerns

The DoD established the Military Munitions Response Program (MMRP) in 2001 to address the environmental, health, and safety issues pertaining to munitions and explosives of concern (MEC), including: munitions constituents (MC), unexploded ordnance (UXO), and discarded military munitions (DMM). Based on interviews with site personnel and the historical use of property, there is no indication that MEC is, or ever have been stored or used at the NIOC Sugar Grove Support Area. In addition, no Munition Response Areas (MRAs) or Munition Response Sites (MRSs) were identified within the NIOC Sugar Grove Support Area.

New small arms munitions (ammunition without explosive containing projectiles, less than .50 caliber, or for shotguns) are currently stored at the facility by Security Department. All ammunition is handled and stored in accordance with the *Department of the Navy Physical Security Instruction for Conventional Arms, Ammunition, and Explosives*, Office of the Chief of Naval Operations Instruction (OPNAVINST) 5530.13C, 26 September 2003. There are no known historic or active ranges within the NIOC Sugar Grove Support Area.

5.8 Tanks (ASTs, USTs, and OWSs)

A total of 11 petroleum storage tanks (PSTs) and three oil-water separators (OWSs) were identified during the ECP site inspection at the NIOC Sugar Grove Support Area. A summary of the PSTs and OWSs is presented in the following sections and the location of all current and historic PSTs is presented on Figure 5-3.

5.8.1 Aboveground Storage Tanks

There are a total of nine ASTs located at NIOC Sugar Grove. No historical ASTs were identified during the ECP investigation. A summary of the ASTs is presented in Table 5-4 and location of all ASTs is presented on Figure 5-3.

Table 5-4: Summary of Aboveground Storage Tanks, NIOC Sugar Grove, West Virginia						
Tank ID	Building	Contents	Capacity (gal)	Activity	Construction	Year Installed
91A	91	Used Cooking Oil/ Grease	250	MWR	Single wall steel	Unknown
219	67	Diesel	8,000	PWD	Double wall steel	1999
250	80	Used Oil	500	PWD	Double wall steel	1998
251	80	Used Oil	500	PWD	Double wall steel	1998
252	80	Used Oil	500	PWD	Double wall steel	1998
253	41	Used Oil	500	MWR	Double wall steel	1998
Unidentified	39	Diesel	308	Sugar Grove Fire Department	Integrated generator tank	2013
Unidentified	67	Diesel	250 (est)	PWD	Single wall day tank	1999
Unidentified	68	Diesel	308	PWD	Integrated generator tank	2013

AST 91A:

AST 91A is located north of the Robert C. Byrd Community Center (Building 91), to the east of the storage shed 91A. The single walled steel tank is used to contain used cooking oil and grease generated from the restaurant facilities at Building 91 and Building 40. There is no piping present on the tank and no level gauges. Tank access for filling, removal, and visual level gauging is via a 12 by 18-inch hinged lid on the top of the tank. The tank is emptied by a third party contractor on a routine schedule.

ASTs 219 and Unidentified Day Tank:

AST 219 is located to the north of Building 20 and supplies an emergency generator unit located within Building 67 for the facilities in the southern portion of the installation. The AST is a light colored, double walled Containment Solutions tank located on a concrete pad within a secure fenced area. A clock gauge is present on the top of the tank at the eastern side of the tank. All piping is located above ground and runs directly to a day tank located within the generator building (Building 67). The day tank within Building 67 is a yellow, single wall, steel tank with an estimated capacity of approximately 250 gallons.

ASTs 250, 251, and 252:

ASTs 250, 251, and 252 are all dark grey colored, double wall, steel, and located in the northeast portion of the installation, to the west of Building 80. The three ASTs are used for the storage of used oil. Used oil is pumped from within the building directly into the tanks using pressurized aboveground lines. All three tanks have dial level gauges. The tanks are emptied on a routine basis by a contractor.

AST 253:

AST 253 is a dark grey colored, double wall, steel, and located in the central portion of the installation, on the eastern side of MWR Hobby Shop (Building 41). The AST is used for the storage of used oil. Used oil is pumped from within the building directly into the tank using pressurized aboveground lines. The tank has a dial level gauge. The tanks are emptied on a routine basis by a contractor.

Unidentified Integrated Generator Tank at Building 39:

The AST at the new Fire Station (Building 39) was recently installed and there are no additional records of the tank. The tank is part of an integrated storage tank for a diesel powered emergency generator for the Fire Station. The integrated tank generator is located in the southwest portion of the installation, directly east of Building 39. The 308-gallon tank is black with a green covered generator mounted on top of it.

Unidentified Integrated Generator Tank at Building 68:

The AST at the old Fire Station (Building 68) was recently installed and there are no additional records of the tank. The tank is part of an integrated storage tank for a diesel powered emergency generator for the old fire station. The building is currently being renovated. The integrated tank generator is located in the southwest portion of the installation, directly north of Building 68 and southeast of Building 70. The 308-gallon tank is black with a green covered generator mounted on top of it.

5.8.2 Underground Storage Tanks

There are two underground storage tanks (USTs) located at NIOC Sugar Grove. A summary of these USTs is presented in Table 5-5 and locations are presented on Figure 5-3.

Table 5-5: Summary of Underground Storage Tanks, NIOC Sugar Grove, West Virginia					
Tank ID	Building	Contents	Capacity (gal)	Activity	Construction
201	59	Diesel	2,000	NEX	Single wall, fiberglass-reinforced plastic
202	59	Gasoline	4,000	NEX	Single wall, fiberglass-reinforced plastic

The two fiberglass reinforced plastic (FRP) USTs were installed in 1986-1987 to replace two steel USTs. When the tanks were replaced, the tank identifications were not changed for the tanks. The new FRP tanks are identified as USTs 201 and 202. Tank contents, capacity, and construction are identified within Table 5-5. The USTs are used to provide fuel storage for a POV fuel dispensing facility operated by NEX. Conflicting records and field evidence cannot confirm whether the existing USTs are single-walled or double-walled, so the assumption is that they are single-walled. The piping is pressurized with mechanical line leak detection. Leak detection is monitored with an automatic tank gauge (ATG) and liquid sensing devices. The tanks are gauged and monitored daily by a West Virginia state licensed operator.

5.8.3 Removed/ Historic Petroleum Storage Tanks

A total of six removed/ historical PSTs were identified at NIOC Sugar Grove. A summary of the removed/ historical PSTs is presented in Table 5-6 and locations are presented on Figure 5-3.

**Table 5-6:
Summary of Removed/ Historic Petroleum Storage Tanks,
NIOC Sugar Grove, West Virginia**

Tank ID	Building	Contents	Capacity (gal)	Tank Type	Year Removed
200	20	Heating Oil	1,000	UST	1995
201R	59	Diesel	2,000	UST	1986
202R	59	Gasoline	4,000	UST	1986
205	63	Heating Oil	4,000	UST	1995
206	63	Diesel	550	UST	1995
203	121/122	Heating Oil	3,000	UST	1986?

It should be noted that historic/ removed USTs 201 and 202 refer to the steel USTs that were removed in 1986. These USTs were replaced with FRP USTs in 1986-1987. The tank identifications were not changed for the new USTs. This ECP report will refer to the historic/ removed USTs as 201R and 202R to distinguish them from the new FRP USTs.

All of the removed/ historical PSTs at the NIOC Sugar Grove Support Area were USTs. Refer to Section 5.9 Petroleum Contamination for additional details pertaining to USTs 200, 201R/ 202R, and 205/ 206.

According to interviews with site personnel, UST 203 was removed circa 1986, and there was no indication of a potential petroleum release at the time of the tank removal. No other documentation removal of this UST was encountered during the ECP investigation.

5.8.4 *Liquid Propane Storage Tanks/ Natural Gas Pipeline*

There are two liquid propane (LP) tanks located at NIOC Sugar Grove. The LP tanks are located in the northeastern corner of the base near Building 28. Both tanks are estimated 10,000 gallon, single walled steel tanks. The LP tanks were installed as an auxiliary fuel service for the base when there is a disruption in natural gas service or when repairs need to be made to the natural gas pipeline.

The natural gas pipeline is DoN owned and was constructed in the 1960s. The pipeline is 26 miles of 6-inch steel pipeline that supplies natural gas to the installation. This pipeline is fed from a tie-in point along Route 7, approximately one mile north of Peru, West Virginia which draws natural gas from a Mountaineer Gas Company owned pipeline. The pipeline enters the base in the northeast corner at the pressure reducing station (Building 28) at the beginning of the distribution system. The distribution system consists of approximately 8,500 feet of steel and polyethylene piping. The DoN is currently

working on the privatization of the natural gas system at NIOC Sugar Grove in accordance with 10 United States Code (USC) §2688, Utility Systems: Conveyance Authority, as amended.

5.8.5 Oil-Water Separators

There are two OWSs located at NIOC Sugar Grove. The OWSs are located at the new Fire Station (Building 39) and the BEQ (Building 40). No historical OWSs were identified during the ECP investigation. The location of identified OWSs is presented on Figure 5-3. A description of the OWSs is presented in the following paragraphs.

Fire Station OWS:

The Fire Station (Building 39) OWS is located near the southwest corner of the building. According to interviews with site personnel, the floor drains within the vehicle bays of the Fire Station (Building 39) drain into the OWS. The construction and capacity of the OWS was not available. According to interviews with site personnel, the OWS is pumped out, as required by a third party contractor.

Bachelor Enlisted Quarters OWS:

The BEQ (Building 40) OWS is located at the rear of the building, to the northwest, in the loading/receiving area. According to interviews with site personnel, this OWS was previously used as a wash rack for personal vehicles for personnel staying in the BEQ and is currently disabled. The capacity of the OWS was not available. The OWS appears to be constructed of concrete with a graded and curbed drainage area approximately 15 by 30 feet. Site personnel indicated that the OWS was constructed to drain into the sanitary sewer system while in use and into the storm system when not in use. When the wash rack is in operation a control switch/valve is activated and water flowing to the OWS drains into the sanitary sewer system for treatment. When the car wash is not in operation, drainage is diverted into the storm water system to prevent the unnecessary treatment of storm water during rain events. A car wash was recently constructed across the street and it does not appear that the wash rack/OWS is currently being utilized. If the OWS is no longer in use, it should be properly closed to prevent potential illicit discharges to the storm water system. The OWS should be closed in accordance with local, state, and federal requirements.

5.9 Petroleum Contamination

No petroleum contamination was evident during the site inspection. Based on a review of available records, petroleum releases have occurred at NIOC Sugar Grove and are detailed in the following sections.

5.9.1 Underground Storage Tank 200 Site

UST 200 was formerly located adjacent to the northwest side of Building 20. UST 200 was a 1,000-gallon, steel heating oil tank installed in 1975 to supply fuel to heat Building 20. The UST was removed in April 1995 and was removed in sound condition with no holes or significant corrosion. During the tank removal, while the vent pipe was being removed, a small volume of heating oil discharged into the tank excavation pit. Soil samples from the tank basin bottom, walls, and excavated material were analyzed for total petroleum hydrocarbon (TPH). Samples ranged from non-detect to 763.3 milligrams per kilogram (mg/kg) and indicated the release was not weathered petroleum, suggesting a recent release (Environmental Science & Engineering, Inc., 1996a). Approximately three cubic yards of soil was excavated during removal. In November 1995, two borings were advanced in the vicinity of UST 200 to determine any potential impact from the tank. Laboratory analyses of soil from the two borings were below detection limits for TPH as diesel and gasoline (Environmental Science & Engineering, Inc., 1996a). Based on the small volume of heating oil discharged, excavation of soil during tank removal, non-detection of TPH in soil from adjacent borings it is unlikely the small volume of heating oil discharged during the removal of UST 200 presents a concern at NIOC Sugar Grove.

5.9.2 Underground Storage Tanks 201/202 Site

USTs 201 (2,000-gallon diesel tank) and 202 (4,000-gallon gasoline tank) are located southeast of Building 22 and used to provide fuel storage for a privately owned vehicle (POV) fueling dispensing facility operated by NEX. Conflicting records and field evidence cannot confirm whether the existing USTs are single-walled or double-walled, so the assumption is that they are single-walled. The USTs are constructed of fiberglass-reinforced plastic tanks and were installed in 1986-1987 to replace two steel USTs that had reportedly leaked (Environmental Science & Engineering, Inc., 1996a). The former fuel lines and pump island (located south of Building 22) were removed and replaced with a new pump island and piping located north of USTs 201 and 202.

During the tank construction/ replacement activities in 1993, hydrocarbon/ fuel odors were noted near the pump island during excavation. The WVDEP issued a Confirmed Release Notice to Comply on 2 March 1993 and assigned WVDEP Leak Identification Number 93-048 to the site. In April 1993, phase-separated hydrocarbon (PSH) was observed infiltrating the wall of an excavation north of the site. This separate release north of the USTs was investigated with the area surrounding UST 201/202 site. Groundwater Technology Government Services, Inc. advanced 12 soil borings and installed monitor wells in four of the borings. Nine of the soil borings were advanced in the vicinity of the pump island (SB2 through SB10), two of the borings were advanced along a drainage feature (SB1 and SB11), and one boring was advanced in the location to the north where a separate release was observed (SB12). TPH was detected in five of the samples surrounding the USTs ranging from 46 to 100 parts per million (ppm) and at 49 ppm at SB12. Benzene, toluene, ethylbenzene, and xylene (BTEX) was detected in soil samples collected from the soil borings on the southeast side of the site as well as in groundwater samples. A five-well extended site check was completed by R.E. Wright Associates, Inc. in March 1994 to determine the extent of hydrocarbon impact to soil and groundwater at the site. Two wells were installed west of the UST site between Building 20 and Building 22 and three wells were located north surrounding the location of SB12. Analytical data indicated that soil and groundwater were impacted by BTEX and TPH, however the groundwater impact appeared to be limited to the area between the parking lot and Building 20, but migrating toward the South Fork of the South Branch of the Potomac River (approximately 200 feet west). Soil excavation in the vicinity of the former pump island (located south of Building 22) was completed in July 1995. Vapor sampling results indicated hydrocarbon impact along the southwestern extent of the excavation (Environmental Science & Engineering, Inc., 1996a).

Environmental Science & Engineering, Inc. of Herndon, Virginia was contracted in September 1995 to prepare a site assessment report for the UST 201/202 site. The South Fork of the South Branch of the Potomac River was identified as a potential down gradient receptor. Residences down gradient of the site that obtain their water from springs or private wells were identified as potential sensitive receptors. In addition, Building 20 has a partial basement and was identified as a potential receptor for hydrocarbon vapors.

Field screening and laboratory analyses of soil samples were collected in November 1995 for vapor-phase hydrocarbon (VPH) and adsorbed-phase hydrocarbon (APH) impact to soils near the former tank pit. Little to no impact was determined in the soil near the former tank pit. No PSH impact to groundwater was detected, and dissolved-phase hydrocarbon (DPH) impact to groundwater was only present in one

well (MW-1 [1994]) near the former tank pit. Benzene in groundwater exceeded the WVDEP cleanup level in MW-1 (1994). The exposure assessment determined that DPH in groundwater was not expected to reach the South Fork due to natural degradation and attenuation, in addition to the low estimated groundwater velocity (Environmental Science & Engineering, Inc., 1996a).

Due to the potential for vapor migration to Building 20, vapor monitoring in the Building 20 basement was recommended to further evaluate potential VPH impact. Environmental Science & Engineering, Inc. recommended the monitoring be performed on a monthly basis for a period of six months. If readings were below the short-term exposure limit for the six-month period, no further soil cleanup would be recommended for VPH impact (Environmental Science & Engineering, Inc., 1996a).

Environmental Science & Engineering, Inc.'s site assessment report recommended the installation of two new groundwater monitor wells at the site to evaluate the groundwater quality downgradient of MW-1 (1994) in the water table and bedrock aquifers and potential DPH impact to the South Fork of the South Branch of the Potomac River. Monitoring was recommended for MW-1 (1994) and the two new wells on a quarterly basis for a period of one year. No soil cleanup for APH was recommended at the time based on the assumption that down gradient wells indicated no DPH impact to groundwater (Environmental Science & Engineering, Inc., 1996a).

A letter from WVDEP, dated 12 June 2002, requested that NAVFAC Atlantic Division continue with a quarterly monitoring program for the six wells (MW-1 through MW-6) at the UST 201/202 site. The letter indicated that if groundwater sample laboratory results were below the federal drinking water standards for a minimum of four quarters, the UST 201/202 site would be eligible for "no further action" consideration (Mid-Atlantic Associates, Inc., 2003). Mid-Atlantic Associates, Inc. of Raleigh, North Carolina was contracted to complete four quarterly monitoring events at the UST 201/202 site. Quarterly monitoring began in March 2003 and concluded in December 2003. During the first quarter monitoring event, nine polycyclic aromatic hydrocarbon (PAH) compounds were reported in a single well (MW-3). Of the nine PAH compounds, benzo[a]pyrene was reported at a concentration of 17 micrograms per liter ($\mu\text{g/L}$), above the West Virginia Groundwater Quality Standard (WVGWQS) of 2 $\mu\text{g/L}$. The PAH compounds originally detected in well MW-3 were thought to have entered the well via a malfunctioning monitoring well cap that was replaced after the first quarter. The PAH compounds were not detected in subsequent monitoring events. Benzene was detected in one well during the third quarter test event but was below the WVGWQS. Methyl tertiary butyl ether (MTBE) was detected in four of the six wells during quarterly monitoring with detection levels ranging from 0.38 $\mu\text{g/L}$ to 51 $\mu\text{g/L}$. Diisopropyl ether

(DIPE) was detected in two of the six wells during the third and fourth quarter monitoring events with detection levels ranging from 0.36 µg/ L to 0.51 µg/ L. WVGWQS for MTBE and DIPE were not established. Based on the results of the four quarterly monitoring events, Mid-Atlantic Associates, Inc. recommended that NAVFAC Atlantic Division submit a request for closure of the release incident to the WVDEP (Mid-Atlantic Associates, Inc., 2004a). Following approval by the WVDEP, the six monitoring wells at the UST 201/202 site were recommended to be closed in accordance with state regulations. On 14 September 2004, Richard Simmons Drilling of Buchanan, Virginia, under direction of Mid-Atlantic Associates, Inc., abandoned six monitoring wells (MW-1 through MW-6) at the UST 201/202 site in accordance with Title 47 of West Virginia Code of State Rules, Series 60, Section 47-60-19, Subsection 19.2 (Mid-Atlantic Associates, Inc., 2004b).

Based on a Review of Closure letter and review of West Virginia's LUST database, WVDEP Leak Identification Number 93-048 shows a cleanup complete date of 8 December 2004 for the UST 201/202 site. Three monitoring wells were observed in the vicinity of USTs 201 and 202 during the ECP site inspection. According to site personnel, two of the monitoring wells appear to have been installed in 1993 as leak detection for the USTs 201/ 202 system. These two wells are considered a part of the UST system and may remain while the USTs are in service and closed when the UST system is decommissioned or removed. The third well is a temporary monitoring well that was installed as part of the investigation for Leak ID 93-048. If this monitoring well is no longer being used to gather hydrogeologic data or monitor groundwater conditions, then it should be abandoned in accordance with Title 47 of West Virginia Code of State Rules, Series 60, Section 47-60-19.

5.9.3 Underground Storage Tanks 205/206 Site

UST 205 was an unregulated 4,000-gallon heating oil tank used to supply fuel to heat Building 63. During closure activities in May 1995, soil samples indicated TPH impact in the tank basin and along the product supply line. Approximately 30 cubic yards of soil in the tank basin and one cubic yard of soil along the piping were excavated and backfilled with clean soil following tank and piping removal.

UST 206 was a regulated 550-gallon diesel tank used to supply an emergency generator adjacent to Building 63. Petroleum contamination was noted in the tank basin during closure activities in March 1995. Soil sampled indicated TPH impact, resulting in over-excavating approximately 2 cubic yards of contaminated soils from the basin bottom. The WVDEP inspector onsite at the time indicated that a site

assessment was required for both tanks (Environmental Science & Engineering, Inc., 1996b). The UST 205/206 site was included under WVDEP Leak Identification Number 93-048.

Environmental Science & Engineering, Inc. of Herndon, Virginia was contracted in September 1995 to prepare a site assessment report for the UST 205/206 site. The South Fork of the South Branch of the Potomac River was identified as a potential down gradient receptor. Residences down gradient of the site that obtain their water from springs or private wells were identified as potential sensitive receptors. In addition, the site assessment determined that underground utilities at the site could act as a migratory preferential pathway.

Field screening results of soil samples collected in November 1995 indicated little to no VPH impact to soil, and laboratory analyses indicated no APH impact. PSH and DPH impact to groundwater are not anticipated due to the lack of VPH and APH impact to soil. The exposure assessment determined that chemicals of concern were not present above the method detection limits and exposure pathways were incomplete; therefore, no risk was present. Chemicals of concern levels indicated that there was no potential impact to human health and the environment at the site. Environmental Science & Engineering, Inc.'s site assessment report concluded that additional soil and groundwater cleanup were not required, future monitoring was not warranted, and recommended no further action at the UST 205/206 site (Environmental Science & Engineering, Inc., 1996b). A Review of Closure letter and review of West Virginia's LUST database, WVDEP Leak Identification Number 93-048 shows a cleanup complete date of 8 December 2004 for the UST 205/206 site.

5.10 Radon / Radiological Material

5.10.1 Radon

According to USEPA, Pendleton County, West Virginia is listed in Radon Zone 1 with a predicted average indoor radon screening level greater than 4 picocuries per liter (pCi/L); meaning there is a high potential for indoor radon within the area (USEPA, 2010).

The federal area radon information for Sugar Grove, West Virginia, as identified in the EDR report is identified in Table 5-7.

Table 5-7: Radon Information for Sugar Grove, West Virginia, NIOC Sugar Grove, West Virginia					
Number of Sites Tested	Maximum Radon Level	Minimum Radon Level	Percent < 4 pCi/L	Percent 4-10 pCi/L	Percent > 10 pCi/L
3	7.4 pCi/L	1.2 pCi/L	66.67	33.33	0

As part of the Navy Radon Assessment and Mitigation Program (NAVRAMP), radon screening of both the non-housing facilities and residential housing units at NIOC Sugar Grove was conducted in the early 1990s. NAVRAMP assessment results indicated NIOC Sugar Grove did not have any non-housing facilities with radon levels above the USEPA radon action level of 4 pCi/ L (DoN, 1994).

NAVRAMP radon screening results indicated a single residential housing unit with a radon level above the USEPA radon action level of 4 pCi/ L (DoN, 1991). Housing Unit 123A had a radon concentration level of 6.8 pCi/ L with a confirmation measurement of 9.8 pCi/ L. Housing Unit 123 is a multi-family duplex located at 192 Armentrout Drive, divided into units 123A and 123B, located within the Redwoods housing area. Refer to Figure 5-2 for the location of Housing Unit 123. Based on the NAVRAMP screening results, a radon mitigation system was installed in Housing Unit 123A. Based on interviews with personnel at Lincoln Military Housing, an active radon mitigation system remains in place at Housing Unit 123A. Currently, Lincoln Military Housing conducts radon testing on randomly selected housing units on a regular basis. A review of December 2011 test results show a radon concentration level of 0.3 pCi/L and 0.6 pCi/L for Housing Units 124B and 127B, respectively.

Based on a review of radon data, regionally there is a high potential for the presence of radon. Past testing indicated one of the housing units (Unit 123A) exceeded the USEPA action level for radon. An active radon mitigation system was installed and remains in place in housing unit 123A. Follow up testing and 2011 testing of select housing units results were below the USEPA radon action level of 4 pCi/ L.

5.10.2 *Radiological Material*

Based on environmental records reviewed to date, no known existing or historical radiological materials are believed to be present at the installation.

The Branch Medical Clinic on the first floor of the Administration Building (Building 63) does have full x-ray capabilities. Based on interviews with personnel at Branch Medical Clinic, digital radiography is utilized for the x-ray facilities and no radiological material is stored or located at the clinic.

5.11 Protected, Threatened, or Endangered Species

During the site inspection, no protected, threatened, or endangered species were observed at NIOC Sugar Grove. A survey conducted by the West Virginia Department of Natural Resources in 1989 did not encounter any protected species on the installation (Tetra Tech, 2010).

Seven species are identified as threatened or endangered by the United States Fish and Wildlife Service (USFWS) that may occur in Pendleton County, West Virginia. A description of these threatened or endangered species is presented in the following paragraphs and a summary of these species is presented in Table 5-8.

The mammals identified as threatened or endangered within Pendleton County, West Virginia include: the eastern cougar (*Felis concolor cougar*), the Indiana bat (*Corynorhinus townsendii virginianus*), the Virginia big-eared bat (*Corynorhinus townsendii virginianus*), and the northern long-eared bat (*Myotis septentrionalis*). The eastern cougar may occur throughout the state of West Virginia; however this species is possibly extinct as there have been no documented sightings in over 100 years. The Indiana bat and Virginia big-eared bat have critical habitat near NIOC Sugar Grove and may possibly forage and roost at the installation. The northern long-eared bat is one of the most common bats encountered in West Virginia in the summer. It is currently proposed to be added to the threatened and endangered species list due to dramatic population decline caused by white-nose syndrome. White-nose syndrome, a fungal infection is believed to have caused as much as a 99 percent decline in the northeast and is expected to continue spreading throughout the range of the northern long-eared bat. A bat sampling survey was conducted in July 2009, at NIOC Sugar Grove and there were no reported captures of the Indiana bat, Virginia big-eared bat, or the northern long-eared bat during the two night survey (BCM, 2009).

The Cheat Mountain salamander (*Plethodon netting*) is the only amphibian identified as threatened or endangered in Pendleton County, West Virginia. The Cheat Mountain salamander is a small woodland salamander that is typically found in high mountain areas with cool, moist red spruce forests with a ground cover comprised of a liverwort and an abundance of leaf litter, fallen logs and sticks. The Cheat

Mountain salamander has not been documented to occur at NIOC Sugar Grove and based on its typical habitat is not likely to occur at the installation.

The USFWS has identified two species of plants as threatened or endangered in Pendleton County, West Virginia, including northeastern bulrush (*Scirpus ancistrochaetus*) and the shale barren rock cress (*Boechera serotina*). Northern bulrush is a relict species that occurs in isolated areas throughout its range and is often difficult to find and difficult to recognize. It grows in wet areas, small wetlands, sinkhole ponds, or wet depressions with a seasonal fluctuation in water level. Development and habitat alteration have led the drying out of much of the northern bulrush habitat. There are no reported occurrences of northern bulrush at NIOC Sugar Grove; however there are wetlands and habitat present that would not preclude its presence from the installation. Shale barren rock cress (*Boechera serotina*) is a biennial plant in the mustard family that only occurs in the mid-Appalachian shale barrens in Virginia and West Virginia. Shale barrens are isolated habitats characterized by steep southern exposures at elevations of 1,099 to 2,500 feet with sparse vegetation, high temperature, and dry to low moisture. Shale barren rock cress has been identified at the Little Fork Shale Barren at the Operational Area of NIOC Sugar Grove and active management efforts are in effect to manage it. Shale barren rock cress has not been identified within the Support Area at NIOC Sugar Grove.

Although no protected, threatened, or endangered species were identified at NIOC Sugar Grove, it should be noted that several species of birds, including: killdeers (*Charadrius vociferous*), Turkey Vultures (*Cathartes aura*), and various raptors were observed during the site inspection. Most species of birds, including these and many others are protected under the Migratory Bird Treaty Act and bald eagles are protected under the Bald and Golden Eagle Protection Act and West Virginia Code (§20-2-5c).

Table 5-8: Threatened and Endangered Species of Pendleton County, West Virginia, NIOC Sugar Grove, West Virginia		
Species	Status	Notes
Mammals		
Eastern Cougar, (<i>Felis concolor cougar</i>)	Endangered	May occur throughout the state, but has not been observed in WV in over 100 years.
Indiana Bat (<i>Myotis sodalist</i>)	Endangered	May occur throughout the state. Critical habitat has been identified at Hellhole Cave, Pendleton County.
Virginia Big-eared Bat (<i>Corynorhinus townsendii virginianus</i>)	Endangered	Known summer or winter caves located in Pendleton County. Critical habitat identified at Hellhole Cave, Cave Mountain Cave, Hoffman School Cave, and Sinnitt/Thorn Mountain Cave in Pendleton County.
Northern Long-eared Bat (<i>Myotis septentrionalis</i>)	Proposed	Occurs in Pendleton County
Amphibians		
Cheat Mountain Salamander (<i>Plethodon netting</i>)	Threatened	Occurs in Pendleton County
Plants		
Northeastern Bulrush (<i>Scirpus ancistrochaetus</i>)	Endangered	May potentially occur in Pendleton County
Shale Barren Rock Cress (<i>Boechera serotina</i>)	Endangered	Occurs in Pendleton County. Known to occur at the Operational Area, but has not been identified at the Support Area of NIOC Sugar Grove.

5.12 Natural or Cultural Resources

5.12.1 Wetlands

A review of the EDR maps shows there is a small area of National Wetlands Inventory wetlands at NIOC Sugar Grove. The South Fork of the South Branch of the Potomac River forms the western boundary of the installation. The South Fork of the South Branch of the Potomac River is predominantly a freestone stream with scrub and forest vegetation along the banks of the river. According the Department of the Interior, USFWS National Wetlands Inventory, there is a small area of wetlands, covering approximately 0.37 acres located north of the MWR Cabins. The USFWS has classified the area as riverine wetland, R2USA which is described as riverine environment with a low gradient and slow water velocity (lower perennial) with unconsolidated shoreline which is only temporarily flooded (USFWS, 2013).

There is also a small section of National Wetland Inventory wetlands on the western bank of the South Fork of the South Branch of the Potomac River. The wetlands are located west of the cabins and north of

the campgrounds. The wetland area covers a total approximate area of 0.72 acres and includes approximately 0.57 acres of freshwater forested/ shrub wetlands (PFO1A) and 0.15 acres of freshwater emergent wetlands (PEM1C). Only a small portion of the PFO1A wetland was identified within the boundary of NIOC Sugar Grove.

Although not identified in the USFWS National Wetlands Inventory, additional wetland areas have been identified at the installation and reported in the Integrated Natural Resources Management Plan (INRMP; Tetra Tech, 2010). Approximately 10 acres of the land area is identified as wetlands in the INRMP.

- Palustrine emergent persistent, temporarily flooded (PEM1A) was identified in a small area northwest of Building 70.
- Palustrine emergent persistent, seasonally flooded (PEM1C), was identified east of the lagoon and west of housing.
- Palustrine forested broad-leaf deciduous, temporarily flooded (PFO1C), was identified as the channel area located west of the Robert C. Byrd Community Center (Building 91) that extends to the north and east, south of Simmons Drive, back towards Hedrick Drive and a drainage channel area northeast of the wastewater treatment plant.
- Palustrine unconsolidated bottom, artificially flooded excavated (PUBKx), was identified as the wastewater treatment lagoon.
- Riverine lower perennial unconsolidated bottom, intermittently flooded (R2UBG), was identified as the streambed of the South Fork of the South Branch of the Potomac River.

A summary of the wetlands identified at the NIOC Sugar Grove Support Area is located in Figure 5-4.

5.12.2 *Surface Water*

NIOC Sugar Grove is located on the eastern bank of the South Fork of the South Branch of the Potomac River. The installation is located within the Chesapeake Bay watershed on the headwaters of the Potomac River. The South Fork of the South Branch of the Potomac ultimately flows into the South Branch Potomac River. The South Branch Potomac River merges with the North Branch Potomac River in Green Spring, West Virginia where it travels approximately 300 miles to the Chesapeake Bay. The Chesapeake Bay ultimately drains into the Atlantic Ocean approximately 65 miles south of the mouth of the Potomac River.

Water quality of the South Fork of the South Branch of the Potomac River is considered good and the serves as the potable water source for NIOC Sugar Grove. The intake is located in the southwestern section of the base at Building 25. Raw water is pumped into holding tanks which feed the potable water treatment facility where the water is filtered and treated prior to distribution on the installation.

Notification to West Virginia Department of Health would be required for the potable water treatment plant if population of lower base drops below 25. The state would then reclassify the system and regulatory permitting and/or monitoring requirements would be reduced or eliminated. 5090 sampling requirements, however, may still apply. The potable water treatment facility could be abandoned in place or removed.

5.12.3 Floodplains

A review of the Federal Emergency Management Agency (FEMA) flood insurance rate maps show the Zone AE (100-year floodplain) includes the majority of the lowland area along the bank of the South Fork of the South Branch of the Potomac River. This area includes the campgrounds in the western portion of the installation and the MWR track in the northern portion of the installation. The remainder of the installation is located on higher terraces outside of the floodplain. Figure 5-5 presents the location of the 100-year floodplain at NIOC Sugar Grove.

5.12.4 Cultural and Historical Resources

There are no known cultural or historical resources identified at NIOC Sugar Grove in the National Register of Historic Places according to the West Virginia State Historic Preservation Office (SHPO).

According to the West Virginia SHPO database there are three listed sites near NIOC Sugar Grove. The listed sites identified are three buildings within the town of Brandywine, including the Old Probst Church (National Register ID 86000779) and two unidentified architectural points.

One historic archeological site has been identified at NIOC Sugar Grove within the *Phase I Cultural Resources Survey of Naval Security Group Activity Sugar Grove, Pendleton County, West Virginia, R.* Christopher Goodwin and Associates, Inc., 18 March 1999. This historic site, Site 46PD289 is located at the Pitsenbarger Farm House (Building 26), in the eastern portion of the installation. The property was originally purchased by Clem and John Pitsenbarger in 1894 and was a farm site prior to purchase by the Navy in 1958. The property originally included the Pitsenbarger Farm House (Building 26) and a number

of outbuildings. The Pitsenbarger Farm House (Building 26) was reportedly constructed in 1905 according to Navy records. The majority of the outbuildings were reportedly removed prior to Navy occupation of the property with the remaining outbuildings removed in 1958 when the farmhouse was converted to a library/ youth center. Artifacts recovered from an archaeological investigation indicate a late nineteenth to early twentieth century site occupation. Extensive disturbance and limited extent of archeological deposits indicate that the site was destroyed, possibly during the removal of the outbuildings which may have been removed with bulldozers and other heavy equipment (R. Christopher Goodwin and Associates, Inc., 1999). Due to these past site disturbances, Site 46DP289 is not eligible for inclusion on the National Register of Historic Places and no further archeological investigation was recommended for this historic site (R. Christopher Goodwin and Associates, Inc., 1999).

The Pitsenbarger Farm House (Building 26), located within historic archeological Site 46DP289 was reportedly constructed in 1905 and meets the 50-year requirement for inclusion in the National Register Listing. In 1958, the Pitsenbarger Farm House was reportedly converted to a library and youth center and all of the surrounding outbuildings were demolished (R. Christopher Goodwin and Associates, Inc, 1999). The Pitsenbarger Farm House is a two and a half story, stone foundation, wood-framed building with a hipped roof. During the renovation of the farm house into a library/ youth center, extensive modifications were made to the building, including: new windows, the addition of a built on shed on the western side of the building, and an exterior enclosed staircase on the southeast corner of the building. In addition, vinyl siding and a deck has been added to the building. The Pitsenbarger Farm House (Building 26) was evaluated for inclusion in the National Register Listing under Criteria Consideration G for a property achieving significance within the past 50 years if it is of exceptional importance; Criteria A for association with events that have made a significant contribution to the broad patterns of our history for association with the agricultural past in Pendleton County, West Virginia; and Criteria C as a structure that embodies a distinctive characteristics of a type, period, or method of construction. Due to the significant alteration to the building and its setting, the building did not exhibit the integrity and historical association necessary for inclusion in the National Register of Historic Places.

Four prehistoric archaeological sites have been identified at NIOC Sugar Grove within the *Phase I Cultural Resources Survey of Naval Security Group Activity Sugar Grove, Pendleton County, West Virginia*, R. Christopher Goodwin and Associates, Inc., 18 March 1999. Three sites identified within Site 46PD290 which is located in the western portion of the installation near the MWR cabins and includes two lithic scatters and one Late Prehistoric site. One short-term camp site was identified in the northern portion of the installation at Site 46PD294. These prehistoric sites were dated from the early Middle

Archaic (6,500- 3,000 B.C.), early Late Archaic (3,000- 1,000 B.C.), and Terminal Archaic (2,000- 1,000 B.C.) periods and do not retain the integrity or possess significant enough research potential due to the past site disturbances which have altered the stratigraphic integrity of the occupational levels (R. Christopher Goodwin and Associates, Inc., 1998). Due to past site disturbances, Site 46DP290 and 46PD294 are not eligible for inclusion on the National Register of Historic Places and no further archeological investigation is recommended for these prehistoric sites.

A response letter, dated 3 June 2014, was received by the Navy from the West Virginia SHPO, Division of Culture and History regarding the effect to cultural resources by the closure of NIOC Sugar Grove. The SHPO noted that there are no historic archeological resources within the Support Area of NIOC Sugar Grove and no further consultation is necessary. The SHPO recommend the completion of an architectural evaluation of the resources that are currently 50 years old and development of an up to date historic context statement for the entire NIOC Sugar Grove to include the support and operations area during the 1960s-1980s. The architectural evaluation and updated historic context is required before the SHPO will provide their comments on the determination of effect on the disposal of the support area. The Navy will conduct an architectural survey for the property at NIOC Sugar Grove.

5.13 Notices of Violation

Based on a review of the records search provided by EDR, a review of the USEPA ECHO database, and information obtained during the site inspection, two Notices of Violations (NOVs) were issued for NIOC Sugar Grove in 2012.

- NOV 1205-1923 was issued on 24 April 2012 by the WVDEP due to failure to conduct annual line tightness tests of the pressurized piping associated with USTs 201 and 202 at the NEX Filling Station.
- NOV 1205-1924 was issued on 24 April 2012 by the WVDEP due to failure to conduct annual certification of the mechanical line leak detectors associated with USTs 201 and 202 at the NEX Filling Station.

On 17 May 2012 Environmental Solutions conducted line tightness and leak detector operability tests, as well as tank integrity tests of USTs 201 and 202 at the NEX Filling Station with passing results. The WVDEP conducted a follow-up inspection on 29 August 2012 and issued a letter on 30 August 2012 stating deficiencies had been corrected and compliance had been achieved.

The WWTP at NIOC Sugar Grove operates under NPDES Permit WVG551203. USEPA ECHO database shows no violations have been issued within the past three years.

5.14 Adjacent Property Concerns

Undeveloped forested land was observed east of NIOC Sugar Grove during the site inspection. The undeveloped forested land east of NIOC Sugar Grove is primarily comprised of the George Washington National Forest. Farmlands were observed north of NIOC Sugar Grove, beyond the South Fork of the South Branch of the Potomac River. Low density rural housing was observed southwest of NIOC Sugar Grove and west of NIOC Sugar Grove, beyond the South Fork of the South Branch of the Potomac River.

5.14.1 Review of Available Federal and State Environmental Records

A search of available federal and state environmental records was obtained from EDR and is presented in Appendix I. A summary of the databases reviewed, search radius, and results obtained from EDR is presented in Table 5-9. The *Standard Environmental Records* represent the standard federal, state, and tribal environmental record sources and recommended minimum search distances established in ASTM E 1527-13.

Table 5-9: Summary of Federal and State Records from EDR NIOC Sugar Grove, West Virginia		
Database	Search Radius	Results
Standard Environmental Records		
Federal NPL site list	1.00 mile	No mapped sites were found
Federal Delisted NPL site list	1.00 mile	No mapped sites were found
Federal CERCLIS list	0.50 mile	No mapped sites were found
Federal CERCLIS NFRAP site list	0.50 mile	No mapped sites were found
Federal RCRA CORRACTS facilities list	1.00 mile	No mapped sites were found
Federal RCRA non-CORRACTS TSD facilities list	0.50 mile	No mapped sites were found
Federal RCRA generators list	0.25 mile	No mapped sites were found
Federal institutional control/engineering control registries	0.50 mile	No mapped sites were found
Federal ERNS list	Subject Property	No mapped sites were found
State- and tribal-equivalent CERCLIS	Not Applicable; Database is not maintained in West Virginia	Not Applicable
State and tribal landfill and/or solid waste disposal site lists	0.50 mile	No mapped sites were found
State and tribal leaking storage tank lists	0.50 mile	No mapped sites were found
State and tribal registered storage tank lists	0.25 mile	No mapped sites were found
State and tribal institutional control/engineering control registries	0.50 mile	No mapped sites were found
State and tribal voluntary cleanup sites	0.50 mile	No mapped sites were found
State and tribal Brownfield sites	0.50 mile	No mapped sites were found
Additional Environmental Records		
Local Brownfield lists	0.50 mile	No mapped sites were found
Local Lists of Landfill / Solid Waste Disposal Sites	0.50 mile	No mapped sites were found
Local Lists of Hazardous waste / Contaminated Sites	Subject Property	No mapped sites were found
Local Land Records	Subject Property	No mapped sites were found
Records of Emergency Release Reports	Subject Property	No mapped sites were found
Other Ascertainable Records	Varies, see Appendix I	No mapped sites were found
EDR Exclusive Records	Varies, see Appendix I	No mapped sites were found

Upon review of the information provided by the EDR property search (Appendix I), there are no mapped sites within a one-mile search radius of the subject property recorded on federally or state-mandated lists.

5.14.2 Review of Orphan Sites

Information for the location of potential environmental sites is not always available within state and federal databases. When poor or inadequate address information prevents locating a site, the site was

labeled as an “orphan site” by EDR and included within the EDR Radius Map™ Report in an orphan site list. During the ECP investigation, additional information is researched on these orphan sites to attempt to locate them and determine the potential environmental impact they may have to the subject property. Orphan sites may be located by street maps or internet-based mapping, they may be observed during the site reconnaissance, or they may be located through interviews. EDR identified a total of 10 orphan sites within the search radius of the Support Area of NIOC Sugar Grove. A summary of the orphan sites presented in the EDR results is located in Table 5-10.

Table 5-10: Summary of EDR Identified Orphan Sites NIOC Sugar Grove, West Virginia					
Orphan Site #	Site Name	EDR ID	Address	Database	Additional Information
1	Naval Radio Station Sugar Grove #1	1015737385	10 MI SW of RTE 33, Sugar Grove, WV 26815	CERC-NFRAP	EPA ID #WV9170022488 No additional information provided.
2	Naval Radio Station Sugar Grove #2	1015737383	RTE 21, Sugar Grove, WV 26815	CERC-NFRAP	EPA ID # WV1170024805 No additional information provided.
3	NAVSECGRUACT Sugar Grove	1000148289	38 Deg. 34 Min. 21 Sec. N Sugar Grove, WV 26815	RCRA-CESQG, FINDS	EPA ID # WV0170090005 RCRA-CESQG, EPA Region 3, Start Date: 01/01/1990 Hazardous Waste Code: D001
4	Sugar Grove, WV NSGA	S109148348	WV RTE 21, Midway Between Sugar Grove, Sugar Grove, WV	NPDES	Permit ID: WVG551203 Responsible Party: US DON Permit Type: Sewage Sub Type: SG
5	Navy Information Operations Command (NIOC) Sugar Grove	1005902142	WV RTE 21, Midway Between Sugar Grove, Sugar Grove, WV 26815	FINDS	EPA ID # 110012292544 No additional information provided.
6	Sugar Grove Sub Station 08363	U003770240	South US Navy Sta CR 21 Box 36, Sugar Grove, WV 26815	LUST, UST	Facility ID: 3-604492 Leak Number: 89-074 Cleanup Complete Date : 07/24/1989
7	Sugar Grove Sub-Station	S110125547	County Route 21 North, Sugar Grove, WV 26815	NPDES	Permit ID # WVG980093 Responsible Party: WVDOT Permit Type: Industrial Sub Type: WVDOH
8	Sugar Grove Sub-Station	S108351750	County Route 21, Sugar Grove, WV 26815	NPDES	Permit ID # WVG990168 Responsible Party: WV DOH Permit Type: Industrial Sub Type: CWASH
9	Sugar Grove Sub-Station	1007219768	County Route 21, Sugar Grove, WV	FINDS	EPA ID # 110016754626 No additional information provided,
10	Franklin to Sugar Grove Transmission	1015855333	RT 21 (Sugar Grove Rd.), Sugar Grove, WV	FINDS	EPA ID # 110055000966 No additional information provided.

Of the 10 orphan sites identified, five of the sites appear to be associated with NIOC Sugar Grove (Sites 1-5). Four of the sites (Sites 6-9) identified appear to be associated with the Sugar Grove Sub-Station, operated by the West Virginia Department of Transportation (WVDOT). The final site (Site 10) appears to be associated with the Allegheny Power Company. A brief description of these sites is presented below with a discussion of their potential environmental impact to the NIOC Sugar Grove Support Area.

NIOC Sugar Grove (Sites 1-5):

Limited information was available on orphan sites 1 and 2. Both entries were identified under the CERCLA- NFRAP database. The sites identified within the CERCLA- NFRAP are sites that to the best of the USEPA's knowledge have been satisfactorily assessed and investigated, and been determined that no further remedial activities are required for the site. Limited information was available on these sites. Site #1, identified as EPA identification number WV9170022488 was listed as identified on 1 May 1981 as dump number WV-163, a PA completed on 29 July 1986, site investigation completed 10 September 1987, and archived on 10 September 1987. Site #2, identified as EPA identification number WV1170024805 was listed as identified on 1 April 1984 as dump number WV-288, a PA completed on 5 April 1984, site investigation completed 6 October 1986, and archived on 6 October, 1986. No other information on the location or nature of these sites was available. It should be noted that since these sites were not mappable that they may or may not be associated with the subject property since the NIOC Sugar Grove Support Area and Operational Area share the same basic address as listed within the EDR report. These sites may be associated with the Operational Area.

Orphan site number 3, identified by EPA identification number WV0170090005, is the listing for the RCRA-CESQG status. Refer to Section 5.1.2 for additional discussion on the facility CESQG.

Orphan site number 4, identified by EPA identification number WVG551203, is the listing for the facility NDPES permit. Refer to Section 5.1.5 for additional discussion on the facility NDPES permit.

Orphan site number 5, identified by EPA identification number 110012292544, is the listing for the facility within the Facility Index System (FINDS). FINDS is a central inventory of all facilities monitored and regulated by the USEPA. This identifies NIOC Sugar Grove as a facility within the central inventory and has no direct environmental implications.

Sugar Grove Sub-Station (Sites 6-9):

Sugar Grove Sub-Station is located approximately 3.75 miles south-southwest of NIOC Sugar Grove. The facility appears to be operated by the WVDOT and is listed on the NPDES, LUST, UST, and Facility Index System/ Facility Registry System databases. Sugar Grove Sub-Station has an active NPDES Permit (WVG980093). There is a documented UST leak at the Sugar Grove Sub-Station. It was recorded in the LUST database, on 18 July 1989 as leak number 89-074 with the WVDEP. The leak was documented as affecting soil only and cleanup was initiated and completed between 1989 and 1992. There are three USTs at Sugar Grove Sub-Station currently in use. Based on a review of database records and the distance from the NIOC Sugar Grove Support Area, the Sugar Grove Sub-Station is unlikely to have an environmental impact on the property.

Franklin to Sugar Grove Transmission (Site 10):

Franklin to Sugar Grove Transmission is located approximately 1.25 miles northwest of NIOC Sugar Grove. The facility appears to be operated by Allegheny Power Company and is listed on the NPDES database. USEPA's ECHO database shows the NPDES Permit (WVR105147) was terminated in November 2011. Based on a review of database records, Franklin to Sugar Grove Transmission is unlikely to have an environmental impact on the property.

5.14.3 *Review of Additional Identified Sites*

During the site inspection of adjacent sites, two additional potential sites were identified. These two sites were not identified within the EDR report; however the sites were identified within the USEPA ECHO database. A description of these sites and potential environmental impact to the subject property is provided in the following paragraphs.

South Fork Crossing Subdivision:

Based on data gathered using USEPA ECHO database, the South Fork Crossing Subdivision is located approximately 200 yards southwest of NIOC Sugar Grove. Based on a review of historic aerial photography, South Fork Crossing Subdivision was constructed around 2006. South Fork Crossing Subdivision is listed in the NPDES database. The USEPA ECHO database shows the NPDES Permit (WVR102211) was issued in April 2006 and terminated in July 2009. In addition, South Fork Crossing Subdivision has an active NPDES Permit (WVG551394) and underwent a state compliance evaluation on

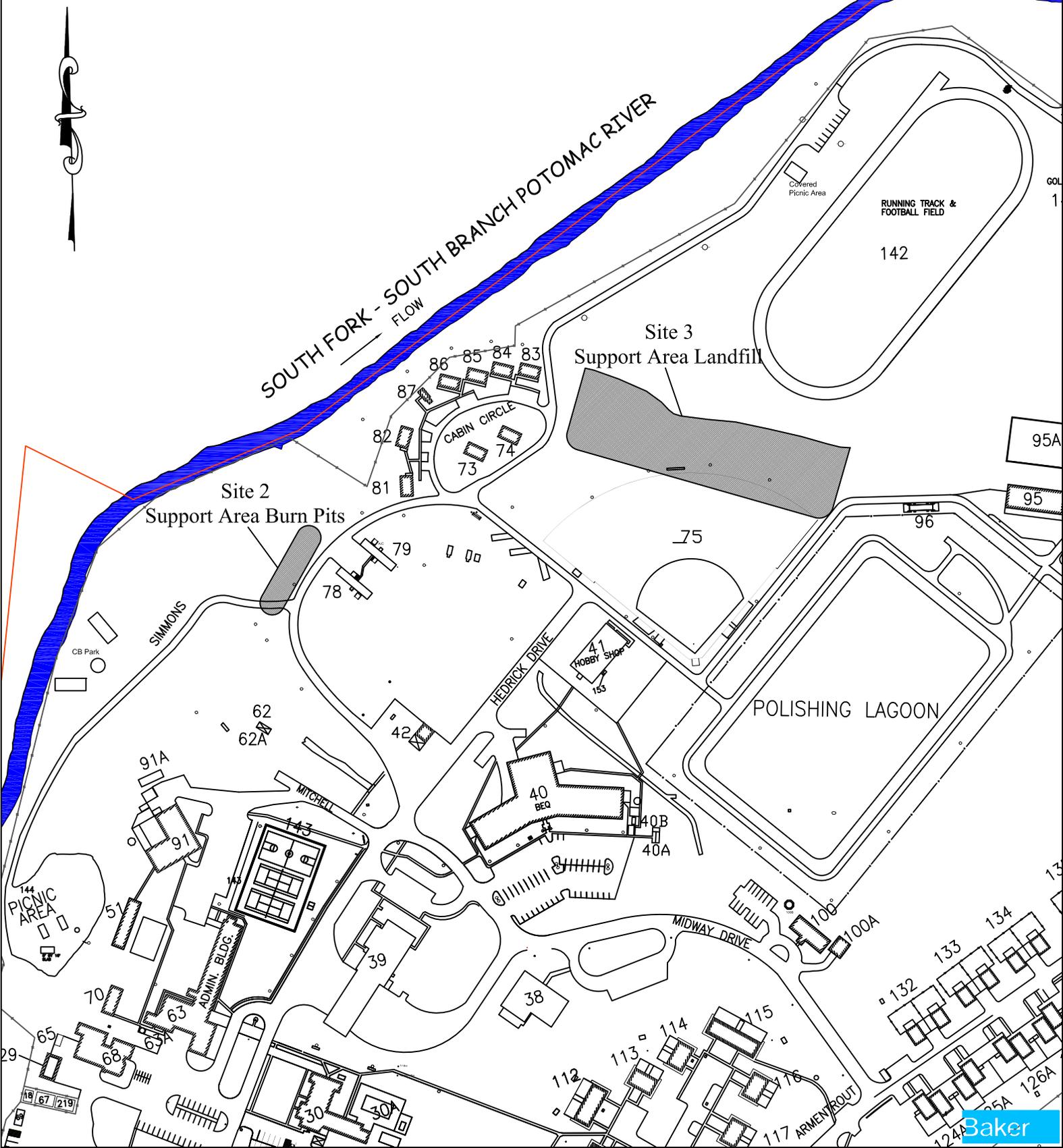
26 August 2010 with no violation. Based on a review of database records, South Fork Crossing Subdivision is unlikely to have an environmental impact on the property.

Brandywine Water System:

Based on data gathered using USEPA ECHO database, Brandywine Water System is located approximately 600 yards northwest of NIOC Sugar Grove. Brandywine Water System is operated by Pendleton County Public Service District and is listed on the NPDES database. The USEPA ECHO database shows NPDES Permits WV0077291 and WVG640063 were terminated 7 December 2001 and 23 August 2006, respectively. Based on a review of database records, Brandywine Water System is unlikely to have an environmental impact on the property.

5.15 Other Environmental Concerns

Based on the records reviewed and observations made during the site inspection, no other environmental concerns were identified at NIOC Sugar Grove.



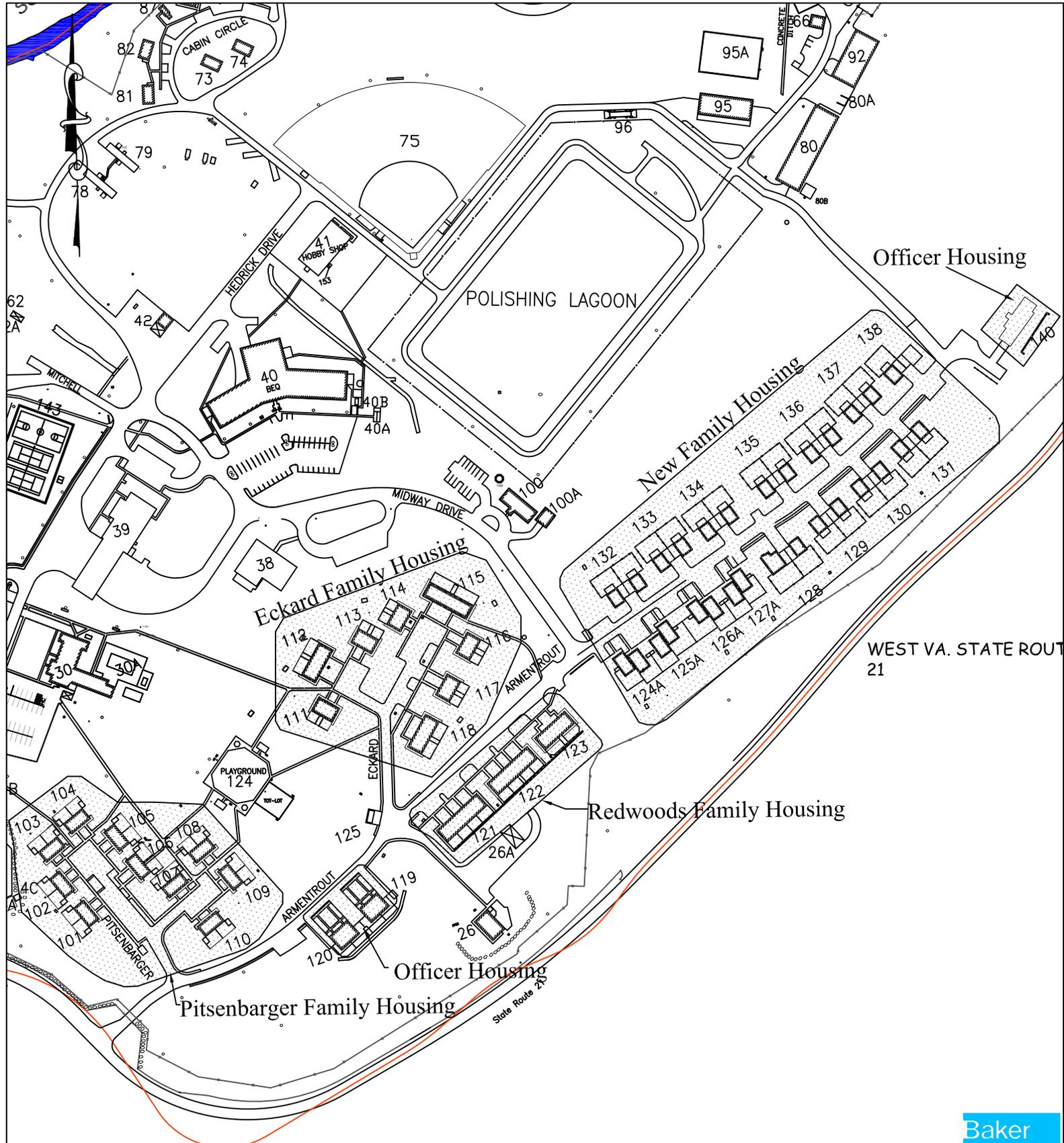
LEGEND

— Property Boundary

FIGURE 5-1
ENVIRONMENTAL RESTORATION
SITE LOCATION MAP
ENVIRONMENTAL CONDITION OF PROPERTY
DISPOSAL OF NIOC SUGAR GROVE
SUGAR GROVE, WEST VIRGINIA

NOT TO SCALE

Source: Naval Energy and Environmental Support Activity (NEESA), 1988. Preliminary Assessment Report, Naval Radio Station Sugar Grove, West Virginia 26816, NEESA 13-138PA, Port Hueneme, California 93043, March 1988.



Baker

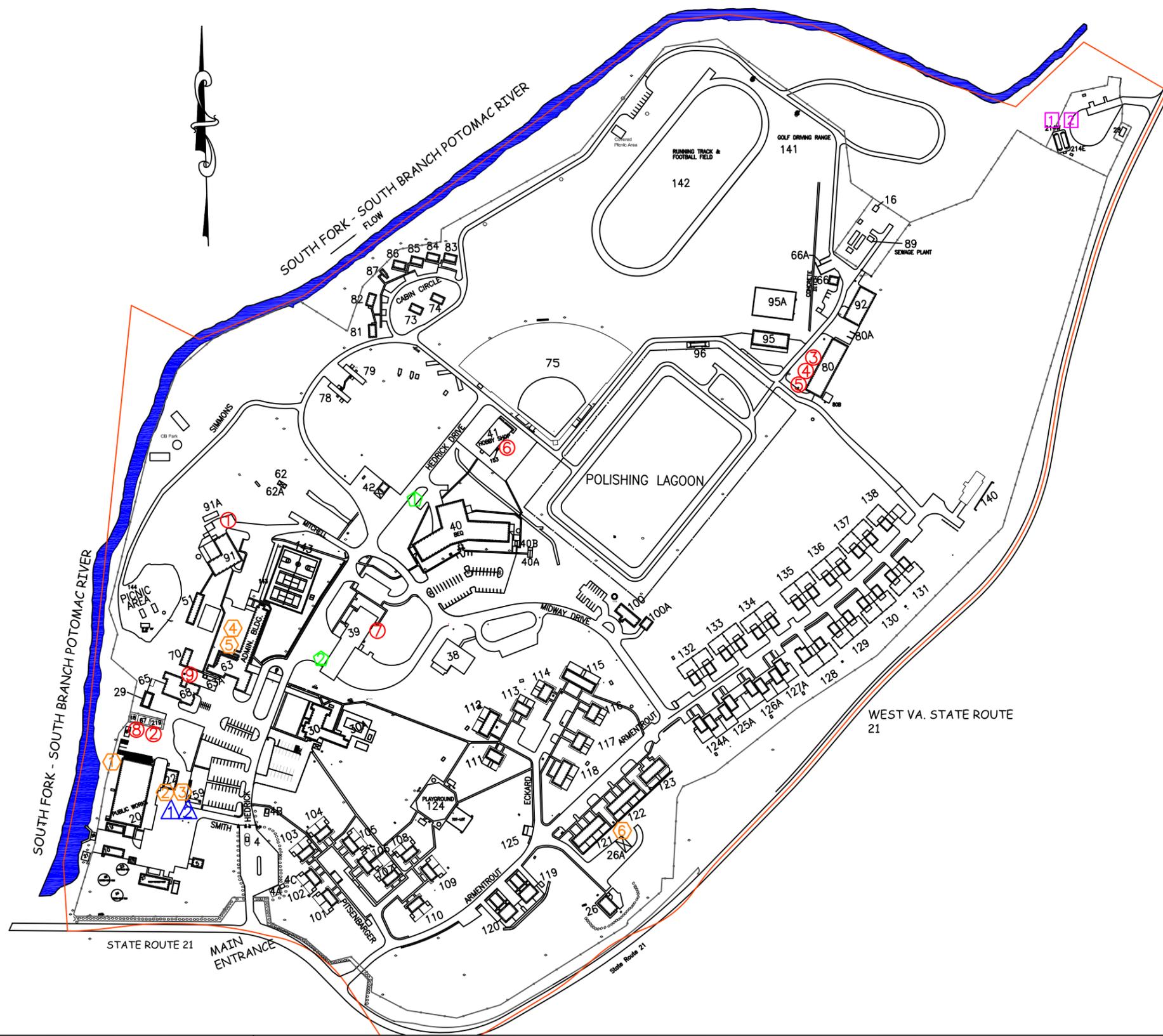
LEGEND

— Property Boundary

FIGURE 5-2
FACILITY HOUSING GROUPS
SITE LOCATION MAP
ENVIRONMENTAL CONDITION OF PROPERTY
DISPOSAL OF NIOC SUGAR GROVE
SUGAR GROVE, WEST VIRGINIA

NOT TO SCALE

Source: Michael Baker Jr., Inc., 2005, *Final Phase I- Environmental Baseline Survey, Privatization of Family Housing for Mid-Atlantic Sites- Hampton Roads Activities*, N62470-01-D-3010 DO-001, February 11, 2005.



Aboveground Storage Tanks

Tank ID	Building #	Contents	Capacity (gal)	Construction
①	91A	Used Oil/Grease	250	SW Steel
②	219	Diesel	8,000	DW Steel
③	250	Used Oil	500	DW Steel
④	251	Used Oil	500	DW Steel
⑤	252	Used Oil	500	DW Steel
⑥	253	Used Oil	500	DW Steel
⑦	Unidentified	Diesel	308	Integrated Generator Tank
⑧	Unidentified	Diesel	250 (est)	SW Steel Day Tank
⑨	Unidentified	Diesel	308	Integrated Generator Tank

Underground Storage Tanks

Tank ID	Building #	Contents	Capacity (gal)	Construction
△	201	Diesel	2,000	SW FRP
△	202	Gasoline	4,000	SW FRP

Oil/ Water Separators

Building #	Description	Capacity (gal)	Construction
①	40	BEQ Wash Rack	Unknown Field Constructed
②	39	New Fire Station interior drainage	Unknown Unknown

Liquid Propane Tanks

Tank ID	Building #	Contents	Capacity (gal)	Construction
①	214W	Liquid Propane	10,000 (est.)	SW Steel
②	214E	Liquid Propane	10,000 (est.)	SW Steel

Removed/ Historic Petroleum Storage Tanks

Tank ID	Building #	Contents	Capacity (gal)	Tank Type	Year Removed	
①	200	Heating Oil	1,000	UST	1995	
②	201	Diesel	2,000	UST	1986	
③	202	Gasoline	4,000	UST	1986	
④	205	Heating Oil	4,000	UST	1995	
⑤	206	Diesel	550	UST	1995	
⑥	203	121/122	Heating Oil	3,000	UST	1986?

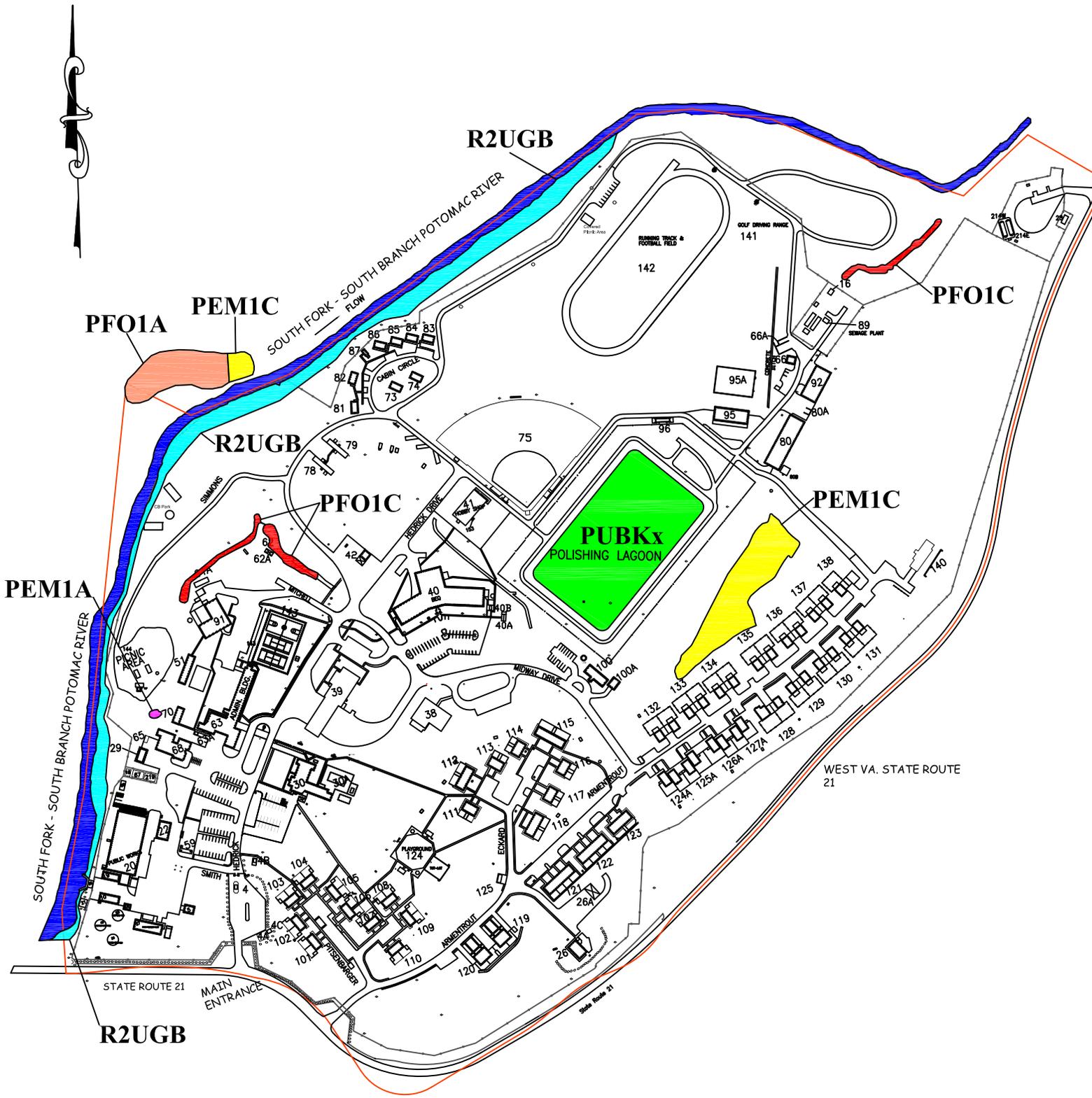
Baker

LEGEND

- Property Boundary
- ① Aboveground Storage Tank
- △ Underground Storage Tank
- ① Oil/ Water Separator
- ① Liquid Propane Tank
- ① Removed/ Historic Petroleum Storage Tank

NOT TO SCALE

FIGURE 5-3
PETROLEUM STORAGE TANK
SITE LOCATION MAP
ENVIRONMENTAL CONDITION OF PROPERTY
DISPOSAL OF NIOC SUGAR GROVE
SUGAR GROVE, WEST VIRGINIA



Baker

LEGEND

- Property Boundary
- PEM1A - Palustrine Emergent, Persistent, Temporarily Flooded
- PEM1C - Palustrine Emergent, Persistent, Seasonally Flooded
- PFO1A - Palustrine Forested, Broad-Leaf Deciduous, Temporarily Flooded
- PFO1C - Palustrine Forested, Broad-Leaf Deciduous, Seasonally Flooded
- PUBKx - Palustrine Unconsolidated Bottom, Artificially Flooded, Excavated
- R2UGB - Riverine Lower Perennial, Unconsolidated Bottom, Intermittently Flooded
- Water

NOT TO SCALE

**FIGURE 5-4
WETLAND MAP
ENVIRONMENTAL CONDITION OF PROPERTY
DISPOSAL OF NIOC SUGAR GROVE
SUGAR GROVE, WEST VIRGINIA**

Source: United States Fish and Wildlife Service (USFWS), 2013. National Wetlands Inventory website, U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. <http://www.fws.gov/wetlands/>.
Tetra Tech, Inc., 2010, *Final Integrated Natural Resources Management Plan, Naval Information Operation Command Sugar Grove, Sugar Grove, West Virginia*, May 2010.

6.0 CONCLUSIONS

6.1 Conclusions

The ECP Report summarizes the findings relative to the identification of RECs for the 118-acre lower base Support Area of DoN owned property located at NIOC Sugar Grove, Sugar Grove, West Virginia. Based on the evaluation of records reporting the historical use of the site, a site inspection, and database searches, two RECs and three HRECs were identified on the 118-acre lower base portion of DoN owned property located at NIOC Sugar Grove, Sugar Grove, West Virginia. A summary of the identified RECs and HRECs is provided in the following sections.

6.1.1 Recognized Environmental Conditions

The Support Area Burn Pits (Site 2) and the Support Area Landfill (Site 3) at NIOC Sugar Grove are the two RECs identified at NIOC Sugar Grove (see Figure 5-1 for the location of the two identified RECs).

- The Support Area Burn Pits (Site 2) are located in the western portion of the installation, near the intersection of Simmons and Hedrick Drive. In the late 1960's, three or four burn pits, approximately ten by eight feet in area and approximately six feet deep were used for the disposal of municipal solid waste, scrap metal, paper, wood, and cardboard generated at the installation. The waste reportedly burned within the pits and once the pits were filled they were capped with approximately two feet of soil. The use of Site 2 was discontinued in 1970 and since no hazardous waste was reportedly disposed within the burn pits, no further action was recommended under the Navy IR Program (NEESA, 1988).
- The Support Area Landfill (Site 3) is located in the northwestern portion of the installation, approximately 400 feet northeast of Site 2. In 1970, waste disposal activities were shifted from Site 2 to the Site 3. Waste was disposed of at Site 3 in trenches approximately 30 feet long by 12 feet wide to an approximate depth of eight feet. Reportedly, the trenches may have been excavated to the underlying shale deposits. The waste reportedly disposed of within the pits included primarily household municipal solid waste, scrap metal, scrap wood, empty paint cans, empty drums of paint thinner, and air conditioning filters. Once pits were filled, they were capped with approximately one foot of soil. The use of the landfill was discontinued in 1978 and

since no hazardous waste was reportedly disposed within the landfill, no further action was recommended under the Navy IR Program (NEESA, 1988).

Although no further action was recommended for Site 2 and Site 3 under the Navy IR Program, the only documentation regarding these sites identified during the ECP investigation was limited to the *Preliminary Assessment Report, Naval Radio Station Sugar Grove, West Virginia 26816*, Naval Energy and Environmental Support Activity (NEESA), March 1988. Note that no environmental media sampling was conducted as part of the Preliminary Assessment. No additional documentation or records from the USEPA, WVDEP, or other regulatory agencies were provided that indicate regulatory acceptance of the no further action recommendation; therefore, there is no documentation that can be used as a basis for identifying these sites as a HRECs or CRECs.

LUCs for soil and groundwater to restrict access, ground disturbing activity, groundwater use, and general land use are recommended by the Navy IR Program for Site 2 (The Support Area Burn Pits) and Site 3 (The Support Area Landfill). The LUCs are recommended to assure protection of human health and the environment, and should be maintained by the new owner until proper coordination with WVDEP and Navy to establish any updated environmental condition.

There are currently no structures located within the suspected boundaries of Support Area Burn Pits (Site 2) and Support Area Landfill (Site 3). A small portion of Site 3 is potentially located just within the right outfield of the baseball field.

6.1.2 Historical Recognized Environmental Conditions

Three UST sites were identified as HRECs at NIOC Sugar Grove. All three USTs are removed/ removed USTs. Refer to Figure 5-3 for the location of these

- UST 200 was a 1,000-gallon, steel heating oil tank installed in 1975 located directly west of Building 20. In April 1995, during the tank removal a small volume of heating oil discharged into the tank excavation pit; approximately three cubic yards of contaminated soil was excavated during the tank removal.
- USTs 201/202 are FRP tanks currently located southeast of Building 22. These USTs provide fuel storage for a POV fueling dispensing facility operated by the NEX. The current FRP USTs

were installed in 1986-1987 to replace two steel USTs that had reportedly leaked (Environmental Science & Engineering, Inc., 1996a). Conflicting records and field evidence cannot confirm whether the existing USTs are single-walled or double-walled, so the assumption is that they are single-walled. When the current FRP USTs were installed in 1986-1987, they retained the same tank identification as the previous steel USTs. In 1993, during the replacement of the fuel dispensers and piping, hydrocarbon/ fuel odors were noted near the pump island. On 2 March 1993, WVDEP issued a Confirmed Release Notice to Comply. Groundwater monitoring wells were installed to monitor groundwater contamination and soil was excavated in 1995 in the vicinity of the former pump island (located south of Building 22). The monitoring wells have since been abandoned.

- USTs 205/206 were previously located near the southwest corner of Building 63. UST 205 was an unregulated 4,000-gallon heating oil tank and UST 206 was a regulated 550-gallon diesel tank. Both USTs were removed in 1995. During closure activities in, soil samples indicated TPH impact in the tank basin and along the product supply line. Approximately 33 cubic yards of potentially TPH contaminated soil were excavated and backfilled with clean soil during the tank and piping removal. The WVDEP inspector onsite at the time indicated that a site assessment was required for both tanks. The resulting site assessment report recommended no further action at the UST 205/206 site (Environmental Science & Engineering, Inc., 1996b).

All three of these HRECs were addressed under WVDEP Leak Identification Number 93-048. A Review of Closure letter and Review of Confirmed Release Review, both dated 8 December 2004 were issued by WVDEP indicating that the no additional investigation or remedial action was warranted for the three UST sites. Full documentation pertaining to the investigation and closure of Leak Identification Number 93-048 is included with the ECP Report as Appendix H.

6.1.3 Controlled Recognized Environmental Conditions

Based on the records reviewed and observations made during the site inspection, no CRECs identified at NIOC Sugar Grove Support Area.

6.1.4 Summary of Asbestos Containing Material Survey

An ACM survey of the facility buildings was conducted as part of the ECP survey and previous ACM reports for the buildings included in the PPV housing lease were reviewed. Although the presence of

ACM is not a REC, it is a BER due to the capital costs and potential liability associated with its identification, abatement, encapsulation/removal, and disposal of ACM. The ACM survey conducted as part of the ECP investigation identified ACM within the PWD/ MWR Gym/ Bowling alley (Building 20), the Youth Center (Building 26), the Administration Building (Building 63), and the Racquetball Court (Building 70). Reviews of previous ACM reports for the buildings included in the PPV housing lease indicate that ACM is present in the Pitsenbarger (Buildings 101-110), Eckard (Buildings 111-118), and Redwood (Buildings 121-123) housing groups. All ACM identified by the ACM survey and identified in previous reports was reportedly in good condition, appears to present minimal potential hazard to building occupants and can be managed in-place. If areas of damaged ACM are identified, they should be immediately repaired. If renovation or demolition activities are scheduled, any ACM that could potentially be disturbed should be properly abated and disposed of in accordance with local, state, and federal regulations.

6.1.5 *Additional Environmental Concerns*

Radon:

According to USEPA, Pendleton County, West Virginia is listed in Radon Zone 1 with a predicted average indoor radon screening level greater than the USEPA action level of 4 pCi/L; meaning there is a high potential for indoor radon within the area (USEPA, 2010). As part of the NAVRAMP, radon screening of both the non-housing facilities and residential housing units at NIOC Sugar Grove was conducted in the early 1990s. NAVRAMP results indicated NIOC Sugar Grove did not detect radon above the USEPA radon action level of 4 pCi/ L (DoN, 1994) in any of the facility buildings. Radon screening results in residential housing indicated a single unit with a radon level above the USEPA radon action level of 4 pCi/ L (DoN, 1991). Housing Unit 123A (currently identified as unit 192) had a radon concentration level of 6.8 pCi/ L with a follow up confirmation result of 9.8 pCi/ L. An active radon mitigation system was installed in Housing Unit 123A and follow up testing results were below the USEPA action level. Based on these results and a review of radon data, there is a high potential for the presence of radon at NIOC Sugar Grove.

Potable Water Treatment Plant:

Notification to West Virginia Department of Health would be required for the potable water treatment plant if population of lower base drops below 25. The state would then reclassify the system and regulatory permitting and/or monitoring requirements would be reduced or eliminated. 5090 sampling

requirements, however, may still apply. The potable water treatment facility could be abandoned in place or removed.

Wastewater Treatment Plant:

The extended aeration WWTP consists of two package units. Per WVDEP, the Navy could operate one unit as the base population decreases and could only shut down the WWTP completely when all sewer flows have been eliminated. The WWTP itself will need to be pumped out and replaced with clean water at closure. Per WVDEP, if the wastewater/ sewer system experiences I&I the Navy would need to route this I&I in a manner acceptable to the State upon the closure of the WWTP. Prior approval from the WVDEP would be required to close the polishing lagoon. The lagoon will need to be evaluated to determine the presence of settled solids and/or sediment it contains. Dewatering may be necessary.

6.1.6 Data Gaps

During the records review process and site inspection, four data gaps were identified. The data gaps identified are as follows:

Polishing Lagoon:

During the records review process, no documentation was encountered on the environmental disposition or condition of the wastewater treatment plant lagoon. The lagoon was originally constructed as the polishing lagoon for the wastewater treatment plant constructed in the 1960's. The polishing lagoon was used for the final treatment of waste water prior to final discharge by allowing the settling of any remaining solids from the pretreated water as well as natural biological treatment of the water and sludge via aerobic/ anaerobic breakdown. A new aeration wastewater treatment plant was constructed in 1997 and the use of the lagoon was suspended. According to interviews with site personnel and a letter dated 3 April 1998 from the WVDEP, the lagoon is currently used as an equalization lagoon/infiltration basin which serves as temporary storage of excess combined sewage/ storm water during storm events when inflow at the new aeration treatment plant exceeds the plants treatment capacity. The area associated with the wastewater treatment lagoon is identified as a non-discharge area (ND-001) within the NIOC Sugar Grove ND PES permit WV0103110. During the ECP investigation, no documentation was encountered to determine the current environmental disposition of the lagoon or to determine whether or not the lagoon has had any impact to the environment, particularly groundwater.

Lead Based Paint in Facility Buildings:

During the records review process, no documentation was encountered regarding the presence of lead-based paint within the facility buildings at NIOC Sugar Grove. A LBP survey was not performed as part of this ECP investigation, however available records were reviewed regarding the presence of LBP within the buildings located at NIOC Sugar Grove. The CPSC banned the use of lead paint in residential and public buildings in 1977 under Title 16 CFR, part 1303. Eight facility buildings were identified with construction prior to 1978, including: PWD Maintenance Shop/Gym/Bowling (Building 20), the Plumbing Maintenance Shop (Building 22), the water treatment pump house (Building 25), the Youth Center (Building 26), the Emergency Vehicle Garage (Building 29), the NEX/Commissary/Bath House (Building 30), the Administration Building (Building 63), and an equipment shed (Building 66). The presence of LBP within these buildings would represent a BER due to the capital costs and potential liability associated with identification, abatement, and disposal of LBP. If these buildings undergo any future renovation/ demolition, additional LBP inspections would be required to determine the presence of LBP and all materials should be handled and disposed of in accordance with local, state, federal regulations.

Monitoring Wells Near Underground Storage Tanks 201/202:

In a letter dated 28 July 2004 from the WVDEP, the No Further Action status of the Leak ID 93-048 was contingent on the abandonment of all monitoring wells located near USTs 201/202. A letter from the DoN, dated 24 November 2004, documented the closure of the wells by Mid-Atlantic Associates, Inc. The Review of Closure letter and Review of Confirmed Release Review were issued by WVDEP on 8 December, 2004 indicating that No Further Action was required. During the site inspection, three monitoring wells were observed in the vicinity of UST site 201/202. According to site personnel, two of the monitoring wells appear to have been installed in 1993 as leak detection for the USTs 201/ 202 system. These two wells are considered a part of the UST system and may remain while the USTs are in service and closed when the UST system is decommissioned or removed. The third well is a temporary monitoring well that was installed as part of the investigation for Leak ID 93-048. If this monitoring well is no longer being used to gather hydrogeologic data or monitor groundwater conditions, then it should be abandoned in accordance with Title 47 of West Virginia Code of State Rules, Series 60, Section 47-60-19.

Oil-Water Separators:

During the site inspection two OWSs were observed at NIOC Sugar Grove, but there was limited information available on these OWSs. The New Fire Station OWS is located at the southwest corner of the New Fire Station (Building 39). According to interviews with site personnel, the Fire Station OWS collects from drains on the interior of the building and drains to the sanitary system. No other specifications on the construction or capacity were available during the site inspection. The BEQ OWS is located west of the BEQ (Building 40) and was previously used as a wash rack for personnel staying at the BEQ. The OWS appears to be constructed of concrete; however no additional specifications on the capacity or drainage were available during the site inspection. According to site personnel, the BEQ OWS has been disabled. If the BEQ OWS has been disabled and is no longer in use, it should be properly closed in accordance with local, state, and federal requirements to prevent potential illicit discharges to the storm water system.

6.1.7 Limitations

This ECP Report was prepared in general accordance with the ASTM Standard 1527 (13), the DoN Environmental Policy Memorandum 06-06: *Streamlined Environmental Procedures Applicable to Non-BRAC Real Estate Actions*, dated 5 July 2006, and the *Navy Real Estate Procedural Manual P-73*, Chapter 3, Section V – Environmental Guidelines (DoN, 2010). The review of available information completed for this ECP Report was limited to data that was reasonably ascertainable. The information obtained was publicly available, was obtained within the cost and time constraints under the scope of services for this project, and practically reviewable. Media sampling and the chemical analysis of soils, surface water, and groundwater was not performed as part of this survey. In addition, the possibility of vapor intrusion or drinking water quality was not evaluated during this ECP survey.

It should also be noted that the ACM inspections conducted as part of this ECP investigation were strictly limited to non-destructive testing and sampling. Inspections were limited to generally accessible areas. Areas behind walls, areas where materials would have to be damaged to gain access, and areas in confined locations were not inspected as part of the ACM survey conducted as part of this ECP. There is the potential for ACM to be present in these locations. In addition, ACM reportedly identified within PPV Housing was not surveyed as part of this ECP investigation and information was limited to information available in previous reports and this ECP Report makes no statement on the current quantity and disposition of ACM within the PPV Housing managed buildings at NIOC Sugar Grove. The

presence ACM (and LBP) is a BER due to the capital costs and potential liability associated with its identification, abatement, encapsulation/removal, and disposal of ACM. These areas should be inspected prior to any renovation/ demolition activities to confirm the absence or presence of ACM.

7.0 CERTIFICATION

By signing this report, the author declares that, to the best of his and her professional knowledge and belief, he or she meets the definition of Environmental Professional as defined in §312.10 of 40 CFR Part 312.

The author has the specific qualifications based on education, training, and experience to assess the nature, history, and setting of the property. The author, or a qualified designee under their direct supervision has developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312. The information contained within the Environmental Condition of Property Report for the Disposal of Naval Information Operations Command Sugar Grove, Sugar Grove, West Virginia dated June, 2014 is based on records reviews, site inspections and interviews and is, to the best of my knowledge and belief, true, accurate and complete, and accurately reflects the property's condition as of June 23, 2014.



Richard P. Aschenbrenner, P.G.

Michael Baker Jr., Inc.

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Appendix A
Scope of Work

17 July 2013

Scope of Work
ENVIRONMENTAL CONDITION OF PROPERTY
Disposal of NSA Sugar Grove
Sugar Grove, West Virginia

1. BACKGROUND

1.1 Objective

Under existing environmental regulations, the Navy could be held responsible for hazardous and toxic wastes or substances left on properties leased or transferred by the Navy. In order to protect the interest of the Navy, it is imperative that the Navy establishes a baseline for the environmental conditions prior to leasing or transferring the property. It is the primary objective of an Environmental Condition of Property (ECP) to determine if any potential environmental problems exist at the parcels prior to leasing or transferring of the property.

1.2 Site Background

The site is located on 118 acres of property approximately three hours (170 miles) west of Washington, DC. There is a full range of facilities that currently support approximately 450 personnel including: a permanent party 1+1 barracks with 53 suites, 80 privatized housing units, administrative space for 125 personnel, 40 person classroom, 3k square feet of retail space, 42k square feet of indoor recreational space, 3 outdoor playing fields, 4k square feet of storage space, 1 small arms range, 23k square feet of public works shops and storage, fire and police station.

It is the intent of the Navy to dispose of the lower base complex at NSA Sugar Grove through GSA. In support of this action all environmental issues need to be identified so a decision can be made if cleanup is required or the property can be transferred as is.

An asbestos survey will be conducted for all building where asbestos is suspected to be present (with the exception of the housing areas). A review of year of construction will be used to help narrow down the number of structures that will be included in the survey. As a starting point, presume 30 structures will need to be surveyed.

1.3 Meetings

In support of developing the documents for this effort (project work plan, draft report, final report) an initial project meeting will be held after award and before any documents have been prepared to review preliminary information the Navy has available. This will help in the preparation of the project work plan and scope of the asbestos survey.

2. PROCEDURES FOR CONDUCTING ECP

The ECP will consider sources of available environmental information that would identify significant current and past uses of the real property that could potentially affect the environment. At minimum, the following information shall be included in the ECP report:

a) In-House Record Review: A review of applicable information and records in the possession of the Navy to include any studies (real estate title searches, tax maps) which may indicate what, if any, hazardous substances may be present on the property.

b) Regulatory Record Review: A review of all reasonably obtainable federal, state, and local records that pertain to the parcel of property, as well as, facilities located within a one mile radius. Concentration shall be placed on past inspections, enforcement actions, permits, or other environmental compliance issues. National database searches for generator identification numbers for disposal of hazardous and solid waste, inclusion on CERCLIS, or any other databases that track environmental compliance issues.

c) Map Review: Obtain accurate current and past maps of the real property from the Activity or the city/town.

d) Property Ownership (History): An effort shall be made to determine the past owners and type of activity that occurred on each parcel of land. This will not include a title search.

e) Interviews: Interviews shall be conducted with the current or past property owners and/or any persons knowledgeable of operations occurring past or present on the real property. All interviews shall be arranged through the Navy Engineer in Charge (EIC) or facility Point of Contact (POC).

f) Visual Inspection: A visual site inspection of the real property, including any buildings, structures, equipment, pipes, or other improvements on the real property. During the site visit, any areas of concern shall be noted and photographed for inclusion in the report. NOTE: Site access should be arranged through Navy EIC or the installation contact.

g) Sampling: the only sampling performed will be that needed to support the Asbestos Survey required for this project.

3. PROJECT PLANS

Project Plans shall be provided to the Navy EIC and the activity in draft form prior to beginning any fieldwork. The Final Project Plans are not to be submitted as

separate documents. The Final Project Plans are to be included in the appendix of the Final Report. Government comments to the draft project plans will be provided by MIDLANT through email. The Contractor shall provide response to comments in a letter format. All needed changes will be incorporated into the Final Project Plans. The Project Plans at minimum shall include the following information:

a) Introduction: The introduction shall state the objectives of the Hazardous and Toxic Real Estate Survey.

b) Checklist: This section shall outline the series of steps (record review, database search, etc.) to be completed and the rationale behind each step to obtain the information needed to complete this ECP. A simple checklist to be used in the field, in bullet format, shall be provided in the Work Plan.

c) Investigative Procedures: This section should list the specific sources of information that will be investigated and the method to be used in obtaining this information. The ASTM guidance document "Environmental Site Assessments for commercial Real Estate", provides helpful guidelines in conducting an effort similar to this ECP.

d) Personnel Requirements - This section should identify all individuals needed to conduct field activities, including support personnel, and their specific responsibilities. Indicate each person's responsibilities (i.e. site visit, interviews, report writing, etc...). Actual names are not necessary for typists, editors, secretaries, technicians, and graphic artists.

e) Contractual Services: This section should list any contractual services needed to complete this Hazardous and Toxic Real Estate Survey.

f) Health and Safety Plans: A Health and Safety Plans shall be included as part of the Work Plans. The HASP should meet the minimum requirements of 29 CFR 1910.120.

4. SUPPORTING DOCUMENTS

The following is a list of documents that may provide helpful guidance in conducting in this type of fieldwork:

a) Department of the Navy DoN Policy for Streamlining the Assessment, Documentation, and Disclosure of the Environmental Condition of Property (ECP) for Non-BRAC Real Estate Actions, June 2006.

b) Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) 1980, as amended by PL99-499, 17 October 1986.

- c) Community Environmental Response Facilitation Act (CERFA), 1992.
- d) Environmental Protection Agency, Preliminary Assessment and Site Investigation Guidance, January 1992.
- e) ASTM D 6008-96 Standard Practice for Conducting Environmental Baseline Surveys.
- f) ASTM E 1527-00 Standard Practice For Environmental Site Assessments, Phase I Environmental Site Assessment Process.
- g) ASTM E 1528-00 Standard Practice For Environmental Site Assessments, Transaction Screening Process.

5. REPORT PREPARATION

At the completion of fieldwork, a draft ECP report will be prepared according to the guidance provided in this scope of work. The report shall present findings by building/parcel not by environmental area of concern. All reports shall be submitted in bound cover. Text shall be single-spaced and with double spacing between paragraphs. The report shall include the following sections:

- a) Executive Summary: A brief synopsis of the parcel being evaluated, the findings, and conclusions/recommendations of the survey. This section should be limited to no more than two pages.
- b) Background: A description of the past and current operations that have occurred at each parcel covered under his ECP. This section should incorporate the results of the chain of title search.
- c) Findings: Any relevant information on potential environmental contamination gained from record reviews, interviews, or the site walk-through. Any areas found to be in violation of a current regulation shall be noted in this section. All analytical data shall be submitted in tabular format. Boring logs and well construction logs shall be included in the appendix of the report.
- d) Maps/Figures: A detailed site map, in color, shall be provided in the body of the report. Parcels with buildings shall have a CADD drawing that outlines areas of concern. All tables and figures should be reduced, if possible, and included in the body of the report. Actual size maps, figures, and tables should be included in the appendix. Site sketches and field notes should be included in the appendix.
- e) Photographs: Photographs shall be taken of all areas of concern discovered on the sites. A brief description shall be provided for each photograph. Copies of the photographs are to be in color and placed within an appendix to the report.

f) Recommendations: Recommendations for confirmation sampling or cleanup of contaminated or potentially contaminated areas of concern. This section should include an overview of governing environmental regulations with emphasis on cleanup or remediation goals.

g) Appendices: Include in the appendices, at minimum; summary list, interview notes, and documents reviewed. The summary list shall include all sources reviewed, persons contacted, and interviewed regardless of the information obtained. For any document reviewed indicate where the document is maintained (located), the contact person, their telephone number, the date reviewed, and a brief summary of information obtained.

A sample format for the report is provided below:

- I. Introduction
- II. Executive Summary
- III. Site Physical Setting
- IV. Survey Methodology
- V. Findings
- VI. Conclusions
- VII. Recommendations
- VIII. Appendices

VI. REPORT DISTRIBUTION

The Contractor shall submit all copies of the draft and final reports as prescribed in Appendix A. The Navy Contract Representative must approve any changes to Appendix A submittal dates or requirements. All information gained during this investigation will be kept confidential by the Contractor and will be released only to the Navy.



Figure (a)

Appendix B
Final Project Plans

FINAL

WORK PLAN

**ENVIRONMENTAL CONDITION OF PROPERTY
DISPOSAL OF NIOC SUGAR GROVE
Sugar Grove, West Virginia**

for

**NAVAL FACILITIES ENGINEERING COMMAND
MID-ATLANTIC FACILITIES**

Submitted to:



Department of the Navy
Naval Facilities Engineering Command Mid-Atlantic
Norfolk, Virginia

Baker

Virginia Beach, VA

Contract No. N62470-10-D-3000

DO-WE05

November 2013

Multimedia Compliance

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**FINAL
WORK PLAN**

**ENVIRONMENTAL CONDITION OF PROPERTY
DISPOSAL OF NIOC SUGAR GROVE
Sugar Grove, West Virginia**

Prepared for:

**DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
MID-ATLANTIC DIVISION
*Norfolk, Virginia***

Under:

**CONTRACT N62470-10-D-3000
CONTRACT TASK ORDER WE05**

Prepared by:

**MICHAEL BAKER JR., INC.
*Virginia Beach, Virginia***

November 2013

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ACRONYMS AND ABBREVIATIONS

AST	Aboveground Storage Tank
ACM	Asbestos Containing Material
Baker	Michael Baker Jr., Inc.
CAD	Computer-Aided Draft
CDA	Circularly Disposed Antenna Arrays
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CORRACTS	Corrective Action Sites
DO	Delivery Order
DoD	Department of Defense
DoN	Department of Navy
ECP	Environmental Condition of Property
EA	Environmental Assessment
ERM	Environmental Resources Management Inc.
ERNS	Emergency Response Notification System
FUDS	Formerly Used Defense Sites
HASP	Health and Safety Plan
HMIRS	Hazardous Materials Information Reporting System
iNFADS	internet Navy Facilities Asset Data Store
LBP	Lead Based Paint
LTANKS	Leaking Storage Tank
LUST	Leaking Underground Storage Tank
NAVFAC	Naval Facilities Engineering Command
NAVRADSTA	Naval Radio Station
NAVSECGRU	Naval Security Group Command
NPDES	National Pollution Discharge Elimination System
NETWARCOM	Naval Network Warfare Command
NFRAP	No Further Remedial Action Planned
NIOC	Naval Information Operations Command
NOV	Notice of Violation
NPL	National Priority List
NSGA	Naval Security Group Activity
NTR	Navy Technical Representative
ODI	Open Dump Inventory
OIC	Officer in Charge

PCB	Polychlorinated Biphenyl
POC	Point of Contact
POL	Petroleum, Oil, and Lubricant
PPV	Public/ Private Venture
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
TSCA	Toxic Substances Control Act
TSD	Treatment, Storage, and Disposal
UST	Underground Storage Tank
WP	Work Plan

1.0 INTRODUCTION

Michael Baker Jr., Inc. (Baker) has been retained by the U.S. Department of the Navy, under contract with the Naval Facilities Engineering Command (NAVFAC) Mid-Atlantic Division, Contract Number N62470-10-D-3000, Delivery Order (DO) WE05, to conduct an Environmental Condition of Property (ECP) Survey for the disposal of portions of Naval Information Operations Command (NIOC) Sugar Grove, Sugar Grove, West Virginia.

In order to protect the interests of the Navy, and to ensure management and compliance with appropriate federal, state, and local environmental statutes and regulations, NAVFAC Mid-Atlantic has retained Baker to conduct an ECP of the property. The ECP will identify areas of environmental concern and determine the potential presence of hazardous / toxic wastes or materials within a property leased or transferred by the Navy. This Work Plan (WP) outlines the steps proposed to accomplish the survey and the rationale behind each of these steps. This WP also identifies the sources of information to be investigated and methods to be used to obtain the information. Along with the WP, detailed procedures by which this project will be performed and the associated quality assurance objectives are presented in the Health and Safety Plan (HASP), which is provided in Appendix A.

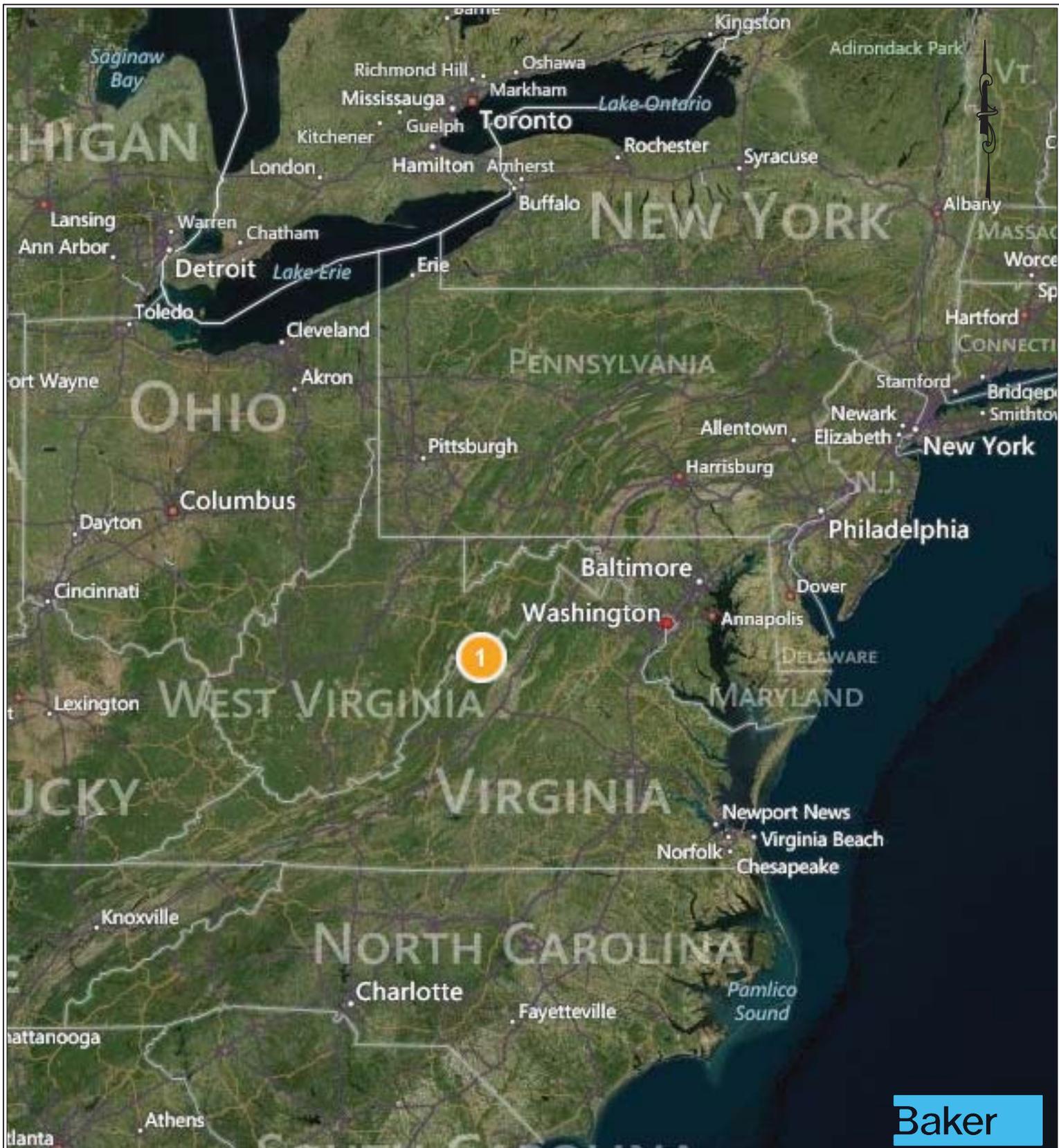
1.1 Objective

It is the intent of the Navy to dispose of the lower base complex at NIOC Sugar Grove. The primary objective of the ECP is to determine if there are any hazardous / toxic wastes or materials currently located within the 118 acre facility since the Navy can be held responsible for these materials on properties leased or transferred by the Navy under the strict liability provisions of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The ECP will establish a determination of the potential presence / absence of hazardous or toxic wastes, asbestos containing materials (ACM), or other materials within the site to help minimize the risk to the Navy and identify if there are any environmental issues present so a decision can be made if cleanup is required or the property can be transferred as is. The ECP will consider sources of available information regarding environmentally significant historic and current uses of the parcel, available information on the existing uses of the property, and an evaluation of available environmental reports.

1.2 Site Background

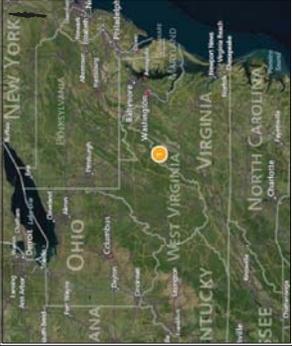
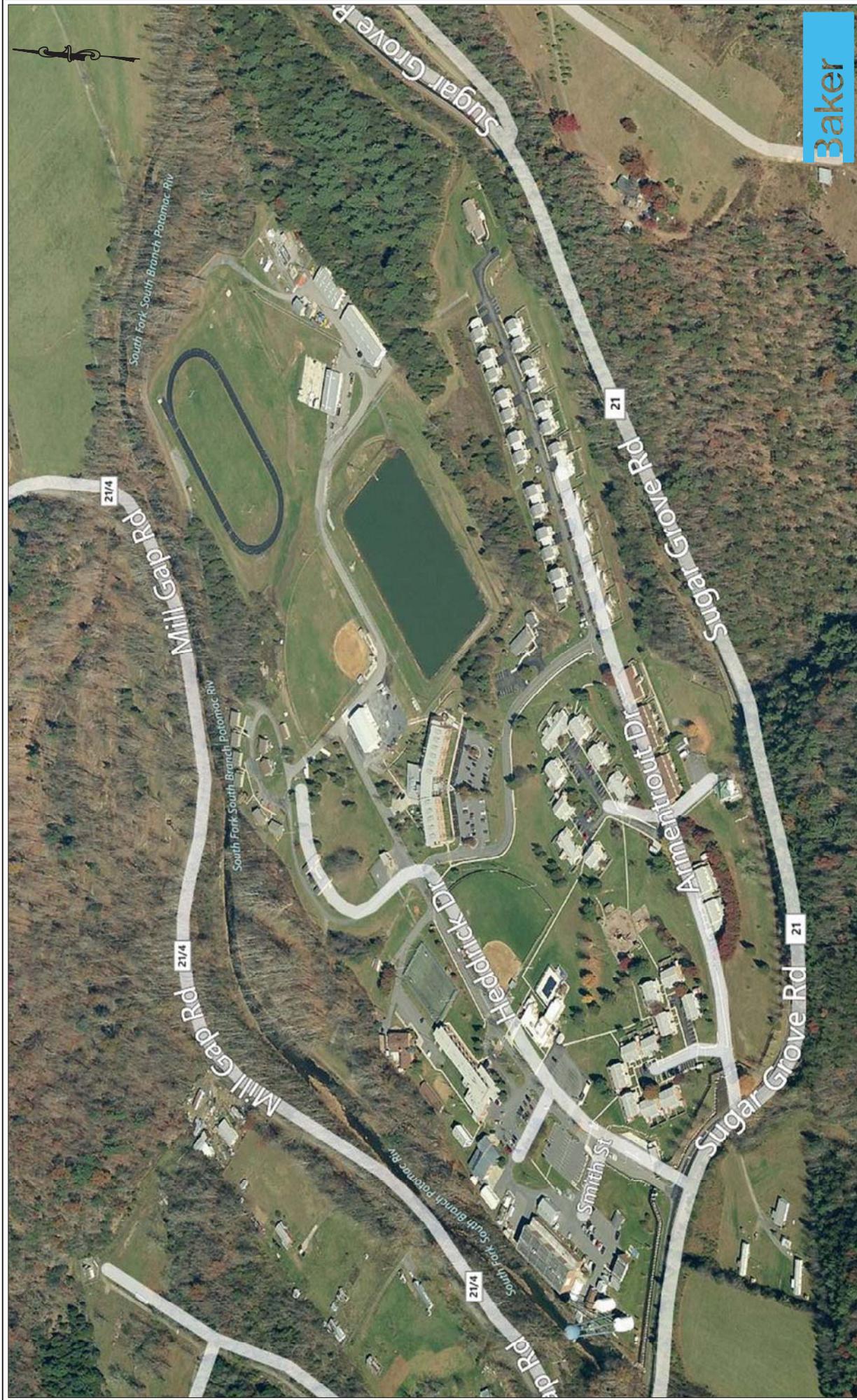
NIOC Sugar Grove is located in Sugar Grove, Pendleton County, West Virginia. The investigation area consists of the 118 acre lower base complex portion of the NIOC Sugar Grove. The lower base complex contains a full range of facilities that support approximately 450 personnel, including barracks, privatized housing, administrative space, classrooms, retail space, indoor recreational space, storage space, a small arms range, public works shops, as well as a fire station and police station. Sugar Grove is near the city of Franklin, West Virginia, about 3-hours west of Washington, DC, and approximately 1 hour west of Harrisonburg, Virginia. Figure 1-1 depicts a regional location map and Figure 1-2 depicts a site location map for NIOC Sugar Grove, Sugar Grove, West Virginia.

Naval Radio Station (NAVRADSTA) Sugar Grove was activated on May 10, 1969 as a radio receiving station. The facility was originally developed in the early 1960s for a radio telescope, but this project was halted in 1962. In 1962, in response to a request from Senator Robert C. Byrd to find other uses for the Sugar Grove facility, the Navy proposed the site to be used as a radio receiving station, due in part to its unique location within the 13,000 square miles National Radio Quiet Zone and in March 1965 work was begun to convert the site to a radio receiving station. On November 8, 1969 two Wullenweber Circularly Disposed Antenna Arrays (CDAAs) were completed which provided increased capacity for reception of ship-shore and overseas circuits. Two domed antennas, a parabolic antenna, approximately 70 radio receivers, and numerous other communications devices were also constructed at the facility. Operational use of NAVRADSTA Sugar Grove officially began on December 30, 1969 and it became the primary east coast receiving site for ship-shore and overseas traffic. On December 1, 1969 Naval Security Group Detachment Sugar Grove was established and became a Naval Security Group Activity (NSGA) Sugar Grove when the Naval Radio Station was closed on 1 October 1992, after the removal of the CDAAs. On 1 October 2005, NSGA was changed to Navy Information Operations Command as part of the integration of the Naval Security Group Command (NAVSECGRU) functions into Naval Network Warfare Command (NETWARCOM). On 22 April 2013, the Chief of Naval Operations approved the disestablishment of NIOC Sugar Grove to be effective 30 September 2015.



LEGEND

FIGURE 1-1
REGIONAL SITE LOCATION MAP
ENVIRONMENTAL CONDITION OF PROPERTY
DISPOSAL OF NIOC SUGAR GROVE
SUGAR GROVE, WEST VIRGINIA



LEGEND

FIGURE 1-2
SITE LOCATION MAP
ENVIRONMENTAL CONDITION OF PROPERTY
DISPOSAL OF NIOC SUGAR GROVE
SUGAR GROVE, WEST VIRGINIA
 N62470-10-D-3000, Delivery Order WE05

2.0 ECP CHECKLIST

The ECP will establish a historical background for the site based on previous ownership, reviews of available environmental records and reports, and interviews with available current and former land owners and/or any persons knowledgeable of past or present activities on the site. The ECP will consider sources of available environmental information that would identify significant current and past uses of the real property that could potentially affect the environment. A series of steps will be followed during the ECP to obtain the requisite information on historic and current operations and disposal practices that may have created environmental conditions in and around the subject property. The steps and their rationale are described below; a checklist is provided Table 2-1 and a Site Walkover Checklist is provided in Appendix B.

- **An In-House Record Review:** A review of applicable information and records in the possession of the Navy to include any studies (real estate title searches, tax maps) which may indicate what, if any, hazardous substances may be present on the property. Documents that may be reviewed include, but are not limited to: Environmental Assessments (EAs), Pollution Prevention Plans, Storage Tank Management Plans, ACM surveys, and applicable Public/Private Venture (PPV) documentation pertaining to base housing.
- **Regulatory Record Review:** A review of all reasonably obtainable federal, state, and local records that pertain to the parcel of property, as well as, facilities located within a one mile radius may provide information on any existing environmental problems at the site. All reasonably obtainable federal, state, and local government records for the property and adjacent facilities will be reviewed to identify permits, enforcement actions, inspections, and authorizations for hazardous or solid waste disposal at the site. Emphasis shall be placed on past inspections, enforcement actions, permits, or other environmental compliance issues. In addition, national database searches will be used to determine if any environmental compliance issues, past or present may have affected the parcel property by determining the presence of generator identification numbers for disposal of hazardous and solid waste or Superfund data from the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS), or any other databases that track environmental compliance issues. Identified areas of noncompliance within existing environmental regulations and policies will be investigated.
- **Map Review:** Obtain accurate current and past maps of the real property from the Activity or the city/town. The review of available aerial photographs and maps will be used to identify

any former uses of the site by manufacturing, chemical, or other industrial operations that may have impacted environmental conditions at the site. In addition, available current and past computer-aided draft (CAD) mapping will be reviewed to determine current and past locations of infrastructure that could potentially have had an environmental impact, such as petroleum, oil, and lubricant (POL) storage tanks.

- **Property Ownership (History):** An effort shall be made to determine the type of activity that occurred on each parcel of land. A title search will not be conducted as part of this effort.
- **Interviews:** Interviews shall be conducted with any persons knowledgeable of operations occurring past or present on the real property. All interviews shall be arranged through the Navy Technical Representative (NTR) or facility Point of Contact (POC).
- **Visual Inspection:** The visual site inspection will be conducted to assess the degree to which hazardous and toxic substances may have been stored, disposed of, or released at the site. A visual site inspection of the real property may include any buildings, structures, equipment, pipes, or any other improvements on the real property for evidence of environmental impacts (e.g., stained soil, odors, stressed vegetation, etc.) that indicate actual or potential releases of hazardous substances. In addition, immediately adjacent properties will be visually observed and inspected to the extent authorized. During the site visit, any areas of concern shall be documented in field notes and photographed for inclusion in the report. Site access will be arranged through the NTR or a facility POC.

TABLE 2-1: SUMMARIZED ECP CHEKLIST

ACTIONS TO BE TAKEN	STATUS
Review records at local governmental offices for relevant information pertaining to the site and adjacent properties.	
Contact Navy POC concerning right of entry prior to commencing field work.	
Collect information on environmental settings (e.g., elevation, soils, topography, climate, etc.).	
Collect historical use information, such as aerial photographs and maps.	
Conduct preliminary site visit to identify areas of concern.	
Identify hazardous materials usage and hazardous waste generation associated with current activities at or near the site.	
Collect information on all waste disposal practices.	
Identify present and former USTs and ASTs.	
Identify potential PCB-containing equipment.	
Inspect site for evidence of soil staining.	
Inspect site for stressed vegetation and dead or ill wildlife.	
Examine site for unusual odors.	
Note daily operations/activities at the site.	
Observe adjacent properties; inspect as authorized by property owner.	
Prepare site sketch; include site runoff/drainage pathways.	
Interview available current and former property owners.	
Note any other indications of actual or potential releases.	
Photograph each area of potential concern.	
Collect topographic and wetland maps	
1 mile hazardous waste site review (1 mile minimum)	

3.0 INVESTIGATIVE PROCEDURES

An established set of investigative procedures will be followed during the ECP. These procedures will facilitate and coordinate the activities of the project team during historical background characterization, regulatory records review, interviews with site personnel, the site inspection, and data evaluation. Similarly, preparation of the ECP report will follow an established set of procedures to ensure proper documentation of all ECP activities.

3.1 Environmental Condition of Property Survey

3.1.1 Historical Background Characterization

The historical background characterization of the site will be based on examination of available maps and aerial photographs, review of previous studies and reports conducted by the Navy, and any records at the site that would indicate historic operations, procedures, waste generation and disposal practices, and releases. Investigations into the historic background of the site will be conducted prior to and during the site inspection.

Local planning and/or zoning agencies will be contacted to determine the availability of historic aerial photographs that include the subject real property. The photographs in combination with any historical documentation will be used to establish and verify site operational history, and identify any historic evidence of stressed vegetation, soil staining, or other indication of environmental impacts.

Detailed searches and reviews of available information and records, reports, and documents in the possession of the Navy and/or any other government agencies will be conducted to determine what, if any environmental problems exist. Current and historic maps and CAD drawings, if available will also be reviewed for the presence of buildings, equipment, pipes, sewer lines, underground storage tanks, and electrical operational equipment which may contain polychlorinated biphenyl (PCB) containing equipment (e.g.: transformers, switch gears, etc.).

3.1.2 Regulatory Records Review

Baker will review all reasonably obtained federal, state, and local records that pertain to the parcel and any facilities located within a one-mile radius. Baker's field team will conduct a search of

federal, state, and local government environmental databases (if available) to evaluate whether hazardous sites or serious local environmental problems exist on or adjacent to the property. Permits, enforcement actions, inspections, hazardous or solid waste disposal authorization, and other pertinent environmental records such as complaints or notices of violation (NOVs) available through governmental agencies and/or the activity will be reviewed. Relevant records, if applicable will be documented in the ECP report and included if available.

3.1.3 Interviews

Interviews will be conducted with any individuals or site personnel knowledgeable of the past and current operations performed on the property. Since this an installation-wide survey, with multiple facilities, it is anticipated that interviews will be conducted with site personnel at different buildings, shops, and departments at the installation. In addition, interviews will be conducted with PPV housing personnel for additional information pertaining to the base housing at the installation.

3.1.4 Site Inspection

Baker will visually inspect the site and, to the extent feasible, adjacent properties. Specific areas of inquiry during the site inspection will include:

- Signs of soil staining, stressed vegetation, and dead or ill wildlife;
- Unusual odors, such as petroleum or chemical smells;
- Drums, tanks, waste piles, or similar waste management units;
- Current or former waste storage or treatment areas;
- Fill and vent pipes for underground storage tanks;
- Water supply, monitoring, injection, or dry wells;
- Electrical operational equipment potentially containing PCBs;
- Local depressions (possibly indicative of tanks or other buried objects) or fill material which could conceal waste;
- Surface topography and surface water drainage and runoff patterns;
- Wastewater, storm water, and other discharge or emission points;
- Oily sheen or other unusual appearances on surface water; and
- Identification of all areas of noncompliance with existing environmental regulations and policies.

During the site inspection, areas of concern will be noted and photographed. Potential lead based paint (LBP) will not be sampled for confirmation of the absence / presence of lead as part of this survey. The likelihood for the presence of LBP will be determined by the professional judgment of the field personnel as well as the construction and the age of the structure.

An ACM survey of buildings on the installation constructed prior to 1986 will be conducted as part of this survey. A complete list of all buildings located at NIOC Sugar Grove was obtained from the internet Navy Facilities Asset Data Store (iNFADS) and filtered for the buildings constructed prior to 1986. The ACM survey will focus on the eight buildings listed in Table 3-1. ACM surveys are going to be conducted by Environmental Resources Management Inc. (ERM) of Charleston, West Virginia, a subconsultant to Baker. Planned ACM survey work Project Plans are provided in Appendix C. Should potential ACM be identified in any other buildings inspected by ERM or Baker personnel during the site inspection, additional ACM survey activities may be required.

Table 3-1: NSGA Sugar Grove Buildings Dated Prior to 1986, Sugar Grove, West Virginia				
Building Number	Building Description	Location	Building Size (square feet)	Year of Construction
20	PW Maint Shop/ Gym/ Bowling	Hedrick Dr.	26999	1961
22	Plumbing Maint Shop	Hedrick Dr.	2750	1959
25	Pump House/Filter/Chlorine	Hedrick Dr.	330	1961
29	Emergency Vehicle Garage	Hedrick Dr.	1344	1959
30	NEX/ Commissary/ Bath house	Hedrick Dr.	6522	1974
63	Administration building	Hedrick Dr.	20040	1968
66	Equipment Shed	Hedrick Dr.	525	1975
68	Fire Station	Hedrick Dr.	6996	1986

Additional records of ACM surveys previously conducted in housing will be reviewed and included as an appendix to the ECP Report.

3.1.5 Data Evaluation

After completion of the historical background characterization, regulatory records review, interviews, and site inspection, the project team will compile and analyze the collected information to determine whether any areas of potential environmental concern exist at the site. Any potential concerns will be identified within the ECP report.

3.2 ECP Report Preparation

A draft report will be prepared to document the findings of the ECP survey. The ECP survey report will include elements as listed in the project scope of work dated 17 July 2013 and outlined in Table 3-2.

The ECP report will include site location maps and plans showing the locations of relevant features. The final report will include a technical appendix comprised of the Final WP and HASP, color photographs, interview logs, records review, field notes, the ACM survey, and other supporting documents.

**TABLE 3-2:
ENVIRONMENTAL CONDITION OF PROPERTY SURVEY REPORT FORMAT**

Executive Summary

- 1.0 Introduction
 - 1.1 Introduction and Background
 - 1.2 Organization of the ECP
 - 1.3 Parcel Identification and Boundaries
 - 1.4 Legal Description
- 2.0 Survey Methodology
 - 2.1 Approach and Rationale
 - 2.2 Property Classification Guidelines
 - 2.3 Related Reports
 - 2.4 Real Estate Document Review
- 3.0 Past and Current Use
 - 3.1 Subject Property
 - 4.2 Adjacent Property
- 4.0 Environmental Setting
 - 4.1 Location
 - 4.2 Climatology
 - 4.3 Geology
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 - 4.5 Topography
- 5.0 Environmental Conditions
 - 5.1 Hazardous Substance/Waste Management
 - 5.2 Petroleum Contamination
 - 5.3 Environmental Restoration/Installation Restoration
 - 5.4 Solid/Bio-hazardous Waste
 - 5.5 PCBs
 - 5.6 Asbestos Containing Material
 - 5.7 Lead-Based Paint
 - 5.8 Pesticides and Herbicides
 - 5.9 Munitions and Explosives of Concern
 - 5.10 Tanks (USTs and ASTs)
 - 5.11 Radon/Radiological Material
 - 5.12 Threatened or Endangered Species
 - 5.13 Natural or Cultural Resources
 - 5.14 Notices of Violation
 - 5.15 Adjacent Property
 - 5.16 Other Environmental Concerns
- 6.0 Conclusions
- 7.0 Signatures

APPENDICES

- Appendix A Final Work Plan and Health and Safety Plan
- Appendix B Records Reviewed
- Appendix C Site Photographs
- Appendix D Maps
- Appendix E Interviews and Phone Logs
- Appendix F ACM Survey Report and Results
- Appendix G Additional Supporting Documents

4.0 PERSONNEL REQUIREMENTS

Baker will staff the project with a team of environmental professionals. Mr. Don Joiner is designated as the Project Manager, responsible for technical guidance and final review of all project deliverables. Mr. Joiner will ensure that contractual matters are addressed and resolved in a timely manner and that necessary corporate resources are available for completion of the project. Mr. Joiner will also be responsible for coordinating daily project activities and providing technical oversight during report preparation and production. Mr. Jason Oliver is designated as the Task Manager and is responsible for the management of tasks pertaining to project coordination, onsite investigation, data evaluation, and report preparation. Additional Baker staff will provide additional technical field and reporting assistance and support personnel will provide various administrative, editorial, and graphic production functions as necessary.

ACM surveys will be conducted by ERM Inc. of Charleston, West Virginia. Mr. David Carpenter is the ERM Principal in Charge and is responsible for assuring corporate assets are available and quality assurance/ quality control (QA/QC). Mr. Daniel Smaroff will be the ERM Project Manager, responsible for the coordinating project activities and the preparation and distribution of project deliverables. Mr. Spencer Reynolds will be the West Virginia certified lead asbestos inspector for the ACM survey. ERM will provide additional engineers, scientists, and West Virginia certified asbestos inspectors for the ACM survey as needed.

4.1 Project Personnel Contact Information

Contact information for NAVFAC Mid-Atlantic, NIOC Sugar Grove, Baker, and ERM project personnel is provided in Table 4-1 on the following page.

Table 4-1: NIOC ECP PROJECT PERSONNEL		
NAVFAC MID-ATLANTIC		
Title	Contact	Telephone
NAVFAC Mid-Atlantic NTR	Mark Barnes	(O) 757-341-0393
NAVFAC Mid-Atlantic NTR	Doug Lyons	(O) 757-322-4057
NAVFAC Mid-Atlantic Contract Specialist	Kirsten Johnson	(O) 757-341-1655
NIOC SUGAR GROVE		
NIOC Sugar Grove Legal Officer	LT Celeste Renoewick	(O) 304-249-6395 (C) 334-703-2526
	Robert (Bob) Hammer	
	William Ruddle	
	Jay Smith	
	Isaac (Ike) Hubbard	
BAKER		
Project Manager	Don Joiner	(O) 757-631-5416 (C) 757-373-2688
Site Survey Team Member	Jason Oliver	(O) 757-631-5251 (C) 757-570-3855
Site Survey Team Member	Will Harris	(O) 757-631-5413 (C) 757-692-8250
ERM		
Partner in Charge	David Carpenter	(O) 304-757-4777
Project Manager	Daniel Smaroff	(O) 724-933-5828 (C) 412-352-8937
Lead ACM Inspector	Spencer Reynolds	(O) 304-757-4777 (C) 304-395-0300

5.0 CONTRACTUAL SERVICES

Environmental Data Resources, Inc. (EDR) of Milford, Connecticut will be subcontracted to provide additional research services for Baker for this project. EDR will provide Baker with search report of available state and federal records for the property. The search report meets or exceeds the regulatory records search requirements of the Department of Navy (DoN) Environmental Policy Memorandum 06-06: “*Streamlined Environmental Procedures Applicable to Non-BRAC Real Estate Actions*”, July 5, 2006.

The search report may include, but may not be limited to the following:

- Historical figures and mapping;
- Aerial photography;
- Federal National Priority List (NPL) site list;
- Federal Delisted NPL site list;
- Federal Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) list;
- No Further Remedial Action Planned (NFRAP) list;
- Federal Resource Conservation and Recovery Act (RCRA) Corrective Action Sites (CORRACTS) facilities list;
- Federal RCRA non-CORRACTS Treatment, Storage and Disposal (TSD) facilities list;
- Federal RCRA generators list;
- Federal institutional controls / engineering controls registries;
- Federal Emergency Response Notification System (ERNS) list;
- State- and tribal-equivalent CERCLIS;
- State and tribal landfill and/or solid waste disposal site lists;
- State and tribal registered storage tank lists;
- State and tribal Leaking Storage Tank (LTANKS) list;
- State and tribal Leaking Underground Storage Tank (LUST) list;
- State and tribal institutional control / engineering control registries;
- State and tribal voluntary cleanup sites;
- State and tribal Brownfield sites;
- Open Dump Inventory (ODI);
- Hazardous Materials Information Reporting System (HMIRS);
- Department of Defense (DoD) Sites;
- Formerly Used Defense Sites (FUDS);
- Toxic Substances Control Act (TSCA); and
- National Pollution Discharge Elimination System (NPDES) Wastewater Discharge Permit Listing

6.0 PROJECT SCHEDULE

Upon final approval of the ECP, Disposal of NIOC Sugar Grove Project Plans, an initial 10-day field investigation will be scheduled. The initial 10-day field investigation is anticipated to take place on 11-22 November 2013. Should any additional field data or information be required for the completion of the ECP Report, a follow-up field investigation may be scheduled in the spring of 2014. The Draft ECP Report will be submitted by Baker to NAVFAC Mid-Atlantic by 8 May 2014 with a 30 day government review and comment period. Upon completion of the government review, Baker will submit the Final ECP by 7 July 2014.

Appendix A
Health and Safety Plan

**FINAL
HEALTH AND SAFETY PLAN**

for

PLANNED SITE ACTIVITIES

in conjunction with:

**ENVIRONMENTAL CONDITION OF PROPERTY
DISPOSAL OF NIOC SUGAR GROVE
Sugar Grove, West Virginia**

for

**NAVAL FACILITIES ENGINEERING COMMAND
MID ATLANTIC FACILITIES**

Submitted to:



Department of the Navy
Naval Facilities Engineering Command Mid-Atlantic
Norfolk, Virginia

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**FINAL
HEALTH AND SAFETY PLAN**

for

PLANNED SITE ACTIVITIES

in conjunction with:

**ENVIRONMENTAL CONDITION OF PROPERTY
DISPOSAL OF NIOC SUGAR GROVE
Sugar Grove, West Virginia**

Prepared for:

**DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
MID-ATLANTIC DIVISION
*Norfolk, Virginia***

Under:

**Contract No. N62470-10-D-3000
Delivery Order No. WE05**

Prepared by:

**MICHAEL BAKER JR., INC.
*Virginia Beach, Virginia***

November 2013

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LIST OF ACRONYMS

ACM	Asbestos Containing Material
ACOE	Army Corp of Engineers
Baker	Michael Baker Jr., Inc.
bpm	Beats per minute
CDAA	Circulary Disposed Antenna Array
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
dba	A-weighted decibels
DO	Delivery Order
DoD	Department of Defense
ECP	Environmental Condition of Property
EM	Engineering Manual
EPA	Environmental Protection Agency
ERC	Emergency Response Coordinator
ERM	Environmental Resources Management Inc.
FAR	Federal Acquisition Regulation
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
LBP	Lead-Based Paint
NAVFAC	Naval Facilities Engineering Command, Atlantic Division
NFPA	National Fire Prevention Association
NIOC	Navy Information Operations Command
NIOSH	National Institute for Occupational Safety and Health
NAVRADSTA	Naval Radio Station
NAVSECGRU	Naval Security Group Command
NETWARCOM	Naval Network Warfare Command
NSGA	Naval Security Group Activity
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
PHA	Project Hazard Analysis
PM	Project Manager
POC	Point of Contact
PPE	Personal Protective Equipment
SOW	Scope of Work
SSHO	Site Safety and Health Officer
TWA	Time Weighted Average

UFC	Unified Facilities Criteria
USACOE	United States Army Corp of Engineers
USEPA	United States Environmental Protection Agency
USCG	United States Coast Guard
WP	Work Plan

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HEALTH AND SAFETY PLAN APPROVAL

This Health and Safety Plan (HASP) for the Environmental Condition of Property at Naval Information Operation Command (NIOC) Sugar Grove, Sugar Grove, West Virginia work has been reviewed and signed by the following personnel prior to final submission to Naval Facilities Engineering Command (NAVFAC), Mid-Atlantic (MIDLANT).

<u>Don Joiner</u>	<u>Project Manager</u>	_____
Name	Role	Signature

<u>Jason Oliver</u>	<u>SSHO</u>	_____
Name	Role	Signature

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1.0 INTRODUCTION

Michael Baker Jr., Inc. (Baker) has been retained by the U.S. Department of the Navy, under contract with the Naval Facilities Engineering Command (NAVFAC) Mid-Atlantic Division, Contract Number N62470-10-D-3000, Delivery Order (DO) WE05 to conduct an Environmental Condition of Property (ECP) Survey for the disposal of Naval Information Operation Command (NIOC) Sugar Grove, Sugar Grove, West Virginia.

The purpose of this site-specific Health and Safety Plan (HASP) is to assign responsibilities to on-site personnel and to establish personnel protection standards and mandatory safety practices and procedures for the field work associated with the ECP Survey for NIOC Sugar Grove, Sugar Grove, West Virginia.

The procedures outlined in this plan are in conformance with the Baker Corporate Health and Safety Program and have been developed to comply with applicable Occupational Safety and Health Administration (OSHA) safety requirements. This HASP and associated field work will be conducted in compliance with the most current versions of the following reference documents:

- Federal Acquisition Regulation, (FAR) Clause 52.236-13: Accident Prevention;
- OSHA Construction Industry Standards, 29 Code of Federal Regulations (CFR) 1926, and General Industry Standards, 29 CFR 1910, especially 29 CFR 1920.120/29 CFR 1926.65;
- NIOSH/OSHA/USCG/EPA, "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities," October 1985; and
- "Department of Navy Environmental Restoration Program Manual", Chapter 16, August 2006.
- U.S. Army Corp of Engineers "Safety and Health Requirements Manual", Engineering Manual 385-1-1, September 15, 2008.

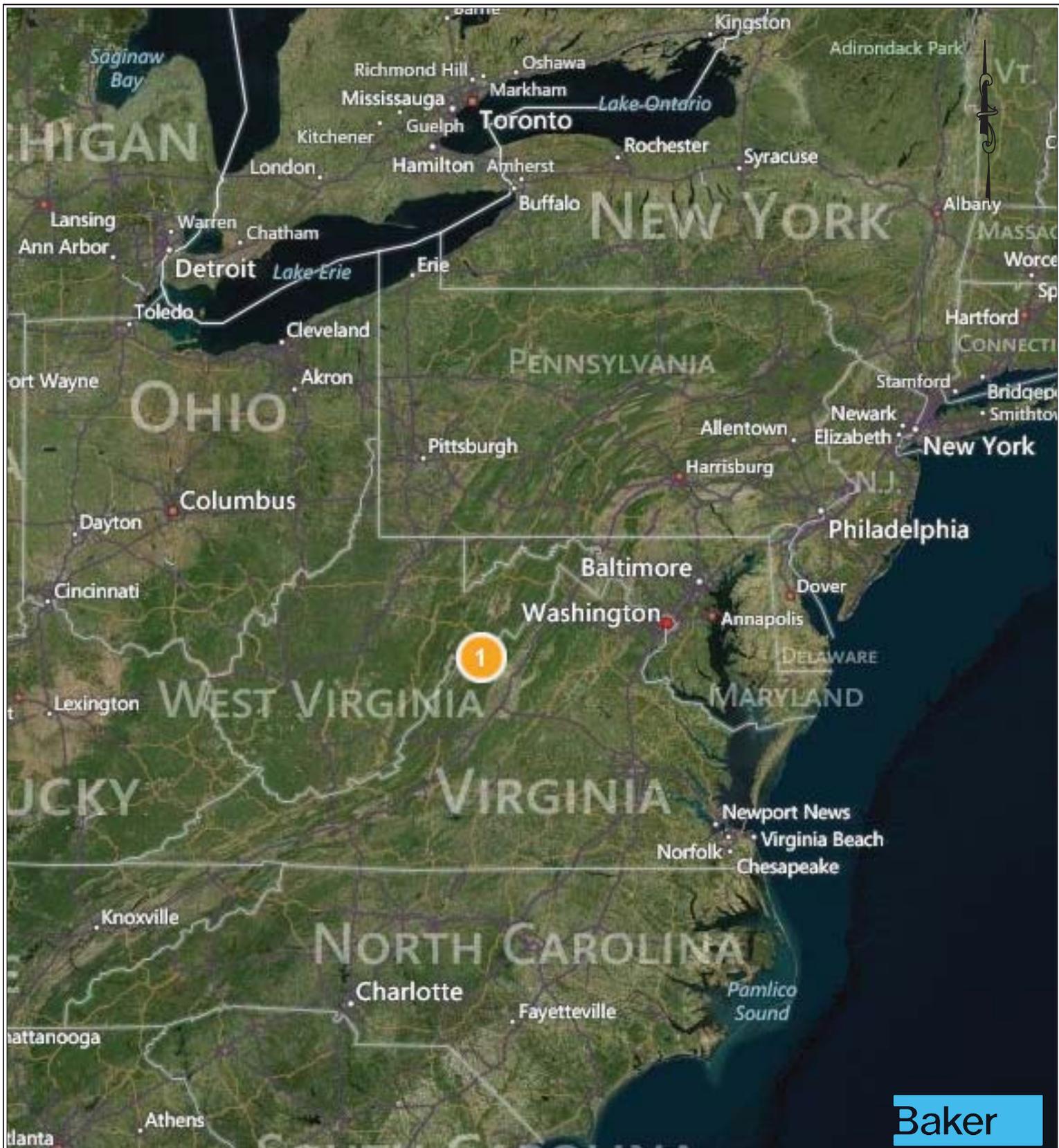
1.1 Background

It is the intent of the Navy to dispose of the lower base complex at NIOC Sugar Grove. The primary objective of the ECP is to determine if there are any hazardous / toxic wastes or materials currently located within the 118 acre area since the Navy can be held responsible for these materials on properties leased or transferred by the Navy under the strict liability provisions of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The ECP will establish a determination of the potential presence / absence of hazardous or toxic wastes or other materials within

the site to help minimize the risk to the Navy and identify if there are any environmental issues present so a decision can be made if cleanup is required or the property can be transferred as is. The ECP will consider sources of available information regarding environmentally significant historic and current uses of the parcel, available information on the existing uses of the property, and an evaluation of available environmental reports.

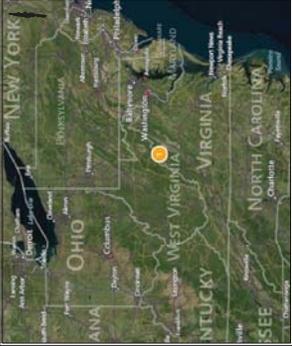
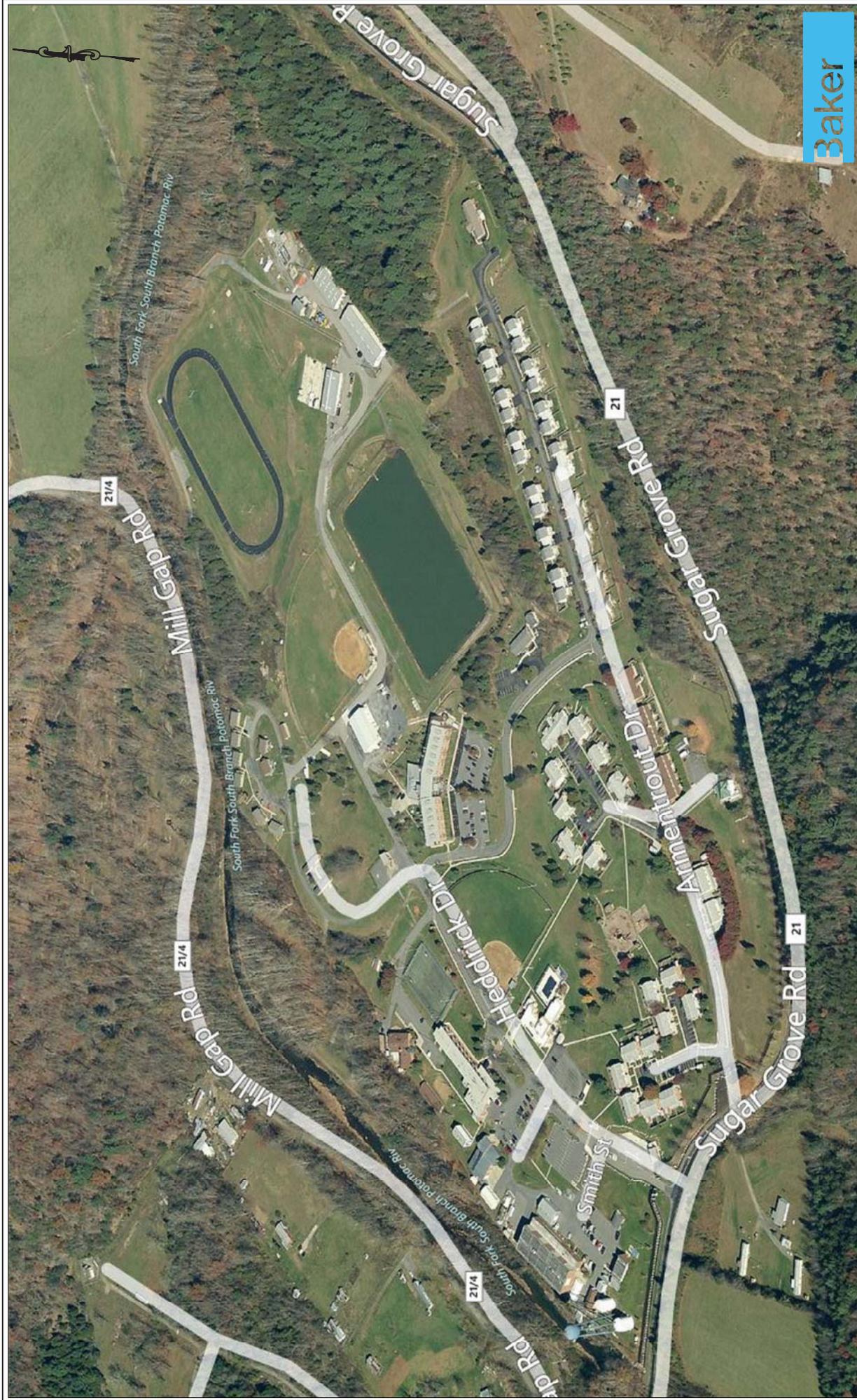
NIOC Sugar Grove is located in Sugar Grove, Pendleton County, West Virginia. The investigation area consists of the 118 acre lower base complex portion of the NIOC Sugar Grove. The lower base complex contains a full range of facilities that support approximately 450 personnel, including barracks, privatized housing, administrative space, classrooms, retail space, indoor recreational space, storage space, a small arms range, public works shops, as well as a fire station and police station. Sugar Grove is near the city of Franklin, West Virginia, about 3-hours west of Washington, DC, and approximately 1 hour west of Harrisonburg, Virginia. Figure 1-1 depicts a regional location map and Figure 1-2 depicts a site location map for NIOC Sugar Grove, Sugar Grove, West Virginia.

Naval Radio Station (NAVRADSTA) Sugar Grove was activated on May 10, 1969 as a radio receiving station. The facility was originally developed in the early 1960s for a radio telescope, but this project was halted in 1962. In 1962, in response to a request from Senator Robert C. Byrd to find other uses for the Sugar Grove facility, the Navy proposed the site to be used as a radio receiving station, due in part to its unique location within the 13,000 square miles National Radio Quiet Zone and in March 1965 work was begun to convert the site to a radio receiving station. On November 8, 1969 two Wullenweber Circularly Disposed Antenna Arrays (CDAAs) were completed which provided increased capacity for reception of ship-shore and overseas circuits. Two domed antennas, a parabolic antenna, approximately 70 radio receivers, and numerous other communications devices were also constructed at the facility. Operational use of NAVRADSTA Sugar Grove officially began on December 30, 1969 and it became the primary east coast receiving site for ship-shore and overseas traffic. On December 1, 1969 Naval Security Group Detachment Sugar Grove was established and became a Naval Security Group Activity (NSGA) Sugar Grove when the Naval Radio Station was closed on 1 October 1992, after the removal of the CDAAs. On 1 October 2005, NSGA was changed to Navy Information Operations Command (NIOC) as part of the integration of the Naval Security Group Command (NAVSECGRU) functions into Naval Network Warfare Command (NETWARCOM). On 22 April 2013, the Chief of Naval Operations approved the disestablishment of NIOC Sugar Grove to be effective 30 September 2015.



LEGEND

FIGURE 1-1
REGIONAL SITE LOCATION MAP
ENVIRONMENTAL CONDITION OF PROPERTY
DISPOSAL OF NIOC SUGAR GROVE
SUGAR GROVE, WEST VIRGINIA



LEGEND

FIGURE 1-2
SITE LOCATION MAP
ENVIRONMENTAL CONDITION OF PROPERTY
DISPOSAL OF NIOC SUGAR GROVE
SUGAR GROVE, WEST VIRGINIA
 N62470-10-D-3000, Delivery Order WE05

2.0 ORGANIZATIONAL STRUCTURE

[In compliance with 29 CFR 1910.120(b)(2)]

This section of the Health and Safety Plan describes lines of authority, responsibility, and communication as they pertain to health and safety functions at this site. The purpose of this section is to identify the personnel who impact the development and implementation of the site health and safety plan and to describe their roles and responsibilities.

The organizational structure of this health and safety program is consistent with OSHA requirements established in 29 CFR 1910.120(b)(2) and provides the following site-specific information:

- The general supervisor who has the responsibility and authority to direct all hazardous waste operations,
- The site safety and health officer who has the responsibility and authority to develop and implement this HASP and verify compliance,
- Other personnel needed for hazardous waste operations and emergency response and their general functions and responsibilities,
- The lines of authority, responsibility, and communication for safety and health functions.

This section is reviewed and updated as necessary to reflect the current organizational structure at this site.

2.1 Roles and Responsibilities

All personnel and visitors on this site must comply with the requirements of this HASP. The specific responsibilities and authority of management, safety, and health, and other personnel on this site are detailed in the following paragraphs.

2.1.1 Project Manager

The Project Manager (PM) for this project is Don Joiner. The PM has responsibility and authority to direct all work operations. The PM coordinates safety and health functions with the Site Safety and

Health Officer (SSHO), has the authority to oversee and monitor the performance of the SSHO, and bears ultimate responsibility for the proper implementation of this HASP.

The specific duties of the PM are:

- Preparing and coordinating the site specific Work Plan (WP),
- Providing site supervisor(s) with work assignments and overseeing their performance,
- Coordinating safety and health efforts with the SSHO; ensuring effective emergency response through coordination with the Emergency Response Coordinator (ERC), and
- Serving as primary site liaison with public agencies and officials and site contractors.

2.1.2 Site Safety and Health Officer

The SSHO for this site is Jason Oliver. The SSHO has full responsibility and authority to develop and implement this HASP and to verify compliance. The SSHO reports to the Project Manager. The SSHO is on site or readily accessible to the site during all field work operations and has the authority to halt site work if unsafe conditions are detected.

The specific responsibilities of the SSHO are:

- Managing the safety and health functions on this site; serving as the site point of contact (POC) for safety and health matters,
- Ensuring site monitoring, worker training, and effective selection and use of personal protective equipment (PPE),
- Assessing site conditions for unsafe acts and conditions and providing corrective action; assisting the preparation and review of this HASP,
- Maintaining effective safety and health records as described in this HASP, and
- Coordinating with the ERC, Site Supervisor(s), and others as necessary for safety and health efforts.

2.1.3 Emergency Response Coordinator

The ERC for this site is Jason Oliver. The ERC is responsible for assessing site conditions and directing and controlling emergency response activities in accordance with the Site Emergency Response Plan. The ERC reports directly to the PM. The ERC will ensure the evacuation, emergency transport, and

treatment of site personnel and will notify the appropriate emergency response units and management staff in accordance with the emergency response plan of this HASP.

Specific duties of the ERC include:

- Developing and reviewing the emergency response plan; conducting emergency response rehearsals,
- Ensuring effective emergency response and evacuation of the site; coordinating emergency response functions with the SSHO, and
- Integrating site emergency response plans with the disaster, fire, and/or emergency response plans of local, state, and federal organizations and agencies.

2.1.4 Site Workers

Site workers are responsible for complying with this HASP; using the proper PPE; reporting unsafe acts and conditions; and following the work, safety, and health instructions of the PM, SSHO, and Site Supervisor.

2.1.5 Security Officer

The Security Officer is responsible for managing and maintaining site access and security. The specific responsibilities of the Security Officer are:

- Conducting routine area patrols; controlling facility access and egress,
- Assisting with communication during an emergency,
- Securing accident/incident scenes, and
- Maintaining a log of site access and egress.

Due to the short duration of the field work, no Security Officer will be named for this project.

2.2 Identification of Other Site Contractors

Environmental Resources Management Inc. (ERM) of Charleston, West Virginia has been subcontracted to conduct the asbestos containing material (ACM) surveys in eight structures constructed prior to 1986. A separate Work Plan, including a site specific HASP detailing additional ACM related health and safety

components has been included as an appendix to the Work Plan for the ECP Disposal of Sugar Grove, Sugar Grove, West Virginia (Baker 2013).

3.0 POTENTIAL HAZARDS AND PROJECT HAZARD ANALYSIS

[In compliance with 29 CFR 1910.120(b)(4)(ii)(A), and 1910.120(i)]

This section of the HASP describes the safety and health hazards associated with site work and the control measures selected to protect workers. The purpose of a project hazard analysis (PHA) is to identify and quantify the health and safety hazards associated with each site task and operation, and to evaluate the risks to workers. Using this information, appropriate control methods are selected to eliminate the identified risks if possible, or to effectively control them. The control methods are documented in each task-specific PHA. The PHA is intended to meet the requirements of the United States Army Corp of Engineers (USACOE) EM 385-1, Activity Hazard Analysis.

The information contained in this section is essential to effective preparation of all other sections of the HASP. This section of the HASP includes:

- A site description,
- Project hazard analysis,
- Potential hazards,
- Hazardous substance information, and
- Employee notification of hazards.

3.1 Site Description

NIOC Sugar Grove is located in Sugar Grove, Pendleton County, West Virginia. The investigation area consists of the 118 acre lower base complex portion of the NIOC Sugar Grove. The lower base complex contains a full range of facilities that support approximately 450 personnel, including barracks, privatized housing, administrative space, classrooms, retail space, indoor recreational space, storage space, a small arms range, public works shops, as well as a fire station and police station. Sugar Grove is near the city of Franklin, West Virginia, about 3-hours west of Washington, DC, and approximately 1 hour west of Harrisonburg, Virginia. Figure 1-1 depicts a regional location map and Figure 1-2 depicts a site location map for NIOC Sugar Grove, Sugar Grove, West Virginia.

3.2 Project Hazard Analysis

Each site-specific PHA appears on a separate copy of Table 3-1, at the end of this section. Each PHA lists a task or operation required where that task or operation is performed. A single PHA may be used for a task/operation performed in multiple locations if the hazards, potential exposures, and controls are the same in each location.

The PHA addresses the most common and anticipated work activities associated with this project. The PHAs are presented in Table 3-1 and incorporate the activities outlined below:

- PHAs shall define the activities being performed and identify the work sequences, the specific anticipated hazards, site conditions, equipment, materials, and the control measures to be implemented to eliminate or reduce each hazard to an acceptable level of risk.
- The PHA shall be reviewed and modified as necessary to address changing site conditions, operations, or change of competent/qualified person(s).
- A PHA shall be prepared and documented for each activity as warranted by the hazards associated with the activity. Generally, a PHA should be prepared for all field operations.
- The supervisor, utilizing the recommendations of the SSHO, should determine the need for a PHA for each activity within his or her area of responsibility.
- In developing the PHA for a particular activity, Baker supervisors have drawn upon the knowledge and experience of employees in performing the activity.

Each PHA identifies anticipated physical, chemical, and biological hazards as well as potential exposure levels or the likelihood of exposure. The final section of each PHA lists the control measures implemented to protect employees from exposure to the identified hazards. The information provided here is designed to satisfy the project hazard analysis requirements of 1910.120(b)(4)(ii)(A), the workplace hazard assessment requirements of 1910.132(d), and requirements of the USACOE EM 385-1, Activity Hazard Analysis. PHAs may have to be modified should any of the following conditions be met:

- The scope of work is changed by adding, eliminating, or modifying tasks,
- New methods of performing site tasks are selected,
- Observation of the performance of site tasks results in a revised characterization of the hazards,
- New chemical, biological, or physical hazards are identified,

- Exposure data indicate changes in the concentration and/or likelihood of exposure, and/or
- New or different control measures are selected.

When PHAs are modified, related provisions in other sections of this HASP are modified as needed. Additional discussions of potential hazards that may be encountered during this project are discussed below.

3.2.1 Modifying Project Hazard Analysis

Baker may revise the PHA based on the field conditions during the project. Before beginning each work activity involving hazards not previously experienced the PHA will be modified to incorporate additional hazards. Table 3-1 presents the PHA under typical activity performance. An electronic version of the PHA will be available to field personnel to allow modifications based on changing site field activities. The following are conditions for modifying the PHA:

- PHAs shall define the activities being performed and identify the work sequences, the specific anticipated hazards, site conditions, equipment, materials, and the control measures to be implemented to eliminate or reduce each hazard to an acceptable level of risk.
- The PHA shall be reviewed and modified as necessary to address changing site conditions, operations, or change of competent/qualified person(s).
- Before beginning each work activity involving a type of work presenting hazards not experienced in previous project operations.

The modification to the PHA will be incorporated into this HASP. All personnel will be required to review the revised HASP and sign an acknowledgement to comply with its provisions. The HASP is considered an operational document that is subject to revisions in response to various site-specific conditions which may be encountered.

3.3 Potential Hazards

Workers on this project will be subject to two types of hazards: physical, and environmental. Chemical hazards are not anticipated to be encountered for the duration of the project; however a brief discussion has been included in the following sections in the event chemical hazards are identified on the property.

A summary of the potential impacts to workers from physical and environmental hazards are presented below. Specific project health hazards will be evaluated for each project, as described in Section 4.0, and proper safety processes will be implemented as needed.

3.3.1 Physical Hazards

The physical hazards that may be encountered during this project are discussed below.

3.3.1.1 Confined Space Entry

Confined space entry is not anticipated for the duration of this project. Should confined space entry be required, this HASP will be updated with entry-specific procedures in accordance with 29 CFR 1910.146.

3.3.1.2 Thermal Stress

Thermal stress is a serious concern for the various work activities. Provisions for monitoring and the prevention of thermal stress are outlined Section 10 of this HASP.

3.3.1.3 Utilities

Land disturbing activities are not planned for this project, therefore it is not anticipated that underground utilities will be encountered for the duration of this project.

3.3.1.4 Slips, Trips, and Falls

Slips, trips, and fall hazards are a concern for all field activities. The SSHO is responsible for assessing the hazard potential during the field investigation by conducting a site walkthrough prior to commencement of work. Where necessary, precautions will be implemented and added to this HASP in the field.

3.3.1.5 Weather Hazards

No weather related hazards are anticipated for this site.

3.3.2 Environmental Hazards

NIOC Sugar Grove is a developed area; however, hazardous flora and fauna may potentially be encountered. The following paragraphs touch upon the potential hazards associated with flora and fauna that may be encountered in the field. If additional concerns are identified in the future or in the field, they will be added as applicable.

3.3.2.1 *Hazardous Flora*

This project is being conducted primarily outdoors; therefore the incidence of contact by individuals to poisonous/thorny plants is relatively high. Bare skin should be covered (i.e., long pants and shirt, boots, leather or cotton gloves, and safety glasses) to the extent practical when working in forested or densely vegetated areas. Personnel should avoid entering an area in the direct path of known hazardous or poisonous flora (e.g., briars, poison ivy, poison oak, etc.) a secondary route should be selected. Care should also be taken when walking in such areas as uneven terrain or vines may present a tripping hazard. While attempting to cut into dense underbrush, hazards exist from the sharp machete and care should be taken when using such devices. (e.g., steel toe boots, gloves, and safety glasses). All rashes and other injuries will be reported to the SSHO as soon as they are known.

3.3.2.2 *Hazardous Fauna*

Mosquitoes and gnats pose a nuisance and physical hazard to field personnel; they distract workers, leading to accidents, and pose a physical threat by transmitting live microorganisms. Avoiding the use of perfumes and scented deodorants and donning light colored clothing is preferable. The use of insect repellent is encouraged and will be provided on site if mosquitos and gnats are a nuisance on site.

There is a potential to come in contact with stinging/biting insects; these include: chiggers, bees, wasps, hornets, mites, fleas, spiders, and ticks.

Prior to initiating site activities, each individual shall be questioned as to any known sensitivities to the previously mentioned organisms or agents.

The following paragraphs describe some of the hazardous fauna that may be encountered during field activities.

Snakes:

According to the West Virginia Department of Natural Resources, there are two venomous snakes indigenous to West Virginia and approximately 18 native non-venomous snakes. The two venomous snakes that can be found in West Virginia include the timber rattlesnake and the northern copperhead. Both of these snakes can be found throughout West Virginia, though the timber rattlesnakes tend to be found in more remote rocky areas. The timber rattle snake has a rattle that can alert to their presence, and they have a tendency to congregate in dens making it likely that a large number of snakes may be located in one location. The snakes typically encountered in West Virginia are generally not considered

particularly aggressive and typically do not attack people but will bite when provoked, angered, or accidentally injured, as when stepped on. When encountering a snake, avoid quick, jerky motions, loud noises, and retreat slowly; do not provoke the snake.

Spiders:

According to the West Virginia Department of Agriculture, only known venomous spider found in West Virginia is the southern black widow (*Latrodectus mactans*). The southern black widow is easily recognizable by the bright-red hourglass marking on the underside of their abdomen and glossy black body. Brown recluse (*Loxosceles reclusa*) has not been documented in West Virginia, though it is found in surrounding states, including Kentucky, Ohio, and Virginia. The brown recluse is slightly smaller than the black widow and a brown to oranges-yellow in color and recognized by its arrangement of six black eyes and violin shaped area on its back. There are several species of native non-venomous spiders indigenous to the West Virginia.

Ticks:

When in an area suspected of harboring ticks (grassy, bushy, or woodland area) the following precautions can minimize the chances of being bitten by a tick:

- Wear long pants and long-sleeved shirts that fit tightly at the ankles and wrists.
- Wear light colored clothing so ticks can be easily spotted.
- Use tick repellents such as DEET.
- Inspect clothing frequently while in tick habitat.
- Inspect your head and body thoroughly when you return from the field.

There are several different species of tick found in West Virginia. Three species common in West Virginia have been identified as potential vectors for infectious diseases as follows:

American Dog Tick/ Wood Tick (*Dermacentor variabilis*)

Adults are about 1/8th to 3/16th of an inch in length and have either a gray or mottled gray coloration along their backs. They are found in wooded or grassy areas. Wood ticks are known to be transmitters of tularemia and Rocky Mountain spotted fever. Tularemia causes swollen lymph nodes, abdominal pain, diarrhea, and pneumonia-like symptoms. Rocky Mountain spotted fever symptoms include muscle pain, rashes and unexpected fever. Both diseases are bacterial in nature.

Deer Tick (*Ixodes scapularis*)

Adult deer ticks are smaller than other common ticks. Adults are approximately the size of a sesame seed and nymphs are approximately the size of a poppy seed. Males are generally black and females have a red abdomen and a black shield. Deer ticks can usually be distinguished from other ticks by the longer mouthparts and black legs. The deer tick is the only known transmitters of Lyme disease in the United States and it is typically the poppy seed-sized nymph that is responsible for nearly all transmission cases. According to the West Virginia Department of Health and Human Resources, Lyme disease is the most common tick- transmitted disease encountered in West Virginia. Signs of Lyme disease usually occur within a month of the tick bite. Early signs of Lyme disease include a ring-like rash around the bite area and flu-like symptoms. In later stages symptoms may include arthritis as well as neurological and cardiovascular problems. Although no cases have been reported within West Virginia according to the West Virginia Department of Health and Human Resources, deer ticks may also carry Powassan encephalitis which is serious but rare illness caused by the Powassan virus. Sign of Powassan are generally seen 4-18 days after the tick bite. Early symptoms usually include: headache, fever, nausea, vomiting, stiff neck, and sleepiness. In later stages, signs such as respiratory distress, tremors, confusion, seizures, coma, paralysis, and sometimes even death can occur. Infection with Powassan virus can also cause inflammation of the brain (encephalitis) and sometimes meningitis.

Brown Dog Tick (*Rhipicephalus sanguineus*)

The brown dog tick is found in West Virginia. Adults are about 1/8th to 3/16th of an inch in length and generally slightly elongated and brown in color. They generally feed on dogs and other medium sized mammals, but the adults will readily bite humans. The brown dog tick is a known vector for Rocky Mountain spotted fever.

3.3.3 Chemical Hazards

Hazardous chemicals can be absorbed into the body through various pathways. These pathways include:

- Inhalation of vapors, gases, or particulates;
- Ingestion of contaminated particulates from hand-to-mouth contact;
- Dermal and eye absorption from direct, unprotected contact, or from exposure to airborne concentrations; and
- Injection, from puncture wounds.

The pathway of greatest concern for potentially acute exposures is inhalation.

The chemical exposure potential for personnel involved with the field investigation is expected to be extremely low and may relate to any chemicals encountered on the subject property. Some chemicals / materials that may be encountered out in the field may include: gasoline, diesel, fuel heating oil, lead-based paint (LBP) and ACM. Sampling activities are not anticipated to be conducted by Baker as part of this project and it is not anticipated that these materials will have to be disturbed if encountered; therefore hazards are expected to be low. Since these materials will not likely be disturbed, there is minimal chance for inhalation, ingestion, and/or dermal exposure. ERM is anticipated to be conducting sampling of ACM and have provided a separate HASP as an appendix to their WP as an Appendix to the Baker WP for the ECP Disposal of Sugar Grove, Sugar Grove, West Virginia.

Should any of chemicals / materials have to be disturbed, efforts will be made to eliminate or reduce potential routes of exposure through the use of safe practices such as wearing the specified PPE, avoiding hand-to-mouth contact, and immediately washing the hands and other parts of the body that may have contacted the media of concern.

3.4 Employee Notification of Hazards and Overall Site Information Program

The information in the PHAs and the attached data sheets is made available to all employees who could be affected by it prior to the time they begin their work activities. Modifications to PHAs and the accompanying data sheets are communicated during routine briefings. Consistent with paragraph (i) of Hazardous Waste Operations and Emergency Response (HAZWOPER) 1910.120, we also inform other contractors and subcontractors about the nature and level of hazardous substances at this site and the likely degree of exposure to workers who participate in site operations.

Table 3-1 Site-Specific Project Hazard Analysis		
Operational Phase	Task/Operation	Location Where Task/Operation Performed
Field Work	ECP Mobilization	NIOC Sugar Grove, West Virginia
Date(s) this PHA Conducted	Employee Certifying this PHA	
	Print Name:	Signature:
Chemical Hazards		
No chemical hazards identified.		
Physical Hazards		
Name of Physical Hazard		Exposure Potential
Vehicular Travel		Likely
Inclement Weather - Snow, rain, and other precipitation		Unlikely
Inclement Weather - Lightning and High Winds		Unlikely
Slips/Trips/Falls		Unlikely
Biological Hazards		
No Biological Hazards		
Control Measures Used		
Work Practices: Alertness and common sense should be used to reduce worker exposures to the physical hazards identified.		
Level of PPE: D	PPE Upgrade: No	PPE Downgrade: No

Table 3-1 Site-Specific Project Hazard Analysis (continued)		
Operational Phase	Task/Operation	Location Where Task/Operation Performed
Field Work	ECP Field Survey	NIOC Sugar Grove, West Virginia
Date(s) this PHA Conducted	Employee Certifying this PHA	
	Print Name:	Signature:
Chemical Hazards		
Name of Chemical Hazard	Exposure Potential	
Fuels/ Fuel Oils.	Unlikely	
Asbestos/ Asbestos Containing Materials	Unlikely	
Lead Based Paints	Unlikely	
Physical Hazards		
Name of Physical Hazard	Exposure Potential	
Vehicular Travel	Likely	
Inclement Weather - Snow, rain, and other precipitation	Unlikely	
Inclement Weather - Lightning and High Winds	Unlikely	
Slips/Trips/Falls	Likely	
Biological Hazards		
Name of Biological Hazard	Exposure Potential	
Insect bites and stings	Unlikely	
Control Measures Used		
<p>PPE where the potential for exposure to chemical exposure is likely. Decontamination to prevent cross contamination.</p> <p>Work Practices: Alertness and common sense.</p> <p>Insect repellent (if needed) should be used to reduce worker exposures to the hazards identified.</p>		
Level of PPE: D	PPE Upgrade: TBD (as needed)	PPE Downgrade: No

Table 3-1 Site-Specific Project Hazard Analysis (continued)

Operational Phase	Task/Operation	Location Where Task/Operation Performed		
Field Work (continued)	ECP Field Survey	NIOC Sugar Grove, West Virginia		
Date(s) this PHA Conducted	Employee Certifying this PHA			
	Print Name:	Signature:		
Chemical Hazards				
Chemical Name	Source	Concentration	Exposure Limit (8-Hour TWA)	Potential
Asbestos	Building Material	Unknown	PEL 0.1 fibers/cc	Unlikely
Lead	Building Material	Unknown	PEL 50 ug/m ³ ,	Unlikely
Various Fuels and Fuel Oils		Unknowns	Varies	Unlikely
Physical Hazards				
Name of Physical Hazard	Source	Exposure		Potential
		Level	Limit	
Vehicular Travel				Likely
Slips/Trips/Falls	Uneven ground			Likely
Inclement Weather - Snow, rain, and other precipitation				Unlikely
Inclement Weather - Lightning and High Winds				Unlikely
Biological Hazards				
Name of Biological Hazard		Exposure Potential		
Insect bites and stings		Likely		
Rabies - Small Mammals		Unlikely		
Insect/arthropod borne illnesses. (Arbovirus, Flavivirus, Lyme Disease, Powassan, etc.)		Unlikely		
Snakes		Unlikely		
Control Measures Used				
Work Practices: Alertness, common sense, ear protection (if needed), and insect repellent (if needed) should be used to reduce worker exposures to the hazards identified.				
Level of PPE: D	PPE Upgrade: TBD (as needed)	PPE Downgrade: No		

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4.0 ACCIDENT REPORTING

The investigation and reporting of occupational injuries, illnesses and dangerous occurrences is essential for project management to be able to take the steps necessary to avoid additional injuries or illnesses. A complete investigation will provide information regarding the elements of the incident and the process by which they came together to cause the injury, illness, or dangerous occurrence. By identifying the elements and processes, further incidents can be avoided. Timely reporting also permits project contractors to remain in compliance with OSHA recordkeeping regulations.

4.1 Program Responsibilities

The SSHO:

- Determine if an incident warrants a formal investigation, and conduct incident investigations as required;
- Provide reports of formal investigations to the PM;
- Review all accident reports; and
- Maintain OSHA Form 300 (Appendix A).

The SSHO will contact the PM for guidance regarding the need for a formal investigation.

The PM, or their designee, will:

- Investigate all incidents on his projects, and
- Complete and submit reports in accordance with this procedure and OSHA Form 301, Injury and Illness Incident Report (Appendix A).

Site personnel are responsible for reporting all incidents involving injuries or illnesses to their supervisor in a timely fashion (within 1 working day).

4.2 Accident and Illness Investigation

Sometimes the investigation of an accident or illness is necessary to prevent similar occurrences. An investigation should not attempt to prove guilt or innocence; rather its purpose should be to ascertain the existence of hazards by identifying the elements and sources that caused the accident or illness.

Additionally, a proper investigation should result in the identification of any corrective measures that may be required.

The objectives of an accident or illness investigation are to:

- Determine the existence of any hazards or contributing factors involved.
- Make recommendations for eliminating the hazards.
- Determine if any unsafe or unhealthful behavior or condition was involved.
- Make recommendations for eliminating the unsafe or unhealthful condition or behavior involved.

4.3 Responsibilities for an Accident or Illness Investigation

Accident or illness investigations require a search for all factors involved in the accident or illness. Every factor must be found, evaluated and considered in order to determine what actually occurred and why. Failure to gather and consider all factors could allow recurrent accidents or illnesses from the same cause.

When a Supervisor is advised that an accident or illness has occurred, he should:

- Immediately notify the Facility POC.
- Complete the Accident Report Forms.
- Investigate promptly.
- Determine what happened and how it happened.
- Determine the results.
- Determine what immediate corrective action to take.
- Notify the SSHO and request assistance, if needed.

When the SSHO is advised that an accident or illness has occurred, the SSHO will determine if a formal investigation is required. If required, the following steps should be observed:

- Immediately notify the PM.
- Conduct an investigation promptly.
- Collect and weigh all facts, and justify the conclusions reached by the evidence.
- Determine familiarity by the employee with equipment and procedures involved.
- Determine the conditions or situations relative to the cause of the accident or illness.
- Determine if the accident or illness was caused by a physical hazard or by an unsafe act.
- Assign one or more persons to investigate major lost time accidents or illnesses.

- Be objective and independent from the individuals or programs involved in the accident or illness.

4.4 Incident/Accident Reporting

In the event of an injury or illness, work is to be stopped until the cause of the incident has been determined and corrective action has been taken. Any injury or illness, regardless of severity, is to be reported on a non-government accident/incident report form.

Immediate (<8 hour) reporting to OSHA is required under 29 CFR 1904 if a fatality or catastrophe (3 or more people sent to the hospital with injuries that require an overnight stay) occurs. This reporting is done by the PM. All other personal injuries requiring first aid or resulting in lost time will be recorded on an OSHA Form 300 by the SSHO.

Any damage to government property will be reported immediately to the Facility POC. Any damage caused to service lines (e.g., gas, sewer, and water) will be immediately reported to the Facility POC and the respective utility service. The fire department may be contacted first in the event of damage to a gas or fuel service line.

4.5 Spills and Leaks

In the event of a spill or a leak, site personnel will:

- Inform the PM immediately.
- Notify the ERC.
- Secure the site by assigning on-site personnel security positions to ensure that only authorized personnel are allowed access and by using the previously established work zone as a visual means of defining the accident site. Locate the source of the spillage and stop the flow if it can be done safely.
- Begin containment and recovery of the spilled materials.

4.6 Fire and Explosion

In the event of a fire or explosion, the ERC will be notified immediately. Upon the arrival of the fire department, the SSHO or personnel on site under authority of the SSHO will advise the fire commander of the location, nature, and identification of the hazardous materials onsite.

If it is safe to do so, site personnel may:

- Secure the site by assigning on-site personnel security positions to ensure that only authorized personnel are allowed access and by using the previously established work zone as a visual means of defining the accident site.
- Use firefighting equipment available on-site to control or extinguish small/controllable fire.
- Remove or isolate easily accessible, flammable or other hazardous materials, which may contribute to the further development of the fire.

4.7 Recordkeeping

Should any work-related injuries occur for the duration of this project, OSHA Form 300, the Log of Work-Related Injuries and Illnesses, will be started and maintained for the project. This function is centralized so a uniform procedure is used for the completion and distribution of Form 300.

The occurrence of any recordable injury or illness should be made within 7 calendar days from the date of occurrence to make the appropriate entries in the log. The Accident Report Form should be filled out immediately upon report of the incident. The SSHO will review the OSHA Injury and Illness Incident Report, Form 301, prepared by the PM and update the Form 300 using the information from Form 301.

5.0 SITE CONTROL

[In compliance with 29 CFR 1910.120(b)(4)(ii)(F) and 29 CFR 1910.120(d)]

This site control program is designed to reduce the spread of hazardous substances from contaminated areas to clean areas, to identify and isolate contaminated areas of the site, to facilitate emergency evacuation and medical care, to prevent unauthorized entry to the site, and to deter vandalism and theft.

The site control program includes the elements specified in 29 CFR 1910.120(d) and provides the following site-specific information:

- A site map,
- Site access procedures,
- Site security,
- Site communications, and
- Emergency medical assistance.

5.1 Site Map

Figure 1-1 presents a regional site location map and Figure 1-2 presents a site location map of Sugar Grove, West Virginia. The investigation area is approximately 118 acres and is located in Pendleton County, West Virginia.

5.2 Site Access

The site is full service Navy facility. Access, entry, and exit to the site are controlled by physical barriers and security personnel. Though, site access is not strictly limited to Navy or Department of Defense (DoD) personnel.

5.3 Site Security

The site encompasses the entirety of 118 acres of a fenced federal installation. No additional site security measures will be put in place. Due to the short duration at individual locations within the site, no areas are anticipated to require controlled access during field efforts. Should additional site security be required, arrangements may be made with the facility security and this plan will be updated as necessary.

5.4 Site Communications

The following communication equipment is used to support on-site communications:

- Cell phones,
- Land line phones,

A current list of emergency contact numbers is located within this HASP, which will be available onsite.

Team Member's Emergency Contact Info (cell numbers):

Don Joiner 757-373-2688

Jason Oliver 757-570-3855

It is anticipated, due to the remoteness of the site, that cellular communications may be limited. Should cellular communications be limited throughout the site, land-line phones may be used in their place. In addition, 2-way radios may be used for on-site communications if allowed by the facility.

In addition, site personnel are trained to recognize and use hand signals when visual contact is possible but noise or PPE inhibit voice communication. There are no formal hand signals designated for use for the duration of this project.

5.5 Emergency Medical Assistance

The nearest emergency medical assistance selected to support each activity is included in the Emergency Response Section of this HASP on the Hospital Route Maps provided in Section 11.

6.0 TRAINING PROGRAM

[In compliance with 29 CFR 1910.120(e)]

This training program is consistent with the requirements of 29 CFR 1910.120(e) and addresses the following site-specific information:

- Training for site workers,
- Site briefings for visitors and workers,
- Initial HAZWOPER training (40 or 24 hr),
- Management and supervisor training,
- Qualification of trainers,
- Training certification,
- Emergency response training,
- Refresher training,
- Equivalent training, and
- Training records.

6.1 Training Elements to be Covered for Site Workers:

- Names of personnel and alternates responsible for site safety and health,
- Safety, health and other hazards present on the site,
- Use of PPE,
- Work practices by which the employee can minimize risks from hazards,
- Safe use of engineering controls and equipment on the site,
- Medical surveillance requirements detailed in Section 7 of this HASP,
- The emergency response plan detailed in Section 11 of this HASP, and
- The site control plan detailed in Section 5 of this HASP.

6.2 Site-Specific Briefings for Visitors

A site-specific briefing is provided to any/all site visitors/ subcontractors involved in this project that enter this site beyond the site entry point. For visitors, the site-specific briefing provides information about site hazards, the site lay-out including: work zones and places of refuge, the emergency alarm system and emergency evacuation procedures, and other pertinent health and safety requirements as appropriate.

6.3 HASP Information and Site-Specific Briefings for Workers

All Baker site personnel are required to review this HASP and are provided a site-specific briefing prior to the commencement of work to ensure that employees are familiar with this HASP and the information and requirements it contains. Additional briefings are provided as necessary to notify employees of any changes to this HASP as a result of information gathered during ongoing site characterization and analysis. Conditions which additional briefings may be scheduled include, but are not limited to the following: changes in site conditions, changes in the work schedule/plan, newly discovered hazards, and incidents occurring during site work.

6.4 Initial Training

Initial training requirements are based on a worker's potential for exposure and compliance with the requirements of 29 CFR 1910.120(e)(3).

All Baker personnel at this site must successfully complete 40-hour initial HAZWOPER training consistent with the requirements of 29 CFR 1910.120(e)(3)(i) in order to work in contaminated areas. In addition, such personnel provide documentation of having received 3 days of supervised field experience.

6.5 Management and Supervisor Training

On-site managers and supervisors who are directly responsible for or who supervise workers engaged in hazardous waste operations receive, in addition to the appropriate level of worker HAZWOPER training described above, 8 additional hours of specialized supervisory training, in compliance with 29 CFR 1910.120(e)(4).

6.6 Qualification of Trainers

Only instructors qualified in accordance with 29 CFR 1910.120(e)(5) are used to train workers for this site. Qualified instructors have either completed a training program for teaching the subjects they are expected to teach or have the academic credentials and instructional experience necessary for teaching the subjects.

6.7 Training Certification

Employees and supervisors that receive and complete the necessary training and field experience are certified when they complete the necessary training. A written certificate is given to each person so certified. Any person who has not been so certified or who does not meet the requirements of equivalent training is prohibited from engaging in hazardous waste operations.

6.8 Emergency Response

Emergency response training is addressed in Section 11 of this HASP.

6.9 Refresher Training

All workers on this site including managers and supervisors receive annual HAZWOPER refresher training consistent with the requirements of 29 CFR 1910.120(e)(8).

6.10 Equivalent Training

Baker does not accept prior academic training or job site experience in lieu of HAZWOPER initial training for workers and supervisors.

6.11 Training Records

The training records for all site personnel are available upon request from Baker Human Resources.

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7.0 MEDICAL SURVEILLANCE

[In compliance with 29 CFR 1910.120(f) and other substance-specific medical surveillance requirements found in 29 CFR 1910.1001-1052]

The medical surveillance section of the Health and Safety Plan describes how worker health status is monitored.

Medical surveillance is used when there is the potential for worker exposure to hazardous substance at levels above OSHA permissible exposure limits (PEL) or other published limits. The purpose of a medical surveillance program is to medically monitor worker health to ensure that personnel are not adversely affected by site hazards. The provisions for medical surveillance at this site are based on the site characterization and project hazard analysis found in Section 3 of this HASP and are consistent with OSHA requirements in 29 CFR 1910.120(f).

The medical surveillance program is consistent with 29 CFR 1910.120(f) and addresses the following information:

- Provisions of the site medical surveillance program,
- Communication between the site, physicians, and workers, and
- Medical recordkeeping procedures.

7.1 Site Medical Surveillance Program

Medical surveillance requirements are based on a worker's potential for exposure as determined by the site characterization and project hazard analysis documented in Section 3 of this HASP and on compliance with the requirements of 29 CFR 1910.120(f)(2).

Based on the potential for worker exposure to hazardous substance or health hazards at this site, the medical surveillance program at this site contains the following provisions:

1. All personnel who enter contaminated areas of this site are covered by the medical surveillance program. In addition, all workers assigned to tasks requiring the use of respirators receive medical examinations in accordance with 29 CFR 1910.134(e) to ensure they are physically capable to perform the work and use the equipment.

2. Personnel within the medical surveillance program receive medical examinations on the following schedule:
 - a. **Prior to assignment:** personnel covered by the medical surveillance program are medically examined prior to commencing work in contaminated areas of the site. The purpose of this examination is to assess baseline health status and the worker's ability to perform anticipated duties wearing required PPE without adverse health effects. The pre-assignment medical examination must have been received within the past 12 months. The content of the exam must include, at a minimum, items based on the hazards present at this site and anticipated work duties.
 - b. **On an annual basis:** personnel within the medical surveillance program receive medical exams at least every 12 months to provide for ongoing assessment of a worker's health status.
 - c. **At termination or reassignment:** personnel are offered the opportunity for a medical examination upon their termination or reassignment to work where the worker is not exposed to hazardous substance or required to wear a respirator.
 - d. **Post-injury/illness:** any worker who is injured, becomes ill, or develops signs or symptoms of possible over-exposure to hazardous substance or health hazards, receives a medical examination as soon as possible after the occurrence, with follow-up examinations provided as required by the attending physician.

All medical examinations and procedures are performed by or under the supervision of a licensed physician and are provided to workers free of cost, without loss of pay, and at a reasonable time and place.

7.2 Medical Recordkeeping Procedures

(In compliance with 29 CFR 1910.120(f)(8) and 1910.1020)

Corporate medical recordkeeping procedures are consistent with the requirements of 29 CFR 1910.1020 and are described in the company's overall safety and health program. A copy of that program is available on the Baker intranet site.

The following items are maintained in worker medical records:

- Physician's medical opinion of fitness for duty (pre-placement, periodic, termination),
- Physician's medical opinion of fitness for respirator protection (pre-placement, periodic), and
- Records required under this medical surveillance program, consistent with 1910.120(f)(8), are kept accurate and updated and are available upon request.

7.3 Program Review

- Review of accident and injury records and medical records to determine whether the causes of accidents and illness are promptly investigated and whether corrective measures are taken wherever possible,
- Evaluation of the appropriateness of required medical tests on the basis of site exposures, and
- Review of emergency treatment procedures and emergency contacts list to ensure they are site-specific, effective, and current.

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8.0 PERSONAL PROTECTIVE EQUIPMENT

[In compliance with 29 CFR 1910.120(b)(4)(ii)(C) and 29 CFR 1910.120(g)]

This section of the HASP describes how PPE is used to protect against employee exposures to hazardous substances and hazardous conditions on this site. Exposure hazards from the decontamination process are also considered. The following topics are addressed in this section:

- PPE selection criteria,
- Use of PPE,
- Training in use of PPE,
- Respiratory protection,
- Hearing conservation,
- PPE maintenance & storage, and
- Evaluation of this program.

8.1 PPE Selection Criteria

Site safety and health hazards are eliminated or reduced to the greatest extent possible through engineering controls and work practices. Where hazards are still present, a combination of engineering controls, work practices, and PPE are used to protect employees.

An initial level of PPE is assigned to each task to provide an adequate barrier to exposure hazards. Initial PPE ensembles are selected based on the anticipated route(s) of entry of the hazardous substances on site and their concentration. Ensemble materials are selected using permeation data supplied by individual manufacturers. Materials providing the greatest duration of protection have been chosen. Tear and seam strength of the PPE are also considered to ensure ensemble durability while work is performed. When necessary, multiple layers of protection are used to accommodate the range of hazards that may be encountered. Where possible, employees are provided with a range of component sizes to ensure properly fitted PPE.

The following criteria are used in selecting PPE levels at this site:

Use of Level D Protection

Employees use Level D protection during tasks that have the following characteristics:

- The atmosphere contains no known or suspected hazardous substances at concentrations that meet or exceed the published exposure limit.
- Contact with hazardous levels of any chemicals through splashes, immersion, or by other means will not occur.
- There is no potential for unexpected inhalation or contact with hazardous levels of any chemical.

8.2 Use of PPE

Site-specific PPE ensembles and materials are identified below. These ensembles are consistent with 29 CFR 1910.120. PPE is used in accordance with manufacturers' recommendations.

Level D

- Standard Work Clothes
- Sturdy boots/shoes, steel-toed boots
- Ear Protection

Modified Level D

- Standard Work Clothes
- Sturdy boots/shoes, steel-toed boots
- Ear Protection
- Gloves

8.2.1 Criteria for PPE Upgrades and Downgrades

Task-specific criteria for PPE upgrades and downgrades are used at this site. If the need for a PPE upgrade or downgrade is anticipated for a task or operation, the action level(s) and/or conditions that result in a PPE upgrade or downgrade are described on the PHA in Section 3 of this HASP. Since PPE is

primarily used as a barrier to hazardous substance exposure, airborne concentrations may be monitored routinely, in accordance with Section 9, Exposure Monitoring.

8.2.2 Procedures for Determining Work Duration

- Physiological requirements of the task,
- PPE level for the task,
- Ambient temperature and humidity,
- Respiratory protection capacity (air supply or cartridge change requirements),
- Chemical protective clothing capacity (permeation rate of on-site materials),
- Acclimatization of the work force.

Employees are informed about task-specific work duration by the SSHO, during initial training and whenever a change is necessary.

Work duration is consistent with the requirements outlined in Section 10. Work duration is continuously re-evaluated in response to changes in working conditions.

8.3 Training

Employees receive general training regarding proper selection, use and inspection of PPE during initial HAZWOPER training (or equivalent) and subsequent refresher training. Site-specific PPE requirements, including task-specific PPE, ensemble components, cartridge/canister service times, and inspection and maintenance procedures, are communicated as identified in Section 6, Training.

8.4 Respiratory Protection

Respiratory protection is selected, fitted, used, stored, and maintained in accordance with the Respiratory Protection Program. The written Respiratory Protection Program is consistent with the other requirements of this HASP.

8.5 Hearing Conservation

Employees must use hearing protection when noise exposures equal or exceed an 8-hour time-weighted average sound level of 85 A-weighted decibels (dBA). Where noise exposure meets or exceeds this level, noise is listed as a physical hazard in the PHA for the tasks/operation, and hearing protection is included as one of the control measures (i.e., PPE). Employees required to use hearing protection participate in a Hearing Conservation Program.

No site tasks are anticipated to have noise exposure that equal to or exceed the 85 dBA limit.

8.6 PPE Maintenance & Storage

In order to ensure that PPE continues to provide the anticipated protection, this site uses specific procedures for PPE inspection, cleaning, maintenance, and storage. Adherence to these procedures is tracked with written inspection records.

8.7 Evaluation of PPE Program

Evaluation of the effectiveness of site PPE selections occurs throughout site activities in response to employee exposure monitoring results and employee feedback. Surface samples may be collected from the inside surfaces of used PPE to ensure that the equipment provides an adequate barrier throughout the work shift. Surface monitoring procedures are described in Section 9 of this HASP, Exposure Monitoring.

9.0 EXPOSURE MONITORING

[In compliance with 29 CFR 1910.120(b)(4)(ii)(E) and 29 CFR 1910.120(h)]

This section of the HASP describes how employee exposures to hazardous substances are monitored. This section provides site-specific information about:

- Air monitoring procedures,
- Noise monitoring,
- Surface sampling procedures,
- Equipment calibration and maintenance, and
- The handling and management of monitoring data.

Air monitoring and surface sampling procedures are not anticipated for this project. In addition, it is not anticipated that atmospheric monitoring equipment will be utilized for the duration of this project.

9.1 Air Monitoring Procedures

Due to the short duration in the field, air monitoring is not anticipated to be a part of the health and safety program for this project. Should excessive airborne contaminants be suspected on site, air monitoring may be added to this HASP. The HASP will be updated to reflect the changes to the health and safety program.

9.2 Noise Monitoring

Noise levels above 85 dBA are not anticipated at the site. Therefore noise monitoring is not anticipated to be a part of the health and safety program for this project. Should excessive noise levels be encountered on site, the HASP will be updated and a hearing protection program may be put into place.

9.3 Surface Sampling Procedures

Due to the short duration of the project, no health and safety surface samples will be collected as a part of this project.

9.4 Equipment Calibration and Maintenance

No additional environmental monitoring equipment use is anticipated for this project. Should air sampling be required based on the site conditions, the HASP will be updated to reflect the change to the air monitoring program and calibration and maintenance of air pumps will be added to this HASP. Entry into oxygen deficient atmospheres or encountering various toxic gases (e.g., hydrogen sulfide) is not anticipated for the duration of this project, should these be encountered, the health and safety program will be updates and this section will be updated with calibration and maintenance of environmental monitoring equipment.

9.5 Management of Monitoring Data

No monitoring data is anticipated to be generated during this project. Should any additional health and safety programs have to be put into place due to environmental site conditions, then this HASP will be updated and the changes will be implemented upon approval.

10.0 THERMAL STRESS PREVENTION PROGRAM

[In compliance with 29 CFR 1910.120(h)]

This section of the HASP describes how the site-specific environmental conditions (e.g., temperature, humidity, and air movement), workloads, and PPE may expose workers to hazards resulting in illness or injury related to heat or cold stress. This Thermal Stress Prevention Program outlines exposure controls designed to protect workers working in hot or cold environments. The elements of this program are outlined in this section and include the following:

- Implementation criteria,
- Prevention strategies,
- Medical management, and
- Employee training.

10.1 Implementation Criteria

The Thermal Stress Prevention Program is implemented when the work area temperature rises above an Adjusted Temperature of 95 degrees Fahrenheit (°F) or falls below 35 °F (Air).

Throughout each work shift, air temperatures in the work area are monitored. Temperatures may be recorded in the field logbook(s) or field notes.

10.2 Prevention Strategies

10.2.1 Heat Stress

Work practices and exposure controls are used to reduce the risk of elevating a worker's core body temperature. These work practices and exposure controls include the following:

- Defining and adjusting worker work/rest intervals,
- Monitoring for signs of heat stress,
- Providing shaded rest areas protected from radiant heat, and
- Using a liquid replacement program.

10.2.2 Worker Work/Rest Intervals

Work/rest intervals are based on PPE, workloads, environmental conditions (temperature, humidity, air movement), and monitoring results. Work/rest intervals are determined by the SSHO. Work/rest intervals are adjusted throughout the work shift as needed and communicated to each worker at the conclusion of an applicable rest period, prior to reentry into the work zone. Guidelines for work/rest schedules for moderate work levels at this site are provided in Table 10-1.

Table 10-1: Heat Stress Work/Rest Schedules

Work Area Temperature Range	PPE Level	Work Period (minutes)	Rest Period (minutes)
78 – 81.9 °F	Level D	No Limit	No Limit
82 – 84.9 °F	Level D	50	10
85 – 87.9 °F	Level D	40	20
88 - 88.9 °F	Level D	30	30
>90 °F	Level D	20	40

10.2.3 Monitoring

Workers monitor each other's actions, speech, and appearance for signs and symptoms of heat-related illnesses including heat exhaustion and heat stroke. Physical signs and symptoms of heat exhaustion include headache, nausea, vertigo, weakness, thirst, and giddiness. Heat exhaustion may progress to heat stroke if a worker is unable to cool and re-hydrate their body. The primary signs and symptoms of heat stroke are confusion; irrational behavior; loss of consciousness; convulsions; a lack of sweating (usually); hot, dry skin; and an abnormally high body temperature. Workers should be aware of the key differences between the signs and symptoms of heat stroke and those of heat exhaustion, such as the lack of sweating, the color of the skin (red), and the rise in body temperature. Heat stroke is a medical emergency that requires immediate medical attention.

Physical signs and symptoms of heat stress are discussed with workers and reviewed as necessary.

10.2.4 Rest Areas

The Baker team will make use of the general or common area facilities (office buildings, restaurants, etc.) for rest areas.

10.2.5 Liquid Replacement Program

Since dehydration is a primary cause of heat illness, workers on this site follow a regimen for liquid consumption detailed in Table 10-2.

Table 10-2 Heat Stress Liquid Replacement Regimen

Work Area Temperature Range	Minimum Quantity (Quart / Hour)	Liquid Type
78 – 81.9 °F	3/4	Water or Sports Drink
82 – 84.9 °F	3/4	Water or Sports Drink
85 – 87.9 °F	3/4	Water or Sports Drink
88 - 88.9 °F	3/4	Water or Sports Drink
>90 °F	1	Water or Sports Drink

10.2.6 Cold Stress

Work practices and exposure controls are used to reduce the risk of lowering a worker’s core body temperature. These work practices and exposure controls include the following:

- Monitoring for physiological signs of cold stress,
- Providing warm, sheltered rest areas, and
- Providing and requiring the use of warm garments or other PPE.

10.2.7 Monitoring

Workers monitor each other’s actions, speech, and appearance for signs and symptoms of cold-related injury including hypothermia and frostbite. The first symptoms of hypothermia are uncontrollable shivering and the sensation of cold. Cool skin, muscle rigidity, low blood pressure, slowed or irregular pulse and apparent exhaustion and fatigue after rest manifest as hypothermia progresses and the core body temperature falls. Frostbite can occur without hypothermia when extremities do not receive sufficient heat from central body stores. Frostbite occurs when the fluids around the tissue cells freeze and usually affects the extremities, nose, and cheeks. Damage from frostbite can result in tissue damage.

Physical signs and symptoms of hypothermia and frost bite are discussed with workers weekly and reviewed as necessary.

10.2.8 Warm Shelters

Worker rest areas are warm and isolated from environmental conditions. These rest areas are located at nearby buildings.

10.2.9 Use of Cold Temperature Clothing

Workers don layered thermal protective clothing based on the guidelines provided in Table 10-3.

Table 10-3: Use of Cold Temperature Clothing

Work Area Temperature Range	Task/Location	PPE Level	Cold Temperature
20 - 30 °F	Site survey	Level D	Layered Cotton fabric with synthetic base layers and outer shell.
30 – 40 °F	Site survey	Level D	Layered Cotton fabric with outer shell.
40 - 50 °F	Site survey	Level D	Layered Cotton fabric

10.3 Medical Management

The physician's written opinion specifically addresses fitness for duty for under heat stress conditions. This evaluation is described in Section 7, Medical Surveillance.

10.4 Training

Workers receive general training regarding thermal stress-related injuries and illnesses during initial HAZWOPER training and subsequent refresher training. The site-specific program and procedures are described in Section 6, Training Program.

11.0 EMERGENCY RESPONSE PLAN

[In compliance with 29 CFR 1910.120(l) and 1910.120(b)(4)(ii)(H)]

This is the site-specific emergency response plan. This section of the Health and Safety Plan describes potential emergencies at this site, procedures for responding to those emergencies, roles and responsibilities during emergency response, and training that workers must receive in order to follow emergency procedures. This plan also describes the provisions this site has made to coordinate its emergency response planning with other contractors on-site and with off-site emergency response organizations.

This emergency response plan is consistent with the requirements of 29 CFR 1910.120(l) and provides the following site-specific information:

- Pre-emergency planning,
- Onsite emergency response,
- Emergency planning,
- Roles and responsibility of personnel,
- Emergency alerting and evacuation,
- Emergency response,
- Emergency medical treatment and first aid, and
- Emergency response training.

11.1 Pre-Emergency Planning

This site has been evaluated for potential emergency occurrences, based on site hazards, the tasks within the work plan, the site topography, and prevailing weather conditions. The results of that evaluation are shown in Table 11-1.

Table 11-1: Potential Site Emergencies

Type of Emergency	Source of Emergency
Collision (person/equipment or equipment/equipment)	Operator error

11.2 On-Site Emergency Response Equipment

Work will be conducted on a full service military installation. Specific on-site emergency response equipment is not anticipated for this project. A standard first-aid kit, including eye-wash solution will be available within the Baker field vehicle. Baker personnel will rely on local responders in the event of an emergency.

11.3 Emergency Planning

In the event of an emergency facility personnel will immediately be notified. The SSHO and PM shall also be immediately notified. Emergency evacuation route(s), places of refuge, assembly point(s), and the locations of key site emergency equipment will be determined for each site. In the event of a site evacuation, the meeting place for all team members will be outside of the facility at a predetermined location coordinated prior to commencing work. Figure 11-1, at the end of this section, depicts the route to the nearest emergency medical assistance from where field activities will be conducted.

11.4 Roles and Responsibilities for On-Site and Off-Site Personnel

The SSHO is responsible for implementing the emergency response plan and coordinates emergency response activities on this site. He/she provides specific direction for emergency action based upon information available regarding the incident and response capabilities and initiates emergency procedures, including protection of the public and notification of appropriate authorities.

Off-site emergency response organizations are listed in Table 11-2, Emergency Contact Information. The organizations listed are appropriately trained, staffed, and equipped to provide emergency response to this site. These organizations are contacted at least semi-annually or when changes to operations or hazards occur on site to verify the accuracy of phone numbers and contact names and to ensure that current points of contact are aware of site operations and hazards.

Figure 11-1: Hospital Route Map with Directions and Table 11-2: Emergency Contact Information are located at the end of this section. These pages are removable from this HASP to facilitate making

additional copies for distribution. All Baker field vehicles, at a minimum, should have a copy of the Emergency Contact Information table and a Hospital Route Map and Directions figure.

11.5 Emergency Alerting and Evacuation

Upon discovering an emergency situation, onsite personnel will evaluate available information and initiate response. If there are more than one personnel onsite they will communicate with each other via cell phone. If evacuation notice is given, site workers leave the worksite by way of the nearest exit.

Evacuation routes and assembly area will be determined by conditions at the time of the evacuation based on wind direction, the location of the hazard source, and other factors as determined by rehearsals and input from emergency response organizations and facility personnel. Assembly areas and evacuation routes will be determined in the field by the site personnel prior to commencement of work. A primary assembly area will be designated away from the facility; however the assembly area may change to a secondary location depending on the prevailing wind conditions and the nature of the evacuation. Site personnel will communicate this information should the assembly area change to a secondary location.

Personnel exiting the site, in the event of an evacuation will gather at the previously designated assembly area. To determine that everyone has successfully exited the site, personnel will be accounted for at the assembly site. If any worker cannot be accounted for, notification is given to the proper authority so that appropriate action can be initiated.

11.6 Emergency Response

When the Emergency Response Coordinator determines that outside assistance is required, the applicable off-site organization shown in Table 11-2 is contacted. The Emergency Response Coordinator provides relevant information to the responding organizations, including hazards associated with the emergency incident, potential containment problems, and missing site personnel.

11.7 Emergency Medical Treatment and First Aid

Site personnel are not assigned or authorized to provide anything more than rudimentary first aid in the event of an emergency.

In the event of a potential chemical exposure, personnel who require emergency medical care that are transferred to a medical facility will be accompanied by applicable hazard data to apprise caregivers of the chemicals and hazards to which the victim has been potentially exposed. The emergency medical care facility and direction are located at the end of this section.

As noted in Section 11.4, this page is removable from this HASP to facilitate making additional copies for distribution. All Baker field vehicles, at a minimum, should have a copy of the Emergency Contact Information table (Table 11-2) and a Hospital Route Map and Directions figure (Figure 11-1).

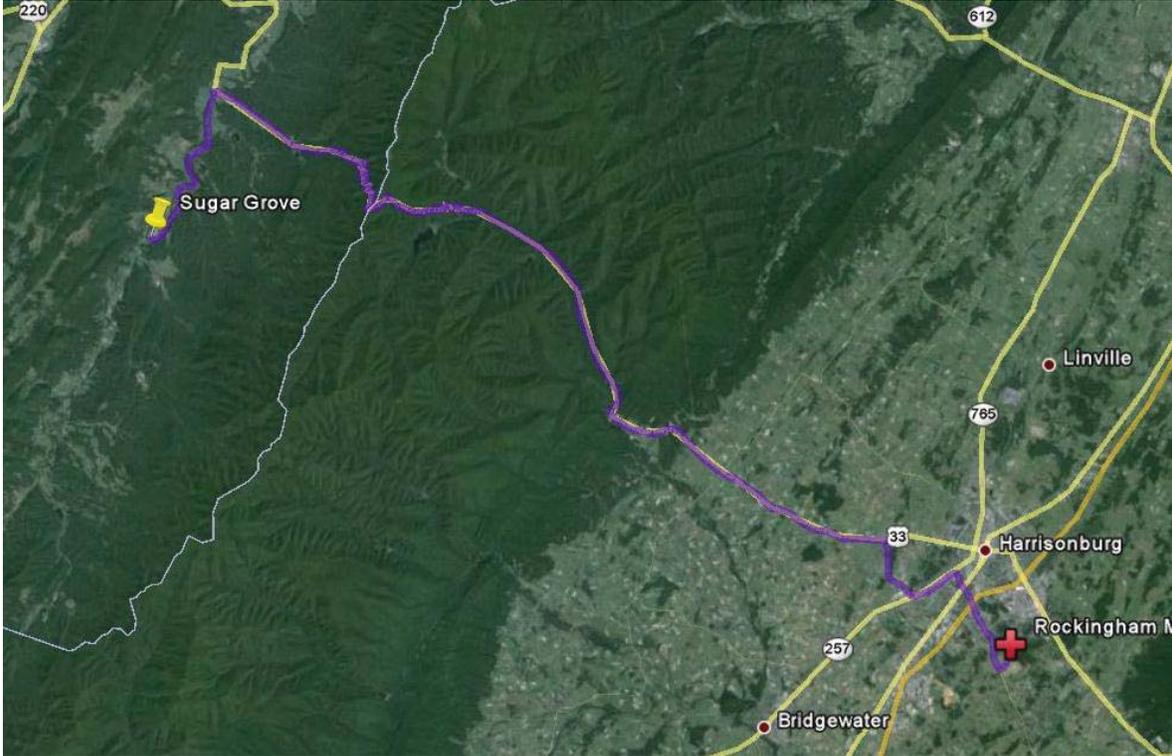
11.8 Emergency Response Training

All persons who enter this worksite, including visitors, receive a site-specific briefing about anticipated emergency situations and the emergency procedures.

This project relies on off-site organizations for emergency response (see Table 11-2), the training of personnel in those off-site organizations has been evaluated and is deemed adequate for response to this site.

**Figure 11-1: NIOC Sugar Grove, West Virginia
Hospital Route Map and Directions**

Rockingham Memorial Hospital:
2010 Health Campus Drive
Harrisonburg, VA 22801
(540) 561-4400



Driving Directions to Hospital

Step	Maneuver	Distance
1	Head south on Hedrick Dr. toward County Route 21/Sugar Grove Rd Exiting Base	0.1 mile
2	Turn LEFT onto County Route 21/Sugar Grove Rd	5.1 miles
3	Turn RIGHT onto US-33 E/Blue Gray Trail Continue to follow US-33 E (Entering Virginia)	26.2 miles
4	Turn RIGHT onto State Route 726/Erickson Ave	1.8 mile
5	Turn LEFT onto S High St	1.3 mile
6	Turn RIGHT onto Maryland Ave	0.4 mile
7	Continue onto VA-253 E/Port Republic Rd	2.5 miles
8	Turn LEFT onto State Route 726/Stone Spring Rd	0.3 mile
9	Take the 1st RIGHT Destination will be on the right	210 feet

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Table 11-2: Emergency Contact Information

SITE PERSONNEL			
Title		Contact	Emergency Telephone
Project Manager (PM)		Don Joiner	757-373-2688
Site Safety and Health Officer (SSHO)		Jason Oliver	757-570-3855
Emergency Response Coordinator (ERC)		Jason Oliver	757-570-3855
Emergency Response Coordinator 1st Alternate			
Emergency Response Coordinator 2nd Alternate			
OUTSIDE ASSISTANCE			
Agency	Contact	Address/Location	Telephone
Ambulance/EMS			304-249-6399
Fire			304-249-6399
National Response Center			800-424-8802
State Police	Headquarters	725 Jefferson Road, South Charleston WV 25309	304-746-2100 911
Local Emergency Response			304-249-6399
Local Poison Control Center	Poison Control Center		800-222-1222
State Authority	West Virginia Homeland Security and Emergency Response	4994 Elk River Road South Elkview WV, 25071	304-926-0499 Ext. 1278
State Authority	West Virginia Environmental Quality Board	601 57 th Street, S.E. Charleston, WV 25304	304-926-0445 866-568-6649 Ext. 1682
Chemtrec (CMA)			800-424-9300

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12.0 DECLARATION OF HASP REVIEW

All site personnel and visitors indicated below have had the opportunity to review this HASP, been briefed on-site, and are familiar with this contents of this HASP for the Field Investigation for the ECP Disposal of NIOC Sugar Grove, Sugar Grove, West Virginia.

(Name – Print)

(Company)

(Name – Sign)

(Date/Time)

(Name – Print)

(Company)

(Name – Sign)

(Date/Time)

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(Company)

(Name – Sign)

(Date/Time)

APPENDIX A

Occupational Safety and Health Administration Forms 300/301

OSHA Forms for Recording Work-Related Injuries and Illnesses

Dear Employer:

This booklet includes the forms needed for maintaining occupational injury and illness records for 2004. These new forms have changed in several important ways from the 2003 recordkeeping forms.

In the December 17, 2002 Federal Register (67 FR 77165-77170), OSHA announced its decision to add an occupational hearing loss column to OSHA's Form 300, Log of Work-Related Injuries and Illnesses. This forms package contains modified Forms 300 and 300A which incorporate the additional column M(5) Hearing Loss. Employers required to complete the injury and illness forms must begin to use these forms on January 1, 2004.

In response to public suggestions, OSHA also has made several changes to the forms package to make the recordkeeping materials clearer and easier to use:

- On Form 300, we've switched the positions of the day count columns. The days "away from work" column now comes before the days "on job transfer or restriction."
- We've clarified the formulas for calculating incidence rates.
- We've added new recording criteria for occupational hearing loss to the "Overview" section.
- On Form 300, we've made the column heading "Classify the Case" more prominent to make it clear that employers should mark only one selection among the four columns offered.

The Occupational Safety and Health Administration shares with you the goal of preventing injuries and illnesses in our nation's workplaces. Accurate injury and illness records will help us achieve that goal.

*Occupational Safety and Health Administration
U.S. Department of Labor*

What's Inside...

In this package, you'll find everything you need to complete OSHA's *Log* and the *Summary of Work-Related Injuries and Illnesses* for the next several years. On the following pages, you'll find:

- ▼ **An Overview: Recording Work-Related Injuries and Illnesses** — General instructions for filling out the forms in this package and definitions of terms you should use when you classify your cases as injuries or illnesses.
- ▼ **How to Fill Out the Log** — An example to guide you in filling out the *Log* properly.
- ▼ **Log of Work-Related Injuries and Illnesses** — Several pages of the *Log* (but you may make as many copies of the *Log* as you need.) Notice that the *Log* is separate from the *Summary*.
- ▼ **Summary of Work-Related Injuries and Illnesses** — Removable *Summary* pages for easy posting at the end of the year. Note that you post the *Summary* only, not the *Log*.
- ▼ **Worksheet to Help You Fill Out the Summary** — A worksheet for figuring the average number of employees who worked for your establishment and the total number of hours worked.
- ▼ **OSHA's 301: Injury and Illness Incident Report** — A copy of the OSHA 301 to provide details about the incident. You may make as many copies as you need or use an equivalent form.

Take a few minutes to review this package. If you have any questions, **visit us online at www.osha.gov** **OR call your local OSHA office.** We'll be happy to help you.



An Overview: Recording Work-Related Injuries and Illnesses

The Occupational Safety and Health (OSHA) Act of 1970 requires certain employers to prepare and maintain records of work-related injuries and illnesses. Use these definitions when you classify cases on the Log. OSHA's recordkeeping regulation (see 29 CFR Part 1904) provides more information about the definitions below.

The *Log of Work-Related Injuries and Illnesses* (Form 300) is used to classify work-related injuries and illnesses and to note the extent and severity of each case. When an incident occurs, use the *Log* to record specific details about what happened and how it happened.

The *Summary* — a separate form (Form 300A) — shows the totals for the year in each category. At the end of the year, post the *Summary* in a visible location so that your employees are aware of the injuries and illnesses occurring in their workplace.

Employers must keep a *Log* for each establishment or site. If you have more than one establishment, you must keep a separate *Log* and *Summary* for each physical location that is expected to be in operation for one year or longer.

Note that your employees have the right to review your injury and illness records. For more information, see 29 Code of Federal Regulations Part 1904.35, *Employee Involvement*.

Cases listed on the *Log of Work-Related Injuries and Illnesses* are not necessarily eligible for workers' compensation or other insurance benefits. Listing a case on the *Log* does not mean that the employer or worker was at fault or that an OSHA standard was violated.

When is an injury or illness considered work-related?

An injury or illness is considered work-related if an event or exposure in the work environment caused or contributed to the condition or significantly aggravated a preexisting condition. Work-relatedness is

presumed for injuries and illnesses resulting from events or exposures occurring in the workplace, unless an exception specifically applies. See 29 CFR Part 1904.5(b)(2) for the exceptions. The work environment includes the establishment and other locations where one or more employees are working or are present as a condition of their employment. See 29 CFR Part 1904.5(b)(1).

Which work-related injuries and illnesses should you record?

Record those work-related injuries and illnesses that result in:

- ▼ death,
- ▼ loss of consciousness,
- ▼ days away from work,
- ▼ restricted work activity or job transfer, or
- ▼ medical treatment beyond first aid.

You must also record work-related injuries and illnesses that are significant (as defined below) or meet any of the additional criteria listed below.

You must record any significant work-related injury or illness that is diagnosed by a physician or other licensed health care professional. You must record any work-related case involving cancer, chronic irreversible disease, a fractured or cracked bone, or a punctured eardrum. See 29 CFR 1904.7.

What are the additional criteria?

You must record the following conditions when they are work-related:

- ▼ any needlestick injury or cut from a sharp object that is contaminated with another person's blood or other potentially infectious material;
- ▼ any case requiring an employee to be medically removed under the requirements of an OSHA health standard;
- ▼ tuberculosis infection as evidenced by a positive skin test or diagnosis by a physician or other licensed health care professional after exposure to a known case of active tuberculosis.
- ▼ an employee's hearing test (audiogram) reveals 1) that the employee has experienced a Standard Threshold Shift (STS) in hearing in one or both ears (averaged at 2000, 3000, and 4000 Hz) and 2) the employee's total hearing level is 25 decibels (dB) or more above audiometric zero (also averaged at 2000, 3000, and 4000 Hz) in the same ear(s) as the STS.

What is medical treatment?

Medical treatment includes managing and caring for a patient for the purpose of combating disease or disorder. The following are not considered medical treatments and are NOT recordable:

- ▼ visits to a doctor or health care professional solely for observation or counseling;

What do you need to do?

1. Within 7 calendar days after you receive information about a case, decide if the case is recordable under the OSHA recordkeeping requirements.

2. Determine whether the incident is a new case or a recurrence of an existing one.

3. Establish whether the case was work-related.

4. If the case is recordable, decide which form you will fill out as the injury and illness incident report.

You may use *OSHA's 301: Injury and Illness Incident Report* or an equivalent form. Some state workers compensation, insurance, or other reports may be acceptable substitutes, as long as they provide the same information as the OSHA 301.

How to work with the Log

1. Identify the employee involved unless it is a privacy concern case as described below.

2. Identify when and where the case occurred.

3. Describe the case, as specifically as you can.

4. Classify the seriousness of the case by recording the **most serious outcome** associated with the case, with column G (Death) being the most serious and column J (Other recordable cases) being the least serious.

5. Identify whether the case is an injury or illness. If the case is an injury, check the injury category. If the case is an illness, check the appropriate illness category.



- ▼ diagnostic procedures, including administering prescription medications that are used solely for diagnostic purposes; and
- ▼ any procedure that can be labeled first aid. (See below for more information about first aid.)

What is first aid?

If the incident required only the following types of treatment, consider it first aid. Do NOT record the case if it involves only:

- ▼ using non-prescription medications at non-prescription strength;
- ▼ administering tetanus immunizations;
- ▼ cleaning, flushing, or soaking wounds on the skin surface;
- ▼ using wound coverings, such as bandages, BandAids™, gauze pads, etc., or using SteriStrips™ or butterfly bandages.
- ▼ using hot or cold therapy;
- ▼ using any totally non-rigid means of support, such as elastic bandages, wraps, non-rigid back belts, etc.;
- ▼ using temporary immobilization devices while transporting an accident victim (splints, slings, neck collars, or back boards).
- ▼ drilling a fingernail or toenail to relieve pressure, or draining fluids from blisters;
- ▼ using eye patches;
- ▼ using simple irrigation or a cotton swab to remove foreign bodies not embedded in or adhered to the eye;
- ▼ using irrigation, tweezers, cotton swab or other simple means to remove splinters or foreign material from areas other than the eye;

- ▼ using finger guards;
- ▼ using massages;
- ▼ drinking fluids to relieve heat stress

How do you decide if the case involved restricted work?

Restricted work activity occurs when, as the result of a work-related injury or illness, an employer or health care professional keeps, or recommends keeping, an employee from doing the routine functions of his or her job or from working the full workday that the employee would have been scheduled to work before the injury or illness occurred.

How do you count the number of days of restricted work activity or the number of days away from work?

Count the number of calendar days the employee was on restricted work activity or was away from work as a result of the recordable injury or illness. Do not count the day on which the injury or illness occurred in this number. Begin counting days from the day after the incident occurs. If a single injury or illness involved both days away from work and days of restricted work activity, enter the total number of days for each. You may stop counting days of restricted work activity or days away from work once the total of either or the combination of both reaches 180 days.

Under what circumstances should you NOT enter the employee's name on the OSHA Form 300?

You must consider the following types of injuries or illnesses to be privacy concern cases:

- ▼ an injury or illness to an intimate body part or to the reproductive system,
- ▼ an injury or illness resulting from a sexual assault,
- ▼ a mental illness,
- ▼ a case of HIV infection, hepatitis, or tuberculosis,
- ▼ a needlestick injury or cut from a sharp object that is contaminated with blood or other potentially infectious material (see 29 CFR Part 1904.8 for definition), and
- ▼ other illnesses, if the employee independently and voluntarily requests that his or her name not be entered on the log.

You must not enter the employee's name on the OSHA 300 Log for these cases. Instead, enter "privacy case" in the space normally used for the employee's name. You must keep a separate, confidential list of the case numbers and employee names for the establishment's privacy concern cases so that you can update the cases and provide information to the government if asked to do so.

If you have a reasonable basis to believe that information describing the privacy concern case may be personally identifiable even though the employee's name has been omitted, you may use discretion in describing the injury or illness on both the OSHA 300 and 301 forms. You must enter enough information to identify the cause of the incident and the general severity of

the injury or illness, but you do not need to include details of an intimate or private nature.

What if the outcome changes after you record the case?

If the outcome or extent of an injury or illness changes after you have recorded the case, simply draw a line through the original entry or, if you wish, delete or white-out the original entry. Then write the new entry where it belongs. Remember, you need to record the most serious outcome for each case.

Classifying injuries

An injury is any wound or damage to the body resulting from an event in the work environment.

Examples: Cut, puncture, laceration, abrasion, fracture, bruise, contusion, chipped tooth, amputation, insect bite, electrocution, or a thermal, chemical, electrical, or radiation burn. Sprain and strain injuries to muscles, joints, and connective tissues are classified as injuries when they result from a slip, trip, fall or other similar accidents.





Classifying illnesses

Skin diseases or disorders

Skin diseases or disorders are illnesses involving the worker's skin that are caused by work exposure to chemicals, plants, or other substances.

Examples: Contact dermatitis, eczema, or rash caused by primary irritants and sensitizers or poisonous plants; oil acne; friction blisters, chrome ulcers; inflammation of the skin.

Respiratory conditions

Respiratory conditions are illnesses associated with breathing hazardous biological agents, chemicals, dust, gases, vapors, or fumes at work.

Examples: Silicosis, asbestosis, pneumonitis, pharyngitis, rhinitis or acute congestion; farmer's lung, beryllium disease, tuberculosis, occupational asthma, reactive airways dysfunction syndrome (RADS), chronic obstructive pulmonary disease (COPD), hypersensitivity pneumonitis, toxic inhalation injury, such as metal fume fever, chronic obstructive bronchitis, and other pneumoconioses.

Poisoning

Poisoning includes disorders evidenced by abnormal concentrations of toxic substances in blood, other tissues, other bodily fluids, or the breath that are caused by the ingestion or absorption of toxic substances into the body.

Examples: Poisoning by lead, mercury,

cadmium, arsenic, or other metals; poisoning by carbon monoxide, hydrogen sulfide, or other gases; poisoning by benzene, benzol, carbon tetrachloride, or other organic solvents; poisoning by insecticide sprays, such as parathion or lead arsenate; poisoning by other chemicals, such as formaldehyde.

Hearing Loss

Noise-induced hearing loss is defined for recordkeeping purposes as a change in hearing threshold relative to the baseline audiogram of an average of 10 dB or more in either ear at 2000, 3000 and 4000 hertz, and the employee's total hearing level is 25 decibels (dB) or more above audiometric zero (also averaged at 2000, 3000, and 4000 hertz) in the same ear(s).

All other illnesses

All other occupational illnesses.

Examples: Heatstroke, sunstroke, heat exhaustion, heat stress and other effects of environmental heat; freezing, frostbite, and other effects of exposure to low temperatures; decompression sickness; effects of ionizing radiation (isotopes, x-rays, radium); effects of nonionizing radiation (welding flash, ultra-violet rays, lasers); anthrax; bloodborne pathogenic diseases, such as AIDS, HIV, hepatitis B or hepatitis C; brucellosis; malignant or benign tumors; histoplasmosis; coccidioidomycosis.

When must you post the Summary?

You must post the *Summary* only — not the *Log* — by February 1 of the year following the year covered by the form and keep it posted until April 30 of that year.

How long must you keep the Log and Summary on file?

You must keep the *Log* and *Summary* for 5 years following the year to which they pertain.

Do you have to send these forms to OSHA at the end of the year?

No. You do not have to send the completed forms to OSHA unless specifically asked to do so.

How can we help you?

If you have a question about how to fill out the *Log*,

- visit us online at www.osha.gov or
- call your local OSHA office.

Optional

Calculating Injury and Illness Incidence Rates

What is an incidence rate?

An incidence rate is the number of recordable injuries and illnesses occurring among a given number of full-time workers (usually 100 full-time workers) over a given period of time (usually one year). To evaluate your firm's injury and illness experience over time or to compare your firm's experience with that of your industry as a whole, you need to compute your incidence rate. Because a specific number of workers and a specific period of time are involved, these rates can help you identify problems in your workplace and/or progress you may have made in preventing work-related injuries and illnesses.

How do you calculate an incidence rate?

You can compute an occupational injury and illness incidence rate for all recordable cases or for cases that involved days away from work for your firm quickly and easily. The formula requires that you follow instructions in paragraph (a) below for the total recordable cases or those in paragraph (b) for cases that involved days away from work, and for both rates the instructions in paragraph (c).

(a) To find out the total number of recordable injuries and illnesses that occurred during the year, count the number of line entries on your OSHA Form 300, or refer to the OSHA Form 300A and sum the entries for columns (G), (H), (I), and (J).

(b) To find out the number of injuries and illnesses that involved days away from work, count the number of line entries on your OSHA Form 300 that received a check mark in column (H), or refer to the entry for column

(H) on the OSHA Form 300A.

(c) The number of hours all employees actually worked during the year. Refer to OSHA Form 300A and optional worksheet to calculate this number.

You can compute the incidence rate for all recordable cases of injuries and illnesses using the following formula:

$$\text{Total number of injuries and illnesses} \times 200,000 \div \text{Number of hours worked by all employees} = \text{Total recordable case rate}$$

(The 200,000 figure in the formula represents the number of hours 100 employees working 40 hours per week, 50 weeks per year would work, and provides the standard base for calculating incidence rates.)

You can compute the incidence rate for recordable cases involving days away from work, days of restricted work activity or job transfer (DART) using the following formula:

$$\frac{\text{Number of entries in column H} + \text{Number of entries in column I} \times 200,000 \div \text{Number of hours worked by all employees} = \text{DART incidence rate}}$$

You can use the same formula to calculate incidence rates for other variables such as cases involving restricted work activity (column (I) on Form 300A), cases involving skin disorders (column (M-2) on Form 300A), etc. Just substitute the appropriate total for these cases, from Form 300A, into the formula in place of the total number of injuries and illnesses.

What can I compare my incidence rate to?

The Bureau of Labor Statistics (BLS) conducts a survey of occupational injuries and illnesses each year and publishes incidence rate data by

various classifications (e.g., by industry, by employer size, etc.). You can obtain these published data at www.bls.gov/iif or by calling a BLS Regional Office.

Worksheet

Total number of injuries and illnesses	<input type="text"/>	X	200,000	÷	<input type="text"/>	=	Total recordable case rate	<input type="text"/>
Number of hours worked by all employees	<input type="text"/>							
Number of entries in Column H + Column I	<input type="text"/>	X	200,000	÷	<input type="text"/>	=	DART incidence rate	<input type="text"/>
Number of hours worked by all employees	<input type="text"/>							



How to Fill Out the Log

The *Log of Work-Related Injuries and Illnesses* is used to classify work-related injuries and illnesses and to note the extent and severity of each case. When an incident occurs, use the *Log* to record specific details about what happened and how it happened.

If your company has more than one establishment or site, you must keep separate records for each physical location that is expected to remain in operation for one year or longer.

We have given you several copies of the *Log* in this package. If you need more than we provided, you may photocopy and use as many as you need.

The *Summary* — a separate form — shows the work-related injury and illness totals for the year in each category. At the end of the year, count the number of incidents in each category and transfer the totals from the *Log* to the *Summary*. Then post the *Summary* in a visible location so that your employees are aware of injuries and illnesses occurring in their workplace.

You don't post the *Log*. You post only the *Summary* at the end of the year.

OSHA's Form 300 (Rev. 01/2004)

Log of Work-Related Injuries and Illnesses

You must record information about every work-related death and about every work-related injury or illness that involves loss of consciousness, restricted work activity or job transfer, days away from work, or medical treatment beyond first aid. You must also record significant work-related injuries and illnesses that are diagnosed by a physician or licensed health care professional. You must also record work-related injuries and illnesses that meet any of the specific recording criteria listed in 29 CFR Part 1904.8 through 1904.12. Feel free to use two lines for a single case if you need to. You must complete an injury and illness incident report (OSHA Form 301) or equivalent form for each injury or illness recorded on this form. If you're not sure whether a case is recordable, call your local OSHA office for help.

Attention: This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible while the information is being used for occupational safety and health purposes.

Year 20  U.S. Department of Labor
Occupational Safety and Health Administration

Form approved OMB no. 1218-0076
Establishment name XYZ Company State MA
City Amherst

Identify the person		Describe the case	
(A) Case no.	(B) Employee's name	(C) Job title (e.g. Welder)	(D) Date of injury or onset of illness
1	Mark Babin	Welder	5 / 25 morning
2	Shana Alexander	Foundry man	7 / 2 morning
3	Sam Sander	Electrician	8 / 5 morning
4	Ralph Escella	Laborer	9 / 17 morning
5	Jared Daniels	Machine op.	10 / 23 morning

Classify the case CHECK ONLY ONE box for each case based on the most serious outcome for that case:		Days away from work		Job transfer or restriction		Other recordable cases	
(G)	(H)	(I)	(J)	(K)	(L)	(M)	(N)
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Enter the number of days the injured or ill worker was:		On job transfer or restriction		Check the "injury" column or above one type of illness:	
(K)	(L)	(M)	(N)	(O)	(P)
12 days - 15 days	15 days - 30 days	30 days - 60 days	60 days - 90 days	90 days - 180 days	180 days or more
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Be as specific as possible. You can use two lines if you need more room.

Revise the log if the injury or illness progresses and the outcome is more serious than you originally recorded for the case. Cross out, erase, or white-out the original entry.

Choose ONLY ONE of these categories. Classify the case by recording the most serious outcome of the case, with column G (Death) being the most serious and column J (Other recordable cases) being the least serious.

Note whether the case involves an injury or an illness.

Summary of Work-Related Injuries and Illnesses

Year 20 _____



Form approved OMB no. 1218-0176

All establishments covered by Part 1904 must complete this Summary page, even if no work-related injuries or illnesses occurred during the year. Remember to review the Log to verify that the entries are complete and accurate before completing this summary.

Using the Log, count the individual entries you made for each category. Then write the totals below, making sure you've added the entries from every page of the Log. If you had no cases, write "0."

Employees, former employees, and their representatives have the right to review the OSHA Form 300 in its entirety. They also have limited access to the OSHA Form 301 or its equivalent. See 29 CFR Part 1904.35, in OSHA's recordkeeping rule, for further details on the access provisions for these forms.

Number of Cases

Total number of deaths	Total number of cases with days away from work	Total number of cases with job transfer or restriction	Total number of other recordable cases
(G) _____	(H) _____	(I) _____	(J) _____

Number of Days

Total number of days away from work	Total number of days of job transfer or restriction
(K) _____	(L) _____

Injury and Illness Types

Total number of . . .	(1) Injuries	(4) Poisonings
(M) _____	_____	_____
(2) Skin disorders	(5) Hearing loss	(6) All other illnesses
_____	_____	_____
(3) Respiratory conditions	_____	_____
_____	_____	_____

Post this Summary page from February 1 to April 30 of the year following the year covered by the form.

Public reporting burden for this collection of information is estimated to average 58 minutes per response, including time to review the instructions, search and gather the data needed, and complete and review the collection of information. Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. If you have any comments about these estimates or any other aspects of this data collection, contact: US Department of Labor, OSHA Office of Statistical Analysis, Room N-3644, 200 Constitution Avenue, NW, Washington, DC 20210. Do not send the completed forms to this office.

Establishment information

Your establishment name _____
 Street _____
 City _____ State _____ ZIP _____
 Industry description (e.g., *Manufacture of motor truck trailers*) _____
 Standard Industrial Classification (SIC), if known (e.g., 3715) _____
 OR _____
 North American Industrial Classification (NAICS), if known (e.g., 336212) _____

Employment information (If you don't have these figures, see the Worksheet on the back of this page to estimate.)

Annual average number of employees _____
 Total hours worked by all employees last year _____

Sign here

Knowingly falsifying this document may result in a fine.

I certify that I have examined this document and that to the best of my knowledge the entries are true, accurate, and complete.

Company executive _____ Title _____
 (_____) _____ / /
 Phone _____ Date _____

Optional

Worksheet to Help You Fill Out the Summary

At the end of the year, OSHA requires you to enter the average number of employees and the total hours worked by your employees on the summary. If you don't have these figures, you can use the information on this page to estimate the numbers you will need to enter on the Summary page at the end of the year.

How to figure the average number of employees who worked for your establishment during the year:

- Add** the total number of employees your establishment paid in all pay periods during the year. Include all employees: full-time, part-time, temporary, seasonal, salaried, and hourly.
The number of employees paid in all pay periods = **1** _____
- Count** the number of pay periods your establishment had during the year. Be sure to include any pay periods when you had no employees.
The number of pay periods during the year = **2** _____
- Divide** the number of employees by the number of pay periods.
 $\frac{\mathbf{1}}{\mathbf{2}} = \mathbf{3}$ _____
- Round the answer** to the next highest whole number. Write the rounded number in the blank marked *Annual average number of employees*.
The number rounded = **4** _____

For example, Acme Construction figured its average employment this way:

For pay period...	Acme paid this number of employees...	
1	10	Number of employees paid = 830 1
2	0	
3	15	Number of pay periods = 26 2
4	30	
5	40	$830 \div 26 = 31.92$ 3
▼	▼	26
24	20	31.92 rounds to 32 4
25	15	
26	+10	32 is the annual average number of employees
	830	

How to figure the total hours worked by all employees:

Include hours worked by salaried, hourly, part-time and seasonal workers, as well as hours worked by other workers subject to day to day supervision by your establishment (e.g., temporary help services workers).

Do not include vacation, sick leave, holidays, or any other non-work time, even if employees were paid for it. If your establishment keeps records of only the hours paid or if you have employees who are not paid by the hour, please estimate the hours that the employees actually worked.

If this number isn't available, you can use this optional worksheet to estimate it.

Optional Worksheet

_____ **Find** the number of full-time employees in your establishment for the year.

X _____ **Multiply** by the number of work hours for a full-time employee in a year.

_____ This is the number of full-time hours worked.

+ _____ **Add** the number of any overtime hours as well as the hours worked by other employees (part-time, temporary, seasonal)

_____ **Round** the answer to the next highest whole number. Write the rounded number in the blank marked *Total hours worked by all employees last year*.



OSHA's Form 301 Injury and Illness Incident Report

This *Injury and Illness Incident Report* is one of the first forms you must fill out when a recordable work-related injury or illness has occurred. Together with the *Log of Work-Related Injuries and Illnesses* and the accompanying *Summary*, these forms help the employer and OSHA develop a picture of the extent and severity of work-related incidents.

Within 7 calendar days after you receive information that a recordable work-related injury or illness has occurred, you must fill out this form or an equivalent. Some state workers' compensation, insurance, or other reports may be acceptable substitutes. To be considered an equivalent form, any substitute must contain all the information asked for on this form.

According to Public Law 91-596 and 29 CFR 1904, OSHA's recordkeeping rule, you must keep this form on file for 5 years following the year to which it pertains.

If you need additional copies of this form, you may photocopy and use as many as you need.

Completed by _____
 Title _____
 Phone (____) _____ Date ____/____/____

Attention: This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible while the information is being used for occupational safety and health purposes.



U.S. Department of Labor
Occupational Safety and Health Administration

Form approved OMB no. 1218-0176

Information about the employee

- 1) Full name _____
- 2) Street _____
 City _____ State _____ ZIP _____
- 3) Date of birth ____/____/____
- 4) Date hired ____/____/____
- 5) Male
 Female

Information about the physician or other health care professional

- 6) Name of physician or other health care professional _____
 Facility _____
 Street _____
 City _____ State _____ ZIP _____
- 7) If treatment was given away from the worksite, where was it given?
 Yes
 No
- 8) Was employee treated in an emergency room?
 Yes
 No
- 9) Was employee hospitalized overnight as an in-patient?
 Yes
 No

Information about the case

- 10) Case number from the Log _____ (Transfer the case number from the Log after you record the case.)
- 11) Date of injury or illness ____/____/____ AM / PM
- 12) Time employee began work _____ AM / PM
- 13) Time of event _____ AM / PM Check if time cannot be determined
- 14) **What was the employee doing just before the incident occurred?** Describe the activity, as well as the tools, equipment, or material the employee was using. Be specific. *Examples:* "climbing a ladder while carrying roofing materials"; "spraying chlorine from hand sprayer"; "daily computer key-entry."
- 15) **What happened?** Tell us how the injury occurred. *Examples:* "When ladder slipped on wet floor, worker fell 20 feet"; "Worker was sprayed with chlorine when gasket broke during replacement"; "Worker developed soreness in wrist over time."
- 16) **What was the injury or illness?** Tell us the part of the body that was affected and how it was affected; be more specific than "hurt," "pain," or "sore." *Examples:* "strained back"; "chemical burn, hand"; "carpal tunnel syndrome."
- 17) **What object or substance directly harmed the employee?** *Examples:* "concrete floor"; "chlorine"; "radial arm saw." If this question does not apply to the incident, leave it blank.
- 18) **If the employee died, when did death occur?** Date of death ____/____/____

If You Need Help...

If you need help deciding whether a case is recordable, or if you have questions about the information in this package, feel free to contact us. We'll gladly answer any questions you have.

▼ Visit us online at www.osha.gov

▼ Call your OSHA Regional office and ask for the recordkeeping coordinator

or

▼ Call your State Plan office

Federal Jurisdiction

Region 1 - 617 / 565-9860
Connecticut; Massachusetts; Maine; New Hampshire; Rhode Island

Region 2 - 212 / 337-2378
New York; New Jersey

Region 3 - 215 / 861-4900
DC; Delaware; Pennsylvania; West Virginia

Region 4 - 404 / 562-2300
Alabama; Florida; Georgia; Mississippi

Region 5 - 312 / 353-2220
Illinois; Ohio; Wisconsin

Region 6 - 214 / 767-4731
Arkansas; Louisiana; Oklahoma; Texas

Region 7 - 816 / 426-5861
Kansas; Missouri; Nebraska

Region 8 - 303 / 844-1600
Colorado; Montana; North Dakota; South Dakota

Region 9 - 415 / 975-4310

Region 10 - 206 / 553-5930
Idaho

State Plan States

Alaska - 907 / 269-4957

Arizona - 602 / 542-5795

California - 415 / 703-5100

*Connecticut - 860 / 566-4380

Hawaii - 808 / 586-9100

Indiana - 317 / 232-2688

Iowa - 515 / 281-3661

Kentucky - 502 / 564-3070

Maryland - 410 / 527-4465

Michigan - 517 / 322-1848

Minnesota - 651 / 284-5050

Nevada - 702 / 486-9020

*New Jersey - 609 / 984-1389

New Mexico - 505 / 827-4230

*New York - 518 / 457-2574

North Carolina - 919 / 807-2875

Oregon - 503 / 378-3272

Puerto Rico - 787 / 754-2172

South Carolina - 803 / 734-9669

Tennessee - 615 / 741-2793

Utah - 801 / 530-6901

Vermont - 802 / 828-2765

Virginia - 804 / 786-6613

Virgin Islands - 340 / 772-1315

Washington - 360 / 902-5554

Wyoming - 307 / 777-7786

*Public Sector only





Have questions?

If you need help in filling out the *Log* or *Summary*, or if you have questions about whether a case is recordable, contact us. We'll be happy to help you. You can:

- ▼ Visit us online at: www.osha.gov
- ▼ Call your regional or state plan office. You'll find the phone number listed inside this cover.

Appendix B
Environmental Condition of Property Survey
Site Walkover Checklist



Site Name: _____

Page: _____ of _____

Michael Baker Jr., Inc.

ECP Survey
Site Walkover Checklist

Client: _____ Job: _____

Name of Property: _____

Location of Property: _____

Evaluator: _____ Date of Site Visit: _____

Persons Contacted: _____

Weather Conditions at Time of Site Visit:

_____	Ground Dry	_____	Clear
_____	Ground Wet	_____	Overcast
_____	Snow Cover	_____	Foggy

Natural Features

General Site Characterization

1. State of Development

(Check the ones that apply. If more than one use estimate percentage of property dedicated to that use).

_____	Undeveloped	_____	Developed
_____	Operating	_____	Abandoned
_____	Under Construction		

2. Current Land Uses

_____	Agriculture	_____	Commercial
_____	Residential	_____	Vacant

_____ Industrial _____ Other: _____ (specify)

3. Business Activities

(If you checked commercial or industrial, describe the type of activity)

4. Accessibility

(Indicate any roads, paths, railroads; man-made barriers such as fences; natural barriers such as water and steep slope).

5. Area of Property (in acres)

6. Geographic Setting

a. Proximity to homes

b. Proximity to towns

c. Proximity to highways

d. Proximity to railroads, etc...



Site Name: _____

Page: _____ of _____

Name of Adjacent Property
(Check the ones that apply.)

- _____ Underdeveloped _____ Developed _____ Under Construction
- _____ Operating _____ Abandoned _____ Vacant
- _____ Agricultural _____ Commercial _____ Industrial
- _____ Residential _____ Other (specify): _____
- _____ Receptors or generator of waste

Topography, Geomorphology, Geology

1. Slopes

2. Setting or Sinking of Land Surface

3. Direction of Natural Surface Drainage

4. Wetlands

- a. Indicator vegetation species Y _____ N _____
- b. Indicator animal species Y _____ N _____
- c. Saturated Areas Y _____ N _____
- d. Soils indicate wetland areas Y _____ N _____
- e. U.S.F.W.S. wetlands map designation Y _____ N _____

Soil and Ground Cover

1. Surfacing

(Describe as exposed or paved; type of paving, extent of condition, patches, staining, discoloration)

2. Soil Cover

(Describe as native to area; disturbed soil; possible fill)

Surface Water

1. Ponds, lagoons, lakes

(Describe the size, depth, and quality of the water, particularly and discoloration or petroleum slicks.)

2. Overall Drainage of Property

(Describe all streams, rivers, and any surface water features that areas of the property drain into. Indicate general direction of drainage. Describe the general quality of the surface water.)

3. Relationship of Surface Waters to Structures and Man-made Drainage of Site

(Do ditches empty into ponds or streams?)

3. Apparent Age

Natural Hazards

- | | |
|---|-----------------|
| 1. Sinkholes or Other Subsidence | Y _____ N _____ |
| 2. Slides, Creeps, or Other Mass Movement | Y _____ N _____ |
| 3. Soil Erosion | Y _____ N _____ |
| 4. Flooding Potential | Y _____ N _____ |

Manmade and Related Features

Buildings

1. Number, Location, Size

2. Type of Construction

3. Age

4. General Condition

5. Flooding Materials

6. Floor Drains to Where?

7. Spill evidence, cleaned up?

Utilities

1. Electricity

2. Natural Gas

3. Oil

4. Telephone

5. Sewers

6. Water

7. Storm Drains

Physical Features

1. Parking Areas (paved or under roof?)

2. Roads

3. Power Lines

4. Dwellings

5. Structures/Improvements

6. Right of Way

Security Features

1. Access Roads

2. Fencing and Gates

3. Vegetation Barriers

4. Bike Trails

5. Camp fires/party remains

6. Boat Launching Areas

Adjacent Land Use (Past and Present)

1. Surface water/Groundwater Use

2. Road/Utilities

3. Residential/Industrial/Commercial/Agricultural

4. Vacant Land

5. Vegetation Types

6. Drainage Patterns

Potentially Hazardous Features

Waste Evidence

1. Drums/Containers

2. Waste Materials

3. Construction/Demolition Debris

4. Discolored Soil

5. Odors

6. Leachate Seeps

7. Discolored Surface Water

8. "Unnatural Soil"

9. Ash or Blackened Area

Chemical/Fuel/Drum/Storage Area

1. Materials Stored

2. Type of Construction

3. Age

4. General Condition

5. Security and Access

6. Spill Control Berms

7. Spill Evidence

Manholes, Catch Basins, Drains, Fill Pipes

1. Where?

2. What for?

3. Description

4. Unusual Appearances or Odors

Process Tanks/Wastewater Tanks

1. Size

2. Materials of Construction

3. Purpose

4. Inside/Outside Appearance

5. Above/Below Grade

6. Lined/Unlined

7. Contents

8. General Condition

9. Leaks/Spills-Evidence or incidents

10. Connecting Piping Secure?

11. Chemical Feed/Pump System ok?

Pits/Ponds/Lagoons

1. Size/Location

2. Materials of Construction

3. Purpose/Contents

4. Above/Below Grade

5. Lined/Unlined

6. General Condition

7. Freeboard

8. Leaks

9. Fill/Drain Pipes

Disposal Areas

1. Size

2. Location

3. Age

4. Content

5. General Condition

6. Debris

7. Drums

8. Sludge/Residue/Rubble

9. Discoloration

10. Odors

11. Monitoring Wells

12. Cover Material

13. Vegetation

14. Equipment Condition

15. Surface Contours

16. Erosion

17. Leachate (analytical results)

Chemical Transfer Points

1. Where, When?

2. What Chemicals?

3. Inside/Outside

4. Paved/Unpaved

5. Spill Evidence

Neighboring Property Uses (Including Water Supply and Septage Removal):

1. North

2. South

3. East

4. West

Additional Information and Comments

Appendix C
Environmental Resources Management Inc.
ACM Project Plans

Naval Facilities Engineering Command – Mid-Atlantic

Scope of Work

Environmental Condition of Property -

NIOC Sugar Grove,

Sugar Grove, West Virginia

October 2013

Michael Baker Jr. Inc.

272 Bendix Road, Suite 400
Virginia Beach, Virginia 23452

Environmental Resources Management, Inc.

204 Chase Drive
Hurricane, West Virginia 25526

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LIST OF APPENDICES

- A* *SITE LOCATION MAPS*
- B* *ERM ASBESTOS INSPECTOR LICENSES*
- C* *LABORATORY CERTIFICATION AND CHAIN-OF-CUSTODY FORM*
- D* *HEALTH AND SAFETY PLAN*

1.0 INTRODUCTION

Michael Baker Jr. Inc. (Baker), under contract with Naval Facilities Engineering Command (NAVFAC) Mid-Atlantic, is tasked to prepare Environmental Condition of Property (ECP) for the disposal of the Naval Information Operations Command (NIOC) Sugar Grove, Sugar Grove, West Virginia. The installation is composed of various administration, maintenance, warehousing, cabins, civilian Family Housing units and support buildings at NIOC Sugar Grove. The ECP will identify areas of environmental concern and determine the potential presence of hazardous / toxic wastes or materials within a property leased or transferred by the Navy.

Environmental Resources Management, Inc. (ERM) of Charleston, West Virginia has been subcontracted by Baker to conduct the asbestos containing material (ACM) surveys at NIOC Sugar Grove as a component of the ECP. This Work Plan has been developed to outline the scope and schedule of services to be provided by ERM at NIOC Sugar Grove.

1.1 BACKGROUND

The Navy intends to dispose of the lower base complex of NIOC Sugar Grove, which includes the disposal of approximately 45 facility buildings. The Navy could be held responsible for hazardous and toxic wastes or substances remaining on properties leased or transferred by the Navy. Prior to property transfer, Baker and ERM will prepare an ECP which establishes a baseline for site environmental conditions prior to leasing or transferring housing units.

ERM will conduct the ACM survey for the presence of asbestos within the buildings located at NIOC Sugar Grove. The ACM survey will focus on eight (8) selected buildings. These buildings were determined to have the highest potential for presence of ACM based on their date of construction, before 1986. The eight buildings identified include approximately 65,500 square feet of area and are listed in Table 1-1. Should potential ACM be identified in any other buildings inspected by ERM or Baker personnel during the site inspection, additional ACM survey activities may be required. Maps depicting the approximate location of the subject buildings are included in Appendix A.

Base housing is managed by a Public/ Private Venture (PPV) partner and has been transferred by the Navy. ACM inspections/ surveys were completed in the housing units prior to the transfer of the properties and are not included in the scope of work for this ECP.

Table 1.1 - Summary of Buildings

Building Description	Building Number	Location	Area (ft²)	Year of Construction
PW Maint Shop/ Gym/ Bowling	20	Hendrick Dr.	26,999	1961
Plumbing Maint Shop	22	Hendrick Dr.	2,750	1959
Pump House/Filter/Chlorine	25	Hendrick Dr.	330	1961
Emergency Vehicle Garage	29	Hendrick Dr.	1,344	1959
NEX/ Commissary/ Bath house	30	Hendrick Dr.	6,522	1974
Administration building	63	Hendrick Dr.	20,040	1968
Equipment Shed	66	Hendrick Dr.	525	1975
Fire Station	68	Hendrick Dr.	6,996	1986

1.2

OBJECTIVES

The objective of the ECP Report is to document the environmental conditions of the NIOC Sugar Grove in support of real estate decisions, to determine the risk of exposure to any environmental contaminants by the property recipients, and to inform grantees of environmental conditions, restrictions, and land use controls associated with the real property. "Real property", includes buildings and other fixtures and improvements located on the property and affixed to the land. The primary objective is to identify and define areas where potentially hazardous and/or toxic substances, as well as petroleum, oils and lubricants (POL), may have been stored, disposed of, or released on or within the property. ERM will support the ECP investigation by determining the presence/ absence of potential ACM throughout the real property identified at NIOC Sugar Grove. The objectives pertaining to the completion of the ACM surveys are outlined in Section 3.0.

1.3

WORK PLAN ORGANIZATION

This Work Plan consists of the following sections:

- 1.0 - Introduction;
- 2.0 - Project Administration;
- 3.0 - Scope of Work and Technical Approach;
- 4.0 - Health and Safety; and
- 5.0 - Quality Assurance/Quality Control

2.0 PROJECT ADMINISTRATION

The following sections discuss the administration and staffing requirements for the completion of the ACM surveys for NIOC Sugar Grove. Additional ECP project personnel are included within Section 4 of the Baker Work Plan for the Disposal of NIOC Sugar Grove.

2.1 ERM STAFFING

Mr. David Carpenter, P.E., LRS will serve as ERM's Partner in Charge, providing overall responsibility for ERM's performance of the project. He will ensure that ERM corporate assets remain available, review the adequacy of all deliverables, and ensure that ERM's QA/QC program is implemented throughout the duration of the project.

Mr. Daniel Smaroff, EIT will be the ERM Project Manager. Mr. Smaroff is a Senior Engineer with over 15 years' experience in project management civil and environmental consulting. Mr. Smaroff will report directly to Mr. Carpenter and will lead the preparation and distribution of all aspects of the project, and will serve as ERM's primary point-of-contact for NAVFAC Mid-Atlantic correspondence. Assisting Mr. Smaroff will be engineers and scientists from ERM's Charleston, West Virginia office.

All work will be conducted under the supervision and leadership of personnel accredited/licensed to provide asbestos building inspection services, as appropriate, utilizing procedures and protocols as specified in this Work Plan. Table 2.1 identifies potential personnel and their West Virginia asbestos inspector's license number and expiration. Copies of personnel licenses have been included as Appendix B.

Table 2.1 - Summary of West Virginia ACM Inspectors

Name	License Number	Expiration Date
Spencer Reynolds	AI007085	12/31/2013

2.2 PROJECT COORDINATION

All field efforts requiring access to the building units will be coordinated with the following facility contacts:

NAVFAC MID-ATLANTIC Navy Technical Representative (NTR)

Mark M. Barnes, Code EV3

Telephone: (757) 341-0393

E-mail: mark.m.barnes@navy.mil

NAVFAC MID-ATLANTIC NTR

Doug Lyons, Code AM

Telephone: (757) 322-4057

E-mail: douglas.lyons@navy.mil

NIOC Sugar Grove, WV

POC: Lieutenant Celeste Renoewick

133 Hendrick Dr.

Sugar Grove, WV 26815-5068

Telephone: (304) 249-6395

Cell Phone: (334) 703-2526

E-mail: celeste.renoewick@navy.mil

Project correspondence from Baker and/or ERM shall be addressed to Mr. Mark M. Barnes, of NAVFAC Mid-Atlantic. In addition, Mr. Barnes will direct the distribution of project deliverables to NIOC Sugar Grove and other vested parties. Contact information for Mr. Barnes is as follows:

Mailing address: Mr. Mark M. Barnes
NAVFAC MID-ATLANTIC
Environmental Business Line
9742 Maryland Ave.
Norfolk, VA 23511-3095
Telephone: (757) 322-4780
E-Mail: mark.m.barnes@navy.mil

All correspondence from subcontractors of Baker shall be addressed to Mr. Don Joiner with copy to Mr. Jason Oliver. Contact information for Baker personnel is as follows:

Mailing address: Michael Baker Corporation
272 Bendix Road, Suite 400
Virginia Beach, VA 23452
Attn: Mr. Don Joiner

Telephone: (757) 631-5416
Facsimile: (757) 463-0503
Electronic mail: djoiner@mbakercorp.com

Mailing Address: Michael Baker Jr., Inc.
272 Bendix Road, Suite 400
Virginia Beach, VA 23452
Attn: Mr. Jason Oliver

Telephone: 757-631-5251
Cell Phone: 757-570-3855
Electronic mail: joliver@mbakercorp.com

All correspondence from subcontractors of ERM shall be addressed to Mr. David Carpenter with copy to Mr. Daniel Smaroff. Contact information for ERM personnel is as follows:

Mailing address: ERM, Inc.
204 Chase Drive
Hurricane, West Virginia 25526
Attn: Mr. David Carpenter

Telephone: (304) 757-4777
Facsimile: (304) 757-4799
Electronic mail: david.carpenter@erm.com

Mailing address: ERM, Inc.
800 Cranberry Woods Drive, Suite 290
Cranberry Township, Pennsylvania 16066
Attn: Mr. Daniel Smaroff

Telephone: (724) 933-5828
Facsimile: (724) 933-5464
Electronic mail: dan.smaroff@erm.com

2.3 *SCHEDULE*

The project schedule will be coordinated with the site and facility contacts in order to minimize disruption of the facility occupants and activities. The proposed schedule for completing the scope of work described in Section 3 is presented below. Note that the schedule presented has been developed to outline the general progression of the tasks to be completed and therefore dates are subject to change as unforeseen contingencies arise.

The project schedule is as follows:

NIOC Sugar Grove ECP Report and ACM Surveys:

- Field Work Start: November 11, 2014
- Draft Asbestos Surveys (ERM): 28 days after receipt of sample results.
- Draft ECP Report: May 8, 2014
- Final Report: July 7, 2014

Currently, the draft NIOC Sugar Grove ECP report is scheduled for completion by 8 May 2014. The project schedule could vary greatly based on site access and availability and other factors that are outside the control of Baker and ERM.

3.0 SCOPE OF WORK AND TECHNICAL APPROACH

The Navy intends to dispose of the lower base complex at NIOC Sugar Grove. All environmental issues need to be identified so a decision can be made if cleanup is required or the property can be transferred as is. Provided below is the scope of work and technical approach for the assessment of risks posed by the presence of asbestos in the eight (8) buildings identified in Table 1.1.

3.1 ASBESTOS

Based on the date of construction, ERM will perform a limited assessment of asbestos hazards within the eight buildings specified in Table 1. The evaluation will consist of a survey each unit for asbestos, following the USEPA Asbestos Hazard Emergency Response Act (AHERA) and EPA 560/5-85-030a "Asbestos in Buildings: Simplified Sampling Scheme for Friable Surfacing Materials" sampling and assessment methods (survey areas include all accessible spaces including, basements, crawl spaces and attics). This will consist of sampling of all interior/exterior suspect materials, with the exception of roofing materials.

During the survey, the number of samples collected from each type of material will be dependent on the amount of material observed. If surfacing materials are identified such as plaster, the number of samples collected will be as follows:

- > 5,000 square feet - 7 samples
- 1,000 to 5,000 square feet - 5 samples
- < 1,000 square feet - 3 samples

A total of three (3) samples will be collected for any other suspect material. Sample nomenclature will be designated with the building number, ERM, and a unique sample identification number. Bulk samples will be analyzed by EMSL Analytical, Inc. of Cinnaminson, New Jersey a West Virginia certified and American Industrial Hygiene Association (AIHA) and National Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratory. Chain-of-custody procedures will be strictly adhered to during the transfer of all samples. West Virginia certification for EMSL Laboratory and chain-of custody forms are located in Appendix C.

All ACM samples will be analyzed by polarized light microscopy (PLM) on a one-week turnaround using the Point Count method (Calibrated

Visual Estimate, reporting limit to ,1%). Materials determined to contain asbestos greater than 1% will be considered asbestos.

Once the asbestos survey has been performed, a report documenting the location and condition of all identified ACM will be prepared and included in the ECP report.

3.2 ENVIRONMENTAL CONDITION OF PROPERTY

The scope of work and technical approach for the ECP is defined in the Baker Work Plan for the Disposal of NIOC Sugar Grove.

4.0 *HEALTH AND SAFETY*

All work conducted shall be in accordance with the requirements of the Health and Safety Plan (HASP), included as Appendix B.

5.0 ***QUALITY ASSURANCE/QUALITY CONTROL***

ERM

ERM's internal QA/QC Program is an integral part of the management approach that will be used for this contract. This program, while constantly being refined and updated, has been in existence at ERM for over 25 years. Its application ensures that the technical quality objectives of each project are met within the context of applicable regulatory guidelines, and the specific contractual requirements.

For this project, all fieldwork, document review, data collection, and data interpretation will be directly supervised by the Project Manager. All report documents and other deliverables to the client will undergo an internal peer review by the Partner in Charge prior to submission.

Appendix A
Site Location Maps



Prepared For:
 mark.m.barnes@navy.mil
 07/18/2013

Map of:
NSA Sugar Grove Lower Base Map
 FOR OFFICIAL USE ONLY

Not to Scale
 Document Generated from RS/MS Internet Mapping Application



Appendix B

ERM Asbestos Inspector License



WEST VIRGINIA

Asbestos Program

Spencer Reynolds

IS LICENSED AS AN
ASBESTOS INSPECTOR

License #: AI007085

Issued: 12/13/2012

Expires: 12/31/2013

Anthony Turner Assistant Director
WV RTIA DIV

Appendix C

Laboratory Certification and Chain-of-Custody Forms



AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: 100194

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- INDUSTRIAL HYGIENE**
- ENVIRONMENTAL LEAD**
- ENVIRONMENTAL MICROBIOLOGY**
- FOOD**

- Accreditation Expires: 07/01/2014
- Accreditation Expires: 07/01/2014
- Accreditation Expires: 07/01/2014
- Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

S. D. Allen Iske, PhD, CIH, CSP
Chairperson, Analytical Accreditation Board

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 12: 03/29/2012

Date Issued: 07/31/2012



AIHA Laboratory Accreditation Programs, LLC SCOPE OF ACCREDITATION

EMSL Analytical, Inc.
200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: **100194**
Issue Date: 07/31/2012

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or revocation. A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at: <http://www.aihaaccreditedlabs.org>

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 02/01/1989

IHLAP Scope Category	Field of Testing (FoT)	Technology sub-type/ Detector	Published Reference Method/ Title of In-house Method	Method Description or Analyte <i>(for internal methods only)</i>
Chromatography Core	Gas Chromatography	GC/ FID	NIOSH 1003	
			NIOSH 1005	
			NIOSH 1400	
			NIOSH 1500	
			NIOSH 1550	
			NIOSH 1603	
		GC/ECD	NIOSH 5502	
			NIOSH 5503	
			NIOSH 5510	
			OSHA 1010	
	GC/NPD	NIOSH 2551		
	GC/MS		EPA TO-15	
	Gas Chromatography (Diffusive Samplers)		NIOSH 1501	
	Ion Chromatography (IC)		NIOSH 6004	
			NIOSH 6011	
			NIOSH 7903	
			OSHA ID-214	
OSHA ID-215				
Liquid Chromatography		HPLC/FL	NIOSH 5506	
		HPLC/UV	NIOSH 2016	

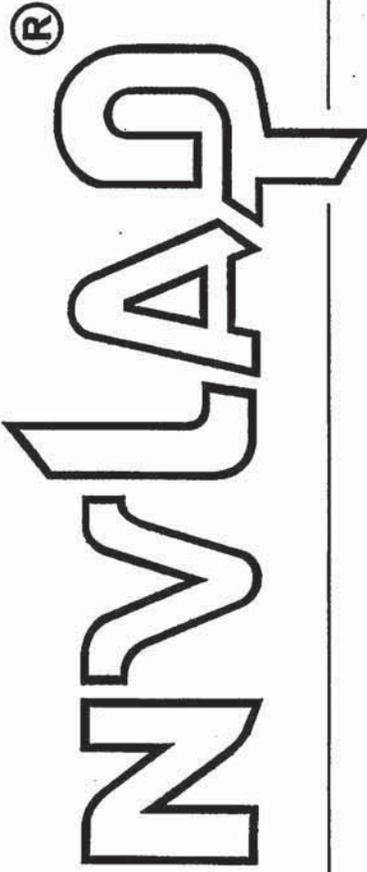


IHLAP Scope Category	Field of Testing (FoT)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte <i>(for internal methods only)</i>
Spectrometry Core	Atomic Absorption	CVAA	NIOSH 6009	
			OSHA ID-145	SOP LM-015
		OSHA ID-145	SOP LM-013	
		FAA	NIOSH 7082	
		GFAA	NIOSH 7105	
	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300 Modified	
		ICP/AES	NIOSH 7300	
	X-ray Diffraction (XRD)		NIOSH 7500	
		OSHA ID-142		
UV/VIS (Colorimetric)		NIOSH 6010		
Asbestos/Fiber Microscopy Core	Polarized Light Microscopy (PLM)		EPA 600/R-93/116	
	Phase Contrast Microscopy (PCM)		NIOSH 7400	
	Transmission Electron Microscopy (TEM)		EPA AHERA - 40 CFR Part 763	
		NIOSH 7402		
Miscellaneous Core	Gravimetric		NIOSH 0500	
			NIOSH 0600	
			NIOSH 5524	
	Thermo-optical Analysis (TOA)		NIOSH 5040	

The laboratory participates in the following AIHA-LAP, LLC-approved proficiency testing programs:

- | | |
|--|--|
| <ul style="list-style-type: none"> ✓ AIHA-PAT Programs, LLC IHPAT Metals ✓ AIHA-PAT Programs, LLC IHPAT Organic Solvents ✓ AIHA-PAT Programs, LLC IHPAT Silica ✓ AIHA-PAT Programs, LLC IHPAT Diffusive Sampler (3M) ☐ AIHA-PAT Programs, LLC IHPAT Diffusive Sampler (SKC) ☐ AIHA-PAT Programs, LLC IHPAT Diffusive Sampler (AT) ✓ AIHA-PAT Programs, LLC IHPAT Asbestos ☐ AIHA-PAT Programs, LLC Bulk Asbestos (BAPAT) ☐ AIHA-PAT Programs, LLC Beryllium (BePAT) ✓ HSE Workplace Analytical Scheme for Proficiency (WASP) (Formaldehyde) ☐ HSE Workplace Analytical Scheme for Proficiency (WASP) (Thermal Desorption Tubes) | <ul style="list-style-type: none"> ☐ Pharmaceutical Round Robin ☐ Compressed/Breathing Air Round Robin ✓ National Voluntary Laboratory Accreditation Program (NVLAP - determined at the time of site assessment) ☐ New York State Department of Health (NYS DOH – PCM and TEM) ✓ ERA Air and Emissions standards for indoor air quality ☐ Institut für Arbeitsschutz der Deutschen Gesetzlichen Unfallversicherung (IFA, formerly BGIA) ☐ Institut de Recherche Robert-Sauvé en Santé et en Sécurité du Travail (IRSST) |
|--|--|

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.
Cinnaminson, NJ

is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:

AIRBORNE ASBESTOS FIBER ANALYSIS

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).

2013-07-01 through 2014-06-30

Effective dates



A handwritten signature in black ink, appearing to read "William R. M. L. D.".

For the National Institute of Standards and Technology



**National Voluntary
Laboratory Accreditation Program**



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.
 200 Route 130 North
 Cinnaminson, NJ 08077
 Mr. Stephen Siegel, CIH
 Phone: 800-220-3675 Fax: 856-786-5973
 E-Mail: ssiegel@emsl.com
 URL: <http://www.emsl.com>

AIRBORNE ASBESTOS FIBER ANALYSIS (TEM)

NVLAP LAB CODE 101048-0

NVLAP Code Designation / Description

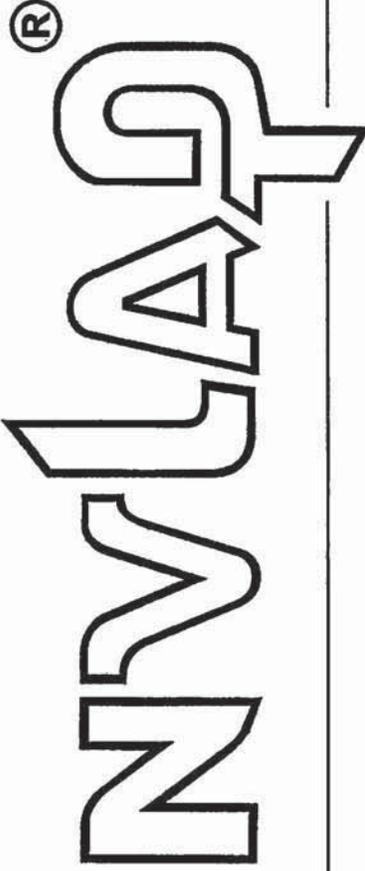
18/A02 U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.

2013-07-01 through 2014-06-30

Effective dates

For the National Institute of Standards and Technology

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.
Cinnaminson, NJ

is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:

BULK ASBESTOS FIBER ANALYSIS

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2013-07-01 through 2014-06-30

Effective dates



A handwritten signature in black ink, appearing to read "William R. M. L. D.", is written over a horizontal line.

For the National Institute of Standards and Technology



**National Voluntary
Laboratory Accreditation Program**



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.
 200 Route 130 North
 Cinnaminson, NJ 08077
 Mr. Stephen Siegel, CIH
 Phone: 800-220-3675 Fax: 856-786-5973
 E-Mail: ssiegel@emsl.com
 URL: <http://www.emsl.com>

BULK ASBESTOS FIBER ANALYSIS (PLM)

NVLAP LAB CODE 101048-0

<i>NVLAP Code</i>	<i>Designation / Description</i>
18/A01	EPA 600/M4-82-020: Interim Method for the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

2013-07-01 through 2014-06-30

Effective dates

For the National Institute of Standards and Technology

State of West Virginia

Bureau for Public Health
Office of Environmental Health Services
Radiation, Toxics and Indoor Air Division

This is to certify that

EMSL Analytical, Inc.

200 Route 130 North

Cinnaminson, NJ 08077

Has complied with Chapter 16, Article 32, of the Asbestos Abatement Licensing Rules and Regulations and is hereby licensed as an Asbestos Air and Bulk Sample Analytical Laboratory.

Asbestos Laboratory License Number:
LT000460

Issued: 3/29/2013

Expires: 3/31/2014



WEST VIRGINIA

Asbestos Program

EMSL Analytical, Inc.

IS LICENSED AS AN
ASBESTOS LABORATORY -
AIR AND BULK



License #: LT000460

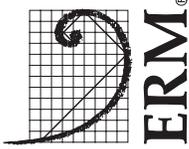
Issued: 3/29/2013

Expires: 3/31/2014

Anthony Turner
Assistant Director
WV RTIA DIV

Anthony Turner, Assistant Director
Radiation, Toxics and Indoor Air Division

Appendix D
Project Health & Safety Plan



**LEVEL 2 NON-INTRUSIVE WARN
HEALTH AND SAFETY PLAN
GMS Project #0219688**

This Level 2 WARN HASP is intended to provide health and safety guidelines for project field work meeting the following criteria:

- **Short-duration work not exceeding 30 consecutive days without approval**
- **“Buddy System” in use**
- **Some likelihood of chemical and/or physical hazard exposure**
- **Limited number of job tasks (5 or less)**
- **No confined space entry or supplied-air respirator use**
- **Limited number of subcontractors involved (2 or less)**

The Project Manager should review this Health and Safety Plan with all ERM project personnel and maintain the HASP in project files. H&S Team review is required for the Level 2 WARN and should be accomplished by sending the completed document to the “ERM NA Safety Leads” Outlook email group.

Administrative Information This document is valid for a maximum time period of one year after initial completion. A minimum of two persons with appropriate training and medical surveillance must be onsite. A mix of ERM and other personnel can satisfy this requirement.	Site Name and Location WV Environmental Condition of Property, Disposal of NIOC Sugar Grove, Sugar Grove,
	Client Contact and Phone Jason Oliver - (757-570-3855)
	Project Name NIOC Sugar Grove Asbestos Survey
	Health & Safety Plan Date 10-14-2013
	Field Work Start Date 11-11-2013
	Project Manager (responsible for implementing site health and safety program on this project) Dan Smaroff
H&S Team Review	Revision Number and Date Anticipated Field Work End Date Partner In Charge (responsible for overall site health and safety performance on this project) David Carpenter Signature

Project Background and Scope of Work

Include bullet list of tasks to be completed by ERM personnel during this project, and a separate list of tasks to be completed by any subcontractors at the site.

ERM Scope of Work: Asbestos survey of facility with AHERA certified building inspectors:

1. Review Existing Documentation
2. Site Inspection
3. Sampling of materials suspected to contain asbestos

The survey includes the identification, condition assessment and quantification of materials suspected of containing asbestos. The survey also includes sampling of suspect materials to determine their asbestos content. Since the building is still in use, sampling is to be performed only in discrete locations. If there are suspect materials that cannot be safely sampled, or to do so would compromise the structural or finish integrity of the material, are not to be sampled and assumed to contain asbestos.

Subcontractor Scope of Work: N/A

Site/Project General Information

An asterisk (*) indicates that a completed Risk Assessment checklist must be completed and attached to this document.

Site Type (check all applicable boxes)

- | | | | |
|--|---|---|---|
| <input checked="" type="checkbox"/> Active Facility* | <input type="checkbox"/> Remote Facility* | <input type="checkbox"/> Inactive Facility* | <input type="checkbox"/> Inactive Facility* |
| <input type="checkbox"/> Mine | <input type="checkbox"/> Railroad | <input type="checkbox"/> Industrial | <input type="checkbox"/> Residential |
| <input checked="" type="checkbox"/> Secured | <input type="checkbox"/> Uncontrolled | <input type="checkbox"/> Chemical Mixing** | <input type="checkbox"/> Other (specify) |

A double asterisk ()
indicates that a Risk
Review must take place
prior to beginning
fieldwork on the project.**

Main Site Hazards (check all applicable boxes)

- | | | | | | | | |
|-------------------------------------|-------------------|-------------------------------------|--------------------|-------------------------------------|---------------------------|-------------------------------------|---------------------------|
| <input type="checkbox"/> | Heat Stress | <input type="checkbox"/> | Cold Stress | <input type="checkbox"/> | Explosion/Fire | <input type="checkbox"/> | Oxygen Deficiency |
| <input checked="" type="checkbox"/> | Biological | <input type="checkbox"/> | Organic Chemicals | <input type="checkbox"/> | Inorganic Chemicals | <input type="checkbox"/> | Heavy Equipment in Use |
| <input type="checkbox"/> | Compressed Gas | <input checked="" type="checkbox"/> | Asbestos | <input type="checkbox"/> | High Noise | <input checked="" type="checkbox"/> | Respirable Particles |
| <input type="checkbox"/> | Work Over 6' High | <input type="checkbox"/> | Extreme Weather | <input checked="" type="checkbox"/> | Hand/Portable Power Tools | <input type="checkbox"/> | Non-Ionizing Radiation |
| <input type="checkbox"/> | Blasting Agents | <input type="checkbox"/> | Confined Spaces | <input type="checkbox"/> | ASTs/USTs | <input type="checkbox"/> | Buried/Overhead Utilities |
| <input checked="" type="checkbox"/> | Slip/Trip/Fall | <input type="checkbox"/> | Forklift Use | <input type="checkbox"/> | Manlift/Cherry Picker Use | <input type="checkbox"/> | Heavy Equipment Use |
| <input type="checkbox"/> | Scaffold Use | <input checked="" type="checkbox"/> | Portable Ladders | <input type="checkbox"/> | Welding or Hot Work | <input type="checkbox"/> | Construction |
| <input type="checkbox"/> | Excavations | <input type="checkbox"/> | Extreme Weather | <input checked="" type="checkbox"/> | Hand/Portable Power Tools | <input type="checkbox"/> | Strip/Underground Mines |
| <input type="checkbox"/> | Lockout/Tagout | <input type="checkbox"/> | Commercial Vehicle | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> | Other (specify) |

Chemical Products ERM will Use or Store Onsite

For each chemical product identified, an MSDS must be attached to this WARN HASP

<input type="checkbox"/> Alconox or Liquinox	<input type="checkbox"/> Calibration gas (Methane)	<input type="checkbox"/> Isopropyl Alcohol
<input type="checkbox"/> Hydrochloric acid (HCl)*	<input type="checkbox"/> Calibration gas (Isobutylene)	<input type="checkbox"/> Household bleach (NaOCl)*
<input type="checkbox"/> Nitric acid (HNO ₃)*	<input type="checkbox"/> Calibration gas (Pentane)	<input type="checkbox"/> Sulfuric acid (H ₂ SO ₄)*
<input type="checkbox"/> Sodium hydroxide (NaOH)*	<input type="checkbox"/> Calibration gas (4-gas mixture)	<input type="checkbox"/> Hexane
	<input type="checkbox"/> Other (specify)	<input type="checkbox"/> Other (specify)

***NOTE: Eyewash solution shall be readily available on ALL projects where corrosive materials are used or stored, including sample preservatives.**

Safe Work Practices

Place a checkmark by applicable SWPs and attach to this document

For hazards not covered by SWPs listed in this section, list the task name and complete a Job Hazard Analysis sheet (JHA) for each

SWPs Applicable To This Project (check all applicable boxes)

<input checked="" type="checkbox"/> 1-Hazard Communication	<input checked="" type="checkbox"/> 3-Medical Services and First Aid	<input type="checkbox"/> 4-Airborne Contaminants	<input type="checkbox"/> 5-Heat Stress
<input type="checkbox"/> 6-Cold Stress	<input checked="" type="checkbox"/> 7-Natural Hazards	<input checked="" type="checkbox"/> 8-Personal Protective Equipment	<input checked="" type="checkbox"/> 9-Respiratory Protection
<input type="checkbox"/> 10-Confined Space Entry	<input type="checkbox"/> 11-Drum Handling	<input type="checkbox"/> 13-Excavation	<input checked="" type="checkbox"/> 14-Fall Protection and Prevention
<input type="checkbox"/> 16-Forklift and Truck Operations	<input checked="" type="checkbox"/> 17-Hand Tools	<input type="checkbox"/> 19-Heavy and Material Handling Equipment	<input checked="" type="checkbox"/> 20-Ladder Safety
<input type="checkbox"/> Other Task (specify)	<input type="checkbox"/> Other Task (specify)	<input type="checkbox"/> Other Task (specify)	<input type="checkbox"/> Other Task (specify)
<input type="checkbox"/> Other Task (specify)	<input type="checkbox"/> Other Task (specify)	<input type="checkbox"/> Other Task (specify)	<input type="checkbox"/> Other Task (specify)

Levels of Protection Required for each Task	Task Description	Level			
		A	B	C	D
Identification, condition assessment and quantification of suspect materials		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sampling of suspect materials (Level D plus HF respirator w/HEPA if needed)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sampling will be conducted by Spencer Reynolds of ERM who holds a West Virginia Asbestos Certification for an Inspector and Supervisor. License # AI007085		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Grant Morgan of ERM will be responsible for providing assistance to Spencer Reynolds in the collection of bulk samples and will also be responsible for providing First Aid on site.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Personal Protective Equipment Req=Required Rec=Recommended	Equipment				Equipment			
	Req	Rec	NA	NA	Req	Rec	NA	NA
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hard Hat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety Glasses Shields	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Indirect Vented Goggles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Poly-Coated Tyvek	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Full-Face Respirator	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Half-Face Respirator	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Inner Chemical Gloves	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Other (specify) Kevlar cut resistant gloves	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Training and Medical Surveillance Req=Required Rec=Recommended	Training				Medical Surveillance			
	Req	Rec	NA	NA	Req	Rec	NA	NA
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	40 Hour HAZWOPER	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Current 8 Hour HAZWOPER	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	8 Hour HAZWOPER Supervisor*	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Current CPR and First Aid*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	10 Hour Construction	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	ERM H&S Management System	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ERM Site Safety Officer*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other (specify) AHERA	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Other (specify)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety Supplies Req=Required Rec=Recommended	Supplies				Supplies			
	Req	Rec	NA	NA	Req	Rec	NA	NA
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Fire Extinguisher	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Water/Sports Drink	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Oral Thermometer	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Decontamination Supplies	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<p>Work Zones</p> <p>If exclusion zones are necessary because of chemical OR equipment hazards, describe the plan</p>	<p>Exclusion Zone: Not Applicable</p> <p>Contamination Reduction Zone: Not Applicable</p> <p>Support Zone: Not Applicable</p>
--	---

<p>Site Access/Control</p> <p>How do we limit unauthorized entry to the site itself?</p>	<p>Access Control Procedures: Site access is controlled by the Naval Facility and a government issued photo identification is required that indicates U.S. citizenship. ERM will check-in and out with site escorts as necessary to gain access to the buildings.</p>
<p>DECON Procedures</p>	<p>Decontamination Procedures: Wash hands after sampling. Wipe sampling tools with paper towel or damp rag between samples.</p>

Chemicals of Concern

In the section to the right, check any chemicals present onsite in any media (air, soil water).

In the table below, list chemicals suspected or confirmed to be onsite, and provide requested information.

- Friable Asbestos
- 3,3'-Dichlorobenzidine
- Benzidine
- beta-Propiolactone
- N-Nitrosomethylamine
- Lead
- Benzene
- Acrylonitrile
- Methylenedianiline

- alpha-Naphthylamine
- bis-Chloromethyl ether
- 4-Aminodiphenyl
- 2-Acetylaminofluorene
- Vinyl chloride
- Chromium (VI)
- Coke oven emissions
- Ethylene oxide
- 1,3-Butadiene
- No ERM exposure to these**

- Methyl chromoethyl ether
- beta-Naphthylamine
- Ethyleneimine
- 4-Dimethylaminoazobenzene
- Inorganic arsenic
- Cadmium
- 1,2-Dibromo-3-chloropropane
- Formaldehyde
- Methylene chloride

Materials Present or Suspected at Site	Highest Reported Concentration (specify units and sample medium)	Exposure Limit (specify ppm or mg/m ³)	IDLH Level (specify ppm or mg/m ³)	Primary Hazards of the Material (explosive, flammable, corrosive, toxic, volatile, biohazard, oxidizer, or other)	Symptoms and Effects of Acute Exposure	Ionization Potential (eV)
Asbestos	Unknown	PEL = 0.1 f/cc REL = TLV = Skin Hazard <input type="checkbox"/>		Other	Asbestosis (chronic exposure): dyspnea (breathing difficulty), interstitial fibrosis, restricted pulmonary function, finger clubbing; irritation eyes: [potential occupational carcinogen]	
		PEL = REL = TLV = Skin Hazard <input type="checkbox"/>				
		PEL = REL = TLV = Skin Hazard <input type="checkbox"/>				
		PEL = REL = TLV = Skin Hazard <input type="checkbox"/>				

PEL = OSHA Permissible Exposure Limit
 REL = NIOSH Recommended Exposure Limit
 TLV = ACGIH Threshold Limit Value
 IDLH = Immediately Dangerous to Life or Health

Monitoring Equipment: All monitoring equipment on site must be calibrated before and after each use and results recorded

Instrument (Check all required)		Task	Instrument Reading	Action Guideline	Comments
<input type="checkbox"/> Combustible gas indicator model:	<input type="checkbox"/> 1	0 to 10% LEL	Monitor; evacuate if confined space		
	<input type="checkbox"/> 2	10 to 25% LEL	Potential explosion hazard		
	<input type="checkbox"/> 3				
	<input type="checkbox"/> 4	>25% LEL	Explosion hazard; interrupt task; evacuate site		
	<input type="checkbox"/> 5				
<input type="checkbox"/> Oxygen meter model:	<input type="checkbox"/> 1	>23.5% Oxygen	Potential fire hazard; evacuate site		
	<input type="checkbox"/> 2	23.5 to 19.5% Oxygen	Oxygen level normal		
	<input type="checkbox"/> 3				
	<input type="checkbox"/> 4	<19.5% Oxygen	Oxygen deficiency; interrupt task; evacuate site		
	<input type="checkbox"/> 5				
<input type="checkbox"/> Radiation survey meter model:	<input type="checkbox"/> 1	Normal background	Proceed	Annual exposure not to exceed 1,250 mrem per quarter Background reading must be taken in an area known to be free of radiation sources.	
	<input type="checkbox"/> 2	Two to three times background	Notify SSC		
	<input type="checkbox"/> 3				
	<input type="checkbox"/> 4	>Three times background	Radiological hazard; interrupt task; evacuate site		
	<input type="checkbox"/> 5				
<input type="checkbox"/> Photoionization detector model: <input type="checkbox"/> 11.7 eV <input type="checkbox"/> 10.6 eV <input type="checkbox"/> 10.2 eV <input type="checkbox"/> 9.8 eV <input type="checkbox"/> _____ eV	<input type="checkbox"/> 1	Any response above background to 5 ppm above background	Level C is acceptable	These action levels are for unknown gases or vapors. After the contaminants are identified, action levels should be based on the specific contaminants involved.	
	<input type="checkbox"/> 2	>5 to 500 ppm above background	Level B is recommended		
	<input type="checkbox"/> 3		Level B		
	<input type="checkbox"/> 4	>500 ppm above background	Level A		
	<input type="checkbox"/> 5				
<input type="checkbox"/> Flame ionization detector model:	<input type="checkbox"/> 1	Any response above background to 5 ppm above background	Level C is acceptable	These action levels are for unknown gases or vapors. After the contaminants are identified, action levels should be based on the specific contaminants involved.	
	<input type="checkbox"/> 2	>5 to 500 ppm above background	Level B is recommended		
	<input type="checkbox"/> 3		Level B		
	<input type="checkbox"/> 4	>500 ppm above background	Level A		
	<input type="checkbox"/> 5				
<input type="checkbox"/> Detector tube models:	<input type="checkbox"/> 1	Specify: < 1/2 the PEL	Specify:	The action level for upgrading the level of protection is one-half of the contaminant's PEL. If the PEL is reached, evacuate the site and notify a safety specialist.	
	<input type="checkbox"/> 2	> 1/2 the PEL			
	<input type="checkbox"/> 3				
	<input type="checkbox"/> 4				
	<input type="checkbox"/> 5				
<input type="checkbox"/> Other (specify):	<input type="checkbox"/> 1	Specify:	Specify:		
	<input type="checkbox"/> 2				
	<input type="checkbox"/> 3				
	<input type="checkbox"/> 4				
	<input type="checkbox"/> 5				

Emergency Response Planning

In the pre-work briefing and daily tailgate safety meetings, all onsite employees will be trained in the provisions of emergency response planning, site communication systems, and site evacuation routes.

Signal a site emergency or medical emergency with three blasts of a loud horn (car horn, fog horn, or similar device).

To complete this section, attach a hospital route map to the HASP.

All work-related incidents must be reported. For all medical emergencies, call 911 or the local emergency number. For non-emergency incidents, you must:

- Give appropriate first aid care to the injured or ill individual and secure the scene.
- Immediately call Incident Intervention at (888) 449-7787 (available 24 hours/7 days per week).
- Notify the Project Manager and/or H&S Officer after calling Incident Intervention.
- Enter the safety event into the ECS within 24 hours.

In the event of an emergency that necessitates evacuation of the work task area or the site as a whole, the following procedures shall occur:

- The ERM site safety contact will contact all nearby personnel using the onsite communications system to advise of the emergency.
- Personnel will proceed along site roads to a safe distance upwind from the hazard source.
- Personnel will remain in that area until the site safety contact or other authorized individual provides further instruction.

In the event of a severe spill or leak, site personnel will follow the procedures listed below:

- Evacuate the affected area and relocate personnel to an upwind location.
- Inform the ERM site safety contact, an ERM office, and a site representative immediately.
- Locate the source of the spill or leak, and stop the source if it is safe to do so and appropriately trained personnel are onsite to do so.
- Begin containment and recovery of spilled or leaked materials.
- Notify appropriate local, state, and federal agencies after obtaining client consent to do so.

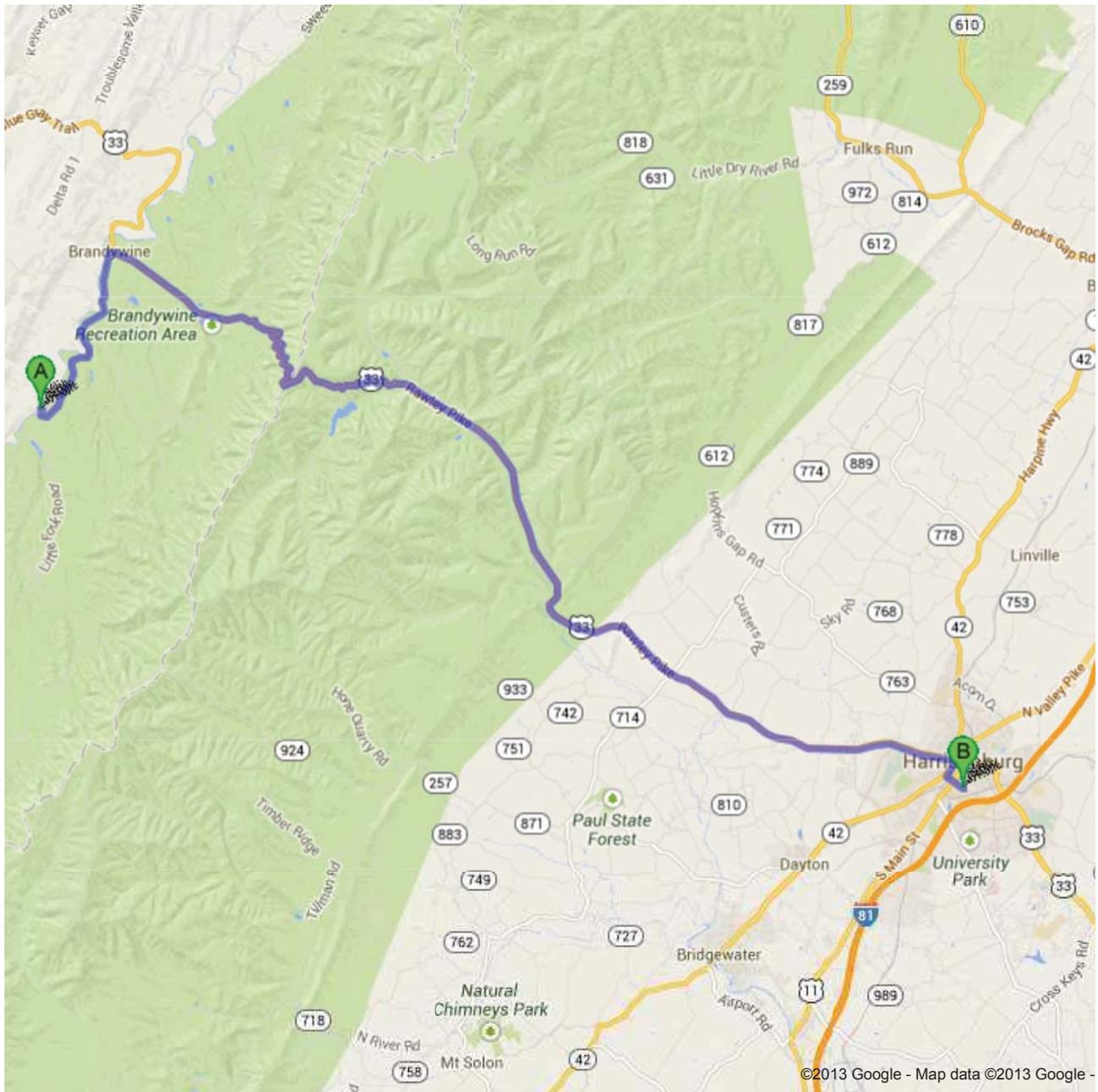
In the event of severe weather, site personnel will follow the procedures listed below:

- Site work shall not be conducted during severe weather, including high winds and lightning.
- In the event of severe weather, stop work, lower any equipment (drill rigs), and evacuate the affected area.

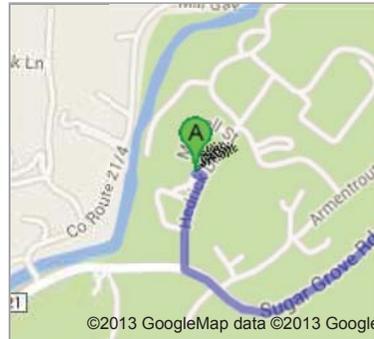
Emergency Contacts	Name	Location	Phone	Cell Phone
Hospital (attach map)	University Health Center	Harrisonburg VA	540-568-6178	
Police	Pendleton County Sheriff	Franklin WV	911 / 304-358-2214	
Fire	Brandywine Fire Department	Brandywine WV	911	
Project Manager	Dan Smaroff	Pittsburg PA	724-933-5828	412-352-8937
Field Manager (if not PM)	Spencer Reynolds	Charleston WV	304-757-4777	304-395-0300
Field Safety Officer (if not PM)	Spencer Reynolds	Charleston WV	304-757-4777	304-395-0300
Division H&S Contact	Mat Boardman	Holland, MI		616-283-5863
Region H&S Contact	Greg Smith	Rolling Meadows, IL	847 258 8922	847 345 8705
Incident Intervention	Work Care	N/A	888-449-7787	N/A
Subcontractor Safety Contact	N/A			
Subcontractor Safety Contact	N/A			



Directions to University Health Center
235 Cantrell Ave, Harrisonburg, VA 22807
34.8 mi – about 48 mins

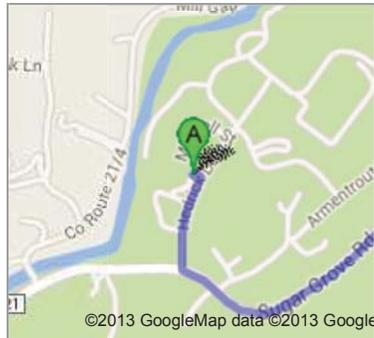


A Sugar Grove Station
 133 Hedrick Dr, Sugar Grove, WV 26815



1. Head **east** toward **Hedrick Dr**

go 75 ft
 total 75 ft



 2. Turn **right** onto **Hedrick Dr**

go 0.1 mi
 total 0.2 mi



 3. Turn **left** onto **County Rte 21/Sugar Grove Rd**
 About 7 mins

go 5.1 mi
 total 5.2 mi



 4. Turn **right** onto **US-33 E/Blue Gray Trail**
 Continue to follow US-33 E
 Entering Virginia
 About 36 mins

go 28.7 mi
 total 33.9 mi



5. Turn right onto **S High St**
About 1 min



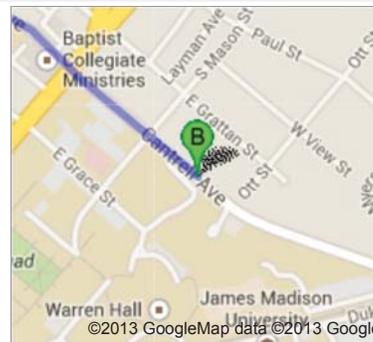
go 0.4 mi
total 34.3 mi

6. Take the 3rd left onto **Cantrell Ave**
Destination will be on the right
About 3 mins



go 0.5 mi
total 34.8 mi

B **University Health Center**
235 Cantrell Ave, Harrisonburg, VA 22807



These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Map data ©2013 Google

Directions weren't right? Please find your route on maps.google.com and click "Report a problem" at the bottom left.

	SAFE WORK PRACTICE	
	SOP #:	1
	Title:	Hazard Communication
	Last Rev.:	1/12/2011
	Page:	1 of 3

SCOPE

This procedure provides guidance on meeting regulatory requirements and ensuring that the information necessary for the safe use, handling and storage of hazardous chemicals is provided and made available to employees.

DEFINITIONS

- **Hazardous Chemical** – Any chemical which is a physical hazard or a health hazard.
- **Hazard Warning** – Any words, pictures, symbols, or combination thereof appearing on a label or other appropriate form of warning which convey the specific physical and health hazard(s), including target organ effects, of the chemical(s) in the container(s).
- **Health Hazard** – A chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees. The term "health hazard" includes chemicals that are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents that act on the hematopoietic system, and agents which damage the lungs, skin, eyes, or mucous membranes.
- **Physical Hazard** – A chemical for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or water-reactive.

PROCEDURE

- A. The Field Safety Officer will develop a chemical inventory of all known chemicals to be used or present as a potential contaminant at the job site.
- B. The Field Safety Officer will ensure that all containers (drums, bottles, etc.) are labeled with the identity of the known hazardous chemical contained and any appropriate hazard warnings. Containers that are not labeled or where labels have faded or been removed will be relabeled immediately.
- C. The Field Safety Officer will include NIOSH International Chemical Safety Data Cards for chemicals present as site constituents of concern and Material Safety Data Sheets (MSDSs) for chemicals brought to the site for the job. For assistance, contact a H&S team member.
- D. The Field Safety Officer will ensure employees have been trained on site-specific HazCom, including:

	SAFE WORK PRACTICE	
	SOP #:	1
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1. Methods that may be used to detect a release of hazardous chemical(s) in the workplace;
 2. Physical and health hazards associated with chemicals;
 3. Protective measures to be taken;
 4. Safe work practices, emergency responses and use of personal protective equipment (PPE); and
 5. Information on the Hazard Communication Standard including:
 - a. Labeling and warning systems, and
 - b. An explanation of Material Safety Data Sheets.
- E. The Field Safety Officer will identify PPE based on the task involved and the chemical properties.
- F. The Field Safety Officer will inform employees of any non-routine tasks and the chemical hazards associated with the tasks. Review the safe work practices and use of required PPE prior to the start of such tasks.
- G. The Field Safety Officer will provide information on hazardous chemicals known to be present to subcontractors and other employers on the site. Employers are responsible for providing necessary information to their employees. Ensure other onsite employers are provided with the applicable HazCom information.
- H. All site personnel are required to report any incident of a chemical over-exposure or of a chemical spill to the Field Safety Officer. Follow the emergency response/spill response procedures described in the HASP.

REFERENCES

Regulatory References

- 29 CFR 1910.1200, Hazard Communication

Technical References

NIOSH Universal Chemical Safety Data Cards

Procedural References

- SWP 9, Personal Protective Equipment

REVISION LOG

DATE	REV. #	APV'D	COMMENTS
12/31/07	0	ELG	Issued for use
1/12/2011	1	RLE	Integrated with ERM H&S program, removed references to RCM



SAFE WORK PRACTICE

SOP #:	1
Title:	Hazard Communication
Last Rev.:	1/12/2011
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	SAFE WORK PRACTICE	
	SOP #:	3
	Title:	Medical Services / First Aid
	Last Rev.:	1/12/2011
	Page:	1 of 2

SCOPE

This procedure describes the requirements for providing medical services and first aid at the job site.

DEFINITIONS

None.

PROCEDURE

- A. H&S team member will identify the mode by which medical services and first aid will be administered and document in the Health and Safety Plan (HASP). This will generally be recorded by identifying the nearest medical facility to the job site and providing a map with the location identified.
- B. In the absence of reasonably accessible medical services (i.e., within 5 minutes by ambulance), the Field Safety Officer or a person certified in first aid will be available at the site to render first aid.
- C. At jobsites where the eyes or body of any employee may be exposed to corrosive or otherwise hazardous chemicals, quick-drenching/eye washing facilities must be provided.
- D. First aid supplies must be easily accessible at a job site, when required. The contents of the kit must be checked by the Site Safety Officer before being sent out on each job and weekly during the job, to ensure that items used are replaced.
- E. Field first aid kits should contain the following items:

Band aids 3/4" x 3"	Antiseptic wipes
Non-stick pads, medium	Burn cream, 8 oz.
Kling rolled bandage 2"	Foil packs
Triangular bandage 51"	Amoply, ammonia inhalants 0.33 ml.
Hypo-allergenic first aid cream	Tylenol, extra strength
Adhesive Tape 1/2" x 5 yd	Oval eye pads
Scissors	Examination gloves
Butterfly bandages	

REFERENCES

Regulatory References

- 29 CFR 1926.50, Medical Services and First Aid

	SAFE WORK PRACTICE	
	SOP #:	3
	Title:	Medical Services / First Aid
	Last Rev.:	1/12/2011
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Technical References

- ANSI Z308.1-1978, Minimum Requirements for Industrial Unit-Type First-aid Kits

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	SAFE WORK PRACTICE	
	SOP #:	4
	Title:	Airborne Contaminants
	Last Rev.:	1/12/2011
	Page:	1 of 2

SCOPE

This procedure provides guidance on meeting regulatory requirements when airborne contaminants may be present at the job site. This procedure applies to all types of airborne contaminants which may cause adverse health effects. These contaminants may be in the form of dusts, mists, gases, vapors or fumes.

DEFINITIONS

None.

PROCEDURE

- A. H&S team member will develop an Air Monitoring Plan (AMP) for chemical constituents identified at the job site. The AMP must include the types of samples to be collected, such as real-time measurements, personal breathing zone and area samples, as well as identify the contaminants which will be monitored for.
- B. Additional regulatory requirements may be triggered if a potential site contaminant is covered by an Occupational Safety and Health Administration (OSHA) substance-specific standard. The following list of contaminants have such regulations:

Asbestos	Coke Oven Emissions
13 Carcinogens	1,2-Dibromo-3-Chloropropane
Vinyl Chloride	Acrylonitrile
Inorganic Arsenic	Ethylene Oxide
Lead	Formaldehyde
Hexavalent Chromium	Methylenedianiline
Cadmium	1,3-Butadiene
Benzene	Methylene Chloride

REFERENCES

Regulatory References

- 29 CFR 1910.1000, Air Contaminants
- 29 CFR 1910.1001, Asbestos
- 29 CFR 1910.1003, 13 Carcinogens
- 29 CFR 1910.1017, Vinyl Chloride
- 29 CFR 1910.1018, Inorganic Arsenic
- 29 CFR 1910.1025, Lead
- 29 CFR 1910.1026, Hexavalent Chromium
- 29 CFR 1910.1027, Cadmium
- 29 CFR 1910.1028, Benzene
- 29 CFR 1910.1029, Coke Oven Emissions
- 29 CFR 1910.1044, 1,2-Dibromo-3-Chloropropane

	SAFE WORK PRACTICE	
	SOP #:	4
	Title:	Airborne Contaminants
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- 29 CFR 1910.1045, Acrylonitrile
- 29 CFR 1910.1047, Ethylene Oxide
- 29 CFR 1910.1048, Formaldehyde
- 29 CFR 1910.1050, Methylenedianiline
- 29 CFR 1910.1051, 1,3-Butadiene
- 29 CFR 1910.1052, Methylene Chloride

Technical References

- ACGIH Threshold Limit Values
- NIOSH Pocket Guide to Chemical Hazards

Procedural References

- SWP Respiratory Protection
- SWP Confined Space Entry
- SWP Line Breaking/Blanking

REVISION LOG

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	SAFE WORK PRACTICE	
	SOP #:	8
	Title:	Personal Protective Equipment
	Last Rev.:	1/12/2011
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SCOPE

This procedure provides guidance for determining appropriate Personal Protective Equipment (PPE) to be worn at the job site, based on new tasks and chemical or physical agents identified in the field. The initial determination for proper PPE is completed as part of development of the HASP.

DEFINITIONS

None.

PROCEDURE

- A. The Field Safety Officer will complete a hazard assessment of the tasks involved and identify the appropriate PPE based on the task and the chemical or physical agents involved. The written hazard assessment certification must be documented in the HASP.
- B. The Field Safety Officer will communicate to employees the PPE requirements for the tasks involved.
- C. The Field Safety Officer will provide PPE that properly fits the employee(s).
- D. The Field Safety Officer will conduct daily site walks to verify appropriate use of PPE.
- E. A H&S team member or Field Safety Officer will provide training to the employees which includes at least the following:
 1. When PPE is necessary;
 2. What PPE is necessary;
 3. How to properly don, doff, adjust and wear PPE;
 4. The limitations of the PPE; and
 5. The proper care, maintenance, useful life and disposal of the PPE.
- F. Re-training by the Field Safety Officer may be required if:
 1. Changes at the job site make previous training obsolete.
 2. Changes in the types of PPE make previous training obsolete.
 3. Inadequacies in an affected employee's knowledge or use of PPE indicate the employee requires additional training.
- G. Types of PPE include the following:
 1. Eye and Face Protection

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- a. All eye and face protection must comply with ANSI Z87.1-1989.
 - b. Safety glasses
 - Side shields must be worn when there is a hazard of flying objects.
 - Prescription glasses must meet the ANSI Z87.1-1989 requirements or must have eye protection over them meeting the ANSI standard requirements.
 - c. Chemical goggles
 - d. Face shield
2. Head Protection
 - a. All head protection (hard hats) must comply with ANSI Z89.1-1989.
 3. Foot Protection

All foot protection must comply with ANSI Z41-1991.

 - a. Safety-toed shoes
 - b. Rubber boots or rubber safety-toed boots
 4. Hand Protection

Hand protection must be selected based on the performance characteristics of the hand protection relative to the task(s) to be performed, conditions present, duration of use and the hazards and potential hazards identified. A member of the H&S team must verify and document selection of appropriate chemical resistant gloves.

 - a. Work gloves, such as leather or cotton
 - b. Chemical gloves, such as nitrile, neoprene, Viton, butyl rubber
 - c. Cut-resistant gloves, such as Kevlar
 5. Hearing Protection
 - a. Ear plugs
 - b. Ear muffs
 6. Respiratory Protection (Refer to SOP - 9)
 7. Other PPE
 - a. Disposable Coveralls
 - b. Fire Resistant Clothing

REFERENCES

Regulatory References

- 29 CFR 1910.132, Personal Protective Equipment, General Requirements
- 29 CFR 1910.133, Eye and Face Protection
- 29 CFR 1910.135, Head Protection

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- 29 CFR 1910.136, Foot Protection
- 29 CFR 1910.138, Hand Protection

Technical References

- ANSI Z87.1-1989, American National Standard Practice for Occupational and Educational Eye and Face Protection
- ANSI Z89.1-1989, American National Standard for Personal Protection – Protective headwear for Industrial Workers – Requirements
- ANSI Z41-1991, American National Standard for Personal Protection – Protective Footwear

Procedural References

- SWP Respiratory Protection

REVISION LOG

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	SAFE WORK PRACTICE	
	SOP #:	9
	Title:	Respiratory Protection
	Last Rev.:	1/12/2011
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SCOPE

This procedure identifies the work practices and regulatory requirements with regard to respiratory protection.

DEFINITIONS

- **Escape Respirators** - Respiratory devices providing protection only during escape from hazardous atmospheres.
- **Hazardous Atmosphere** - (1) Any atmosphere containing a toxic or disease-producing gas, vapor, dust, fume, or mist, either immediately or not immediately dangerous to life or health; or (2) Any oxygen-deficient atmosphere.
- **Immediately Dangerous to Life or Health (IDLH)** - A condition that poses a threat of exposure to airborne contaminants when that exposure is likely to cause death or immediate, or delayed, permanent adverse health effects, or prevent escape from such an environment.
- **Oxygen Deficient Atmosphere** - An atmosphere containing less than 19.5 percent oxygen by volume.

PROCEDURE

- A. The Field Safety Officer must verify that all employees required to wear respiratory protection at the jobsite are qualified (i.e., have completed a medical evaluation, been fit-tested and are trained.)
- B. An H&S team member will select respiratory protection based on the hazards at the jobsite. Selection of respiratory protection will be completed as part of the hazard assessment when completing the HASP. If unanticipated conditions are encountered at the jobsite requiring a change in respiratory protection, follow the respiratory protection upgrade process defined in the site specific HASP. Additionally, the Field Safety Officer should contact a H&S team member to re-evaluate PPE requirements
- C. Inspection
 1. All workers must inspect all non-emergency respirators before each use and during cleaning.
 2. The Field Safety Officer must inspect respirators used for emergency use, at least monthly and in accordance with the manufacturer's recommendations, and must check for proper function before and after each use. See Section G of this SOP for situations requiring emergency use respirators.
 3. Respirator inspection shall include:

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- Check for tightness of connections.
 - Check condition of inlet coverings, head harness, valves, connecting tubes, harness assembly, hoses, filter, cartridges, canisters, end-of-service-life indicator, electrical components, and shelf-life date(s).
 - Check all rubber and elastomeric parts.
 - Check all air cylinders for proper charge.
 - For respirators maintained for emergency use, the inspection must be documented with the date of the inspection, the name of the inspector, the findings, remedial action taken, and a serial number or other means of identifying the respirator. A tag or label must be affixed to the storage compartment and replaced with a subsequent inspection tag/label.
4. Any respirator that does not pass inspection shall be immediately removed from service to be repaired or replaced.

D. Use

1. No facial hair is allowed which could come between the sealing surface of the face piece and the face, or interfere with the valve function.
2. Eye protection must be worn such that it does not interfere with the face piece seal.
3. Conduct a seal-check (positive and negative pressure) every time the respirator is donned.
4. The Field Safety Officer must evaluate continuing respirator effectiveness
 - Maintain surveillance of work area to assess jobsite conditions and respirator wearer(s) exposure or stress levels have not changed;
 - Direct respirator wearers to leave the work area:
 - to wash their faces and face pieces to prevent eye or face irritation associated with respirator use;
 - if a respirator wearer detects vapor or gas breakthrough, changes in breathing resistance or leakage of the face piece;
 - to replace the respirator filter, cartridge or canister elements.
 - If a respirator wearer detects breakthrough, changes in breathing resistance or leakage, they must replace or repair the respirator before returning to the work area. Change schedules for substances other than particulates will be addressed in the HASP or Job Hazard Analysis.

E. Maintenance

1. Clean and sanitize respirator after each use.
2. If respirators are not assigned, each respirator must be cleaned and sanitized before being used by a different employee.

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3. Respirators being used for emergency use shall be cleaned after being used. These respirators must contain a tag or label on them telling the last date they were inspected and who inspected them.
4. Each respirator shall be cleaned in warm water (not exceeding 110°F or 43°C) with sanitizers that effectively clean the respirator and contain an antibacterial agent. For additional cleaning procedures, refer to 29 CFR 1910.134, Appendix B-2, Respirator Cleaning Procedures (Mandatory).
5. Replacement of parts or repairs may be done only by persons trained in proper respirator maintenance and assembly.
6. Replacement parts used shall be only those designated specifically for the respirator being repaired.
7. Any respiratory equipment not repairable, must be destroyed and discarded.

F. Site workers must store respirators to protect them from:

1. physical damage including face piece or valve deformation;
2. contamination;
3. dust;
4. sunlight;
5. extreme temperatures;
6. excessive moisture; and
7. damaging chemicals.

G. Special Circumstances (including but not limited to Immediately Dangerous to Life and Health (IDLH) or unknown concentrations)

ERM employee entry into areas where atmospheres are IDLH or of unknown/suspected high concentrations is not authorized unless the NAHSD concurs. If the Field Safety Officer or Project/Construction Manager encounters special circumstances in the field which were not anticipated in the HASP, such as an IDLH atmosphere or an atmosphere with unknown concentrations or unknown constituents, contact a H&S team member for assistance. Conditions requiring Self-Contained Breathing Apparatus (SCBA) or airline respiratory protection may require additional medical evaluation, fit-test of a different face piece and additional training. Additionally, when using supplied air, additional criteria apply regarding breathing air quality, quantity and flow. For additional information, refer to 29 CFR 1910.134(i).

REFERENCES

Regulatory References

- 29 CFR 1910.134, Respiratory Protection

Technical References

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None

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12/31/07	0	ELG	Issued for use
1/12/2011	1	RLE	Renumbered, integrated with ERM H&S program, removed references to RCM

	SAFE WORK PRACTICE	
	SOP #:	17
	Title:	Hand Tools
	Last Rev.:	1/12/2011
	Page:	1 of 3

SCOPE

This procedure defines minimum expectations for the safe use and maintenance of tools and equipment, including tools and equipment which may be furnished by employees.

DEFINITIONS

Torque: The circular or rotating motion in tools such as drills, impact wrenches, saws, etc. which results in a strong twisting force

PROCEDURE

A. HAND TOOLS

1. Every tool was designed to do a certain job and employees should use tools only for their intended purpose.
2. Maintain hand tools in good condition - sharp, clean, oiled. .
3. Do not force tools beyond their capacity or use "cheaters" to increase their capacity. Do not use tools for pry bars.

B. PORTABLE POWER TOOLS

1. GUARDING

Guards or shields must be installed on all power tools before issue. Do not use improper tools or tools without guards in place.

C. OPERATING PRACTICES

1. Loose clothing, rings, and other jewelry must not be worn around operating machines. Keep sleeves buttoned or rolled up.
2. Keep fingers away from moving parts. Shut off machines to remove waste. Use a brush to clean up and debur. Be sure machine is fully stopped and not coasting.
3. Inspect at least daily before start-up. Look for loose or damaged parts and inadequate lighting.
4. Use clamps or vise to hold work.
5. Many machines have Safety Interlocking devices. Verify their operation prior to use , and NEVER BYPASS SAFETY INTERLOCK DEVICES.
6. Examine each power tool before using it. Look for damaged parts, loose fittings, frayed or cut electric cords. Tag and return defective tools for repairs.

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7. Some machines use both pneumatic and electric power. Both must be shut off to make repairs or to adjust moving parts. Bleed down tool to remove any stored energy left in the system.
8. Be prepared in case of jamming. Maintain good footing; and use two hands, Circular saws, chain saws and percussion tools shall not be equipped with a locking switch or trigger
9. Flying objects can result from operating almost any power tool. Be aware of others working around you and use proper eye protection.
10. Keep moving parts directed away from your body. Never touch a powered part unless power source is disconnected (such as drill chucks, blades, and bits).
11. Ground Fault Circuit Interrupters (GFCI) are required when using electrical power tools.

REFERENCES

Regulatory References

- 29 CFR 1910.241 Definitions.
- 29 CFR 1910.242 Hand and Portable Powered Tools and Equipment, General.
- 29 CFR 1910.243 Guarding of Portable Power Tools.
- 29 CFR 1910.244 Other Portable Tools and Equipment.
- 29 CFR 1926.300 General Requirements.
- 29 CFR 1926.301 Hand Tools.
- 29 CFR 1926.302 Power-operated Hand Tools.

Technical References

None

Procedural References

SWP 7 Personnel Protective Equipment

REVISION LOG

DATE	REV. #	APV'D	COMMENTS
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SAFE WORK PRACTICE

SOP #:	17
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	SAFE WORK PRACTICE	
	SOP #:	20
	Title:	Ladder Safety
	Last Rev.:	1/12/2011
	Page:	1 of 4

SCOPE

This procedure defines inspection, uses, handling, repair/disposal of defective ladders, and the type of ladders to be purchased.

DEFINITIONS

- **Ladders** - A ladder is an appliance usually consisting of two side rails joined at regular intervals by crosspieces called steps, rungs, or cleats, on which a person may step in ascending or descending.
- **Extension ladder** - An extension ladder is a non-self-supporting portable ladder adjustable in length. It consists of two or more sections traveling in guides or brackets so arranged as to permit length adjustment. Its size is designated by the sum of the lengths of the sections measured along the side rails.
- **Step ladder** - A stepladder is a self-supporting portable ladder, nonadjustable in length, having flat steps and a hinged back. Its size is designated by the overall length of the ladder measured along the front edge of the side rails.
- **Special-purpose ladder** - A special-purpose ladder is a portable ladder, which represents either a modification or a combination of design or construction features in one of the general-purpose types of ladders previously defined, in order to adapt the ladder to special or specific uses.

PROCEDURE

- A. The following rules apply to *all ladders*:
1. Maintain ladders free of oil, grease and other slipping hazards.
 2. Do not load ladders beyond their maximum intended load nor beyond their manufacturer's rated capacity.
 3. Use ladders only for their designed purpose.
 4. Use ladders only on stable and level surfaces unless secured to prevent accidental movement.
 5. Do not use ladders on slippery surfaces unless secured or provided with slip-resistant feet to prevent accidental movement. Do not use slip-resistant feet as a substitute for exercising care when placing, lashing, or holding a ladder upon slippery surfaces.
 6. Secure ladders placed in areas such as passageways, doorways, or driveways, or where they can be displaced by workplace activities or traffic to prevent

	SAFE WORK PRACTICE	
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accidental movement. Alternatively, use a barricade to keep traffic or activity away from the ladder.

7. Keep areas clear around the top and bottom of ladders.
 8. Do not move, shift, or extend ladders while in use.
 9. Use ladders equipped with nonconductive side rails if the worker or the ladder could contact exposed energized electrical equipment.
 10. Face the ladder when moving up or down.
 11. Use at least one hand to grasp the ladder when climbing.
 12. Do not carry objects or loads that could cause loss of balance and falling.
 13. All ladders shall be inspected prior to use.
 - a. Side rails, rungs, and steps.
 - b. Safety feet of extension and straight ladders.
 - c. Hardware guides, pawls and spreaders of stepladders.
 - d. Extension rope and/or tie off rope.
 14. It is the user's responsibility to check the ladder each time you use it! Any defective ladder that is repairable will be tagged with a "Dangerous, Do Not Use" tag and taken out of service until repairs are made.
 15. When working off a ladder - (Many Sites have policies more stringent than ours. We must always follow the most stringent).
 - a. Face the ladder when ascending or descending.
 - b. Only one person at a time on the ladder.
 - c. Be sure the ladder is stable.
 - d. Keep both feet on the ladder rungs. Do not place one foot on a line or piece of equipment and the other on the ladder to keep within reach of the work.
 - e. Check overhead for power lines and other obstructions.
 - f. Fall protection is required if you must stand backwards on the ladder, and under certain other hazardous conditions.
 - g. Protect other persons in the area by barricading/roping off the area.
 - h. A person must be tied off to an adequate overhead structure when working the same distance or less from an edge or elevation as the height of the ladder. Example: Working 8' from an edge while working off an 8' or higher ladder.
- B. The following rules apply to straight and extension ladders.
1. Use help when raising or lowering a ladder. One person should walk the ladder up or down while the second person foots the base of the ladder.
 2. Ladders shall not be used in a horizontal position as platforms, runways, or scaffolds.

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3. Where portable straight ladders are used, they shall be of sufficient length to extend three feet (36 inches) above the upper landing surface, and be positively secured or held against shifting or slipping.
4. Hand lines shall be used to raise and lower tools and material that cannot be carried in tool belts.
5. Straight and Extension Ladders shall be pitched to assure the ladder base is one-quarter the overall working height of the ladder.
6. Use a safety harness and tie off when you are on the seventh (7) rung or of a ladder or are six (6) feet or more off the ground. Tying off is required when working backwards or when other critical or hazardous work is being performed.
7. All ladders shall be tied off adequately at the top. The only exception is when the ladder is only to be used for inspection or other one-trip activity not involving actual work. If a ladder is climbed without, being tied off, it must be "footed" and held at the base by a ground person.
8. When performing work from a ladder that requires a person to be tied off, the person can be tied off to the rail of the ladder itself. This method may only be used only if there is no other adequate tie off and the ladder is properly tied off.
9. Do Not tie to the rung of the ladder, if the rung breaks, you will fall to the ground. If tying to the ladder, only tie to the rail of the ladder.

C. The following rules apply to step ladders.

1. The top step of any stepladder, 3 feet and over shall not be used to stand on.
2. Stepladders are not to be used as straight ladders.
3. Step ladders 10 feet or higher must be tied off.
4. A person is required to be tied off when working on the seventh (7) step of a stepladder.
5. A person is required to be tied off, when working under (6) foot, when:
 - a. The task is critical or hazardous.
 - b. The person is standing backwards on the ladder.
 - c. Site regulations require tying off.
6. You may step off a stepladder to a suitable safety platform or work area. Good, SAFE, common sense must be utilized. Stepping off is not allowed if:
 - a. Site regulations prohibit this practice.
 - b. It is necessary to step off the top or next to the top step of the ladder.
 - c. The ladder is not stable and firm. Whenever possible, the top of the ladder should be tied off or held by a second person to enhance stability.
 - d. The ladder cannot be secured directly to the platform that the employee is stepping onto.

	SAFE WORK PRACTICE	
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REFERENCES

Regulatory References

- 29 CFR 1910.25 Portable Wood Ladders
- 29 CFR 1910.26 Portable Metal Ladders
- 29 CFR 1910.27 Fixed Ladders
- 29 CFR 1926.1053 Ladders

Technical References

None

Procedural References

None

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North America Job Hazard Analysis Operating Vehicles

Project Name:	Environmental Condition of Property, Disposal of NIOC Sugar Grove, Sugar Grove, WV
Project Number:	0219688
Job / Task Name:	Driving to site
JHA No.:	03

Document Routing	
FSO	Retain copy in site health & safety file, amend to HASP as necessary.
Project Manager	Retain copy in the office health & safety file, amend to HASP as necessary.

Instructions:	This JHA has been developed and approved by the North America Safety Team. Prior to conducting fieldwork, site-specific hazards related to this task must be incorporated by the project team. Once completed, the JHA should be reviewed regularly with site personnel who will be performing this task.
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Task Description:

Operating vehicles for work, including personal vehicles, company-owned non-commercial small trucks, and rental vehicles.

Hazard Analysis:

Task Step	Hazard	Control Measures
Inspect the Vehicle	<p>Tire pressure, brakes, steering, headlights and other vehicle equipment malfunction can contribute to vehicle accidents and property damage.</p> <p>Loose articles inside the vehicle and carried in truck beds or on trailers can shift and cause distractions or traffic accidents.</p>	<p>Use the "ERM Vehicle Safety Form" to document daily inspections of the vehicle. In certain cases, a client-required form may be used instead. Do not operate any vehicle if its safety is in question.</p> <p>During vehicle inspection make sure any loose articles either inside the vehicle or in truck beds/on trailers are well-secured.</p>
Get in and out of the Vehicle	Hands, hair, or loose clothing can be caught in doors, trunk covers, and other vehicle equipment, causing injury.	When entering or exiting a vehicle, pay attention to what you are doing. ERM has had incidents occur simply from being rushed and not paying attention during vehicle entry/exit.



North America Job Hazard Analysis

Operating Vehicles

Project Name:	Environmental Condition of Property, Disposal of NIOC Sugar Grove, Sugar Grove, WV
Project Number:	0219688
Job / Task Name:	Driving to site
JHA No.:	03

Task Step	Hazard	Control Measures
Drive the Vehicle	Operating a vehicle presents many different hazards to employees that must be simultaneously mitigated.	<p>Only allow ERM employees to drive motor vehicles (authorized employees with a current drivers license).</p> <p>Before moving vehicles always put your seat belt on, and stop using handheld electronics. Make sure any food or drink is secured and any electronics are programmed (GPS).</p> <p>When moving vehicles, follow all posted speed limits and posted signs. Do not pick up hitch-hikers, and never transport people in truck beds.</p>
Driving when Fatigued	Operating a vehicle after a full day of work or when you are fatigued drastically decreases focus and response time, and increasing the risk of being involved in a vehicle accident.	Avoid driving more than 8 hours in one workday. If the number of hours driving to/from a jobsite combined with the number of hours to be worked on the site will equal more than 14 total hours, alternate arrangements should be arranged. Be aware of your fatigue level while driving and stop to rest if you feel overly tired.
Stay Focused on the Road	Doing anything that distracts you from the road for more than 2 seconds highly increases the risk of being involved in a vehicle accident. In particular, driver inattention due to hand-held mobile phone use is currently thought to be responsible for approximately 80% of all vehicle accidents.	<p>Do not operate a hand-held mobile phone while driving. Use a hands-free mobile solution instead, such as a Bluetooth headset or hardwired earpiece. In some cases, all mobile phone use while driving (including answering and dialing), may be prohibited by our client.</p> <p>Do not perform activities while driving that will take your attention off the road for more than 2 seconds. A few of these types of activities could include programming GPS', applying makeup, changing the radio, or eating while driving. When these sorts of activities must be performed, pull to the side of the road and stop.</p>



North America Job Hazard Analysis Operating Vehicles

Project Name:	Environmental Condition of Property, Disposal of NIOC Sugar Grove, Sugar Grove, WV
Project Number:	0219688
Job / Task Name:	Driving to site
JHA No.:	03

Task Step	Hazard	Control Measures
Leaving the Vehicle	Leaving personal valuables and company equipment/documents in abandoned vehicles may attract thieves.	Turn off the engine and lock any vehicle being left for even a short period of time when not on a secure jobsite. If the vehicle will be left for long periods or overnight, remove any company documents, computers, and equipment, personal valuables, or any items that would attract thieves.
Report and Document Vehicle Accidents and Property Damage	Improper documentation of vehicle accidents and property damage caused by vehicle operation place ERM at risk.	No matter how minor a vehicle accident or property damage event is, report it as a safety event. If involved in a vehicle accident, always call the police so a report will be available, to protect your liability, and to protect ERM liability. Take as many pictures as you can of the accident scene if you can do so without placing yourself in further danger.

Personal Protective Equipment Required for this Task:

Type	Description
Vehicle Safety Kit for Personal or Company-Owned Vehicles	Includes small fire extinguisher (ABC), first aid kit, spare tire/jack, jumper cables, flashlight, flares or lighted triangles, reflective vest, and disposable or digital camera (for documenting accidents)

Training Required for this Task:

Type	Description
ERM Safe Driving	E-learning course instructing employees on ERM vehicle safety policy and practice.

Forms Associated with this Task:

Type	Description
ERM Vehicle Safety Form	Includes items that should be inspected regularly on motorized vehicles.



North America Job Hazard Analysis Operating Vehicles

Project Name:	Environmental Condition of Property, Disposal of NIOC Sugar Grove, Sugar Grove, WV
Project Number:	0219688
Job / Task Name:	Driving to site
JHA No.:	03

Site-Specific Job Hazard Analysis Completed by:

Name	Date
Dan Smaroff	05-01-13



North America Job Hazard Analysis

Work in Active Facilities

Project Name:	Environmental Condition of Property, Disposal of NIOC Sugar Grove, Sugar Grove, WV
Project Number:	0219688
Job / Task Name:	Asbestos Survey
JHA No.:	04

Document Routing	
FSO	Retain copy in site health & safety file, amend to HASP as necessary.
Project Manager	Retain copy in the office health & safety file, amend to HASP as necessary.

Instructions:	This JHA has been developed and approved by the North America Safety Team. Prior to conducting fieldwork, site-specific hazards related to this task must be incorporated by the project team. Once completed, the JHA should be reviewed regularly with site personnel who will be performing this task.
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Task Description:

General guidelines for working safely in facilities where active operations are occurring and other personnel are performing work

Hazard Analysis:

Task Step	Hazard	Control Measures
Plan ahead for the site visit	Operational and safety items unplanned for prior to visiting the site can cause significant delay	<p>Know ahead of time where any specific parking and entry locations are, as well as training or drug testing required prior to site entry. Ask your site contact/escort to explain any pre-entry requirements.</p> <p>Have the following personal protective equipment with you and wear it while working:</p> <ul style="list-style-type: none"> • Steel-toe boots • Long pants • Safety glasses • Hard hat • Safety goggles (if splash hazards exist) • Chemical resistant gloves (if needed)



North America Job Hazard Analysis

Work in Active Facilities

Project Name:	Environmental Condition of Property, Disposal of NIOC Sugar Grove, Sugar Grove, WV
Project Number:	0219688
Job / Task Name:	Asbestos Survey
JHA No.:	04

Task Step	Hazard	Control Measures
Perform Site Work	<p>Employees may encounter moving vehicles/trucks/forklifts.</p> <p>Employees may be exposed to chemicals.</p> <p>There may be uneven terrain, unguarded holes or wall openings, and other slip, trip, and fall hazards.</p> <p>A site emergency may happen while you are working onsite.</p> <p>You may encounter confined spaces.</p> <p>High noise levels may be present.</p> <p>Highly mechanized equipment may be present in the area, posing electrical hazards and pinch hazards.</p>	<p>Be aware of traffic patterns on the site, including designated forklift lanes.</p> <p>Include chemicals known to pose health risks in your WARN HASP for the site, and determine their exposure limits.</p> <p>For any fieldwork, wear steel-toe boots with enough ankle support. If an area is overly cluttered, poorly lit, or posted signs indicate these hazards, avoid the area if possible.</p> <p>List the facility emergency planning information in the WARN HASP and have a copy of it with you at all times. Stay with your site escort at all times.</p> <p>If you encounter posted signs stating “DANGER – Confined Space – Do Not Enter”, do not enter the space. Be alert to other areas where entry or exit appears to be limited.</p> <p>If a noise dosimeter is not available, use the following rule of thumb. If you are standing close to another person and have to raise your voice to be understood by them, hearing protection is needed.</p> <p>Do not touch plant equipment unless you verify it is not powered and permission has been given to you.</p>

Personal Protective Equipment Required for this Task:

Type	Description
None	



North America Job Hazard Analysis

Work in Active Facilities

Project Name:	Environmental Condition of Property, Disposal of NIOC Sugar Grove, Sugar Grove, WV
Project Number:	0219688
Job / Task Name:	Asbestos Survey
JHA No.:	04

Training Required for this Task:

Type	Description
None	

Forms Associated with this Task:

Type	Description
Work in Active Facilities Checklist	Checklist covering items associated with working in active facilities. The checklist may be used to perform pre-job risk assessment.
WorkCare Incident Intervention Wallet Card	Wallet-sized card to be carried by all ERM employees containing contact information for the Incident Intervention service.
WorkCare Incident Intervention Wall Poster	11" x 17" poster containing contact information for the Incident Intervention service. This poster should be displayed in each permanent office location and in short-term field office locations.

Site-Specific Job Hazard Analysis Completed by:

Name	Date
Mike Belke	05-10-12



North America Job Hazard Analysis Personal Protective Equipment

Project Name:	Environmental Condition of Property, Disposal of NIOC Sugar Grove, Sugar Grove, WV
Project Number:	0219688
Job / Task Name:	Asbestos Sampling
JHA No.:	14

Document Routing	
FSO	Retain copy in site health & safety file, amend to HASP as necessary.
Project Manager	Retain copy in the office health & safety file, amend to HASP as necessary.

Instructions:	This JHA has been developed and approved by the North America Safety Team. Prior to conducting fieldwork, site-specific hazards related to this task must be incorporated by the project team. Once completed, the JHA should be reviewed regularly with site personnel who will be performing this task.
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Task Description:

Guidelines for selection and use of personal protective equipment (PPE). PPE is only to be used after engineering and administrative controls have been considered and found to be non-feasible. Guidance for respiratory protection and fall protection is included in separate JHAs

Hazard Analysis:

Task Step	Hazard	Control Measures
General fieldwork	A head injury could occur from a falling or flying object, or a head injury could be sustained from bumping into something.	A hard hat meeting the American National Standards Institute (ANSI) Z-89.1 standard must be worn. These hardhats contain an inner suspension system that should be checked regularly to ensure straps are not worn and that space exists between the shell of the hardhat and the suspension straps.
	Wearing a "typical" hardhat around electrical equipment may result in electrical shock.	Electrical shock protection hardhats - Class A for low voltage (up to 2,200 volts), Class B for high voltage (up to 20,000 volts), and Class C for no electrical shock protection.
General fieldwork	A foot injury could occur from a falling or rolling object, or an object may pierce the sole of the shoe.	Steel toe protective footwear should be worn that meets or exceeds the American Society for Testing and Measurement (ASTM) F2413-05 standard.
	Electrical shock may occur with steel-toe boots.	Footwear worn around electrical circuits should also be non-conductive.



North America Job Hazard Analysis

Personal Protective Equipment

Project Name:	Environmental Condition of Property, Disposal of NIOC Sugar Grove, Sugar Grove, WV
Project Number:	0219688
Job / Task Name:	Asbestos Sampling
JHA No.:	14

Task Step	Hazard	Control Measures
Cutting by hand	Hand injury could occur from handling an object with sharp edges of a fixed open-blade knife.	Fixed open-blade knives (such as pocket knives) may not be used on ERM jobsites, with few exceptions. If their use is required, cut-resistant gloves (such as Kevlar) must be worn and the PM or FSO must be informed prior to their use. Employees performing significant amounts of cutting tool use should wear high-visibility gloves to encourage awareness of where hands are being placed.
Handling chemicals by hand	Dermal exposure to hands from chemicals during soil and/or groundwater sampling.	Wear nitrile or latex protective gloves when handling sample media. Double-layering gloves is a good idea for added protection. If acidic or caustic chemicals are present, wear outer neoprene or rubber gloves.
O&M or Subsurface Injection	Dermal exposure to body from chemicals during operations and maintenance activities or subsurface liquid injection activities.	When working with commercial, full-strength chemicals ensure splash protection is worn (such as a polyethylene coated suit) and that gloves and boots are taped to the suit to prevent liquid splash.
General fieldwork	Foreign object or liquid splash to the eye.	Safety glasses conforming to the ANSI Z-87 standard must be worn for field activities. Safety glasses are appropriate for use when general eye protection is needed.
Work around liquid splash and/or flying particle hazards		For liquid splash hazards or hazards from flying particles, tight-fitting safety goggles should be worn. A faceshield should be considered for use when splash hazards from commercial, full-strength chemicals.
Work around active roadways	Struck by moving vehicles when working outside or along a roadway.	High-visibility safety vests should be worn when working in parking lots or by active roadways. Class I may be used when traffic is below 25 mph, Class II for 25-50 mph, and Class 3 for >50 mph.



North America Job Hazard Analysis Personal Protective Equipment

Project Name:	Environmental Condition of Property, Disposal of NIOC Sugar Grove, Sugar Grove, WV
Project Number:	0219688
Job / Task Name:	Asbestos Sampling
JHA No.:	14

Task Step	Hazard	Control Measures
Work in high noise environments	Hearing damage from noise exposure greater than 85 decibels.	Attempt to perform work when elevated noise is not an issue. If work must be performed during high noise, wear hearing protection in the form of earplugs or earmuffs. Further details are given in the "Work in High Noise Environments" JHA.
O&M or Lockout/Tagout/Tryout	Electrical shock	Lockout/tagout/tryout should be performed by licensed electricians or others that have been specifically authorized by ERM to do so. PPE appropriate to this work includes a cotton t-shirt, Class II Electrical Arc Protection suit, Class O (low voltage) gloves, and non-conductive footwear.

Training Required for this Task:

Type	Description
Personal Protective Equipment	PPE training, normally included in 8-hour refresher training, provides guidance on the selection, inspection, use, maintenance, and decontamination of different types of PPE

Forms Associated with this Task:

Type	Description
None	

Site-Specific Job Hazard Analysis Completed by:

Name	Date
Mike Belke	05-10-12



North America Job Hazard Analysis Respiratory Protection

Project Name:	Environmental Condition of Property, Disposal of NIOC Sugar Grove, Sugar Grove, WV
Project Number:	0219688
Job / Task Name:	Asbestos Sampling
JHA No.:	17

Document Routing	
FSO	Retain copy in site health & safety file, amend to HASP as necessary.
Project Manager	Retain copy in the office health & safety file, amend to HASP as necessary.

Instructions:	This JHA has been developed and approved by the North America Safety Team. Prior to conducting fieldwork, site-specific hazards related to this task must be incorporated by the project team. Once completed, the JHA should be reviewed regularly with site personnel who will be performing this task.
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Task Description:

Guidelines for selection, use, and maintenance of respiratory protection.

Hazard Analysis:

Task Step	Hazard	Control Measures
Offsite Preparation	Employee chemical exposure could occur or unqualified personnel could be put at risk if not specified early in the planning process.	<p>The health and safety plan must specify the need for respirators, including the requirement that employees working on the project must be medically cleared to wear a respirator and have a current respirator fit-test on the type and model respirator they will be expected to wear. If organic vapor cartridges are to be used, develop a cartridge change schedule.</p> <p>Include the following exposure limits for each contaminant if they are available. The lowest exposure limit of these should be used as the trigger to don respiratory protection:</p> <ul style="list-style-type: none"> • OSHA Permissible Exposure Limit (PEL) • NIOSH Recommended Exposure Limit (REL) • ACGIH Threshold Limit Value (TLV) • Immediately Dangerous to Life or Health (IDLH) <p>Additionally, respirator cartridge types must be specified in the health and safety plan and available on-site.</p>



North America Job Hazard Analysis Respiratory Protection

Project Name:	Environmental Condition of Property, Disposal of NIOC Sugar Grove, Sugar Grove, WV
Project Number:	0219688
Job / Task Name:	Asbestos Sampling
JHA No.:	17

Task Step	Hazard	Control Measures
Prior to Using Respirator	Respirators that are not cleaned, inspected, or maintained well will not provide protection as designed.	<p>Prior to donning a cartridge-type respirator, inspect to ensure it is in good condition, including straps, rubber sealing surfaces, and non-visible parts such as inhalation and exhalation valves. Do not use respirators with cracked rubber parts or stretched straps unless repaired. Clean if necessary using an alcohol wipe or mild soap and water solution.</p> <p>Cartridge-type respirators may not be used if chemical exposures exceed 10 times the OSHA PEL or are at IDLH levels.</p> <p>Inspect supplied air (SCBA at least monthly, and prior to each use. Inspections of SCBAs and other emergency-type respirators must be documented.</p>
Don the Respirator	Incorrect seal on the respirator could cause employee chemical exposures.	<p>Prior to donning respirators, personnel must be clean-shaven in areas of the face where the respirator seal touches, including any inner nose cups.</p> <p>For cartridge-type respirators, place the cartridges on the respirator facepiece. Cartridges should not be torqued to tighten (only slightly tightened).</p> <p>The respirator must be donned prior to other personal protective equipment in the head/neck area so that nothing comes between the respirator straps and the head surface. Safety glasses, hard hats, etc. must be donned after the respirator. Because of this, ERM prefers employees wear full-face respirators when possible.</p> <p>For cartridge-type respirators, perform a positive and negative fit-check to make sure the seal of the respirator is good.</p>



North America Job Hazard Analysis Respiratory Protection

Project Name:	Environmental Condition of Property, Disposal of NIOC Sugar Grove, Sugar Grove, WV
Project Number:	0219688
Job / Task Name:	Asbestos Sampling
JHA No.:	17

Task Step	Hazard	Control Measures
Performing Work Wearing Respirators	<p>Tendency to readjust respirator facepieces when sweating is high, and can result in chemical exposures.</p> <p>Particulate cartridge clogging may occur, or chemicals may break through chemical cartridges.</p>	<p>Excessive sweating may cause the respirator facepiece to slide on the wearer's face resulting in a compromised respirator seal. If this occurs, stop work and move to an area with no chemical contamination (go through the decontamination line if present), readjust the respirator, and perform positive and negative fit-checks to ensure a proper face seal.</p> <p>If using particulate cartridges (N, R, or P-types), and it becomes difficult to breathe, move to a clean area and change cartridges.</p> <p>If using chemical cartridges other than organic vapor-types, change cartridges if any amount of chemical odor breaks through the respirator cartridge. For organic vapor cartridges, change respirator cartridges according to the cartridge change schedule in the health and safety plan.</p>
Doffing Respirators	Chemical exposure could occur if respirators are taken off incorrectly.	<p>If a decontamination line is present, proceed through the line as directed. If no decontamination line is being used, all other personal protective equipment except gloves should be removed before taking the respirator off. Once removed, respirator cartridges should be discarded and facepieces cleaned.</p> <p>If sharing respirators, the respirator must be cleaned and sanitized before use by another employee.</p>

Personal Protective Equipment Required for this Task:

Type	Description
None	



North America Job Hazard Analysis Respiratory Protection

Project Name:	Environmental Condition of Property, Disposal of NIOC Sugar Grove, Sugar Grove, WV
Project Number:	0219688
Job / Task Name:	Asbestos Sampling
JHA No.:	17

Training Required for this Task:

Type	Description
Respirator Training	Annually-required training necessary for employees to wear positive or negative-pressure respirators.
Respirator Fit-Test	An annually-required test of the fit of a certain model and type respirator to an employee's face. All negative-pressure (filter or cartridge-type) and supplied-air facepieces must be fit-tested. Employees must be fit-tested on each model and type of respirator to be worn.

Forms Associated with this Task:

Type	Description
SCBA Inspection Checklist	Checklist documenting monthly inspection of self-contained breathing apparatus units (SCBA).

Site-Specific Job Hazard Analysis Completed by:

Name	Date
Mike Belke	05-10-12



North America Job Hazard Analysis Portable Hand and Power Tools

Project Name:	Environmental Condition of Property, Disposal of NIOC Sugar Grove, Sugar Grove, WV
Project Number:	0219688
Job / Task Name:	Asbestos Sampling
JHA No.:	20

Document Routing	
FSO	Retain copy in site health & safety file, amend to HASP as necessary.
Project Manager	Retain copy in the office health & safety file, amend to HASP as necessary.

Instructions:	This JHA has been developed and approved by the North America Safety Team. Prior to conducting fieldwork, site-specific hazards related to this task must be incorporated by the project team. Once completed, the JHA should be reviewed regularly with site personnel who will be performing this task.
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Task Description:

Guidelines for working with portable hand and power tools.
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Hazard Analysis:

Task Step	Hazard	Control Measures
Gather tools to take to jobsite	An improper tool available at jobsites encourages unsafe behaviors and could lead to injury.	Ensure tools taken to jobsites are kept in optimal condition (sharp, clean, oiled, etc.) to ensure efficient operation. Tools must only be used for their intended purposes – tools should not be used as pry-bars. Ensure power cords attached to powered-equipment are not damaged. Any damaged tool or electrical cord must be tagged and taken out of service.
Using cutting tools	Major and/or minor cuts to personnel	Fixed open-blade knives (such as pocket knives) may not be used on ERM jobsites, with few exceptions. If their use is required, cut-resistant gloves must be worn while using them and the PM or FSO must be informed prior to their use. Employees performing significant amounts of cutting tool use should must high-visibility gloves to encourage awareness of where hands are being placed.



North America Job Hazard Analysis Portable Hand and Power Tools

Project Name:	Environmental Condition of Property, Disposal of NIOC Sugar Grove, Sugar Grove, WV
Project Number:	0219688
Job / Task Name:	Asbestos Sampling
JHA No.:	20

Task Step	Hazard	Control Measures
Using screwdrivers	Puncture injuries	<p>Do not hold objects in the palm of your hand and press a screwdriver into it – these objects should be placed on a flat surface.</p> <p>Do not use screwdrivers as hammers, or use screwdrivers with broken handles. Use insulated screwdrivers for work on electrical equipment.</p>
Using hammers	<p>Creation of sparks</p> <p>Particles may lodge in employee’s eyes</p> <p>Loose handles may create a projectile hazard</p>	<p>Use brass hammers in areas where creating sparks would pose ignition hazards.</p> <p>Always use safety glasses when striking any object with a hammer. If hammer-head shows signs of mushrooming, replace it immediately.</p> <p>Replace any hammer with a loose handle so the hammer-head does not detach and cause injuries.</p>

Personal Protective Equipment Required for this Task:

Type	Description
High-visibility glove	Gloves typically in fluorescent green, orange, or yellow.
Cut-resistant glove	Limited protection is afforded by leather gloves from cuts. Kevlar gloves provide more protection when significant cut/puncture hazards exist.

Training Required for this Task:

Type	Description
None	



North America Job Hazard Analysis Portable Hand and Power Tools

Project Name:	Environmental Condition of Property, Disposal of NIOC Sugar Grove, Sugar Grove, WV
Project Number:	0219688
Job / Task Name:	Asbestos Sampling
JHA No.:	20

Forms Associated with this Task:

Type	Description
None	

Site-Specific Job Hazard Analysis Completed by:

Name	Date
Mike Belke	05-10-12



North America Job Hazard Analysis

Portable Ladder Use

Project Name:	Environmental Condition of Property, Disposal of NIOC Sugar Grove, Sugar Grove, WV
Project Number:	0219688
Job / Task Name:	Asbestos Sampling
JHA No.:	24

Document Routing	
FSO	Retain copy in site health & safety file, amend to HASP as necessary.
Project Manager	Retain copy in the office health & safety file, amend to HASP as necessary.

Instructions:	This JHA has been developed and approved by the North America Safety Team. Prior to conducting fieldwork, site-specific hazards related to this task must be incorporated by the project team. Once completed, the JHA should be reviewed regularly with site personnel who will be performing this task.
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Task Description:

Guidelines for working with portable ladders.

Hazard Analysis:

Task Step	Hazard	Control Measures
Select ladder for use	<p>Selection of a ladder with oil/grease on its surface or a defective/poorly-maintained ladder may lead to not having a suitable ladder at the jobsite.</p> <p>Conductive ladders used around energized equipment could cause electrocution.</p>	<p>Inspect ladders before taking them to jobsites to ensure they are clean, sturdy, and appear well-maintained. Any ladder found to be unusable must be tagged and taken out of service.</p> <p>For work around energized electrical equipment, choose a non-conductive ladder or one with non-conductive side rails.</p>
Loading/Unloading ladder	Muscle strain or other injury may occur from improper lifting of ladders.	Before lifting ladders onto or off of a transport vehicle, pause and determine if the lift is safe to do alone. If not, get help from other individuals.
Placing ladder	<p>Ladders may not be in good working order.</p> <p>Ladders placed on uneven ground or slippery locations may cause ladder failure.</p> <p>Overhead electrical lines may cause electrocution.</p>	<p>Always inspect ladders each time before they are used. Do not use a ladder that appears to be poorly maintained.</p> <p>Place ladders on stable and level surfaces. If not possible, secure the ladder to prevent accidental movement. Use slip-resistant ladder feet in slippery locations. These do not take the place of proper placement or holding a ladder in-place.</p> <p>Ensure no contact between ladders and overhead lines.</p>



North America Job Hazard Analysis

Portable Ladder Use

Project Name:	Environmental Condition of Property, Disposal of NIOC Sugar Grove, Sugar Grove, WV
Project Number:	0219688
Job / Task Name:	Asbestos Sampling
JHA No.:	24

Task Step	Hazard	Control Measures
Going up/down ladder	Employee may lose balance and fall when going up or down a ladder.	Whenever employees are on ladders they should be facing the ladder, including going up and down. Keep hands free and grasp the ladder with one hand at all times. Do not carry loads in your hands on ladders.
Working from ladder	Various hazards could cause employees to lose balance and fall.	<p>Only one person may be on a ladder at any one time. Keep both feet on the ladder rungs - do not place one foot off the ladder onto other equipment.</p> <p>If you must stand backwards on the ladder, and anytime an unstable situation exists, fall protection must be provided and used by employees. In these situations barricade or rope-off the area being worked in to avoid potentially hurting others.</p> <p>Follow any label directions about standing on the top steps of ladders to perform work. If no label exists, do not stand on the top two rungs of the ladder to perform work. Secure all tools and supplies to ensure they do not fall and hurt others.</p> <p>Do not perform extended reaches during work. If at least one foot cannot stay in contact with ladder rungs, dismount the ladder and move to a more convenient location.</p>

Personal Protective Equipment Required for this Task:

Type	Description
None	

Training Required for this Task:

Type	Description
None	



North America Job Hazard Analysis Portable Ladder Use

Project Name:	Environmental Condition of Property, Disposal of NIOC Sugar Grove, Sugar Grove, WV
Project Number:	0219688
Job / Task Name:	Asbestos Sampling
JHA No.:	24

Forms Associated with this Task:

Type	Description
Ladder Inspection Checklist	A checklist that may be used to document inspections of portable ladders

Site-Specific Job Hazard Analysis Completed by:

Name	Date
Mike Belke	05-10-12



North America Job Hazard Analysis

Asbestos Surveys and Bulk Material Sampling

Project Name:	Environmental Condition of Property, Disposal of NIOC Sugar Grove, Sugar Grove, WV
Project Number:	0219688
Job / Task Name:	Asbestos Surveys and Bulk Material Sampling
JHA No.:	

Document Routing

FSO	Retain copy in site health & safety file, amend to HASP as necessary.
Project Manager	Retain copy in the office health & safety file, amend to HASP as necessary.

Instructions:	This JHA has been developed and approved by the North America Safety Team. Prior to conducting fieldwork. Site-specific hazards related to this task must be incorporated by the project team. Once completed, the JHA should be reviewed regularly with site personnel who will be performing this task.
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Task Description:

Asbestos surveys generally include the identification, condition assessment and quantification of materials suspected of containing asbestos followed by the collection of bulk samples from materials to determine their asbestos content. Asbestos surveys generally include the sampling of interior building materials suspect for containing asbestos and may or may not include exterior building materials such as roofing systems, window caulking, transite siding/wall panels, etc.

- **For purposes of health and safety, facility maintenance or due diligence**, inspection for and sampling of building materials is to be performed only in discrete and/or damaged locations unless approval is obtained from client. Materials that cannot be safely sampled, are inaccessible, or to do so would compromise the structural integrity or finish of the material; are **not** to be sampled and assumed to contain asbestos.
- **For purposes of renovation or demolition**, inspection for and sampling of building materials may include investigation into non permanent structures such as wall cavities, false floors or dropped ceilings. Materials that cannot be safely sampled or are inaccessible; are **not** to be sampled and assumed to contain asbestos.

Asbestos surveys and sampling materials for asbestos may only be performed by ERM employees or ERM approved subcontractors who have maintained appropriate and current:

- licensure and/or certifications to perform asbestos inspection and sampling within the state, region or country where the survey is to be performed; and
- medical clearance for use of a tight-fitting, air-purifying respirator.



North America Job Hazard Analysis Asbestos Surveys and Bulk Material Sampling

Project Name:	Environmental Condition of Property, Disposal of NIOC Sugar Grove, Sugar Grove, WV
Project Number:	0219688
Job / Task Name:	Asbestos Surveys and Bulk Material Sampling
JHA No.:	

Hazard Analysis:

Task Step	Hazard	Control Measures
General Survey Activities	Cuts, scrapes, bumps, foreign objects in eyes, body strain, etc.	<ul style="list-style-type: none"> • Wear appropriate PPE including disposable gloves when sampling or leather gloves when using hand tools, safety glasses with side shields, safety shoes and hard hat. • Knee pads are also recommended when inspecting/sampling flooring materials. • Reference JHA-14 Personal Protective Equipment
	Use of portable hand tools such as hammers, chisels, scrapers, pliers, etc.	<ul style="list-style-type: none"> • Reference JHA-20 Portable Hand and Power Tools
	Low light in mechanical spaces, ceiling plenums, crawlspaces, etc.	<ul style="list-style-type: none"> • Use a flashlight. • Limit access to where visibility is adequate and area is not considered a confined space.
	Injury from access to suspect materials that may be within a confined space	<ul style="list-style-type: none"> • Do not enter. • Consider confined spaces to be inaccessible unless proper confined space entry procedures are followed prior to work being performed. • Reference JHA-21 Confined Spaces and SWP-09 Confined Space Entry.
	Injury from access to suspect materials that may be a component or in contact with energized equipment	<ul style="list-style-type: none"> • Do not touch and maintain safe distance. • Consider energized equipment to be inaccessible unless proper lockout tagout procedures are followed prior to work being performed. • Reference JHA-22 Lockout Tagout of Electrical Equipment and SWP-19 Lockout Tagout



North America Job Hazard Analysis

Asbestos Surveys and Bulk Material Sampling

Project Name:	Environmental Condition of Property, Disposal of NIOC Sugar Grove, Sugar Grove, WV
Project Number:	0219688
Job / Task Name:	Asbestos Surveys and Bulk Material Sampling
JHA No.:	

Task Step	Hazard	Control Measures
	Fall from access to locations that are elevated, necessitating use of a straight or "A" frame ladder.	<ul style="list-style-type: none"> • For liability considerations, use ladders owned, maintained and inspected by ERM. • Alternatively, contractually arrange for client to provide a means of safe access prior to work being performed. If client is providing ladders; verify ladders are appropriate for task, inspected and in good working condition. • Reference JHA-24 Portable Ladder Use
	Fall from access to locations that are elevated, necessitating the use of a mechanical lift.	<ul style="list-style-type: none"> • Contractually arrange for client to provide a means of access prior to work being performed. If client is providing mechanical lift with operator; verify operator is appropriately licensed and certified and equipment is inspected and in good working condition. • ERM employees are not permitted to operate mechanical lifts unless appropriately licensed and certified. • If renting mechanical lift equipment and/or subcontracting operating of mechanical lift equipment; follow ERM subcontractor procedures referenced herein as well as verify that operator is appropriately licensed and certified and equipment is inspected and in good working condition. • Use fall protection equipment. • Reference JHA-23 Working at Heights Greater than 6 Feet and JHA 19 Heavy Equipment Operations.



North America Job Hazard Analysis

Asbestos Surveys and Bulk Material Sampling

Project Name:	Environmental Condition of Property, Disposal of NIOC Sugar Grove, Sugar Grove, WV
Project Number:	0219688
Job / Task Name:	Asbestos Surveys and Bulk Material Sampling
JHA No.:	

Task Step	Hazard	Control Measures
	Fall from access to roofs or other leading edges.	<ul style="list-style-type: none"> • Coordinate roof access with client and their facility's procedure for roof access. • Do not work on roof alone. Provide for a means of communication with ground level facility personnel. • Maintain safe distance from edges. Do not step on skylights or other non structural roof components. Utilize fall restraint system where appropriate. • Contractually request client to provide their own roofing contractor to conduct repairs of roofing materials damaged by sampling.
Disturbing suspect material to collect bulk samples	Exposure to airborne asbestos fibers	<ul style="list-style-type: none"> • Avoid sampling in occupied areas where possible. • Use wet methods to reduce potential for fiber release. • Collect samples from locations of existing material damage where possible. • Use sampling equipment such as drop cloths, coring tool and sample collection bags in such a manner as to control material and reduce potential for fiber release. • Use disposable gloves to prevent distribution of fibers from suspect materials. • Conduct or reference negative exposure assessment for airborne exposure to asbestos fibers during bulk sampling; or use an air-purifying, tight fitting respirator equipped with HEPA filter cartridges while sampling suspect materials that are friable, significantly damaged and are typically known to contain asbestos.



North America Job Hazard Analysis

Asbestos Surveys and Bulk Material Sampling

Project Name:	Environmental Condition of Property, Disposal of NIOC Sugar Grove, Sugar Grove, WV
Project Number:	0219688
Job / Task Name:	Asbestos Surveys and Bulk Material Sampling
JHA No.:	

Task Step	Hazard	Control Measures
		<ul style="list-style-type: none">• Wear Tyvek suit during sampling of materials that are friable, significantly damaged and are typically known to contain asbestos.• Retain used tools, equipment and materials that made contact with suspect materials (such as disposable gloves, drop cloths or used cores) in a sealed plastic bag.• Clean sampling equipment and tools with damp rag between samples.• Reference JHA- 09 Airborne Contaminants and Reproductive Hazards and JHA-17 Respiratory Protection.



North America Job Hazard Analysis Asbestos Surveys and Bulk Material Sampling

Project Name:	Environmental Condition of Property, Disposal of NIOC Sugar Grove, Sugar Grove, WV
Project Number:	0219688
Job / Task Name:	Asbestos Surveys and Bulk Material Sampling
JHA No.:	

Personal Protective Equipment Required for this Task:

Type	Description
Safety glasses with side shields, safety shoes, hard hat, disposable gloves, leather gloves, knee pads, respirator w/HEPA cartridges, Tyvek suits, fall protection.	Reference details above

Training Required for this Task:

Type	Description
Respiratory protection, fall prevention and protection, FSO, asbestos inspection initial and refresher (as required).	Reference details above

Forms Associated with this Task:

Type	Description
Asbestos Bulk Sampling Log	Log to document samples collected during survey.

Site-Specific Job Hazard Analysis Completed by:

Name	Date
Erin Likouris	September 10, 2012



Daily Safety Meeting Documentation Form

Project Name:	Environmental Condition of Property, Disposal of NIOC Sugar Grove, Sugar Grove, WV Asbestos Survey
Project Number:	0219688
Meeting Date & Time:	
Meeting Leader:	

Document Routing	
FSO	Retain copy in site health & safety file.

What work will be conducted on site today and by whom?

Work Task	Conducted By

What overlapping operations/simultaneous operations will occur today?

--

Any follow-up from previous Major Incidents, Near Misses, Unsafe Acts or Unsafe Conditions discussed today?

--

List any new / short-service personnel on site today?

--

Safety Meeting Core Topics - All Site Workers and Visitors

- What PPE is required in order to enter the work zone?
- What are the potential hazards associated with today's work. How will they be managed?
- What are the potential impacts of planned activities to: Visitors? Nearby workers? Public?
- Is everyone aware that they are empowered to stop work if something is questionable or unsafe?
- What happens and who do you contact if there is an injury or emergency? If working at an active facility, how will you be alerted of an emergency and what will you do?
- Who do you contact if you have questions, or before deviating from written procedures?
- Where is fire extinguisher, first aid kit, eyewash, safety shower located?
- Are any work permits required? Are permits completed and posted in plain view of workers?
- Have all excavation / borehole locations been cleared of underground utilities/structures, in accordance with ERM and client-specific subsurface clearance procedures?
- Have all tools / equipment / vehicles been inspected today to ensure safe operating condition?
- Will a follow-up safety meeting be conducted after lunch?
- Has anything unexpected or out-of-the-ordinary occurred on this job recently to share?



Daily Safety Meeting Documentation Form

Project Name:	Environmental Condition of Property, Disposal of NIOC Sugar Grove, Sugar Grove, WV Asbestos Survey
Project Number:	0219688
Meeting Date & Time:	
Meeting Leader:	

What is the worst that could happen if something goes wrong today?

Safety Topics Related to ERM 2011 Incident Trends - All Site Workers *and* Visitors

- What activities occurring today could result in hand injuries? Is everyone aware that the use of fixed open-blade knives is not permitted without cut-resistant gloves?
- Does the site pose natural hazards to be avoided? Thorny underbrush/ticks/poison ivy?
- What areas of the site have slip/trip/fall hazards? Are everyone's work boots in good shape?
- How will the on-site team avoid vehicle accidents? Is everyone aware that taking their eyes off the road for more than 2 seconds (for any reason) leads to vehicle accidents?

Who attended the safety meeting today (employees, subcontractors, visitors)?

Name	Company	Signature	Sign-In Initials*	Sign-Out Initials**

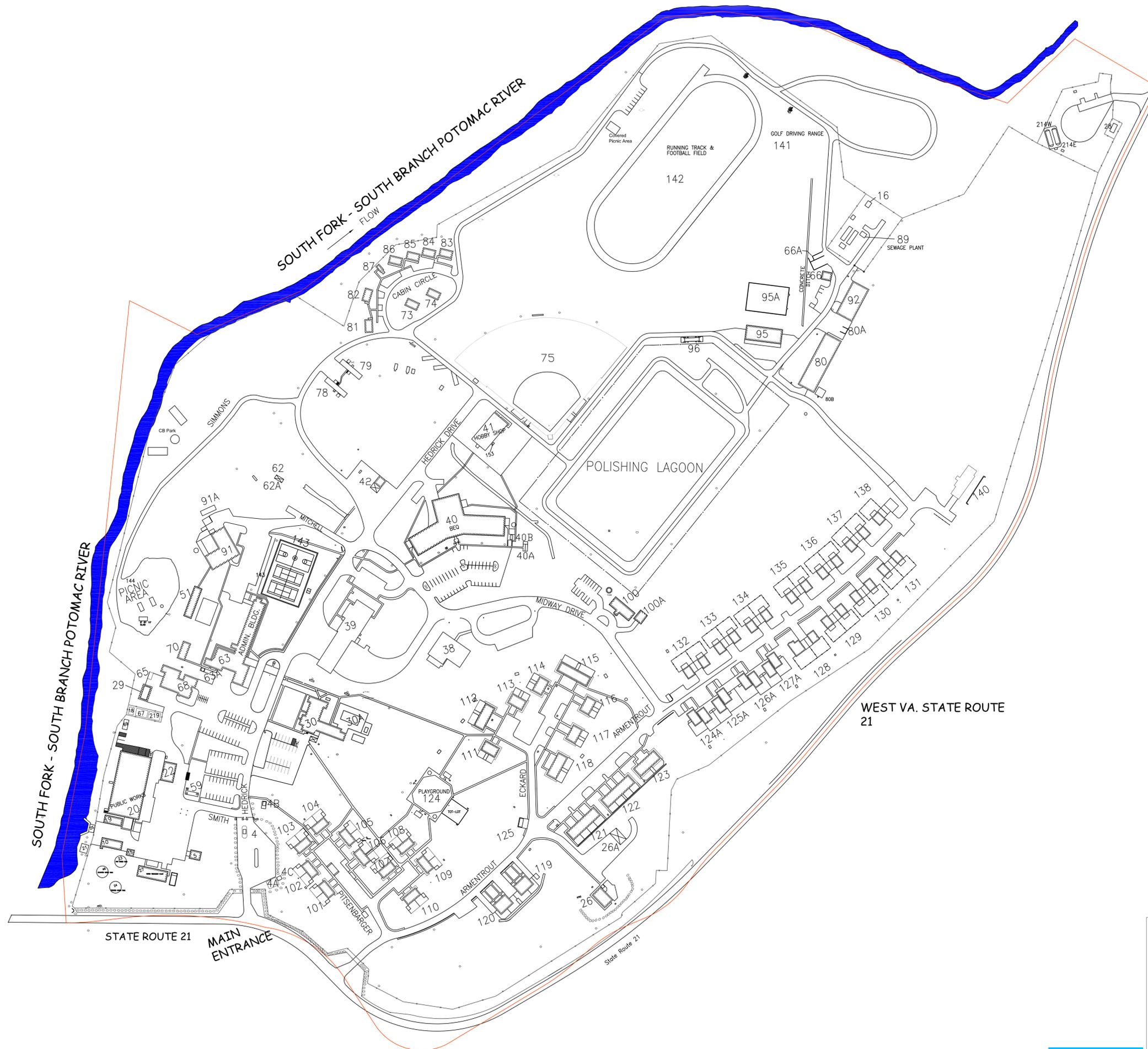
* Initials in this space verify that the employee is fit for performing work.

**Initials in this space verify that the employee was uninjured during the workday.

Who visited the site today but was not involved in work activities?

Name	Company	Arrival Time

Appendix C
Facility Site Location Plan



LEGEND

— Property Boundary

NOT TO SCALE



Appendix C
SITE LOCATION MAP
ENVIRONMENTAL CONDITION OF PROPERTY
DISPOSAL OF NIOC SUGAR GROVE
SUGAR GROVE, WEST VIRGINIA

Appendix D
Site Photographs

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 1: View of Building 10 and flammable compressed gas locker, view looking northeast.



Photo 2: Building 16 – Wastewater Storage. View looking north.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 3: View of chemicals stored in Building 16.



Photo 4: View of equipment stored in Building 16.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 5: Building 18 – Auto Transfer Switch Substation.



Photo 6: Flammable storage lockers adjacent to Building 20 – Public Works.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 7: Corrosive storage locker in Building 20 – Public Works.



Photo 8: Interior of corrosive storage locker in Building 20 – Public Works.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 9: View of paint storage room in Building 20 – Public Works.



Photo 10: View of paint storage room in Building 20 – Public Works.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 11: View of flammable storage locker at the paint storage room in Building 20 – Public Works.

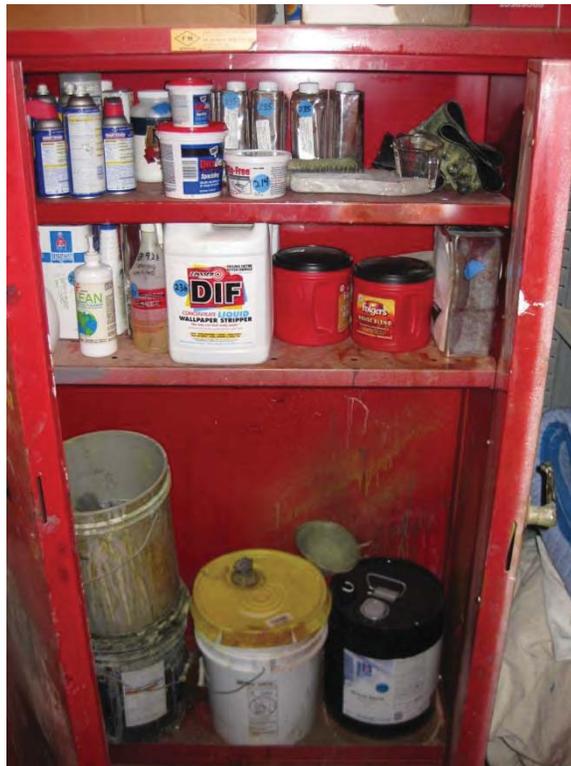


Photo 12: View of additional flammable storage locker at the paint storage room in Building 20 – Public Works.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 13: View of pool chemicals stored in Building 20 – Public Works.



Photo 14: Flammable storage locker located at the bowling alley in Building 20 – Public Works.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 15: Flammable storage locker located in Building 22 – Plumbing Maintenance Shop.



Photo 16: Interior of flammable storage locker located in Building 22 – Plumbing Maintenance Shop.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 17: View of Building 25 – Pump House. View looking southwest towards the South Fork of the South Branch of the Potomac River.



Photo 18: Building 26, constructed in 1905. View looking south.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 19: View of Building 27 – Water Treatment Plant and Water Storage Tanks 23 and 24. View looking southwest.



Photo 20: View of compressed gas cylinder storage adjacent to Building 30 – Navy Exchange.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 21: Swimming pool located adjacent to Building 30.



Photo 22: Pool pump system building and corrosive storage locker located adjacent to swimming pool.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 22: Corrosive storage locker located adjacent to Building 40 – BEQ.



**Photo 23: Recycling containers and dumpster associated with Building 40 – BEQ.
View looking east.**

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 24: Abandoned washrack and oil/water separator located adjacent to Building 40 – BEQ.



Photo 25: 500-gallon Used Oil AST 253 at Building 41 – MWR Hobby Shop. View looking southwest.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 26: View of dumpster and compressed gas cylinder storage at Building 41 – MWR Hobby Shop, looking northwest.



Photo 27: View of rental equipment and flammable storage locker at Building 41 – MWR Hobby Shop, looking northeast.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 28: View of rental equipment (generators) and one of two flammable storage lockers in Building 41 – MWR Hobby Shop.



Photo 29: View of second flammable storage locker in Building 41 – MWR Hobby Shop.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 30: View of corrosive storage locker in Building 41 – MWR Hobby Shop.



Photo 31: View of interior bay of Building 41 – MWR Hobby Shop.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 32: View of Oil King used-oil receiver in Building 41 – MWR Hobby Shop.



Photo 33: Building 42 – MWR Car Wash. View looking northeast.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 34: View of Dispenser Island at NEX Filling Station. View looking northeast.



Photo 35: View of 2,000-gallon diesel UST 201 (pictured left) and 4,000-gallon gasoline UST 202 (pictured right) at NEX Filling Station. View looking north.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 36: Building 62 – Babyland. View looking northwest.



Photo 37: View of possible former location of USTs at Building 63 – Administrative Office. View looking southeast.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 38: Building 65 – HAZMAT Storage Building. View looking north.



Photo 39: Generator Building 67 for Main Base.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 40: Diesel day tank located in Generator Building 67 and associated with AST 219.



Photo 41: Oil/water separator located at Building 68 – Fire Station.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 42: View of Building 68 – New Fire Station, looking northeast.



Photo 43: View of flammable storage lockers at Building 68 – New Fire Station.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 44: View of 308-gallon diesel AST at Building 68 – New Fire Station.



Photo 45: View of underground water tanks used to collect rainwater from the roof of Building 68 – New Fire Station for training activities.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 46: Interior of Building 68 – New Fire Station.



**Photo 47: New 308-gallon diesel AST located near Building 70 – Racquetball Court.
View looking northwest.**

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 48: View of three 500-gallon Used Oil ASTs (ASTs 250, 251, and 252) located adjacent to Building 80. View looking east.



Photo 49: Drum storage area in Building 80.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 50: Flammable storage locker and drums in Building 80.



Photo 51: Oil dispensers in Building 80.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 52: Flammable storage lockers in Building 80.



Photo 53: Flammable storage locker in Building 80.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 54: Battery charging station in Building 80.



Photo 55: Used oil filter machine in Building 80.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 56: Transformers stored outside of Building 80.



Photo 57: Building 80B – HAZMAT/Flammable Storage.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 58: View of the lagoon, looking northeast.



Photo 59: View of Building 89 – Sewage Treatment Plant, looking north.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 60: View of flammable storage lockers located at Building 89 – Sewage Treatment Plant.



Photo 61: View of dumpster, recycling containers, and used cooking oil tank associated with Building 90 – R.C. Byrd Community Center. View looking west.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 62: Building 95 – Recycling Building. View looking northwest.



Photo 63: Outdoor storage area at Building 95 – Recycling Building.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 64: Flammable storage locker located in Building 95 – Recycling Building.



Photo 65: Machinery located in Building 95 – Recycling Building.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 66: Outdoor storage area located north of Building 95 – Recycling Building. View looking west.



Photo 67: Flammable storage locker and compressed gas cylinder storage at outdoor storage area located north of Building 95 – Recycling Building.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 68: View of MWR Track, looking northwest.



Photo 69: View of the two 12,000-gallon liquid propane tanks located at the northeast corner of NIOC Sugar Grove. View looking west.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 70: 8,000-gallon diesel AST 219, located north of Building 20 and adjacent to Building 67. View looking west.



Photo 71: Family housing units, view looking northeast on Armentrout Drive.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 72: Family housing unit at the northeast end of Armentrout Drive.



Photo 73: Family housing units, view looking northwest on Pitzenbarger Street.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 74: View of the MWR Cabins, looking west.



Photo 75: Flammable storage locker located adjacent to Building 87 – MWR Cabin Housekeeping.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Photo 76: View of the South Fork South Branch of the Potomac River from the MWR Cabins.



Photo 77: Housing unit 123 A at 192 Armentrout Drive.

Photographs of the Installation Restoration Site Locations

Site 2, The Support Area Burn Pits

Site 3, The Support Area Landfill

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Site 2 - Support Area Burn Pits: near the southeastern corner of the site, looking northwest.



Site 2 - Support Area Burn Pits: near the southwestern corner of the site, looking northeast.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Site 2 - Support Area Burn Pits: near the northeastern corner of the site, looking west.



Site 2 - Support Area Burn Pits: near the northeastern corner of the site, looking southwest.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Site 3 - Support Area Landfill: across the baseball field south of the site, looking north.



Site 3 - Support Area Landfill: right outfield of the baseball field in the southeastern corner of the site, looking west.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Site 3 - Support Area Landfill: in the northeastern corner of the site, looking southwest.



Site 3 - Support Area Landfill: north of the site, looking south.

SITE PHOTOGRAPHS – NIOC SUGAR GROVE, WEST VIRGINIA



Site 3 - Support Area Landfill: near the northwest corner of the site, looking southeast.



Site 3 - Support Area Landfill: near the southwest corner of the site, looking east.

Appendix E
Site Checklists



Michael Baker Jr., Inc.
Site Walkover Checklist

Client: NAVFAC MID-ATLANTIC

Job: Environmental Condition of Property –
Disposal of NIOC Sugar Grove

Name of Property: NIOC Sugar Grove Lower Base (Excluding Privatized Housing)

Location of Property: Sugar Grove, Pendleton County, West Virginia

Evaluator: J. Oliver / W. Harris

Date of Site Visit: 12 November 2013 –
22 November 2013

Persons Contacted: Ms. Celeste D. Renoewick, LT, CEC, USN
Mr. Robert B. Hammer
Mr. Steven W. Niethamer

Weather Conditions at Time of Site Visit: Between 30 to 50 °F, Sunny

<input checked="" type="checkbox"/>	Ground Dry	<input checked="" type="checkbox"/>	Clear
<input type="checkbox"/>	Ground Wet	<input type="checkbox"/>	Overcast
<input type="checkbox"/>	Snow Cover	<input type="checkbox"/>	Foggy

Natural Features

General Site Characterization

1. State of Development

(Check the ones that apply. If more than one use estimate percentage of property dedicated to that use).

<input type="checkbox"/>	Undeveloped	<input checked="" type="checkbox"/>	Developed
<input type="checkbox"/>	Operating	<input type="checkbox"/>	Abandoned
<input type="checkbox"/>	Under Construction		

2. Current Land Uses

<input type="checkbox"/>	Agriculture	<input type="checkbox"/>	Commercial
<input type="checkbox"/>	Residential	<input type="checkbox"/>	Vacant
<input type="checkbox"/>	Industrial	<input checked="" type="checkbox"/>	Other: <u>Navy Facility</u> (specify)

3. Business Activities

(If you checked commercial or industrial, describe the type of activity)

The lower base complex contains a full range of facilities, including barracks, privatized housing, administrative space, retail space, indoor recreational space, storage space, public works shops, water/wastewater treatment, as well as a fire station and police station.

4. Accessibility

(Indicate any roads, paths, railroads; man-made barriers such as fences; natural barriers such as water and steep slope).

The lower based is accessed by State Route 21. The entire facility is fenced and secured. The South Fork of the South Branch of the Potomac River bounds the lower base on the north and west. State Route 21 bounds the lower base to the south and east.

5. Area of Property (in acres)

Approximately 118 acres

6. Geographic Setting

a. Proximity to homes

Approximately 200 yards west of the lower base

b. Proximity to towns

Located approximately 3.75 miles southwest of Brandywine, West Virginia

c. Proximity to highways

State Route 21 bounds the lower base to the south and east.

d. Proximity to railroads, etc...

No evidence of railroads within one mile of the lower base

Name of Adjacent Property

(Check the ones that apply.)

_____ Underdeveloped Developed _____ Under Construction

_____ Operating _____ Abandoned _____ Vacant

Agricultural _____ Commercial _____ Industrial

Residential Other (specify): National Forest

_____ Receptors or generator of waste

Topography, Geomorphology, Geology

1. Slopes

Steep slope from State Route 21 down to the southeastern portion of NIOC Sugar Grove (Lower Base). NIOC Sugar Grove (Lower Base) is generally flat and drains to the South Fork of the South Branch of the Potomac River.

2. Setting or Sinking of Land Surface

Not observed

3. Direction of Natural Surface Drainage

Northwest

4. Wetlands

a.	Indicator vegetation species	Y _____	N	<u>Unknown</u>
b.	Indicator animal species	Y _____	N	<u>Unknown</u>
c.	Saturated Areas	Y <u>X</u> _____	N	
d.	Soils indicate wetland areas	Y _____	N	<u>Unknown</u>
e.	U.S.F.W.S. wetlands map designation	Y <u>X</u> _____	N	

From USFWS National Wetlands Inventory: there is a small area of wetlands located north of the MWR Cabins and an area of wetlands on the western bank of the South Fork of the South Branch of the Potomac River. Additional wetland areas have been identified at the installation and reported in the Integrated Natural Resources Management Plan.

Soil and Ground Cover

1. Surfacing

(Describe as exposed or paved; type of paving, extent of condition, patches, staining, discoloration)

- Exposed surfacing at northern portion of NIOC Sugar Grove (Lower Base). Paved (asphalt) roads and parking areas in good condition throughout central and southern portion of NIOC Sugar Grove (Lower Base).

2. Soil Cover

(Describe as native to area; disturbed soil; possible fill)

- Soil cover appears to be native to area.
- Pile of fill material located east of MWR Cabins.

Surface Water

1. Ponds, lagoons, lakes
(Describe the size, depth, and quality of the water, particularly and discoloration or petroleum slicks.)

There is a sewage treatment lagoon, roughly 300 feet by 500 feet in size (depth unknown), located near the center portion of the facility.

2. Overall Drainage of Property
(Describe all streams, rivers, and any surface water features that areas of the property drain into. Indicate general direction of drainage. Describe the general quality of the surface water.)

Overall drainage of the Lower Base is to the South Fork of the South Branch of the Potomac River.

3. Relationship of Surface Waters to Structures and Man-made Drainage of Site
(Do ditches empty into ponds or streams?)

Ditches and stormwater runoff drain to the South Fork of the South Branch of the Potomac River.

- | | | |
|----------------------------------|------------|------------|
| 4. Discoloration of Water, Slick | Y _____ | N <u>X</u> |
| 5. Trash in Surface Water Bodies | Y _____ | N <u>X</u> |
| 6. Plant or Animal Life in Water | Y <u>X</u> | N _____ |

Describe: Fish present in the South Fork of the South Branch of the Potomac River.

Groundwater

- | | | |
|---|------------|------------------|
| 1. Any existing Wells or Monitoring Wells | Y <u>X</u> | N _____ |
| 2. Discoloration or Odor in Groundwater | Y _____ | N <u>Unknown</u> |
| 3. Aquifers in Area? | | |

Unknown. Monitoring wells were observed in the vicinity of the NEX gas station.

- | | | |
|-------------------------|---------|------------------|
| 4. Sole Source Aquifers | Y _____ | N <u>Unknown</u> |
| 5. Depth to Groundwater | | |

Unknown at time of site visit.

6. Direction and Flow Characteristics

Unknown

7. Spill evidence, cleaned up?
Minor staining (used oil) observed in Building 41.

Utilities

1. Electricity
Overhead and underground electric lines
2. Natural Gas
Natural gas lines are located throughout the facility
3. Oil
Heating oil is no longer used at the facility
4. Telephone
Telephone utilities present
5. Sewers
Sewer utilities present
6. Water
Water utilities are present. Water treatment plant is located at Building 27.
7. Storm Drains
Storm drainage system present at the Lower Base

Physical Features

1. Parking Areas (paved or under roof?)
Paved parking areas throughout the facility.
2. Roads
Paved roads are located throughout the facility. Hedrick Drive serves as the main entrance road.
3. Power Lines
Electrical utilities (aboveground and below ground)
4. Dwellings
Building 40 – BEQ, MWR Cabins along Cabin Circle, and privatized housing area
5. Structures/Improvements
There are approximately 55 buildings at the Lower Base, not including privatized housing.
6. Right of Way
Unknown

Security Features

1. Access Roads
Hedrick Drive (site entrance)
2. Fencing and Gates
The entire facility is fenced and secured. Site entrance is gated and manned.
3. Vegetation Barriers
Vegetation along northern and eastern boundaries of the Lower Base provide a natural barrier.
4. Bike Trails
None
5. Camp fires
Picnic area with fire pit is located at the western portion of the Lower Base.
6. Boat Launching Areas
None

Adjacent Land Use (Past and Present)

1. Surface water/Groundwater Use
There are likely groundwater wells at the properties north and west of the facility for drinking water use.
2. Road/Utilities
State Route 21
3. Residential/Industrial/Commercial/Agricultural
Low density rural housing/Agricultural
4. Vacant Land
Uninhabited forested land
5. Vegetation Types
Forested
6. Drainage Patterns
Towards the South Fork - South Branch of the Potomac River

Potentially Hazardous Features

Waste Evidence

1. Drums/Containers
Unidentified drums/containers were not observed during the site visit. Hazardous materials located at the facility are stored in designated areas.
2. Waste Materials
Not observed at the time of the site visit
3. Construction/Demolition Debris
Construction was ongoing at Building 68 at the time of the site visit
4. Discolored Soil
Discolored soil was not observed.
5. Odors
None
6. Leachate Seeps
None
7. Discolored Surface Water
None
8. "Unnatural Soil"
None
9. Ash or Blackened Area
None

Chemical/Fuel/Drum/Storage Area

1. Materials Stored
Flammable and corrosive lockers with small quantities of hazardous substances were observed at noted:
 - Building 10 – PWD Wood Shop; flammable locker with lubricants and solvents, compressed gasses in rear of building.
 - Building 20 – PWD; corrosive locker with new batteries
 - Building 20 – PWD (back of building); two flammable lockers labeled acetylene and oxygen.
 - Building 20 – MWR indoor endless pool, chlorine and water conditioners
 - Building 20 – MWR Bowling Alley; lane conditioning oil and solvents
 - Building 22 – PWD Plumbing Shop; gasoline, lubricants, oils, polyvinyl chloride (PVC) pipe glue
 - Building 30 – Navy Exchange (NEX), cleaning supplies and hair dyes inside of the building. Three compressed gas cylinder cages with liquid propane directly north of the building.

- Building 39 – Fire Station; gasoline, two-cycle oil mixed gasoline, and diesel
- Building 40 – Bachelor Enlisted Quarters (BEQ); dishwasher detergents and cleaning chemicals stored in a corrosives locker
- Building 87 – MWR Cabins, empty.
- Building 91 – Robert C. Byrd Community Center; dishwasher and cleaning chemicals
- Building 95 – The Recycling Center, lubricants and oils
- Building 100A – Housing Office Storage Shed, paint, aerosols, gasoline

Drums/containers of various chemicals/petroleum products were observed within the following buildings:

- Building 20: Paint Storage
- Building 27: Water Treatment Plant
- Building 30A: The Swimming Pool
- Building 41: The MWR Hobby Shop
- Building 80: Vehicle Maintenance Facility
- Building 89: Sewage Treatment Plant

2. Type of Construction
Enclosed building
3. Age
Construction dates vary
4. General Condition
N/A
5. Security and Access
Secured
6. Spill Control Berms
N/A
7. Spill Evidence
Not apparent

Manholes, Catch Basins, Drains, Fill Pipes

1. Where?
Storm drains are located throughout the facility
2. What for?
Storm water
3. Description
Storm water utilities

4. Unusual Appearances or Odors
None

Process Tanks/Wastewater Tanks – Water Treatment Plant (Building 27), Sewage Treatment Plant (Building 89)

1. Size
Water Treatment Plant – process tanks associated with Building 27 (size unknown)
Sewage Treatment Plant – flow equalization tank (approximately 20,000 gallons); two parallel 25,000 gpd aeration tanks; two parallel secondary clarifiers
2. Purpose
Water treatment / wastewater treatment
3. Inside/Outside Appearance
No apparent issues observed
4. Lined/Unlined
N/A
5. Contents
Water / wastewater
6. General Condition
No apparent issues observed
7. Leaks/Spills-Evidence or incidents
Not apparent
8. Connecting Piping Secure?
No issues observed
9. Chemical Feed/Pump System ok?
Unknown

Pits/Ponds/Lagoons

1. Size/Location
Roughly 300 feet by 500 feet in size (depth unknown), located near the center portion of the facility.
2. Materials of Construction
Earthen lagoon
3. Purpose/Contents
Believed to be used to retain excessive flows
4. Above/Below Grade
Bermed, above grade

5. Lined/Unlined
Unknown
6. General Condition
Unknown
7. Freeboard
Unknown
8. Leaks
Unknown
9. Fill/Drain Pipes
Unknown

Disposal Areas – No disposal areas were observed. Historical disposal areas noted during review of on-site documentation.

Chemical Transfer Points – Not observed

Neighboring Property Uses (Including Water Supply and Septic Removal):

1. North
Agricultural land
2. South
State Route 21, housing development
3. East
State Route 21, forested land
4. West
South Fork of the South Branch of the Potomac River, low density rural housing

Additional Information and Comments

Activities at Sugar Grove (Lower Base) were beginning to cease at the time of the site visit.

Areas of Concern (If wetlands evidence of filling, draining, etc...)

Historical disposal areas, former underground storage tank areas, possible presence of lead-based paint and asbestos containing material.

Appendix F
Interviews

0800 IN-BRIEF MEETING

11/12/13

BOB HAMMER, J OWNER, W HARRIS, ERM
FACILITIES MANAGER

- PLAN - NAVY ACTIVITY WILL BE GONE IN ONE YEAR, CIVILIAN ACTIVITY IN TWO YEARS.
- OPERATIONS SITE (OFF SITE) HAS AN ACTIVE MISSION.
- THIS IS A GOVERNMENT FACILITY - SUGAR GRAVE, ECP
- ENVIRONMENTAL REPORTS ARE AVAILABLE, LINCOLN DOCUMENTATION (LEAD/ASBESTOS, HOUSING)
- COATING ON GAS LINE HAS NEVER BEEN SAMPLED FOR ASBESTOS, NATURAL LINE IS OWNED BY NAVY.
- FORMER ENVIRONMENTAL POC IS STILL ON BASE -
- POSSIBLY A COUPLE DUMP SITES FROM '60S
- ONE FUEL PUMP STATION (MANAGED BY NEX). THE ASTS ARE OWNED BY NAVY, AND USTS - SPILL IN '93 - DOCUMENTED CLEAN CLOSURE
- ON-SITE WATER TREATMENT
- WASTE OIL AT HOBBY SHOP + BLDG 80.
- SPILL PLAN IS PRESENT AT FACILITY. SWPPP IS AT FACILITY
- NAVY OWNS THE PROPANE TANKS.
- SEWAGE TREATMENT PLANT IS OPERATIONAL.
- SEWAGE LAGOON WAS PUT IN IN THE '60S.
- CESQG, NOT MUCH HAZ WASTE, NONE STORED HERE, STORED AT OPS (OFF SITE).
- NO PHOTOS OF GATED SITE ENTRANCE, SECURITY FEATURES.
- PHOTOS MAY NEED A SITE ES WRT.
- SAFTEY FLEEN REMOVES WASTE OIL
- DIESEL + GAS USTS (2)
- NO SEPTIC SYSTEMS ON SITE

INTERVIEW/CONTACT FORM

Client: NAVFAC MID-ATLANTIC

Job: ECP - Sugar Grove, WV

Site Name: SUGAR GROVE

Evaluator: J.S. / W.H.

Date/Time: 11/18/13 1500

Persons Contacted: LT PENDEWICK / JENNINGS SMITH

Questions: TIME AT FACILITY: JUNE 2013

What are the buildings on the site? What activities are conducted at the site?

What is the energy use/supply of the site? What are the water and sewage systems of the site?

What equipment is used on the site?

Do you have any knowledge of hazardous substances/waste which have been on the site, released on site, or potential contamination on or near the site? Are there any drum storage areas?

Are there any significant concerns with the area or previously raised concerns of the area?

LT: Notes: • PRIMARY ACTIVITY IS SHUTTING DOWN BASE.
 • OWNED BY 10th FLEET
 • HAVE RENEWED OUT TO MIDCANT

J: • 15 years here at Sugar Grove
 • No knowledge of the USTs at housing, see Steve for info.

• Underground piping material: terra cotta,
 • Smoke tests performed a few years back
 High rain will overflow purchase plants,
 divert to lagoon
 (managing + storm)
 • Bottom of lagoon was tested; not suitable for
 a dog park

- \$,000 GAN TANK IS FOR BASE GENERATOR.
- SEND J. AUG 2012 REQUIREMENTS FOR WWT OPERATORS.
- LAND FILL ON FACILITY.
- PACKAGE PLANT PREVIOUSLY LOCATED NEAR COMMUNITY CENTER.

Navy Information Operations Command



Celeste D. Renoewick
LT, CEC, USN
Public Works Officer



NIOC Sugar Grove PWD
63 Hedrick Drive, Bldg 20
Sugar Grove, WV. 26815

Phone: 304-249-6395
Fax: 304-249-6397
celeste.renoewick@navy.mil

NAVY INFORMATION OPERATIONS COMMAND



Jennings (Jay) E. Smith
Deputy Public Works Officer
Public Works Department

Mailing Address:
63 Hedrick Drive, Bldg. 20
Sugar Grove, WV 26815

Phone: 304.249.6340
Fax: 304.249.6397
Cell: 304.668.4022
Email: jennings.smith@navy.mil

INTERVIEW/CONTACT FORM

Client: NAVFAC MID-ATLANTIC

Job: ECP - Sugar Grove, WV

Site Name: SUGAR GROVE

Evaluator: J. OLIVER / W. HARRIS

Date/Time: 11/14/13 0900

Persons Contacted: STEVE N.

Questions: PHONE: 304-249-6321

What are the buildings on the site? What activities are conducted at the site?

What is the energy use/supply of the site? What are the water and sewage systems of the site?

B-O-B DYER - WASTE WATER. LAND APPLICATION OCCURS ON OPS SITE

What equipment is used on the site?

JULIE SMITH - NAVY HOUSING MANAGER

Do you have any knowledge of hazardous substances/waste which have been on the site, released on site, or potential contamination on or near the site? Are there any drum storage areas?

CHARLOTTE THOMPSON WITH LINCOLN

Are there any significant concerns with the area or previously raised concerns of the area?

SEE 1988 PA.

Notes:

HOUSING

*Historic land fill + burn pit at main base. ^ UST TANK TESTING.

- DAVID: 304-822-7266 - STATE INSPECTOR

- DENTIST GENERATES USES RADIOLOGICAL, TAKES IT OFF SITE.

- RANGE AT SUGAR GROVE IS LOCATED AT OPS SIDE.

- NO SATELLITE ACCUM AREA AT THIS BASE.

- NO INDUSTRIAL ACTIVITIES.

- SAFETY GREEN (3RD PARTY) - USED COOKING OIL

- POSSIBLE MOBILE REFUELER

- RADON TESTING -> LINCOLN HAS RESULTS.

- NPDES PERMIT No. WV0020117

Steven W. Niethamer

Mailing Address:
P.O Box 22
Sugar Grove, WV 26815

Phone: 304-249-5976
Cell: 252-202-3481
Email: swniethamer@gmail.com

W: 304-249-4321

INTERVIEW/CONTACT FORM

Client: NAVFAC MID-ATLANTIC

Job: ECP - Sugar Grove, WV

FORMER

Site Name: FUEL OIL UST AT HOUSING

Evaluator: J.O./W.H.

Date/Time: 11/20/13 1200

Persons Contacted: STEVE NIETHAMER

Questions:

What are the buildings on the site? What activities are conducted at the site?

What is the energy use/supply of the site? What are the water and sewage systems of the site?

What equipment is used on the site?

Do you have any knowledge of hazardous substances/waste which have been on the site, released on site, or potential contamination on or near the site? Are there any drum storage areas?

Are there any significant concerns with the area or previously raised concerns of the area?

FROM EBS:

TANK 203

Notes: 3,000 GAL HEATING OIL UST PREVIOUSLY LOCATED AT BOILER BLDG. REMOVED + CLEAN CLOSED OCT 1996.

STEVE: ONE UST. UNCONFIRMED CLEAN CLOSURE. BOILER ROOM WAS ATTACHED TO HOUSING UNIT.

CHECK OUT FIRESTATION ~~BY [scribble]~~ FOR AST.

CAR WASH

DIVERSION VALVE LOCATED NORTH OF CAR WASH. WHEN CAR WASH IN USE, VALVE DIVERTS TO SANITARY.

MONITORING WELLS

THE WELL IN PAVEMENT SHOULD HAVE BEEN CLOSED, (IT WAS OVERLOOKED). THE OTHER WELLS, UNSURE OF CURRENT USE, V/R TIED, MONITORED?

INTERVIEW/CONTACT FORM

Client: NAVFAC MID-ATLANTIC

Job: ECP - Sugar Grove, WV

Site Name: AUTO HOBBY SHOP BLDG 41

Evaluator: J.O. / W. 47

Date/Time: 11/18/13 0915

Persons Contacted: JIM MOATS 249.6367

Questions:

What are the buildings on the site? What activities are conducted at the site?

What is the energy use/supply of the site? What are the water and sewage systems of the site?

What equipment is used on the site?

Do you have any knowledge of hazardous substances/waste which have been on the site, released on site, or potential contamination on or near the site? Are there any drum storage areas?

Are there any significant concerns with the area or previously raised concerns of the area?

Notes:

OPERATED BY MWR.

INSIDE:

WOOD SHOP AT SOUTHERN BAYS, DUST COLLECTOR

USED OIL / MOTOR OIL STORED

USED ANTIFREEZE IS NEVER STORED HERE

AUTO MAINTENANCE AT NORTHERN BAY. CLEANING MATERIALS.

STORAGE BAY AT SOUTH WEST AREA OF BLDG. WITH GENERATORS, TWO FLAMMABLE LOCKERS (ANTIFREEZE PAINTS) + ONE CORROSIVES LOCKER, COOLERS, RENTAL EQUIP.

GALLEY, BLDG 91, BLDG 20 (GYM) OPERATED BY MWR

SAFETY KAREN PICK UP USED OIL, PARTS CLEANING MACHINE

NO ISSUES WITH USED OIL AST.

INTERVIEW/CONTACT FORM

Client: NAVFAC MID-ATLANTIC

Job: ECP - Sugar Grove, WV

Site Name: LINCOLN HOUSING

Evaluator: J. OLIVER / W. HARRIS

Date/Time: 11/14/13 1330

Persons Contacted: JULIE SMITH

Questions: 304-249-6306

What are the buildings on the site? What activities are conducted at the site?

What is the energy use/supply of the site? What are the water and sewage systems of the site?

What equipment is used on the site?

Do you have any knowledge of hazardous substances/waste which have been on the site, released on site, or potential contamination on or near the site? Are there any drum storage areas?

Are there any significant concerns with the area or previously raised concerns of the area?

Notes:

As of Aug 2005, 50 year lease to Lincoln

Contact PPV Coordinator: Doug Lyons

757-322-5430

MR. Madison Montgomery

possibly '91?

LEAD/ACM STUDY '96-'98
ENV. ASSESSMENT PRIOR TO PPV
Asks for documents
DIRECTOR OF PPV

Unit 123A : Around (96-98), study conducted & (now 192) this unit was found with elevated levels of radon. Remediation system is in place. Subsequent testing showed lower results.

Housing units constructed in

1968 (20), 1970 (20), 1977 (16), 1994 (8), 1998 (22)

FUR HEATING SYSTEMS - SYSTEM CONVERTED TO NATURAL GAS.

• 2 UST FUEL OIL TANKS PREVIOUSLY LOCATED BETWEEN UNITS 121, 122.
↳ REMOVED ~~96'~~ AND PIPING JUNE

• ACM IN HOUSING LEFT IN PLACE, UNDISTURBED. LBP - FOUND IN BLINDS, ALL BLINDS WERE REMOVED.

BAKER

FINAL REPORT

PHASE I - EBS

PRIVATIZATION OF FAMILY HOUSING

LANT DIV

NG2470-01-D-3010-D001

FEB 2005

FINAL PHASE I - ESA

NSGA SUGAR GROVE FAMILY HOUSING

JULY 22, 2005

THE SI GROUP



Office: (304)249-6306/6508
Fax: (304)249-6307

JULIE A. SMITH
Housing Director

NIOC Sugar Grove
153 Midway Drive
Sugar Grove, WV 26815

Email: julie.a.smith2@navy.mil

INTERVIEW/CONTACT FORM

Client: NAVFAC MID-ATLANTIC

Job: ECP – Sugar Grove, WV

Site Name: ~~FAAMCY~~ HOUSING

MILITARY

Evaluator: J. OLIVER / W. HARRIS

Date/Time: 11/14/13 1430

Persons Contacted: CHARLOTTE THOMPSON, SAM MOATS (MAINTENANCE)

Questions: 304-249-6214

What are the buildings on the site? What activities are conducted at the site?

What is the energy use/supply of the site? What are the water and sewage systems of the site?

What equipment is used on the site?

Do you have any knowledge of hazardous substances/waste which have been on the site, released on site, or potential contamination on or near the site? Are there any drum storage areas?

Are there any significant concerns with the area or previously raised concerns of the area?
CHARLOTTE PROVIDED RADON TESTING INFO, ACCESS TO ¹ EBS REPORT ^{copy of}

Notes: WHAT RADON INFO / TESTING IS AVAILABLE?
- RADON TESTING 4F UNITS ADJACENT TO 123A THAT HAS ACTIVE REMEDIATION SYSTEM IN PLACE.
DEC 2011 TESTING OF UNITS 124B, 127B SHOWED 0.3 + 0.6 pCi/L

- PEST / HERBICIDES APPLIED BY 3RD PARTY LICENSED CONTRACTORS.
- NOT STORED ON SITE
- FLAMMABLE LOCKER, PAINTS, GASES, AEROSOLS,
- SPILL KIT ON VEHICLE, GOLF CART.
- NO REAL TERMITES PROBLEM HERE AT HOUSING.

LINCOLN
MILITARY
HOUSING

Every Mission Begins at Home™

SUGAR GROVE OFFICE
100 MIDWAY DRIVE
SUGAR GROVE, WV 26815
(304) 249-6214
(304) 249-6260 FACSIMILE
cthompson@lpsi.com
www.lincolnmilitary.com

CHARLOTTE THOMPSON
DISTRICT MANAGER
COMMUNITY SERVICES COORDINATOR

INTERVIEW/CONTACT FORM

Client: NAVFAC MID-ATLANTIC

Job: ECP – Sugar Grove, WV

Site Name: LINCOLN STORAGE GARAGE

Evaluator: J.O. / W.H.

Date/Time: 11/19/13

Persons Contacted: JASON at LINCOLN

Questions:

What are the buildings on the site? What activities are conducted at the site?

What is the energy use/supply of the site? What are the water and sewage systems of the site?

What equipment is used on the site?

Do you have any knowledge of hazardous substances/waste which have been on the site, released on site, or potential contamination on or near the site? Are there any drum storage areas?

Are there any significant concerns with the area or previously raised concerns of the area?

Notes:

FLUORESCENT BULBS, (FLAMMABLE STORAGE LOCKER), PAINTS,
CLEANING SUPPLIES, EQUIPMENT, TANK TRAILER USED FOR
PRESSURE WASHING.

WD-40, pressurized cans

INTERVIEW/CONTACT FORM

Client: NAVFAC MID-ATLANTIC

Job: ECP - Sugar Grove, WV

Site Name: NEX USTs

Evaluator: J.O. / W.H.

Date/Time: 11/20/13 1300

Persons Contacted: DONNA JENSEN AT NEX
304-249-6355

Questions: BEEN AT SUGAR GROVE SINCE 1988

What are the buildings on the site? What activities are conducted at the site?

TOOK TANKS OVER IN APRIL/MAY 2001

What is the energy use/supply of the site? What are the water and sewage systems of the site?

What equipment is used on the site?

Do you have any knowledge of hazardous substances/waste which have been on the site, released on site, or potential contamination on or near the site? Are there any drum storage areas?

Are there any significant concerns with the area or previously raised concerns of the area?

Notes:

NEX OWNS USTs ON BASE. TANKS ARE STICKED DAILY.

DAILY 163 FORM IS FILLED OUT, VEEDER-ROOT LOG IS OBTAINED AND RESULTS ARE COMPARED. MONTHLY REPORT/TESTS, WV A/B CERT. OPERATOR ON-SITE, CONTACTS STEVE MCPHERSON AT NAVFAC WITH ANY QUESTIONS/PROBLEMS.

CLEANING SUPPLIES + LOCKER STORED IN BATH ROOM (HAIR COLOR, ETC)

U/R IS LOCATED IN BLDG 22.

INTERVIEW/CONTACT FORM

Client: NAVFAC MID-ATLANTIC

Job: ECP – Sugar Grove, WV

Site Name: ↓

Evaluator: BRANCH MEDICAL CLINIC

Date/Time: 11/15/13 1100

J.O. / W.A.

Persons Contacted: ↓

Questions: KEN JONES, Support Services Specialist

What are the buildings on the site? What activities are conducted at the site?

What is the energy use/supply of the site? What are the water and sewage systems of the site?

What equipment is used on the site?

Do you have any knowledge of hazardous substances/waste which have been on the site, released on site, or potential contamination on or near the site? Are there any drum storage areas?

Are there any significant concerns with the area or previously raised concerns of the area?

Med Clinic is a separate tenant command.

Notes:

No radioactive/radiological material here, dental uses digital

Bio-haz waste is taken care of by 3rd party (picked up) Med Pro, out of Chicago

Temp Bio storage area, under lock & key.

Containers in pharmacy for ^{pharmaceutical} wastes, goes to Quantico for proper disposal.

INTERVIEW/CONTACT FORM

Client: NAVFAC MID-ATLANTIC

Job: ECP - Sugar Grove, WV

Site Name: BLDG 80 / BLDG 95

Evaluator: J.O. / W.I.A.

Date/Time: 11/18/13 1100

Persons Contacted: MR. GOSS, MR. SNYDER

Questions:

What are the buildings on the site? What activities are conducted at the site?

What is the energy use/supply of the site? What are the water and sewage systems of the site?

What equipment is used on the site?

Do you have any knowledge of hazardous substances/waste which have been on the site, released on site, or potential contamination on or near the site? Are there any drum storage areas?

Are there any significant concerns with the area or previously raised concerns of the area?

BLDG 80?

Notes: UNIVERSAL STORAGE: 55 GAL DRUMS OF NEW PETRO PRODUCTS

WASTE SITE IN SOUTHERN BAY

3 HAZMAT LOCKERS

OPERATION LEVEL WORK, CHANGING ENGINE OIL

SAFETY KLEEN PUMPS OUT USED OIL, USED ANTI FREEZE

BLDG 95: RECYCLING CENTER

GLASS CRUSHER, PAPER BALE, CAN CRUSHER.

SEWAGE JAC TRUCK STORIED IN HERE, USED FOR LAST AT OPS SITE.

BLDG 92 IS MATERIALS STORAGE, NO PILES, NO HAZMAT

ITEMS ON CONCRETE PAD ARE WAITING TO BE RECYCLED.

COMMUNITY CAN BRING IN RECYCLING MATERIALS.

INTERVIEW/CONTACT FORM

Client: NAVFAC MID-ATLANTIC ^{BUDG. 89} Job: ECP - Sugar Grove, WV ^{BUDG. 29}
 Site Name: WASTE WATER TREATMENT PLANT / WATER TREATMENT PLANT
 Evaluator: J. OLIVER / W. HARRIS Date/Time: 11/15/13 1400
 Persons Contacted: BOB DYER - AT SUGAR GROVE SINCE 1987

Questions:

What are the buildings on the site? What activities are conducted at the site?

WATER / WASTE WATER TREATMENT
What is the energy use/supply of the site? What are the water and sewage systems of the site?

What equipment is used on the site?

Do you have any knowledge of hazardous substances/waste which have been on the site, released on site, or potential contamination on or near the site? Are there any drum storage areas?

Are there any significant concerns with the area or previously raised concerns of the area?

WATER TREATMENT
Notes:
 LIQUID SODIUM HYPOCHLORATE, Deltac (floc agent), CL
 Raw water + backup tanks outside
 TANK 23 250,000 gal capacity
 Settling tank is cleaned out once a year.
 8,000 GAL DIESEL TANK SUPPLIES FUEL FOR EMERGENCY GEN.

Waste water
 50,000 gpd quantity fed to two lift stations, to this plant.
 Chlorine pills used. Dechlorinated prior to discharge.
 Sludge is land applied to Ops Site
 Approx 10 months worth of chemicals stored on site, tablets of Acen-tab oxidizer, dechlor, stored in Bldg 16.
 Car wash goes to sanctuary. Sewage plant constructed same time as water plant.

COPY - ANNUAL MONITORING REPORT

INTERVIEW/CONTACT FORM

Client: NAVFAC MID-ATLANTIC

Job: ECP – Sugar Grove, WV

Site Name: RUMMINS SHED

Evaluator: J.O./W.H.

Date/Time: 11/26/13 1400

Persons Contacted: BENNY

Questions: 17 YEARS AT SUGAR GROVE

What are the buildings on the site? What activities are conducted at the site?

What is the energy use/supply of the site? What are the water and sewage systems of the site?

What equipment is used on the site?

Do you have any knowledge of hazardous substances/waste which have been on the site, released on site, or potential contamination on or near the site? Are there any drum storage areas?

Are there any significant concerns with the area or previously raised concerns of the area?

Notes:

- FLAMMABLE LOCKER (SEE PICS)
- FLAMMABLE LOCKER ALSO BEHIND BLDG 20
- OWS WASH PUMP AT BED IS STILL HOOKED UP
 ↳ IN JUNE IF WORKED CORRECTLY.
- NO DIVERSION VALVE AT CAR WASH → LEADS TO SANITARY.
- FIBER GLASS WATER LINES, TERRA COTTA SEWER LINES.
- NOT KNOWN IF ASBESTOS CONCRETE PIPING PRESENT AT BASE.
- PROPANE TANKS AT NORTH ~~END~~ HAS TWO-STAGE VAPORIZER TO CONVERT TO SUITABLE FUEL FOR FACILITY.

INTERVIEW/CONTACT FORM

Client: NAVFAC MID-ATLANTIC

Job: ECP - Sugar Grove, WV

Site Name: FIRE STATION

Evaluator: Jo. / W.H

Date/Time: 11/19/13

Persons Contacted: JOSH CRAWFORD

Questions:

What are the buildings on the site? What activities are conducted at the site?

What is the energy use/supply of the site? What are the water and sewage systems of the site?

What equipment is used on the site?

Do you have any knowledge of hazardous substances/waste which have been on the site, released on site, or potential contamination on or near the site? Are there any drum storage areas?

Are there any significant concerns with the area or previously raised concerns of the area?

o DRAINS AT FIRE STATION DRAIN TO

Notes: OWS - OIL IS PUMPED OUT

o BIO-POND BEHIND FIRE STATION

o UNDERGROUND RAIN WATER TANK

o CAR WASH INFO - NOT KNOWN

o RAIN WATER FROM BACK OF ROOF LEADS TO CISTERN,
MAX level is 8.5 ft, excess
diverts to pond.

Front of roof drains to bio retention wet front of BLDG.

Bob H.

BLDG 22 - PLUMBERS SHOP

BLDG 65 - FORMER HAZ LOCKER, NO LONGER IN USE (EMPTY)

11/19/13

MR. MOATS

DRY CHEM (CHLORINE) USED AT POOL NEXT
TO NEX.

CHEMICALS ALSO AT ENDLESS POOL.

11/21/13 FROM PAINTER
PAINT LOCKER INSIDE DW BLDG - MOSTLY LATEX,
SOME OIL-BASED PAINTS. AREA USED TO BE USED AS A VENTED
PAINT BOILER

INTERVIEW/CONTACT FORM

Client: NAVFAC MID-ATLANTIC

Job: ECP – Sugar Grove, WV

Site Name: FIRE STATION

Evaluator: J. / W.A.

Date/Time: 11/19/13

Persons Contacted: JOHNNY
SIMPSON ASST CHIEF

Questions: 304-249-6396

What are the buildings on the site? What activities are conducted at the site?

What is the energy use/supply of the site? What are the water and sewage systems of the site?

What equipment is used on the site?

Do you have any knowledge of hazardous substances/waste which have been on the site, released on site, or potential contamination on or near the site? Are there any drum storage areas?

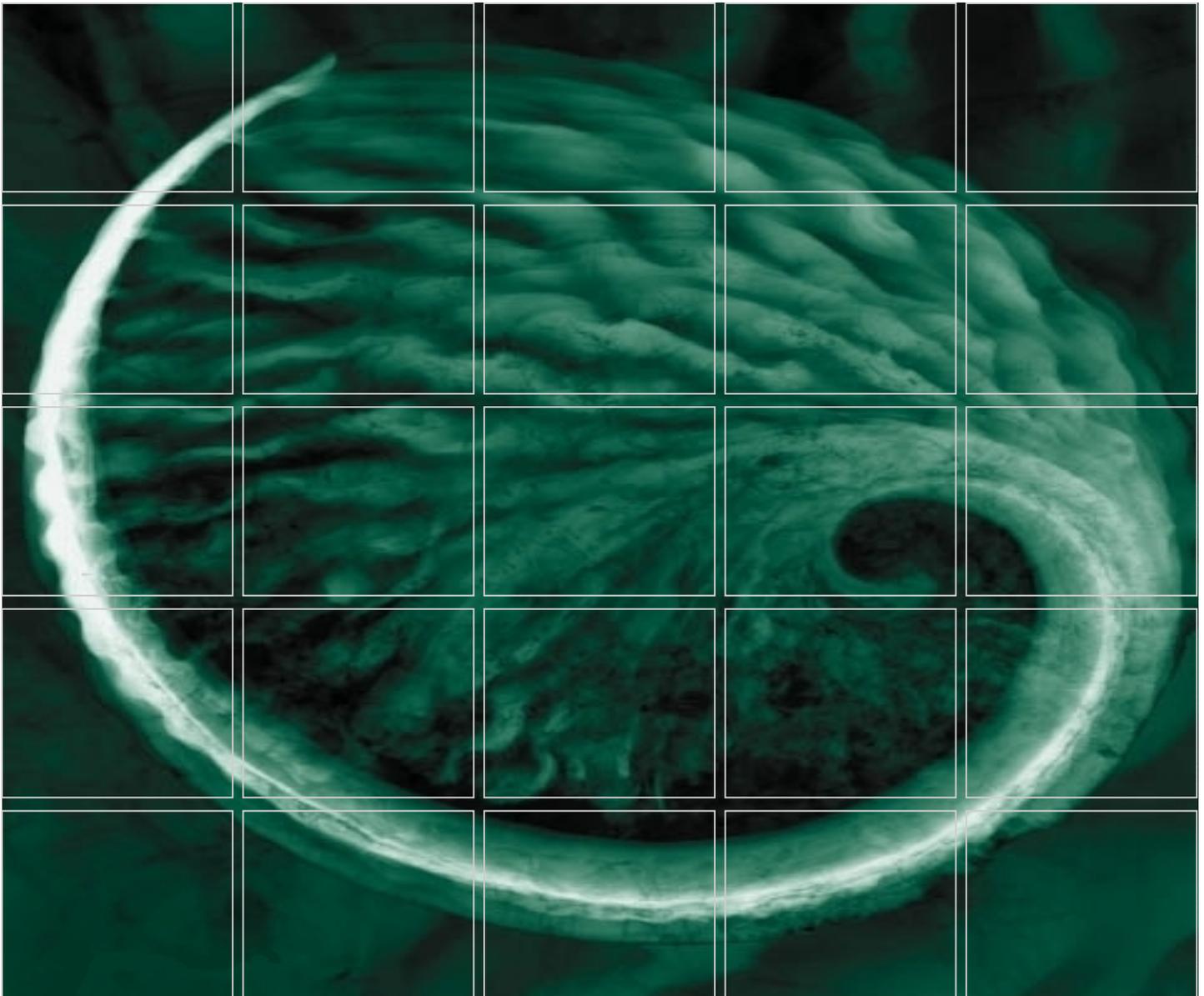
Are there any significant concerns with the area or previously raised concerns of the area?

FROM CONVERSATION WITH ASST CHIEF:

Notes: CONTACT:

- JOSH CRAWFORD AT PW - INFO ON DRAINS IN BAYS
MR. CRAWFORD WILL HAVE INFO ON THIS BLDG.
- EST. 10,000 GAL RAIN WATER UST - USED FOR STORAGE
- NO BULK AFFF STORAGE AT FIRE STATION. ALL MATERIALS STORED ON THE TRUCKS.
- FLAMMABLE VOLKERZ OUTSIDE → GASOLINE, OILS, DIESEL CANS
- ABOVE GROUND DIESEL TANK BEHIND BLDG FOR BACK UP POWER GENERATION.

Appendix G
ERM Asbestos Containing Material Report



Final Asbestos Survey Report NIOC Sugar Grove Base

Sugar Grove, West Virginia

Naval Facilities Engineering Command Mid-Atlantic
Division

Contract No. N62470-10-D-3000

Contract Task Order WE05

ERM Project No. 0219688

February 2014

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Final Asbestos Survey Report NIOC Sugar Grove Base

Sugar Grove, West Virginia

Naval Facilities Engineering Command Mid-Atlantic Division
Contract No. N62470-10-D-3000
Contract Task Order WE05



Spencer Reynolds
WV Inspector & Supervisor License
No. AI007085



Daniel Smaroff, EIT
Sr. Project Manager



David L. Carpenter, P.E., LRS
Partner

ERM Project No. 0219688
February 2014

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LIST OF ACROYNMS

ACM	Asbestos Containing Material
AHERA	Asbestos Hazard Emergency Response Act
ASHARA	Asbestos School Hazard Abatement Reauthorization Act
Baker	Michael Baker Jr. Inc.
ECP	Environmental Condition of Property
EPA	Environmental Protection Agency
ERM	Environmental Resources Management, Inc.
INFADS	Internet Naval Facilities Assets Data Store
NESHAP	National Emission Standards for Hazardous Air Pollutants
NIOC	Naval Information Operations Command
OSHA	Occupational Health and Safety Administration
PLM	Polarized Light Microscopy Method
PC	Polarized Light Microscopy Point Count Method
RACM	Regulated Asbestos Containing Material's
TSCA	Toxic Substance Control Act

EXECUTIVE SUMMARY

Environmental Resources Management, Inc. (ERM) of Charleston, West Virginia has been subcontracted by Michael Baker Jr. Inc. (Baker), to conduct the asbestos containing material (ACM) surveys at Naval Information Operations Command (NIOC) Sugar Grove as a component of the Environmental Condition of Property (ECP).

Baker, under contract with Naval Facilities Engineering Command (NAVFAC) Mid-Atlantic (Contract N62470-10-D-3000, Contract Delivery Order WE05), is tasked to prepare the ECP for the disposal of the NIOC Sugar Grove, Sugar Grove, West Virginia. The facility is composed of various administration, maintenance, warehousing, cabins, civilian Family Housing units and support buildings at NIOC Sugar Grove. The ECP will identify areas of environmental concern and determine the potential presence of hazardous/toxic wastes or materials within a property leased or transferred by the Navy.

The ACM surveys involved ten (10) selected buildings. Eight of the ten building were selected from the Internet Naval Facilities Assets Data Store (INFADS) list based on the construction date of 1986 or earlier. Two buildings (Buildings 26 and 70) were identified by Site personnel as being constructed prior to 1986 that were not included on INFADS. Building 26 is the original farmhouse constructed in 1905 and currently used as a youth center. The INFADS year of construction was incorrect. Building 70 is a racquetball court that began construction prior to 1986. The ten surveyed buildings are listed in Table 1 and include approximately 69,184 square feet of building area. A map depicting the approximate location of the subject buildings and Figures 1-17 depicting the sample location plans for the buildings are included in Appendix B.

Table 1 - Summary of Buildings

Building Description	Building Number	Location	Area (ft²)	Year of Construction
PW Maint Shop/ Gym/ Bowling	20	Hedrick Dr.	26,999	1961
Plumbing Maint Shop	22	Hedrick Dr.	2,750	1959
Pump House/Filter/Chlorine	25	Hedrick Dr.	330	1961
Original Farmhouse / Youth Center	26	Eckard St.	2,460	1905
Emergency Vehicle Garage	29	Hedrick Dr.	1,344	1959
NEX/ Commissary/ Bath house	30	Hedrick Dr.	6,522	1974

Building Description	Building Number	Location	Area (ft²)	Year of Construction
Administration Building	63	Hedrick Dr.	20,040	1968
Equipment Shed	66	Hedrick Dr.	525	1975
Old Fire Station	68	Hedrick Dr.	6,996	1986
Racquetball Court	70	Hedrick Dr.	1,218	1987

Mr. Bob Hammer, Facilities Manager, of the NIOC Sugar Grove provided ERM with access to the facility buildings. The purpose of the asbestos survey was to inspect the aforementioned buildings for the presence of suspected ACM, including a description, an assessment of condition, friability, and estimated quantity. Friable building material is material, when dry, may be crumbled, pulverized, or reduced to powder by hand pressure, and includes previously non-friable material that becomes damaged to the extent that it meets the criteria as a friable material. National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR 61(Subpart M) regulatory requirements identify that the owner of any institutional, commercial, public, industrial, or residential structure, installation, or building thoroughly inspect the affected facility or part of the facility where the demolition or renovation operation will occur for the presence of asbestos. It is prudent to identify the presence/absence of ACM and Regulated ACM (RACM) in buildings where ownership will be transferred in order to disclose potential abatement requirements if the owner would need to demolish or renovate the building(s). The following provides an overview of the NESHAPS definitions of ACM materials:

Asbestos-containing material (ACM) means any material or product which contains more than 1 percent asbestos.

Friable asbestos material means any material containing more than 1 percent asbestos as determined using the method specified in appendix E, subpart E, 40 CFR part 763, section 1, Polarized Light Microscopy (PLM), that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. If the asbestos content is less than 10 percent as determined by a method other than point counting by PLM, verify the asbestos content by point counting using PLM.

Category I nonfriable asbestos-containing material (ACM) means asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than 1 percent asbestos as determined using the method specified in appendix E, subpart E, 40 CFR part 763, section 1, Polarized Light Microscopy. Category I ACM is pliable (not brittle), breaks by tearing rather than fracturing, and does not easily release asbestos fibers upon breaking.

Category II nonfriable ACM means any material, excluding Category I nonfriable ACM, containing more than 1 percent asbestos as determined using the methods specified in appendix E, subpart E, 40 CFR part 763, section 1, Polarized Light Microscopy that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure. Category II ACM is not pliable, breaks by fracturing rather than tearing, and does release some asbestos fiber release upon breaking.

Regulated asbestos-containing material (RACM) means (a) Friable asbestos material, (b) Category I nonfriable ACM that has become friable, (c) Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (d) Category II nonfriable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations regulated by this subpart.

Subsequently, the ACM samples were analyzed to determine their asbestos content and comments upon the presences and implications of such materials are documented herein. It is noteworthy to mention that roofing materials were excluded from the survey and a crawl space in the basement of Building 26 was inaccessible.

Mr. Spencer Reynolds, West Virginia Licensed Asbestos Inspector and Supervisor License No. AI007085 conducted the ACM surveys from November 12 through 15, 2013 with the assistance of Mr. Grant Morgan both with ERM.

ERM collected and submitted 264 bulk samples of materials suspected of containing asbestos for analysis using Polarized Light Microscopy (PLM) in accordance with the Asbestos Hazard Emergency Response Act (AHERA) (USEPA Method 600-R-116, July 1993). ACM is defined by the Environmental Protection Agency (EPA) as a material that contains asbestos if at least one sample (per homogeneous material) contains greater than 1% asbestos. A Homogeneous Sampling Area (HSA) is a building material that appears to be uniform in color and texture.

The results of the PLM and PC analysis identified that seven HSA's (20 bulk samples) are ACM's including the following:

Table 2 Summary of Findings

<i>Sample No.</i>	<i>HSA No.</i>	<i>Material Description</i>	<i>Location</i>	<i>Condition (G/E/P)</i>	<i>Friable (Y/N)</i>	<i>Asbestos Content</i>
<i>Building 20 - PW Maintenance Shop/ Gym/ Bowling</i>						
20/ERM/FT/01 20/ERM/FT/02 20/ERM/FT/03	19	Grey & Brown Floor Tile & Mastic	Room 110	G	N	3-4% Chrysotile
20/ERM/FT/04 20/ERM/FT/05 20/ERM/FT/06	20	Yellow Floor Tile & Mastic	Room 110	G	N	2-5% Chrysotile
20/ERM/FT/13 20/ERM/FT/14 20/ERM/FT/15	27	Brown Floor Tile Mastic Not Detected	Bowling Alley	G	N	6% Chrysotile
<i>Building 26 - Original Farmhouse</i>						
26/ERM/LN/01 26/ERM/LN/02 26/ERM/LN/03	40	Beige Linoleum Floor Covering	Basement	F	N	10% Chrysotile
<i>Building 63 - Administration Building</i>						
63/ERM/FT/01 63/ERM/FT/02 63/ERM/FT/03	52	Mastic to the White Floor Tile with Red and Blue Streaks	1 st & 2 nd Floor Stairs	G	N	10% Chrysotile
63/ERM/FT/19 63/ERM/FT/20	81	Grey Floor Tile (2 nd Floor Tile Layer)	2 nd Floor Eastern Hallway	G	N	1.6% Chrysotile
<i>Building 70 - Racquetball Court</i>						
70/ERM/FT/01 70/ERM/FT/02 70/ERM/FT/03	38	Grey & White Floor Tile	1 st & 2 nd Floor Vestibule	G	N	3.5% Chrysotile

If the ACM is to remain intact and not be removed, then an Operation and Maintenance Plan should be prepared or existing plans should be updated with new information to ensure the ACM is properly managed. Prior to demolition/renovation, these materials will need to be removed by appropriately licensed and trained asbestos professionals in accordance with applicable regulations including: Occupational Health and Safety Administration (OSHA) (29 CFR 1926.1101), EPA NESHAPS (40 CFR Part 61), Toxic Substance Control Act (TSCA) Title II AHERA/ASHARA (40 CFR Part 763), and West Virginia regulations.

1.0 INTRODUCTION

1.1 PURPOSE

The Navy intends to dispose the lower base complex of Naval Information Operations Command (NIOC) Sugar Grove, which includes the disposal of approximately 45 facility buildings. The Navy could be held responsible for hazardous and toxic wastes or substances remaining on properties leased or transferred by the Navy. Environmental Resource Management, Inc. (ERM) of Charleston, West Virginia has been subcontracted by Michael Baker Jr. Inc. (Baker), to conduct the asbestos containing material (ACM) surveys at NIOC Sugar Grove as a component of the ECP. Baker, under contract with NAVFAC Mid-Atlantic (Contract N62470-10-D-3000 Contract Delivery Order WE05), is tasked to prepare an Environmental Condition of Property (ECP) Report for the disposal of the NIOC Sugar Grove, Sugar Grove, West Virginia.

The purpose of the asbestos survey was to determine the potential presence of ACM within the facility buildings located at the lower base complex of NIOC Sugar Grove. Buildings were chosen for the survey based upon age of construction and inspected for the presence of materials suspected of containing asbestos, including an assessment of condition, friability, and estimated quantity. Samples of suspect ACM were collected to determine asbestos content and to comment upon the implications of such materials.

1.2 FACILITY DESCRIPTION

NIOC Sugar Grove encompasses approximately 118 acres with various administration, maintenance, warehousing, cabins, civilian family housing units and support buildings. The Navy intends to dispose of the lower base complex of NIOC Sugar Grove, which includes the disposal of approximately forty-five (45) facility buildings. The ACM survey was limited to ten (10) buildings constructed prior to 1986. Eight of the ten building were selected from the INFADS list based on the construction date of 1986 or earlier. Two buildings (Buildings 26 and 70) were identified by Site personnel as being constructed prior to 1986 that were not included on INFADS. Building 26 is the original farmhouse constructed in 1905 currently used as a youth center. The INFADS year of construction was incorrect. Building 70 is a racquetball court that began construction prior to 1986. The ten buildings identified include

approximately 69,184 square feet of area and are listed in Table 2 below. A map depicting the approximate location of the subject buildings and Figures 1-17 depicting the sample location plans for the buildings are included in Appendix B.

Table 3 – Summary of Buildings

Building Description	Building Number	Location	Area (ft²)	Year of Construction
PW Maint Shop/ Gym/ Bowling	20	Hedrick Dr.	26,999	1961
Plumbing Maint Shop	22	Hedrick Dr.	2,750	1959
Pump House/Filter/Chlorine	25	Hedrick Dr.	330	1961
Original Farmhouse / Youth Center	26	Eckard St.	2,460	1905
Emergency Vehicle Garage	29	Hedrick Dr.	1,344	1959
NEX/ Commissary/ Bath house	30	Hedrick Dr.	6,522	1974
Administration Building	63	Hedrick Dr.	20,040	1968
Equipment Shed	66	Hedrick Dr.	525	1975
Old Fire Station	68	Hedrick Dr.	6,996	1986
Racquetball Court	70	Hedrick Dr.	1,218	1987

1.3

PERSONNEL

Mr. Bob Hammer, Facilities Manager, of the NIOC Sugar Grove provided ERM with access to the facility buildings. Mr. Spencer Reynolds, West Virginia Licensed Asbestos Inspector and Supervisor License No. AI007085 conducted the survey on November 12 through 15, 2013 with the assistance of Mr. Grant Morgan of ERM. Documentation of licensure and certification for Mr. Reynolds is included in Appendix D.

2.0 SCOPE OF WORK

2.1 INSPECTION

The survey consisted of the inspection and sampling of friable and non-friable suspect ACM. ERM inspected the identified buildings for materials such as floor tile, mastic, cove base, rolled floor covering, ceiling tile, plaster, caulking, thermal systems insulation (TSI), pipe insulation, building insulation, and glazing.

Each distinct suspect ACM building material was defined as a homogeneous sampling area (HSA) based on material type, age, color or other construction characteristics. ERM also assessed the condition and friability of each material. In addition, ERM has provided an estimate of the quantity of materials that tested positive for ACM. It should be noted that the estimates of asbestos material in the buildings was based on material that was readily visible. During demolition or renovation activities, additional asbestos material may be encountered inside walls and above solid ceilings.

Some portions of the inspection were conducted where no hardwired lighting was present. Therefore these areas were inspected with use of flashlights and limited daylight where windows were present.

2.2 SAMPLING

During the survey, ERM collected at least three samples for each HSA identified with the exception of HSA's 1 and 81. HSA 1 had limited material (window glazing) and only two samples were collected so as not to compromise the windows integrity. Samples for HSA 81 taken from Administration Building Hallway consisted of a two layered floor tile. The third sample was inadvertently missed during the sampling; however, an additional sample was not required since the second floor tile layer contained greater than 1% asbestos. ERM collected and submitted 264 bulk samples of materials suspected of containing asbestos for analysis using Polarized Light Microscopy (PLM) in accordance with the Asbestos Hazard Emergency Response Act (AHERA) (USEPA Method 600-R-116, July 1993). Destructive sampling was not conducted as part of the survey and roofing materials were not sampled as part of this assessment.

Table 4 in Appendix A summarizes the materials sampled by ERM and their respective locations, and Figures 1 through 17 presents the sample point locations and sample classification (i.e. positive/negative ACM).

2.3

ANALYSIS

ERM submitted 264 samples collected during the survey to EMSL Analytical, Inc. (ESML) at 200 Route 130 North Cinnaminson, New Jersey. EMSL is an AIHA accredited laboratory that successfully participates in the National Institute of Standards & Technology's (NIST) National Voluntary Laboratory Accreditation Program (NVLAP) for asbestos bulk sample analysis. Laboratory licenses and certifications have been provided in Appendix D. The following provides an overview of the NESHAPS definitions of ACM materials:

Asbestos-containing material (ACM) means any material or product which contains more than 1 percent asbestos.

Friable asbestos material means any material containing more than 1 percent asbestos as determined using the method specified in appendix E, subpart E, 40 CFR part 763, section 1, Polarized Light Microscopy (PLM), that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. If the asbestos content is less than 10 percent as determined by a method other than point counting by PLM, verify the asbestos content by point counting using PLM.

Category I nonfriable asbestos-containing material (ACM) means asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than 1 percent asbestos as determined using the method specified in appendix E, subpart E, 40 CFR part 763, section 1, Polarized Light Microscopy. Category I ACM is pliable (not brittle), breaks by tearing rather than fracturing, and does not easily release asbestos fibers upon breaking.

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Regulated asbestos-containing material (RACM) means (a) Friable asbestos material, (b) Category I nonfriable ACM that has become friable,

(c) Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (d) Category II nonfriable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations regulated by this subpart.

ESML performed analysis using PLM in accordance with the AHERA (USEPA Method 600-R-116, July 1993) with a reporting limit of greater than 1% asbestos. Each bulk sample is analyzed by layers, for instance floor tile and mastic are analyzed as separate materials collected within a bulk sample. The material separation is completed in the laboratory to ensure false-positive or false-negative results are not produced by incorporating two or more materials into one PLM analysis. The positive-stop method was employed by EMSL for the PLM analysis. Once a bulk sample within an HSA was determined to have greater than 1% asbestos by the PLM method, the remainder of the HSA samples were "Not Analyzed" as reported in the Laboratory results provided in Appendix A, Table 4 and Appendix C. Table 5 presents the eight HSA's (23 bulk samples) that the PLM analytical data identified as containing greater than 1% asbestos:

Table 5 Summary of PLM Analytical Findings

Sample No.	HSA No.	Material Description	Location	Condition (G/F/P)	Friable (Y/N)	Asbestos Content
Building 20 - PW Maintenance Shop/ Gym/ Bowling						
20/ERM/FT/01	19	Grey & Brown Floor Tile & Mastic	Room 110	G	N	3-4% Chrysotile
20/ERM/FT/02						
20/ERM/FT/03						
20/ERM/FT/04	20	Yellow Floor Tile & Mastic	Room 110	G	N	2-5% Chrysotile
20/ERM/FT/05						
20/ERM/FT/06						
20/ERM/FT/13	27	Brown Floor Tile Mastic Not Detected	Bowling Alley	G	N	6% Chrysotile
20/ERM/FT/14						
20/ERM/FT/15						
20/ERM/FT/19	31	Tan Floor Tile; Mastic not detected	Room 107	G	N	2% Chrysotile
20/ERM/FT/20						
20/ERM/FT/21						
Building 26 - Original Farmhouse						
26/ERM/LN/01	40	Beige Linoleum Floor Covering	Basement	F	N	10% Chrysotile
26/ERM/LN/02						
26/ERM/LN/03						
Building 63 - Administration Building						
63/ERM/FT/01	52	Mastic to the White Floor Tile with Red and Blue Streaks	1 st & 2 nd Floor Stairs	G	N	10% Chrysotile
63/ERM/FT/02						
63/ERM/FT/03						
63/ERM/FT/19	81	Grey Floor Tile (2 nd Floor Tile Layer)	2 nd Floor Eastern Hallway	G	N	2% Chrysotile
63/ERM/FT/20						
Building 70 - Racquetball Court						
70/ERM/FT/01	38	Mastic for the Grey & White Floor Tile	1 st & 2 nd Floor Vestibule	G	N	2-3% Chrysotile
70/ERM/FT/02						
70/ERM/FT/03						

“G/F/P” indicates the materials condition as “good”, “fair” or “poor”

“Y/N” indicates “yes” or “no”

“s.f.” indicates “square feet”

HSA’s consisting of samples with 2% to 3% asbestos were subsequently analyzed using PLM Point Count (PC) method with a 0.25% asbestos reporting limit. The PC method is a more precise procedure for identifying the amount of asbestos present in a bulk sample. Asbestos quantitation performed by the PC method provides a determination of the area percent asbestos. A total of 400 points superimposed on either asbestos fibers or non-asbestos matrix material must be counted over at least eight different preparations of representative subsamples. The positive-stop procedure was not utilized for the PC method in order to verify the asbestos content of each bulk sample within the HSA superseding the results of the PLM analysis.

Four of the above-mentioned HSA’s (11 bulk samples) were analyzed with the PC method including the following:

- HSA 19 – Building 20 Room 110 – Grey and Brown Floor Tile and Mastic;
- HSA 31 – Building 20 Room 107 and Gym Hallway – Tan Floor Tile;

- HSA 38 – Building 70 Racquetball Court – Mastic for the White and Grey Floor Tile; and
- HSA 81 – Building 63 Second Floor Far East Hall – Grey Floor Tile.

The PC analysis determined that three of the four above mentioned HSA's remained greater than 1% asbestos; however, one HSA contained less than 1% asbestos. Since the PC method is a more precise analysis method for determining the asbestos content of a bulk samples, the HSA listed below is not an ACM:

- HSA 31 – Building 20 Room 107 and Gym Hallway – Tan Floor Tile.

The results of the PLM and PC analysis identified that seven HSA's (20 bulk samples) are ACM's having greater than 1% asbestos including the following:

- HSA 19 – Building 20 Room 110 – Grey and Brown Floor Tile and Mastic;
- HSA 20 – Building 20 Room 110 – Yellow Floor Tile and Mastic;
- HSA 27 – Building 20 Bowling Alley – Brown Floor Tile; Mastic not detected;
- HSA 38 – Building 70 Racquetball Court – Mastic for the White and Grey Floor Tile;
- HSA 40 – Building 26 Basement – Beige Linoleum Floor Covering;
- HSA 52 – Building 63 First Floor West Stairwell / Chapel Stairs – Mastic for the White Floor Tile with Blue Streaks; and
- HSA 81 – Building 63 Second Floor Far East Hall – Grey Floor Tile.

A copy of the laboratory analytical results is included in Appendix C.

3.0

FINDINGS

The ACM sampling conducted within Buildings 22, 25, 29, 30, 66 and 68 did not identify the presence of ACM materials within the structures.

The ACM sampling conducted within Buildings 20, 26, 63, and 70 did identify the presence of ACM materials within the structures. Table 6 presents a summary of the materials that tested positive for asbestos. The materials identified as having greater than 1% asbestos are all Category 1 non-friable building materials. Locations of the confirmed positive ACM samples as well as the negative ACM samples are presented on Figures 1 through 17 in Appendix B.

Table 6 Summary of PLM and PC Analysis Findings and Quantities

Sample No.	HSA No.	Material Description	Location	Condition (G/F/P)	Friable (Y/N)	Asbestos Content	Estimated Quantity
Building 20 - PW Maintenance Shop/ Gym/ Bowling							
20/ERM/FT/01	19	Grey & Brown	Room 110	G	N	3-4% Chrysotile	340 s.f.
20/ERM/FT/02		Floor Tile & Mastic					
20/ERM/FT/03							
20/ERM/FT/04	20	Yellow Floor Tile	Room 110	G	N	2-5% Chrysotile	30 s.f.
20/ERM/FT/05		& Mastic					
20/ERM/FT/06							
20/ERM/FT/13	27	Brown Floor Tile	Bowling Alley	G	N	6% Chrysotile	630 s.f.
20/ERM/FT/14		Mastic Not					
20/ERM/FT/15		Detected					
Building 26 - Original Farmhouse							
26/ERM/LN/01	40	Beige Linoleum	Basement	F	N	10% Chrysotile	100 s.f.
26/ERM/LN/02		Floor Covering					
26/ERM/LN/03							
Building 63 - Administration Building							
63/ERM/FT/01	52	Mastic to the White	1st & 2nd Floor	G	N	10% Chrysotile	150 s.f.
63/ERM/FT/02		Floor Tile with Red		Stairs			
63/ERM/FT/03		and Blue Streaks					
63/ERM/FT/19	81	Grey Floor Tile	2nd Floor Eastern	G	N	1.6% Chrysotile	1,270 s.f.
63/ERM/FT/20		(2nd Floor Tile Layer)		Hallway			
Building 70 - Racquetball Court							
70/ERM/FT/01	38	Grey & White	1st & 2nd Floor	G	N	3.5% Chrysotile	275 s.f.
70/ERM/FT/02		Floor Tile		Vestibule			
70/ERM/FT/03							

"G/F/P" indicates the materials condition as "good", "fair" or "poor"

"Y/N" indicates "yes" or "no"

"s.f." indicates "square feet"

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 CONCLUSIONS

Based on ERM's inspection and the PLM and PC analytical data the following materials contain greater than 1% asbestos:

4.2 RECOMMENDATIONS

4.2.1 General Recommendations

If the ACM's are to remain intact and not be removed, then an Operation and Maintenance Plan should be prepared or existing plans should be updated with new information to ensure that the ACM is properly managed. Prior to demolition/renovation, these materials will need to be removed by appropriately licensed and trained asbestos professionals in accordance with applicable federal regulations including OSHA (29 CFR 1926.1101), EPA NESHAPS (40 CFR Part 61), TSCA Title II AHERA/ASHARA (40 CFR Part 763), and West Virginia regulations.

5.0 *LIMITATIONS*

5.1 *LIMITATIONS*

A combination of visual inspection of repetitive structures and confirmatory sampling, as required, was undertaken. However, it was not reasonably practicable to sample every item. ERM collected bulk samples of suspect ACM at points that appeared to be representative locations. Consequently, some items not found to contain asbestos may comprise asbestos materials outside the immediate location of the sample point.

It may not be possible to expose the entire fabric of the building and its contents. The presence of additional potential ACM may be obscured since the asbestos building survey was limited to strictly non-destructive sampling and investigations. Examples of this could include: hidden voids/risers, bricked up voids/risers, fuses, switchgears, live electrical apparatus, gaskets for pipes, etc. Although ERM has provided an accurate amount of asbestos materials in the buildings, it is common to encounter additional asbestos materials inside walls and above solid ceilings during demolition.

In addition, portions of the inspection were conducted with little or no lighting. As a result, these portions of the inspection were conducted with use of flashlights and daylight (through windows). No building materials aside from the roofing systems and the crawl space in the basement of Building 26 are assumed to contain asbestos. These materials/areas were not sampled due to concerns with compromising the roofing systems integrity or requiring confined space entry and have therefore been assumed by ERM to contain asbestos. Additionally, the Asbestos Survey and Assessment NSGA Sugar Grove, Sugar Grove, WV dated August 1998 identified that the Building 25 built-up roof and the roof flashing on Buildings 30 and 63 contained ACM.

5.2 *SPECIAL TERMS AND CONDITIONS*

ERM gathered and/or prepared this report and all field data, notes, and laboratory test data in accordance with the agreed-upon scope of work and generally accepted engineering and scientific practices in effect at the time of ERM's investigation of the site.

The statements, conclusions and opinions contained in this report only are intended to give approximations of the environmental conditions of the site limited to the particular environmental issues actually targeted by ERM's investigation, as agreed upon by the Navy, Baker, and ERM.

5.3 *USER RELIANCE*

This report was prepared for the sole and exclusive benefit and use of the Navy. Notwithstanding delivery of this report by ERM or client to any third party, any copy of this report provided to a third party is provided for informational purposes only without the right to rely. Reliance on this report by any other person(s) or entity(ies) is strictly at their own risk, and ERM makes no warranties to person(s) or entity(ies), other than client who use the information provided in this report. If other person(s) or entity(ies) wish to rely upon this report (i.e., lenders, mortgagers, insurance companies, or other parties to a transaction), ERM will require that such parties agree in writing to ERM's contract terms.

Appendix A
Table 4

NIOC Sugar Grove

Building No.	HSA No.	Sample Number	Sample Locations	Material Description	Material Location	Condition (G/F/P)	Friable (Y/N)	ACM (Y/N) (PLM)	ACM (Y/N) (Point Count)
25	1	25/ERM/WG/01	Bldg 25 only window	Window Glaze	Pump House/Filter/Chlorine	F	N	Not Detected	N/A
		25/ERM/WG/02	Bldg 25 only window	Window Glaze	Pump House/Filter/Chlorine	F	N	Not Detected	N/A
22	2	22/ERM/B1/01	Entire interior of building/ 2nd floor	Building Insulation	Plumbing Maint Shop	G	Y	Not Detected	N/A
		22/ERM/B1/02	Entire interior of building/ 2nd floor	Building Insulation	Plumbing Maint Shop	G	Y	Not Detected	N/A
		22/ERM/B1/03	Entire interior of building/ 2nd floor	Building Insulation	Plumbing Maint Shop	G	Y	Not Detected	N/A
	3	22/ERM/TSI/01	Middle of North wall	White TSI; Wrap and Insulation	Plumbing Maint Shop	G	Y	Not Detected	N/A
		22/ERM/TSI/02	Middle of North wall	White TSI	Plumbing Maint Shop	G	Y	Not Detected	N/A
		22/ERM/TSI/03	Middle of North wall	White TSI; Wrap and Insulation	Plumbing Maint Shop	G	Y	Not Detected	N/A
	4	22/ERM/TSI/04	Middle of North wall	Grey TSI; Wrap and Insulation	Plumbing Maint Shop	G	Y	Not Detected	N/A
		22/ERM/TSI/05	Middle of North wall	Grey TSI; Wrap and Insulation	Plumbing Maint Shop	G	Y	Not Detected	N/A
22/ERM/TSI/06		Middle of North wall	Grey TSI; Wrap and Insulation	Plumbing Maint Shop	G	Y	Not Detected	N/A	

NIOC Sugar Grove

<i>Building No.</i>	<i>HSA No.</i>	<i>Sample Number</i>	<i>Sample Locations</i>	<i>Material Description</i>	<i>Material Location</i>	<i>Condition (G/F/P)</i>	<i>Friable (Y/N)</i>	<i>ACM (Y/N) (PLM)</i>	<i>ACM (Y/N) (Point Count)</i>
29	5	29/ERM/BI/01	Middle of South wall	Silver building insulation/ entire West; Wrap and Insulation	Emergency Vehicle Garage	G	Y	Not Detected	N/A
		29/ERM/BI/02	Middle of South wall	Silver building insulation/ entire West	Emergency Vehicle Garage	G	Y	Not Detected	N/A
		29/ERM/BI/03	Middle of South wall	Silver building insulation/ entire West; Wrap and Insulation	Emergency Vehicle Garage	G	Y	Not Detected	N/A
	6	29/ERM/BI/04	Middle of East wall	White building insulation/ entire East	Emergency Vehicle Garage	G	Y	Not Detected	N/A
		29/ERM/BI/05	Middle of North wall	White building insulation/ entire East	Emergency Vehicle Garage	G	Y	Not Detected	N/A
		29/ERM/BI/06	Middle of North wall	White building insulation/ entire East; Wrap and Insulation	Emergency Vehicle Garage	G	Y	Not Detected	N/A
68	7	68/ERM/TSI/01	Middle office on Eastern side/ only door on left	White TSI/ throughout building; Wrap and Insulation	Fire Station	G	Y	Not Detected	N/A
		68/ERM/TSI/02	Middle office on Eastern side/ only door on left	White TSI/ throughout building	Fire Station	G	Y	Not Detected	N/A
		68/ERM/TSI/03	Hallway of main entrance	White TSI/ throughout building; Wrap and Insulation	Fire Station	G	Y	Not Detected	N/A

NIOC Sugar Grove

Building No.	HSA No.	Sample Number	Sample Locations	Material	Material	Condition	Friable	ACM	ACM
				Description	Location	(G/F/P)	(Y/N)	(Y/N) (PLM)	(Y/N) (Point Count)
30	8	30/ERM/CB/01	Bathroom/commissary	Grey covebase and mastic	NEX/ Commissary/ Bath house	G	N	Not Detected	N/A
		30/ERM/CB/02	Bathroom/commissary	Grey covebase and mastic	NEX/ Commissary/ Bath house	G	N	Not Detected	N/A
		30/ERM/CB/03	Hallway/commissary	Grey covebase and mastic	NEX/ Commissary/ Bath house	G	N	Not Detected	N/A
		30/ERM/CB/04	Breakroom/commissary	Grey covebase and mastic	NEX/ Commissary/ Bath house	G	N	Not Detected	N/A
		30/ERM/CB/05	Breakroom/commissary	Grey covebase and mastic	NEX/ Commissary/ Bath house	G	N	Not Detected	N/A
	9	30/ERM/CB/06	Mens showers/ bath house	White covebase on showers and mastic	NEX/ Commissary/ Bath house	G	N	Not Detected	N/A
		30/ERM/CB/07	Mens showers/ bath house	White covebase on showers and mastic	NEX/ Commissary/ Bath house	G	N	Not Detected	N/A
		30/ERM/CB/08	Womens showers/ bath house	white covebase on showers and mastic	NEX/ Commissary/ Bath house	G	N	Not Detected	N/A
	10	30/ERM/CB/09	South portion on NEX building	Brown covebase and mastic	NEX/ Commissary/ Bath house	G	N	Not Detected	N/A
		30/ERM/CB/10	North wall of NEX building	Brown covebase and mastic	NEX/ Commissary/ Bath house	G	N	Not Detected	N/A
		30/ERM/CB/11	Southwest wall of NEX building	Brown covebase and mastic	NEX/ Commissary/ Bath house	G	N	Not Detected	N/A
11	30/ERM/FT/01	Breakroom/commissary	Green flooring tile and mastic	NEX/ Commissary/ Bath house	G	N	Not Detected Insufficient Material (for mastic)	N/A	
	30/ERM/FT/02	Breakroom/commissary	Green flooring tile and mastic	NEX/ Commissary/ Bath house	G	N	Not Detected	N/A	
	30/ERM/FT/03	Breakroom/commissary	Green flooring tile and mastic	NEX/ Commissary/ Bath house	G	N	Not Detected	N/A	

NIOC Sugar Grove

Building No.	HSA No.	Sample Number	Sample Locations	Material Description	Material Location	Condition (G/F/P)	Friable (Y/N)	ACM (Y/N) (PLM)	ACM (Y/N) (Point Count)
30	12	30/ERM/FT/04	Hallway/commissary	Small grey flooring and mastic	NEX/ Commissary/ Bath house	G	N	Not Detected Insufficient Material (for mastic)	N/A
		30/ERM/FT/05	Commissary/ commissary	Small grey flooring and mastic	NEX/ Commissary/ Bath house	G	N	Not Detected	N/A
		30/ERM/FT/06	Commissary/ commissary	Small grey flooring and mastic	NEX/ Commissary/ Bath house	G	N	Not Detected	N/A
	13	30/ERM/FT/07	Breakroom/ commissary	Large grey flooring and mastic	NEX/ Commissary/ Bath house	G	N	Not Detected	N/A
		30/ERM/FT/08	Office/commissary	Large grey flooring and mastic	NEX/ Commissary/ Bath house	G	N	Not Detected Insufficient Material (for mastic)	N/A
		30/ERM/FT/09	Office/commissary	Large grey flooring and mastic	NEX/ Commissary/ Bath house	G	N	Not Detected	N/A
	14	30/ERM/TSI/01	Pumphouse South of building/ bathroom	White/yellow TSI wrap and insulation	NEX/ Commissary/ Bath house	G	Y	Not Detected	N/A
		30/ERM/TSI/02	Mens showers/ bath house	White/yellow TSI wrap and insulation	NEX/ Commissary/ Bath house	G	Y	Not Detected	N/A
		30/ERM/TSI/03	Womens showers/ bath house	White/yellow TSI wrap and insulation	NEX/ Commissary/ Bath house	G	Y	Not Detected	N/A
	15	30/ERM/CT/01	Southeast ceiling tile NEX	White ceiling tile throughout building	NEX/ Commissary/ Bath house	G	Y	Not Detected	N/A
		30/ERM/CT/02	Hallway of commenary NEX	White ceiling tile throughout building	NEX/ Commissary/ Bath house	G	Y	Not Detected	N/A
		30/ERM/CT/03	Office of commenary NEX	White ceiling tile throughout building	NEX/ Commissary/ Bath house	G	Y	Not Detected	N/A
		30/ERM/CT/04	North ceiling area NEX	White ceiling tile throughout building	NEX/ Commissary/ Bath house	G	Y	Not Detected	N/A

NIOC Sugar Grove

Building No.	HSA No.	Sample Number	Sample Locations	Material Description	Material Location	Condition (G/F/P)	Friable (Y/N)	ACM (Y/N) (PLM)	ACM (Y/N) (Point Count)
30	16	30/ERM/CT/05	South ceiling area NEX	White ceiling tile throughout building	NEX/ Commissary/ Bath house	G	Y	Not Detected	N/A
		30/ERM/CT/06	Ceiling tile in lunch room	White ceiling tile throughout building	NEX/ Commissary/ Bath house	G	Y	Not Detected	N/A
17		20/ERM/CB/01	Room 204	Grey covebase and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Detected	N/A
		20/ERM/CB/02	Entrance hallway	Grey covebase and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Detected	N/A
		20/ERM/CB/03	Room 208	Grey covebase and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Detected	N/A
18		20/ERM/CT/01	Bathroom	White ceiling tile throughout building	PW Maint Shop/ Gym/ Bowling	G	Y	Not Detected	N/A
		20/ERM/CT/02	Room 203	White ceiling tile throughout building	PW Maint Shop/ Gym/ Bowling	G	Y	Not Detected	N/A
		20/ERM/CT/03	Room 201	White ceiling tile throughout building	PW Maint Shop/ Gym/ Bowling	G	Y	Not Detected	N/A
20	19	20/ERM/FT/01	Room 110	Grey brown tile and mastic	PW Maint Shop/ Gym/ Bowling	G	N	3% Chrysotile (tile); 4% Chrysotile (mastic)	0.25% Chrysotile (mastic)
		20/ERM/FT/02	Room 110	Grey brown tile and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Analyzed	1.1% Chrysotile (mastic)
20		20/ERM/FT/03	Room 110	Grey brown tile and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Analyzed	3.0% Chrysotile (mastic)
		20/ERM/FT/04	Room 110	Yellow floor tile and mastic	PW Maint Shop/ Gym/ Bowling	G	N	5% Chrysotile (tile); 2% Chrysotile (mastic)	N/A
		20/ERM/FT/05	Room 110	Yellow floor tile and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Analyzed	N/A
		20/ERM/FT/06	Room 110	Yellow floor tile and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Analyzed	N/A

NIOC Sugar Grove

Building No.	HSA No.	Sample Number	Sample Locations	Material	Material	Condition	Friable	ACM	ACM
				Description	Location	(G/F/P)	(Y/N)	(Y/N) (PLM)	(Y/N) (Point Count)
20	21	20/ERM/CB/04	Break room	Grey covebase and mastic	PW Maint Shop/ Gym/ Bowling	v	N	Not Detected	N/A
		20/ERM/CB/05	Room 114 hallway	Grey covebase and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Detected	N/A
		20/ERM/CB/06	Room 113C	Grey covebase and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Detected	N/A
	22	20/ERM/CT/04	Room 113B	White ceiling tile	PW Maint Shop/ Gym/ Bowling	G	Y	Not Detected	N/A
		20/ERM/CT/05	Break room	White ceiling tile	PW Maint Shop/ Gym/ Bowling	G	Y	Not Detected	N/A
		20/ERM/CT/06	Room 115	White ceiling tile	PW Maint Shop/ Gym/ Bowling	G	Y	Not Detected	N/A
		20/ERM/CT/07	1st floor men's bathroom in gym	White ceiling tile	PW Maint Shop/ Gym/ Bowling	G	Y	Not Detected	N/A
	23	20/ERM/FT/07	Break room	Grey tile w/ red & blue marks and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Detected	N/A
		20/ERM/FT/08	Break room	Grey tile w/ red & blue marks and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Detected	N/A
		20/ERM/FT/09	Break room	Grey tile w/ red & blue marks and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Detected	N/A
	24	20/ERM/FT/10	Room 114 hallway	Grey tile w/ black marks and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Detected	N/A
		20/ERM/FT/11	Room 114	Grey tile w/ black marks and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Detected	N/A
		20/ERM/FT/12	Room 101	Grey tile w/ black marks and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Detected	N/A
	25	20/ERM/CB/07	Gym	Black covebase and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Detected	N/A
		20/ERM/CB/08	Gym	Black covebase and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Detected	N/A
		20/ERM/CB/09	Gym	Black covebase and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Detected	N/A

NIOC Sugar Grove

Building No.	HSA No.	Sample Number	Sample Locations	Material Description	Material Location	Condition (G/F/P)	Friable (Y/N)	ACM (Y/N) (PLM)	ACM (Y/N) (Point Count)	
20	26	20/ERM/TSI/01	1st floor West wall of gym	White TSI yellow insulation; Wrap and Insulation	PW Maint Shop/ Gym/ Bowling	G	Y	Not Detected	N/A	
		20/ERM/TSI/02	1st floor West wall of gym	White TSI yellow insulation; Wrap and Insulation	PW Maint Shop/ Gym/ Bowling	G	Y	Not Detected	N/A	
		20/ERM/TSI/03	1st floor men's bathroom in gym	White TSI yellow insulation; Wrap and Insulation	PW Maint Shop/ Gym/ Bowling	G	Y	Not Detected	N/A	
	27		20/ERM/FT/13	Bowling alley	Brown floor tile and mastic	PW Maint Shop/ Gym/ Bowling	G	N	6% Chrysotile (tile); Mastic Not Detected	N/A
			20/ERM/FT/14	Bowling alley	Brown floor tile and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Tile Not Analyzed; Mastic Not Detected	N/A
			20/ERM/FT/15	Bowling alley	Brown floor tile and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Tile Not Analyzed; Mastic Not Detected	N/A
	28		20/ERM/FT/16	Bowling alley	Grey floor tile and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Detected	N/A
			20/ERM/FT/17	Bowling alley	Grey floor tile and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Detected	N/A
			20/ERM/FT/18	Bowling alley	Grey floor tile and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Detected	N/A
	29		20/ERM/CB/10	Bowling alley	Maroon covebase and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Detected	N/A
			20/ERM/CB/11	Bowling alley	Maroon covebase and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Detected	N/A
			20/ERM/CB/12	Bowling alley	Maroon covebase and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Detected	N/A
	30		20/ERM/CB/13	Gym hallway	Black covebase and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Detected	N/A
			20/ERM/CB/14	Gym hallway	Black covebase and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Detected	N/A

NIOC Sugar Grove

Building No.	HSA No.	Sample Number	Sample Locations	Material	Material	Condition	Friable	ACM	ACM
				Description	Location	(G/F/P)	(Y/N)	(Y/N) (PLM)	(Y/N) (Point Count)
20	31	20/ERM/CB/15	Gym hallway	Black covebase and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Detected	N/A
		20/ERM/FT/19	Gym hallway	Tan floor tile and mastic	PW Maint Shop/ Gym/ Bowling	G	N	2% Chrysotile (tile); Mastic Not Detected	0.5% Chrysotile (tile)
		20/ERM/FT/20	Room 107	Tan floor tile and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Tile Not Analyzed; Mastic Not Detected	0.3% Chrysotile (tile)
		20/ERM/FT/21	Gym hallway	Tan floor tile and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Tile Not Analyzed; Mastic Not Detected	<0.25% Chrysotile (Tile)
	32	20/ERM/TSI/04	Basement	White TSI yellow insulation; Wrap and Insulation	PW Maint Shop/ Gym/ Bowling	G	Y	Not Detected	N/A
		20/ERM/TSI/05	Basement	White TSI yellow insulation; Wrap and Insulation	PW Maint Shop/ Gym/ Bowling	G	Y	Not Detected	N/A
		20/ERM/TSI/06	Basement	White TSI yellow insulation; Wrap and Insulation	PW Maint Shop/ Gym/ Bowling	G	Y	Not Detected	N/A
	33	20/ERM/BL/01	Boiler insulation	Yellow insulation w/ in boiler	PW Maint Shop/ Gym/ Bowling	G	Y	Not Detected	N/A
		20/ERM/BL/02	Boiler insulation	Yellow insulation w/ in boiler	PW Maint Shop/ Gym/ Bowling	G	Y	Not Detected	N/A
		20/ERM/BL/03	Boiler insulation	Yellow insulation w/ in boiler	PW Maint Shop/ Gym/ Bowling	G	Y	Not Detected	N/A
	34	20/ERM/FT/22	East portion of work out facility- room	White floor tile with grey streaks and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Detected (tile); Insufficient Material (mastic)	N/A
		20/ERM/FT/23	East portion of work out facility- room	White floor tile with grey streaks and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Detected	N/A

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Building No.	HSA No.	Sample Number	Sample Locations	Material	Material	Condition	Friable	ACM	ACM
				Description	Location	(G/E/P)	(Y/N)	(Y/N) (PLM)	(Y/N) (Point Count)
20	35	20/ERM/FT/24	East portion of work out facility- room	White floor tile with grey streaks and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Detected	N/A
		20/ERM/CB/16	Throughout work out facility-room	Black covebase and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Detected	N/A
		20/ERM/CB/17	Throughout work out facility-room	Black covebase and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Detected	N/A
		20/ERM/CB/18	Throughout work out facility-room	Black covebase and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Detected	N/A
		20/ERM/CB/19	Throughout work out facility-room	Black covebase and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Detected	N/A
		20/ERM/CB/20	Throughout work out facility-room	Maroon covebase and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Detected	N/A
		20/ERM/CB/21	Throughout work out facility-room	Maroon covebase and mastic	PW Maint Shop/ Gym/ Bowling	G	N	Not Detected	N/A
70	37	70/ERM/CB/01	Racquetball court vestibule	Black covebase and mastic	Racquetball Court	G	N	Not Detected	N/A
		70/ERM/CB/02	Racquetball court vestibule	Black covebase and mastic	Racquetball Court	G	N	Not Detected	N/A
		70/ERM/CB/03	Racquetball court vestibule	Black covebase and mastic	Racquetball Court	G	N	Not Detected	N/A
	38	70/ERM/FT/01	Racquetball court vestibule, viewing area, and stairs	White & grey floor tile and mastic	Racquetball Court	G	N	Tile Not Detected; 2% Chrysotile (mastic);	Insufficient Material (mastic)
		70/ERM/FT/02	Racquetball court vestibule, viewing area, and stairs	White & grey floor tile and mastic	Racquetball Court	G	N	Tile Not Detected; Mastic Not Analyzed	3.5% Chrysotile (mastic)
		70/ERM/FT/03	Racquetball court vestibule, viewing area, and stairs	White & grey floor tile- mastic	Racquetball Court	G	N	Tile Not Detected; Mastic Not Analyzed	2.9% Chrysotile (mastic)
			70/ERM/CT/01	Racquetball court vestibule	White ceiling tile	Racquetball Court	G	Y	Not Detected

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Building No.	HSA No.	Sample Number	Sample Locations	Material	Material	Condition	Friable	ACM	ACM
				Description	Location	(G/F/P)	(Y/N)	(Y/N) (PLM)	(Y/N) (Point Count)
70	39	70/ERM/CT/02	Racquetball court vestibule	White ceiling tile	Racquetball Court	G	Y	Not Detected	N/A
		70/ERM/CT/03	Racquetball court vestibule	White ceiling tile	Racquetball Court	G	Y	Not Detected	N/A
26	40	26/ERM/LN/01	Building 26 basement	Lenolium flooring	Original Farm House	G	N	10% Chrysotile	N/A
		26/ERM/LN/02	Building 26 basement	Lenolium flooring	Original Farm House	G	N	Not Analyzed	N/A
		26/ERM/LN/03	Building 26 basement	Lenolium flooring	Original Farm House	G	N	Not Analyzed	N/A
	41	26/ERM/CB/01	Kitchen	Black covebase and mastic	Original Farm House	G	N	Not Detected	N/A
		26/ERM/CB/02	Kitchen	Black covebase and mastic	Original Farm House	G	N	Not Detected	N/A
		26/ERM/CB/03	Kitchen	Black covebase and mastic	Original Farm House	G	N	Not Detected	N/A
		26/ERM/CB/04	Bathroom	Pink covebase, mastic, and joint compound	Original Farm House	G	N	Not Detected	N/A
	42	26/ERM/CB/05	Bathroom	Pink covebase, mastic, and joint compound	Original Farm House	G	N	Not Detected	N/A
		26/ERM/CB/06	Bathroom	Pink covebase and mastic	Original Farm House	G	N	Not Detected	N/A
	43	26/ERM/CB/07	Staff bathroom	Blue covebase, mastic, and joint compound	Original Farm House	G	N	Not Detected	N/A
		26/ERM/CB/08	Staff bathroom	Blue covebase, mastic, and joint compound	Original Farm House	G	N	Not Detected	N/A
		26/ERM/CB/09	Staff bathroom	Blue covebase and mastic	Original Farm House	G	N	Not Detected; Insufficient Material (mastic)	N/A
	44	26/ERM/FT/01	Bathroom	Grey & pink floor tile and mastic	Original Farm House	G	N	Not Detected	N/A
		26/ERM/FT/02	Bathroom	Grey & pink floor tile and mastic	Original Farm House	G	N	Not Detected	N/A
		26/ERM/FT/03	Bathroom	Grey & pink floor tile and mastic	Original Farm House	G	N	Not Detected	N/A

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Building No.	HSA No.	Sample Number	Sample Locations	Material Description	Material Location	Condition (G/F/P)	Friable (Y/N)	ACM (Y/N) (PLM)	ACM (Y/N) (Point Count)	
26	45	26/ERM/FT/04	Staff bathroom	White w/ blue floor tile and mastic	Original Farm House	G	N	Not Detected	N/A	
		26/ERM/FT/05	Staff bathroom	White w/ blue floor tile and mastic	Original Farm House	G	N	Not Detected	N/A	
		26/ERM/FT/06	Staff bathroom	White w/ blue floor tile and mastic	Original Farm House	G	N	Not Detected	N/A	
	46	26/ERM/TP/01	Front room	Transite paneling	Original Farm House	G	N	Not Detected	N/A	
		26/ERM/TP/02	Front room	Transite paneling	Original Farm House	G	N	Not Detected	N/A	
		26/ERM/TP/03	Front room	Transite paneling	Original Farm House	G	N	Not Detected	N/A	
	47	26/ERM/CB/10	Second floor hall	Red covebase and mastic	Original Farm House	G	N	Not Detected	N/A	
		26/ERM/CB/11	Second floor hall	Red covebase and mastic	Original Farm House	G	N	Not Detected	N/A	
		26/ERM/CB/12	Second floor hall	Red covebase and mastic	Original Farm House	G	N	Not Detected	N/A	
	63	48	63/ERM/TSI/01	Boiler room 1st floor, 3" piping	White paper yellow insulation	Administration building	G	Y	Not Detected	N/A
			63/ERM/TSI/02	Boiler room 1st floor, 3" piping	White paper yellow insulation	Administration building	G	Y	Not Detected	N/A
			63/ERM/TSI/03	Boiler room 1st floor, 3" piping	White paper yellow insulation	Administration building	G	Y	Not Detected	N/A
63/ERM/TSI/04			Boiler room 1st floor, 3" piping	White paper yellow insulation	Administration building	G	Y	Not Detected	N/A	
49		63/ERM/TSI/05	Boiler room 1st floor, 3" piping	White paper yellow insulation	Administration building	G	Y	Not Detected	N/A	
		63/ERM/TSI/06	Boiler room 1st floor, 3" piping	White paper yellow insulation	Administration building	G	Y	Not Detected	N/A	
50		63/ERM/CP/01	Boiler room 115	White ceiling plaster, Skim coat and base coat	Administration building	F	Y	Not Detected	N/A	
		63/ERM/CP/02	Boiler room 115	White ceiling plaster	Administration building	F	Y	Not Detected	N/A	
		63/ERM/CP/03	Boiler room 115	White ceiling plaster	Administration building	F	Y	Not Detected	N/A	
			63/ERM/BL/01	Boiler room 115	Yellow boiler insulation	Administration building	G	Y	Not Detected	N/A

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Building No.	HSA No.	Sample Number	Sample Locations	Material Description	Material Location	Condition (G/E/P)	Friable (Y/N)	ACM (Y/N) (PLM)	ACM (Y/N) (Point Count)
63	51	63/ERM/BL/02	Boiler room 115	Yellow boiler insulation	Administration building	G	Y	Not Detected	N/A
		63/ERM/BL/03	Boiler room 115	Yellow boiler insulation	Administration building	G	Y	Not Detected	N/A
	52	63/ERM/FT/01	First floor West stairwell/ Chapel stairs	White floor tile with blue & red streaks and mastic	Administration building	G	N	Tile Not Detected; Mastic Not Detected	N/A
		63/ERM/FT/02	First floor West stairwell/ Chapel stairs	White floor tile with blue & red streaks and mastic	Administration building	G	N	Tile Not Detected; 10% Chrysotile (mastic)	N/A
		63/ERM/FT/03	Second floor West stairwell	White floor tile with blue & red streaks and mastic	Administration building	G	N	Tile Not Detected; Mastic Not Analyzed	N/A
	53	63/ERM/CB/01	1st floor West stairwell	Blue covebase and mastic	Administration building	G	N	Not Detected	N/A
		63/ERM/CB/02	1st floor West stairwell	Blue covebase and mastic	Administration building	G	N	Not Detected	N/A
		63/ERM/CB/03	2nd floor West stairwell	Blue covebase and mastic	Administration building	G	N	Not Detected	N/A
		63/ERM/CB/04	1st floor-room 108	Black covebase and mastic	Administration building	G	N	Not Detected	N/A
	54	63/ERM/CB/05	1st floor-room 108	Black covebase and mastic	Administration building	G	N	Not Detected	N/A
		63/ERM/CB/06	1st floor-room 108	Black covebase and mastic	Administration building	G	N	Not Detected	N/A
	55	63/ERM/CT/01	Room 108	White ceiling tile	Administration building	G	Y	Not Detected	N/A
		63/ERM/CT/02	Room 108	White ceiling tile	Administration building	G	Y	Not Detected	N/A
		63/ERM/CT/03	Room 108	White ceiling tile	Administration building	G	Y	Not Detected	N/A
		63/ERM/CT/07	Security room	Dark blue covebase and mastic	Administration building	G	N	Not Detected	N/A

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Building No.	HSA No.	Sample Number	Sample Locations	Material Description	Material Location	Condition (G/F/P)	Friable (Y/N)	ACM (Y/N) (PLM)	ACM (Y/N) (Point Count)
63	56	63/ERM/CT/08	Security room	Dark blue covebase and mastic	Administration building	G	N	Not Detected	N/A
		63/ERM/CT/09	Security room	Dark blue covebase and mastic	Administration building	G	N	Not Detected	N/A
	57	63/ERM/FT/04	Security room	White floor tile w/ black specs and mastic	Administration building	G	N	Not Detected; Insufficient Material (mastic)	N/A
		63/ERM/FT/05	Security room	White floor tile w/ black specs and mastic	Administration building	G	N	Not Detected; Insufficient Material (mastic)	N/A
		63/ERM/FT/06	Security room	White floor tile w/ black specs and mastic	Administration building	G	N	Not Detected; Insufficient Material (mastic)	N/A
	58	63/ERM/CT/04	Security room	White ceiling tile	Administration building	G	Y	Not Detected	N/A
		63/ERM/CT/05	Security room	White ceiling tile	Administration building	G	Y	Not Detected	N/A
		63/ERM/CT/06	Security room	White ceiling tile	Administration building	G	Y	Not Detected	N/A
	59	63/ERM/TSI/07	Security room	White TSI w/ yellow insulation	Administration building	G	N	Not Detected	N/A
		63/ERM/TSI/08	Security room	White TSI w/ yellow insulation	Administration building	G	N	Not Detected	N/A
		63/ERM/TSI/09	Security room	White TSI w/ yellow insulation	Administration building	G	N	Not Detected	N/A
	60	63/ERM/CP/04	Mens bathroom	White ceiling plaster	Administration building	G	N	Not Detected	N/A
63/ERM/CP/05		Mens bathroom	White ceiling plaster	Administration building	G	N	Not Detected	N/A	
63/ERM/CP/06		Mens bathroom	White ceiling plaster	Administration building	G	N	Not Detected	N/A	

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Building No.	HSA No.	Sample Number	Sample Locations	Material Description	Material Location	Condition (G/F/P)	Friable (Y/N)	ACM (Y/N) (PLM)	ACM (Y/N) (Point Count)
63	61	63/ERM/CB/10	Chapel	Maroon covebase and mastic	Administration building	G	N	Not Detected	N/A
		63/ERM/CB/11	Chapel	Maroon covebase and mastic	Administration building	G	N	Not Detected (covebase); Insufficient Material (mastic)	N/A
		63/ERM/CB/12	Chapel	Maroon covebase and mastic	Administration building	G	N	Not Detected	N/A
	62	63/ERM/CB/13	Room 138	Grey covebase and mastic	Administration building	G	N	Not Detected	N/A
		63/ERM/CB/14	Room 138	Grey covebase and mastic	Administration building	G	N	Not Detected	N/A
		63/ERM/CB/15	Room 138	Grey covebase and mastic	Administration building	G	N	Not Detected; Insufficient Material	N/A
	63	63/ERM/CB/16	Nursery	Black covebase and mastic	Administration building	G	N	Not Detected	N/A
		63/ERM/CB/17	Nursery	Black covebase and mastic	Administration building	G	N	Not Detected	N/A
		63/ERM/CB/18	Nursery	Black covebase and mastic	Administration building	G	N	Not Detected	N/A
	64	63/ERM/FT/07	Kitchen of chapel	Turquoise floor tile and mastic	Administration building	G	N	Not Detected	N/A
		63/ERM/FT/08	Kitchen of chapel	Turquoise floor tile and mastic	Administration building	G	N	Not Detected	N/A
		63/ERM/FT/09	Kitchen of chapel	Turquoise floor tile and mastic	Administration building	G	N	Not Detected	N/A
	65	63/ERM/CT/07	Pantry	White ceiling tile	Administration building	G	Y	Not Detected	N/A
		63/ERM/CT/08	Pantry	White ceiling tile	Administration building	G	Y	Not Detected	N/A
		63/ERM/CT/09	Pantry	White ceiling tile	Administration building	G	Y	Not Detected	N/A

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Building No.	HSA No.	Sample Number	Sample Locations	Material Description	Material Location	Condition (G/F/P)	Friable (Y/N)	ACM (Y/N) (PLM)	ACM (Y/N) (Point Count)
63	66	63/ERM/CT/10	Chapel	White 9x9 ceiling tile above ceiling tile	Administration building	G	Y	Not Detected	N/A
		63/ERM/CT/11	Chapel	White 9x9 ceiling tile above ceiling tile	Administration building	G	Y	Not Detected	N/A
		63/ERM/CT/12	Chapel	White 9x9 ceiling tile above ceiling tile	Administration building	G	Y	Not Detected	N/A
	67	63/ERM/FT/10	Former kitchen closet	Red clay brick floor tile and grout	Administration building	G	N	Not Detected	N/A
		63/ERM/FT/11	Former kitchen closet	Red clay brick floor tile and grout	Administration building	G	N	Not Detected	N/A
		63/ERM/FT/12	Former kitchen closet	Red clay brick floor tile and grout	Administration building	G	N	Not Detected	N/A
	68	63/ERM/TSI/10	Generator room/locker room	White paper/ yellow insulation	Administration building	G	Y	Not Detected	N/A
		63/ERM/TSI/11	Generator room/locker room	White paper/ yellow insulation	Administration building	G	Y	Not Detected	N/A
		63/ERM/TSI/12	Generator room/locker room	White paper/ yellow insulation	Administration building	G	Y	Not Detected	N/A
	69	63/ERM/RI/01	Generator room/locker room	Black radiator insulation	Administration building	G	Y	Not Detected	N/A
		63/ERM/RI/02	Generator room/locker room	Black radiator insulation	Administration building	G	Y	Not Detected	N/A
		63/ERM/RI/03	Generator room/locker room	Black radiator insulation	Administration building	G	Y	Not Detected	N/A
	70	63/ERM/TSI/13	Ladies restroom in medical hallway	White paper w/ yellow insulation	Administration building	G	Y	Not Detected	N/A
		63/ERM/TSI/14	Ladies restroom in medical hallway	White paper w/ yellow insulation	Administration building	G	Y	Not Detected	N/A
		63/ERM/TSI/15	Ladies restroom in medical hallway	White paper w/ yellow insulation	Administration building	G	Y	Not Detected	N/A
		63/ERM/CP/07	Ladies restroom in medical hallway	White ceiling plaster	Administration building	G	N	Not Detected	N/A

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Building No.	HSA No.	Sample Number	Sample Locations	Material Description	Material Location	Condition (G/F/P)	Friable (Y/N)	ACM (Y/N) (PLM)	ACM (Y/N) (Point Count)
63	71	63/ERM/CP/08	Ladies restroom in medical hallway	White ceiling plaster	Administration building	G	N	Not Detected	N/A
		63/ERM/CP/09	Ladies restroom in medical hallway	White ceiling plaster	Administration building	G	N	Not Detected	N/A
		63/ERM/LN/01	Medical laboratory	White with blue & grey flake	Administration building	G	N	Not Detected	N/A
	72	63/ERM/LN/02	Medical laboratory	White with blue & grey flake	Administration building	G	N	Not Detected	N/A
		63/ERM/LN/03	Medical laboratory	White with blue & grey flake	Administration building	G	N	Not Detected	N/A
		63/ERM/CB/19	Medical laboratory	Very light blue covebase and mastic	Administration building	G	N	Not Detected	N/A
	73	63/ERM/CB/20	Medical laboratory	Very light blue covebase and mastic	Administration building	G	N	Not Detected	N/A
		63/ERM/CB/21	Medical laboratory	Very light blue covebase and mastic	Administration building	G	N	Not Detected	N/A
		63/ERM/TSI/16	Room 120 in medical portion	Aluminum w/ yellow insulation	Administration building	G	Y	Not Detected	N/A
	74	63/ERM/TSI/17	Room 121 in medical portion	Aluminum w/ yellow insulation	Administration building	G	Y	Not Detected	N/A
		63/ERM/TSI/18	Room 121 in medical portion	Aluminum w/ yellow insulation	Administration building	G	Y	Not Detected	N/A
		63/ERM/LN/04	Room 120 in medical portion	yellow linolium w/brown speckles	Administration building	G	N	Not Detected	N/A
	75	63/ERM/LN/05	Room 120 in medical portion	yellow linolium w/brown speckles	Administration building	G	N	Not Detected	N/A
		63/ERM/LN/06	Room 120 in medical portion	yellow linolium w/brown speckles	Administration building	G	N	Not Detected	N/A
		63/ERM/CB/22	Room 120 in medical portion	Brown covebase and mastic	Administration building	G	N	Not Detected	N/A
	76	63/ERM/CB/23	Room 120 in medical portion	Brown covebase and mastic	Administration building	G	N	Not Detected	N/A

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Building No.	HSA No.	Sample Number	Sample Locations	Material Description	Material Location	Condition (G/F/P)	Friable (Y/N)	ACM (Y/N) (PLM)	ACM (Y/N) (Point Count)
63	77	63/ERM/CB/24	Room 120 in medical portion	Brown covebase and mastic	Administration building	G	N	Not Detected	N/A
		63/ERM/CB/25	Room 121 in medical portion	Blue bright covebase and mastic	Administration building	G	N	Not Detected	N/A
		63/ERM/CB/26	Room 121 in medical portion	Blue bright covebase and mastic	Administration building	G	N	Not Detected	N/A
		63/ERM/CB/27	Room 121 in medical portion	Blue bright covebase and mastic	Administration building	G	N	Not Detected	N/A
	78	63/ERM/TSI/19	Room 124 in medical portion	White paper w/ yellow insulation	Administration building	G	Y	Not Detected	N/A
		63/ERM/TSI/20	Room 123 in medical portion	Yellow TSI insulation	Administration building	G	Y	Not Detected	N/A
		63/ERM/TSI/21	Room 148 in medical portion	White paper/ yellow insulation	Administration building	G	Y	Not Detected	N/A
	79	63/ERM/FT/13	Room 124 in medical portion	Blue floor tile w/ blue streaks and mastic	Administration building	G	N	Tile Not Detected; <1% Chrysotile (mastic)	N/A
		63/ERM/FT/14	Room 124 in medical portion	Blue floor tile w/ blue streaks and mastic	Administration building	G	N	Tile Not Detected; <1% Chrysotile (mastic)	N/A
	80	63/ERM/FT/15	Room 123 in medical portion	Blue floor tile w/ blue streaks and mastic	Administration building	G	N	Not Detected	N/A
		63/ERM/FT/16	Room 123 in medical portion	Blue floor tile w/ blue streaks and mastic	Administration building	G	N	Not Detected	N/A
		63/ERM/FT/17	Far East stairwell	Blue floor tile w/ blue streaks and mastic	Administration building	G	N	Not Detected	N/A
		63/ERM/FT/18	Far East stairwell	Blue floor tile w/ blue streaks and mastic	Administration building	G	N	Not Detected	N/A
81		63/ERM/FT/19	Far East hall 2nd floor	First Tile Layer Blue floor tile and mastic Second Tile Layer Grey Floor Tile and Mastic	Administration building	G	N	2% Chrysotile (2nd Tile Layer tile); 1st Tile Layer and Mastics Not Detected	2nd Tile Layer <0.25% Chrysotile

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Building No.	HSA No.	Sample Number	Sample Locations	Material Description	Material Location	Condition (G/F/P)	Friable (Y/N)	ACM (Y/N) (PLM)	ACM (Y/N) (Point Count)
63	81	63/ERM/FT/20	Far East hallway/ 2nd floor	Grey floor tile and mastic	Administration building	G	N	3% Chrysotile (tile); Mastic Not Detected	1.6% Chrysotile
		63/ERM/LN/07	Room 147 in medical	Brown lenolium and mastic	Administration building	G	N	Not Detected	N/A
	82	63/ERM/LN/08	Room 147 in medical	Brown lenolium and mastic	Administration building	G	N	Not Detected	N/A
		63/ERM/LN/09	Room 147 in medical	Brown lenolium and mastic	Administration building	G	N	Not Detected	N/A
			63/ERM/CB/28	Far East stairwell	Blue covebase and mastic	Administration building	G	N	Not Detected
	83	63/ERM/CB/29	Far East stairwell	Blue covebase and mastic	Administration building	G	N	Not Detected	N/A
		63/ERM/CB/30	Far East stairwell	Blue covebase and mastic	Administration building	G	N	Not Detected	N/A
			63/ERM/CB/31	Room 201, 2nd floor	Dark blue covebase and mastic	Administration building	G	N	Not Detected
	84	63/ERM/CB/32	Room 201, 2nd floor	Dark blue covebase and mastic	Administration building	G	N	Not Detected	N/A
		63/ERM/CB/33	Room 201, 2nd floor	Dark blue covebase and mastic	Administration building	G	N	Not Detected	N/A
			63/ERM/CB/34	Hallway on 2nd floor West side	Black covebase and mastic	Administration building	G	N	Not Detected
	85	63/ERM/CB/35	Hallway on 2nd floor West side	Black covebase and mastic	Administration building	G	N	Not Detected	N/A
		63/ERM/CB/36	Room 200C, 2nd floor	Black covebase and mastic	Administration building	G	N	Not Detected	N/A
			63/ERM/TSI/22	Room 200C, 2nd floor North	White w/ yellow insulation TSI	Administration building	G	Y	Not Detected
	86	63/ERM/TSI/23	Room 200C, 2nd floor North	White w/ yellow insulation TSI	Administration building	G	Y	Not Detected	N/A
		63/ERM/TSI/24	Room 200C, 2nd floor North	White w/ yellow insulation TSI	Administration building	G	Y	Not Detected	N/A

NIOC Sugar Grove

Building No.	HSA No.	Sample Number	Sample Locations	Material Description	Material Location	Condition (G/F/P)	Friable (Y/N)	ACM (Y/N) (PLM)	ACM (Y/N) (Point Count)
63	87	63/ERM/TSI/25	Room 200C, 2nd floor South	White w/ yellow insulation TSI	Administration building	G	Y	Not Detected	N/A
		63/ERM/TSI/26	Room 200C, 2nd floor South	White w/ yellow insulation TSI	Administration building	G	Y	Not Detected	N/A
		63/ERM/TSI/27	Room 200C, 2nd floor South	White w/ yellow insulation TSI	Administration building	G	Y	Not Detected	N/A
	88	63/ERM/TL/01	Transmission line 24 miles	Black insulation w/ paper backing, Tar and Felt	Administration building	G	N	Not Detected	N/A
		63/ERM/TL/02	Transmission line 24 miles	Black insulation w/ paper backing, Tar and Felt	Administration building	G	N	Not Detected	N/A
		63/ERM/TL/03	Transmission line 24 miles	Black insulation w/ paper backing, Tar and Felt	Administration building	G	N	Not Detected	N/A

"HSA" indicates Homogeneous Sampling Area.

"G/F/P" indicates the materials condition as "good", "fair" or "poor".

"N/A" indicates "Not Analyzed"

"Y/N" indicates "yes" or "no".

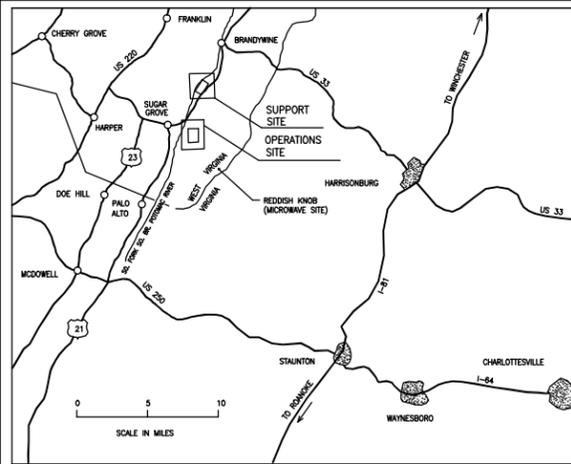
"PLM" indicates Polarized Light Microscopy (EPA 600/R-93/116)

"Point Count" indicates Asbestos Analysis of Bulk Material via EPA 600/R-93/116. Quantification using 400 Point Count Procedure

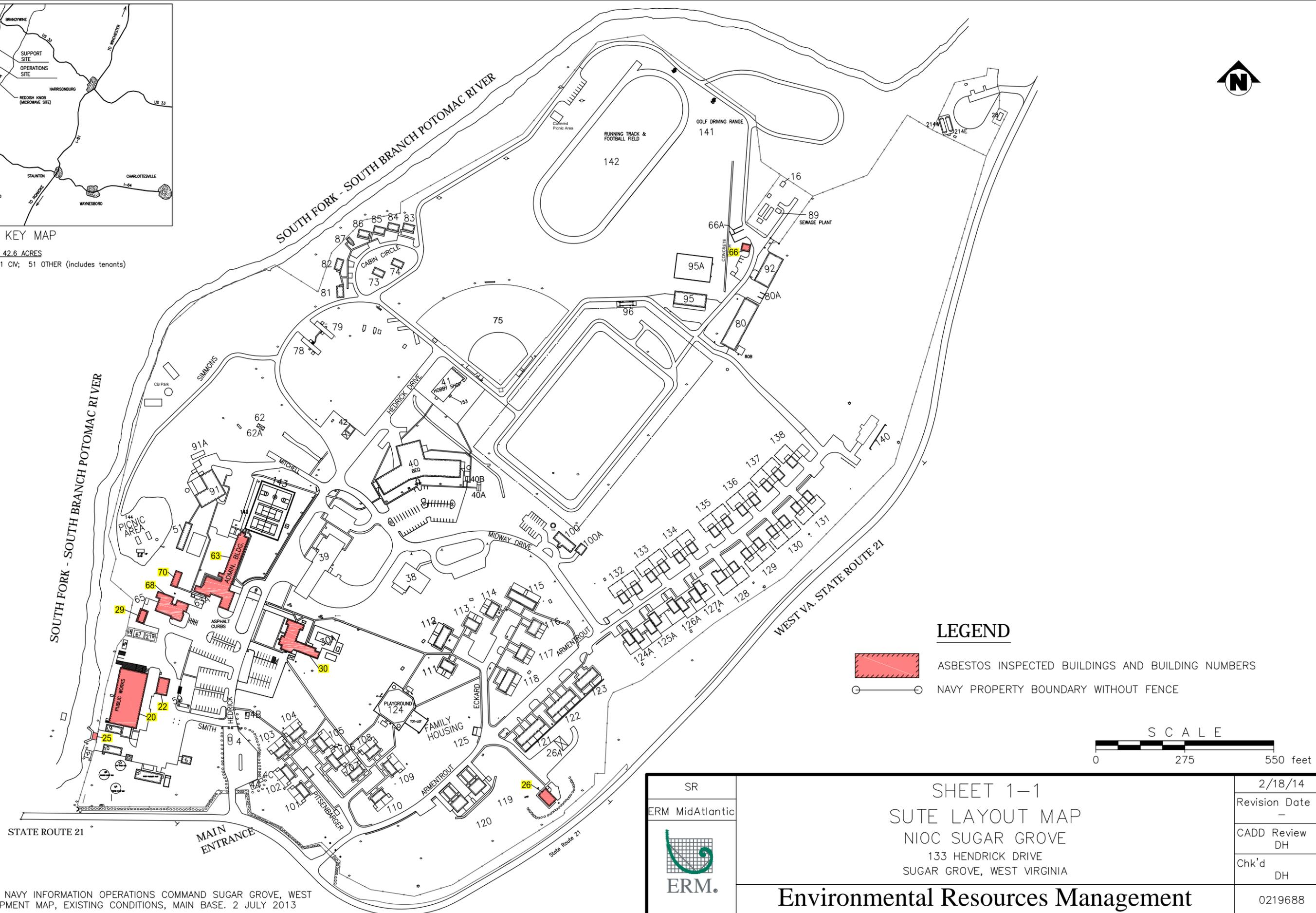
"TEM" indicates Transmission Electron Microscopy (EPA 600/R-93/116 Section 2.5.5.1)

"Not Analyzed" indicates sample was not analyzed due to positive detection in first sample.

Appendix B
Figures



KEY MAP
 MAIN BASE = 117.5 ACRES
 GAS LINE (RIGHT OF WAY) = 42.6 ACRES
 BASE LOADING: 178 MIL; 91 CIV; 51 OTHER (includes tenants)



LEGEND

-  ASBESTOS INSPECTED BUILDINGS AND BUILDING NUMBERS
-  NAVY PROPERTY BOUNDARY WITHOUT FENCE

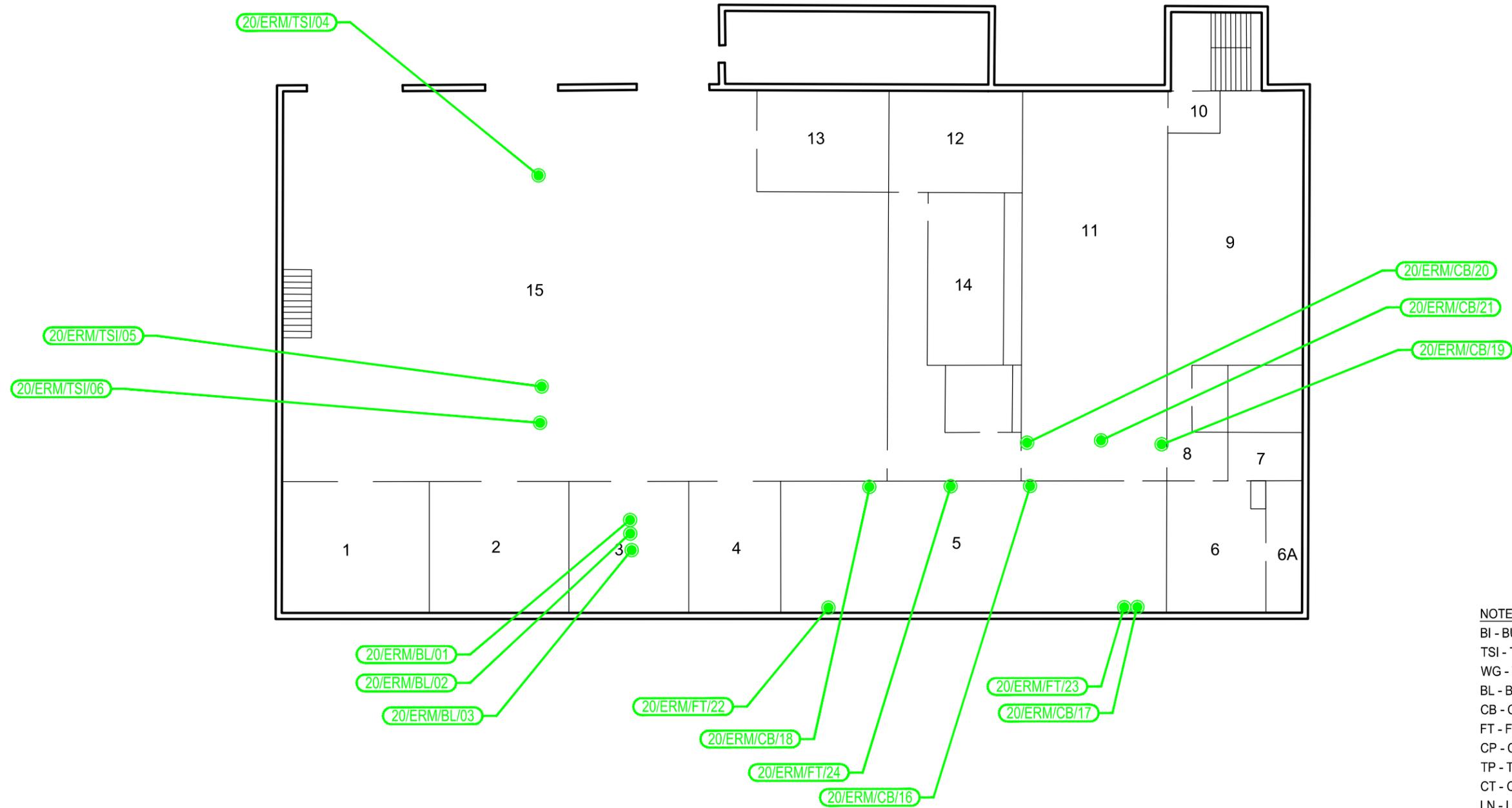


REFERENCES:
 FIGURE PROVIDED BY NAVY INFORMATION OPERATIONS COMMAND SUGAR GROVE, WEST VA. GENERAL DEVELOPMENT MAP, EXISTING CONDITIONS, MAIN BASE. 2 JULY 2013

SR	SHEET 1-1 SUTE LAYOUT MAP NIOC SUGAR GROVE 133 HENDRICK DRIVE SUGAR GROVE, WEST VIRGINIA	2/18/14
ERM MidAtlantic		Revision Date -
	Environmental Resources Management	CADD Review DH
		Chk'd DH
		0219688

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SAMPLE LOCATION AND ASBESTOS MATERIAL LOCATION MAP BUILDING 20 BASEMENT



- NOTES:**
- BI - BUILDING INSULATION
 - TSI - THERMAL SYSTEM INSULATION
 - WG - WINDOW GLAZE
 - BL - BOILER
 - CB - COVE BASE
 - FT - FLOOR TILE
 - CP - CEILING PLASTER
 - TP - TRANSITE PANELING
 - CT - CEILING TILE
 - LN - LINOLEUM
 - RI - RADIATOR INSULATION

- LEGEND:**
- SAMPLE LOCATION
 - CONFIRMED ASBESTOS CONTAINING MATERIAL SAMPLE LOCATION
 - 1 ROOM NUMBER



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SR

CADD Review
DS

Date Drawn/Rev'd
1/2/14



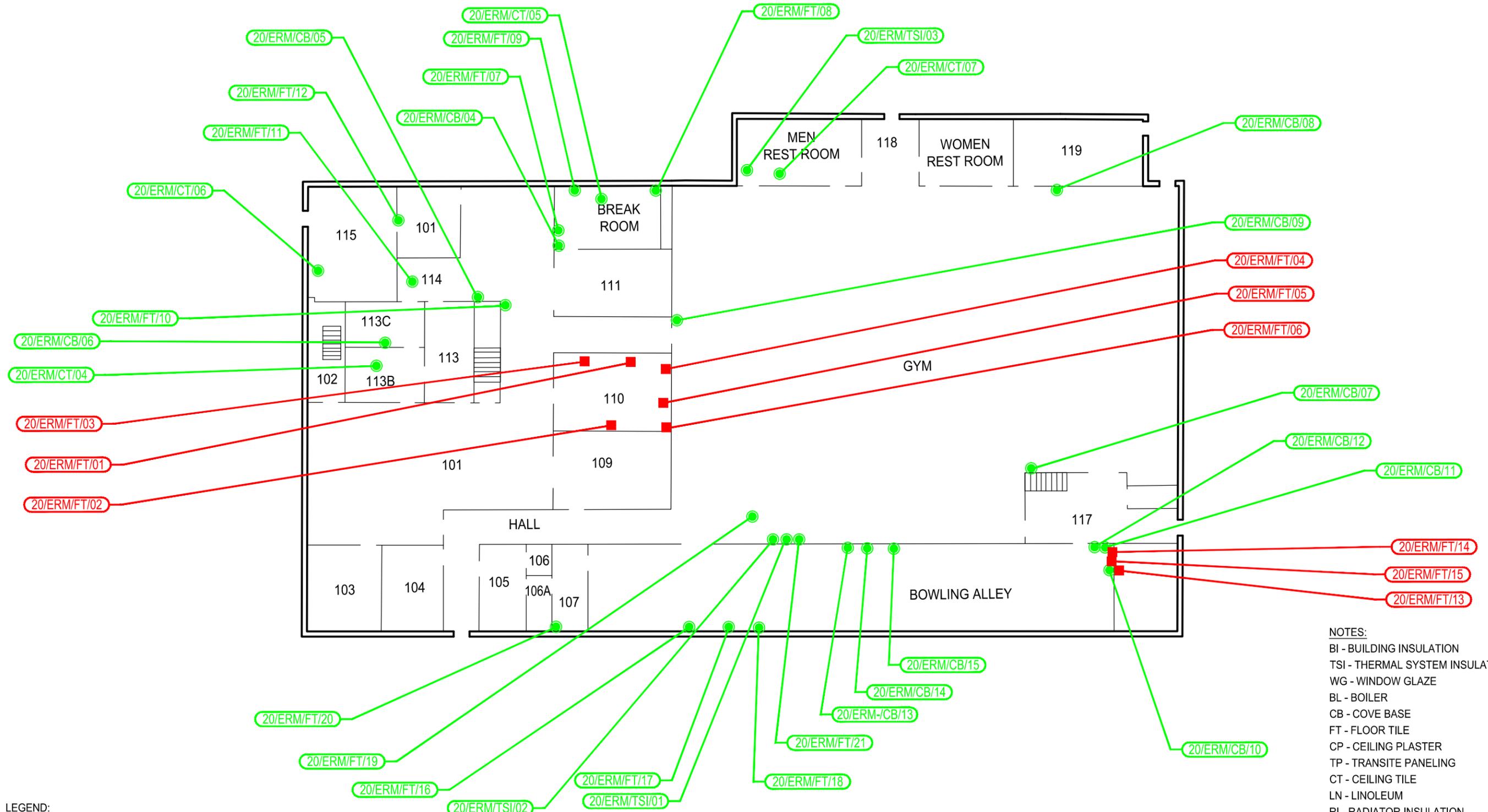
NIOC SUGAR GROVE BASE

133 HENDIRCK DRIVE
SUGAR GROVE, WEST VIRGINIA

Environmental Resources Management

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	0219688
	FIGURE 1

SAMPLE LOCATION AND ASBESTOS MATERIAL LOCATION MAP BUILDING 20 FIRST FLOOR



- NOTES:**
- BI - BUILDING INSULATION
 - TSI - THERMAL SYSTEM INSULATION
 - WG - WINDOW GLAZE
 - BL - BOILER
 - CB - COVE BASE
 - FT - FLOOR TILE
 - CP - CEILING PLASTER
 - TP - TRANSITE PANELING
 - CT - CEILING TILE
 - LN - LINOLEUM
 - RI - RADIATOR INSULATION

- LEGEND:**
- SAMPLE LOCATION
 - CONFIRMED ASBESTOS CONTAINING MATERIAL SAMPLE LOCATION
 - 103 ROOM NUMBER



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NIOC SUGAR GROVE BASE

133 HENDIRCK DRIVE
SUGAR GROVE, WEST VIRGINIA

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0219688	FIGURE 2

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SAMPLE LOCATION AND ASBESTOS MATERIAL LOCATION MAP BUILDING 20 SECOND FLOOR



- NOTES:**
- BI - BUILDING INSULATION
 - TSI - THERMAL SYSTEM INSULATION
 - WG - WINDOW GLAZE
 - BL - BOILER
 - CB - COVE BASE
 - FT - FLOOR TILE
 - CP - CEILING PLASTER
 - TP - TRANSITE PANELING
 - CT - CEILING TILE
 - LN - LINOLEUM
 - RI - RADIATOR INSULATION

- LEGEND:**
- SAMPLE LOCATION
 - CONFIRMED ASBESTOS CONTAINING MATERIAL SAMPLE LOCATION
 - 208 ROOM NUMBER



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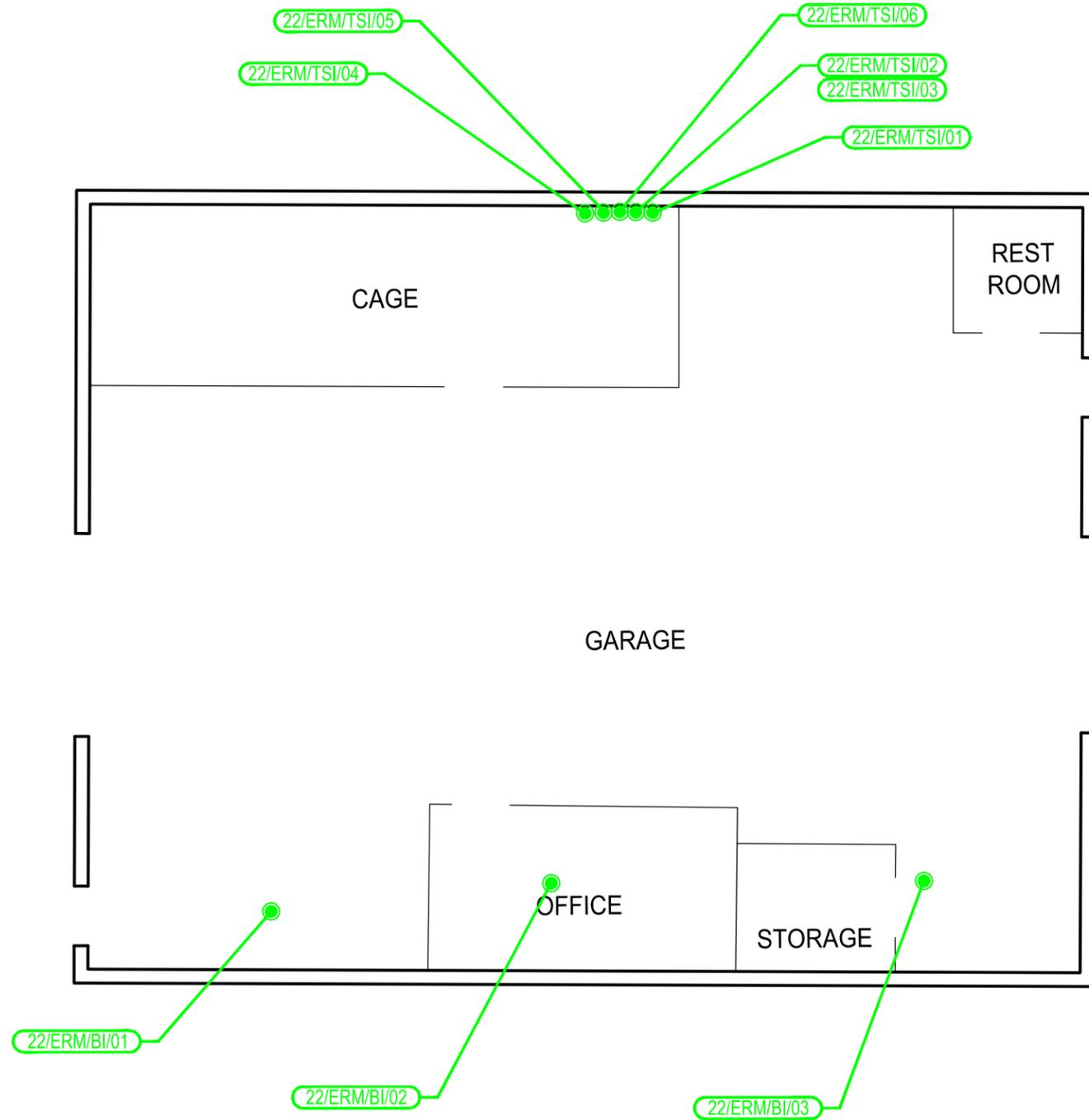
NIOC SUGAR GROVE BASE

133 HENDIRCK DRIVE
SUGAR GROVE, WEST VIRGINIA

Environmental Resources Management

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0219688
FIGURE 3

SAMPLE LOCATION AND ASBESTOS MATERIAL LOCATION MAP BUILDING 22



- NOTES:**
- BI - BUILDING INSULATION
 - TSI - THERMAL SYSTEM INSULATION
 - WG - WINDOW GLAZE
 - BL - BOILER
 - CB - COVE BASE
 - FT - FLOOR TILE
 - CP - CEILING PLASTER
 - TP - TRANSITE PANELING
 - CT - CEILING TILE
 - LN - LINOLEUM
 - RI - RADIATOR INSULATION

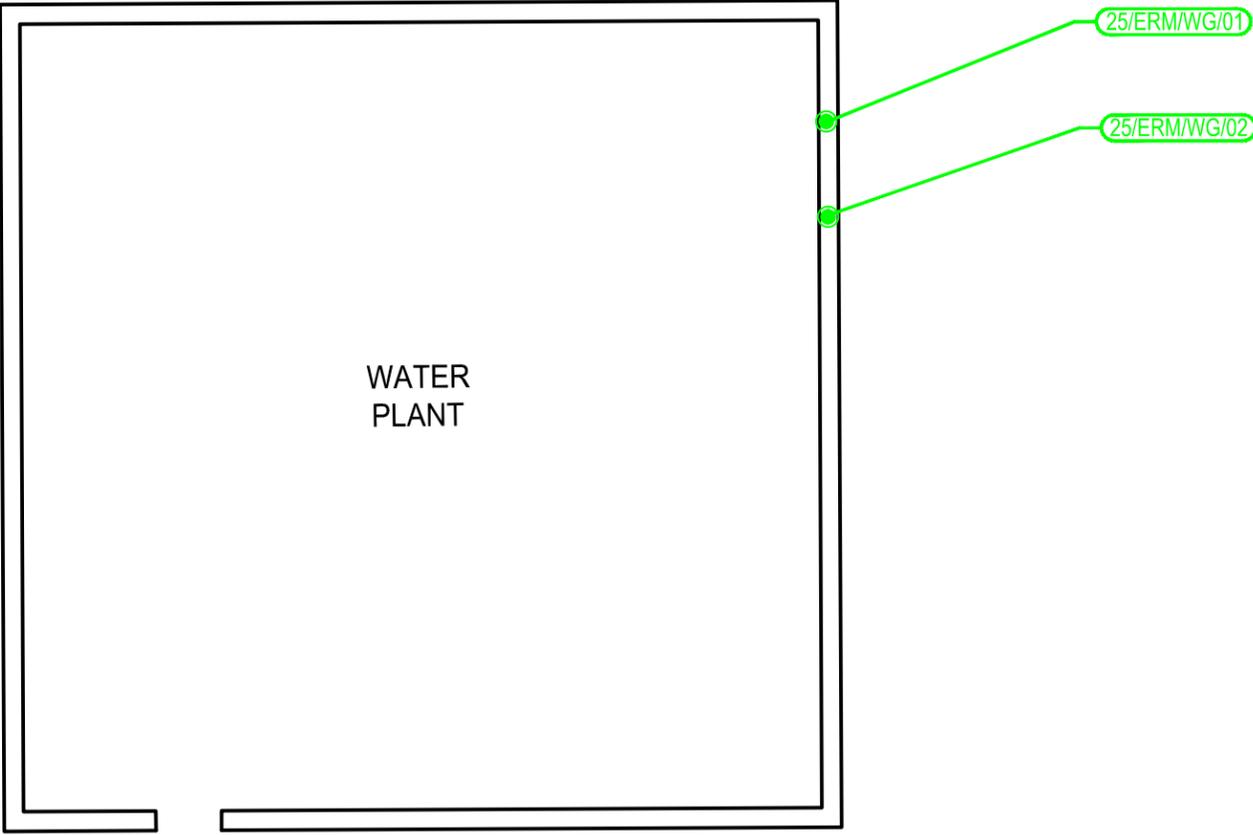
- LEGEND:**
- SAMPLE LOCATION
 - CONFIRMED ASBESTOS CONTAINING MATERIAL SAMPLE LOCATION
 - 100 ROOM NUMBER



Drawn By SR		<h2 style="margin: 0;">NIOC SUGAR GROVE BASE</h2> <p style="margin: 0; font-size: small;">133 HENDIRCK DRIVE SUGAR GROVE, WEST VIRGINIA</p> <h3 style="margin: 0;">Environmental Resources Management</h3>	CHK'D DS
CADD Review DS			0219688
Date Drawn/Rev'd 1/2/14			FIGURE 4

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SAMPLE LOCATION AND ASBESTOS MATERIAL LOCATION MAP BUILDING 25



- NOTES:**
- BI - BUILDING INSULATION
 - TSI - THERMAL SYSTEM INSULATION
 - WG - WINDOW GLAZE
 - BL - BOILER
 - CB - COVE BASE
 - FT - FLOOR TILE
 - CP - CEILING PLASTER
 - TP - TRANSITE PANELING
 - CT - CEILING TILE
 - LN - LINOLEUM
 - RI - RADIATOR INSULATION

- LEGEND:**
- SAMPLE LOCATION
 - CONFIRMED ASBESTOS CONTAINING MATERIAL SAMPLE LOCATION
 - 100 ROOM NUMBER



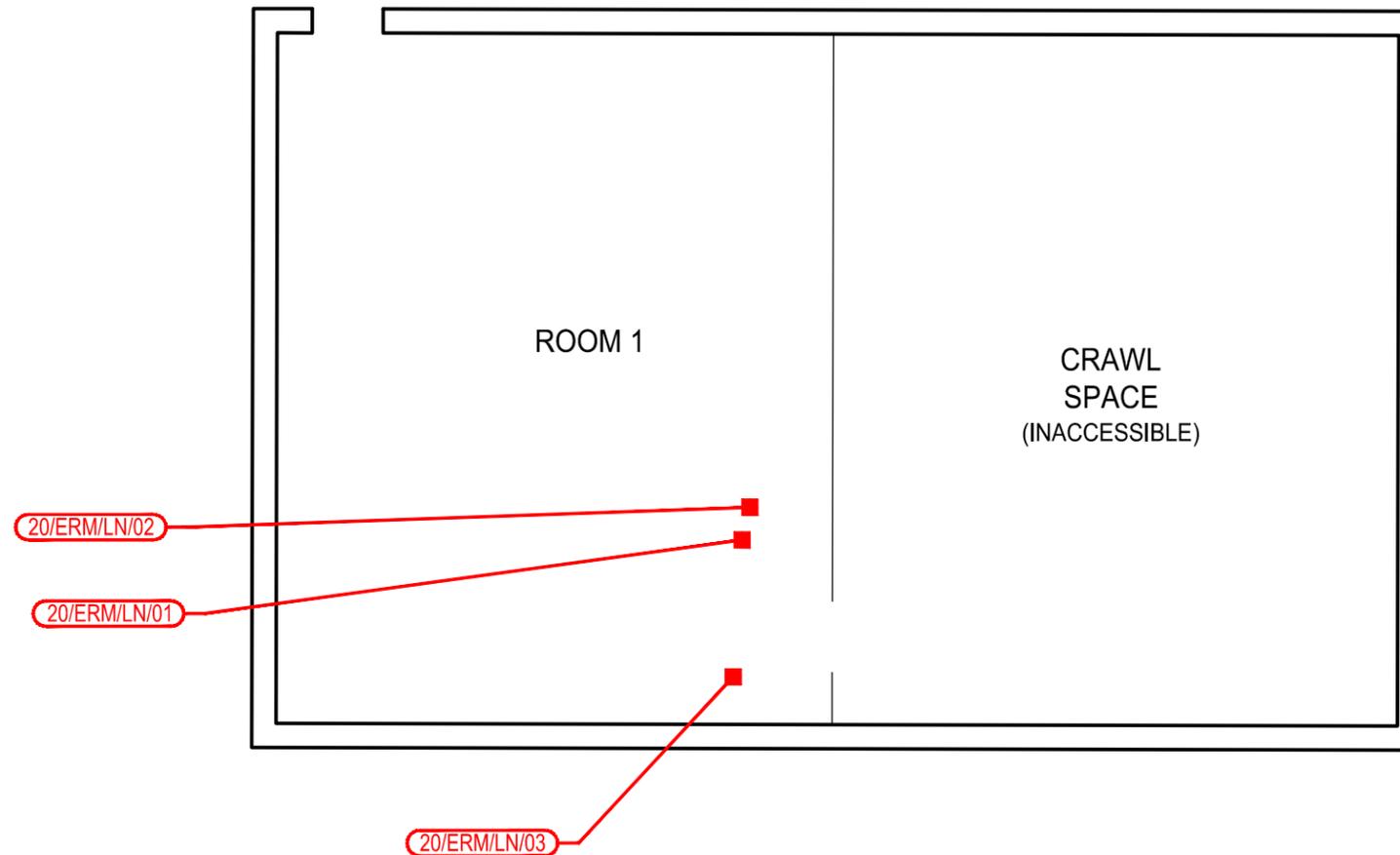
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NIOC SUGAR GROVE BASE 133 HENDIRCK DRIVE SUGAR GROVE, WEST VIRGINIA	CHK'D DS <hr/> 0219688 <hr/> FIGURE 5
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SAMPLE LOCATION AND ASBESTOS MATERIAL LOCATION MAP BUILDING 26 – BASEMENT



- NOTES:**
- BI - BUILDING INSULATION
 - TSI - THERMAL SYSTEM INSULATION
 - WG - WINDOW GLAZE
 - BL - BOILER
 - CB - COVE BASE
 - FT - FLOOR TILE
 - CP - CEILING PLASTER
 - TP - TRANSITE PANELING
 - CT - CEILING TILE
 - LN - LINOLEUM
 - RI - RADIATOR INSULATION

- LEGEND:**
- SAMPLE LOCATION
 - CONFIRMED ASBESTOS CONTAINING MATERIAL SAMPLE LOCATION
 - 100 ROOM NUMBER



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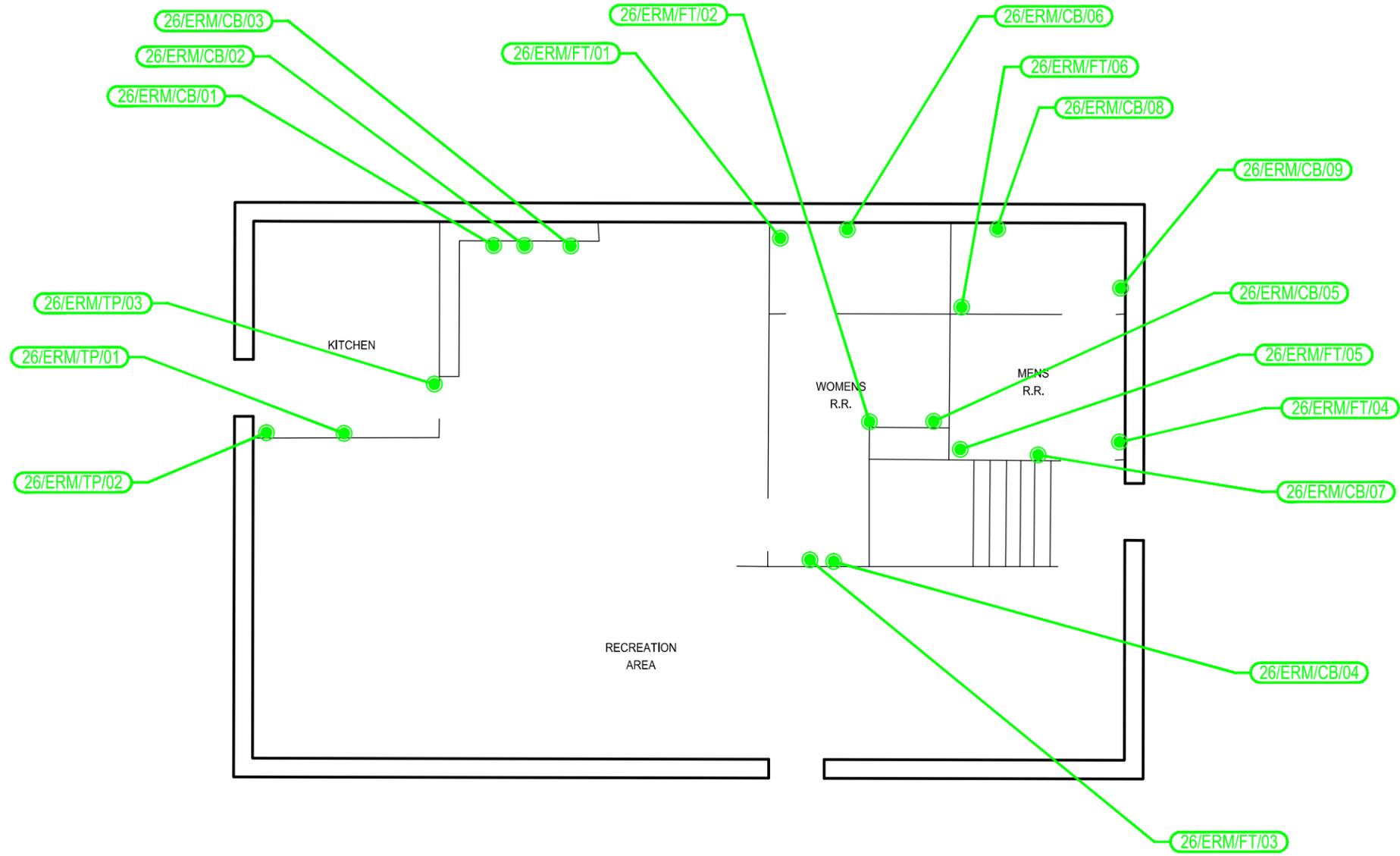
NIOC SUGAR GROVE BASE

133 HENDIRCK DRIVE
SUGAR GROVE, WEST VIRGINIA

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FIGURE 6

SAMPLE LOCATION AND ASBESTOS MATERIAL LOCATION MAP BUILDING 26 – FIRST FLOOR



- NOTES:**
- BI - BUILDING INSULATION
 - TSI - THERMAL SYSTEM INSULATION
 - WG - WINDOW GLAZE
 - BL - BOILER
 - CB - COVE BASE
 - FT - FLOOR TILE
 - CP - CEILING PLASTER
 - TP - TRANSITE PANELING
 - CT - CEILING TILE
 - LN - LINOLEUM
 - RI - RADIATOR INSULATION

- LEGEND:**
- SAMPLE LOCATION
 - CONFIRMED ASBESTOS CONTAINING MATERIAL SAMPLE LOCATION
 - 100 ROOM NUMBER



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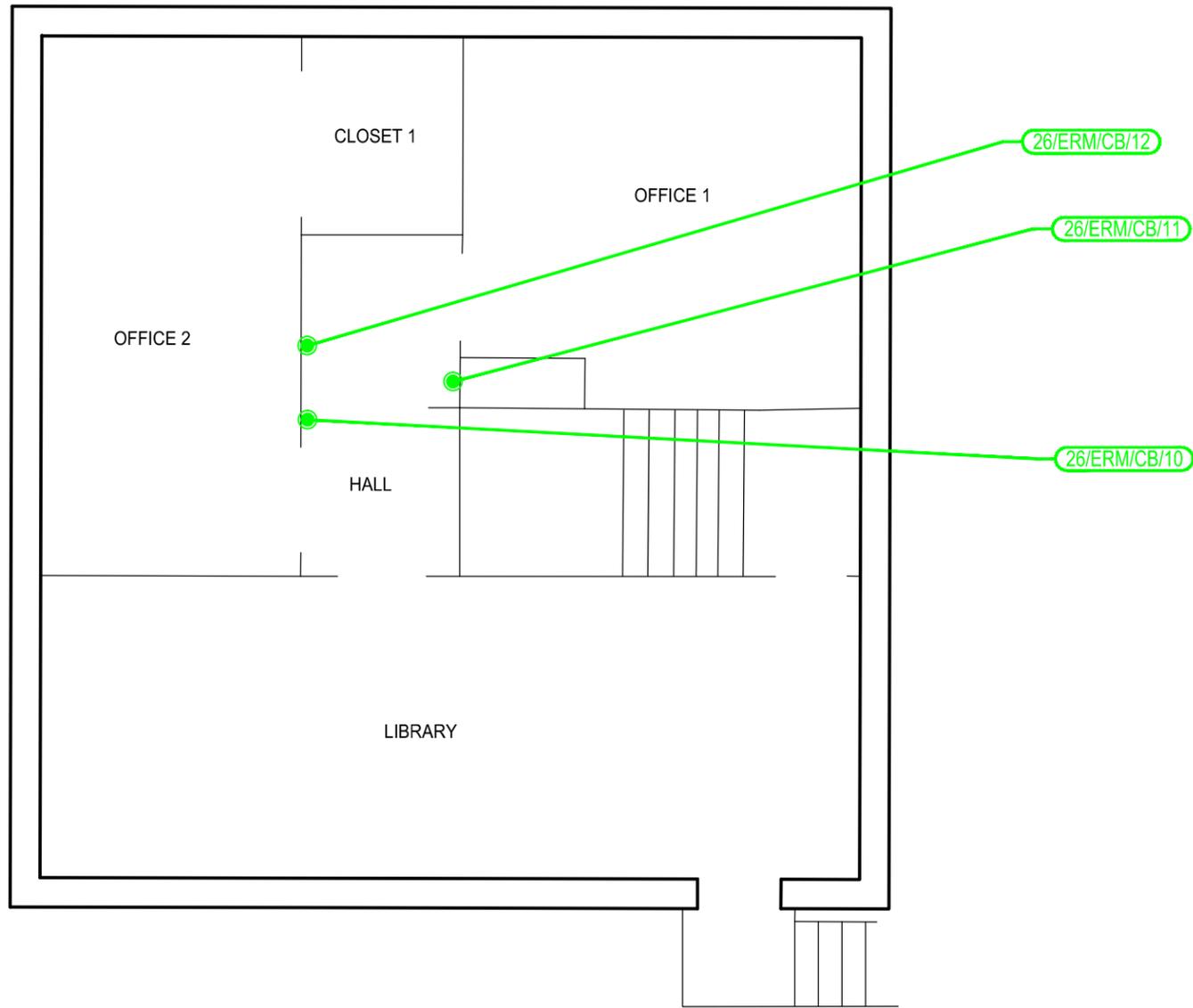
NIOC SUGAR GROVE BASE

133 HENDIRCK DRIVE
SUGAR GROVE, WEST VIRGINIA

Environmental Resources Management

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0219688
FIGURE 7

SAMPLE LOCATION AND ASBESTOS MATERIAL LOCATION MAP BUILDING 26 – SECOND FLOOR



- NOTES:**
- BI - BUILDING INSULATION
 - TSI - THERMAL SYSTEM INSULATION
 - WG - WINDOW GLAZE
 - BL - BOILER
 - CB - COVE BASE
 - FT - FLOOR TILE
 - CP - CEILING PLASTER
 - TP - TRANSITE PANELING
 - CT - CEILING TILE
 - LN - LINOLEUM
 - RI - RADIATOR INSULATION

- LEGEND:**
- SAMPLE LOCATION
 - CONFIRMED ASBESTOS CONTAINING MATERIAL SAMPLE LOCATION
 - 100 ROOM NUMBER



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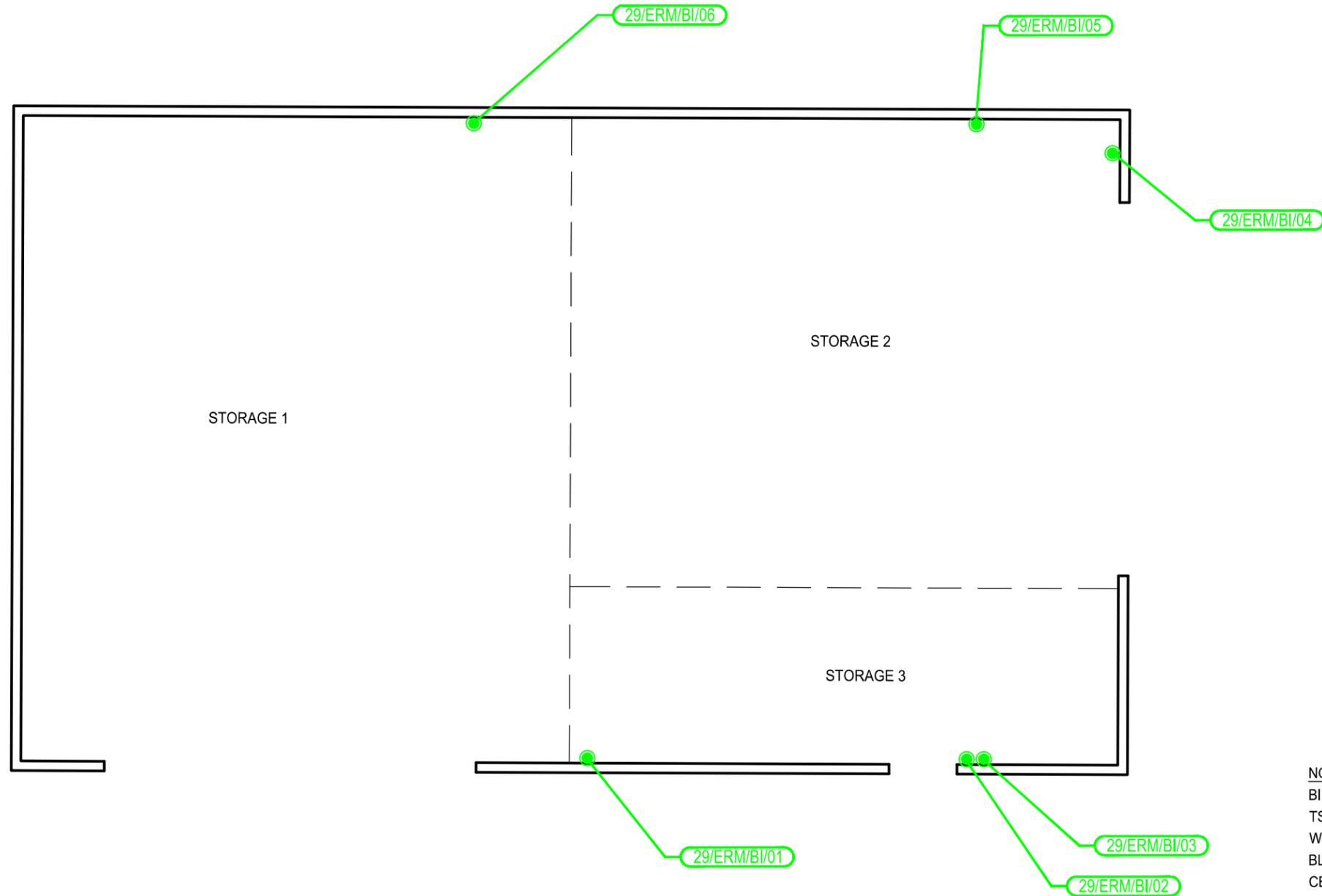
NIOC SUGAR GROVE BASE

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SUGAR GROVE, WEST VIRGINIA

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FIGURE 8

SAMPLE LOCATION AND ASBESTOS MATERIAL LOCATION MAP BUILDING 29



- NOTES:**
- BI - BUILDING INSULATION
 - TSI - THERMAL SYSTEM INSULATION
 - WG - WINDOW GLAZE
 - BL - BOILER
 - CB - COVE BASE
 - FT - FLOOR TILE
 - CP - CEILING PLASTER
 - TP - TRANSITE PANELING
 - CT - CEILING TILE
 - LN - LINOLEUM
 - RI - RADIATOR INSULATION

- LEGEND:**
- SAMPLE LOCATION
 - CONFIRMED ASBESTOS CONTAINING MATERIAL SAMPLE LOCATION
 - 100 ROOM NUMBER



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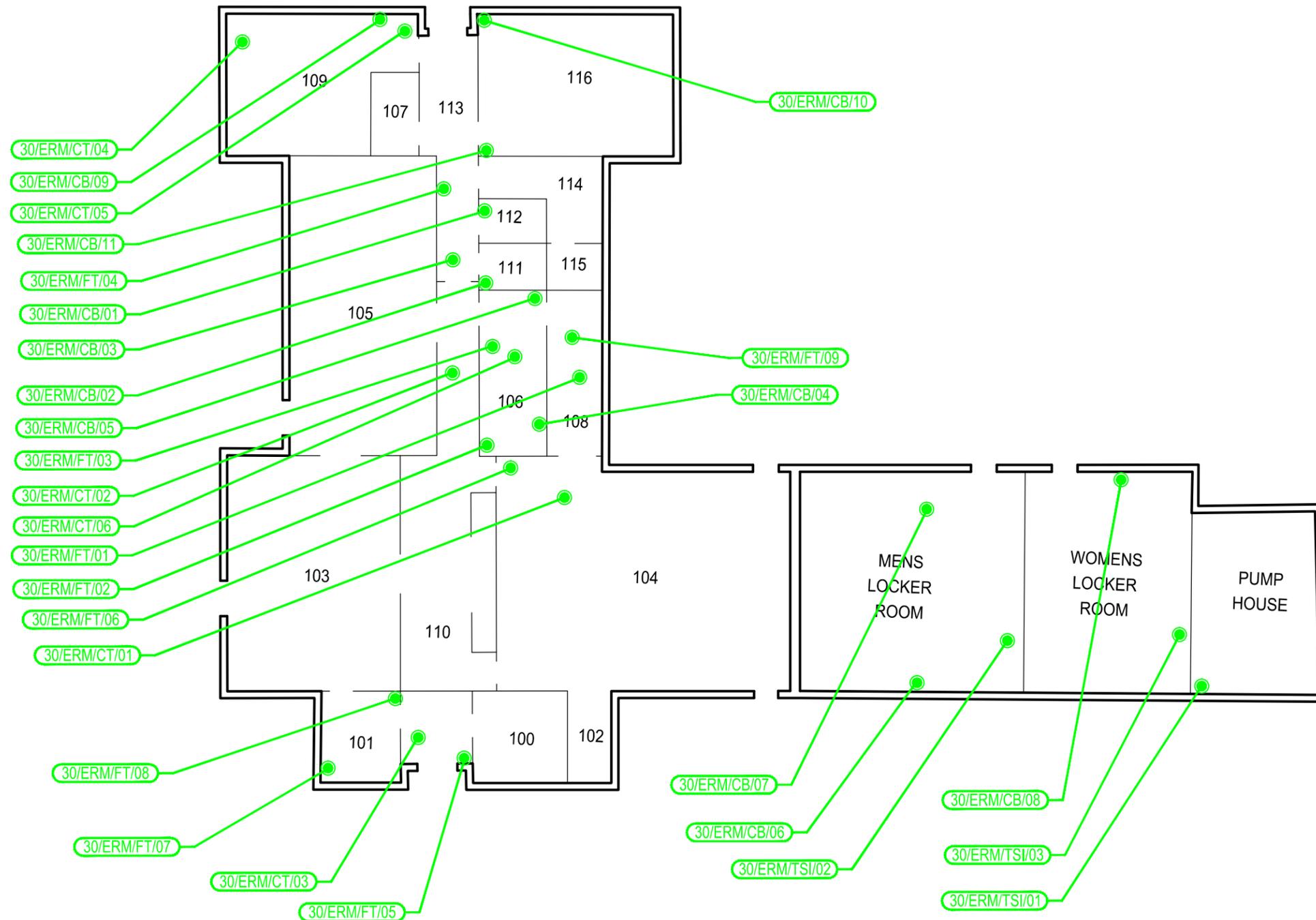
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133 HENDIRCK DRIVE
SUGAR GROVE, WEST VIRGINIA

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FIGURE 9

SAMPLE LOCATION AND ASBESTOS MATERIAL LOCATION MAP BUILDING 30



- NOTES:**
- BI - BUILDING INSULATION
 - TSI - THERMAL SYSTEM INSULATION
 - WG - WINDOW GLAZE
 - BL - BOILER
 - CB - COVE BASE
 - FT - FLOOR TILE
 - CP - CEILING PLASTER
 - TP - TRANSITE PANELING
 - CT - CEILING TILE
 - LN - LINOLEUM
 - RI - RADIATOR INSULATION

- LEGEND:**
- SAMPLE LOCATION
 - CONFIRMED ASBESTOS CONTAINING MATERIAL SAMPLE LOCATION
 - 100 ROOM NUMBER



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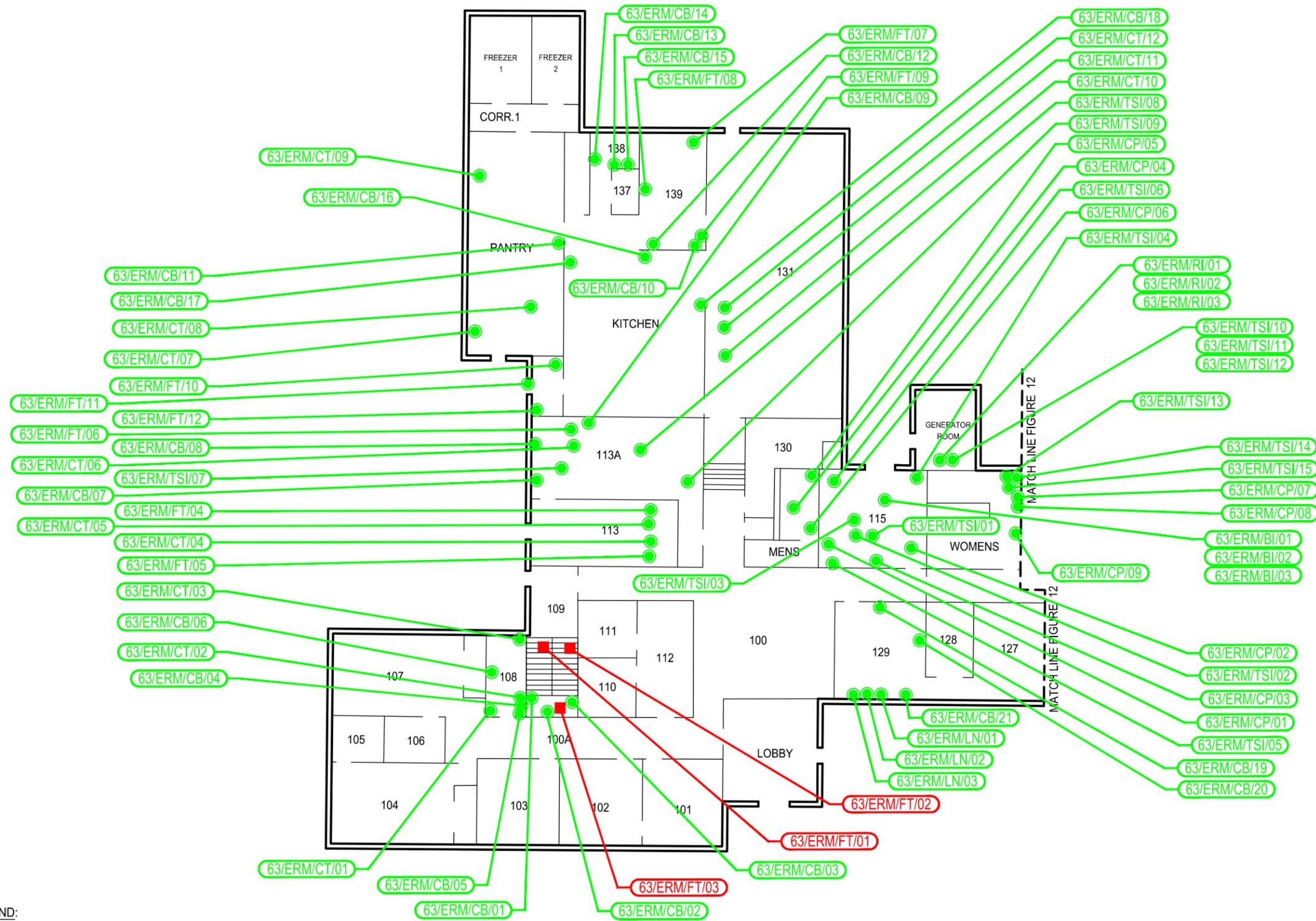
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133 HENDIRCK DRIVE
SUGAR GROVE, WEST VIRGINIA

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	FIGURE 10

SAMPLE LOCATION AND ASBESTOS MATERIAL LOCATION MAP BUILDING 63 – SOUTH SIDE FIRST FLOOR



- NOTES:**
- BI - BUILDING INSULATION
 - TSI - THERMAL SYSTEM INSULATION
 - WG - WINDOW GLAZE
 - BL - BOILER
 - CB - COVE BASE
 - FT - FLOOR TILE
 - CP - CEILING PLASTER
 - TP - TRANSITE PANELING
 - CT - CEILING TILE
 - LN - LINOLEUM
 - RI - RADIATOR INSULATION

- LEGEND:**
- SAMPLE LOCATION
 - CONFIRMED ASBESTOS CONTAINING MATERIAL SAMPLE LOCATION
 - 100 ROOM NUMBER



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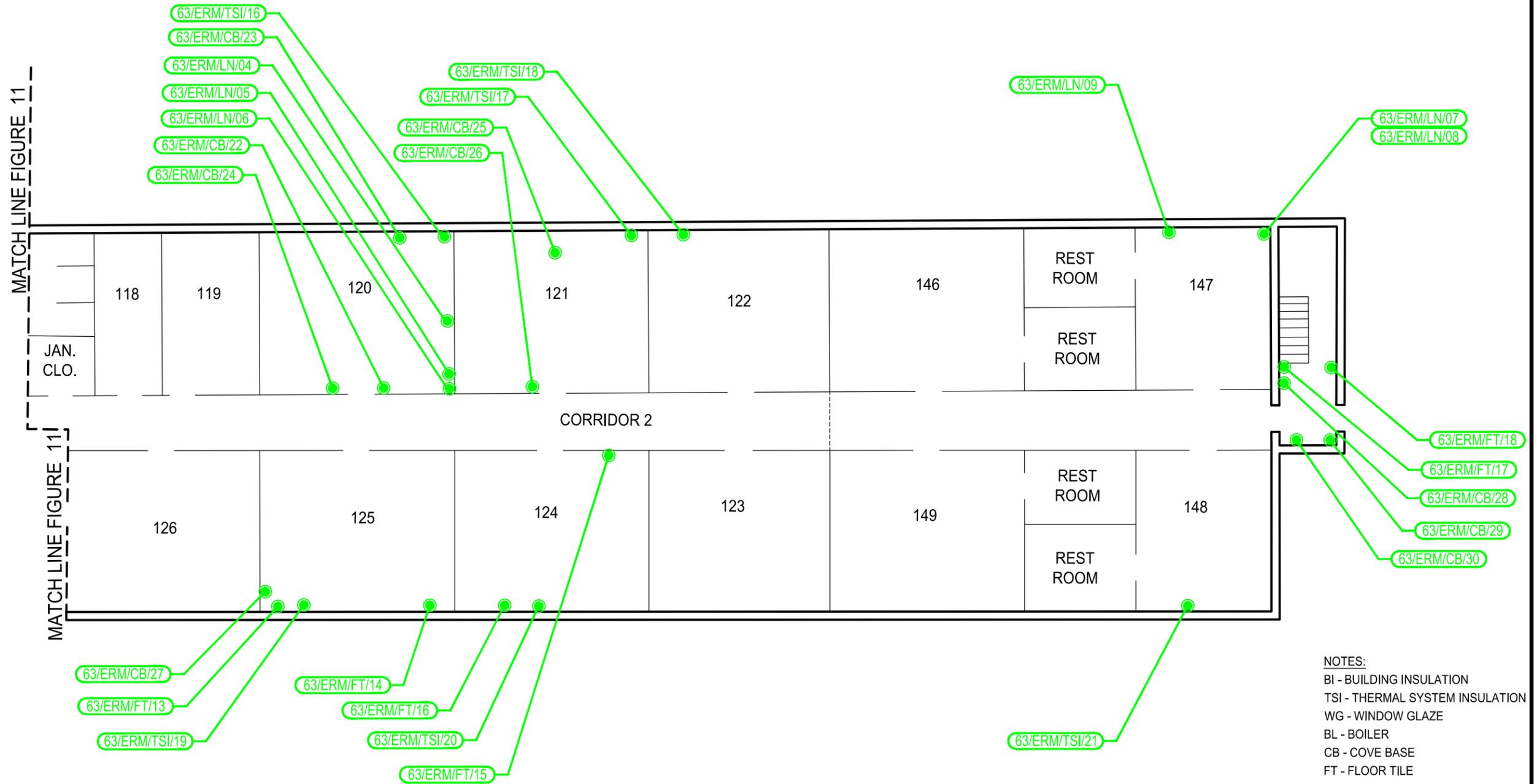


NIOC SUGAR GROVE BASE
133 HENDIRCK DRIVE
SUGAR GROVE, WEST VIRGINIA

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	FIGURE 11

SAMPLE LOCATION AND ASBESTOS MATERIAL LOCATION MAP BUILDING 63 – NORTH SIDE FIRST FLOOR



- NOTES:**
- BI - BUILDING INSULATION
 - TSI - THERMAL SYSTEM INSULATION
 - WG - WINDOW GLAZE
 - BL - BOILER
 - CB - COVE BASE
 - FT - FLOOR TILE
 - CP - CEILING PLASTER
 - TP - TRANSITE PANELING
 - CT - CEILING TILE
 - LN - LINOLEUM
 - RI - RADIATOR INSULATION

- LEGEND:**
- SAMPLE LOCATION
 - CONFIRMED ASBESTOS CONTAINING MATERIAL SAMPLE LOCATION
 - 100 ROOM NUMBER



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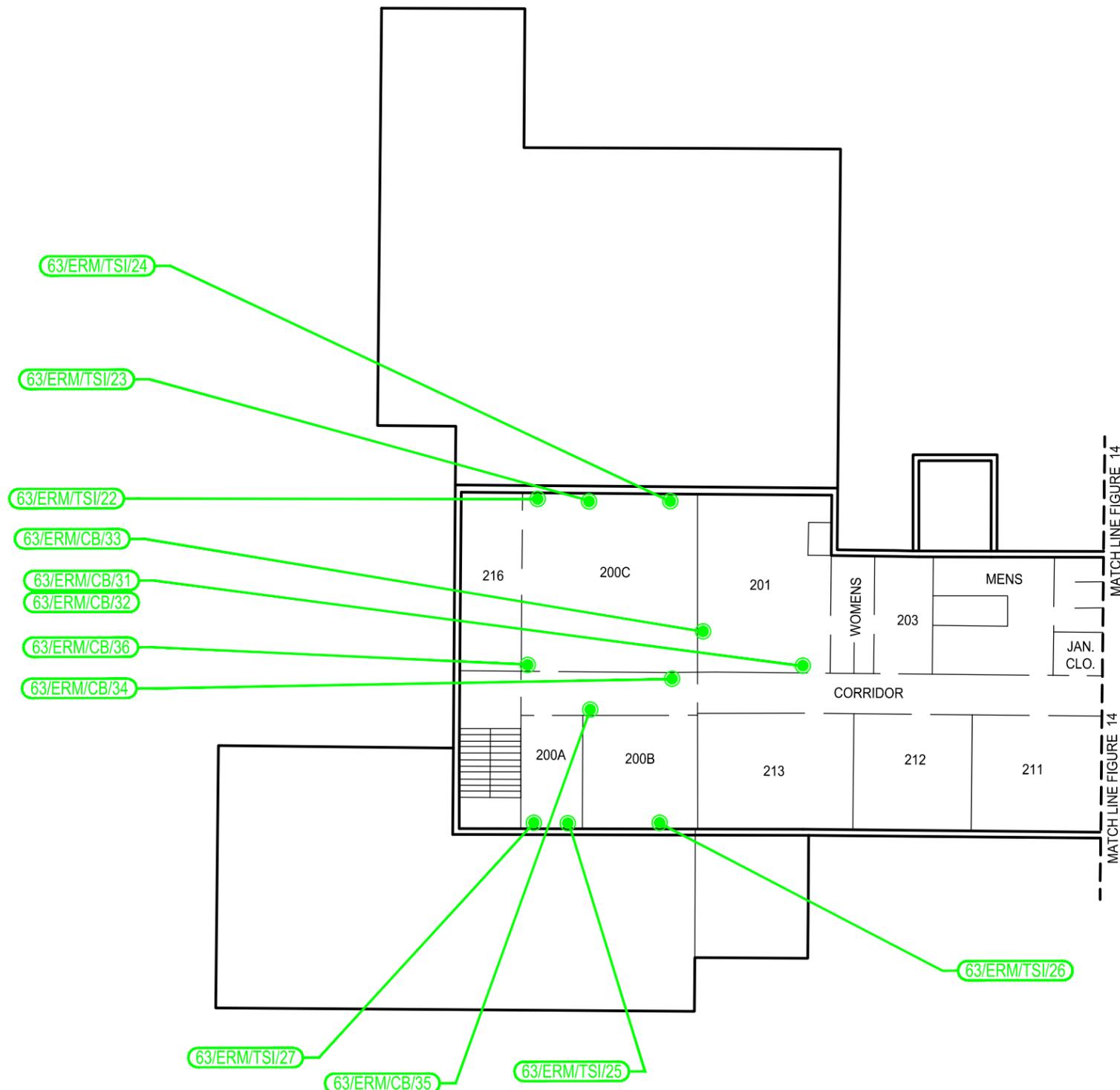
NIOC SUGAR GROVE BASE

133 HENDIRCK DRIVE
SUGAR GROVE, WEST VIRGINIA

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	0219688
	FIGURE 12

SAMPLE LOCATION AND ASBESTOS MATERIAL LOCATION MAP BUILDING 63 – SOUTH SIDE SECOND FLOOR



- NOTES:**
- BI - BUILDING INSULATION
 - TSI - THERMAL SYSTEM INSULATION
 - WG - WINDOW GLAZE
 - BL - BOILER
 - CB - COVE BASE
 - FT - FLOOR TILE
 - CP - CEILING PLASTER
 - TP - TRANSITE PANELING
 - CT - CEILING TILE
 - LN - LINOLEUM
 - RI - RADIATOR INSULATION

- LEGEND:**
- SAMPLE LOCATION
 - CONFIRMED ASBESTOS CONTAINING MATERIAL SAMPLE LOCATION
 - 100 ROOM NUMBER



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1/2/14



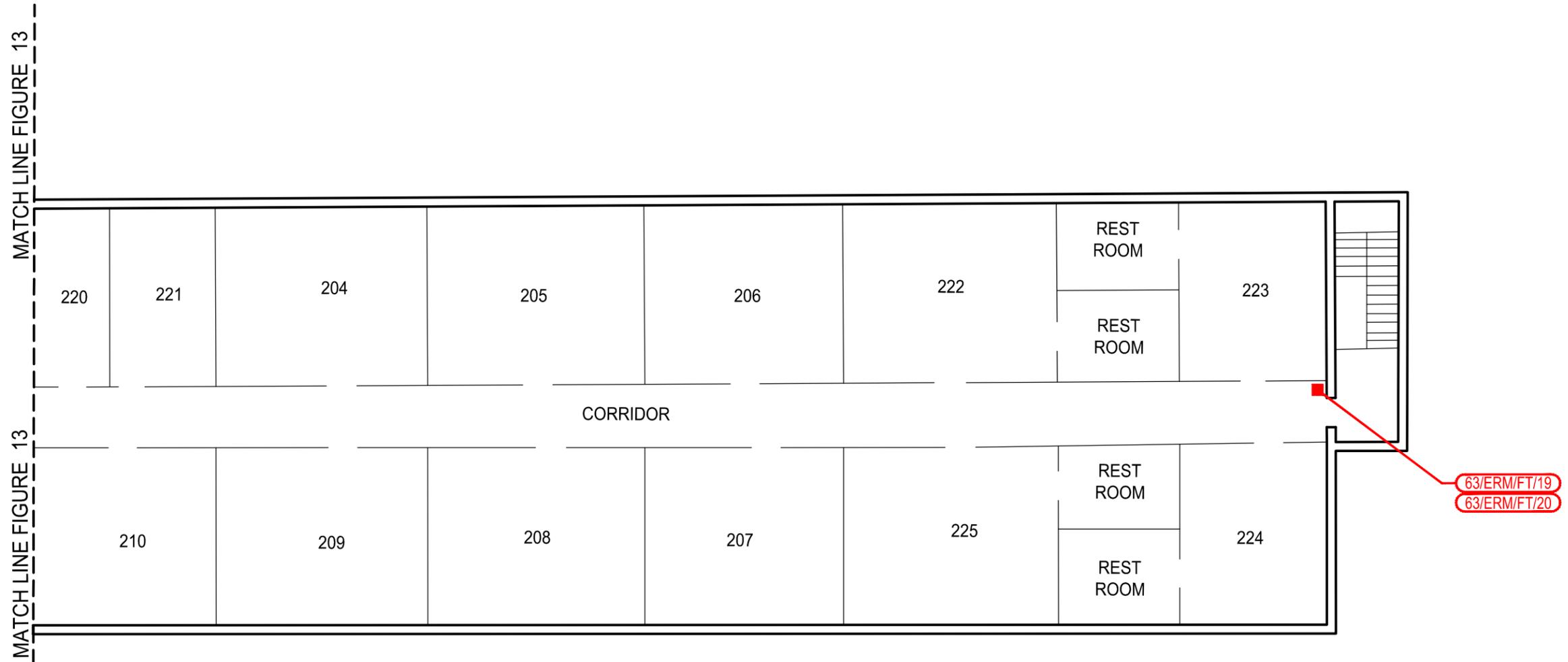
NIOC SUGAR GROVE BASE

133 HENDIRCK DRIVE
SUGAR GROVE, WEST VIRGINIA

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	FIGURE 13

SAMPLE LOCATION AND ASBESTOS MATERIAL LOCATION MAP BUILDING 63 – NORTH SIDE SECOND FLOOR



- NOTES:**
- BI - BUILDING INSULATION
 - TSI - THERMAL SYSTEM INSULATION
 - WG - WINDOW GLAZE
 - BL - BOILER
 - CB - COVE BASE
 - FT - FLOOR TILE
 - CP - CEILING PLASTER
 - TP - TRANSITE PANELING
 - CT - CEILING TILE
 - LN - LINOLEUM
 - RI - RADIATOR INSULATION

- LEGEND:**
- SAMPLE LOCATION
 - CONFIRMED ASBESTOS CONTAINING MATERIAL SAMPLE LOCATION
 - 100 ROOM NUMBER



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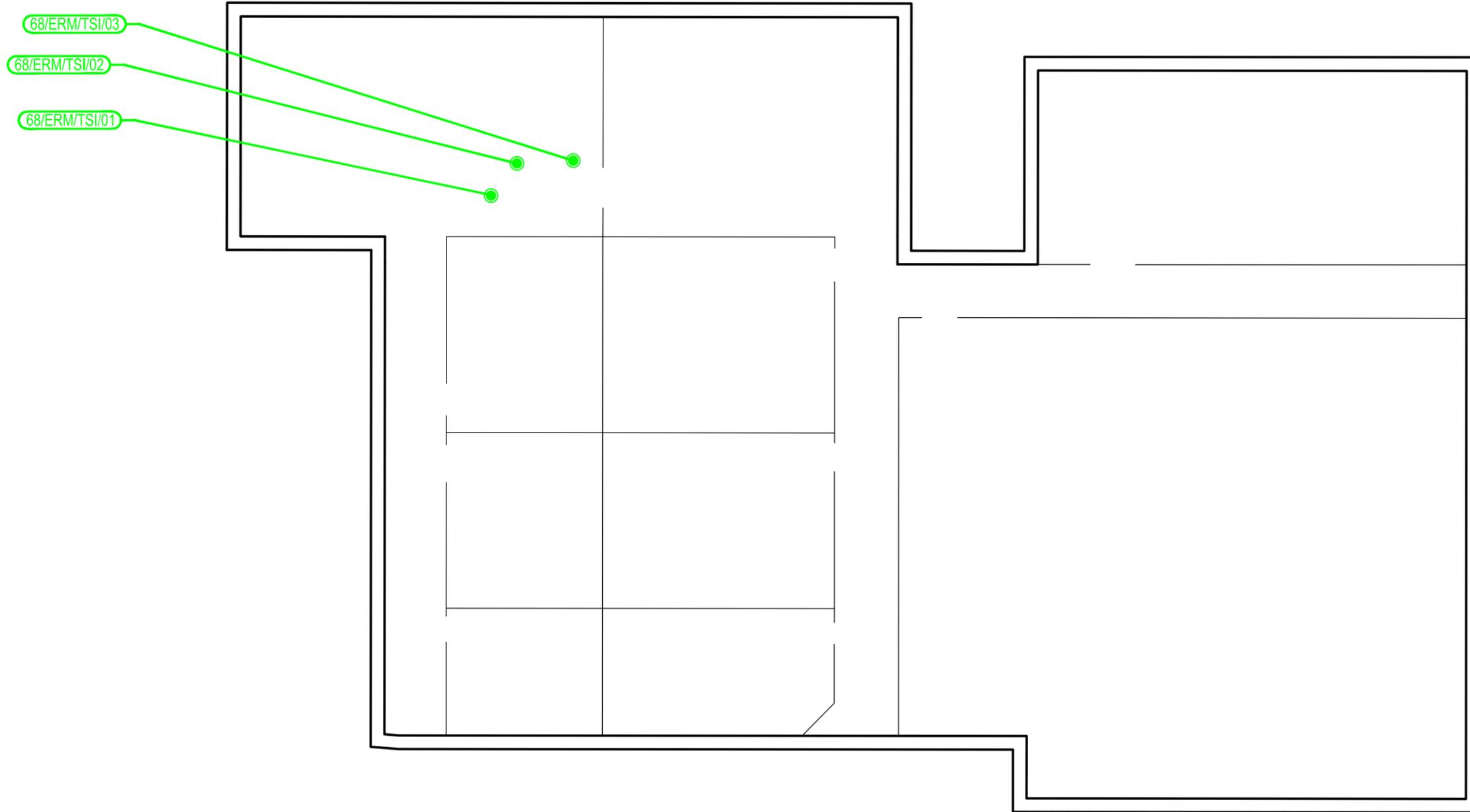


NIOC SUGAR GROVE BASE
133 HENDIRCK DRIVE
SUGAR GROVE, WEST VIRGINIA

Environmental Resources Management

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FIGURE 14

SAMPLE LOCATION AND ASBESTOS MATERIAL LOCATION MAP BUILDING 68



- NOTES:**
- BI - BUILDING INSULATION
 - TSI - THERMAL SYSTEM INSULATION
 - WG - WINDOW GLAZE
 - BL - BOILER
 - CB - COVE BASE
 - FT - FLOOR TILE
 - CP - CEILING PLASTER
 - TP - TRANSITE PANELING
 - CT - CEILING TILE
 - LN - LINOLEUM
 - RI - RADIATOR INSULATION

- LEGEND:**
- SAMPLE LOCATION
 - CONFIRMED ASBESTOS CONTAINING MATERIAL SAMPLE LOCATION
 - 100 ROOM NUMBER



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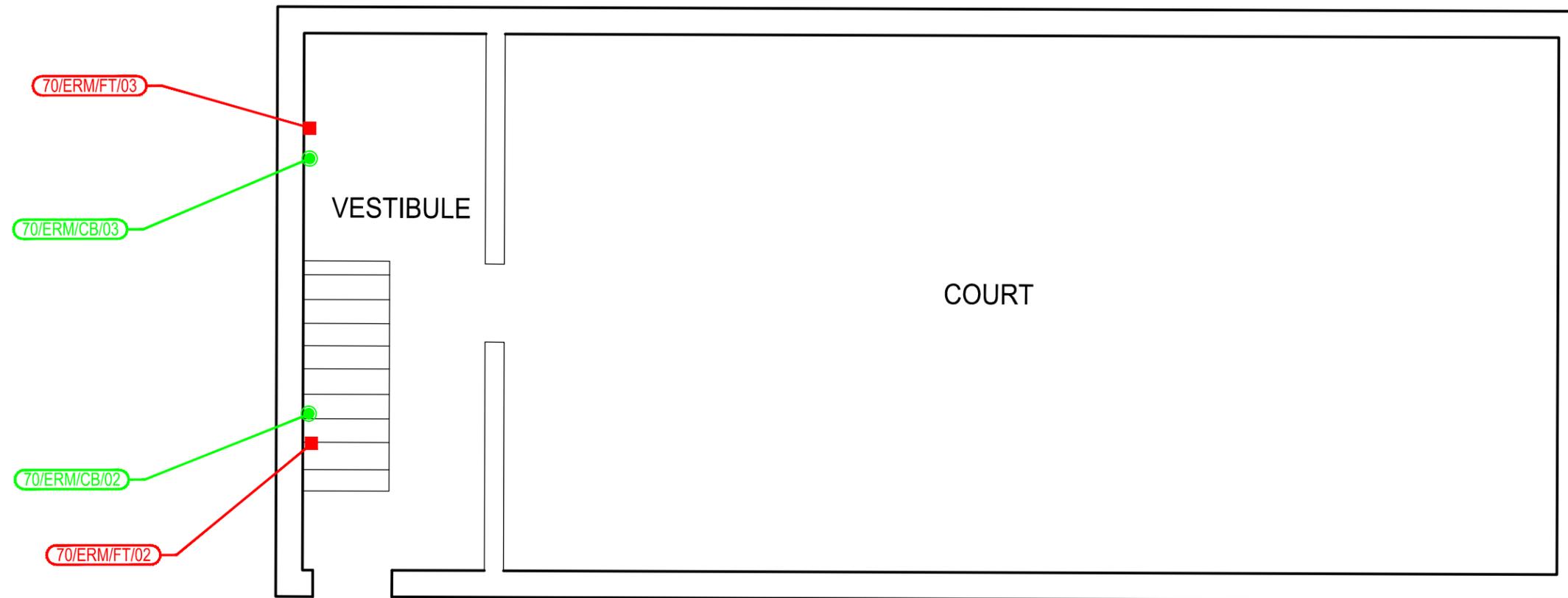
NIOC SUGAR GROVE BASE

133 HENDIRCK DRIVE
SUGAR GROVE, WEST VIRGINIA

Environmental Resources Management

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0219688
FIGURE 15

SAMPLE LOCATION AND ASBESTOS MATERIAL LOCATION MAP BUILDING 70 – FIRST FLOOR



- NOTES:**
- BI - BUILDING INSULATION
 - TSI - THERMAL SYSTEM INSULATION
 - WG - WINDOW GLAZE
 - BL - BOILER
 - CB - COVE BASE
 - FT - FLOOR TILE
 - CP - CEILING PLASTER
 - TP - TRANSITE PANELING
 - CT - CEILING TILE
 - LN - LINOLEUM
 - RI - RADIATOR INSULATION

- LEGEND:**
- SAMPLE LOCATION
 - CONFIRMED ASBESTOS CONTAINING MATERIAL SAMPLE LOCATION
 - 100 ROOM NUMBER



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NIOC SUGAR GROVE BASE

133 HENDIRCK DRIVE
SUGAR GROVE, WEST VIRGINIA

Environmental Resources Management

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FIGURE 16

SAMPLE LOCATION AND ASBESTOS MATERIAL LOCATION MAP BUILDING 70 – SECOND FLOOR



- NOTES:**
- BI - BUILDING INSULATION
 - TSI - THERMAL SYSTEM INSULATION
 - WG - WINDOW GLAZE
 - BL - BOILER
 - CB - COVE BASE
 - FT - FLOOR TILE
 - CP - CEILING PLASTER
 - TP - TRANSITE PANELING
 - CT - CEILING TILE
 - LN - LINOLEUM
 - RI - RADIATOR INSULATION

- LEGEND:**
- SAMPLE LOCATION
 - CONFIRMED ASBESTOS CONTAINING MATERIAL SAMPLE LOCATION
 - 100 ROOM NUMBER



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NIOC SUGAR GROVE BASE

133 HENDIRCK DRIVE
SUGAR GROVE, WEST VIRGINIA

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FIGURE 17

Appendix C
Laboratory Analytical Reports



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077
Phone/Fax: (800) 220-3675 / (856) 786-5974
<http://www.EMSL.com> / cinnasblab@EMSL.com

EMSL Order ID: 041331356
Customer ID: ERMH25
Customer PO:
Project ID:

Attn: Spencer Reynolds
ERM
13 Chase Drive
Hurricane, WV 25526
Phone: (304) 757-4777
Fax: (304) 757-4799
Collected:
Received: 11/19/2013
Analyzed: 12/15/2013
Proj: Sugar Grove ACM

Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116 Method via Polarized Light Microscopy

Client Sample ID: 25/ ERM/ WG/ 01	Lab Sample ID: 041331356-0001					
Sample Description: Bldg 25 only window/window glaze						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/26/2013	Gray	Fibrous 0%	Non-Fibrous 100%	None Detected	

Client Sample ID: 25/ ERM/ WG/ 02	Lab Sample ID: 041331356-0002					
Sample Description: Bldg 25 only window/window glaze						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/26/2013	Gray	Fibrous 0%	Non-Fibrous 100%	None Detected	

Client Sample ID: 22/ ERM/ B1/ 01	Lab Sample ID: 041331356-0003					
Sample Description: Entire interior of building/ 2nd floor/building insulation						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/26/2013	Yellow	Fibrous 95%	Non-Fibrous 5%	None Detected	

Client Sample ID: 22/ ERM/ B1/ 02	Lab Sample ID: 041331356-0004					
Sample Description: Entire interior of building/ 2nd floor/building insulation						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/26/2013	Yellow	Fibrous 95%	Non-Fibrous 5%	None Detected	

Client Sample ID: 22/ ERM/ B1/ 03	Lab Sample ID: 041331356-0005					
Sample Description: Entire interior of building/ 2nd floor/building insulation						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/26/2013	Yellow	Fibrous 90%	Non-Fibrous 10%	None Detected	

Client Sample ID: 22/ ERM/ TSI/ 01-Wrap	Lab Sample ID: 041331356-0006					
Sample Description: Middle of North wall/white TSI						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/26/2013	White/Silver	Fibrous 65%	Non-Fibrous 35%	None Detected	

Client Sample ID: 22/ ERM/ TSI/ 01-Insulation	Lab Sample ID: 041331356-0006A					
Sample Description: Middle of North wall/white TSI						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/26/2013	Yellow	Fibrous 95%	Non-Fibrous 5%	None Detected	



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077
Phone/Fax: (800) 220-3675 / (856) 786-5974
<http://www.EMSL.com> / cinnasblab@EMSL.com

EMSL Order ID: 041331356
Customer ID: ERMH25
Customer PO:
Project ID:

Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116 Method via Polarized Light Microscopy

Client Sample ID: 22/ ERM/ TSI/ 02		Lab Sample ID: 041331356-0007				
Sample Description: Middle of North wall/white TSI						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/26/2013	Yellow	Fibrous 95%	Non-Fibrous 5%	None Detected	
Client Sample ID: 22/ ERM/ TSI/ 03-Wrap		Lab Sample ID: 041331356-0008				
Sample Description: Middle of North wall/white TSI						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/26/2013	White	Fibrous 60%	Non-Fibrous 40%	None Detected	
Client Sample ID: 22/ ERM/ TSI/ 03-Insulation		Lab Sample ID: 041331356-0008A				
Sample Description: Middle of North wall/white TSI						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/26/2013	Yellow	Fibrous 90%	Non-Fibrous 10%	None Detected	
Client Sample ID: 22/ ERM/ TSI/ 04-Wrap		Lab Sample ID: 041331356-0009				
Sample Description: Middle of North wall/grey TSI						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/26/2013	Gray/White	Fibrous 30%	Non-Fibrous 70%	None Detected	
Client Sample ID: 22/ ERM/ TSI/ 04-Insulation		Lab Sample ID: 041331356-0009A				
Sample Description: Middle of North wall/grey TSI						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/26/2013	Yellow	Fibrous 95%	Non-Fibrous 5%	None Detected	
Client Sample ID: 22/ ERM/ TSI/ 05-Wrap		Lab Sample ID: 041331356-0010				
Sample Description: Middle of North wall/grey TSI						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/26/2013	Gray	Fibrous 30%	Non-Fibrous 70%	None Detected	
Client Sample ID: 22/ ERM/ TSI/ 05-Insulation		Lab Sample ID: 041331356-0010A				
Sample Description: Middle of North wall/grey TSI						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/26/2013	Yellow	Fibrous 95%	Non-Fibrous 5%	None Detected	
Client Sample ID: 22/ ERM/ TSI/ 06-Wrap		Lab Sample ID: 041331356-0011				
Sample Description: Middle of North wall/grey TSI						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/26/2013	Gray	Fibrous 50%	Non-Fibrous 50%	None Detected	



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EMSL Order ID: 041331356
Customer ID: ERMH25
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Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116 Method via Polarized Light Microscopy

Client Sample ID: 22/ ERM/ TSI/ 06-Insulation		Lab Sample ID: 041331356-0011A				
Sample Description: Middle of North wall/grey TSI						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/26/2013	Tan	Fibrous 90%	Non-Fibrous 10%	None Detected	
Client Sample ID: 29/ ERM/ B1/ 01-Wrap		Lab Sample ID: 041331356-0012				
Sample Description: Middle of South wall/silver building insulation/ entire West						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/26/2013	Brown/Silver	Fibrous 90%	Non-Fibrous 10%	None Detected	
Client Sample ID: 29/ ERM/ B1/ 01-Insulation		Lab Sample ID: 041331356-0012A				
Sample Description: Middle of South wall/silver building insulation/ entire West						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/26/2013	Yellow	Fibrous 90%	Non-Fibrous 10%	None Detected	
Client Sample ID: 29/ ERM/ B1/ 02		Lab Sample ID: 041331356-0013				
Sample Description: Middle of South wall/silver building insulation/ entire West						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/26/2013	Brown/Yellow	Fibrous 85%	Non-Fibrous 15%	None Detected	
Client Sample ID: 29/ ERM/ B1/ 03-Wrap		Lab Sample ID: 041331356-0014				
Sample Description: Middle of South wall/silver building insulation/ entire West						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/26/2013	Brown/Silver	Fibrous 60%	Non-Fibrous 40%	None Detected	
Client Sample ID: 29/ ERM/ B1/ 03-Insulation		Lab Sample ID: 041331356-0014A				
Sample Description: Middle of South wall/silver building insulation/ entire West						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/26/2013	Yellow	Fibrous 90%	Non-Fibrous 10%	None Detected	
Client Sample ID: 29/ ERM/ B1/ 04		Lab Sample ID: 041331356-0015				
Sample Description: Middle of East wall/white building insulation/ entire East						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/26/2013				Not Submitted	
Client Sample ID: 29/ ERM/ B1/ 05		Lab Sample ID: 041331356-0016				
Sample Description: Middle of North wall/white building insulation/ entire East						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/26/2013	Yellow	Fibrous 95%	Non-Fibrous 5%	None Detected	



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Client Sample ID: 29/ ERM/ B1/ 06-Wrap **Lab Sample ID:** 041331356-0017

Sample Description: Middle of North wall/white building insulation/ entire East

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013	White/Silver	20%	80%	None Detected	

Client Sample ID: 29/ ERM/ B1/ 06-Insulation **Lab Sample ID:** 041331356-0017A

Sample Description: Middle of North wall/white building insulation/ entire East

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013	Yellow	90%	10%	None Detected	

Client Sample ID: 68/ ERM/ TSI/ 01-Wrap **Lab Sample ID:** 041331356-0018

Sample Description: Middle office on Eastern side/ only door on left/white TSI/ throughout building

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013	White	30%	70%	None Detected	

Client Sample ID: 68/ ERM/ TSI/ 01-Insulation **Lab Sample ID:** 041331356-0018A

Sample Description: Middle office on Eastern side/ only door on left/white TSI/ throughout building

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013	Yellow	95%	5%	None Detected	

Client Sample ID: 68/ ERM/ TSI/ 02 **Lab Sample ID:** 041331356-0019

Sample Description: Middle office on Eastern side/ only door on left/white TSI/ throughout building

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013	White/Yellow	73%	27%	None Detected	

Client Sample ID: 68/ ERM/ TSI/ 03-Wrap **Lab Sample ID:** 041331356-0020

Sample Description: Hallway of main entrance/white TSI/ throughout building

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013	White	60%	40%	None Detected	

Client Sample ID: 68/ ERM/ TSI/ 03-Insulation **Lab Sample ID:** 041331356-0020A

Sample Description: Hallway of main entrance/white TSI/ throughout building

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013	Yellow	90%	10%	None Detected	

Client Sample ID: 30/ ERM/ CB/ 01-covebase **Lab Sample ID:** 041331356-0021

Sample Description: Bathroom/ commissary/grey covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray	0%	100%	None Detected	



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Client Sample ID: 30/ ERM/ CB/ 01-mastic **Lab Sample ID:** 041331356-0022
Sample Description: Bathroom/ commissary/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 30/ ERM/ CB/ 02-covebase **Lab Sample ID:** 041331356-0023
Sample Description: Bathroom/ commissary/grey covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray	0%	100%	None Detected	

Client Sample ID: 30/ ERM/ CB/ 02-mastic **Lab Sample ID:** 041331356-0024
Sample Description: Bathroom/ commissary/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 30/ ERM/ CB/ 03-covebase **Lab Sample ID:** 041331356-0025
Sample Description: Hallway/ commissary/grey covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray	0%	100%	None Detected	

Client Sample ID: 30/ ERM/ CB/ 03-mastic **Lab Sample ID:** 041331356-0026
Sample Description: Hallway/ commissary/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 30/ ERM/ CB/ 04-covebase **Lab Sample ID:** 041331356-0027
Sample Description: Breakroom/ commissary/grey covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Gray	0%	100%	None Detected	

Client Sample ID: 30/ ERM/ CB/ 04-mastic **Lab Sample ID:** 041331356-0028
Sample Description: Breakroom/ commissary/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 30/ ERM/ CB/ 05-covebase **Lab Sample ID:** 041331356-0029
Sample Description: Breakroom/ commissary/grey covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Gray	0%	100%	None Detected	



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Client Sample ID: 30/ ERM/ CB/ 05-mastic **Lab Sample ID:** 041331356-0030
Sample Description: Breakroom/ commissary/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Black/Yellow	0%	100%	None Detected	

Client Sample ID: 30/ ERM/ FT/ 01-floor tile **Lab Sample ID:** 041331356-0031
Sample Description: Breakroom/ commissary/green flooring tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	White/Green	0%	100%	None Detected	

Client Sample ID: 30/ ERM/ FT/ 01-mastic **Lab Sample ID:** 041331356-0032
Sample Description: Breakroom/ commissary/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013				Insufficient Material	

Client Sample ID: 30/ ERM/ FT/ 02-floor tile **Lab Sample ID:** 041331356-0033
Sample Description: Breakroom/ commissary/green flooring tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	White/Green	0%	100%	None Detected	

Client Sample ID: 30/ ERM/ FT/ 02-mastic **Lab Sample ID:** 041331356-0034
Sample Description: Breakroom/ commissary/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 30/ ERM/ FT/ 03-floor tile **Lab Sample ID:** 041331356-0035
Sample Description: Breakroom/ commissary/green flooring tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	White	0%	100%	None Detected	

Client Sample ID: 30/ ERM/ FT/ 03-mastic **Lab Sample ID:** 041331356-0036
Sample Description: Breakroom/ commissary/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 30/ ERM/ FT/ 04-floor tile **Lab Sample ID:** 041331356-0037
Sample Description: Hallway/ commissary/small grey flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray	0%	100%	None Detected	



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Client Sample ID: 30/ ERM/ FT/ 04-mastic **Lab Sample ID:** 041331356-0038
Sample Description: Hallway/ commissary/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013				Insufficient Material	

Client Sample ID: 30/ ERM/ FT/ 05-floor tile **Lab Sample ID:** 041331356-0039
Sample Description: Commissary/ commissary/small grey flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray	0%	100%	None Detected	

Client Sample ID: 30/ ERM/ FT/ 05-mastic **Lab Sample ID:** 041331356-0040
Sample Description: Commissary/ commissary/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 30/ ERM/ FT/ 06-floor tile **Lab Sample ID:** 041331356-0041
Sample Description: Commissary/ commissary/small grey flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Gray/White	0%	100%	None Detected	

Client Sample ID: 30/ ERM/ FT/ 06-mastic **Lab Sample ID:** 041331356-0042
Sample Description: Commissary/ commissary/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 30/ ERM/ FT/ 07-floor tile **Lab Sample ID:** 041331356-0043
Sample Description: Breakroom/ commissary/large grey flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray	0%	100%	None Detected	

Client Sample ID: 30/ ERM/ FT/ 07-mastic **Lab Sample ID:** 041331356-0044
Sample Description: Breakroom/ commissary/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 30/ ERM/ FT/ 08-floor tile **Lab Sample ID:** 041331356-0045
Sample Description: Office/ commissary/large grey flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray	0%	100%	None Detected	



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Client Sample ID: 30/ ERM/ FT/ 08-mastic **Lab Sample ID:** 041331356-0046
Sample Description: Office/ commissary/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013				Insufficient Material	

Client Sample ID: 30/ ERM/ FT/ 09-floor tile **Lab Sample ID:** 041331356-0047
Sample Description: Office/ commissary/large grey flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Gray/White	0%	100%	None Detected	

Client Sample ID: 30/ ERM/ FT/ 09-mastic **Lab Sample ID:** 041331356-0048
Sample Description: Office/ commissary/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 30/ ERM/ TSI/ 01-Wrap **Lab Sample ID:** 041331356-0049
Sample Description: Pumphouse South of building/ bathroom/white-yellow TSI

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	White	80%	20%	None Detected	

Client Sample ID: 30/ ERM/ TSI/ 01-Insulation **Lab Sample ID:** 041331356-0049A
Sample Description: Pumphouse South of building/ bathroom/white-yellow TSI

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	90%	10%	None Detected	

Client Sample ID: 30/ ERM/ TSI/ 02-Wrap **Lab Sample ID:** 041331356-0050
Sample Description: Mens showers/ bath house/white-yellow TSI

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	White	80%	20%	None Detected	

Client Sample ID: 30/ ERM/ TSI/ 02-Insulation **Lab Sample ID:** 041331356-0050A
Sample Description: Mens showers/ bath house/white-yellow TSI

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Yellow	90%	10%	None Detected	

Client Sample ID: 30/ ERM/ TSI/ 03-Wrap **Lab Sample ID:** 041331356-0051
Sample Description: Womens showers/ bath house/white-yellow TSI

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	White	80%	20%	None Detected	



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Client Sample ID: 30/ ERM/ TSI/ 03-Insulation **Lab Sample ID:** 041331356-0051A

Sample Description: Womens showers/ bath house/white-yellow TSI

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Yellow	80%	20%	None Detected	

Client Sample ID: 30/ ERM/ CB/ 06-covebase **Lab Sample ID:** 041331356-0052

Sample Description: Mens showers/ bath house/white covebase on showers

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	White	0%	100%	None Detected	

Client Sample ID: 30/ ERM/ CB/ 06-mastic **Lab Sample ID:** 041331356-0053

Sample Description: Mens showers/ bath house/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 30/ ERM/ CB/ 07-covebase **Lab Sample ID:** 041331356-0054

Sample Description: Mens showers/ bath house/white covebase on showers

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	White	0%	100%	None Detected	

Client Sample ID: 30/ ERM/ CB/ 07-mastic **Lab Sample ID:** 041331356-0055

Sample Description: Mens showers/ bath house/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 30/ ERM/ CB/ 08-covebase **Lab Sample ID:** 041331356-0056

Sample Description: Womens showers/ bath house/white covebase on showers

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	White	0%	100%	None Detected	

Client Sample ID: 30/ ERM/ CB/ 08-mastic **Lab Sample ID:** 041331356-0057

Sample Description: Womens showers/ bath house/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 30/ ERM/ CB/ 09-covebase **Lab Sample ID:** 041331356-0058

Sample Description: South portion on NEX building/brown covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Brown	0%	100%	None Detected	



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Client Sample ID: 30/ ERM/ CB/ 09-mastic **Lab Sample ID:** 041331356-0059
Sample Description: South portion on NEX building/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 30/ ERM/ CB/ 10-covebase **Lab Sample ID:** 041331356-0060
Sample Description: North wall of NEX building/brown covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Brown	0%	100%	None Detected	

Client Sample ID: 30/ ERM/ CB/ 10-mastic **Lab Sample ID:** 041331356-0061
Sample Description: North wall of NEX building/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 30/ ERM/ CB/ 11-covebase **Lab Sample ID:** 041331356-0062
Sample Description: Southwest wall of NEX building/brown covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Brown	0%	100%	None Detected	

Client Sample ID: 30/ ERM/ CB/ 11-mastic **Lab Sample ID:** 041331356-0063
Sample Description: Southwest wall of NEX building/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 30/ ERM/ CT/ 01 **Lab Sample ID:** 041331356-0064
Sample Description: Southeast ceiling tile NEX/white ceiling tile throughtout building

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray/White	80%	20%	None Detected	

Client Sample ID: 30/ ERM/ CT/ 02 **Lab Sample ID:** 041331356-0065
Sample Description: Hallway of commenary NEX/white ceiling tile throughtout building

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray/White	80%	20%	None Detected	

Client Sample ID: 30/ ERM/ CT/ 03 **Lab Sample ID:** 041331356-0066
Sample Description: Office of commenary NEX/white ceiling tile throughtout building

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray/White	80%	20%	None Detected	



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Client Sample ID: 30/ ERM/ CT/ 04 **Lab Sample ID:** 041331356-0067
Sample Description: North ceiling area NEX/white ceiling tile throughtout building

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray/White	80%	20%	None Detected	

Client Sample ID: 30/ ERM/ CT/ 05 **Lab Sample ID:** 041331356-0068
Sample Description: South ceiling area NEX/white ceiling tile throughtout building

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Gray/White	80%	20%	None Detected	

Client Sample ID: 30/ ERM/ CT/ 06 **Lab Sample ID:** 041331356-0069
Sample Description: Ceiling tile in lunch room/white ceiling tile throughtout building

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Gray/White	80%	20%	None Detected	

Client Sample ID: 20/ ERM/ CB/ 01-covebase **Lab Sample ID:** 041331356-0070
Sample Description: Room 204/grey covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray	0%	100%	None Detected	RECOMMEND TEM

Client Sample ID: 20/ ERM/ CB/ 01-mastic **Lab Sample ID:** 041331356-0071
Sample Description: Room 204/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ CB/ 02-covebase **Lab Sample ID:** 041331356-0072
Sample Description: Entrance hallway/grey covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ CB/ 02-mastic **Lab Sample ID:** 041331356-0073
Sample Description: Entrance hallway/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ CB/ 03-covebase **Lab Sample ID:** 041331356-0074
Sample Description: Room 208/grey covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013	Black	0%	100%	None Detected	



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Client Sample ID: 20/ ERM/ CB/ 03-mastic **Lab Sample ID:** 041331356-0075
Sample Description: Room 208/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013	Tan	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ CT/ 01 **Lab Sample ID:** 041331356-0076
Sample Description: Bathroom/white ceiling tile throughout building

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray/White	80%	20%	None Detected	

Client Sample ID: 20/ ERM/ CT/ 02 **Lab Sample ID:** 041331356-0077
Sample Description: Room 203/white ceiling tile throughout building

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray/White	80%	20%	None Detected	

Client Sample ID: 20/ ERM/ CT/ 03 **Lab Sample ID:** 041331356-0078
Sample Description: Room 201/white ceiling tile throughout building

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013	Gray/White	75%	25%	None Detected	

Client Sample ID: 20/ ERM/ FT/ 01-floor tile **Lab Sample ID:** 041331356-0079
Sample Description: Room 110/grey brown tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Brown/Gray	0%	97%	3% Chrysotile	

Client Sample ID: 20/ ERM/ FT/ 01-mastic **Lab Sample ID:** 041331356-0080
Sample Description: Room 110/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Black	0%	96%	4% Chrysotile	
400 PLM PtCt Grav. Red.	12/09/2013	Black	0.0%	100%	<0.25% Chrysotile	Limited sample for NOB prep.

Client Sample ID: 20/ ERM/ FT/ 02-floor tile **Lab Sample ID:** 041331356-0081
Sample Description: Room 110/grey brown tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013				Stop Positive (Not Analyzed)	

Client Sample ID: 20/ ERM/ FT/ 02-mastic **Lab Sample ID:** 041331356-0082
Sample Description: Room 110/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013				Stop Positive (Not Analyzed)	
400 PLM PtCt Grav. Red.	12/09/2013	Black	0.0%	98.9%	1.1% Chrysotile	



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Client Sample ID: 20/ ERM/ FT/ 03-floor tile **Lab Sample ID:** 041331356-0083
Sample Description: Room 110/grey brown tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013					Stop Positive (Not Analyzed)

Client Sample ID: 20/ ERM/ FT/ 03-mastic **Lab Sample ID:** 041331356-0084
Sample Description: Room 110/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013					Stop Positive (Not Analyzed)
400 PLM PtCt Grav. Red.	12/09/2013	Black	0.0%	97%	3.0% Chrysotile	

Client Sample ID: 20/ ERM/ FT/ 04-floor tile **Lab Sample ID:** 041331356-0085
Sample Description: Room 110/yellow floor tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	95%	5% Chrysotile	

Client Sample ID: 20/ ERM/ FT/ 04-mastic **Lab Sample ID:** 041331356-0086
Sample Description: Room 110/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Black	0%	98%	2% Chrysotile	

Client Sample ID: 20/ ERM/ FT/ 05-floor tile **Lab Sample ID:** 041331356-0087
Sample Description: Room 110/yellow floor tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013					Stop Positive (Not Analyzed)

Client Sample ID: 20/ ERM/ FT/ 05-mastic **Lab Sample ID:** 041331356-0088
Sample Description: Room 110/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013					Stop Positive (Not Analyzed)

Client Sample ID: 20/ ERM/ FT/ 06-floor tile **Lab Sample ID:** 041331356-0089
Sample Description: Room 110/yellow floor tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013					Stop Positive (Not Analyzed)

Client Sample ID: 20/ ERM/ FT/ 06-mastic **Lab Sample ID:** 041331356-0090
Sample Description: Room 110/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013					Stop Positive (Not Analyzed)



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Client Sample ID: 20/ ERM/ CB/ 04-covebase **Lab Sample ID:** 041331356-0091
Sample Description: Break room/grey covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray	0%	100%	None Detected	RECOMMEND TEM

Client Sample ID: 20/ ERM/ CB/ 04-mastic **Lab Sample ID:** 041331356-0092
Sample Description: Break room/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ CB/ 05-covebase **Lab Sample ID:** 041331356-0093
Sample Description: Room 114 hallway/grey covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray	0%	100%	None Detected	RECOMMEND TEM

Client Sample ID: 20/ ERM/ CB/ 05-mastic **Lab Sample ID:** 041331356-0094
Sample Description: Room 114 hallway/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ CB/ 06-covebase **Lab Sample ID:** 041331356-0095
Sample Description: Room 113C/grey covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013	Gray	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ CB/ 06-mastic **Lab Sample ID:** 041331356-0096
Sample Description: Room 113C/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013	Tan	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ CT/ 04 **Lab Sample ID:** 041331356-0097
Sample Description: Room 113B/white ceiling tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray/White	80%	20%	None Detected	

Client Sample ID: 20/ ERM/ CT/ 05 **Lab Sample ID:** 041331356-0098
Sample Description: Break room/white ceiling tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray/White	80%	20%	None Detected	



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Client Sample ID: 20/ ERM/ CT/ 06 **Lab Sample ID:** 041331356-0099
Sample Description: Room 115/white ceiling tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013	Gray/White	75%	25%	None Detected	

Client Sample ID: 20/ ERM/ FT/ 07-floor tile **Lab Sample ID:** 041331356-0100
Sample Description: Break room/grey tile w/ red & blue marks

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray/Red/Blue	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ FT/ 07-mastic **Lab Sample ID:** 041331356-0101
Sample Description: Break room/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ FT/ 08-floor tile **Lab Sample ID:** 041331356-0102
Sample Description: Break room/grey tile w/ red & blue marks

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray/Red/Blue	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ FT/ 08-mastic **Lab Sample ID:** 041331356-0103
Sample Description: Break room/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ FT/ 09-floor tile **Lab Sample ID:** 041331356-0104
Sample Description: Break room/grey tile w/ red & blue marks

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013	Gray	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ FT/ 09-mastic **Lab Sample ID:** 041331356-0105
Sample Description: Break room/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ FT/ 10-floor tile **Lab Sample ID:** 041331356-0106
Sample Description: Room 114 hallway/grey tile w/ black marks

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray/Black	0%	100%	None Detected	



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Client Sample ID: 20/ ERM/ FT/ 10-mastic **Lab Sample ID:** 041331356-0107
Sample Description: Room 114 hallway/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ FT/ 11-floor tile **Lab Sample ID:** 041331356-0108
Sample Description: Room 114/grey tile w/ black marks

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray/Black	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ FT/ 11-mastic **Lab Sample ID:** 041331356-0109
Sample Description: Room 114/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ FT/ 12-floor tile **Lab Sample ID:** 041331356-0110
Sample Description: Room 101/grey tile w/ black marks

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013	Gray	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ FT/ 12-mastic **Lab Sample ID:** 041331356-0111
Sample Description: Room 101/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013	Yellow	0%	100%	None Detected	Sample contained a very small amount of material

Client Sample ID: 20/ ERM/ CB/ 07-covebase **Lab Sample ID:** 041331356-0112
Sample Description: Gym/black covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Black	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ CB/ 07-mastic **Lab Sample ID:** 041331356-0113
Sample Description: Gym/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	White	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ CB/ 08-covebase **Lab Sample ID:** 041331356-0114
Sample Description: Gym/black covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013		0%	100%	None Detected	



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Client Sample ID: 20/ ERM/ CB/ 08-mastic **Lab Sample ID:** 041331356-0115
Sample Description: Gym/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ CB/ 09-covebase **Lab Sample ID:** 041331356-0116
Sample Description: Gym/black covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013	Black	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ CB/ 09-mastic **Lab Sample ID:** 041331356-0117
Sample Description: Gym/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013	White	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ CT/ 07 **Lab Sample ID:** 041331356-0118
Sample Description: 1st floor men's bathroom in gym/white ceiling tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013	Gray/White	75%	25%	None Detected	

Client Sample ID: 20/ ERM/ TSI/ 01-Wrap **Lab Sample ID:** 041331356-0119
Sample Description: 1st floor West wall of gym/white TSI yellow insulation

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	White	80%	20%	None Detected	

Client Sample ID: 20/ ERM/ TSI/ 01-Insulation **Lab Sample ID:** 041331356-0119A
Sample Description: 1st floor West wall of gym/white TSI yellow insulation

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	90%	10%	None Detected	

Client Sample ID: 20/ ERM/ TSI/ 02-Wrap **Lab Sample ID:** 041331356-0120
Sample Description: 1st floor West wall of gym/white TSI yellow insulation

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	White	80%	20%	None Detected	

Client Sample ID: 20/ ERM/ TSI/ 02-Insulation **Lab Sample ID:** 041331356-0120A
Sample Description: 1st floor West wall of gym/white TSI yellow insulation

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	90%	10%	None Detected	



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Client Sample ID:	20/ ERM/ TSI/ 03-Wrap					Lab Sample ID:	041331356-0121
Sample Description:	1st floor mens bathroom in gym/white TSI yellow insulation						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment	
PLM	11/26/2013	White/Beige	Fibrous 60%	Non-Fibrous 40%	None Detected		
Client Sample ID:	20/ ERM/ TSI/ 03-Insulation					Lab Sample ID:	041331356-0121A
Sample Description:	1st floor mens bathroom in gym/white TSI yellow insulation						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment	
PLM	11/26/2013	Yellow	Fibrous 90%	Non-Fibrous 10%	None Detected		
Client Sample ID:	20/ ERM/ FT/ 13-floor tile					Lab Sample ID:	041331356-0122
Sample Description:	Bowling alley/brown tile						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment	
PLM	11/20/2013	Brown	Fibrous 0%	Non-Fibrous 94%	6% Chrysotile		
Client Sample ID:	20/ ERM/ FT/ 13-mastic					Lab Sample ID:	041331356-0123
Sample Description:	Bowling alley/mastic						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment	
PLM	11/20/2013	Yellow	Fibrous 0%	Non-Fibrous 100%	None Detected		
Client Sample ID:	20/ ERM/ FT/ 14-floor tile					Lab Sample ID:	041331356-0124
Sample Description:	Bowling alley/brown tile						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment	
PLM	11/20/2013				Stop Positive (Not Analyzed)		
Client Sample ID:	20/ ERM/ FT/ 14-mastic					Lab Sample ID:	041331356-0125
Sample Description:	Bowling alley/mastic						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment	
PLM	11/20/2013	Yellow	Fibrous 0%	Non-Fibrous 100%	None Detected		
Client Sample ID:	20/ ERM/ FT/ 15-floor tile					Lab Sample ID:	041331356-0126
Sample Description:	Bowling alley/brown tile						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment	
PLM	11/26/2013				Stop Positive (Not Analyzed)		
Client Sample ID:	20/ ERM/ FT/ 15-mastic					Lab Sample ID:	041331356-0127
Sample Description:	Bowling alley/mastic						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment	
PLM	11/26/2013	Yellow	Fibrous 0%	Non-Fibrous 100%	None Detected		



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Client Sample ID:	20/ ERM/ FT/ 16-floor tile	Lab Sample ID:	041331356-0128		
Sample Description:	Bowling alley/grey tile				
TEST	Analyzed Date	Color	Non-Asbestos Fibrous Non-Fibrous	Asbestos	Comment
PLM	11/20/2013	Gray	0% 100%	None Detected	

Client Sample ID:	20/ ERM/ FT/ 16-mastic	Lab Sample ID:	041331356-0129		
Sample Description:	Bowling alley/mastic				
TEST	Analyzed Date	Color	Non-Asbestos Fibrous Non-Fibrous	Asbestos	Comment
PLM	11/20/2013	Yellow	0% 100%	None Detected	

Client Sample ID:	20/ ERM/ FT/ 17-floor tile	Lab Sample ID:	041331356-0130		
Sample Description:	Bowling alley/grey tile				
TEST	Analyzed Date	Color	Non-Asbestos Fibrous Non-Fibrous	Asbestos	Comment
PLM	11/20/2013	Gray	0% 100%	None Detected	

Client Sample ID:	20/ ERM/ FT/ 17-mastic	Lab Sample ID:	041331356-0131		
Sample Description:	Bowling alley/mastic				
TEST	Analyzed Date	Color	Non-Asbestos Fibrous Non-Fibrous	Asbestos	Comment
PLM	11/20/2013	Yellow	0% 100%	None Detected	

Client Sample ID:	20/ ERM/ FT/ 18-floor tile	Lab Sample ID:	041331356-0132		
Sample Description:	Bowling alley/grey tile				
TEST	Analyzed Date	Color	Non-Asbestos Fibrous Non-Fibrous	Asbestos	Comment
PLM	11/26/2013	Gray	0% 100%	None Detected	

Client Sample ID:	20/ ERM/ FT/ 18-mastic	Lab Sample ID:	041331356-0133		
Sample Description:	Bowling alley/mastic				
TEST	Analyzed Date	Color	Non-Asbestos Fibrous Non-Fibrous	Asbestos	Comment
PLM	11/26/2013	Yellow	0% 100%	None Detected	

Client Sample ID:	20/ ERM/ CB/ 10-covebase	Lab Sample ID:	041331356-0134		
Sample Description:	Bowling alley/maroon covebase				
TEST	Analyzed Date	Color	Non-Asbestos Fibrous Non-Fibrous	Asbestos	Comment
PLM	11/20/2013	Red	0% 100%	None Detected	

Client Sample ID:	20/ ERM/ CB/ 10-mastic	Lab Sample ID:	041331356-0135		
Sample Description:	Bowling alley/mastic				
TEST	Analyzed Date	Color	Non-Asbestos Fibrous Non-Fibrous	Asbestos	Comment
PLM	11/20/2013	Yellow	0% 100%	None Detected	



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Client Sample ID: 20/ ERM/ CB/ 11-covebase **Lab Sample ID:** 041331356-0136
Sample Description: Bowling alley/maroon covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Red	0%	100%	None Detected	RECOMMEND TEM

Client Sample ID: 20/ ERM/ CB/ 11-mastic **Lab Sample ID:** 041331356-0137
Sample Description: Bowling alley/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ CB/ 12-covebase **Lab Sample ID:** 041331356-0138
Sample Description: Bowling alley/maroon covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013	Red/Black	0%	100%	None Detected	Recommend TEM

Client Sample ID: 20/ ERM/ CB/ 12-mastic **Lab Sample ID:** 041331356-0139
Sample Description: Bowling alley/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013	Yellow/Beige	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ CB/ 13-covebase **Lab Sample ID:** 041331356-0140
Sample Description: Gym hallway/black covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Black	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ CB/ 13-mastic **Lab Sample ID:** 041331356-0141
Sample Description: Gym hallway/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ CB/ 14-covebase **Lab Sample ID:** 041331356-0142
Sample Description: Gym hallway/black covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Black	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ CB/ 14-mastic **Lab Sample ID:** 041331356-0143
Sample Description: Gym hallway/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	



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Client Sample ID: 20/ ERM/ CB/ 15-covebase **Lab Sample ID:** 041331356-0144
Sample Description: Gym hallway/black covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013	Black	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ CB/ 15-mastic **Lab Sample ID:** 041331356-0145
Sample Description: Gym hallway/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ FT/ 19-floor tile **Lab Sample ID:** 041331356-0146
Sample Description: Gym hallway/tan tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Tan	0%	98%	2% Chrysotile	
400 PLM PtCt Grav. Red.	12/09/2013	Tan	0.0%	99.5%	0.5% Chrysotile	

Client Sample ID: 20/ ERM/ FT/ 19-mastic **Lab Sample ID:** 041331356-0147
Sample Description: Gym hallway/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013	Black	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ FT/ 20-floor tile **Lab Sample ID:** 041331356-0148
Sample Description: Room 107/tan tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013				Stop Positive (Not Analyzed)	
400 PLM PtCt Grav. Red.	12/09/2013	Tan	0.0%	99.7%	0.3% Chrysotile	

Client Sample ID: 20/ ERM/ FT/ 20-mastic **Lab Sample ID:** 041331356-0149
Sample Description: Room 107/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ FT/ 21-floor tile **Lab Sample ID:** 041331356-0150
Sample Description: Gym hallway/tan tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013				Stop Positive (Not Analyzed)	
400 PLM PtCt Grav. Red.	12/09/2013	Tan	0.0%	100%	<0.25% Chrysotile	

Client Sample ID: 20/ ERM/ FT/ 21-mastic **Lab Sample ID:** 041331356-0151
Sample Description: Gym hallway/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013	Black	0%	100%	None Detected	



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Client Sample ID: 20/ ERM/ TSI/ 04-Wrap		Lab Sample ID: 041331356-0152				
Sample Description: Basement/white TSI yellow insulation						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/20/2013	White	Fibrous 80%	Non-Fibrous 20%	None Detected	
Client Sample ID: 20/ ERM/ TSI/ 04-Insulation		Lab Sample ID: 041331356-0152A				
Sample Description: Basement/white TSI yellow insulation						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/20/2013	Yellow	Fibrous 90%	Non-Fibrous 10%	None Detected	
Client Sample ID: 20/ ERM/ TSI/ 05-Wrap		Lab Sample ID: 041331356-0153				
Sample Description: Basement/white TSI yellow insulation						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/20/2013	White	Fibrous 80%	Non-Fibrous 20%	None Detected	
Client Sample ID: 20/ ERM/ TSI/ 05-Insulation		Lab Sample ID: 041331356-0153A				
Sample Description: Basement/white TSI yellow insulation						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/20/2013	Yellow	Fibrous 90%	Non-Fibrous 10%	None Detected	
Client Sample ID: 20/ ERM/ TSI/ 06-Wrap		Lab Sample ID: 041331356-0154				
Sample Description: Basement/white TSI yellow insulation						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/26/2013	White	Fibrous 60%	Non-Fibrous 40%	None Detected	
Client Sample ID: 20/ ERM/ TSI/ 06-Insulation		Lab Sample ID: 041331356-0154A				
Sample Description: Basement/white TSI yellow insulation						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/26/2013	Yellow	Fibrous 90%	Non-Fibrous 10%	None Detected	
Client Sample ID: 20/ ERM/ BL/ 01		Lab Sample ID: 041331356-0155				
Sample Description: Boiler insulation/yellow insulation w/ in boiler						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/20/2013	Yellow	Fibrous 90%	Non-Fibrous 10%	None Detected	
Client Sample ID: 20/ ERM/ BL/ 02		Lab Sample ID: 041331356-0156				
Sample Description: Boiler insulation/yellow insulation w/ in boiler						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/20/2013	Yellow	Fibrous 90%	Non-Fibrous 10%	None Detected	



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Client Sample ID: 20/ ERM/ BL/ 03 **Lab Sample ID:** 041331356-0157

Sample Description: Boiler insulation/yellow insulation w/ in boiler

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013	Yellow	90%	10%	None Detected	

Client Sample ID: 20/ ERM/ FT/ 22-floor tile **Lab Sample ID:** 041331356-0158

Sample Description: East portion of work out facility-room/white with grey streaks

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray/White	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ FT/ 22-mastic **Lab Sample ID:** 041331356-0159

Sample Description: East portion of work out facility-room/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013				Insufficient Material	

Client Sample ID: 20/ ERM/ FT/ 23-floor tile **Lab Sample ID:** 041331356-0160

Sample Description: East portion of work out facility-room/white with grey streaks

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray/White	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ FT/ 23-mastic **Lab Sample ID:** 041331356-0161

Sample Description: East portion of work out facility-room/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ FT/ 24-floor tile **Lab Sample ID:** 041331356-0162

Sample Description: East portion of work out facility-room/white with grey streaks

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013	Gray/White	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ FT/ 24-mastic **Lab Sample ID:** 041331356-0163

Sample Description: East portion of work out facility-room/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ CB/ 16-covebase **Lab Sample ID:** 041331356-0164

Sample Description: Throughout work out facility-room/black covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Black	0%	100%	None Detected	



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Client Sample ID: 20/ ERM/ CB/ 16-mastic **Lab Sample ID:** 041331356-0165
Sample Description: Throughout work out facility-room/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ CB/ 17-covebase **Lab Sample ID:** 041331356-0166
Sample Description: Throughout work out facility-room/black covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Black	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ CB/ 17-mastic **Lab Sample ID:** 041331356-0167
Sample Description: Throughout work out facility-room/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ CB/ 18-covebase **Lab Sample ID:** 041331356-0168
Sample Description: Throughout work out facility-room/black covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013	Black	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ CB/ 18-mastic **Lab Sample ID:** 041331356-0169
Sample Description: Throughout work out facility-room/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013	Yellow/Clear	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ CB/ 19-covebase **Lab Sample ID:** 041331356-0170
Sample Description: Throughout work out facility-room/black covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Red	0%	100%	None Detected	RECOMMEND TEM

Client Sample ID: 20/ ERM/ CB/ 19-mastic **Lab Sample ID:** 041331356-0171
Sample Description: Throughout work out facility-room/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ CB/ 20-covebase **Lab Sample ID:** 041331356-0172
Sample Description: Throughout work out facility-room/maroon covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Red	0%	100%	None Detected	RECOMMEND TEM



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Client Sample ID: 20/ ERM/ CB/ 20-mastic **Lab Sample ID:** 041331356-0173
Sample Description: Throughout work out facility-room/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 20/ ERM/ CB/ 21-covebase **Lab Sample ID:** 041331356-0174
Sample Description: Throughout work out facility-room/maroon covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013	Red/Black	0%	100%	None Detected	Recommend TEM

Client Sample ID: 20/ ERM/ CB/ 21-mastic **Lab Sample ID:** 041331356-0175
Sample Description: Throughout work out facility-room/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 70/ ERM/ CB/ 01-covebase **Lab Sample ID:** 041331356-0176
Sample Description: Racketball court vestibule/black covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Black	0%	100%	None Detected	

Client Sample ID: 70/ ERM/ CB/ 01-mastic **Lab Sample ID:** 041331356-0177
Sample Description: Racketball court vestibule/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 70/ ERM/ CB/ 02-covebase **Lab Sample ID:** 041331356-0178
Sample Description: Racketball court vestibule/black covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Black	0%	100%	None Detected	

Client Sample ID: 70/ ERM/ CB/ 02-mastic **Lab Sample ID:** 041331356-0179
Sample Description: Racketball court vestibule/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 70/ ERM/ CB/ 03-covebase **Lab Sample ID:** 041331356-0180
Sample Description: Racketball court vestibule/black covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Black	0%	100%	None Detected	



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Client Sample ID: 70/ ERM/ CB/ 03-mastic **Lab Sample ID:** 041331356-0181
Sample Description: Racketball court vestibule/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 70/ ERM/ FT/ 01-Floor Tile **Lab Sample ID:** 041331356-0182
Sample Description: white & grey floor tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray/White	0%	100%	None Detected	

Client Sample ID: 70/ ERM/ FT/ 01-Mastic **Lab Sample ID:** 041331356-0182A
Sample Description: white & grey floor tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Black	0%	98%	2% Chrysotile	
400 PLM PtCt Grav. Red.	12/15/2013				Insufficient Material	

Client Sample ID: 70/ ERM/ FT/ 02-Floor Tile **Lab Sample ID:** 041331356-0183
Sample Description: white & grey floor tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray/White	0%	100%	None Detected	

Client Sample ID: 70/ ERM/ FT/ 02-Mastic **Lab Sample ID:** 041331356-0183A
Sample Description: white & grey floor tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013				Stop Positive (Not Analyzed)	
400 PLM PtCt Grav. Red.	12/15/2013	Black	0.0%	96.5%	3.5% Chrysotile	

Client Sample ID: 70/ ERM/ FT/ 03-Floor Tile **Lab Sample ID:** 041331356-0184
Sample Description: white & grey floor tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	12/13/2013	Gray/White	0%	100%	None Detected	

Client Sample ID: 70/ ERM/ FT/ 03-Mastic **Lab Sample ID:** 041331356-0184A
Sample Description: white & grey floor tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013				Stop Positive (Not Analyzed)	
400 PLM PtCt Grav. Red.	12/15/2013	Black	0.0%	97.1%	2.9% Chrysotile	

Client Sample ID: 70/ ERM/ CT/ 01 **Lab Sample ID:** 041331356-0185
Sample Description: Racketball court vestibule/white ceiling tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray/White	80%	20%	None Detected	



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Client Sample ID: 70/ ERM/ CT/ 02 **Lab Sample ID:** 041331356-0186
Sample Description: Racketball court vestibule/white ceiling tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray/White	80%	20%	None Detected	

Client Sample ID: 70/ ERM/ CT/ 03 **Lab Sample ID:** 041331356-0187
Sample Description: Racketball court vestibule/white ceiling tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Gray/White	75%	25%	None Detected	

Client Sample ID: 26/ ERM/ LN/ 01 **Lab Sample ID:** 041331356-0188
Sample Description: Building 26 basement/lenolium flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Beige	0%	90%	10% Chrysotile	

Client Sample ID: 26/ ERM/ LN/ 02 **Lab Sample ID:** 041331356-0189
Sample Description: Building 26 basement/lenolium flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013					Stop Positive (Not Analyzed)

Client Sample ID: 26/ ERM/ LN/ 03 **Lab Sample ID:** 041331356-0190
Sample Description: Building 26 basement/lenolium flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013					Stop Positive (Not Analyzed)

Client Sample ID: 26/ ERM/ CB/ 01-covebase **Lab Sample ID:** 041331356-0191
Sample Description: Kitchen/black covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Black	0%	100%	None Detected	

Client Sample ID: 26/ ERM/ CB/ 01-mastic **Lab Sample ID:** 041331356-0192
Sample Description: Kitchen/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Cream	0%	100%	None Detected	

Client Sample ID: 26/ ERM/ CB/ 02-covebase **Lab Sample ID:** 041331356-0193
Sample Description: Kitchen/black covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Black	0%	100%	None Detected	



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Client Sample ID: 26/ ERM/ CB/ 02-mastic **Lab Sample ID:** 041331356-0194
Sample Description: Kitchen/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Cream	0%	100%	None Detected	

Client Sample ID: 26/ ERM/ CB/ 03-covebase **Lab Sample ID:** 041331356-0195
Sample Description: Kitchen/black covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Black	0%	100%	None Detected	

Client Sample ID: 26/ ERM/ CB/ 03-mastic **Lab Sample ID:** 041331356-0196
Sample Description: Kitchen/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Tan	0%	100%	None Detected	

Client Sample ID: 26/ ERM/ CB/ 04-covebase **Lab Sample ID:** 041331356-0197
Sample Description: Bathroom/pink covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Brown/Gray	0%	100%	None Detected	

Client Sample ID: 26/ ERM/ CB/ 04-Mastic **Lab Sample ID:** 041331356-0198
Sample Description: Bathroom/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Tan	0%	100%	None Detected	

Client Sample ID: 26/ ERM/ CB/ 04-Joint Compound **Lab Sample ID:** 041331356-0198A
Sample Description: Bathroom/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	White	0%	100%	None Detected	

Client Sample ID: 26/ ERM/ CB/ 05-covebase **Lab Sample ID:** 041331356-0199
Sample Description: Bathroom/pink covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Brown/Gray	0%	100%	None Detected	

Client Sample ID: 26/ ERM/ CB/ 05-Mastic **Lab Sample ID:** 041331356-0200
Sample Description: Bathroom/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Tan	0%	100%	None Detected	



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Client Sample ID: 26/ ERM/ CB/ 05-Joint Compound		Lab Sample ID: 041331356-0200A				
Sample Description: Bathroom/mastic						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/20/2013	White	Fibrous 0%	Non-Fibrous 100%	None Detected	
Client Sample ID: 26/ ERM/ CB/ 06-covebase		Lab Sample ID: 041331356-0201				
Sample Description: Bathroom/pink covebase						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/25/2013	Tan	Fibrous 0%	Non-Fibrous 100%	None Detected	
Client Sample ID: 26/ ERM/ CB/ 06-mastic		Lab Sample ID: 041331356-0202				
Sample Description: Bathroom/mastic						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/25/2013	Yellow	Fibrous 0%	Non-Fibrous 100%	None Detected	
Client Sample ID: 26/ ERM/ CB/ 07-covebase		Lab Sample ID: 041331356-0203				
Sample Description: Staff bathroom/blue covebase						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/20/2013	Gray/Green	Fibrous 0%	Non-Fibrous 100%	None Detected	
Client Sample ID: 26/ ERM/ CB/ 07-Mastic		Lab Sample ID: 041331356-0204				
Sample Description: Staff bathroom/mastic						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/20/2013	Tan	Fibrous 0%	Non-Fibrous 100%	None Detected	
Client Sample ID: 26/ ERM/ CB/ 07-Joint Compound		Lab Sample ID: 041331356-0204A				
Sample Description: Staff bathroom/mastic						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/20/2013	White	Fibrous 0%	Non-Fibrous 100%	None Detected	
Client Sample ID: 26/ ERM/ CB/ 08-covebase		Lab Sample ID: 041331356-0205				
Sample Description: Staff bathroom/blue covebase						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/20/2013	Gray/Green	Fibrous 0%	Non-Fibrous 100%	None Detected	
Client Sample ID: 26/ ERM/ CB/ 08-Mastic		Lab Sample ID: 041331356-0206				
Sample Description: Staff bathroom/mastic						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/20/2013	Tan	Fibrous 0%	Non-Fibrous 100%	None Detected	



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Client Sample ID: 26/ ERM/ CB/ 08-Joint Compound		Lab Sample ID: 041331356-0206A				
Sample Description: Staff bathroom/mastic						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/20/2013	White	Fibrous 0%	Non-Fibrous 100%	None Detected	
Client Sample ID: 26/ ERM/ CB/ 09-covebase		Lab Sample ID: 041331356-0207				
Sample Description: Staff bathroom/blue covebase						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/25/2013	Gray/Green	Fibrous 0%	Non-Fibrous 100%	None Detected	
Client Sample ID: 26/ ERM/ CB/ 09-mastic		Lab Sample ID: 041331356-0208				
Sample Description: Staff bathroom/mastic						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/25/2013				Insufficient Material	
Client Sample ID: 26/ ERM/ FT/ 01-floor tile		Lab Sample ID: 041331356-0209				
Sample Description: Bathroom/grey & pink tile						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/20/2013	Gray	Fibrous 0%	Non-Fibrous 100%	None Detected	
Client Sample ID: 26/ ERM/ FT/ 01-mastic		Lab Sample ID: 041331356-0210				
Sample Description: Bathroom/mastic						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/21/2013	Yellow	Fibrous 0%	Non-Fibrous 100%	None Detected	
Client Sample ID: 26/ ERM/ FT/ 02-floor tile		Lab Sample ID: 041331356-0211				
Sample Description: Bathroom/grey & pink tile						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/21/2013	Gray	Fibrous 0%	Non-Fibrous 100%	None Detected	
Client Sample ID: 26/ ERM/ FT/ 02-mastic		Lab Sample ID: 041331356-0212				
Sample Description: Bathroom/mastic						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/21/2013	Yellow	Fibrous 0%	Non-Fibrous 100%	None Detected	
Client Sample ID: 26/ ERM/ FT/ 03-floor tile		Lab Sample ID: 041331356-0213				
Sample Description: Bathroom/grey & pink tile						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/25/2013	Gray/Pink	Fibrous 0%	Non-Fibrous 100%	None Detected	



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Client Sample ID: 26/ ERM/ FT/ 03-mastic		Lab Sample ID: 041331356-0214				
Sample Description: Bathroom/mastic						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/25/2013	Yellow	Fibrous 0%	Non-Fibrous 100%	None Detected	
Client Sample ID: 26/ ERM/ FT/ 04-floor tile		Lab Sample ID: 041331356-0215				
Sample Description: Staff bathroom/white w/ blue floor tile						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/21/2013	White/Green	Fibrous 0%	Non-Fibrous 100%	None Detected	
Client Sample ID: 26/ ERM/ FT/ 04-mastic		Lab Sample ID: 041331356-0216				
Sample Description: Staff bathroom/mastic						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/21/2013	Yellow	Fibrous 0%	Non-Fibrous 100%	None Detected	
Client Sample ID: 26/ ERM/ FT/ 05-floor tile		Lab Sample ID: 041331356-0217				
Sample Description: Staff bathroom/white w/ blue floor tile						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/21/2013	White/Green	Fibrous 0%	Non-Fibrous 100%	None Detected	
Client Sample ID: 26/ ERM/ FT/ 05-mastic		Lab Sample ID: 041331356-0218				
Sample Description: Staff bathroom/mastic						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/21/2013	Yellow	Fibrous 0%	Non-Fibrous 100%	None Detected	
Client Sample ID: 26/ ERM/ FT/ 06-floor tile		Lab Sample ID: 041331356-0219				
Sample Description: Staff bathroom/white w/ blue floor tile						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/25/2013	White	Fibrous 0%	Non-Fibrous 100%	None Detected	
Client Sample ID: 26/ ERM/ FT/ 06-mastic		Lab Sample ID: 041331356-0220				
Sample Description: Staff bathroom/mastic						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/25/2013	Yellow	Fibrous 0%	Non-Fibrous 100%	None Detected	
Client Sample ID: 26/ ERM/ TP/ 01		Lab Sample ID: 041331356-0221				
Sample Description: Front room/transite paneling						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/21/2013	Brown/Cream	Fibrous 50%	Non-Fibrous 50%	None Detected	



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Client Sample ID: 26/ ERM/ TP/ 02 **Lab Sample ID:** 041331356-0222
Sample Description: Front room/transite paneling

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/21/2013	Brown/Cream	60%	40%	None Detected	

Client Sample ID: 26/ ERM/ TP/ 03 **Lab Sample ID:** 041331356-0223
Sample Description: Front room/transite paneling

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Brown/White	95%	5%	None Detected	

Client Sample ID: 26/ ERM/ CB/ 10-covebase **Lab Sample ID:** 041331356-0224
Sample Description: Second floor hall/red covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/21/2013	Brown/Black	0%	100%	None Detected	

Client Sample ID: 26/ ERM/ CB/ 10-mastic **Lab Sample ID:** 041331356-0225
Sample Description: Second floor hall/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/21/2013	Tan	0%	100%	None Detected	

Client Sample ID: 26/ ERM/ CB/ 11-covebase **Lab Sample ID:** 041331356-0226
Sample Description: Second floor hall/red covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/21/2013	Brown/Black	0%	100%	None Detected	

Client Sample ID: 26/ ERM/ CB/ 11-mastic **Lab Sample ID:** 041331356-0227
Sample Description: Second floor hall/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/21/2013	Tan	0%	100%	None Detected	

Client Sample ID: 26/ ERM/ CB/ 12-covebase **Lab Sample ID:** 041331356-0228
Sample Description: Second floor hall/red covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Brown	0%	100%	None Detected	

Client Sample ID: 26/ ERM/ CB/ 12-mastic **Lab Sample ID:** 041331356-0229
Sample Description: Second floor hall/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	White	0%	100%	None Detected	



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Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116 Method via Polarized Light Microscopy

Client Sample ID: 63/ ERM/ TSI/ 01 **Lab Sample ID:** 041331356-0230

Sample Description: Boiler room 1st floor, 3" piping/white paper yellow insulation

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	95%	5%	None Detected	

Client Sample ID: 63/ ERM/ TSI/ 02 **Lab Sample ID:** 041331356-0231

Sample Description: Boiler room 1st floor, 3" piping/white paper yellow insulation

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	95%	5%	None Detected	

Client Sample ID: 63/ ERM/ TSI/ 03 **Lab Sample ID:** 041331356-0232

Sample Description: Boiler room 1st floor, 3" piping/white paper yellow insulation

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	95%	5%	None Detected	

Client Sample ID: 63/ ERM/ TSI/ 04 **Lab Sample ID:** 041331356-0233

Sample Description: Boiler room 1st floor, 1" piping/white paper yellow insulation

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	95%	5%	None Detected	

Client Sample ID: 63/ ERM/ TSI/ 05 **Lab Sample ID:** 041331356-0234

Sample Description: Boiler room 1st floor, 1" piping/white paper yellow insulation

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	95%	5%	None Detected	

Client Sample ID: 63/ ERM/ TSI/ 06 **Lab Sample ID:** 041331356-0235

Sample Description: Boiler room 1st floor, 1" piping/white paper yellow insulation

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Yellow	95%	5%	None Detected	

Client Sample ID: 63/ ERM/ CP/ 01-Skim Coat **Lab Sample ID:** 041331356-0236

Sample Description: Boiler room 115/white ceiling plaster

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	White	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CP/ 01-Base Coat **Lab Sample ID:** 041331356-0236A

Sample Description: Boiler room 115/white ceiling plaster

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray	0%	100%	None Detected	



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Client Sample ID: 63/ ERM/ CP/ 02 **Lab Sample ID:** 041331356-0237
Sample Description: Boiler room 115/white ceiling plaster

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	White	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CP/ 03 **Lab Sample ID:** 041331356-0238
Sample Description: Boiler room 115/white ceiling plaster

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	White	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ BL/ 01 **Lab Sample ID:** 041331356-0239
Sample Description: Boiler room 115/yellow boiler insulation

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	75%	25%	None Detected	

Client Sample ID: 63/ ERM/ BL/ 02 **Lab Sample ID:** 041331356-0240
Sample Description: Boiler room 115/yellow boiler insulation

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	80%	20%	None Detected	

Client Sample ID: 63/ ERM/ BL/ 03 **Lab Sample ID:** 041331356-0241
Sample Description: Boiler room 115/yellow boiler insulation

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Gray	75%	25%	None Detected	

Client Sample ID: 63/ ERM/ FT/ 01-Floor Tile **Lab Sample ID:** 041331356-0242
Sample Description: First floor West stairwell/ Chapel stairs/white tile with blue & red streaks

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	White	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ FT/ 01-Mastic **Lab Sample ID:** 041331356-0242A
Sample Description: First floor West stairwell/ Chapel stairs/white tile with blue & red streaks

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Brown/Black	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ FT/ 02-Floor Tile **Lab Sample ID:** 041331356-0243
Sample Description: First floor West stairwell/ Chapel stairs/white tile with blue & red streaks

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	White	0%	100%	None Detected	



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Client Sample ID: 63/ ERM/ FT/ 02-Mastic **Lab Sample ID:** 041331356-0243A
Sample Description: First floor West stairwell/ Chapel stairs/white tile with blue & red streaks

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Black	0%	90%	10% Chrysotile	

Client Sample ID: 63/ ERM/ FT/ 03-Floor Tile **Lab Sample ID:** 041331356-0244
Sample Description: Second floor West stairwell/white tile with blue & red streaks

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013	White	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ FT/ 03-Mastic **Lab Sample ID:** 041331356-0244A
Sample Description: Second floor West stairwell/white tile with blue & red streaks

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013				Stop Positive (Not Analyzed)	

Client Sample ID: 63/ ERM/ CB/ 01-covebase **Lab Sample ID:** 041331356-0245
Sample Description: 1st floor West stairwell/blue covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Blue	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 01-mastic **Lab Sample ID:** 041331356-0246
Sample Description: 1st floor West stairwell/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Tan	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 02-covebase **Lab Sample ID:** 041331356-0247
Sample Description: 1st floor West stairwell/blue covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Blue	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 02-mastic **Lab Sample ID:** 041331356-0248
Sample Description: 1st floor West stairwell/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Tan	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 03-covebase **Lab Sample ID:** 041331356-0249
Sample Description: 2nd floor West stairwell/blue covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Blue	0%	100%	None Detected	



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Client Sample ID: 63/ ERM/ CB/ 03-mastic **Lab Sample ID:** 041331356-0250
Sample Description: 2nd floor West stairwell/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Tan/Yellow	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 04-covebase **Lab Sample ID:** 041331356-0251
Sample Description: 1st floor-room 108/black covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Black	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 04-mastic **Lab Sample ID:** 041331356-0252
Sample Description: 1st floor-room 108/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Tan	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 05-covebase **Lab Sample ID:** 041331356-0253
Sample Description: 1st floor-room 108/black covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Black	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 05-mastic **Lab Sample ID:** 041331356-0254
Sample Description: 1st floor-room 108/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Tan	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 06-covebase **Lab Sample ID:** 041331356-0255
Sample Description: 1st floor-room 108/black covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Black	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 06-mastic **Lab Sample ID:** 041331356-0256
Sample Description: 1st floor-room 108/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CT/ 01 **Lab Sample ID:** 041331356-0257
Sample Description: Room 108/white ceiling tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray/White	80%	20%	None Detected	



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EMSL Order ID: 041331356
Customer ID: ERMH25
Customer PO:
Project ID:

Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116 Method via Polarized Light Microscopy

Client Sample ID: 63/ ERM/ CT/ 02 **Lab Sample ID:** 041331356-0258
Sample Description: Room 108/white ceiling tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray/White	80%	20%	None Detected	

Client Sample ID: 63/ ERM/ CT/ 03 **Lab Sample ID:** 041331356-0259
Sample Description: Room 108/white ceiling tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Gray/White	75%	25%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 07-covebase **Lab Sample ID:** 041331356-0260
Sample Description: Security room/dark blue covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Blue	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 07-mastic **Lab Sample ID:** 041331356-0261
Sample Description: Security room/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Tan	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 08-covebase **Lab Sample ID:** 041331356-0262
Sample Description: Security room/dark blue covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Blue	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 08-mastic **Lab Sample ID:** 041331356-0263
Sample Description: Security room/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Tan	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 09-covebase **Lab Sample ID:** 041331356-0264
Sample Description: Security room/dark blue covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Blue	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 09-mastic **Lab Sample ID:** 041331356-0265
Sample Description: Security room/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Tan	0%	100%	None Detected	



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Client Sample ID: 63/ ERM/ FT/ 04-floor tile **Lab Sample ID:** 041331356-0266
Sample Description: Security room/white tile w/ black specs

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	White	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ FT/ 04-mastic **Lab Sample ID:** 041331356-0267
Sample Description: Security room/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013				Insufficient Material	

Client Sample ID: 63/ ERM/ FT/ 05-floor tile **Lab Sample ID:** 041331356-0268
Sample Description: Security room/white tile w/ black specs

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	White	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ FT/ 05-mastic **Lab Sample ID:** 041331356-0269
Sample Description: Security room/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013				Insufficient Material	

Client Sample ID: 63/ ERM/ FT/ 06-floor tile **Lab Sample ID:** 041331356-0270
Sample Description: Security room/white tile w/ black specs

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	White	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ FT/ 06-mastic **Lab Sample ID:** 041331356-0271
Sample Description: Security room/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013				Insufficient Material	

Client Sample ID: 63/ ERM/ CT/ 04 **Lab Sample ID:** 041331356-0272
Sample Description: Security room/white ceiling tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray/White	80%	20%	None Detected	

Client Sample ID: 63/ ERM/ CT/ 05 **Lab Sample ID:** 041331356-0273
Sample Description: Security room/white ceiling tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray/White	80%	20%	None Detected	



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Client Sample ID: 63/ ERM/ CT/ 06 **Lab Sample ID:** 041331356-0274
Sample Description: Security room/white ceiling tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Gray/White	75%	25%	None Detected	

Client Sample ID: 63/ ERM/ TSI/ 07 **Lab Sample ID:** 041331356-0275
Sample Description: Security room/white TSI w/ yellow insulation

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	White/Yellow	30%	70%	None Detected	

Client Sample ID: 63/ ERM/ TSI/ 08 **Lab Sample ID:** 041331356-0276
Sample Description: Security room/white TSI w/ yellow insulation

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	White/Yellow	30%	70%	None Detected	

Client Sample ID: 63/ ERM/ TSI/ 09 **Lab Sample ID:** 041331356-0277
Sample Description: Security room/white TSI w/ yellow insulation

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	White/Yellow	95%	5%	None Detected	

Client Sample ID: 63/ ERM/ CP/ 04 **Lab Sample ID:** 041331356-0278
Sample Description: Mens bathroom/white ceiling plaster

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	White	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CP/ 05 **Lab Sample ID:** 041331356-0279
Sample Description: Mens bathroom/white ceiling plaster

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	White	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CP/ 06 **Lab Sample ID:** 041331356-0280
Sample Description: Mens bathroom/white ceiling plaster

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	White	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 10-covebase **Lab Sample ID:** 041331356-0281
Sample Description: Chapel/maroon covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Brown	0%	100%	None Detected	



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Client Sample ID: 63/ ERM/ CB/ 10-mastic **Lab Sample ID:** 041331356-0282
Sample Description: Chapel/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Tan	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 11-covebase **Lab Sample ID:** 041331356-0283
Sample Description: Chapel/maroon covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Brown	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 11-mastic **Lab Sample ID:** 041331356-0284
Sample Description: Chapel/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013				Insufficient Material	

Client Sample ID: 63/ ERM/ CB/ 12-covebase **Lab Sample ID:** 041331356-0285
Sample Description: Chapel/maroon covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Gray	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 12-mastic **Lab Sample ID:** 041331356-0286
Sample Description: Chapel/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Tan/White	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 13-covebase **Lab Sample ID:** 041331356-0287
Sample Description: Room 138/grey covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 13-mastic **Lab Sample ID:** 041331356-0288
Sample Description: Room 138/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Tan	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 14-covebase **Lab Sample ID:** 041331356-0289
Sample Description: Room 138/grey covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray	0%	100%	None Detected	



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Client Sample ID: 63/ ERM/ CB/ 14-mastic **Lab Sample ID:** 041331356-0290
Sample Description: Room 138/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Brown/Tan	20%	80%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 15-covebase **Lab Sample ID:** 041331356-0291
Sample Description: Room 138/grey covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Gray	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 15-mastic **Lab Sample ID:** 041331356-0292
Sample Description: Room 138/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013				Insufficient Material	

Client Sample ID: 63/ ERM/ CB/ 16-covebase **Lab Sample ID:** 041331356-0293
Sample Description: Nursery/black covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Black	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 16-mastic **Lab Sample ID:** 041331356-0294
Sample Description: Nursery/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Tan	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 17-covebase **Lab Sample ID:** 041331356-0295
Sample Description: Nursery/black covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Black	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 17-Joint Compound **Lab Sample ID:** 041331356-0295A
Sample Description: Nursery/black covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	White	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 17-mastic **Lab Sample ID:** 041331356-0296
Sample Description: Nursery/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Tan	0%	100%	None Detected	



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Client Sample ID: 63/ ERM/ CB/ 18-covebase **Lab Sample ID:** 041331356-0297
Sample Description: Nursery/black covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Black	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 18-mastic **Lab Sample ID:** 041331356-0298
Sample Description: Nursery/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 18-Joint Compound **Lab Sample ID:** 041331356-0298A
Sample Description: Nursery/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	White	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ FT/ 07-floor tile **Lab Sample ID:** 041331356-0299
Sample Description: Kitchen of chapel/turquoise tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/21/2013	Green	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ FT/ 07-mastic **Lab Sample ID:** 041331356-0300
Sample Description: Kitchen of chapel/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Tan	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ FT/ 08-floor tile **Lab Sample ID:** 041331356-0301
Sample Description: Kitchen of chapel/turquoise tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Green	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ FT/ 08-mastic **Lab Sample ID:** 041331356-0302
Sample Description: Kitchen of chapel/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Tan	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ FT/ 09-floor tile **Lab Sample ID:** 041331356-0303
Sample Description: Kitchen of chapel/turquoise tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Green	0%	100%	None Detected	



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Client Sample ID: 63/ ERM/ FT/ 09-mastic **Lab Sample ID:** 041331356-0304
Sample Description: Kitchen of chapel/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CT/ 07 **Lab Sample ID:** 041331356-0305
Sample Description: Pantry/white ceiling tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray/White	80%	20%	None Detected	

Client Sample ID: 63/ ERM/ CT/ 08 **Lab Sample ID:** 041331356-0306
Sample Description: Pantry/white ceiling tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray/White	80%	20%	None Detected	

Client Sample ID: 63/ ERM/ CT/ 09 **Lab Sample ID:** 041331356-0307
Sample Description: Pantry/white ceiling tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Gray/White	95%	5%	None Detected	

Client Sample ID: 63/ ERM/ CT/ 10 **Lab Sample ID:** 041331356-0308
Sample Description: Chapel/white 9x9 ceiling tile above ceiling tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray/White	80%	20%	None Detected	

Client Sample ID: 63/ ERM/ CT/ 11 **Lab Sample ID:** 041331356-0309
Sample Description: Chapel/white 9x9 ceiling tile above ceiling tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray/White	80%	20%	None Detected	

Client Sample ID: 63/ ERM/ CT/ 12 **Lab Sample ID:** 041331356-0310
Sample Description: Chapel/white 9x9 ceiling tile above ceiling tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Gray	85%	15%	None Detected	

Client Sample ID: 63/ ERM/ FT/ 10-Floor Tile **Lab Sample ID:** 041331356-0311
Sample Description: Former kitchen closet/red clay brick

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Red	0%	100%	None Detected	



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Client Sample ID: 63/ ERM/ FT/ 10-Grout **Lab Sample ID:** 041331356-0311A

Sample Description: Former kitchen closet/red clay brick

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	White	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ FT/ 11-Floor Tile **Lab Sample ID:** 041331356-0312

Sample Description: Former kitchen closet/red clay brick

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Red	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ FT/ 11-Grout **Lab Sample ID:** 041331356-0312A

Sample Description: Former kitchen closet/red clay brick

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	White	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ FT/ 12-Floor Tile **Lab Sample ID:** 041331356-0313

Sample Description: Former kitchen closet/red clay brick

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Red	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ FT/ 12-Grout **Lab Sample ID:** 041331356-0313A

Sample Description: Former kitchen closet/red clay brick

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Gray	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ TSI/ 10 **Lab Sample ID:** 041331356-0314

Sample Description: Generator room/ locker room/white paper/ yellow insulation

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	90%	10%	None Detected	

Client Sample ID: 63/ ERM/ TSI/ 11 **Lab Sample ID:** 041331356-0315

Sample Description: Generator room/ locker room/white paper/ yellow insulation

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	90%	10%	None Detected	

Client Sample ID: 63/ ERM/ TSI/ 12 **Lab Sample ID:** 041331356-0316

Sample Description: Generator room/ locker room/white paper/ yellow insulation

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/26/2013	Yellow	90%	10%	None Detected	



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Client Sample ID: 63/ ERM/ RI/ 01		Lab Sample ID: 041331356-0317				
Sample Description: Generator room/ locker room/black radiator insulation						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/20/2013	Brown	Fibrous 90%	Non-Fibrous 10%	None Detected	
Client Sample ID: 63/ ERM/ RI/ 02		Lab Sample ID: 041331356-0318				
Sample Description: Generator room/ locker room/black radiator insulation						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/20/2013	Brown	Fibrous 90%	Non-Fibrous 10%	None Detected	
Client Sample ID: 63/ ERM/ RI/ 03		Lab Sample ID: 041331356-0319				
Sample Description: Generator room/ locker room/black radiator insulation						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/25/2013	Brown	Fibrous 95%	Non-Fibrous 5%	None Detected	
Client Sample ID: 63/ ERM/ TSI/ 13		Lab Sample ID: 041331356-0320				
Sample Description: Ladies restroom in medical hallway/white paper w/ yellow insulation						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/20/2013	White/Yellow	Fibrous 90%	Non-Fibrous 10%	None Detected	
Client Sample ID: 63/ ERM/ TSI/ 14		Lab Sample ID: 041331356-0321				
Sample Description: Ladies restroom in medical hallway/white paper w/ yellow insulation						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/20/2013	White/Yellow	Fibrous 90%	Non-Fibrous 10%	None Detected	
Client Sample ID: 63/ ERM/ TSI/ 15		Lab Sample ID: 041331356-0322				
Sample Description: Ladies restroom in medical hallway/white paper w/ yellow insulation						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/25/2013	White/Yellow	Fibrous 97%	Non-Fibrous 3%	None Detected	
Client Sample ID: 63/ ERM/ CP/ 07		Lab Sample ID: 041331356-0323				
Sample Description: Ladies restroom in medical hallway/white ceiling plaster						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/20/2013	White	Fibrous 0%	Non-Fibrous 100%	None Detected	
Client Sample ID: 63/ ERM/ CP/ 08		Lab Sample ID: 041331356-0324				
Sample Description: Ladies restroom in medical hallway/white ceiling plaster						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/20/2013	White	Fibrous 0%	Non-Fibrous 100%	None Detected	



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EMSL Order ID: 041331356
Customer ID: ERMH25
Customer PO:
Project ID:

Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116 Method via Polarized Light Microscopy

Client Sample ID: 63/ ERM/ CP/ 09 **Lab Sample ID:** 041331356-0325

Sample Description: Ladies restroom in medical hallway/white ceiling plaster

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	White	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ LN/ 01 **Lab Sample ID:** 041331356-0326

Sample Description: Medical laboratory/white with blue & grey flake

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray/White/Blue	20%	80%	None Detected	

Client Sample ID: 63/ ERM/ LN/ 02 **Lab Sample ID:** 041331356-0327

Sample Description: Medical laboratory/white with blue & grey flake

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray/White/Blue	20%	80%	None Detected	

Client Sample ID: 63/ ERM/ LN/ 03 **Lab Sample ID:** 041331356-0328

Sample Description: Medical laboratory/white with blue & grey flake

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Gray/Various	20%	80%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 19-covebase **Lab Sample ID:** 041331356-0329

Sample Description: Medical laboratory/very light blue covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 19-mastic **Lab Sample ID:** 041331356-0330

Sample Description: Medical laboratory/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Tan	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 20-covebase **Lab Sample ID:** 041331356-0331

Sample Description: Medical laboratory/very light blue covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Gray	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 20-mastic **Lab Sample ID:** 041331356-0332

Sample Description: Medical laboratory/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Tan	0%	100%	None Detected	



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Client Sample ID: 63/ ERM/ CB/ 21-covebase **Lab Sample ID:** 041331356-0333
Sample Description: Medical laboratory/very light blue covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Gray	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 21-mastic **Lab Sample ID:** 041331356-0334
Sample Description: Medical laboratory/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	White/Yellow	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ TSI/ 16 **Lab Sample ID:** 041331356-0335
Sample Description: Room 120 in medical portion/aluminum w/ yellow insulation

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	White/Silver/Yellow	80%	20%	None Detected	

Client Sample ID: 63/ ERM/ TSI/ 17 **Lab Sample ID:** 041331356-0336
Sample Description: Room 121 in medical portion/aluminum w/ yellow insulation

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	White/Yellow	80%	20%	None Detected	

Client Sample ID: 63/ ERM/ TSI/ 18 **Lab Sample ID:** 041331356-0337
Sample Description: Room 121 in medical portion/aluminum w/ yellow insulation

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	White/Yellow	97%	3%	None Detected	

Client Sample ID: 63/ ERM/ LN/ 04 **Lab Sample ID:** 041331356-0338
Sample Description: Room 120 in medical portion/yellow linolium w/ brown speckles

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Brown/Yellow	25%	75%	None Detected	

Client Sample ID: 63/ ERM/ LN/ 05 **Lab Sample ID:** 041331356-0339
Sample Description: Room 120 in medical portion/yellow linolium w/ brown speckles

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	White	25%	75%	None Detected	

Client Sample ID: 63/ ERM/ LN/ 06 **Lab Sample ID:** 041331356-0340
Sample Description: Room 120 in medical portion/yellow linolium w/ brown speckles

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	White	15%	85%	None Detected	



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Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116 Method via Polarized Light Microscopy

Client Sample ID: 63/ ERM/ CB/ 22-covebase **Lab Sample ID:** 041331356-0341
Sample Description: Room 120 in medical portion/brown covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Brown	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 22-mastic **Lab Sample ID:** 041331356-0342
Sample Description: Room 120 in medical portion/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Tan	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 23-covebase **Lab Sample ID:** 041331356-0343
Sample Description: Room 120 in medical portion/brown covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Brown	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 23-mastic **Lab Sample ID:** 041331356-0344
Sample Description: Room 120 in medical portion/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Tan	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 24-covebase **Lab Sample ID:** 041331356-0345
Sample Description: Room 120 in medical portion/brown covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Brown	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 24-mastic **Lab Sample ID:** 041331356-0346
Sample Description: Room 120 in medical portion/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Brown/Beige	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 25-covebase **Lab Sample ID:** 041331356-0347
Sample Description: Room 121 in medical portion/blue bright covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Blue	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 25-mastic **Lab Sample ID:** 041331356-0348
Sample Description: Room 121 in medical portion/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Tan	0%	100%	None Detected	



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Client Sample ID: 63/ ERM/ CB/ 26-covebase **Lab Sample ID:** 041331356-0349
Sample Description: Room 121 in medical portion/blue bright covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Blue	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 26-mastic **Lab Sample ID:** 041331356-0350
Sample Description: Room 121 in medical portion/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Tan	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 27-covebase **Lab Sample ID:** 041331356-0351
Sample Description: Room 124 in medical portion/blue bright covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Blue	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 27-mastic **Lab Sample ID:** 041331356-0352
Sample Description: Room 124 in medical portion/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Brown/Beige	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ TSI/ 19 **Lab Sample ID:** 041331356-0353
Sample Description: Room 124 in medical portion/white paper w/ yellow insulation

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	White/Yellow	90%	10%	None Detected	

Client Sample ID: 63/ ERM/ TSI/ 20 **Lab Sample ID:** 041331356-0354
Sample Description: Room 123 in medical portion/yellow TSI insulation

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	90%	10%	None Detected	

Client Sample ID: 63/ ERM/ TSI/ 21 **Lab Sample ID:** 041331356-0355
Sample Description: Room 148 in medical portion/white paper w/ yellow insulation

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Yellow	97%	3%	None Detected	

Client Sample ID: 63/ ERM/ FT/ 13-floor tile **Lab Sample ID:** 041331356-0356
Sample Description: Room 124 in medical portion/blue floor tile w/ blue streaks

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Blue	0%	100%	None Detected	



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Client Sample ID: 63/ ERM/ FT/ 13-mastic **Lab Sample ID:** 041331356-0357
Sample Description: Room 124 in medical portion/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Black/Yellow	0%	100%	<1% Chrysotile	

Client Sample ID: 63/ ERM/ FT/ 14-floor tile **Lab Sample ID:** 041331356-0358
Sample Description: Room 124 in medical portion/blue floor tile w/ blue streaks

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Blue	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ FT/ 14-mastic **Lab Sample ID:** 041331356-0359
Sample Description: Room 124 in medical portion/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Black/Yellow	0%	100%	<1% Chrysotile	

Client Sample ID: 63/ ERM/ FT/ 15-floor tile **Lab Sample ID:** 041331356-0360
Sample Description: Room 123 in medical portion/blue floor tile w/ blue streaks

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Blue	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ FT/ 15-mastic **Lab Sample ID:** 041331356-0361
Sample Description: Room 123 in medical portion/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ FT/ 16-floor tile **Lab Sample ID:** 041331356-0362
Sample Description: Room 123 in medical portion/blue floor tile w/ blue streaks

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Blue	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ FT/ 16-mastic **Lab Sample ID:** 041331356-0363
Sample Description: Room 123 in medical portion/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ FT/ 17-floor tile **Lab Sample ID:** 041331356-0364
Sample Description: Far East stairwell/blue floor tile w/ blue streaks

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Blue	0%	100%	None Detected	



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Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116 Method via Polarized Light Microscopy

Client Sample ID: 63/ ERM/ FT/ 17-mastic		Lab Sample ID: 041331356-0365				
Sample Description: Far East stairwell/mastic						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/20/2013	Yellow	Fibrous 0%	Non-Fibrous 100%	None Detected	
Client Sample ID: 63/ ERM/ FT/ 18-floor tile		Lab Sample ID: 041331356-0366				
Sample Description: Far East stairwell/blue floor tile w/ blue streaks						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/25/2013	Blue	Fibrous 0%	Non-Fibrous 100%	None Detected	
Client Sample ID: 63/ ERM/ FT/ 18-mastic		Lab Sample ID: 041331356-0367				
Sample Description: Far East stairwell/mastic						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/25/2013	Gray/Yellow	Fibrous 0%	Non-Fibrous 100%	None Detected	
Client Sample ID: 63/ ERM/ FT/ 19-floor tile		Lab Sample ID: 041331356-0368				
Sample Description: Far East hall 2nd floor/blue floor tile						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/25/2013	Blue	Fibrous 0%	Non-Fibrous 100%	None Detected	
Client Sample ID: 63/ ERM/ FT/ 19-mastic		Lab Sample ID: 041331356-0369				
Sample Description: Far East hall 2nd floor/mastic						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/25/2013	Yellow	Fibrous 0%	Non-Fibrous 100%	None Detected	
Client Sample ID: 63/ ERM/ FT/ 19-Floor Tile #2		Lab Sample ID: 041331356-0369A				
Sample Description: Far East hall 2nd floor/mastic						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/25/2013	Gray	Fibrous 0%	Non-Fibrous 98%	2% Chrysotile	
400 PLM PtCt Grav. Red.	12/11/2013	Gray	Fibrous 0.0%	Non-Fibrous 100%	<0.25% Chrysotile	
Client Sample ID: 63/ ERM/ FT/ 19-Mastic on Floor Tile		Lab Sample ID: 041331356-0369B				
Sample Description: Far East hall 2nd floor/mastic						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/25/2013	Tan	Fibrous 0%	Non-Fibrous 100%	None Detected	
Client Sample ID: 63/ ERM/ LN/ 07-linoleum		Lab Sample ID: 041331356-0370				
Sample Description: Room 147 in medical/brown linoleum						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
PLM	11/20/2013	Tan	Fibrous 0%	Non-Fibrous 100%	None Detected	



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Client Sample ID: 63/ ERM/ LN/ 07-mastic **Lab Sample ID:** 041331356-0371
Sample Description: Room 147 in medical/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ LN/ 08-linoleum **Lab Sample ID:** 041331356-0372
Sample Description: Room 147 in medical/brown lenolium

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Tan	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ LN/ 08-mastic **Lab Sample ID:** 041331356-0373
Sample Description: Room 147 in medical/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ LN/ 09-linoleum **Lab Sample ID:** 041331356-0374
Sample Description: Room 147 in medical/brown lenolium

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	White	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ LN/ 09-mastic **Lab Sample ID:** 041331356-0375
Sample Description: Room 147 in medical/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 28-covebase **Lab Sample ID:** 041331356-0376
Sample Description: Far East stairwell/blue covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Blue	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 28-mastic **Lab Sample ID:** 041331356-0377
Sample Description: Far East stairwell/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 29-covebase **Lab Sample ID:** 041331356-0378
Sample Description: Far East stairwell/blue covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Blue	0%	100%	None Detected	



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Client Sample ID:	63/ ERM/ CB/ 29-mastic				Lab Sample ID:	041331356-0379
Sample Description:	Far East stairwell/mastic					
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	

Client Sample ID:	63/ ERM/ CB/ 30-covebase				Lab Sample ID:	041331356-0380
Sample Description:	Far East stairwell/blue covebase					
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Blue	0%	100%	None Detected	

Client Sample ID:	63/ ERM/ CB/ 30-mastic				Lab Sample ID:	041331356-0381
Sample Description:	Far East stairwell/mastic					
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Yellow	0%	100%	None Detected	

Client Sample ID:	63/ ERM/ FT/ 20-floor tile				Lab Sample ID:	041331356-0382
Sample Description:	Far East hallway/ 2nd floor/grey tile					
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Gray	0%	97%	3% Chrysotile	
400 PLM PtCt Grav. Red.	12/09/2013	Gray	0.0%	98.4%	1.6% Chrysotile	

Client Sample ID:	63/ ERM/ FT/ 20-mastic				Lab Sample ID:	041331356-0383
Sample Description:	Far East hallway/ 2nd floor/mastic					
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Yellow	0%	100%	None Detected	

Client Sample ID:	63/ ERM/ CB/ 31-covebase				Lab Sample ID:	041331356-0384
Sample Description:	Room 201, 2nd floor/dark blue covebase					
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Blue	0%	100%	None Detected	

Client Sample ID:	63/ ERM/ CB/ 31-mastic				Lab Sample ID:	041331356-0385
Sample Description:	Room 201, 2nd floor/mastic					
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	

Client Sample ID:	63/ ERM/ CB/ 32-covebase				Lab Sample ID:	041331356-0386
Sample Description:	Room 201, 2nd floor/dark blue covebase					
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Blue	0%	100%	None Detected	



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Client Sample ID: 63/ ERM/ CB/ 32-mastic **Lab Sample ID:** 041331356-0387
Sample Description: Room 201, 2nd floor/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 33-covebase **Lab Sample ID:** 041331356-0388
Sample Description: Room 201, 2nd floor/dark blue covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Blue	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 33-mastic **Lab Sample ID:** 041331356-0389
Sample Description: Room 201, 2nd floor/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Yellow	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 34-covebase **Lab Sample ID:** 041331356-0390
Sample Description: Hallway on 2nd floor West side/black covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Black	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 34-mastic **Lab Sample ID:** 041331356-0391
Sample Description: Hallway on 2nd floor West side/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Clear	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 35-covebase **Lab Sample ID:** 041331356-0392
Sample Description: Hallway on 2nd floor West side/black covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Black	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 35-mastic **Lab Sample ID:** 041331356-0393
Sample Description: Hallway on 2nd floor West side/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Clear	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ CB/ 36-covebase **Lab Sample ID:** 041331356-0394
Sample Description: Room 200C, 2nd floor/black covebase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Black	0%	100%	None Detected	



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<http://www.EMSL.com> / cinnasblab@EMSL.com

EMSL Order ID: 041331356
Customer ID: ERMH25
Customer PO:
Project ID:

Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116 Method via Polarized Light Microscopy

Client Sample ID: 63/ ERM/ CB/ 36-mastic **Lab Sample ID:** 041331356-0395
Sample Description: Room 200C, 2nd floor/mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	White	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ TSI/ 22 **Lab Sample ID:** 041331356-0396
Sample Description: Room 200C, 2nd floor-North/white w/ yellow insulation TSI

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	95%	5%	None Detected	

Client Sample ID: 63/ ERM/ TSI/ 23 **Lab Sample ID:** 041331356-0397
Sample Description: Room 200C, 2nd floor-North/white w/ yellow insulation TSI

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	95%	5%	None Detected	

Client Sample ID: 63/ ERM/ TSI/ 24 **Lab Sample ID:** 041331356-0398
Sample Description: Room 200C, 2nd floor-North/white w/ yellow insulation TSI

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	95%	5%	None Detected	

Client Sample ID: 63/ ERM/ TSI/ 25 **Lab Sample ID:** 041331356-0399
Sample Description: Room 200, 2nd floor-South/white w/ yellow insulation TSI

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Yellow	95%	5%	None Detected	

Client Sample ID: 63/ ERM/ TSI/ 26 **Lab Sample ID:** 041331356-0400
Sample Description: Room 200, 2nd floor-South/white w/ yellow insulation TSI

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	White/Yellow	80%	20%	None Detected	

Client Sample ID: 63/ ERM/ TSI/ 27 **Lab Sample ID:** 041331356-0401
Sample Description: Room 200, 2nd floor-South/white w/ yellow insulation TSI

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Yellow	95%	5%	None Detected	

Client Sample ID: 63/ ERM/ TL/ 01-Tar **Lab Sample ID:** 041331356-0402
Sample Description: Transmission line 24 miles/black insulation w/ paper backing

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Black	0%	100%	None Detected	



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EMSL Order ID: 041331356
Customer ID: ERMH25
Customer PO:
Project ID:

Summary Test Report for Asbestos Analysis of Bulk Material via EPA 600/R-93/116 Method via Polarized Light Microscopy

Client Sample ID: 63/ ERM/ TL/ 01-Felt **Lab Sample ID:** 041331356-0402A
Sample Description: Transmission line 24 miles/black insulation w/ paper backing

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Black	20%	80%	None Detected	

Client Sample ID: 63/ ERM/ TL/ 02-Tar **Lab Sample ID:** 041331356-0403
Sample Description: Transmission line 24 miles/black tar like insulation w/ paper

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Black	0%	100%	None Detected	

Client Sample ID: 63/ ERM/ TL/ 02-Felt **Lab Sample ID:** 041331356-0403A
Sample Description: Transmission line 24 miles/black tar like insulation w/ paper

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/20/2013	Black	20%	80%	None Detected	

Client Sample ID: 63/ ERM/ TL/ 03 **Lab Sample ID:** 041331356-0404
Sample Description: Transmission line 24 miles/black tar like insulation w/ paper

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/25/2013	Black	15%	85%	None Detected	

Analyst(s)

Andrew Castellano	400 PLM PtCt Grav. Red	(2)
Brittany Brown	PLM	(32)
Chelsey Bilhear	PLM	(4)
Garret Vliet	PLM	(1)
Jamie Marczak	PLM	(104)
Juli Patel	PLM	(17)
Justine Schenck	PLM	(14)
Naadira Carter	400 PLM PtCt Grav. Red	(3)
Patrick Carr	PLM	(33)
Quynh Vu	PLM	(97)
Samantha Rundstorm	PLM	(51)
Shane Feret	PLM	(35)
Thomas Schwab	PLM	(27)
William Nguyen	400 PLM PtCt Grav. Red	(5)

Any questions please contact Steve Siegel.

Stephen Siegel, CIH, Laboratory Manager
or other Approved Signatory

EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. This test report must not be used to claim product endorsement by NVLAP or any agency of the U.S. Government. EMSL bears no responsibility for sample collection activities or analytical method limitations. The laboratory is not responsible for the accuracy of results when requested to physically separate and analyze layered samples. PLM alone is not consistently reliable in detecting asbestos in floor coverings and similar NOBs

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NVLAP Lab Code 101048-0, AIHA-LAP, LLC-IHLAP Lab 100194, NYS ELAP 10872, NJ DEP 03036

Initial report from: 12/06/2013 16:43



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Company: ERM, Inc.		EMSL-Bill to: <input checked="" type="checkbox"/> Same <input type="checkbox"/> Different If Bill to is Different note instructions in Comments**	
Street: 240 Chase Drive		Third Party Billing requires written authorization from third party	
City: Hurricane	State/Province: WV	Zip/Postal Code: 25526	Country: USA
Report To (Name): Spencer Reynolds / Dan 412-352-8937		Telephone #: 304-757-4777	
Email Address: spencer.reynolds@erm.com		Fax #: 304-757-4799	Purchase Order:
Project Name/Number: Sugar Grove ACM		Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email	
U.S. State Samples Taken: WV		CT Samples: <input type="checkbox"/> Commercial/Taxable <input type="checkbox"/> Residential/Tax Exempt	

Turnaround Time (TAT) Options* - Please Check

3 Hour 6 Hour 24 Hour 48 Hour 72 Hour 96 Hour 1 Week 2 Week

*For TEM Air 3 hr through 6 hr, please call ahead to schedule. *There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.

PLM - Bulk (reporting limit)	TEM - Bulk
<input checked="" type="checkbox"/> PLM EPA 600/R-93/116 (<1%)	<input type="checkbox"/> TEM EPA NOB - EPA 600/R-93/116 Section 2.5.5.1
<input checked="" type="checkbox"/> PLM EPA NOB (<1%) <i>OK w/v samples</i>	<input type="checkbox"/> NY ELAP Method 198.4 (TEM)
Point Count <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%)	<input type="checkbox"/> Chatfield Protocol (semi-quantitative)
Point Count w/Gravimetric <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%)	<input type="checkbox"/> TEM % by Mass - EPA 600/R-93/116 Section 2.5.5.2
<input type="checkbox"/> NIOSH 9002 (<1%)	<input type="checkbox"/> TEM Qualitative via Filtration Prep Technique
<input type="checkbox"/> NY ELAP Method 198.1 (friable in NY)	<input type="checkbox"/> TEM Qualitative via Drop Mount Prep Technique
<input type="checkbox"/> NY ELAP Method 198.6 NOB (non-friable-NY)	<u>Other</u>
<input type="checkbox"/> OSHA ID-191 Modified	<input type="checkbox"/>
<input type="checkbox"/> Standard Addition Method	

Check For Positive Stop - Clearly Identify Homogenous Group Date Sampled: 2013 NOV 19 11:11 AM

Samplers Name: SPENCER REYNOLDS Samplers Signature: *[Signature]*

Sample #	HA #	Sample Location	Material Description
25/ERM-1/6/01		Wdg 25 only window	window glaze
25/ERM-1/6/02		" "	" "
22/ERM-1/B1/01	1	ENTIRE interior of building / 2nd floor	Building insulation
22/ERM-1/B1/02		" " "	"
24/ERM-1/B1/03		" " "	"
24/ERM-1/TS1/01		middle of north wall	white ts1 100 Lft
24/ERM-1/T11/02		" "	"
22/ERM-1/TS1/03		" "	"
24/ERM-1/TS1/04		middle of north wall	GREY ts1 260 Lft
24/ERM-1/TS1/05		" "	"

Client Sample # (s): - Total # of Samples: 265

Relinquished (Client): *[Signature]* Date: 11/18/13 Time: 1013

Received (Lab): AK EMSL fx Date: 11/19/13 Time: 10:30A

Comments/Special Instructions: Sample 25/ERM/WG/01 not submitted



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Sample #	HA #	Sample Location	Material Description
12/ERM/BI/06		middle of north wall	Grey TSI
14/ERM/BI/01	2	middle of south wall	Silver Building insulation/west
14/ERM/BI/02		"	" "
14/ERM/BI/03		"	" "
14/ERM/BI/04	3	middle of east wall	White Building insulation/east
15/ERM/BI/05		middle of north wall	" "
14/ERM/BI/06		north wall	" "
18/ERM/TSI/01		middle office on eastern side / only door on left	white TSI / throughout building
18/ERM/TSI/02		"	"
18/ERM/TSI/03		Hallway of main entrance	" "
30/ERM/CB/01		Bathroom / commissary	Grey core base + mastic
30/ERM/CB/02		Bathroom / commissary	" "
30/ERM/CB/03		Hallway / "	" "
30/ERM/CB/04		Breakroom / "	" "
30/ERM/CB/05		Breakroom / "	" "
30/ERM/FT/01		Breakroom / "	Green flooring tile + mastic
30/ERM/FT/02		Breakroom / "	" "
30/ERM/FT/03		Breakroom / "	" "
30/ERM/FT/04		Hallway / "	Small Grey flooring tile + mastic
30/ERM/FT/05		Commissary / "	Small Grey flooring tile + mastic
30/ERM/FT/06		Commissary / "	Small Grey flooring tile + mastic
30/ERM/FT/07		Breakroom / "	Large Grey flooring tile + mastic
30/ERM/FT/08		Office / "	Large Grey flooring tile + mastic
30/ERM/FT/09		Office / "	Large Grey flooring tile + mastic

*Comments/Special Instructions:



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11
11
11

Sample #	HA #	Sample Location	Material Description
30 ERM TSI 01		pump house south of building / BATH house	white-yellow TSI
30 ERM TSI 02		mens Showers / BATH House	" "
30 ERM TSI 03		womens Showers / BATH House	" "
30 ERM CB 06		mens shower / BATH House	white core base in Showers + mastic
30 ERM CB 07		mens Shower / BATH House	white core base in Showers + mastic
30 ERM CB 08		womens shower / BATH House	" " " "
30 ERM CB 09		South portion of MEX Building	Blown core BASE + MASTIC
30 ERM CB 10		North wall of MEX Building	" "
30 ERM CB 11		South west wall of MEX Bldg.	" " "
30 ERM CT 01		South east ceiling tile MEX	white ceiling tile throughout building
30 ERM CT 02		Hallway of commissary MEX	" "
30 ERM CT 03		office of commissary MEX	" "
30 ERM CT 04		North ceiling area MEX	" "
30 ERM CT 05		South ceiling area MEX	" "
20 ERM CT 06		ceiling tile in lunch room	" "
30 ERM CB 01		Room 204	Grey core base w/ mastic
30 ERM CB 02		Entrance Hallway	" "
30 ERM CB 03		Room 208	" "
30 ERM CT 01		Bathroom	white ceiling tile throughout building
30 ERM CT 02		Room 203	
30 ERM CT 03		Room 110 Room 201	
30 ERM FT 01		Room 110	Grey Brown tile w/ mastic
20 ERM FT 02		Room 110	" "
20 ERM FT 03		Room 110	" "

*Comments/Special Instructions:



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Sample #	HA #	Sample Location	Material Description
ERM FT 04		Room 110	Yellow floor tile w/ mastic
ERM FT 05		Room 110	" "
ERM FT 06		Room 115	" "
ERM CB 04		Break Room	Grey Cove base w/ mastic
ERM CB 05		Room 114 Hallway	" "
ERM CB 06		Room 113C	" "
ERM CT 04		Room 113B	white ceiling tile
ERM CT 05		Break Room	" "
ERM CT 06		Room 115	" "
ERM FT 07		Break Room	Grey tile w/ red + blue marks + m
ERM FT 08		Break Room	" "
ERM FT 09		Break Room	" "
ERM FT 10		Room 114 Hallway	Grey tile w/ black marks + mastic
ERM FT 11		Room 114	" "
ERM FT 12		Room 101	" "
ERM CB 07		Gym	Black Cove Base w/ mastic
ERM CB 08		Gym	" "
ERM CB 09		Gym	" "
ERM CT 07		1st Floor Men's Bathroom in Gym	White ceiling tile
ERM TSI 01		1st floor west wall of gym	white tsi yellow insulation
ERM TSI 02		1st floor west wall of gym	white tsi yellow insulation
ERM TSI 03		1st floor mens Bathroom in gym	white tsi yellow insulation
ERM FT 13		Bowling Alley	Brown tile w/ mastic
ERM FT 14		Bowling Alley	" "

*Comments/Special Instructions:

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Chain of Custody

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Sample #	HA #	Sample Location	Material Description
10 ERM FT 15		Bowling Alley	Brown tile w/ mastic
10 ERM FT 16		Bowling Alley	Gray tile w/ mastic
10 ERM FT 17		Bowling Alley	" "
10 ERM FT 18		Bowling Alley	" "
10 ERM CB 10		Bowling Alley	Maroon core base w/ mastic
10 ERM CB 11		Bowling Alley	" "
10 ERM CB 12		Bowling Alley	" "
10 ERM CB 13		Gym Hallway	Black core base w/ mastic
10 ERM CB 14		Gym Hallway	" "
10 ERM CB 15		Gym Hallway	" "
10 ERM FT 19		Gym Hallway	Tan tile w/ mastic
10 ERM FT 20		Room 107	" "
10 ERM FT 21		Gym Hallway	" "
10 ERM TSI 04		Basement	white TSI yellow insulation
10 ERM TSI 05		Basement	white TSI yellow insulation
10 ERM TSI 06		Basement	white TSI yellow insulation
10 ERM BL 01		Boiler insulation	yellow insulation w/in boiler
10 ERM BL 02		" "	" "
10 ERM BL 03		" "	" "
10 ERM FT 22		EAST portion of workout facility - room	white with grey streaks + mastic
10 ERM FT 23		EAST portion of workout facility - room	" "
10 ERM FT 24		" "	" "
10 ERM CB 16		Throughout workout facility - room	Black core base + mastic
10 ERM CB 17		" "	Black core base + mastic

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Sample #	HA #	Sample Location	Material Description
0ERM CB18		Throughout workout facility - room	Black Cove base + mastic
0ERM CB 19		throughout workout facility - room	
20ERM CB 20		" "	maroon Covebase + mastic
20ERM CD 21		" "	Maroon Cove base + mastic
20ERM CB 01		Racketball Court Vestibule	Black Cove base + mastic
20ERM CB 02		" "	" "
20ERM CB 03		" "	" "
20ERM FT 01		White + gray floor tile	White + gray floor tile
0ERM FT 02		" "	" "
20ERM FT 03		" "	" "
20ERM CT 01		Racketball court Vestibule	white ceiling tile
0ERM CT 02		" "	" "
20ERM CT 03		" "	" "
20ERM LN 01		Building 26 Basement	Lenolium Flooring
20ERM LN 02		" "	" "
20ERM LN 03		" "	" "
20ERM CB 01		Kitchen	Black Cove base + mastic
20ERM CB 02		" "	" "
20ERM CB 03		" "	" "
20ERM CB 04		Bathroom	Pink Cove base + mastic
20ERM CB 05		Bathroom	" "
20ERM CB 06		Bathroom	" "
20ERM CB 07		Staff Bathroom	Blue Cove base + mastic
20ERM CB 08		Staff Bathroom	" "

*Comments/Special Instructions:



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Sample #	HA #	Sample Location	Material Description
63ERM CB 04		Staff Bathroom	Blue core base + mastic
63ERM FT 01		Bathroom	Grey + Pink tile + mastic
63ERM FT 02		"	" "
63ERM FT 03		"	" "
63ERM FT 04		Staff Bathroom	White w/ Blue floor tile + mastic
63ERM FT 05		"	" "
63ERM FT 06		"	" "
63ERM TP 01		Front Room	Transight Paneling
63ERM TP 02		"	" "
63ERM TP 03		"	" "
63ERM CB 10		Second Floor Hall	Red core base + mastic
63ERM CB 11		" "	Red core base + mastic
63ERM CB 12		" "	Red core base + mastic
63ERM TSI 01		Boiler room 2 nd floor 3" piping	white paper yellow insulation
63ERM TSI 02		" " "	" "
63ERM B1 03		" " "	" "
63ERM TSI 04		Boiler room 2 nd floor 1" piping	white paper yellow insulation
63ERM TSI 05		" " "	" "
63ERM TSI 06		" " "	" "
63ERM CP 01		ceiling plaster in Boiler room 115	white ceiling plaster
63ERM CP 02		" " "	" "
63ERM CP 03		" " "	" "
63ERM BL 01		Boiler insulation room 115	yellow Boiler insulation
63ERM BL 02		" "	" "

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Sample #	HA #	Sample Location	Material Description
63 ERN DL03		Boiler room 115	yellow Boiler insulation
63 ERN FT 01		1st floor west stairwell / Chapel stairs	white tile with blue + red streaks
63 ERN FT 02		" " / Chapel stairs	white tile with blue + red streaks
63 ERN FT 03		Second floor west stairwell	" " "
63 ERN CB 01		1st floor west stairwell	Blue Cove base + mastic
63 ERN CB 02		" "	"
63 ERN CB 03		2nd floor west stairwell	Blue Cove base + mastic
63 ERN CB 04		1st floor room 108	Black Cove BASE + mastic
63 ERN CB 05		" "	"
63 ERN CB 05		" "	"
63 ERN CB 06		" "	"
63 ERN CT 01		ceiling tile in room 108	white ceiling tile
63 ERN CT 02		" " "	white ceiling tile
63 ERN CT 03		" " "	" "
63 ERN CB 07		Security Room	Dark Blue Cove base + mastic
63 ERN CB 08		" "	" "
63 ERN CB 09		" "	" "
63 ERN FT 04		" "	White tile w/ black speck mastic
63 ERN FT 05		" "	" "
63 ERN FT 06		" "	" "
63 ERN CT 04		" "	White ceiling tile
63 ERN CT 05		" "	" "
63 ERN CT 06		" "	" "
63 ERN TS 07		" "	White TS w/ yellow insulation
63 ERN TS 08		" "	" "

*Comments/Special Instructions:

2013 NOV 19 P 1:15



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Sample #	HA #	Sample Location	Material Description
3ERM BI 04		Security Room	White TSI w/ yellow insulation
3ERM CP 04		Mens Bathroom	White ceiling Plaster
3ERM CP 05		" "	" "
3ERM CP 06		" "	" "
3ERM CB 10		Chapel	Maroon rove base + mastic
3ERM CB 11		" "	" "
3ERM CB 12		" "	" "
3ERM CB 13		Room 138	Grey rove base + mastic
3ERM CB 14		" "	" "
3ERM CB 15		" "	" "
3ERM CB 16		Nursery	Black rove base + mastic
3ERM CB 17		" "	" "
3ERM CB 18		" "	" "
63ERM FT 07		Kitchen of Chapel	Turquoise tile + mastic
63ERM FT 08		" "	" "
63ERM FT 09		" "	" "
63ERM CT 07		Pantry	White ceiling tile
63ERM CT 08		Pantry	" "
63ERM CT 09		Pantry	" "
63ERM CT 10		ceiling tile above ceiling tile in chapel	white 9x9 ceiling tile
63ERM CT 11		ceiling tile above ceiling tile in chapel	" "
63ERM CT 12		" "	" "
63ERM FT 10		Kitchen Former Kitchen Closet	Red Clay Brick
63ERM FT 11		" "	" "

*Comments/Special Instructions:

2013 NOV 19 P 1:15

Page 9 of 12 pages

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CINNAMINSON, N.J.



EMSL ANALYTICAL, INC.
LABORATORY PRODUCTS TRAINING

Asbestos Bulk Building Material Chain of Custody

EMSL Order Number (Lab Use Only):

041331356

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX: (856) 786-5974

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	HA #	Sample Location	Material Description
63 ERM FT 12		Farmer Kitchen closet	Red Clay Brick
63 ERM TS1 10		Generator room / locker room	white paper / yellow insulation
63 ERM TS1 11		" "	" "
63 ERM D1 12		Generator room / locker room	white paper / yellow insulation
63 ERM R1 01		Generator room / locker room	Black radiator insulation
63 ERM R1 02		" "	Black radiator insulation
63 ERM R1 03		" "	" " "
63 ERM TS1 13		Ladies rest room in medical hallway	white ^{paper} w/ yellow insulation
63 ERM TS1 14		" " "	" "
63 ERM TS1 15		" " "	" "
63 ERM CP 07		Ladies rest room in medical hallway	white ceiling plaster
63 ERM CP 08		" "	" "
63 ERM CP 09		" "	" "
63 ERM LN 01		medical laboratory	white with blue + gray flake
63 ERM LN 02		" "	" "
63 ERM LN 03		" "	" "
63 ERM CB 19		medical laboratory	very light blue conc base + mortar
63 ERM CB 20		" "	" "
63 ERM CB 21		medical medical laboratory	very light blue conc base + mortar
63 ERM TS1 16		room 120 in medical lab portion	^{Aluminum} white paper w/ yellow insulation
63 ERM TS1 17		room 121 in medical portion	white paper w/ yellow insulation
63 ERM TS1 18		room 122 in medical portion	white paper w/ yellow insulation
63 ERM TS1 19		room 123 in medical portion	
63 ERM TS1 20		room 124 in medical portion	

*Comments/Special Instructions:

11 NOV 19 11:15

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CINNAMINSON, N.J.



EMSL ANALYTICAL, INC.
LABORATORY PRODUCTS TRAINING

Asbestos Bulk Building Material Chain of Custody

EMSL Order Number (Lab Use Only):

041331356

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077

PHONE: (800) 220-3675
FAX: (856) 786-5974

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	HA #	Sample Location	Material Description
63 ERM LN 04		Room 120 in medical	Yellow Limestone w/Brown speckles
63 ERM LN 05		"	"
63 ERM LN 06		"	" "
63 ERM CB 22		Room 120 in medical	Brown Cove Base + Mastic
63 ERM CB 23		"	"
63 ERM CB 24		"	"
63 ERM CB 25		Room 121 in medical portion	Blue Bright Cove base + Mastic
63 ERM CB 26		"	"
63 ERM CB 27		Room 124 in medical portion	Bright Blue Cove base + mastic
63 ERM TS 19		Room 124 in medical portion	white paper w/yellow insulation
63 ERM TS 20		Room 123 in medical portion	yellow tal insulation
63 ERM TS 21		Room 148 in medical portion	white paper w/yellow insulation
63 ERM FT 13		Room 124 in medical portion	Blue floor tile w/mastic + blue str
63 ERM FT 14		Room 124 in medical portion	Blue floor tile w/blue streaks + mastic
63 ERM FT 15		Room 12 ³ in medical portion	" "
63 ERM FT 16		Room 12 ³ in medical portion	" "
63 ERM FT 17		FAR EAST STAIR well	Blue floor tile w/blue streaks + mastic
63 ERM FT 18		"	" "
63 ERM FT 19		FAR EAST HALL ^{2nd} floor / 2 LAYERS	Blue floor tile w/mastic
63 ERM LN 07		Room 147 in medical	Brown Limestone w/mastic
63 ERM LN 08		" "	" "
63 ERM LN 09		" "	" "
63 ERM CB 28		far east stair well	Blue Cove Base w/mastic
63 ERM CB 29		far east stair well	Blue Cove Base w/mastic

*Comments/Special Instructions:

2013 NOV 19 P 1:15

Page 11 of 12 pages

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EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Bulk Building Material Chain of Custody

EMSL Order Number (Lab Use Only):

041331356

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX: (856) 786-5974

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	HA #	Sample Location	Material Description
3ERM CD30		far east stair well	blue core base w/mastic
3ERM FT20		far east HALLWAY / 2nd floor 2 layers	grey tile w/mastic
3ERM CB31		room 201 2nd floor	DARK blue core base w/mastic
3ERM CB32		"	"
3ERM CB33		"	"
3ERM CB34		HALLWAY on 2nd floor WEST SIDE	Black core base w/mastic
3ERM CB35		" "	" "
3ERM CB36		room 202 2nd floor	Black core base w/mastic
3ERM TS122		Room 200C 2nd floor north	White w/ yellow insulation TSI
3ERM TS123		" " 2nd floor north	" "
3ERM TS124		" " 2nd floor north	" "
3ERM TS125		Room 200 2nd floor north	" "
3ERM TS126		" " 2nd floor south	" "
3ERM TS127		" " 2nd floor south	" "
ERM TL01		Transmission Line 24 miles	Black insulation w/ paper backing
ERM TL02		" "	Black TAA like insulation w/ paper
ERM TL03		" "	" "

*Comments/Special Instructions:

2013 NOV 19 P 1:15

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CINNAMINSON, N.J.

Appendix D
Licensure and Certifications



WEST VIRGINIA

Asbestos Program

Spencer Reynolds

IS LICENSED AS AN
ASBESTOS INSPECTOR

License # AI007085

Issued: 12/13/2012

Expires: 12/31/2013

Anthony Turner Assistant Director
WV RTIA DIV



AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: 100194

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- | | |
|---|-----------------------------------|
| <input checked="" type="checkbox"/> INDUSTRIAL HYGIENE | Accreditation Expires: 07/01/2014 |
| <input checked="" type="checkbox"/> ENVIRONMENTAL LEAD | Accreditation Expires: 07/01/2014 |
| <input checked="" type="checkbox"/> ENVIRONMENTAL MICROBIOLOGY | Accreditation Expires: 07/01/2014 |
| <input type="checkbox"/> FOOD | Accreditation Expires: |

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

S. D. Allen Iske, PhD, CIH, CSP
Chairperson, Analytical Accreditation Board

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC



AIHA Laboratory Accreditation Programs, LLC SCOPE OF ACCREDITATION

EMSL Analytical, Inc.
200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: **100194**
Issue Date: 07/31/2012

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or revocation. A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at: <http://www.aihaaccreditedlabs.org>

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 02/01/1989

IHLAP Scope Category	Field of Testing (FoT)	Technology sub-type/ Detector	Published Reference Method/ Title of In-house Method	Method Description or Analyte <i>(for internal methods only)</i>
Chromatography Core	Gas Chromatography	GC/ FID	NIOSH 1003	
			NIOSH 1005	
			NIOSH 1400	
			NIOSH 1500	
			NIOSH 1550	
			NIOSH 1603	
		NIOSH 2000		
		NIOSH 5502		
		NIOSH 5503		
		NIOSH 5510		
	OSHA 1010			
	GC/ECD	NIOSH 2551		
	GC/NPD			
	GC/MS	EPA TO-15		
	Gas Chromatography (Diffusive Samplers)		NIOSH 1501	
	Ion Chromatography (IC)		NIOSH 6004	
			NIOSH 6011	
		NIOSH 7903		
		OSHA ID-214		
		OSHA ID-215		
Liquid Chromatography	HPLC/FL	NIOSH 5506		
	HPLC/UV	NIOSH 2016		



IHLAP Scope Category	Field of Testing (FoT)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)	
Spectrometry Core	Atomic Absorption	CVAA	NIOSH 6009		
			OSHA ID-145	SOP LM-015	
		OSHA ID-145	SOP LM-013		
		FAA	NIOSH 7082		
			GFAA	NIOSH 7105	
	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300 Modified		
		ICP/AES	NIOSH 7300		
	X-ray Diffraction (XRD)		NIOSH 7500		
		OSHA ID-142			
UV/VIS (Colorimetric)		NIOSH 6010			
Asbestos/Fiber Microscopy Core	Polarized Light Microscopy (PLM)		EPA 600/R-93/116		
	Phase Contrast Microscopy (PCM)		NIOSH 7400		
	Transmission Electron Microscopy (TEM)		EPA AHERA - 40 CFR Part 763		
		NIOSH 7402			
Miscellaneous Core	Gravimetric		NIOSH 0500		
			NIOSH 0600		
			NIOSH 5524		
	Thermo-optical Analysis (TOA)		NIOSH 5040		

The laboratory participates in the following AIHA-LAP, LLC-approved proficiency testing programs:

- | | |
|--|--|
| <ul style="list-style-type: none"> ✓ AIHA-PAT Programs, LLC IHPAT Metals ✓ AIHA-PAT Programs, LLC IHPAT Organic Solvents ✓ AIHA-PAT Programs, LLC IHPAT Silica ✓ AIHA-PAT Programs, LLC IHPAT Diffusive Sampler (3M) ☐ AIHA-PAT Programs, LLC IHPAT Diffusive Sampler (SKC) ☐ AIHA-PAT Programs, LLC IHPAT Diffusive Sampler (AT) ✓ AIHA-PAT Programs, LLC IHPAT Asbestos ☐ AIHA-PAT Programs, LLC Bulk Asbestos (BAPAT) ☐ AIHA-PAT Programs, LLC Beryllium (BePAT) ✓ HSE Workplace Analytical Scheme for Proficiency (WASP) (Formaldehyde) ☐ HSE Workplace Analytical Scheme for Proficiency (WASP) (Thermal Desorption Tubes) | <ul style="list-style-type: none"> ☐ Pharmaceutical Round Robin ☐ Compressed/Breathing Air Round Robin ✓ National Voluntary Laboratory Accreditation Program (NVLAP - determined at the time of site assessment) ☐ New York State Department of Health (NYS DOH – PCM and TEM) ✓ ERA Air and Emissions standards for indoor air quality ☐ Institut für Arbeitsschutz der Deutschen Gesetzlichen Unfallversicherung (IFA, formerly BGIA) ☐ Institut de Recherche Robert-Sauvé en Santé et en Sécurité du Travail (IRSST) |
|--|--|

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.
Cinnaminson, NJ

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

AIRBORNE ASBESTOS FIBER ANALYSIS

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).*

2013-07-01 through 2014-06-30

Effective dates



A handwritten signature in black ink, appearing to read "William R. Mallon".

For the National Institute of Standards and Technology



**National Voluntary
Laboratory Accreditation Program**



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.
200 Route 130 North
Cinnaminson, NJ 08077
Mr. Stephen Siegel, CIH
Phone: 800-220-3675 Fax: 856-786-5973
E-Mail: ssiegel@emsl.com
URL: <http://www.emsl.com>

AIRBORNE ASBESTOS FIBER ANALYSIS (TEM)

NVLAP LAB CODE 101048-0

NVLAP Code Designation / Description

18/A02 U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.

2013-07-01 through 2014-06-30

Effective dates

For the National Institute of Standards and Technology

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.
Cinnaminson, NJ

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

BULK ASBESTOS FIBER ANALYSIS

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).*

2013-07-01 through 2014-06-30

Effective dates



A handwritten signature in black ink, appearing to read "William R. Mallon".

For the National Institute of Standards and Technology



**National Voluntary
Laboratory Accreditation Program**



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.
 200 Route 130 North
 Cinnaminson, NJ 08077
 Mr. Stephen Siegel, CIH
 Phone: 800-220-3675 Fax: 856-786-5973
 E-Mail: ssiegel@emsl.com
 URL: <http://www.emsl.com>

BULK ASBESTOS FIBER ANALYSIS (PLM)

NVLAP LAB CODE 101048-0

<i>NVLAP Code</i>	<i>Designation / Description</i>
18/A01	EPA 600/M4-82-020: Interim Method for the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

2013-07-01 through 2014-06-30

Effective dates

For the National Institute of Standards and Technology

State of West Virginia

Bureau for Public Health
Office of Environmental Health Services
Radiation, Toxics and Indoor Air Division

This is to certify that

EMSL Analytical, Inc.

200 Route 130 North

Cinnaminson, NJ 08077

Has complied with Chapter 16, Article 32, of the Asbestos Abatement Licensing Rules and Regulations and is hereby licensed as an Asbestos Air and Bulk Sample Analytical Laboratory.

Asbestos Laboratory License Number:
LT000460

Issued: 3/29/2013

Expires: 3/31/2014



WEST VIRGINIA

Asbestos Program

EMSL Analytical, Inc.

IS LICENSED AS AN
ASBESTOS LABORATORY -
AIR AND BULK



License #: LT000460
Issued: 3/29/2013
Expires: 3/31/2014

Anthony Turner
Assistant Director
WV RTIA DIV

Anthony Turner, Assistant Director
Radiation, Toxics and Indoor Air Division

Appendix H
UST Closure Documentation

LEAK NO.	93-048
FACILITY ID	3604470
SITE NAME	Naval Security Group
STREET	Route 21
CITY	Sugar Grove
COUNTY	Pendleton

Scanned 01-14-05

LEAK ID#: 93-048

WV ID#: 3604470

CLOSURE #: C-4557-95



OWNER
OPERATOR
CHARLESTON OFFICE
PROJECT MANAGER

DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF ENVIRONMENTAL REMEDIATION

REVIEW OF CONFIRMED RELEASE REPORT

601, 57th Street, SE
Charleston, WV 25304

FACILITY INFORMATION

OWNER: Department Of The Navy	OPERATOR: same
ADDRESS: Naval Facilities Engineering Command Atlantic, 6506, Hampton Blvd [Attn: Ms. Lori P. Reuther]	ADDRESS:
CITY: Norfolk STATE: VA ZIP: 23508	CITY: STATE: ZIP:
PHONE: (757) 322-4779	PHONE: ()
LOCATION OF TANKS:	
FACILITY NAME: Naval Security Group	CITY: Sugar Grove
STREET ADDRESS: : Route 21	COUNTY: Pendleton PHONE:

TO THE TANK OWNER AND OPERATOR

Whereas, a review of the information provided regarding site characteristics and the extent of soil and groundwater contamination at the above-referenced facility in compliance with the CONFIRMED RELEASE-NOTICE TO COMPLY issued on the 2nd day of March, 1993, has been completed.

UPON REVIEW, the investigation was found to be:

Complete Incomplete

THEREFORE, THE FOLLOWING ACTION MUST BE INITIATED IMMEDIATELY:

- Initiate an investigation to determine the full extent and magnitude of soils contaminated by the release and the presence and concentration of dissolved product contamination in the groundwater.
- Continue investigation to determine the full lateral and vertical extent and magnitude of soil contamination.
- Continue investigation to determine the presence and concentration of dissolved product contamination in the groundwater.
- Submit a Corrective Action Plan to respond to contaminated soil and groundwater found by the completed investigation.
- No further Action required at this time.
- [Site Check report – 04/26/93; Closure Report 08/01/95; Final Site Assessment report – Feb 1996; Site Assessment Addendum – August 1996; 1st Q to 4th Q 2003 Monitoring reports; Summary of GW Sampling, MW-3 letter dated 07/06/04; Conditional NFA letter from Jim Maurin to Department of the Navy (approve MW abandonment) dated 07/28/04; Letter for NFA from Department of the Navy dated 11/28/04 along with copy of Monitoring Well Abandonment report – 11/24/04 by Mid-Atlantic Associates Inc.]

Any additional Investigation Report or Corrective Action Plan checked above should be submitted to the following no later than the day of , 2005.

ORIGINAL TO:	COPY TO:
Wilma Pomeroy	Pasupathy Ramanan (Dr. Ram), Project Manager
WVDEP, DLR - OER	WVDEP, OER
601, 57 th Street, SE	2031 Pleasant Valley Road, Suite #1
Charleston, WV 25304	Fairmont, WV 26554
Telephone #: 304-926-0499 ext. 1271 Fax #: 304-926-0457	Telephone #: 304-368-3950 ext. 237 Fax #: 304-368-3953
e-mail Address: wpomeroy@wvdep.org	e-mail Address: pramanan@wvdep.org

NOTE: All reports/plans must reference the Leak I.D. and WV I.D.

WARNING

If you are the owner and/or operator and you fail to accomplish the above-described measures within the time specified, the Director may issue an Administrative Order and/or may commence a Civil Action in the Circuit Court, including a temporary or permanent injunction in accordance with West Virginia Code, Chapter 22-17-15 and you may be liable for a Civil Penalty in accordance with Chapter 22-17-16.

SERVICE ACCEPTED AND ACKNOWLEDGED:

Inspector's Signature: <i>P. Ramanan</i>	Pasupathy Ramanan (Dr. Ram)	Date: 12-08-2004
Contact Person's Signature: sent by mail to Ms. Lori P. Reuther		Date: 12-08-2004

LEAK ID#: 93-048

WV ID#: 3604470

CLOSURE #: C-4557-95



OWNER
OPERATOR
CHARLESTON OFFICE/GEOLOGIST
PROJECT MANAGER

DEPARTMENT OF ENVIRONMENTAL
PROTECTION
OFFICE OF ENVIRONMENTAL REMEDIATION

REVIEW OF CLOSURE

601, 57th Street, SE
Charleston, WV 25304
304-926-0499

FACILITY INFORMATION

OWNER: Department Of The Navy			OPERATOR: same		
ADDRESS: Naval Facilities Engineering Command Atlantic, 6506, Hampton Blvd - [attn: Ms. Lori P. Reuther]			ADDRESS:		
CITY: Norfolk	STATE: VA	ZIP: 23508-1278	CITY:	STATE:	ZIP:
PHONE: (757) 322-4779			PHONE: ()		
LOCATION OF TANKS:					
FACILITY NAME: Naval Security Group			CITY: Sugar Grove		
STREET ADDRESS: : Route 21			COUNTY: Pendleton		PHONE:

TO THE TANK OWNER AND OPERATOR:

This office has received and reviewed the analytical data and closure report for the above facility, and the following decision has been made:

No additional investigation or remedial action is warranted at the present time with respect to those substances listed in the submitted report. However, West Virginia Department of Environmental Protection's findings are based solely on the information contained in the reports and does not in any manner constitute a certification or guarantee with regard to the lack of contamination on the property.

Should any contamination, that may be related to the Confirmed Release identified by Leak # 93-048, be discovered in the vicinity of the subject property in the future, WVDEP expressly reserves the right to require responsible parties to conduct additional investigation and/or remedial actions.

SERVICE ACCEPTED AND ACKNOWLEDGED:

Inspector's Signature: Pasupathy Ramanan [Dr. Ram]	<i>P. Ramanan</i>	Date: 12-08-2004
Contact Person's Signature: sent by mail to Ms. Lori P. Reuther		Date: 12-08-2004



DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
ATLANTIC
6506 HAMPTON BLVD
NORFOLK VA 23508-1278

TELEPHONE NO:

(757) 322-4779

IN REPLY REFER TO:

6280

EV14LR:EVS

NOV 28 2004

Mr. Jim Maurin
West Virginia Department of Environmental Protection
2031 Pleasant Valley Road
Fairmont, WV 26554

Re: WVDEP Facility No.: 3604470
WVDEP Release No.: 93-048

Dear Mr. Maurin,

I have enclosed a letter from Mid-Atlantic Associates, Inc. dated 24 November that summarizes monitoring well abandonment activities conducted at USTs 201 and 202, Naval Security Group Activity, Sugar Grove WV. Also, per instruction provided by your letter dated July 28, 2004, the associated well abandonment forms are included.

Please feel free to give me a call should you have any questions or need clarification.

We appreciate your guidance throughout this project in our quest for a No Further Action Status for this site.

Sincerely,

A handwritten signature in cursive script that reads "Lori P. Reuther".

LORI P. REUTHER

Enclosures:

- (1) WVDEP ltr dated July 28, 2004
- (2) Mid-Atlantic ltr dated Nov 24, 2004
- (3) Well abandonment forms



Division of Land Restoration
Office of Environmental Remediation
2031 Pleasant Valley Road, Suite #1
Fairmont, WV 26554
Telephone (304) 368-3950
Fax (304) 368-3953

West Virginia Department of Environmental Protection

Bob Wise
Governor

Stephanie R. Timmermeyer
Cabinet Secretary

July 28, 2004

Ms. Lori P. Reuther
Department of the Navy
NAVFAC Atlantic
6506 Hampton Boulevard
Norfolk, VA 23508-1276

**RE: Naval Security Group
WV ID # 3604470; LEAK ID # 93-048**

Dear Ms. Reuther:

A review has been completed of reports submitted and/or information obtained through site visits and discussions regarding the Confirmed Release issued **March 2, 1993**. It has been confirmed that a petroleum release has occurred at the above referenced facility and that soil and/or groundwater has been contaminated. This contamination may be considered a threat to human health and the environment.

Based on a review of the file I would like to make the following comments. I am in receipt of your latest correspondence and request for a No Further Action Status. Based on the information I have, I agree to grant your request as long as the following criteria are satisfied. All wells must be properly abandoned according to CSR 47-60-19 of the Monitoring Well Design Standards. If any of the wells cannot be located or have been destroyed, you must contact Mr. Chad Board at (304) 558-2108 to obtain a waiver according to CSR 47-60-22. The original well abandonment forms must be submitted to Mr. Board, with copies to me at the Fairmont office.

Once I receive a copy of the proper documentation, I will fill out the appropriate paperwork granting the No Further Action Status for this site. Should you have any questions or comments, feel free to contact me at (304) 368-3950 or by e-mail at jmaurin@wvdep.org.

Sincerely,

Jim Maurin
Project Manager

cc: Charleston Office
File



West Virginia Department
of Environmental Protection

"Promoting a healthy environment."

19 July 2004

RECEIVED
JUL 23 2004

Jim Maurin
Office of Environmental Remediation
2031 Pleasant Valley Road, Suite #1
Fairmont, WV 26554

RE: WV ID # 3604470; LEAK ID # 93-048
USTs 201 and 202
Naval Security Group Activity
Sugar Grove, West Virginia

Dear Mr. Maurin,

Per our phone conversation on or about June 30, 2004, I am forwarding the letter from Mid-Atlantic and Associates documenting sampling activities associated with MW-3.

We had attempted to procure one last round of sampling from this well per your request contained in your letter of May 17, 2004. Unfortunately, the well did not contain sufficient groundwater to collect for analyses.

We request your review and subsequent direction regarding the abandonment of the existing monitoring wells at the site.

Also, no excavated soils associated with this site were located by the contractor. A discussion with on site personnel revealed that substantial floods in the area were responsible for washing away the stockpiled soil that had existed at this site.

Should you have any questions, feel free to give me a call at (757) 322-4779.

Thank you in advance for your attention to this effort.

Regards,



Lori Reuther, Code EV14LR
NAVFAC Atlantic
6506 Hampton Blvd.
Norfolk, VA 23508-1276

Copy to: Mr. Steve Niethamer (w/o enclosures)
Environmental Programs, Code N45
NAVSECGRUACT Sugar Grove WV
Sugar Grove, WV 26815

Encl: Letter dated July 6, 2004
Letter dated June 30, 2004
Letter dated May 17, 2004

MID-ATLANTIC
ASSOCIATES, INC.
Engineering & Environmental Solutions

409 Rogers View Court / Raleigh / North Carolina / 27610
800-486-7568 / 919-250-9918 / 919-250-9950 Facsimile
www.maaonline.com

July 6, 2004

Commander
Naval Facilities Engineering Command
Atlantic Headquarters, Environmental Division
Technical Support Branch
1510 Gilbert Street
Norfolk, Virginia 23511-6287

Attention: Code EV14LR, Ms. Lori P. Reuther

Subject: **SUMMARY OF GROUNDWATER SAMPLING, MW-3
USTS 201 AND 202
NAVAL SECURITY GROUP ACTIVITY
SUGAR GROVE, WEST VIRGINIA
WVDEP FACILITY NO.: 3604470
WVDEP RELEASE NO.: 93-048
NAVY CONTRACT NO. N62470-01-D-3009
MID-ATLANTIC JOB NO. 000R1243.50**

Dear Ms. Reuther:

Mid-Atlantic Associates, Inc. (Mid-Atlantic) is pleased to submit this summary of groundwater sampling activities related to monitoring well MW-3 at the Naval Security Group Activity site in Sugar Grove, West Virginia. This summary was developed based on conversations with you and Michael E. Mason on June 30, 2004 and was prepared in association with Delivery Order No. 50, issued to CATLIN Engineers & Scientists on February 24, 2003.

Monitoring well MW-3 is one of six monitoring wells located on the subject site in conjunction with the assessment of a release from a gasoline UST system. This well is constructed of 4-inch diameter schedule 40 PVC to a total depth of 6.45 feet below land surface (bls) with a screen interval of 1.45 to 6.45 feet bls. McCallum Testing Lab constructed the well in 1994 under the direction of r. e. wright associates, inc. Review of work conducted by others prior to Mid-Atlantic's involvement with this site indicates that MW-3 has had insufficient yield to consistently collect samples from the well.

Mid-Atlantic has attempted to collect groundwater samples from MW-3 on five occasions as summarized below.

Date	Water Column Length (ft)	Comment
March 3, 2003	1.7	Sufficient water to sample, eight PAH compounds detected with total concentration of 155 ppb
April, 2003	Not Applicable	Non-watertight well cap replaced with watertight well cap
May 9, 2003	3.75	Sufficient water to sample, no hydrocarbons detected
September 30, 2003	3.98	Sufficient water to sample, no hydrocarbons detected
December 22, 2003	0.06	Insufficient water to sample
June 28, 2004	0.05	Insufficient water to sample

During the March 3, 2003 sampling event Mid-Atlantic observed that the well cap on MW-3 was not watertight and surface water from the paved parking area surrounding the wellhead could enter the well. In April 2003, a watertight well cap was sent to Activity personnel and installed on the well. The results of the groundwater testing conducted on the sample collected on March 3, 2003 showed polynuclear aromatic hydrocarbons (PAHs) indicative of coal tar, coal tar pitch, creosote and petroleum asphalt were present (i.e., not indicative of gasoline). Tests on two groundwater samples collected subsequent to the installation of the watertight well cap (May 9 and September 30, 2003) indicated that petroleum was no longer present in the groundwater samples. Additional attempts to sample MW-3 were unsuccessful (December 22, 2003 and June 28, 2004) because the well contained an insufficient quantity water to collect the sample.

The data suggests that the petroleum detected in the sample collected from MW-3 in March 2003 was the result of surface water entering the well

through an ineffective well cap. The data from May and September 2003 also suggests that the installation of the watertight well cap has resolved this problem. Petroleum hydrocarbons indicative of gasoline were not detected in groundwater collected during the three successful sample events conducted at MW-3. Based on the data presented herein, it is our opinion that the absence of groundwater in MW-3 during the past two sampling event attempts should not preclude closure of this incident.

Mid-Atlantic appreciates the opportunity to provide environmental services to LANTDIV and the Naval Security Group Activity on this project. We look forward to hearing from you soon.

Sincerely,

MID-ATLANTIC ASSOCIATES, INC.



Eric B. Aufderhaar
Project Geologist



Darrell H. Nielsen
Principal Engineer

Cc: Mr. Steven Niethamer - NAVSECGRUACT Sugar Grove
Michael E. Mason, P.E. - Program Manager, CATLIN Engineers & Scientists



Division of Land Restoration
Office of Environmental Remediation
2031 Pleasant Valley Road, Suite #1
Fairmont, WV 26554
Telephone (304) 368-3950
Fax (304) 368-3953

West Virginia Department of Environmental Protection

Bob Wise
Governor

Stephanie R. Timmermeyer
Cabinet Secretary

May 17, 2004

Ms. Lori P. Reuther
Department of the Navy
NAVFAC Atlantic
6506 Hampton Boulevard
Norfolk, VA 23508-1276

**RE: Naval Security Group
WV ID # 3604470; LEAK ID # 93-048**

Dear Ms. Reuther:

A review has been completed of reports submitted and/or information obtained through site visits and discussions regarding the Confirmed Release issued **February 11, 1997**. It has been confirmed that a petroleum release has occurred at the above referenced facility and that soil and/or groundwater has been contaminated. This contamination may be considered a threat to human health and the environment.

I am in receipt of your latest quarterly monitoring report and request for a No Further Action Status. Based on the information presented in this report, I would request that you sample MW-3 one more time. Since it was dry during the December 2003 sampling event, we only have three quarterly monitoring events for this well. I would agree that the lack of a proper well cap probably caused the problems noted in the first quarter sampling event. After reviewing this additional information, if the analytical results continue to indicate that this well meets the Federal Drinking Water Standards, I will issue a letter to advise you to properly abandon the existing monitoring wells.

In my letter dated June 12, 2002 I also requested information on the status of the excavated soils. If these soils are still on the site, they will also need to be retested. If you are unable to document the final disposition of the excavated soils, just provide a statement that after an exhaustive search, you are unable to locate them and that will be sufficient for our records. After ten years they may have already been disposed of or washed away in one of the floods of that area.

Should you have any questions or comments, feel free to contact me at (304) 368-3950 or by e-mail at jmaurin@wvdep.org.

Sincerely,

Jim Maurin
Project Manager

cc: Charleston Office
File



West Virginia Department
of Environmental Protection

"Promoting a healthy environment."



Office of Administration – Fiscal Services Section
 #10 McJunkin Road
 Nitro, WV 25143
 Telephone Number: 304-759-0506
 Fax Number: 304-759-0531

West Virginia Department of Environmental Protection

Bob Wise
 Governor

Michael O. Callaghan
 Cabinet Secretary

TO: Les Mullins
 Division of Waste Management (OER)

FROM: Dewayne Harless, Accountant
 Grants Management, Office of Administration *WH*

DATE: October 10, 2002

SUBJECT: Federal Grant #: LS-003385-12-4
 Grant Name: FY 2003 Leaking Underground Storage Tank Program

Attached is a copy of the original Assistance Amendment received on 10/09/2002 in Fiscal Services. We need you to review the Amendment and identify any exceptions. Please notify Grants Management of your acceptance of, or exceptions to, the grant terms and conditions by 10/18/2002.

The Secretary must certify and accept the grant within 21 days of agency's receipt. To meet that deadline we will return a signed copy of the Assistance Agreement to the grantor on 10/24/2002. Once signed by the Secretary, we will forward a copy of the signature page of the Agreement to you.

Your cooperation is appreciated.

File Use Only:

Date Letter Sent	<u>10/10/02</u>
Response from Program Office Received	_____
Retuned to Grantor unsigned with modifications (if applicable)	_____
Mailed signed agreement to Grantor	_____



West Virginia Department
 of Environmental Protection

"Promoting a healthy environment."

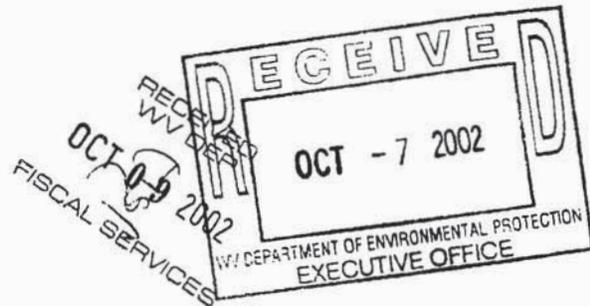


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

OCT 2 2002

Honorable Michael O. Callaghan
Secretary
West Virginia Department
of Environmental Protection
10 McJunkin Road
Nitro, WV 25143-2506

Re: LS-003385-12-4



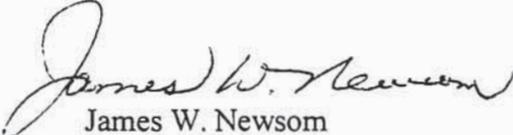
Dear Secretary Callaghan:

The Agency has approved an amendment to the Leaking Underground Storage Tank Program Assistance Agreement which increases the Federal funds available by \$19,696 of Fiscal Year 2003. Total Federal participation in your program is now \$715,522. Federal funds in the amount of \$650,307 are contingent upon availability of additional Fiscal Year 2003 funds.

Two originals of Assistance Amendment Number Four are enclosed. Please sign both originals and return one to Kathleen M. Blinebury, Grants Management Officer, Grants and Audit Management Branch (3PM70), within twenty-one days of your receipt. The copy should also be signed and retained by your organization.

If additional assistance is required, please have your staff contact Carletta Parlin, EPA Project Officer, at 215/814-3380 on technical matters or Evelyn Velazquez, Grants Management Specialist, at 215/814-5412 on administrative matters.

Sincerely,


James W. Newsom
Assistant Regional Administrator
for Policy and Management

Enclosures

	U.S. ENVIRONMENTAL PROTECTION AGENCY Assistance Amendment	ASSISTANCE ID NO.			DATE OF AWARD SEP 25 2002 <i>JM</i>	
		PRG	DOC ID	AMEND#		
		LS - 00338512 - 4			MAILING DATE OCT 2 2002	
		TYPE OF ACTION Augmentation: Increase			ACH# 0346	
RECIPIENT TYPE: State		Send Payment Request to: N/A				
RECIPIENT: WV Dept of Environmental Protection 10 McJunkin Rd Nitro, WV 25143-2506 EIN: 55-6000769		PAYEE: WV Dept of Environmental Protection 10 McJunkin Rd Nitro, WV 25143-2506				
PROJECT MANAGER Leslie Mullins 10 McJunkin Rd Nitro, WV 25143-2506 E-Mail: Phone: 304-558-2508		EPA PROJECT OFFICER Carletta Parlin 1650 Arch Street, 3WC21 Philadelphia, PA 19103-2029 E-Mail: Parlin.Carletta@epa.gov Phone: 215-814-3380		EPA GRANT SPECIALIST Evelyn Velazquez Grants and Audit Management Branch, 3PM70 E-Mail: Velazquez.Evelyn@epa.gov Phone: 215-814-5412		
PROJECT TITLE AND DESCRIPTION Leaking Underground Storage Tank Program This amendment increases the Federal funds by \$19,696 of Fiscal Year 2003 to assist the State of West Virginia in implementing an effective leaking underground storage tank program as set forth in Subtitle I of the Solid Waste Disposal Act, as amended. Federal funds in the amount of \$650,307 are contingent upon availability of additional Fiscal Year 2003 funds.						
BUDGET PERIOD 10/01/2001 - 09/30/2003		PROJECT PERIOD 10/01/2001 - 09/30/2003		TOTAL BUDGET PERIOD COST \$1,517,587.00	TOTAL PROJECT PERIOD COST \$1,517,587.00	
NOTE: The Agreement must be completed in duplicate and the Original returned to the appropriate Grants Management Office listed below, within 3 calendar weeks after receipt or within any extension of time as may be granted by EPA. Receipt of a written refusal or failure to return the properly executed document within the prescribed time, may result in the withdrawal of the offer by the Agency. Any change to the Agreement by the Recipient subsequent to the document being signed by the EPA Award Official, which the Award Official determines to materially alter the Agreement, shall void the Agreement.						
OFFER AND ACCEPTANCE						
The United States, acting by and through the U.S. Environmental Protection Agency (EPA), hereby offers Assistance/Amendment to the <u>WV Dept of Environmental Protection</u> for <u>90.00</u> % of all approved costs incurred up to and not exceeding <u>\$715,522</u> for the support of approved budget period effort described in application (including all application modifications) cited in the Project Title and Description above, signed <u>06/07/2002</u> included herein by reference.						
ISSUING OFFICE (GRANTS MANAGEMENT OFFICE)			AWARD APPROVAL OFFICE			
ORGANIZATION / ADDRESS US EPA Region 3 3PM70 1650 Arch Street Philadelphia, PA 19103-2029			ORGANIZATION / ADDRESS U.S. EPA, Region 3 Office of Policy and Management 3PM00 1650 Arch Street Philadelphia, PA 19103-2029			
THE UNITED STATES OF AMERICA BY THE U.S. ENVIRONMENTAL PROTECTION AGENCY						
SIGNATURE OF AWARD OFFICIAL <i>James W. Newsom</i>		TYPED NAME AND TITLE James W. Newsom, ARA for Policy and Management			DATE SEP 25 2002	
This agreement is subject to applicable U.S. Environmental Protection Agency statutory provisions and assistance regulations. In accepting this award or amendment and any payments made pursuant thereto, (1) the undersigned represents that he is duly authorized to act on behalf of the recipient organization, and (2) the recipient agrees (a) that the award is subject to the applicable provisions of 40 CFR Chapter 1, Subchapter B and of the provisions of this agreement (and all attachments), and (b) that acceptance of any payments constitutes an agreement by the payee that the amounts, if any found by EPA to have been overpaid will be refunded or credited in full to EPA.						
BY AND ON BEHALF OF THE DESIGNATED RECIPIENT ORGANIZATION						
SIGNATURE		TYPED NAME AND TITLE			DATE	

EPA Funding Information

FUNDS	FORMER AWARD	THIS ACTION	AMENDED TOTAL
EPA Amount This Action	\$ 695,523	\$ 19,696	\$ 715,219
EPA In-Kind Amount	\$ 0	\$	\$ 0
Unexpended Prior Year Balance	\$ 303	\$	\$ 303
Other Federal Funds	\$ 0	\$	\$ 0
Recipient Contribution	\$ 151,758	\$	\$ 151,758
State Contribution	\$ 0	\$	\$ 0
Local Contribution	\$ 0	\$	\$ 0
Other Contribution	\$ 0	\$	\$ 0
Allowable Project Cost	\$ 847,584	\$ 19,696	\$ 867,280

Assistance Program (CFDA)	Statutory Authority	Regulatory Authority
66.805 - Leaking Underground Storage Tank Trust Fund Program	Solid Waste Disposal Act: Sec. 9003(h)	40 CFR PART 31

Fiscal									
Site Name	DCN	FY	Approp. Code	Budget Organization	PRC	Object Class	Site/Project	Cost Organization	Obligation / Deobligation
-	LT0014	02	F	036	50101D	4188	0300G	-	19,696
									19,696

Budget Summary Page

Table A - Object Class Category (Non-construction)	Total Approved Allowable Budget Period Cost
1. Personnel	\$524,500
2. Fringe Benefits	\$165,532
3. Travel	\$39,000
4. Equipment	\$0
5. Supplies	\$40,000
6. Contractual	\$450,002
7. Construction	\$0
8. Other	\$96,620
9. Total Direct Charges	\$1,315,654
10. Indirect Costs: % Base <u>SEE COND 4</u>	\$201,933
11. Total (Share: Recipient <u>10.00</u> % Federal <u>90.00</u> %.)	\$1,517,587
12. Total Approved Assistance Amount	\$715,522
13. Program Income	\$0

Leaking Underground Storage Tank Program

Table B - Program Element Classification (Non-construction)	Total Approved Allowable Budget Period Cost
1. Fiscal Year 2002	\$773,140
2. Fiscal Year 2003	\$744,447
3.	\$
4.	\$
5.	\$
6.	\$
7.	\$
8.	\$
9.	\$
10.	\$
11. Total (Share: Recip <u>10.00</u> % Fed <u>90.00</u> %)	\$1,517,587
12. Total Approved Assistance Amount	\$715,522

Administrative Conditions

FORMER CONDITION NUMBER 4 AND 8 ARE BEING REVISED AS FOLLOWS:

4. The recipient elected to budget indirect costs at a rate of 38.50%, which is less than the approved rate listed below:

Type	Effective Period	Rate
Fixed Carryforward	7/1/02 - 6/30/03	42.8%

The recipient agrees that EPA participation in indirect costs incurred will be limited to the lower elected rate and amount budgeted in this agreement.

Upon expiration of the approved indirect cost rate shown above, the recipient will not charge nor claim for reimbursement any indirect costs until a current, acceptable indirect cost rate has been negotiated with a Federal agency. The recipient must submit a copy of the Indirect Cost Negotiation Agreement to the EPA Regional Office within 30 days after the indirect cost rate has been accepted in order to be eligible to claim indirect costs against this grant award for the remainder of the budget period.

8. The recipient agrees to submit to EPA an interim or final Financial Status Report (FSR) (SF-269 or 269A) as follows:

Annual interim FSR due within 90 days after the reporting period end date. The reporting period end date is based on the budget period start date of the assistance agreement.

Final FSR due within 90 calendar days after termination or completion of the assistance agreement.

FSRs should be submitted to:

Ms. Kathleen M. Blinebury
 Grants Management Officer
 Grants and Audit Management Branch (3PM70)
 U.S. EPA - Region III
 1650 Arch Street
 Philadelphia, PA 19103-2029

A FSR Preparation Package, which includes forms and instructions to aid in the preparation of the FSR, is available on the Region III website:

<http://www.epa.gov/region3/fsr/index.htm>

CONDITION NUMBER 10 IS BEING ADDED AS FOLLOWS:

10. Any State agency or agency of a political subdivision of a State which is using appropriated Federal funds shall comply with Section 6002 of the Resource Conservation and Recovery Act (RCRA) (42 U.S.C. 6962). RCRA Section 6002 requires that preference be given in procurement programs to the purchase of specific products containing recycled materials identified in guidelines developed by the Environmental Protection Agency (EPA). Current guidelines are contained in 40 CFR 247-254. State and local recipients and subrecipients of grants, loans, cooperative agreements or other instruments funded by appropriated Federal funds shall give preference in procurement programs to the purchase of recycled products pursuant to the EPA guidelines.



Office of Administration
10 McJunkin Road
Nitro, West Virginia 25143-2506
Telephone: (304) 759-0506
Fax: (304) 759-0531

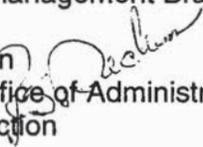
West Virginia Department of Environmental Protection

Bob Wise
Governor

Michael O. Callaghan
Secretary

CERTIFIED MAIL

To: Francis R. Snock
Grants Management Office
Grants and Audit Management Branch (3PM70)

From: Ramona S. Dickson 
Assistant Chief, Office of Administration
Fiscal Services Section

Date: July 22, 2002

Subject: Federal Grant #: LS-003385-12-3
Grant Name: Leaking Underground Storage Tank Program

Enclosed is a signed original EPA Assistance Amendment Three for the Leaking Underground Storage Tank Program. Total Federal participation is now \$695,826.

If additional assistance is required, please contact me at 304-759-0506.

Enclosure

cc: Alan Borstein, Office of Administration
Les Mullins, Program Manager, Office of Environmental Remediation

RSD/msf



West Virginia Department
of Environmental Protection

"Promoting a healthy environment."

	U.S. ENVIRONMENTAL PROTECTION AGENCY Assistance Amendment	ASSISTANCE ID NO.			DATE OF AWARD JUL 02 2002 <i>gm</i>
		PRG	DOC ID	AMEND#	
		LS - 00338512 - 3			
		TYPE OF ACTION Augmentation: Increase			MAILING DATE JUL 9 2002
PAYMENT METHOD: ASAP			ACH# 0346		
RECIPIENT TYPE: State			Send Payment Request to: N/A		
RECIPIENT: WV Dept of Environmental Protection 10 McJunkin Rd Nitro, WV 25143-2506 EIN: 55-6000769			PAYEE: WV Dept of Environmental Protection 10 McJunkin Rd Nitro, WV 25143-2506		
PROJECT MANAGER		EPA PROJECT OFFICER		EPA GRANT SPECIALIST	
Leslie Mullins 10 McJunkin Rd Nitro, WV 25143-2506 E-Mail: Phone: 304-558-2508		Carletta Parlin 1650 Arch Street, 3WC21 Philadelphia, PA 19103-2029 E-Mail: Parlin.Carletta@epa.gov Phone: 215-814-3380		Evelyn Velazquez Grants and Audit Management Branch, 3PM70 E-Mail: Velazquez.Evelyn@epa.gov Phone: 215-814-5412	
PROJECT TITLE AND DESCRIPTION Leaking Underground Storage Tank Program This amendment increases the Federal funds by \$231,636 to fully fund the Fiscal Year 2002 budget to assist the State of West Virginia in implementing an effective leaking underground storage tank program as set forth in Subtitle I of the Solid Waste Disposal Act, as amended. Federal funds in the amount of \$670,003 are contingent upon availability of Fiscal Year 2003 funds. ALL OTHER TERMS AND CONDITIONS REMAIN UNCHANGED.					
BUDGET PERIOD 10/01/2001 - 09/30/2003	PROJECT PERIOD 10/01/2001 - 09/30/2003	TOTAL BUDGET PERIOD COST \$1,517,587.00	TOTAL PROJECT PERIOD COST \$1,517,587.00		
NOTE: The Agreement must be completed in duplicate and the Original returned to the appropriate Grants Management Office listed below, within 3 calendar weeks after receipt or within any extension of time as may be granted by EPA. Receipt of a written refusal or failure to return the properly executed document within the prescribed time, may result in the withdrawal of the offer by the Agency. Any change to the Agreement by the Recipient subsequent to the document being signed by the EPA Award Official, which the Award Official determines to materially alter the Agreement, shall void the Agreement.					
OFFER AND ACCEPTANCE					
The United States, acting by and through the U.S. Environmental Protection Agency (EPA), hereby offers Assistance/Amendment to the <u>WV Dept of Environmental Protection</u> for <u>46.00</u> % of all approved costs incurred up to and not exceeding <u>\$695,826</u> for the support of approved budget period effort described in application (including all application modifications) cited in the Project Title and Description above, signed <u>06/07/2002</u> included herein by reference.					
ISSUING OFFICE (GRANTS MANAGEMENT OFFICE)			AWARD APPROVAL OFFICE		
ORGANIZATION / ADDRESS US EPA Region 3 3PM70 1650 Arch Street Philadelphia, PA 19103-2029			ORGANIZATION / ADDRESS U.S. EPA, Region 3 Office of Policy and Management 3PM00 1650 Arch Street Philadelphia, PA 19103-2029		
THE UNITED STATES OF AMERICA BY THE U.S. ENVIRONMENTAL PROTECTION AGENCY					
SIGNATURE OF AWARD OFFICIAL <i>James W. Newsom</i>			TYPED NAME AND TITLE James W. Newsom, ARA for Policy and Management		
			DATE JUL 02 2002		
This agreement is subject to applicable U.S. Environmental Protection Agency statutory provisions and assistance regulations. In accepting this award or amendment and any payments made pursuant thereto, (1) the undersigned represents that he is duly authorized to act on behalf of the recipient organization, and (2) the recipient agrees (a) that the award is subject to the applicable provisions of 40 CFR Chapter 1, Subchapter B and of the provisions of this agreement (and all attachments), and (b) that acceptance of any payments constitutes an agreement by the payee that the amounts, if any found by EPA to have been overpaid will be refunded or credited in full to EPA.					
BY AND ON BEHALF OF THE DESIGNATED RECIPIENT ORGANIZATION					
SIGNATURE <i>Michael O. Callaghan</i>			TYPED NAME AND TITLE MICHAEL O. CALLAGHAN, SECRETARY		
			DATE 7/18/02		

EPA Funding Information

FUNDS	FORMER AWARD	THIS ACTION	AMENDED TOTAL
EPA Amount This Action	\$ 463,887	\$ 231,636	\$ 695,523
EPA In-Kind Amount	\$	\$	\$ 0
Unexpended Prior Year Balance	\$ 303	\$	\$ 303
Other Federal Funds	\$	\$	\$ 0
Recipient Contribution	\$ 151,758	\$	\$ 151,758
State Contribution	\$	\$	\$ 0
Local Contribution	\$	\$	\$ 0
Other Contribution	\$	\$	\$ 0
Allowable Project Cost	\$ 615,948	\$ 231,636	\$ 847,584

Assistance Program (CFDA)	Statutory Authority	Regulatory Authority
66.805 - Leaking Underground Storage Tank Trust Fund Program	Solid Waste Disposal Act: Sec. 9003(h)	40 CFR PART 31

Fiscal									
Site Name	DCN	FY	Approp. Code	Budget Organization	PRC	Object Class	Site/Project	Cost Organization	Obligation / Deobligation
-	LT0008	02	F	036	50101D	4188	0300G	-	231,636
									231,636

Budget Summary Page

Table A - Object Class Category (Non-construction)	Total Approved Allowable Budget Period Cost
1. Personnel	\$524,500
2. Fringe Benefits	\$165,532
3. Travel	\$39,000
4. Equipment	\$0
5. Supplies	\$40,000
6. Contractual	\$450,002
7. Construction	\$0
8. Other	\$96,620
9. Total Direct Charges	\$1,315,654
10. Indirect Costs: % Base SEE COND 4	\$201,933
11. Total (Share: Recipient 54.00 % Federal 46.00 %.)	\$1,517,587
12. Total Approved Assistance Amount	\$695,826
13. Program Income	\$0

Leaking Underground Storage Tank Program

Table B - Program Element Classification (Non-construction)	Total Approved Allowable Budget Period Cost
1. Fiscal Year 2002	\$773,140
2. Fiscal Year 2003	\$744,447
3.	\$
4.	\$
5.	\$
6.	\$
7.	\$
8.	\$
9.	\$
10.	\$
11. Total (Share: Recip 10.00 % Fed 90.00 %)	\$1,517,587
12. Total Approved Assistance Amount	\$695,826



Office of Environmental Remediation
2031 Pleasant Valley Road, Suite #1
Fairmont, WV 26554
Tel.: (304)-368-3950 Fax: (304)-368-3953

West Virginia Department of Environmental Protection

Bob Wise
Governor

June 12, 2002

Michael O. Callaghan
Secretary

Ms. Lori P. Reuther
Department of the Navy
Atlantic Division
Naval Facilities Engineering Command
1510 Gilbert Street
Norfolk, VA 23511-2699

**RE: Naval Security Group
WV ID # 3604470; LEAK ID # 93-048**

Dear Ms. Reuther:

A review has been completed of reports submitted and/or information obtained through site visits and discussions regarding the Confirmed Release issued **March 2, 1993**. It has been confirmed that a petroleum release has occurred at the above referenced facility and that soil and/or groundwater has been contaminated. This contamination may be considered a threat to human health and the environment.

I am in receipt of the August 1996 site assessment report and the January 2002 sampling event analytical results. Based on a review of these reports I would like to make the following comments. It appears that the soil and groundwater contamination was localized in and around MW-1, MW-2, SB-13, & SB-14 and does not appear to be migrating. The analytical results for the November 1995 and April 1996 events had relatively high MQL's, however this could be due to the fact that there was dissolved phase Benzene, Napthalene, and MTBE in wells MW-1 & MW-2. The results from the January 2002 sampling event look good, however there is nothing to indicate what the MQL's were for these samples. Could you provide this information? If it was at or below Federal Drinking Water Standards, then we may be in good shape. Are there currently active regulated tanks at this location?

Here is what I would suggest based on the information provided. Continue with a quarterly groundwater monitoring and gauging program for all six wells associated with this site and provide a groundwater potentiometric map from the results. Provide some information regarding the disposition of the contaminated soils with disposal receipts, etc. Finally, analyze all samples for BTEX, MTBE, PAH's and TPH (Gro/Dro) to a maximum MQL of 5 parts per billion for Benzene and Napthalene and 20 parts per billion for MTBE. We need a minimum of four quarters at or below Federal Drinking Water Standards for this site to be eligible for a No Further Action Status

The analytical results should be submitted to this office within 60 days of any sampling event. Should you have any questions or comments, feel free to contact me at (304) 368-3950 or by e-mail at jmaurin@mail.dep.state.wv.us.

Sincerely,

Jim Maurin
Project Manager

PROJECT STATUS CHECKLIST

LEAK # 93-048 WVID # 3604470 CLOSURE # C-4557-95 Priority Code Update: 2

Site Name: Naval Security Group Site Location: Route 21, Sugar Grove, WV

Project Manager/Geologist: Maurin Date: 6-12-02

- Confirmed release 3-2-93
- Cleanup initiated: 3-2-93 Biopile proposal submitted: N/A
- Request for state assistance (state lead site) _____ Original attached _____
- Received 45 day report (280.63). 5-7-93 Original attached sent
- Received free product report (280.64). N/A Original attached _____
- Request for 280.65 report 3-2-93 Received 280.65 report 5-7-93
- Request for 280.66 plan N/A Received 280.66 plan N/A
- Approved 280.66 plan N/A
- Implemented 280.66 plan 2-96
- Site Investigation complete 8-96
- Site Cleanup completed _____

COMMENTS: Need to do three more QMR's to see if site can be considered for an NFA. Last QMR was 1-02 & all wells OK. MQL's in wells 4, 5, & 6 were 10 ppb in the 96 sampling events. January 2002 event does not give MQL's! These are needed!! Still need status of excavated soils!



Office of Environmental Remediation
2031 Pleasant Valley Road, Suite #1
Fairmont, WV 26554
Tel.: (304)-368-3950 Fax: (304)-368-3953

West Virginia Department of Environmental Protection

Bob Wise
Governor

June 12, 2002

Michael O. Callaghan
Secretary

Ms. Lori P. Reuther
Department of the Navy
Atlantic Division
Naval Facilities Engineering Command
1510 Gilbert Street
Norfolk, VA 23511-2699

**RE: Naval Security Group
WV ID # 3604470; LEAK ID # 93-048**

Dear Ms. Reuther:

A review has been completed of reports submitted and/or information obtained through site visits and discussions regarding the Confirmed Release issued **March 2, 1993**. It has been confirmed that a petroleum release has occurred at the above referenced facility and that soil and/or groundwater has been contaminated. This contamination may be considered a threat to human health and the environment.

I am in receipt of the August 1996 site assessment report and the January 2002 sampling event analytical results. Based on a review of these reports I would like to make the following comments. It appears that the soil and groundwater contamination was localized in and around MW-1, MW-2, SB-13, & SB-14 and does not appear to be migrating. The analytical results for the November 1995 and April 1996 events had relatively high MQL's, however this could be due to the fact that there was dissolved phase Benzene, Napthalene, and MTBE in wells MW-1 & MW-2. The results from the January 2002 sampling event look good, however there is nothing to indicate what the MQL's were for these samples. Could you provide this information? If it was at or below Federal Drinking Water Standards, then we may be in good shape. Are there currently active regulated tanks at this location?

Here is what I would suggest based on the information provided. Continue with a quarterly groundwater monitoring and gauging program for all six wells associated with this site and provide a groundwater potentiometric map from the results. Provide some information regarding the disposition of the contaminated soils with disposal receipts, etc. Finally, analyze all samples for BTEX, MTBE, PAH's and TPH (Gro/Dro) to a maximum MQL of 5 parts per billion for Benzene and Napthalene and 20 parts per billion for MTBE. We need a minimum of four quarters at or below Federal Drinking Water Standards for this site to be eligible for a No Further Action Status

The analytical results should be submitted to this office within 60 days of any sampling event. Should you have any questions or comments, feel free to contact me at (304) 368-3950 or by e-mail at jmaurin@mail.dep.state.wv.us.

Sincerely,

Jim Maurin
Project Manager

"To use all available resources to protect and restore West Virginia's environment in concert with the needs of present and future generations."



West Virginia
Division of
Environmental Protection



Office of Environmental Remediation
2031 Pleasant Valley Road, Suite #1
Fairmont, WV 26554
Tel.: (304)-368-3950 Fax: (304)-368-3953

West Virginia Department of Environmental Protection

Bob Wise
Governor

February 7, 2002

Michael O. Callaghan
Secretary

Commander
Atlantic Division
Naval facilities Engineering Command
P. O. Box 117
Sugar Grove, WV 26815

RE: Naval Security Group
WV ID # 3604470; LEAK ID # 93-048

Dear Sir:

A review has been completed of reports submitted and/or information obtained through site visits and discussions regarding the Confirmed Release issued **March 2, 1993**. It has been confirmed that a petroleum release has occurred at the above referenced facility and that soil and/or groundwater has been contaminated. This contamination may be considered a threat to human health and the environment.

I am currently the Project Manager for this area having recently taken over from Donald Martin. As such, I am in the process of reviewing all currently active leak files as listed in our computer database. Based on a review of this file I would like to make the following comments. The last report submitted on this site was dated March 8, 1996. It appears that several underground storage tanks, both regulated and unregulated were removed from this facility. I will only comment on the regulated tanks and hopefully will try to make sense of the many reports. Tank # 206 was a regulated 550-gallon diesel emergency generator tank. According to the information in the file, no further action will be required on this tank. Tank #201 was a 2,000-gallon diesel and tank #202 was a 4,000-gallon gasoline tank. According to the analytical results from the Site Assessment Report there was some dissolved phase gasoline contamination in MW-1. The recommendation was made by the consultant to install two additional down gradient wells to monitor contaminant movement and to delineate the plume. One well was to be a shallow well and the other was to be a deeper rock well. Since there have been no reports submitted since 1996 I am unsure if this work was ever done. If this work has been done, please forward the information to this office for review.

If not, you are hereby notified to do the following. First, install the two wells as suggested in the Site Assessment Report. Second, initiate a quarterly groundwater monitoring and gauging program for the well associated with this site and provide a groundwater potentiometric map from the results. Third, provide the disposition of the contaminated soils with disposal receipts, etc. Finally, analyze all samples for BTEX, MTBE, PAH's and TPH (Gro/Dro). All wells not associated with this site must be properly abandoned according to CSR 47-60-19 of the Monitoring Well Regulations.

The results must be submitted to this office no later than May 7, 2002. Should you have any questions or comments, feel free to contact me at (304) 368-3950 or by e-mail at jmaurin@mail.dep.state.wv.us.

Sincerely,

Jim Maurin
Project Manager



DEPARTMENT OF COMMERCE, LABOR & ENVIRONMENTAL RESOURCES
DIVISION OF ENVIRONMENTAL PROTECTION

1 Depot Street
Romney, WV 26757-1400

Gaston Caperton
Governor

John M. Ranson
Cabinet Secretary

David C. Callaghan
Director

Ann A. Spaner
Deputy Director

April 19, 1995

REF: Vapor Monitoring Wells
UST's 212E and 213W
Naval Security Group Activity
P.O. Box 117
Sugar Grove, WV 26815

Dear Mr. Perry:

In reference upgrades to UTS's 212E and 213W at Building 301; Timberline II Project. The installation of (4) four vapor monitoring wells exterior to the backfilled concrete tunnel in which the tanks are situated would serve no purpose with respect to pit monitoring.

The vapor monitoring wells must be installed in UST pit area with backfilled that is of high permeability such as pea gravel.

If these conditions cannot be met, other forms of leak detection should be explored.

Sincerely,

Monty Edwards
Environmental Inspector

DM
5/25/95

Leak ID: 93-048

WV ID: 3604470



UST-9 (10/93)

White - Owner
Green - Operator
Canary - Field Office
Pink - Charleston

WV Division of Environmental Protection
Office of Waste Management
Underground Storage Tank Section

REVIEW OF CONFIRMED RELEASE REPORT

1356 Hansford Street
Charleston, WV 25301-1409
304-558-6371

1. FACILITY INFORMATION	
Owner: <u>Naval Computer & Telecommunications Sta. LAWT</u>	Operator: <u>CO NAVAL Radio Station</u>
Address: _____	Address: <u>Rt 21</u>
City: <u>Norfolk, VA</u> State: <u>VA</u> Zip: <u>23511-6558</u>	City: <u>Sugar Grove, WV</u> State: <u>WV</u> Zip: <u>26815</u>
Phone: (804) <u>444-1250/1625</u>	Phone: (304) <u>249-6395</u>
LOCATION OF TANKS:	
Facility Name: <u>Naval Security Group Activity</u>	City: <u>Sugar Grove, WV</u>
Street Address: <u>Rt 21</u>	County: <u>Pendleton</u> Phone: (304) <u>249-6395</u>

TO THE TANK OWNER AND OPERATOR:

Whereas, a review of the information provided regarding site characteristics and the extent of soil and groundwater contamination at the above-referenced facility in compliance with the CONFIRMED RELEASE - NOTICE TO COMPLY issued on the 2nd day of March, 1993, has been completed.

UPON REVIEW, the investigation was found to be:

_____ Complete Incomplete

THEREFORE, THE FOLLOWING ACTION MUST BE INITIATED IMMEDIATELY:

- Initiate an investigation to determine the full extent and magnitude of soils contaminated by the release and the presence and concentration of dissolved product contamination in the groundwater. # Bldg # 63 AST # 206
- _____ Continue investigation to determine the full lateral and vertical extent and magnitude of soil contamination.
- _____ Continue investigation to determine the presence and concentration of dissolved product contamination in the groundwater.
- _____ Submit a Corrective Action Plan to respond to contaminated soil and groundwater found by the completed investigation.
- _____ No further action required at this time.

Any Additional Investigation Report or Corrective Action Plan checked above should be submitted, In duplicate, to the following WVDEP Field Office not later than the 29th day of May, 1995.

WVDEP, Office of Waste Management-UST Section

1 Depot St
Puzzay, WV 26757
Tel. No. 304-822-3551

NOTE: All reports/plans must reference the Leak I.D. and WV I.D.

WARNING

If you are the owner and/or operator and you fail to accomplish the above-described measures within the time specified, the Director may issue an Administrative Order and/or may commence a Civil Action in the Circuit Court, including a temporary or permanent injunction in accordance with West Virginia Code, Chapter 20-5H-15 and you may be liable for a civil penalty in accordance with Chapter 20-5H-16.

Service Accepted and Acknowledged:

Inspector's Signature: <u>M. J. [Signature]</u>	Date: <u>3-2-95</u>	Time: _____
Contact Person's Signature: <u>[Signature]</u>	Date: _____	Time: _____

[Handwritten Signature]
3/2/95



White-Owner
Green-Operator
Canary-Charleston Office
Pink-Field Office

UST CLOSURE INSPECTION

ID Number: 3609470 Closure Number: C-9557-75
 Facility Name: Abetal Computer & Communications Contact Person: STUA + L.P. DALL
Master Station 2nd
 Address: Norfolk VA 23511-6898 Phone: 504-240-1335
Mark D. McRinnon
 Contractor: JFD Enterprises Cert. #: AB-181 Address: Superior Blvd. 2815

* I. 30 Day Notification given (Yes/No) yes
 II. Tank Data: Number of tanks? THIRD

TANK:	1	2	3	
COMPARTMENT (YES) (NO)	<u>NO</u>	<u>NO</u>		
VOLUME (GALLONS)	<u>1,000</u>	<u>550</u>		
SUBSTANCE: Diesel		<u>DL</u>		
STORED: Kerosene				
Gasoline	<u>UL</u>			
Used Oil				
Other				
Hazardous				

RECEIVED
MAR 31 1995
U.S.T. OFFICE
DISTRICT III
FRENCH CREEK, WV 25218

MATERIAL OF CONSTRUCTION

	TANK		PIPING	
STEEL	<u>4PS</u>	<u>405</u>	<u>Alum</u>	<u>Copper</u>
FRP				
COMPOSITE				
OTHER				
CONDITION OF	<u>Good</u>	<u>Very Good</u>		
EMPTIED (YES) (NO)	<u>yes</u>	<u>yes</u>	<u>yes</u>	<u>yes</u>
CLEANED (YES) (NO)	<u>yes</u>	<u>yes</u>	<u>no</u>	<u>no</u>
REMOVED OR FILLED	<u>Removed</u>	<u>Removed</u>	<u>Removed</u>	<u>Removed</u>

Tank Disposal: cut up to Hanburyva. inc. Tank Waste: _____
 Type of Leak Detection (if any) _____

III. Soil Contamination

- * 1. Site Assessment Performed: Yes No _____
- 2. Contamination Evident: Yes No _____
- 3. Confirmed Release Issued: Yes No _____ Leak No. 93-048
- 4. Product Leaking From Tank: Yes No _____ Piping: Yes _____ No _____
- 5. Type of Soil: loam, silt
- 6. Visible Condition of Contaminated Soil:
 None _____ Mild Moderate _____ Extensive _____
- 7. Water Sampled from Excavation: Yes: _____ No:
- 8. OVA/PID reading: Yes/Value 5.1 pd. No: _____
- 9. Site Soils are being Stored or Disposed of:
on plastic on site for further disposal
- 10. Additional Comments/Site Sketch Attached: Yes No _____

Date: 3-26-95 Inspector: M. J. ... Received by: ...

Handwritten signature
4/4/95

Existing UST Facility Checklist

White - Owner
 Green - Operator
 Canary - Field Office
 Pink - Charleston

WV Division of Environmental Protection
 Office of Waste Management
 Underground Storage Tank Section



1356 Hansford Street
 Charleston, WV 25301-1409
 304-558-6371

1. Facility Information	
Facility Name: <u>NAVAL Security Tech Group street</u> Registration Number: <u>3604470</u>	Facility Location: <u>Sugar Grove, W.V.</u> Permit/Registration Date: <u>N/A</u>
Owner: <u>US Navy</u> Phone: <u>804-444-1250</u>	Operator: <u>NAVAL Security Group street</u> Phone: _____

2. Registration and Records	
Registration Information: Verified _____ Modified _____	Financial Responsibility _____
Certification of Proper Installation _____	Repair Records _____
Closure Assessments _____	

3. Inspection Information	
Date: <u>3-29-95</u> Time In: _____ Time Out: _____	Inspector: <u>ML Edwards</u>

4. Purpose of Inspection	
Initial Compliance Inspection: _____	Follow Up: _____
Other: <u>Closure C-4557-95</u>	

5. Potential Contamination Receptor(s)	
Groundwater: Private well _____ distance _____ Public well _____ distance _____ Significant aquifer _____ distance _____ Utilities _____	Surface Water Body: Specify _____ Distance _____ Other _____

Please use one of the following notations when filling in boxes 6 & 7:
 (based on visual observation) In Compliance Not in Compliance See Additional Page

6. Tank Information											
Tank No.	Product	Size	Date Installed	Tank Status	Construction (corrosion protection)	Leak Detection		Spill Prevention		Overfill Prevention	
1	UL	1,100	7-87	Normal	1.25	<input type="checkbox"/>					
2	DL	550	7-87	Normal	1.25	<input type="checkbox"/>					
						<input type="checkbox"/>					
						<input type="checkbox"/>					

7. Piping Information						
Tank No.	Product	Date Installed	Construction (corrosion protection)	Pump Type - Pressure/Suction	Leak Detection	
1	UL	7-87	4.0mm	Suction	<input type="checkbox"/>	<input type="checkbox"/>
2	DL	4-76	4.0mm	Suction	<input type="checkbox"/>	<input type="checkbox"/>
					<input type="checkbox"/>	<input type="checkbox"/>
					<input type="checkbox"/>	<input type="checkbox"/>

Photographs Taken: <input type="checkbox"/> Y/N Site Sketch: <input type="checkbox"/> Y/N Additional Comment Page: <input type="checkbox"/> Y/N Copy of Regulations Left On Site: <input type="checkbox"/> Y/N	Inspector's Signature: <u>ML Edwards</u> Date: <u>3-29-95</u> Contact Person's Signature: _____ Date: _____ Follow Up Required: _____ No Further Action at this Time: _____
---	---

To: Don Martin
From: Al Edwards
Ref: C-4557-95
ID # 3304470

3-29-95

Arrived on site 0822 hrs site
at Rural Security Group Activity, Sugar Creek, WI.
Met with Mr. Steve Niehammer Environmental
on station. Continued to State Site J. & D Enterprises
Duluth, MN. Mr. Mark W. Miller (Contractor
on site. License # AB-181). Mr. Hiram B. Miller of
Geotechnical & Environmental Services Inc. on site to
Collect Samples for Analysis Site Assessment.

Close Tank #1 - 1000 gal tank installed 1967.
Tank emptied into barrel and purged with air - vented
system to 1st floor. No holes located in the barrel
and soils appeared to have some slight odor of
petroleum from possible line leakage. Section
line made of aluminum (unknown of) and was corroded.
PID readings however indicate significant contamination
Tanks to be cut up and cleaned on site and metal to
be disposed of at Sibley yard in Harrisburg, WI.

Tank #2 - 500 gal behind building #2 on second
floor see map. Holes in tank edge 4 ft in
bottom. Some contaminated soils, hand cut in
plastic for further investigation. Samples of soil only
determine if further investigation warranted.

Continued release #93-048 already assigned
to this facility at bid 2-9-92. Further remediation
on the contract with JGD Enterprises entails removal
of soils around tanks that was spilled during installation
and previous site of old COSTs. I plan to be on
site during this excavation, which will start
approx 2nd week in April '95.

Also the old tank being removed on
3-29-95 was at the operations facility site
approx (5) five miles from the Summit base site.
A new number (FD) could be assigned to this
facility and amended form at the expense of
2-15,000 DL tanks for energy generation.

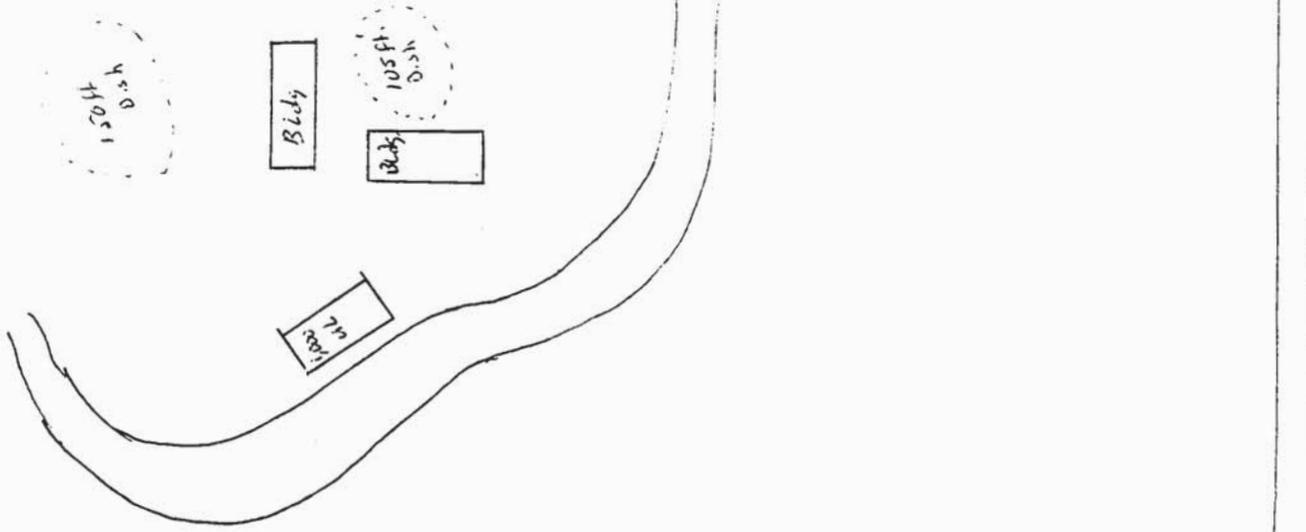
NAMA Security Group Activity

Operations Base

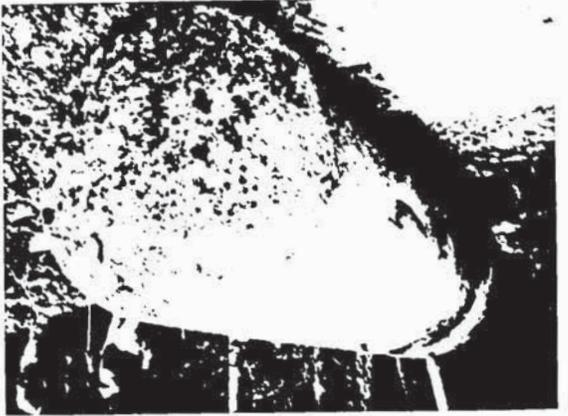
C-4557-95

ID # 3804470

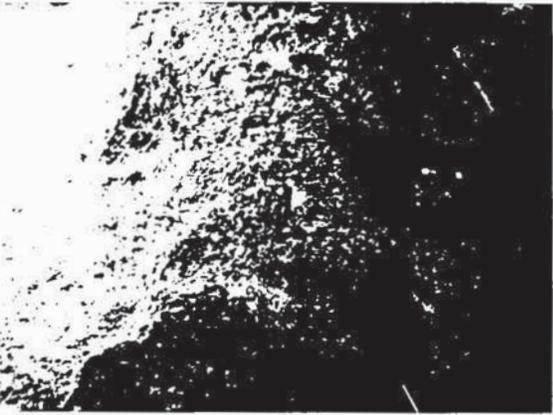
3-29-25



STRI #2



3-29-95 11:18 C-4557-95
Naval Security Group
Sugar Grove, W.V. #1-1000 UC
Pend. Co. ID# 3604470



3-29-95 11:15 C-4557-95
Naval Security Grp. #1-1000 UC
Sugar Grove, W.V. #200
Pend. Co. ID# 3604470



3-29-95 1345 C-4557-95
Naval Security Grp Ad.
Sugar Grove, W.V. #2-550 BL
Pend. Co. ID# 3604470



3-29-95 1340 C-4557-95
Naval Security Group Ad.
Sugar Grove, W.V. #2-550 OL of
Pend. Co. ID# 3604470



White-Owner
Green-Operator
Canary-Field Office
Pink-Field Supervisor
Goldenrod-Charleston
WUJ D# 360 4470
L# 73-048

INFORMATION REQUEST

<p style="text-align: center;">Owner</p> <p>Name: <u>Naval Security Group Activity</u> Address: <u>Star Base</u> City: <u>304</u> State: <u>VA</u> Zip: <u>23060</u> Phone: ()</p>	<p style="text-align: center;">Operator</p> <p>Name: <u>Same</u> Address: _____ City: _____ State: _____ Zip _____ Phone: ()</p>
--	--

LOCATION OF THIS FACILITY: _____
 FACILITY NAME: _____
 PHONE: ()

ADDITIONAL INFORMATION TO DETERMINE COMPLIANCE WITH THE
 40 CFR 280.34

REGULATIONS IN THAT YOU
 "Blasted" out?
 (2) are the

15

TIME SPECIFIED
 OF

724-6211
 Section

Signature: _____
 Date: _____



LEAK NO: 93-048
 W.V. ID NO: 360 4470
 DATE: 6/16/93

LEAKING UNDERGROUND STORAGE TANK OFFICE

SITE VISIT REPORT

OWNER

OPERATOR

NAME: Naval Security Group Activity
 ADDRESS: Rt. 21
 CITY: Sugar Grove STATE: WV ZIP: 26815-5000
 PHONE: (304) 249-6395

NAME: Same
 ADDRESS: _____
 CITY: _____ STATE: _____ ZIP: _____
 PHONE: () _____

LOCATION OF TANKS

Public Works Bldg.

FACILITY: Naval Security Group Activity ST. ADDRESS: Rt 21
 CITY: Sugar Grove COUNTY: Pendleton PHONE: (304) 249-6395
 DATE OF LAST VISIT: 4-8-93 CONSULTANT: Groundwater Technology
 TIME ON SITE: _____ REASON FOR VISIT: Report of a Small Spill + Observation of Assoc.
 CLEAN UP INITIATED DATE: _____ SITE UNDER CONTROL DATE: _____
 CLEAN UP COMPLETE: _____

COMMENTS

Several areas were discussed as follows

- (1) I asked if any clean up was done in 1986? answer "No"
- (2) I suggested that additional assessment be completed between building #22 & public works building
- (3) Asked for more assessment in the area of soil boring 12
- (4) Need ground water contour projected
- (5) I suggested also that if a up-gradient well was installed to bedrock, that also 2 down-gradient well be installed to bedrock.

cc: Charleston (Original) NAME: John J. Ambrogio DATE: 6/16/93
 District Office (Copy) Page 1 of 1

Annal
 7/14/93



DEPARTMENT OF THE NAVY

NAVAL SECURITY GROUP ACTIVITY
SUGAR GROVE, WEST VIRGINIA 26815

IN REPLY REFER TO:

Ser 707400
June 30, 1993

JUL 6 1993

WASTE MANAGEMENT
OFF SECTION
MON, WV 25301-1401

West Virginia Department of
Natural Resources
Attn: Mr. John Sneberger
P.O. Box 38
French Creek, WV 26218

Gentlemen:

The Initial Site Characterization for the confirmed release of a hazardous substance at the Naval Security Group Activity, Sugar Grove, WV has been completed. Your department has referenced this release with Leak I.D. Number 93-048 and West Virginia I. D. Number 3604470. Enclosure (1) is the Site Check Report which was prepared by Groundwater Technology Government Services.

We are currently coordinating additional assessment and clean-up work with the Atlantic Division of the Naval Facilities Engineering Command. We will continue to update you as we progress.

If you have questions or comments, please contact me at
(304) 249-6395.

Sincerely,

L. A. LAGORGA
Lieutenant Junior Grade, U.S. Navy
Public Works Officer
By Direction of
the Commanding Officer

Encl:
Site Check Report
UST 201 & 202

Copy w/encl:
Mike Sufkin, WVDEP
Bob Boyd, NAVSECGRUCOM

INTERNAL MEMO

TO: JOHN SNEBERGER

SOME COMMENTS YOU REQUESTED MILES.

REVIEW OF APRIL 26, 1993 REPORT

NAVAL SECURITY GROUP 93-048

6-10-93 mss

1. REPORT SAYS HYDRAULIC GRADIENT TO THE WEST (BASED ON THE DIRECTION TO THE RIVER)
2. ~~WHERE~~ ^{WAS} THE TANK PITS BLASTED OUT?

THE WATER INTERCEPTED APPEARS TO BE PERCHED. IF PITS WERE BLASTED IT COULD MEAN CONTAMINATION HAS GONE ~~DOWN~~ ^{DOWN} INTO ROCK AQUIFER.

NOT ALL OF THE BORINGS/WELL DOWN TO ROCK SURFACE HIT WATER. WE MIGHT CONSIDER REQUIRING A WELL TO BE PLACED INTO ROCK TO THE 1ST AQUIFER. SEAL OFF SOIL ZONE SO AS NOT TO LET CONTAMINATION MIGRATE DOWNWARD.
3. FIG. 4 - BTEX BY METHOD 8015 (ISNT THIS A TPH METHOD?)

TABLE 1 - SAYS THEY USED METHOD 601 & 610^{PAH}. DONT THEY MEAN 602 ^{BTEX} & 610?

TABLE 1 - IS THE PAH RESULTS IN PPB OR PPM?
4. WHERE DID THE CONTAMINATION NEAR SB-12 COME FROM?
5. ARE WE GOING TO REQUIRE ANY ADDITIONAL INVESTIGATION WORK?

ANY CORRECTIVE ACTION?
6. GROUNDWATER TECHNOLOGY'S RECOMMENDATIONS ARE VAGUE. WHY INSTALL 1 MW UPGRADIENT INTO ROCK & NOT DOWN GRADIENT ALSO? WHY 3 SOIL BORINGS TO THE WEST?



White-Owner
Green-Operator
Canary-Field Office
Pink-Field Supervisor
Goldenrod-Charleston

Site Investigation #
WV ID # 3604470

UNDERGROUND STORAGE TANK RELEASE
SPILL/COMPLAINT/NOTIFICATION REPORT

Look # 93-048

COMPLAINANT/NOTIFIER:

Name LT Leggett
Street Address _____

REASON FOR COMPLAINT/NOTIFICATION (MARK ALL THAT APPLY)

- Leak (Visible or Detected).....
- Spill (Visible).....
- Taste (Drinking Water Contamination).....
- Suspicious Notice in Past Indicates Release.....
- Suspected Leaking Storage Tank Indicates Release.....
- Other (Specify).....
- Release/Spill.....
- Release/Spill.....
- Release/Spill.....
- Release/Spill.....

DATE: 4-7-93

TIME: 3:40

Location: Rockwell

Georgia advising
to action on
This

112
112
112



White-Owner
Green-Operator
Canary-Field Office
Pink-Field Supervisor
Goldenrod-Charleston

Site Investigation # _____
WV ID # 3604470

UNDERGROUND STORAGE TANK RELEASE
SPILL/COMPLAINT/NOTIFICATION REPORT

Leak # 93-048

COMPLAINANT/NOTIFIER:

Name Lt. Lagonia
Street Address _____
Municipality Sugar Grove
State _____
Zip Code _____
Phone Number () _____

REASON FOR COMPLAINT/NOTIFICATION(MARK ALL THAT APPLY [x])

- Sight (Product is Actually Seen).....
- Smell (Vapors).....
- Taste (Drinking Water Contamination).....
- Unexplained Water in Tank Indicates Release.....
- Product Inventory Control Indicates Release.....
- Tank Tightness Test Indicates Release.....
- Line Tightness Test Indicates Release.....
- Vapor Monitoring Indicates Release/Spill.....
- Ground-Water Monitoring Indicates Release/Spill.....
- Interstitial Monitoring Indicates Release/Spill.....
- Automatic Line Leak Detector Indicates Release.....
- Chemical Analysis Indicates Release/Spill.....
- Other (Specify) _____

SITE NAME: Sugar Grove
Naval Security Group

DATE: 4-7-93

TIME: 3:40

MUNICIPALITY: Sugar Grove

COUNTY: Pendleton

SPECIFIC LOCATION: Public Works Area

DISCUSSION:

I received a phone call from Lt. Lagonia advising that free product had been discovered by a contractor on a separate dig not related to the UST upgrade. This was at 2:58 PM on 4-7-93

On 4-8-93 I inspected the above listed facility (1) area where free product was reported did show evidence of petroleum product but at time of inspection no product was present & the contaminated or exposed area in pit was not more than 2' in diameter. It is either related to surface spill or old release

COMPLETED BY:

RELAYED TO:

John J. Snelberger

Dan Martin

More investigation is in progress

DATE:

4-12-93

TIME: 2:57 PM

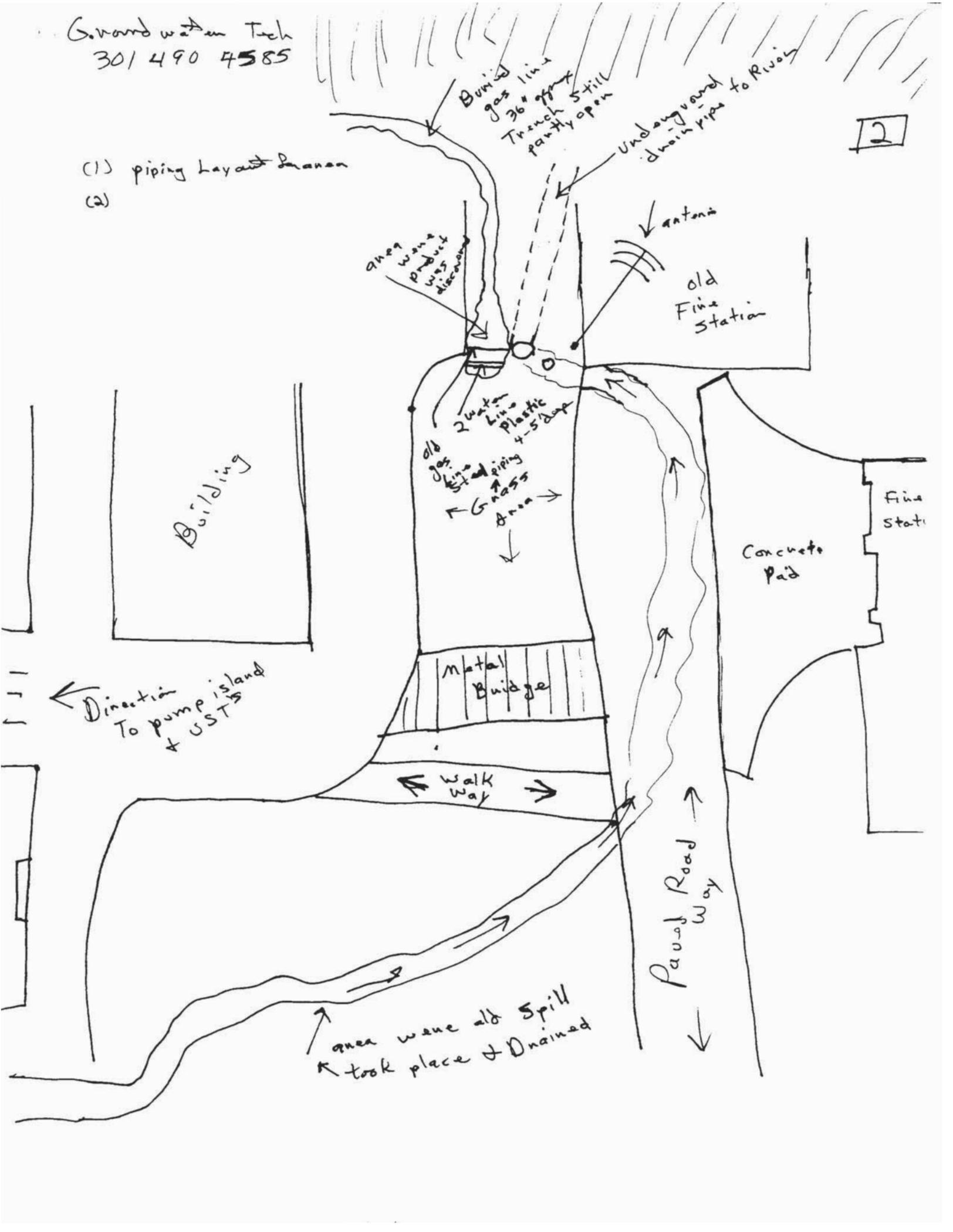
MM
4/25/93

- (1) Tip Reading in Baggie was 1087 MU at peak
- (2) Navy took sample to be analyzed
- (3) contamination was found around piping that was running through pit
- (4) odor seemed to be old weathered gasoline
- (5) River is about 20' Below contaminated area
- (6) ReB: spill complaint form. Dated 4-12-93 Time 2574K

Groundwater Tech
301 490 4585

2

- (1) piping layout
- (2)



area where product was discovered

Buried gas line 36" approx Trench still partly open

Underground drain pipes to River

antenna

old Fire Station

Building

Water Line Plastic 4-5" dia
old gas line
Grass Area

Concrete Pad

Fire Station

Metal Bridge

Walk Way

Paul Road Way

area where old spill took place & drained

Direction To pump island + UST's

LEGEND

- ⊕ PROPOSED MONITORING WELL LOCATION



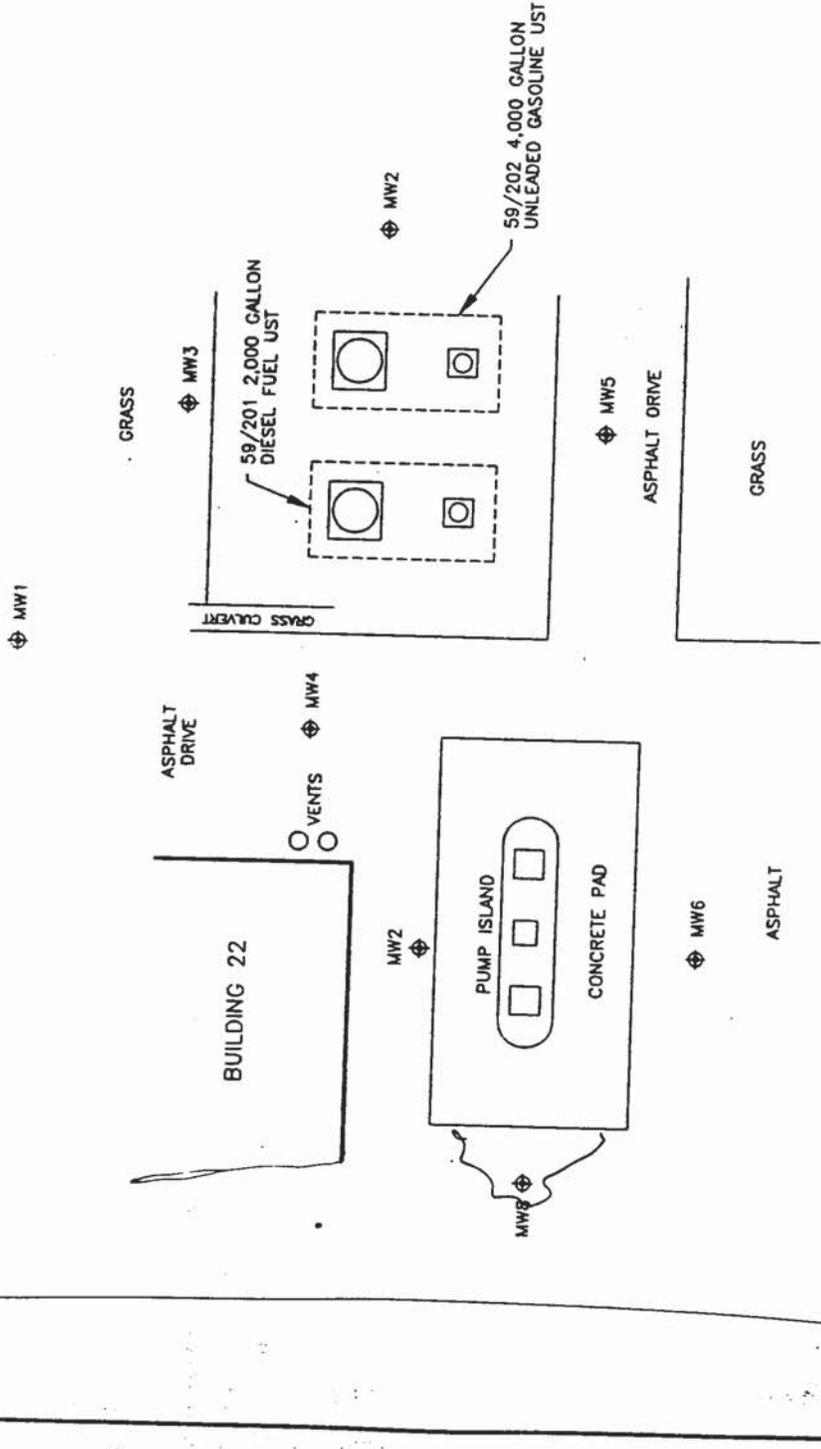
NOT TO SCALE

SOURCE: BAKER ENVIRONMENTAL, INC. (5/19/92)

GROUNDWATER TECHNOLOGY	1244-B EXECUTIVE BLD.
	CHESTERFIELD, VA. 23020
REV. NO.:	4/6/93
DRAWING DATE:	ACAO FILE: 202-SIT

SITE MAP

CLIENT:	LANTDIV NAVFACENCOM	PM:	
LOCATION:	UST 201 AND 202	PE/RC:	
DESIGNED:	SUGAR GROVE NSCA, W.V.	PROJECT NO.:	
BH	PJC	FIGURE:	2



- 20 PUB WKS/GYM/BOWLING LANES/PSD
- 22 VEHICLE MAINTENANCE
- 25 WATER TREATMENT PLANT
- 26 ELEMESS, OPEN
- 20 VEHICLE MAINTENANCE/STORAGE
- 30 NAVY EXCHANGE/POOL/BATH/HOUSE
- 00 SOFTBALL FIELD
- 02 SEWAGE TREATMENT PLANT
- 63 ADMIN/DEOMESS/MEDICAL CLINIC
- 84 HOBBY SHOP
- 60 HEAVY EQUIPMENT SHED
- 68 FIRE STATION
- 70 RACQUETBALL COURT
- 101-123 FAMILY HOUSING
- 130 CHEMICAL STORAGE
- 137 OXYGEN ACETYLENE STORAGE
- 138 HELICOPTER LAUNCH AREA

- 20
- 22
- 25
- 26
- 20
- 30
- 00
- 02
- 63
- 84
- 60
- 68
- 70
- 101-123
- 130
- 137
- 138

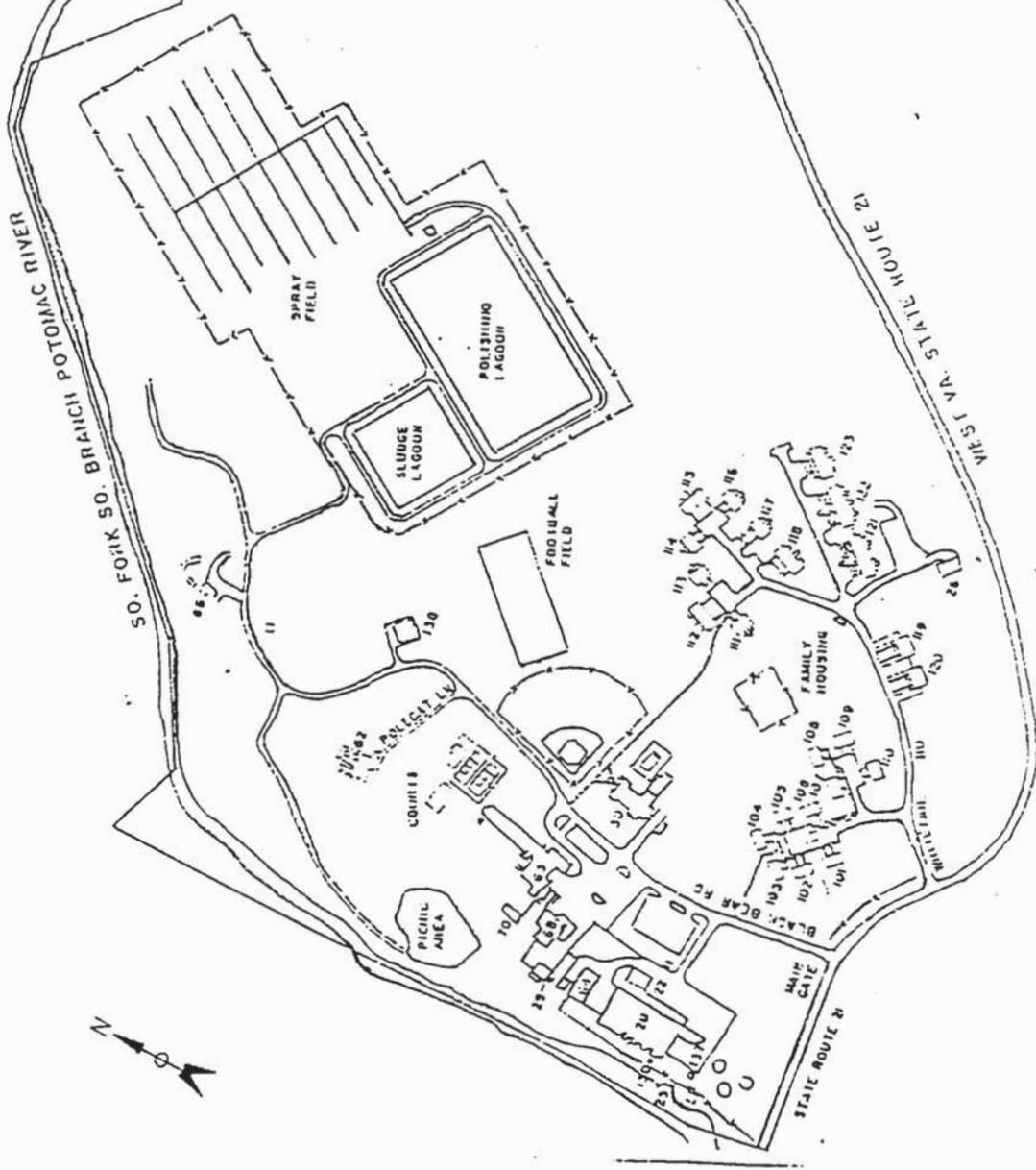


FIGURE 1 SUPPORT SITE
 SCP PLAN NAVRADSTA
 SUGAR GROVE, WV





FIGURE 1A

PROJECT STATUS CHECKLIST

LEAK # 93-048 WV ID# 3604470 PRIORITY CODE I, now downgraded to a III
OWNER NAME Navel Security Group Activity SITE NAME Navel Security Group (Public Work Dept)
SITE LOCATION Rt 21 Sugar Grove
INSPECTORS NAME John J. Snelberger DATE 3-25-93

*Place "X" in appropriate box. Must put a date in adjoining blank. Forward a copy of this sheet to Geologists after each entry for input into computer.

CODE

- 40 Confirmed release. 3-2-93
- 10 Cleanup initiated. 3-2-93
- 20 Site under control. 3-2 to 3-3-93
- 55 Free Product Found Yes No
- 56 Soil contaminated Yes No
- 57 Ground water contaminated Yes No
- 58 Drinking water source Yes No
- 59 Vapors in confined spaces Yes No Explosive levels Yes No
- 60 Site Investigation completed no
- 30 Site closure. no
- Request for state assistance (state lead site) Original attached _____
- 11 Received 20 day report (280.62). 3/29/93 Original attached _____
- 12 Received 45 day report (280.63). 5/7/93 Original attached _____
- 12A Received free product report (280.64). _____ Original attached _____
- 13 Request for 280.65 report. 3-2-93
- 18 Request for 280.66 report. _____
- 13 Received 280.65 report. 5/7/93 Original attached _____
- 18 Received 280.66 report. _____ Original attached _____
- Approved 280.66 report. _____
- Implemented 280.66 plan. _____
- Public notice date. _____
- Request Monitoring reports . _____
- Received monitoring reports. _____ Original attached _____
- 19 No further action required

RECEIVED

MAY 27 1993

OFFICE OF WASTE MANAGEMENT
UST SECTION
CHARLESTON, WV 25301-1401

COMMENTS: Clean Up initiated But not complete

W



White-Owner
Green-Operator
Canary-Field Office
Pink-Field Supervisor
Goldenrod-Charleston

Site Investigation # _____
WV ID # 3604470

UNDERGROUND STORAGE TANK RELEASE
SPILL/COMPLAINT/NOTIFICATION REPORT

Leak # 93-048

COMPLAINANT/NOTIFIER: Name <u>Lt. Lagonia</u> Street Address _____ Municipality <u>Sugar Grove</u> State _____ Zip Code _____ Phone Number () _____	REASON FOR COMPLAINT/NOTIFICATION (MARK ALL THAT APPLY)																									
	<table border="0"> <tr><td>Sight (Product is Actually Seen).....</td><td><input checked="" type="checkbox"/></td></tr> <tr><td>Smell (Vapors).....</td><td><input type="checkbox"/></td></tr> <tr><td>Taste (Drinking Water Contamination).....</td><td><input type="checkbox"/></td></tr> <tr><td>Unexplained Water in Tank Indicates Release.....</td><td><input type="checkbox"/></td></tr> <tr><td>Product Inventory Control Indicates Release.....</td><td><input type="checkbox"/></td></tr> <tr><td>Tank Tightness Test Indicates Release.....</td><td><input type="checkbox"/></td></tr> <tr><td>Line Tightness Test Indicates Release.....</td><td><input type="checkbox"/></td></tr> <tr><td>Vapor Monitoring Indicates Release/Spill.....</td><td><input type="checkbox"/></td></tr> <tr><td>Ground-Water Monitoring Indicates Release/Spill.....</td><td><input type="checkbox"/></td></tr> <tr><td>Interstitial Monitoring Indicates Release/Spill.....</td><td><input type="checkbox"/></td></tr> <tr><td>Automatic Line Leak Detector Indicates Release.....</td><td><input type="checkbox"/></td></tr> <tr><td>Chemical Analysis Indicates Release/Spill.....</td><td><input type="checkbox"/></td></tr> <tr><td>Other (Specify) _____</td><td><input type="checkbox"/></td></tr> </table>	Sight (Product is Actually Seen).....	<input checked="" type="checkbox"/>	Smell (Vapors).....	<input type="checkbox"/>	Taste (Drinking Water Contamination).....	<input type="checkbox"/>	Unexplained Water in Tank Indicates Release.....	<input type="checkbox"/>	Product Inventory Control Indicates Release.....	<input type="checkbox"/>	Tank Tightness Test Indicates Release.....	<input type="checkbox"/>	Line Tightness Test Indicates Release.....	<input type="checkbox"/>	Vapor Monitoring Indicates Release/Spill.....	<input type="checkbox"/>	Ground-Water Monitoring Indicates Release/Spill.....	<input type="checkbox"/>	Interstitial Monitoring Indicates Release/Spill.....	<input type="checkbox"/>	Automatic Line Leak Detector Indicates Release.....	<input type="checkbox"/>	Chemical Analysis Indicates Release/Spill.....	<input type="checkbox"/>	Other (Specify) _____
Sight (Product is Actually Seen).....	<input checked="" type="checkbox"/>																									
Smell (Vapors).....	<input type="checkbox"/>																									
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Line Tightness Test Indicates Release.....	<input type="checkbox"/>																									
Vapor Monitoring Indicates Release/Spill.....	<input type="checkbox"/>																									
Ground-Water Monitoring Indicates Release/Spill.....	<input type="checkbox"/>																									
Interstitial Monitoring Indicates Release/Spill.....	<input type="checkbox"/>																									
Automatic Line Leak Detector Indicates Release.....	<input type="checkbox"/>																									
Chemical Analysis Indicates Release/Spill.....	<input type="checkbox"/>																									
Other (Specify) _____	<input type="checkbox"/>																									

SITE NAME: <u>Sugar Grove</u> <u>Naval Security Group</u>	DATE: <u>4-7-93</u>	TIME: <u>3:40</u>
MUNICIPALITY: <u>Sugar Grove</u>	COUNTY: <u>Pendleton</u>	
SPECIFIC LOCATION: <u>Public Works Area</u>		

DISCUSSION: I received a phone call from Lt. Lagonia advising that free product had been discovered by a contractor on a separate dig not related to the UST upgrade. This was at 2:58 PM on 4-7-93

On 4-8-93 I inspected the above listed facility (1) area where free product was reported did show evidence of petroleum product but at time of inspection no product was present & the contaminated or exposed area in pit was not more than 2' in diameter. It is either related to surface spill or old release

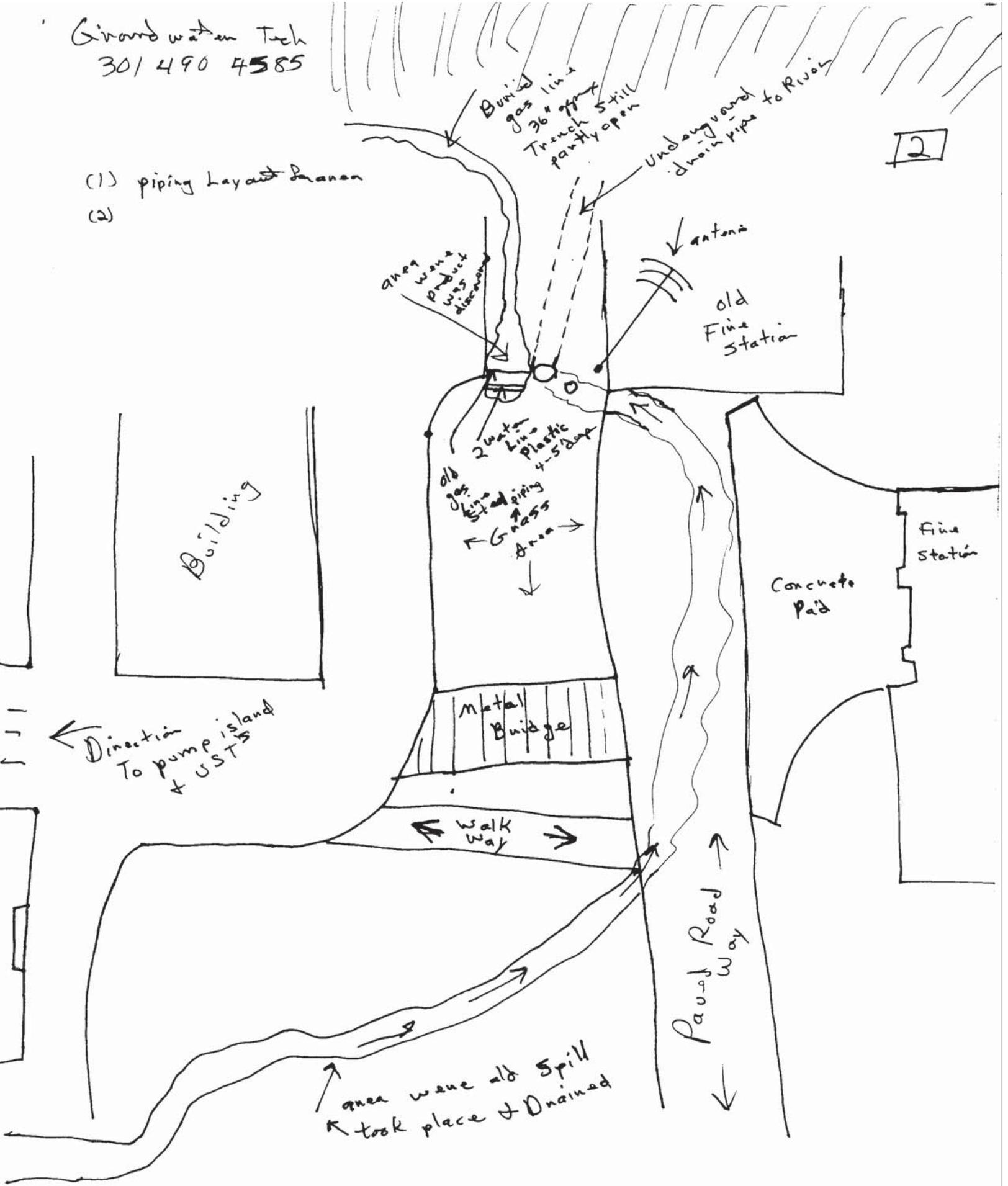
COMPLETED BY: <u>John J. Snerberger</u>	RELAYED TO: <u>More investigation is in progress</u> <u>Dan Martin</u>	DATE: <u>4-12-93</u> TIME: <u>2:57 PM</u>
---	--	--

Handwritten initials and date: MM/ 4/25/93

Groundwater Tech
301 490 4585

2

- (1) piping layout shown
- (2)



Building

old Fire Station

Fire Station

Concrete Pad

Metal Bridge

Walk Way

Paved Road Way

area where old spill took place + Drained

Direction To pump island + USTs

they want product way disconnected

old Joist piping
Grass Area

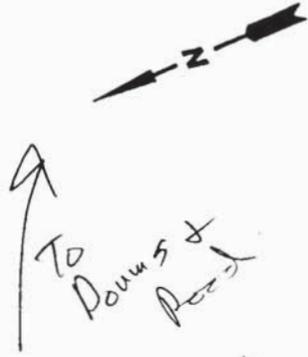
2 water lines Plastic 4-5" dia

Buried gas line 36" approx Trench 5' still partly open

Underground drain pipe to River

LEGEND

- ⊕ PROPOSED MONITORING WELL LOCATION



NOT TO SCALE

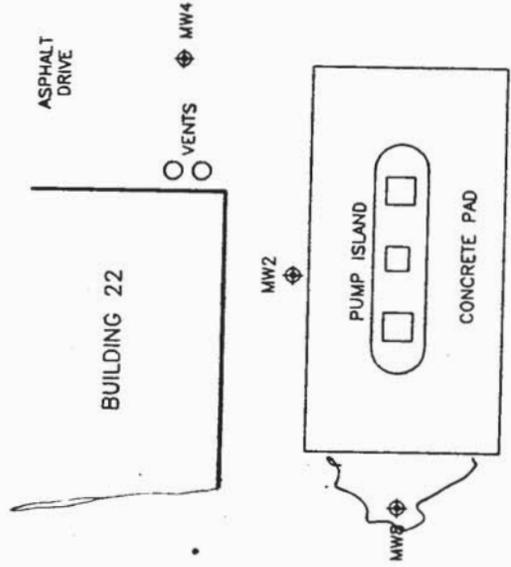
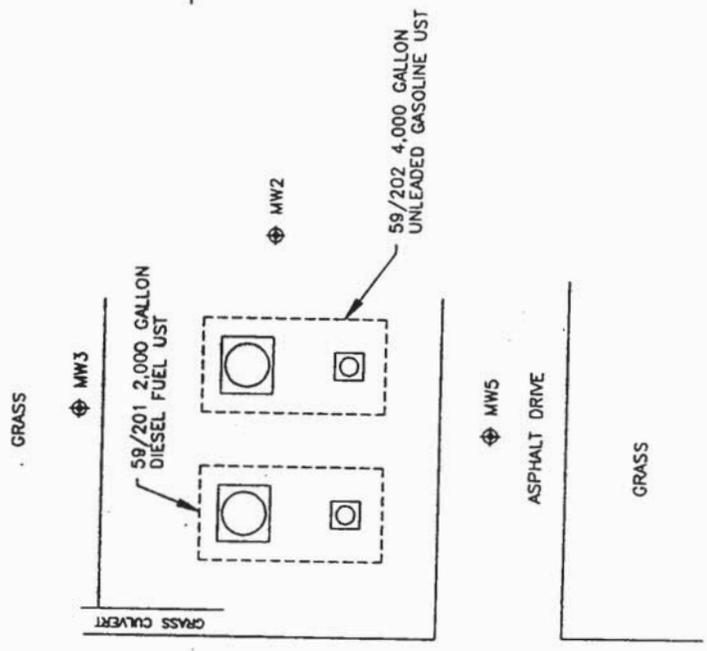
SOURCE: BAKER ENVIRONMENTAL, INC. (5/19/92)

	GROUNDWATER TECHNOLOGY	1244-B EXECUTIVE BLVD. CHESAPEAKE, VA 23320 (804) 436-7881
	REV. NO:	DRAWING DATE: 4/6/93

ACAD FILE: 202-SIT

SITE MAP

CLIENT:	LANTDIV NAVFACENGCOM	PM:	
LOCATION:	UST 201 AND 202 SUGAR GROVE NSCA, W.V.	PE/RG:	
DESIGNED:	BH PJC	PROJECT NO.:	830011088.4201
		FIGURE:	2



2

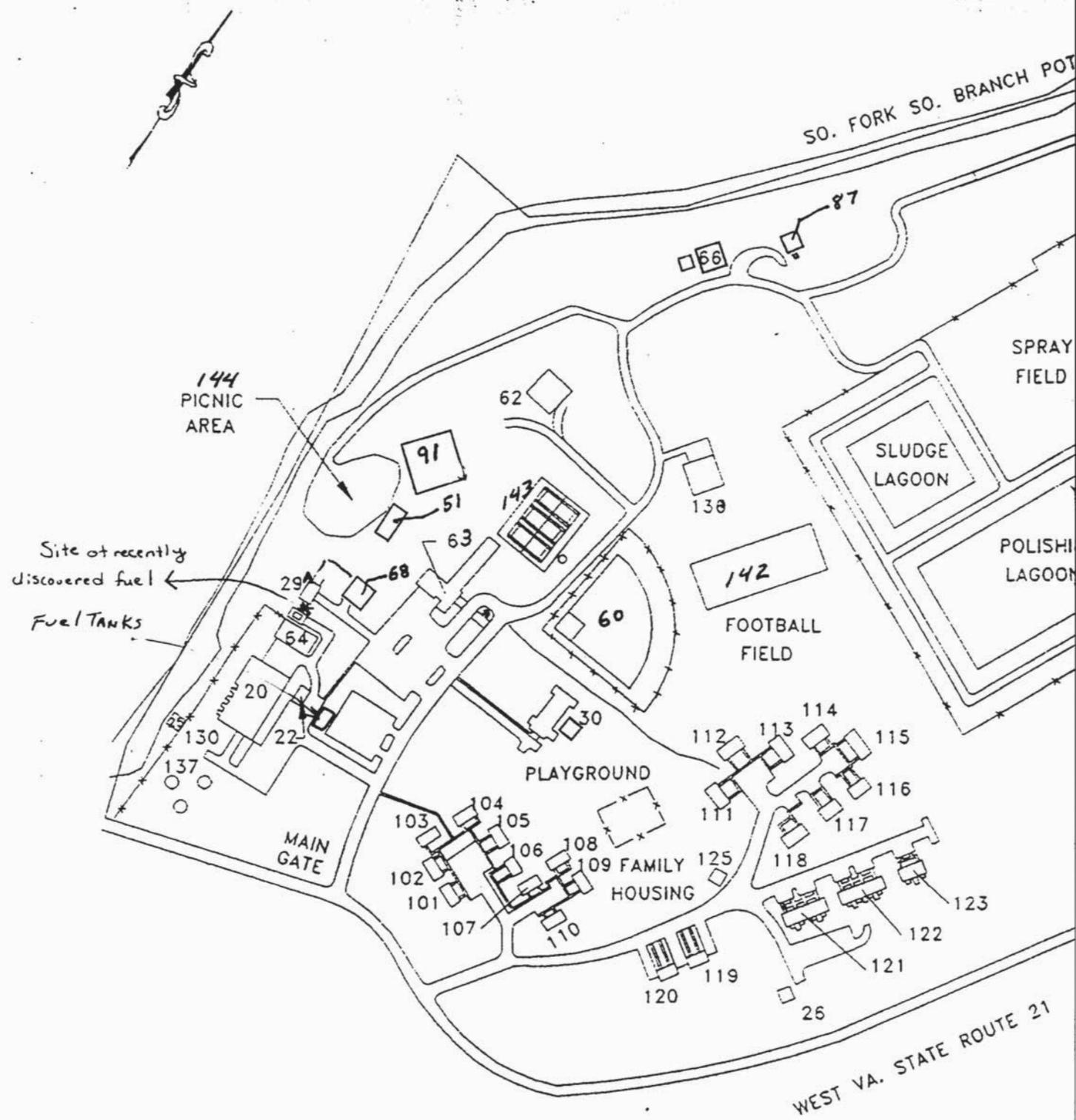


FIGURE 1A

- (1) Tip Reading in Baggie was 1087 MU at peak
- (2) Navy took sample to be analyzed
- (3) contamination was found around piping that was running through pit
- (4) odor seemed to be of weathered gasoline
- (5) River is about 20' Below contaminated area
- (6) Ref: spill complaint form. Dated 4-12-93 Time 257PM

PROJECT STATUS CHECKLIST

LEAK # 93-048 WV ID# 3604470 PRIORITY CODE I, now downgraded to a III
 OWNER NAME Naval Security Group Activity SITE NAME Naval Security Group (Public Work Dept)
 SITE LOCATION Rt 21 Sugar Grove
 INSPECTORS NAME John J. Snelberger DATE 3-25-93

*Place "X" in appropriate box. Must put a date in adjoining blank. Forward a copy of this sheet to Geologists after each entry for input into computer.

- 40 Confirmed release. 3-2-93
- 10 Cleanup initiated. 3-2-93
- 20 Site under control. 3-2 to 3-3-93
- 55 Free Product Found Yes No
- 56 Soil contaminated Yes No
- 57 Ground water contaminated Yes No
- 58 Drinking water source Yes No
- 59 Vapors in confined spaces Yes No Explosive levels Yes No
- 60 Site Investigation completed no
- 30 Site closure. no
- [] Request for state assistance (state lead site) Original attached _____
- 11 [] Received 20 day report (280.62). _____ Original attached _____
- 12 [] Received 45 day report (280.63). _____ Original attached _____
- 12A [] Received free product report (280.64). _____ Original attached _____
- 13 Request for 280.65 report. 3-2-93
- 18 [] Request for 280.66 report. _____
- 13 [] Received 280.65 report. _____ Original attached _____
- 18 [] Received 280.66 report. _____ Original attached _____
- [] Approved 280.66 report. _____
- [] Implemented 280.66 plan. _____
- [] Public notice date. _____
- [] Request Monitoring reports . _____
- [] Received monitoring reports. _____ Original attached _____
- 19 [] No further action required

COMMENTS: Clean Up initiated But not complete

Green - Operator
Canary - Field Office
Pink - Field Supervisor
Goldenrod - Charleston

LEAK: 93-048
WV ID: 3604470

**CONFIRMED RELEASE
NOTICE TO COMPLY**

Public Works Dep.

Owner
Name: Naval Security Group Activity
Address: Rt 21
City: Sugar Grove State: WV Zip: 26119-5700
Phone: (304) 249-6375

Operator
Name: Same
Address: _____
City: _____ State: _____ Zip: _____
Phone: () _____

LOCATION OF TANKS:
Facility Name: Naval Security Group Activity St. Address Rt 21
City: Sugar Grove County: Putnam Phone: (304) 249-6375

TO THE TANK OWNER AND OPERATOR:

A RELEASE OF A REGULATED SUBSTANCE HAS BEEN CONFIRMED AT YOUR UNDERGROUND STORAGE TANK FACILITY AT THE ABOVE LOCATION. THEREFORE, YOU MUST PERFORM THE FOLLOWING INITIAL RESPONSE ACTION WITHIN 24 HOURS.

1. Remove as much of the regulated substance from the UST system as is necessary to prevent further release to the environment.
2. Check adjacent structures to identify fire, explosion, and vapor hazards.
3. Investigate to determine the possible presence of free product at existing monitoring points, (nearby streams, sumps, sewers, ditches, monitoring wells, tank pit, or other excavations at or near the site) and report the result to the DNR.
4. If free product is present, the owner/operator must control the spread of the contamination (280.64a-d).
5. The owner/operator must comply with all other provisions of the initial abatement measures and site check (280.62). REPORT DUE: 3-24-93 (date).

The OWNER/OPERATOR must comply with the following requirements if checked:

- A. The owner/operator must conduct an Initial Site Characterization (280.63a-b). REPORT DUE: 4-19-93 (date).
- B. The owner/operator must submit a Site Investigation Report to determine the full extent of and location of soils contaminated by the release and the presence and concentration of dissolved product contamination in the ground water. (280.65a-b). REPORT DUE: 2/15-3 (date).

FAILURE TO COMPLY WITH THE ABOVE INVESTIGATION WITHIN THE TIME SPECIFIED MAY RESULT IN A CIVIL PENALTY OF MORE THAN TEN THOUSAND DOLLARS A DAY FOR EACH DAY OF NON-COMPLIANCE. Penalties will be granted as necessary by W.V.D.E.P.

SERVICE ACCEPTED AND ACKNOWLEDGED: Regulations received

Signature: _____
Date: 2 March 93
WV Dept. of Environmental Protection
Waste Management Section
304-924-6211

Send original report to:
Corrective Action Coordinator
UST Unit
W.V.D.E.P.
12/21/93

LEAK DATA ENTRY

CB

DATE: 3/2/93

FACILITY ID 36044⁷⁰~~492~~ COMPLETED BY: _____

LEAK ID 93-048

INVESTIGATOR JOHN SNEBERGER

OWNER NAME NAVAL SECURITY GROUP ACTIVITY NAVAL COMMUNICATION

SITE LOCATION SUGAR GROVE WV 26815 (ACTUAL PHYSICAL ADDRESS)
RT. 21

SITE CODE
(40) CONFIRMED RELEASE (DATE) 3/2/93 CLOSURE NO. _____

(70) ENFORCEMENT ACTION 3/2/93

(10) CLEANUP INITIATED (DATE) NO

(20) CLEANUP UNDER CONTROL (DATE) _____

(55) FREE PRODUCT DISCOVERED YES NO _____

(56) SOIL CONTAMINATION YES NO _____

(57) GROUNDWATER CONTAMINATION YES NO _____

(58) DRINKING WATER SOURCE YES _____ NO

(59) VAPORS IN CONFINED SPACES YES _____ NO _____

*PRIORITY CODE 1, (2), OR 3 (1-IS HIGHEST) CIRCLE ONE

CORRESPONDENCE CODE
 (11) 20-DAY REPORT (280.62) REQUIRED YES NO _____

(12) 45-DAY REPORT (280.63) REQUIRED YES NO _____

(12A) FREE PRODUCT REPORT (280.64) REQUIRED YES _____ NO _____

(13)*DOES A .65/.66 LETTER NEED TO BE ISSUED? YES NO _____ NOT YET KNOWN _____

*WHICH ONE OR COMBINATION OF THE 4 REASONS 280.65(A) (1-4) SHOULD BE CITED AS JUSTIFICATION FOR ISSUING THE LETTER? 1 _____ 2 _____ 3 4 _____

LEAK INFORMATION
TYPE OF FACILITY NAVAL RADIO STATION

TYPE PRODUCT DIESEL EST. QUANTITY LOST _____

OPERATOR'S NAME KENNETH MILLER

OPERATOR'S ADDRESS Box RT 21

OPERATOR'S CITY SUGAR GROVE



LEAK NO: 93-048
 W.V. ID NO: 3604470
 DATE: 3-2-93

LEAKING UNDERGROUND STORAGE TANK OFFICE

SITE VISIT REPORT

OWNER

OPERATOR

NAME: Naval Security Group Activity
 ADDRESS: Plt 21
 CITY: Sugar Grove STATE: WV ZIP: 26815 5006
 PHONE: () 304-249-6395

NAME: Naval Security Group Activity
Public Work Dept.
 ADDRESS: Plt 21
 CITY: Sugar Grove STATE: WV ZIP: 26815-5006
 PHONE: () 304-249-6395

LOCATION OF TANKS

FACILITY: Same as Operator ST. ADDRESS: _____
 CITY: _____ COUNTY: _____ PHONE: () _____
 DATE OF LAST VISIT: _____ CONSULTANT: _____
 TIME ON SITE: _____ REASON FOR VISIT: _____
 CLEAN UP INITIATED DATE: _____ SITE UNDER CONTROL DATE: _____
 CLEAN UP COMPLETE: _____

COMMENTS

- (1) Inspected above listed facility after a complaint or report from O/O. C/R # 93-048 issued on 3/2/93
- (2) From field inspection it is believed that the source of the contamination is the piping on the suction line leading from the Diesel UST
- (3) Product was observed on ^{ground} water surface with a approx. thickness of $\frac{1}{32}$ " also product looked weathered + dark black in color
- (4) In the excavation on the upgradient side in tank pit area no product on odor were found. On the downgradient side evidence of contamination existed for approx 60' from pump island to the public works Building

cc: Charleston (Original) NAME: John J. Sweeney DATE: 3/2/93
 District Office (Copy) Page 1 of 1



LEAK NO: 93-048
 W.V. ID NO: 3664470
 DATE: 3/5/93

LEAKING UNDERGROUND STORAGE TANK OFFICE

SITE VISIT REPORT

OWNER

OPERATOR

NAME: Naval Security Group Activity
 ADDRESS: Rt 21
 CITY: Sugar Grove STATE: WV ZIP: 26815
 PHONE: (1) 304-249-6395

NAME: Naval Security Group Activity
Public Work Dept
 ADDRESS: Rt 21
 CITY: Sugar Grove STATE: WV ZIP: 26815-5000
 PHONE: (1) 304-249-6395

LOCATION OF TANKS

FACILITY: Same ST. ADDRESS: _____
 CITY: Sugar Grove COUNTY: Pendleton PHONE: () _____
 DATE OF LAST VISIT: _____ CONSULTANT: _____
 TIME ON SITE: _____ REASON FOR VISIT: Complaint of gasoline spill by owner
 CLEAN UP INITIATED DATE: _____ SITE UNDER CONTROL DATE: _____
 CLEAN UP COMPLETE: _____

COMMENTS

- (1) Arrived on site at 3:15 PM 3/25/93
 (2) Tanks were being off loaded & pit area was being vac out, vapor & odors were apparent in the air but no levels of concern existed at the site. (3) Some boomst pillows were in place & I requested more to be added to the one run off area & as levels dropped from pumping this area stopped draining. (4) A sweep of the public works building & drains indicated 02 to 1/2 LEL
 (5) The ventilation system was reviewed for 10-15 min & power was turned back on & building was put back in service by the Ltendants orders

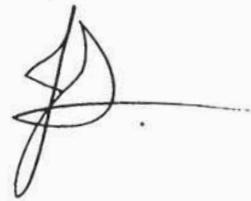
cc: Charleston (Original) NAME: John J. Burhagen DATE: 3/25/93

District Office (Copy)

Page 1 of 1 *JMB*

"Look on back"

- (6) a check of drain & sewer lines only showed one area of possible concern 19% LEL a man hole in lower parking lot. I advised if this level increased to ventilate with a proper air system,
- (7) They had on site a system to do this with & also a MSA explosimeter
- (8) At 6:15 PM I left the site after briefing the CEO of the base. & advised him that in the morning a complete check of all building in the area needed to be done before any personal entered the building. And also that ~~his~~^{the} responsibility for the site was in his hands I would only assist as needed
- (9) I also advised that 3 or 4 times a day some body should be in charge of doing a odor & vapor check of all building in the area until the problems are corrected.





White-Owner
Green-Operator
Canary-Field Office
Pink-Field Supervisor
Goldenrod-Charleston

Site Investigation # 1
WV ID # 3604492

UNDERGROUND STORAGE TANK RELEASE
SPILL/COMPLAINT/NOTIFICATION REPORT

COMPLAINANT/NOTIFIER:	REASON FOR COMPLAINT/NOTIFICATION(MARK ALL THAT APPLY) [x]
	Sight (Product is Actually Seen)..... <input type="checkbox"/> Smell (Vapors)..... <input type="checkbox"/> Taste (Drinking Water Contamination)..... <input type="checkbox"/> Unexplained Water in Tank Indicates Release..... <input type="checkbox"/> Product Inventory Control Indicates Release..... <input type="checkbox"/> Tank Tightness Test Indicates Release..... <input type="checkbox"/> Line Tightness Test Indicates Release..... <input type="checkbox"/> Vapor Monitoring Indicates Release/Spill..... <input type="checkbox"/> Ground-Water Monitoring Indicates Release/Spill..... <input type="checkbox"/> Interstitial Monitoring Indicates Release/Spill..... <input type="checkbox"/> Automatic Line Leak Detector Indicates Release..... <input type="checkbox"/> Chemical Analysis Indicates Release/Spill..... <input type="checkbox"/> Other (Specify)..... <input type="checkbox"/>
Name _____	
Street Address _____	
Municipality _____	
State _____	
Zip Code _____	
Phone Number () _____	

SITE NAME:	DATE: <u>2/25/93</u>	TIME: <u>11:10 AM</u>
MUNICIPALITY: <u>Sugar Grove</u>	COUNTY: <u>Pendleton</u>	
SPECIFIC LOCATION:		

DISCUSSION:

In a return call to Jack Hedrick at 304-249-6340 concerning a report of petroleum discovered in excavation on 2/24/93 at the above named facility. The excavated area is about 3' in diameter. The product thickness is estimated at about 1 to 2" thick. The appearance of the product was reported to be a aged product. The active UST system is 100 + ft from the discovery area & a tracer test & also volumetric test past on the UST recently that were installed in 1986. The Base is on it's own water supply &

COMPLETED BY: <u>John J. Anberger</u>	RELAYED TO: <u>Dan Martin</u>	DATE: <u>2/25/93</u>
		TIME: <u>11:52 AM</u>

White-Owner
Green-Operator
Canary-Field Office
Pink-Field Supervisor
Goldenrod-Charleston

ATTACHMENT FOR 3604492
FORM

ORDER, COMPLAINT, OR
NON # _____
(Circle One)

FORM # _____

OWNER/OPERATOR no evidence of contamination is present
in the water. No building are close to the
area & water problems & hazard are reported
not exist. Additional information is planned to be
for & additional investigation is in going

SERVICES APP

Signature: _____
_____ Management

White-Owner
Green-Operator
Canary-Field Office
Pink-Field Supervisor
Goldenrod-Charleston

ATTACHMENT FOR 3604492
FORM

ORDER, COMPLAINT, OR
NON # _____
(Circle One)

FORM # _____

OWNER/OPERATOR no evidence of contamination is present
in the water. No building are close to the
area & vapor problems & hazard are reported
not exist. Additional information is planned to be
fax & additional investigation is on going

SERVICES ACCEPTED AND ACKNOWLEDGED

Signature: _____
Owner/Operator

[Signature]
Division of Waste Management

Date: 2/25/92

[Signature]
3/9/93

3604492

FROM: NAUSECGRUDET SUGAR GROVE

TO:

FEB 25, 1993 12:18PM P.01

OPTIONAL FORM 99 (7-90)

**PUBLIC WORKS DEPARTMENT
NAUSECGRUACT
SUGAR GROVE WV 26815-500**

FAX TRANSMITTAL

of pages ▶

To: *John Suterberger*
Dept./Agency

From: *Ken Miller*
Phone #

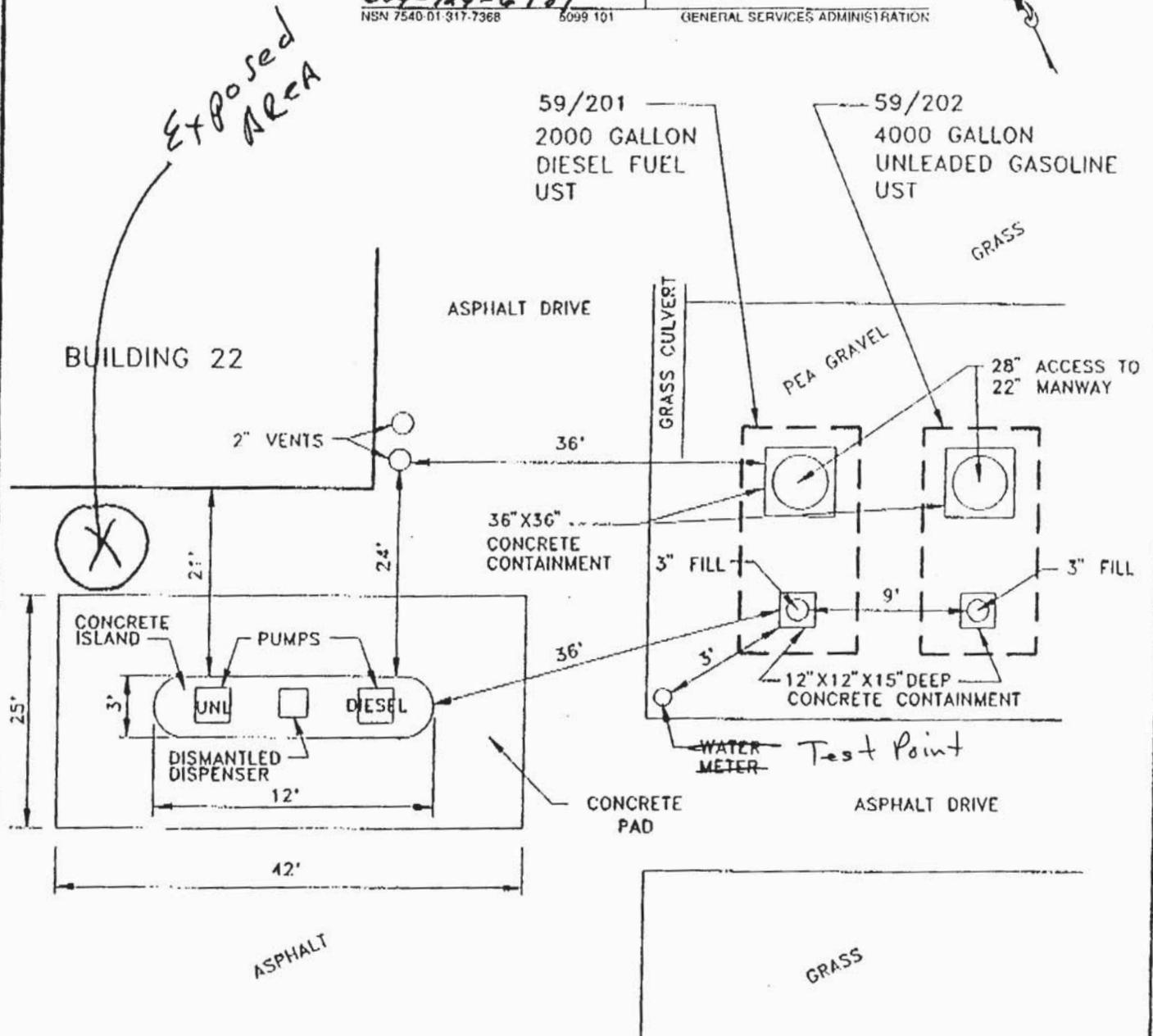
Fax # *304-924-6781*

Fax # *304-249-6341*

NSN 7540.01-317-7368

5099 101

GENERAL SERVICES ADMINISTRATION



REFERENCE DRAWING: PUBLIC WORKS #295

DATE	MAY 19, 1992
SCALE	NOT TO SCALE
DRAWN	C.L.K.
REVIEWED	S.A.D.
S.O.#	CTO-0037
CADD#	SG59

**UNDERGROUND STOR. TK. MGMT. PLAN
SUGAR GROVE**

FIGURE 3

59/201 2000 GALLON DIESEL FUEL UST
59/202 4000 GALLON UNLEADED GASOLINE UST

BAKER ENVIRONMENTAL, Inc.
Coraopolis, Pennsylvania

LEAK DATA ENTRY

DATE: 3/2/93FACILITY ID 36044⁷⁰~~442~~ COMPLETED BY: _____LEAK ID 93-048INVESTIGATOR JOHN SNEBERGEROWNER NAME NAVAL SECURITY GROUP ACTIVITY *NAVAL COMMUNICATION*SITE LOCATION SUGAR GROVE WV 26815 (ACTUAL PHYSICAL ADDRESS)RT. 21

SITE CODE

(40) CONFIRMED RELEASE (DATE) 3/2/93 CLOSURE NO. _____(70) ENFORCEMENT ACTION 3/2/93(10) CLEANUP INITIATED (DATE) NO

(20) CLEANUP UNDER CONTROL (DATE) _____

(55) FREE PRODUCT DISCOVERED YES NO _____(56) SOIL CONTAMINATION YES NO _____(57) GROUNDWATER CONTAMINATION YES NO _____(58) DRINKING WATER SOURCE YES _____ NO

(59) VAPORS IN CONFINED SPACES YES _____ NO _____

*PRIORITY CODE 1, (2), OR 3 (1-IS HIGHEST) CIRCLE ONE

CORRESPONDENCE CODE

(11) 20-DAY REPORT (280.62) REQUIRED YES NO _____(12) 45-DAY REPORT (280.63) REQUIRED YES NO _____

(12A) FREE PRODUCT REPORT (280.64) REQUIRED YES _____ NO _____

(13)*DOES A .65/.66 LETTER NEED TO BE ISSUED? YES NO _____ NOT YET KNOWN _____*WHICH ONE OR COMBINATION OF THE 4 REASONS 280.65(A) (1-4) SHOULD BE CITED AS JUSTIFICATION FOR ISSUING THE LETTER? 1 _____ 2 _____ 3 4 _____

LEAK INFORMATION

TYPE OF FACILITY NAVAL RADIO STATIONTYPE PRODUCT DIESEL EST. QUANTITY LOST _____OPERATOR'S NAME KENNETH MILLEROPERATOR'S ADDRESS 914 RT 21OPERATOR'S CITY SUGAR GROVE

PROJECT STATUS CHECKLIST

LEAK # 93-048 WVID # 3604470 CLOSURE # C-4557-95 Priority Code Update: 2

Norwalk Security Group

Site Name: _____ Site Location: Rt 21 Susan Grove

Project Manager/Geologist: Mann Date: _____

Bldgs 20+22

- Confirmed release 3-2-93
- Cleanup initiated: 3-2-93 Biopile proposal submitted: _____
- Request for state assistance (state lead site) _____ Original attached _____
- Received 45 day report (280.63). 5-7-93 Original attached sent
- Received free product report (280.64). N/A Original attached _____
- Request for 280.65 report 3-2-93 Received 280.65 report 5-7-93
- Request for 280.66 plan _____ Received 280.66 plan _____
- Approved 280.66 plan _____
- Implemented 280.66 plan _____
- Site Investigation complete _____
- Site Cleanup completed _____

COMMENTS: _____

DL + RU

NEED

- 1 QMR'S BTEX; MTBE; PAH'S; TPH (Geo/Dro)
- ~~2 Cost for soil + Geo + delineate~~ (RCR issued 4-2-95 Bldg 63)
- ~~3 Geo map~~
- 4 disposition of soil?
- ~~5~~

site 20/202 7 wells - resample (1994 last)
2 more wells downgradient of mw-1

Encl. 2

TABLE 3-1
Qualified Laboratory Analytical Results of Groundwater Samples
NAVSECGRUACT, Sugar Grove, West Virginia

Sample Number	EPA Method 602										EPA 601 - All parameters	EPA 8270C - All parameters	Lead by TCLP 1311 (15 µg/kg)	TPH-GRO by 8015/5030	TPH-DRO by 8015/3550
	Benzene (5 µg/kg)	Toluene (1,000 µg/kg)	Ethylbenzene (700 µg/kg)	m-Xylene (10,000 µg/kg total xylenes)	o-Xylene (10,000 µg/kg total xylenes)	p-Xylene (10,000 µg/kg total xylenes)	MTBE <i>8215</i> (Standard not established)	MTBE by EPA 8260B (Standard not established)							
MW-1	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	24	BQL	39.3	BQL	BQL
MW-2	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	64	BQL	6.6	BQL	BQL
MW-5	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	5.4	BQL	BQL
MW-6	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	6.2	BQL	BQL
Equipment Blank	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	NA	BQL	2.7	BQL	BQL
Trip Blank	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	NA	NA	NA	NA	NA

Notes: All concentrations in µg/kg.
 BQL = Below Quantitation Limits (see lab reports for individual quantitation limits).
Boldface and shading denotes concentration exceeding established standard.
 NA = Not Analyzed by particular method - see report text.
 Parenthetical concentrations after method parameters are WV/DEP groundwater standards.

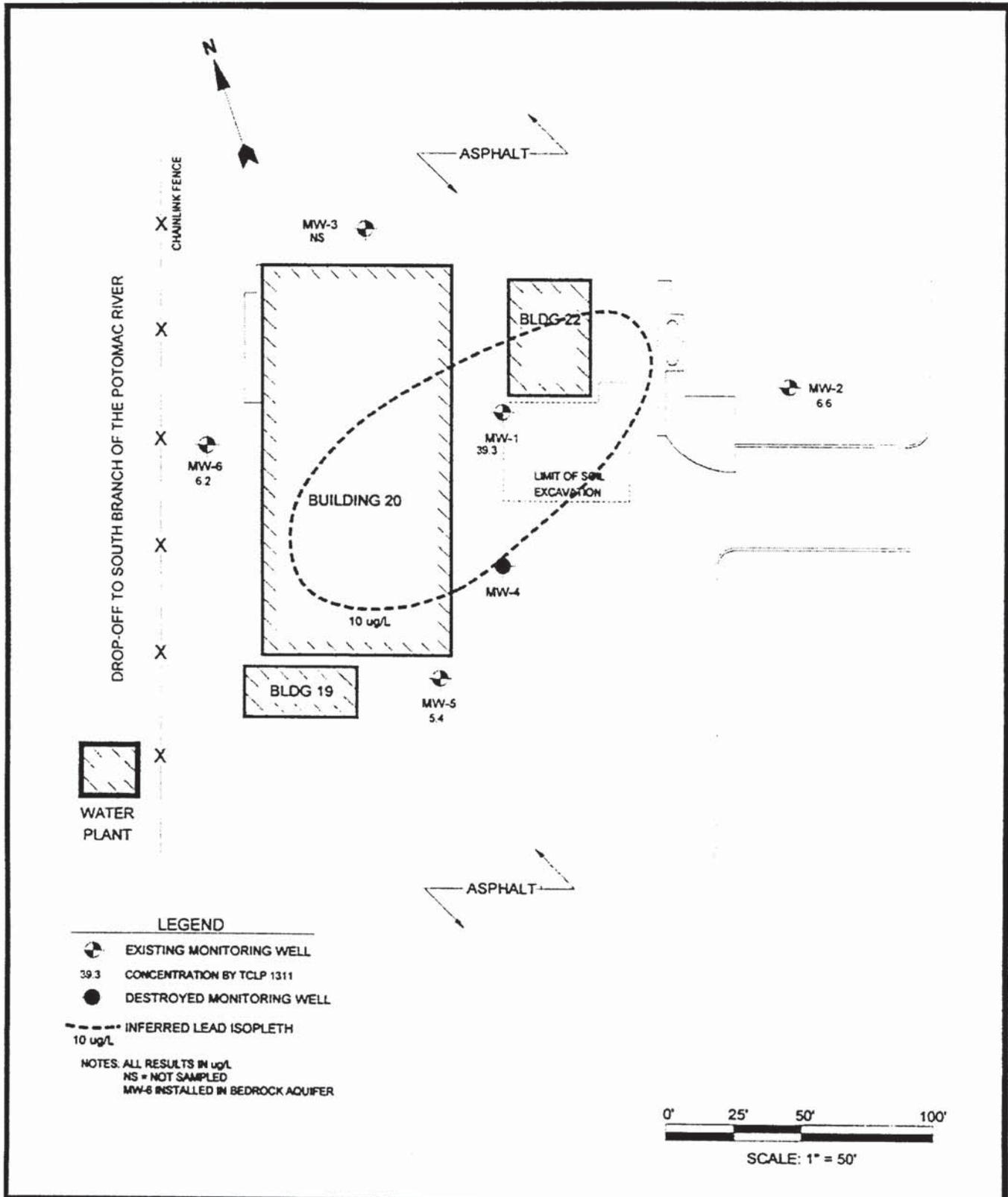


FIGURE 3-2: DISSOLVED-PHASE LEAD CONCENTRATION MAP
 NAVAL SECURITY GROUP ACTIVITY (NAVSECGRUACT)
 SUGAR GROVE, WEST VIRGINIA
 WVDEP FACILITY NO. 3604470 / RELEASE NO. 93-048

NFE PROJECT NO. 01-190
 DRAWN BY: SKP
 CHECKED BY: HWB
 DATE: 01-23-02
 SCALE: 1" = 50'

4 June 2002

Mr. Jim Maurin
Office of Environmental Remediation
2031 Pleasant Valley Road, Suite #1
Fairmont, WV 26554

RECD JUN 11 2002

Re: Underground Storage Tank Site 201/202
Naval Security Group Activity
Sugar Grove, West Virginia

Dear Mr. Maurin,

Thank you for taking the time to discuss with me some particulars of the above referenced site. Per our phone conversation today I am forwarding the following as enclosures:

1. Draft Site Assessment Addendum Underground Storage Tank Site 201/202 Naval Security Group Activity, Sugar Grove WV. Leak ID # 93-048. WV ID # 4470 ESE Project # 2196075G-2090-2100 Date: August 1996
2. Results of groundwater samples procured by NFE Technologies on December 13, 2001
3. A copy of your letter, specifically paragraph 3 which suggested follow on activities necessary for a site closure.

Currently the Groundwater Sampling and Monitoring Report is in draft stage. It suggests another round of sampling to confirm the lead levels that were found in all wells samples including the trip blank.

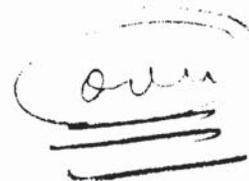
Based upon your assessment of the report (Enclosure 1) and the latest information on the subsurface conditions (Enclosure 2) we will then proceed in the most timely and cost efficient manner.

I look forward to hearing from you at your earliest convenience. Should you wish to contact me, I can be reached at (757) 322-4779.

Sincerely,



Lori Reuther



CW

MW-1

MW-2

11-95

B-73 ppb
M-21 ppb

B-21 ppb

4-96

B-39 ppb
M-81 ppb

B-32 ppb
M-150 ppb

1-02

B-11 ppb
M-24 ppb (2000)

B-18 ppb
M-64 (2200)

* Review, 54 to 60 of MQL's of 10 ppb. THESE NEED LOWERED
to 100 to 500

From: "Reuther, Lori P. (EFDLANT)" <ReutherLP@efdlant.navy.mil>
To: <jmaurin@mail.dep.state.wv.us>
Date: Wednesday, February 20, 2002 10:35:22 AM
Subject: WV ID # 3604470; Leak ID # 93-048 UST 201 & 202 NSGA Sugar Grove

Jim,

Thanks for your input today on the above referenced project site. As we discussed, once the final Groundwater Sampling and Monitoring Report is received, it will be forwarded to you along with the Site Assessment Addendum containing information on the deep well (MW-6). These two reports should provide you with the information you need to assess whether the site is a candidate for a no further action grant.

If you find that you need any additional information, please let me know.

Regards,
Lori

Lori P. Reuther
Code EV21LR
(757) 322-4779
(757) 322-4804 fax

CC: "Steven Niethamer" <nsgaenv@access.mountain.net>



Office of Environmental Remediation
2031 Pleasant Valley Road, Suite #1
Fairmont, WV 26554
Tel.: (304)-368-3950 Fax: (304)-368-3953

West Virginia Department of Environmental Protection

Bob Wise
Governor

February 7, 2002

Michael O. Callaghan
Secretary

Commander
Atlantic Division
Naval facilities Engineering Command
P. O. Box 117
Sugar Grove, WV 26815

**RE: Naval Security Group
WV ID # 3604470; LEAK ID # 93-048**

Dear Sir:

A review has been completed of reports submitted and/or information obtained through site visits and discussions regarding the Confirmed Release issued **March 2, 1993**. It has been confirmed that a petroleum release has occurred at the above referenced facility and that soil and/or groundwater has been contaminated. This contamination may be considered a threat to human health and the environment.

I am currently the Project Manager for this area having recently taken over from Donald Martin. As such, I am in the process of reviewing all currently active leak files as listed in our computer database. Based on a review of this file I would like to make the following comments. The last report submitted on this site was dated March 8, 1996. It appears that several underground storage tanks, both regulated and unregulated were removed from this facility. I will only comment on the regulated tanks and hopefully will try to make sense of the many reports. Tank # 206 was a regulated 550-gallon diesel emergency generator tank. According to the information in the file, no further action will be required on this tank. Tank #201 was a 2,000-gallon diesel and tank #202 was a 4,000-gallon gasoline tank. According to the analytical results from the Site Assessment Report there was some dissolved phase gasoline contamination in MW-1. The recommendation was made by the consultant to install two additional down gradient wells to monitor contaminant movement and to delineate the plume. One well was to be a shallow well and the other was to be a deeper rock well. Since there have been no reports submitted since 1996 I am unsure if this work was ever done. If this work has been done, please forward the information to this office for review.

If not, you are hereby notified to do the following. First, install the two wells as suggested in the Site Assessment Report. Second, initiate a quarterly groundwater monitoring and gauging program for the well associated with this site and provide a groundwater potentiometric map from the results. Third, provide the disposition of the contaminated soils with disposal receipts, etc. Finally, analyze all samples for BTEX, MTBE, PAH's and TPH (Gro/Dro). All wells not associated with this site must be properly abandoned according to CSR 47-60-19 of the Monitoring Well Regulations.

The results must be submitted to this office no later than May 7, 2002. Should you have any questions or comments, feel free to contact me at (304) 368-3950 or by e-mail at jmaurin@mail.dep.state.wv.us.

Sincerely,

Jim Maurin
Project Manager

PROJECT STATUS CHECKLIST

LEAK # 93-048 WV ID# 3604470 PRIORITY CODE I, now downgraded to a III
 OWNER NAME Naval Security Group Activity SITE NAME Naval Security Group (Public Work Dept)
 SITE LOCATION Rt 21 Sugar Grove
 INSPECTORS NAME John J. Snelberger DATE 3-25-93

*Place "X" in appropriate box. Must put a date in adjoining blank. Forward a copy of this sheet to Geologists after each entry for input into computer.

CODE

- 40 Confirmed release. 3-2-93
- 10 Cleanup initiated. 3-2-93
- 20 Site under control. 3-2 to 3-3-93
- 55 Free Product Found Yes No
- 56 Soil contaminated Yes No
- 57 Ground water contaminated Yes No
- 58 Drinking water source Yes No
- 59 Vapors in confined spaces Yes No Explosive levels Yes No
- 60 Site Investigation completed no
- 30 Site closure. no

Request for state assistance (state lead site) Original attached _____

11 Received 20 day report (280.62). 3/29/93 Original attached _____

12 Received 45 day report (280.63). 5/7/93 Original attached _____

12A Received free product report (280.64). _____ Original attached _____

13 Request for 280.65 report. 3-2-93

18 Request for 280.66 report. _____

13 Received 280.65 report. 5/7/93 Original attached _____

18 Received 280.66 report. _____ Original attached _____

Approved 280.66 report. _____

Implemented 280.66 plan. _____

Public notice date. _____

Request Monitoring reports. _____

Received monitoring reports. _____ Original attached _____

19 No further action required

COMMENTS: Clean Up initiated But not complete

MISCELLANEOUS REPORTS

MID-ATLANTIC
ASSOCIATES, INC.
Engineering & Environmental Solutions

409 Rogers View Court / Raleigh / North Carolina / 27610
800-486-7568 / 919-250-9918 / 919-250-9950 Facsimile
www.maaonline.com

November 24, 2004

Commander
Naval Facilities Engineering Command
Atlantic Headquarters, Environmental Division
Technical Support Branch
6506 Hampton Boulevard
Code: EV14LR
Norfolk, Virginia 23508-1278

Attention: Code EV14LR, Ms. Lori P. Reuther

Subject: **MONITORING WELL ABANDONMENT
USTS 201 AND 202
NAVAL SECURITY GROUP ACTIVITY
SUGAR GROVE, WEST VIRGINIA
WVDEP FACILITY NO.: 3604470
WVDEP RELEASE NO.: 93-048
NAVY CONTRACT NO. N62470-01-D-3009
MID-ATLANTIC JOB NO. 000R1243.98**

Dear Ms. Reuther:

Mid-Atlantic Associates, Inc. (Mid-Atlantic) is pleased to submit this summary of monitoring well abandonment at the Naval Security Group Activity site in Sugar Grove, West Virginia. This summary was developed based on site activities conducted on September 14, 2004, and was prepared in association with Delivery Order No. 115, issued to CATLIN Engineers & Scientists on July 29, 2004.

On September 14, 2004, Richard Simmons Drilling of Buchanan Virginia, under the direction of Mid-Atlantic abandoned monitoring wells MW-1, MW-2, MW-3, MW-4, MW-5 and MW-6. These monitoring wells were abandoned in accordance with the Code of State Rules 47CSR60 Section 47-60-19 Subsection 19.2 by removing the flush mounted protective covers, cutting the riser off at least 30 inches below the ground surface, then sealed using a bentonite-cement grout.

Typically well abandonment records are submitted to the West Virginia Department of Environmental Protection (WVDEP) via WVDEP web site. Due to technical problem with the WVDEP web site the records could not be submitted electronically. Mr. Jared Whiting of Richard Simmons Drilling contacted WVDEP to resolve this matter. WVDEP faxed Mr.

Whiting one set of blank well abandonment forms for completion. These forms were copied to create six sets, were completed in duplicate and are attached. These forms should be mailed to Mr. Jim Maurin of the WVDEP. One copy is for Mr. Maurin records and the other will be forwarded to Ms. Ellen Herndon by Mr. Maurin. Mr. Maurin's mailing address is:

Attention Mr. Jim Maurin
West Virginia Department of Environmental Protection
2031 Pleasant Valley Road
Fairmont, WV 26554

Mid-Atlantic appreciates the opportunity to provide environmental services to NAVFA Atlantic and the Naval Security Group Activity on this project.

Sincerely,

MID-ATLANTIC ASSOCIATES, INC.



Wayne E. Randolph, Jr.
Environmental Scientist



Daniel H. Nielsen
Principal Engineer

Attachment

Cc: Mr. Steven Niethamer - NAVSECGRUACT Sugar Grove
Michael E. Mason, P.E. – Program Manager, CATLIN Engineers & Scientists

ATTACHMENT



Abandonment Documentation
Well Number: #4-1

>> Instructions for Use:



Abandoned By

Abandoned By (Name, Firm, Address):

Name: *Richard Simmons Well Drillers, Inc*

Line 1: *60 DRILL RIG DRIVE*

Line 2:

City: *BUCHANAN*

State: *VA*

Zip: *24066*

Phone: *540 254-2289*

Driller Certification: *WV #332*



Abandonment Documentation
Well Number *MW-1*

>> Instructions for Use:

Abandonment Information

Abandonment Type:

Borehole:
Monitoring Well: *MW-1*

Condition of Well: Good

Reason for Abandonment: *NFA*

Abandonment Date: *9/14/04* (mm/dd/yyyy)

Abandonment Procedure:

Material Used: *BENTONITE CEMENT GROUT.*

Procedure Used: *PUMP/TROMIE PIPE*

Total Well Depth: *13.5* ft. Height of Standing Water in Well: *~4* ft. (if dry put 0)

Annular Space Type: Permeable

Decontamination Procedure:

Special Circumstances: Number:



Abandonment Documentation
Well Number: MW-1

>> Instructions for Use:

Installation Date

Date Well Installed: (leave blank if unknown)

(mm/dd/yyyy) 3/1/1994

Driller's WV Certification No.

McCALLUM TESTING LAB.

WV Contractor License No.

McCALLUM TESTING LAB.



Abandonment Documentation
Well Number: MW-1

>> Instructions for Use:



Well Owner

Well Owner (Name, Firm, Address):

Owner: LANTDIV NAVFACE.COM.

Line 1: 63 HENRICK DRIVE

Line 2:

City: SUGAR GROVE

State: WV

Zip: 26815

Phone: 304 249-6341



Abandonment Documentation
Well Number: *MW-1*

>> Instructions for Use:

Geographic Information

Grid Location:

Latitude: *30° 34' 11.15 N.*

Longitude: *79° 16' 34.06 W.*

Method Used: *GIS ARC VIEW*

Company/Project Well Number:

MW-1



Abandonment Documentation
Well Number MW-2

>> Instructions for Use:



Abandoned By

Abandoned By (Name, Firm, Address):

Name: Richard Simmons Well Drillers, Inc
Line 1: 60 Drill Rig Drive
Line 2:
City: Buchana
State: VA
Zip: 24066
Phone: 540 254-2289
Driller Certification: WV00332



Abandonment Documentation
Well Number *MW-2*

>> Instructions for Use:

Abandonment Information

Abandonment Type:

Borehole:

Monitoring Well: *MW-2*

Condition of Well: Good

Reason for Abandonment: *NFA*

Abandonment Date: *9/14/04* (mm/dd/yyyy)

Abandonment Procedure:

Material Used: *BENTONITE CEMENT GROUT.*

Procedure Used: *PUMP/TROMB PIP*

Total Well Depth: *11.5* ft. Height of Standing Water in Well: *~4* ft. (if dry put 0)

Annular Space Type: Permeable

Decontamination Procedure:

Special Circumstances: Number:



Abandonment Documentation
Well Number MW-2

>> Instructions for Use:

Installation Date

Date Well Installed: (leave blank if unknown)
 (mm/dd/yyyy) 3/1/1994

Driller's WV Certification No.
McCallum Testers Lab.

WV Contractor License No.
McCallum Testers Lab.



Abandonment Documentation
Well Number: MW-2

>> Instructions for Use:



Well Owner

Well Owner (Name, Firm, Address):

Owner: LANTDIV NAVFACENJCOM.

Line 1: 63 HENDRICK DRIVE

Line 2:

City: SUGAR GROVE

State: WV

Zip: 26815

Phone: 304 249-6341



Abandonment Documentation
Well Number: *MW-2*

>> Instructions for Use:

Geographic Information

Grid Location:

Latitude: *38° 34' 11.45" N*

Longitude: *79° 16' 33.06" W*

Method Used: *GIS ARCVIEW.*

Company/Project Well Number:



Abandonment Documentation
Well Number MW-3

>> Instructions for Use:



Abandoned By

Abandoned By (Name, Firm, Address):

Name: *Richard Simmons Well Drilling, Inc*

Line 1: *60 DRILL RIG DRIVE*

Line 2:

City: *BUCHANNA*

State: *VA*

Zip: *24066*

Phone: *540 254-2289*

Driller Certification: *WV 00332*



Abandonment Documentation
Well Number MW-3

>> Instructions for Use:

Abandonment Information

Abandonment Type:

Borehole:
Monitoring Well: MW-3

Condition of Well: Good

Reason for Abandonment: NFA

Abandonment Date: 9/14/04 (mm/dd/yyyy)

Abandonment Procedure:

Material Used: BENTONITE CEMENT GROUT.

Procedure Used: PUMP/TROMIE PIPE

Total Well Depth: 7 ft. Height of Standing Water in Well: \approx 6 ft. (If dry put 0)

Annular Space Type: Permeable

Decontamination Procedure:

Special Circumstances: Number:



Abandonment Documentation
Well Number: MW-3

>> Instructions for Use:

Installation Date

Date Well Installed: (leave blank if unknown)

(mm/dd/yyyy) 3/2/1994

Driller's WV Certification No.

McCallum Testing Lab.

WV Contractor License No.

McCallum Testing Lab.



Abandonment Documentation
Well Number: MW-3

>> Instructions for Use:



Well Owner

Well Owner (Name, Firm, Address):

Owner: LANTDIV NAVFACENGLON.

Line 1: 63 HENDRICK DRIVE

Line 2:

City: SUMMERS

State: WV

Zip: 26815

Phone: 304 249-6341



Abandonment Documentation
Well Number: MW-3

>> Instructions for Use:

Geographic Information

Grid Location:

Latitude: 38°34'12.29 N

Longitude: 79°16'35.16 W

Method Used: GIS ARC VIEW

Company/Project Well Number:

MW-3



Abandonment Documentation
Well Number MW-4

>> Instructions for Use:



Abandoned By

Abandoned By (Name, Firm, Address):

Name: *Richard Simmons Well Drilling, Inc*

Line 1: *60 DRILL RIG DRIVE*

Line 2:

City: *BUCHANAN*

State: *VA*

Zip: *24066*

Phone: *540 254-2289*

Driller Certification: *WV00332*



Abandonment Documentation
Well Number MW-4

>> Instructions for Use:

Abandonment Information

Abandonment Type:

Borehole:
Monitoring Well: MW-4

Condition of Well: Good
Reason for Abandonment: NFA
Abandonment Date: 9/14/04 (mm/dd/yyyy)

Abandonment Procedure:

Material Used: BENTONITE CEMENT GROUT.
Procedure Used: PUMP/TREMIE PIPE
Total Well Depth: 8.9 ft. Height of Standing Water in Well: \approx 6 ft. (If dry put 0)
Annular Space Type: Permeable
Decontamination Procedure:
Special Circumstances: Number:



Abandonment Documentation
Well Number: MW-4

>> Instructions for Use:

Installation Date

Date Well Installed: (leave blank if unknown)

(mm/dd/yyyy) 3/2/1994

Driller's WV Certification No.

McCallum Testers Lab.

WV Contractor License No.

McCallum Testers Lab.



Abandonment Documentation
Well Number: MW-4

>> Instructions for Use:



Well Owner

Well Owner (Name, Firm, Address):

Owner: LANTRIV NAVFACEUS.COM

Line 1: 63 HENDRICK DRIVE

Line 2:

City: SUGAR GROVE

State: WV

Zip: 26815

Phone: 304 249-6341



Abandonment Documentation
Well Number: *MW-4*

>> Instructions for Use:

Geographic Information

Grid Location:

Latitude: *38° 34' 11.02" N*

Longitude: *79° 16' 34.44 W*

Method Used: *GIS ARC VIEW*

Company/Project Well Number:

MW-4



Abandonment Documentation
Well Number MW-5

>> Instructions for Use:



Abandoned By

Abandoned By (Name, Firm, Address):

Name: *Richard Simmons Well Drilling, Inc*

Line 1: *60 DRILL RIG DRIVE*

Line 2:

City: *BUCHANNA*

State: *VA*

Zip: *24066*

Phone: *540 254-2289*

Driller Certification: *WV 00332*



Abandonment Documentation
Well Number MW-5

>> Instructions for Use:

Abandonment Information

Abandonment Type:

Borehole:

Monitoring Well: MW-5

Condition of Well: Good

Reason for Abandonment: NFA

Abandonment Date: 9/14/04 (mm/dd/yyyy)

Abandonment Procedure:

Material Used: BENTONITE CEMENT GROUT.

Procedure Used: PUMP/TROMIE PIPE

Total Well Depth: 12 ft. Height of Standing Water in Well: \approx 5 ft. (If dry put 0)

Annular Space Type: Permeable

Decontamination Procedure:

Special Circumstances: Number:



Abandonment Documentation
Well Number: MW-5

>> Instructions for Use:

Installation Date

Date Well Installed: (leave blank if unknown)

(mm/dd/yyyy) 3/1/1994

Driller's WV Certification No.

McCAllum TESTING LAB.

WV Contractor License No.

McCAllum TESTING LAB.



Abandonment Documentation
Well Number *mw-5*

>> Instructions for Use:



Well Owner

Well Owner (Name, Firm, Address):

Owner: *LANTDIV NAVFACENCOM.*

Line 1: *63 HENDRICK DRIVE*

Line 2:

City: *SUGAR GROVE*

State: *WV*

Zip: *26815*

Phone: *304 249-6341*



Abandonment Documentation
Well Number: MW-5

>> Instructions for Use:

Geographic Information

Grid Location:

Latitude: 38° 34' 10.59" N

Longitude: 79° 16' 34.76" W

Method Used: G75 ARCVIEW

Company/Project Well Number:

MW-5



Abandonment Documentation
Well Number MW-6

>> Instructions for Use:



Abandoned By

Abandoned By (Name, Firm, Address):

Name: *Richard Simmons Well Drilling, Inc*

Line 1: *60 DRILL RIG DRIVE*

Line 2:

City: *BUCHANNA*

State: *VA*

Zip: *24066*

Phone: *540 254-2289*

Driller Certification: *WV 00332*



Abandonment Documentation
Well Number MW-6

>> Instructions for Use:

Abandonment Information

Abandonment Type:

Borehole:

Monitoring Well: MW-6

Condition of Well: Good

Reason for Abandonment: NFA

Abandonment Date: 9/14/04 (mm/dd/yyyy)

Abandonment Procedure:

Material Used: BENTONITE CEMENT GROUT.

Procedure Used: PUMP/TROMIE PIPE

Total Well Depth: 28 ft. Height of Standing Water in Well: ≈ 7.5 ft. (If dry put 0)

Annular Space Type: Permeable

Decontamination Procedure:

Special Circumstances: Number:



Abandonment Documentation
Well Number: MW-6

>> Instructions for Use:

Installation Date

Date Well Installed: (leave blank if unknown)

(mm/dd/yyyy) 4/18/96

Driller's WV Certification No.

BRADFORD ENV. DRILLING INC

WV Contractor License No.

BRADFORD ENV. DRILLING INC.



Abandonment Documentation
Well Number MW-6

>> Instructions for Use:



Well Owner

Well Owner (Name, Firm, Address):

Owner: LANTDIV NAVFALENG.COM.

Line 1: 63 HENDRICK DRIVE

Line 2:

City: SUGAR GROVE

State: WV

Zip: 26815

Phone: 304 249-6341



Abandonment Documentation
Well Number: *mw-6*

>> Instructions for Use:

Geographic Information

Grid Location:

Latitude: *38° 34' 11.55" N*

Longitude: *79° 16' 36.00 W*

Method Used: *GIS ARCView*

Company/Project Well Number:

MW-6



Abandonment Documentation
Well Number MW-1

>> Instructions for Use:



Abandoned By

Abandoned By (Name, Firm, Address):

Name: *Richard Simmons Well Drilling, Inc*

Line 1: *60 DRILL RIG DRIVE*

Line 2:

City: *BUCHANNA*

State: *VA*

Zip: *24066*

Phone: *540 254-2287*

Driller Certification: *WV 00332*

Abandonment Documentation
Well Number MW-1

>> Instructions for Use:

Abandonment Information

Abandonment Type:Borehole: Monitoring Well: MW-1Condition of Well: Good

Reason for Abandonment: NFA

Abandonment Date: 9/14/04 (mm/dd/yyyy)**Abandonment Procedure:**

Material Used: BENTONITE CEMENT GROUT.

Procedure Used: PUMP/TROMBIE PIPE

Total Well Depth: 13.5 ft. Height of Standing Water in Well: \approx 4 ft. (If dry put 0)Annular Space Type: Permeable **Decontamination Procedure:**Special Circumstances: Number:



Abandonment Documentation
Well Number: MW-1

>> Instructions for Use:

Installation Date

Date Well Installed: (leave blank if unknown)

(mm/dd/yyyy) 3/1/1994

Driller's WV Certification No.

McCullum Testis Lab.

WV Contractor License No.

McCullum Testis Lab.



Abandonment Documentation
Well Number MW-1

>> Instructions for Use:



Well Owner

Well Owner (Name, Firm, Address):

Owner: LANTDIV NAVFACENJ.COM.

Line 1: 63 HENDRICK DRIVE

Line 2:

City: SUGAR GROVE

State: WV

Zip: 26815

Phone: 304 249-6341



Abandonment Documentation
Well Number: *MW-1*

>> Instructions for Use:

Geographic Information

Grid Location:

Latitude: *30° 34' 11.15 N.*

Longitude: *79° 16' 34.06 W.*

Method Used: *GIS ARC VIEW*

Company/Project Well Number:

MW-1



Abandonment Documentation
Well Number MW-2

>> Instructions for Use:

Locate Address Q

Abandoned By

Abandoned By (Name, Firm, Address):

Name: Richard Simmons Well Drilling, Inc

Line 1: 60 Drill Rig Drive

Line 2:

City: BUCHANA

State: VA

Zip: 24066

Phone: 540 254-2289

Driller Certification: WV 332

Abandonment Documentation
Well Number *MW-2*

>> Instructions for Use:

Abandonment Information

Abandonment Type:Borehole: Monitoring Well: *MW-2*Condition of Well: Good Reason for Abandonment: *NFA*Abandonment Date: *9/14/04* (mm/dd/yyyy)**Abandonment Procedure:**Material Used: *BENTONITE CEMENT GROUT.*Procedure Used: *PUMP/TROMIE PIPE*Total Well Depth: *11.5* ft. Height of Standing Water in Well: *~4* ft. (if dry put 0)Annular Space Type: Permeable **Decontamination Procedure:**Special Circumstances: Number:



Abandonment Documentation
Well Number MW-2

>> Instructions for Use:

Installation Date

Date Well Installed: (leave blank if unknown)

(mm/dd/yyyy) 3/1/1994

Driller's WV Certification No.

McCallum Testing Lab.

WV Contractor License No.

McCallum Testing Lab.



Abandonment Documentation

Well Number MW-2

>> Instructions for Use:



Well Owner

Well Owner (Name, Firm, Address):

Owner: LANTRIV NAVFACENJ.COM.

Line 1: 63 HENDRICK DRIVE

Line 2:

City: SUGAR GROVE

State: WV

Zip: 26815

Phone: 304 249-6341



Abandonment Documentation
Well Number: *MW-2*

>> Instructions for Use:

Geographic Information

Grid Location:
Latitude: *38° 34' 11.45" N*
Longitude: *79° 16' 33.06" W*
Method Used: *GIS ARCVIEW.*
Company/Project Well Number:



Abandonment Documentation
Well Number MW-3

>> Instructions for Use:



Abandoned By

Abandoned By (Name, Firm, Address):

Name: *RICHARD SIMMONS Well Drilling, INC*

Line 1: *60 DRILL RIG DRIVE*

Line 2:

City: *BUCHANAN*

State: *VA*

Zip: *24066*

Phone: *540 254-2289*

Driller Certification: *WV 00332*



Abandonment Documentation
Well Number MW-3

>> Instructions for Use:

Abandonment Information

Abandonment Type:

Borehole:

Monitoring Well: MW-3

Condition of Well: Good

Reason for Abandonment: NFA

Abandonment Date: 9/14/04 (mm/dd/yyyy)

Abandonment Procedure:

Material Used: BENTONITE CEMENT GROUT.

Procedure Used: PUMP/TROMIE PIPE

Total Well Depth: 7 ft. Height of Standing Water in Well: \approx 6 ft. (if dry put 0)

Annular Space Type: Permeable

Decontamination Procedure:

Special Circumstances: Number:



Abandonment Documentation
Well Number MW-3

>> Instructions for Use:

Installation Date

Date Well Installed: (leave blank if unknown)

(mm/dd/yyyy) 3/2/1994

Driller's WV Certification No.

McCallum Testers Lab.

WV Contractor License No.

McCallum Testers Lab.



Abandonment Documentation

Well Number: MW-3

>> Instructions for Use:



Well Owner

Well Owner (Name, Firm, Address):

Owner: LANTDIV NAVFACENJ.COM.

Line 1: 63 HENDRICK DRIVE

Line 2:

City: SUGAR GROVE

State: WV

Zip: 26815

Phone: 304 249-6341



Abandonment Documentation
Well Number: MW-3

>> Instructions for Use:

Geographic Information

Grid Location:

Latitude: $38^{\circ}34'12.29\text{ N}$

Longitude: $79^{\circ}16'35.16\text{ W}$

Method Used: GIS ARCVIEW

Company/Project Well Number:

MW-3

DEP

Abandonment Documentation

Well Number MW-4

>> Instructions for Use:

 Locate Address 

Abandoned By

Abandoned By (Name, Firm, Address):

Name: *Richard Simmons Well Drilling, Inc*Line 1: *60 Drill Rig Drive*

Line 2:

City: *BUCHANNA*State: *VA*Zip: *24066*Phone: *540 254-2289*Driller Certification: *WV 00332*

Abandonment Documentation
Well Number MW-4

>> Instructions for Use:

Abandonment Information

Abandonment Type:Borehole: Monitoring Well: MW-4Condition of Well: Good

Reason for Abandonment: NFA

Abandonment Date: 9/14/04 (mm/dd/yyyy)**Abandonment Procedure:**

Material Used: BENTONITE CEMENT GROUT.

Procedure Used: PUMP/TROMIE PIPE

Total Well Depth: 8.9 ft. Height of Standing Water in Well: \approx 6 ft. (If dry put 0)Annular Space Type: Permeable **Decontamination Procedure:**Special Circumstances: Number:



Abandonment Documentation
Well Number: MW-4

>> Instructions for Use:

Installation Date

Date Well Installed: (leave blank if unknown)

(mm/dd/yyyy) 3/2/1994

Driller's WV Certification No.

McCallum Testing Lab.

WV Contractor License No.

McCallum Testing Lab.



Abandonment Documentation
Well Number: MW-4

>> Instructions for Use:



Well Owner

Well Owner (Name, Firm, Address):

Owner: LANTDIV NAVFACENJCOM.

Line 1: 63 HENDRICK DRIVE

Line 2:

City: SUGAR GROVE

State: WV

Zip: 26815

Phone: 304 249-6341



Abandonment Documentation
Well Number: *MW-4*

>> Instructions for Use:

Geographic Information

Grid Location:

Latitude: *38° 34' 11.02" N*

Longitude: *79° 16' 34.44W*

Method Used: *GIS ARC VIEW*

Company/Project Well Number:

MW-4



Abandonment Documentation
Well Number MW-5

>> Instructions for Use:



Abandoned By

Abandoned By (Name, Firm, Address):

Name: *Richard Simmons Well Drilling, Inc*

Line 1: *60 DRILL RIG DR*

Line 2:

CITY: *BUCHANNA*

State: *VA*

Zip: *24066*

Phone: *540 254-2289*

Driller Certification: *WV 00332*



Abandonment Documentation

Well Number MW-5

>> Instructions for Use:

Abandonment Information

Abandonment Type:Borehole: Monitoring Well: MW-5Condition of Well: Good

Reason for Abandonment: NFA

Abandonment Date: 9/14/04 (mm/dd/yyyy)**Abandonment Procedure:**

Material Used: BENTONITE CEMENT GROUT.

Procedure Used: PUMP/TROMIE PIPE

Total Well Depth: 12 ft. Height of Standing Water in Well: \approx 5 ft. (if dry put 0)Annular Space Type: Permeable **Decontamination Procedure:**Special Circumstances: Number:



Abandonment Documentation
Well Number: MW-5

>> Instructions for Use:

Installation Date

Date Well Installed: (leave blank if unknown)

(mm/dd/yyyy) 3/1/1994

Driller's WV Certification No.

McCallum Testing Lab.

WV Contractor License No.

McCallum Testing Lab.



Abandonment Documentation
Well Number *mw-5*

>> Instructions for Use:



Well Owner

Well Owner (Name, Firm, Address):

Owner: *LANTDIV NAVFACENJCOM.*

Line 1: *63 HENDRICK DRIVE*

Line 2:

City: *SUGAR GROVE*

State: *WV*

Zip: *26815*

Phone: *304 249-6341*



Abandonment Documentation
Well Number: MW-5

>> Instructions for Use:

Geographic Information

Grid Location:

Latitude: 38° 34' 10.59" N

Longitude: 79° 16' 34.76" W

Method Used: G75 ARCVIEW

Company/Project Well Number:

MW-5



Abandonment Documentation
Well Number MW-6

>> Instructions for Use:



Abandoned By

Abandoned By (Name, Firm, Address):

Name: *Richard Simmons Well Drilling, Inc*

Line 1: *60 DRILL RIG DRIVE*

Line 2:

City: *BUCHANAN*

State: *VA*

Zip: *24066*

Phone: *540 254-2287*

Driller Certification: *WV00332*

Abandonment Documentation
Well Number MW-6

>> Instructions for Use:

Abandonment Information

Abandonment Type:Borehole: Monitoring Well: MW-6Condition of Well: Good

Reason for Abandonment: NFA

Abandonment Date: 9/14/04 (mm/dd/yyyy)**Abandonment Procedure:**

Material Used: BENTONITE CEMENT GROUT.

Procedure Used: PUMP/TROMIE PIPE

Total Well Depth: 28 ft. Height of Standing Water in Well: ≈ 7.5 ft. (if dry put 0)Annular Space Type: Permeable **Decontamination Procedure:**Special Circumstances: Number:



Abandonment Documentation
Well Number: MW-6

>> Instructions for Use:

Installation Date

Date Well Installed: (leave blank if unknown)

(mm/dd/yyyy) 4/18/96

Driller's WV Certification No.

BRADFORD ENV. DRILLING INC

WV Contractor License No.

BRADFORD ENV. DRILLING INC.



Abandonment Documentation
Well Number: *mw-6*

>> Instructions for Use:

Geographic Information

Grid Location:

Latitude: *38° 34' 11.55" N*

Longitude: *79° 16' 36.00 W*

Method Used: *GIS ARCVIEW*

Company/Project Well Number:

MW-6

Encl 1

① Section 6.4: (see notes on page 12)
continue to monitor GW 1/4/y for 1 yr.

REC'D JUN 11 2002

② Are there currently active tanks at this location now?

DRAFT
SITE ASSESSMENT ADDENDUM
Underground Storage Tank Site 201/202
Naval Security Group Activity
Sugar Grove, West Virginia
Leak ID # 93-048
WV ID# 360 4470

Prepared for:

Atlantic Division
Naval Facilities Engineering Command
Norfolk, Virginia
Contract No: N62470-93-D-4019
Delivery Order 0047

Prepared by:

Environmental Science & Engineering, Inc.
Herndon, Virginia

August 1996

ESE Project No. 2196075G-2090-2100

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1.0 Introduction

The Atlantic Division, Naval Facilities Engineering Command (LANTNAVFACENGCOM) contracted Environmental Science and Engineering, Inc. (ESE) on 15 March 1996 to perform additional site assessment activities for the Building 201/202 underground storage tank (UST) site, Naval Security Group Activity (NSGA), Sugar Grove, West Virginia (Figure 1-1). The additional site assessment activities were performed to further delineate and define hydrocarbon contamination at the subject site. ESE performed the initial site assessment for the site in November 1995. This Site Assessment Addendum has been prepared based on information collected during ESE's additional site assessment activities and from the Final Site Assessment Report (ESE, 1996a)

Underground storage tanks (USTs) 201 and 202 are located southeast of Building 22 of the NSGA Sugar Grove Support Site on Sugar Grove Road in Pendleton County, West Virginia (Figure 1-2). UST 201 is a 2000-gallon diesel fuel tank, and UST 202 is a 4000-gallon gasoline tank used to fuel military vehicles. Both are single-walled, fiberglass-reinforced plastic (FRP) tanks installed in 1986 to replace two steel USTs that had reportedly leaked. The former fuel lines and pump island were removed and replaced with a new pump island and piping located north of the USTs. During tank construction/replacement activities in 1993, hydrocarbon odors were noted near the pump island. The West Virginia Department of Environmental Protection (WVDEP) issued a Confirmed Release Notice to Comply on 2 March 1993.

This supplemental site assessment incorporates the results of the additional site assessment activities, as well as fate and transport modeling. This Supplemental Site Assessment has been prepared in accordance with requirements set forth in the WVDEP Leaking Underground Storage Tank (LUST) regulations (Section 280.65) and the West Virginia Guidance Document for LUST Site Assessments and Corrective Actions (WVDEP, 1994). The supplemental assessment methodology is presented in Section 2.0, the results of the additional assessment activities are presented in Section 3.0, and the Summary of Findings and Conclusions (including fate and transport modeling) are presented in Sections 4.0 and 5.0, respectively. The rationale for technology selection and the engineering design plan are presented in Sections 4.0 and 5.0. In accordance with the West Virginia Guidance Document for LUST Site Assessments and Corrective Actions (WVDEP, 1994), the Site Description section is not included, the Introduction includes a short summary of the results of the Primary Site Assessment, and the Conclusions and Recommendations Sections consider all investigations undertaken.

1.1 Previous Studies

In April 1993, phase-separated hydrocarbon (PSH) was observed infiltrating the wall of an excavation north of the site. Groundwater Technology Government Services (GTI) completed an eight-well site

check in April 1993 (GTI, 1993). Twelve soil borings were drilled, and monitor wells were installed in four of the borings. Benzene, toluene, ethylbenzene, and total xylene (BTEX) concentrations were detected in soil samples collected from the soil borings installed on the southeast side of the site. BTEX was also detected in groundwater samples.

R.E. Wright Associates, Inc. (REWAI) completed a five-well extended site check in March 1994 to determine the extent of hydrocarbon impact to soil and groundwater at the site (REWAI, 1994). Analytical data indicated that soil and groundwater were impacted by BTEX and total petroleum hydrocarbon (TPH). Groundwater impact appeared to be limited to the area between the parking lot and Building 20, with the potential to migrate toward the South Fork of the South Branch Potomac River (approximately 200 feet west).

In July 1995, a LANTDIV contractor completed soil excavation in the vicinity of the former pump island (between Buildings 20 and 22). Vapor sampling results indicated hydrocarbon impact along the southwestern extent of the excavation.

One additional UST (200) was formerly located adjacent to the northwest side of Building 20. UST 200 was a 1000-gallon steel heating oil tank installed in 1975 to provide fuel to heat Building 20. The UST was removed in April 1995 and was found in sound condition with no holes or significant corrosion (GES, 1995). However, a small volume of heating oil discharged into the tank pit during removal of the vent pipe. Soil samples from the UST basin bottom, walls and excavated material ranged from non-detectable TPH to 763.3 milligrams per kilogram (mg/kg) and indicated the release was not weathered petroleum (i.e., suggesting a recent release). Approximately three cubic yards of soil was excavated during removal.

ESE performed a site assessment in October/November 1995. Field screening and laboratory analyses of soil samples indicated vapor-phase hydrocarbon (VPH) and adsorbed-phase hydrocarbon (APH) impact to soils proximal to the former tank pit; little to no impact was noted in soil remote to the former tank pit. No phase-separated hydrocarbon (PSH) impact to groundwater was detected, and dissolved-phase (DPH) impact above WVDEP cleanup levels to groundwater was only present in one well proximal to the former tank pit; benzene exceeded the cleanup level in that well.

The exposure assessment determined that DPH in groundwater was not expected to reach the South Fork due to natural degradation and attenuation, in addition to the low estimated groundwater velocity. Site visitors and adults working or recreating in Building 20 could be affected by immediate and long-term health problems because the potential existed for vapor migration to the building.

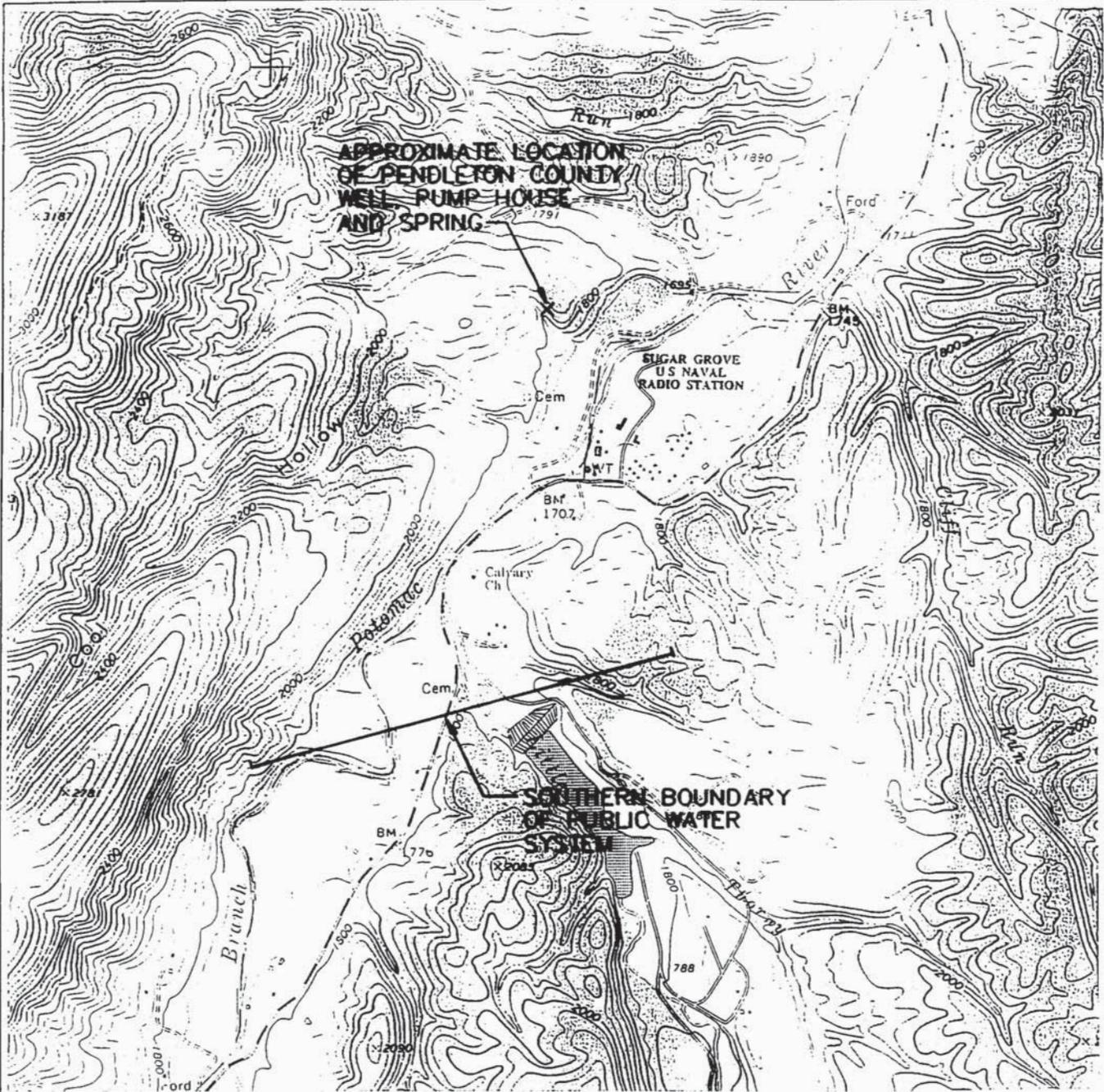
Vapor monitoring in the Building 20 basement was recommended to further evaluate potential VPH impact. Two new groundwater monitor wells were also recommended to be installed at the site. The wells were to evaluate the groundwater quality downgradient of MW-1 (1994) in the water table and

NOT
Regulated

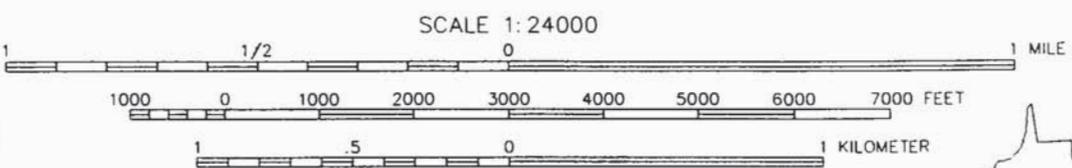
418.1!

#3
201
202

bedrock aquifers and potential DPH impact to the South Fork. Assuming that the new wells did not indicate DPH impact, no groundwater cleanup was recommended. No soil cleanup for APH was recommended as well, assuming that downgradient wells indicated no DPH impact to groundwater.



MN
 GN
 7'
 124 MILS
 1'03"
 19 MILS
 UTM GRID AND 1984
 MAGNETIC NORTH
 DECLINATION AT
 CENTER OF SHEET



CONTOUR INTERVAL 40 FEET
 NATIONAL GEODETIC VERTICAL DATUM OF 1929



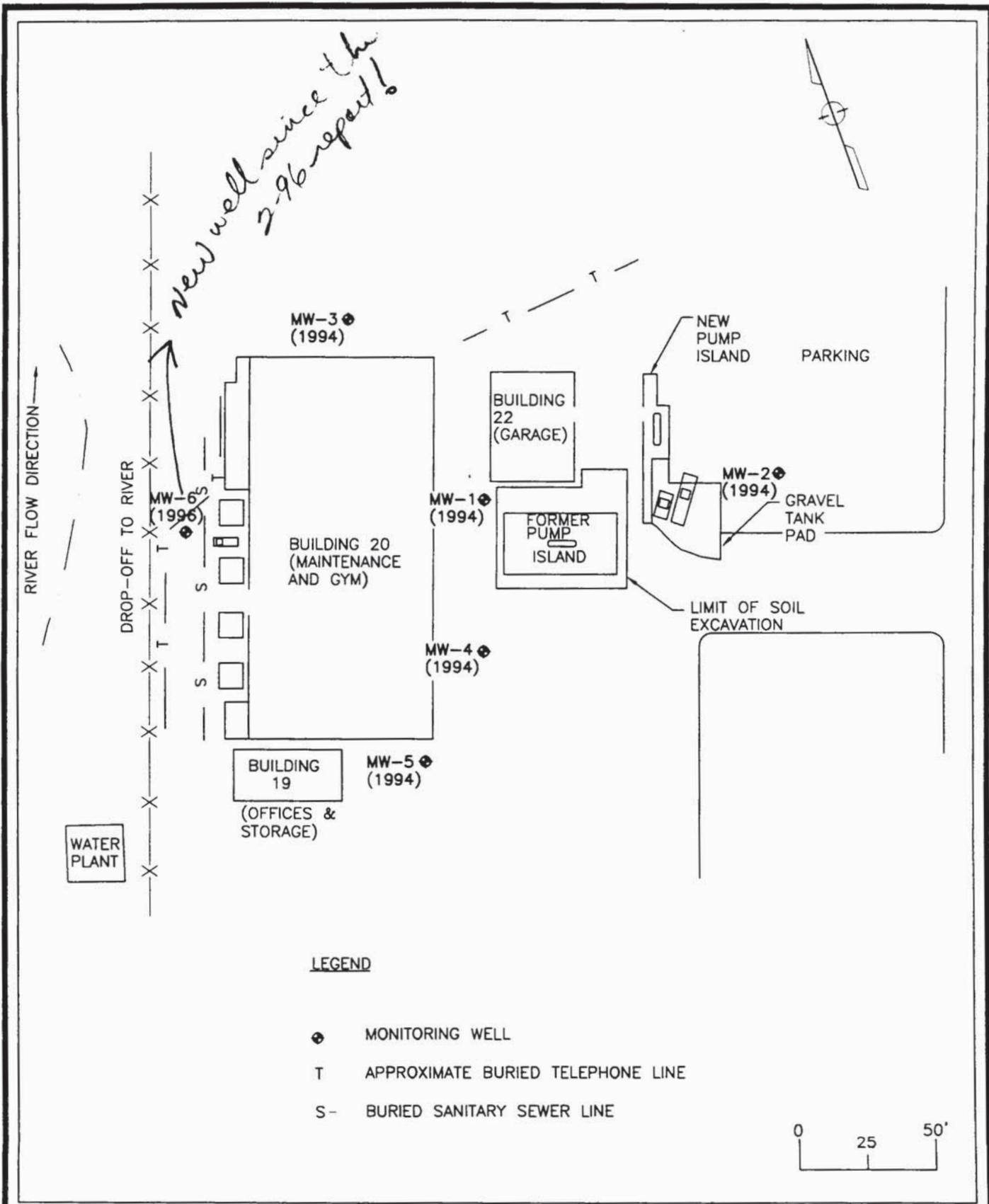
CIRCLEVILLE QUADRANGLE

QUADRANGLE LOCATION



**Environmental
 Science &
 Engineering**

DATE 06-12-96	SCALE SHOWN	TITLE SITE LOCATION & TOPOGRAPHIC MAP SUGAR GROVE, W. VA.	
DRAWN BY TJF	APPROVED BY	CLIENT NAVY-NSGA	FIGURE 1-1
JOB NO. 2196075G	DWG. NO./ REV. NO. SLT075G		



	DATE 7-5-96	SCALE 1" = 50'	TITLE SITE MAP USTs 201/202 NSGA SUGAR GROVE, WV.	
	DRAWN BY TJF	APPROVED BY		
	JOB NO. 2196075G-2019	DWG. NO./ REV. NO. SM75GB/-	CLIENT LANTDIV	FIGURE 1-2

2.0 Supplemental Assessment Methodology

The following section describes methods used during the field investigation. These methods were in accordance with the Work Plan (ESE, 1995) and Work Plan Addendum (ESE, 1996b) prepared for the investigation. Investigative results are discussed in Section 2.2.

2.1 Boring Installation

One soil boring (MW-6) was advanced 17 and 18 April 1996 by Bedford Environmental Drilling, Inc., Bedford, Virginia. Photodocumentation of the boring and monitor well installation is included in Appendix A. MW-6 is located west of Building 20, proximal to the South Fork, and downgradient of dissolved-phase hydrocarbon (DPH) impacted well MW-1 (1994) to further evaluate potential DPH impact to the South Fork (Figure 1-2). The boring was advanced using a solid-stem auger combined with an air rotary hammer. A 90 cfm Ingersol Rand air compressor was used to supply air pressure to the skid-mount Acker rotary drill.

Soil samples were not obtained for laboratory analyses due to the shallow depth at which split-spoon refusal was encountered. Compressed air use began at a depth of one (1) foot below ground surface. Organic vapor screening was not performed because the use of compressed air typically volatilizes any volatile organics present in the soil and rock. A drill log detailing boring lithology is included in Appendix B.

2.2 Monitor Well Installation

Groundwater monitor well MW-6 was completed 18 April 1996. MW-6 has a total depth of 28 feet and is constructed of 18 feet of 2-inch inner diameter (ID) flush-threaded Schedule 40 PVC well screen and 10 feet of riser casing. The well bottom was sealed with a 2-inch diameter threaded plug. A sand pack (No. 2 Virginia sand) was placed in the annular space of the 4-inch ID of boring to approximately 2 feet above the screened interval. A two-foot bentonite clay plug was placed above the sand pack and the remainder of the annular space was grouted to ground surface. A flush mount bolt-down manhole was built into a 2-feet by 2-feet by 0.5-foot concrete pad. The well was secured using a Master lock on the locking well cap. The well installation diagram is included in Appendix B.

2.3 Groundwater Sampling

The most recent sampling event of all onsite monitor wells (MW-1 through MW-6) was conducted on 19 April 1996 (Figure 1-2). Prior to sampling, the onsite wells were gauged with a decontaminated electronic interface probe accurate to 0.01 foot. Decontamination procedures included washing with a

Micro[®]/distilled water solution, triple-rinsing with distilled water, and air drying. Well MW-3 was dry and, from visual inspection, appeared to be partially filled with debris. Each well was then purged of approximately three well volumes of water using a decontaminated acrylic bailer. Recharge of wells was slow and wells were allowed to recharge overnight.

Groundwater samples were collected from monitor wells MW-1, MW-2, and MW-4 through MW-6 using factory-sealed disposable plastic bailers. Trip blanks and duplicate samples were collected and analyzed for quality control (QC) purposes. Samples were placed in the appropriate sized laboratory-supplied hydrochloric-acid preserved containers, labeled, secured on ice, and shipped under strict chain-of-custody control via Federal Express to ESE's Peoria, Illinois laboratory for analysis. Analyses included BTEX per EPA Method 8020 and total petroleum hydrocarbon (TPH) per EPA Method 8015. MW-2 was resampled 13 May 1996 employing the protocols described above based on conflicting analytical results between the 1 November 1995 and 19 April 1996 sampling events.

Liquid levels and top of casing elevations are presented in Section 3.0. Groundwater analytical results are also presented in Section 3.0. The MW-6 vertical elevation was surveyed in relation to MW-3. The remaining well elevations survey was conducted during the Extended Site Check (REWAI, 1994).

2.4 Waste Disposal

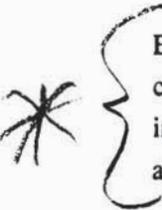
Soil cuttings were not collected during the drilling of MW-6. Bedrock was encountered almost immediately and the air rotary method pulverized the stone into fine dust particulates. The majority of the particulates could not be collected. The few remaining cuttings were spread out in the vicinity of MW-6.

Groundwater from the development of MW-6 and the 19 April 1996 groundwater sampling event was collected and stored in a DOT-approved, 55-gallon drum located onsite. The drum was picked up and transported to the Clean Harbors, Inc. recycling facility in Hopewell, Virginia by an ESE technician on 12 June 1996. A copy of the "Bill of Lading" is included in Appendix C.

2.5 Vapor Monitoring and Sampling

Vapor monitoring and sampling was performed in the basement of Building 20 to evaluate vapor-phase hydrocarbon (VPH) impact. Based on the elevated benzene, toluene, ethylbenzene, and total xylenes (BTEX) concentrations detected in MW-1 proximal to building 20 and the shallow groundwater table, the site assessment suggested potential risk to human health via inhalation of volatilized hydrocarbons.

The basement floor is predominantly used for storage. However, the basement also houses a physical fitness and weight room, office space, boiler room, and one section is under construction for additional office space.



ESE scanned the entire basement floor of Building 20 on 17 April 1996 for volatile organic compounds (VOCs) using an organic vapor analyzer (OVA), which uses flame ionization. The instrument was calibrated and set to 0 prior to scanning the basement floor. Organic vapor readings and locations are included with vapor monitoring analytical results in Section 3.0.

Because VOC levels were above background concentrations, a vapor sample (V-1) was obtained from the boiler room for benzene analysis. The sample was collected in a Tenax tube using a low flow sampling pump. The pump was calibrated to a flow rate of 1.8 liters per minute (LPM). The sampling event was timed for 44 minutes to allow a total volume of 79.2 liters of air to flow through the sampling tube.

Once sampling was complete, the pump was shut off, the sampling assembly was dismantled, and threaded end caps were used to seal the tube. The tube was protected with bubble pack, placed in shipping cooler, preserved with ice, and shipped priority overnight using standard chain of custody and quality assurance controls to ESE's Denver laboratory for benzene analysis in accordance with EPA Method TO-1.

2.6 Aquifer Test Procedures

A rising head slug test was performed 19 April 1996 in MW-2 because it contained the greatest water column of all the onsite wells. A slug test consists of instantaneously raising or lowering the water level in a well and monitoring the recovery of the water level over time. The test is performed by rapidly introducing, withdrawing, or displacing a volume of well water. The term "rising head test" refers to a withdrawal test in which the water level is suddenly lowered and then monitored while it returns or rises to its initial level.

Prior to testing, the static water level and the total depth MW-2 was measured using an electronic interface probe. A pressure transducer was lowered to the bottom of the well and cabled to a datalogger. The datalogger was programmed to record water levels from the pressure transducer at logarithmically decreasing intervals. After pretest measurements, a decontaminated bottom filling bailer was rapidly lowered into the water column and immediately retrieved to start the rising head test.

Hydraulic conductivity (K) in the vicinity of MW-2 was estimated using methodology developed by Bouwer and Rice (1976) and updated by Bouwer (1989). The hydraulic gradient was calculated from the April 1996 Groundwater Gradient Map (Figure 3-2) between and perpendicular to the contours.

The groundwater velocity was calculated using the following equation assuming a porosity of approximately 30% for clay and silty clay (Fetter, 1988).

$$V = \frac{Kdh}{ndl}$$

Where: V = Darcian velocity
K = hydraulic conductivity
dh/dl = hydraulic gradient
n = porosity

Aquifer test results are presented in Section 3.0.

3.0 Data Presentation and Documentation

3.1 OVA Field Screening Results

Organic vapor screening was not performed during the installation of MW-6 (17 and 18 April 1996). The use of compressed air typically volatilizes any volatile organics present in the soil and rock. OVA field screening was performed during previous boring installation and is presented in Table 3-1.

Table 3-1. OVA Scans During Direct Push Penetrations

Depth (ft)	SB-13	SB-14	SB-15	SB-16	SB-17	SB-18	SB-19	SB-20	SB-21
0-4	700	220	> 1000	0	200	25	0	6	0
4-8	> 1000	800	> 1000	0	450	10	0	7	0
8+	--	--	--	0	960	--	--	--	--

Depth (ft)	SB-22	SB-23	SB-24	SB-25	SB-26	SB-27	SB-28	SB-29
0-4	0	280	450	> 1000	0	0	0	0
4-8	0	20	> 1000	> 1000	0	0	0	--

OVA readings in part per million (ppm).

3.2 Soil Analytical Results

Soil samples were not obtained for laboratory analyses during installation of MW-6 due to the shallow depth at which split-spoon refusal was encountered. Soil laboratory analyses for previous boring installations are presented in Table 3-2 and Appendix D.

Table 3-2. Summary of Soil Analytical Results, TPH EPA Method 8015 Modified (mg/kg)

Boring Number	Sampling Depth (feet)	TPH (diesel)	TPH (gasoline)	Detection Limit (diesel/gasoline)
SB-13	0-4	< 13	8.6	10/0.1
SB-13	4-8	< 13	600	10/0.1
SB-14	0-4	< 12	0.27	10/0.1
SB-14	4-8	< 12	170	10/0.1
SB-15	1-5	< 12	56	10/0.1
SB-15	5-7.5	< 12	15	10/0.1
SB-16	1-5	< 12	< 0.12	10/0.1
SB-16	5-8.5	< 12	< 0.12	10/0.1
SB-17	4-8	< 12	< 0.12	10/0.1
SB-17	8-10	< 12	< 0.12	10/0.1
SB-18	0-4	< 13	0.34	10/0.1
SB-18	4-7.5	< 13	0.13	10/0.1
SB-19	0-4	< 12	0.14	10/0.1
SB-19	4-6.5	< 12	0.12	10/0.1
SB-20	0-4	< 13	< 0.13	10/0.1
SB-20	4-8	< 12	< 0.12	10/0.1
SB-21	0-4	< 12	< 0.12	10/0.1
SB-21	4-8	< 12	< 0.12	10/0.1
SB-22	0-4	< 13	< 0.13	10/0.1
SB-22	4-7.5	< 12	< 0.12	10/0.1
SB-23	0-2	< 13	< 0.13	10/0.1
SB-23	4-8	< 12	0.27	10/0.1
SB-24	0-4	< 12	1.5	10/0.1
SB-24	4-8	< 12	22	10/0.1
SB-25	0-4	< 12	3.9	10/0.1
SB-25	4-8	< 12	29	10/0.1
SB-26	0-4	< 12	< 0.12	10/0.1

Boring Number	Sampling Depth (feet)	TPH (diesel)	TPH (gasoline)	Detection Limit (diesel/gasoline)
SB-26	4-8	< 12	< 0.12	10/0.1
SB-27	0-4	< 13	< 0.13	10/0.1
SB-27	4-8	< 13	< 0.13	10/0.1
SB-28	0-4	< 12	< 0.12	10/0.1
SB-28	4-6	< 12	< 0.12	10/0.1
SB-29	0-3	< 11	< 0.11	10/0.1

3.3 Groundwater Analytical Results

Groundwater samples collected on 19 April 1996 indicated BTEX (8020) and TPH (8015) were BDL in MW-4, MW-5, and MW-6. Naphthalene (8020) was BDL in all wells with the exception of MW-2 (0.021 mg/l). Methyl-tert-butyl-ether (MTBE, 8020) was detected in all wells except MW-6 and ranged from 0.012 milligrams per liter (mg/l) in MW-5 to 0.150 mg/l in MW-2. WVDEP does not currently have clean-up levels for naphthalene or MTBE.

Toluene, ethylbenzene, and total xylenes measured were detected in MW-1 and MW-2 below the WVDEP clean-up levels 1.0, 0.7, and 10.0 mg/l, respectively. Benzene measured above the clean-up level (0.005 mg/l) at 0.039 mg/l in MW-1 and 0.032 in MW-2. TPH measured 1.9 mg/l in MW-1 and BDL in MW-2. Groundwater analytical results for the most recent sampling event and previous groundwater sampling are presented in Figure 3-2, Appendix D, and Table 3-3.

Table 3-3. Summary of Laboratory Analyses for Groundwater Samples (in mg/l)

Compound	Sample										
	MW-1 (1 Nov 1995)	MW-1 (19 Apr 1996)	MW-2 (1 Nov 1995)	MW-2 (19 Apr 1996)	MW-2 Dup. (19 Apr 1996)	MW-2 (13 May 1996)	MW-4 (1 Nov 1995)	MW-4 (19 Apr 1996)	MW-5 (1 Nov 1995)	MW-5 (19 Apr 1996)	MW-6 (19 Apr 1996)
Benzene	0.073	0.039	<0.001	0.032	0.033	0.032	<0.001	<0.010	<0.001	<0.010	<0.010
Toluene	0.008	0.019	<0.001	<.005	<0.005	<0.050	<0.001	<0.010	<0.001	<0.010	<0.010
Ethylbenzene	0.059	0.077	<0.001	0.014	0.014	0.090	<0.001	<0.010	<0.001	<0.010	<0.010
Total Xylenes	0.042	0.180	<0.001	0.006	0.006	<0.050	<0.001	<0.010	<0.001	<0.010	<0.010
MTBE	NA	0.088	NA	0.150	0.150	0.150	NA	0.024	NA	0.012	<0.050
Naphthalene	NA	0.021	NA	<0.025	<0.025	<0.025	NA	<0.050	NA	<0.050	<0.050
TPH	1.6	1.9	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5

Note: BTEX, MTBE, and naphthalene (8020) and TPH (8015) in mg/l
 NA = Not Analyzed

Handwritten: MQL's need to be lower for

- ① Benzene 0.005
- ② MTBE 0.010
- ③ Naphthalene 0.005

3.4 Vapor Monitoring Analytical Results

Organic vapor readings for the basement floor of Building 20 are presented in Figure 3-2. Readings ranged from 0 throughout the occupied section of the basement, to 25 parts per million (ppm) in the boiler room. Laboratory analysis indicated a total of 604 nanograms of benzene was present in the Tenax tube sample V-1 taken from the boiler room. A total sample of 79.2 liters was collected. Converting the concentration into ppm, the benzene concentration was approximately 0.024 ppm which is below the OSHA Permissible Exposure Limit (PEL) of 1 ppm and the NIOSH Recommended Exposure Limit (REL) of 0.1 ppm. Tenax tube analytical results are included in Appendix D.

3.5 Groundwater Gauging

During the most recent field investigation, the six onsite monitor wells were gauged with a decontaminated electronic interface probe accurate to 0.01 foot. Groundwater typically occurred at elevations of approximately 92 to 97 feet msl during the April 1996 liquid level measurements. Groundwater onsite appears to flow to the west at a gradient of 0.018 foot/foot between Building 20 and the South Fork and at a gradient of 0.028 foot/foot between the new pump island and Building 20. Historic groundwater elevations, including the most recent data, are presented in Table 3-4. A groundwater gradient map is presented in Figure 3-3.

3.6 Aquifer Testing

A hydraulic conductivity (K) of 0.27 feet/day was estimated in the vicinity of MW-2. Slug test results are included in Appendix E. A velocity of 9.2 feet/year was calculated using the following equation and data:

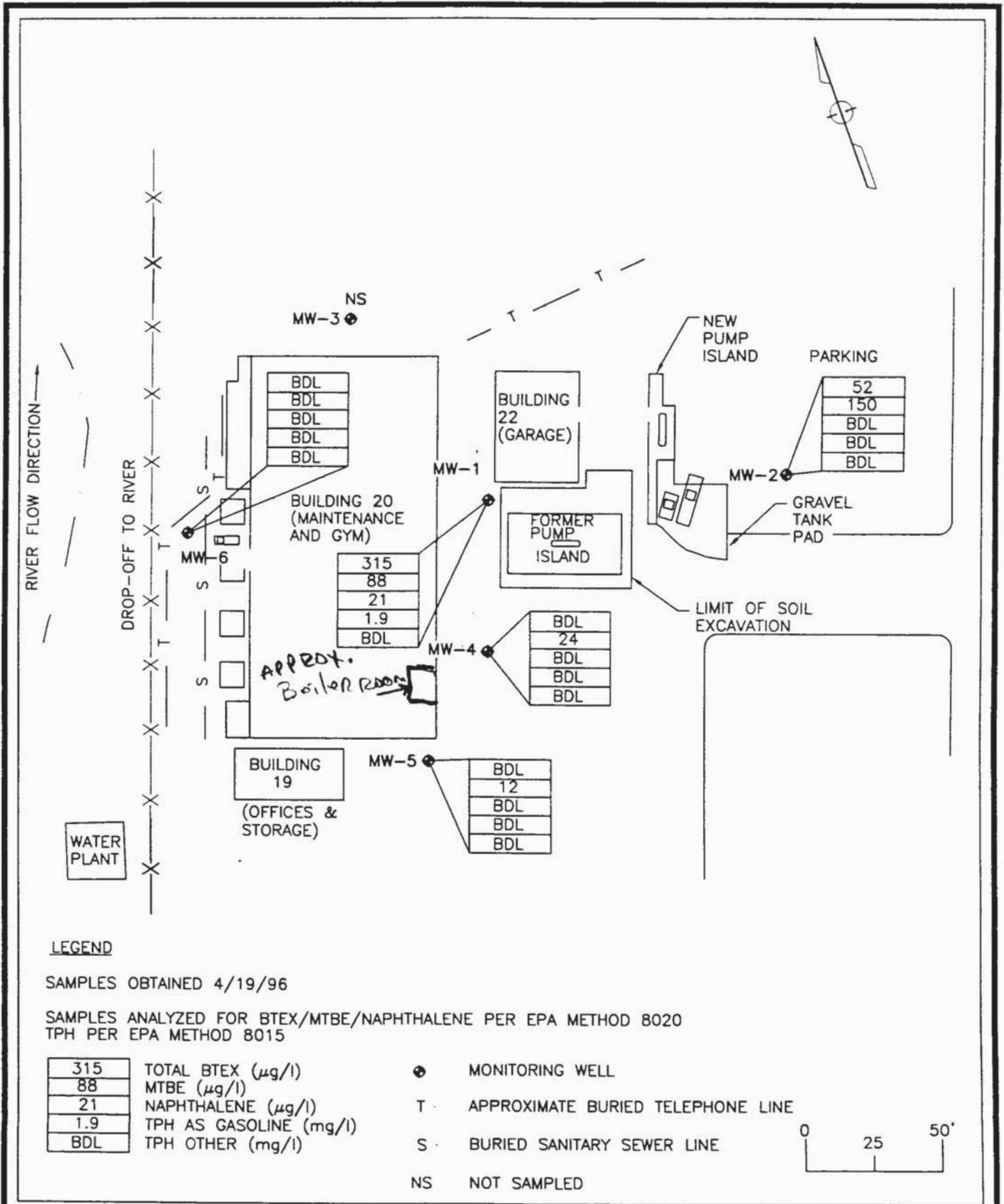
$$V = \frac{Kdh}{ndl}$$

Where:

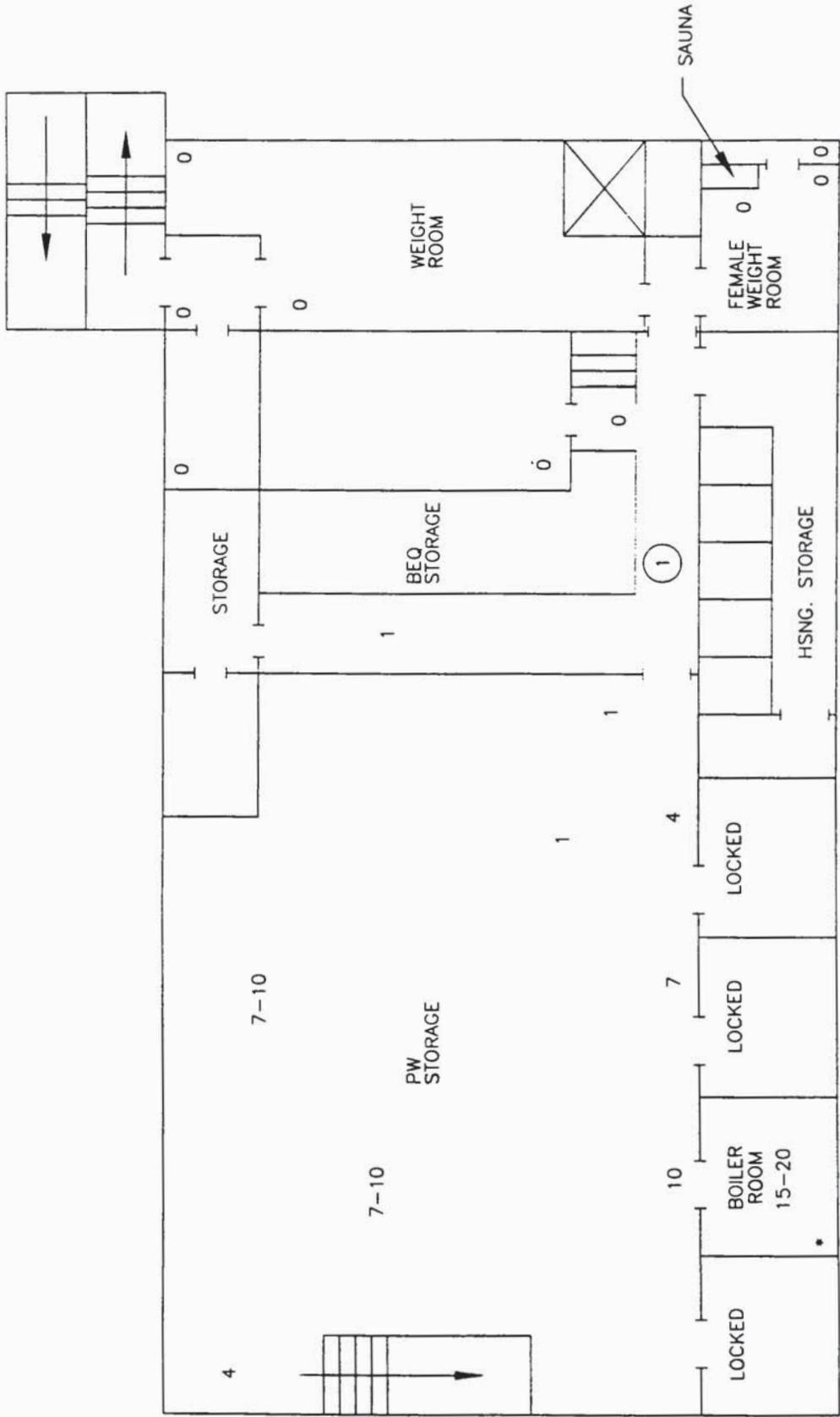
V	=	Darcian velocity
K	=	hydraulic conductivity (0.27 feet/day)
dh/dl	=	hydraulic gradient (0.028 foot/foot near MW-2)
n	=	porosity (30%)

Table 3-4. Historical Groundwater Elevations

Well ID	Date	Top of Casing Elevation (feet)	Depth to Water (feet)	Depth to Product (feet)	Groundwater Surface Elevation (feet)
MW-1	3/12/94	99.97	3.65	NA	96.32
	10/31/95		5.64	NA	94.33
	4/17/96		4.65	NA	95.32
	4/18/96		4.78	NA	95.19
	5/13/96		3.89	NA	96.08
MW-2	3/12/94	102.14	3.37	NA	98.77
	10/31/95		4.72	NA	97.42
	4/17/96		4.83	NA	97.31
	4/18/96		5.00	NA	97.14
	5/13/96		4.03	NA	98.11
MW-3	3/12/94	99.77	5.41	NA	94.36
	10/31/95		Dry	NA	--
	4/17/96		Dry	NA	--
	4/18/96		Dry	NA	--
	5/13/96		Dry	NA	--
MW-4	3/12/94	100.29	5.89	NA	94.40
	10/31/95		5.7	NA	94.59
	4/17/96		3.65	NA	96.64
	4/18/96		3.71	NA	96.58
	5/13/96		3.55	NA	96.74
MW-5	3/12/94	100.29	5.2	NA	95.09
	10/31/95		8.74	NA	91.55
	4/17/96		8.68	NA	91.61
	4/18/96		8.60	NA	91.69
	5/13/96		6.29	NA	94.00
MW-6	4/18/96	97.59	22.23	NA	75.36
	5/13/96		17.42	NA	80.17
NOTES: Data from 3/12/94 obtained by R.E. Wright. Survey references an arbitrary datum attributed by R.E. Wright and Associates.					



	DATE	3-29-96	SCALE	1" = 50'	TITLE		GROUNDWATER VOCs AND TPH CONCENTRATION MAP USTs 201/202 NSGA SUGAR GROVE, WV.	
	DRAWN BY	TJF	APPROVED BY					
	JOB NO.	2196075G-2019	DWG. NO / REV. NO.	GW75GB	CLIENT	LANTDIV	FIGURE	3-1
	Environmental Science & Engineering							



VAPOR SCANS RECORDED 4/17/96 USING PHOTO IONIZATION DETECTOR
 READINGS IN PARTS PER MILLION

•TENAX TUBE SAMPLE OBTAINED 4/18/96

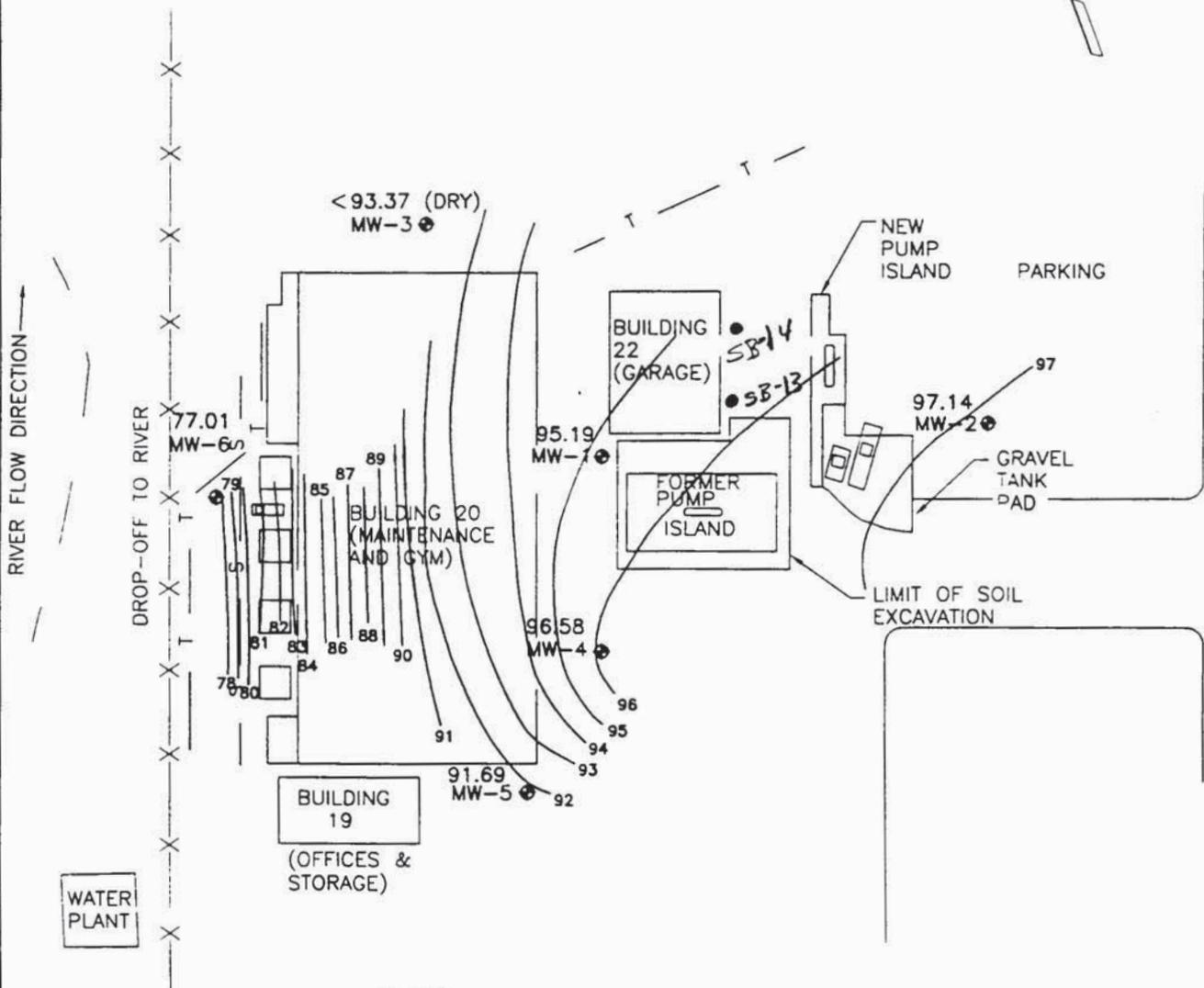


Environmental
 Science &
 Engineering

DATE	7-5-96	SCALE	N.T.S.	TITLE	VAPOR MONITORING LOCATIONS AND RESULTS
DRAWN BY	EJM	APPROVED BY			BUILDING 20 BASEMENT
JCS NO	2196075G-2019	DWG NO / REV. NO	BV75GB	CLIENT	NSGA SUGAR GROVE, WV

FIGURE
 3-2

LANTDIV



LEGEND

- ⊕ MONITORING WELL
- T APPROXIMATE BURIED TELEPHONE LINE
- S BURIED SANITARY SEWER LINE

CONTOUR INTERVAL = 1.0 FOOT

LIQUID LEVELS RECORDED 4/18/96 FOR MW-1 THROUGH MW-5 AND 4/19/96 FOR MW-6.



NOTE: MW-6 IS SCREENED IN BEDROCK.



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Science &
Engineering

DATE 7-5-96	SCALE 1" = 50'
DRAWN BY TJF	APPROVED BY
JOB NO 2196075G-2019	DATE NO. REV. NO. GG75GB

TITLE GROUNDWATER GRADIENT MAP USTs 201/202 NSGA SUGAR GROVE, WV.	CLIENT LANTDIV	FIGURE 3-3
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4.0 Summary of Findings

4.1 Regional Geology

NSGA Sugar Grove is located on or near the contact of the Marcellus and Hamilton Shales within The Appalachian Valley and Ridge Province of West Virginia (Figure 4-1). The Marcellus Shale is the uppermost unit of the Middle Devonian-aged Marcellus Series and is approximately 332 feet thick in the vicinity of the site. The Hamilton Shale, within the Hamilton Series, overlies the Marcellus Series and is approximately 566 feet thick (Tilton, et al., 1927).

Both the Hamilton and Marcellus series strike from the south-southwest to the north-northeast, dip to east-southeast, and are part of a large synclinorium in the vicinity of the site.

The Marcellus and the Hamilton are both described as dark, fissile shales (Tilton, et al., 1927). However, the Hamilton is non-calcareous, whereas the Marcellus contains limestone units. The site overlies thin, Quaternary-aged, river terrace sediments above bedrock. The actual contact between the formations at the site is indistinct and has little bearing on the investigation due to the similarities in the formations.

4.2 Site Geology

Bedrock underlying the site is a fissile, dark, shale (Marcellus or Hamilton). Soil overburden consists primarily of brown and gray clays, with increasing amounts of rock fragments with depth originating from the underlying bedrock. Lenses of silty and sandy clay are common throughout the overburden. Around the USTs 201 and 202 former pump island, penetrometer refusal was encountered at depths ranging from 4 feet bgs in SB-11 (4/8/93) to 11 feet bgs in SB-17 (11/1/95). In the rear of Building 20, auger refusal was encountered at 1 foot bgs in MW-6 (4/18/96) and penetrometer refusal was encountered at 6 feet bgs in SB-28 (11/2/95) and 3 feet bgs in SB-29 (11/2/95). The geologic drilling log for MW-6 is presented in Appendix B. A geologic cross-section location diagram is presented as Figure 4-2; geologic cross-sections depicting subsurface conditions are presented as Figure 4-3.

4.3 Regional Hydrogeology

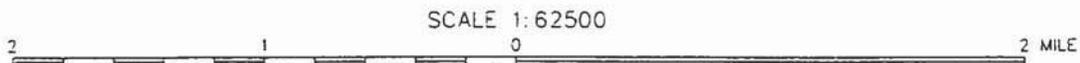
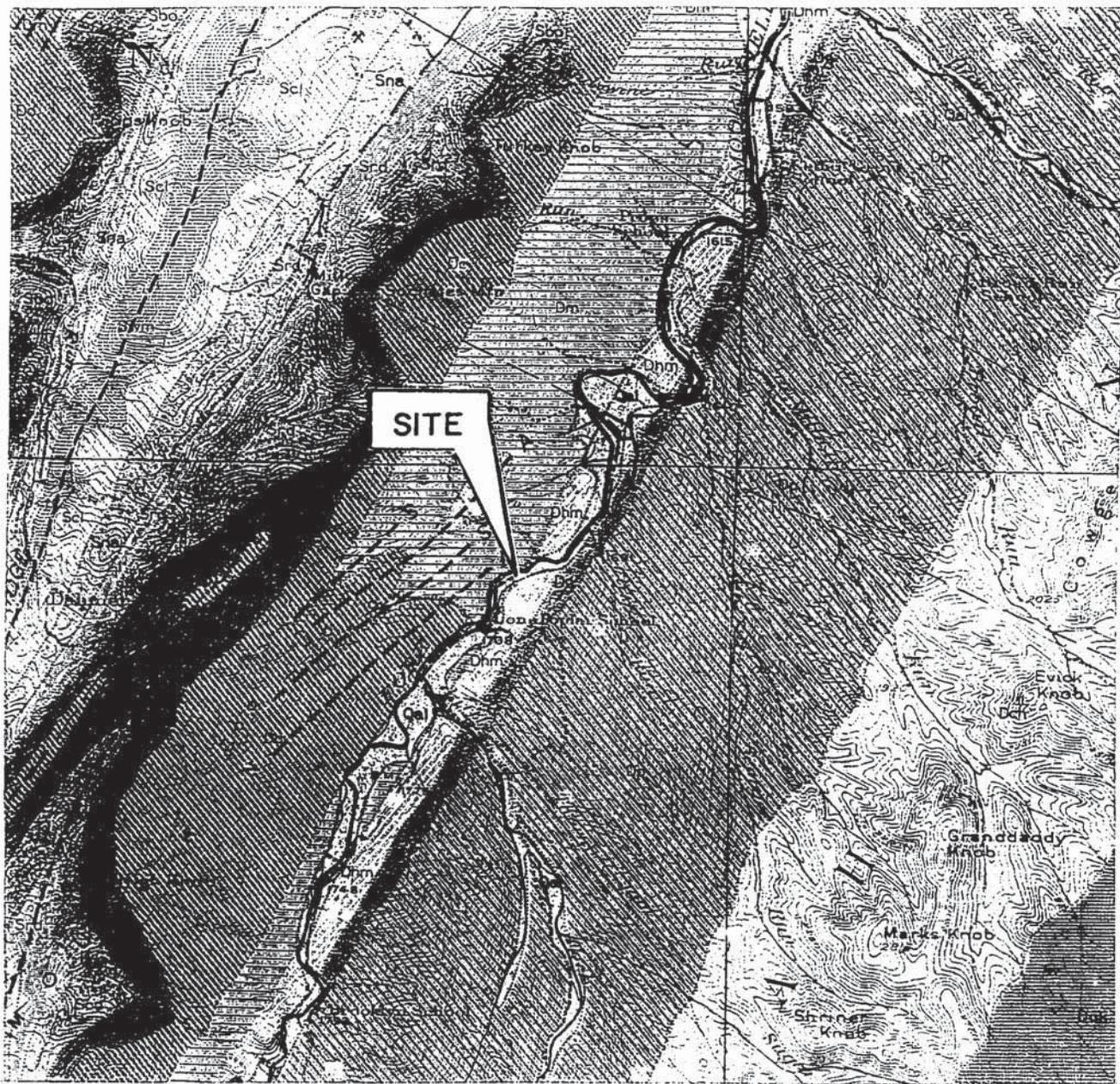
Throughout the Valley and Ridge Geologic Province, groundwater occurs predominantly in fractures and bedding planes in the shale or sandstone units. At the site, the Devonian Shale aquifer also provide water resources along fault and contact zones, but are of generally low yield (less than 30 gallons per minute, gpm) (Tilton, et al., 1927). The NSGA well, located approximately 3.5 miles south of the site, pumps approximately 25 gpm.

Water quality in the Valley and Ridge is generally good, although considered moderately hard and high in iron and dissolved solids. Both ground and surface waters have wide ranges of calcium (magnesium) bicarbonate concentrations, with a mean concentration of 200 to 250 milligrams per liter (mg/l) (Smith & Ellison, 1985).

4.4 Site Hydrogeology

Groundwater at the site is unconfined: it rises and falls in direct relation to recharge and discharge. Groundwater at MW-1 through MW-5 occurred at depths of approximately 4 to 6 feet bgs during liquid level measurements in May 1996, except for MW-6 which was approximately 17 feet bgs and MW-3 which was dry. The water table aquifer is expected to discharge into the South Fork (Figure 3-3).

Groundwater onsite appears to flow to the west at a gradient of 0.018 foot/foot between Building 20 and the South Fork and at a gradient of 0.028 foot/foot between the new pump island and Building 20. A hydraulic conductivity (K) of 0.27 feet/day was estimated in the vicinity of MW-2. The average linear groundwater velocity was calculated to be 9.2 feet/year.



CONTOUR INTERVAL 50 FEET
DATUM IS MEAN SEA LEVEL



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DATE 11-7-95	SCALE SHOWN
DRAWN BY TJF	APPROVED BY
JOB NO. 2196075G-2C19	DWG. NO. / REV. 1.0 SLT272G4

TITLE
SITE LOCATION & TOPOGRAPHIC MAP
SUGAR GROVE, W. VA.

CLIENT
LAN DIV

FIGURE
4-1A

LEGEND

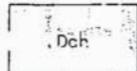
QUATERNARY



Alluvium



Catskill Series



Chemung Series



Portage Series



Genesee Series



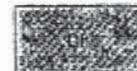
Hamilton Series



Marcellus Series

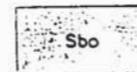


Oriskany Ss.



Helderberg
Limestone

DEVONIAN

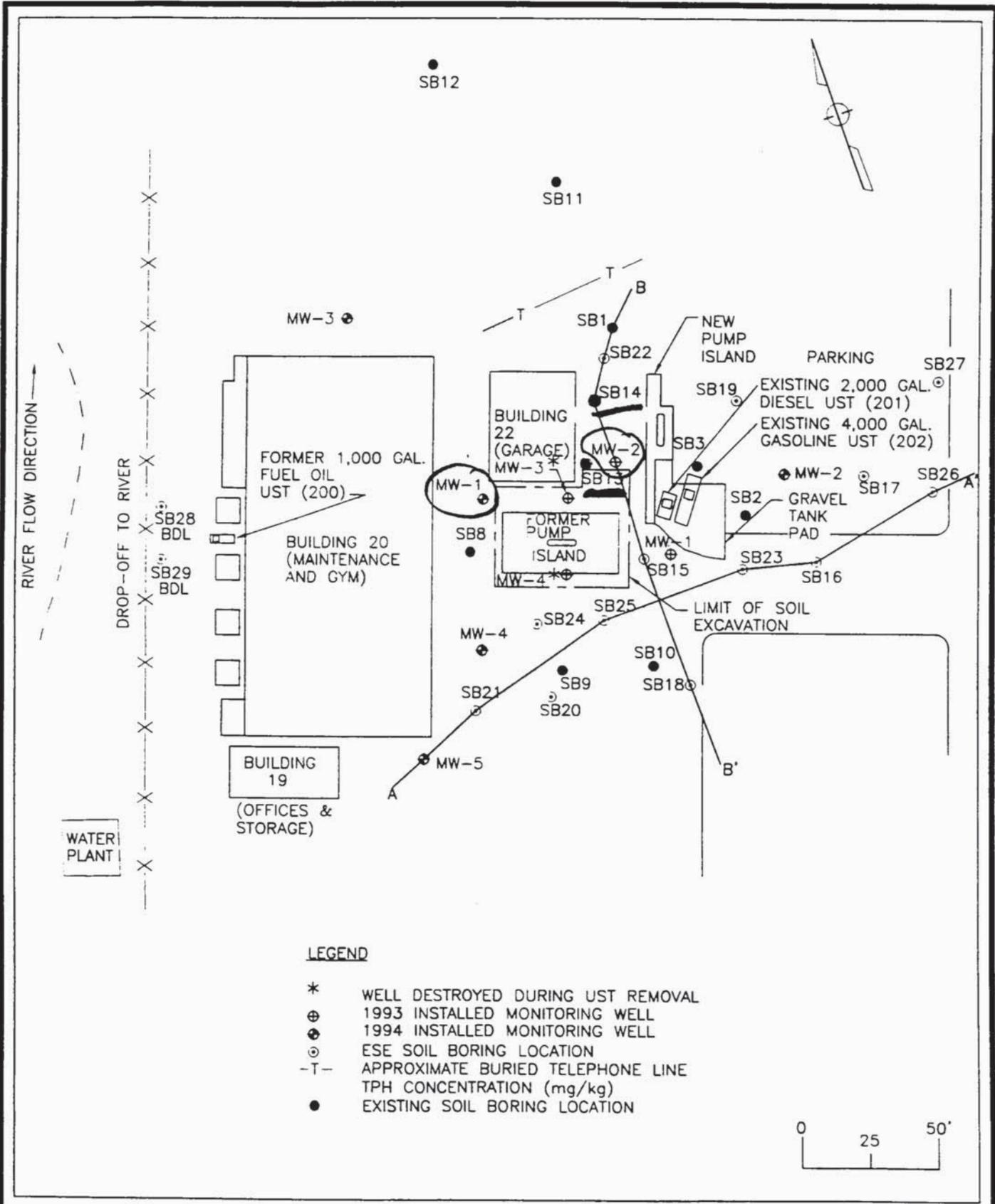


Bossardville
Limestone

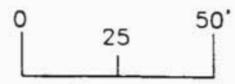


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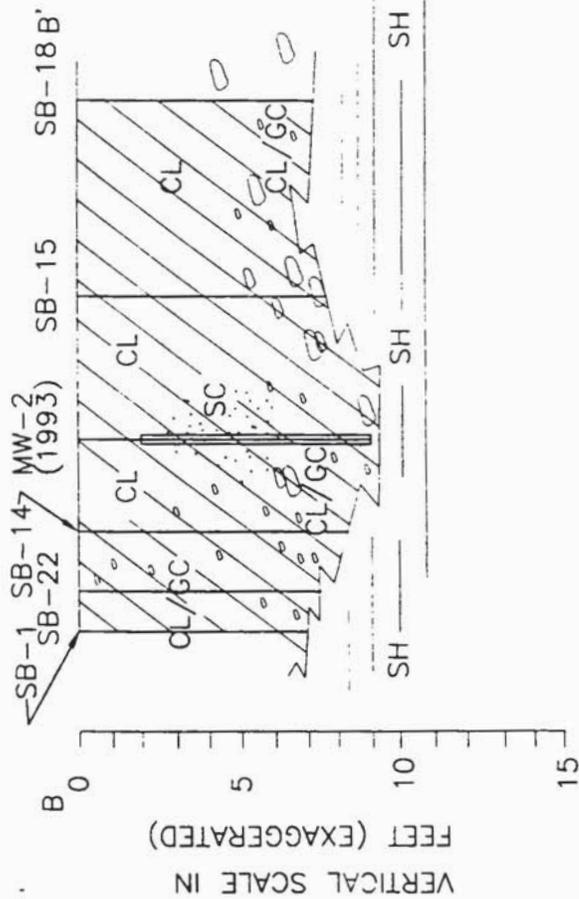
DATE 11-1-95	SCALE N.T.S.	TITLE GEOLOGIC LEGEND SUGAR GROVE, W. VA.	
DRAWN BY TJF	APPROVED BY	CLIENT LANTDIV	FIGURE 4-1B
JOB NO. 2196075G-2019	DWG. NO./ REV. NO. GEOL2723		



- LEGEND**
- * WELL DESTROYED DURING UST REMOVAL
 - ⊕ 1993 INSTALLED MONITORING WELL
 - ⊙ 1994 INSTALLED MONITORING WELL
 - ⊙ ESE SOIL BORING LOCATION
 - T- APPROXIMATE BURIED TELEPHONE LINE
 - TPH CONCENTRATION (mg/kg)
 - EXISTING SOIL BORING LOCATION



	DATE	SCALE	TITLE
	02-12-96	1" = 50'	GEOLOGIC CROSS-SECTION LOCATION MAP
	DRAWN BY	APPROVED BY	USTs 201/202
	TJF		NSGA SUGAR GROVE, WV.
JOB NO	DWG. NO	REV. NO	CLIENT
2196075G-2019	ST72G1B		LANTDIV
			FIGURE
			4-2



WELL SCREEN

PENETROMETER LOCATION

- SH = SHALE BEDROCK
- SC = CLAYEY SAND
- CL = SILTY, SANDY CLAY
- GC = SILTY, SANDY CLAYEY, GRAVEL



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DATE	12-8-95	SCALE	NONE	TITLE
DRAWN BY	TJF	APPROVED BY		CROSS-SECTIONS A - A' & B - B' USTs 201/202 NSGA SUGAR GROVE, WV.
JOB NO.	2196075G-2019	DWG. NO. / REV. NO.	272CSB	LANTDIV
		CLIENT		FIGURE
				4-3

5.0 Conclusions

5.1 Delineation of Contamination

5.1.1 Soil

Organic vapor screening was not performed during the installation of MW-6 (17 and 18 April 1996). During the November 1995 field investigation, OVA screening of soil samples indicated vapor-phase hydrocarbon (VPH) impact to soil. Readings indicated little to no VPH impact in soil that was remote to the former pump island, versus highly impacted soil (greater than 1000 ppm) in the vicinity of the former pump island.

Soil samples were not obtained for laboratory analyses during installation of MW-6 due to the shallow depth at which split-spoon refusal was encountered. Laboratory analyses of soil samples collected in November 1995 indicated no diesel range adsorbed-phase hydrocarbon (APH) impact to soil. However, soil analyses indicated gasoline range TPH (56 to 600 mg/kg) above the WVDEP action level (50 mg/kg) in the vicinity of the former pump island. Similar to VPH impact, analyses indicated no APH impact in soil remote to the former pump island.

5.1.2 Groundwater

No PSH impact to groundwater was detected. Groundwater samples collected on 19 April 1996 indicated BTEX impact to groundwater is present in two wells: MW-1, downgradient from the former pump island, and MW-2, upgradient from the former pump island. Benzene in MW-1 and MW-2 (0.039 mg/l and 0.032 mg/l, respectively) exceeded the WVDEP cleanup level (0.005 mg/l); toluene, ethylbenzene, and total xylenes were detected below their respective cleanup levels in MW-1 and MW-2. TPH (MW-1), naphthalene (MW-2), and MTBE (MW-1 through MW-5) were also detected. WVDEP does not currently have clean-up levels for TPH, naphthalene, or MTBE.

5.1.3 Vapor

Organic vapor readings for the basement floor of Building 20 ranged from 0 throughout the occupied section of the basement, to 25 parts per million (ppm) in the boiler room. Laboratory analysis indicated the benzene concentration in the boiler room was below the OSHA PEL and the NIOSH REL.

5.2 Risk Assessment/Fate and Transport Analysis

The purpose of this evaluation is to describe the nature and extent of potential human health and environmental impacts associated with exposure to compounds identified adjacent to Building 22 at NSGA Sugar Grove in Sugar Grove, West Virginia. The data were reduced and interpreted using

Risk-Based Corrective Action (RBCA) Tool Kit® software (Groundwater Services, Inc., 1995). All RBCA tables referenced in this section are included in Appendix F.

RBCA was conducted based on guidelines developed by the American Society of Testing Materials (ASTM) E-1739 "Standard Guide of Risk-Based Corrective Action Applied at Petroleum Release Sites." The RBCA process represents an approach for assessment and response to subsurface contamination. RBCA integrates EPA risk assessment (RA) practices with site investigations and remediation assessment to determine measures for protection of human health and the environment. RBCA characterizes the relative magnitude and immediacy of site risks and prescribes immediate response actions. After the hazards have been properly addressed, RBCA develops risk-based cleanup standards against chronic health and/or environmental impacts associated with long-term exposure to low levels.

5.2.1 Identification of Chemicals of Potential Concern

When a large number of compounds are identified at a site, those compounds expected to represent the majority of the potential risks may be selected to be used for the RA process. The major compounds identified at the site are petroleum hydrocarbon products in soil and groundwater. Potentially toxic components of petroleum hydrocarbons (BTEX) have been quantified for soil and groundwater at the site.

TPH at the site may represent a large conglomerate of compounds that are not necessarily consistent from site to site; thus, no toxicity criteria are available. Benzene is a known human carcinogen; naphthalene, MTBE, and TEX compounds are noncarcinogenic systemic toxicants. Consequently, the contaminants of concern (COCs) selected for further risk assessment are BTEX, naphthalene, and MTBE.

5.2.2 Exposure Assessment

The exposure assessment uses information obtained from the environmental site assessment and the environmental fate and transport analysis to identify significant complete exposure pathways and to estimate actual or potential COC concentrations for each exposure pathway. Behavioral or physiological factors influencing exposure frequency and exposure levels are then presented in a series of exposure scenarios as a basis for quantifying chemical intake levels by receptor populations for each significant completed exposure pathway. The results of the exposure assessment are used in conjunction with the information summarized in the toxicity assessment to determine the potential human health and environmental risks associated with the study area.

5.2.2.1 Human Receptors

Onsite human receptors consist of site visitors and adults working in Building 20 (the maintenance and gym building) located downgradient of the DPH plume. Building 20 is located adjacent to the DPH and associated soil contamination, and a potential exists for vapor migration to the building. Building 20 is located approximately 25 feet downgradient of the plume. Maximum exposure is expected at Building 20 and the RBCA Tool Kit® was used to quantify risk.

Additionally, residences are located approximately 0.6 mile downgradient of the site. The water table aquifer is used for water supply. The nearest potable well is located downgradient at 0.5 mile north of the site.

5.2.2.2 Environmental Receptors

The potential exists for DPH to discharge into South Fork of the South Branch of the Potomac River, approximately 300 feet west of the site, which could pose a threat to environmental receptors. Exposure is expected at the river and the RBCA Tool Kit® was used to quantify risk.

5.2.2.3 Exposure Pathways

An exposure pathway is the route over which a chemical or physical agent migrates from a contaminant source to an exposed population or individual (receptor) and also describes a unique mechanism by which the receptor may be potentially exposed to chemicals or physical agents at or originating from the site. For an exposure pathway to be complete, the following four elements must be present:

- A source or release from a source (e.g., vapor emissions released from groundwater to air)
- A likely environmental migration route (e.g., volatilization of a site-related chemical or physical agent)
- An exposure point where receptors may come in contact with site-related chemical or physical agents (e.g., local creek)
- A route by which potential receptors may be exposed to a site-related chemical or physical agent (e.g., inhalation of vapors)

If any one of these components is not present, the exposure pathway is considered incomplete and is not expected to contribute to the total exposure from the site. A screening of potential exposure pathways was conducted such that the risk characterization focuses only on the completed exposure pathways and eliminates incomplete pathways from further consideration.

Water Consumption Pathway

Domestic consumption of groundwater is a pathway of concern when humans use private wells that tap into the underlying groundwater close to the site. Exposure will occur as a result of ingestion, inhalation, and direct dermal contact with chemicals during domestic activities. This pathway is complete because domestic water in the vicinity of the site is supplied by residential wells located 0.5 mile downgradient of the site and from the river located 300 feet from the site.

Direct Contact Pathway

No direct contact with petroleum hydrocarbons in soil media is expected by onsite or offsite human receptors because the site is paved and is not currently under any construction activities. However, future activities and land use may be of potential concern if adequate precautions are not taken. This will be considered a complete pathway and is quantified in RBCA for any future activity related to construction (e.g., UST or pipeline repairs).

Soil Ingestion Pathway

The soil ingestion pathway is based on direct ingestion of contaminated surficial soils (based on data from the monitor well boring logs). This pathway is considered incomplete and is not evaluated because surface soils are not impacted.

Inhalation Pathway

Inhalation can occur from exposure to fugitive dusts from surficial soils and from exposure to contaminated air due to COC volatilization. Inhalation of volatile organic compounds (VOCs) in air may occur as a result of chemicals volatilizing from the underlying unsaturated soil or aquifer. Exposure by this pathway would be negligible outdoors, but may be significant indoors where vapors cannot readily disperse (e.g., onsite buildings). Inhalation exposure to COCs volatilizing from soil and accumulating in Building 20 is a complete pathway and is quantified in RBCA.

Environmental Receptor Pathway

The environmental pathway is based on onsite compounds discharging into surface water. These bodies of water are likely suitable habitats to a number of aquatic organisms, both vertebrate and invertebrate. The South Fork could be impacted, therefore this pathway is considered complete and is evaluated.

5.2.3 RBCA Input Parameters

The RBCA model initially uses a Tier 1 process that involves comparing site constituent concentrations to generic risk-based screening levels (RBSLs). The Tier 1 approach will determine whether further evaluation is required. RBSL values are derived from standard exposure equations and reasonable maximum exposure (RME) estimates pursuant to US EPA guidelines. RBSL concentrations are designed to be protective of human health and the environment even if exposure occurs in the area with directly impacted soil and groundwater (e.g. source area). The Tier 2 evaluation also includes additional receptors and will be conducted for Building 20 and the South Fork located 25 feet and 300 feet, respectively, downgradient of the plume using site specific soil and groundwater characteristics.

Table 2-1 exhibits the input parameters entered in the RBCA Tier 1 model. ASTM default values are used, except for the bold, italic, and underlined values, which are site-specific. Parameters were calculated using groundwater and soil data collected in April/May 1996 and November 1995, respectively. The particulate areal emission rate is the ASTM value (ASTM, 1995).

Groundwater parameters (e.g., the Darcy and effective transport velocity calculated by slug tests and groundwater gradient maps) were used from the site assessment. Capillary zone, vadose zone, and depth to groundwater measurements were collected along with groundwater data in April 1995.

Soil density and total organic carbon were measured from specific soil samples collected onsite. Depth to top of affected soil was determined from soil analysis. The pH was determined by averaging pH in groundwater samples collected during the site assessment.

The highest subsurface soil BTEX concentrations were entered for a conservative scenario. The latest groundwater BTEX concentrations were entered in the RBCA Tool Kit® from the data collected in April 1996 (Table 5-2) to represent current conditions.

5.2.4 Risk Characterization

The objective of characterizing risk is to integrate information developed in the exposure and toxicity assessments calculated in RBCA into a complete evaluation of the current and future human and ecological health risks. The RA evaluates the nature and degree of risk to potential receptor populations. Health hazard estimates are derived per individual COC and overall COC contributions.

5.2.5 Methodology

The methods used in this risk analysis are those presented in the Risk Assessment Guidelines for Superfund (EPA, 1989a) and other risk assessment guidance documents.

Human inhalation, water consumption, and direct contact risks were determined for the onsite construction worker and the offsite office building worker. Health risks were evaluated separately for noncarcinogenic and carcinogenic effects. Human health risks were evaluated based on exposure concentrations and exposure factors presented in the exposure assessment.

5.2.5.1 Human Carcinogenic Effects

Cancer risk is estimated as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to a potential carcinogen (i.e., incremental or excess individual lifetime cancer risk) (EPA, 1989a). A cancer risk of 1×10^{-6} indicates a risk of one additional case of cancer per 1 million exposed people. The EPA acceptable cancer risk range of 10^{-4} to 10^{-6} is identified in the National Contingency Plan (NCP) (NCP, 1990).

Incremental lifetime human health risks associated with exposure to carcinogenic COCs were calculated based on EPA's Guidelines for Carcinogenic Risk Assessment (EPA, 1986a) and EPA's Guidelines for the Health Risk Assessment of Chemical Mixtures (EPA, 1986b).

To provide a perspective on the risks associated with the site, the magnitude of the cancer risks associated with benzene were compared to the EPA acceptable cancer risk range of 10^{-4} to 10^{-6} .

5.2.5.2 Human Noncarcinogenic Effects

The hazard quotient (HQ) is the ratio of the average daily exposure (chemical intake) to the acceptable intake exposure level. If this ratio is greater than unity (i.e., > 1), then the average daily exposure has exceeded the acceptable intake exposure level, indicating that there may be concern for potential noncancerous health effects (EPA, 1989a). If unity is exceeded, the HQ should be segregated by effect and by mechanism of action, allowing the major effects and target organs to be identified for each compound. The HQ for COCs with the same target organs may then be summed, resulting in a total hazard index (HI); if unity is exceeded, the potential for adverse effects exists.

The measure used to describe the potential for noncarcinogenic toxicity to occur in an individual is not expressed as a probability. Rather, the potential for noncarcinogenic effects is evaluated by comparing an exposure level over a specified time period (e.g., 7 years) with the reference dose (RfD) (EPA, 1989a).

The HQ approach assumes that there is a level of exposure below which it is unlikely for even sensitive populations to experience adverse health effects (EPA, 1989b). If the intake level exceeds the threshold level, there may be a concern for potential noncarcinogenic effects (EPA, 1989b). Estimating noncarcinogenic hazard potential by considering one chemical at a time might significantly underestimate the risks associated with simultaneous exposures to several substances.

5.2.6 Toxicity Assessment

The toxicity assessment weighs available evidence regarding the potential for a particular chemical to cause adverse effects in exposed individuals and to provide an estimate of exposure and possible severity of adverse effects. The purpose of the toxicity assessment is to characterize the nature of health effects to human and environmental receptors and provide relevant dose-response information to be used in calculating site-specific health impacts.

5.2.6.1 Toxicity Information for Noncarcinogenic Effects

An RfD is the toxicity value used most often to evaluate the impacts from exposure to a contaminant. RfDs are specific to the route of exposure (e.g., for air inhalation, an inhalation RfD is to be used), critical effect (developmental, systemic, etc.), and the length of exposure being evaluated. A chronic RfD is defined as an estimate of a daily intake that is likely to be without appreciable risk of deleterious effects during a lifetime. Chronic RfDs are specifically developed to be protective against long-term exposure to a compound. Subchronic RfDs are developed to characterize potential noncarcinogenic effects associated with short-term exposures. The derivation procedure to determine RfDs can be found in RAGS (EPA, 1989a) or other technical guidance documents for criteria development.

TEX compounds are the noncarcinogenic chemicals identified at the site. This information will be used in subsequent sections in the risk evaluation of human and environmental receptors.

5.2.6.2 Toxicity Information for Carcinogenic Effects

The carcinogenic slope factor (CSF), also known as the carcinogenic potency factor (CPF), is used to estimate an upper-bound probability of an individual developing cancer as a result of exposure to a particular level of a potential carcinogen. The CSF, generally reported as the reciprocal of daily intake and represented by milligrams per kilogram per day $[(\text{mg}/\text{kg}/\text{day})^{-1}]$, is determined by assuming that the dose-response relationship is linear in the low-dose portion of the dose-response curve derived from the model selected to best suit the available data by EPA. The value used in reporting the CSF is an upper 95-percent confidence limit of the probability of response per unit intake of a chemical over a lifetime. Toxicity values for carcinogenic effects can also be expressed in terms of risk per unit concentration of the substance in the medium of exposure, called unit risks.

5.2.7 Site-Specific Risk Characterization

In this section, cancer risks (CRs) and noncarcinogenic HIs are determined for onsite and offsite receptors. Inhalation CRs and HIs are evaluated for onsite and offsite workers. These values indirectly consider onsite and offsite visitors as already discussed. CRs and HIs are determined using RBCA. Intakes are obtained from Table 5-3, maximum contaminant levels and toxicity data are

located in Table 5-4, CSFs and RfDs are obtained from Table 5-5, and estimated HIs and CRs are provided in Table 5-6.

The estimated incremental carcinogenic risk of 6.4×10^{-8} due to inhalation of benzene in the building by workers would be considered acceptable by the USEPA under CERCLA and RCRA: it is considerably below acceptable risk at 1×10^{-6} . Similarly, the estimated concentrations of TEX, MTBE, and naphthalene are also substantially lower than occupational standards and criteria of 1.0. Total HI was calculated to be 6.4×10^{-4} (Table 5-6).

5.2.8 Summary and Conclusions

Potential health threats from DPH, VPH, and APH to onsite and offsite human and environmental receptors were considered. No PSH was identified onsite.

RBCA Tool Kit[®] indicated the pathway of greatest concern was inhalation of BTEX hydrocarbon vapors from underlying impacted groundwater. Complete pathways were identified for Building 20, onsite construction workers and the offsite river. Carcinogenic and noncarcinogenic health threats were evaluated.

Based on available media concentrations, noncarcinogenic levels were acceptable (i.e., HIs were < 1). The overall HI for construction workers, building workers, and groundwater impact to surface water was also < 1 . Carcinogenic risks were below the acceptable range of 10^{-4} and 10^{-6} . Overall cancer risks were 6.4×10^{-8} for the onsite construction worker, building employees, and the river.

A conservative approach was used to determine onsite risk. The highest expected BTEX concentrations in soil were used, and the exposure frequency was assumed to be 8 hours a day, 5 days a week, for 30 years to evaluate noncarcinogenic effects and 70 years for carcinogenic effects.

RBCA Tool Kit[®] calculated soil and groundwater site-specific target levels (SSTLs) using RBCA methods based on individual constituent effects at onsite and offsite exposure points. SSTLs were not exceeded by any soil and groundwater samples collected at the site (Table 5-7).

RBCA Tool Kit[®] calculated groundwater impact to the South Fork as a result of the fate and transport of onsite contaminants. Groundwater concentrations will remain below the EPA MCLs at the discharge point (Table 5-8) for the 30-year period evaluated.

6.0 Recommendations

6.1 Soil Cleanup

VPH impact was detected in the vicinity of the former tank pit, with little to no impact remote to the pit. Building 20 is adjacent to DPH-impacted groundwater and has a partial basement, so the potential exists for vapor migration to the building. As a result, adults working and performing recreation activities in Building 20 are potential receptors. However, laboratory analysis indicated the benzene concentration in the boiler room was below the OSHA PEL and the NIOSH REL. Additionally, the carcinogenic risk due to inhalation of benzene in the building by workers was calculated by RBCA Tool Kit® to be acceptable by the USEPA under CERCLA and RCRA.

Soil analyses indicated APH impact to soil (above the WVDEP action level) in the vicinity of the former tank pit; no impact above the action level was noted remote to the pit. Soil contamination was well delineated during the investigation and may indicate isolated areas of contamination above the action level. The clay subsurface material at the site suggests minimal potential for migration to the groundwater through runoff percolating through the soil (hydraulic conductivities are estimated at approximately 0.01 foot per day). Additionally, the majority of the site is paved with asphalt, further diminishing the potential for contaminant leaching through percolation.

Finally, the groundwater monitoring recommended below should indicate whether soil is contributing to groundwater contamination. However, soil cleanup will be re-evaluated in the event groundwater contamination increases during monitoring activities.

6.2 PSH Cleanup

No PSH impact was detected at the site, so no PSH cleanup is required.

6.3 Groundwater Cleanup

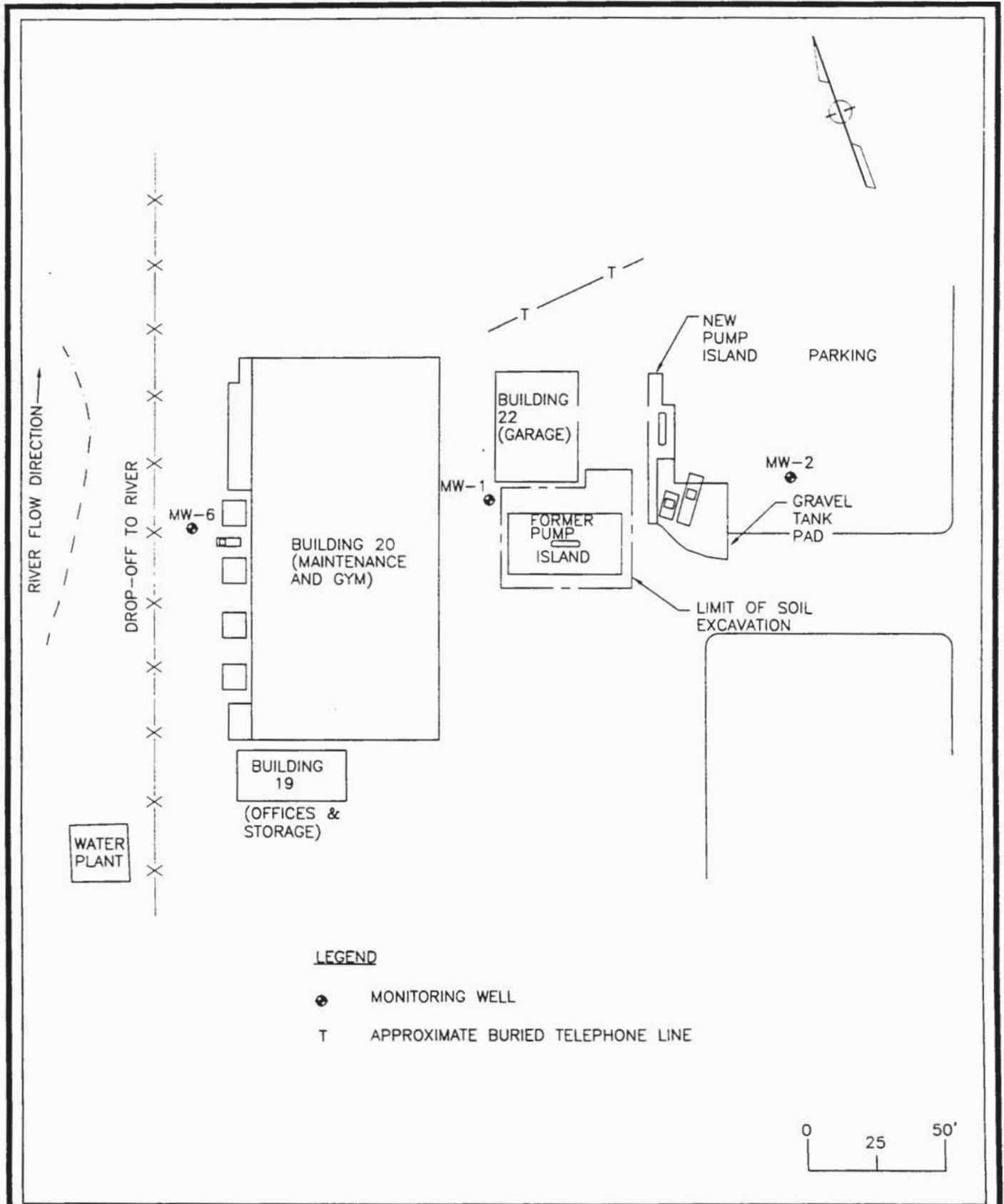
Benzene impact to groundwater exceeded the WVDEP cleanup level in two wells: MW-1 and MW-2. The average linear groundwater velocity was calculated to be 9.2 feet/year. Fate and transport modeling using RBCA Tool Kit® calculated groundwater impact to the South Fork will remain below the EPA MCLs at the discharge point for the 30-year period evaluated.

No groundwater cleanup is recommended at this time because benzene impact of groundwater appears to be limited to the vicinity of the former tank pit and is not anticipated to impact the South Fork. Additionally, RBCA Tool Kit® modeling indicates carcinogenic and non-carcinogenic health risks are

within acceptable ranges. Therefore, monitoring only is recommended for MW-1, MW-2, and MW-6 on a quarterly basis for a period of one year.

6.4 Future Monitoring

Groundwater monitoring in MW-1, MW-2, and MW-6 is recommended to monitor the DPH plume and potential migration to and impact of the South Fork. The monitoring (with sampling and analysis) will be performed on a quarterly basis for a period of one year. One year of monitoring with no impact to the downgradient well (MW-6) should provide the requisite information to allow site closure. Groundwater cleanup will be re-evaluated in the event benzene impact is detected in the downgradient well during monitoring activities.



LEGEND

- MONITORING WELL
- T APPROXIMATE BURIED TELEPHONE LINE



Environmental
Science &
Engineering

DATE 1-9-96	SCALE 1" = 50'	TITLE FUTURE MONITORING LOCATIONS USTs 201/202 NSGA SUGAR GROVE, WV.	
DRAWN BY TJS	APPROVED BY		
JOB NO. 2196075G-2019	DWG. N.O./ REV. NO. ST72G1FM	CLIENT LANTDIV	FIGURE 6-1

7.0 References

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- Bouwer, H. 1989. The Bouwer and Rice Slug Test: An Update. Groundwater, Vol. 27, No. 3.
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- Smith, P.J. and Ellison, R.P. 1985. Groundwater Map of Virginia. Virginia Water Control Board, Bulletin 564.
- Tilton, J.L., Prouty, W.F., Price, P.H., White, I.C. 1927. West Virginia Geological Survey, Pendleton County. Wheeling News Litho. Co., Wheeling, WV.
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US Environmental Protection Agency (USEPA). 1989b. Exposure Factors Handbook. Final Report. Office of Health and Environmental Assessment, Washington, DC. EPA/600/8-89/043.

West Virginia Division of Environmental Protection (WVDEP). 1994. West Virginia Guidance Document for Leaking Underground Storage Tank (LUST) Site Assessments and Corrective Actions. West Virginia Department of Commerce, Labor and Environmental Resources, Division of Environmental Protection, Office of Waste Management, Leaking Underground Storage Tank Section, Charleston, West Virginia. January 20, 1994.

APPENDIX A
Photodocumentation



1. Installation of MW-6 behind Building 20 (looking south)



2. Installation of MW-6 behind Building 20 (looking north)



3. Installation of MW-6 behind Building 20 (looking east, drill rig in center of photo)



**4. Installation of MW-6 behind Building 20
(looking southeast, drill rig in center of photo)**

APPENDIX B

Boring Log and Monitor Well Schematic

BORING LOG

CLIENT: LANTNAVFACENGCOM LOCATION: NSGA Sugar Grove, West Virginia USTs 201 and 202 Site	Well #: MW-6 TOTAL DEPTH: 28 feet LOGGED BY: Glen Crombie DRILLER: Bedford Environmental DRILL RIG: Acker - Skid Mount METHOD: Solid Stem Auger/Air Hammer DATE DRILLED: 17 & 18 April 1996
Well Construction: 2-inch PVC, 18 feet slotted screen 10 feet riser	

DEPTH (FT)	CLASSIFICATION	LITHOLOGICAL DESCRIPTION	OVM (ppm)
0 - 7.5	GC	Brown sandy GRAVEL. Gravel fragments are well rounded sandstone and shale and appear to be imported as construction fill. Auger refusal encountered @ 1 foot below ground surface (BGS). Compressed air applied to solid stem auger to assist in boring. No soil samples collected.	--
7.5 - 28.0	Shale	Dark green to black SHALE. Boring advanced slowly. Advanced to 16 feet BGS 17 April 1996 (until dark). Resumed boring 18 April 1996. Prior to boring, the well was gauged and no water was detected. Water was detected @ 25 feet BGS.	--

OBSERVATION WELL INSTALLATION REPORT

Project NSGA Sugar Grove Location Sugar Grove, WV Monitor Well No. MW-6
 Type of Rig Acker Installed By Bedford Env. Drilling, Inc. Date 4/18/96 Time _____
 Method of Installation Solid-Stem Auger enhanced with compressed air
 Inspected By: Glen Crombie Project No: 2196075G File No. _____

LOG OF BORING AND OBSERVATION WELL			
BORING			Observation Well
Depth in Feet	Cored Interval	SPT Blows per 0.6'	DESCRIPTION
5			GC
10			Shale
15			Shale
20			Water Encountered @ 25 feet
25			Water Encountered @ 25 feet
30			Bottom of Boring @ 28 feet

<p>Type of Monitor Well <u>Groundwater</u></p> <p>Ground Elev _____</p> <p>Top of Casing Elev <u>97.59</u></p>	<p>Type of Protective Cover <u>Manway</u></p> <p> ID of Riser Pipe <u>2"</u> Type of Pipe <u>PVC</u> Type of Backfill Around Riser <u>Grout</u> Top of Seal Depth <u>6 feet</u> Type of Seal Material <u>Bentonite</u> Top of Filter Depth <u>8 feet</u> Top of Screen Depth <u>10 feet</u> Size of Openings <u>0.01"</u> Diameter of Screen <u>2"</u> Type of Filter Material <u>Sand</u> Bottom Screen Depth <u>28 Feet</u> Bottom Boring Depth <u>28 Feet</u> Boring Diameter <u>4"</u> </p>
--	---

Remarks TOC elevation relative to MW-3.
No soil samples obtained for analyses.

csc1725.mc

APPENDIX C

Groundwater Disposal Bill of Lading

C-383

UNIFORM STRAIGHT BILL OF LADING—Original—Not Negotiable

FREIGHT BILL NO. - CARRIER USE
CHES PROFILE #
US 9645

TO: **Clean Haines Environmental Svc.**
FROM: **LANTDIV - US Navy**
STREET: **Prince George Pt**
CITY, STATE, ZIP: **Sugar Grove Naval Base**
FOR FREIGHT BILL TO: **SUGAR GROVE NAVAL BASE**

TPS Technologies
11710 Lewis Road
Chester, VA 23831

NO. PACKAGES	DESCRIPTION OF ARTICLES, SPECIAL MARKS, AND DISCREPANCIES	WEIGHT Pounds to Conversion	CLASS OR RATE
1	NO Purge Water	200-300 lbs	

Res. 4/11/96

NOTE: WHERE THE RATE IS EXPRESSED IN VALUE, SHIPPERS ARE REQUIRED TO STATE SPECIFICALLY IN WRITING THE AGREED OR DECLARED VALUE OF THE PROPERTY. THE AGREED OR DECLARED VALUE OF THE PROPERTY IS HEREBY SPECIFICALLY MADE BY THE SHIPPER TO BE NOT EXCEEDING \$ _____ PER _____

NOTE: WHERE THE RATE IS EXPRESSED IN VALUE, SHIPPERS ARE REQUIRED TO STATE SPECIFICALLY IN WRITING THE AGREED OR DECLARED VALUE OF THE PROPERTY. THE AGREED OR DECLARED VALUE OF THE PROPERTY IS HEREBY SPECIFICALLY MADE BY THE SHIPPER TO BE NOT EXCEEDING \$ _____ PER _____

SHIPPER: **Sugar Grove Naval Base Public Works**
AUTHORIZED SIGNATURE: **SMITH**
DATE: **6/12/96**
NO. OF PIECES: **1**

UNIFORM STRAIGHT BILL OF LADING—Original—Not Negotiable

APPENDIX D
Laboratory Results

Groundwater Analytical Data



Environmental
Science &
Engineering, Inc.

8901 North Industrial Road
Peoria, Illinois 61615-1589

Phone (309) 692-4422
Lab Fax (309) 692-5232

An IEPA Contract Laboratory

May 6, 1996

Ms. Carol Bowers
Environmental Science & Engineering
250-A Exchange Place
Herndon, VA 22070

Dear Carol,

Environmental Science & Engineering, Inc. (ESE) appreciates the opportunity to provide the attached report of analyses for ESE sample delivery group #23731, received 04/20/96 by our laboratory. This deliverable includes tabulated results, chain of custody, and dates report.

Should you have any questions regarding this data, please contact me at (309) 693-5602.

Sincerely,

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.

Vickie M. Wynkoop
Project Manager

Attachments

ENT SAMPLE ID'S:
 - FIELD GROUP:
 ESE SEQUENCE #:
 DATE COLLECTED:
 TIME COLLECTED:

MW-1	MW-2	MW-4	MW-5	MW-6	DUPLICATE
23731	23731	23731	23731	23731	23731
1	2	3	4	5	6
04/19/96	04/19/96	04/19/96	04/19/96	04/19/96	04/19/96

PARAMETERS	UNITS	METHOD	REPORTING LIMIT	MW-1	MW-2	MW-4	MW-5	MW-6	DUPLICATE
Benzene	UG/L	8020	1.0	39	32	<1.0	<1.0	<1.0	33
Toluene	UG/L	8020	1.0	19	<5.0	<1.0	<1.0	<1.0	<5.0
Ethylbenzene	UG/L	8020	1.0	77	14	<1.0	<1.0	<1.0	14
Xylenes, Total	UG/L	8020	1.0	180	6.0	<1.0	<1.0	<1.0	6.0
Methyl-tert-butyl-ether	UG/L	8020	5.0	88	150	24	12	<5.0	150
Naphthalene	UG/L	8020	5.0	21	<25	<5.0	<5.0	<5.0	<25
TPH, as diesel	MG/L	8015/MOD	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
TPH, as gasoline	MG/L	8015/MOD	0.50	1.9	<0.50	<0.50	<0.50	<0.50	<0.50
TPH, as jet fuel	MG/L	8015/MOD	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
TPH, as unidentified hydrocarbon	MG/L	8015/MOD	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50

CLIENT SAMPLE ID'S: TRIP BLANK
 ESE FIELD GROUP: 23731
 ESE SEQUENCE #: 7
 DATE COLLECTED: 04/19/96
 TIME COLLECTED:

PARAMETERS	UNITS	METHOD	REPORTING LIMIT	
Benzene	UG/L	8020	1.0	<1.0
Toluene	UG/L	8020	1.0	<1.0
Ethylbenzene	UG/L	8020	1.0	<1.0
Xylenes, Total	UG/L	8020	1.0	<1.0
Methyl-tert-butyl-ether	UG/L	8020	5.0	<5.0
Naphthalene	UG/L	8020	5.0	<5.0
TPH, as diesel	MG/L	8015/MOD	0.50	<0.50
TPH, as gasoline	MG/L	8015/MOD	0.50	<0.50
TPH, as jet fuel	MG/L	8015/MOD	0.50	<0.50
TPH, as unidentified hydrocarbon	MG/L	8015/MOD	0.50	<0.50

SAMPLE	STATION ID	COLLECT. RECEIPT		CLASSIFICATION	EXTRACT. ANALYSIS		DAYS, ACT/HT		ESE BATCH
		04/19/96	04/22/96		NA	04/23/96	EXT	ANL	
23731*1	MW-1	04/19/96	04/22/96	TPH, as diesel	NA	04/23/96	NA	4/14	P33496
23731*2	MW-2	04/19/96	04/22/96	TPH, as diesel	04/25/96	04/26/96	6/14	1/40	P33631
23731*3	MW-4	04/19/96	04/22/96	TPH, as diesel	NA	04/23/96	NA	4/14	P33496
23731*4	MW-5	04/19/96	04/22/96	TPH, as diesel	04/25/96	04/26/96	6/14	1/40	P33631
23731*5	MW-6	04/19/96	04/22/96	TPH, as diesel	04/25/96	04/26/96	6/14	1/40	P33631
23731*6	DUPLICATE	04/19/96	04/22/96	TPH, as diesel	NA	04/23/96	NA	4/14	P33496
23731*7	TRIP BLANK	04/19/96	04/22/96	TPH, as diesel	04/25/96	04/26/96	6/14	1/40	P33631

FOOTNOTES: * = EXCEEDS CRITERIA ACT = ACTUAL HT = HOLDING TIME



Environmental Science & Engineering, Inc.

250-A Exchange Place, Herndon, VA 22070
Phone: (703) 318-8900, Fax (703) 318-0411

Chain of Custody

SAMPLE TYPE:

HZ	Hazardous	SW	Surface Water
SO	Soil	WW	Waste Water
PW	Potable Water	SL	Sludge
GW	Ground Water	DW	Discharge Wtr.

LABORATORY:

Please send signed Chain of Custody form with analyses.

P.O. No:

Project Name:

2196075 G-0100-2100 Sugar Grove

Submit Report To:

Caul Bowers

Laboratory Samples sent to:

Perma

Sampler:

Glen Crombie

Project Location:

Sugar Grove, VA

Analyses

Field Sample # / Sample Identification	Date	Time	C O M P	G R A B	Total Number Of Containers	Sample Type (see reference)	PRESERVATION				Remarks:
							I	C	E	D	
MW-1	4/14/96	0850	X	X	3	GW	X	X	X	X	HCL fw VOAs only
MW-2		0735	X	X	3		X	X	X	X	
MW-4		0830	X	X	3		X	X	X	X	
MW-5		0755	X	X	3		X	X	X	X	
MW-6		0810	X	X	3		X	X	X	X	
Duplicate		-	X	X	3		X	X	X	X	
Trip Blank		-	X	X	3	PW	X	X	X	X	

LABORATORY:

Please: Return all Coolers to the Herndon Office!

Sample Relinquished by:	Date	Time	Sample Received by	Date	Time
Glen Crombie	4/14/96	14:45	FedEx	4/20/96	11:40
			Wickens W yndrop		

600-



Environmental
Science &
Engineering, Inc.

8901 North Industrial Road
Peoria, Illinois 61615-1589

Phone (309) 692-4422
Lab Fax (309) 692-5232

An IEPA Contract Laboratory

May 22, 1996

Ms. Carol Bowers
Environmental Science & Engineering
250-A Exchange Place
Herndon, VA 22070

Dear Carol,

Environmental Science & Engineering, Inc. (ESE) appreciates the opportunity to provide the attached report of analyses for ESE sample delivery group #23878, received 05/15/96 by our laboratory. This deliverable includes tabulated results, chain of custody, and dates report.

Should you have any questions regarding this data, please contact me at (309) 693-5602.

Sincerely,

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.

Vickie M. Wynkoop
Project Manager

Attachments

CLIENT SAMPLE ID'S: MW-2 TRIPBLANK
 ESE FIELD GROUP: 23878 23878
 ESE SEQUENCE #: 1 2
 DATE COLLECTED: 05/13/96 05/13/96
 TIME COLLECTED: 18:30 18:30

PARAMETERS	UNITS	METHOD	REPORTING LIMIT		
Benzene	UG/L	8020	1.0	32	<1.0
Toluene	UG/L	8020	1.0	<5.0	<1.0
Ethylbenzene	UG/L	8020	1.0	9.0	<1.0
Xylenes, Total	UG/L	8020	1.0	<5.0	<1.0
Naphthalene	UG/L	8020	5.0	<25	<5.0
Methyl-tert-butyl-ether	UG/L	8020	5.0	150	<1.0

SAMPLE	STATION ID	COLLECT. RECEIPT	CLASSIFICATION	EXTRACT.	ANALYSIS	EXT	ANL	ESE BATCH
23878*1	MU-2	05/13/96	05/15/96 BTEX	NA	05/17/96	NA	4/14	P33832
23878*2	TRIPBLANK	05/13/96	05/15/96 BTEX	NA	05/16/96	NA	3/14	P33832

FOOTNOTES: * = EXCEEDS CRITERIA ACT = ACTUAL HT = HOLDING TIME

DAYS, ACT/HT

Vapor Monitoring Analytical Data

Environmental Science & Engineering DATE 05/08/96 STATUS : PAGE 1
 PROJECT NUMBER 7936002V L215 PROJECT NAME HERNDON T01
 FIELD GROUP 302L215 PROJECT MANAGER MICHAEL WALSH
 25 AT.I. LAB COORDINATOR MICHAEL WALSH

SAMPLE ID'S V-1
 PARAMETERS STORET 302L215
 UNITS METHOD 25

DATE 04/18/96
 TIME 11:10

BENZENE 82139 504
 NG, TOTAL TO1-D

Environmental Science & Engineering, Inc.
HERNDON TD-1 QC SUMMARY REPORT
Method Blank: FBI Sample Summary

DATE: 05/02/96
TIME: 09:00
LAB: C.D.L.
PROJECT: NC
ANALYST: CRNSENK
METHOD: N5, TOT 32139-TOL-D
BATCH: D17423 M3-D17423*1
SAMPLE: D17423 M3-D17423*1
FOUND: 0 0
NET LMI: 0.0

APPENDIX E

Slug Test Data

**Rising Head Slug Test, MW-2
Sugar Grove Naval Base
Sugar Grove, West Virginia
4/19/96**

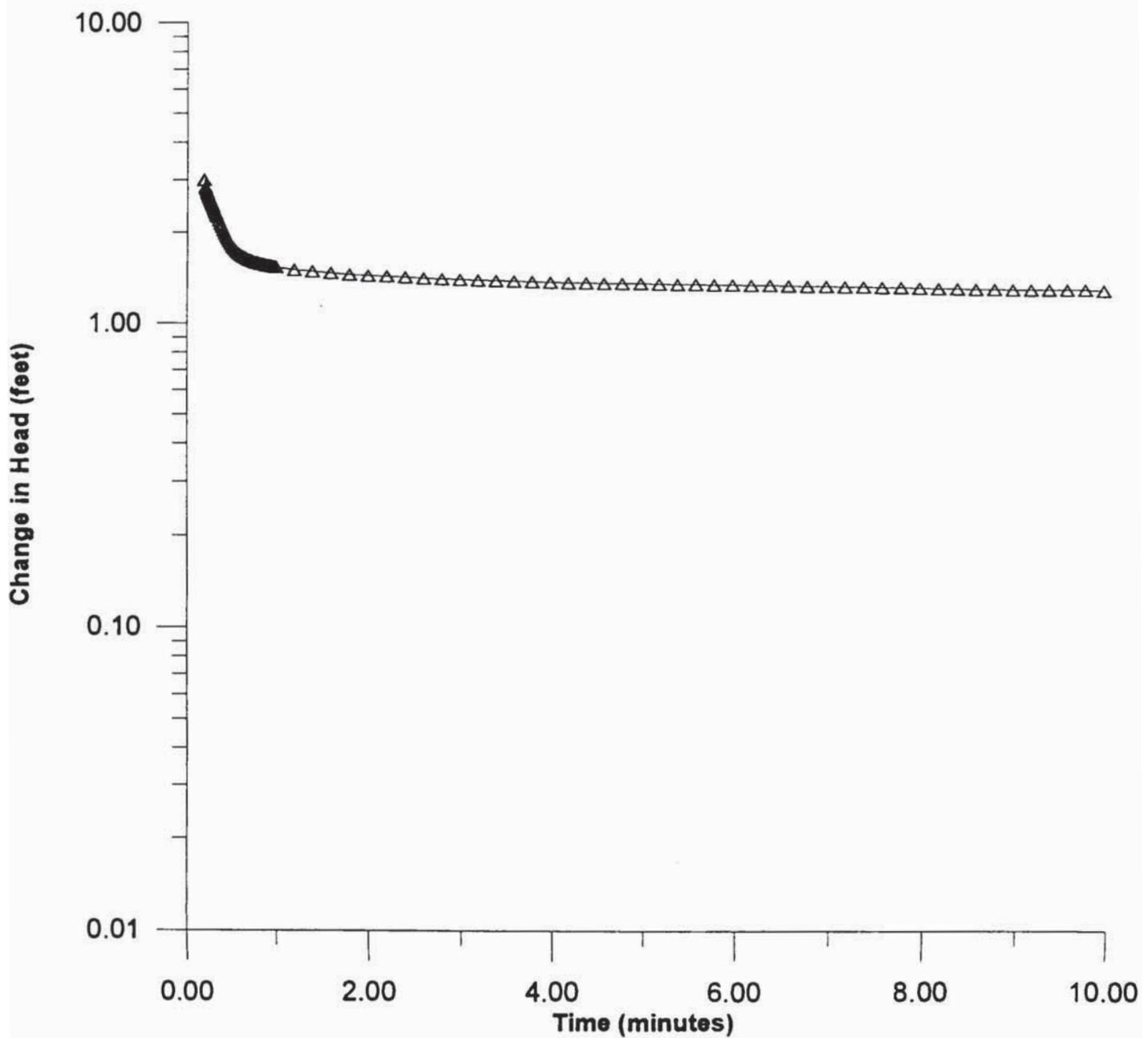
Input Parameters For Partially Penetrating Well

rc=	0.083	Casing Radius (ft)
rw=	0.333	Well Bore Radius (ft)
Re=	0.083	Radius Over Which Drawdown Is Dissipated (ft)
d=	4.770	Length Of Well Screen (ft) note: if d>b then d=b
Y1=	1.000	Head In Well At Time t1 (ft)
Y2=	0.700	Head In Well At Time t2 (ft)
n=	0.300	Porosity Of The Sand Pack
ht=	2.994	Head In The Well At Time t>t0 (ft)
t1=	4.830	Time in minutes @ Y1 (min)
t2=	8.250	Time in minutes @ Y2 (min)
A=	3.400	As Determined By A,B,C vs d/rw
B=	0.600	As Determined By A,B,C vs d/rw
b=	4.770	Column Of Water In Well (ft)
D=	10.000	Aquifer Thickness (ft)

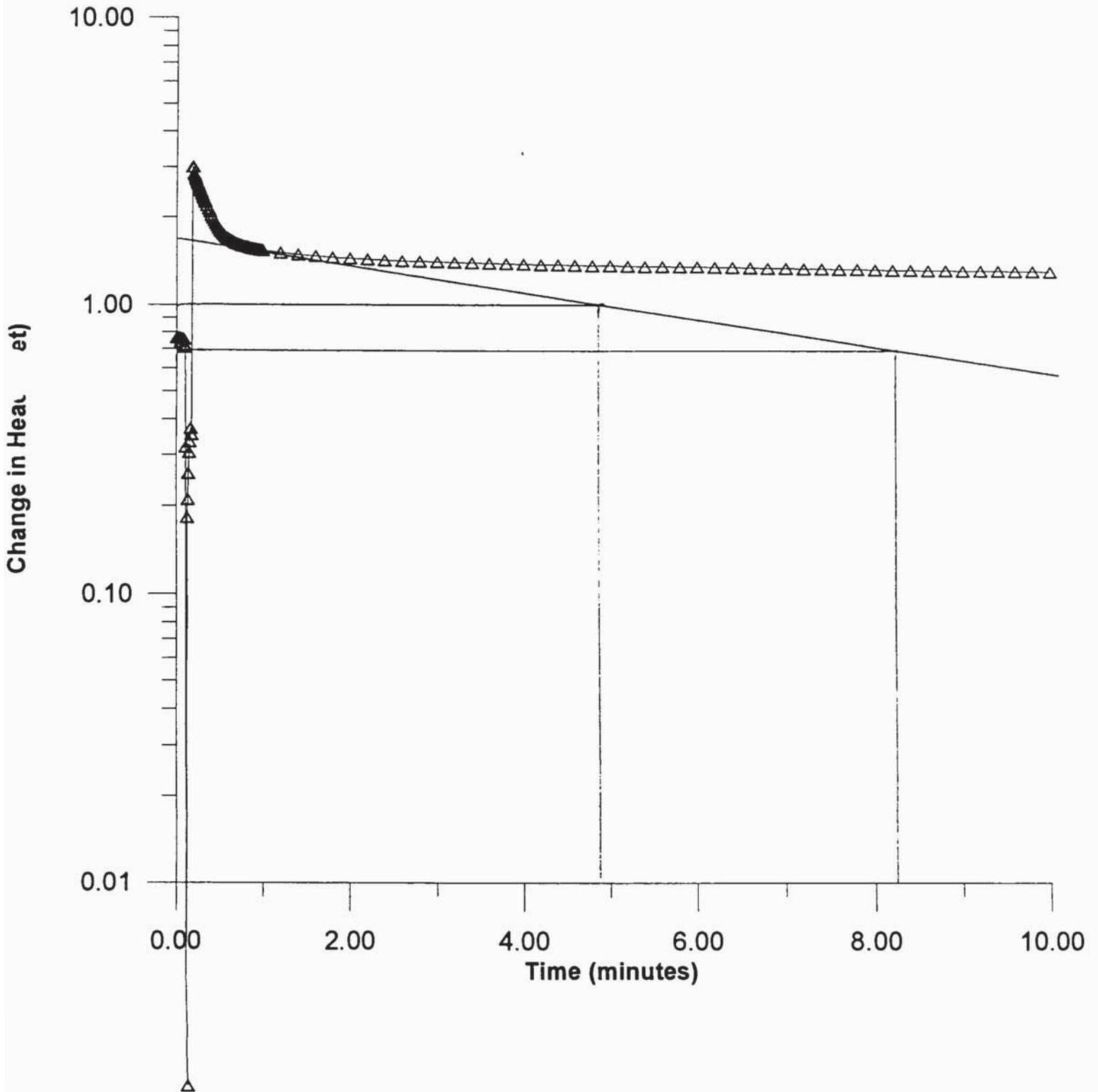
Calculations

d/rw=	14.32432	Used For Determining A,B, and C
rcc=	0.195164	Corrected Caseing Radius (ft)
ln(Re/rw)=	0.535231	Empirical Equation For Partially Penetrating Well
1/t(ln Yo/Yt)=	0.087719	Slope of Best Fitting Line Y VS T
K=	0.000187	Hydraulic Conductivity In ft/min
K=	0.269929	Hydraulic Conductivity In ft/day
K=	0.000095	Hydraulic Conductivity In cm/sec

Rising Head Slug Test, MW-2
Sugar Grove Naval Base
Sugar Grove, West Virginia
20 April 1996



Rising Head Slug Test, MW-2 Sugar Grove Naval Base Sugar Grove, West Virginia 20 April 1996



SE2000
Environmental Logger
04/23 07:07

Unit# 1 Test 0

Setups: INPUT 1

Type Level (F)
Mode TOC
I.D. MW-2

Reference 100.000
SG 1.000
Linearity 0.115
Scale factor 14.984
Offset -0.012
Delay mSEC 50.000

Step 0 04/20 09:06:49

Elapsed Time INPUT 1

0 0.765 99.995
0.0083 0.765 99.995
0.0166 0.765 99.995
0.025 0.765 99.995
0.0333 0.765 99.995
0.0416 0.765 99.995
0.05 0.741 99.971
0.0583 0.755 99.985
0.0666 0.755 99.985
0.075 0.755 99.985
0.0833 0.755 99.985
0.0916 0.722 99.952
0.1 0.708 99.938
0.1083 0.319 99.549
0.1166 0.002 99.232
0.125 0.182 99.412
0.1333 0.21 99.44
0.1416 0.258 99.488
0.15 0.305 99.535
0.1583 0.333 99.563
0.1666 0.371 99.601
0.175 0.352 99.582
0.1833 2.996 102.226
0.1916 2.996 102.226
0.2 2.84 102.07

0.2083	2.797	102.027
0.2166	2.74	101.97
0.225	2.703	101.933
0.2333	2.66	101.89
0.2416	2.627	101.857
0.25	2.594	101.824
0.2583	2.551	101.781
0.2666	2.518	101.748
0.275	2.485	101.715
0.2833	2.452	101.682
0.2916	2.414	101.644
0.3	2.381	101.611
0.3083	2.347	101.577
0.3166	2.319	101.549
0.325	2.286	101.516
0.3333	2.253	101.483
0.35	2.196	101.426
0.3666	2.139	101.369
0.3833	2.087	101.317
0.4	2.035	101.265
0.4166	1.987	101.217
0.4333	1.945	101.175
0.45	1.907	101.137
0.4666	1.869	101.099
0.4833	1.831	101.061
0.5	1.803	101.033
0.5166	1.779	101.009
0.5333	1.755	100.985
0.55	1.732	100.962
0.5666	1.713	100.943
0.5833	1.698	100.928
0.6	1.684	100.914
0.6166	1.67	100.9
0.6333	1.66	100.89
0.65	1.651	100.881
0.6666	1.641	100.871
0.6833	1.627	100.857
0.7	1.623	100.853
0.7166	1.613	100.843
0.7333	1.608	100.838
0.75	1.599	100.829
0.7666	1.594	100.824
0.7833	1.589	100.819
0.8	1.585	100.815
0.8166	1.58	100.81
0.8333	1.575	100.805
0.85	1.57	100.8
0.8666	1.566	100.796
0.8833	1.561	100.791

0.9	1.556	100.786
0.9166	1.551	100.781
0.9333	1.551	100.781
0.95	1.547	100.777
0.9666	1.542	100.772
0.9833	1.542	100.772
1	1.537	100.767
1.2	1.509	100.739
1.4	1.49	100.72
1.6	1.471	100.701
1.8	1.457	100.687
2	1.447	100.677
2.2	1.438	100.668
2.4	1.428	100.658
2.6	1.419	100.649
2.8	1.414	100.644
3	1.405	100.635
3.2	1.4	100.63
3.4	1.395	100.625
3.6	1.39	100.62
3.8	1.386	100.616
4	1.381	100.611
4.2	1.376	100.606
4.4	1.376	100.606
4.6	1.371	100.601
4.8	1.367	100.597
5	1.367	100.597
5.2	1.362	100.592
5.4	1.357	100.587
5.6	1.357	100.587
5.8	1.352	100.582
6	1.352	100.582
6.2	1.348	100.578
6.4	1.348	100.578
6.6	1.343	100.573
6.8	1.338	100.568
7	1.338	100.568
7.2	1.333	100.563
7.4	1.333	100.563
7.6	1.329	100.559
7.8	1.329	100.559
8	1.324	100.554
8.2	1.319	100.549
8.4	1.319	100.549
8.6	1.315	100.545
8.8	1.315	100.545
9	1.31	100.54
9.2	1.31	100.54
9.4	1.31	100.54

9.6	1.305	100.535
9.8	1.305	100.535
10	1.3	100.53
11	1.296	100.526
12	1.286	100.516
13	1.281	100.511
14	1.272	100.502
15	1.262	100.492
16	1.253	100.483
17	1.248	100.478
18	1.243	100.473
19	1.234	100.464
20	1.229	100.459
21	1.22	100.45
22	1.215	100.445
23	1.21	100.44
24	1.201	100.431
25	1.196	100.426
26	1.191	100.421
27	1.187	100.417
28	1.177	100.407
29	1.172	100.402
30	1.168	100.398
31	1.163	100.393
32	1.158	100.388
33	1.153	100.383
34	1.149	100.379
35	1.144	100.374
36	1.139	100.369
37	1.134	100.364
38	1.13	100.36
39	1.125	100.355
40	1.12	100.35
41	1.115	100.345
42	1.111	100.341
43	1.106	100.336
44	1.101	100.331
45	1.097	100.327
46	1.092	100.322
47	1.087	100.317

APPENDIX F

**RBCA Tool Kit® Tables
(Tables 5-1 through 5-8)**

Table 5-1
Exposure Parameters

RBCA TIER 1/TIER 2 EVALUATION

Output Table 1

Software: GSI RBCA Spreadsheet
Version: v 1.0

Site Name: NSGA Sugar Grove
Site Location: Sugar Grove, West Virginia
Job Identification: 2196075G
Date Completed: 8/13/98
Completed By: AAF

NOTE: values which differ from Tier 1 default values are shown in bold italics and underlined

DEFAULT PARAMETERS

Exposure Parameter	Definition (Units)	Residential		Commercial/Industrial	
		Adult	(1-9yrs)	Chronic	Constructn
ATc	Averaging time for carcinogens (yr)	70			
ATn	Averaging time for non-carcinogens (yr)	30	6	25	1
BW	Body Weight (kg)	70	15	70	
ED	Exposure Duration (yr)	30	6	25	1
EF	Exposure Frequency (days/yr)	350		250	180
EF Derm	Exposure Frequency for dermal exposure	350		250	
IRgw	Ingestion Rate of Water (l/day)	2			
IRs	Ingestion Rate of Soil (mg/day)	100	200		100
IRadj	Adjusted soil ing. rate (mg-yr/kg-d)	1.1E+02		9.4E+01	
IRa in	Inhalation rate indoor (m ³ /day)	15		20	
IRa out	Inhalation rate outdoor (m ³ /day)	20		20	10
SA	Skin surface area (dermat) (cm ²)	5.8E+03		5.8E+03	5.8E+03
SAadj	Adjusted dermal area (cm ² -yr/kg)	2.1E+03		1.7E+03	
M	Soil to Skin adherence factor	1			
AAFs	Age adjustment on soil ingestion	FALSE		FALSE	
AAFd	Age adjustment on skin surface area	FALSE		FALSE	
tox	Use EPA tox data for air (or PEL based)	TRUE			
gwMCL?	Use MCL as exposure limit in groundwater?	FALSE			

Matrix of Exposed Persons to Complete Exposure Pathways	Residential		Commercial/Industrial	
	Distance	On-Site	Distance	Constructn
Groundwater Pathways:				
GW1	Groundwater ingestion	TRUE	FALSE	
GW v	Volatilization to Outdoor Air	FALSE	TRUE	
GW b	Vapor Intrusion to Buildings	FALSE	TRUE	
Soil Pathways				
S v	Volatiles from Subsurface Soils	TRUE	TRUE	
SS v	Volatiles and Particulate Inhalation	FALSE	TRUE	TRUE
SS d	Direct Ingestion and Dermal Contact	FALSE	TRUE	TRUE
S1	Leaching to Groundwater from all Soils	TRUE	FALSE	
S b	Intrusion to Buildings - Subsurface Soils	FALSE	TRUE	

Matrix of Receptor Distance and Location on- or off-site	Residential		Commercial/Industrial	
	Distance	On-Site	Distance	On-Site
GW	Groundwater receptor (cm)	6.1E+03	FALSE	FALSE
S	Inhalation receptor (cm)	7.8E+02	FALSE	TRUE

Matrix of Target Risks	Individual		Cumulative	
	Distance	On-Site	Distance	On-Site
TRab	Target Risk (class A&B carcinogens)	1.0E-08		
TRc	Target Risk (class C carcinogens)	1.0E-05		
THQ	Target Hazard Quotient	1.0E+00		
Opt	Calculation Option (1, 2, or 3)	2		
Tier	RBCA Tier	2		

Surface Parameters	Definition (Units)	Residential		Commercial/Industrial	
		Chronic	Constructn	Chronic	Constructn
A	Exposure duration (yr)	30	1	25	1
W	Contaminated soil area (cm ²)	<u>7.0E+04</u>			<u>4.6E+04</u>
W gw	Length of affected soil parallel to wind (cm)	<u>7.5E+03</u>			<u>1.5E+03</u>
Uair	Length of affected soil parallel to groundwater (cm)	1.5E+03			
delta	Ambient air velocity in mixing zone (cm/s)	2.3E+02			
Lss	Air mixing zone height (cm)	2.0E+02			
Pe	Definition of surficial soils (cm)	1.0E+02			
	Particulate areal emission rate (g/cm ² /s)	<u>6.9E-14</u>			
	Value				
Groundwater	Definition (Units)				
delta gw	Groundwater mixing zone depth (cm)	2.0E+02			
I	Groundwater infiltration rate (cm/yr)	3.0E+01			
Ugw	Groundwater Darcy velocity (cm/yr)	<u>9.2E+01</u>			
Ugw tr	Groundwater Transport velocity (cm/yr)	<u>2.1E+02</u>			
Ks	Saturated Hydraulic Conductivity (cm/s)	9.2E-05			
grad	Groundwater Gradient (cm/cm)	2.8E-02			
Sw	Width of groundwater source zone (cm)	2.3E+03			
Sd	Depth of groundwater source zone (cm)	1.2E+02			
BC	Biodegradation Capacity (mg/L)	TRUE			
BIO?	Is Bioattenuation Considered	TRUE			
phi eff	Effective Porosity in Water-Bearing Unit	3.8E-01			
loc sat	Fraction organic carbon in water-bearing unit	1.0E-03			
	Value				
Soil	Definition (Units)				
hc	Capillary zone thickness (cm)	<u>9.1E+01</u>			
hv	Vadose zone thickness (cm)	<u>4.6E+01</u>			
rho	Soil density (g/cm ³)	1.66			
loc	Fraction of organic carbon in vadose zone	0.001			
phi	Soil porosity in vadose zone	0.38			
Lgw	Depth to groundwater (cm)	<u>1.4E+02</u>			
Ls	Depth to top of affected soil (cm)	1.0E+02			
Lsubs	Thickness of affected subsurface soils (cm)	<u>8.3E+01</u>			
pH	Soil/groundwater pH	6.5			
phi w	Volumetric water content	capillary			
phi a	Volumetric air content	0.342			
	Value				
	capillary	0.038			
	vadose	0.12			
	foundation	0.26			
	Commercial				
Building	Definition (Units)				
Lb	Building volume/area ratio (cm)	2.0E+02		3.0E+02	
ER	Building air exchange rate (h ⁻¹)	1.4E-04		2.3E-04	
Lcrk	Foundation crack thickness (cm)	1.5E+01			
ela	Foundation crack fraction	0.01			
	Residential				
	Commercial				
Dispersive Transport	Definition (Units)				
Groundwater					
ax	Longitudinal dispersion coefficient (cm)	6.1E+02			
ay	Transverse dispersion coefficient (cm)	2.0E+02			
az	Vertical dispersion coefficient (cm)	3.0E+0.			
Vapor					
dcy	Transverse dispersion coefficient (cm)	9.3E+01			
dcz	Vertical dispersion coefficient (cm)	6.4E+01			

GROUNDWATER DAF VALUES

(Enter DAF values in the grey area of the following table)

Dilution Attenuation Factor
(DAF) in Groundwater

CONSTITUENT	Dilution Attenuation Factor (DAF) in Groundwater	
	Residential Receptor	Comm./Ind. Receptor
Benzene	2.4E+4	1.0E+0
Ethylbenzene	4.5E+8	1.0E+0
Toluene	1.3E+27	1.0E+0
Xylene (mixed isomers)	1.9E+8	1.0E+0

Site Name: NSGA Sugar Grove

Completed By: A4F

Site Location: Sugar Grove, West Virginia

Date Completed: 6/13/1996

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CONSTITUENT HALF-LIFE VALUES

(Complete the following table)

CONSTITUENT	Half-Life of Constituent (day)
Benzene	720
Ethylbenzene	228
Toluene	28
Xylene (mixed isomers)	360

Site Name: NSGA Sugar Grove Completed By: A4F
Site Location: Sugar Grove, West Virginia Date Completed: 6/13/1996

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RBCA CHEMICAL DATABASE

Physical Property Data

Vapor

CAS Number	Constituent	type	Molecular Weight		Diffusion Coefficients		log (Koc) or log(Kd) (@ 20 - 25 C) (l/kg)	Henry's Law Constant (@ 20 - 25 C) (atm-m ³ /mol)	Pressure (mm Hg) Pure	Solubility (mg/l) Pure	acid pKa	base pKb				
			MW	ref	In air (cm ² /s)	In water (cm ² /s)							Component ref	Component ref		
71-43-2	Benzene	A	78.1	5	9.30E-02	A	1.10E-05	A	1.58	5.29E-03	2.20E-01	A	9.52E+01	4	1.75E+03	A
100-41-4	Ethylbenzene	A	106.2	5	7.60E-02	A	8.50E-06	A	1.98	7.69E-03	3.20E-01	A	1.00E+01	4	1.52E+02	5
108-88-3	Toluene	A	92.4	5	8.50E-02	A	9.40E-06	A	2.13	6.25E-03	2.60E-01	A	3.00E+01	4	5.15E+02	29
1330-20-7	Xylene (mixed isomers)	A	106.2	5	7.20E-02	A	8.50E-06	A	2.38	6.97E-03	2.90E-01	A	7.00E+00	4	1.98E+02	5

Site Name: NSGA Sugar Grove Site Location: Sugar Grove, West Completed By: A4F Date Completed: 6/13/1996

Software version: v 1.0

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RBCA CHEMICAL DATABASE

Toxicity Data

CAS Number	Constituent	Reference Dose (mg/kg/day)		Inhalation		Oral		Slope Factors 1/(mg/kg/day)		Inhalation SF _{Inhal}	ref	EPA Weight of Evidence	Is Constituent Carcinogenic ?
		RTD _{oral}	ref	RTD _{Inhal}	ref	RTD _{oral}	ref	RTD _{oral}	ref				
71-43-2	Benzene	-	R	1.70E-03	R	2.90E-02	A	2.90E-02	A	2.90E-02	A	A	TRUE
100-41-4	Ethylbenzene	1.00E-01	A	2.86E-01	A	-	R	-	R	-	R	D	FALSE
108-88-3	Toluene	2.00E-01	A,R	1.14E-01	-	-	R	-	R	-	R	D	FALSE
1330-20-7	Xylene (mixed isomers)	2.00E+00	A,R	2.00E+00	A	-	R	-	R	-	R	D	FALSE

Site Name: NSGA Sugar Site Location: Sugar Grove, West Vir Completed By: A4F Date Completed: 6/13/1996

Software version: v 1.0

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Table 5-2

BTEX Exposure Concentrations

REPRESENTATIVE COC CONCENTRATIONS IN SOURCE MEDIA

(Complete the following table)

CONSTITUENT	Representative COC Concentration				
	in Groundwater value (mg/L)	note	in Surface Soil value (mg/kg)	in Subsurface Soil value (mg/kg)	note
Benzene	7.3E-2	MW-1		8.8E-1	MW-1
Ethylbenzene	5.9E-2	MW-1		1.1E+0	MW-1
Toluene	8.0E-3	MW-1		3.6E+0	MW-1
Xylene (mixed isomers)	4.2E-2	MW-1		5.6E+0	MW-1

Site Name: NSGA Sugar Grove

Site Location: Sugar Grove, West Virginia

Completed By: A4F

Date Completed: 6/13/1996

Table 5-3

Summary of Daily Intakes (mg/kg/day)

Site Name: NSGA Sugar Grove

Site Location: Sugar Grove, West Virginia

Completed By: A4F

Date Completed: 6/13/1996

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

AIR EXPOSURE PATHWAYS

SURFACE SOILS: VAPOR AND

DUST RESUSPENSION

EXPOSURE CONCENTRATION

Exposure Concentration

Soil Concentration

Constituents of Concern	1) SOURCE MEDIUM		2) NAF Value (m ³ /kg) Receptor		3) Exposure Medium Air: POE Conc. (mg/m ³) (1)/(2)		4) Exposure Multiplier: (IR*EF*ED)/(BW*AT) (hr*kg/day)		5) Average Daily Intake Rate (mg/kg day) (3) X (4)	
	Surface Soil Conc. (mg/kg)	Off-Site Commercial	Off-Site Commercial	Off-Site Commercial	Off-Site Commercial	Off-Site Commercial	Off-Site Commercial	Off-Site Commercial	Off-Site Commercial	Off-Site Commercial
Benzene	0.0E+0	1.4E+5	1.4E+5	0.0E+0	0.0E+0	7.0E-2	0.0E+0	0.0E+0	0.0E+0	0.0E+0
Ethylbenzene	0.0E+0	1.4E+5	1.4E+5	0.0E+0	0.0E+0	2.0E-1	0.0E+0	0.0E+0	0.0E+0	0.0E+0
Toluene	0.0E+0	1.4E+5	1.4E+5	0.0E+0	0.0E+0	2.0E-1	0.0E+0	0.0E+0	0.0E+0	0.0E+0
Xylene (mixed isomers)	0.0E+0	1.4E+5	1.4E+5	0.0E+0	0.0E+0	2.0E-1	0.0E+0	0.0E+0	0.0E+0	0.0E+0

NOTE: ABS = Dermal absorption factor (dim)
AF = Adherence factor
AT = Averaging time (days)

BW = Body Weight (kg)
CF = Unit conversion factor
ED = Exp. duration (yrs)

EF = Exposure frequency (days/yr)
ET = Exposure time (hrs/day)
IR = Intake rate (L/day or mg/day)

POE = Point of exposure
SA = Skin surface area (cm²)

Site Name: NSGA Sugar Grove

Site Location: Sugar Grove, West Virginia

Completed By: AAF

Date Completed: 6/13/1996

2 OF 6

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

III AIR EXPOSURE PATHWAYS

(CHECKED IF PATHWAY IS ACTIVE)

Subsurface Soil Concentration

Constituents of Concern	1) Source Medium Subsurface Soil Conc. (mg/kg)		2) MAF Value (m ³ /kg) Receptor		3) Exposure Medium Air POE Conc. (mg/m ³) (1) / (2)		4) Exposure Multiplier (IR x ET x EF x BW) (m ³ kg-day)		5) Average Daily Intake Rate (mg/kg-day) (3) X (4)		TOTAL PATHWAY INTAKE (mg/kg-day) (sum intake values from surface & subsurface routes.)	
	On-Site Commercial	Off-Site Residential	On-Site Commercial	Off-Site Residential	On-Site Commercial	Off-Site Residential	On-Site Commercial	Off-Site Residential	On-Site Commercial	Off-Site Residential	On-Site Commercial	Off-Site Residential
Benzene	8.8E-1	8.3E+5	1.7E+5	8.3E+5	5.2E-6	1.1E-6	7.0E-2	1.2E-1	3.6E-7	1.2E-7	3.6E-7	1.2E-7
Ethylbenzene	1.1E+0	8.3E+5	1.7E+5	8.3E+5	6.5E-6	1.3E-6	2.0E-1	2.7E-1	1.3E-6	3.6E-7	1.3E-6	3.6E-7
Toluene	3.6E+0	8.3E+5	1.7E+5	8.3E+5	2.1E-5	4.3E-6	2.0E-1	2.7E-1	4.2E-6	1.2E-6	4.2E-6	1.2E-6
Xylene (mixed isomers)	5.6E+0	8.3E+5	1.7E+5	8.3E+5	3.3E-5	6.7E-6	2.0E-1	2.7E-1	6.5E-6	1.8E-6	6.5E-6	1.8E-6

NOTE: ABS = Dermal absorption factor (dim)
AF = Adherence factor
AT = Averaging time (days)

BW = Body Weight (kg)
CF = Units conversion factor
ED = Exp. duration (yrs)

EF = Exposure frequency (days/yr)
ET = Exposure time (hrs/day)
IR = Intake rate (L/day or mg/day)

POE = Point of exposure
SA = Skin surface area (cm²)

Site Name: NSGA Sugar Grove Site Location: Sugar Grove, West Virginia Completed By: A4F Date Completed: 6/13/1996 3 OF 6

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

SOIL EXPOSURE PATHWAYS

SURFACE SOILS OR SEDIMENTS:
DERMAL CONTACT

■ (CHECKED IF PATHWAY IS ACTIVE)

Exposure Concentration

Constituents of Concern	1) Source Medium		4) Exposure Multiplier (SA _{AF} × ABS × CF × EF × ED) / (BW × AT) (1/day)		5) Average Daily Intake Rate (mg/kg day)	
	Surface Soil Conc. (mg/kg)	On-Site Residential	On-Site Commercial	On-Site Residential	On-Site Commercial	
Benzene	0.0E+00		1.0E-5		0.0E+00	
Ethylbenzene	0.0E+00		2.8E-5		0.0E+00	
Toluene	0.0E+00		2.8E-5		0.0E+00	
Xylene (mixed isomers)	0.0E+00		2.8E-5		0.0E+00	

NOTE: ABS = Dermal absorption factor (dim)
AF = Adherence factor
AT = Averaging time (days)

BW = Body Weight (kg)
CF = Units conversion factor
ED = Exp. duration (yrs)

EF = Exposure frequency (days/yr)
ET = Exposure time (hr/day)
IR = Intake rate (L/day or mg/day)

POE = Point of exposure
SA = Skin surface area (cm²)

RBCA SITE ASSESSMENT

Tier 2 Worksheet 8.1

Site Name: NSGA Sugar Grove Site Location: Sugar Grove, West Virginia Completed By: AAF Date Completed: 6/13/1996 4 OF 6

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

SOIL EXPOSURE PATHWAYS

SURFACE SOILS OR SEDIMENTS:
INGESTION

☐ CHECKED ☐ PATHWAY IS ACTIVE

Exposure Concentration

Constituents of Concern	1) Source Medium		4) Exposure Multiplier (IR*CF*ED)/(BW*AT) (1/day)		5) Average Daily Intake Rate (mg/kg-day)		TOTAL PATHWAY INTAKE (mg/kg-day) (Sum intake values from dermal & ingestion routes)	
	Surface Soil Conc. (mg/kg)	On-Site Residential	On-Site Commercial	On-Site Residential	On-Site Commercial	On-Site Residential	On-Site Commercial	
Benzene	0.0E+0		1.7E-7		0.0E+0		0.0E+0	
Ethylbenzene	0.0E+0		4.9E-7		0.0E+0		0.0E+0	
Toluene	0.0E+0		4.9E-7		0.0E+0		0.0E+0	
Xylene (mixed isomers)	0.0E+0		4.9E-7		0.0E+0		0.0E+0	

NOTE:

ABS = Dermal absorption factor (dim) BW = Body Weight (kg) EF = Exposure frequency (days/yr)
 AF = Adherence factor CF = Units conversion factor ET = Exposure time (hrs/day)
 AT = Averaging time (days) ED = Exp. duration (yrs) IR = Intake rate (L/day or mg/day)
 SA = Skin surface area (cm²)

Site Name: NSGA Sugar Grove

Site Location: Sugar Grove, West Virginia Completed By: A4F

Date Completed: 6/13/1996

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

SOIL LEACHING TO GROUNDWATER

EXPOSURE PATHWAYS (CHECKED IF PATHWAY IS ACTIVE)

EXPOSURE CONCENTRATION

Constituents of Concern	1) SOURCE MEDIUM		2) NAE VALUE (L/kg) Receptor		Groundwater Concentration (mg/L) (1)(2)	4) EXPOSURE MULTIPLIER (IR*EF*ED)/(BW*AT) (L/kg-day)	5) Average Daily Intake Rate (mg/kg-day)
	Soil Concentration (mg/kg)	Off-Site Residential	Off-Site Residential	Off-Site Residential			
Benzene	8.8E-1	4.7E+3	1.9E-4	1.7E-2			2.2E-6
Ethylbenzene	1.1E+0	1.4E+8	8.1E-9	2.7E-2			2.2E-10
Toluene	3.6E+0	4.3E+26	8.4E-27	2.7E-2			2.3E-28
Xylenes (mixed isomers)	5.6E+0	9.1E+7	6.2E-8	2.7E-2			1.7E-9

NOTE: AT = Averaging time (days)

BW = Body Weight (kg)

EF = Exposure frequency (days/yr)

POE = Point of exposure

CF = Units conversion factor

IR = Intake rate (L/day)

ED = Exp. duration (yrs)

Site Name: NSGA Sugar Grove Site Location: Sugar Grove, West Virginia Completed By: A4F Date Completed: 6/13/1996 6 OF 6

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

GROUNDWATER EXPOSURE PATHWAYS CHEMICAL PATHWAY IS ACTIVE

Constituents of Concern	1) Source Medium Exposure Concentration		2) MAF Value (gim) Receptor	3) Exposure Medium Groundwater: POE Cons. (mg/L) (1)(2)	4) Exposure Multiplier (IR*EF*ED)/(BW*AT) (Ug-day)	5) Average Daily Intake Rate (mg/kg-day)	MAX. PATHWAY INTAKE (mg/kg-day) (Maximum Intake of active pathways not including groundwater routes.)	
	Groundwater Concentration (mg/L)	Off-Site Residential					Off-Site Residential	Off-Site Residential
Benzene	7.3E-2	2.4E+4	3.1E-6	1.2E-2	3.6E-8	2.2E-6	2.2E-6	
Ethylbenzene	5.9E-2	4.5E+8	1.3E-10	2.7E-2	3.6E-12	2.2E-10	2.2E-10	
Toluene	8.0E-3	1.3E+27	6.3E-30	2.7E-2	1.7E-31	2.3E-28	2.3E-28	
Xylene (mixed isomers)	4.2E-2	1.9E+8	2.3E-10	2.7E-2	6.2E-12	1.7E-9	1.7E-9	

NOTE: AT = Averaging time (days)
 BW = Body Weight (kg)
 CF = Units conversion factor
 ED = Exp. duration (yrs)

EF = Exposure frequency (days/yr)
 IR = Intake rate (L/day or mg/day)

POE = Point of exposure

Table 5-4

Maximum Contaminant Level

RBCA CHEMICAL DATABASE

Miscellaneous Chemical Data

CAS Number	Constituent	Maximum Contaminant Level		Permissible Exposure Limit PEL/TLV (mg/m3)	Relative Absorption Factors	Detection Limits		Half Life (First-Order Decay) (days)	
		MCL (mg/L)	reference			Groundwater (mg/L)	Soil (mg/kg)	Saturated	Unsaturated
71-43-2	Benzene	5.00E-03	52 FR 25690	3.20E+00	OSHA 1	0.002	0.005	720	720
100-41-4	Ethylbenzene	7.00E-01	6 FR 3526 (30 Jan 91)	4.34E+02	ACGIH 1	0.002	0.005	228	228
108-88-3	Toluene	1.00E+00	6 FR 3526 (30 Jan 91)	1.47E+02	ACGIH 1	0.002	0.005	28	28
1330-20-7	Xylene (mixed isomers)	1.00E+01	6 FR 3526 (30 Jan 91)	4.34E+02	ACGIH 1	0.005	0.005	360	360

Site Name: NSGA Sugar Site Location: Sugar Grove, West Virginia Completed By: A4F Date Completed: 6/13/1996

Software version: v 1.0

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Table 5-5

Carcinogenic Slope Factors and Potential Carcinogenic Effects

RBCA SITE ASSESSMENT

Tier 2 Worksheet B.2

Site Name: NSGA Sugar Grove

Site Location: Sugar Grove, West Virginia Completed By: AAF

Date Completed: 6/13/1996

1 OF 3

TIER 2 PATHWAY RISK CALCULATION

AIR EXPOSURE PATHWAYS

☐ (CHECKED) ☐ PATHWAYS ARE ACTIVE

CARCINOGENIC RISK

(1) EPA Carcinogenic Classification	(2) Total Carcinogenic Intake Rate (mg/kg/day)		(3) Inhalation Slope Factor (mg/kg-day) ⁻¹	(4) Individual COC Risk (2) x (3)		(5) Total Toxicant Intake Rate (mg/kg/day)		(6) Inhalation Reference Dose (mg/kg-day)	(7) Individual COC Hazard Quotient (5) / (6)	
	On-Site Commercial	Off-Site Residential		On-Site Commercial	Off-Site Residential	On-Site Commercial	Off-Site Residential		On-Site Commercial	Off-Site Residential
A	3.6E-7	1.2E-7	2.9E-2	1.1E-8	3.6E-9	1.0E-6	2.9E-7	1.7E-3	6.0E-4	1.7E-4
D						1.3E-6	3.6E-7	2.9E-1	4.5E-6	1.3E-6
D						4.2E-6	1.2E-6	1.1E-1	3.6E-5	1.0E-5
D						6.5E-6	1.8E-6	2.0E+0	3.2E-6	9.2E-7

Total Pathway Carcinogenic Risk = 1.1E-8

Total Pathway Hazard Index = 6.4E-4

RBCA SITE ASSESSMENT

Tier 2 Worksheet 8.2

Site Name: NSGA Sugar Grove

Site Location: Sugar Grove, West Virginia Completed By: A4F

Date Completed: 6/13/1996

2 OF 3

TIER 2 PATHWAY RISK CALCULATION

SOIL EXPOSURE PATHWAYS

(CHECKED IF PATHWAYS ARE ACTIVE)

CARCINOGENIC RISK

Constituents of Concern	(1) EPA Carcinogenic Classification	(2) Total Carcinogenic Intake Rate (mg/kg/day)		(3) Oral Slope Factor (mg/kg-day) ⁻¹	(4) Individual Risk (2) x (3)	(5) Total Toxicant Intake Rate (mg/kg/day)		(6) Oral Reference Dose (mg/kg/day)	(7) Individual COC Hazard Quotient (5) / (6)	
		On-Site Residential	On-Site Commercial			On-Site Residential	On-Site Commercial		On-Site Residential	On-Site Commercial
Benzene	A		0.0E+0	2.9E-2	0.0E+0					
Ethylbenzene	D						0.0E+0	1.0E-1		0.0E+0
Toluene	D						0.0E+0	2.0E-1		0.0E+0
Xylenes (mixed isomers)	D						0.0E+0	2.0E+0		0.0E+0

Total Pathway Carcinogenic Risk = 0.0E+0

Total Pathway Hazard Index = 0.0E+0

RBCA SITE ASSESSMENT

Tier 2 Worksheet 8.2

Site Name: NSGA Sugar Grove Site Location: Sugar Grove, West Virginia Completed By: A4F Date Completed: 6/13/1996 3 OF 3

TIER 2 PATHWAY RISK CALCULATION

GROUNDWATER EXPOSURE PATHWAYS **CHECKED FOR PATHWAYS ARE ACTIVE**

Constituents of Concern	(1) EPA Carcinogenic Classification	CARCINOGENIC RISK			TOXIC EFFECTS		
		(2) Total Carcinogenic Intake Rate (mg/kg/day)	(3) Oral Slope Factor (mg/kg-day) ⁻¹	(4) Individual Risk (2) x (3)	(5) Total Toxicant Intake Rate (mg/kg/day)	(6) Oral Reference Dose (mg/kg/day)	(7) Individual COC Hazard Quotient (5) / (6)
Benzene	A	Off-Site Residential 2.2E-6	2.9E-2	Off-Site Residential 6.4E-8	Off-Site Residential 2.2E-10	1.0E-1	Off-Site Residential 2.2E-9
Ethylbenzene	D				2.3E-28	2.0E-1	1.2E-27
Toluene	D				1.7E-9	2.0E+0	8.4E-10
Xylene (mixed isomers)	D						
		Total Pathway Carcinogenic Risk = 0.0E+0 6.4E-8			Total Pathway Hazard Index = 0.0E+0 3.1E-9		

Table 5-6

Summary of Hazard Indices and Cancer Risks

RBCA SITE ASSESSMENT

Tier 2 Worksheet 8.3

Site Name: NSGA Sugar Grove

Completed By: A4F

Site Location: Sugar Grove, West Virginia

Date Completed: 6/13/1996

TIER 2 BASELINE RISK SUMMARY TABLE

BASELINE CARCINOGENIC RISK				BASELINE TOXIC EFFECTS						
EXPOSURE PATHWAY	Individual COC Risk		Cumulative COC Risk		Risk Limit(s) Exceeded?	Hazard Quotient		Hazard Index	Toxicity Limit(s) Exceeded?	
	Maximum Value	Target Risk	Total Value	Target Risk		Maximum Value	Applicable Limit			Total Value
AIR EXPOSURE PATHWAYS										
Complete:	1.1E-8	1.0E-6	1.1E-8	N/A	<input type="checkbox"/>	6.0E-4	1.0E+0	6.4E-4	N/A	<input type="checkbox"/>
GROUNDWATER EXPOSURE PATHWAYS										
Complete:	6.4E-8	1.0E-6	6.4E-8	N/A	<input type="checkbox"/>	2.2E-9	1.0E+0	3.1E-9	N/A	<input type="checkbox"/>
SOIL EXPOSURE PATHWAYS										
Complete:	0.0E+0	1.0E-6	0.0E+0	N/A	<input type="checkbox"/>	0.0E+0	1.0E+0	0.0E+0	N/A	<input type="checkbox"/>
CRITICAL EXPOSURE PATHWAY (Select Maximum Values From Complete Pathways)										
	6.4E-8	1.0E-6	6.4E-8	N/A	<input type="checkbox"/>	6.0E-4	1.0E+0	6.4E-4	N/A	<input type="checkbox"/>

Total Risk for Each Pathway

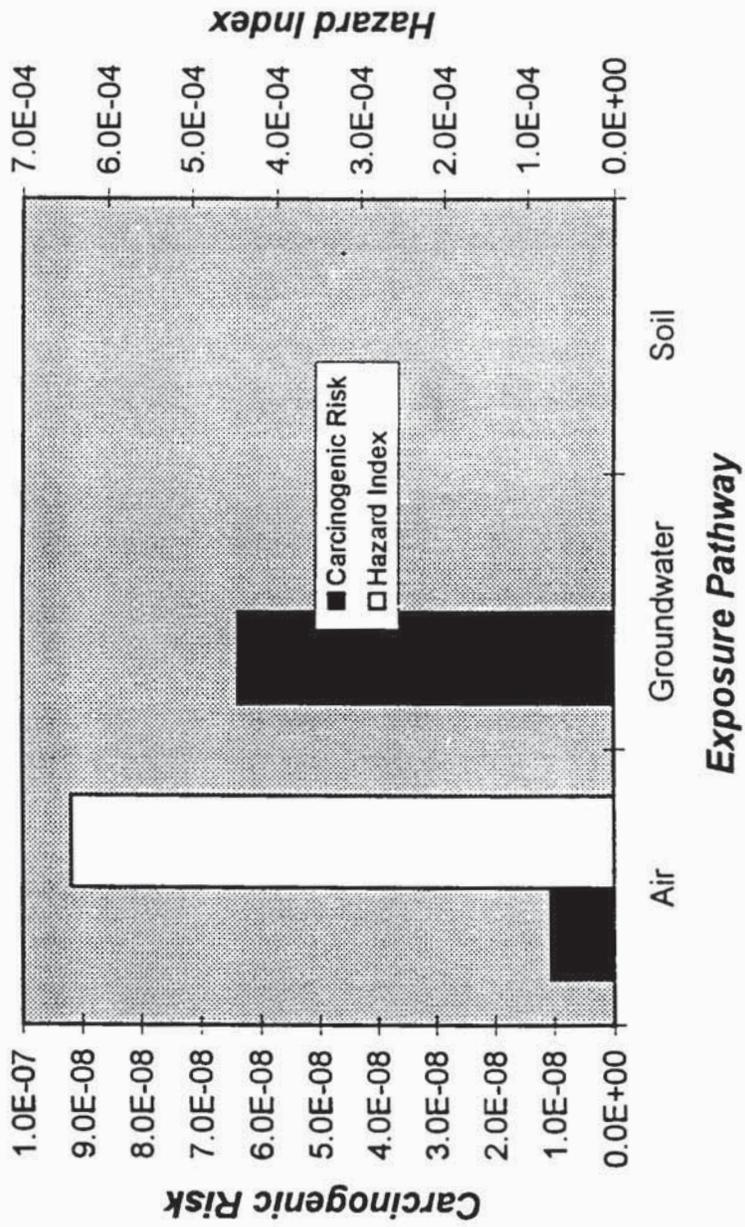


Table 5-7

Site-Specific Target Levels

RBCA SITE ASSESSMENT

Tier 2 Worksheet 9.1

Site Name: NSGA Sugar Grove

Site Location: Sugar Grove, West Virginia

Completed By: A4F

Date Completed: 6/13/1996

1 OF 1

SURFACE SOIL SSTL VALUES
(< 3 FT BGS)

Calculation Option: 2

Target Risk (Class A & B) 1.0E-6 MCL exposure limit?

Target Risk (Class C) 1.0E-5 PEL exposure limit?

Target Hazard Quotient 1.0E+0

SSTL Results For Complete Exposure Pathways ("x" if Complete)

CAS No.	Name	Representative Concentration (mg/kg)	Soil Leaching to Groundwater		Ingestion, Inhalation and Dermal Contact		Construction Worker	Applicable SSTL (mg/kg)	SSTL Exceeded ?	Required CRF
			Residential: 200 feet	Commercial: (on-site)	Residential: (on-site)	Commercial: 0 feet				
71-43-2	Benzene	0.0E+0	1.4E+1	NA	NA	3.2E+0	7.2E+1	3.2E+0	<input type="checkbox"/>	Only if "yes" left <1
100-41-4	Ethylbenzene	0.0E+0	>Res	NA	NA	>Res	>Res	>Res	<input type="checkbox"/>	<1
108-88-3	Toluene	0.0E+0	>Res	NA	NA	>Res	>Res	>Res	<input type="checkbox"/>	<1
1330-20-7	Xylene (mixed isomers)	0.0E+0	>Res	NA	NA	>Res	>Res	>Res	<input type="checkbox"/>	<1

RBCA SITE ASSESSMENT

Tier 2 Worksheet 9.2

Site Name: NSGA Sugar Grove
 Site Location: Sugar Grove, West Virginia
 Completed By: A4F
 Date Completed: 6/13/1996
 Target Risk (Class A & B) 1.0E-6
 Target Risk (Class C) 1.0E-5
 Target Hazard Quotient 1.0E+0
 Calculation Option: 2
 1 OF 1

SUBSURFACE SOIL SSTL VALUES
 (> 3 FT BGS)

CAS No.	Name	Representative Concentration (mg/kg)	Soil Leaching to Groundwater		Soil Volatilization to Indoor Air		Soil Volatilization to Outdoor Air		Applicable SSTL (mg/kg)	SSTL Exceeded ⁷	Required CRF
			Residential: 200 feet	Commercial: (on-site) 200 feet	Residential: (on-site)	Commercial: (on-site)	Residential: 25 feet	Commercial: (on-site)			
71-43-2	Benzene	8.8E-1	1.4E+1	NA	NA	2.0E-1	2.0E-1	8.3E+1	2.0E-1	<input checked="" type="checkbox"/>	Only if "yes" left 5.0E+00
100-41-4	Ethylbenzene	1.1E+0	>Res	NA	NA	>Res	>Res	>Res	>Res	<input type="checkbox"/>	<1
108-88-3	Toluene	3.6E+0	>Res	NA	NA	>Res	>Res	>Res	>Res	<input type="checkbox"/>	<1
1330-20-7	Xylene (mixed isomers)	5.6E+0	>Res	NA	NA	>Res	>Res	>Res	>Res	<input type="checkbox"/>	<1

SSTL Results For Complete Exposure Pathways ("X" If Complete)

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 Version: v 1.0
 Serial: G-381-QAX-900

RBCA SITE ASSESSMENT

Site Name: NSGA Sugar Grove
 Site Location: Sugar Grove, West Virginia
 Completed By: AAF
 Date Completed: 6/13/1996
 Target Risk (Class A & B) 1.0E-6
 Target Risk (Class C) 1.0E-5
 Target Hazard Quotient 1.0E+0
 MCL exposure limit?
 PEL exposure limit?
 Calculation Option: 2

GROUNDWATER SSTL VALUES

CAS No.	Name	Representative Concentration (mg/L)	Groundwater Ingestion		Groundwater Volatilization		Groundwater Volatilization		Applicable SSTL (mg/L)	SSTL Exceeded? <input type="checkbox"/> If yes	Required CRF
			Residential: 200 feet	Commercial: (on-site)	Residential: (on-site)	Commercial: (on-site)	Residential (on-site)	Commercial (on-site)			
71-43-2	Benzene	7.3E-2	7.0E+1	NA	NA	6.8E-1	2.8E+2	6.8E-1	<input type="checkbox"/>	<1	
100-41-4	Ethylbenzene	5.9E-2	>Sol	NA	NA	>Sol	>Sol	>Sol	<input type="checkbox"/>	<1	
108-88-3	Toluene	8.0E-3	>Sol	NA	NA	>Sol	>Sol	>Sol	<input type="checkbox"/>	<1	
1330-20-7	Xylene (mixed isomers)	4.2E-2	>Sol	NA	NA	>Sol	>Sol	>Sol	<input type="checkbox"/>	<1	

SSTL Results For Complete Exposure Pathways ["X" if Completes]

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Table 5-8
Exposure Limits at
Off-Site Receptor

RBCA ALTERNATE POINT OF COMPLIANCE

Groundwater Pathway

CAS No.	Constituent	Source Zone Groundwater SSTL (mg/L)	SSTLs at Alternate Points of Compliance Enter Distance From Source Below (feet)				POE Exposure Limit Off-Site Receptor
			25 (ft)	50 (ft)	100 (ft)	200 (ft)	
			71-43-2	Benzene	7.0E+1	1.1E+1	
100-41-4	Ethylbenzene	>Sol	>Sol	>Sol	>Sol	3.7E+0	
108-88-3	Toluene	>Sol	>Sol	>Sol	>Sol	7.3E+0	
1330-20-7	Xylene (mixed isomers)	>Sol	>Sol	>Sol	>Sol	7.3E+1	

Serial: G-381-QAX-900

Software: GSI RBCA Spreadsheet

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Version: v 1.0

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FRENCH CREEK, WV 26218

**Final Site Assessment Report
Underground Storage Tank
Site 205/206
Naval Security Group Activity
Sugar Grove, West Virginia**

Prepared for:
Atlantic Division
Naval Facilities Engineering Command
Norfolk, Virginia
Contract No. N62470-93-D-4019
Delivery Order 0042

Prepared by:
Environmental Science & Engineering, Inc.
Herndon, Virginia

February 1996

ESE Project No. 2195272G-0003-2100

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Appendix B	Boring Logs
Appendix C	Interview Records
Appendix D	Laboratory Results
Appendix E	Chain of Custody
Appendix F	Laboratory Certification Documentation

Executive Summary

Environmental Science & Engineering, Inc. (ESE) was contracted by the Atlantic Division, Naval Facilities Engineering Command on 19 September 1995 to prepare a site assessment report for underground storage tank (UST) 205/206 site, Naval Security Group Activity (NSGA) Sugar Grove, West Virginia. ESE performed the work under contract number N62470-93-D-4019, Indefinite Quantity Contract for Accomplishment of Petroleum Storage Tank Site Checks and Preparation of Site Assessments/Characterizations, Corrective Action Plans, and Remedial Design Documents.

UST 205 was a 4000-gallon heating oil tank used to supply the adjacent barracks (Building 63). During closure activities in May 1995, soil samples indicated total petroleum hydrocarbon (TPH) impact. Approximately 30 cubic yards in the tank basin and 1 cubic yard along the piping were excavated, and then backfilled with clean soil following tank and piping removal.

UST 206 was a 550-gallon diesel tank used to supply the emergency generator adjacent to Building 63. Phase-separated hydrocarbon (PSH) was noted in the tank basin during closure activities in March 1995. Soil sampled indicated TPH impact, and 2 cubic yards of contaminated soil were excavated. The West Virginia Department of Environmental Protection (WVDEP) inspection onsite at the time indicated that a site assessment was required for both tanks (29 May 1995).

The South Fork of the South Branch of the Potomac River represents a potential downgradient receptor. Additionally, some residences downgradient of the site obtain their water from springs or private wells and could be potential sensitive receptors. Underground utilities at the site could also act as a migratory preferential pathway.

Field screening results of soil samples indicated little to no vapor-phase hydrocarbon (VPH) impact to soil, and laboratory analyses indicated no adsorbed-phase hydrocarbon (APH) impact. PSH and dissolved-phase hydrocarbon (DPH) impact to groundwater are not anticipated due to the lack of VPH and APH impact to soil.

The exposure assessment determined that chemicals of concern (COCs) were not present above the method detection limits and exposure pathways were incomplete; therefore, no risk is present. COC levels indicate that there is no potential impact to human health and the environment at the site. As a result, soil and groundwater cleanup are not required, future monitoring is not warranted, and ESE recommends no further action at the site.

1.0 Site Description

1.1 Background/Site History

Underground storage tank (UST) 205 was a 4000-gallon heating oil tank used to supply the adjacent barracks (Building 63). Geotechnical & Environmental Services, Inc. (GES) supervised closure activities for the UST in May 1995 (GES, 1995). Water observed in the tank bottom prior to removal was likely due to tank leakage, according to the contractor. The UST basin soils were impacted by petroleum, and soil samples indicated total petroleum hydrocarbon (TPH) impact. Soil samples along the delivery line also indicated TPH impact. Approximately 30 cubic yards in the tank basin and 1 cubic yard along the piping were excavated, and then backfilled with clean soil following tank and piping removal.

UST 206 was a 550-gallon diesel tank used to supply the emergency generator adjacent to Building 63. GES supervised the UST closure in March 1995, and observed phase-separated hydrocarbon (PSH) in the tank basin, stained tank basin soils, and holes in the UST. Soil samples indicated TPH impact, resulting in overexcavating approximately 2 cubic yards of contaminated soils from the basin bottom. The West Virginia Department of Environmental Protection (WVDEP) inspector onsite at the time indicated that a site assessment was required for both tanks (Appendix C). Photographs of the site are included in Appendix A.

1.2 Facility Description

The site is located on Sugar Grove Road in a rural section of Pendleton County, West Virginia, between the towns of Sugar Grove and Brandywine (Figure 1-1). NSGA Sugar Grove consists of an operations site (radio and satellite station) and a separate support station located approximately 2 miles to the north.

Land use at the Support Site is residential (Figure 1-2). Building 63 (due east of the site) is a barracks and galley, and a picnic area and vegetated lot with tennis courts are located west and north, respectively. Land use south of the site is light industrial.

Topography in the area is characterized by precipitous mountains to the east and west separated by a valley shaped by the South Fork of the South Branch Potomac River. The topography has a north-south trend that is closely related to the tectonic history of the area. NSGA Sugar Grove is located on a river terrace of alluvial deposits within this valley.

The topography immediately surrounding the site is relatively flat, sloping slightly west to the South Fork. The US Geological Survey (USGS, 1981) 7.5-minute topographic map of the Sugar Grove,

West Virginia quadrangle (Figure 1-1) indicates that overall site elevations range from approximately 1680 feet above mean sea level (msl) in the west to 1760 feet msl in the east.

Site surface drainage flows into the adjacent South Fork, approximately 300 feet to the west (Figure 1-1). Several storm water systems located on the base discharge to the South Fork, which flows into the South Branch Potomac River approximately 35 miles northeast of the site.

1.3 Potential Sensitive Receptors and Migration Pathway

Potable water in the investigation area is supplied by both groundwater and surface water from public and private resources. The NSGA Sugar Grove water system derives approximately 20,000 to 25,000 gallons per day (gpd) from the South Fork water plant located immediately upstream of Building 20 (Figure 1-1).

The residences between the base and Brandywine are supplied with public water from the Pendleton County Public Service District (PSD). The water sources are a spring and well located upgradient (on the hill) about 0.5 mile north of the Support Site on the opposite (west) side of the South Fork (Figure 1-1). PSD records show that 12 residences between the Support Site and Brandywine are not connected to the public system and obtain their water from springs or private wells. The closest residence is approximately 0.6 mile northeast of the site. All documented wells in the area indicate a bedrock aquifer source (REWAI, 1994). However, it is likely that the source for groundwater at private residences is from a shallow bedrock aquifer (personal communication, Raymond Harr, Pendleton County Health Department Sanitarian) based on the depth of bedrock in the vicinity.

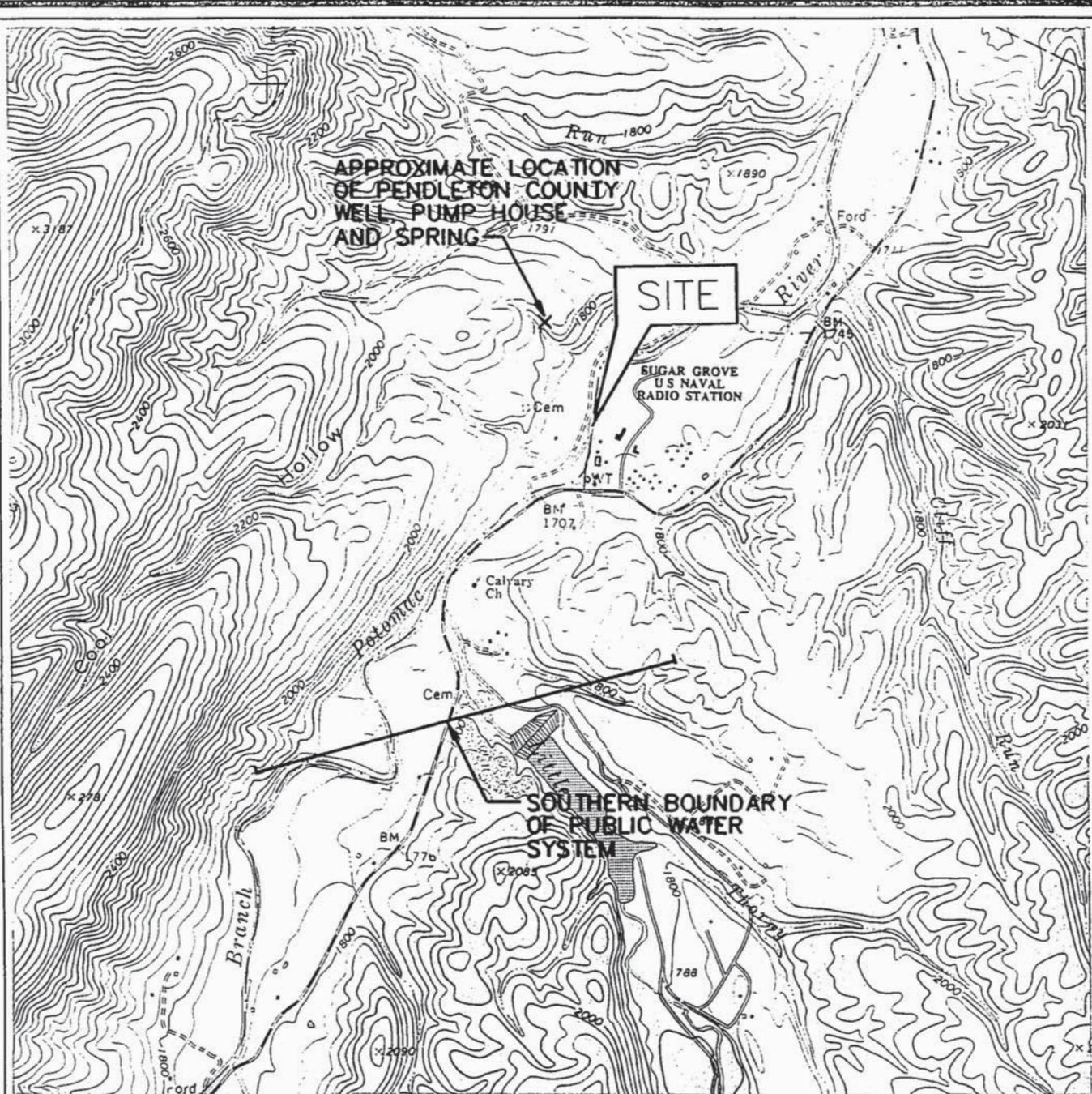
Residences located between the base and the Town of Sugar Grove to the south are supplied with water from private wells and mountain springs. Water supply wells in the Sugar Grove Magisterial District of Pendleton County are used for domestic purposes, with no known commercial or industrial use wells (REWAI, 1994).

The South Fork is a potential receptor downgradient of the impacted area. A water intake plant is located upstream and is not expected to be affected by the release. Typically, buildings on the base do not have basements due to the shallow water table beneath the site and are not potential receptors or migration pathways. Specifically, Building 63 (hydraulically upgradient of the UST pit) is slab on grade construction.

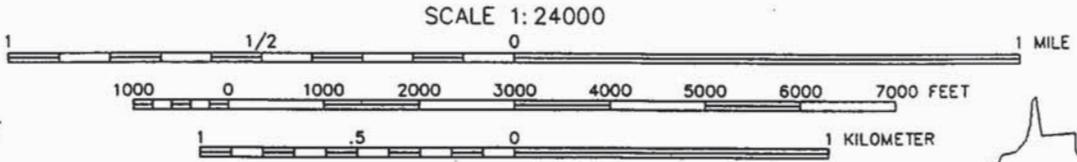
Underground utilities in the vicinity of the investigation area include telephone, cable TV, electric, water, and gas (Figure 1-3). All utilities are buried within 3 feet of ground surface. Based on the volume and proximity of these utilities, it is possible that any one of these could capture fugitive hydrocarbons and act as a migratory preferential pathway.

1.4 Adjacent Properties

ESE conducted an investigation with the WVDEP Public Information Office for facilities in the vicinity maintaining USTs, hazardous materials, or having been issued a mandate to perform environmental investigations (Appendix C). Other than NSGA Sugar Grove, no facilities within a 4-mile radius of the site maintain USTs, hazardous materials, or have environmental issues pending.

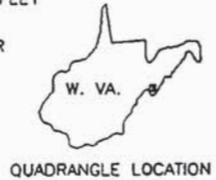


MN
GN
7' 124 MILS
1'03" 19 MILS
UTM GRID AND 1984
MAGNETIC NORTH
DECLINATION AT
CENTER OF SHEET



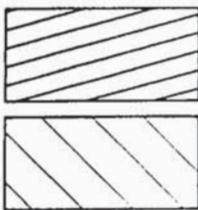
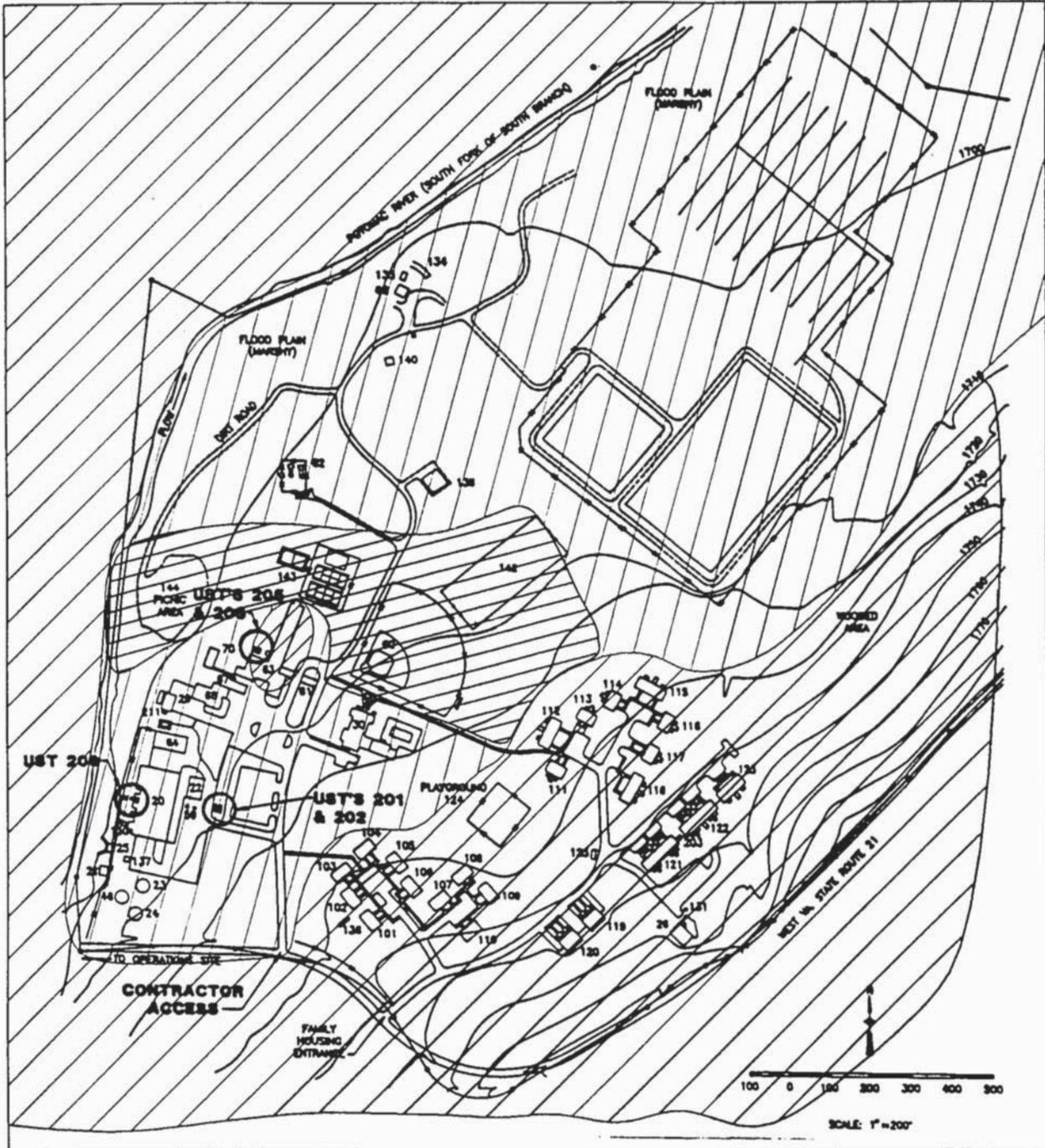
CONTOUR INTERVAL 40 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

CIRCLEVILLE QUADRANGLE



Environmental
Science &
Engineering

DATE 11-7-95	SCALE SHOWN	TITLE SITE LOCATION & TOPOGRAPHIC MAP SUGAR GROVE, W. VA.	
DRAWN BY TJF	APPROVED BY		
JOB NO. 2195272G-0004	DWG. NO./ REV. NO. SLT272G4	CLIENT NAVY-NSGA	FIGURE 1-1



RECREATIONAL

LIGHT INDUSTRIAL



RURAL RESIDENTIAL, BASE HOUSING OR UNDEVELOPED



Environmental
Science &
Engineering

DATE
12-6-95

DRAWN BY
TJF

JOB NO.
2195272G

SCALE
SHOWN

APPROVED BY

DWG. NO./ REV. NO.
LANDU1

TITLE

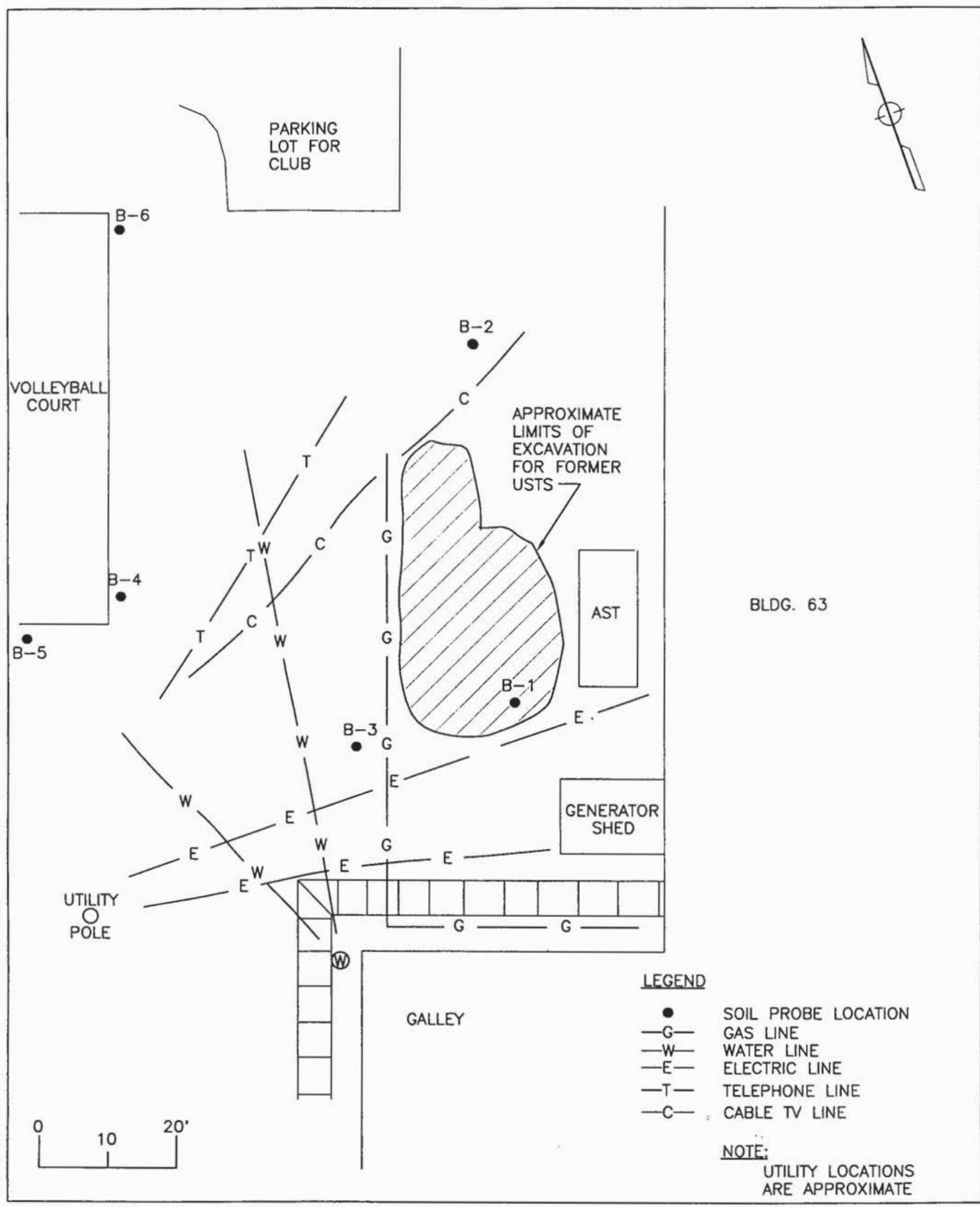
LOCAL LAND USE MAP
NSGA SUGAR GROVE, WV.

CLIENT

LANTDIV

FIGURE

1-2



- LEGEND**
- SOIL PROBE LOCATION
 - G— GAS LINE
 - W— WATER LINE
 - E— ELECTRIC LINE
 - T— TELEPHONE LINE
 - C— CABLE TV LINE

NOTE:
UTILITY LOCATIONS
ARE APPROXIMATE



**Environmental
Science &
Engineering**

DATE 12-8-95	SCALE 1" = 20'	TITLE	
DRAWN BY TJF	APPROVED BY	SITE PLAN USTs 205/206 NSGA SUGAR GROVE, WV.	
JOB NO. 2195272G	DWG. NO./ REV. NO. ST72G1B	CLIENT LANTDIV	FIGURE 1-3

2.0 Assessment Methodology

2.1 Soil Sampling

A total of six penetrometer holes (B-1 through B-6) were advanced on 2 November 1995 in the vicinity of the former UST pit to depths ranging from approximately 2.5 feet to 8.5 feet below ground surface (bgs) (Figure 1-3). Penetrometer holes were advanced by Zebra Environmental Corporation of Reston, Virginia, using an all-terrain vehicle (ATV) mounted geoprobe. An ESE geologist supervised all field work.

Soil penetrometer locations were selected in an effort to delineate the areal extent of soil contamination. Probe locations were selected proximal to and downgradient from the former UST pit limits of excavation. Preferred penetrometer locations were restricted due to the numerous underground utilities located in the vicinity and Building 63.

Continuous soil samples were collected at depths above the groundwater table interface using an open-tube design macro core (MC) sampler 2 inches in diameter and 44 inches long. Each MC sampler was fitted with a removable, clear, acetate liner that provided 4-foot continuous undisturbed soil cores. A closed, 2-foot large bore (LB) sampler was advanced during borehole collapse, opened using an inner rod to release the close pin, and driven to the desired sampling depth. The LB sampler also used the clear, removable, acetate liner.

Each soil sample was logged lithologically, and a representative portion was placed in a resealable bag. The remainder was placed in laboratory-supplied sample containers, labeled, and secured on ice. The bagged sample was allowed to volatilize for at least 10 minutes in a warm station. The headspace of the bag was then scanned with an organic vapor analyzer (OVA); readings are presented in the drill logs (Appendix B) and Table 4-1.

One to two soil samples were obtained from borings B-1 through B-4 and B-6 and placed in 4-ounce glass jars with Teflon® lids, secured on ice, and shipped overnight to ESE's Peoria, Illinois, laboratory to be analyzed for TPH as gasoline (5030/8015) and TPH as diesel (3550/8015). Industry standard chain-of-custody and quality assurance controls were applied according to the Work Plan (ESE, 1995a).

Excess soil from sampling and headspace analyses was sealed in a labeled 55-gallon drum and stored onsite for future handling. Penetrometer holes left by direct-push penetrations were filled with cuttings.

3.0 Data Presentation and Documentation

3.1 Organic Vapor Field Screening Results

OVA field screening was performed on borings B-1 through B-5 (Table 3-1); only B-5 indicated elevated readings. The highest reading was 100 parts per million (ppm) at the 4- to 8-foot interval, and all remaining readings were below 10 ppm.

B-1 (?)

Table 3-1. OVA Scans During Direct Push Penetrations

Depth (ft)	B-1	B-2	B-3	B-4	B-5	B-6
0-4	4	0	0	0	0	0
4-8	100	0	0	--	--	--
8+	8	--	--	--	--	--

Note: OVA readings are in ppm

3.2 Soil Analytical Results

One or two soil samples per boring were collected from the five soil borings and sent to ESE's Peoria laboratory for TPH (8015) analysis. Results were below detection limits (BDL) for TPH as both gasoline and diesel. Laboratory analytical results are presented in Appendix D, and chain of custody is presented in Appendix E.

4.0 Summary of Findings

4.1 Regional Geology

NSGA Sugar Grove is located on or near the contact of the Marcellus and Hamilton Shales within The Appalachian Valley and Ridge Province of West Virginia (Figure 4-1). The Marcellus Shale is the uppermost unit of the Middle Devonian-aged Marcellus Series and is approximately 332 feet thick in the vicinity of the site. The Hamilton Shale, within the Hamilton Series, overlies the Marcellus Series and is approximately 566 feet thick (Tilton, et al., 1927).

Both the Hamilton and Marcellus series strike from the south-southwest to the north-northeast, dip to east-southeast, and are part of a large synclinorium in the vicinity of the site.

The Marcellus and the Hamilton are both described as dark, fissile shales (Tilton, et al., 1927). However, the Hamilton is non-calcareous, whereas the Marcellus contains limestone units. The site overlies thin Quaternary-aged river terrace sediments above bedrock. The actual contact between the formations at the site is indistinct and has little bearing on the investigation due to the similarities in the formations.

4.2 Site Geology

Bedrock underlying the site is a fissile, dark, shale (Marcellus or Hamilton). Soil overburden consists of brown silty, sandy clay, with increasing amounts of rock fragments with depth originating from the underlying bedrock. Penetrometer refusal was encountered at depths ranging from 2.5 feet bgs in B-5 and B-6 to 8.5 feet bgs in B-1. Geologic drilling logs are presented in Appendix B. A geologic cross-section location diagram is presented as Figure 4-2; a geologic cross-section depicting subsurface conditions is presented as Figure 4-3.

4.3 Regional Hydrogeology

Throughout the Valley and Ridge Geologic Province, groundwater occurs predominantly in fractures and bedding planes in the shale or sandstone units. At the site, the Devonian Shale aquifer also provides water resources along fault and contact zones, but is of generally low yield (less than 30 gallons per minute, gpm) (Tilton, et al., 1927). The NSGA well, located approximately 3.5 miles south of the site, pumps approximately 25 gpm.

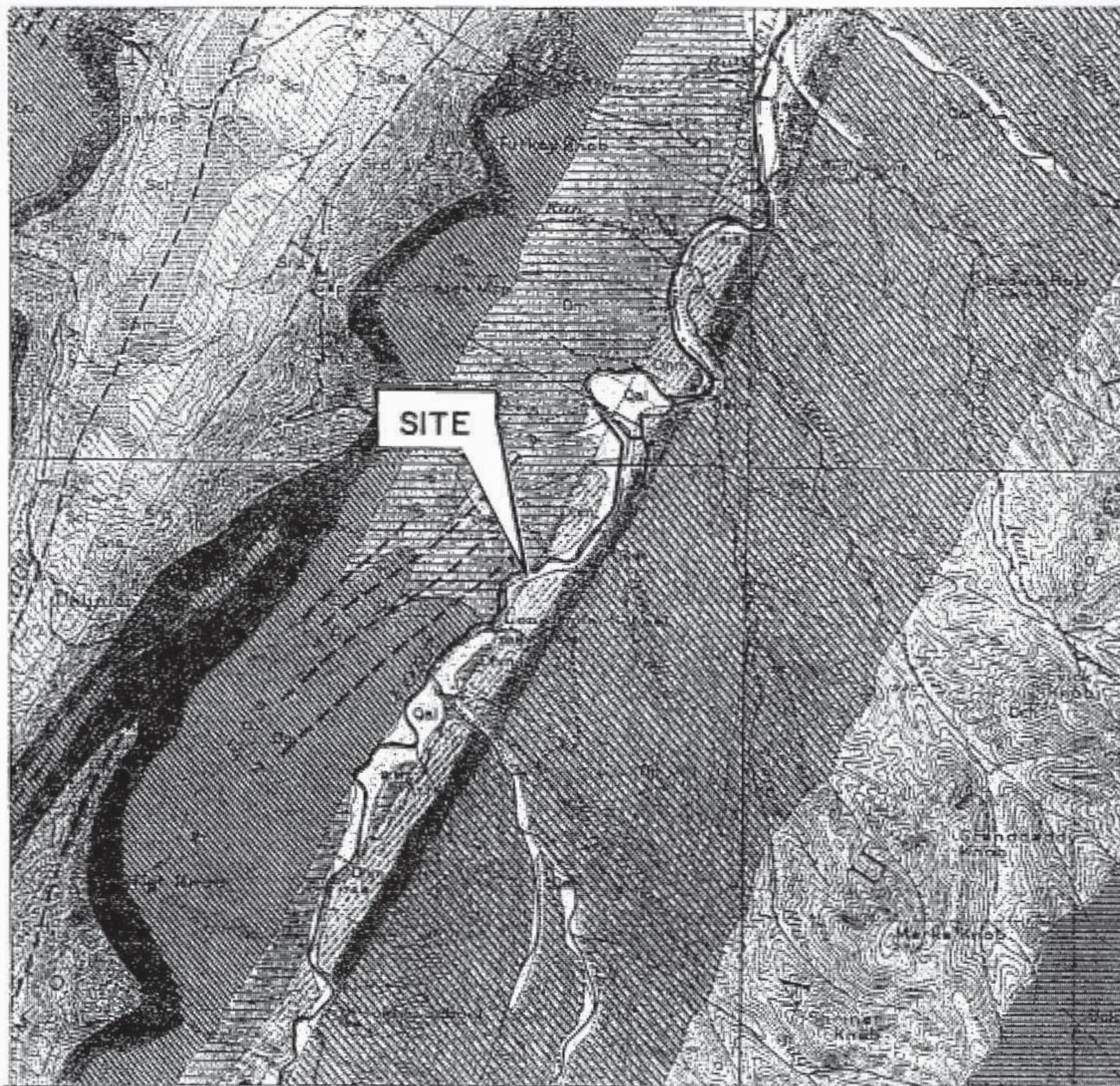
Water quality in the Valley and Ridge is generally good, although considered moderately hard and high in iron and dissolved solids. Both ground and surface waters have wide ranges of calcium

(magnesium) bicarbonate concentrations, with a mean concentration of 200 to 250 milligrams per liter (mg/l) (Smith & Ellison, 1985).

4.4 Site Hydrogeology

No monitor wells are present at the site, so no aquifer tests were conducted. However, groundwater flow calculations were performed for the UST 201/202 site approximately 400 feet south of the site (ESE, 1995b). The following parameters are expected to be similar at the UST 205/206 site due to the similarity of the subsurface conditions.

- Groundwater gradient: 0.028 ft/ft
- Average linear groundwater velocity: 0.2 ft/year



SITE

SCALE 1:62500



CONTOUR INTERVAL 50 FEET
DATUM IS MEAN SEA LEVEL



Environmental
Science &
Engineering

DATE
11-7-95

DRAWN BY
TJF

JOB NO.
2195272G-0003

SCALE
SHOWN

APPROVED BY

DWG. NO./ REV. NO.
GEO2723

TITLE

GEOLOGIC MAP
SUGAR GROVE, W. VA.

CLIENT

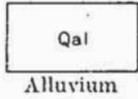
NAVY-NSGA

FIGURE

4-1A

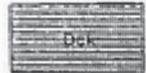
LEGEND

QUATERNARY

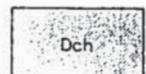


Alluvium

DEVONIAN



Catskill Series



Chemung Series



Portage Series



Genesee Series



Hamilton Series



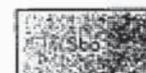
Marcellus Series



Oriskany Sa.



Helderberg
Limestone



Bossardville
Limestone



Environmental
Science &
Engineering

DATE
11-7-95

DRAWN BY
TJF

JOB NO.
2195272G-0003

SCALE
N.T.S.

APPROVED BY

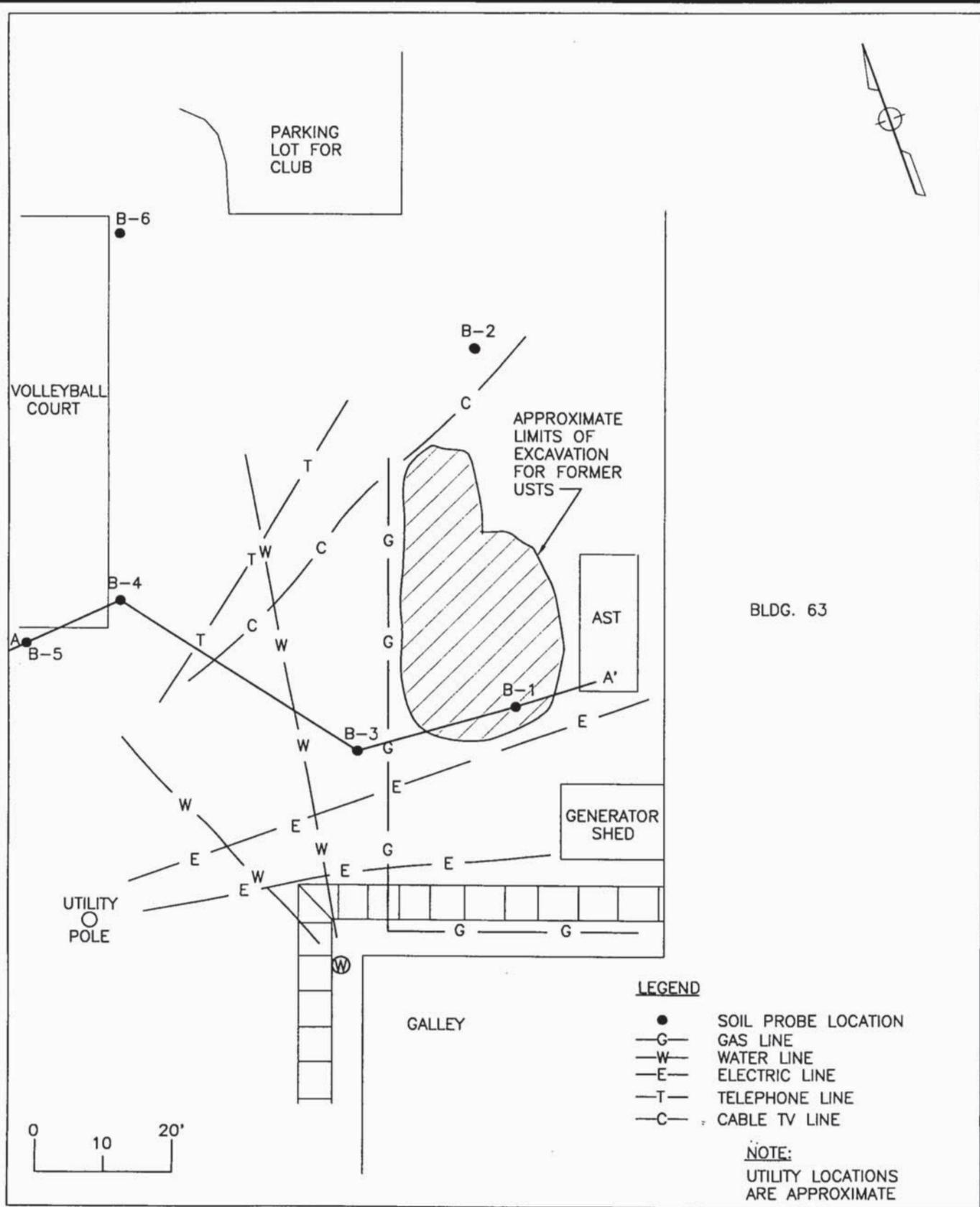
DWG. NO./ REV. NO
GEOL2723

TITLE

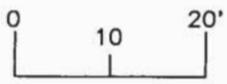
GEOLOGIC LEGEND
SUGAR GROVE, W. VA.

CLIENT
NAVY-NSGA

FIGURE
4-1B



BLDG. 63



LEGEND

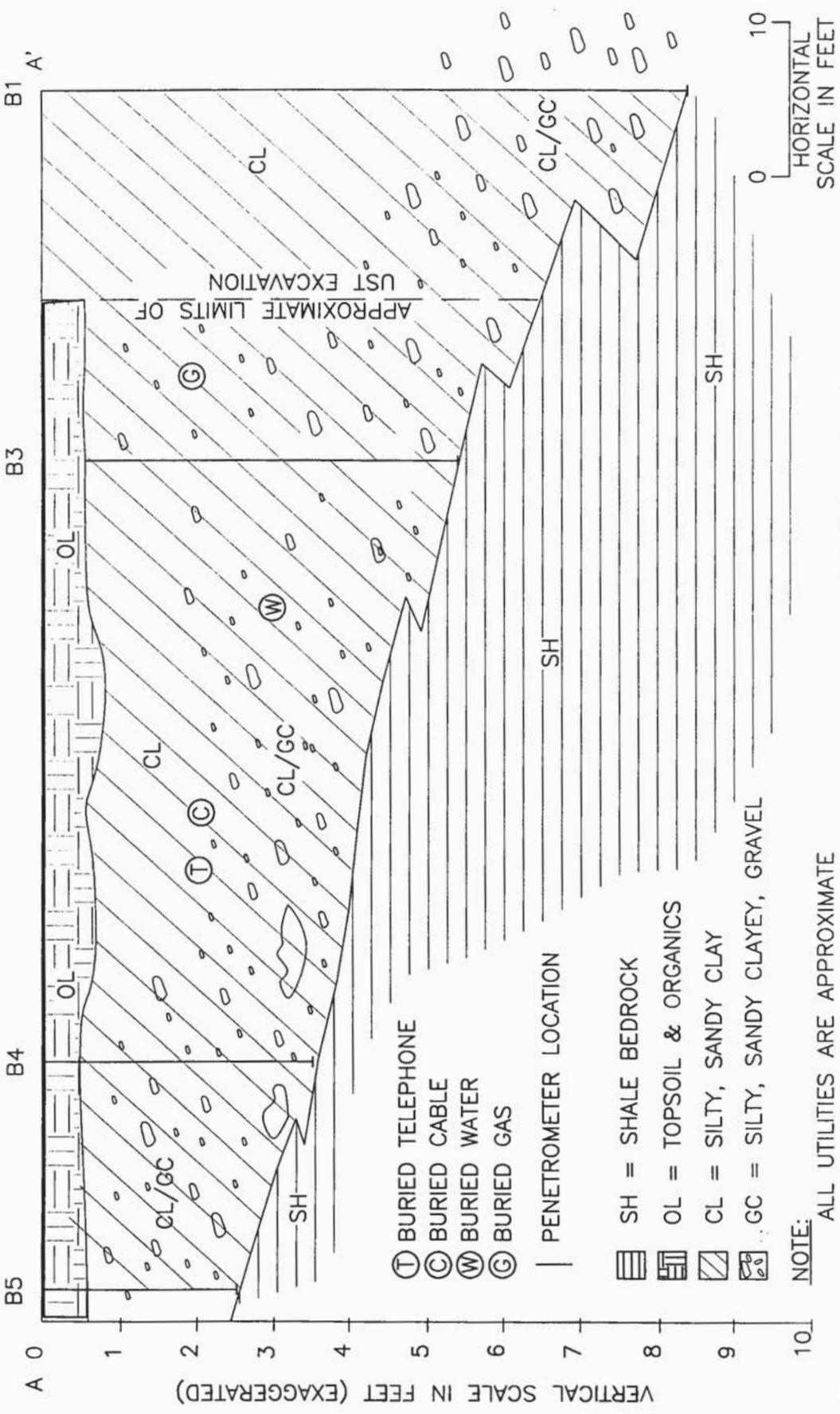
- SOIL PROBE LOCATION
- G— GAS LINE
- W— WATER LINE
- E— ELECTRIC LINE
- T— TELEPHONE LINE
- C— CABLE TV LINE

NOTE:
UTILITY LOCATIONS
ARE APPROXIMATE



**Environmental
Science &
Engineering**

DATE 12-8-95	SCALE 1" = 20'	TITLE CROSS-SECTION LOCATION MAP USTs 205/206 NSGA SUGAR GROVE, WV.	
DRAWN BY TJF	APPROVED BY		
JOB NO. 2195272G	DWG. NO./ REV. NO. ST72G1C	CLIENT LANTDIV	FIGURE 4-2



- ⊙ BURIED TELEPHONE
- ⊙ BURIED CABLE
- ⊙ BURIED WATER
- ⊙ BURIED GAS
- | PENETROMETER LOCATION

- SH = SHALE BEDROCK
- OL = TOPSOIL & ORGANICS
- CL = SILTY, SANDY CLAY
- GC = SILTY, SANDY CLAYEY, GRAVEL

NOTE: ALL UTILITIES ARE APPROXIMATE



**Environmental
Science &
Engineering**

DATE	12-8-95	SCALE	NONE	TITLE	GEOLOGIC CROSS-SECTION A - A'	
DRAWN BY	TJF	APPROVED BY		USTs 205/206		
JOB NO.	2195272G	DWG. NO./ REV. NO.	272CSA	CLIENT	NSGA SUGAR GROVE, WV.	
				LANTDIV	FIGURE 4-3	

5.0 Conclusions

5.1 Delineation of Contamination

Field screening results of soil samples indicated little to no VPH impact to soil. Laboratory analyses of soil from B-1 through B-4 and B-6 were BDL for TPH (8015), indicating no APH impact to soil. PSH and DPH impact to groundwater are not anticipated due to the lack of VPH and APH impact to soil.

5.2 Exposure Assessment

The exposure assessment for this site is addressed qualitatively because all chemicals of concern (COCs) (i.e., TPH) were BDL for soil. This indicates that the impact to soil and groundwater from identified COCs at the site is negligible. Also, because the contaminants/hazards are negligible, complete exposure pathways do not exist for human or environmental receptors.

Due to the negligible COC levels and lack of complete exposure pathways, there is no potential health threat to human receptors or impact to environmental receptors at or in the vicinity of the site. The site appears to be a good candidate for closure under the no-action alternative.

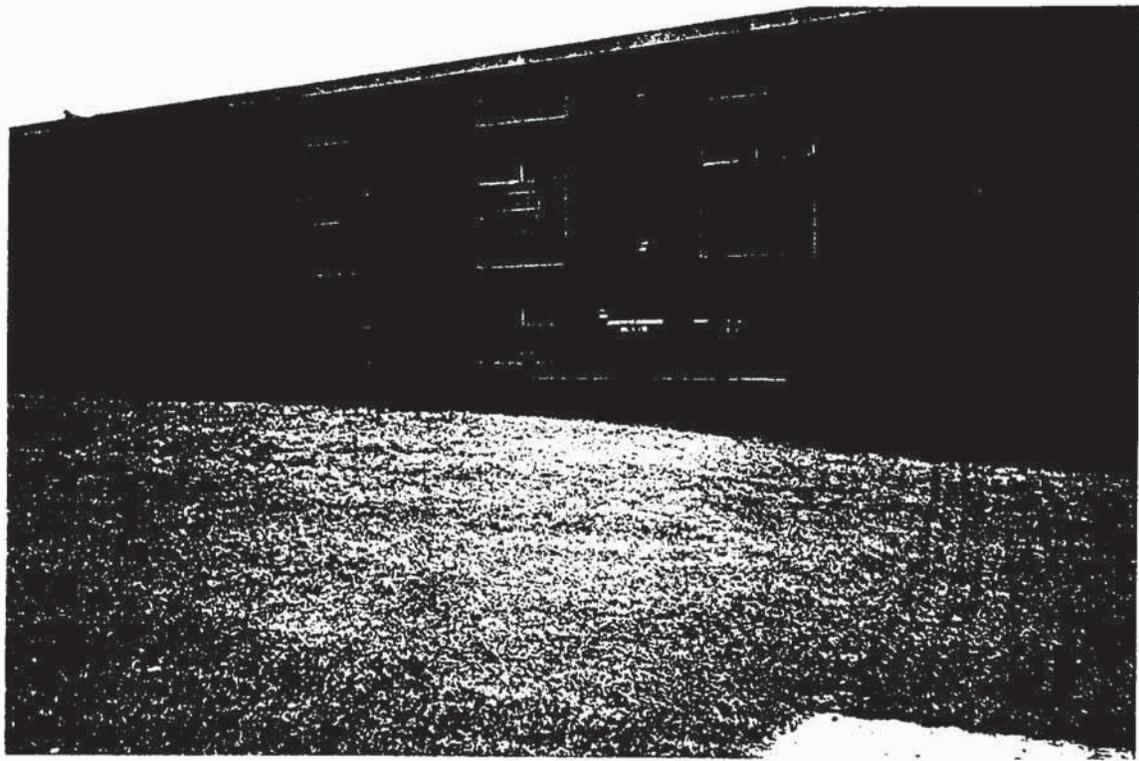
6.0 Recommendations

The delineation of site contamination determined that VPH was minimal, APH was BDL, and as a result PSH and DPH are not anticipated in groundwater. The exposure assessment determined that COCs were not present above the method detection limits and exposure pathways were incomplete; therefore, no risk is present. COC levels indicate that there is no potential impact to human health and the environment at the site, and therefore the no-action alternative is appropriate. As a result, soil and groundwater cleanup are not required, future monitoring is not warranted, and ESE recommends no further action for the site.

7.0 References

- Environmental Science & Engineering, Inc. (ESE). 1995a. Work Plan for Site Assessments, Tanks 201/202 and Tanks 205/206, Naval Security Group Activity Sugar Grove, Sugar Grove, West Virginia. October 1995.
- Environmental Science & Engineering, Inc. (ESE). 1995b. Draft Site Assessment Report, Underground Storage Tank Site 205/206, Naval Security Group Activity, Sugar Grove, West Virginia. December 1995.
- Geotechnical & Environmental Services, Inc. (GES). 1995. Closure Report for Two Regulated and Five Unregulated Underground Storage Tanks, Naval Security Group Activity, Sugar Grove, West Virginia. August 1, 1995.
- R.E. Wright Associates, Inc. (REWAI). 1994. Extended Five Well Site Check, Naval Security Group Activity, Sugar Grove, West Virginia, USTs 201 and 202. October 5, 1994.
- Smith, P.J. and R.P. Ellison. 1985. Groundwater Map of Virginia. Virginia Water Control Board, Bulletin 564.
- Tilton, J.L., Prouty, W.F., Price, P.H., White, I.C. 1927. West Virginia Geological Survey, Pendleton County. Wheeling News Litho. Co., Wheeling, WV.
- United States Geological Survey, Reston, VA (USGS). 1981. Topographic Quadrangle Sugar Grove, West Virginia. 7.5 Minute Series. 1969; photo revised 1981.

Appendix A
Photodocumentation



1. View of UST 205/206 site, looking east toward Building 63.



2. View of UST 205/206 site, looking west toward raquetball court and picnic area.

Appendix B

Boring Logs

DRILL LOGS

CLIENT: United States Navy, LANTDIV LOCATION: NSGA Sugar Grove, West Virginia USTs 205 and 206		BORING #: B-1 TOTAL DEPTH: 8.5 feet LOGGED BY: Glen Crombie DRILLER: Zebra Environmental, Inc DRILL RIG: ATV Geoprobe METHOD: Direct Push Penetration DATE DRILLED: November 2, 1995	
DEPTH (FT)	CLASSIFICATION	LITHOLOGICAL DESCRIPTION	OVA (ppm)
0 - 4	CL	Brown and orange SILT and CLAY; sample obtained.	4
4 - 8	CL/GC	Brown and orange SILT and CLAY; some black shale fragments; sample obtained.	100
8 - 8.5	GC	Predominantly black SHALE with some orange and brown silty clay; refusal @ 8.5 feet.	8

CLIENT: United States Navy, LANTDIV LOCATION: NSGA Sugar Grove, West Virginia USTs 205 and 206		BORING #: B-2 TOTAL DEPTH: 7 feet LOGGED BY: Glen Crombie DRILLER: Zebra Environmental, Inc DRILL RIG: ATV Geoprobe METHOD: Direct Push Penetration DATE DRILLED: November 2, 1995	
DEPTH (FT)	CLASSIFICATION	LITHOLOGICAL DESCRIPTION	OVA (ppm)
0 - 4	OL/CL/GC	Brown topsoil near surface; brown SAND, CLAY, AND GRAVEL; sample obtained.	0
4 - 7	CL/GC	Brown SAND, CLAY, AND GRAVEL; refusal @ 7 feet; sample obtained.	0

CLIENT: United States Navy, LANTDIV LOCATION: NSGA Sugar Grove, West Virginia USTs 205 and 206		BORING #: B-3 TOTAL DEPTH: 5.5 feet LOGGED BY: Glen Crombie DRILLER: Zebra Environmental, Inc DRILL RIG: ATV Geoprobe METHOD: Direct Push Penetration DATE DRILLED: November 2, 1995	
DEPTH (FT)	CLASSIFICATION	LITHOLOGICAL DESCRIPTION	OVA (ppm)
0 - 4	OL/CL/GC	Brown topsoil near surface; Silty Gravelly CLAY; sample obtained.	0
4 - 5.5	CL/GC	Brown SAND, CLAY, AND GRAVEL (shale); Refusal at 5.5 feet; sample obtained.	0

DRILL LOGS

CLIENT: United States Navy, LANTDIV LOCATION: NSGA Sugar Grove, West Virginia USTs 205 and 206		BORING #: B-4 TOTAL DEPTH: 3.5 feet LOGGED BY: Glen Crombie DRILLER: Zebra Environmental, Inc DRILL RIG: ATV Geoprobe METHOD: Direct Push Penetration DATE DRILLED: November 2, 1995	
DEPTH (FT)	CLASSIFICATION	LITHOLOGICAL DESCRIPTION	OVA (ppm)
0 - 3.5	OL/GC	Brown topsoil near surface; Silty Sandy GRAVEL with clay; refusal @ 3.5 feet; sample obtained.	0

CLIENT: United States Navy, LANTDIV LOCATION: NSGA Sugar Grove, West Virginia USTs 205 and 206		BORING #: B-5 TOTAL DEPTH: 2.5 LOGGED BY: Glen Crombie DRILLER: Zebra Environmental, Inc DRILL RIG: ATV Geoprobe METHOD: Direct Push Penetration DATE DRILLED: November 2, 1995	
DEPTH (FT)	CLASSIFICATION	LITHOLOGICAL DESCRIPTION	OVA (ppm)
0 - 2.5	OL/GC	Brown topsoil near surface; Silty Sandy GRAVEL with clay; refusal @ 2.5 feet; no sample obtained.	0

CLIENT: United States Navy, LANTDIV LOCATION: NSGA Sugar Grove, West Virginia USTs 205 and 206		BORING #: B-6 TOTAL DEPTH: 2.5 LOGGED BY: Glen Crombie DRILLER: Zebra Environmental, Inc DRILL RIG: ATV Geoprobe METHOD: Direct Push Penetration DATE DRILLED: November 2, 1995	
DEPTH (FT)	CLASSIFICATION	LITHOLOGICAL DESCRIPTION	OVA (ppm)
0 - 2.5	OL/GC	Brown topsoil near surface; Silty Sandy GRAVEL with clay; refusal @ 2.5 feet; sample obtained.	0

Appendix C

Interview Records

Leak ID: 93-048

WV ID: 360 4470



UST-9 (10/93)

White - Owner
Green - Operator
Canary - Field Office
Pink - Charleston

WV Division of Environmental Protection
Office of Waste Management
Underground Storage Tank Section

REVIEW OF CONFIRMED RELEASE REPORT

1356 Hansford Street
Charleston, WV 25301-1409
304-558-6371

1. FACILITY INFORMATION			
Owner: <u>Naval Computer & Telecommunications Center</u> <u>LANT</u>	Operator: <u>Co. Naval Radio Station</u>		
Address: _____	Address: <u>Rt 21</u>		
City: <u>Norfolk</u> State: <u>VA</u> Zip: <u>23511-6895</u>	City: <u>Sugar Grove</u> State: <u>WV</u> Zip: <u>26815</u>		
Phone: (804) <u>444-1250/1653</u>	Phone: (304) <u>249-6395</u>		
LOCATION OF TANKS:			
Facility Name: <u>Naval Security Group Activity</u>	City: <u>Sugar Grove, WV</u>		
Street Address: <u>Rt 21</u>	County: <u>Pendleton</u>	Phone: (304) <u>249-6395</u>	

TO THE TANK OWNER AND OPERATOR:

Whereas, a review of the information provided regarding site characteristics and the extent of soil and groundwater contamination at the above-referenced facility in compliance with the CONFIRMED RELEASE - NOTICE TO COMPLY issued on the 24th day of March, 1993, has been completed.

UPON REVIEW, the investigation was found to be:

_____ Complete Incomplete

THEREFORE, THE FOLLOWING ACTION MUST BE INITIATED IMMEDIATELY:

- Initiate an investigation to determine the full extent and magnitude of soils contaminated by the release and the presence and concentration of dissolved product contamination in the groundwater. At Bldg #63 AST #206
- _____ Continue investigation to determine the full lateral and vertical extent and magnitude of soil contamination.
- _____ Continue investigation to determine the presence and concentration of dissolved product contamination in the groundwater.
- _____ Submit a Corrective Action Plan to respond to contaminated soil and groundwater found by the completed investigation.
- _____ No further action required at this time.

Any Additional Investigation Report or Corrective Action Plan checked above should be submitted, In duplicate, to the following WVDEP Field Office not later than the 29th day of May, 1995.

WVDEP, Office of Waste Management-UST Section
1 Depot St
Romney, WV 26757
Tel. No. 304-822-3551

NOTE: All reports/plans must reference the Leak I.D. and WV I.D.

WARNING

If you are the owner and/or operator and you fail to accomplish the above-described measures within the time specified, the Director may issue an Administrative Order and/or may commence a Civil Action in the Circuit Court, including a temporary or permanent injunction in accordance with West Virginia Code, Chapter 20-5H-15 and you may be liable for a civil penalty in accordance with Chapter 20-5H-16.

Service Accepted and Acknowledged:

Inspector's Signature: <u>M. Edwards</u>	Date: <u>4-2-95</u>	Time: _____
Contact Person's Signature: <u>[Signature]</u>	Date: _____	Time: _____



Environmental
Science &
Engineering, Inc.

October 27, 1995

Tricia White
Division of Environmental Protection
10 McJunkin Road
Nitro, West Virginia 25143

Re: **Freedom of Information Act Request**
Sugar Grove, United States Naval Facility
Pendleton County, West Virginia

Dear Ms. White:

The purpose of this letter is to formally request detailed information regarding surficial or subsurface releases of petroleum hydrocarbons pertaining to any facility located within a 5 mile radius of the above referenced Naval Base (Brandywine to Sugar Grove). Environmental Science & Engineering, Inc. (ESE) is currently preparing an environmental assessment for the navy and would greatly appreciate this information.

If you have any questions regarding this request, please call me at (703) 318-8900.

Sincerely,

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.

Glen Crombie, PG
Project Geologist

cc: Project File



DIVISION OF ENVIRONMENTAL PROTECTION
1356 Hansford Street
Charleston, WV 25301-1401

GASTON CAPERTON
GOVERNOR

LAIDLEY ELI McCOY, Ph.D
DIRECTOR

November 7, 1995

Mr. Glen Crombie
Environmental Science & Engineering, Inc.
250-A Exchange Place
Herndon, VA 22070

Dear Mr. Crombie:

Here are the facility list for the area of interest in Pendleton County. If you would like to review any of the files please feel free to contact me at 304-558-5929 Ext. 333.

Sincerely,

A handwritten signature in cursive script that reads "Jamie E. Bennett".

Jamie E. Bennett
Information Specialists

JB/

06/02/95 12:59:53

MV HAZARDOUS WASTE GENERATORS BY CITY

06/02/95

CITY	LOCATION	NOTIFIER	ID	PHONE	NOTI DATE	PREVIOUS NAME
Bradley	Maple Fork Road and Rt 19	William Construction	MVD988797817	304-877-5581	8 20 92	
	Mossy Road	D & S Lumber	INSPECTION	304-469-9640		
	Route 19	Interstate Truck & Wrecker Inc.	MVD988778254	304-877-2271	8 28 90	N/A
	U.S. Route 16	Bradley Salvage/c/o Cardinal State	Non-Notifier	304-252-8637		Penny will check-out and call
	465 Suttle Street	Superior Steam Cleaning & Sandblast	INSPECTION			
Bradshaw	Buckhammon Avenue	Chesapeake & Potomac Telephone Co	MVD980553374	202-392-8284	8 11 81	
Bragg	I-64 Exit 132	MVDOH Bragg/ Bragg Shop	MVD988774704	304-763-3825	2 13 90	
Branchland	8493 Sciler Road	CCST - Branchland Production Office	MVD988792072	304-778-7575	1 18 91	
Brandywine	Route 3, Box 87	Hott & Miller Incorporated	MVD98778244	304-246-5411	10 04 90	N/A
Brenton	9th W of Pineville on Rt 60	Ashland Exploration - Brenton	MVD000571044	606-396-4290	1 18 91	
Bretz	3/4m E Masetown or Bretz Rd	Marl Holler Trucking Co Inc	MVD988798301	304-860-2322	6 18 91	
Bridgeport	Airport Rd	Quality Hydraulics Inc	MVD053156101	204-842-3581	10 24 88	
	Benedum Airport	CNG Trans Corp Flight Operation	MVD988782201	304-842-4741	4 21 91	
	Benedum Airport	KCI Aviation	MVD988782611	304-842-3561	4 22 91	
	Benedum Ind Midway Park-Box	Fairmont State College - NAEC	MV0000874925	304-842-8300	5 22 94	
	Benedum Industrial Park	PRMC Aircraft Services Inc	MVD055530604	304-842-5421		Pratt & Whitney Aircraft of M
	Benedum Industrial Park	Amerdyne East, Inc.	MVD000495317		8 14 80	
	Brushy Fork Road	Mancinn Auto Salvage	MVD988779187	304-842-4400	3 15 91	
	Crosswind Corporate Park	McWhorter Advertising	MVD988782462	304-842-6211	4 18 91	
	I-79 & Rt 73 8m N Bridgeport	Ashland Branded Marketing Inc	MVD988792735	304-373-8411	1 16 92	Ashland Harrison-Matton 280
	I-79 & Rt. 24	Exxon Co. USA #28286	MVD988779567	713-656-7700	3 15 91	N/A
	I-79 and Meadowbrook Road	MVDOH Bridgeport/Equipment Shop	MVD982569188	304-842-1500	9 26 88	
	I-79 Exit 125	Perfection Plus Paint & Body	MVD988791794	304-842-7860	1 02 92	
	Intersection Route 73 & I79	CNG Transmission Corp. - Bridgeport	MVD988777611	304-623-8096	2 05 91	N/A
Intersection Rt 76 E & Rt 50	Beckwith Machinery Company	MVD016037087	412-351-4010	10 09 86	N/A	
KCI Hanger/A - Benedum Airpo	MV Armory Board - EAATS	MVD988798392	304-341-6450	9 18 92		
Langtown Road	Potts Small Engine Repair	MVD988780649	304-842-5615	4 02 91		
Lodgeville Siding	Clarksburg Asphalt	MVD091552216	304-864-5411	10 20 86		
Headland Rd	Equitrans Comet Station #43	MVD988783254	412-553-5343	5 15 91		
Meadowbrook Mall	Sears Roebuck & Co. #2826	MVD988778346	304-342-3500	9 14 90	N/A	
Meadowbrook Road/P.O. B 2570	MVDOH Bridgeport/Dist. Four Headqua	MVD988774402	304-842-1500	9 18 90		
Meadowbrook Rd 1/4m frm Ex121	I Bridgeport Country Club	MVR000000364	304-842-2685	2 22 95		
Mid Atlantic Aerospace Compl	Grumman Aerospace Corporation	MVD988790531	516-575-2385	10 22 91		
Route 3 Box 151-N	AFG Ind. Jerry Run Plant	MVD087562922	304-842-6151			

06/02/95 12:59:53

MV HAZARDOUS WASTE GENERATORS BY CITY

06/02/95

CITY	LOCATION	NOTIFIER	ID	PHONE	NOTI DATE	PREVIOUS NAME
Stansford	Rt 41 Dixie Ave	American Electric Equipment Inc	HVD988791141	304-255-7438	10 02 91	
	Rt. 41/1 Dixie Ave	Stockhausen Mining Chemicals	HVR0000000760	304-253-2923	3 03 95	
	Rts. 19 & 41	Batteries Inc - Emergency Permit	HV0000324970		5 03 94	status blank per Lem F. 1/95
	Rts. 19 & 41	Coal-Tex, Incorporated	Non-Handler	304-252-8528		
	801 Ragland Rd	Coal-X Equip & Supply Co. Inc.	CLOSED	304-255-6690	1 08 87	
Standard	901 Ragland Rd	M. A. E. Services, Inc.	HVD981936057	304-255-5860	1 08 87	
	Route 83	MV Parkways Authority - Standard	HVD981740756	304-252-4400	1 03 90	MV Turnpike Comm. Maint. - Star
Star City	end Frontier Street (dead en Morgantown West)					
	Boyers Avenue	Davis-Lynch Glass Company	HV0000291360	304-500-2111	4 20 91	
	Corner University Ave. & Bnd Cars Inc		HVD0004380200	304-500-2244	3 12 90	
	Monongahela River	Hillc 1707 RHF Oil Inc	HVD9807800000	304-508-0423	4 08 91	
	Rt. 19 North	Brown's Equipment & Machine Co. Inc	HVD0007511560	304-500-0130	8 18 80	Pennzoil Star City Terminal
	3455 University Avenue	Total Body Works. Autobody Spec.	HVD989778860	304-502-8330	11 01 90	H/A
	355 Industrial Avenue	Total Body Works	HVD988802080	304-500-0541	3 25 91	H/A
	3625 Monongahela Blvd	BP Oil Co - Boron Division	HVD981735253	304-500-0541	3 23 91	
	427 Industrial Avenue	Guttman Oil - Star City Plant	HVD000765900	411-025-2261	1 00 90	
	427 Industrial Avenue	Texaco Inc - Morgantown	HVD000765900	304-500-1111	4 15 91	Texaco Inc - Morgantown
	866 Chestnut Ridgc Road	The Rust Engineering Company	HVD000765900	304-500-7474	3 18 80	SEE Guttman Oil - Star City inspector checked site never
	Stickney	Rt 3 10m W of Whitesville	Sonya Trucking	HVD988792834	304-854-2394	2 13 91
P O Box 248		Craddock Machine Shop	HVD982679425	304-752-6580	5 10 90	
Stollings	School Street	Pepsi Cola Bottling Group	HVD981737349	304-429-6767	6 03 86	
	Water Street	Universal Sales Corporation	HVD092800227	304-624-5701	1 04 89	
Stonewood	1 3/4m N I-79 on Rt 58 West	Harrison County Sheltered MKSP	HVD988791455	304-623-3757	10 30 91	
	109 Water Street	Nichols Linc Inc	HV00000878371	304-622-4578	9 22 94	
	221 Stonewood Industrial Par	McJunkin Corporation	HVD988802385	304-624-1405	6 11 93	
	400 Maple Avenue	Hickman Signs	HV0000922401	304-622-3280	10 19 94	
	411 Water Street	United Parcel Service	HVD988773966	304-624-4104	8 16 90	
	509 Water Street	Top Tec Transmission	HV0000246165	304-624-9142	4 05 94	
	900 Cost Ave.	Danny's Body Works	HVD988781282	304-622-7779	10 05 90	NOH Quality One Auto Body Rep:
	900 Cost Avenue	Quality One Auto Body Repair	HVD988781282	304-622-7779	1 13 93	HAS Danny's Body Works
	1m from Rt 5 on Lick Run Roa	Eagle Oil Tools	HVD988796710	304-462-8336	6 29 92	
	Sugar Grove	38° 34' 21" N 079° 16' 27" W NAVSECGRUACT Sugar Grove	HV0170090005	304-249-6341	6 22 82	Naval Radio Station R
Sumerco	Route 14 South	AT&T - Sumerco	HVD988795985	703-691-6757	5 07 92	

U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF EMERGENCY AND REMEDIAL RESPONSE
C E R C L I S

PAGE: 575
RUN DATE: 07/19/94
STATE: WV
COUNTY: OHIO COUNTY
RUN NAME: DPSCNPA

SITE TECHNICAL EVENT STATUS LISTING WITH DUMPSITE NUMBER

==> ALL REGION III SITES *NOT* IN PENNSYLVANIA
==> SORTED BY STATE, COUNTY, THEN SITE NAME

EPA ID NO	SITE NAME STREET CITY COUNTY NAME	STATE COUNTY	ZIP CODE	EVENT TYPE	*2103* QUAL	START DATE	COMPL DATE	L R E C N A R P D A L	CONG DUMIP DIST NUMBER
MVD988783122	GETZ CYANDIE RTE 3, BOX 43 BRANDYHINE PENDLETON	WV	26802 071	DISCOVERY		06/05/91	11/29/91 F 06/05/91 F	N	02 MV-482
MV9170022488	NAVAL RADIO STATION SUGAR GROVE #1 10 MI SW OF RTE 33 SUGAR GROVE PENDLETON ALIAS: NAVAL COMMUNICATION AREA MASTER STA LA ALIAS: NAVAL COMMUNICATION AREA MASTER STA. LA	WV	26815 071	DISCOVERY				N	02 MV-163
MV1170024805	NAVAL RADIO STATION SUGAR GROVE #2 RTE 21 SUGAR GROVE PENDLETON	WV	26815 071	DISCOVERY		11/27/85	09/10/87 * 07/29/86 * 06/01/81 F	N	02 MV-288
	NUMBER OF SITES IN PENDLETON								

1 3

ACTIVE & INACTIVE UST FACILITIES
AUGUST 2, 1995

Under-ground Storage Tank
Facilities

Facility ID	Owner Name and Address	Location Name and Address	Tanks Cls or CIS	NOT Rmv
-508318	STENGER BUSINESS SYSTEMS INC PO BOX 750 WHEELING, WV 26003	STENGER BUSINESS SYSTEMS INC 1035 CHAPLINE ST WHEELING, WV 26003	1	
-508589	OHIO COUNTY FARM & HOME SUPPLY I RD 2 BOX 162 TRIADELPHIA, WV 26059	KWIK MART/ELM GROVE RD 2 BOX 162 TRIADELPHIA, WV 26059	4	
-508594	UNCERTAIN	BILL GEORGE PROPERTY/NO FORM NORTH FORK OF SHORT CREEK RD WHEELING, WV 26003	2	
-508603	UNCERTAIN	EMPTY LOT/NO FORMS-PAH 42ND & WOOD STS WHEELING, WV 26003	1	
-508608	WHEELING POWER CO 51 16TH ST WHEELING, WV 26003	WHEELING POWER CO 43 & JACOB ST WHEELING, WV 26003	0	
-508609	UNCERTAIN	CENTRE TV/NO FORMS/PAH 510 WARWOOD AVE WHEELING, WV 26003	1	
-508616	UNCERTAIN	FORMER ELMGROVE EXXON/NO FORM/PH 2122 NATIONAL RD WHEELING, WV 26003	1	
-508619	CSX TRANSPORATION INC 1717 DIXIE HIGHWAY SUITE 400 PORT WRIGHT, KY 41011	CSX TRANSPORATION INC 18TH ST WHEELING, WV 26003	0	
509076	UNCERTAIN	NORTH PARK DEVELOPMENT CORP 137 N RIVER RD WHEELING, WV 26003	3	
-509221	AMERICAN INDUSTRIES & RESOURCES 201 LURAY DR WINTERSVILLE, OH 43952	AIRC HANGER - HLC OHIO COUNTY AIRPORT BOX 11 RT 5 WHEELING, WV 26003	1	
602035	HESS OIL CO INC PO BOX 1663 RT 219 N ELKINS, WV 26241	BROWN FAMILY ENT. - PANTRY RT 33 E & US RT 220 FRANKLIN, WV 26807	5	
-602048	STROOP PETROLEUM CO INC DO NOT MAIL HARRISONBURG, VA 22801	REBEE FOX 220 SOUTH FRANKLIN, WV 26807	4	
-602058	DAEMER'S SERVICE STATION BOX 7 RT 33 N FRANKLIN, WV 26807	DAEMER'S SERVICE STATION BOX 7, RT. 33 N. FRANKLIN, WV 26807	0	
-602829	HESS OIL CO INC PO BOX 1663 RT 219 N ELKINS, WV 26241	RAINES STORE US RT 33 RIVERTON, WV 26814	3	
-604442	FRANKLIN OIL CO INC PO BOX 517 FRANKLIN, WV 26807	LONE PINE SERVICE STATION RT. 3 BRANDYWINE, WV 26802	0	
-6	.3 FRANKLIN OIL CO INC	TEORN SPRING RESTRAURANT	0	

All facilities in Pendleton
County start with
3-6.

ACTIVE & INACTIVE UST FACILITIES

AUGUST 2, 1995

Facility	Owner Name and Address	Location Name and Address	Tanks NOT Rmv Cls or CIS
604444	PO BOX 517 FRANKLIN, WV 26807 FRANKLIN OIL CO INC PO BOX 517 FRANKLIN, WV 26807	FRANKLIN, WV 26807 BOWER'S STORE US POST OFFICE SUGAR GROVE, WV 26815	3
604445	EUGENE HARPER HC 61 BOX 1C MOYERS, WV 26813-9618	HARPERS STORE HC 61 BOX 1C MOYERS, WV 26813	1
604447	FRANKLIN OIL CO INC PO BOX 517 FRANKLIN, WV 26807	MAIN STREET CHEVRON PO BOX 517 MAIN STREET FRANKLIN, WV 26807	4
604448	JOHN P CARTWRIGHT RT 3 BOX 52 FT SEYBERT, WV 26806	ROUGH RUN TEXACO RT. 3 FT. SEYBERT, WV 26806	0
604449	ATLANTIC OIL CO INC PO BOX 297 N MAIN ST FRANKLIN, WV 26807	BLAND'S CAMPING RT 28 CIRCLEVILLE, WV 26804	1
604450	ATLANTIC OIL CO INC PO BOX 297 N MAIN ST FRANKLIN, WV 26807	ROY'S ATCO MAIN FRANKLIN, WV 26807	1
604451	ATLANTIC OIL CO INC PO BOX 297 N MAIN ST FRANKLIN, WV 26807	DOVE'S STORE UPPER TRACT, WV 26866	0
604452	ATLANTIC OIL CO INC PO BOX 297 N MAIN ST FRANKLIN, WV 26807	CENTER FOOD MART RT 33 BRANDYWINE, WV 26802	2
604453	ATLANTIC OIL CO INC PO BOX 297 N MAIN ST FRANKLIN, WV 26807	SINNETT'S LANE SERVICE STATION MOYERS, WV 26813	0
604454	FARRELL HEAVNER/WAYNE COLAW 39 CHERRY LANE CHERRY GROVE, WV 26804-9704	C & H CASH STORE RT 28 CHERRY GROVE, WV 26804	2
604455	COLUMBIA GAS TRANSMISSION 1700 MACORKLE AVE SE PO BOX 1273 CHARLESTON, WV 25314	SENECA COMPRESSOR STATION RT 28 NORTH SENECA ROCKS, WV 26884	0
604456	DIXIE GAS AND OIL CORP PO BOX 900 RT 11 VERONA, VA 24482	DIXIE GAS AND OIL CORPORATION P. O. BOX 367, MAIN STREET FRANKLIN, WV 26807	0
604458	THOMPSON MOTOR INC PO BOX 847 FRANKLIN, WV 26851	THOMPSON MOTOR INC.A. P.O. BOX 847 FRANKLIN, WV 26851	0
604459	GATEWAY GENERAL HELEN BENNETT	GATEWAY GENERAL	0

ACTIVE & INACTIVE UST FACILITIES

AUGUST 2, 1995

Facility ID	Owner Name and Address	Location Name and Address	Tanks NOT Rsv Cls or CIS
	HC 77 BOX 15 RIVERTON, WV 26814	RIVERTON, WV 26814	
-604461	HIGHLAND OIL CO INC 112 MANSION DR ALEXANDRIA, VA 22302	FRANKLIN IGA OFF US 13 FRANKLIN, WV 26807	2
-604462	VALLEY VIEW RESTAURANT RFD 4 RIVERTON, WV 26814	VALLEY VIEW RESTAURANT RFD 4 RIVERTON, WV 26814	0
-604463	SHIRLEY B YOKUM SENECA ROCKS, WV 26884	YOKUM'S GROCERY RT 13 & 28 SENECA ROCKS, WV 26884	4
-604464	HINKLE TRUCKING INC PO BOX 65 CIRCLEVILLE, WV 26804	HINKLE TRUCKING INC RT 28 & 13 SENECA ROCKS, WV 26884	1
-604467	KLINE MOTOR SALES INC MAPLE AVE FRANKLIN, WV 26807	KLINE MOTOR SALES INC MAPLE AVE FRANKLIN, WV 26807	0
-604469	HELEN C BORROR HC 62 BOX 25 UPPER TRACT, WV 26866-9703	MIDWAY SERVICE STATION RT 220 UPPER TRACT, WV 26866	1
-604470	COMMANDING OFFICER NAVAL SECURITY GROUP ACTIVITY SUGAR GROVE, WV 26815-5000	COMMANDING OFFICER NAVAL SECURITY GROUP ACTIVITY SUGAR GROVE, WV 26815-5000	6
-604473	PENDLETON MOTOR SALES INC S MAIN ST FRANKLIN, WV 26807	PENDLETON MOTOR SALES, INC. S MAIN STREET FRANKLIN, WV 26807	0
-604474	DICES CASH STORE CIRCLEVILLE, WV 26804	DICES CASH STORE CIRCLEVILLE, WV 26804	0
-604475	PETERSBURG OIL CO 46 SOUTH MAIN ST PETERSBURG, WV 26847	HUFFMAN AUTO U.S. ROUTE 33 FRANKLIN, WV 26807	0
-604476	PETERSBURG OIL CO 46 SOUTH MAIN ST PETERSBURG, WV 26847	SIMPSONS GARAGE U.S. ROUTE 33 FRANKLIN, WV 26807	0
-604477	PETERSBURG OIL CO 46 SOUTH MAIN ST PETERSBURG, WV 26847	M. L. SNYDER BRANDYWINE, WV 26802	0
-604478	PETERSBURG OIL CO 46 SOUTH MAIN ST PETERSBURG, WV 26847	H & J SUPERETTE RT 33 EAST BRANDYWINE, WV 26802	5
-604479	BERTHA MOYERS FRANKLIN, WV 26807	CAVE COUNTRY STORE FRANKLIN, WV 26807	4
-604481	SITES OIL CO 206 JUDY ST PETERSBURG, WV 26847	PEERS FURNITURE BRANDYWINE, WV 26802	0
	12 B & J MARKET	B & J MARKET	0

ACTIVE & INACTIVE UST FACILITIES

AUGUST 2, 1995

Facility	Owner Name and Address	Location Name and Address	Tanks NOT Rmv Cls or CIS
	CHERRY GROVE, WV 26803	CHERRY GROVE, WV 26803	
604484	R C PHARES - PHARES STORE RT 33 WEST ONEGO, WV 26886	PHARES STORE PO BOX 30 ONELO, WV 26886	1
604485	COUNTRY STORE RT 3 BOX 180 BRANDYWINE, WV 26802	COUNTRY STORE RT 3 BOX 18A HC 69 BRANDYWINE, WV 25802	0
604486	USDA FOREST SERVICE BOX 1548 SYCAMORE ST ELKINS, WV 26241	POTOMAC ADMINISTRATIVE SITE STATE ROUTE 28 PETERSBURG, WV 26847	0
604488	USDA FOREST SERVICE BOX 1548 SYCAMORE ST ELKINS, WV 26241	JUDY GAP EQUIPMENT DEPOT STATE ROUTE 28 RIVERTON, WV 26814	0
604489	VALLEY SERVICE MART RT 1 BOX 65B DO NOT MAIL !!!!! UPPER TRACT, WV 26866	VALLEY SERVICE MART ROUTE 1, BOX 65B UPPER TRACT, WV 26866	0
604490	MINOR VANCE US RT 28 SENECA, WV 26884	VANCES SERVICE CENTER US RT. 28 SENECA, WV 26884	0
604491	CHARLES M WARNER PO BOX 63 CIRCLEVILLE, WV 26804	ROCK GABLE SERVICE STATION CIRCLEVILLE, WV 26804	0
604492	WV DIV OF HIGHWAYS PO BOX 610 - EQUIP DIV ATT DON POST BUCKHANNON, WV 26201	SUGAR GROVE SUB STA 08363 SOUTH US NAVY STATION SUGAR GROVE, WV 26815	3
604493	WV DIV OF HIGHWAYS PO BOX 610 - EQUIP DIV ATT DON POST BUCKHANNON, WV 26201	WV DEPT OF HIGHWAYS JUDY GAP SUB-STATION RT 33 CIRCLEVILLE, WV 26804	2
604494	WV DIV OF HIGHWAYS PO BOX 610 - EQUIP DIV ATT DON POST BUCKHANNON, WV 26201	PENDLETON CO HQ 08361 RT 33 EAST PO BOX 36 FRANKLIN, WV 26807	2
605444	PETERSBURG COOPERATIVE INC 15 POTOMAC ST PETERSBURG, WV 26847	PETERSBURG COOPERATIVE INC FRANKLIN BRANCH FRANKLIN, WV 26807	0
606303	LANTZ'S GROCERY PO BOX 119 CIRCLEVILLE, WV 26804	LANTZ'S GROCERY PO BOX 119 CIRCLEVILLE, WV 26804	0
606324	C & J CLARK AMERICA INC 118 CARLISLE ST HANOVER, PA 17331	HANOVER SHOE CO RT 220 S FRANKLIN, WV 26807	0
606800	PENDLETON COUNTY SCHOOLS PO BOX 888 FRANKLIN, WV 26807	FRANKLIN HIGH SCHOOL ROUTE 33, EAST FRANKLIN, WV 26807	0
6069	THE SOUTHLAND CORP 5300 SHAWNEE RD	7-ELEVEN # 28324 US RT 11 & 324	2

ACTIVE & INACTIVE UST FACILITIES

AUGUST 2, 1995

Facility	Owner Name and Address	Location Name and Address	Tanks NOT Rmv Cls or CIS
607103	ALEXANDRIA, VA 22312 STATE LINE STORE/HARRY L MAINHEAR PO BOX 1125 BERRYVILLE, VA 26807	FRANKLIN, WV 26807 STATE LINE STORE RT. 7 BOX 45A FRANKLIN, WV 26807	0
607120	RUDDLE TRUCKING INC PO BOX 123 RIVERTON, WV 26814	RIVERTON MILL RT 33 RIVERTON, WV 26814	1
607128	ROD'S COUNTRY STORE HC 74 BOX 3D SUGAR GROVE, WV 26815	ROD'S COUNTRY STORE RT 21 BOX 3D SUGAR GROVE, WV 26815	1
607140	FRANKLIN OIL CO INC PO BOX 517 FRANKLIN, WV 26807	HEVENER EQUIPMENT CO RT 33 EAST FRANKLIN, WV 26807	0
607273	EARL HEDRICK RT 33 PO BOX 41 RIVERTON, WV 26814	RIVER MART PO BOX 41 RIVERTON, WV 26814	2
607274	UNCERTAIN EXXON	SITES CHEVROLET INC/NO FORMS-JS MAIN ST FRANKLIN, WV 26807	0
607756	HARPER'S OLD COUNTRY STORE BOX 7 SENECA ROCKS, WV 26884	HARPER'S OLD COUNTRY STORE BOX 7 SENECA ROCKS, WV 26884	4
607757	FRANKLIN OIL CO INC PO BOX 517 FRANKLIN, WV 26807	HOTT & MILLER, INC. ROUTE 33 EAST BRANDYWINE, WV 26802	0
607904	ATLANTIC OIL CO INC PO BOX 297 N MAIN ST FRANKLIN, WV 26807	KILE'S GROCERY MAIN ST RT 220 UPPER TRACT, WV 26866	2
607911	PENDLETON COUNTY SCHOOLS PO BOX 888 FRANKLIN, WV 26807	SENECA ROCKS ELEMENTARY SCHOOL ROUTE 28 N SENECA ROCKS, WV 26884	0
607912	PENDLETON COUNTY SCHOOLS PO BOX 888 FRANKLIN, WV 26807	UPPER TRACT ELEMENTARY SCHOOL ROUTE 220 UPPER TRACT, WV 26866	0
607913	PENDLETON COUNTY SCHOOLS PO BOX 888 FRANKLIN, WV 26807	CIRCLEVILLE HIGH SCHOOL ROUTE 28 CIRCLEVILLE, WV 26804	0
607914	PENDLETON COUNTY SCHOOLS PO BOX 888 FRANKLIN, WV 26807	BRANDYWINE ELEMENTARY SCHOOL ROUTE 33 WEST BRANDYWINE, WV 26802	0
608186	ELIZABETH SIMMONS RT 1 BOX 167B BAKER, WV 26801	G.D. HAROLD RT 1 BOX 44 FRANKLIN, WV 26807	0
609098	SOUTHERN STATES COOP INC PO BOX 26234 RICHMOND, VA 23260	SOUTHERN STATES-MOOREFIELD PRETR RT 33 BOX 70 MOOREFIELD, WV 26814	0
609116	ST MARYS REFINING CO 201 BARKWILL ST	ST MARYS REFINING CO 201 BARKWELL ST	3

ACTIVE UNDERGROUND STORAGE TANK LEAK SITES

AUGUST 24, 1995

City Location County	Leak ID	Facility ID	Owner Name and Address	Location Name and Address
OHIO	95-034	3-504441	TPI-STATE PETROLEUM - PO BOX 4005 - NORTH 27TH & VANCE AVE - WHEELING, WV 26003	POINT GAS STATION 101 2075 NATIONAL RD WHEELING, WV 26003
OHIO	92-196-L35	3-506422	MIN CO INC - 1801 MARKET ST - PHILADELPHIA, PA 19103	ELM GROVE SUNOCO 2066 NATIONAL RD WHEELING, WV 26003
OHIO	95-107	3-506494	CITY OF WHEELING - PO BOX 6148 - 26TH & MAIN ST - WHEELING, WV 26003	CITY OF WHEELING NORTHPARK LANDFILL WHEELING, WV 26003
OHIO	95-275-L35	3-506572	ROBINSON INVESTMENT CORP - 117 EDINGTON LANE - WHEELING, WV 26003	OHIO VALLEY ADVERTISING 1000 MCCOLLOCH ST. WHEELING, WV 26003
OHIO	93-099	2-807223	SUN OIL CO - - , WV	BARV RONY PROPERTY 22ND & CHAPLINE STS WHEELING, WV 26003
OHIO	91-9930-L35	3-508030	EXXON CO USA 6301 IVY LANE - SUITE 700 GREENBELT, MD 20770	EXXON #22493 20TH & CHAPLINE ST WHEELING, WV 26003
OHIO	95-052	3-508106	BALCO OIL CO - 703 MAIN ST - BRIDGEPORT, OH 43912	CONSOLIDATED TRUCKSTOPS/TRUCK CI I-70 & EXIT 11 TRIADELPHIA, OH 26059
OHIO	94-106	3-508172	FRYE'S STATE LINE GROCERY - RT 2 BOX 10 - VALLEY GROVE, WV 26060	FRYE'S STATE LINE GROCERY RD 2 BOX 10 VALLEY GROVE, WV 26060
OHIO	94-124	3-508251	EZHEL V STIMAC - 20 DORMAN RD - WHEELING, WV 26003	NATIONAL RD UTILITY SUPPLY INC RT 40 WEST VALLEY GROVE, WV 26060
OHIO	93-144	3-508268	UNCERTAIN - - ,	FRANK D. MONTELEONE RT 2 N OF WARWOOD WHEELING, WV 26003
OHIO	94-224	3-508267	UNCERTAIN - - ,	HOPKINS MOTOR CO 242 FULTON ST WHEELING, WV 26003
OHIO	93-030	3-508594	UNCERTAIN - - ,	HILL GEORGE PROPERTY/NO FORM NORTH FORK OF SHORT CREEK RD WHEELING, WV 26003
OHIO	94-082	3-508609	UNCERTAIN - - ,	CENTRE TV/NO FORMS/PAH 510 WARWOOD AVE WHEELING, WV 26003
PENDLETON	96-59	3-602048	STROOP PETROLEUM CO INC - DO NOT MAIL - HARRISONBURG, VA 22801	REESE FOX 220 SOUTH FRANKLIN, WV 26807
PENDLETON	92-208-L36	3-604445	EUGENE HARPER - HC 61 BOX 1C - MOYERS, WV 26813-9618	HARPER'S STORE HC 61 BOX 1C MOYERS, WV 26813
PENDLETON	98-60	3-604463	SHIRLEY B YOKUM -	YOKUM'S GROCERY RT 33 & 28

ACTIVE UNDERGROUND STORAGE TANK LEAK SITES

AUGUST 24, 1995

City Location County	Leak ID	Facility ID	Owner Name and Address	Location Name and Address
PENDLETON	92-154-L36	-	SENECA ROCKS, WV 26884	SENECA ROCKS, WV 26884
		3-604469	MIDWAY SERVICE STATION	MIDWAY SERVICE STATION
		-	RT 220	RT 220
		-	UPPER TRACT, WV 26866	UPPER TRACT, WV 26866
PENDLETON	91-048	3-604470	COMMANDING OFFICER	COMMANDING OFFICER
		-	NAVAL COMPUTER & TELECOMM AREA	NAVAL SECURITY GROUP ACTIVITY
		-	WARTER STATION PLANT	
		-	NORFOLK, VA 21511-6898	SUGAR GROVE, WV 26815-5000
PENDLETON	94-050	3-604489	VALLEY SERVICE MART	VALLEY SERVICE MART
		-	RT 1 BOX 65B	ROUTE 1, BOX 65B
		-	DO NOT MATT.!!!!	UPPER TRACT, WV 26866
		-	UPPER TRACT, WV 26866	
PENDLETON	93-122-L36	3-606800	PENDLETON COUNTY SCHOOLS	FRANKLIN HIGH SCHOOL
		-	PO BOX 868	ROUTE 33, EAST
		-	FRANKLIN, WV 26807	FRANKLIN, WV 26807
PENDLETON	93-233	3-607274	UNCERTAIN EXON	SITES CHEVROLET INC/NO FORMS-J8
		-		MAIN ST
		-		FRANKLIN, WV 26807
PENDLETON	95-139	3-607756	HARDEN'S OLD COUNTRY STORE	HARDEN'S OLD COUNTRY STORE
		-	BOX 7	BOX 7
		-	SENECA ROCKS, WV 26884	SENECA ROCKS, WV 26884
PENDLETON	89-162	3-607911	PENDLETON COUNTY SCHOOLS	SENECA ROCKS ELEMENTARY SCHOOL
		-	PO BOX 880	ROUTE 28 N
		-	FRANKLIN, WV 26807	SENECA ROCKS, WV 26884
PENDLETON	93-239	3-609098	SOUTHERN STATES COOP INC	SOUTHERN STATES MOOREFIELD PRETP
		-	PO BOX 26234	RT 33 BOX 70
		-	RICHMOND, VA 23200	MOOREFIELD, WV 26014
PLEASANTS	91-06-L37	3-702582	EXON CO USA	HOFF'S EXON-N/S #25240
		-	MAINTENANCE & COMPLIANCE SUPPORT	215 JRD ST
		-	PO BOX 4386	ST MARYS, WV 26170
		-	HOUSTON, TX 77210-4386	
PLEASANTS	94-070	3-704504	WV DEPT OF PUBLIC SAFETY	ST MARYS DETACHMENT WV ST POLICE
		-	424 MANAWBA TURNPIKE	1313 MAIN ST
		-	SOUTH CHARLESTON, WV 25309-1698	ST MARYS, WV 26170
PLEASANTS	91-99/8-L37	3-704510	FARM FRESH INC	FARM FRESH STORE
		-	3626 MCCOLLOCH ST	STATE RT 2
		-	WHEELING, WV 26003	WHEELING, WV 26134
PLEASANTS	95-129	3-704518	PLEASANTS COUNTY BOARD OF ED	PLEASANTS CO BOARD OF EDUCATION
		-	202 FAIRVIEW DR	202 FAIRVIEW DR
		-	ST MARYS, WV 26170	ST MARYS, WV 26170
PLEASANTS	94-253	3-704523	SMITHS CHEVRON SERVICE JAMES W S	SMITHS CHEVRON SERVICE JAMES W S
		-	3RD & CREEL ST	3RD & CREEL ST
		-	ST MARYS, WV 26170	ST MARYS, WV 26170
PLEASANTS	91-9918-L37	3-706328	WV DEPARTMENT OF HEALTH	CCLIN ANDERSON CENTER
		-	1800 WASHINGTON ST E	RT 2 NORTH
		-	CHARLESTON, WV 25305	ST MARYS, WV 26170
POCAHONTAS	93-321	3-602036	MOUNTAIN STATE TELEPHONE CO	MOUNTAIN STATE TELEPHONE
		-	PO BOX 40	RT 92
		-	MASONTOWN, WV 26542	ARBOVALE, WV 24915
POCAHONTAS	91-9916-L38	3-804528	ASHLAND BRANDED MARKETING	WILLIAM D ROGERS 370-005

DEP-OFFICE OF WASTE MANAGEMENT
 UNDERGROUND STORAGE TANKS
 ACTIVE & INACTIVE FACILITIES
 JUNE 5, 1995

Facility Location County	Facility Owner Name ID and Address	Location Name and Address	Tanks NOT Rsv Cis or CIS	Contact's Phone
	-	2122 NATIONAL RD		() -
	-	WHEELING, WV 26003		() -
OHIO	3-508619 CSX TRANSPORTATION INC	CSX TRANSPORTATION INC	1	(606) 344-8546
	- 1717 DIXIE HIGHWAY	16TH STREET		() -
	- SUITE 400	WHEELING, WV 26003		() -
	- FORT WRIGHT, KY 41011			() -
OHIO	3-509076 UNCERTAIN	NORTH PARK DEVELOPMENT CORP	3	(304) 292-7400
	-	137 N RIVER RD		() -
	-	WHEELING, WV 26003		() -
OHIO	3-509221 AMERICAN INDUSTRIES & RESOURCES	AIRC HANGER - ELC	1	(614) 264-7704
	- 201 LUNAY DR	OHIO COUNTY AIRPORT		() -
	- WINDERSVILLE, OH 43952	BOX 11 RT 5		() -
	-	WHEELING, WV 26003		() -
FENDLETON	3-602035 HESS OIL CO INC	BROWN FAMILY EMT. - PANTPO	5	(304) 358-2222
	- PO BOX 1563	Mr 31 E & US RT 220		() -
	- RT 219 N	FRANKLIN, WV 26807		() -
	- ELKINS, WV 26241			() -
FENDLETON	3-602048 STROOP PETROLEUM CO INC	KEEZE FOX	4	(703) 434-6787
	- DO NOT MAIL	220 SOUTH		() -
	- HARRISONBURG, VA 22801	FRANKLIN, WV 26807		() -
FENDLETON	3-602058 DARDNER'S SERVICE STATION	DARDNER'S SERVICE STATION	0	(304) 358-7792
	- BOX 7 RT 33 N	BOX 7, RT. 33 N.		() -
	- FRANKLIN, WV 26807	FRANKLIN, WV 26807		() -
FENDLETON	3-602829 HESS OIL CO INC	BAINES STORE	3	(304) 567-2137
	- PO BOX 1663	US RT 33		() -
	- RT 219 N	RIVINGTON, WV 26814		() -
	- ELKINS, WV 26241			() -
FENDLETON	3-604442 FRANKLIN OIL CO INC	LOSE PINE SERVICE STATION	0	(304) 358-2354
	- PO BOX 517	RT. 3		() -
	- FRANKLIN, WV 26807	BRADYVIEW, WV 26802		() -
FENDLETON	3-604443 FRANKLIN OIL CO INC	THORN SPRING RESTAURANT	0	(304) 358-7225
	- PO BOX 517			() -
	- FRANKLIN, WV 26807	FRANKLIN, WV 26807		() -
FENDLETON	3-604444 FRANKLIN OIL CO INC	BOWEN'S STORE	3	(304) 358-2354
	- PO BOX 517	US POST OFFICE		() -
	- FRANKLIN, WV 26807	SUGAR GROVE, WV 26815		() -
FENDLETON	3-604445 EUGENE HARPER	HARPER'S STORE	1	(304) 358-7251
	- RC 61 BOX 1C	RC 61 BOX 1C		() -
	- MOYERS, WV 26813-2618	MOYERS, WV 26813		() -
FENDLETON	3-604447 FRANKLIN OIL CO INC	MAIN STREET CHEVRO	4	(304) 358-2735
	- PO BOX 517	PO BOX 517		() -
	- FRANKLIN, WV 26807	MAIN STREET		() -
	-	FRANKLIN, WV 26807		() -
FENDLETON	3-604448 JOHN F CARROLL	HOUSE NOW TRUCK	0	(304) 249-5323
	- RT 3 BOX 52	RT. 3		() -
	- FT SHERBET, WV 26806	FT. SHERBET, WV 26806		() -
FENDLETON	3-604449 ATLANTIC OIL CO INC	BLAND'S CAMPING	1	(304) 358-2242
	- PO BOX 297	RT 28		() -

DEP-OFFICE OF WASTE MANAGEMENT
 UNDERGROUND STORAGE TANKS
 ACTIVE & INACTIVE FACILITIES
 JUNE 5, 1995

Facility Location County	Facility Owner Name ID and Address	Location Name and Address	Tanks NOT Rev Cis or CIS	Contact's Phone
	- R MAIN ST	CIRCLEVILLE, WV 26804		() -
	- FRANKLIN, WV 26807			() -
FENDLETON	3-604450 ATLANTIC OIL CO INC	BOY'S APOD	1	(304) 358-2242
	- PO BOX 297	MAIN		() -
	- R MAIN ST	FRANKLIN, WV 26807		() -
	- FRANKLIN, WV 26807			() -
FENDLETON	3-604451 ATLANTIC OIL CO INC	DOVE'S STORE	0	(304) 19A-2262
	- PO BOX 297			() -
	- R MAIN ST	UPPER TRACT, WV 26806		() -
	- FRANKLIN, WV 26807			() -
FENDLETON	3-604452 ATLANTIC OIL CO INC	CENTEX FLDG MARK	2	(304) 358-2693
	- PO BOX 297	RT 33		() -
	- R MAIN ST	HEARDWIRE, WV 26802		() -
	- FRANKLIN, WV 26807			() -
FENDLETON	3-604453 ATLANTIC OIL CO INC	SIGNETT'S LAKE SERVICE STATION	0	(304) 350-2242
	- PO BOX 297			() -
	- R MAIN ST	MOYERS, WV 26813		() -
	- FRANKLIN, WV 26807			() -
FENDLETON	3-604454 FARRELL HEAVYWEAR/WAYNE OCLAW	C & E CASH STORE	2	(304) 507-2023
	- 19 CHERRY LAKE	RT 28		() -
	- CHERRY GROVE, WV 26804-9704	CHERRY GROVE, WV 26804		() -
FENDLETON	3-604455 COLUMBIA GAS TRANSMISSION	SENeca COMPRESSOR STATION	0	(304) 567-2554
	- 1700 HACCORLE AVE SE	RT 28 NORTH		() -
	- PO BOX 1273	SENeca ROCKS, WV 26884		() -
	- CHARLESTON, WV 25314			() -
FENDLETON	3-604456 DIXIE GAS AND OIL CORP	DIXIE GAS AND OIL CORPORATION	0	(304) 358-2514
	- PO BOX 900 RT 11	P. O. BOX 367, MAIN STREET		() -
	- VERONA, VA 24482	FRANKLIN, WV 26807		() -
FENDLETON	3-604458 THOMPSON MOTOR INC	THOMPSON MOTOR INC.A.	0	(304) 358-2331
	- PO BOX 847	F.O. BOX 847		() -
	- FRANKLIN, WV 26851	FRANKLIN, WV 26851		() -
FENDLETON	3-604459 GATWAY GENERAL	GATWAY GENERAL	0	(304) 567-2039
	- KELEN BISHOP			() -
	- EC 77 BOX 15	RIVERCORN, WV 26814		() -
	- RIVERCORN, WV 26814			() -
FENDLETON	3-604461 HIGHLAND OIL CO INC	FRANKLIN IGA	2	() -
	- 312 HARRICH DR	OFF US 33		() -
	- ALEXANDRIA, VA 22302	FRANKLIN, WV 26807		() -
FENDLETON	3-604462 VALLEY VIEW RESTAURANT	VALLEY VIEW RESTAURANT	0	(304) 567-2496
	- RFD 4	RFD 4		() -
	- RIVERCORN, WV 26814	RIVERCORN, WV 26814		() -
FENDLETON	3-604463 SELKBY B YORKM	YORKM'S GROCERY	4	(304) 567-2626
	-	RT 33 & 28		() -
	- SENeca HILLS, WV 26884	SENeca ROCKS, WV 26884		() -
FENDLETON	3-604464 HIRKLE TRUCKING INC	HIRKLE TRUCKING INC	1	(304) 567-2900
	- PO BOX 65	RT 28 & 33		() -
	- CIRCLEVILLE, WV 26804	SENeca ROCKS, WV 26884		() -
FENDLETON	3-604467 KLINE MOTOR SALES INC	KLINE MOTOR SALES INC	0	(304) 358-2211

DEP-OFFICE OF WASTE MANAGEMENT
 UNDERGROUND STORAGE TANKS
 ACTIVE & INACTIVE FACILITIES
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	- MAPLE AVE	MAPLE AVE		() -
	- FRANKLIN, WV 26807	FRANKLIN, WV 26807		() -
PENDLETON	3-604460 HELEN C BOBBOR	MIDWAY SERVICE STATION	1	(304) 358-7494
	- RC 62 BOX 25	RT 220		() -
	- UPPER TRACT, WV 26866-9701	UPPER TRACT, WV 26866		() -
PENDLETON	3-604470 COMMANDING OFFICER	COMMANDING OFFICER	6	(304) 249-6341
	- NAVAL SECURITY GROUP ACTIVITY	NAVAL SECURITY GROUP ACTIVITY		() -
	- SUGAR GROVE, WV 26815-5000			() -
	- SUGAR GROVE, WV 26815-5000	SUGAR GROVE, WV 26815-5000		() -
PENDLETON	3-604473 PENDLETON MOTOR SALES INC	PENDLETON MOTOR SALES, INC.	0	(304) 358-2678
	- G MAIN ST	G MAIN STREET		() -
	- FRANKLIN, WV 26807	FRANKLIN, WV 26807		() -
PENDLETON	3-604474 DICES CASH STORE	DICES CASH STORE	0	() -
	-			() -
	- CIRCLEVILLE, WV 26804	CIRCLEVILLE, WV 26804		() -
PENDLETON	3-604475 PETERSBURG OIL CO	RUFFMAN AUTO	0	() -
	- 48 SOUTH MAIN ST	U.S. ROUTE 33		() -
	- PETERSBURG, WV 26847	FRANKLIN, WV 26807		() -
PENDLETON	3-604476 PETERSBURG OIL CO	SIMPSONS GARAGE	0	() -
	- 46 SOUTH MAIN ST	U.S. ROUTE 33		() -
	- PETERSBURG, WV 26847	FRANKLIN, WV 26807		() -
PENDLETON	3-604477 PETERSBURG OIL CO	M. L. SWIDER	0	(304) 249-5453
	- 46 SOUTH MAIN ST			() -
	- PETERSBURG, WV 26847	BRANDYWINE, WV 26802		() -
PENDLETON	3-604478 PETERSBURG OIL CO	H & J SUPERETTE	3	(304) 349-5373
	- 46 SOUTH MAIN ST	RT 33 EAST		() -
	- PETERSBURG, WV 26847	BRANDYWINE, WV 26802		() -
PENDLETON	3-604479 BERTHA MOYERS	CAVE COUNTRY STORE	4	(304) 358-7553
	-			() -
	- FRANKLIN, WV 26807	FRANKLIN, WV 26807		() -
PENDLETON	3-604481 SIZES OIL CO	PIERS FURNITURE	0	(304) 257-6088
	- 206 JUDY ST			() -
	- PETERSBURG, WV 26847	BRANDYWINE, WV 26802		() -
PENDLETON	3-604482 B & J MARKET	B & J MARKET	0	(304) 456-4027
	-			() -
	- CHERRY GROVE, WV 26803	CHERRY GROVE, WV 26803		() -
PENDLETON	3-604484 R C FRANKS - FRANKS STORE	FRANKS STORE	1	(304) 567-2285
	- PO BOX 1092	RT 33 WEST		() -
	- OHIO, WV 26886	OHIO, WV 26886		() -
PENDLETON	3-604485 COUNTRY STORE	COUNTRY STORE	0	(304) 249-5663
	- RT 3 BOX 180	RT 3 BOX 18A		() -
	- BRANDYWINE, WV 26802	RC 69		() -
	-	BRANDYWINE, WV 26802		() -
PENDLETON	3-604486 USDA FOREST SERVICE	POTSDAM ADMINISTRATIVE SITE	0	(304) 257-4488
	- BOX 1548 STAMERS ST	STATE ROUTE 26		() -
	- HILMS, WV 26241	PETERSBURG, WV 26847		() -
PENDLETON	3-604488 USDA FOREST SERVICE	JUDY GAP EQUIPMENT DEPOT	0	(304) 636-1800
	- BOX 1548 STAMERS ST	STATE ROUTE 26		() -

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	- ELKINS, WV 26241	RIVERTON, WV 26814		() -
FENDLETON	3-604489 VALLEY SERVICE MART	VALLEY SERVICE MART	0	() -
	- RT 1 BOX 65B	ROUTE 1, BOX 65B		() -
	- DO NOT MAIL 1111	UPPER TRACT, WV 26866		() -
	- UPPER TRACT, WV 26866			() -
FENDLETON	3-604490 MIMOR VANCE	VANCES SERVICE CENTER	0	(304) 567-2516
	- US RT 28	IR RT. 28		() -
	- SENECA, WV 26884	SENECA, WV 26884		() -
FENDLETON	3-604491 CHARLES H WARREN	ROCK GAWK SERVICE STATION	0	() 567-2539
	- PO BOX 63			() -
	- CIRCLEVILLE, WV 26804	CIRCLEVILLE, WV 26804		() -
FENDLETON	3-604492 WV DIV OF HIGHWAYS	SUGAR GROVE SUB STA 08363	3	(304) 368-0442
	- PO BOX 610 - EQUIP DIV	SOUTH US NAVY STATION		() -
	- ATT DON POST	SUGAR GROVE, WV 26815		() -
	- BUCKMANSON, WV 26201			() -
FENDLETON	3-604493 WV DIV OF HIGHWAYS	WV DEPT OF HIGHWAYS	2	(304) 637-0220
	- PO BOX 610 - EQUIP DIV	JUDY GAY SUB-STATION		() -
	- ATT DON POST	RT 33		() -
	- BUCKMANSON, WV 26201	CIRCLEVILLE, WV 26804		() -
FENDLETON	3-604494 WV DIV OF HIGHWAYS	FENDLETON CO HQ 08361	2	(304) 637-0220
	- PO BOX 610 - EQUIP DIV	RT 33 EAST PO BOX 30		() -
	- ATT DON POST	FRANKLIN, WV 26807		() -
	- BUCKMANSON, WV 26201			() -
FENDLETON	3-605444 PETERSBURG COOPERATIVE INC	PETERSBURG COOPERATIVE INC	0	(804) 281-1274
	- 15 POTOMAC ST	FRANKLIN BRANCH		() -
	- PETERSBURG, WV 26847	FRANKLIN, WV 26807		() -
FENDLETON	3-606303 LAWTE'S GROCERY	LAWTE'S GROCERY	0	(304) 367-2533
	- PO BOX 119	PO BOX 119		() -
	- CIRCLEVILLE, WV 26804	CIRCLEVILLE, WV 26804		() -
FENDLETON	3-606324 C & J CLARK AMERICA INC	HANOVER SHOE CO	0	(304) 358-2335
	- 118 CARLEILE ST	RT 220 S		() -
	- HANOVER, PA 17331	FRANKLIN, WV 26807		() -
FENDLETON	3-606800 FENDLETON COUNTY SCHOOLS	FRANKLIN HIGH SCHOOL	0	(304) 358-2207
	- PO BOX 888	ROUTE 33, EAST		() -
	- FRANKLIN, WV 26807	FRANKLIN, WV 26807		() -
FENDLETON	3-606839 THE SCOTLAND CORP	7-ELEVEN # 28324	2	(804) 826-8200
	- 5300 SHAWNEE RD	US RT 11 & 324		() -
	- ALEXANDRIA, VA 22312	FRANKLIN, WV 26807		() -
FENDLETON	3-607103 STATE LIKE STORE/HARRY L WATNER	STATE LIKE STORE	0	(304) 358-2805
	- PO BOX 1125	RT. 7 BOX 45A		() -
	- BERRYVILLE, VA 26807	FRANKLIN, WV 26807		() -
FENDLETON	3-607120 MIDDLE TRUCKING INC	RIVERTON HILL	1	(304) 567-2126
	- PO BOX 123	RT 33		() -
	- RIVERTON, WV 26814	RIVERTON, WV 26814		() -
FENDLETON	3-607128 BOB'S COUNTRY STORE	BOB'S COUNTRY STORE	1	(304) 249-5943
	- RC 74 BOX 3D	RT 21 BOX 3D		() -
	- SUGAR GROVE, WV 26815	SUGAR GROVE, WV 26815		() -
FENDLETON	3-607140 FRANKLIN OIL CO INC	HANOVER EQUIPMENT CO	0	(304) 358-2354

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	- PC BOX 517	RT 33 EAST		() -
	- FRANKLIN, WV 26807	FRANKLIN, WV 26807		() -
PERDLETON	3-607273 EARL WRONICK	RIVER HART	2	(304) 567-2241
	- RT 33	PO BOX 41		() -
	- PO BOX 41	RIVERTON, WV 26814		() -
	- RIVERTON, WV 26814			() -
FUNDELTON	3-607274 UNCLESAM KKKON	SITES CHEVROLET INC/NO FORMS-JS	0	() -
	-	MAIN ST		() -
		FRANKLIN, WV 26807		() -
PERDLETON	3-607756 HARPER'S OLD COUNTRY STORE	HARPER'S OLD COUNTRY STORE	4	(304) 567-2586
	- BOX 7	BOX 7		() -
	- SENECA ROCKS, WV 26884	SENECA ROCKS, WV 26884		() -
PERDLETON	3-607784 FRANKLIN OIL CO INC	BOVE & MILLER, INC.	0	(304) 358-2354
	- PO BOX 517	ROUTE 33 EAST		() -
	- FRANKLIN, WV 26807	BRANDYWINE, WV 26802		() -
PERDLETON	3-607904 ATLANTIC OIL CO INC	KILE'S GROCERY	2	(304) 358-2242
	- PO BOX 297	MAIN ST		() -
	- N MAIN ST	RT 220		() -
	- FRANKLIN, WV 26807	UPPER TRACT, WV 26866		() -
PERDLETON	3-607911 PERDLETON COUNTY SCHOOLS	SENECA ROCKS ELEMENTARY SCHOOL	0	(304) 358-2207
	- PO BOX 888	ROUTE 26 W		() -
	- FRANKLIN, WV 26807	SENECA ROCKS, WV 26884		() -
PERDLETON	3-607912 PERDLETON COUNTY SCHOOLS	UPPER TRACT ELEMENTARY SCHOOL	0	(304) 358-2207
	- PO BOX 888	ROUTE 220		() -
	- FRANKLIN, WV 26807	UPPER TRACT, WV 26866		() -
PERDLETON	3-607913 PERDLETON COUNTY SCHOOLS	CIRCLEVILLE HIGH SCHOOL	0	(304) 358-2207
	- PO BOX 888	ROUTE 28		() -
	- FRANKLIN, WV 26807	CIRCLEVILLE, WV 26804		() -
PERDLETON	3-607914 PERDLETON COUNTY SCHOOLS	BRANDYWINE ELEMENTARY SCHOOL	0	(304) 358-2207
	- PO BOX 888	ROUTE 33 WEST		() -
	- FRANKLIN, WV 26807	BRANDYWINE, WV 26802		() -
PERDLETON	3-608186 ELIZABETH SIMONS	G.D. HANCOCK	0	(304) 897-6465
	- RT 1 BOX 1678	RT 1 BOX 44		() -
	- BAKER, WV 26801	FRANKLIN, WV 26807		() -
PERDLETON	3-609098 SOUTHERN STATES COOP INC	SOUTHERN STATES-MOOREFIELD FEED	0	(304) 281-1000
	- PO BOX 26234	RT 33 BOX 70		() -
	- RICHMOND, VA 23260	MOOREFIELD, WV 26814		() -
PLEASANTS	3-700616 ST MARYS REFINING CO	ST MARYS REFINING CO	3	(304) 684-2222
	- 201 BARWILL ST	201 BARWELL ST		() -
	- ST MARYS, WV 26170	ST MARY'S, WV 26170		() -
PLEASANTS	3-700617 QUAKER ST OIL REF COR STEELING O	CLOVIS MOTOR COMPANY	0	(304) 684-2655
	- BOX 989	THIRD & WASHINGTON STREETS		() -
	- OIL CITY, PA 16301	ST. MARY'S, WV 26170		() -
PLEASANTS	3-700618 QUAKER ST OIL REF COR STEELING O	J & J EQUIPMENT COMPANY	0	(304) 665-2823
	- BOX 989	P.O. BOX 156		() -
	- OIL CITY, PA 16301	HELMONT, WV 26134		() -
PLEASANTS	3-702682 KKKON CO USA	HOFF'S KKKON-R/S #25240	0	(304) 347-1071
	- 4880 RASOMA PER FL	215 1RD ST		() -

Appendix D

Laboratory Results

.NT SAMPLE ID'S:	REPORTING	SB-27 0-4	SB-27 4-8	SB-28 0-4	SB-28 4-6	SB-29 0-3	B-1 0-4	B-1 4-8
ESE FIELD GROUP:	LIMIT	22769	22769	22769	22769	22769	22769	22769
ESE SEQUENCE #:		29	30	31	32	33	34	35
DATE COLLECTED:		11/01/95	11/01/95	11/02/95	11/02/95	11/02/95	11/02/95	11/02/95
TIME COLLECTED:		16:30	16:40	09:00	09:05	09:10	10:10	10:15

PARAMETERS	UNITS	METHOD	REPORTING	SB-27 0-4	SB-27 4-8	SB-28 0-4	SB-28 4-6	SB-29 0-3	B-1 0-4	B-1 4-8
TPH, as diesel		CA8015/SOIL	10	<13 ✓	<13 ✓	<12 ✓	<12 ✓	<11 ✓	<12 ✓	69 ✓
	MG/KG-DRY WT.									
TPH, as gasoline		CA8015/5030	100 ✓	<130 ✓	<130 ✓	<120 ✓	<120 ✓	<110 ✓	<120 ✓	<120 ✓
	UG/KG-DRY WT.									
Moisture	%	160.3	0.1	21.2	20.8	13.1	15.7	9.0	16.8	18.2

REPORTING B-2 0-4 B-2 4-7 B-3 0-4 B-3 4-5.5 B-4 0-3.5 B-6 0-2.5 DUPLICATE A
 ESE FIELD GROUP: LIMIT 22769 22769 22769 22769 22769 22769 22769
 ESE SEQUENCE #: 36 37 38 39 40 41 42
 DATE COLLECTED: 11/02/95 11/02/95 11/02/95 11/02/95 11/02/95 11/02/95 11/02/95
 TIME COLLECTED: 10:25 10:30 10:35 10:38 10:50 13:00

All OK

PARAMETERS	UNITS	METHOD	B-2 0-4	B-2 4-7	B-3 0-4	B-3 4-5.5	B-4 0-3.5	B-6 0-2.5	DUPLICATE A
TPH, as diesel		CAB015/SOIL	10	<13	<12	<11	<12	<11	<12
	MG/KG-DRY WT.								<13
TPH, as gasoline		CAB015/5030	100	<130	<120	<110	<120	<110	<120
	UG/KG-DRY WT.								<120
Moisture	%	160.3	0.1	21.3	16.7	11.9	16.5	12.1	15.6
									19.7

CLIENT SAMPLE ID'S:	REPORTING	DUPLIC B	TRIPBLANK	EQUIPBLANK	COMP DRUM
ESE FIELD GROUP:	LIMIT	22769	22769	22769	22769
ESE SEQUENCE #:		43	44	45	46
DATE COLLECTED:		11/02/95	11/02/95	11/02/95	11/02/95
TIME COLLECTED:					

PARAMETERS	UNITS	METHOD					

TPH, as diesel		CA8015/SOIL	10	<12	NRQ	NRQ	NRQ
	MG/KG-DRY WT.						
TPH, as gasoline		CA8015/5030	100	<120	NRQ	NRQ	NRQ
	UG/KG-DRY WT.						
Moisture		160.3	0.1	13.7	NRQ	NRQ	18.1
	%						
TPH, as gasoline		CA8015/5030	50	NRQ	<50	NRQ	NRQ
	UG/L						
TPH, as diesel		CA8015/WATER	0.5	NRQ	NRQ	<0.5	NRQ
	MG/L						
EOX		9020A	10	NRQ	NRQ	NRQ	<10
	MG/KG						
Paint Filter Test		9095	----	NRQ	NRQ	NRQ	YES
	(passed test)						
Benzene		8020	1	NRQ	NRQ	NRQ	10
	UG/KG-DRY WT.						
Toluene		8020	1	NRQ	NRQ	NRQ	60
	UG/KG-DRY WT.						
Ethylbenzene		8020	1	NRQ	NRQ	NRQ	14
	UG/KG-DRY WT.						
Xylenes, Total		8020	1	NRQ	NRQ	NRQ	290
	UG/KG-DRY WT.						
TPH, as diesel		8015/MOD	10	NRQ	NRQ	NRQ	<12
	MG/KG-DRY WT.						
TPH, as gasoline		8015/MOD	10	NRQ	NRQ	NRQ	130
	MG/KG-DRY WT.						
TPH, as jet fuel		8015/MOD	10	NRQ	NRQ	NRQ	<12
	MG/KG-DRY WT.						
TPH, as unidentified hydrocarbon		8015/MOD	10	NRQ	NRQ	NRQ	<12
	MG/KG-DRY WT.						
TPH, as motor oil		8015/MOD	160	NRQ	NRQ	NRQ	<200
	MG/KG-DRY WT.						
TPH, as mineral spirits		8015/MOD	10	NRQ	NRQ	NRQ	<12
	MG/KG-DRY WT.						

NRQ - Analysis not requested.

SAMPLE	STATION ID	COLLECT. RECEIPT	CLASSIFICATION	EXTRACT. ANALYSIS		DAYS, ACT/HT		ESE BATCH
				EXT	ANL	EXT	ANL	
22769*18	SB-21 4-8	11/01/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/08/95	11/10/95	7/14	2/40	P31429 P31362 P31396
22769*19	SB-22 0-4	11/01/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/08/95	11/10/95	7/14	2/40	P31429 P31362 P31396
22769*20	SB-22 4-7.5	11/01/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/08/95	11/09/95	7/14	1/40	P31429 P31362 P31396
22769*21	SB-23 0-2	11/01/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95	11/10/95	8/14	1/40	P31429 P31362 P31396
22769*22	SB-23 4-8	11/01/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95	11/10/95	8/14	1/40	P31429 P31362 P31396
22769*23	SB-24 0-4	11/01/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95	11/10/95	8/14	1/40	P31429 P31362 P31396
22769*24	SB-24 4-8	11/01/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95	11/10/95	8/14	1/40	P31429 P31362 P31396
22769*25	SB-25 0-4	11/01/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95	11/10/95	8/14	1/40	P31429 P31362 P31396
22769*26	SB-25 4-8	11/01/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95	11/10/95	8/14	1/40	P31429 P31362 P31396
22769*27	SB-26 0-4	11/01/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95	11/10/95	8/14	1/40	P31429 P31362 P31396
22769*28	SB-26 4-8	11/01/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95	11/10/95	8/14	1/40	P31429 P31362 P31396
22769*29	SB-27 0-4	11/01/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95	11/10/95	8/14	1/40	P31429 P31362 P31396
22769*30	SB-27 4-8	11/01/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95	11/10/95	8/14	1/40	P31429 P31362 P31396
22769*31	SB-28 0-4	11/02/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95	11/11/95	7/14	2/40	P31429 P31362 P31396
22769*32	SB-28 4-6	11/02/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95	11/11/95	7/14	2/40	P31429 P31362 P31396
22769*33	SB-29 0-3	11/02/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95	11/11/95	7/14	2/40	P31429 P31362 P31396
22769*34	B-1 0-4	11/02/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95	11/11/95	7/14	2/40	P31429 P31362 P31396

FOOTNOTES: * = EXCEEDS CRITERIA ACT = ACTUAL HT = HOLDING TIME

SAMPLE	STATION ID	COLLECT. RECEIPT	CLASSIFICATION	EXTRACT. ANALYSIS	DAYS, ACT/HT		ANL. ESE BATCH
					EXT	HT	
22769*35	B-1 4-8	11/02/95 11/06/95	TPH, as diesel - CAB015 TPH, as gasoline - CAB015 Moisture - 160.3	11/09/95 11/11/95	7/14	2/40	P31429 P31362 P31396
22769*36	B-2 0-4	11/02/95 11/06/95	TPH, as diesel - CAB015 TPH, as gasoline - CAB015 Moisture - 160.3	11/09/95 11/11/95	7/14	2/40	P31429 P31362 P31396
22769*37	B-2 4-7	11/02/95 11/06/95	TPH, as diesel - CAB015 TPH, as gasoline - CAB015 Moisture - 160.3	11/09/95 11/11/95	7/14	2/40	P31429 P31362 P31396
22769*38	B-3 0-4	11/02/95 11/06/95	TPH, as diesel - CAB015 TPH, as gasoline - CAB015 Moisture - 160.3	11/09/95 11/11/95	7/14	2/40	P31429 P31362 P31396
22769*39	B-3 4-5.5	11/02/95 11/06/95	TPH, as diesel - CAB015 TPH, as gasoline - CAB015 Moisture - 160.3	11/09/95 11/11/95	7/14	2/40	P31429 P31362 P31396
22769*40	B-4 0-3.5	11/02/95 11/06/95	TPH, as diesel - CAB015 TPH, as gasoline - CAB015 Moisture - 160.3	11/09/95 11/11/95	7/14	2/40	P31429 P31362 P31396
22769*41	B-6 0-2.5	11/02/95 11/06/95	TPH, as diesel - CAB015 TPH, as gasoline - CAB015 Moisture - 160.3	11/09/95 11/11/95	7/14	2/40	P31429 P31362 P31396
22769*42	DUPLICATE A	11/02/95 11/06/95	TPH, as diesel - CAB015 TPH, as gasoline - CAB015 Moisture - 160.3	11/09/95 11/11/95	7/14	2/40	P31429 P31362 P31396
22769*43	DUPLICATE B	11/02/95 11/06/95	TPH, as diesel - CAB015 TPH, as gasoline - CAB015 Moisture - 160.3	11/09/95 11/11/95	7/14	2/40	P31429 P31362 P31396
22769*44	TRIPBLANK	11/02/95 11/06/95	TPH, as diesel - CAB015 TPH, as gasoline - CAB015 Moisture - 160.3	11/09/95 11/11/95	7/14	2/40	P31429 P31362 P31396
22769*45	EQUIPBLANK	11/02/95 11/06/95	TPH, as diesel - CAB015 TPH, as gasoline - CAB015 Moisture - 160.3	11/09/95 11/11/95	6/14	1/40	P31429 P31362 P31396
22769*46	COMP DRUM	11/02/95 11/10/95	TPH, as diesel - CAB015 TPH, as gasoline - CAB015 Moisture - 160.3	11/08/95 11/09/95	14/14	1/40	P31429 P31362 P31396
			EOX				
			PAINT FILTER TEST				
			BTEX - 8020				
			TPH, as diesel - 8015M				

FOOTNOTES: * = EXCEEDS CRITERIA ACT = ACTUAL HT = HOLDING TIME

ESE BATCH : F31429
ANALYSIS : 8015M

QE : FDER/SW
JT : LORI RITTENHOUSE
EXTRACTOR :
DATA ENTRY : LORI RITTENHOUSE

REPORT DATE/TIME : 11/29/95 14:12
ANALYSIS DATE/TIME : 11/09/95
EXTRACT DATE :

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

BATCH NOTES
8015

FIELD	GRP	QC	TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
22769	BATCH			1895416 5100	ESE HERNDON/NAVY	TY WOODIN

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
22769*1	SB-13 0-4	11/09/95	07:06PM
22769*3	SB-14 0-4	11/09/95	07:43PM
22769*4	SB-14 4-8	11/09/95	08:20PM
22769*7	SB-16 1-5	11/09/95	08:57PM
22769*20	SB-22 4-7.5	11/09/95	09:34PM
22769*14	SB-19 4-6.5	11/10/95	12:40PM
22769*13	SB-19 0-4	11/10/95	01:17AM
22769*15	SB-20 0-4	11/10/95	01:54AM
22769*16	SB-20 4-8	11/10/95	02:31AM
22769*17	SB-21 0-4	11/10/95	03:08AM
22769*19	SB-22 0-4	11/10/95	03:45AM
22769*8	SB-16 5-8.5	11/10/95	04:23AM
22769*11	SB-18 0-4	11/10/95	05:00AM
22769*12	SB-18 4-7.5	11/10/95	05:37AM
22769*10	SB-17 8-10	11/10/95	06:14AM
22769*5	SB-15 1-5	11/10/95	08:06AM
22769*2	SB-13 4-8	11/10/95	08:43AM
22769*18	SB-21 4-8	11/10/95	09:20AM
22769*6	SB-15 5-7.5	11/10/95	09:57AM
22769*9	SB-17 4-8	11/10/95	10:34AM
22769*21	SB-23 0-2	11/10/95	05:40PM
22769*22	SB-23 4-8	11/10/95	06:17PM
22769*23	SB-24 0-4	11/10/95	06:54PM
22769*24	SB-24 4-8	11/10/95	07:31PM
22769*25	SB-25 0-4	11/10/95	08:08PM
22769*26	SB-25 4-8	11/10/95	08:46PM
22769*27	SB-26 0-4	11/10/95	09:23PM
22769*28	SB-26 4-8	11/10/95	10:00PM
22769*29	SB-27 0-4	11/10/95	10:37PM
22769*30	SB-27 4-8	11/10/95	11:14PM
22769*31	SB-28 0-4	11/11/95	01:06AM
22769*32	SB-28 4-6	11/11/95	01:43AM
22769*33	SB-29 0-3	11/11/95	02:20AM
22769*34	B-1 0-4	11/11/95	04:11AM
22769*35	B-1 4-8	11/11/95	04:48AM
22769*36	B-2 0-4	11/11/95	05:25AM
22769*37	B-2 4-7	11/11/95	06:02AM
22769*38	B-3 0-4	11/11/95	06:39AM
22769*39	B-3 4-5.5	11/11/95	08:30AM
22769*40	B-4 0-3.5	11/11/95	09:07AM
22769*41	B-6 0-2.5	11/11/95	09:44AM
22769*42	DUPLICATE A	11/11/95	10:21AM
22769*43	DUPLICATE B	11/11/95	10:58AM

Appendix E

Chain-of-Custody

Client: US Navy LANTRIV P.O. No: _____
 Work Order No: 2195272 G-0002-2100 Project Name: Sugar Grove
 Submit Report To: Carol Bowers Laboratory Samples sent to: Peerin
 Sampler: Glenn Cranbre Project Location: Sugar Grove, WV Analyses: _____

SAMPLE TYPE:

HZ	Hazardous	SW	Surface Water
SO	Soil	WW	Waste Water
PW	Potable Water	SL	Sludge
GW	Ground Water	DW	Discharge Wtr.

LABORATORY:
Please send signed Chain of Custody form with analyses.

Field Sample # / Sample Identification	Date	Time	C O M P O S I T I O N				Total Number Of Containers	Sample Type (see reference)	Preservation Specify chemicals added & final pH if known	Remarks:
			G	R	A	B				
SB28 (0-4)	11/2/95	0900	X				2	SO	23769 -31	
SB28 (4-6)		0905				2			-32	
SB-29 (0-3)		0910							-33	
B-1 (0-4)		1010							-34	
B-1 (4-8)		1015							-35	
B-2 (0-4)		1025							-36	
B-2 (4-7)		1030							-37	
B-3 (0-4)		1035							-38	
B-3 (4-5.5)		1038							-39	
B-4 (0-3.5)		1050							-40	

LABORATORY:

Sample Relinquished by:	Date	Time	Sample Received by	Date	Time
<u>Glenn Cranbre</u>	11/3/95	10:00	FEL Ex 6786865116 ml		
			6286865120	11-6-95	900
			Remaining		

Please: Return all Coolers to the Herndon Office!



Environmental Science & Engineering, Inc.

250-A Exchange Place, Herndon, VA 22070
Phone: (703) 318-8900, Fax (703) 318-0411

Chain of Custody

SAMPLE TYPE:	
HZ Hazardous	SW Surface Water
SO Soil	WW Waste Water
PW Potable Water	SL Sludge
GW Ground Water	DW Discharge Wtr.

LABORATORY:

Please send signed Chain of Custody form with analyses.

Client: US Navy, LANTDIV P.O. No: _____
 Work Order No: 2195272G-0002-2100 Project Name: Sugar Grove
 Submit Report To: Carl Beves Laboratory Samples sent to: Periz

Sampler: Glen Croubie Project Location: Sugar Grove, WV Analyses

Field Sample # / Sample Identification	Date	Time	C O M P	G R A B	Total Number Of Containers	Sample Type (use reference)	TRP 500/500 500/500	Date	Time	PRESERVATION				Remarks:	
										I	C	E	D		
B-6 (0-25)	11/2/95		X	X	2	SO		22769	-41	A	X	X	X	X	
Duplicate A			X	X	2	SO			-42	B	X	X	X	X	
Duplicate B			X	X	2	SO			-43	C	X	X	X	X	
Tap Blank			X	X	2	PW			-44	D	X	X	X	X	
Equip. Blank			X	X	1	PW			-45		X	X	X	X	
Composite Drum			X	X	4				-46		X	X	X	X	Hold for Analyses

Sample Relinquished by:	Date	Time	Sample Received by:	Date	Time
<u>Glen Croubie</u>	11/3/95	10:00	FedEx 6786865116		
			FedEx 6786865120		

LABORATORY:

Please: Return all Coolers

RECEIVED
MAR 8 1996

U. S. T. OFFICE
DISTRICT III
FRENCH CREEK, WV 26218

**Final Site Assessment Report
Underground Storage Tank
Site 201/202**

**Naval Security Group Activity
Sugar Grove, West Virginia**

7 wells
need 2 more
1/4ly monitoring

Prepared for:
Atlantic Division
Naval Facilities Engineering Command
Norfolk, Virginia
Contract No. N62470-93-D-4019
Delivery Order 0042

Prepared by:
Environmental Science & Engineering, Inc.
Herndon, Virginia
703-318-8900

February 1996

ESE Project No. 2195272G-0003-2100

1 QTR Gw (11-1-95)
mw-1 X
mw-2 OK
mw-3 DRY
mw-4 OK
mw-5 OK

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Executive Summary

Environmental Science & Engineering, Inc. (ESE) was contracted by the Atlantic Division, Naval Facilities Engineering Command on 19 September 1995 to prepare a site assessment report for underground storage tank (UST) 201/202 site, Naval Security Group Activity (NSGA) Sugar Grove, West Virginia. ESE performed the work under contract number N62470-93-D-4019, Indefinite Quantity Contract for Accomplishment of Petroleum Storage Tank Site Checks and Preparation of Site Assessments/Characterizations, Corrective Action Plans, and Remedial Design Documents.

UST 201 is a 2000-gallon diesel fuel tank, and UST 202 is a 4000-gallon gasoline tank used to fuel military vehicles. Both are single-walled, fiberglass-reinforced plastic tanks installed in 1986 to replace two steel USTs that had reportedly leaked. During tank construction/replacement activities in 1993, hydrocarbon odors were noted near the pump islands. The West Virginia Department of Environmental Protection (WVDEP) issued a Confirmed Release Notice to Comply on 2 March 1993. An eight-well site check was performed in April 1993, and a five-well extended site check was performed in March 1994.

The South Fork of the South Branch of the Potomac River represents a potential downgradient receptor. Additionally, some residences downgradient of the site obtain their water from springs or private wells and could be potential sensitive receptors.

Field screening and laboratory analyses of soil samples indicated vapor-phase hydrocarbon (VPH) and adsorbed-phase hydrocarbon (APH) impact to soils proximal to the former tank pit; little to no impact was noted in soil remote to the former tank pit. No phase-separated hydrocarbon (PSH) impact to groundwater was detected, and dissolved-phase (DPH) impact to groundwater is only present in one well proximal to the former tank pit. Benzene in groundwater exceeded the WVDEP cleanup level in that well.

The exposure assessment determined that DPH in groundwater is not expected to reach the South Fork due to natural degradation and attenuation, in addition to the low estimated groundwater velocity. The potential for immediate and long-term health problems onsite affects site visitors and adults working or recreating in Building 20 because the potential exists for vapor migration to the building.

Vapor monitoring in the Building 20 basement is recommended to further evaluate potential VPH impact. The monitoring will be performed on a monthly basis for a period of six months. If readings are below the short-term exposure limit (STEL) for the six-month period, no further soil cleanup is recommended for VPH impact.

Two new groundwater monitor wells are recommended to be installed at the site. The wells will evaluate the groundwater quality downgradient of MW-1 (1994) in the water table and bedrock aquifers and potential DPH impact to the South Fork. Assuming that the wells do not indicate DPH impact, no groundwater cleanup is recommended at this time. Monitoring only is recommended for MW-1 (1994) and the two new wells on a quarterly basis for a period of one year. No soil cleanup for APH is recommended at this time, assuming that downgradient wells indicate no DPH impact to groundwater.

1.0 Site Description

1.1 Background/Site History

Underground storage tanks (USTs) 201 and 202 are located southeast of Building 22 of the NSGA Sugar Grove Support Site on Sugar Grove Road in Pendleton County, West Virginia (Figure 1-1). UST 201 is a 2000-gallon diesel fuel tank, and UST 202 is a 4000-gallon gasoline tank used to fuel military vehicles. Both are single-walled, fiberglass-reinforced plastic (FRP) tanks installed in 1986 to replace two steel USTs that had reportedly leaked. The former fuel lines and pump island were removed and replaced with a new pump island and piping located north of the USTs.

During tank construction/replacement activities in 1993, hydrocarbon odors were noted near the pump island. The West Virginia Department of Environmental Protection (WVDEP) issued a Confirmed Release Notice to Comply on 2 March 1993 (Appendix C).

In April 1993, phase-separated hydrocarbon (PSH) was observed infiltrating the wall of an excavation north of the site. Groundwater Technology Government Services (GTI) completed an eight-well site check in April 1993 (GTI, 1993). Twelve soil borings were drilled, and monitor wells were installed in four of the borings. Benzene, toluene, ethylbenzene, and total xylene (BTEX) concentrations were detected in soil samples collected from the soil borings installed on the southeast side of the site. BTEX was also detected in groundwater samples.

R.E. Wright Associates, Inc. (REWAI) completed a five-well extended site check in March 1994 to determine the extent of hydrocarbon impact to soil and groundwater at the site (REWAI, 1994). Analytical data indicated that soil and groundwater were impacted by BTEX and total petroleum hydrocarbon (TPH). Groundwater impact appeared to be limited to the area between the parking lot and Building 20, but migrating toward the South Fork of the South Branch Potomac River (approximately 200 feet west).

In July 1995, a LANTDIV contractor completed soil excavation in the vicinity of the former pump island (between Buildings 20 and 22). Vapor sampling results indicated hydrocarbon impact along the southwestern extent of the excavation.

One additional UST (200) was formerly located adjacent to the northwest side of Building 20. UST 200 was a 1000-gallon steel heating oil tank installed in 1975 to provide fuel to heat Building 20. The UST was removed in April 1995 and was found in sound condition with no holes or significant corrosion (GES, 1995). However, a small volume of heating oil discharged into the tank pit during removal of the vent pipe. Soil samples from the UST basin bottom, walls

and excavated material ranged from non-detectable TPH to 763.3 milligrams per kilogram (mg/kg) and indicated the release was not weathered petroleum (i.e., suggesting a recent release). Approximately three cubic yards of soil was excavated during removal.

1.2 Facility Description

The site is located on Sugar Grove Road in a rural section of Pendleton County, West Virginia, between the towns of Sugar Grove and Brandywine (Figure 1-1). NSGA Sugar Grove consists of an operations site (radio and satellite station) and a separate support station located approximately 2 miles to the north.

Land use at the site is light industrial (Figure 1-2). Building 22 is a garage used to maintain and repair military vehicles, and Building 20 (west of the site) is used by Public Works for office space, equipment maintenance, and as a gymnasium. Undeveloped, vegetated lots are located north, south, and east of the parking lots at the site. Base housing is located approximately 200 feet east of the site.

Topography in the area is characterized by precipitous mountains to the east and west separated by a valley shaped by the South Fork of the South Branch Potomac River. The topography has a north-south trend that is closely related to the tectonic history of the area. NSGA Sugar Grove is located on a river terrace of alluvial deposits within this valley.

The topography immediately surrounding the site is relatively flat, sloping slightly west to the South Fork. The US Geological Survey (USGS, 1981) 7.5-minute topographic map of the Sugar Grove, West Virginia quadrangle (Figure 1-1) indicates that overall site elevations range from approximately 1680 feet above mean sea level (msl) in the west to 1760 feet msl in the east.

Site surface drainage flows into the adjacent South Fork, approximately 300 feet to the west (Figure 1-1). Several storm water systems located on the base discharge to the South Fork, which flows into the South Branch Potomac River approximately 35 miles northeast of the site.

1.3 Potential Sensitive Receptors and Migration Pathways

Potable water in the investigation area is supplied by both groundwater and surface water from public and private resources. The NSGA Sugar Grove water system derives approximately 20,000 to 25,000 gallons per day (gpd) from the South Fork water plant located immediately upstream of Building 20 (Figure 1-1).

The residences between the base and Brandywine are supplied with public water from the Pendleton County Public Service District (PSD). The water sources are a spring and well located

upgradient (on the hill) about 0.5 mile north of the Support Site on the opposite (west) side of the South Fork (Figure 1-1). PSD records show that 12 residences between the Support Site and Brandywine are not connected to the public system and obtain their water from springs or private wells. The closest residence is approximately 0.6 mile northeast of the site. All documented wells in the area indicate a bedrock aquifer source (REWAI, 1994). However, it is likely that the source for groundwater at private residences is from a shallow bedrock aquifer (personal communication, Raymond Harr, Pendleton County Health Department Sanitarian) based on the depth of bedrock in the vicinity.

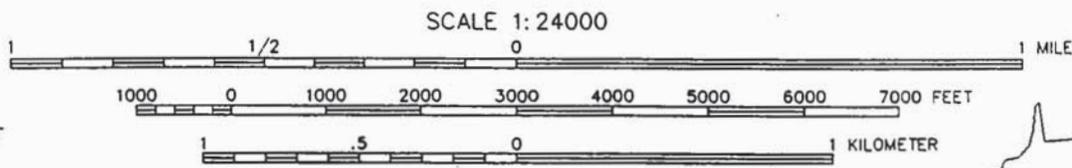
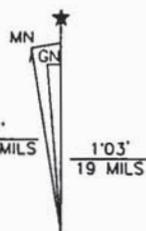
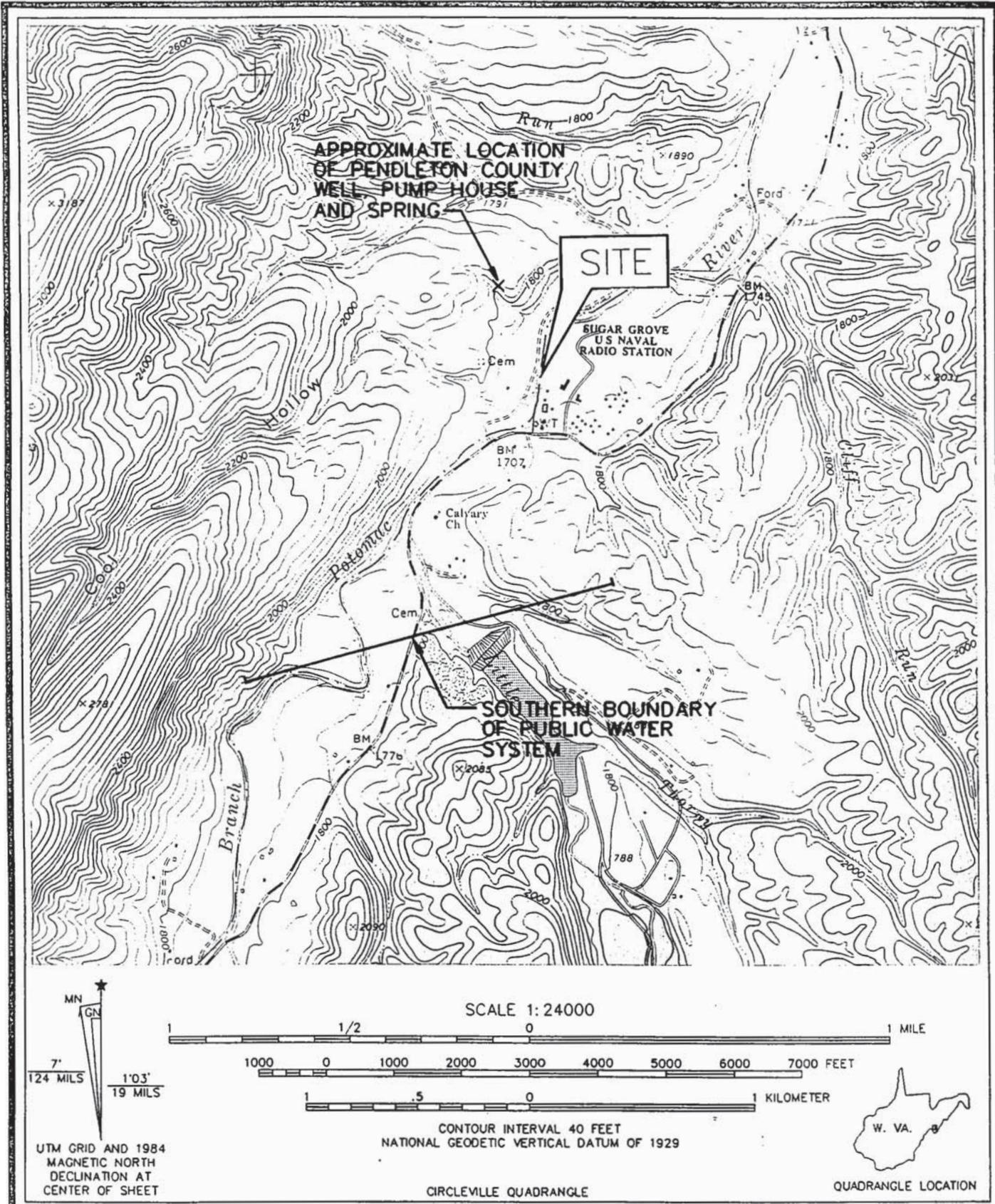
Residences located between the base and the Town of Sugar Grove to the south are supplied with water from private wells and mountain springs. Water supply wells in the Sugar Grove Magisterial District of Pendleton County are used for domestic purposes, with no known commercial or industrial use wells (REWAI, 1994).

The South Fork is a potential receptor downgradient of the impacted area. A water intake plant is located upstream and is not expected to be affected by the release. Typically, buildings on the base do not have basements due to the shallow water table beneath the site. However, Building 20 has a potential basement 5 to 8 feet below grade, and is a potential receptor for hydrocarbon vapors.

Underground utilities in the vicinity of the investigation area are not present, except for a telephone cable running east-west between borings SB-1 and SB-11 (Figure 1-3). The cable is suspected to be buried between 2 and 3 feet below ground surface (bgs). This cable is hydraulically sidegradient, above the water table, and outside of the impacted area. Based on this information, this utility does not represent a migratory preferential pathway to the impacted area.

1.4 Adjacent Properties

ESE conducted an investigation with the WVDEP Public Information Office for facilities in the vicinity maintaining USTs, hazardous materials, or having been issued a mandate to perform environmental investigations (Appendix C). Other than NSGA Sugar Grove, no facilities within a 4-mile radius of the site maintain USTs, hazardous materials, or have environmental issues pending.



CONTOUR INTERVAL 40 FEET
 NATIONAL GEODETIC VERTICAL DATUM OF 1929



UTM GRID AND 1984
 MAGNETIC NORTH
 DECLINATION AT
 CENTER OF SHEET

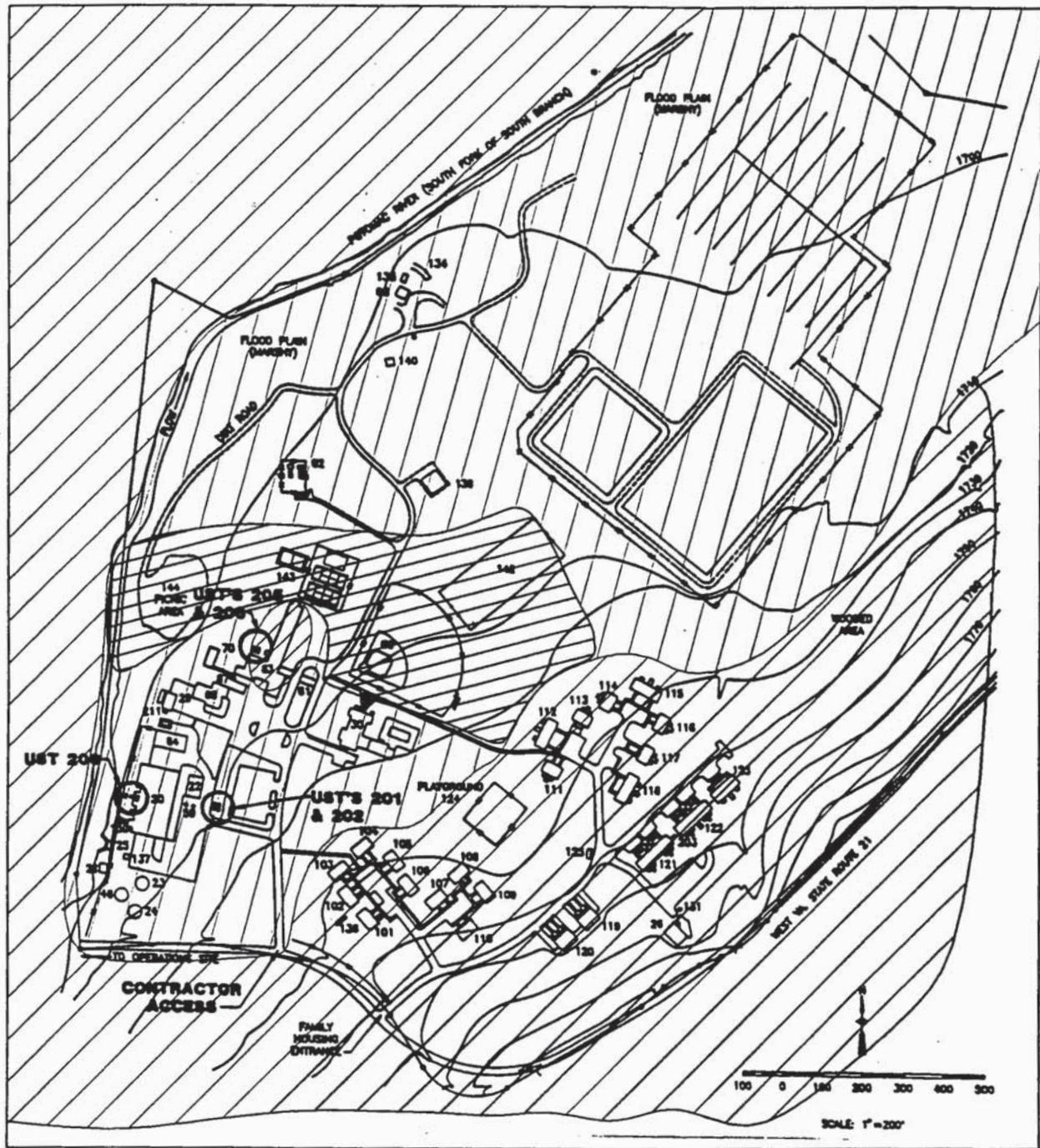
CIRCLEVILLE QUADRANGLE

QUADRANGLE LOCATION



Environmental
 Science &
 Engineering

DATE 11-7-95	SCALE SHOWN	TITLE SITE LOCATION & TOPOGRAPHIC MAP SUGAR GROVE, W. VA.	
DRAWN BY TJF	APPROVED BY		
JOB NO. 2195272G-0004	DWG. NO./ REV. NO. SLT272G4	CLIENT NAVY-NSGA	FIGURE 1-1



RECREATIONAL



LIGHT INDUSTRIAL



RURAL RESIDENTIAL, BASE HOUSING
OR UNDEVELOPED



Environmental
Science &
Engineering

DATE
12-6-95

DRAWN BY
TJF

JOB NO.
2195272G

SCALE
SHOWN

APPROVED BY

DWG. NO./ REV. NO.
LANDU1

TITLE

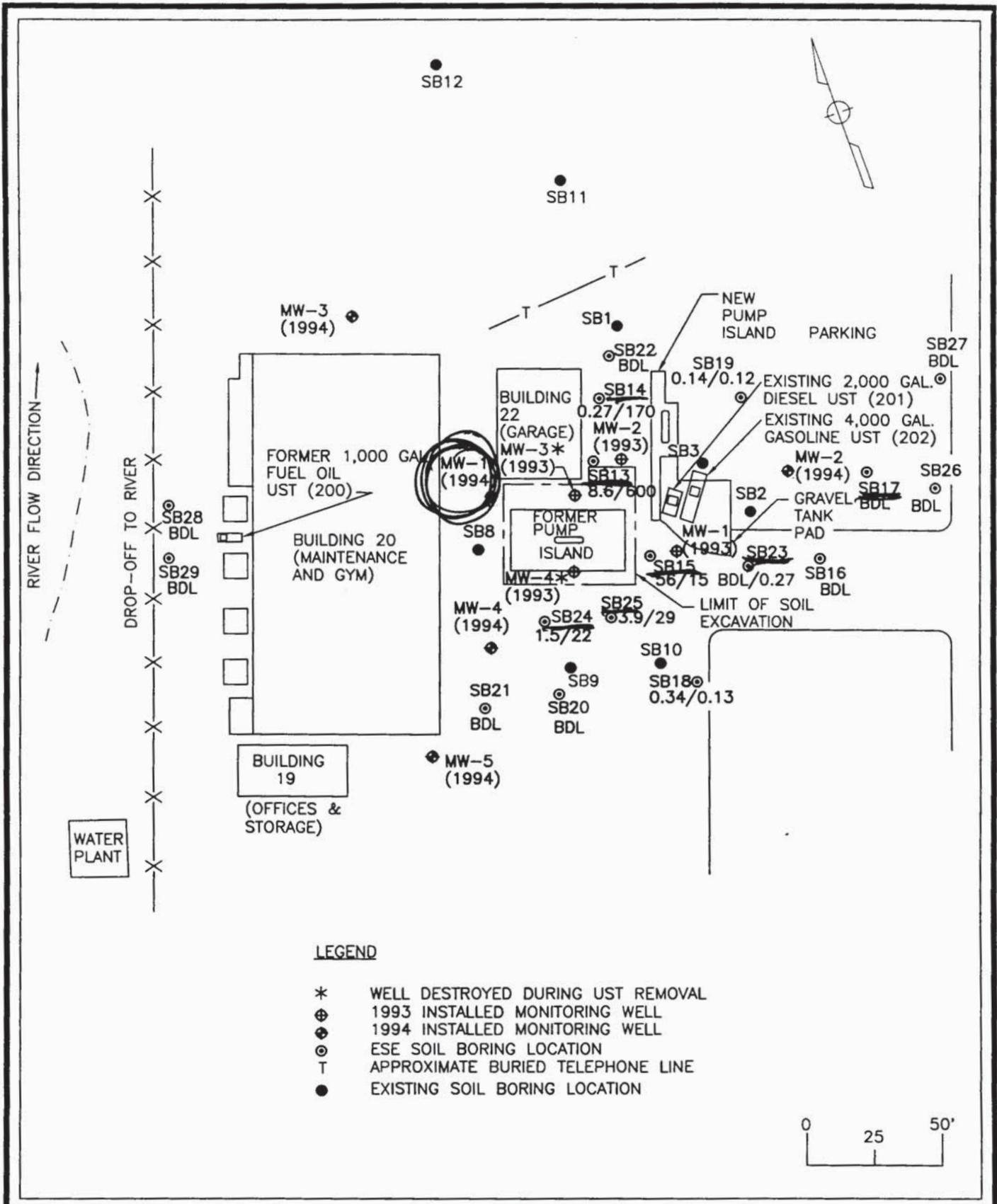
LOCAL LAND USE MAP
NSGA SUGAR GROVE, WV.

CLIENT

LANTDV

FIGURE

1-2



	DATE	SCALE	TITLE	
	02-12-96	1" = 50'	SITE MAP	
	DRAWN BY	APPROVED BY	USTs 201/202	
	TJF		NSGA SUGAR GROVE, WV.	
JOB NO.	DWG. NO./ REV. NO.	CLIENT	FIGURE	
2195272G	ST72G1SM	LANTDIV	1-3	

2.0 Assessment Methodology

2.1 Soil Sampling

A total of 15 penetrometer holes (SB-13 through SB-27) were advanced on 1 November 1995 in the vicinity of the former pump island to depths ranging from approximately 6.5 to 11 feet bgs. Two additional penetrometer holes (SB-28 and SB-29) were advanced 2 November 1995 between Building 20 and the river (Figure 1-3). Penetrometer holes were advanced by Zebra Environmental Corporation of Reston, Virginia, using an all-terrain vehicle (ATV) mounted geoprobe. An ESE geologist supervised all field work.

SB-13 through SB-27 locations were selected in an effort to delineate the areal extent of soil contamination. Initial probe locations were selected proximal to the former pump island excavation limits. Subsequent locations were selected radially outward until field analyses of soils evidenced no hydrocarbon impact (organic vapor analyzer (OVA) readings) or physical obstructions hampered placement (buildings). SB-28 and SB-29 locations were selected to determine whether hydrocarbon impact had migrated under Building 20 and entered the stream, as well as to determine any potential impact from UST 200.

Continuous soil samples were collected at depths above the groundwater table interface using an open-tube design macro core (MC) sampler 2 inches in diameter and 44 inches long. Each MC sampler was fitted with a removable, clear, acetate liner that provided 4-foot continuous undisturbed soil cores. A closed, 2-foot large bore (LB) sampler was advanced during borehole collapse, opened using an inner rod to release the close pin, and driven to the desired sampling depth. The LB sampler also used the clear, removable, acetate liner.

Each soil sample was logged lithologically, and a representative portion was placed in a resealable bag. The remainder was placed in laboratory-supplied sample containers, labeled, and secured on ice. The bagged sample was allowed to volatilize for at least 10 minutes in a warm station. The headspace of the bag was then scanned with an organic vapor analyzer (OVA); readings are presented in the drill logs (Appendix B) and Table 4-1.

One to two soil samples were obtained from each boring and placed in 4-ounce glass jars with Teflon® lids, secured on ice, and shipped overnight to ESE's Peoria, Illinois, laboratory to be analyzed for TPH as gasoline (5030/8015) and TPH as diesel (3550/8015). Industry standard chain-of-custody and quality assurance controls were applied according to the Work Plan (ESE, 1995).

Excess soil from sampling and headspace analyses was sealed in a labeled 55-gallon drum and stored onsite for future handling. Penetrometer holes left by direct-push penetrations were filled with cuttings.

2.2 Water Sampling

A total of seven wells are currently located in the subject area: two from the May 1993 Site Check (GTI, 1993) and five from the October 1994 Extended Well Check (REWAI, 1994). The two 1993 wells were partially covered in asphalt and inaccessible.

The most recent monitor well sampling event was conducted on 31 October and 1 November 1995. Prior to sampling, the five wells were gauged with a decontaminated electronic interface probe accurate to 0.01 foot. Decontamination procedures included washing with a Micro®/distilled water solution, triple-rinsing with distilled water, and air drying.

Well MW-3 (1994) was dry and, from visual inspection, appeared to be partially filled with debris. The remaining wells were purged of approximately three well volumes of water using a decontaminated acrylic bailer. Recharge was slow; wells were allowed to recharge overnight.

Groundwater samples were collected the morning of 1 November 1995 from MW-1 (1994), MW-2 (1994), MW-4 (1994), and MW-5 (1994) using factory-sealed disposable plastic bailers. Samples were placed in the appropriate laboratory-supplied containers (acidified with hydrochloric acid), labeled, secured on ice, and shipped under strict chain-of-custody control via Federal Express to ESE's Peoria, Illinois, laboratory for analysis according to the Work Plan (ESE, 1995). Analyses included BTEX (8020) and TPH (8015).

Liquid levels and top of casing elevations are presented in Table 3-4, and groundwater analytical results are presented in Section 3.0. The well elevation survey was conducted during the Extended Site Check (REWAI, 1994).

Purge water was containerized and sealed in a labeled, 55-gallon drum and stored onsite for future handling.

3.0 Data Presentation and Documentation

3.1 OVA Field Screening Results

OVA field screening was performed on borings SB-13 through SB-29 (Table 34-1). Readings ranged from 0 parts per million (ppm) in SB-16, SB-19, SB-21, SB-22, SB-26 through SB-29, to greater than 1000 ppm in the vicinity of the former pump island (SB-13, SB-15, SB-24, SB-25).

Table 3-1. OVA Scans During Direct Push Penetrations

Depth (ft)	SB-13	SB-14	SB-15	SB-16	SB-17	SB-18	SB-19	SB-20	SB-21
0-4	700	220	> 1000	0	200	25	0	6	0
4-8	> 1000	800	> 1000	0	450	10	0	7	0
8+	--			0	960	--			

Depth (ft)	SB-22	SB-23	SB-24	SB-25	SB-26	SB-27	SB-28	SB-29
0-4	0	280	450	> 1000	0	0	0	0
4-8	0	20	> 1000	> 1000	0	0	0	--

OVA readings in part per million (ppm).

3.2 Soil Analytical Results

Laboratory analyses of soil from SB-13 through SB-29 were below detection limits (BDL) for TPH (8015) as diesel. Laboratory analyses of soil from SB-16, SB-17, SB-20 through SB-23, and SB-26 through SB-29 were BDL for TPH (8015) as gasoline. TPH as gasoline measured above the WVDEP action level (50 mg/kg) in SB-13 (4-8 feet), SB-14 (4-8 feet), and SB-15 (1-5 feet) at 600, 170, and 56 mg/kg, respectively. TPH measured below the WVDEP action level in SB-13 (0-4 feet), SB-14 (0-4 feet), SB-15 (5-7.5 feet), SB-18, SB-19, SB-23 (4-8 feet), SB-24, and SB-25. Soil laboratory analytical results are presented in Figure 3-1, Appendix D, and Table 3-2.

Table 3-2. Summary of Soil Analytical Results, TPH EPA Method 8015 Modified (mg/kg)

Boring Number	Sampling Depth (feet)	TPH (diesel)	TPH (gasoline)	Detection Limit (diesel/gasoline)
SB-13	0-4	< 13	8.6	10/0.1
SB-13	4-8	< 13	600	10/0.1
SB-14	0-4	< 12	0.27	10/0.1
SB-14	4-8	< 12	170	10/0.1
SB-15	1-5	< 12	56	10/0.1
SB-15	5-7.5	< 12	15	10/0.1
SB-16	1-5	< 12	< 0.12	10/0.1
SB-16	5-8.5	< 12	< 0.12	10/0.1
SB-17	4-8	< 12	< 0.12	10/0.1
SB-17	8-10	< 12	< 0.12	10/0.1
SB-18	0-4	< 13	0.34	10/0.1
SB-18	4-7.5	< 13	0.13	10/0.1
SB-19	0-4	< 12	0.14	10/0.1
SB-19	4-6.5	< 12	0.12	10/0.1
SB-20	0-4	< 13	< 0.13	10/0.1
SB-20	4-8	< 12	< 0.12	10/0.1
SB-21	0-4	< 12	< 0.12	10/0.1
SB-21	4-8	< 12	< 0.12	10/0.1
SB-22	0-4	< 13	< 0.13	10/0.1
SB-22	4-7.5	< 12	< 0.12	10/0.1
SB-23	0-2	< 13	< 0.13	10/0.1
SB-23	4-8	< 12	0.27	10/0.1
SB-24	0-4	< 12	1.5	10/0.1
SB-24	4-8	< 12	22	10/0.1

Boring Number	Sampling Depth (feet)	TPH (diesel)	TPH (gasoline)	Detection Limit (diesel/gasoline)
SB-25	0-4	< 12	3.9	10/0.1
SB-25	4-8	< 12	29	10/0.1
SB-26	0-4	< 12	< 0.12	10/0.1
SB-26	4-8	< 12	< 0.12	10/0.1
SB-27	0-4	< 13	< 0.13	10/0.1
SB-27	4-8	< 13	< 0.13	10/0.1
SB-28	0-4	< 12	< 0.12	10/0.1
SB-28	4-6	< 12	< 0.12	10/0.1
SB-29	0-3	< 11	< 0.11	10/0.1

3.3 Groundwater Analytical Results

BTEX (8020) and TPH (8015) were BDL in MW-2 (1994), MW-4 (1994), and MW-5 (1994). TPH measured 1.6 milligrams per liter (mg/l) in MW-1 (1994). Toluene, ethylbenzene, and total xylenes measured below the WVDEP clean-up levels (1.0, 0.7, and 10.0 mg/l, respectively) at 0.008, 0.059, and 0.042 mg/l, respectively; benzene measured above the clean-up level (0.005 mg/l) at 0.073 mg/l in MW-1 (1994). Groundwater analytical results are presented in Figure 3-2, Appendix D, and Table 3-3.

Table 3-3. Summary of Laboratory Analyses for Groundwater Samples

Compound	Sample (1 November 1995)			
	MW-1 (1994)	MW-2 (1994)	MW-4 (1994)	MW-5 (1994)
Benzene	0.073	< 0.001	< 0.001	< 0.001
Toluene	0.008	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.059	< 0.001	< 0.001	< 0.001
Total Xylenes	0.042	< 0.001	< 0.001	< 0.001
TPH	1.6	< 0.5	< 0.5	< 0.5

Note: BTEX (8020) and TPH (8015) in mg/l

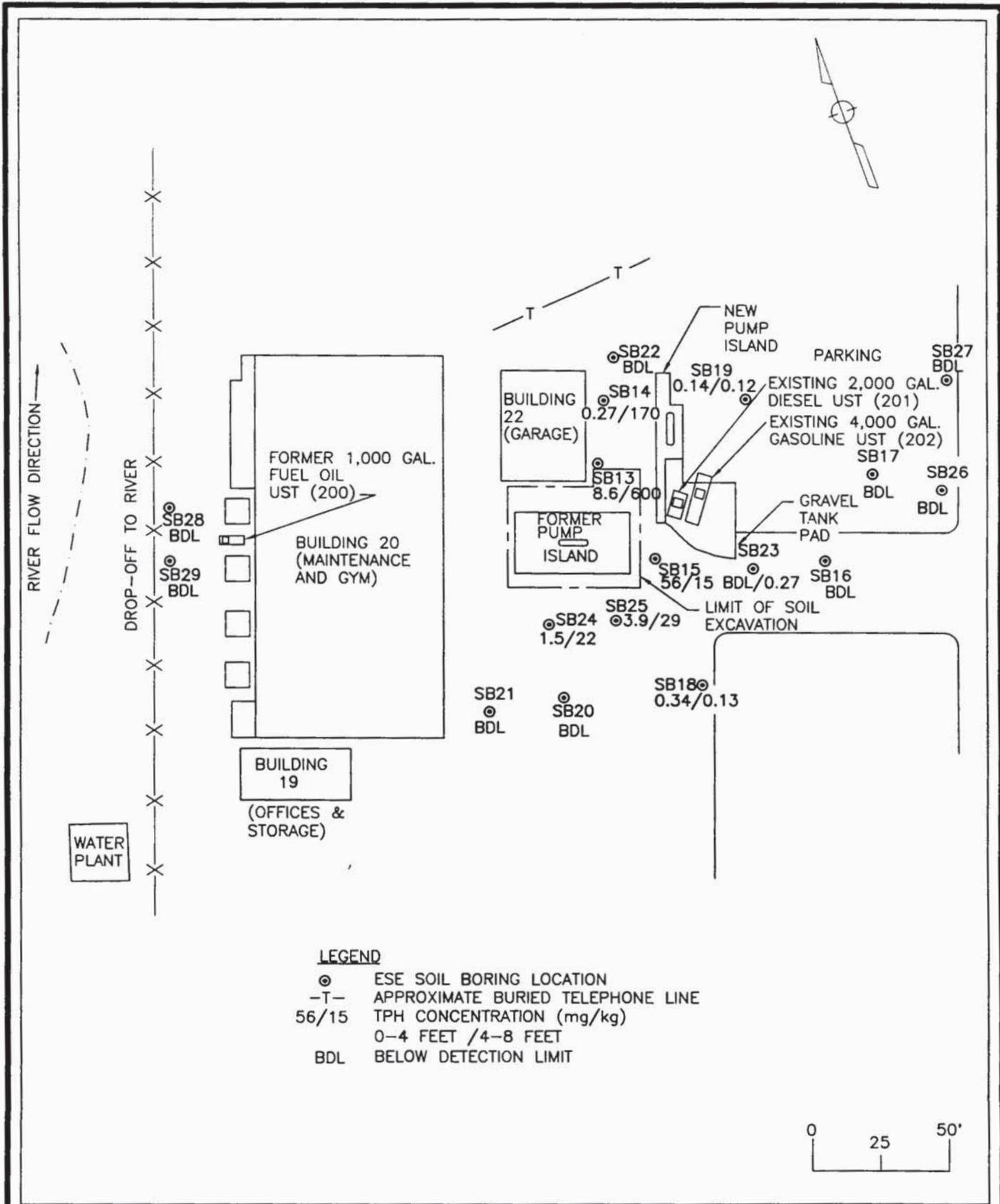
3.4 Groundwater Gauging

During the field investigation, five existing onsite monitor wells were gauged with a decontaminated electronic interface probe accurate to 0.01 foot. Groundwater typically occurred at depths of approximately 5 to 8 feet bgs during the November 1995 liquid level measurements. Groundwater onsite appears to flow to the west at a gradient of 0.028 ft/ft between MW-1 (1994) and MW-2 (1994). Historic groundwater elevations, including the most recent data, are presented in Table 3-4. A groundwater gradient map is presented in Figure 3-3.

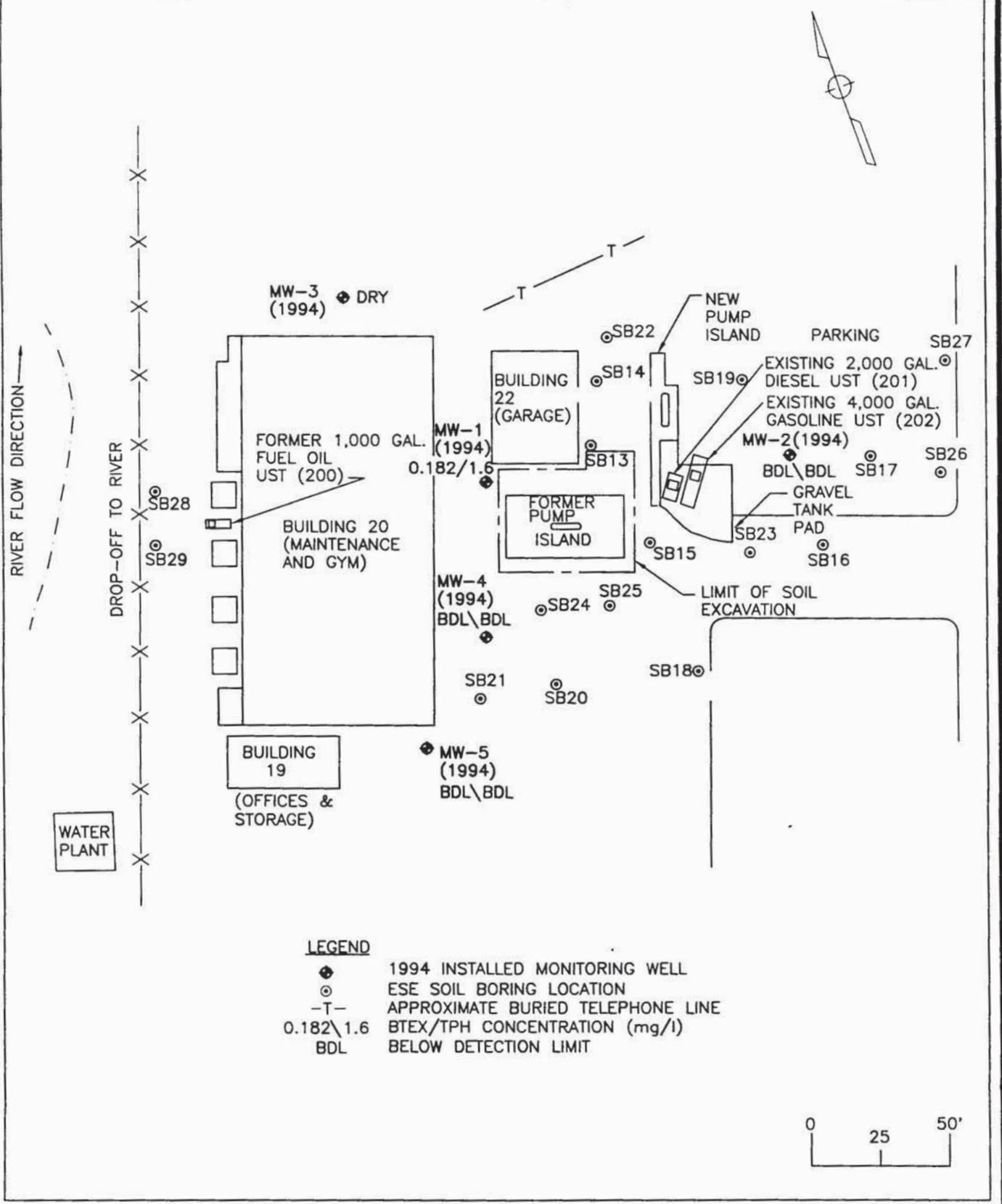
Table 3-4. Historical Groundwater Elevations

Well ID	Date	Top of Casing Elevation (feet)	Depth to Water (feet)	Depth to Product (feet)	Groundwater Surface Elevation (feet)
MW-1 (1994)	3/12/94	99.97	3.65	NA	96.32
	10/31/95		5.64	NA	94.33
MW-2 (1994)	3/12/94	102.14	3.37	NA	98.77
	10/31/95		4.72	NA	97.42
MW-3 (1994)	3/12/94	99.77	5.41	NA	94.36
	10/31/95		Dry	NA	--
MW-4 (1994)	3/12/94	100.29	5.89	NA	94.40
	10/31/95		5.7	NA	94.59
MW-5 (1994)	3/12/94	100.29	5.2	NA	95.09
	10/31/95		8.74	NA	91.55

Notes: Data from 3/12/94 (REWAI, 1994). Survey data (REWAI, 1994) references an arbitrary datum.

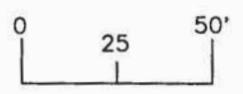


	DATE 02-12-96	SCALE 1" = 50'	TITLE SOIL TPH (GASOLINE RANGE) CONCENTRATION MAP USTs 201/202 NSGA SUGAR GROVE, WV.	
	DRAWN BY TJF	APPROVED BY		
	JOB NO. 2195272G	DWG. NO./ REV. NO. ST72G1S	CLIENT LANTDIV	FIGURE 3-1

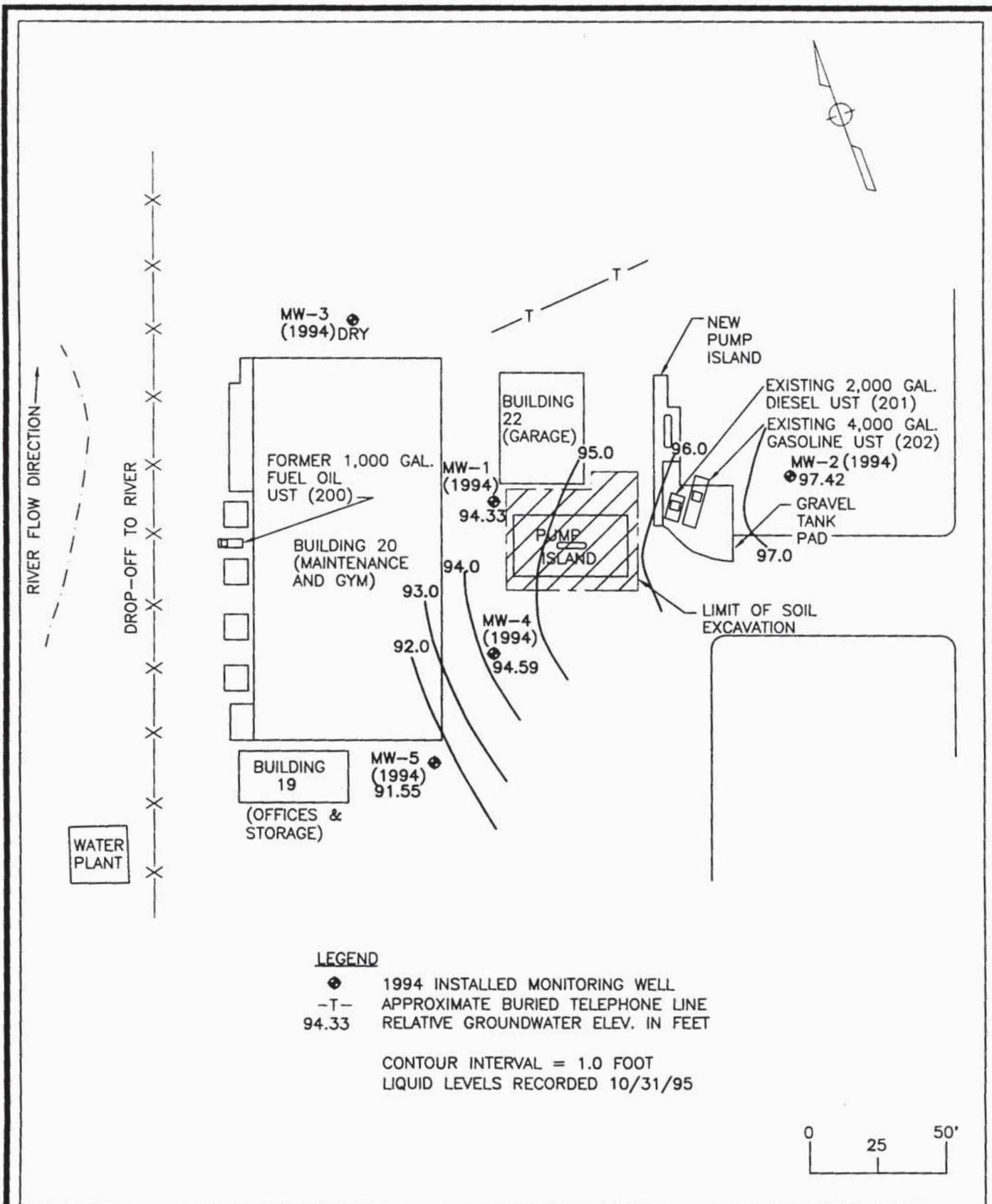


LEGEND

- ◆ 1994 INSTALLED MONITORING WELL
- ⊙ ESE SOIL BORING LOCATION
- T- APPROXIMATE BURIED TELEPHONE LINE
- 0.182\1.6 BTEX/TPH CONCENTRATION (mg/l)
- BDL BELOW DETECTION LIMIT



	DATE 02-12-96	SCALE 1" = 50'	TITLE GROUNDWATER BTEX AND TPH CONCENTRATION MAP USTs 201/202 NSGA SUGAR GROVE, WV.	
	DRAWN BY TJF	APPROVED BY		
	JOB NO. 2195272G	DWG. NO./ REV. NO. ST72G2S	CLIENT LANTDIV	FIGURE 3-2



**Environmental
Science &
Engineering**

DATE
02-12-96

SCALE
1" = 50'

TITLE

GROUNDWATER GRADIENT MAP
USTs 201/202
NSGA SUGAR GROVE, WV.

DRAWN BY
TJF

APPROVED BY

JOB NO.
2195272G

DWG. NO./ REV. NO.
ST72G1GW

CLIENT

LANTDIV

FIGURE

3-3

4.0 Summary of Findings

4.1 Regional Geology

NSGA Sugar Grove is located on or near the contact of the Marcellus and Hamilton Shales within The Appalachian Valley and Ridge Province of West Virginia (Figure 4-1). The Marcellus Shale is the uppermost unit of the Middle Devonian-aged Marcellus Series and is approximately 332 feet thick in the vicinity of the site. The Hamilton Shale, within the Hamilton Series, overlies the Marcellus Series and is approximately 566 feet thick (Tilton, et al., 1927).

Both the Hamilton and Marcellus series strike from the south-southwest to the north-northeast, dip to east-southeast, and are part of a large synclinorium in the vicinity of the site.

The Marcellus and the Hamilton are both described as dark, fissile shales (Tilton, et al., 1927). However, the Hamilton is non-calcareous, whereas the Marcellus contains limestone units. The site overlies thin, Quaternary-aged, river terrace sediments above bedrock. The actual contact between the formations at the site is indistinct and has little bearing on the investigation due to the similarities in the formations.

4.2 Site Geology

Bedrock underlying the site is a fissile, dark, shale (Marcellus or Hamilton). Soil overburden consists primarily of brown and gray clays, with increasing amounts of rock fragments with depth originating from the underlying bedrock. Lenses of silty and sandy clay are common throughout the overburden. Around the USTs 201 and 202 former pump island, penetrometer refusal was encountered at depths ranging from 4 feet bgs in SB-11 (4/8/93) to 11 feet bgs in SB-17 (11/1/95). In the rear of Building 20, penetrometer refusal was encountered at 6 feet bgs in SB-28 (11/2/95) and at 3 feet bgs in SB-29 (11/2/95). Geologic drilling logs are presented in Appendix B. A geologic cross-section location diagram is presented as Figure 4-2; geologic cross-sections depicting subsurface conditions are presented as Figure 4-3.

4.3 Regional Hydrogeology

Throughout the Valley and Ridge Geologic Province, groundwater occurs predominantly in fractures and bedding planes in the shale or sandstone units. At the site, the Devonian Shale aquifer also provide water resources along fault and contact zones, but are of generally low yield (less than 30 gallons per minute, gpm) (Tilton, et al., 1927). The NSGA well, located approximately 3.5 miles south of the site, pumps approximately 25 gpm.

Water quality in the Valley and Ridge is generally good, although considered moderately hard and high in iron and dissolved solids. Both ground and surface waters have wide ranges of calcium (magnesium) bicarbonate concentrations, with a mean concentration of 200 to 250 milligrams per liter (mg/l) (Smith & Ellison, 1985).

4.4 Site Hydrogeology

Groundwater at the site is under water table conditions and unconfined: it rises and falls in direct relation to recharge and discharge. Groundwater at MW-1 (1994) through MW-5 (1994) occurred at depths of approximately 5 to 8 feet bgs during liquid level measurements in November 1995, except for MW-3 (1994) which was dry.

The water table aquifer is expected to discharge into the South Fork (Figure 3-3). Liquid level measurements are presented in Table 3-2.

Aquifer tests could not be conducted because water columns in the monitor wells onsite exhibited extremely low volumes. Instead, groundwater flow velocity was calculated using estimated values for hydraulic conductivity (K) and total porosity (n), with the actual groundwater gradient (i), using the following relationship (Freeze and Cherry, 1979):

$$V_c = K \times i / n \quad (\text{Eq. 4-1})$$

where:

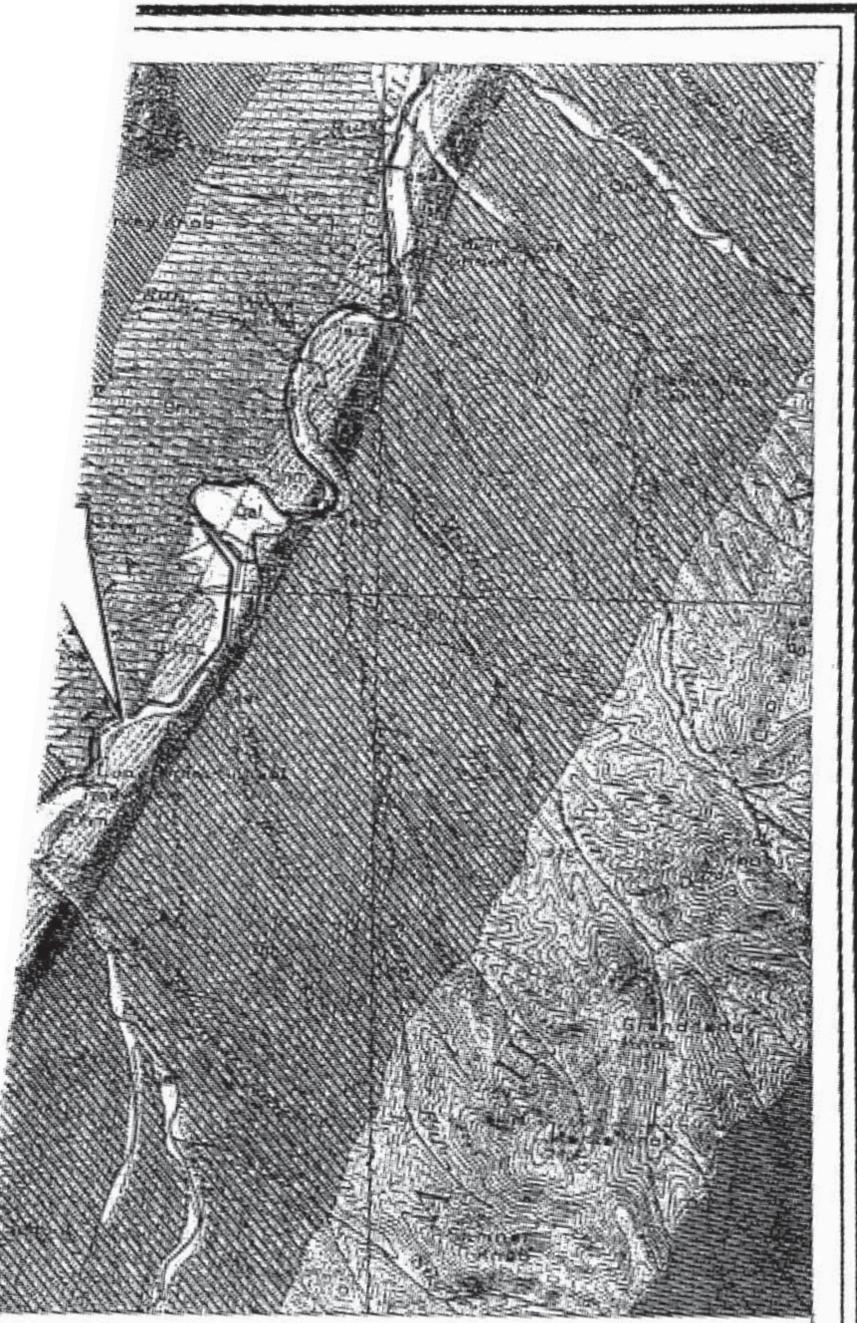
- V_c = groundwater flow velocity
- K = average hydraulic conductivity
- i = groundwater gradient
- n = total porosity

Groundwater onsite appears to flow to the west at a gradient of 0.028 ft/ft between MW-1 (1994) and MW-2 (1994). Average linear groundwater velocity (V_c) was calculated for the site using a K of 0.01 ft/day, gradient (i) of 0.028, and a porosity of 0.50 as follows:

- K = 0.01 ft/day (typical reported clay soil value; Kruseman & deRitter, 1991)
- i = 0.028 ft/ft
- n = 0.50 (typical of clay; Kruseman and deRitter, 1991)

$$V_c = 0.01 \text{ ft/day} \times 0.028 \text{ ft/ft} / 0.50 \quad (\text{Eq. 4-2})$$

V_c at the site is $5.6E-4$ ft/day or approximately 0.2 ft/year.



SCALE 1:62500

0 2 MILE

1 0 2 KILOMETER

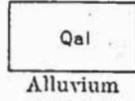
CONTOUR INTERVAL 50 FEET
DATUM IS MEAN SEA LEVEL



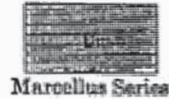
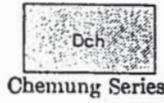
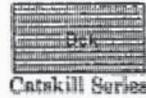
7-95	SCALE SHOWN	TITLE GEOLOGIC MAP SUGAR GROVE, W. VA.	
BY TJF	APPROVED BY		
2G-0003	DWG. NO./ REV. NO. GEO2723	CLIENT NAVY-NSGA	FIGURE 4-1A

LEGEND

QUATERNARY



DEVONIAN



**Environmental
Science &
Engineering**

DATE
11-7-95

SCALE
N.T.S.

TITLE

GEOLOGIC LEGEND
SUGAR GROVE, W. VA.

DRAWN BY
TJF

APPROVED BY

JOB NO.
2195272G-0003

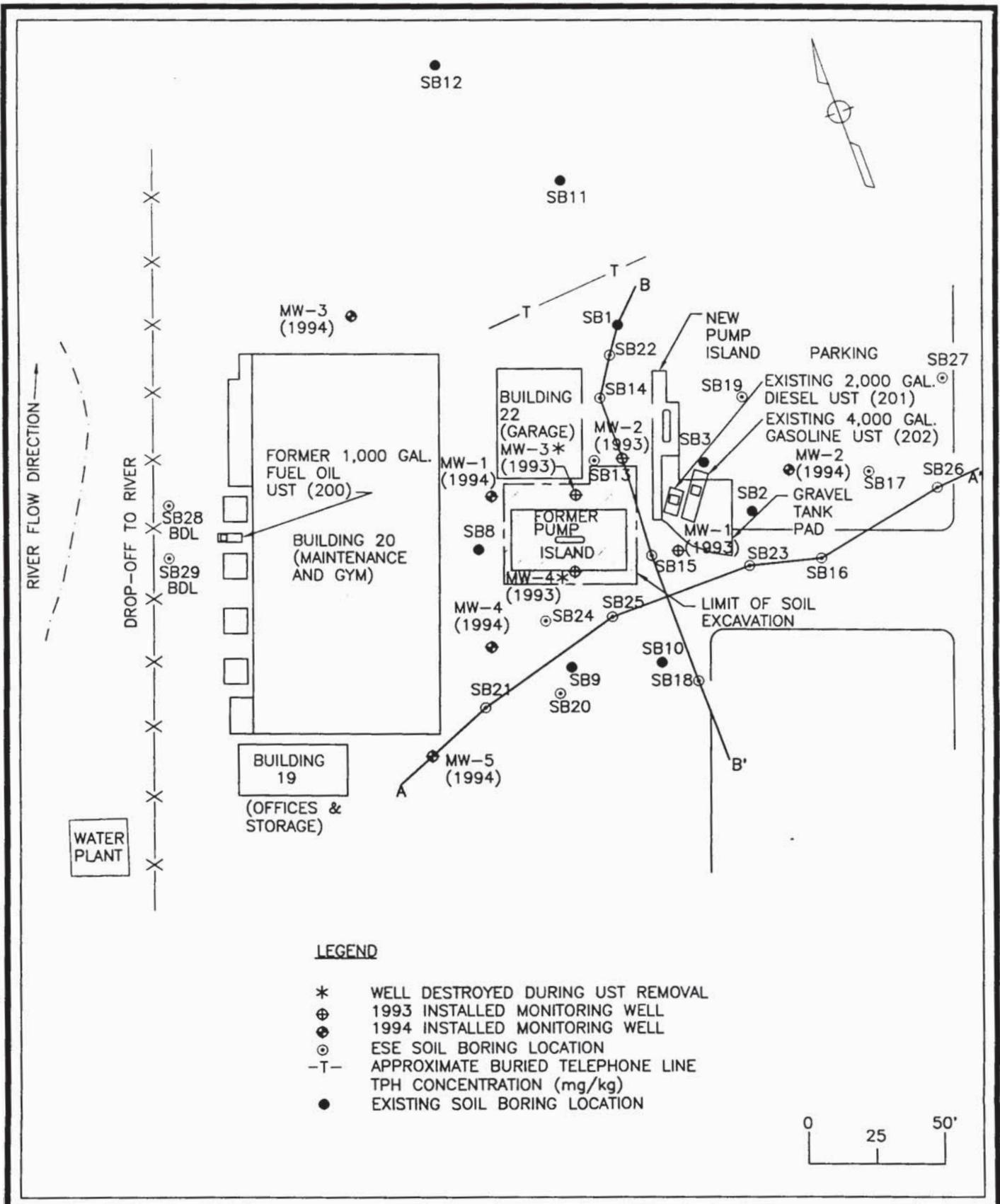
DWG. NO./ REV. NO
GEOL2723

CLIENT

NAVY-NSGA

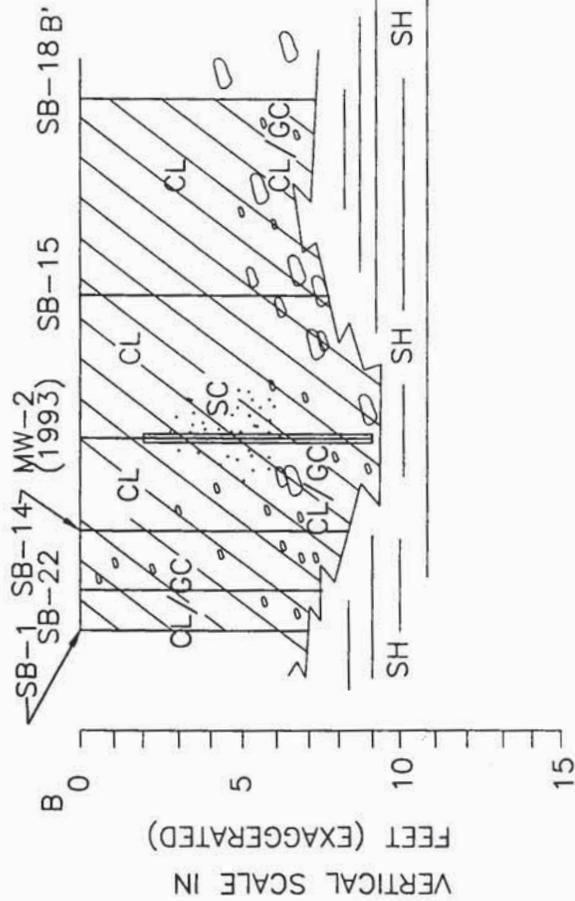
FIGURE

4-1B



Environmental
Science &
Engineering

DATE 02-12-96	SCALE 1" = 50'	TITLE GEOLOGIC CROSS-SECTION LOCATION MAP USTs 201/202 NSGA SUGAR GROVE, WV.	
DRAWN BY TJF	APPROVED BY		
JOB NO. 2195272G	DWG. NO./ REV. NO. ST72G1A	CLIENT LANTDIV	FIGURE 4-2



WELL SCREEN

PENETROMETER LOCATION

SH = SHALE BEDROCK

SC = CLAYEY SAND

CL = SILTY, SANDY CLAY

GC = SILTY, SANDY CLAYEY, GRAVEL

0 10
HORIZONTAL SCALE IN FEET



Environmental
Science &
Engineering

DATE	12-8-95	SCALE	NONE	TITLE
DRAWN BY	TJF	APPROVED BY		CROSS-SECTIONS A - A' & B - B'
JOB NO.	2195272G	DWG. NO./ REV. NO	272CSB	USTs 201/202
		CLIENT		NSGA SUGAR GROVE, WV.
		LANTDIV		4-3

5.0 Conclusions

5.1 Delineation of Contamination

5.1.1 Soil

OVA screening of soil samples indicated vapor-phase hydrocarbon (VPH) impact to soil. Readings indicated little to no VPH impact in soil that was remote to the former pump island, versus highly impacted soil (greater than 1000 ppm) in the vicinity of the former pump island.

Laboratory analyses of soil indicated no diesel range adsorbed-phase hydrocarbon (APH) impact to soil. However, soil analyses indicate gasoline range TPH (56 to 600 mg/kg) above the WVDEP action level (50 mg/kg) in the vicinity of the former pump island (Figure 3-1). Similar to VPH impact, analyses indicated no APH impact in soil remote to the former pump island.

5.1.2 Groundwater

No PSH impact to groundwater was detected. DPH impact to groundwater is only present in one well proximal to the former pump island. Benzene in groundwater (0.073 mg/l) exceeded the WVDEP cleanup level (0.005 mg/l); toluene, ethylbenzene, and total xylenes were detected below their respective cleanup levels.

5.2 Exposure Assessment

5.2.1 Receptor and Migration Pathway Analysis

The volume of petroleum in the subsurface is unknown. The adsorption capacity appears to be low because the subsurface material (clay) probably has a low organic carbon content, and based on low DPH concentrations in the groundwater. No PSH is present at the site.

Site geology consists of shale approximately 10 feet bgs. Unconsolidated gravelly clay is present from the surface to 10 feet bgs. The water table onsite is located above the bedrock, unconfined, and exhibits a shallow (0.028 ft/ft) gradient trending to the west, which produces a low groundwater velocity of 0.00056 ft/day.

Groundwater typically occurs at depths of approximately 5 to 8 feet bgs. Rainfall may dilute groundwater due to unconfined conditions; however, the site is paved at the impacted area.

5.2.2 Pathway Outlets

No utilities are located adjacent to USTs 201/202 that can be considered conduits for contamination migration. Building 20 is located between the site and the South Fork.

Groundwater and surface water are used in nearby residential homes and commercial properties. Some residential homes are supplied by the Pendleton County Service District's spring and well, located approximately 0.5 mile north and upgradient of the site. Approximately 12 residences are located hydraulically downgradient between the site and the City of Brandywine, and are supplied potable water from private wells. The closest residence is approximately 0.6 mile northeast of the site.

Onsite human receptors are site visitors and adults working and performing recreation activities in Building 20. The building is adjacent to DPH-impacted groundwater and associated soil contamination, so the potential exists for vapor migration to this building.

Inhalation can occur from exposure to fugitive dusts from surficial soils and from exposure to contaminated air due to volatilization of the contaminants of concern (COCs). Inhalation of BTEX in air may occur as a result of chemicals volatilizing from the underlying unsaturated soil or aquifer. Exposure by this pathway would be negligible outdoors, but may be significant indoors where vapors cannot readily disperse (e.g., onsite buildings). Inhalation exposure to COCs volatilizing from soil and accumulating in onsite buildings is a complete pathway. Direct contact to hydrocarbon-impacted soil is limited because the most impacted area is between 4 and 8 feet bgs and the area is paved.

5.3 Relative Threat or Impact on Human Health and the Environment

5.3.1 Physical and Chemical Toxicity

According to characterization provided by the American Petroleum Institute (API, 1985), a major component of petroleum hydrocarbons falls under the broad category of aromatic compounds. Single ring aromatics include benzene, ethylbenzene, toluene, and mixed xylenes. The common benzene ring and the small degree of substitution in these compounds account for their similar physical-chemical properties. The aromatics have moderate octanol-water partition coefficients (K_{ow}), organic carbon adsorption coefficients (K_{oc}), aqueous solubilities, and vapor pressures. Benzene shows approximately an order of magnitude higher solubility and vapor pressure as well as lower K_{ow} and K_{oc} values than toluene, ethylbenzene, and the xylenes (TEX). These compounds are expected to be mobile in the environment. In soil, they are expected to be

eliminated by biodegradation and volatilization. In groundwater, they are expected to undergo mostly aerobic biodegradation.

5.3.2 Volatilization

The aromatics are expected to exhibit the same degree of volatility in the environment. They have dimensionless Henry's law constant (H) values ranging from 0.1 to 0.3 at 25 degrees Celsius (°C). The order of volatility based exclusively on H values (in descending order with the more volatile first) is as follows:

ethylbenzene > toluene > benzene > xylenes

Volatilization of these aromatics from groundwater through soil is expected to be a minor elimination route. Upon groundwater discharge to surface water, volatilization of these compounds is rapid. Once benzene, toluene, and the xylenes are released into the atmosphere, they are expected to hydroxylase quickly (ATSDR, 1989a, 1989b). Ethylbenzene is known to undergo extensive reactions with hydroxides, nitrate (NO₃) radicals, and atomic oxygen in the atmosphere (ATSDR, 1989c).

5.3.3 Adsorption

Adsorption to aquifer sediment, particularly the organic fraction, is also expected to have a minor effect on transport of these compounds. K_{oc} values are a good measure of the extent of adsorption to organic soil fractions. The aromatics show a K_{oc} range of about 50 to 1700 liters per kilogram (l/kg) (USEPA, 1986). The order of this range is parallel to the log K_{ow} , another indicator of adsorption to organic soil. Based on these parameters, the order of adsorption to soil appears to be as follows:

benzene < xylenes < toluene < ethylbenzene

5.3.4 Solubility

Another parameter useful in evaluating the mobility of compounds in the soil/water complex of a groundwater system is aqueous solubility. Solubility of the aromatics ranges from about 100 to 1600 mg/l. The order of solubility values parallels the log K_{ow} and K_{oc} order in reverse, as follows:

benzene > toluene > xylenes > ethylbenzene

Based on these parameters, benzene, with the smallest K_{oc} and highest water solubility, is expected to be the most mobile in the groundwater system, while ethylbenzene is found to be the

least mobile. Disregarding adsorption characteristics of these compounds to nonorganic soil particles, the predicted order of mobility is expected to be as follows:

benzene > toluene > xylenes > ethylbenzene

5.4 Summary of Fate & Transport

To summarize, the aromatics are expected to show a moderate degree of mobility in the soil/water groundwater system, except in the case of benzene, where a greater mobility level is expected. Mobility will decrease as the soil organic content increases.

Both chemical and biological degradative pathways may affect the persistence of aromatics. The chemical pathways of interest are hydrolysis and other chemical reactions that can occur in the groundwater system. The biological pathways of concern are mediated by the microbial populations (either aerobic or anaerobic) of the groundwater system.

Chemical reactions of aromatics such as hydrolysis and oxidation have been reported to be insignificant. Available data indicate that chemical degradation of benzene in water is also insignificant (ATSDR, 1989a). Similar results are reported for toluene, ethylbenzene, and xylenes (USAF, 1989; ATSDR, 1989b, 1989c).

Biodegradation of the aromatics is of greater significance in the environment than chemical degradation. Biodegradation rate depends on acclimation of relevant strains of microbial populations under the proper environment (temperature, nutrient level, etc.). In general, laboratory experiments with isolated strains of microbes have shown that aromatics are biodegraded. The extrapolation of these results to field conditions is rarely straightforward. For the soil/water media of the site, important considerations include the levels of relevant degrading microbial strains that have adapted to the media and the amount of oxygen available. The shallow groundwater system at the site would be expected to be aerobic. The presence of compounds that undergo oxygen-demanding biodegradation processes would reduce the oxygen content.

5.4.1 Benzene

Aerobic and anaerobic benzene biodegradation have been documented both in laboratory and in-situ conditions. Aerobic biodegradation seems to occur more rapidly than does anaerobic biodegradation. Reported anaerobic transformation end products are catechols, which can undergo ring fission (ATSDR, 1989a). Many biodegradation studies have been conducted with benzene. One set of laboratory results found 99-percent anaerobic degradation in 120 weeks; in an in-situ anoxic biological study of a hydrocarbon-contaminated aquifer, complete benzene removal was reported to occur in 6 months (ATSDR, 1989a).

Benzene is a colorless to light-yellow liquid with an aromatic odor. It has a molecular weight of 78, boiling point of 176°F, flash point of 12°F, vapor pressure of 75 mm mercury (Hg), and an ionization potential of 9.25 electron volts (eV). Benzene is a known human carcinogen. The immediately dangerous to life and health (IDLH) level for benzene is 3000 ppm. The OSHA permissible exposure limit (PEL) is 1 ppm as an 8-hour time weighted average (TWA) and the short-term exposure limit (STEL) is 5 ppm as a 15-minute exposure.

Routes of entry for benzene are inhalation, dermal absorption, ingestion, and skin/eye contact. Acute symptoms of exposure include skin, eye, nose, and respiratory irritation; headache; nausea; and abdominal pain. Chronic symptoms of exposure include blood and liver disorders, dermatitis, painful and irregular urination, and cancer. Target organs are the bladder, kidneys, liver, skin, and blood. Benzene has not been detected in quantities of concern at this site.

5.4.2 Toluene

Toluene has been reported to undergo aerobic degradation by many species of microorganisms. In one study, rapid toluene biodegradation (90 percent lost in 7 days) was reported in a shallow aquifer (ATSDR, 1988). No data on anaerobic degradation have been reported.

Toluene is a colorless liquid with a sweet, pungent odor. It has a molecular weight of 92; boiling point of 232°F; flash point of 40°F; vapor pressure of 20 mm Hg; and an ionization potential of 8.82 eV. The IDLH for toluene is 2000 ppm, the OSHA PEL is 100 ppm as an 8-hour TWA, and the STEL is 150 ppm as a 15-minute exposure.

Routes of entry for toluene are inhalation, dermal absorption, ingestion, and skin/eye contact. Symptoms of exposure include fatigue, weakness, euphoria, headache, dilated pupils, nervousness, insomnia, and dermatitis. Target organs are the central nervous system, liver, kidneys, and skin. Toluene has not been detected in quantities of concern at this site.

5.4.3 Xylenes

Xylenes are known to biodegrade under laboratory and field conditions; however, quantitative data are limited. This is especially true in groundwater systems. Based on the structural similarity of xylenes to toluene and ethylbenzene, inferences can be made regarding their biodegradability (USAF, 1989). Some reports indicate that, in general, xylene biodegradation in most aquatic systems will be poor to moderate (ATSDR, 1989b).

Xylenes are colorless liquids with an aromatic odor. They have molecular weights of approximately 121; boiling points of 269-292°F; vapor pressures between 7-9 mm Hg; and

ionization potentials between 8.44-8.56 eV. The IDLH for xylenes is 1000 ppm; the OSHA PEL is 100 ppm as an 8-hour TWA; and the STEL is 150 ppm as a 15-minute exposure.

Routes of entry for xylenes are inhalation, absorption, ingestion, and skin/eye contact. Symptoms of exposure include dizziness; excitement; drowsiness; incoherence; a staggering gait; drowsiness; irritation to the eyes, throat, or nose; anorexia; abdominal pain; and dermatitis. Target organs are the central nervous system, eyes, gastrointestinal tract, blood, liver, kidneys, and skin. Xylenes have not been detected in quantities of concern at this site.

5.4.4 Ethylbenzene

Ethylbenzene is known to biodegrade both aerobically and anaerobically (USAF, 1989; ATSDR, 1989c). Aerobic degradation is more rapid than anoxic degradation based on various field and laboratory observations. At greater depths from the surface, decreasing levels of degrading microbial colonies and increased anoxic conditions are expected to retard biodegradation (ATSDR, 1989c).

Ethylbenzene is a colorless liquid with an aromatic odor. It has a molecular weight of 106, boiling point of 277°F; flash point of 55°F; vapor pressure of 10 mm Hg; and an ionization potential of 8.76 eV. The IDLH for ethylbenzene is 2000 ppm, the OSHA PEL is 100 ppm as an 8-hour TWA, and the STEL is 125 ppm as a 15-minute exposure.

Routes of entry for ethylbenzene are inhalation, ingestion, and skin/eye contact. Symptoms of exposure include irritation of the eyes and mucous membranes, irritation, headache, tightness of the chest, dizziness, tremors, and loss of consciousness. Target organs are the eyes, upper respiratory system, skin, and central nervous system. Ethylbenzene has not been detected in quantities of concern at this site.

In summary, the aromatic fraction of groundwater is the most soluble, resulting in the importance of BTEX as groundwater compounds at petroleum-impacted sites. Petroleum compounds are retained in the unsaturated zone as residual hydrocarbon. Volatilization is expected to be the dominant fate process resulting in losses of hydrocarbons from the unsaturated soils. Almost all components of petroleum products, including the aromatics, are subject to a certain degree of biodegradation under aerobic conditions. In grossly contaminated soils and groundwater, the availability of oxygen places an upper boundary on the biodegradation rate, resulting in zero-order kinetics. Volatilization from groundwater is slow; migration with flowing groundwater, dispersion, and biodegradation are the dominant fate processes in groundwater.

5.5 Hydrogeologic Characteristics

Exposure levels for potential receptors by impacted groundwater can be considered low due to the low hydraulic conductivity of the onsite formation. The soils onsite are clay sediments overlying the Marcellus Shale, and although they commonly hold porosity values of approximately 50 percent, are known to have low hydraulic conductivities (Fetter, 1988).

5.6 Proximity, Quality, and Current and Future Uses of Nearby Surface Water and Groundwater

Laboratory analyses for DPH in onsite monitor wells indicate total BTEX concentrations below detection limits except for MW-1 (1994). Benzene measured above the WVDEP clean-up level (0.005 mg/l) in MW-1 (1994) at 0.073 mg/l. Groundwater is expected to discharge into the South Fork; surface water (the South Fork) is used for potable water in the area.

5.7 Potential Effects of Residual Contamination

DPH is also not expected to reach South Fork due to dispersion, volatilization, and biodegradation during transport accompanied by ample dilution upon discharge of groundwater to the creek. Groundwater velocity at the site is approximately 0.2 ft/year.

Groundwater is expected to discharge into the South Fork, which is used for potable water in the area. Site groundwater will reach the South Fork in approximately 40 years because groundwater velocity is 0.2 feet/year and the creek is approximately 200 feet from the impacted area. However, the DPH concentration should be insignificant at the time of discharge to surface water due to natural degradation, attenuation, and dilution.

5.8 Potential for Immediate and Long-term Health Problems

The potential for immediate and long-term health problems onsite affects site visitors and adults working in Building 20. The building is adjacent to DPH and associated soil contamination, and the potential exists for vapor migration to this building. Inhalation also can occur from exposure to fugitive dusts from surficial soils and from exposure to contaminated air due to COC volatilization. However, hydrocarbon-impacted soil is between 4 and 98 feet bgs and is capped with asphalt.

6.0 Recommendations

6.1 Soil Cleanup

VPH impact was detected in the vicinity of the former tank pit, with little to no impact remote to the pit. Building 20 is adjacent to DPH-impacted groundwater and has a partial basement, so the potential exists for vapor migration to the building. As a result, adults working and performing recreation activities in Building 20 are potential receptors. However, the site geology consists of clay overlying shale bedrock, which may indicate minimal vapor migration. To determine actual VPH impact to Building 20 and potential receptors, benzene vapor monitoring is recommended in the basement of Building 20 on a monthly basis for a period of six months, which should account for season fluctuations in the water table which could influence vapor concentration fluctuations. If readings are below the STEL for the six-month period, no further soil cleanup is recommended for VPH impact.

Soil analyses indicated APH impact to soil (above the WVDEP action level) in the vicinity of the former tank pit; no impact above the action level was noted remote to the pit. Soil contamination was well delineated during the investigation and may indicate isolated areas of contamination above the action level. The clay subsurface material at the site suggests minimal potential for migration to the groundwater through runoff percolating through the soil (hydraulic conductivities are estimated at approximately 0.01 foot per day). Additionally, the majority of the site is paved with asphalt, further diminishing the potential for contaminant leaching through percolation.

Finally, the groundwater monitoring recommended below should indicate whether soil is contributing to groundwater contamination. Consequently, no soil cleanup is recommended at this time, assuming downgradient wells (proposed below) indicate no DPH impact to groundwater. However, soil cleanup will be re-evaluated in the event groundwater contamination increases during monitoring activities.

6.2 PSH Cleanup

No PSH impact was detected at the site, so no PSH cleanup is required.

6.3 Groundwater Cleanup

DPH impact to groundwater is only present in one well (MW-1, 1994) proximal to the former tank pit. Benzene in groundwater exceeded the WVDEP cleanup level. Groundwater hydraulic conductivity is estimated at approximately 0.01 foot per day and average linear groundwater

velocity is estimated at 0.2 foot per year, indicating that site groundwater will not reach the South Fork for 40 years. By the time groundwater discharges to the South Fork, the DPH concentration will be insignificant due to natural degradation, attenuation, and dilution. Additionally, previous studies suggest that the bedrock aquifer is confined, with the potential for upward flow from bedrock to soil, limiting the potential for contaminant migration from soil to bedrock (REWAI, 1994).

However, no groundwater monitor wells are currently located downgradient of MW-1 (1994), between MW-1 (1994) and the South Fork. Potential DPH impact to the South Fork through groundwater discharge should be evaluated because the South Fork is used as a drinking water source.

 Two wells are recommended to evaluate potential DPH contamination proximal to the South Fork and downgradient of MW-1 (1994) (Figure 6-1). One monitor well (PMW-6) should be installed to top of bedrock (approximately 6 feet bgs) to evaluate the shallow (unconfined) groundwater, and another (PMW-7) should be installed and screened in the upper portion of the bedrock (approximately 7 to 17 feet bgs) to evaluate the bedrock aquifer water quality. Assuming that the wells do not indicate DPH impact, no groundwater cleanup is recommended at this time. Monitoring only is recommended for MW-1 (1994) and the two new wells on a quarterly basis for a period of one year.

6.4 Other Actions

Two new groundwater monitor wells are recommended to be installed at the site. The wells will evaluate the groundwater quality downgradient of MW-1 (1994) in the water table and bedrock aquifers and potential DPH impact to the South Fork.

6.5 Future Monitoring

Vapor monitoring in the Building 20 basement is recommended to further evaluate potential VPH impact. Initial screening for total volatile organic compounds (VOCs) will be performed using an OVA. If VOC levels above background (measured in another area in Building 20) are noted, specific monitoring for benzene will be performed. In that case, samples will be collected in Tenax® tubes using a low flow sampling pump and submitted to an approved laboratory for benzene analysis (EPA Method TO-1). The monitoring will be performed on a monthly basis for a period of six months.

Groundwater monitoring in MW-1 (1994) (between the former pump island and Building 20) and the two new wells (proximal to the South Fork and downgradient of DPH-impacted well MW-1, 1994) is recommended to further evaluate potential DPH impact to the South Fork. Proposed

well MW-6 will be completed to the top of bedrock and proposed well MW-7 will be screened below the top of bedrock. Figure 6-1 indicates the locations for groundwater monitoring. The wells will be gauged, then purged of approximately three well volumes. One groundwater sample will be collected from each well and submitted to an approved laboratory for BTEX analysis (8020). The monitoring will be performed on a quarterly basis for a period of one year.

7.0 References

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Appendix B

Boring Logs

CLIENT: United States Navy, LANTDIV LOCATION: NSGA Sugar Grove, West Virginia USTs 201 and 202	BORING #: SB-13 TOTAL DEPTH: 8.5 feet LOGGED BY: Glen Crombie DRILLER: Zebra Environmental, Inc DRILL RIG: ATV Geoprobe METHOD: Direct Push Penetration DATE DRILLED: November 1, 1995
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DEPTH (FT)	CLASSIFICATION	LITHOLOGICAL DESCRIPTION	OVA (ppm)
0 - 4	CL	Brown and olive gray CLAY. Sample Obtained.	700
4 - 8	CL/GC	Brown and olive gray CLAY. Rock fragments. Obvious petroleum odor. Sample obtained.	> 1000
8 - 8.5		Blind probe to refusal.	-

CLIENT: United States Navy, LANTDIV LOCATION: NSGA Sugar Grove, West Virginia USTs 201 and 202	BORING #: SB-14 TOTAL DEPTH: 8.5 feet LOGGED BY: Glen Crombie DRILLER: Zebra Environmental, Inc DRILL RIG: ATV Geoprobe METHOD: Direct Push Penetration DATE DRILLED: November 1, 1995
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DEPTH (FT)	CLASSIFICATION	LITHOLOGICAL DESCRIPTION	OVA (ppm)
0 - 4	CL	Brown and olive gray CLAY. Some gravel. Sample obtained.	220
4 - 8	CL/GC	Brown and olive gray CLAY interbedded with fragmented shale. Sample obtained.	800
8 - 8.5		Blind probe to refusal.	-

CLIENT: United States Navy, LANTDIV LOCATION: NSGA Sugar Grove, West Virginia USTs 201 and 202	BORING #: SB-15 TOTAL DEPTH: 7.5 feet LOGGED BY: Glen Crombie DRILLER: Zebra Environmental, Inc DRILL RIG: ATV Geoprobe METHOD: Direct Push Penetration DATE DRILLED: November 1, 1995
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DEPTH (FT)	CLASSIFICATION	LITHOLOGICAL DESCRIPTION	OVA (ppm)
0 - 1	-	Blind probe through asphalt and gravel subgrade.	-
1 - 5	CL	Red, yellow, and gray CLAY. Sample obtained.	> 1000
5 - 7.5	CL/GC	Red, yellow, and gray CLAY. Shale fragments. Refusal @ 7.5 feet. Sample obtained.	> 1000

CLIENT: United States Navy, LANTDIV LOCATION: NSGA Sugar Grove, West Virginia USTs 201 and 202	BORING #: SB-16 TOTAL DEPTH: 8.5 feet LOGGED BY: Glen Crombie DRILLER: Zebra Environmental, Inc DRILL RIG: ATV Geoprobe METHOD: Direct Push Penetration DATE DRILLED: November 1, 1995
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DEPTH (FT)	CLASSIFICATION	LITHOLOGICAL DESCRIPTION	OVA (ppm)
0 - 1	-	Blind probe through asphalt and gravel subgrade.	-
1 - 5	CL	Red, yellow, and gray CLAY. Sample obtained.	0
5 - 8.5	CL/GC	Red, yellow, and gray CLAY. Shale fragments. Refusal @ 8.5 feet. Sample obtained.	0

CLIENT: United States Navy, LANTDIV LOCATION: NSGA Sugar Grove, West Virginia USTs 201 and 202	BORING #: SB-17 TOTAL DEPTH: 11 Feet LOGGED BY: Glen Crombie DRILLER: Zebra Environmental, Inc DRILL RIG: ATV Geoprobe METHOD: Direct Push Penetration DATE DRILLED: November 1, 1995
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DEPTH (FT)	CLASSIFICATION	LITHOLOGICAL DESCRIPTION	OVA (ppm)
0 - 4	CL/GC	Yellow and gray CLAY with gravel.	200
4 - 8	CL	Brown CLAY. Sample obtained.	450
8 - 10	CL	Brown and dark gray CLAY. Sample obtained.	960
10 - 11	CL/GC	Dark gray CLAY interbedded with shale. Refusal @ 11 feet.	180

CLIENT: United States Navy, LANTDIV LOCATION: NSGA Sugar Grove, West Virginia USTs 201 and 202	BORING #: SB-18 TOTAL DEPTH: 7.5 feet LOGGED BY: Glen Crombie DRILLER: Zebra Environmental, Inc DRILL RIG: ATV Geoprobe METHOD: Direct Push Penetration DATE DRILLED: November 1, 1995
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DEPTH (FT)	CLASSIFICATION	LITHOLOGICAL DESCRIPTION	OVA (ppm)
0 - 4	CL	Gray and white CLAY interbedded with red, yellow, and gray Sandy CLAY. Sample obtained.	25
4 - 7.5	CL	Gray CLAY interbedded with Sandy CLAY. Some rock fragments. Refusal @ 7.5 feet. Sample obtained.	10

CLIENT: United States Navy, LANTDIV LOCATION: NSGA Sugar Grove, West Virginia USTs 201 and 202	BORING #: SB-19 TOTAL DEPTH: 6.5 feet LOGGED BY: Glen Crombie DRILLER: Zebra Environmental, Inc DRILL RIG: ATV Geoprobe METHOD: Direct Push Penetration DATE DRILLED: November 1, 1995
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DEPTH (FT)	CLASSIFICATION	LITHOLOGICAL DESCRIPTION	OVA (ppm)
0 - 4	CL	Gray CLAY interbedded with brown and gray Sandy CLAY. Sample obtained.	0
4 - 6.5	GC	Brown and Gray SAND, CLAY, and GRAVEL. No Sample. Refusal @ 6.5 feet.	0

CLIENT: United States Navy, LANTDIV LOCATION: NSGA Sugar Grove, West Virginia USTs 201 and 202	BORING #: SB-20 TOTAL DEPTH: 8 feet LOGGED BY: Glen Crombie DRILLER: Zebra Environmental, Inc DRILL RIG: ATV Geoprobe METHOD: Direct Push Penetration DATE DRILLED: November 1, 1995
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DEPTH (FT)	CLASSIFICATION	LITHOLOGICAL DESCRIPTION	OVA (ppm)
0 - 4	CL	Gray CLAY. Sample obtained.	6
4 - 8	CL	Gray CLAY interbedded with Silty CLAY. Sand near bedrock interface @ 8 feet. Sample obtained.	7

CLIENT: United States Navy, LANTDIV LOCATION: NSGA Sugar Grove, West Virginia USTs 201 and 202	BORING #: SB-21 TOTAL DEPTH: 8 feet LOGGED BY: Glen Crombie DRILLER: Zebra Environmental, Inc DRILL RIG: ATV Geoprobe METHOD: Direct Push Penetration DATE DRILLED: November 1, 1995
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DEPTH (FT)	CLASSIFICATION	LITHOLOGICAL DESCRIPTION	OVA (ppm)
0 - 4	CL	Gray and brown CLAY. Sample obtained.	0
4 - 8	CL	Gray, red, and brown CLAY. Sand and shale near bedrock interface @ 8 feet. Sample obtained.	0

CLIENT: United States Navy, LANTDIV LOCATION: NSGA Sugar Grove, West Virginia USTs 201 and 202	BORING #: SB-22 TOTAL DEPTH: 7.5 feet LOGGED BY: Glen Crombie DRILLER: Zebra Environmental, Inc DRILL RIG: ATV Geoprobe METHOD: Direct Push Penetration DATE DRILLED: November 1, 1995
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DEPTH (FT)	CLASSIFICATION	LITHOLOGICAL DESCRIPTION	OVA (ppm)
0 - 4	CL/GC	Gray and brown CLAY. Orange rock fragments. Sample obtained.	0
4 - 7.5	GC	Shale fragments in a gray brown sand and clay matrix. Refusal @ 7.5 feet. Sample obtained.	0

CLIENT: United States Navy, LANTDIV LOCATION: NSGA Sugar Grove, West Virginia USTs 201 and 202	BORING #: SB-23 TOTAL DEPTH: 8 feet LOGGED BY: Glen Crombie DRILLER: Zebra Environmental, Inc DRILL RIG: ATV Geoprobe METHOD: Direct Push Penetration DATE DRILLED: November 1, 1995
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DEPTH (FT)	CLASSIFICATION	LITHOLOGICAL DESCRIPTION	OVA (ppm)
0 - 4	CL	Orange Sandy CLAY. Some asphalt fragments. Sample obtained.	280
4 - 8	CL/GC	Orange Sandy CLAY with rock fragments. Refusal @ 8 feet. Sample obtained.	20

CLIENT: United States Navy, LANTDIV LOCATION: NSGA Sugar Grove, West Virginia USTs 201 and 202	BORING #: SB-24 TOTAL DEPTH: 8 feet LOGGED BY: Glen Crombie DRILLER: Zebra Environmental, Inc DRILL RIG: ATV Geoprobe METHOD: Direct Push Penetration DATE DRILLED: November 1, 1995
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DEPTH (FT)	CLASSIFICATION	LITHOLOGICAL DESCRIPTION	OVA (ppm)
0 - 4	CL	Orange Sandy CLAY. Sample obtained.	450
4 - 8	CL	Gray CLAY (petroleum odor). Refusal @ 8 feet. Sample obtained.	> 1000

CLIENT: United States Navy, LANTDIV	BORING #: SB-25
LOCATION: NSGA Sugar Grove, West Virginia USTs 201 and 202	TOTAL DEPTH: 8 feet
	LOGGED BY: Glen Crombie
	DRILLER: Zebra Environmental, Inc
	DRILL RIG: ATV Geoprobe
	METHOD: Direct Push Penetration
	DATE DRILLED: November 1, 1995

DEPTH (FT)	CLASSIFICATION	LITHOLOGICAL DESCRIPTION	OVA (ppm)
0 - 4	CL	Orange and Gray mottled CLAY. Sample obtained.	> 1000
4 - 8	CL	Dark gray CLAY (petroleum odor). Refusal @ 8 feet. Sample obtained.	> 1000

CLIENT: United States Navy, LANTDIV	BORING #: SB-26
LOCATION: NSGA Sugar Grove, West Virginia USTs 201 and 202	TOTAL DEPTH: 10 feet
	LOGGED BY: Glen Crombie
	DRILLER: Zebra Environmental, Inc
	DRILL RIG: ATV Geoprobe
	METHOD: Direct Push Penetration
	DATE DRILLED: November 1, 1995

DEPTH (FT)	CLASSIFICATION	LITHOLOGICAL DESCRIPTION	OVA (ppm)
0 - 4	CL/GC	Orange and Gray CLAY with some gravel. Sample obtained.	0
4 - 8	CL/GC	Orange and Gray CLAY with some gravel. Sample obtained.	0
8 - 10	-	Blind probe to refusal @ 10 feet.	-

CLIENT: United States Navy, LANTDIV	BORING #: SB-27
LOCATION: NSGA Sugar Grove, West Virginia USTs 201 and 202	TOTAL DEPTH: 10 feet
	LOGGED BY: Glen Crombie
	DRILLER: Zebra Environmental, Inc
	DRILL RIG: ATV Geoprobe
	METHOD: Direct Push Penetration
	DATE DRILLED: November 1, 1995

DEPTH (FT)	CLASSIFICATION	LITHOLOGICAL DESCRIPTION	OVA (ppm)
0 - 4	CL/GC	Orange and gray CLAY with some gravel. Sample obtained.	0
4 - 8	CL/GC	Orange and gray CLAY with some Gravel. Sample obtained.	0
8 - 10	-	Blind probe to refusal @ 10 feet.	-

CLIENT: United States Navy, LANTDIV LOCATION: NSGA Sugar Grove, West Virginia USTs 201 and 202		BORING #: SB-28 TOTAL DEPTH: 6 feet LOGGED BY: Glen Crombie DRILLER: Zebra Environmental, Inc DRILL RIG: ATV Geoprobe METHOD: Direct Push Penetration DATE DRILLED: November 2, 1995	
DEPTH (FT)	CLASSIFICATION	LITHOLOGICAL DESCRIPTION	OVA (ppm)
0 - 4	GC	GRAVEL in a Silty, Sandy, Clay matrix. Sample obtained.	0
4 - 6	GC	GRAVEL in a Silty, Sandy, Clay matrix. Some fine sands. Refusal @ 6 feet. Sample obtained.	0

CLIENT: United States Navy, LANTDIV LOCATION: NSGA Sugar Grove, West Virginia USTs 201 and 202		BORING #: SB-29 TOTAL DEPTH: 3 feet LOGGED BY: Glen Crombie DRILLER: Zebra Environmental, Inc DRILL RIG: ATV Geoprobe METHOD: Direct Push Penetration DATE DRILLED: November 2, 1995	
DEPTH (FT)	CLASSIFICATION	LITHOLOGICAL DESCRIPTION	OVA (ppm)
0 - 3	GC	GRAVEL in fine yellow brown sands. Some clay. Refusal @ 3 feet. Sample obtained.	0

Appendix D

Laboratory Results

CLIENT SAMPLE ID'S:	MW1	MW2	MW4	MW5	EQUIPBLANK	TRIPBLANK	DUPLICATE
ESE FIELD GROUP:	22760	22760	22760	22760	22760	22760	22760
ESE SEQUENCE #:	1	2	3	4	5	6	7
DATE COLLECTED:	11/01/95	11/01/95	11/01/95	11/01/95	11/01/95	11/01/95	11/01/95
TIME COLLECTED:	07:50	08:26	08:00	10:30	07:30	07:20	07:20

PARAMETERS	UNITS	METHOD							
TPH, as diesel	MG/L	8015/MOD	<0.5	<0.5	<0.5	<0.5	<0.5	NRQ	<0.5
TPH, as gasoline	MG/L	8015/MOD	1.6	<0.5	<0.5	<0.5	<0.5	NRQ	<0.5
TPH, as jet fuel	MG/L	8015/MOD	<0.5	<0.5	<0.5	<0.5	<0.5	NRQ	<0.5
TPH, as unidentified hydrocarbon	MG/L	8015/MOD	<0.5	<0.5	<0.5	<0.5	<0.5	NRQ	<0.5
TPH, as motor oil	MG/L	8015/MOD	<10	<10	<10	<10	<10	NRQ	<10
TPH, as mineral spirits	MG/L	8015/MOD	<0.5	<0.5	<0.5	<0.5	<0.5	NRQ	<0.5
Benzene	UG/L	8020	73	<1	<1	<1	<1	<1	<1
Toluene	UG/L	8020	8	<1	<1	<1	<1	<1	<1
Ethylbenzene	UG/L	8020	59	<1	<1	<1	<1	<1	<1
Total - Xylene	UG/L	8020	42	<1	<1	<1	<1	<1	<1

NRQ - Analysis not requested.

SAMPLE	STATION ID	COLLECT. RECEIPT	CLASSIFICATION	EXTRACT. ANALYSIS	DAYS, ACT/HT	ANL	ESE	BATCH	
22760*1	MW1	11/01/95 11/03/95	TPH, as diesel - 8015M	11/08/95 11/09/95	7/14	1/40		P31406	
			TPH, as gasoline - 8015M	11/08/95 11/09/95	7/14	1/40		P31406	
			TPH, as jet fuel - 8015M	11/08/95 11/09/95	7/14	1/40		P31406	
			TPH, as unidentified hydrocarbon - 8015M	11/08/95 11/09/95	7/14	1/40		P31406	
			TPH, as motor oil - 8015M	11/08/95 11/09/95	7/14	1/40		P31406	
			TPH, as mineral spirits - 8015M	11/08/95 11/09/95	7/14	1/40		P31406	
			Benzene - 8020	NA 11/07/95	NA	6/14			P31376
			Toluene - 8020	NA 11/07/95	NA	6/14			P31376
			Ethylbenzene - 8020	NA 11/07/95	NA	6/14			P31376
			M-AND/OR P-XYLENE - 8020	NA 11/07/95	NA	6/14			P31376
22760*2	MW2	11/01/95 11/03/95	O-XYLENE - 8020	11/08/95 11/09/95	7/14	1/40		P31406	
			TPH, as diesel - 8015M	11/08/95 11/09/95	7/14	1/40		P31406	
			TPH, as gasoline - 8015M	11/08/95 11/09/95	7/14	1/40		P31406	
			TPH, as jet fuel - 8015M	11/08/95 11/09/95	7/14	1/40		P31406	
			TPH, as unidentified hydrocarbon - 8015M	11/08/95 11/09/95	7/14	1/40		P31406	
			TPH, as motor oil - 8015M	11/08/95 11/09/95	7/14	1/40		P31406	
			TPH, as mineral spirits - 8015M	11/08/95 11/09/95	7/14	1/40		P31406	
			Benzene - 8020	NA 11/07/95	NA	6/14			P31376
			Toluene - 8020	NA 11/07/95	NA	6/14			P31376
			Ethylbenzene - 8020	NA 11/07/95	NA	6/14			P31376
22760*3	MW4	11/01/95 11/03/95	M-AND/OR P-XYLENE - 8020	11/08/95 11/09/95	7/14	1/40		P31406	
			O-XYLENE - 8020	11/08/95 11/09/95	7/14	1/40		P31406	
			TPH, as diesel - 8015M	11/08/95 11/09/95	7/14	1/40		P31406	
			TPH, as gasoline - 8015M	11/08/95 11/09/95	7/14	1/40		P31406	
			TPH, as jet fuel - 8015M	11/08/95 11/09/95	7/14	1/40		P31406	
			TPH, as unidentified hydrocarbon - 8015M	11/08/95 11/09/95	7/14	1/40		P31406	
			TPH, as motor oil - 8015M	11/08/95 11/09/95	7/14	1/40		P31406	
			TPH, as mineral spirits - 8015M	11/08/95 11/09/95	7/14	1/40		P31406	
			Benzene - 8020	NA 11/06/95	NA	5/14			P31376
			Toluene - 8020	NA 11/06/95	NA	5/14			P31376
22760*4	MW5	11/01/95 11/03/95	Ethylbenzene - 8020	11/08/95 11/09/95	7/14	1/40		P31406	
			M-AND/OR P-XYLENE - 8020	11/08/95 11/09/95	7/14	1/40		P31406	
			O-XYLENE - 8020	11/08/95 11/09/95	7/14	1/40		P31406	
			TPH, as diesel - 8015M	11/08/95 11/09/95	7/14	1/40		P31406	
			TPH, as gasoline - 8015M	11/08/95 11/09/95	7/14	1/40		P31406	
			TPH, as jet fuel - 8015M	11/08/95 11/09/95	7/14	1/40		P31406	
			TPH, as unidentified hydrocarbon - 8015M	11/08/95 11/09/95	7/14	1/40		P31406	
			TPH, as motor oil - 8015M	11/08/95 11/09/95	7/14	1/40		P31406	
			TPH, as mineral spirits - 8015M	11/08/95 11/09/95	7/14	1/40		P31406	
			Benzene - 8020	NA 11/06/95	NA	5/14			P31376
22760*5	EQUIPBLANK	11/01/95 11/03/95	Toluene - 8020	11/08/95 11/09/95	7/14	1/40		P31406	
			Ethylbenzene - 8020	11/08/95 11/09/95	7/14	1/40		P31406	
			M-AND/OR P-XYLENE - 8020	11/08/95 11/09/95	7/14	1/40		P31406	
			O-XYLENE - 8020	11/08/95 11/09/95	7/14	1/40		P31406	
			TPH, as diesel - 8015M	11/08/95 11/09/95	7/14	1/40		P31406	
			TPH, as gasoline - 8015M	11/08/95 11/09/95	7/14	1/40		P31406	
			TPH, as jet fuel - 8015M	11/08/95 11/09/95	7/14	1/40		P31406	
			TPH, as mineral spirits - 8015M	11/08/95 11/09/95	7/14	1/40		P31406	
			Benzene - 8020	NA 11/06/95	NA	5/14			P31376
			Toluene - 8020	NA 11/06/95	NA	5/14			P31376

FOOTNOTES: * = EXCEEDS CRITERIA ACT = ACTUAL HT = HOLDING TIME

SAMPLE	STATION ID	COLLECT. RECEIPT	CLASSIFICATION	EXTRACT. ANALYSIS		DAYS, ACT/HT		ESE BATCH
				EXT	ANL	EXT	ANL	
22760*6	TRIPBLANK	11/01/95 11/03/95	TPH, as unidentified hydrocarbon - 8015M	11/08/95	11/09/95	7/14	1/40	P31406
			TPH, as motor oil - 8015M	11/08/95	11/09/95	7/14	1/40	P31406
			Benzene - 8020	11/08/95	11/09/95	7/14	1/40	P31406
			Toluene - 8020	NA	11/06/95	NA	5/14	P31376
			Ethylbenzene - 8020	NA	11/06/95	NA	5/14	P31376
			M-AND/OR P-XYLENE - 8020	NA	11/06/95	NA	5/14	P31376
			O-XYLENE - 8020	NA	11/06/95	NA	5/14	P31376
			Benzene - 8020	NA	11/09/95	NA	8/14	P31376
			Toluene - 8020	NA	11/09/95	NA	8/14	P31376
			Ethylbenzene - 8020	NA	11/09/95	NA	8/14	P31376
22760*7	DUPLICATE	11/01/95 11/03/95	M-AND/OR P-XYLENE - 8020	11/08/95	11/09/95	7/14	1/40	P31406
			O-XYLENE - 8020	11/08/95	11/09/95	7/14	1/40	P31406
			TPH, as diesel - 8015M	11/08/95	11/09/95	7/14	1/40	P31406
			TPH, as gasoline - 8015M	11/08/95	11/09/95	7/14	1/40	P31406
			TPH, as jet fuel - 8015M	11/08/95	11/09/95	7/14	1/40	P31406
			TPH, as unidentified hydrocarbon - 8015M	11/08/95	11/09/95	7/14	1/40	P31406
			TPH, as motor oil - 8015M	11/08/95	11/09/95	7/14	1/40	P31406
			TPH, as mineral spirits - 8015M	11/08/95	11/09/95	7/14	1/40	P31406
			Benzene - 8020	NA	11/07/95	NA	6/14	P31376
			Toluene - 8020	NA	11/07/95	NA	6/14	P31376
22760*8	DUPLICATE	11/01/95 11/03/95	Ethylbenzene - 8020	11/08/95	11/09/95	7/14	1/40	P31406
			M-AND/OR P-XYLENE - 8020	11/08/95	11/09/95	7/14	1/40	P31406
			O-XYLENE - 8020	11/08/95	11/09/95	7/14	1/40	P31406
			TPH, as diesel - 8015M	11/08/95	11/09/95	7/14	1/40	P31406
			TPH, as gasoline - 8015M	11/08/95	11/09/95	7/14	1/40	P31406
			TPH, as jet fuel - 8015M	11/08/95	11/09/95	7/14	1/40	P31406
			TPH, as unidentified hydrocarbon - 8015M	11/08/95	11/09/95	7/14	1/40	P31406
			TPH, as motor oil - 8015M	11/08/95	11/09/95	7/14	1/40	P31406
			TPH, as mineral spirits - 8015M	11/08/95	11/09/95	7/14	1/40	P31406
			Benzene - 8020	NA	11/07/95	NA	6/14	P31376

FOOTNOTES: * = EXCEEDS CRITERIA ACT = ACTUAL HT = HOLDING TIME

CL. AT SAMPLE ID'S:	REPORTING	SB-13 0-4	SB-13 4-8	SB-14 0-4	SB-14 4-8	SB-15 1-5	B-15 5-7.5	SB-16 1-5
ESE FIELD GROUP:	LIMIT	22769	22769	22769	22769	22769	22769	22769
ESE SEQUENCE #:		1	2	3	4	5	6	7
DATE COLLECTED:		11/01/95	11/01/95	11/01/95	11/01/95	11/01/95	11/01/95	11/01/95
TIME COLLECTED:		08:40	08:55	09:20	09:30	10:15	10:20	10:40

PARAMETERS	UNITS	METHOD							
TPH, as diesel		CA8015/SOIL	10	<13	<13	<13	<12	<12	<12
	MG/KG-DRY WT.								
TPH, as gasoline		CA8015/5030	100	8600E	600000	270	170000	56000	15000E
	UG/KG-DRY WT.								<120
Moisture	%	160.3	0.1	21.7	22.3	23.5	16.3	16.2	13.9
									14.9

NT SAMPLE ID'S:	REPORTING B-16	5-8.5	SB-17 4-8	SB-17 8-10	SB-18 0-4	B-18 4-7.5	SB-19 0-4	B-19 4-6.5
ESE FIELD GROUP:	LIMIT	22769	22769	22769	22769	22769	22769	22769
ESE SEQUENCE #:		8	9	10	11	12	13	14
DATE COLLECTED:		11/01/95	11/01/95	11/01/95	11/01/95	11/01/95	11/01/95	11/01/95
TIME COLLECTED:		10:45	11:05	11:15	11:25	11:30	13:20	13:25

PARAMETERS	UNITS	METHOD								
TPH, as diesel		CA8015/SOIL	10	<12	<12	<12	<13	<13	<12	<12
	MG/KG-DRY WT.									
TPH, as gasoline		CA8015/5030	100	<120	<120	<120	340	130	140	<120
	UG/KG-DRY WT.									
Moisture	%	160.3	0.1	13.3	16.4	14.9	20.5	20.0	18.0	14.0

REPORTING	SB-20 0-4	SB-20 4-8	SB-21 0-4	SB-21 4-8	SB-22 0-4	B-22 4-7.5	SB-23 0-2
ESE FIELD GROUP:	22769	22769	22769	22769	22769	22769	22769
ESE SEQUENCE #:	15	16	17	18	19	20	21
DATE COLLECTED:	11/01/95	11/01/95	11/01/95	11/01/95	11/01/95	11/01/95	11/01/95
TIME COLLECTED:	13:45	13:50	14:10	14:15	14:30	14:40	15:00

PARAMETERS	UNITS	METHOD	SB-20 0-4	SB-20 4-8	SB-21 0-4	SB-21 4-8	SB-22 0-4	B-22 4-7.5	SB-23 0-2
TPH, as diesel	MG/KG-DRY WT.	CA8015/SOIL	10	<13	<12	<12	<12	<13	<12
TPH, as gasoline	UG/KG-DRY WT.	CA8015/5030	100	<130	<120	<120	<120	<130	<120
Moisture	%	160.3	0.1	20.6	15.1	19.5	16.5	20.5	19.5

C. .I SAMPLE ID'S:	REPORTING	SB-23 4-8	SB-24 0-4	SB-24 4-8	SB-25 0-4	SB-25 4-8	SB-26 0-4	SB-26 4-8
ESE FIELD GROUP:	LIMIT	22769	22769	22769	22769	22769	22769	22769
ESE SEQUENCE #:		22	23	24	25	26	27	28
DATE COLLECTED:		11/01/95	11/01/95	11/01/95	11/01/95	11/01/95	11/01/95	11/01/95
TIME COLLECTED:		15:10	15:25	15:30	15:45	15:50	16:10	16:15

PARAMETERS	UNITS	METHOD	SB-23 4-8	SB-24 0-4	SB-24 4-8	SB-25 0-4	SB-25 4-8	SB-26 0-4	SB-26 4-8
TPH, as diesel		CA8015/SOIL	10	<12	<12	<12	<12	<12	<12
	MG/KG-DRY WT.								
TPH, as gasoline		CA8015/5030	100	270	1500	22000	3900	29000	<120
	UG/KG-DRY WT.								
Moisture	%	160.3	0.1	14.9	18.7	18.1	19.1	15.9	15.5

CLIENT SAMPLE ID'S:	REPORTING	SB-27 0-4	SB-27 4-8	SB-28 0-4	SB-28 4-6	SB-29 0-3	B-1 0-4	B-1 4-8
ESE FIELD GROUP:	LIMIT	22769	22769	22769	22769	22769	22769	22769
ESE SEQUENCE #:		29	30	31	32	33	34	35
DATE COLLECTED:		11/01/95	11/01/95	11/02/95	11/02/95	11/02/95	11/02/95	11/02/95
TIME COLLECTED:		16:30	16:40	09:00	09:05	09:10	10:10	10:15

PARAMETERS	UNITS	METHOD								
TPH, as diesel		CA8015/SOIL	10	<13	<13	<12	<12	<11	<12	69
	MG/KG-DRY WT.									
TPH, as gasoline		CA8015/5030	100	<130	<130	<120	<120	<110	<120	<120
	UG/KG-DRY WT.									
Moisture	%	160.3	0.1	21.2	20.8	13.1	15.7	9.0	16.8	18.2

SAMPLE	STATION ID	COLLECT. RECEIPT	CLASSIFICATION	EXTRACT. ANALYSIS		DAYS, ACT/HT		ESE BATCH
				EXT	ANL	EXT	ANL	
22769*1	SB-13 0-4	11/01/95 11/06/95	TPH, as diesel - CAB015 TPH, as gasoline - CAB015 Moisture - 160.3	11/08/95	11/09/95	7/14	1/40	P31429 P31362 P31396
22769*2	SB-13 4-8	11/01/95 11/06/95	TPH, as diesel - CAB015 TPH, as gasoline - CAB015 Moisture - 160.3	11/08/95	11/10/95	7/14	2/40	P31429 P31362 P31396
22769*3	SB-14 0-4	11/01/95 11/06/95	TPH, as diesel - CAB015 TPH, as gasoline - CAB015 Moisture - 160.3	11/08/95	11/09/95	7/14	1/40	P31429 P31362 P31396
22769*4	SB-14 4-8	11/01/95 11/06/95	Moisture - 160.3 TPH, as diesel - CAB015 TPH, as gasoline - CAB015 Moisture - 160.3	11/08/95	11/09/95	7/14	1/40	P31429 P31362 P31396
22769*5	SB-15 1-5	11/01/95 11/06/95	TPH, as diesel - CAB015 TPH, as gasoline - CAB015 Moisture - 160.3	11/08/95	11/10/95	7/14	2/40	P31429 P31362 P31396
22769*6	SB-15 5-7.5	11/01/95 11/06/95	Moisture - 160.3 TPH, as diesel - CAB015 TPH, as gasoline - CAB015 Moisture - 160.3	11/08/95	11/10/95	7/14	2/40	P31429 P31362 P31396
22769*7	SB-16 1-5	11/01/95 11/06/95	TPH, as diesel - CAB015 TPH, as gasoline - CAB015 Moisture - 160.3	11/08/95	11/09/95	7/14	1/40	P31429 P31362 P31396
22769*8	SB-16 5-8.5	11/01/95 11/06/95	Moisture - 160.3 TPH, as diesel - CAB015 TPH, as gasoline - CAB015 Moisture - 160.3	11/08/95	11/10/95	7/14	2/40	P31429 P31362 P31396
22769*9	SB-17 4-8	11/01/95 11/06/95	TPH, as diesel - CAB015 TPH, as gasoline - CAB015 Moisture - 160.3	11/08/95	11/09/95	7/14	2/40	P31429 P31362 P31396
22769*10	SB-17 8-10	11/01/95 11/06/95	Moisture - 160.3 TPH, as diesel - CAB015 TPH, as gasoline - CAB015 Moisture - 160.3	11/08/95	11/10/95	7/14	2/40	P31429 P31362 P31396
22769*11	SB-18 0-4	11/01/95 11/06/95	TPH, as diesel - CAB015 TPH, as gasoline - CAB015 Moisture - 160.3	11/08/95	11/10/95	7/14	2/40	P31429 P31362 P31396
22769*12	SB-18 4-7.5	11/01/95 11/06/95	Moisture - 160.3 TPH, as diesel - CAB015 TPH, as gasoline - CAB015 Moisture - 160.3	11/08/95	11/10/95	7/14	2/40	P31429 P31362 P31396
22769*13	SB-19 0-4	11/01/95 11/06/95	TPH, as diesel - CAB015 TPH, as gasoline - CAB015 Moisture - 160.3	11/08/95	11/09/95	7/14	2/40	P31429 P31362 P31396
22769*14	SB-19 4-6.5	11/01/95 11/06/95	Moisture - 160.3 TPH, as diesel - CAB015 TPH, as gasoline - CAB015 Moisture - 160.3	11/08/95	11/10/95	7/14	2/40	P31429 P31362 P31396
22769*15	SB-20 0-4	11/01/95 11/06/95	TPH, as diesel - CAB015 TPH, as gasoline - CAB015 Moisture - 160.3	11/08/95	11/10/95	7/14	2/40	P31429 P31362 P31396
22769*16	SB-20 4-8	11/01/95 11/06/95	Moisture - 160.3 TPH, as diesel - CAB015 TPH, as gasoline - CAB015 Moisture - 160.3	11/08/95	11/10/95	7/14	2/40	P31429 P31362 P31396
22769*17	SB-21 0-4	11/01/95 11/06/95	TPH, as diesel - CAB015 TPH, as gasoline - CAB015 Moisture - 160.3	11/08/95	11/10/95	7/14	2/40	P31429 P31362 P31396

FOOTNOTES: * = EXCEEDS CRITERIA ACT = ACTUAL HT = HOLDING TIME

SAMPLE	STATION ID	COLLECT. RECEIPT	CLASSIFICATION	EXTRACT. ANALYSIS		DAYS, ACT/HT		ESE BATCH
				EXT	ANL	EXT	ANL	
22769*18	SB-21 4-8	11/01/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/08/95 11/10/95	NA	7/14	2/40	P31429 P31362 P31396
22769*19	SB-22 0-4	11/01/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/08/95 11/10/95	NA	7/14	2/40	P31429 P31362 P31396
22769*20	SB-22 4-7.5	11/01/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/08/95 11/09/95	NA	7/14	1/40	P31429 P31362 P31396
22769*21	SB-23 0-2	11/01/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95 11/10/95	NA	8/14	1/40	P31429 P31511 P31396
22769*22	SB-23 4-8	11/01/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95 11/10/95	NA	8/14	1/40	P31429 P31362 P31396
22769*23	SB-24 0-4	11/01/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95 11/10/95	NA	8/14	1/40	P31429 P31511 P31396
22769*24	SB-24 4-8	11/01/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95 11/10/95	NA	8/14	1/40	P31429 P31362 P31396
22769*25	SB-25 0-4	11/01/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95 11/10/95	NA	8/14	1/40	P31429 P31511 P31396
22769*26	SB-25 4-8	11/01/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95 11/10/95	NA	8/14	1/40	P31429 P31362 P31396
22769*27	SB-26 0-4	11/01/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95 11/10/95	NA	8/14	1/40	P31429 P31511 P31396
22769*28	SB-26 4-8	11/01/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95 11/10/95	NA	8/14	1/40	P31429 P31362 P31396
22769*29	SB-27 0-4	11/01/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95 11/10/95	NA	8/14	1/40	P31429 P31511 P31396
22769*30	SB-27 4-8	11/01/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95 11/10/95	NA	8/14	1/40	P31429 P31362 P31396
22769*31	SB-28 0-4	11/02/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95 11/11/95	NA	7/14	2/40	P31429 P31362 P31396
22769*32	SB-28 4-6	11/02/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95 11/11/95	NA	7/14	2/40	P31429 P31362 P31396
22769*33	SB-29 0-3	11/02/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95 11/11/95	NA	7/14	2/40	P31429 P31362 P31396
22769*34	B-1 0-4	11/02/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95 11/11/95	NA	7/14	2/40	P31429 P31362 P31396

FOOTNOTES: * = EXCEEDS CRITERIA ACT = ACTUAL HT = HOLDING TIME

SAMPLE	STATION ID	COLLECT. RECEIPT	CLASSIFICATION	EXTRACT. ANALYSIS		DAYS, ACT/HT		ESE BATCH
				EXT	ANL	EXT	ANL	
22769*35	B-1 4-8	11/02/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95	11/11/95	7/14	2/40	P31429
22769*36	B-2 0-4	11/02/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95	11/11/95	7/14	2/40	P31362
22769*37	B-2 4-7	11/02/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95	11/11/95	7/14	2/40	P31396
22769*38	B-3 0-4	11/02/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95	11/11/95	7/14	2/40	P31429
22769*39	B-3 4-5.5	11/02/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95	11/11/95	7/14	2/40	P31362
22769*40	B-4 0-3.5	11/02/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95	11/11/95	7/14	2/40	P31396
22769*41	B-6 0-2.5	11/02/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95	11/11/95	7/14	2/40	P31429
22769*42	DUPLICT A	11/02/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95	11/11/95	7/14	2/40	P31362
22769*43	DUPLICT B	11/02/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95	11/11/95	7/14	2/40	P31396
22769*44	TRIPBLANK	11/02/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95	11/11/95	7/14	2/40	P31429
22769*45	EQUIPBLANK	11/02/95 11/06/95	TPH, as diesel - CA8015 TPH, as gasoline - CA8015 Moisture - 160.3	11/09/95	11/11/95	7/14	2/40	P31362
22769*46	COMP DRUM	11/02/95 11/10/95	Moisture - 160.3 EOX PAINT FILTER TEST BTEX - 8020 TPH, as diesel - 8015M	11/08/95	11/09/95	6/14	1/40	P31396
				NA	11/21/95	NA	19/28	P31537
				NA	11/21/95	NA	19/28	P31538
				NA	11/13/95	NA	11/14	P31452
				11/16/95	11/17/95	14/14	1/40	P31529

FOOTNOTES: * = EXCEEDS CRITERIA ACT = ACTUAL HT = HOLDING TIME

ESE BATCH : F31429
 ANALYSIS : 8015M
 E : FDER/SW
 A. JT : LORI RITTENHOUSE
 EXTRACTOR :
 DATA ENTRY : LORI RITTENHOUSE

REPORT DATE/TIME : 11/29/95 14:12
 ANALYSIS DATE/TIME : 11/09/95
 EXTRACT DATE :

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

BATCH NOTES
 8015

FIELD	GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
22769	BATCH		1895416 5100	ESE HERNDON/NAVY	TY WOODIN

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
22769*1	SB-13 0-4	11/09/95	07:06PM
22769*3	SB-14 0-4	11/09/95	07:43PM
22769*4	SB-14 4-8	11/09/95	08:20PM
22769*7	SB-16 1-5	11/09/95	08:57PM
22769*20	SB-22 4-7.5	11/09/95	09:34PM
22769*14	SB-19 4-6.5	11/10/95	12:40PM
22769*13	SB-19 0-4	11/10/95	01:17AM
22769*15	SB-20 0-4	11/10/95	01:54AM
22769*16	SB-20 4-8	11/10/95	02:31AM
22769*17	SB-21 0-4	11/10/95	03:08AM
22769*19	SB-22 0-4	11/10/95	03:45AM
22769*8	SB-16 5-8.5	11/10/95	04:23AM
22769*11	SB-18 0-4	11/10/95	05:00AM
22769*12	SB-18 4-7.5	11/10/95	05:37AM
22769*10	SB-17 8-10	11/10/95	06:14AM
22769*5	SB-15 1-5	11/10/95	08:06AM
227*9*2	SB-13 4-8	11/10/95	08:43AM
? 18	SB-21 4-8	11/10/95	09:20AM
2. 6	SB-15 5-7.5	11/10/95	09:57AM
22769*9	SB-17 4-8	11/10/95	10:34AM
22769*21	SB-23 0-2	11/10/95	05:40PM
22769*22	SB-23 4-8	11/10/95	06:17PM
22769*23	SB-24 0-4	11/10/95	06:54PM
22769*24	SB-24 4-8	11/10/95	07:31PM
22769*25	SB-25 0-4	11/10/95	08:08PM
22769*26	SB-25 4-8	11/10/95	08:46PM
22769*27	SB-26 0-4	11/10/95	09:23PM
22769*28	SB-26 4-8	11/10/95	10:00PM
22769*29	SB-27 0-4	11/10/95	10:37PM
22769*30	SB-27 4-8	11/10/95	11:14PM
22769*31	SB-28 0-4	11/11/95	01:06AM
22769*32	SB-28 4-6	11/11/95	01:43AM
22769*33	SB-29 0-3	11/11/95	02:20AM
22769*34	B-1 0-4	11/11/95	04:11AM
22769*35	B-1 4-8	11/11/95	04:48AM
22769*36	B-2 0-4	11/11/95	05:25AM
22769*37	B-2 4-7	11/11/95	06:02AM
22769*38	B-3 0-4	11/11/95	06:39AM
22769*39	B-3 4-5.5	11/11/95	08:30AM
22769*40	B-4 0-3.5	11/11/95	09:07AM
22769*41	B-6 0-2.5	11/11/95	09:44AM
22769*42	DUPLICT A	11/11/95	10:21AM
22769*43	DUPLICT B	11/11/95	10:58AM

ESE BATCH : P31429

Mr Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
11/09/95	MB*VFID1_C1488*2	96024*CA8015M-P	TPH, as diesel	MG/KG-	ND	10.00
11/10/95	MB*1551*1	96024*CA8015M-P	TPH, as diesel	MG/KG-	ND	10.00
11/10/95	MB*1552*1	96024*CA8015M-P	TPH, as diesel	MG/KG-	ND	10.00

Standard Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
11/09/95	SP*VFID1_C1488*2	96024*CA8015M-P	TPH, as diesel	MG/KG-	33.3	28.4	85.3	50-150
11/10/95	SP*1551*1	96024*CA8015M-P	TPH, as diesel	MG/KG-	33.3	28.3	85.0	50-150
11/10/95	SP*1552*1	96024*CA8015M-P	TPH, as diesel	MG/KG-	133	116	87.2	50-150

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
11/09/95	SPM1*22769*20	96024	TPH, as diesel	MG/KG-	0.0	41.4	32.2	77.8	50-150		
11/09/95	SPM2*22769*20	96024	TPH, as diesel	MG/KG-	0.0	41.4	31.5	76.1	50-150	2.20	50
11/11/95	SPM1*22769*21	96024	TPH, as diesel	MG/KG-	0.0	168	93.8	55.8	50-150		
11/09/95	SPM2*22769*21	96024	TPH, as diesel	MG/KG-	0.0	168	140	83.3	50-150	39.4	50
11/11/95	SPM1*22769*43	96024	TPH, as diesel	MG/KG-	0.0	154	124	80.5	50-150		
11/11/95	SPM2*22769*43	96024	TPH, as diesel	MG/KG-	0.0	154	140	90.9	50-150	11.8	50

Surrogate Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
11/09/95	CCS*VFID1_C1487*4	9406061*SUR	Pentacosane	MG/KG	59.0	61.9	105	43-143
11/09/95	CCS*VFID1_C1488*1	9406061*SUR	Pentacosane	MG/KG	70.4	64.0	90.9	43-143
11/09/95	MB*VFID1_C1488*2	9406061*SUR	Pentacosane	MG/KG	4.20	3.30	78.6	43-143
11/09/95	SP*VFID1_C1488*2	9406061*SUR	Pentacosane	MG/KG	4.20	3.69	87.9	43-143
11/09/95	DA*22769*1	9406061*SUR	Pentacosane	MG/KG	4.20	4.28	102	43-143
11/09/95	DA*22769*3	9406061*SUR	Pentacosane	MG/KG	4.20	4.03	96.0	43-143
11/09/95	DA*22769*4	9406061*SUR	Pentacosane	MG/KG	4.20	3.78	90.0	43-143
11/09/95	DA*22769*7	9406061*SUR	Pentacosane	MG/KG	4.20	4.03	96.0	43-143
11/09/95	DA*22769*20	9406061*SUR	Pentacosane	MG/KG	4.20	4.01	95.5	43-143
11/09/95	SPM1*22769*20	9406061*SUR	Pentacosane	MG/KG	4.20	4.45	106	43-143
11/09/95	SPM2*22769*20	9406061*SUR	Pentacosane	MG/KG	4.20	4.09	97.4	43-143
11/10/95	CCS*VFID1_C1488*3	9406061*SUR	Pentacosane	MG/KG	70.4	65.8	93.5	43-143
11/10/95	DA*22769*14	9406061*SUR	Pentacosane	MG/KG	4.20	4.32	103	43-143
11/10/95	DA*22769*13	9406061*SUR	Pentacosane	MG/KG	4.20	4.37	104	43-143
11/10/95	DA*22769*15	9406061*SUR	Pentacosane	MG/KG	4.20	4.32	103	43-143
11/10/95	DA*22769*16	9406061*SUR	Pentacosane	MG/KG	4.20	3.92	93.3	43-143
11/10/95	DA*22769*17	9406061*SUR	Pentacosane	MG/KG	4.20	4.29	102	43-143
11/10/95	DA*22769*19	9406061*SUR	Pentacosane	MG/KG	4.20	4.35	104	43-143
11/10/95	DA*22769*8	9406061*SUR	Pentacosane	MG/KG	4.20	3.48	82.9	43-143
11/10/95	DA*22769*11	9406061*SUR	Pentacosane	MG/KG	4.20	4.24	101	43-143
11/10/95	DA*22769*12	9406061*SUR	Pentacosane	MG/KG	4.20	4.21	100	43-143
11/10/95	DA*22769*10	9406061*SUR	Pentacosane	MG/KG	4.20	4.17	99.3	43-143
11/10/95	CCS*VFID1_C1488*4	9406061*SUR	Pentacosane	MG/KG	70.4	64.3	91.3	43-143
11/10/95	DA*22769*5	9406061*SUR	Pentacosane	MG/KG	4.20	4.59	109	43-143
11/10/95	DA*22769*2	9406061*SUR	Pentacosane	MG/KG	4.20	4.41	105	43-143
11/10/95	DA*22769*18	9406061*SUR	Pentacosane	MG/KG	4.20	4.44	106	43-143
11/10/95	DA*22769*6	9406061*SUR	Pentacosane	MG/KG	4.20	4.47	106	43-143
11/10/95	DA*22769*9	9406061*SUR	Pentacosane	MG/KG	4.20	4.27	102	43-143
11/10/95	CCS*VFID1_C1488*6	9406061*SUR	Pentacosane	MG/KG	70.4	77.2	110	43-143
11/10/95	CCS*VFID1_111095*1	9406061*SUR	Pentacosane	MG/KG	59.0	55.4	93.9	43-143
11/10/95	MB*1551*1	9406061*SUR	Pentacosane	MG/KG	4.20	4.29	102	43-143
11/10/95	MB*1552*1	9406061*SUR	Pentacosane	MG/KG	4.20	4.18	99.5	43-143
11/10/95	SP*1551*1	9406061*SUR	Pentacosane	MG/KG	4.20	4.20	100.0	43-143
11/10/95	SP*1552*1	9406061*SUR	Pentacosane	MG/KG	4.20	4.22	100	43-143
11/10/95	DA*22769*21	9406061*SUR	Pentacosane	MG/KG	4.20	4.15	98.8	43-143
11/10/95	DA*22769*22	9406061*SUR	Pentacosane	MG/KG	4.20	4.16	99.0	43-143
11/10/95	DA*22769*23	9406061*SUR	Pentacosane	MG/KG	4.20	3.57	85.0	43-143
11/10/95	DA*22769*24	9406061*SUR	Pentacosane	MG/KG	4.20	4.02	95.7	43-143
11/10/95	DA*22769*25	9406061*SUR	Pentacosane	MG/KG	4.20	4.21	100	43-143
11/10/95	DA*22769*26	9406061*SUR	Pentacosane	MG/KG	4.20	3.60	85.7	43-143
11/10/95	DA*22769*27	9406061*SUR	Pentacosane	MG/KG	4.20	3.01	71.7	43-143
11/10/95	DA*22769*28	9406061*SUR	Pentacosane	MG/KG	4.20	3.87	92.1	43-143
11/10/95	DA*22769*29	9406061*SUR	Pentacosane	MG/KG	4.20	3.93	93.6	43-143
11/10/95	DA*22769*30	9406061*SUR	Pentacosane	MG/KG	4.20	4.22	100	43-143
11/11/95	CCS*VFID1_111095*3	9406061*SUR	Pentacosane	MG/KG	59.0	56.4	95.6	43-143
11/11/95	DA*22769*31	9406061*SUR	Pentacosane	MG/KG	4.20	3.88	92.4	43-143
11/11/95	DA*22769*32	9406061*SUR	Pentacosane	MG/KG	4.20	4.31	103	43-143
11/11/95	DA*22769*33	9406061*SUR	Pentacosane	MG/KG	4.20	4.32	103	43-143
11/11/95	SPM1*22769*21	9406061*SUR	Pentacosane	MG/KG	4.20	4.37	104	43-143

ESE BATCH : P31429

Surrogate Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
09/95	SPM2*22769*21	9406061*SUR	Pentacosane	MG/KG	4.20	4.29	102	43-143
11/95	DA*22769*34	9406061*SUR	Pentacosane	MG/KG	4.20	3.90	92.9	43-143
11/11/95	DA*22769*35	9406061*SUR	Pentacosane	MG/KG	4.20	3.79	90.2	43-143
11/11/95	DA*22769*36	9406061*SUR	Pentacosane	MG/KG	4.20	4.18	99.5	43-143
11/11/95	DA*22769*37	9406061*SUR	Pentacosane	MG/KG	4.20	4.18	99.5	43-143
11/11/95	DA*22769*38	9406061*SUR	Pentacosane	MG/KG	4.20	3.89	92.6	43-143
11/11/95	CCS*VFID1_111095*5	9406061*SUR	Pentacosane	MG/KG	59.0	55.2	93.6	43-143
11/11/95	DA*22769*39	9406061*SUR	Pentacosane	MG/KG	4.20	4.28	102	43-143
11/11/95	DA*22769*40	9406061*SUR	Pentacosane	MG/KG	4.20	4.15	98.8	43-143
11/11/95	DA*22769*41	9406061*SUR	Pentacosane	MG/KG	4.20	4.28	102	43-143
11/11/95	DA*22769*42	9406061*SUR	Pentacosane	MG/KG	4.20	4.17	99.3	43-143
11/11/95	DA*22769*43	9406061*SUR	Pentacosane	MG/KG	4.20	4.20	100.0	43-143
11/11/95	SPM1*22769*43	9406061*SUR	Pentacosane	MG/KG	4.20	4.32	103	43-143
11/11/95	SPM2*22769*43	9406061*SUR	Pentacosane	MG/KG	4.20	4.34	103	43-143
11/11/95	CCS*VFID1_111095*7	9406061*SUR	Pentacosane	MG/KG	59.0	67.0	114	43-143

ESE BATCH : P31429
Environmental Science and Engineering Analytical Services
Computer QC Checks

Batch No.: P31429 Analysis Date: 11/09/95 Analyst: LORI RITTENHOUSE

	<u>"Exceptions"</u>	
	<u>Yes</u>	<u>No Comment / Corrective Action</u>
Are ALL units documented in batch?	X	
Analysis holding time within criteria?	X	
Extract holding time within criteria?	X	
Sample retention times within window?	X	
Sample relative retention times within window?	X	
Method blank present?	X	
Method blank within acceptance criteria?	X	
Standard matrix spike present?	X	
Standard matrix spike within acceptance criteria?	X	
Sample matrix spike present?	X	
Sample matrix spike within acceptance criteria?	X	
Sample matrix spike duplicate present?	X	
Sample matrix spike duplicate within acceptance criteria?	X	
Surrogate present?	X	
Surrogate within acceptance criteria?	X	

Note: Any "NO" answer requires a comment.

BATCH OVERRIDE BY:

PERFORMED BY: AMY SMITH 6116

ESE BATCH : P31338
 ANALYSIS : CA8015/5030

QC TYPE : FDER/SW REPORT DATE/TIME : 11/29/95 14:15
 / T : TODD PETERSON ANALYSIS DATE/TIME : 11/07/95
 E. _TOR : EXTRACT DATE :
 DATA ENTRY : TODD PETERSON

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

BATCH NOTES

OA-1

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
22769	BATCH	1895416 5100	ESE HERNDON/NAVY	TY WOODIN

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
22769*44	TRIPBLANK	11/08/95	12:16AM

ESE BATCH : P31338

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
11/07/95	MB*V4_A1324*1	96017*CA8015M-P	TPH, as gasoline	UG/L	5	50

Standard Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
11/07/95	SP*V4_A1324*1	96017*CA8015M-P	TPH, as gasoline	UG/L	250	240	96	50-150

Standard Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
11/07/95	MB*V4_A1324*1	77297*SUR	BROMOCHLOROMETHANE	UG/L	40	32	80	63-154
11/07/95	MB*V4_A1324*1	97606*SUR	2-BROMO-1-CHLOROPROPANE	UG/L	40	38	95	64-146
11/07/95	SP*V4_A1324*1	77297*SUR	BROMOCHLOROMETHANE	UG/L	40	35	88	63-154
11/07/95	SP*V4_A1324*1	97606*SUR	2-BROMO-1-CHLOROPROPANE	UG/L	40	37	93	64-146
11/08/95	DA*22769*44	77297*SUR	BROMOCHLOROMETHANE	UG/L	40	31	78	63-154
11/08/95	DA*22769*44	97606*SUR	2-BROMO-1-CHLOROPROPANE	UG/L	40	37	93	64-146
11/08/95	CCS*V4_A1324*1	77297*SUR	BROMOCHLOROMETHANE	UG/L	40	32	80	63-154
11/08/95	CCS*V4_A1324*1	97606*SUR	2-BROMO-1-CHLOROPROPANE	UG/L	40	40	100	64-146

ESE BATCH : P31338

Environmental Science and Engineering Analytical Services
Computer QC Checks

Batch No.: P31338 Analysis Date: 11/07/95 Analyst: TODD PETERSON

	<u>"Exceptions"</u>		
	<u>Yes</u>	<u>No</u>	<u>Comment / Corrective Action</u>
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
Sample retention times within window?	X		
Sample relative retention times within window?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
Standard matrix spike present?	X		
Standard matrix spike within acceptance criteria?	X		
Sample matrix spike present?		X	_____
Sample matrix spike within acceptance criteria?			
Surrogate present?	X		
Surrogate within acceptance criteria?	X		

Note: Any "NO" answer requires a comment.

BATCH OVERRIDE BY: ROBERT PADDISON 3540

FINALIZED BY: AMY SMITH 6116

Batch Narrative - P31338 Analysis: CAB015/5030

Updated by 5815

PROBLEM:

Sample matrix spike not present:

EXPLANATION: THIS SAMPLE WAS A TRIP BLANK. MS/MSD WAS NOT DONE.

ESE BATC.I : P31396
ANALYSIS : 160.3

QC TYPE : FDER/SW
ANALYST : FRANCES JACOBS
LABORATORY :
DATA ENTRY : FRANCES JACOBS

REPORT DATE/TIME : 11/29/95 14:14
ANALYSIS DATE/TIME : 11/08/95
EXTRACT DATE :

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

BATCH NOTES
160.3

FIELD	GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
22769	BATCH		1895416 5100	ESE HERNDON/NAVY	TY WOODIN

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
22769*1	SB-13	0-4	
22769*2	SB-13	4-8	
22769*3	SB-14	0-4	
22769*4	SB-14	4-8	
22769*5	SB-15	1-5	
22769*6	SB-15	5-7.5	
22769*7	SB-16	1-5	
22769*8	SB-16	5-8.5	
22769*9	SB-17	4-8	
22769*10	SB-17	8-10	
22769*11	SB-18	0-4	
22769*12	SB-18	4-7.5	
22769*13	SB-19	0-4	
22769*14	SB-19	4-6.5	
22769*15	SB-20	0-4	
22769*16	SB-20	4-8	
22769*17	SB-21	0-4	
22769*18	SB-21	4-8	
22769*19	SB-22	0-4	
22769*20	SB-22	4-7.5	
22769*21	SB-23	0-2	
22769*22	SB-23	4-8	
22769*23	SB-24	0-4	
22769*24	SB-24	4-8	
22769*25	SB-25	0-4	
22769*26	SB-25	4-8	
22769*27	SB-26	0-4	
22769*28	SB-26	4-8	
22769*29	SB-27	0-4	
22769*30	SB-27	4-8	
22769*31	SB-28	0-4	
22769*32	SB-28	4-6	
22769*33	SB-29	0-3	
22769*34	B-1	0-4	
22769*35	B-1	4-8	
22769*36	B-2	0-4	
22769*37	B-2	4-7	
22769*38	B-3	0-4	
22769*39	B-3	4-5.5	
22769*40	B-4	0-3.5	
22769*41	B-6	0-2.5	
22769*42	DUPLICATE	A	
22769*43	DUPLICATE	B	

ESE BATCH : P31396

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RPD CRIT
11/08/95	RP*22769*19	70320*160.3-P	Moisture	%	20.5	21.7	5.7	20
11/29/95	RP*22769*40	70320*160.3-P	Moisture	%	12.1	13.1	7.9	20

ESE BATCH : P31396
Environmental Science and Engineering Analytical Services
Computer QC Checks

Batch No.: P31396 Analysis Date: 11/08/95 Analyst: FRANCES JACOBS

	<u>"Exceptions"</u>		
	<u>Yes</u>	<u>No</u>	<u>Comment / Corrective Action</u>
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
Sample replicate present?	X		
Sample replicate within acceptance criteria?		X	MOIST ** Fewer than 3 replicates. _____

Note: Any "NO" answer requires a comment.

BATCH OVERRIDE BY: WILLIAM GRAY 5159

FINALIZED BY: JOAN VAN LOO 5742

Batch Narrative - P31396 Analysis: 160.3

Updated by 5036

PROBLEM:

Sample replicate not within acceptance criteria:

MOIST ** Fewer than 3 replicates.

EXPLANATION: Only 2 replicates.

ESE BATC.: : P31362
ANALYSIS : CA8015/5030

QC TYPE : FDER/SW
ANALYST : TODD PETERSON
REACTOR :
...FA ENTRY : TODD PETERSON

REPORT DATE/TIME : 11/29/95 14:13
ANALYSIS DATE/TIME : 11/08/95
EXTRACT DATE :

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

BATCH NOTES
OA-1/S

FIELD	GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
22769	BATCH		1895416 5100	ESE HERNDON/NAVY	TY WOODIN

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
22769*1	SB-13 0-4	11/08/95	11:36AM
22769*6	SB-15 5-7.5	11/08/95	02:35PM
22769*8	SB-16 5-8.5	11/08/95	03:47PM
22769*9	SB-17 4-8	11/08/95	04:23PM
22769*10	SB-17 8-10	11/08/95	04:58PM
22769*11	SB-18 0-4	11/08/95	06:10PM
22769*12	SB-18 4-7.5	11/08/95	07:23PM
22769*13	SB-19 0-4	11/08/95	07:59PM
22769*16	SB-20 4-8	11/08/95	10:23PM
22769*17	SB-21 0-4	11/08/95	10:59PM
22769*20	SB-22 4-7.5	11/09/95	12:47AM
22769*31	SB-28 0-4	11/10/95	04:58PM
22769*32	SB-28 4-6	11/10/95	06:11PM
22769*33	SB-29 0-3	11/10/95	06:47PM
22769*34	B-1 0-4	11/10/95	08:00PM
22769*36	B-2 0-4	11/10/95	09:12PM
22769*37	B-2 4-7	11/10/95	09:48PM
22769*38	B-3 0-4	11/10/95	10:23PM
22769*39	B-3 4-5.5	11/10/95	10:59PM
22769*40	B-4 0-3.5	11/10/95	11:35PM
22769*41	B-6 0-2.5	11/13/95	10:24AM
22769*42	DUPLICATE A	11/13/95	11:00AM
22769*43	DUPLICATE B	11/13/95	11:37AM
22769*3	SB-14 0-4	11/13/95	01:25PM
22769*7	SB-16 1-5	11/13/95	02:37PM
22769*22	SB-23 4-8	11/13/95	03:12PM
22769*35	B-1 4-8	11/13/95	05:01PM
22769*14	SB-19 4-6.5	11/14/95	09:22AM
22769*18	SB-21 4-8	11/14/95	10:34AM
22769*19	SB-22 0-4	11/14/95	11:10AM
22769*15	SB-20 0-4	11/14/95	12:59PM
22769*2	SB-13 4-8	11/15/95	01:43PM
22769*4	SB-14 4-8	11/15/95	02:56PM
22769*5	SB-15 1-5	11/15/95	03:32PM
22769*24	SB-24 4-8	11/15/95	04:43PM
22769*26	SB-25 4-8	11/15/95	05:19PM

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET	LMT
11/08/95	MB*V4_A1320*1	96023*CA8015M-P	TPH, as gasoline	UG/KG-	6	100	
11/10/95	MB*V4_A1313*1	96023*CA8015M-P	TPH, as gasoline	UG/KG-	7	100	
11/13/95	MB*V4_A1310*1	96023*CA8015M-P	TPH, as gasoline	UG/KG-	14	100	
11/14/95	MB*V4_A1309*1	96023*CA8015M-P	TPH, as gasoline	UG/KG-	6	100	
11/15/95	MB*V4_A1305*1	96023*CA8015M-P	TPH, as gasoline	UG/KG-	5	100	
11/15/95	MB*V4_A1305*2	96023*CA8015M-P	TPH, as gasoline	UG/KG-	4	100	

Standard Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
11/08/95	SP*V4_A1320*1	96023*CA8015M-P	TPH, as gasoline	UG/KG-	250	270	108	50-150
11/10/95	SP*V4_A1313*1	96023*CA8015M-P	TPH, as gasoline	UG/KG-	250	270	108	50-150
11/13/95	SP*V4_A1310*1	96023*CA8015M-P	TPH, as gasoline	UG/KG-	250	250	100	50-150
11/14/95	SP*V4_A1309*1	96023*CA8015M-P	TPH, as gasoline	UG/KG-	250	240	96	50-150
11/15/95	SP*V4_A1305*1	96023*CA8015M-P	TPH, as gasoline	UG/KG-	250	230	92	50-150

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
11/09/95	SPM1*22769*20	96023	TPH, as gasoline	UG/KG-	27	310	280	90	50-150		
11/09/95	SPM2*22769*20	96023	TPH, as gasoline	UG/KG-	27	310	290	94	50-150	3	50
11/13/95	SPM1*22769*41	96023	TPH, as gasoline	UG/KG-	12	300	250	83	50-150		
11/13/95	SPM2*22769*41	96023	TPH, as gasoline	UG/KG-	12	300	210	70	50-150	16	50
11/13/95	SPM1*22769*36	96023	TPH, as gasoline	UG/KG-	85	320	150	47	50-150		
11/13/95	SPM2*22769*36	96023	TPH, as gasoline	UG/KG-	85	320	160	50	50-150	7	50
11/15/95	SPM1*22769*4	96023	TPH, as gasoline	UG/KG-	170000	75000	-40000	-53	50-150		
11/15/95	SPM2*22769*4	96023	TPH, as gasoline	UG/KG-	170000	75000	-30000	-40	50-150		

Surrogate Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
11/08/95	CCV*V4_A1320*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	45.6	114	16-130
11/08/95	CCV*V4_A1320*1	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	44.9	112	60-114
11/08/95	MB*V4_A1320*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	37.1	92.8	16-130
11/08/95	MB*V4_A1320*1	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	37.5	93.8	60-114
11/08/95	SP*V4_A1320*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	39.6	99.0	16-130
11/08/95	SP*V4_A1320*1	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	39.9	99.8	60-114
11/08/95	DA*22769*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	117	293	16-130
11/08/95	DA*22769*1	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	115	288	60-114
11/08/95	DA*22769*6	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	294	735	16-130
11/08/95	DA*22769*6	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	283	708	60-114
11/08/95	DA*22769*8	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	31.4	78.5	16-130
11/08/95	DA*22769*8	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	31.4	78.5	60-114
11/08/95	DA*22769*9	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	31.3	78.3	16-130
11/08/95	DA*22769*9	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	30.9	77.3	60-114
11/08/95	DA*22769*10	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	29.8	74.5	16-130
11/08/95	DA*22769*10	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	29.8	74.5	60-114
11/08/95	CCS*V4_A1320*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	42.3	106	16-130
11/08/95	CCS*V4_A1320*1	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	40.3	101	60-114
11/08/95	DA*22769*11	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	34.1	85.3	16-130
11/08/95	DA*22769*11	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	38.3	95.8	60-114
11/08/95	DA*22769*12	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	34.1	85.3	16-130
11/08/95	DA*22769*12	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	36.6	91.5	60-114
11/08/95	DA*22769*13	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	30.7	76.8	16-130
11/08/95	DA*22769*13	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	32.7	81.8	60-114
11/08/95	DA*22769*16	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	29.8	74.5	16-130
11/08/95	DA*22769*16	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	31.9	79.8	60-114
11/08/95	DA*22769*17	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	30.4	76.0	16-130
11/08/95	DA*22769*17	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	34.4	86.0	60-114
11/09/95	DA*22769*20	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	34.5	86.3	16-130
11/09/95	DA*22769*20	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	37.0	92.5	60-114
11/09/95	CCS*V4_A1320*2	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	44.3	111	16-130
11/09/95	CCS*V4_A1320*2	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	45.4	114	60-114
11/09/95	SPM1*22769*20	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	35.9	89.8	16-130
11/09/95	SPM1*22769*20	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	39.2	98.0	60-114
11/09/95	SPM2*22769*20	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	36.3	90.8	16-130
11/09/95	SPM2*22769*20	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	38.4	96.0	60-114
11/09/95	CCV*V4_A1313*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	43.8	110	16-130
11/09/95	CCV*V4_A1313*1	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	45.6	114	60-114
11/10/95	MB*V4_A1313*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	34.3	85.8	16-130
11/10/95	MB*V4_A1313*1	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	38.7	96.8	60-114
11/10/95	SP*V4_A1313*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	38.0	95.0	16-130
11/10/95	SP*V4_A1313*1	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	42.5	106	60-114

Surrogate Spike Recovery Summary

D'	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
11/10/95	CCS*V4_A1313*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	41.7	104	16-130
11/10/95	CCS*V4_A1313*1	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	44.6	112	60-114
11/10/95	DA*22769*31	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	33.5	83.8	16-130
11/10/95	DA*22769*31	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	37.5	93.8	60-114
11/10/95	DA*22769*32	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	30.3	75.8	16-130
11/10/95	DA*22769*32	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	37.5	93.8	60-114
11/10/95	DA*22769*33	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	31.3	78.3	16-130
11/10/95	DA*22769*33	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	37.1	92.8	60-114
11/10/95	DA*22769*34	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	27.0	67.5	16-130
11/10/95	DA*22769*34	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	31.1	77.8	60-114
11/10/95	DA*22769*36	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	28.8	72.0	16-130
11/10/95	DA*22769*36	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	33.8	84.5	60-114
11/10/95	DA*22769*37	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	34.1	85.3	16-130
11/10/95	DA*22769*37	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	38.5	96.3	60-114
11/10/95	DA*22769*38	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	32.4	81.0	16-130
11/10/95	DA*22769*38	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	35.5	88.8	60-114
11/10/95	DA*22769*39	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	33.6	84.0	16-130
11/10/95	DA*22769*39	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	40.0	100.0	60-114
11/10/95	DA*22769*40	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	32.1	80.3	16-130
11/10/95	DA*22769*40	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	36.5	91.3	60-114
11/13/95	CCV*V4_A1310*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	43.8	110	16-130
11/13/95	CCV*V4_A1310*1	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	43.9	110	60-114
11/13/95	MB*V4_A1310*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	37.5	93.8	16-130
11/13/95	MB*V4_A1310*1	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	41.8	105	60-114
11/13/95	SP*V4_A1310*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	38.9	97.3	16-130
11/13/95	SP*V4_A1310*1	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	42.1	105	60-114
11/13/95	DA*22769*41	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	31.1	77.8	16-130
11/13/95	DA*22769*41	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	34.1	85.3	60-114
11/13/95	DA*22769*42	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	30.4	76.0	16-130
11/13/95	DA*22769*42	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	31.6	79.0	60-114
11/13/95	DA*22769*43	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	32.2	80.5	16-130
11/13/95	DA*22769*43	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	35.5	88.8	60-114
11/13/95	SPM1*22769*41	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	34.1	85.3	16-130
11/13/95	SPM1*22769*41	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	36.4	91.0	60-114
11/13/95	SPM2*22769*41	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	29.6	74.0	16-130
11/13/95	SPM2*22769*41	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	32.9	82.3	60-114
11/13/95	DA*22769*3	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	33.8	84.5	16-130
11/13/95	DA*22769*3	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	39.7	99.3	60-114
11/13/95	DA*22769*7	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	31.2	78.0	16-130
11/13/95	DA*22769*7	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	35.0	87.5	60-114
11/13/95	DA*22769*22	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	33.6	84.0	16-130
11/13/95	DA*22769*22	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	37.2	93.0	60-114
11/13/95	CCS*V4_A1310*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	41.3	103	16-130
11/13/95	CCS*V4_A1310*1	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	43.9	110	60-114
11/13/95	DA*22769*35	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	32.8	82.0	16-130
11/13/95	DA*22769*35	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	37.0	92.5	60-114
11/13/95	SPM1*22769*36	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	28.1	70.3	16-130
11/13/95	SPM1*22769*36	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	32.2	80.5	60-114
11/13/95	SPM2*22769*36	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	28.3	70.8	16-130
11/13/95	SPM2*22769*36	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	35.6	89.0	60-114
11/13/95	CCS*V4_A1310*2	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	40.8	102	16-130
11/13/95	CCS*V4_A1310*2	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	44.2	111	60-114
11/14/95	CCV*V4_A1309*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	46.0	115	16-130
11/14/95	CCV*V4_A1309*1	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	44.5	111	60-114
11/14/95	MB*V4_A1309*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	36.4	91.0	16-130
11/14/95	MB*V4_A1309*1	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	40.2	101	60-114
11/14/95	SP*V4_A1309*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	38.5	96.3	16-130
11/14/95	SP*V4_A1309*1	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	42.3	106	60-114
11/14/95	DA*22769*14	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	30.3	75.8	16-130
11/14/95	DA*22769*14	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	32.3	80.8	60-114
11/14/95	DA*22769*18	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	30.3	75.8	16-130
11/14/95	DA*22769*18	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	32.2	80.5	60-114
11/14/95	DA*22769*19	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	34.2	85.5	16-130
11/14/95	DA*22769*19	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	37.8	94.5	60-114
11/14/95	DA*22769*15	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	35.1	87.8	16-130
11/14/95	DA*22769*15	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	39.6	99.0	60-114
11/14/95	CCS*V4_A1309*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	42.3	106	16-130
11/14/95	CCS*V4_A1309*1	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	42.6	107	60-114
11/15/95	CCV*V4_A1305*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	40.2	101	16-130
11/15/95	CCV*V4_A1305*1	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	32.2	80.5	60-114
11/15/95	MB*V4_A1305*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	32.8	82.0	16-130
11/15/95	MB*V4_A1305*1	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	36.5	91.3	60-114
11/15/95	SP*V4_A1305*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	36.7	91.8	16-130

Surrogate Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
11/15/95	5 SP*V4_A1305*1	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	38.2	95.5	60-114
11/15/95	MB*V4_A1305*2	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	35.6	89.0	16-130
11/15/95	DA*22769*2	96101*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	32.6	81.5	60-114
11/15/95	DA*22769*2	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	26.0	65.0	16-130
11/15/95	DA*22769*2	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	29.8	74.5	60-114
11/15/95	DA*22769*4	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	42.6	107	16-130
11/15/95	DA*22769*4	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	66.4	166	60-114
11/15/95	DA*22769*5	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	35.5	88.8	16-130
11/15/95	DA*22769*5	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	37.9	94.8	60-114
11/15/95	DA*22769*24	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	39.8	99.5	16-130
11/15/95	DA*22769*24	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	44.3	111	60-114
11/15/95	DA*22769*26	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	35.6	89.0	16-130
11/15/95	DA*22769*26	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	37.7	94.3	60-114
11/15/95	SPM1*22769*4	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	38.2	95.5	16-130
11/15/95	SPM1*22769*4	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	61.1	153	60-114
11/15/95	SPM2*22769*4	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	38.8	97.0	16-130
11/15/95	SPM2*22769*4	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	63.1	158	60-114
11/15/95	CCS*V4_A1305*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	35.5	88.8	16-130
11/15/95	CCS*V4_A1305*1	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	40.0	100.0	60-114

ESE BATCH : P31362
 Environmental Science and Engineering Analytical Services
 Computer QC Checks

Batch No.: P31362 Analysis Date: 11/08/95 Analyst: TODD PETERSON

	"Exceptions"		Comment / Corrective Action
	Yes	No	
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
Sample retention times within window?	X		
Sample relative retention times within window?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
Standard matrix spike present?	X		
Standard matrix spike within acceptance criteria?	X		
Sample matrix spike present?	X		
Sample matrix spike within acceptance criteria?	X		96023*CA8015M-P _____
Sample matrix spike duplicate present?	X		
Sample matrix spike duplicate within acceptance criteria?	X		96023*CA8015M-P _____
Surrogate present?	X		
Surrogate within acceptance criteria?	X		AAA TFT _____
			97607*SUR _____

Note: Any "NO" answer requires a comment.

BATCH OVERRIDE BY: ROBERT PADDISON 3540

INITIALIZED BY: DEAN HUHMANN 1912

Batch Narrative - P31362 Analysis: CA8015/5030

Updated by 5815

PROBLEM:

Sample matrix spike not within acceptance criteria:
 96023*CA8015M-P

EXPLANATION: SAMPLES HAD POOR MATRIX. INCONSISTENCIES IN SAMPLE ANALYSIS,
 REANALYSIS, AND MATRIX SPIKES DUE TO SAMPLE NON-HOMOGENEITY.

PROBLEM:

Sample matrix spike duplicate not within acceptance criteria:
 96023*CA8015M-P

EXPLANATION: SAMPLES HAD POOR MATRIX. INCONSISTENCIES IN SAMPLE ANALYSIS,
 REANALYSIS, AND MATRIX SPIKES DUE TO SAMPLE NON-HOMOGENEITY.

PROBLEM:

Surrogate not within acceptance criteria:
 AAA TFT
 97607*SUR

EXPLANATION: AAA TFT SHOWED CONSISTENT HIGH RECOVERIES IN SAMPLE ANALYSIS,
 AND REANALYSIS. ALL DUE TO SAMPLE MATRIX EFFECT.

ESE BATC: : P31511
ANALYSIS : CAB015/5030

QC TYPE : FDER/SW
ANALYST : TODD PETERSON
EXTRACTOR :
DATA ENTRY : TODD PETERSON

REPORT DATE/TIME : 11/29/95 14:14
ANALYSIS DATE/TIME : 11/17/95
EXTRACT DATE :

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

BATCH NOTES

OA-1/S

FIELD	GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
22769	BATCH		1895416 5100	ESE HERNDON/NAVY	TY WOODIN

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
22769*21	SB-23 0-2	11/10/95	10:19AM
22769*23	SB-24 0-4	11/10/95	11:32AM
22769*25	SB-25 0-4	11/10/95	12:45PM
22769*27	SB-26 0-4	11/10/95	01:58PM
22769*28	SB-26 4-8	11/10/95	02:34PM
22769*29	SB-27 0-4	11/10/95	03:11PM
22769*30	SB-27 4-8	11/10/95	03:46PM

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
11/17/95	MB*V4_A1301*1	96023*CA8015M-P	TPH, as gasoline	UG/KG-	18	100
11/20/95	MB*V4_A1299*1	96023*CA8015M-P	TPH, as gasoline	UG/KG-	3	100
11/10/95	MB*V4_A1313*1	96023*CA8015M-P	TPH, as gasoline	UG/KG-	7	100

Standard Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
11/17/95	SP*V4_A1301*1	96023*CA8015M-P	TPH, as gasoline	UG/KG-	250	240	96	50-150
11/20/95	SP*V4_A1299*1	96023*CA8015M-P	TPH, as gasoline	UG/KG-	250	260	104	50-150
11/10/95	SP*V4_A1313*1	96023*CA8015M-P	TPH, as gasoline	UG/KG-	250	270	108	50-150

Surrogate Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
11/17/95	CCV*V4_A1301*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	46.7	117	16-130
11/17/95	CCV*V4_A1301*1	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	45.6	114	60-114
11/17/95	MB*V4_A1301*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	33.4	83.5	16-130
11/17/95	MB*V4_A1301*1	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	38.0	95.0	60-114
11/17/95	SP*V4_A1301*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	39.5	98.8	16-130
11/17/95	SP*V4_A1301*1	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	45.3	113	60-114
11/17/95	UN*22769*21	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	33.2	83.0	16-130
11/17/95	UN*22769*21	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	37.2	93.0	60-114
11/17/95	UN*22769*25	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	50.3	126	16-130
11/17/95	UN*22769*25	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	44.5	111	60-114
11/17/95	UN*22769*27	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	33.9	84.8	16-130
11/17/95	UN*22769*27	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	39.4	98.5	60-114
11/17/95	UN*22769*28	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	29.9	74.8	16-130
11/17/95	UN*22769*28	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	35.5	88.8	60-114
11/17/95	UN*22769*29	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	33.1	82.8	16-130
11/17/95	UN*22769*29	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	37.9	94.8	60-114
11/17/95	UN*22769*30	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	28.1	70.3	16-130
11/17/95	UN*22769*30	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	30.6	76.5	60-114
11/20/95	CCS*V4_A1301*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	40.4	101	16-130
11/20/95	CCS*V4_A1301*1	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	46.2	116	60-114
11/20/95	CCV*V4_A1299*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	43.9	110	16-130
11/20/95	CCV*V4_A1299*1	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	45.6	114	60-114
11/20/95	MB*V4_A1299*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	27.6	69.0	16-130
11/20/95	MB*V4_A1299*1	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	31.2	78.0	60-114
11/20/95	SP*V4_A1299*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	38.5	96.3	16-130
11/20/95	SP*V4_A1299*1	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	44.7	112	60-114
11/20/95	UN*22769*23	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	36.5	91.3	16-130
11/20/95	UN*22769*23	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	42.0	105	60-114
11/20/95	CCS*V4_A1299*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	42.6	107	16-130
11/20/95	CCS*V4_A1299*1	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	45.6	114	60-114
11/10/95	CCV*V4_A1313*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	43.8	110	16-130
11/10/95	CCV*V4_A1313*1	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	45.6	114	60-114
11/10/95	MB*V4_A1313*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	34.3	85.8	16-130
11/10/95	MB*V4_A1313*1	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	38.7	96.8	60-114
11/10/95	SP*V4_A1313*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	38.0	95.0	16-130
11/10/95	SP*V4_A1313*1	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	42.5	106	60-114
11/10/95	DA*22769*21	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	31.4	78.5	16-130
11/10/95	DA*22769*21	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	34.3	85.8	60-114
11/10/95	DA*22769*23	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	41.5	104	16-130
11/10/95	DA*22769*23	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	45.1	113	60-114
11/10/95	DA*22769*25	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	38.3	95.8	16-130
11/10/95	DA*22769*25	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	41.6	104	60-114
11/10/95	DA*22769*27	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	32.9	82.3	16-130
11/10/95	DA*22769*27	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	37.2	93.0	60-114
11/10/95	DA*22769*28	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	30.5	76.3	16-130
11/10/95	DA*22769*28	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	33.1	82.8	60-114
11/10/95	DA*22769*29	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	32.1	80.3	16-130
11/10/95	DA*22769*29	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	37.3	93.3	60-114
11/10/95	DA*22769*30	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	26.6	66.5	16-130
11/10/95	DA*22769*30	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	30.1	75.3	60-114
11/10/95	CCS*V4_A1313*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	41.7	104	16-130
11/10/95	CCS*V4_A1313*1	97607*SUR	2-BROMO-1-CHLOROPROPANE	UG/KG	40.0	44.6	112	60-114

ESE BATCH : P31511
 Environmental Science and Engineering Analytical Services
 Computer QC Checks

1- No.: P31511 Analysis Date: 11/17/95 Analyst: TODD PETERSON

	<u>"Exceptions"</u>		
	<u>Yes</u>	<u>No</u>	<u>Comment / Corrective Action</u>
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
Sample retention times within window?	X		
Sample relative retention times within window?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
Standard matrix spike present?	X		
Standard matrix spike within acceptance criteria?	X		
Sample matrix spike present?		X	_____
Sample matrix spike within acceptance criteria?			
Surrogate present?	X		
Surrogate within acceptance criteria?		X	97607*SUR _____

Note: Any "NO" answer requires a comment.

BATCH OVERRIDE BY: ROBERT PADDISON 3540

FINALIZED BY: AMY SMITH 6116

Batch Narrative - P31511 Analysis: CA8015/5030

Updated by 5815, 5815

GENERAL COMMENTS:

PROBLEM:

Analysis holding time not within criteria:

22769*21
 22769*25
 22769*27
 22769*28
 22769*29
 22769*30
 22769*23

EXPLANATION: SAMPLES WERE ORIGINALLY ANALYZED 11/10/95 (INSIDE HOLD TIME)

PROBLEM:

Sample matrix spike not present:

EXPLANATION: MS/MSD ANALYZED WITH ORIGINAL SDG

PROBLEM:

Surrogate not within acceptance criteria:

97607*SUR

EXPLANATION: SURROGATE OUT HIGH FOR ENDING CCS (NOT REQUIRED BY METHOD)

ESE BATCH : P31537
ANALYSIS : 9020A

CLIENT : FDER/SW
ANALYST : WILLIAM GRAY
EXTRACTOR :
DATA ENTRY : WILLIAM GRAY

REPORT DATE/TIME : 11/29/95 14:15
ANALYSIS DATE/TIME : 11/21/95
EXTRACT DATE :

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

FIELD	GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
22769	BATCH		1895416 5100	ESE HERNDON/NAVY	TY WOODIN

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
22769*46	COMP DRUM		

ESE BATCH : P31537

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
11/21/95	SPM1*22743*6	70353	EOX	MG/KG	50	2500	3020	121	75-125		
11/21/95	SPM2*22743*6	70353	EOX	MG/KG	50	2500	2750	110	75-125	9	20

ESE BATCH : P31537
Environmental Science and Engineering Analytical Services
Computer QC Checks

Br No.: P31537 Analysis Date: 11/21/95 Analyst: WILLIAM GRAY

	<u>"Exceptions"</u>		
	<u>Yes</u>	<u>No</u>	<u>Comment / Corrective Action</u>
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
Method blank present?		X	_____
Standard matrix spike present?		X	_____
Standard matrix spike within acceptance criteria?			
Sample matrix spike present?	X		
Sample matrix spike within acceptance criteria?	X		
Sample matrix spike duplicate present?	X		
Sample matrix spike duplicate within acceptance criteria?	X		

Note: Any "NO" answer requires a comment.

BATCH OVERRIDE BY: WILLIAM GRAY 5159

FINALIZED BY: AMY SMITH 6116

Batch Narrative - P31537 Analysis: 9020A

Updated by 5159

PROBLEM:
Method blank not present:
EXPLANATION: See CCB.
PROBLEM:
Standard matrix spike not present:
EXPLANATION: See CCV.

ESE BATCH : P31538
ANALYSIS : 1010

QC TYPE : FDER/SW
IT : DEBBIE BLAHNIK
LAB COORDINATOR :
DATA ENTRY : DEBBIE BLAHNIK

REPORT DATE/TIME : 11/29/95 14:15
ANALYSIS DATE/TIME : 11/21/95
EXTRACT DATE :

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

FIELD	GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
22769	BATCH		1895416 5100	ESE HERNDON/NAVY	TY WOODIN

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
22769*46	COMP DRUM		

ESE BATCH : P31538

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RPD CRIT
11/21/95	RP*22748*1	74030*1010-P	Flash Point	DEG-C		ND		20
11/21/95	RP*22774*2	74030*1010-P	Flash Point	DEG-C	>100	>100	0.0	20

ESE BATCH : P31538
Environmental Science and Engineering Analytical Services
Computer QC Checks

Batch No.: P31538 Analysis Date: 11/21/95 Analyst: DEBBIE BLAHNIK

	"Exceptions"	
	Yes	No
Are ALL units documented in batch?	X	
Analysis holding time within criteria?	X	
Sample replicate present?	X	
Sample replicate within acceptance criteria?	X	

Note: Any "NO" answer requires a comment.

BATCH OVERRIDE BY:

FINALIZED BY: JOAN VAN LOO 5742

ESE BATCH : P31452
ANALYSIS : 8020

QC TYPE : FDER/SW
ST : TODD PETERSON
ANALYST : TODD PETERSON
DATA ENTRY : TODD PETERSON

REPORT DATE/TIME : 11/29/95 14:15
ANALYSIS DATE/TIME : 11/13/95
EXTRACT DATE :

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

BATCH NOTES

8020/5

FIELD	GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
22769	BATCH		1895416 5100	ESE HERNDON/HAVY	TY WOODIN

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
22769*46	COMP DRUM	11/13/95	03:02PM

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
11/13/95	MB*HP5_A1311*1	34237*8020-P	Benzene	UG/KG-	ND	1.00
11/13/95	MB*HP5_A1311*1	34483*8020-P	Toluene	UG/KG-	ND	1.00
11/13/95	MB*HP5_A1311*1	34374*8020-P	Ethylbenzene	UG/KG-	ND	1.00
11/13/95	MB*HP5_A1311*1	96980*8020-P	m-end/or p-Xylene	UG/KG-	0.17	1.00
11/13/95	MB*HP5_A1311*1	96981*8020-P	o-Xylene	UG/KG-	0.18	1.00

Standard Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
11/13/95	SP*HP5_A1311*1	34237*8020-P	Benzene	UG/KG-	20.0	17.1	85.5	74-130
11/13/95	SP*HP5_A1311*1	34483*8020-P	Toluene	UG/KG-	20.0	19.3	96.5	26-122

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
11/13/95	SPM1*22769*46	34237	Benzene	UG/KG-	9.87	122	102	83.6	74-130		
11/13/95	SPM1*22769*46	34483	Toluene	UG/KG-	59.8	122	180	147.5	26-122		
11/13/95	SPM2*22769*46	34237	Benzene	UG/KG-	9.87	122	251	205.7	74-130	84.3	15
11/13/95	SPM2*22769*46	34483	Toluene	UG/KG-	59.8	122	1360	1115	26-122	153	15

Surrogate Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
11/13/95	CCV*HP5_A1311*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	38.7	96.8	16-130
11/13/95	MB*HP5_A1311*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	37.5	93.8	16-130
11/13/95	SP*HP5_A1311*1	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	35.7	89.3	16-130
11/13/95	CCS*HP5_A1311*2	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	40.0	100.0	16-130
11/13/95	DA*22769*46	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	39.0	97.5	16-130
11/13/95	SPM1*22769*46	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	35.8	89.5	16-130
11/13/95	SPM2*22769*46	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	122	305	16-130
11/13/95	CCS*HP5_A1311*3	96101*SUR	AAA TRIFLUOROTOLUENE	UG/KG	40.0	38.8	97.0	16-130

ESE BATCH : P31452
 Environmental Science and Engineering Analytical Services
 Computer QC Checks

B No.: P31452 Analysis Date: 11/13/95 Analyst: TODD PETERSON

	<u>"Exceptions"</u>		
	<u>Yes</u>	<u>No</u>	<u>Comment / Corrective Action</u>
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
Sample retention times within window?	X		
Sample relative retention times within window?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
Standard matrix spike present?	X		
Standard matrix spike within acceptance criteria?	X		
Sample matrix spike present?	X		
Sample matrix spike within acceptance criteria?	X	X	34483*8020-P _____
Sample matrix spike duplicate present?	X		
Sample matrix spike duplicate within acceptance criteria?	X	X	Benzene _____ 34483*8020-P _____
Surrogate present?	X		
Surrogate within acceptance criteria?	X	X	AAA TFT _____

Note. Any "NO" answer requires a comment.

BATCH OVERRIDE BY: ROBERT PADDISON 3540

FINALIZED BY: AMY SMITH 6116

Updated by 5815

PROBLEM:

Sample matrix spike not within acceptance criteria:
34483*8020-P

EXPLANATION: SAMPLE HAD MATRIX INTERFERENCE IN ORIGINAL ANALYSIS AND
REANALYSIS

PROBLEM:

Sample matrix spike duplicate not within acceptance criteria:
Benzene
34483*8020-P

EXPLANATION: SAMPLE HAD MATRIX INTERFERENCE IN ORIGINAL ANALYSIS AND
REANALYSIS

PROBLEM:

Surrogate not within acceptance criteria:
AAA TFT

EXPLANATION: SAMPLE HAD MATRIX INTERFERENCE IN ORIGINAL ANALYSIS AND
REANALYSIS

ESE BATC.I : P31529
ANALYSIS : 8015M

QC TYPE : FDER/SW
ANALYST : LORI RITTENHOUSE
EXTRACTOR :
DATA ENTRY : LORI RITTENHOUSE

REPORT DATE/TIME : 11/29/95 14:16
ANALYSIS DATE/TIME : 11/17/95
EXTRACT DATE :

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

BATCH NOTES
8015

FIELD	GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
22769	BATCH		1895416 5100	ESE HERNDON/NAVY	TY WOODIN

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
22769*46	COMP DRUM	11/17/95	08:59PM

ESE BATCH : P31529

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
11/17/95	MB*1578*1	96024*8015M-P	TPH, as diesel	MG/KG-	ND	10.00
11/17/95	MB*1578*1	96023*8015M-P	TPH, as gasoline	MG/KG-	ND	10.00
11/17/95	MB*1578*1	96022*8015M-P	TPH, as jet fuel	MG/KG-	ND	10.00
11/17/95	MB*1578*1	801507*8015M-P	TPH, as unidentified hydrocarb	MG/KG-	ND	10.00
11/17/95	MB*1578*1	801508*8015M-P	TPH, as motor oil	MG/KG-	ND	160
11/17/95	MB*1578*1	801509*8015M-P	TPH, as mineral spirits	MG/KG-	ND	10.00

Standard Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
11/17/95	SP*1578*1	96024*8015M-P	TPH, as diesel	MG/KG-	50.0	37.2	74.4	56-124

Surrogate Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
11/17/95	CCV*VFID1_111795*1	9406061*SUR	Pentacosane	MG/KG	59.0	52.4	88.8	43-143
11/17/95	CCV*VFID1_111795*3	9406061*SUR	Pentacosane	MG/KG	24.5	23.6	96.3	43-143
11/17/95	MB*1578*1	9406061*SUR	Pentacosane	MG/KG	6.40	5.09	79.5	43-143
11/17/95	SP*1578*1	9406061*SUR	Pentacosane	MG/KG	6.40	5.39	84.2	43-143
11/17/95	DA*22769*46	9406061*SUR	Pentacosane	MG/KG	6.40	5.68	88.8	43-143
11/17/95	CCS*VFID1_111795*5	9406061*SUR	Pentacosane	MG/KG	59.0	55.7	94.4	43-143
11/17/95	CCS*VFID1_111795*6	9406061*SUR	Pentacosane	MG/KG	24.5	25.6	104	43-143

ESE BATCH : P31529
 ANALYSIS : 8015M

C E : FDER/SW
 A T : LORI RITTENHOUSE
 EXTRACTOR :
 DATA ENTRY : LORI RITTENHOUSE

REPORT DATE/TIME : 11/29/95 14:16
 ANALYSIS DATE/TIME : 11/17/95
 EXTRACT DATE :

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

BATCH NOTES
 8015

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
22769	BATCH	1895416 5100	ESE HERNDON/NAVY	TY WOODIN

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
22769*46	COMP DRUM	11/17/95	08:59PM

ESE BATCH : P31529

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET	LMT
11/17/95	MB*1578*1	96024*8015M-P	TPH, as diesel	MG/KG-	ND		10.00
11/17/95	MB*1578*1	96023*8015M-P	TPH, as gasoline	MG/KG-	ND		10.00
11/17/95	MB*1578*1	96022*8015M-P	TPH, as jet fuel	MG/KG-	ND		10.00
11/17/95	MB*1578*1	801507*8015M-P	TPH; as unidentified hydrocarb	MG/KG-	ND		10.00
11/17/95	MB*1578*1	801508*8015M-P	TPH, as motor oil	MG/KG-	ND	160	
11/17/95	MB*1578*1	801509*8015M-P	TPH, as mineral spirits	MG/KG-	ND		10.00

Method Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
11/17/95	SP*1578*1	96024*8015M-P	TPH, as diesel	MG/KG-	50.0	37.2	74.4	56-124

Surrogate Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
11/17/95	CCV*VFID1_111795*1	9406061*SUR	Pentacosane	MG/KG	59.0	52.4	88.8	43-143
11/17/95	CCV*VFID1_111795*3	9406061*SUR	Pentacosane	MG/KG	24.5	23.6	96.3	43-143
11/17/95	MB*1578*1	9406061*SUR	Pentacosane	MG/KG	6.40	5.09	79.5	43-143
11/17/95	SP*1578*1	9406061*SUR	Pentacosane	MG/KG	6.40	5.39	84.2	43-143
11/17/95	DA*22769*46	9406061*SUR	Pentacosane	MG/KG	6.40	5.68	88.8	43-143
11/17/95	CCS*VFID1_111795*5	9406061*SUR	Pentacosane	MG/KG	59.0	55.7	94.4	43-143
11/17/95	CCS*VFID1_111795*6	9406061*SUR	Pentacosane	MG/KG	24.5	25.6	104	43-143

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
11/09/95	SPM1*22787*1	96024	TPH, as diesel	MG/KG-	2.66	56.9	50.7	89.1	56-124		
11/09/95	SPM2*22787*1	96024	TPH, as diesel	MG/KG-	2.66	56.9	42.0	73.8	56-124	18.8	50

BATCH : P31529
Environmental Science and Engineering Analytical Services
Computer QC Checks

Batch No.: P31529 Analysis Date: 11/17/95 Analyst: LORI RITTENHOUSE

	<u>"Exceptions"</u>	
	<u>Yes</u>	<u>No Comment / Corrective Action</u>
ALL units documented in batch?	X	
Analysis holding time within criteria?	X	
Inject holding time within criteria?	X	
Sample retention times within window?	X	
Sample relative retention times within window?	X	
Method blank present?	X	
Method blank within acceptance criteria?	X	
Standard matrix spike present?	X	
Standard matrix spike within acceptance criteria?	X	
Sample matrix spike present?	X	
Sample matrix spike within acceptance criteria?	X	
Reagent present?	X	
Reagent within acceptance criteria?	X	

Note: Any "NO" answer requires a comment.

MANUAL OVERRIDE BY: ROBERT PADDISON 3540

ANALYZED BY: AMY SMITH 6116

Appendix E

Chain-of-Custody

SAMPLE TYPE:
 HZ Hazardous SW Surface Water
 SO Soil WW Waste Water
 PW Potable Water SL Sludge
 GW Ground Water DW Discharge W/r.

LABORATORY:
 Please send signed
 Chain of Custody form
 with analyses.

Client: LANTP/V P.O. No: _____
 Work Order No: 215272G-0002-2100 Project Name: Syner Grove
 Submit Report To: Carol Bowers Laboratory Samples sent to: _____
 Sampler: Glen Crenshaw Project Location: Navy Base, Syner Grove, WV

Field Sample # / Sample Identification	Date	Time	C O M P	G R A B	Total Number Of Containers	Sample Type (usu reference)	Analyses		PRESERVATION	Remarks:
							Specify chemicals added & final pH if known			
MW 1	11/15	0730	/	/	3	GW	TPH	23760-1	X	
MW 2		0826	/	/	3					2
MW 4		0800	/	/	3					3
MW 5		1030	/	/	3					4
Equipment Blank		0730	/	/	2					5
Tap Blank		0720	X	X	3					6
Duplicate	↓	-	X	X	3	↓		↓	↓	7

LABORATORY:

Sample Relinquished by: Glen Crenshaw Date: 11/15 Time: _____
 Sample Received by: SK Date: 11-3-95 Time: _____
 A04 = 67865105
 FED # CKBAZ
 SK

Please: Return all Coolers to the Herndon Office!



Environmental Science & Engineering, Inc.

250-A Exchange Place, Herndon, VA 22070
 Phone: (703) 318-8900, Fax (703) 318-0411

Chain of Custody

SAMPLE TYPE:

HZ	Hazardous	SW	Surface Water
SO	Soil	WW	Waste Water
PW	Potable Water	SL	Sludge
GW	Ground Water	DW	Discharge Wtr.

LABORATORY:
 Please send signed Chain of Custody form with analyses.

Client: US Navy, LANTRDIV P.O. No:
 Work Order No: 2195272G-000Z-2100 Project Name: Sugar Grove
 Submit Report To: Carol Bowers Laboratory Samples sent to: Perkin
 Sampler: Glen Crombie Project Location: Sugar Grove, WV

Field Sample # / Sample Identification	Date	Time	C O M P	G R A B	Total Number Of Containers	Sample Type (see reference)	Analyses		PRESERVATION	Remarks:
							TPH 555/615 Hd.	555/615 Hd.		
SB-13(0-4)	11/1/85	0840	X	X	2	SO		22769	X	*vine (small 200) bottles by batch 11-6-85 JK
SB-13(4-8)		0855	X	X	2			-1	X	
SB-14(0-4)		0920	X	X	2			-2	X	
SB-14(4-8)		0930	X	X	2			-3	X	
SB-15(1-5)		1015	X	X	2			-4	X	
SB-15(5-7.5)		1020	X	X	2			-5	X	
SB-16(1-5)		1040	X	X	2			-6	X	
SB-16(5-8.5)		1045	X	X	2			-7	X	
SB-17(4-8)		1105	X	X	2			-8	X	
SB-17(8-10)		1115	X	X	2			-9	X	

LABORATORY:

Sample Relinquished by:	Date	Time	Sample Received by	Date	Time
<u>Glen Crombie</u>	11/3/85	1000	Fel Ex 6786865116		
			6786865120	11-6-85	900
			Remaining		

Please: Return all Coolers to the Herndon Office!



Environmental
Science &
Engineering, Inc.

250-A Exchange Place, Herndon, VA 22070
Phone: (703) 318-8900, Fax (703) 318-0411

Chain of Custody

Client: US Navy, LANTDIV P.O. No:

Work Order No: 2195272G-0002-2100 Project Name: Sugar Grove

Submit Report To: Carol Bowers Laboratory Samples sent to: Peric

Sampler: Ben Crombie Project Location: Sugar Grove WV

Field Sample # / Sample Identification	Date	Time	C O M P	G R A B	Total Number Of Containers	Sample Type (use reference)	PRESERVATION I C E D	Remarks:
SB-18 (0-4)	11/1/95	1125	X		2	SO	X	
SB-18 (4-7.5)		1130						
SB-19 (0-4)		1320						
SB-19 (4-6.5)		1325						
SB-20 (0-4)		1345						both bottles rec'd w/no labels - elimination process - to locate 11-16-95 SR
SB-20 (4-8)		1350						
SB-21 (0-4)		1410						
SB-21 (4-8)		1415						
SB-22 (0-4)		1430						
SB-22 (4-7.5)		1440					✓	

Sample Relinquished by:	Date	Time	Sample Received by	Date	Time
<u>Ben Crombie</u>	11/3/95	10:00	Fel Ex 6786865116		
			SR 6786865120	11-6-95	9:00
			SR <u>Resisting</u>		

LABORATORY:

Please: Return all Coolers to the Herndon Office!



Environmental
Science &
Engineering, Inc.

250-A Exchange Place, Herndon, VA 22070
Phone: (703) 318-8900, Fax (703) 318-0411

Chain of Custody

SAMPLE TYPE:
 HZ Hazardous SW Surface Water
 SO Soil WW Waste Water
 PW Potable Water SL Sludge
 GW Ground Water DW Discharge Wtr.

LABORATORY:
 Please send signed
 Chain of Custody form
 with analyses.

Client: US Navy, LANTDIV P.O. No:

Work Order No: 21952726-0002-2100 Project Name: Syzer Grove

Submit Report To: Carol Bowers Laboratory Samples sent to: Perma

Sampler: Glen Crombie Project Location: Syzer Grove, WV Analyses

Field Sample # / Sample Identification	Date	Time	C O M P	G R A B	Total Number Of Containers	Sample Type (use reference)	PRESERVATION Specify chemicals added & final pH if known	Remarks:
SB-23 (0-2)	11/1/85	0500	X	X	2	SO		
SB-23 (4-8)	11/1/85	1510						22769 -21
SB-24 (0-4)	11/1/85	1525						-22
SB-24 (4-8)	11/1/85	1530						-23
SB-25 (0-4)	11/1/85	1545						.24
SB-25 (4-8)	11/1/85	1550						.25
SB-26 (0-4)	11/1/85	1610						.26
SB-26 (4-8)	11/1/85	1615						-27
SB-27 (0-4)	11/1/85	1630						.28
SB-27 (4-8)	11/1/85	1640						-29
								-30

Sample Relinquished by:	Date	Time	Sample Received by	Date	Time
<u>Glen Crombie</u>	11/3/85	10:00	Fel Ex 6786865116	11-6-95	900
			SR Mining 6786865120		

LABORATORY:

Please: Return all Coolers to the Herndon Office!



Environmental
Science &
Engineering, Inc.

250-A Exchange Place, Herndon, VA 22070
Phone: (703) 318-8900, Fax (703) 318-0411

Chain of Custody

Client: US Navy LANTRIV P.O. No: _____

Work Order No: 2195272 G-0002-2100 Project Name: Sugar Grove

Submit Report To: Carol Bowers Laboratory Samples sent to: Peerin

Sampler: Glenn Cranbre Project Location: Sugar Grove, WV Analyses: _____

SAMPLE TYPE:

HZ	Hazardous	SW	Surface Water
SO	Soil	WW	Waste Water
PW	Potable Water	SL	Sludge
GW	Ground Water	DW	Discharge Wtr.

LABORATORY:
Please send signed Chain of Custody form with analyses.

Field Sample # / Sample Identification	Date	Time	C O M P	G R A B	Total Number Of Containers	Sample Type (use reference)	PRESERVATION	Remarks:
SB28 (0-4)	11/24/95	0900	X	X	2	SO	X	22769 -31
SB28 (4-6)		0905			2			-32
SB-29 (0-3)		0910						-33
B-1 (0-4)		1010						-34
B-1 (4-8)		1015						-35
B-2 (0-4)		1025						-36
B-2 (4-7)		1030						-37
B-3 (0-4)		1035						-38
B-3 (4-5.5)		1038						-39
B-4 (0-3.5)		1050						-40

LABORATORY:

Sample Relinquished by:	Date	Time	Sample Received by:	Date	Time
<u>Glenn Cranbre</u>	11/23/95	10:00	FELEX 6786865116 and 6286865120	11-6-95	9:00
			S. Rainey		

Please: Return all Coolers to the Herndon Office!

FOUR (4) UNREGULATED

AND

FIVE (5) UNREGULATED

UNDERGROUND STORAGE TANKS

NAVAL SECURITY GROUP ACTIVITY

SUGAR GROVE, WEST VIRGINIA

August 1, 1987

RECEIVED
AUG 1 1987
NAVY
NAVAL SECURITY GROUP

Dear Sirs:

Enclosed for you are

two copies of the

report dated 7/28/87.

CHS

Very truly yours,

John J. ...

Naval Security Group

Sugar Grove, WV

Enclosure (2)

Very truly yours,

**CLOSURE REPORT
FOR TWO (2) REGULATED
AND
FIVE (5) UNREGULATED
UNDERGROUND STORAGE TANKS**

**NAVAL SECURITY GROUP ACTIVITY
SUGAR GROVE, WEST VIRGINIA**

INTRODUCTION

At the request of J & D Enterprises, Inc. and to comply with West Virginia Division of Environmental Protection (WVDEP) regulations, Geotechnical and Environmental Services, Inc. (GES) has supervised the permanent closure of seven (7) underground storage tanks (USTs) at the Naval Security Group Activity facilities in Sugar Grove, West Virginia. This report provides information on the UST systems and documents the closure activities performed between March 29 and May 2, 1995.

SITE/UST DESCRIPTIONS

The Naval Security Group Activity facilities consist of a Support Site and an Operations Site, both of which are located off of State Route 21 between the towns of Brandywine and Sugar Grove, West Virginia. The USTs recently removed from the ground at the Support Site were one (1) regulated tank (UST 206) and two (2) unregulated tanks (USTs 200 and 205). At the Operations Site, one (1) regulated tank (UST 208) and three (3) unregulated tanks (USTs 207, 209 and 210) were removed from the ground. With the exception of USTs 200 and 205, the closed USTs were replaced with new concrete vault aboveground storage tanks (ASTs). The locations of the USTs at the two (2) sites are indicated on Plates 1 and 2 at the end of this section. The following table provides relevant information for each vessel.

TANK INFORMATION				
Tank Number	Tank Location	Tank Capacity	Year Installed	Tank Contents
200	Bldg. 20	1,000	1975	No. 2 Heating Oil
205	Bldg. 63	4,000	1967	No. 2 Heating Oil
✓206	Bldg. 63	550	1968	Diesel
207	Bldg. 327	550	1983	No. 2 Heating Oil
✓208	Bldg. 328	1,000	1967	Unleaded Gasoline
209	Bldg. 325	550	1975	No. 2 Heating Oil
210	Bldg. 328	550	1976	No. 2 Heating Oil

None of the USTs had corrosion protection or release monitoring equipment, however, all did have concrete spill/overflow structures. Product inventory by manual tank gauging was performed on an infrequent basis.

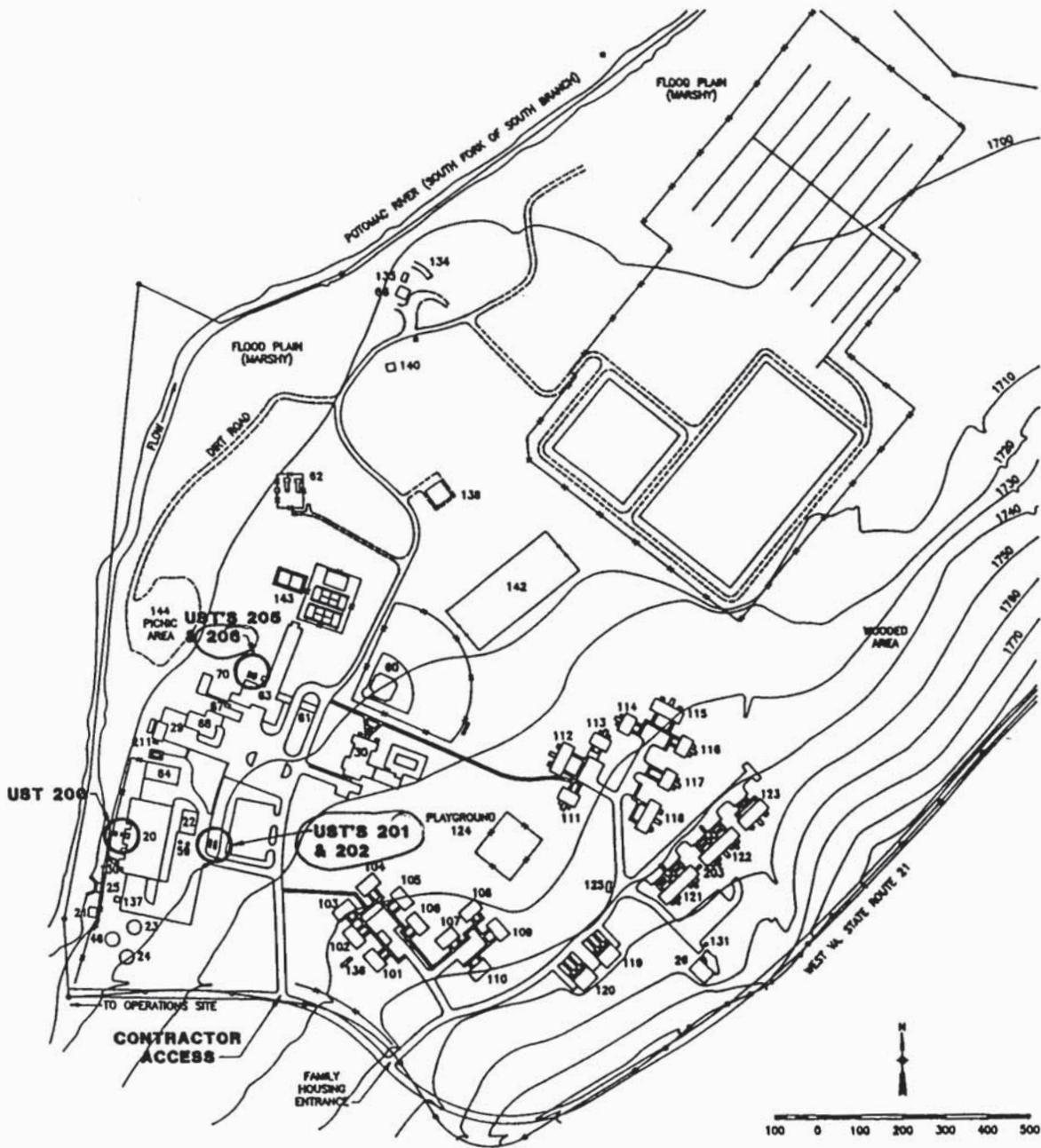
All of the No. 2 heating oil USTs, with the exception of UST 205, provided fuel to heat adjacent buildings. All fuel within these USTs was transferred to temporary ASTs prior to tank closures, and then later to the permanent replacement ASTs. UST 205 contained heating oil as a back-up to the Building 63 natural gas fired heating system. Fuel within this tank was 28 years in age and was transported to J & D Enterprises Duluth, Minnesota facility by tanker truck.

UST 206 contained diesel fuel for the Building 63 emergency generator. All fuel within this tank was transferred to a replacement AST prior to closure. UST 208 provided unleaded gasoline to Navy vehicles at the Operations Site. The majority of this tank was emptied by fueling vehicles. Approximately 14 gallons of remaining product was removed from the tank by J & D Enterprises and is scheduled for use in one of their fleet vehicles.

USN Contract N62470-94-C-4081
GES Proj. # E-9509CR

All USTs were cut open and manually cleaned after removal from the ground. The vessels were subsequently further reduced and were disposed as scrap metal at Shiffletts Salvage located west of Harrisonburg, Virginia.

The following sections of this report address the UST closure activities, field observations and laboratory soils analyses for each tank site in numerical order. In addition, the last section of the report contains the laboratory test results for representative soils acquired beneath a 5,000 gallon diesel AST located adjacent to Building 303 at the Operations Site. Included at the end of this report section are copies of the WVDEP Notice of Closure and Notification for Underground Storage Tanks forms.



TITLE: UST LOCATION PLAN - SUPPORT SITE

CLIENT: J & D ENTERPRISES, INC.

PROJECT: NAVAL SECURITY GROUP ACTIVITY - SUGAR GROVE, WVA

SCALE: 1" = 400'

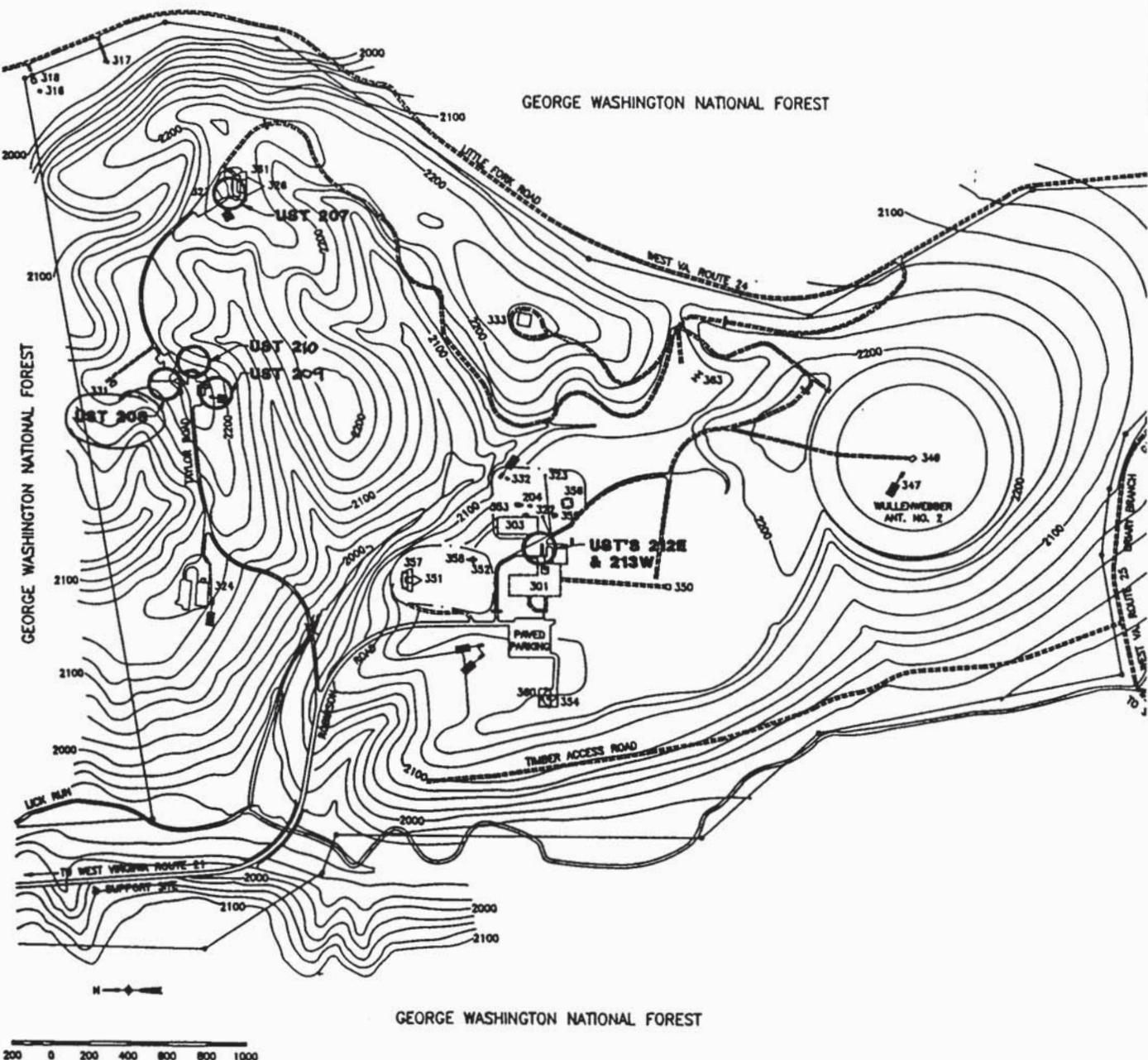
PLATE #: 1

PROJECT #: E-9509

DATE: 6/30/95

GEOTECHNICAL AND ENVIRONMENTAL SERVICES, INC.





TITLE: UST LOCATION PLAN - OPERATIONS SITE	
CLIENT: J & D ENTERPRISES, INC.	PLATE #: 2
PROJECT: NAVAL SECURITY GROUP ACTIVITY - SUGAR GROVE, WVA	PROJECT #: E-9509
SCALE: 1" = 800'	DATE: 6/30/95
GEOTECHNICAL AND ENVIRONMENTAL SERVICES, INC.	



UST 206 *Regulated*

The 550 gallon capacity diesel tank was excavated on March 29, 1995 in the presence of the regional WVDEP environmental inspector. Upon removal from the ground, it was apparent that the vessel had leaked due to the presence of trace amounts of free product within the greenish-gray petroleum discolored basin soils. Visual examination of the UST identified four (4) small diameter holes in the welded seam at the tank northeast end. At the direction of the WVDEP inspector, approximately two (2) cubic yards of contaminated soils were overexcavated from the basin bottom and stockpiled on plastic sheeting in an isolated area at the Support Site. These soils are scheduled to be remediated at a later date.

Representative soil samples were acquired from the UST basin bottom, walls and overexcavated material. The UST overburden soils, which were judged free of contamination, had been separated from the contaminated soils and were later returned to the basin. Although visually severely contaminated, the recovered soil samples did not emit significant vapors which registered on the PID. Laboratory GC Method 8015 SV test results for the soil samples ranged from non-detectable concentrations to 749 mg/kg. The following table summarizes the results of all testing.

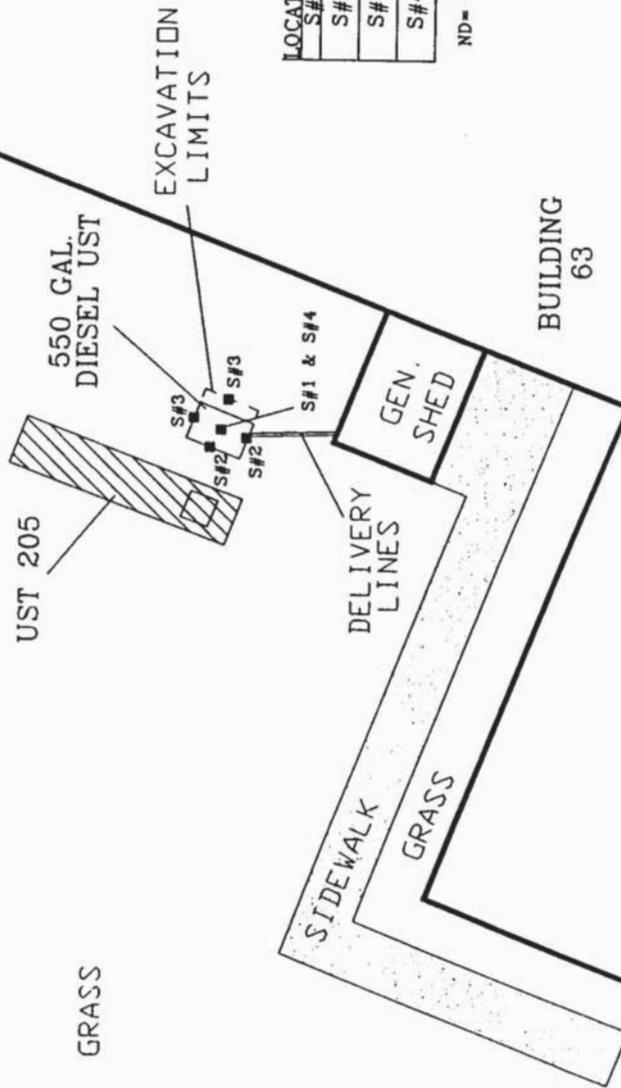
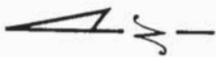
UST 206 SOIL ANALYTICAL RESULTS				
Sample Number	Sample Location	Depth (Feet)	Vapors (ppm)	Lab TPH mg/kg
1	Center Bottom	6.5	ND	749
2	WNW & SSW Walls	4.0	ND	357
3	NNE & ESE Walls	4.0	ND	ND
4	Overexcavated Soils	4.5-6.5	5.1	287

ND = Not Detected

USN Contract N62470-94-C-4081
GES Proj. # E-9509CR

Due to the confirmed release of diesel fuel from the UST system, the WVDEP has requested that a site characterization study be performed at the site. This study will also address UST 205 since this leaking system contributed to the site contamination.

The Site and Sampling Location Plan, Field Sampling and Laboratory Testing Record, analytical laboratory Certificate of Analysis and related documents for UST 206 are presented on the following pages.



LOCATION	DEPTH (Ft.)	SAMPLE TYPE	TPH (MG/KG)
S#1	6.5	Grab	749
S#2	4.0	Well	357
S#3	4.0	Well Composite	ND
S#4	4.5-6.5	Overexcav. Composite	287

ND= NOT DETECTED



TITLE : SITE & SAMPLE LOCATION PLAN - UST# 206

CLIENT : J & D ENTERPRISES, INC.

PROJECT : NAVAL SECURITY GROUP ACTIVITY-SUGAR GROVE, W.VA.

MT. SIDNEY, VIRGINIA

GEOTECHNICAL AND ENVIRONMENTAL SERVICES INC.

SCALE : 1" = 20'

DATE : 3/29/95

PLATE # : 1

PROJECT # : E-9509

(703) 248-0610

**FIELD SAMPLING
AND
LABORATORY TESTING RECORD**

**Underground Storage Tank Removals
Naval Security Group Activity
Sugar Grove, West Virginia**

Contract No. N62470-94-C-4081

UST I.D. No.: 206
Sample Date: 3/29/95
Sample Time: 2:00 p.m. - 2:30 p.m.

Sample Information	Bottom Sample	Wall Sample	Wall Sample	Overexcavated Soils
Sample #	1	2	3	4
Sample Location	Center	WNW & SSW Walls	NNE & ESE Walls	Basin Bottom
Sample Type	Grab	Composite	Composite	Composite
Sample Depth	6.5 Ft.	4.0 Ft.	4.0 Ft.	4.5-6.5 Ft.
Laboratory I.D. #	V5301166-1	V5301166-2	V5301166-3	V5301166-4
TPH (Calif.)	749 mg/kg	357 mg/kg	ND	287 mg/kg
BTEX (8020) Benzene Toluene Ethylbenzene Xylene	NT	NT	NT	NT
TCLP-Lead (239.1)	NT	NT	NT	NT

ND = Not Detected

NT = Not Tested

Note: Laboratory Test Reports and QC Protocol Attached

Certificate of Analysis

Project No. : Job #E-9509
Geotechnical & Environmental SeProject Name :
P.O. Box 354 Submitted by : H. Mullin
Mount Sidney, VA 24467 Date Received: March 29, 1995
Date Sampled : March 29, 1995
Time Sampled : 2:00 - 2:30 pm
Date Issued : April 05, 1995

Sample ID : UST 206,S#1 6.5

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH-GC Diesel	749	mg/kg		California	04-04/14:30	GC
(Semi Volatiles)						

Sample ID : UST206,S#2, 4.0

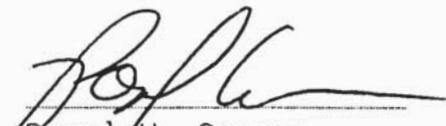
Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH-GC Diesel	357	mg/kg		California	04-04/14:30	GC
(Semi Volatiles)						

Sample ID : UST 206,S#3,4.0

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH-GC Diesel	ND	mg/kg	13.6	California	04-04/14:30	GC
(Semi Volatiles)						

Sample ID : UST 206, S#4,4.5-6.5

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH-GC Diesel	287	mg/kg		California	04-04/14:30	GC
(Semi Volatiles)						


Royal W. Carson
Laboratory Manager

ND = None Detected

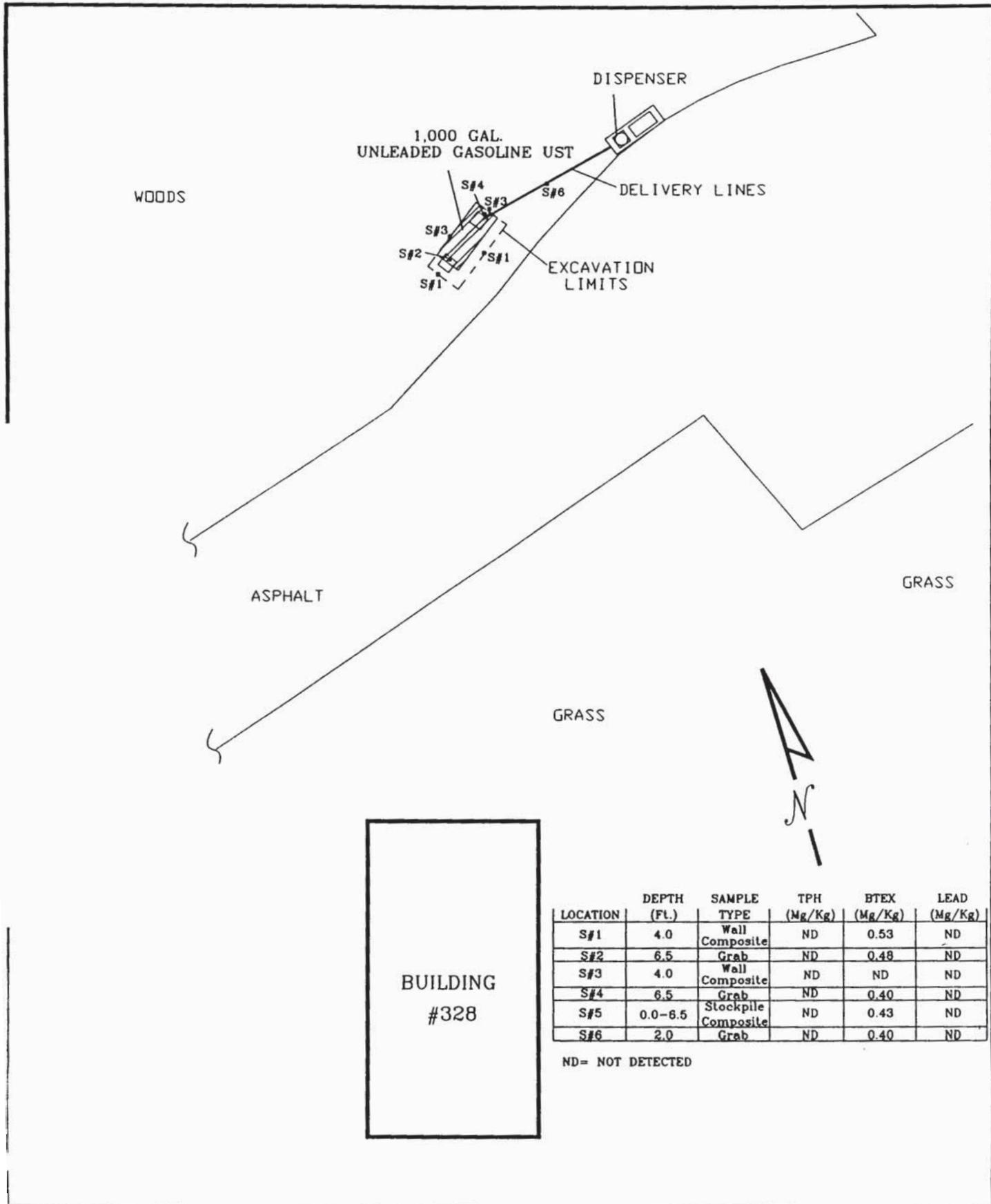
UST 208 *regulated*

The 1,000 gallon capacity unleaded gasoline tank was excavated on March 29, 1995 in the presence of the regional WVDEP environmental inspector. Visual examination of the UST failed to identify holes or severe corrosion, however, the aluminum delivery and return piping was severely corroded. Although minor gasoline odors were evident by olfactory means, none of the exposed basin and delivery line trench soils were noticeably petroleum stained. Following acquisition of representative soil samples from the basin bottom, walls and delivery line trench, the stockpiled overburden soils were returned to the basin. Final basin backfilling was accomplished utilizing clean borrow soils.

PID screening of the recovered soil samples detected measurable vapors within only two (2) samples. Laboratory GC method 8015 V (volatiles) test results were non-detect for all samples. Similarly, TCLP-lead testing by EPA Method 239.1 produced non-detect results for all soil samples. Laboratory testing for BTEX compounds utilizing GC Method 8020 identified low concentrations of benzene within all but one (1) soil sample. The results of all testing are summarized in the following table.

UST 208 SOIL ANALYTICAL RESULTS						
Sample Number	Sample Location	Depth (Feet)	Vapors (ppm)	Lab TPH (mg/kg)	BTEX (mg/kg)	TCLP-Lead (mg/L)
1	SE & SW Walls	4.0	0	ND	0.53	ND
2	SW Bottom	6.5	3.0	ND	0.48	ND
3	NE & NW Walls	4.0	19.0	ND	ND	ND
4	NE Bottom	6.5	0	ND	0.40	ND
5	Stockpile	0.0-6.5	0	ND	0.43	ND
6	Delivery Line Trench	2.0	0	ND	0.40	ND

ND = Not Detected



LOCATION	DEPTH (FT.)	SAMPLE TYPE	TPH (Mg/Kg)	BTEX (Mg/Kg)	LEAD (Mg/Kg)
S#1	4.0	Wall Composite	ND	0.53	ND
S#2	6.5	Grab	ND	0.48	ND
S#3	4.0	Wall Composite	ND	ND	ND
S#4	6.5	Grab	ND	0.40	ND
S#5	0.0-6.5	Stockpile Composite	ND	0.43	ND
S#6	2.0	Grab	ND	0.40	ND

ND= NOT DETECTED

TITLE : SITE & SAMPLE LOCATION PLAN - UST #208

CUENT : J & D ENTERPRISES, INC.

PLATE # : 1

SCALE : 1"=20'

PROJECT : NAVAL SECURITY GROUP ACTIVITY-SUGAR GROVE, W.VA.

PROJECT # : E-9509

DATE : 3/29/95

MT. SIDNEY, VIRGINIA

GEOTECHNICAL AND ENVIRONMENTAL SERVICES INC.

(703) 248-0610



**FIELD SAMPLING
AND
LABORATORY TESTING RECORD**

**Underground Storage Tank Removals
Naval Security Group Activity
Sugar Grove, West Virginia**

Contract No. N62470-94-C-4081

UST I.D. No.: 208
Sample Date: 3/29/95
Sample Time: 11:15 a.m. - 12:00 Noon

Sample Information	Bottom Sample #1	Bottom Sample #2	Wall Sample	Wall Sample
Sample #	2	4	1	3
Sample Location	SW End	NE End	SE & SW Walls	NE & NW Walls
Sample Type	Grab	Grab	Composite	Composite
Sample Depth	6.5 Ft.	6.5 Ft.	4.0 Ft.	4.0 Ft.
Laboratory I.D. #	V5301167-2	V5301167-4	V5301167-1	V5301167-3
TPH (8015V)	ND	ND	ND	ND
BTEX (8020)				
Benzene	.48 mg/kg	.40 mg/kg	.53 mg/kg	ND
Toluene	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND
Xylene	ND	ND	ND	ND
TCLP-Lead (239.1)	ND	ND	ND	ND

ND = Not Detected

NT = Not Tested

Note: Laboratory Test Reports and QC Protocol Attached

**FIELD SAMPLING
AND
LABORATORY TESTING RECORD**

**Underground Storage Tank Removals
Naval Security Group Activity
Sugar Grove, West Virginia**

Contract No. N62470-94-C-4081

UST I.D. No.: 208
Sample Date: 3/29/95
Sample Time: 11:15 a.m. - 12:00 Noon

Sample Information	Stockpile Sample	Delivery Line
Sample #	5	6
Sample Location	Stockpile	Mid-line
Sample Type	Composite	Grab
Sample Depth	0-6.5 Ft.	2.0 Ft.
Laboratory I.D. #	V5301167-5	V5301167-6
TPH (8015V)	ND	ND
BTEX (8020)		
Benzene	.43 mg/kg	.40 mg/kg
Toluene	ND	ND
Ethylbenzene	ND	ND
Xylene	ND	ND
TCLP-Lead (239.1)	ND	ND

ND = Not Detected

NT = Not Tested

Note: Laboratory Test Reports and QC Protocol Attached

Certificate of Analysis

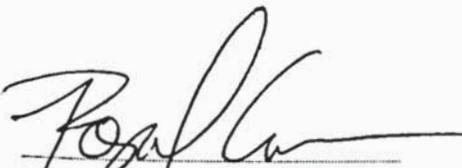
Project No. : JOB # E-9509
Geotechnical & Environmental Service Project Name :
P.O. Box 354 Submitted by : H. Mullen
Mount Sidney, VA 24467 Date Received: March 29, 1995
Date Sampled : March 29, 1995
Time Sampled : 11:15 - 12:00
Date Issued : April 11, 1995

Sample ID : UST 208,S#1, 4.0'

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH	ND	mg/kg	12.0	8015	04-03/17:30	GC
				Modified		
Benzene	.53	mg/kg	.30	8020	04-04/11:30	GC
Toluene	ND	mg/kg	.30	8020	04-04/11:30	GC
Ethyl Benzene	ND	mg/kg	.30	8020	04-04/11:30	GC
Xylenes	ND	mg/kg	.30	8020	04-04/11:30	GC
TCLP Lead	ND	mg/l	.063	239.1	04-10/17:24	CS

Sample ID : UST 208,S#2, 6.5'

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH	ND	mg/kg	11.4	8015	04-03/17:30	GC
				Modified		
Benzene	.48	mg/kg	.30	8020	04-04/11:30	GC
Toluene	ND	mg/kg	.30	8020	04-04/11:30	GC
Ethyl Benzene	ND	mg/kg	.30	8020	04-04/11:30	GC
Xylenes	ND	mg/kg	.30	8020	04-04/18:36	GC
TCLP Lead	ND	mg/l	.063	239.1	04-10/17:24	CS


Royal W. Carson
Laboratory Manager

Certificate of Analysis

Project No. : JOB # E-9509
 Geotechnical & Environmental Service Project Name :
 P.O. Box 354 Submitted by : H. Mullen
 Mount Sidney, VA 24467 Date Received: March 29, 1995
 Date Sampled : march 29, 1995
 Time Sampled : 11:15 - 12:00
 Date Issued : April 11, 1995

Sample ID : UST 208,S#3, 4.0'

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH	ND	mg/kg	11.7	8015	04-03/17:30	GC
				Modified		
Benzene	ND	mg/kg	.29	8020	04-04/11:30	GC
Toluene	ND	mg/kg	.29	8020	04-04/18:30	GC
Ethyl Benzene	ND	mg/kg	.29	8020	04-04/18:30	GC
Xylenes	ND	mg/kg	.29	8020	04-04/18:30	GC
TCLP Lead	ND	mg/l	.063	239.1	04-10/17:24	CS

Sample ID : UST 208,S#4, 6.5'

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH	ND	mg/kg	11.8	8015	04-03/17:30	GC
				Modified		
Benzene	.40	mg/kg	.30	8020	04-04/11:30	GC
Toluene	ND	mg/kg	.30	8020	04-04/11:30	Gc
Ethyl Benzene	ND	mg/kg	.30	8020	04-04/11:30	GC
Xylenes	ND	mg/kg	.30	602	04-04/11:30	GC
TCLP Lead	ND	mg/l	.063	239.1	04-10/17:24	CS


 Royal W. Carson
 Laboratory Manager

Certificate of Analysis

Project No. : JOB # E-9509
 Geotechnical & Environmental Service Project Name :
 P.O. Box 354 Submitted by : H. Mullen
 Mount Sidney, VA 24467 Date Received: March 29, 1995
 Date Sampled : March 29, 1995
 Time Sampled : 11:15 - 12:00
 Date Issued : April 11, 1995

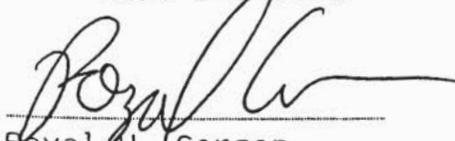
Sample ID : UST 208,S#5,stockpile

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH	ND	mg/kg	11.7	8015	04-03/17:30	GC
				Modified		
Benzene	.43	mg/kg	.29	8020	04-04/11:30	GC
Toluene	ND	mg/kg	.29	8020	04-04/11:30	GC
Ethyl Benzene	ND	mg/kg	.29	8020	04-04/11:30	GC
Xylenes	ND	mg/kg	.29	8020	04-04/11:30	GC
TCLP Lead	ND	mg/l	.063	239.1	04-10/17:24	CS

Sample ID : UST 208,S#6, 2.0'

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH	ND	mg/kg	11.6	8015	04-03/17:30	GC
				Modified		
Benzene	.40	mg/kg	.29	8020	04-04/11:30	GC
Toluene	ND	mg/kg	.29	8020	04-04/11:30	GC
Ethyl Benzene	ND	mg/kg	.29	8020	04-04/11:30	GC
Xylenes	ND	mg/kg	.29	8020	04-04/11:30	GC
TCLP Lead	ND	mg/l	.063	239.1	04-10/17:24	CS

ND = None Detected


 Royal W. Carson
 Laboratory Manager

V5301167-3

UST 200 *not regulated*

GES personnel were not present on-site when this 1,000 gallon heating oil tank was removed from the ground on April 28, 1995. Due to the site inaccessibility, the excavation work was conducted manually and with a skid loader. The UST was manually cleaned and cut up while in the ground and removed piecemeal. According to J & D Enterprises personnel, the tank was in sound condition with no holes or significant corrosion. During removal of the vent pipe, however, a small volume of heating oil discharged from a horizontal section of piping into the tank basin. The UST had apparently been overfilled in the past, forcing product up into the vent line.

Representative soil samples were acquired from the UST basin bottom, walls, and excavated material on May 1, 1995. Photoionization detector (PID) testing of these samples failed to detect measurable vapors, however, faint petroleum odors were noted by olfactory means. Laboratory Total Petroleum Hydrocarbon (TPH) testing by gas chromatography (GC) Method 8015 SV (semi-volatiles) produced results ranging from non-detectable concentrations to 763.3 mg/kg. The following table summarizes the results of all testing.

UST 200 SOIL ANALYTICAL RESULTS				
Sample Number	Sample Location	Depth (Feet)	Vapors (ppm)	Lab TPH mg/kg
1	NW Bottom	5.0	ND	ND
2	SE Bottom	5.0	ND	763.3
3	All Walls	3.0	ND	130.7
4	Stockpile	0.0-5.0	ND	28.9

ND = Not Detected

As required, the WVDEP was notified of a confirmed release from the UST system within 24 hours of receipt of the laboratory test results. It could not be determined during the field inspection and sampling activities whether the contamination was due to the recent spillage from the vent piping, or from past overfills or leaks from the UST system. The analytical laboratory personnel, however, stated that the GC pattern for the three (3) samples which tested positive for TPH indicated the petroleum contaminant was not weathered, thus suggesting that the release was of recent age.

The approximate three (3) cubic yards of soil excavated in order to remove the UST was returned to the basin following the closure and soil sampling activities. The remainder of the basin was backfilled with clean imported fill soils. A Site and Sampling Location Plan, Field Sampling and Laboratory Testing Record, the Analytical Laboratory Certificate of Analysis and related documents are presented on the following pages.



GRASS

CONCRETE STORAGE BUILDING

1,000 GAL. FUEL OIL UST

DELIVERY LINES

EXCAVATION LIMITS

S#3

S#3

S#1

S#2

S#3

S#3

BUILDING # 20

GRASS

CONCRETE STORAGE BUILDING

LOCATION	DEPTH (Ft.)	SAMPLE TYPE	TPH (MG/KG)
S#1	5.0	GRAB	ND
S#2	5.0	GRAB	763.3
S#3	3.0	WALL COMPOSITE	130.7
S#4	0.0-5.0	STOCKPILE COMPOSITE	28.9

ND= NOT DETECTED

TITLE : SITE & SAMPLE LOCATION PLAN - UST #200

CLIENT : J & D ENTERPRISES, INC.

PLATE # : 1

SCALE : 1"=5'

PROJECT : NAVAL SECURITY GROUP ACTIVITY-SUGAR GROVE W.VA.

PROJECT # : E-9509

DATE : 5/1/95

47. SIDNEY, VIRGINIA

GEOTECHNICAL AND ENVIRONMENTAL SERVICES INC.

(703) 248-0810



**FIELD SAMPLING
AND
LABORATORY TESTING RECORD**

Underground Storage Tank Removals
Naval Security Group Activity
Sugar Grove, West Virginia

Contract No. N62470-94-C-4081

UST I.D. No.: 200
Sample Date: 5/1/95
Sample Time: 10:15 a.m. - 10:30 a.m.

Sample Information	Bottom Sample # 1	Bottom Sample # 2	Composite Wall Sample	Stockpile Sample
Sample #	1	2	3	4
Sample Location	NW End	SE End	All Walls	Stockpile
Sample Type	Grab	Grab	Composite	Composite
Sample Depth	5.0 ft.	5.0 ft.	3.0 ft.	0.0-5.0 ft.
Laboratory I.D. #	V5501608-1	V5501608-2	V5501608-3	V5501608-4
TPH (8015 SV)	ND	763.3 mg/kg	130.7 mg/kg	28.9 mg/kg
BTEX (8020) Benzene Toluene Ethylbenzene Xylene	NT	NT	NT	NT
TCLP-Lead (239.1)	NT	NT	NT	NT

ND = Not Detected

NT = Not Tested

Note: Laboratory Test Reports and QC Protocol Attached
GES Proj. # E-9509

Certificate of Analysis

Geotechnical & Environmental Services
P.O. Box 354
Mount Sidney, VA 24467

Project No. : E9509
Project Name :
Submitted by : Hank Mullen
Date Received: May 01, 1995
Date Sampled : May 01, 1995
Time Sampled : 10:15 -10:30 am
Date Issued : May 09, 1995

Sample ID : UST 200 S#1 5.0'

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH-GC Diesel	ND	mg/kg	10	8015 SV	05-05/16:30	GC

Sample ID : UST 200 S#2 5.0'

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH-GC Diesel	763.3	mg/kg		8015 SV	05-05/16:30	GC

Sample ID : UST 200 S#3 3.0'

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH-GC Diesel	130.7	mg/kg		8015 SV	05-05/16:30	GC

Sample ID : UST 200 S#4 Stockpile

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH-GC Diesel	28.9*	mg/kg		8015 SV	05-05/16:30	GC

*Chromatography pattern indicates diesel fuel in this sample is weathered.


Royal W. Carson
Laboratory Manager

CHAIN OF CUSTODY FORM

Part I: To be completed by Client (Also Complete Part III)

COMPANY NAME: Geotechnical & Environmental Ser. Purchase Order # E-9509

ADDRESS: P.O. Box 354, Mt. Sidney Plaza Unit 3

CITY: Mt. Sidney STATE: Virginia ZIP: 24467

CONTACT PERSON: H. Mullen PHONE NO.: (703) 248-0610

Sampler: Same Date Sampled 5-1-95 Time 10:15-10:30 AM

Sample Type (Please Circle): 1) Wastewater, 2) Drinking Water, 3) Monitoring well, 4) Soil, 5) Sludge, 6) Solid Waste, 7) Oil, 8) Industrial Hygiene, () Compliance, 10) Non-Compliance, Other (Please Specify) _____

COLLECTOR'S SAMPLE ID

ANALYSES REQUESTED

15T 200, S#1, 5.0'
" , S#2, 5.0'
" , S#3, 3.0'
" , S#4, STOCKPILE

8015, SV (#2 Heating oil)
"
"
"

1608

Part II: To be completed by laboratory (also complete Part III)

Date of Arrival 5/1/95 Time of Arrival 2:20 PM

Means of Delivery to Laboratory Truck

Was (were) sample (s) under refrigeration at time of arrival? yes

Part III: Chain of Possession Signature

1. <u>H. Mullen</u> Signature	<u>GES</u> Organization	<u>5-1-95</u> Inclusive Dates
2. <u>Shela K Michael</u> Signature	<u>Enviro</u> Organization	<u>5-1-95</u> Inclusive Dates
3. _____ Signature	_____ Organization	_____ Inclusive Dates
4. _____ Signature	_____ Organization	_____ Inclusive Dates
5. _____ Signature	_____ Organization	_____ Inclusive Dates

UST 205

not regulated

Prior to emptying the 4,000 gallon heating oil tank of its contents, manual tank gauging identified four (4) inches or approximately 105 gallons of water in the tank bottom. Subsequent investigations during the tank closure suggested that the UST water presence is likely due to tank leakage rather than accumulation of condensate water over the years.

The UST was removed from the ground on May 2, 1995 just prior to GES arrival on-site. The UST top was removed and the tank interior manually cleaned prior to removal from the ground utilizing a rubber tire backhoe. J & D Enterprises personnel reported that enough liquid to dampen a small portion of the vessel interior had entered through a mid-tank welded seam between the time of cleaning and the UST removal. Visual examination of the tank by GES personnel did not reveal any holes or significant corrosion.

The UST basin soils were notably contaminated by petroleum from mid-tank depth to the basin bottom. The greenish-gray discolored soils contained trace, though unrecoverable, amounts of free product and emitted moderate to significant heating oil odors. A small volume of perched water within the basin was also unrecoverable. Representative soil samples were acquired from the basin bottom, walls and excavated material for PID and laboratory analyses. The PID registered slight to moderate vapors, and the laboratory GC Method 8015 SV produced TPH results ranging from 26.0 mg/kg to 1,849.2 mg/kg. The following table summarizes the results of all testing.

UST 205 SOIL ANALYTICAL RESULTS				
Sample Number	Sample Location	Depth (Feet)	Vapors (ppm)	Lab TPH mg/kg
1	SSW Bottom	6.5	57.2	862.7
2	NNE Bottom	6.5	73.3	1,849.2
3	All Walls	4.0	4.7	26.0
4	Stockpile	0.0-6.5	3.2	28.3

As required, the WVDEP was notified of a confirmed release from the UST system within 24 hours of observing free product within the basin. It is likely that the UST experienced a slow loss of fuel through an apparent crack in the above noted welded tank seam. The analytical laboratory further stated that the chromatography patterns of the tested soils indicated the contaminant was highly weathered, suggesting a long period of fuel loss from the vessel.

The approximate 30 cubic yards of soil excavated in order to remove the UST was returned to the basin following the closure and soil sampling activities. The remainder of the basin was backfilled with clean imported fill soils.

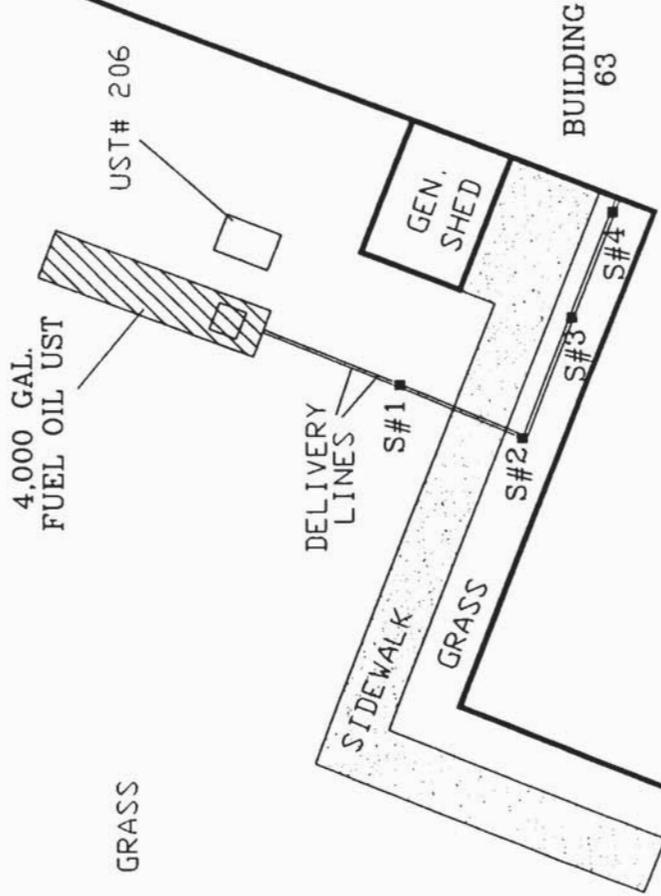
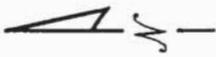
The product delivery and return piping had been exposed approximately one (1) month prior to the actual tank closure. These lines were uncovered by hand excavation due to the presence of other nearby utility lines. Visual inspection of the open utility trench and piping identified a small area of petroleum stained soils at a 90 degree turn in the lines (refer to Plate 2 in this section). A representative soil sample was obtained immediately below the piping at this location and at 15 foot intervals along the utility lines. PID headspace analysis and olfactory screening identified petroleum vapors only within the stained soil sample. Laboratory testing by GC Method 8015 SV produced results ranging from non-detect concentrations to 41,444 mg/kg. As required, the WVDEP was notified of a confirmed release from the UST system piping within 24 hours of receipt of the laboratory test results. The following table summarizes the results of all testing along the delivery lines.

UST 205 DELIVERY LINE SOIL ANALYTICAL RESULTS				
Sample Number	Sample Location	Depth (Inches)	Vapors (ppm)	Lab TPH mg/kg
1	15 ft. from UST	7.0-9.0	ND	140
2	30 ft. from UST	10.0-12.0	156	41,444
3	45 ft. from UST	10.0-12.0	ND	24.2
4	57 ft. from UST	8.0-10.0	ND	ND

ND = Not Detected

USN Contract N62470-94-C-4081
GES Proj. # E-9509CR

The approximate one (1) cubic yard of soil excavated in order to expose the product delivery and return piping was temporarily stockpiled on-site and later used during the UST basin backfilling process. The shallow open trench was backfilled with clean topsoil once the piping system was removed. Site and Sampling Location Plans, Field Sampling and Laboratory Testing Records, the analytical laboratory Certificates of Analysis and related documents for this UST system are presented on the following pages.



LOCATION	DEPTH (IN.)	TPH (MG/KG)
S#1	7-9	140
S#2	10-12	41,444
S#3	10-12	24.2
S#4	8-10	ND



TITLE : SITE & SAMPLE LOCATION PLAN - UST # 205 - DELIVERY LINES	
CLIENT : J & D ENTERPRISES, INC.	SCALE : 1" = 20'
PROJECT : NAVAL SECURITY GROUP ACTIVITY-SUGAR GROVE, W.VA.	DATE : 4/4/95
MT. SIDNEY, VIRGINIA	(703) 248-0610

PLATE # : 1
 PROJECT # : E-9509

GEOTECHNICAL AND ENVIRONMENTAL SERVICES INC.

**FIELD SAMPLING
AND
LABORATORY TESTING RECORD**

**Underground Storage Tank Removals
Naval Security Group Activity
Sugar Grove, West Virginia**

Contract No. N62470-94-C-4081

UST I.D. No.: 205
Sample Date: 4/4/95
Sample Time: 11:30 a.m. - 11:45 a.m.

Sample Information	Delivery Line	Delivery Line	Delivery Line	Delivery Line
Sample #	1	2	3	4
Sample Location	15 Ft. SSW of UST	30 Ft. SSW of UST	11.5 Ft. WNW of Bldg. 63	1.0 Ft. WNW of Bldg. 63
Sample Type	Grab	Grab	Grab	Grab
Sample Depth	7-9 in.	10-12 in.	10-12 in.	8-10 in.
Laboratory I.D. #	V5401233-1	V5401233-2	V5401233-3	V5401233-4
TPH (8015 SV)	140 mg/kg	41,444 mg/kg	24.2 mg/kg	ND
BTEX (8020) Benzene Toluene Ethylbenzene Xylene	NT	NT	NT	NT
TCLP-Lead (239.1)	NT	NT	NT	NT

ND = Not Detected

NT = Not Tested

Note: Laboratory Test Reports and QC Protocol Attached

Certificate of Analysis

Project No. : E-9509
 Geotechnical & Environmental Service Project Name :
 P.O. Box 354 Submitted by : Hank Mullen
 Mount Sidney, VA 24467 Date Received: April 04, 1995
 Date Sampled : April 04, 1995
 Time Sampled : 11:30 - 11:45 am
 Date Issued : April 13, 1995

Sample ID : UST 205, S#1, 7"-9"

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH-GC Diesel	140	mg/kg	10	8015	04-11/16:15	GC
Semi Volatiles						

Sample ID : UST 205, S#2, 10"-12"

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH-GC Diesel	41,444	mg/kg	10	8015	04-11/16:15	GC
Semi Volatiles						

Sample ID : UST 205, S#3, 10"-12"

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH-GC Diesel	24.2	mg/kg	10	8015	04-11/16:15	GC
Semi Volatiles						

Sample ID : UST 205, S#4, 8"-10"

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH-GC Diesel	ND	mg/kg	10	8015	04-11/16:15	GC
Semi Volatiles						


 Royal W. Carson
 Laboratory Manager

V5401233-1

15401233

CHAIN OF CUSTODY FORM

Part I: To be completed by Client (Also Complete Part III)

COMPANY NAME: Geotechnical & Environmental Ser. Purchase Order # E9509

ADDRESS: P.O. Box 354, Mt. Sidney Plaza Unit 3

CITY: Mt. Sidney STATE: Virginia ZIP: 24467

CONTACT PERSON: H. Mullen PHONE NO.: (703) 248-0610

Sampler: same Date Sampled 4-4-95 Time 11:30-11:45 AM

Sample Type (Please Circle): 1) Wastewater, 2) Drinking Water, 3) Monitoring well, 4) Soil, 5) Sludge, 6) Solid Waste, 7) Oil, 8) Industrial Hygiene, () Compliance, 10) Non-Compliance, Other (Please Specify) _____

COLLECTOR'S SAMPLE ID

ANALYSES REQUESTED

ST 205, S#1, 7"-9"
" S#2, 10"-12"
" S#3, 10"-12"
" S#4, 8"-10"

Calif. GC TPH (#2 Heating Oil)
"
"
"

Part II: To be completed by laboratory (also complete Part III)

Date of Arrival 4/4/95 Time of Arrival 305

Means of Delivery to Laboratory Hank Mullen

Was (were) sample (s) under refrigeration at time of arrival? Yes

Part III: Chain of Possession Signature

<u>H. Mullen</u> Signature	<u>GES</u> Organization	<u>4-4-95</u> Inclusive Dates
<u>C. Stone</u> Signature	<u>ENVIRO COMPLIANCE</u> Organization	<u>4-4-95</u> Inclusive Dates
_____ Signature	_____ Organization	_____ Inclusive Dates
_____ Signature	_____ Organization	_____ Inclusive Dates
_____ Signature	_____ Organization	_____ Inclusive Dates

**FIELD SAMPLING
AND
LABORATORY TESTING RECORD**

**Underground Storage Tank Removals
Naval Security Group Activity
Sugar Grove, West Virginia**

Contract No. N62470-94-C-4081

UST I.D. No.: 205
Sample Date: 5/2/95
Sample Time: 8:30 a.m. - 8:45 a.m.

Sample Information	Bottom Sample # 1	Bottom Sample # 2	Composite Wall Sample	Stockpile Sample
Sample #	1	2	3	4
Sample Location	SSW End	NNE End	All Walls	Stockpile
Sample Type	Grab	Grab	Composite	Composite
Sample Depth	6.5 ft.	6.5 ft.	4.0 ft.	0.0-6.5 ft.
Laboratory I.D. #	V5501616-1	V5501616-2	V5501616-3	V5501616-4
TPH (8015 SV)	862.7 mg/kg	1849.2 mg/kg	26.0	28.3 mg/kg
BTEX (8020) Benzene Toluene Ethylbenzene Xylene	NT	NT	NT	NT
TCLP-Lead (239.1)	NT	NT	NT	NT

ND = Not Detected

NT = Not Tested

Note: Laboratory Test Reports and QC Protocol Attached

GES Proj. # E-9509

Certificate of Analysis

Geotechnical & Environmental Services
P.O. Box 354
Mount Sidney, VA 24467

Project No. : E-9509
Project Name :
Submitted by : Hank Mullen
Date Received: May 02, 1995
Date Sampled : May 02, 1995
Time Sampled : 8:30 - 8:45 am
Date Issued : May 18, 1995

Sample ID : UST 205 S#1 6.5'

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH-GC Diesel	862.7 *	mg/kg		8015 SV	05-09/12:15	GC

Sample ID : UST 205 S#2 6.5'

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH-GC Diesel	1,849.2*	mg/kg		8015 SV	05-09/12:15	GC

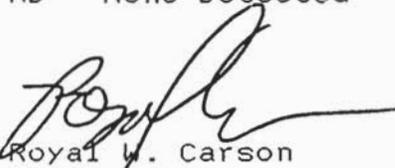
Sample ID : UST 205 S#3 4.0'

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH-GC Diesel	26.0*	mg/kg	10	8015 SV	05-16/15:30	GC

Sample ID : UST 205 S#4 Stockpile

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH-GC Diesel	28.3*	mg/kg		8015 SV	05-09/12:15	GC

ND = None Detected *Chromatography pattern indicates diesel present is highly weathered.


Royal W. Carson
Laboratory Manager

V5501616-1

UST 207 *not resulated*

The 550 gallon capacity heating oil tank was excavated on April 12, 1995. Visual examination of the UST did not identify any holes or significant corrosion. It was apparent that this vessel replaced an earlier tank which had been anchored to an underlying concrete slab with steel straps.

The shaley UST basin soils did not show visual signs of petroleum contamination, however, minor heating oil odors were noted within the eastern basin bottom soils. After acquisition of representative basin bottom and wall soil samples, the approximate two (2) cubic yards of excavated overburden soils were returned to the basin in compacted lifts. Compaction of additional shaley soils and limestone crusher run completed the basin backfilling process and prepared the site for the permanent AST concrete slab-on-grade.

None of the collected soil samples emitted petroleum vapors which were detectable to the PID. Laboratory GC Method 8015 SV test results were all non-detect with the exception of the eastern basin bottom sample, which had a TPH concentration of 152.6 mg/kg. The results of all testing are summarized below.

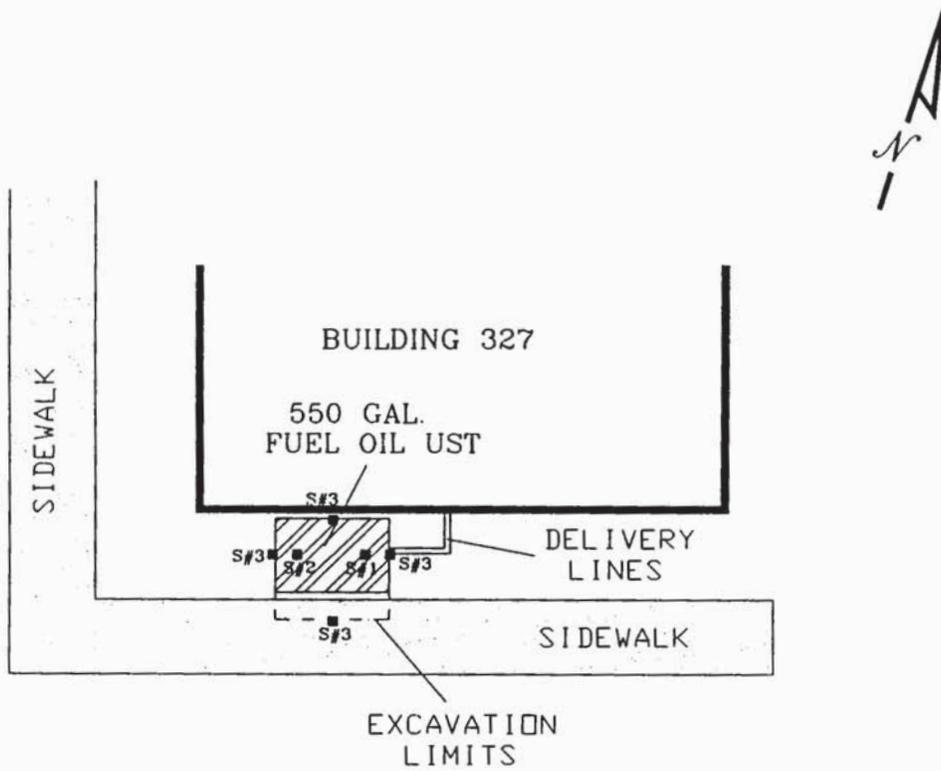
UST 207 SOIL ANALYTICAL RESULTS					
Sample Number	Sample Location	Depth (Feet)	Vapors (ppm)	Lab TPH mg/kg	
1	ENE Bottom	5.0	ND	152.6	
2	WSW Bottom	5.0	ND	ND	
3	All Walls	3.5	ND	ND	
4	Stockpile	0.0-3.0	ND	ND	

ND = Not Detected

USN Contract N62470-94-C-4081
GES Proj. # E-9509CR

As required, the WVDEP was notified of a confirmed release from the UST system within 24 hours of receipt of the laboratory test results. Observations made during the tank closure activities suggest that the site contamination is likely due to leakage from the earlier UST at the site which was replaced in 1983. Furthermore, it is our opinion that the extent of contamination is minor and further investigative work at this site is not warranted.

The Site and Sampling Location Plan, Field Sampling and Laboratory Testing Record, analytical laboratory Certificate of Analysis and related documents are presented on the following pages.



LOCATION	DEPTH (Ft.)	SAMPLE TYPE	TPH (Mg/Kg)
S#1	5.0	GRAB	152.6
S#2	5.0	GRAB	ND
S#3	3.5	Wall Composite	ND
S#4	0.0-3.0	Stockpile Composite	ND

ND= NOT DETECTED

TITLE : SITE & SAMPLE LOCATION PLAN - UST 207

CLIENT : J & D ENTERPRISES, INC.

PROJECT : NAVAL SECURITY GROUP ACTIVITY-SUGAR GROVE, W.VA.

1. SIDNEY, VIRGINIA

PLATE # : 1

PROJECT # : E-9509

SCALE : 1" = 10'

DATE : 4/12/95

GEOTECHNICAL AND ENVIRONMENTAL SERVICES INC.

(703) 248-0610



FIELD SAMPLING
LABORATORY TESTING RECORD

Underground Storage Tank Removals
Naval Security Group Activity
Sugar Grove, West Virginia

Contract No. N62470-94-C-4081

UST I.D. No.: 207
Sample Date: 4/12/95
Sample Time: 9:00 a.m. - 9:15 a.m.

Sample Information	Bottom Sample #1	BottomN Sample #2	Wall Sample	Stockpile Sample
Sample #	1	2	3	4
Sample Location	ENE End	WSW End	All Walls	Stockpile
Sample Type	Grab	Grab	Composite	Composite
Sample Depth	5.0 Ft.	5.0 Ft.	3.5 Ft.	0.0-3.0 Ft.
Laboratory I.D. #	V5401380-1	V5401380-2	V5401380-3	V5401380-4
TPH (8015 SV)	152.6 mg/kg	ND	ND	ND
BTEX (8020) Benzene Toluene Ethylbenzene Xylene	NT	NT	NT	NT
TCLP-Lead (239.1)	NT	NT	NT	NT

ND = Not Detected

NT = Not Tested

Note: Laboratory Test Reports and QC Protocol Attached

Certificate of Analysis

Project No. : E9509
Geotechnical & Environmental SeProject Name :
P.O. Box 354 Submitted by : Hank Mullen
Mount Sidney, VA 24467 Date Received: April 13, 1995
Date Sampled : April 12, 1995
Time Sampled : 9 - 9:15 am
Date Issued : April 20, 1995

Sample ID : UST 207 S#1 5.0'

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH-GC Diesel	152.6	mg/kg		8015	04-19/12:50	GC

Semi Volatiles

Sample ID : UST 207 S#2 5.0'

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH-GC Diesel	ND	mg/kg	10	8015	04-19/12:50	GC

Semi Volatiles

Sample ID : UST 207 S#3 3.5'

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH-GC Diesel	ND	mg/kg	10	8015	04-19/12:50	GC

Semi Volatiles

Sample ID : UST 207 S#4 stockpile

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH-GC	ND	mg/kg	10	8015	04-19/12:50	GC

Semi Volatiles


Roy W. Carson
Laboratory Manager

ND = None Detected

UST 209

not regulated

This 550 gallon capacity heating oil tank was originally scheduled for in-ground closure due to the presence of adjacent subsurface electrical conduits. However, J & D Enterprises personnel were able to expose and extricate the vessel between two (2) electrical conduits on April 12, 1995. Visual examination of the UST identified minor surface corrosion, but no severe corrosion or holes. The presence of petroleum discolored soils within the basin bottom indicated that some past leakage from the UST system had occurred. Only one (1) basin bottom soil sample was acquired for laboratory analysis due to the presence of perched groundwater within the excavation. The perched water contained a faint petroleum sheen and imparted noticeable vapors. Following acquisition of representative soil samples from the basin walls and stockpiled soils, an intense rainfall event caused the cessation of the days activities. Upon arrival on-site the following day, it was noted that the rainfall had half-filled the UST basin, thus diluting the former water content. A sample of this diluted basin water was collected for laboratory analysis.

None of the recovered soil samples emitted vapors detectable to the PID. Laboratory GC Method 8015 SV TPH test results were non-detect for the basin wall and stockpile samples. The TPH contamination within the basin bottom discolored soils was 27.7 mg/kg. The UST basin perched groundwater and rain water tested non-detect for heating oil contamination. The following table summarizes the results of all testing.

UST 209 SOIL ANALYTICAL RESULTS				
Sample Number	Sample Location	Depth (Feet)	Vapors (ppm)	Lab TPH mg/kg
1	Center Bottom	5.0	ND	27.7
2	All Walls	3.0	ND	ND
3	Stockpile	0.0-5.0	ND	ND
WS-1	Basin Water	3.0-5.0	ND	ND

ND = Not Detected

USN Contract N62470-94-C-4081
GES Proj. # E-9509CR

After receiving the analytical laboratory non-detect water sample test results, the UST basin water was discharged to the surface, and the approximate two (2) cubic yards of excavated soil was returned to the basin. The remainder of the basin was backfilled with compacted limestone crusher run. A Site and Sampling Location Plan, Field Sampling and Laboratory Testing Record, the analytical laboratory Certificate of Analysis and related documents are presented on the following pages.

BUILDING
325

A/C UNITS ON
CONCRETE PADS

DELIVERY
LINES

HIGH
VOLTAGE



LOCATION	DEPTH (Ft.)	SAMPLE TYPE	TPH (Mg/Kg)
S#1	5.0	Grab	27.7
S#2	3.0	Wall	ND
S#3	0.0-5.0	Composite Stockpile	ND

ND= NOT DETECTED

EXCAVATION
LIMITS

550 GAL.
FUEL OIL UST



TITLE : SITE & SAMPLE LOCATION PLAN - UST #209

CLIENT : J & D ENTERPRISES, INC.

PROJECT : NAVAL SECURITY GROUP ACTIVITY-SUGAR GROVE, W.VA.

MT. SIDNEY, VIRGINIA

PLATE # : 1
PROJECT # : E-9509

SCALE : 1" = 5'

DATE : 4/12/95

(703) 248-0610

GEOTECHNICAL AND ENVIRONMENTAL SERVICES INC.

**FIELD SAMPLING
AND
LABORATORY TESTING RECORD**

**Underground Storage Tank Removals
Naval Security Group Activity
Sugar Grove, West Virginia**

Contract No. N62470-94-C-4081

UST I.D. No.: 209
Sample Date: 4/12/95
Sample Time: 3:00 p.m. - 3:15 p.m.

Sample Information	Bottom Sample	Wall Sample	Stockpile Sample
Sample #	1	2	3
Sample Location	Center	All Walls	Stockpile
Sample Type	Grab	Composite	Composite
Sample Depth	5.0 Ft.	3.0 Ft.	0.0-5.0 Ft.
Laboratory I.D. #	V5401381-1	V5401381-2	V5401381-3
TPH (8015 SV)	27.7 mg/kg	ND	ND
BTEX (8020) Benzene Toluene Ethylbenzene Xylene	NT	NT	NT
TCLP-Lead (239.1)	NT	NT	NT

ND = Not Detected

NT = Not Tested

Note: Laboratory Test Reports and QC Protocol Attached

**FIELD SAMPLING
AND
LABORATORY TESTING RECORD**

**Underground Storage Tank Removals
Naval Security Group Activity
Sugar Grove, West Virginia**

Contract No. N62470-94-C-4081

UST I.D. No.: 209
Sample Date: 4/13/95
Sample Time: 11:30 a.m.

Sample Information	Perched Water and Rain Water
Sample #	WS-1
Sample Location	UST Basin
Sample Type	Grab
Sample Depth	3.0-5.0 Ft.
Laboratory I.D. #	V5401382-1
TPH (8015 SV)	ND
BTEX (8020) Benzene Toluene Ethylbenzene Xylene	NT
TCLP-Lead (239.1)	NT

ND = Not Detected

NT = Not Tested

Note: Laboratory Test Reports and QC Protocol Attached

Certificate of Analysis

Project No. : E2509
Geotechnical & Environmental Co. Project Name :
P.O. Box 354 Submitted by : Hank Mullen
Mount Sidney, VA 24467 Date Received: April 13, 1995
Date Sampled : April 12, 1995
Time Sampled : 3:00:15 pm
Date Issued : April 27, 1995

Sample ID : UST 202 SH1 5.0'

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH-GC Diesel	27.7	mg/kg		8015	04 19/14:30	GC
Semi Volatiles						

Sample ID : UST 202 SH2 3.0'

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH-GC Diesel	ND	mg/kg	10	8015	04 19/14:30	GC
Semi Volatiles						

Sample ID : UST 202 SH3 Stockpile

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH-GC Diesel	ND	mg/kg	10	8015	04 19/14:30	GC
Semi Volatiles						

ND = none detected


Royal W. Carson
Laboratory Manager

V5401381-1

Certificate of Analysis

Project No. : E9509
Geotechnical & Environmental SeProject Name :
P.O. Box 354 Submitted by : Hank Mullen
Mount Sidney, VA 24467 Date Received: April 13, 1995
Date Sampled : April 13, 1995
Time Sampled : 11:30 am
Date Issued : April 21, 1995

Sample ID : UST 209 WS-1

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH-GC #2 Heating Oil	ND	mg/l	.2	8015SV	04-19/11:05	GC

ND = None Detected



Royal W. Carson
Laboratory Manager

V5401382-1

UST 210

not regulated

The 550 gallon capacity heating oil tank was removed from the ground on March 31, 1995. Visual examination of the vessel identified minor surface corrosion and one (1) small hole 1/16-1/8 inch in diameter. There was no evidence, however, that a significant volume of product had been lost from the UST system. Representative soil samples were collected from the basin bottom, one (1) of which was recovered directly beneath the UST perforation at the south tank end. Additional samples were acquired from the basin walls, excavated materials and along the delivery lines.

PID screening of the recovered soil samples failed to detect measurable vapors. Laboratory GC Method 8015 SV TPH test results were non-detect for all soil samples. The following table summarizes the results of all analyses.

UST 210 SOIL ANALYTICAL RESULTS					
Sample Number	Sample Location	Depth (Feet)	Vapors (ppm)	Lab TPH mg/kg	
1	S Bottom	5.5	ND	ND	
2	N Bottom	5.5	ND	ND	
3	All Walls	3.0	ND	ND	
4	Stockpile	0.0-5.5	ND	ND	
5	Delivery Lines	1.0	ND	ND	

ND = Not Detected

The approximate two (2) cubic yards of soil excavated in order to remove the UST was returned to the basin following the closure and soil sampling activities. The remainder of the basin was backfilled with clean imported fill soils. A Site and Sampling Location Plan, Field Sampling and Laboratory Testing Record, the analytical laboratory Certificate of Analysis and related documents are presented on the following pages.

WOODS

UST# 208

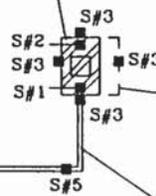
ASPHALT

ASPHALT

GRASS

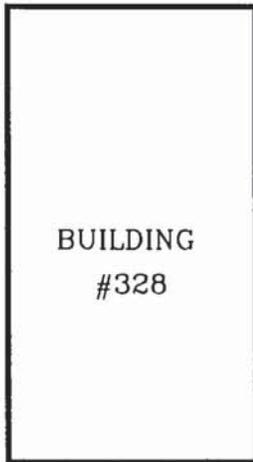
GRASS

550 GAL. FUEL OIL UST



EXCAVATION LIMITS

DELIVERY LINES



BUILDING #328

LOCATION	DEPTH (Ft.)	SAMPLE TYPE	TPH (Mg/Kg)
S#1	5.5	Grab	ND
S#2	5.5	Grab	ND
S#3	3.0	Wall Composite	ND
S#4	0.0-5.5	Stockpile Composite	ND
S#5	1.0	Grab	ND

ND= NOT DETECTED



TITLE : SITE & SAMPLE LOCATION PLAN - UST #210

CLIENT : J & D ENTERPRISES, INC.

PROJECT : NAVAL SECURITY GROUP ACTIVITY-SUGAR GROVE, W.VA.

MT. SIDNEY, VIRGINIA

PLATE # : 1

SCALE : 1"=20'

PROJECT # : E-9509

DATE : 3/31/95

GEOTECHNICAL AND ENVIRONMENTAL SERVICES INC.

(703) 248-0610



**FIELD SAMPLING
AND
LABORATORY TESTING RECORD**

**Underground Storage Tank Removals
Naval Security Group Activity
Sugar Grove, West Virginia**

Contract No. N62470-94-C-4081

UST I.D. No.: 210
Sample Date: 3/31/95
Sample Time: 10:45 a.m. - 11:15 a.m.

Sample Information	Bottom Sample #1	Bottom Sample #2	Wall Sample	Stockpile Sample
Sample #	1	2	3	4
Sample Location	S End	N End	All Walls	Stockpile
Sample Type	Grab	Grab	Composite	Composite
Sample Depth	5.5 Ft.	5.5 Ft.	3.0 Ft.	0.0-5.5 Ft.
Laboratory I.D. #	V5301202-1	V5301202-2	V5301202-3	V5301202-4
TPH (Calif.)	ND	ND	ND	ND
BTEX (8020) Benzene Toluene Ethylbenzene Xylene	NT	NT	NT	NT
TCLP-Lead (239.1)	NT	NT	NT	NT

ND = Not Detected

NT = Not Tested

Note: Laboratory Test Reports and QC Protocol Attached

**FIELD SAMPLING
AND
LABORATORY TESTING RECORD**

**Underground Storage Tank Removals
Naval Security Group Activity
Sugar Grove, West Virginia**

Contract No. N62470-94-C-4081

UST I.D. No.: 210
Sample Date: 3/31/95
Sample Time: 10:45 a.m. - 11:15 a.m.

Sample Information	Delivery Line
Sample #	5
Sample Location	10 Ft. E of Bldg. 328
Sample Type	Grab
Sample Depth	1.0 Ft.
Laboratory I.D. #	V5301202-5
TPH (Calif.)	ND
BTEX (8020) Benzene Toluene Ethylbenzene Xylene	NT
TCLP-Lead (239.1)	NT

ND = Not Detected

NT = Not Tested

Note: Laboratory Test Reports and QC Protocol Attached

Certificate of Analysis

Geotechnical & Environmental Svc.

P.O. Box 354

Mount Sidney, VA 24467

Submitted by : Hank Mullen

Date Received: March 31, 1995

Date Sampled : March 31, 1995

Time Sampled :

Date Issued : April 06, 1995

Sample ID : UST 210 S#1 5.5'

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH-GC diesel	ND	mg/kg	11.5	California	04-05/12:15	GC

(Semi Volatiles)

Sample ID : UST 210 S#2 5.5'

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH-GC diesel	ND	mg/kg	11.4	California	04-05/12:15	GC

(Semi Volatiles)

Sample ID : UST 210 S#3 3.0'

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH-GC diesel	ND	mg/kg	11.8	California	04-05/12:15	GC

(Semi Volatiles)



Royal W. Carson
Laboratory Manager

V5301202-1

Certificate of Analysis

Project No. : E9509
Geotechnical & Environmental SeProject Name :
P.O. Box 354 Submitted by : Hank Mullen
Mount Sidney, VA 24467 Date Received: March 31, 1995
Date Sampled : March 31, 1995
Time Sampled :
Date Issued : April 06, 1995

Sample ID : UST 210 S#4 STOCKPILE

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH-GC diesel	ND	mg/kg	11.6	California	04-05/12:15	GC
(Semi Volatiles)						

Sample ID : UST 210 S#5 1.0'

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH-GC diesel	ND	mg/kg	11.7	California	04-05/12:15	GC
(Semi Volatiles)						


Royal W. Carson
Laboratory Manager

V5301202-2

not regulated

5,000 GALLON DIESEL AST

In addition to removing, replacing and upgrading petroleum USTs at the two (2) Navy sites, J & D Enterprises personnel were requested to demolish and dispose of a 5,000 gallon capacity diesel AST located at the Operations Site. This vessel was empty and abandoned, and was located within a soil dike adjacent to the southeast corner of Building 303.

Two (2) representative shallow soil samples were acquired beneath the AST on May 1, 1995. There were no visibly stained or contaminated soils evident within the AST containment area. The soil samples were recovered beneath valves or piping at both ends of the vessel. Neither soil sample emitted vapors detectable by the PID. Laboratory GC Method 8015 SV TPH test results for the samples were 36.2 mg/kg and 19.7 mg/kg indicating there had been a release of diesel fuel from the AST system. The laboratory reported that the chromatography patterns for both samples indicated the product was highly weathered, suggesting the minor contamination was from past spillage during fuel transfers. The table below summarizes the relevant sample information and is followed by the Field Sampling and Laboratory Testing Record, analytical laboratory Certificate of Analysis and related documents.

5,000 GALLON DIESEL AST SOIL ANALYTICAL RESULTS				
Sample Number	Sample Location	Depth (Inches)	Vapors (ppm)	Lab TPH mg/kg
1	South End	0.0-6.0	ND	36.2
2	North End	0.0-6.0	ND	19.7

ND = Not Detected

**FIELD SAMPLING
AND
LABORATORY TESTING RECORD**

**Underground Storage Tank Removals
Naval Security Group Activity
Sugar Grove, West Virginia**

Contract No. N62470-94-C-4081

AST I.D. No.: 5000 Gallon Diesel AST
Sample Date: 5/1/95
Sample Time: 11:00 a.m. - 11:15 a.m.

Sample Information	Sample #1	Sample #2
Sample #	1	2
Sample Location	South End Under Valve	North End by Piping
Sample Type	Grab	Grab
Sample Depth	0.0-6.0 in.	0.0-6.0 in.
Laboratory I.D. #	V5501609-1	V5501609-2
TPH (8015 SV)	36.2 mg/kg	19.7 mg/kg
BTEX (8020) Benzene Toluene Ethylbenzene Xylene	NT	NT
TCLP-Lead (239.1)	NT	NT

NT = Not Tested

Note: Laboratory Test Reports and QC Protocol Attached
GES Proj. # E-9509

Certificate of Analysis

Geotechnical & Environmental Services P.O. Box 354 Mount Sidney, VA 24467	Project No. : E9509 Project Name : Submitted by : Hank Mullen Date Received: May 01, 1995 Date Sampled : May 01, 1995 Time Sampled : 11 - 11:15 am Date Issued : May 09, 1995
---	---

Sample ID : 5000 gal AST S#1

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH-GC Diesel	36.2*	mg/kg		8015 SV	05-05/16:30	GC

Sample ID : 5000 gal AST S#2

Parameter	Result	Units	DL	Method	Date/Time Analyzed	Analyst
TPH-GC Diesel	19.7*	mg/kg		8015 SV	05-05/16:30	GC

*Chromatography pattern indicates diesel fuel in this sample is highly weathered.



Royal W. Carson
Laboratory Manager

V5501609-1



**GROUNDWATER
TECHNOLOGY
GOVERNMENT SERVICES**

Groundwater Technology Government Services, Inc.
1244 B Executive Boulevard, Suite 106, Chesapeake, VA 23320
Tel: (804) 436-7881 Fax: (804) 436-2312

**FIVE WELL PLUS THREE ADDITIONAL WELL
SITE CHECK REPORT
UNDERGROUND STORAGE TANKS 201 AND 202
NAVAL SECURITY GROUP ACTIVITY
A&E CONTRACT NO: N62470-91-D-6652
JOB NO. 830011088.42**

RECEIVED

JUL 6 1993

OFFICE OF WASTE MANAGEMENT
U&T SECTION
CHARLESTON, WV 25301-1401

May 26, 1993

Prepared for:
Commander
Atlantic Division
Naval Facilities Engineering Command
Norfolk, Virginia 23511-6287

**GROUNDWATER TECHNOLOGY
GOVERNMENT SERVICES, INC.**

Prepared by:

William L. Hughes

William L. Hughes
Lead Geologist

**GROUNDWATER TECHNOLOGY
GOVERNMENT SERVICES, INC.**

Approved by:

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Project Manager/Remediation Specialist



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1.0 INTRODUCTION

Groundwater Technology Government Services, Inc. (GSI) was contracted by the Atlantic Division (LANTDIV) Naval Facilities Engineering Command (NAVFACENGCOM) of the Department of the Navy to conduct a site check to identify and/or verify suspected hydrocarbon-impacted subsurface soils and groundwater. The site check was performed in the vicinity of underground storage tanks (USTs) 201 and 202 located at the Naval Security Group Activity, Sugar Grove, West Virginia.

This site check is based on the NAVFAC contractual requirements. In order to successfully complete the site check, the following activities were performed:

- Drilling of twelve soil borings;
- Installing eight soil borings;
- Installing four monitoring wells (MW-1, MW-2, MW-3, and MW-4) to facilitate groundwater sampling;
- Collecting 12 soil and 2 groundwater samples for laboratory analyses for petroleum hydrocarbon concentrations;
- Surveying of the 4 well and 8 soil boring locations;
- Determining the groundwater flow gradient; and
- Characterizing, removing and treating/disposing of soil cuttings and purged groundwater generated during field activities.

Subsequent sections of this report describe site background information, site conditions in terms of physiography, geology and hydrogeology, and results of the field investigation including the evaluation for and concentrations of any petroleum hydrocarbons in the subsurface soils and groundwater.

1.1 Definition of Terms

This section defines the four phases which petroleum hydrocarbons may exist in the subsurface. Liquid-phase hydrocarbons are liquids that may exist in the subsurface as an immobile residual liquid in the unsaturated zone and capillary fringe or free mobile liquids that migrate near the top of the capillary fringe. Dissolved-phase hydrocarbons are liquid-phase hydrocarbons which have dissolved in the groundwater. The tendency for hydrocarbons to transfer to the dissolved phase are a result of the

degree of mixing and contact, and the solubility of the released substance in the groundwater. Dissolved-phase hydrocarbons can be present in infiltrating water in the unsaturated zone, the capillary fringe and in the groundwater of the saturated zone. Vapor-phase hydrocarbons are liquid-phase hydrocarbons that have transferred into the vapor phase as a result of volatilization. Vapor-phase hydrocarbons can be present in the pore spaces of the unsaturated zone or as small bubbles in the saturated zone. Adsorbed-phase hydrocarbons are liquid- or dissolved-phase hydrocarbons that cover the surfaces of soil particles in the saturated and unsaturated zone.

2.0 BACKGROUND

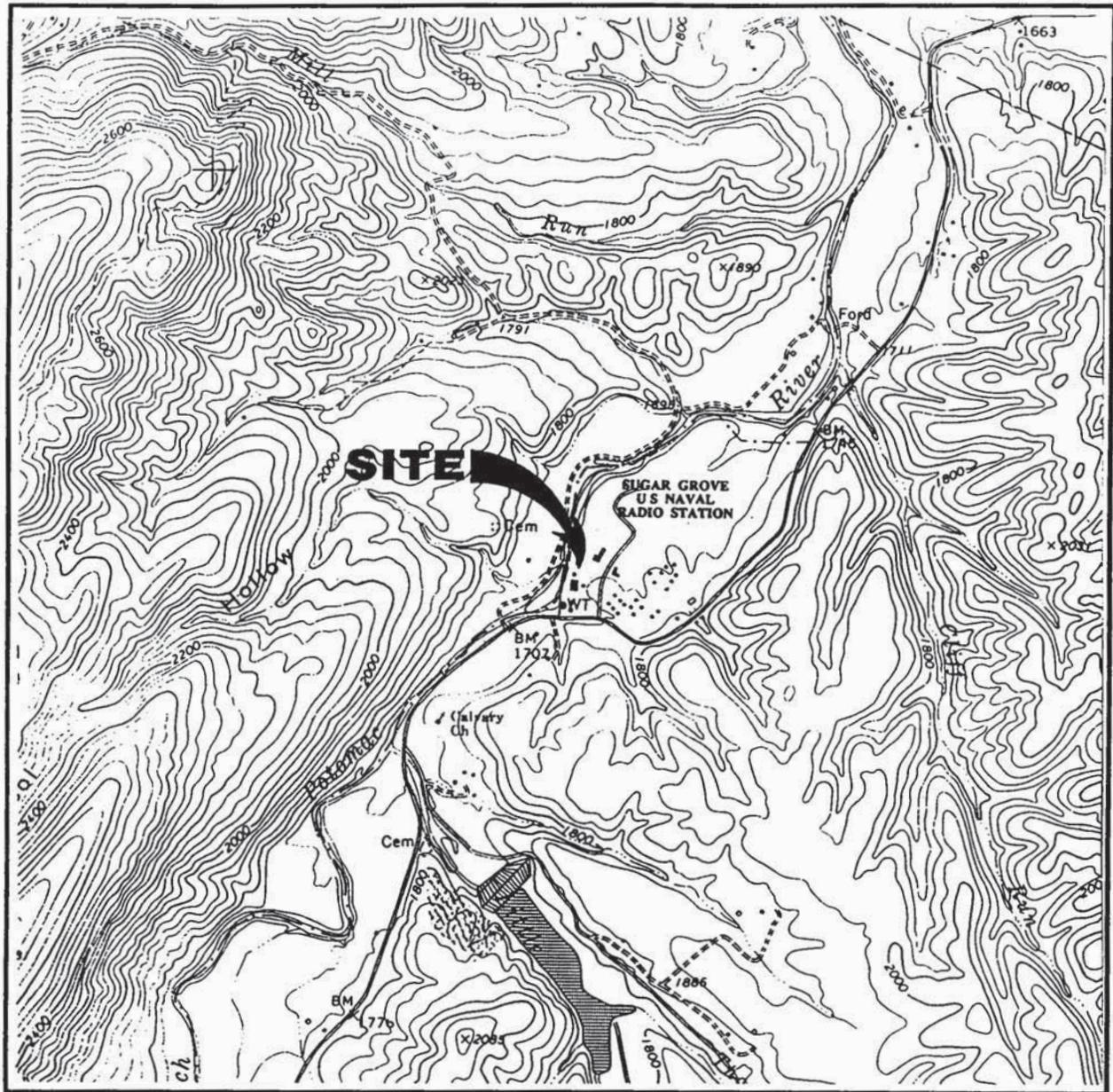
2.1 Site Description

The site is located on the west side of the Naval Security Group Activity (Figure 1). The site map (Figure 2) illustrates the location of the installed wells and soil borings near the tanks. Underground storage tanks 201 and 202 are located on the east side of Building 22. Underground storage tank 201 is of 2,000-gallon capacity and has been historically used to contain diesel fuel. Underground storage tank 202 is of 4,000-gallon capacity and has been historically used to store unleaded gasoline. Both tanks are constructed of single-wall fiberglass reinforced plastic. In 1986, tanks 201 and 202 were installed to replace two previously existing steel USTs that were reported to have leaked. According to verbal information obtained from Base personnel on April 5, 1993, one of the older steel USTs contained holes. Following installation of the new tanks, both USTs and the piping passed leakage integrity tests by tracer and Petrotite methods. Groundwater Technology Government Services (GSI) was not provided any other previously compiled environmental information pertaining to this site.

During recent construction activities, hydrocarbon odors were discovered near the pump islands. The source of the odors could not be identified by base personnel at that time. The West Virginia Division of Natural Resources (WVDNR) was notified of the discovery and a Confirmed Release Notice to Comply was issued on March 2, 1993, to the Public Works Department at the Naval Group Security Activity facility, Sugar Grove, West Virginia. Subsequently, during a rainfall event, surface runoff entered an uncapped product pipe and displaced approximately 1,400 gallons of diesel fuel and 300 gallons of unleaded gasoline. On April 7, 1993, the Public Works Officer for the site reported that liquid-phase hydrocarbons were observed infiltrating from the wall of an excavation to the north of the site. The WVDNR was promptly notified of this observation.

2.2 Land and Water Use

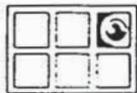
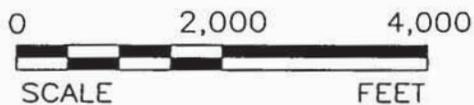
The site is located approximately 300 feet east of the Potomac River. The site is situated on the floor of a valley in the Appalachian Mountains. The topography immediately surrounding the site is relatively flat. The area immediately adjacent USTs 201 and 202 is comprised of buildings that house maintenance and support facilities for the Base. The nearest body of surface water is the Potomac River west of the Base. The potable water for the maintenance site is supplied by a local reservoir. The potable water for the support site of the base is supplied by the South Fork of the South Branch of the Potomac River. The spill occurred at the support site.



SOURCE: U.S.G.S. TOPOGRAPHIC QUADRANGLE
 SUGAR GROVE, W.VA.
 7.5 MINUTE SERIES
 N3830-W7915/7.5
 1981



SCALE 1:24,000



**GROUNDWATER
 TECHNOLOGY**

1244-B EXECUTIVE BLVD.
 CHESAPEAKE, VA. 23320
 (804) 436-7881

DESIGNED:

BH

DETAILED:

PJC

CHECKED:

SITE LOCATION

CLIENT:

LANTDIV NAVFACENCOM

LOCATION:

UST 201 AND 202
 SUGAR GROVE NSGA, W.V.

DRAWING DATE:

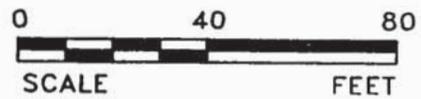
4/15/93

FIGURE:

1

LEGEND

- ◆ MONITORING WELL
- ⊙ SOIL BORING
- * APPROXIMATE LOCATION



SOURCE: BOBBITT SURVEYING, P.A. (5/20/93)

BUI

		GROUNDWATER TECHNOLOGY	1244-B EXECUTIVE BLVD. CHESAPEAKE, VA. 23320 (804) 436-7881
REV. NO.:	DRAWING DATE: 5/21/93	ACAD FILE:	202NEW
SITE MAP			
CLIENT: LANTDIV NAVFACENCOM			PM:
LOCATION: UST 201 AND 202 NSGA SUGAR GROVE, W.V.			PE/RG:
DESIGNED: BH	DETAILED: PJC	PROJECT NO.: 830011088.4201	FIGURE: 2

2.3 Regional Geology

The Valley and Ridge Physiographic Province is characterized by relatively high elevations and relief. The topography has a north-south trend that is closely related to the tectonic history of the area. Geologic formations which outcrop in the area include the Devonian age Marcellous Formation, Needmore Shale, and Oriskany Sandstone. The Marcellous Formation is predominantly gray-black to black thinly laminated non-calcareous pyritic shale. The Needmore Shale is characterized by dark grey on green calcitic, mostly non-fissile shale. The Oriskany Sandstone is white to brown, coarse- to fine-grained, partly calcareous sandstone. Locally, this unit may be pebbly or conglomeratic. Alluvium of Holocene (Recent) age is located on the floor of valleys and forms a thin veneer on the valley walls. These Recent age deposits were formed in a fluvial depositional environment.

2.4 Regional Hydrogeology

The depth to groundwater in the area is unknown. The groundwater flow direction based upon the geomorphology of the area is west.

3.0 INVESTIGATIVE METHODS

3.1 Soil Sampling and Monitoring Well Installation

To investigate for the presence/absence of adsorbed-phase hydrocarbons in the soils beneath the site, twelve soil borings were drilled to the top of the bedrock at approximately 7 feet on April 7 and 8, 1993. All drilling activities were performed by a truck-mounted drill rig equipped with 10-inch outside diameter hollow stem augers. All soil samples were collected with a split-spoon core sampling device mounted within the augers. Before and between drilling each borehole, all augers and drill rods were steam cleaned. All split-spoon sampling devices were cleaned with an alconox wash followed by a distilled water rinse initially and after each sampling event. During drilling, a geologist logged drill cuttings and core samples for soil classification, and collected split-spoon samples at each of the following depths: 0.0 to 1.5 feet, 3.5 to 5.0 feet, and 8.5 to 10.0 feet below grade surface. A portion of each core sample was placed into the appropriate laboratory container, sealed, labelled and stored on ice. The remainder of the core sample was placed into a labelled air-tight container. Sufficient time was permitted to warm to ambient temperature so that any hydrocarbons, if present, would volatilize. After the equilibration period, each sample was scanned with a photo-ionization detector (PID) by inserting the sampling probe into the head space of the container (the PID is a field monitoring device used to measure volatile organic constituents in parts per million (ppm)). All the PID readings were recorded on the drill logs adjacent to the respective depth the sample was obtained from. Upon completion of each boring, the PID reading from each split-spoon sample were recorded and the sample with the highest PID reading above the saturated zone was selected for laboratory analysis. One additional soil sample was collected as a duplicate for analysis. The corresponding sample was stored on ice in the laboratory container and submitted to Groundwater Technology Environmental Laboratories, Inc. (GTEL) for analysis. The samples were analyzed for the presence of:

- Total Petroleum Hydrocarbons by EPA Method 418.1;
- Hydrocarbon Screen by EPA Method 3550/8015; and
- Benzene, Toluene, Ethylbenzene, Xylenes (BTEX) by EPA Method 3510/8020.

If PID field screening of soil samples detected organic vapor concentrations greater than 100 ppm and the soils appeared to be favorable for soil venting, the soil boring was converted into a two-inch diameter monitoring well. Soil boring SB-4 was converted to monitoring well MW-2 for a potential vapor extraction well. Locations of soil borings/monitoring wells are depicted on Figure 2.

To counter the effects of drilling and to maximize the hydraulic connection between the well and the surrounding aquifer, each well was developed using a surge and pump technique. This was accomplished by agitating the water in the well to remove the fine-grained sediments in the well screen and sand pack. The sediments were then removed using a portable pump. The wells were developed until the water visually appeared to be free of sediment.

Geologic well logs detailing the lithology penetrated by each soil boring, well construction, and results of the PID surveys are presented in Appendix A. The laboratory analytical reports including the chain-of-custody documentation for the soil samples collected are presented in Appendix B.

3.2 Groundwater Sampling

A groundwater sampling program was conducted to provide baseline information as to the extent and degree of dissolved-phase petroleum hydrocarbons in groundwater beneath the site. One water sample was attempted to be collected from each of the four monitoring wells to be analyzed for the presence of:

- Total Petroleum Hydrocarbons by EPA Method 418.1;
- Hydrocarbon Screen by EPA Method 3510/8015;
- BTEX by modified EPA Method 602; and
- Polynuclear Aromatic Hydrocarbons by EPA Method 610.

Before groundwater sample collection, each well was purged of at least three well volumes of water. All groundwater samples were collected and analyzed according to approved EPA protocol. These protocols include the donning of protective equipment by the work staff, the use of appropriate sampling devices and techniques, sample containers, chain-of-custody documentation, and approved laboratory techniques.

Due to insufficient water, samples could not be obtained from monitoring wells MW-2 and MW-4. Additionally, due to insufficient water in the wells, duplicate groundwater samples were not collected. Copies of the laboratory analytical reports, including the chain-of-custody documentation for the groundwater samples, are presented in Appendix B.

3.3 Well Elevation Survey

The top of the casing of each monitoring well was surveyed to within 0.01 feet vertical and 0.1 feet horizontal tolerances of a temporary benchmark. The benchmark, established on the finished floor of Building 20, was assumed to have an elevation of 100.00 feet. Well-head elevation data are presented in Appendix C.

3.4 Groundwater Monitoring

The four monitoring wells were gauged on April 9, 1993. Measurements of the liquid levels in the monitoring well were made with an electronic optical Interface Probe™ that has the capability of distinguishing liquid-phase hydrocarbons from water. Liquid levels were measured to the nearest 0.01 foot from a permanently marked survey point on the top of each well casing to allow measured values to be directly compared to a common datum. Measurements made in the field included depth to water, depth to liquid-phase hydrocarbons (if present), and thickness of liquid-phase hydrocarbons (if present). If the presence of liquid-phase hydrocarbons was indicated by measurements with the Interface Probe™, a clear acrylic bailer was used to obtain a groundwater sample from the well for visual confirmation. All measured liquid levels and all pertinent field observations were immediately recorded in a bound field book to provide a permanent record of the site visit.

4.0 INVESTIGATIVE RESULTS

4.1 Site Geology

The stratigraphy directly beneath the site, as determined by well logs (Appendix A) compiled during drilling of the soil borings, is characterized by clay and sandy clays. The depth to the bedrock where auger refusal was encountered ranged from 4 feet below the surface in soil boring SB-11 to 10 feet in soil boring SB-7 (MW-3).

4.2 Site Hydrogeology

During the drilling of the soil borings, water saturated soils were not encountered in any of the soil borings. It was noted that gravel and sand road base that directly underlie the asphalt were water saturated. Well gauging data was recorded on May 12, 1993, and was used to prepare a potentiometric surface map (Figure 3) indicating a groundwater flow direction towards the west. The hydraulic gradient across the site is approximately 0.062 feet per foot. The depth to the table ranged from 1.63 feet in monitoring well MW-1 to 5.42 feet in monitoring well MW-4.

4.3 Presence of Hydrocarbons

4.3.1 Adsorbed-Phase Hydrocarbons

On April 7 and 8, 1993, twelve soil borings were drilled at the site. Soil borings SB-5, SB-4, SB-7, and SB-6 were converted to monitoring wells MW-1, MW-2, MW-3 and MW-4, respectively. Soil samples were collected from each borehole and scanned with a PID. The results of PID monitoring of split-spoon samples collected during drilling activities are presented in Table 1. One soil sample from each soil boring was submitted to an analytical laboratory for analysis. Table 1 also depicts the analytical results of soil samples collected.

Analytical results for the soil samples collected indicate TPH concentrations ranged from 46 ppm in the sample collected at 0 to 2 feet below grade from soil boring SB-2 to 100 ppm in the sample collected at 7 to 9 feet below grade from monitoring well MW-3 (Figure 4). Soil samples collected from monitoring wells MW-1 and MW-4 and soil boring SB-8 contained 22 ppm, 48 ppm and 22 ppm, respectively, of TPH-as-gasoline. According to the analytical report, the chromatographs for the TPH-as-gasoline showed a loss of volatile components consistent with models of weathered gasoline. Total BTEX

LEGEND

- ◆ MONITORING WELL
- ⊙ SOIL BORING
- * APPROXIMATE LOCATION
- [7,900] TPH-AS-GASOLINE CONCENTRATION BY EPA METHOD 3550/8015 IN ppb
- [NS] NOT SAMPLED-INSUFFICIENT WATER
- (92.5) RELATIVE GROUNDWATER ELEVATION (ft.)
- POTENTIOMETRIC SURFACE CONTOUR
- GROUNDWATER FLOW DIRECTION



SOURCE: BOBBITT SURVEYING, P.A. (5/20/93)

BU

		GROUNDWATER TECHNOLOGY	1244-B EXECUTIVE BLVD. CHESAPEAKE, VA. 23320 (804) 436-7881
REV. NO.:	DRAWING DATE:	ACAD FILE:	
1	5/21/93	202NEW	
POTENTIOMETRIC SURFACE AND DISSOLVED-PHASE TPH-AS-GASOLINE DISTRIBUTION MAP			
CLIENT:			PM:
LANTDIV NAVFACENGCOM			
LOCATION:			PE/RG:
UST 201 AND 202 NSGA SUGAR GROVE, W.V.			
DESIGNED:	DETAILED:	PROJECT NO.:	FIGURE:
BH	PJC	830011088.4201	3

Table 1
 Summary of Soil Sample Analytical Results & PID Readings
 April 7 and 8, 1993

Location	Depth (ft)	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	Xylenes (ppm)	TPH (ppm)	Gasoline (ppm)	Mineral Spirits (ppm)	Kerosine (ppm)	Diesel (ppm)	Fuel Oil No. 6 (ppm)	Lubricating Oil (ppm)	PID (ppm)
SB-1	1.5-3.5	<0.05	<0.05	<0.10	<0.20	<38	<12	<12	<12	<12	<12	<12	3.0
	3.5-5.0	--	--	--	--	--	--	--	--	--	--	--	0.6
SB-2	0-2	<0.05	<0.05	<0.01	<0.20	46	<12	<12	<12	<12	<12	<12	0.8
	3-5	--	--	--	--	--	--	--	--	--	--	--	0
SB-3	0-2	<0.5	<0.05	<0.10	<0.20	<39	<12	<12	<12	<12	<12	<12	0
	0-2	0.33	0.25	0.22	0.42	<41	<12	<12	<12	<12	<12	<12	12
(MW-2)	3-4.5	--	--	--	--	--	--	--	--	--	--	--	11
SB-5	0-2	--	--	--	--	--	--	--	--	--	--	--	15
	3-5	0.88	3.6	1.1	5.6	57	22	<13	<13	<13	<13	<13	170
SB-6	0-2	--	--	--	--	--	--	--	--	--	--	--	34
	3-5	1.2	3.6	3.4	15	53	48	<12	<12	<12	<12	<12	175
SB-7	1-3	--	--	--	--	--	--	--	--	--	--	--	40
	3-5	--	--	--	--	--	--	--	--	--	--	--	60
(MW-3)	5-7	--	--	--	--	--	--	--	--	--	--	--	155
	7-9	4.4	2.4	12	42	100	<12	<12	<12	<12	<12	<12	170
	9-10	--	--	--	--	--	--	--	--	--	--	--	45

ppm = parts per million (mg/kg)
 PID = Photo Ionization Detector Reading (based on a similar response using calibration gas)
 . = Sample not submitted to laboratory for analysis
 < = Below laboratory's reported method detection limit

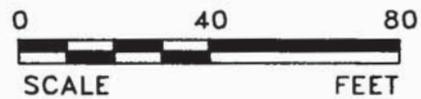
Table 1 (Cont'd)
Summary of Soil Sample Analytical Results & PID Readings
April 7 and 8, 1993

Location	Depth (ft)	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	Xylenes (ppm)	TPH (ppm)	Gasoline (ppm)	Mineral Spirits (ppm)	Kerosine (ppm)	Diesel (ppm)	Fuel Oil No. 6 (ppm)	Lubricating Oil (ppm)	PID (ppm)
SB-8	1.5-3.5	--	--	--	--	--	--	--	--	--	--	--	1.2
	3-5	<0.05	<0.05	<0.10	<0.20	63	22	<13	<13	<13	<13	<13	1.2
SB-9	1-3	--	--	--	--	--	--	--	--	--	--	--	0.4
	3-5	--	--	--	--	--	--	--	--	--	--	--	0.4
	5-7	<0.05	<0.05	<0.10	<0.20	<42	<12	<12	<12	<12	<12	<12	1.0
SB-10	7-9	--	--	--	--	--	--	--	--	--	--	--	0.4
	0-2	--	--	--	--	--	--	--	--	--	--	--	0
	3-5	--	--	--	--	--	--	--	--	--	--	--	0
SB-11	5-7	<0.05	<0.05	<0.10	<0.20	<39	<12	<12	<12	<12	<12	<12	0
	7-9	--	--	--	--	--	--	--	--	--	--	--	0
SB-12	0-2	<0.05	<0.05	<0.10	<0.20	<40	<12	<12	<12	<12	<12	<12	0
	2-4	--	--	--	--	--	--	--	--	--	--	--	0
SB-12	0-2	--	--	--	--	--	--	--	--	--	--	--	0
	2-4	--	--	--	--	--	--	--	--	--	--	--	0
SB-12	4-6	<0.05	<0.08	<0.10	<0.20	49	<12	<12	<12	<12	<12	<12	0

ppm = parts per million (mg/kg)
 PID = Photo Ionization Detector Reading (based on a similar response using calibration gas)
 - = Sample not submitted to laboratory for analysis
 < = Below laboratory's reported method detection limit

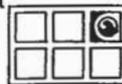
LEGEND

- ◆ MONITORING WELL
- ⊙ SOIL BORING
- * APPROXIMATE LOCATION
- (53) TPH CONCENTRATION BY
EPA METHOD 418.1 IN ppm
- ISOCONCENTRATION CONTOUR



SOURCE: BOBBITT SURVEYING, P.A. (5/20/93)

BUII



**GROUNDWATER
TECHNOLOGY**

1244-B EXECUTIVE BLVD.
CHESAPEAKE, VA 23320
(804) 436-7881

REV. NO.: 1	DRAWING DATE: 5/21/93	ACAD FILE: 202NEW
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**ADSORBED-PHASE TPH
(BY EPA METHOD 418.1)
DISTRIBUTION MAP**

CLIENT: LANTDIV NAVFACENGCOM	PM: 		
LOCATION: UST 201 AND 202 NSGA SUGAR GROVE, W.V.	PE/RG:		
DESIGNED: BH	DETAILED: PJC	PROJECT NO.: 830011088.4201	FIGURE: 4

concentrations were 1.22 ppm in monitoring well MW-2, 61 ppm in monitoring well MW-3 and 23 ppm in monitoring well MW-4 (Figure 5). Adsorbed-phase hydrocarbon concentrations were less than the laboratory's method detection limits in soil samples collected from soil borings SB-1, SB-3, SB-9, SB-10 and SB-11.

4.3.2 Dissolved-Phase Hydrocarbons

Groundwater samples were collected from monitoring wells MW-1 and MW-3 on April 9, 1993, which were analyzed for the presence of dissolved-phase hydrocarbons by EPA Methods 418.1, 3510/8015 and 602. Due to insufficient water, samples were not collected from monitoring wells MW-2 and MW-4. Copies of the analytical reports including the chain-of-custody documentation are presented in Appendix B. Analytical data is summarized in Tables 2 and 3 and illustrated in Figure 6. Analytical results for the groundwater samples collected indicate that dissolved-phase petroleum hydrocarbon concentrations were detected in all of the groundwater samples collected.

Table 2
Summary of Groundwater Sample Analytical Results
By EPA Methods 418.1 and 3510/8015
April 9, 1993

Location	TPH (ppm)	Gasoline (ppb)	Mineral Spirits (ppb)	Kerosine (ppb)	Diesel (ppb)	Fuel Oil No. 6 (ppb)	Lubricating Oil (ppb)
MW-1	4.1	16,000	<50	<50	<50	<50	<50
MW-2	NOT SAMPLED - INSUFFICIENT WATER						
MW-3	1.9	7,900	<50	<50	<50	<50	<50
MW-4	NOT SAMPLED - INSUFFICIENT WATER						
BLANK	<0.50	<50	<50	<50	<50	<50	<50

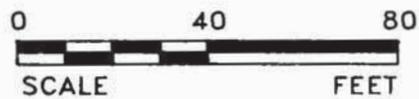
ppb = parts per billion (ug/l)

ppm = parts per million (mg/kg)

< = Below laboratory's reported method detection limit

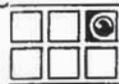
LEGEND

- ◆ MONITORING WELL
- ⊙ SOIL BORING
- * APPROXIMATE LOCATION
- (23.2) TOTAL BENZENE, TOLUENE, ETHYLBENZENE, XYLENES CONCENTRATION BY EPA METHOD 8020 IN ppm
- (<MDL) LESS THAN METHOD DETECTION LIMIT



SOURCE: BOBBITT SURVEYING, P.A. (5/20/93)

BU



**GROUNDWATER
TECHNOLOGY**

1244-B EXECUTIVE BLVD.
CHESAPEAKE, VA 23320
(804) 436-7881

REV. NO.: 1	DRAWING DATE: 5/21/93	ACAD FILE: 202NEW
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**ADSORBED-PHASE TOTAL BTEX
DISTRIBUTION MAP
(BY EPA METHOD 8020)**

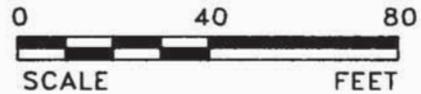
CLIENT: LANTDIV NAVFACENGCOM	PM: 		
LOCATION: UST 201 AND 202 NSGA SUGAR GROVE, W.V.	PE/RG:		
DESIGNED: BH	DETAILED: PJC	PROJECT NO.: 830011088.4201	FIGURE: 5

LEGEND

- ◆ MONITORING WELL
- ⊙ SOIL BORING
- * APPROXIMATE LOCATION

BTEX BY MODIFIED EPA
METHOD 602

(NS) NOT SAMPLED—
INSUFFICIENT WATER



SOURCE: BOBBITT SURVEYING, P.A. (5/20/93)

B

		GROUNDWATER TECHNOLOGY	1244-B EXECUTIVE BLVD. CHESAPEAKE, VA. 23320 (804) 436-7881
REV. NO.: 1	DRAWING DATE: 5/21/93	ACAD FILE:	202NEW
DISSOLVED-PHASE BTEX DISTRIBUTION MAP			
CLIENT: LANTDIV NAVFACENGCOM			PM 
LOCATION: UST 201 AND 202 NSGA SUGAR GROVE, W.V.			PE/RG:
DESIGNED: BH	DETAILED: PJC	PROJECT NO.: 830011088.4201	FIGURE: 6

Table 3
Summary of Groundwater Sample Analytical Results
By EPA Methods 602 and 610
April 9, 1993

Location	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)	Naphthalene (ppb)	Acenaphthylene (ppb)	1-Methylnaphthalene (ppb)	2-Methylnaphthalene (ppb)	Acenaphthene (ppb)	Fluorene (ppb)
MW-1	3,600	4,500	1,000	3,200	170	3.5	18	44	2.7	5.2
MW-2	NOT SAMPLED - INSUFFICIENT WATER									
MW-3	1,200	280	140	400	9.7	<2.3	<1.8	2.3	<1.8	0.46
MW-4	NOT SAMPLED - INSUFFICIENT WATER									
BLANK	<0.2	<0.5	<0.8	<1.7	<1.8	<2.3	<1.8	<1.8	<1.8	<0.21
WQS	5	1,000	700	10,000	NOT REGULATED					

ppb = parts per billion (ug/l)
 ppm = parts per million (mg/kg)
 < = Below laboratory's reported method detection limit
 WQS = Water Quality Standards

4.3.3 Liquid-Phase Hydrocarbons

The monitoring wells were gauged on May 12, 1993 (Appendix D). Liquid-phase hydrocarbons were not detected in any of the wells during this gauging event.

4.4 Drill Cutting and Purge Water Disposal

During the drilling of each of the monitoring wells, drill cuttings from the boreholes were collected and placed in seven 55-gallon barrels. Upon completion of site activities a composite soil sample (SOIL COMP) of all the cuttings was collected and analyzed for:

- BTEX by EPA Method 8020;
- Polychlorinated Biphenyls by EPA Method 8080;
- Total Petroleum Hydrocarbons by modified EPA Method 418.1;
- Metals using the toxicity characteristic leaching procedure (TCLP) by EPA Methods 6010 and 7470;
- Extractable Organic Halides by EPA Method 9020; and
- Percentage Moisture by EPA CLP Method.

The results of the analysis of this sample is presented in Appendix B.

On May 12, 1993, the soils were disposed of accordingly, in compliance with contract, state, federal and local regulations. A copy of the material characterization form and non-hazardous shipping manifest is provided in Appendix E. Seven 55-gallon drums were transported with a waste manifest to a thermal remediation facility located in Fredericksburg, Virginia for treatment and disposal. Prior to transport, a completed material characterization form and copy of the composite soil sample analytical results were provided to the remediation contractor for acceptance of the soils.

The soils were emptied from the drums and delivered via an inclined belt conveyor to the primary treatment unit. The primary treatment unit is a large drum lined with flights which lift the soil and drop it into the hot air stream. The hot air stream is provided by the external burners and furnace. The flights aid in breaking up the soil. The increased surface area exposes more of the soil to the heat needed to vaporize moisture and contaminants. During this phase, the soils are heated to temperatures between 450 and 800 degrees fahrenheit. The heated soils exit the end of the primary unit and are fed by screw conveyor to the treated soil stockpile area to await testing and disposal. The screw conveyor incorporates water jets to cool the heated soils and reduce the amount of dust generated at the exit of the unit.

The hot gas stream containing volatilized hydrocarbon contaminants exits the primary treatment unit passes through ductwork to cyclones which remove most of the particulate material. The particulate material is then taken by screw conveyor to the treated soil stockpile area. Contaminated gases are then transported to the inlet of the secondary combustion chamber via ductwork. The secondary combustion chamber is lined with a high temperature blanket refractory and has a burner which raises the temperature of the gases up to 1850 degrees fahrenheit. At this temperature, volatile hydrocarbons are burned off or oxidized. The thermally oxidized gases are then taken from the secondary combustion chamber by ductwork to a ventura scrubber for removal of particulate. Wet gas from the scrubber passes through a cyclonic matter. The gases then pass through the mist eliminator into the induced draft fan, flowing under pressure to a vertical cyclonic and the stack for discharge.

Following treatment, soil samples are collected and submitted to an analytical laboratory for petroleum hydrocarbon analysis. Following confirmation that the soils have been treated to Virginia Department of Environmental Quality standards, the soils are used as cover at a local landfill. A certificate of recycling will be provided.

During monitoring well development and groundwater sample collection, purge water was stored in 55-gallon drums on site. On May 12, 1993, the purge water was treated using a portable carbon adsorption unit and discharged on site.

4.5 Technical Summary

Groundwater Technology Government Services, Inc. (GSI) has completed an eight well site check for USTs 201 and 202 located at the Naval Security Group Activity, Sugar Grove, West Virginia. The site check was designed to comply with NAVFAC contractual requirements.

Twelve soil borings were drilled at the site on April 7 and 8, 1993. Ten of the twelve soil borings were drilled directly adjacent to the pump island and two USTs. Two soil borings were installed to the north of the site to evaluate the presence of liquid-phase hydrocarbons in an excavation as a possible pathway of released hydrocarbons. Monitoring wells were installed in four of the soil borings.

Soils in the area are characterized by clay and sandy clay. The depth to bedrock where auger refusal was encountered ranged from 4 to 10 feet below the surface. Saturated native soils were not encountered during drilling, although saturated gravel is located directly under the roads in the borings in the paved areas. Saturated fill material at the surface was observed during the drilling of monitoring wells MW-1 and MW-3. The location of the nearby river and topography of the area indicates that the hydraulic gradient across the site would be towards the west.

Analytical results indicate that adsorbed-phase total BTEX concentrations were detected in soil samples collected from the soil borings installed on the southeast side of the site. Total BTEX concentrations on the north and west side of the site were less than the laboratory's reported method detection limit. The distribution of adsorbed-phase TPH is similar to that of total BTEX. Concentrations TPH-as-gasoline were greater than the laboratory's reported method detection limit in soil samples collected from monitoring wells MW-1 and MW-4 and soil boring SB-8. Sample chromatographs showed a loss of volatile components consistent with models of weathered gasoline. The soil samples collected at 4 to 6 feet in the soil boring (SB-12) located near the LPH discovery contained 49 ppm TPH.

Groundwater samples were collected from monitoring wells MW-1 and MW-3 on April 9, 1993. Monitoring wells MW-2 and MW-4 were not sampled due to insufficient water. Dissolved-phase hydrocarbons were detected in all of the groundwater samples collected. Benzene concentrations in the water samples collected from monitoring wells MW-1 and MW-3 are greater than the drinking water standards established by the Safe Drinking Water Act. Toluene and ethylbenzene concentrations in the water samples collected from monitoring well MW-1 also exceed these water quality standards.

5.0 RECOMMENDATIONS

Based on the results of this site check, Groundwater Technology Government Services, Inc. suggests the following additional actions be taken at the site:

- Install one groundwater monitoring well upgradient of the site. The monitoring well should be installed using an Air Rotary or Air Rotary Hammer Drilling Method to penetrate the bedrock. A minimum of two soil samples should be collected during drilling and analyzed for the presence of petroleum hydrocarbons by EPA Methods 3550/8015 and 5030/8020. The soil samples should be collected at the alluvial-bedrock interface and at the top of the water table. Groundwater samples from this monitoring well should be analyzed for dissolved-phase hydrocarbons by EPA Methods 3510/8015 and modified EPA Method 602.
- Install three soil borings to the west of the site to evaluate adsorbed-phase hydrocarbons in the soil. Each of the borings should be drilled to the top of the bedrock. One to two soil samples should be collected from each soil boring and analyzed for the presence of petroleum hydrocarbons by EPA Methods 3550/8015 and 5030/8020.
- Collect additional groundwater samples from all monitoring well for analysis of petroleum hydrocarbons by EPA Methods 3510/8015 and modified EPA Method 602.
- In conjunction with data obtained from the listed actions and existing data, analytically determine the extent and quantity of BTEX contamination for the purposes of preliminary confirmation of an appropriate remediation alternative for site cleanup.

APPENDIX A
Geologic Well Logs

UNIFIED SOIL CLASSIFICATION SYSTEM

CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No. 200 SIEVE SIZE	<u>GRAVELS</u> MORE THAN 1/2 OF COARSE FRACTION > NO. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	<u>SANDS</u> MORE THAN 1/2 OF COARSE FRACTION < NO. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No. 200 SIEVE SIZE	<u>SILTS & CLAYS</u> <u>LL < 50</u>	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	<u>SILTS & CLAYS</u> <u>LL > 50</u>	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074

WELL CONSTRUCTION MATERIALS

	Asphalt (68)	SCREENS
	Concrete (55)	Solid (1s)
	Neat Cement (54)	Slotted PVC (3w)
	Base Course (30)	Slot. PVC High Flow (8w)
	Sluff (64)	Wire Wound PVC (16w)
	Bentonite (21)	Wire Wound Steel (15w)
	Filter Pack (7)	Saw Cut (12w)
	Pea Gravel (2)	
	Liner (33)	
	Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
CC - Continuous Core
CG - Cuttings Grab

SYMBOLS

Initial Water Level
 Static Water Level



GROUNDWATER
TECHNOLOGY
GOVERNMENT SERVICES

Drilling Log

Soil Boring SB-1

Project UST 201 & 202 Owner LANTDIV NAVFACENGCOM
 Location NSGA Sugar Grove, WV Project No. 830011088.42 Date drilled 4/7/93
 Surface Elev. _____ Total Hole Depth 7 ft. Diameter 8 in.
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Filter Pack Material _____ Rig/Core Type B-61/Spit Spoon
 Drilling Company GTI Drilling Method Hollow Stem Auger Permit # _____
 Driller Steve Underwood Log By Angela Bont
 Checked By Taylor Sword License No. CPG APIG #8334

See Site Map
For Boring Location

COMMENTS:

Depth (ft.)	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description
					(Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0					No sample recovered.
2	3.0	11,14,19 23 SB-1			
4	0.6	24,35,50 13		SM	Red-brown color, sandy CLAY, 40-50% fine-grained sand, stiff.
6					No sample recovered.
8					Auger refusal. Sealed borehole to the surface with cement grout.
10					



GROUNDWATER
TECHNOLOGY
GOVERNMENT SERVICES

Drilling Log

Vapor Point SB-2

Project UST 201 & 202 Owner LANTDIV NAVFACENCOM
 Location NSGA Sugar Grove, WV Project No. 830011088.42 Date drilled 4/7/93
 Surface Elev. _____ Total Hole Depth 7.5 ft. Diameter 8 in.
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Filter Pack Material _____ Rig/Core Type B-61/Spit Spoon
 Drilling Company GTI Drilling Method Hollow Stem Auger Permit # _____
 Driller Steve Underwood Log By Angela Bont
 Checked By Taylor Sword License No. CPG APIG #8334

See Site Map
For Boring Location

COMMENTS:

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
						-2
0		0.8	3.6,7.7 SB-2		SC	Orange color, sandy CLAY, fill material. Brown color, sandy CLAY, 40-50% very fine-grained sand and silt.
2						
4		0	9,11,14, 23		CL	Mottled tan and grey color, sandy CLAY with sand stringers, medium plasticity, 20-30% fine-grained sand. Mottled tan and grey color, sandy CLAY, 10% silt, stiff.
6						
8						Auger refusal. Borehole filled with cement to the surface.
10						



GROUNDWATER
TECHNOLOGY
GOVERNMENT SERVICES

Drilling Log

Soil Boring **SB-3**

Project UST 201 & 202 Owner LANTDIV NAVFACENGCOM
 Location NSGA Sugar Grove, WV Project No. 830011088.42 Date drilled 4/7/93
 Surface Elev. _____ Total Hole Depth 4.5 ft. Diameter 8 in.
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Filter Pack Material _____ Rig/Core Type B-61/Spit Spoon
 Drilling Company GTI Drilling Method Hollow Stem Auger Permit # _____
 Driller Steve Underwood Log By Angela Bont
 Checked By Taylor Sword License No. CPG APIG #8334

See Site Map
For Boring Location

COMMENTS:

Depth (ft.)	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	
					-2	
0	0	3.5, 7.5		SC	Brown color, clayey SAND, 60-75% very fine-grained sand.	
		SB-3				Black color, SHALE, thin laminated.
2					SC	Brown color, clayey SAND, 60-75% very fine-grained sand.
4					SC	Sampler refusal.
4					Auger refusal. Sealed borehole to the surface with cement grout.	
6						
8						
10						



GROUNDWATER
TECHNOLOGY
GOVERNMENT SERVICES

Drilling Log

Vapor Point SB-4 (MW-2)

Project UST 201 & 202 Owner LANTDIV NAVFACENGCOM
 Location NSGA Sugar Grove, WV Project No. 830011088.42 Date drilled 4/7/93
 Surface Elev. _____ Total Hole Depth 5.5 ft. Diameter 8 in.
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia 2 in. Length 4 ft. Type/Size 0.020 in.
 Casing: Dia 2 in. Length 4.5 ft. Type Sch 40 PVC
 Filter Pack Material No. 2 Sand Rig/Core Type B-61/Spit Spoon
 Drilling Company GTI Drilling Method Hollow Stem Auger Permit # _____
 Driller Steve Underwood Log By Angela Bont
 Checked By Taylor Sword License No. CPG APIG #8334

See Site Map
For Boring Location

COMMENTS:

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0		12	4,7,10,11			Mottled tan and grey color, silty CLAY, 10-15% silt, medium plasticity, slightly moist. Grades to medium stiff and damp.
2		11			CL	Mottled tan and grey color, silty CLAY, 10-15% silt, medium stiff, damp.
4						
6						Auger refusal. Installed vapor monitoring well in borehole.
8						
10						



GROUNDWATER
TECHNOLOGY
GOVERNMENT SERVICES

Drilling Log

Vapor Point SB-5 (MW-1)

Project UST 201 & 202 Owner LANTDIV NAVFACENGCOM
 Location NSGA Sugar Grove, WV Project No. 830011088.42 Date drilled 4/7/93
 Surface Elev. _____ Total Hole Depth 7.0 ft. Diameter 8 in.
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia 2 in. Length 5 ft. Type/Size 0.020 in.
 Casing: Dia 2 in. Length 2 ft. Type Sch. 40 PVC
 Filter Pack Material No. 2 Sand Rig/Core Type B-61/Spit Spoon
 Drilling Company GTI Drilling Method Hollow Stem Auger Permit # _____
 Driller Steve Underwood Log By Angela Bont
 Checked By Taylor Sword License No. CPG APIG #8334

See Site Map
For Boring Location

COMMENTS:

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0		15	4.7.9			Gravel road base, saturated.
2					CL	Tan and grey mottled color, silty CLAY, 10% silt, medium plasticity, medium stiff.
4		170	9,11,14,9		SC	Sandy CLAY, 40% very fine- to fine-grained sand.
6						Auger refusal. Installed vapor monitoring well in borehole.
8						
10						



GROUNDWATER
TECHNOLOGY
GOVERNMENT SERVICES

Drilling Log

Vapor Point SB-6 (MW-4)

Project UST 201 & 202 Owner LANTDIV NAVFACENGCOM
 Location NSGA Sugar Grove, WV Project No. 830011088.42 Date drilled 4/7/93
 Surface Elev. _____ Total Hole Depth 7.5 ft. Diameter 8 in.
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia 2 in. Length 5 ft. Type/Size 0.020 in.
 Casing: Dia 2 in. Length 2 ft. Type Sch 40 PVC
 Filter Pack Material No. 2 Sand Rig/Core Type B-61/Spit Spoon
 Drilling Company GTI Drilling Method Hollow Stem Auger Permit # _____
 Driller Steve Underwood Log By Angela Bont
 Checked By Taylor Sword License No. CPG APIG #8334

See Site Map
For Boring Location

COMMENTS:

Depth (ft.)	Well Completion	PTD (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0		34	4,6,12,17			Mottled tan and grey color, silty CLAY, 10% silt, medium plasticity, medium stiff, slightly moist.
2		175	11,17,12,6			Mottled tan and grey color, silty CLAY, 10-20% silt, stiff
4			SB-6		CL	Possible hydrocarbon staining.
6						
8						Auger refusal. Installed vapor monitoring well in borehole.
10						



GROUNDWATER
TECHNOLOGY
GOVERNMENT SERVICES

Drilling Log

Vapor Point SB-7 (MW-3)

Project UST 201 & 202 Owner LANTDIV NAVFACENGCOM
 Location NSGA Sugar Grove, WV Project No. 830011088.42 Date drilled 4/8/93
 Surface Elev. _____ Total Hole Depth 10.0 ft. Diameter 8 in.
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia 2 in. Length 7 ft. Type/Size 0.020 in.
 Casing: Dia 2 in. Length 2 ft. Type Sch 40 PVC
 Filter Pack Material No. 2 Sand Rig/Core Type B-61/Spit Spoon
 Drilling Company GTI Drilling Method Hollow Stem Auger Permit # _____
 Driller Steve Underwood Log By Angela Bont
 Checked By Taylor Sword License No. CPG APIG #8334

See Site Map
For Boring Location

COMMENTS:

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						Road base, saturated.
40					CL	Mottled tan and grey color, silty CLAY, 10% silt, medium stiff, medium to medium-high plasticity.
2						Grades to low plasticity.
60			5,10,18, 23			Mottled grey and tan color, SAND and CLAY, 50% sand, low plasticity.
4					SC	
155			3,5,9,11			
6						
170					CL	Grey color, CLAY with thin fine-grained sand stringers.
8			SB-7			
45						SAND and SANDSTONE.
10						Black SHALE -Auger refusal. Installed vapor monitoring well in borehole.



GROUNDWATER
TECHNOLOGY
GOVERNMENT SERVICES

Drilling Log

Soil Boring **SB-8**

Project UST 201 & 202 Owner LANTDIV NAVFACENGCOM
 Location NSGA Sugar Grove, WV Project No. 830011088.42 Date drilled 4/8/93
 Surface Elev. _____ Total Hole Depth 5.5 ft. Diameter 8 in.
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Filter Pack Material _____ Rig/Core Type B-61/Spit Spoon
 Drilling Company GTI Drilling Method Hollow Stem Auger Permit # _____
 Driller Steve Underwood Log By Angela Bont
 Checked By Taylor Sword License No. CPG APIG #8334

See Site Map
For Boring Location

COMMENTS:

Depth (ft.)	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
					-2
0					Fill material, saturated.
1.2		3,9,14,23			Mottled tan and grey color, silty CLAY, 10-15% silt, medium stiff, medium plasticity.
2					
4	1.2	4,4,9,14		CL	
4					
6		SB-8			Auger refusal. Sealed borehole to the surface with cement grout.
6					
8					
8					
10					



GROUNDWATER
TECHNOLOGY
GOVERNMENT SERVICES

Drilling Log

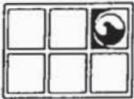
Soil Boring SB-9

Project UST 201 & 202 Owner LANTDIV NAVFACENGCOM
 Location NSGA Sugar Grove, WV Project No. 830011088.42 Date drilled 4/8/93
 Surface Elev. _____ Total Hole Depth 9 ft. Diameter 8 in.
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Filter Pack Material _____ Rig/Core Type B-61/Spit Spoon
 Drilling Company GTI Drilling Method Hollow Stem Auger Permit # _____
 Driller Steve Underwood Log By Angela Bont
 Checked By Taylor Sword License No. CPG AFIG #8334

See Site Map
For Boring Location

COMMENTS:

Depth (ft.)	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0					Fill material.
0.4		4.7, 12, 17			Mottled tan and grey color, silty CLAY, 10% fine- to very fine- grained silt, medium stiff.
2				CL	
0.4		11, 17, 21, 32			
4				CL	
1.0		9, 13, 17, 34			
6		SB-9		CH	Grey color, silty CLAY, 0-10% silt, high plasticity, medium stiff.
0.4		8, 39, 44, 50			
8				CL	Grey color, sandy CLAY and SANDSTONE.
					Black color, SHALE.
					Auger refusal. Sealed borehole to the surface with cement grout.
10					



GROUNDWATER
TECHNOLOGY
GOVERNMENT SERVICES

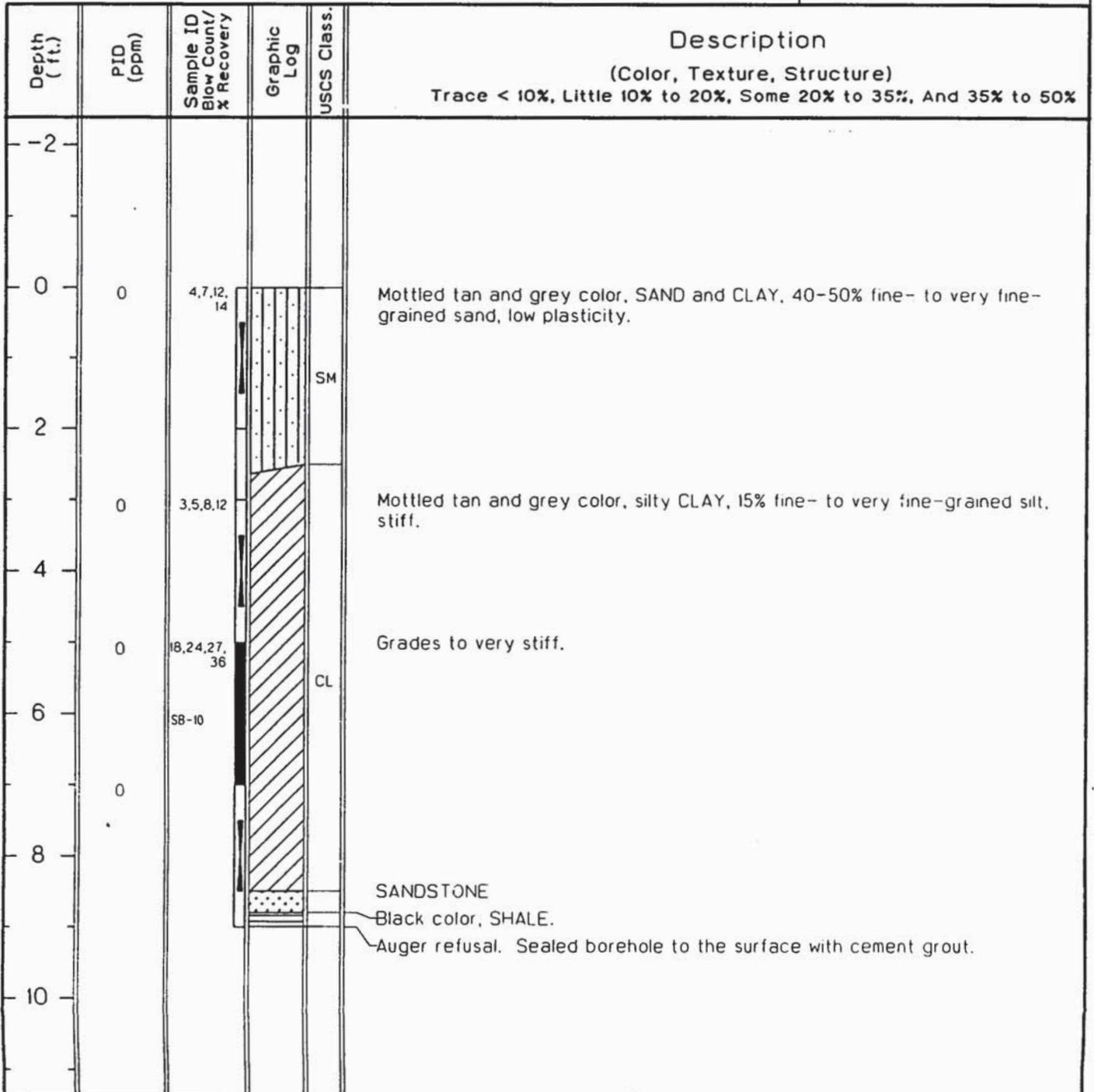
Drilling Log

Soil Boring SB-10

Project UST 201 & 202 Owner LANTDIV NAVFACENGCOM
 Location NSGA Sugar Grove, WV Project No. 830011088.42 Date drilled 4/8/93
 Surface Elev. _____ Total Hole Depth 9 ft. Diameter 8 in.
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Filter Pack Material _____ Rig/Core Type B-61/Spit Spoon
 Drilling Company GTI Drilling Method Hollow Stem Auger Permit # _____
 Driller Steve Underwood Log By Angela Bont
 Checked By Taylor Sword License No. CPG APIG #8334

See Site Map
For Boring Location

COMMENTS:





GROUNDWATER
TECHNOLOGY
GOVERNMENT SERVICES

Drilling Log

Soil Boring SB-11

Project UST 201 & 202 Owner LANTDIV NAVFACENGCOM
 Location NSGA Sugar Grove, WV Project No. 830011088.42 Date drilled 4/8/93
 Surface Elev. _____ Total Hole Depth 4 ft. Diameter 8 in.
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Filter Pack Material _____ Rig/Core Type B-61/Spit Spoon
 Drilling Company GTI Drilling Method Hollow Stem Auger Permit # _____
 Driller Steve Underwood Log By Angela Bont
 Checked By Taylor Sword License No. CPG APIG #8334

See Site Map
For Boring Location

COMMENTS:

Depth (ft.)	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
					-2
0	0	4.7, 9, 15		CL	Tan color, sandy CLAY, fine-grained sand, low plasticity.
2					Tan color, sandy CLAY, fine-grained sand, low plasticity.
4	0	5.6, 3, 50/30			Auger refusal. Sealed borehole to the surface with cement grout.
6					
8					
10					



GROUNDWATER
TECHNOLOGY
GOVERNMENT SERVICES

Drilling Log

Soil Boring **SB-12**

Project UST 201 & 202 Owner LANTDIV NAVFACENGCOM
 Location NSGA Sugar Grove, WV Project No. 830011088.42 Date drilled 4/8/93
 Surface Elev. _____ Total Hole Depth 6 ft. Diameter 8 in.
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Filter Pack Material _____ Rig/Core Type B-61/Spit Spoon
 Drilling Company GTI Drilling Method Hollow Stem Auger Permit # _____
 Driller Steve Underwood Log By Angela Bont
 Checked By Taylor Sword License No. CPG APIG #8334

See Site Map
For Boring Location

COMMENTS:

Depth (ft.)	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description
					(Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0	0	5,8,9,15/ 30			Fill material, black color, sand and gravel.
2	0	16,27,9, 5/0			No recovery of sample.
4	0			CL	Mottled tan and grey color, silty CLAY, rock fragments.
6		SB-12			Auger refusal. Sealed borehole to the surface with cement grout.
8					
10					

APPENDIX B

Soil and Groundwater Sample Analytical Laboratory Report
with Chain-of-Custody Record



Client Number: 830011088
Project ID: LANTDIV
Login Number: M3-04-0308

Northeast Region
Meadowbrook Industrial Park
Milford, NH 03055
(603) 672-4835
(603) 673-8105 (FAX)

April 23, 1993

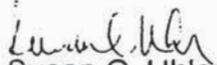
Taylor Sword
Government Services, Inc.
1244-B Executive Blvd, Suite 106
Chesapeake, VA 23320

Dear Mr. Sword:

Enclosed please find the analytical results for the samples received by GTEL Environmental Laboratories, Inc. on 04/10/93 under chain-of-custody records 54860, 54861 and 54862. A formal Quality Assurance / Quality Control (QA/QC) program is maintained by GTEL, which is designed to meet or exceed the EPA requirements. Analytical work for this project met QA/QC criteria unless otherwise stated in the footnotes.

If you have any questions regarding this analysis, or if we can be of further assistance, please call our Customer Service Representative.

Sincerely,
GTEL Environmental Laboratories, Inc.


Susan C. Uhler
Laboratory Director

ANALYTICAL RESULTS

Aromatic Volatile Organics in Soil
 Modified EPA Method 8020^a

GTEL Sample Number		040308-01	030308-02	040308-03	040308-04
Client Identification		SB-1 1.5-3.5'	SB-4 0-2'	SB-2 0-2'	SB-3 0-2'
Date Sampled		04/07/93	04/07/93	04/07/93	04/07/93
Date Analyzed		04/14/93	04/14/93	04/14/93	04/14/93
Analyte	Reporting Limit, mg/kg	Concentration, mg/kg (dry)			
Benzene	0.05	< 0.05	0.33	< 0.05	< 0.05
Toluene	0.05	< 0.05	0.25	< 0.05	< 0.05
Ethylbenzene	0.10	< 0.10	0.22	< 0.10	< 0.10
Xylenes (total)	0.20	< 0.20	0.42	< 0.20	< 0.20
BTEX (total)	--	--	1.2	--	--
Sample Dilution Factor ^b		1.22	1.25	1.19	1.19
Percent Solids		83.8	77.8	83.8	82.9

- a Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986; Methanolic extraction by EPA Method 5030 (purge and trap). Method modified to include additional compounds.
- b The sample dilution factor indicates the adjustments made to the data and detection limits as a result of dilutions and percent solids.

ANALYTICAL RESULTS

Aromatic Volatile Organics in Soil
 Modified EPA Method 8020^a

GTEL Sample Number		040308-05	030308-06	030408-07	030308-08
Client Identification		SB-5 3-5'	SB-6 3-5'	SB-8 3.5-5.5'	SB-9 5-7'
Date Sampled		04/07/93	04/07/93	04/08/93	04/08/93
Date Analyzed		04/14/93	04/14/93	04/14/93	04/14/93
Analyte	Reporting Limit, mg/kg	Concentration, mg/kg (dry)			
Benzene	0.05	0.88	1.2	< 0.05	< 0.05
Toluene	0.05	3.6	3.6	< 0.05	< 0.05
Ethylbenzene	0.10	1.1	3.4	< 0.10	< 0.10
Xylenes (total)	0.20	5.6	15	< 0.20	< 0.20
BTEX (total)	--	11	23	--	--
Sample Dilution Factor ^b		1.33	1.22	1.25	1.25
Percent Solids		76.7	81.2	78.5	79.4

- a Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986; Methanolic extraction by EPA Method 5030 (purge and trap). Method modified to include additional compounds.
- b The sample dilution factor indicates the adjustments made to the data and detection limits as a result of dilutions and percent solids.

ANALYTICAL RESULTS

Aromatic Volatile Organics in Soil
 Modified EPA Method 8020^a

GTEL Sample Number		040308-09	040308-10	040308-11	040308-12
Client Identification		SB-10 5-7'	SB-7 7-9'	SB-11 0-2'	SB-12 4-6'
Date Sampled		04/08/93	04/08/93	04/08/93	04/08/93
Date Analyzed		04/14/93	04/14/93	04/14/93	04/14/93
Analyte	Reporting Limit, mg/kg	Concentration, mg/kg (dry)			
Benzene	0.05	< 0.05	4.4	< 0.05	< 0.05
Toluene	0.05	< 0.05	2.4	< 0.05	0.08
Ethylbenzene	0.10	< 0.10	12	< 0.10	< 0.10
Xylenes (total)	0.20	< 0.20	42	< 0.20	< 0.20
BTEX (total)	--	--	61	--	0.08
Sample Dilution Factor ^b		1.23	1.24	1.20	1.21
Percent Solids		81.7	79.7	80.7	81.6

- a Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986; Methanolic extraction by EPA Method 5030 (purge and trap). Method modified to include additional compounds.
- b The sample dilution factor indicates the adjustments made to the data and detection limits as a result of dilutions and percent solids.

ANALYTICAL RESULTS

Aromatic Volatile Organics in Soil
 Modified EPA Method 8020^a

GTEL Sample Number		040308-13	--	--	--
Client Identification		SOIL COMP.	--	--	--
Date Sampled		04/08/93	--	--	--
Date Analyzed		04/14/93	--	--	--
Analyte	Reporting Limit, mg/kg	Concentration, mg/kg (dry)			
Benzene	0.05	0.11	--	--	--
Toluene	0.05	0.11	--	--	--
Ethylbenzene	0.10	0.17	--	--	--
Xylenes (total)	0.20	0.69	--	--	--
BTEX (total)	--	1.1	--	--	--
Sample Dilution Factor ^b		1.18	--	--	--
Percent Solids		82.5	--	--	--

- a Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986; Methanolic extraction by EPA Method 5030 (purge and trap). Method modified to include additional compounds.
- b The sample dilution factor indicates the adjustments made to the data and detection limits as a result of dilutions and percent solids.

ANALYTICAL RESULTS

Purgeable Aromatics in Water
 Modified EPA Method 602^a

GTEL Sample Number		040308-14	040308-15	040308-16	--
Client Identification		MW-1	MW-3	BLANK	--
Date Sampled		04/09/93	04/09/93	04/09/93	--
Date Analyzed		04/14/93	04/14/93	04/13/93	--
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Benzene	0.2	3600	1200	< 0.2	--
Toluene	0.5	4500	280	< 0.5	--
Ethyl Benzene	0.8	1000	140	< 0.8	--
Xylenes (total)	1.7	3200	400	< 1.7	--
BTEX (total)	--	12000	2000	--	--
Detection Limit Multiplier ^b		50	50	1	--

- a Federal Register, Vol. 49, October 26, 1984. Method modified to include additional compounds.
- b The detection limit multiplier indicates the adjustments made to the data and detection limits for sample dilutions.

Client Number: 830011088
 Project ID: LANTDIV
 Login Number: M3-04-0308

ANALYTICAL RESULTS

Hydrocarbon Screen in Soil
 by GC FID^a

GTEL Sample Number		040308-01	040308-02	040308-03	040308-04
Client Identification		SB-1 1.5-3.5'	SB-4 0-2'	SB-2 0-2'	SB-3 0-2'
Date Sampled		04/07/93	04/07/93	04/07/93	04/07/93
Date Extracted		04/13/93	04/13/93	04/13/93	04/13/93
Date Analyzed		04/16/93	04/16/93	04/16/93	04/16/93
Analyte	Detection Limit, mg/kg	Concentration, mg/kg			
Gasoline	10	< 12	< 12	< 12	< 12
Mineral Spirits	10	< 12	< 12	< 12	< 12
Kerosine	10	< 12	< 12	< 12	< 12
Diesel	10	< 12	< 12	< 12	< 12
Fuel Oil #6	10	< 12	< 12	< 12	< 12
Lubricating Oil	10	< 12	< 12	< 12	< 12
Detection Limit Multiplier		1.16	1.25	1.18	1.17
Percent Solids, %		83.8	77.8	83.8	82.9

a Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986; Methylene chloride extraction by modified EPA Method 3550; modification as per California State Water Resources Control Board LUFT Manual protocols. Concentration calculated on a dry weight basis.

Client Number: 830011088
 Project ID: LANTDIV
 Login Number: M3-04-0308

ANALYTICAL RESULTS

Hydrocarbon Screen in Soil
 by GC FID^a

GTEL Sample Number		040308-05	040308-06	040308-07	040308-08
Client Identification		SB-5 3-5'	SB-6 3-5'	SB-8 3.5-5.5'	SB-9 5-7'
Date Sampled		04/07/93	04/07/93	04/08/93	04/08/93
Date Extracted		04/13/93	04/13/93	04/13/93	04/13/93
Date Analyzed		04/16/93	04/16/93	04/16/93	04/16/93
Analyte	Detection Limit, mg/kg	Concentration, mg/kg			
Gasoline	10	22 ^b	48 ^b	< 12	< 12
Mineral Spirits	10	< 13	< 12	< 12	< 12
Kerosine	10	< 13	< 12	< 12	< 12
Diesel	10	< 13	< 12	< 12	< 12
Fuel Oil #6	10	< 13	< 12	< 12	< 12
Lubricating Oil	10	< 13	< 12	< 12	< 12
Detection Limit Multiplier		1.28	1.15	1.21	1.18
Percent Solids, %		76.7	81.2	78.5	79.4

- a Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986; Methylene chloride extraction by modified EPA Method 3550; modification as per California State Water Resources Control Board LUFT Manual protocols. Concentration calculated on a dry weight basis.
- b The sample chromatogram shows a loss of volatile components consistent with models of a weathered gasoline.

Client Number: 830011088
 Project ID: LANTDIV
 Login Number: M3-04-0308

ANALYTICAL RESULTS

Hydrocarbon Screen in Soil
 by GC FID^a

GTEL Sample Number		040308-09	040308-10	040308-11	040308-12
Client Identification		SB-10 5-7'	SB-7 7-9'	SB-11 0-2'	SB-12 4-6'
Date Sampled		04/08/93	04/08/93	04/08/93	04/08/93
Date Extracted		04/13/93	04/13/93	04/13/93	04/13/93
Date Analyzed		04/16/93	04/16/93	04/16/93	04/16/93
Analyte	Detection Limit, mg/kg	Concentration, mg/kg			
Gasoline	10	< 12	< 12	< 12	< 12
Mineral Spirits	10	< 12	< 12	< 12	< 12
Kerosine	10	< 12	< 12	< 12	< 12
Diesel	10	< 12	< 12	< 12	< 12
Fuel Oil #6	10	< 12	< 12	< 12	< 12
Lubricating Oil	10	< 12	< 12	< 12	< 12
Detection Limit Multiplier		1.20	1.19	1.17	1.20
Percent Solids, %		81.7	79.7	80.7	81.6

- a Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986; Methylene chloride extraction by modified EPA Method 3550; modification as per California State Water Resources Control Board LUFT Manual protocols. Concentration calculated on a dry weight basis.

Client Number: 830011088
 Project ID: LANTDIV
 Login Number: M3-04-0308

ANALYTICAL RESULTS
 Hydrocarbon Screen in Water
 by GC FID^a

GTEL Sample Number		040308-14	040308-15	040308-16	--
Client Identification		MW-1	MW-3	BLANK	--
Date Sampled		04/09/93	04/09/93	04/09/93	--
Date Extracted		04/13/93	04/13/93	04/13/93	--
Date Analyzed		04/15/93	04/16/93	04/16/93	--
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Gasoline	50	16000	7900	< 50	--
Mineral Spirits	50	< 50	< 50	< 50	--
Kerosine	50	< 50	< 50	< 50	--
Diesel	50	< 50 ^b	< 50 ^b	< 50	--
Fuel Oil #6	50	< 50 ^b	< 50 ^b	< 50	--
Lubricating Oil	50	< 50	< 50	< 50	--
Detection Limit Multiplier		1.00	1.00	1.00	--

- a Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986; Methylene chloride extraction by modified EPA Method 3510; modification as per California State Water Resources Control Board LUFT Manual protocols.
- b The sample chromatogram shows the presence of hydrocarbon peaks in the boiling point range of C₁₃ to C₂₅ that appear to be petroleum in nature but do not match instrument standards. Identification of these compounds is beyond the scope of this analysis.

Client Number: 830011088
 Project ID: LANTDIV
 Login Number: M3-04-0308

ANALYTICAL RESULTS

Organochlorine Pesticides and PCBs in Soil
 EPA Method 8080^a

GTEL Sample Number		040308-13	--	--	--
Client Identification		SOIL COMP	--	--	--
Date Sampled		04/08/93	--	--	--
Date Extracted		04/12/93	--	--	--
Date Analyzed		04/17/93	--	--	--
Analyte	Detection Limit, ug/kg	Concentration, ug/kg			
alpha-BHC	1.0	< 1.2	--	--	--
beta-BHC	2.0	< 2.4	--	--	--
delta-BHC	3.0	< 3.6	--	--	--
gamma-BHC (Lindane)	1.3	< 1.6	--	--	--
Heptachlor	1.0	< 1.2	--	--	--
Aldrin	1.3	< 1.6	--	--	--
Heptachlor Epoxide	27	< 33	--	--	--
Endosulfan I	4.6	< 5.6	--	--	--
Dieldrin	0.66	< 0.80	--	--	--
4,4'-DDE	1.3	< 1.6	--	--	--
Endrin	2.0	< 2.4	--	--	--
Endosulfan II	1.3	< 1.6	--	--	--
4,4'-DDD	3.6	< 4.4	--	--	--
Endrin Aldehyde	7.7	< 9.3	--	--	--
Endosulfan Sulfate	22	< 27	--	--	--
4,4'-DDT	4.0	< 4.8	--	--	--
Methoxychlor	58	< 70	--	--	--
Chlordane	4.6	< 5.6	--	--	--
Toxaphene	80	< 97	--	--	--
Detection Limit Multiplier ^b		1.21	--	--	--

ANALYTICAL RESULTS
 Metals in TCLP Leachate^a

GTEL Sample Number		040308-13	--	--	--
Client Identification		SOIL COMP.	--	--	--
Date Sampled		04/08/93	--	--	--
Dates Leached		04/13/93- 04/14/93	--	--	--
Extraction Fluid		1	--	--	--
Date Analyzed (Method 7470)		04/14/93	--	--	--
Date Analyzed (Method 6010)		04/15/93	--	--	--
Analyte	Method ^b	Quantitation Limit, mg/L	Concentration, mg/L		
Arsenic	6010	0.50	< 0.50	--	--
Barium	6010	1.0	< 1.0	--	--
Cadmium	6010	0.050	< 0.050	--	--
Chromium	6010	0.050	< 0.050	--	--
Lead	6010	0.50	< 0.50	--	--
Mercury	7470	0.002	< 0.002	--	--
Selenium	6010	0.20	< 0.20	--	--
Silver	6010	0.050	< 0.050	--	--
Quantitation Limit Multiplier ^c		1.00	--	--	--

- a Federal Register, June 29, 1990, 40 CFR, Part 261, Appendix II - Method 1311. These data are corrected for analytical bias as required by Method 1311 by applying a correction determined by matrix spike recovery.
- b Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA, November 1986; Digestion by Method 3050 (except mercury).
- c The quantitation limit multiplier indicates the adjustments made to the data and detection limits for sample dilutions.

ANALYTICAL RESULTS

Organochlorine Pesticides and PCBs in Soil
 EPA Method 8080a

GTEL Sample Number	040308-13	--	--	--
Client Identification	SOIL COMP	--	--	--
Date Sampled	04/08/93	--	--	--
Date Extracted	04/12/93	--	--	--
Date Analyzed	04/17/93	--	--	--
Analyte	Detection Limit, ug/kg	Concentration, ug/kg		
Aroclor-1221	40	< 48	--	--
Aroclor-1232	40	< 48	--	--
Aroclor-1242 (1016)	40	< 48	--	--
Aroclor-1248	40	< 48	--	--
Aroclor-1254	40	< 48	--	--
Aroclor-1260	40	< 48	--	--
Detection Limit Multiplier ^b		1.21	--	--
Percent Solids, %		82.5	--	--

- a Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986; Extraction by EPA Method 3550 (low-level sonication). Results are reported on a dry weight basis.
- b The detection limit multiplier indicates the adjustments made to the data and detection limits as a result of dilutions and percent solids.

Client Number: 830011088
Project ID: LANTDIV
Login Number: M3-04-0308

ANALYTICAL RESULTS

Extractable Organic Halides in Soil^a

Sample Identification		Date Sampled	Date Analyzed	Percent Solids, %	Detection Limit, mg/kg	Concentration, mg/kg
GTEL No.	Client ID	--	--	--	--	--
040308-13	SOIL COMP.	04/08/93	04/13/93	82.5	74	< 74

- a EPA 600/4-84-008, Appendix D, Method for Extractable Organic Halides In Soil, US EPA, June, 1983. Concentration is calculated on a dry weight basis.

ANALYTICAL RESULTS

Polynuclear Aromatic Hydrocarbons in Water
 EPA Method 610^a

GTEL Sample Number		040308-14	040308-15	040308-16	--
Client Identification		MW-1	MW-3	BLANK	--
Date Sampled		04/09/93	04/09/93	04/09/93	--
Date Extracted		04/12/93	04/12/93	04/12/93	--
Date Analyzed		04/13/93 ^c	04/13/93	04/13/93	--
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Naphthalene	1.8	170 ^c	9.7	< 1.8	--
Acenaphthylene	2.3	3.5	< 2.3	< 2.3	--
1-Methylnaphthalene	1.8	18	< 1.8	< 1.8	--
2-Methylnaphthalene	1.8	44	2.3	< 1.8	--
Acenaphthene	1.8	2.7	< 1.8	< 1.8	--
Fluorene	0.21	5.2	0.46	< 0.21	--
Phenanthrene	0.64	< 0.64	< 0.64	< 0.64	--
Anthracene	0.66	< 0.66	< 0.66	< 0.66	--
Fluoranthene	0.21	< 0.21	< 0.21	< 0.21	--
Pyrene	0.27	< 0.27	< 0.27	< 0.27	--
Benzo[a]anthracene	0.013	< 0.013	< 0.013	< 0.013	--
Chrysene	0.15	< 0.15	< 0.15	< 0.15	--
Benzo[b]fluoranthene	0.018	< 0.018	< 0.018	< 0.018	--
Benzo[k]fluoranthene	0.017	< 0.017	< 0.017	< 0.017	--
Benzo[a]pyrene	0.023	< 0.023	< 0.023	< 0.023	--
Dibenzo[a,h]anthracene	0.030	< 0.030	< 0.030	< 0.030	--
Benzo[g,h,i]perylene	0.076	< 0.076	< 0.076	< 0.076	--
Indeno[1,2,3-cd]pyrene	0.043	< 0.043	< 0.043	< 0.043	--
Detection Limit Multiplier ^b		1.00 ^c	1.00	1.00	--

- a Federal Register, Vol. 49, October 26, 1984. Sample preparation by liquid/liquid extraction.
- b The detection limit multiplier indicates the adjustments made to the data and detection limits for sample dilutions.
- c Detection Limit Multiplier for analyte noted = 10.0, Date Analyzed = 04/14/93.

Client Number: 830011088
Project ID: LANTDIV
Login Number: M3-04-0308

ANALYTICAL RESULTS

Percent Moisture
EPA CLP Method^a

Sample Identification		Date Sampled	Date Analyzed	Percent Moisture
GTEL No.	Client ID	--	--	--
040308-13	SOIL COMP.	04/08/93	04/12/93	17.5

a EPA CLP Statement of Work, ILM 01.01, Section IV, Part F.

Client Number: 830011088
Project ID: LANTDIV
Login Number: M3-04-0308

ANALYTICAL RESULTS

Total Recoverable Petroleum Hydrocarbons in Water
by Infrared Spectrometry
EPA Method 418.1^a

Sample Identification		Date Sampled	Date Extracted	Date Analyzed	Detection Limit, mg/L	Concentration, mg/L
GTEL No.	Client ID	--	--	--	--	--
040308-14	MW-1	04/09/93	04/13/93	04/14/93	0.49	4.1
040308-15	MW-3	04/09/93	04/13/93	04/14/93	0.50	1.9
040308-16	BLANK	04/09/93	04/13/93	04/14/93	0.50	< 0.50

a EPA 600/4-79-020, March 1983 revision.



DOI...COK...UST...PA...
MILFORD, NH 03055
(603) 672-4835
(800) LAB-GTEL

C 1-OF 3 TO YECI
AND ANALYSIS REQUEST

54861

ANALYSIS REQUEST

Company Name: Groundwater Tech
Company Address: 244 B Executive Blvd. #106 Chesapeake, VA
Client Manager: P. Taylor Sward
Phone #: 804-436-7881
FAX #: 804-436-2312
Site location: Sugar Grove/W. VA
Client Project ID: (#) 830611088.42.03

(NAME) LA NT DIN
Sampler Name (Print): Angela Bont

Field Sample ID	GTEL Lab # (Lab use only)	# Containers	Matrix							Method Preserved			Sampling	
			WATER	SOIL	AIR	SLUDGE	PRODUCT	OTHER	HCl	HNO ₃	H ₂ O ₂	ICE	UNRESERVED	DATE
28-9	7-9	5	X	X	X	X	X	X	X	X	X	X	4-8	3:10
28-11	0-2	4	X	X	X	X	X	X	X	X	X	X	4-8	5:25
28-12	4-6	2	X	X	X	X	X	X	X	X	X	X	4-8	5:45
oil Comp.		2	X	X	X	X	X	X	X	X	X	X	4-8	6:30
nw-1		2	X	X	X	X	X	X	X	X	X	X	4-9	10:30
nw-1		4	X	X	X	X	X	X	X	X	X	X	4-9	11:30
nw-3		2	X	X	X	X	X	X	X	X	X	X	4-9	11:30
nw-3		2	X	X	X	X	X	X	X	X	X	X	4-9	10:45
nw-3		2	X	X	X	X	X	X	X	X	X	X	4-9	10:45
nw-3		3	X	X	X	X	X	X	X	X	X	X	4-9	12:00

Special Handling: TAT
GTEL Contact: _____
Quote/Contract #: _____
Confirmation #: _____
PO #: _____
QA/QC LEVEL: CLP OTHER _____
Relinquished by Sampler: Angela Bont
Relinquished by: _____
Relinquished by: _____

SPECIAL DETECTION LIMITS
SPECIAL REPORTING REQUIREMENTS
Lab Use Only Lot # 23CB 10-CHA W2A
Work Order #
Received by: _____
Date: 4-9-93 5:20
Time: 5:20

REMARKS: 5 Day TAT !!
Storage Location: _____
Received by: _____
Date: 4/10/93 12:30
Time: 12:30

Received by Laboratory: Murr Bell
Waybill # 6764542492

CUSTODY RECORD



100 INDUSTRIAL PARK
MILFORD, NH 03055
(603) 672-4835
(800) LAB-GTEL

STC REC
AND ANALYSIS REQUEST

54860

Company Name:

Environmental Laboratories, Inc.

Company Address:

244 Executive Blvd. #100
Chesapeake, VA

Site location:

Sugar Grove, VA
Client Project ID: (#) 830011888.42.03

Phone #: 804-436-7881

FAX #: 804-436-2312

P. Taylor Sward
attest that the proper field sampling
procedures were used during the collection
of these samples.

(NAME) LANIDIV

Sampler Name (Print):

Angela Bent

Field Sample ID	GTEL Lab # (Lab use only)	# Containers	Matrix							Method Preserved			Sampling		
			WATER	SOIL	AIR	SLUDGE	PRODUCT	OTHER	HCl	HNO ₃	H ₂ O ₂	ICE	UNRESERVED	OTHER (SPECIFY)	DATE
SB-1	15-35'	5	X	X	X	X	X	X	X	X	X	X	X	4-7	2:10
SB-4	0-2'	5	X	X	X	X	X	X	X	X	X	X	X	4-7	2:45
SB-2	0-2'	5	X	X	X	X	X	X	X	X	X	X	X	4-7	3:20
SB-3	0-2'	3	X	X	X	X	X	X	X	X	X	X	X	4-7	3:40
SB-5	3-5'	5	X	X	X	X	X	X	X	X	X	X	X	4-7	4:25
SB-6	3-5'	5	X	X	X	X	4-7	4:50							
SB-6	3-5'	5	X	X	X	X	X	X	X	X	X	X	X	4-7	5:00
SB-8	3.5-5.5'	5	X	X	X	X	X	X	X	X	X	X	X	4-8	10:30
SB-9	5-7'	5	X	X	X	X	X	X	X	X	X	X	X	4-8	11:20
SB-10	5-7'	5	X	X	X	X	X	X	X	X	X	X	X	4-8	12:35

REMARKS
5 Day TAT!
Labels dated 4/6/93 should be dated 4/7/93
Lab Use Only Lot # _____ Storage Location: A. Bent

236B 10-41A W2A
Work Order # _____
Received by: _____

Received by: _____
Date: _____ Time: _____

Received by: _____
Date: _____ Time: _____

Received by: _____
Date: 4/10/93 Time: 12:30

Waybill # 6765542442

SPECIAL DETECTION LIMITS

SPECIAL REPORTING REQUIREMENTS

QA/QC LEVEL
OTHER FAX

GTEL Contact _____
Quote/Contract # _____
Confirmation # _____
PO # _____

Relinquished by Sampler: Angela Bent

Relinquished by: _____

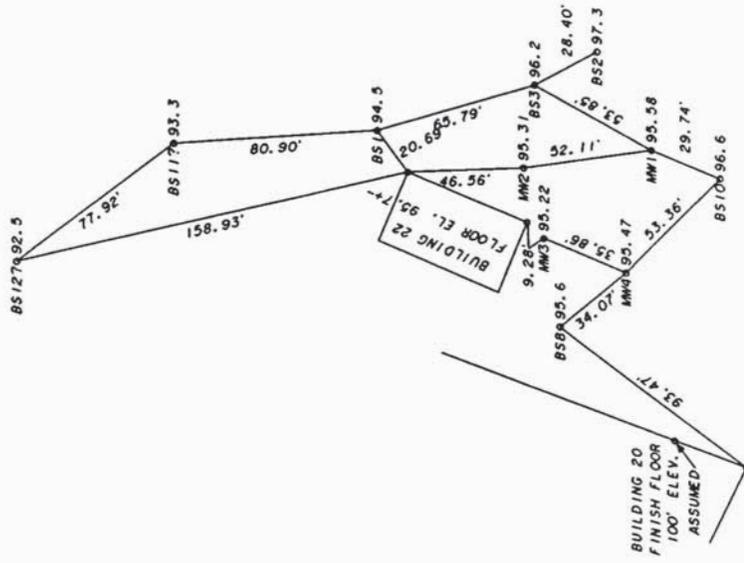
Relinquished by: _____

CUSTODY RECORD

iv. 7/91

APPENDIX C
Well Survey Data

MAGNETIC NORTH 1993



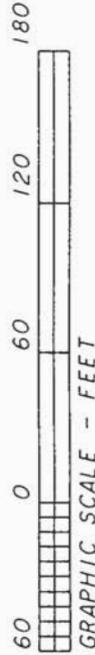
REVISED 5-25-93 ELEV. CHANGED TO HUNDRETHS

BOBBITT SURVEYING, P.A.

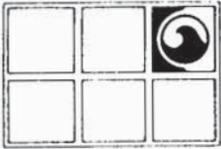
P. O. BOX 952 \ 443 DABNEY DRIVE
HENDERSON, NORTH CAROLINA, 27536
(OFFICE) 919 - 438 - 5162
(FAX) 919 - 438 - 7494

SURVEY FOR
SUGAR GROVE NAVAL RADIO STATION
BUILDING 20 & 22
WEST VIRGINIA

SCALE 1" = 60 FEET MAY 20, 1993
PLAT FILE 93 SG WV 33



APPENDIX D
Well Gauging Data



**GROUNDWATER
TECHNOLOGY
GOVERNMENT SERVICES**

Groundwater Technology Government Services, Inc.
1244 B Executive Boulevard, Suite 106, Chesapeake, VA 23320
Tel: (804) 436-7881 Fax: (804) 436-2312

LIQUID LEVEL MEASUREMENTS
CLIENT: NAVFACENGCOM
LOCATION: USTs 201 and 202
 NSGA, Sugar Grove, WV
DATE: May 12, 1993

MONITORING WELLS

No.	DTW	DTP	PT	TOC ELEV	ELEV-W	CORRECTED ELEV-W	COMMENTS
MW-1	1.63	--	--	95.58	93.95	93.95	
MW-2	2.76	--	--	95.31	92.55	92.55	
MW-3	3.69	--	--	95.22	91.53	91.53	
MW-4	5.42	--	--	95.47	90.95	90.95	

DEPTH TO WATER MEASURED RELATIVE TO LIP OF PVC

DTW = Depth to Water
 DTP = Depth to Product
 PT = Product Thickness
 TOC = Top of Casing

Elev-W = Elevation of Water
 Corrected Elev-W = Corrected water elevation for the presence of hydrocarbon floating on the water table
 = TOC ELEV - (PT x 0.88) - DTW

APPENDIX E

Waste Management Documentation



EnviroTech Mid-Atlantic

P.O. Drawer 72
108 S. Main Street
Chatham, Virginia 24531
(804) 432-1901

MATERIAL CHARACTERIZATION FORM

Mid-Atlantic

EMA NO. _____

GENERATOR IDENTIFICATION:

BUSINESS NAME United States Navy
NAVAL SECURITY Group Activity

MAILING ADDRESS _____ CITY Sugar Grove STATE WV
26815-0002
NAVAL SECURITY

JOB LOCATION USTs 201 & 202 CITY GROUP ACTIVITY STATE WV
SUGAR GROVE

AUTHORIZED AGENT Linda LaGorga TITLE Public Works Officer PHONE (304) 249-6395

TYPE OF CONTAMINANT IN SOIL Gasoline Diesel/#2 Oil Other Fuel Oil Other Oil _____

TYPE OF PROCESS GENERATING THIS MATERIAL Leaking Underground Storage Tank Surface Spill**
WWT
Uncapped fuel lines

MATERIAL CHARACTERIZATION:

Analysis Attached

Arsenic* <u>< 0.50</u> ppm	Selenium* <u>< 0.20</u> ppm	Benzene** <u>110</u> ppm
Barium* <u>< 1.0</u> ppm	Silver* <u>< 0.050</u> ppm	Toluene <u>110</u> ppm
Cadmium* <u>< 0.050</u> ppm	PCB <u>< 0.048</u> ppm	Ethyl/benzene <u>170</u> ppm
Chromium* <u>< 0.050</u> ppm	Moisture <u>17.5</u> %	Total Xylenes <u>690</u> ppm
Lead* <u>< 0.50</u> ppm	_____ °F	TOX <u>< 74</u> ppm
Mercury* <u>< 0.002</u> ppm	TPH <u>< 40</u> ppm	

*By TCLP method **By TCLP method if surface spill

PHYSICAL STATE: Solid Liquid/Slurry Slurry

PACKING: Bulk Drums Number 8 Type 55-GALLON

BULK VOLUME: Tons _____ Cubic Yards _____

REFERRAL INFORMATION:

SUBCONTRACTOR
~~BROKER~~ NAME Groundwater Technology Government Services, Inc.

ADDRESS 1244 B Executive Blvd. Suite 106 CITY Chesapeake STATE VA

TELEPHONE (804) 436-7881

PROJ. MGR
~~SALES PERSON~~ Taylor Sword

AUTHORIZATION:

*If the above described soil was generated from a surface spill, I certify that the spilled material was entirely non-hazardous fuel petroleum.

Signature of Authorized Agent _____

Printed Name _____ Title _____ Date _____

The analyses above were performed on a representative sample composite of this soil collected by approved EPA methods such as those outlined in manual SW 846, chapter 9. This is a complete and accurate description of this soil and I hereby certify this material is not hazardous as defined by U.S. Department of Transportation (DOT), U.S. Environmental Protection Agency (EPA), State or local regulations.

Signature of Authorized Agent Linda A. LaGorga

Printed Name Linda A. LaGorga Title Public Works Officer Date 5 May 93

If you have any questions, please call one of our offices.
 Chatham, VA (804) 432-1901
 Blacksburg, VA (703) 231-3983
 Fredericksburg, VA (703) 371-7494

Please sign and return this form to Mr. Rick Harris at the above address or fax number (804) 432-0278. Thank you.



EnviroTech Mid-Atlantic

P. O. Drawer 72
108 S. Main Street
Chatham, Virginia 24531

NON HAZARDOUS SHIPPING MANIFEST

MANIFEST NO. F772 -01 -93

Generator Identification:

BUSINESS NAME: UNITED STATES NAVY
 MAILING ADDRESS: NAVAL SECURITY GROUP ACTIVITY CITY: SUGAR GROVE STATE: WV
 SHIPMENT ORIGIN: UNIT'S 201 & 202 CITY: SUGAR GROVE STATE: WV
 AUTHORIZED AGENT: LINDA LA GORGA TITLE: PUBLIC WORKS OFFICER
 EMERGENCY TELEPHONE NO.: (014-744-6395 TYPE OF PROCESS GENERATING THIS MATERIAL: UST
 DESCRIPTION OF MATERIAL: 7 DRUMS OF SOIL CONTAMINATED WITH GAS & DIESEL

MATERIAL CHARACTERIZATION:

(CERCLA)

Analysis Attached	ON FILE	FMA Code No	EMAF-772
A. Arsenic _____ ppm	F. Lead _____ ppm	K. Cyanides _____ ppm	
B. Barium _____ ppm	G. Selenium _____ ppm	L. Sulfides _____ ppm	
C. Mercury _____ ppm	H. Sulfur _____ ppm	M. PCB _____ ppm	
D. Chromium _____ ppm	I. pH _____	N. TPH _____ ppm	
E. Silver _____ ppm	J. Flashpoint _____ F	O. TOX _____ ppm	

PHYSICAL STATE: SOLID XXXX LIQUID/SLURRY _____ SLURRY _____
 BULK VOLUME: GALLONS _____ TONS _____ CUBIC YARDS _____ OTHER _____
 CONTAINERS: DRUMS No. 7 SIZE: (55 gal) BAGS: No. _____ SIZE: _____ OTHER _____
 SPECIAL HANDLING INSTRUCTIONS: NON-HAZARDOUS
 FIRE OR SPILL INSTRUCTIONS: NON-FLAMMABLE
 HAULER IDENTIFICATION: G.D.C. TRUCKING INC.
 DESTINATION: W.C. SPRATT RECYCLING, INC. FREDERICKSBURG, VA
 2:25 LB GR
 5:23 LB GR

The materials described above were consigned to the carrier designated below. I certify the foregoing is true to the best of my knowledge.

Linda A. LaGorge
Signature of Authorized Agent

14 May 93
Date of Shipment/Release

HAULER IDENTIFICATION:

NAME & ADDRESS: G.D.C. TRUCKING INC. 8100 HIMS STREET LORTON, VA 22079
 TELEPHONE NO.: 703-550-5580 HAULER REGISTRATION NO. _____ STATE _____
 WORK ORDER NO. _____ TRAILER NO. _____ TANK NO. _____ BOX NO. _____ OTHER _____

I certify that the materials in quantity described above were received by me for shipment and delivered to the destination indicated below.

Ripps Norman
Signature of Authorized Agent & Title

Date Received 5-12-93 Time _____ AM PM
Date Delivered 5-12-93 Time 1:30 AM PM

SITE IDENTIFICATION:

NAME & ADDRESS: W.C. SPRATT RECYCLING, INC. 1321 BELMAN ROAD FREDERICKSBURG, VA 22401
 TELEPHONE NO.: 703-373-2016 SITE PERMIT NO. _____
 WORK ORDER NO. _____ TRAILER NO. _____ DRIVER _____

QUANTITY MEASURED AT SITE: 2,02 tons
HANDLING PROCEDURE: DESCRIBE IN DETAIL

UNLOAD AND STORAGE AT SPRATT RECYCLING STORAGE FACILITY PENDING

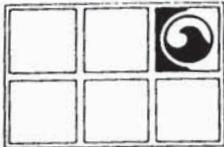
FINAL ON-SITE LOCATION

CELL NO. _____ TRENCH NO. _____ TANK NO. _____
 STORAGE AREA _____ COMMENTS _____

I certify that the materials described above were received by me. I further certify that this facility has received all permits and approval for handling this material.

Joyce P. Nadeau
Signature of Authorized Agent & Title
Date Received 5-12-93

2025 RELEASE UNDER E.O. 14176



**GROUNDWATER
TECHNOLOGY
GOVERNMENT SERVICES**

DRAFT

L# 93-048
WUID# 3604470

Groundwater Technology Government Services, Inc.
1244 B Executive Boulevard, Suite 106, Chesapeake, VA 23320
Tel: (804) 436-7881 Fax: (804) 436-2312

**FIVE WELL PLUS THREE ADDITIONAL WELL
SITE CHECK REPORT
UNDERGROUND STORAGE TANKS 201 AND 202
NAVAL SECURITY GROUP ACTIVITY
A&E CONTRACT NO: N62470-91-D-6652
JOB NO. 830011088.42**

April 26, 1993

Prepared for:
Commander
Atlantic Division
Naval Facilities Engineering Command
Norfolk, Virginia 23511-6287

**GROUNDWATER TECHNOLOGY
GOVERNMENT SERVICES, INC.**

Prepared by:

William L. Hughes
Lead Geologist

P. Taylor Sword, C.P.G.
Project Manager/Remediation Specialist

**GROUNDWATER TECHNOLOGY
GOVERNMENT SERVICES, INC.**

Approved by:

Ray Fenstermacher, P.G.
Operations Manager

RECEIVED
MAY 7 1993

**U. S. T. OFFICE
DISTRICT III
FRENCH CREEK, WV 26218**

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1.0 INTRODUCTION

Groundwater Technology Government Services, Inc. was contracted by the Atlantic Division (LANTDIV) Naval Facilities Engineering Command (NAVFACENGCOM) of the Department of the Navy to conduct a site check to identify and/or verify suspected hydrocarbon-impacted subsurface soils and groundwater. The site check was performed at underground storage tanks (UST) 201 and 202 located at the Naval Security Group Activity, Sugar Grove, West Virginia.

This site check is based on the NAVFAC contractual requirements. Our efforts included several activities:

- Drilling of twelve soil borings;
- Installation of three monitoring wells (MW-1, MW-2, MW-3, and MW-4) to facilitate groundwater sampling;
- Collection of soil and groundwater samples for laboratory analyses for petroleum hydrocarbon concentrations;
- Surveying of well locations;
- Determination of groundwater flow gradient; and
- Characterization, removal and treatment/disposal of soil cuttings and purged groundwater generated during field activities.

Subsequent sections of this report will describe site background information; site conditions in terms of physiography, geology and hydrogeology; and results of the field investigations including the evaluation for and concentrations of any petroleum hydrocarbons in the subsurface soils and groundwater.

1.1 Definition of Terms

This section defines the four phases which petroleum hydrocarbons may exist in the subsurface. Liquid-phase hydrocarbons are liquids that may exist in the subsurface as an immobile residual liquid in the unsaturated zone and capillary fringe or free mobile liquids that migrate near the top of the capillary fringe. Dissolved-phase hydrocarbons are liquid-phase hydrocarbons which have dissolved in the groundwater. The tendency for hydrocarbons to transfer to the dissolved phase are a result of the degree of mixing and contact, and the solubility of the released substance in the groundwater. Dissolved-phase hydrocarbons can be present in infiltrating water in the unsaturated zone, the capillary

fringe and in the groundwater of the saturated zone. Vapor-phase hydrocarbons are liquid-phase hydrocarbons that have transferred into the vapor phase as the results of volatilization. Vapor-phase hydrocarbons can be present in the pore spaces of the unsaturated zone or as small bubbles in the saturated zone. Adsorbed-phase hydrocarbons are liquid- or dissolved-phase hydrocarbons that cover the surfaces of sediment in the saturated and unsaturated zone.

2.0 BACKGROUND

2.1 Site Description

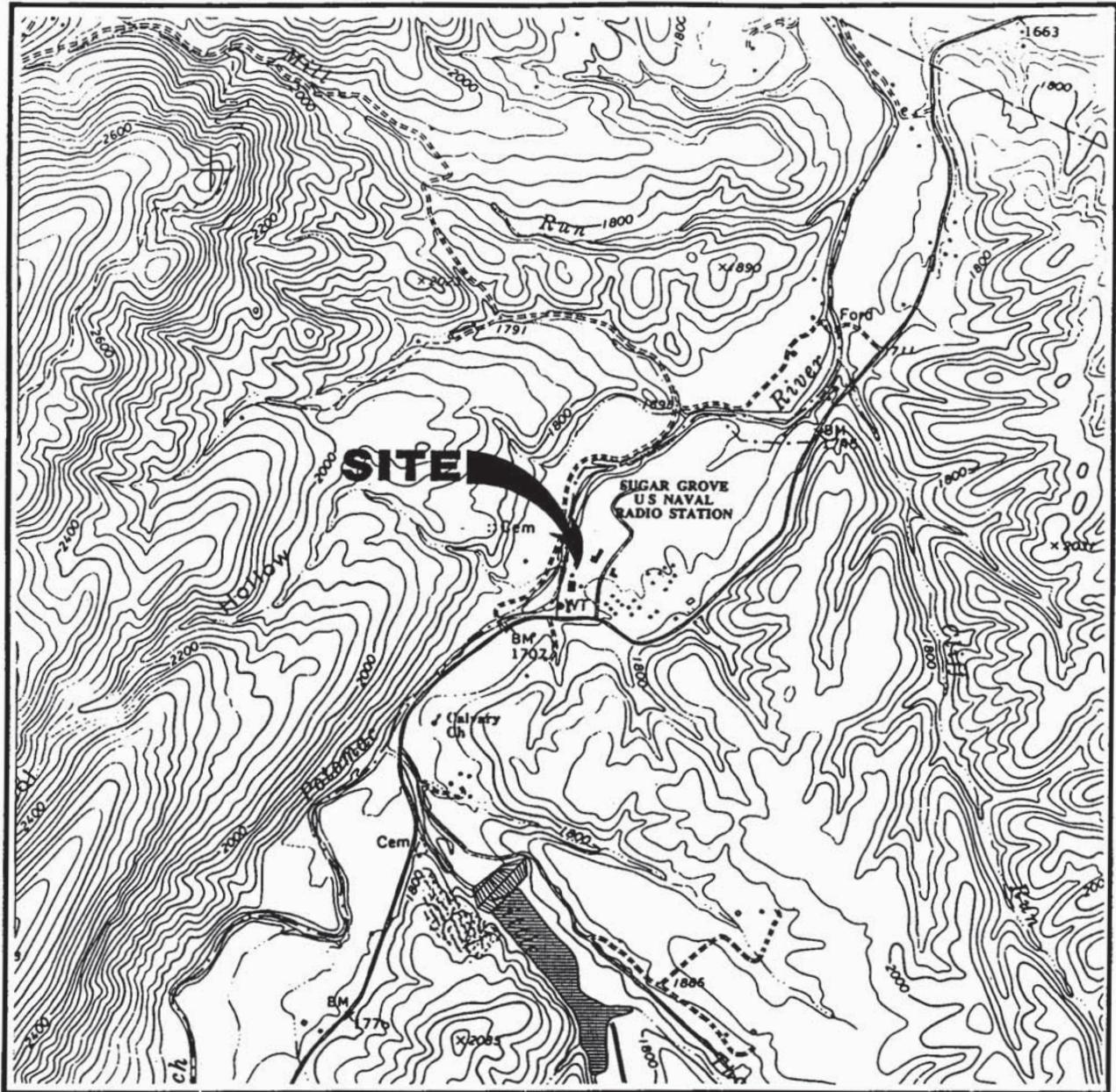
The site is located on the west side of the Naval Security Group Activity (Figure 1). The site map (Figure 2) illustrates the location of the tanks and the location of the installed wells and soil borings.

Underground storage tanks 201 and 202 are located on the east side of Building 22. Underground storage tank 201 is 2,000-gallon capacity and has been used to contain diesel fuel. Underground storage tank 202 is 4,000-gallon capacity and has been used to store unleaded gasoline. Both tanks are constructed of single-wall fiberglass reinforced plastic. In 1986, the tanks were installed to replace two steel USTs that were reported to have leaked. During the fiberglass tank removal activities, holes were discovered in one of the two USTs. This information was obtained April 5, 1993, via verbal communication from Base personnel at the site. Groundwater Technology Government Services was not provided any previously compiled environmental information pertaining to this site. Both of the USTs and piping have passed integrity tests by two different methods.

During construction activities, hydrocarbon odors were discovered near the pump islands. The source of the odors is not known. The West Virginia Department of Environmental Protection was notified of the discovery and a Confirmed Release Notice to Comply was issued on March 2, 1993, to the Public Works Department at the Naval Group Security Activity facility, Sugar Grove, West Virginia. During a rainfall event, surface runoff entered uncapped product piping and displaced an unknown volume of diesel fuel. On April 7, 1993, the Engineer-in-Charge (EIC) for the site reported that liquid-phase hydrocarbons were observed infiltrating from the wall of an excavation to the north of the site. The WVDEP was notified of the discovery.

2.2 Land and Water Use

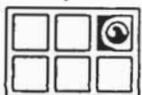
The site is located approximately 300 feet east of the Potomac River. The site is situated on the floor of a valley in the Appalachian Mountains. The area immediately adjacent USTs 201 and 202 is comprised of buildings that house the maintenance and other support facilities for the Base. The topography immediately surrounding the site is relatively flat. The nearest body of surface water is the Potomac River towards the west of the Base. Potable water for the base is supplied by the south fork of the south branch of the Potomac River and a local reservoir.



SOURCE: U.S.G.S. TOPOGRAPHIC QUADRANGLE
 SUGAR GROVE, W.VA.
 7.5 MINUTE SERIES
 N3830-W7915/7.5
 1981



SCALE 1:24,000



**GROUNDWATER
 TECHNOLOGY**

1244-B EXECUTIVE BLVD.
 CHESAPEAKE, VA. 23320
 (804) 436-7881

DESIGNED:

BH

DETAILED:

PJC

CHECKED:

SITE LOCATION

CLIENT:

LANTDIV NAVFACENGCOM

LOCATION:

UST 201 AND 202
 SUGAR GROVE NSGA, W.V.

DRAWING DATE:

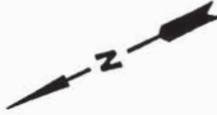
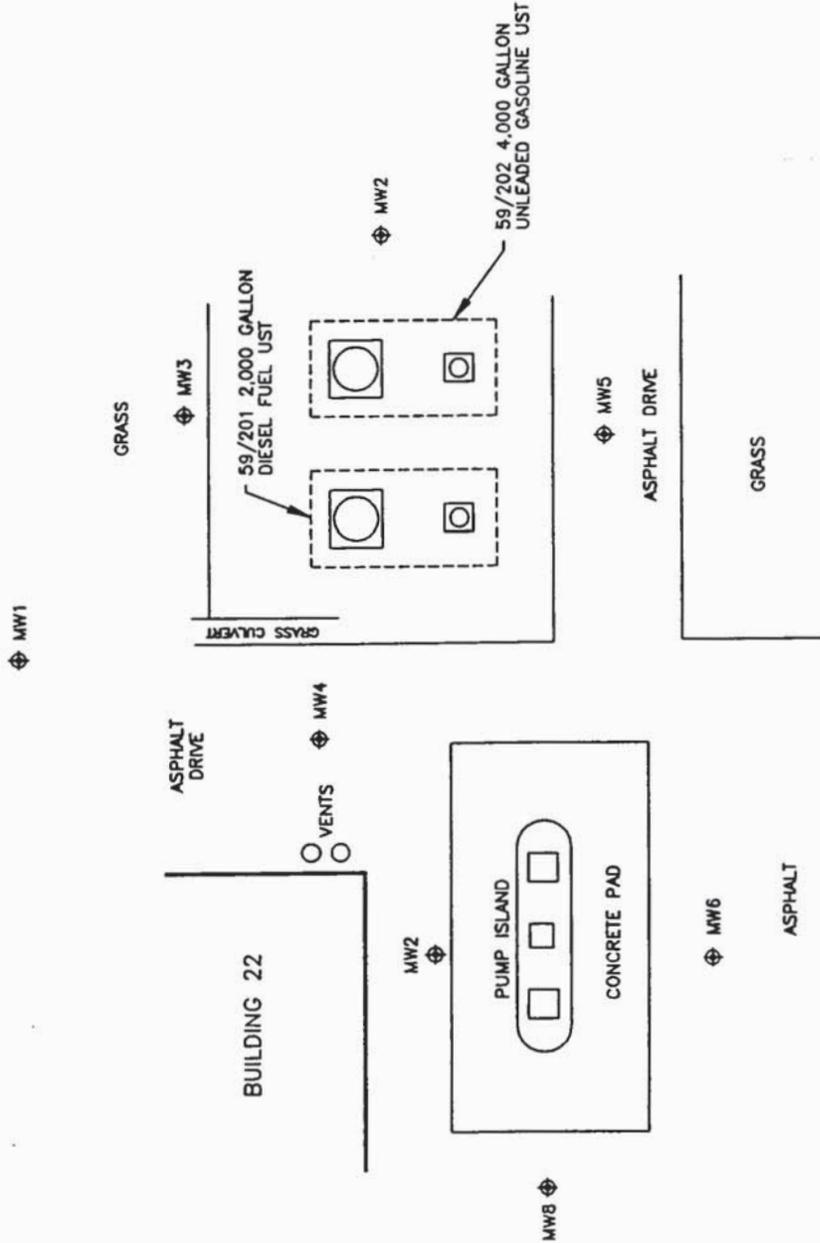
4/15/93

FIGURE:

1

LEGEND

- ⊕ PROPOSED MONITORING WELL LOCATION



NOT TO SCALE

SOURCE: BAKER ENVIRONMENTAL, INC. (5/19/92)

	GROUNDWATER TECHNOLOGY	1244-B EXECUTIVE BLVD CHESAPEAKE, VA. 23320 (804) 438-7881
	REV. NO.:	DRAWING DATE: 4/6/93

ACAO FILE:	202-SIT
------------	---------

SITE MAP

CLIENT:	LANTDIV NAVFACENCCOM	PM:	
LOCATION:	UST 201 AND 202 SUGAR GROVE NSGA, W.V.	PE/RC:	
DESIGNED:	BH PJC	PROJECT NO.:	830011088.4201
FIGURE:			2

2.3 Regional Geology

The Valley and Ridge Physiographic Province is characterized by relatively high elevations and relief. The topography has a north-south trend that is closely related to the tectonic history of the area. Geologic formations which outcrop in the area include the Devonian age Marcellous Formation, Needmore Shale, and Oriskany Sandstone. The Marcellous Formation is predominantly gray-black to black thinly laminated non-calcareous pyritic shale. The Needmore Shale is characterized by dark grey on green calcitic, mostly non-fissile shale. The Oriskany Sandstone is white to brown, coarse- to fine-grained, partly calcareous sandstone. Locally, this unit may be pebbly or conglomeratic. Alluvium of Holocene (Recent) age is located on the floor of valleys and forms a thin veneer on the valley walls. These Recent age deposits were formed in a fluvial depositional environment.

2.4 Regional Hydrogeology

At the Base, water is obtained from the south fork of the south branch of the Potomac River and a reservoir system. The depth to groundwater in the area is unknown. The groundwater flow direction based upon the geomorphology of the area is towards the south.

3.0 INVESTIGATIVE METHODS

3.1 Soil Sampling and Monitoring Well Installation

To investigate for the presence/absence of adsorbed-phase hydrocarbons in the soils beneath the site, twelve soil borings were drilled to the top of the bedrock on April 7 and 8, 1993. All drilling activities were performed by a truck-mounted drill rig equipped with 10-inch outside diameter hollow stem augers, and all soil samples were collected with a split-spoon core sampling device. Before and between drilling each borehole, all augers and drill rods were steam cleaned. All split-spoon sampling devices were cleaned with an alconox wash followed by a distilled water rinse after each sampling event. During drilling, a geologist logged drill cuttings and core samples for soil classification, and collected split-spoon samples at each of the following depths: 0.0 to 1.5 feet, 3.5 to 5.0 feet, and 8.5 to 10.0 feet below grade surface. A portion of each core sample was placed into the appropriate laboratory container, sealed, labelled and stored on ice. The remainder of the core sample was placed into an air-tight container, labelled and allowed sufficient time for the hydrocarbons, if present, to volatilize. After the equilibration period, each sample was scanned with a photo-ionization detector (PID) by inserting the sampling probe into the head space of the container. The PID is a field monitoring device used to measure volatile organic constituents in parts per million (ppm). All the PID readings were recorded on the drill logs adjacent to the respective depth the sample was obtained from. Upon completion of each boring, the PID readings from each split-spoon sample were recorded and the sample with the highest PID readings above the saturated zone was selected for laboratory analysis. One additional soil sample was collected as a duplicate and analyzed. The corresponding sample was stored on ice in the laboratory container and submitted to GTEL Environmental Laboratories, Inc. (GTEL) for analysis. The samples were analyzed for the presence of:

- Total Petroleum Hydrocarbons by EPA Method 418.1;
- Hydrocarbon Screen by EPA Method 3550/8015; and
- Benzene, Toluene, Ethylbenzene, Xylenes (BTEX) by EPA Method 3510/8020.

If field screening of soil samples detected organic vapor concentrations greater than 100 ppm and the soils appear to be favorable for soil venting, the soil boring was converted to a two-inch diameter monitoring well. Locations of soil borings/monitoring wells are depicted on Figure 2. To counter the effects of drilling and to maximize the hydraulic connection between the well and the surrounding

aquifer, each well was developed using a surge and pump technique. This was accomplished by agitating the water in the well to remove the fine-grained sediments in the well screen and sand pack. The sediments were then removed using a portable pump. The wells were developed until the water appears to be free of sediment. Geologic well logs are provided detailing the lithology penetrated by each soil boring, well construction, and results of the photo-ionization detector (PID) survey are presented in Appendix A. The laboratory analytical reports including the chain-of-custody documentation for the soil samples collected are presented in Appendix B.

3.2 Groundwater Sampling

A groundwater sampling program was conducted to provide baseline information as to the extent and degree of dissolved-phase petroleum hydrocarbons in groundwater beneath the site. One water sample was collected from each monitoring well with sufficient water and analyzed for the presence of:

- Total Petroleum Hydrocarbons by EPA Method 418.1;
- Hydrocarbon Screen by EPA Method 3510/8015;
- BTEX by modified EPA Method 602; and
- Polynuclear Aromatic Hydrocarbons by EPA Method 610.

Before groundwater sample collection, each well was purged of at least three well volumes of water. All groundwater samples were collected and analyzed according to approved EPA protocol. These protocols include protective equipment, sampling devices and techniques, sample containers, chain-of-custody documentation, and approved laboratory techniques. Due to insufficient water in the wells, an additional groundwater sample was not collected as a duplicate. Copies of the laboratory analytical reports, including the chain-of-custody documentation for the groundwater samples, are presented in Appendix B.

3.3 Well Elevation Survey

The top of the casing of each monitoring well will be surveyed to within 0.01 feet vertical and 0.1 feet horizontal tolerances of a temporary benchmark. Survey of the site is pending.

3.4 Groundwater Monitoring

The four monitoring wells were gauged on April 9, 1993. Measurements of the liquid levels in the monitoring well were made with an electronic optical Interface Probe™ that is capable of distinguishing liquid-phase hydrocarbons from water. Liquid levels were measured to the nearest 0.01 foot from a permanently marked survey point on the top of each well casing to allow measured values to be directly compared to a common datum. Measurements made in the field included depth to water, depth to liquid-phase hydrocarbons (if present), and thickness of liquid-phase hydrocarbons (if present). If the presence of liquid-phase hydrocarbons was indicated by measurements with the Interface Probe™, a clear acrylic bailer was used to obtain a groundwater sample from the well for visual confirmation. All measured liquid levels and all pertinent field observations were immediately recorded in a bound field book to provide a permanent record of the site visit.

4.0 INVESTIGATIVE RESULTS

4.1 Site Geology

The stratigraphy directly beneath the site, as determined by well logs (Appendix A) compiled during drilling of the soil borings, is characterized by clay and sandy clays. The depth to the bedrock where auger refusal was encountered ranged from 4 feet below the surface in soil boring SB-11 to 10 feet in soil boring SB-7 (MW-3).

4.2 Site Hydrogeology

During the drilling of the soil borings, saturated soils were not encountered in all of the soil borings. Gravel and sand road base that underlies the asphalt was saturated.

4.3 Presence of Hydrocarbons

4.3.1 Adsorbed-Phase Hydrocarbons

On April 7 and 8, 1993, twelve soil borings were drilled at the site. Soil borings SB-5, SB-4, SB-7, and SB-6 were converted to monitoring wells MW-1, MW-2, MW-3 and MW-4, respectively. Soil samples were collected from each borehole and scanned with a PID. The results of PID monitoring of split-spoon samples collected during drilling activities are presented in Table 1. Table 1 also depicts the analytical results of soil samples. One soil sample from each soil boring was submitted to an analytical laboratory for analysis.

Analytical results for the soil samples collected indicate TPH concentrations ranged from 46 ppm in the sample collected at 0 to 2 feet below grade from soil boring SB-2 to 100 ppm in the sample collected at 7 to 9 feet below grade from monitoring well MW-7 (Figure 3). Soil samples collected from monitoring wells MW-1 and MW-4 and soil boring SB-8 contained 22 ppm, 48 ppm and 22 ppm, respectively, of TPH-as-gasoline. According to the analytical report, the chromatographs for the TPH-as-gasoline showed a loss of volatile components consistent with models of a weathered gasoline. Total BTEX concentrations were 1.22 ppm in monitoring well MW-2, 61 ppm in monitoring well MW-3 and 23 ppm in monitoring well MW-4. Adsorbed-phase hydrocarbon concentrations were less than the laboratory's method detection limits in soil samples collected from soil borings SB-1, SB-3, SB-9, SB-10 and SB-11.

LEGEND

- ◆ MONITORING WELL
- ⊙ SOIL BORING LOCATION
- (ND) NONE DETECTED—TPH, HYDROCARBON SCREEN, AND BTEX
- TPH TOTAL PETROLEUM HYDROCARBONS BY EPA METHOD 418.1
- BTEX BENZENE, TOLUENE, ETHYLBENZENE, XYLENES BY EPA METHOD 5030/8020
- HS HYDROCARBON SCREEN BY EPA METHOD 3550/8015



NOT TO SCALE

SOURCE: BAKER ENVIRONMENTAL INC. (5/19/92)



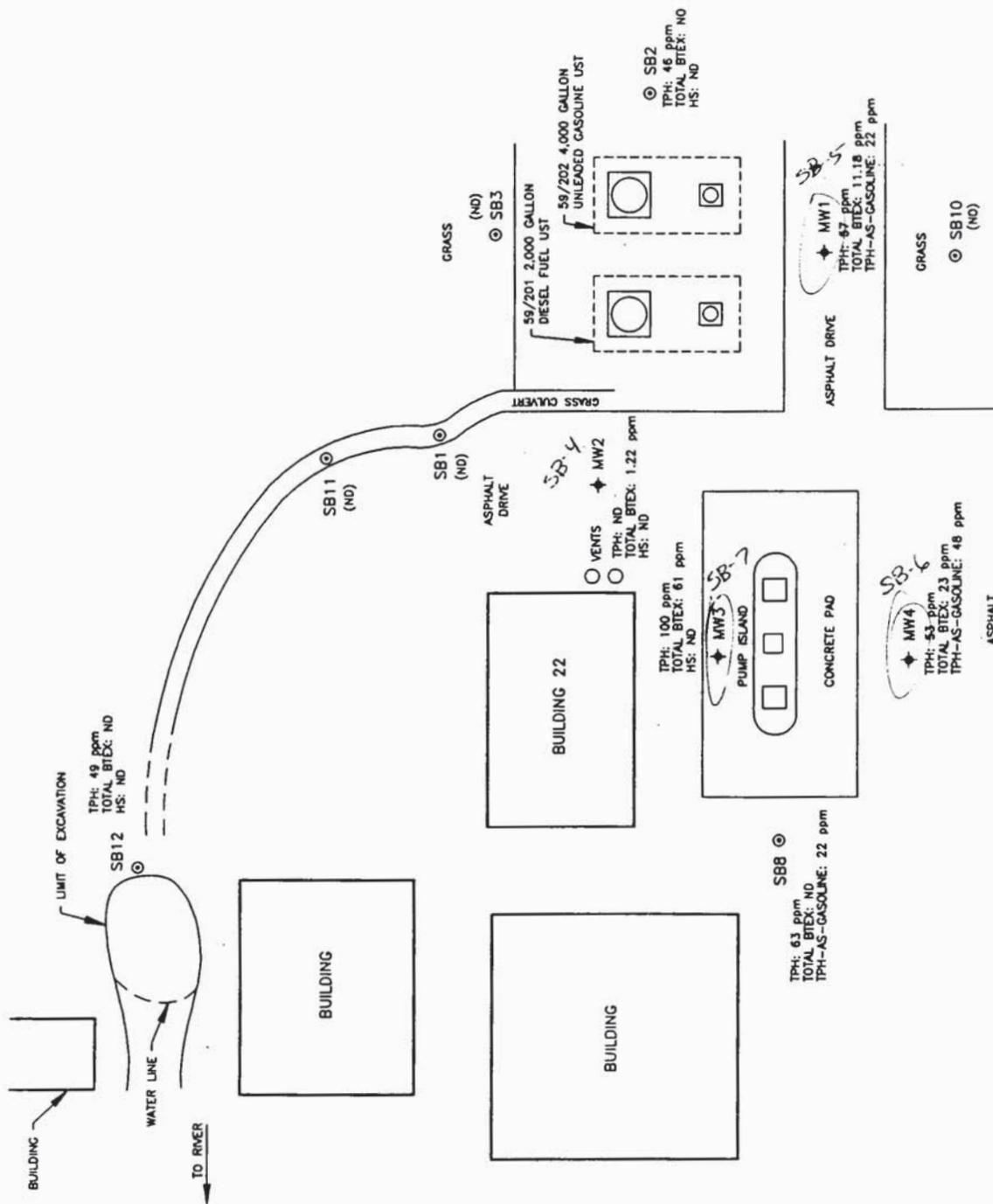
GROUNDWATER TECHNOLOGY

1244-B EXECUTIVE
CHESAPEAKE, VA. 2
(804) 436-7881

REV. NO.: DRAWING DATE: 4/8/93 ACAD FILE: 202-ST

ADSORBED-PHASE HYDROCARBON DISTRIBUTION MAP

CLIENT:	LANTDIV NAVFACENCOM
LOCATION:	UST 201 AND 202 SUGAR GROVE NSCA, W.V.
DESIGNED:	PROJECT NO.:
BH	PJC
	830011088.4201



◆ MW1
TPH: 67 ppm
TOTAL BTEX: 11.18 ppm
TPH-AS-GASOLINE: 22 ppm

◆ SB10 (ND)

GRASS

◆ MW4
TPH: 53 ppm
TOTAL BTEX: 23 ppm
TPH-AS-GASOLINE: 48 ppm

ASPHALT

◆ SB9 (ND)

TPH: 100 ppm
TOTAL BTEX: 61 ppm
HS: ND

◆ MW3
TPH: ND
TOTAL BTEX: 1.22 ppm
HS: ND

◆ SB8
TPH: 63 ppm
TOTAL BTEX: ND
TPH-AS-GASOLINE: 22 ppm

◆ SB11 (ND)

◆ SB12
TPH: 49 ppm
TOTAL BTEX: ND
HS: ND

◆ SB2
TPH: 48 ppm
TOTAL BTEX: ND
HS: ND

◆ SB3 (ND)

LEGEND

- ◆ MONITORING WELL
- ⊙ SOIL BORING LOCATION (NS)
- TPH: TOTAL PETROLEUM HYDROCARBONS BY EPA METHOD 418.1
- BTEX: BENZENE, TOLUENE, ETHYLBENZENE, XYLENES BY EPA METHOD 3510/8015
- TPH-AS-GASOLINE BY EPA METHOD 3510/8015



NOT TO SCALE

SOURCE: BAKER ENVIRONMENTAL, INC. (5/19/92)

REV. NO.:	DRAWING DATE:	ACAD FILE:	202-STE
4/6/93			
DISSOLVED-PHASE HYDROCARBON DISTRIBUTION MAP			
CLIENT:			LANTDIV NAVFACENGCOM
LOCATION:			UST 201 AND 202 SUGAR GROVE NSCA, W.V.
DESIGNED:			PROJECT NO.: 830011088.4201
BH			PJC
PE/RC:			
PM:			

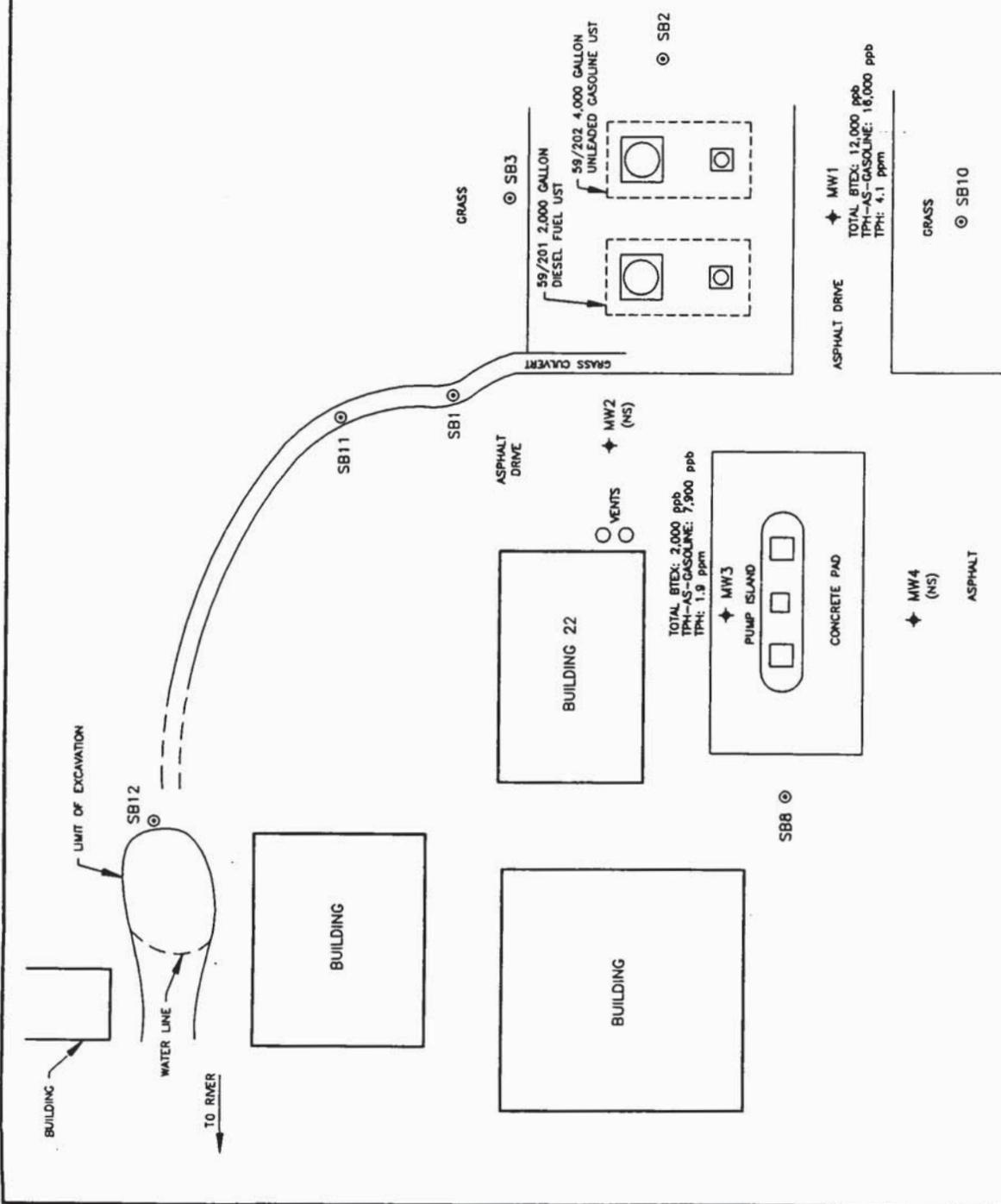


Table 1
 Summary of Soil Sample Analytical Results & PID Readings
 April 7 and 8, 1993

Location	Depth (ft)	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	Xylenes (ppm)	TPH (ppm)	Gasoline (ppm)	Mineral Spirits (ppm)	Kerosine (ppm)	Diesel (ppm)	Fuel Oil No. 6 (ppm)	Lubricating Oil (ppm)	PID (ppm)
SB-1	1.5-3.5	<0.05	<0.05	<0.10	<0.20	<38	<12	<12	<12	<12	<12	<12	3.0
	3.5-5.0	--	--	--	--	--	--	--	--	--	--	--	0.6
SB-2	0-2	<0.05	<0.05	<0.01	<0.20	46	<12	<12	<12	<12	<12	<12	0.8
	3-5	--	--	--	--	--	--	--	--	--	--	--	0
SB-3	0-2	<0.5	<0.05	<0.10	<0.20	<39	<12	<12	<12	<12	<12	<12	0
SB-4 (MW-2)	0-2	0.33	0.25	0.22	0.42	<41	<12	<12	<12	<12	<12	<12	12
SB-4 (MW-2)	3-4.5	--	--	--	--	--	--	--	--	--	--	--	11
SB-5 (MW-1)	0-2	--	--	--	--	--	--	--	--	--	--	--	15
SB-5 (MW-1)	3-5	0.88	3.6	1.1	5.6	57	22	<13	<13	<13	<13	<13	170
SB-6 (MW-4)	0-2	--	--	--	--	--	--	--	--	--	--	--	34
SB-6 (MW-4)	3-5	1.2	3.6	3.4	15	53	48	<12	<12	<12	<12	<12	175
SB-7 (MW-3)	1-3	--	--	--	--	--	--	--	--	--	--	--	40
SB-7 (MW-3)	3-5	--	--	--	--	--	--	--	--	--	--	--	60
SB-7 (MW-3)	5-7	--	--	--	--	--	--	--	--	--	--	--	155
SB-7 (MW-3)	7-9	4.4	2.4	12	42	100	<12	<12	<12	<12	<12	<12	170
SB-7 (MW-3)	9-10	--	--	--	--	--	--	--	--	--	--	--	45

ppm = parts per million (mg/kg)

PID = Photo Ionization Detector Reading (based on a similar response using calibration gas)

-- = Sample not submitted to laboratory for analysis

< = Below laboratory's reported method detection limit

Table 1 (Cont'd)
 Summary of Soil Sample Analytical Results & PID Readings
 April 7 and 8, 1993

Location	Depth (ft)	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	Xylenes (ppm)	TPH (ppm)	Gasoline (ppm)	Mineral Spirits (ppm)	Kerosene (ppm)	Diesel (ppm)	Fuel Oil No. 6 (ppm)	Lubricating Oil (ppm)	PID (ppm)
SB-8	1.5-3.5	--	--	--	--	--	--	--	--	--	--	--	1.2
	3-5	<0.05	<0.05	<0.10	<0.20	63	22	<13	<13	<13	<13	<13	1.2
SB-9	1-3	--	--	--	--	--	--	--	--	--	--	--	0.4
	3-5	--	--	--	--	--	--	--	--	--	--	--	0.4
	5-7	<0.05	<0.05	<0.10	<0.20	<42	<12	<12	<12	<12	<12	<12	1.0
SB-10	7-9	--	--	--	--	--	--	--	--	--	--	--	0.4
	0-2	--	--	--	--	--	--	--	--	--	--	--	0
	3-5	--	--	--	--	--	--	--	--	--	--	--	0
	5-7	<0.05	<0.05	<0.10	<0.20	<39	<12	<12	<12	<12	<12	<12	0
SB-11	7-9	--	--	--	--	--	--	--	--	--	--	--	0
	0-2	<0.05	<0.05	<0.10	<0.20	<40	<12	<12	<12	<12	<12	<12	0
	2-4	--	--	--	--	--	--	--	--	--	--	--	0
SB-12	0-2	--	--	--	--	--	--	--	--	--	--	--	0
	2-4	--	--	--	--	--	--	--	--	--	--	--	0
	4-6	<0.05	<0.08	<0.10	<0.20	49	<12	<12	<12	<12	<12	<12	0

ppm = parts per million (mg/kg)

PID = Photo Ionization Detector Reading (based on a similar response using calibration gas)

-- = Sample not submitted to laboratory for analysis

< = Below laboratory's reported method detection limit

4.3.2 Dissolved-Phase Hydrocarbons

Groundwater samples were collected from monitoring wells MW-1 and MW-3 on April 9, 1993, and analyzed for the presence of dissolved-phase hydrocarbons by EPA Methods 418.1, 3510/8015 and 602. Due to insufficient water, samples were not collected from monitoring wells MW-2 and MW-4. Copies of the analytical reports including the chain-of-custody documentation are presented in Appendix B and are summarized in Tables 2 and 3. Analytical results for the groundwater samples collected indicate that dissolved-phase petroleum hydrocarbon concentrations were detected in all of the groundwater samples collected.

Table 2
Summary of Groundwater Sample Analytical Results
US EPA Methods 418.1 and 3510/8015
April 9, 1993

Location	TPH (ppm)	Gasoline (ppb)	Mineral Spirits (ppb)	Kerosine (ppb)	Diesel (ppb)	Fuel Oil No. 6 (ppb)	Lubricating Oil (ppb)
MW-1	4.1	16,000	<50	<50	<50	<50	<50
MW-2	NOT SAMPLED - INSUFFICIENT WATER						
MW-3	1.9	7,900	<50	<50	<50	<50	<50
MW-4	NOT SAMPLED - INSUFFICIENT WATER						
BLANK	<0.50	<50	<50	<50	<50	<50	<50

ppb = parts per billion
 ppm = parts per million (mg/kg)
 < = Below laboratory's reported method detection limit

Table 3
Summary of Groundwater Sample Analytical Results
US EPA Methods 601 and 610
April 9, 1993

Location	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)	Naphthalene	Acenaphthylene	1-Methyl-naphthalene	2-Methyl-naphthalene	Acenaphthene	Fluorene
MW-1	3,600	4,500	1,000	3,200	170	3.5	18	44	2.7	5.2
MW-2	NOT SAMPLED - INSUFFICIENT WATER									
MW-3	1,200	280	140	400	9.7	<2.3	<1.8	2.3	<1.8	0.46
MW-4	NOT SAMPLED - INSUFFICIENT WATER									
BLANK	<0.2	<0.5	<0.8	<1.7	<1.8	<2.3	<1.8	<1.8	<1.8	<0.21

ppb = parts per billion
 ppm = parts per million (mg/kg)
 < = Below laboratory's reported method detection limit

4.3.3 Liquid-Phase Hydrocarbons

The monitoring wells were gauged on April 9, 1993 (Appendix D). Liquid-phase hydrocarbons were not detected in any of the wells during the gauging event.

4.4 Drill Cutting and Purge Water Disposal

During the drilling of each of the monitoring wells, drill cuttings from the boreholes were collected and placed in three 55-gallon barrels. Upon completion of site activities a composite soil sample (SOIL COMP) of all the cuttings was collected and analyzed for:

- BTEX by EPA Method 8020;
- Polychlorinated Biphenyls by EPA Method 8080;
- Total Petroleum Hydrocarbons by modified EPA Method 418.1;
- Metals using the toxicity characteristic leaching procedure (TCLP) by EPA Methods 6010 and 7470;
- Extractable Organic Halides by EPA Method 9020; and
- Percentage Moisture by EPA CLP Method.

Soils will be disposed of accordingly, in compliance with contract, state, federal and local regulations. The drums will be transported with a waste manifest to a thermal remediation facility located in Chesapeake, Virginia for treatment and disposal. Prior to transport, a completed material characterization form and copy of the composite soil sample analytical results will be provided to the remediation contractor for acceptance of the soils. The soils are emptied from the drums and delivered via an inclined belt conveyor to the primary treatment unit. The primary treatment unit is a large drum lined with flights which lift the soil and drop it into the hot air stream. The hot air stream is provided by the external burners and furnace. The flights aid in breaking up the soil. The increased surface area exposes more of the soil to the heat needed to vaporize moisture and contaminants. During this phase, the soils are heated to temperatures between 450 and 800 degrees fahrenheit. The heated soils exit the end of the primary unit and are fed by screw conveyor to the treated soil stockpile area to await testing and disposal. The screw conveyor incorporates water jets to cool the heated soils and reduce the amount of dust generated at the exit of the unit.

The hot gas stream containing volatilized hydrocarbon contaminants exits the primary treatment unit passes through ductwork to cyclones which remove most of the particulate material. The particulate material is then taken by screw conveyor to the treated soil stockpile area. Contaminated gases are then transported to the inlet of the secondary combustion chamber via ductwork. The secondary combustion chamber is lined with a high temperature blanket refractory and has a burner which raises

the temperature of the gases up to 1850 degrees fahrenheit. At this temperature, volatile hydrocarbons are burned off or oxidized. The thermally oxidized gases are then taken from the secondary combustion chamber by ductwork to a ventura scrubber for removal of particulate. Wet gas from the scrubber passes through a cyclonic matter. The gases then pass through the mist eliminator into the induced draft fan, flowing under pressure to a vertical cyclonic and the stack for discharge.

Following treatment, soil samples are collected and submitted to an analytical laboratory for petroleum hydrocarbon analysis. Following confirmation that the soils have been treated to Virginia Department of Environmental Quality standards, the soils are used as cover at a local landfill. A certificate of recycling will be provided. At this time (April 26, 1993), the waste characterization of drill cutting soils is complete. Final disposal is pending.

During monitoring well development and groundwater sample collection, purge water was stored in three 55-gallon drums on site. The purge water will be treated using a portable carbon adsorption unit and discharged on site. Final disposal of the water is pending.

4.5 Technical Summary

Groundwater Technology Government Services, Inc. (GSI) has completed an eight well site check for USTs 201 and 202 located at the Naval Security Group Activity, Sugar Grove, West Virginia. The site check was designed to comply with NAVFAC contractual requirements.

Twelve soil borings were drilled at the site on April 7 and 8, 1993. Ten of the twelve soil borings were drilled around the pump island and USTs. Two soil borings were installed to the north of the site to evaluate the discovery of liquid-phase hydrocarbon in an excavation and possible pathway of released hydrocarbons. Monitoring wells were installed in four of the soil borings.

Soils in the area are characterized by clay and sandy clay. The depth to bedrock where auger refusal was encountered ranged from 4 to 10 feet below the surface. Saturated native soils were not encountered during drilling. Saturated fill material at the surface was observed during the drilling of monitoring wells MW-1 and MW-3. The location of the nearby river and topography of the area indicates that the hydraulic gradient across the site would be towards the west.

Analytical results indicate that adsorbed-phase total BTEX concentrations were detected in soil samples collected from the soil borings installed on the southeast side of the site. Total BTEX concentrations on the north and west side of the site were less than the laboratory's reported method detection limit. The distribution of adsorbed-phase TPH is similar to that of total BTEX. Concentrations TPH-as-gasoline were greater than the laboratory's reported method detection limit in soil samples collected from monitoring wells MW-1 and MW-4 and soil boring SB-8. Sample chromatographs showed a loss of volatile components consistent with models of weathered gasoline. The soil samples collected at 4 to 6 feet in the soil boring (SB-12) located near the LPH discovery contained 49 ppm TPH.

Groundwater samples were collected from monitoring wells MW-1 and MW-3 on April 9, 1993. Monitoring wells MW-2 and MW-4 were not sampled due to insufficient water. Dissolved-phase hydrocarbons were detected in all of the groundwater samples collected.

5.0 RECOMMENDATIONS

Based on the results of this site check, Groundwater Technology Government Services, Inc. recommends the following additional actions at the site:

- Install one groundwater monitoring well upgradient of the site. The monitoring well should be installed using an Air Rotary or Air Rotary Hammer Drilling Method to penetrate the bedrock. Two soil samples should be collected during drilling and analyzed for the presence of petroleum hydrocarbons by EPA Methods 3550/8015 and 5030/8020. The soil samples should be collected at the alluvial-bedrock interface and at the top of the water table. Groundwater samples from this monitoring well should be analyzed for dissolved-phase hydrocarbons by EPA Methods 3510/8015 and modified EPA Method 602.
- Install three soil borings to the west of the site to evaluate adsorbed-phase hydrocarbons in the soil. Each of the borings should be drilled to the top of the bedrock. One to two soil samples should be collected from each soil boring and analyzed for the presence of petroleum hydrocarbons by EPA Methods 3550/8015 and 5030/8020.
- Collect groundwater samples from all monitoring wells and analyze for the presence of petroleum hydrocarbons by EPA Methods 3510/8015 and modified EPA Method 602.

APPENDIX A
Geologic Well and Soil Boring Logs

UNIFIED SOIL CLASSIFICATION SYSTEM

CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No. 200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	SANDS MORE THAN 1/2 OF COARSE FRACTION < NO. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No. 200 SIEVE SIZE	SILTS & CLAYS LL < 50	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074

WELL CONSTRUCTION MATERIALS

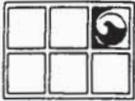
	Asphalt (68)	SCREENS	
	Concrete (55)		Solid (1s)
	Neat Cement (54)		Slotted PVC (3w)
	Base Course (30)		Slot. PVC High Flow (8w)
	Sluff (64)		Wire Wound PVC (16w)
	Bentonite (21)		Wire Wound Steel (15w)
	Filter Pack (7)		Saw Cut (12w)
	Pea Gravel (2)		
	Liner (33)		
	Geocloth (38)		

SAMPLE TYPES

SS - Split Spoon
CC - Continuous Core
CG - Cuttings Grab

SYMBOLS

Initial Water Level
 Static Water Level



GROUNDWATER
TECHNOLOGY
GOVERNMENT SERVICES

Drilling Log

Soil Boring SB-1

Project UST 201 & 202 Owner LANTDIV NAVFACENGCOM
 Location NSGA Sugar Grove, WV Project No. 830011088.42 Date drilled 4/7/93
 Surface Elev. _____ Total Hole Depth 7 ft. Diameter 8 in.
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Filter Pack Material _____ Rig/Core Type B-61/Spit Spoon
 Drilling Company GTI Drilling Method Hollow Stem Auger Permit # _____
 Driller Steve Underwood Log By Angela Bont
 Checked By Taylor Sword License No. CPG APIG #8334

See Site Map
For Boring Location

COMMENTS:

Depth (ft.)	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
					-2
0					No sample recovered.
2	3.0	11,14,19 23 SB-1			
4	0.6	24,35,50 13		SM	Red-brown color, sandy CLAY, 40-50% fine-grained sand, stiff.
6					No sample recovered.
8					Auger refusal. Sealed borehole to the surface with cement grout.
10					



GROUNDWATER
TECHNOLOGY
GOVERNMENT SERVICES

Drilling Log

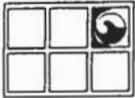
Vapor Point SB-2

Project UST 201 & 202 Owner LANTDIV NAVFACENGCOM
 Location NSGA Sugar Grove, WV Project No. 830011088.42 Date drilled 4/7/93
 Surface Elev. _____ Total Hole Depth 7.5 ft. Diameter 8 in.
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Filter Pack Material _____ Rig/Core Type B-61/Spit Spoon
 Drilling Company GTI Drilling Method Hollow Stem Auger Permit # _____
 Driller Steve Underwood Log By Angela Bont
 Checked By Taylor Sword License No. CPG AFIG #8334

See Site Map
For Boring Location

COMMENTS:

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ x Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure)
						Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0		0.8	3.6,7.7		SC	Orange color, sandy CLAY, fill material. Brown color, sandy CLAY, 40-50% very fine-grained sand and silt.
2			9,11,14, 23		CL	Mottled tan and grey color, sandy CLAY with sand stringers, medium plasticity, 20-30% fine-grained sand.
4					CL	Mottled tan and grey color, sandy CLAY, 10% silt, stiff.
6						
8						Auger refusal. Borehole filled with cement to the surface.
10						



Drilling Log

Soil Boring **SB-3**

Project UST 201 & 202 Owner LANTDIV NAVFACENGCOM
 Location NSGA Sugar Grove, WV Project No. 830011088.42 Date drilled 4/7/93
 Surface Elev. _____ Total Hole Depth 4.5 ft. Diameter 8 in.
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Filter Pack Material _____ Rig/Core Type B-61/Spit Spoon
 Drilling Company GTI Drilling Method Hollow Stem Auger Permit # _____
 Driller Steve Underwood Log By Angela Bont
 Checked By Taylor Sword License No. CPG AFIG #8334

See Site Map
For Boring Location

COMMENTS:

Depth (ft.)	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
					-2
0	0	3.5, 7.5		SC	Brown color, clayey SAND, 60-75% very fine-grained sand.
		SB-3			Black color, SHALE, thin laminated.
2				SC	Brown color, clayey SAND, 60-75% very fine-grained sand.
4					Sampler refusal.
4.5					Auger refusal. Sealed borehole to the surface with cement grout.
6					
8					
10					



GROUNDWATER
TECHNOLOGY
GOVERNMENT SERVICES

Drilling Log

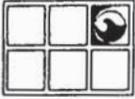
Vapor Point SB-4 (MW-2)

Project UST 201 & 202 Owner LANTDIV NAVFACENGCOM
 Location NSGA Sugar Grove, WV Project No. 830011088.42 Date drilled 4/7/93
 Surface Elev. _____ Total Hole Depth 5.5 ft. Diameter 8 in.
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia 2 in. Length 4 ft. Type/Size 0.020 in.
 Casing: Dia 2 in. Length 4.5 ft. Type Sch 40 PVC
 Filter Pack Material No. 2 Sand Rig/Core Type B-61/Spit Spoon
 Drilling Company GTI Drilling Method Hollow Stem Auger Permit # _____
 Driller Steve Underwood Log By Angela Bont
 Checked By Taylor Sword License No. CPG APIG #8334

See Site Map
For Boring Location

COMMENTS:

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%. And 35% to 50%
-2						
0		12	4.7, 10, 11 SB-4			Mottled tan and grey color, silty CLAY, 10-15% silt, medium plasticity, slightly moist. Grades to medium stiff and damp.
2		11			CL	Mottled tan and grey color, silty CLAY, 10-15% silt, medium stiff, damp.
4						
6						Auger refusal. Installed vapor monitoring well in borehole.
8						
10						



GROUNDWATER
TECHNOLOGY
GOVERNMENT SERVICES

Drilling Log

Vapor Point SB-5 (MW-1)

Project UST 201 & 202 Owner LANTDIV NAVFACENGCOM
 Location NSGA Sugar Grove, WV Project No. 830011088.42 Date drilled 4/7/93
 Surface Elev. _____ Total Hole Depth 7.0 ft. Diameter 8 in.
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia 2 in. Length 5 ft. Type/Size 0.020 in.
 Casing: Dia 2 in. Length 2 ft. Type Sch. 40 PVC
 Filter Pack Material No. 2 Sand Rig/Core Type B-61/Spit Spoon
 Drilling Company GTI Drilling Method Hollow Stem Auger Permit # _____
 Driller Steve Underwood Log By Angela Bont
 Checked By Taylor Sword License No. CPG AFIG #8334

See Site Map
For Boring Location

COMMENTS:

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Flow Count/ % Recovery	Graphic Log	USCS Class.	Description
						(Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0		15	4.7.9			Gravel road base, saturated.
2					CL	Tan and grey mottled color, silty CLAY, 10% silt, medium plasticity, medium stiff.
4		170	8.11, 14.9		SC	Tan and grey mottled color, silty CLAY, 10% silt, medium plasticity, medium stiff.
6			SB-5			Sandy CLAY, 40% very fine- to fine-grained sand.
8						Auger refusal. Installed vapor monitoring well in borehole.
10						



GROUNDWATER
TECHNOLOGY
GOVERNMENT SERVICES

Drilling Log

Vapor Point SB-6 (MW-4)

Project UST 201 & 202 Owner LANTDIV NAVFACENGCOM
 Location NSGA Sugar Grove, WV Project No. 830011088.42 Date drilled 4/7/93
 Surface Elev. _____ Total Hole Depth 7.5 ft. Diameter 8 in.
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia 2 in. Length 5 ft. Type/Size 0.020 in.
 Casing: Dia 2 in. Length 2 ft. Type Sch 40 PVC
 Filter Pack Material No. 2 Sand Rig/Core Type B-61/Spit Spoon
 Drilling Company GTI Drilling Method Hollow Stem Auger Permit # _____
 Driller Steve Underwood Log By Angela Bont
 Checked By Taylor Sword License No. CPG AFIG #8334

See Site Map
For Boring Location

COMMENTS:

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0		34	4,6,12,17			Mottled tan and grey color, silty CLAY, 10% silt, medium plasticity, medium stiff, slightly moist.
2		175	11,17,12,6			Mottled tan and grey color, silty CLAY, 10-20% silt, stiff
4			SB-6		CL	Possible hydrocarbon staining.
6						
8						Auger refusal. Installed vapor monitoring well in borehole.
10						



GROUNDWATER
TECHNOLOGY
GOVERNMENT SERVICES

Drilling Log

Vapor Point SB-7 (MW-3)

Project UST 201 & 202 Owner LANTDIV NAVFACENGCOM
 Location NSGA Sugar Grove, WV Project No. 830011088.42 Date drilled 4/8/93
 Surface Elev. _____ Total Hole Depth 10.0 ft. Diameter 8 in.
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia 2 in. Length 7 ft. Type/Size 0.020 in.
 Casing: Dia 2 in. Length 2 ft. Type Sch 40 PVC
 Filter Pack Material No. 2 Sand Rig/Core Type B-61/Spit Spoon
 Drilling Company GTI Drilling Method Hollow Stem Auger Permit # _____
 Driller Steve Underwood Log By Angela Bont
 Checked By Taylor Sword License No. CPG APIG #8334

See Site Map
For Boring Location

COMMENTS:

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						Road base, saturated.
40					CL	Mottled tan and grey color, silty CLAY, 10% silt, medium stiff, medium to medium-high plasticity.
2						Grades to low plasticity.
60			5,10,18, 23			Mottled grey and tan color, SAND and CLAY, 50% sand, low plasticity.
4					SC	
155			3.5,9,11			
6						
170						Grey color, CLAY with thin fine-grained sand stringers.
8			SB-7		CL	
45						SAND and SANDSTONE.
10						Black SHALE -Auger refusal. Installed vapor monitoring well in borehole.



GROUNDWATER
TECHNOLOGY
GOVERNMENT SERVICES

Drilling Log

Soil Boring **SB-8**

Project UST 201 & 202 Owner LANTDIV NAVFACENGCOM
 Location NSGA Sugar Grove, WV Project No. 830011088.42 Date drilled 4/8/93
 Surface Elev. _____ Total Hole Depth 5.5 ft. Diameter 8 in.
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Filter Pack Material _____ Rig/Core Type B-61/Spit Spoon
 Drilling Company GTI Drilling Method Hollow Stem Auger Permit # _____
 Driller Steve Underwood Log By Angela Bont
 Checked By Taylor Sword License No. CPG APIG #8334

See Site Map
For Boring Location

COMMENTS:

Depth (ft.)	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
					-2
0					Fill material, saturated.
1.2		3.9,14,23			Mottled tan and grey color, silty CLAY, 10-15% silt, medium stiff, medium plasticity.
2				CL	
4	1.2	4.4,9,14			
		SB-8			Auger refusal. Sealed borehole to the surface with cement grout.
6					
8					
10					



Drilling Log

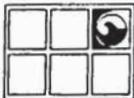
Soil Boring SB-9

Project UST 201 & 202 Owner LANTDIV NAVFACENGCOM
 Location NSGA Sugar Grove, WV Project No. 830011088.42 Date drilled 4/8/93
 Surface Elev. _____ Total Hole Depth 9 ft. Diameter 8 in.
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Filter Pack Material _____ Rig/Core Type B-61/Spit Spoon
 Drilling Company GTI Drilling Method Hollow Stem Auger Permit # _____
 Driller Steve Underwood Log By Angela Bont
 Checked By Taylor Sword License No. CPG APIG #8334

See Site Map
For Boring Location

COMMENTS:

Depth (ft.)	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0					Fill material.
0.4		4.7,12,17			Mottled tan and grey color, silty CLAY, 10% fine- to very fine- grained silt, medium stiff.
2					
0.4		11,17,21,32		CL	
4					
1.0		9,13,17,34			
6		SB-9			Grey color, silty CLAY, 0-10% silt, high plasticity, medium stiff.
0.4		8,39,44,50		CH	
8				CL	Grey color, sandy CLAY and SANDSTONE.
10					Black color, SHALE.
					Auger refusal. Sealed borehole to the surface with cement grout.



Drilling Log

Soil Boring SB-10

Project UST 201 & 202 Owner LANTDIV NAVFACENGCOM
 Location NSGA Sugar Grove, WV Project No. 830011088.42 Date drilled 4/8/93
 Surface Elev. _____ Total Hole Depth 9 ft. Diameter 8 in.
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Filter Pack Material _____ Rig/Core Type B-61/Spit Spoon
 Drilling Company GTI Drilling Method Hollow Stem Auger Permit # _____
 Driller Steve Underwood Log By Angela Bont
 Checked By Taylor Sword License No. CPG APIG #8334

See Site Map
For Boring Location

COMMENTS:

Depth (ft.)	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0	0	4,7,12,14		SM	Mottled tan and grey color, SAND and CLAY, 40-50% fine- to very fine-grained sand, low plasticity.
2					
0	0	3,5,8,12		CL	Mottled tan and grey color, silty CLAY, 15% fine- to very fine-grained silt, stiff.
4					
0	0	18,24,27,36		CL	Grades to very stiff.
6		SB-10			SANDSTONE
8					Black color, SHALE.
					Auger refusal. Sealed borehole to the surface with cement grout.
10					



GROUNDWATER
TECHNOLOGY
GOVERNMENT SERVICES

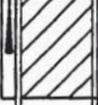
Drilling Log

Soil Boring **SB-11**

Project UST 201 & 202 Owner LANTDIV NAVFACENCOM
 Location NSGA Sugar Grove, WV Project No. 830011088.42 Date drilled 4/8/93
 Surface Elev. _____ Total Hole Depth 4 ft. Diameter 8 in.
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Filter Pack Material _____ Rig/Core Type B-61/Spit Spoon
 Drilling Company GTI Drilling Method Hollow Stem Auger Permit # _____
 Driller Steve Underwood Log By Angela Bont
 Checked By Taylor Sword License No. CPG APIG #8334

See Site Map
For Boring Location

COMMENTS:

Depth (ft.)	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0	0	4,7,9,15			Tan color, sandy CLAY, fine-grained sand, low plasticity.
2		SB-11		CL	Tan color, sandy CLAY, fine-grained sand, low plasticity.
4	0	5,6,3, 50/30			Auger refusal. Sealed borehole to the surface with cement grout.
6					
8					
10					



Drilling Log

Soil Boring **SB-12**

Project UST 201 & 202 Owner LANTDIV NAVFACENGCOM
 Location NSGA Sugar Grove, WV Project No. 830011088.42 Date drilled 4/8/93
 Surface Elev. _____ Total Hole Depth 6 ft. Diameter 8 in.
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Filter Pack Material _____ Rig/Core Type B-61/Spit Spoon
 Drilling Company GTI Drilling Method Hollow Stem Auger Permit # _____
 Driller Steve Underwood Log By Angela Bont
 Checked By Taylor Sword License No. CPG APIG #8334

See Site Map
For Boring Location

COMMENTS:

Depth (ft.)	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description
					(Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0	0	5,8,9,15/ 30			Fill material, black color, sand and gravel.
2	0	16,27,9, 5/0			No recovery of sample.
4	0			CL	Mottled tan and grey color, silty CLAY, rock fragments.
6		SB-12			Auger refusal. Sealed borehole to the surface with cement grout.
8					
10					

APPENDIX B

Soil and Groundwater Sample Analytical Laboratory Report
with Chain-of-Custody Record



GTEL

ENVIRONMENTAL
LABORATORIES, INC.

Northeast Region

Meadowbrook Industrial Park

Milford, NH 03055

(603) 672-4835

(603) 673-8105 (FAX)

Client Number: 830011088

Project ID: LANTDIV

Login Number: M3-04-0308

April 23, 1993

Taylor Sword
Government Services, Inc.
1244-B Executive Blvd, Suite 106
Chesapeake, VA 23320

Dear Mr. Sword:

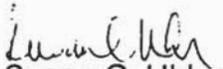
Enclosed please find the analytical results for the samples received by GTEL Environmental Laboratories, Inc. on 04/10/93 under chain-of-custody records 54860, 54861 and 54862.

A formal Quality Assurance / Quality Control (QA/QC) program is maintained by GTEL, which is designed to meet or exceed the EPA requirements. Analytical work for this project met QA/QC criteria unless otherwise stated in the footnotes.

If you have any questions regarding this analysis, or if we can be of further assistance, please call our Customer Service Representative.

Sincerely,

GTEL Environmental Laboratories, Inc.


Susan C. Uhler

Laboratory Director

ANALYTICAL RESULTS

Aromatic Volatile Organics in Soil
 Modified EPA Method 8020^a

GTEL Sample Number		040308-01	030308-02	040308-03	040308-04
Client Identification		SB-1 1.5-3.5'	SB-4 0-2'	SB-2 0-2'	SB-3 0-2'
Date Sampled		04/07/93	04/07/93	04/07/93	04/07/93
Date Analyzed		04/14/93	04/14/93	04/14/93	04/14/93
Analyte	Reporting Limit, mg/kg	Concentration, mg/kg (dry)			
Benzene	0.05	< 0.05	0.33	< 0.05	< 0.05
Toluene	0.05	< 0.05	0.25	< 0.05	< 0.05
Ethylbenzene	0.10	< 0.10	0.22	< 0.10	< 0.10
Xylenes (total)	0.20	< 0.20	0.42	< 0.20	< 0.20
BTEX (total)	--	--	1.2	--	--
Sample Dilution Factor ^b		1.22	1.25	1.19	1.19
Percent Solids		83.8	77.8	83.8	82.9

- a Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986; Methanolic extraction by EPA Method 5030 (purge and trap). Method modified to include additional compounds.
- b The sample dilution factor indicates the adjustments made to the data and detection limits as a result of dilutions and percent solids.

ANALYTICAL RESULTS

Aromatic Volatile Organics in Soil
 Modified EPA Method 8020^a

GTEL Sample Number		040308-05	030308-06	030408-07	030308-08
Client Identification		SB-5 3-5'	SB-6 3-5'	SB-8 3.5-5.5'	SB-9 5-7'
Date Sampled		04/07/93	04/07/93	04/08/93	04/08/93
Date Analyzed		04/14/93	04/14/93	04/14/93	04/14/93
Analyte	Reporting Limit, mg/kg	Concentration, mg/kg (dry)			
Benzene	0.05	0.88	1.2	< 0.05	< 0.05
Toluene	0.05	3.6	3.6	< 0.05	< 0.05
Ethylbenzene	0.10	1.1	3.4	< 0.10	< 0.10
Xylenes (total)	0.20	5.6	15	< 0.20	< 0.20
BTEX (total)	--	11	23	--	--
Sample Dilution Factor ^b		1.33	1.22	1.25	1.25
Percent Solids		76.7	81.2	78.5	79.4

- a Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986; Methanolic extraction by EPA Method 5030 (purge and trap). Method modified to include additional compounds.
- b The sample dilution factor indicates the adjustments made to the data and detection limits as a result of dilutions and percent solids.

ANALYTICAL RESULTS
 Aromatic Volatile Organics in Soil
 Modified EPA Method 8020^a

GTEL Sample Number		040308-09	040308-10	040308-11	040308-12
Client Identification		SB-10 5-7'	SB-7 7-9'	SB-11 0-2'	SB-12 4-6'
Date Sampled		04/08/93	04/08/93	04/08/93	04/08/93
Date Analyzed		04/14/93	04/14/93	04/14/93	04/14/93
Analyte	Reporting Limit, mg/kg	Concentration, mg/kg (dry)			
Benzene	0.05	< 0.05	4.4	< 0.05	< 0.05
Toluene	0.05	< 0.05	2.4	< 0.05	0.08
Ethylbenzene	0.10	< 0.10	12	< 0.10	< 0.10
Xylenes (total)	0.20	< 0.20	42	< 0.20	< 0.20
BTEX (total)	--	--	61	--	0.08
Sample Dilution Factor ^b		1.23	1.24	1.20	1.21
Percent Solids		81.7	79.7	80.7	81.6

- a Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986; Methanolic extraction by EPA Method 5030 (purge and trap). Method modified to include additional compounds.
- b The sample dilution factor indicates the adjustments made to the data and detection limits as a result of dilutions and percent solids.

ANALYTICAL RESULTS

Aromatic Volatile Organics in Soil
 Modified EPA Method 8020^a

GTEL Sample Number		040308-13	--	--	--
Client Identification		SOIL COMP.	--	--	--
Date Sampled		04/08/93	--	--	--
Date Analyzed		04/14/93	--	--	--
Analyte	Reporting Limit, mg/kg	Concentration, mg/kg (dry)			
Benzene	0.05	0.11	--	--	--
Toluene	0.05	0.11	--	--	--
Ethylbenzene	0.10	0.17	--	--	--
Xylenes (total)	0.20	0.69	--	--	--
BTEX (total)	--	1.1	--	--	--
Sample Dilution Factor ^b		1.18	--	--	--
Percent Solids		82.5	--	--	--

- a Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986; Methanolic extraction by EPA Method 5030 (purge and trap). Method modified to include additional compounds.
- b The sample dilution factor indicates the adjustments made to the data and detection limits as a result of dilutions and percent solids.

ANALYTICAL RESULTS

Purgeable Aromatics in Water
 Modified EPA Method 602^a

GTEL Sample Number		040308-14	040308-15	040308-16	--
Client Identification		MW-1	MW-3	BLANK	--
Date Sampled		04/09/93	04/09/93	04/09/93	--
Date Analyzed		04/14/93	04/14/93	04/13/93	--
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Benzene	0.2	3600	1200	< 0.2	--
Toluene	0.5	4500	280	< 0.5	--
Ethyl Benzene	0.8	1000	140	< 0.8	--
Xylenes (total)	1.7	3200	400	< 1.7	--
BTEX (total)	--	12000	2000	--	--
Detection Limit Multiplier ^b		50	50	1	--

- a Federal Register, Vol. 49, October 26, 1984. Method modified to include additional compounds.
 b The detection limit multiplier indicates the adjustments made to the data and detection limits for sample dilutions.

ANALYTICAL RESULTS

Hydrocarbon Screen in Soil
 by GC FID^a

GTEL Sample Number		040308-01	040308-02	040308-03	040308-04
Client Identification		SB-1 1.5-3.5'	SB-4 0-2'	SB-2 0-2'	SB-3 0-2'
Date Sampled		04/07/93	04/07/93	04/07/93	04/07/93
Date Extracted		04/13/93	04/13/93	04/13/93	04/13/93
Date Analyzed		04/16/93	04/16/93	04/16/93	04/16/93
Analyte	Detection Limit, mg/kg	Concentration, mg/kg			
Gasoline	10	< 12	< 12	< 12	< 12
Mineral Spirits	10	< 12	< 12	< 12	< 12
Kerosine	10	< 12	< 12	< 12	< 12
Diesel	10	< 12	< 12	< 12	< 12
Fuel Oil #6	10	< 12	< 12	< 12	< 12
Lubricating Oil	10	< 12	< 12	< 12	< 12
Detection Limit Multiplier		1.16	1.25	1.18	1.17
Percent Solids, %		83.8	77.8	83.8	82.9

- a Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986; Methylene chloride extraction by modified EPA Method 3550; modification as per California State Water Resources Control Board LUFT Manual protocols. Concentration calculated on a dry weight basis.

ANALYTICAL RESULTS

Hydrocarbon Screen in Soil
 by GC FID^a

GTEL Sample Number		040308-05	040308-06	040308-07	040308-08
Client Identification		SB-5 3-5'	SB-6 3-5'	SB-8 3.5-5.5'	SB-9 5-7'
Date Sampled		04/07/93	04/07/93	04/08/93	04/08/93
Date Extracted		04/13/93	04/13/93	04/13/93	04/13/93
Date Analyzed		04/16/93	04/16/93	04/16/93	04/16/93
Analyte	Detection Limit, mg/kg	Concentration, mg/kg			
Gasoline	10	22 ^b	48 ^b	< 12	< 12
Mineral Spirits	10	< 13	< 12	< 12	< 12
Kerosine	10	< 13	< 12	< 12	< 12
Diesel	10	< 13	< 12	< 12	< 12
Fuel Oil #6	10	< 13	< 12	< 12	< 12
Lubricating Oil	10	< 13	< 12	< 12	< 12
Detection Limit Multiplier		1.28	1.15	1.21	1.18
Percent Solids, %		76.7	81.2	78.5	79.4

- a Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986; Methylene chloride extraction by modified EPA Method 3550; modification as per California State Water Resources Control Board LUFT Manual protocols. Concentration calculated on a dry weight basis.
- b The sample chromatogram shows a loss of volatile components consistent with models of a weathered gasoline.

ANALYTICAL RESULTS
 Hydrocarbon Screen in Soil
 by GC FID^a

GTEL Sample Number		040308-09	040308-10	040308-11	040308-12
Client Identification		SB-10 5-7'	SB-7 7-9'	SB-11 0-2'	SB-12 4-6'
Date Sampled		04/08/93	04/08/93	04/08/93	04/08/93
Date Extracted		04/13/93	04/13/93	04/13/93	04/13/93
Date Analyzed		04/16/93	04/16/93	04/16/93	04/16/93
Analyte	Detection Limit, mg/kg	Concentration, mg/kg			
Gasoline	10	< 12	< 12	< 12	< 12
Mineral Spirits	10	< 12	< 12	< 12	< 12
Kerosine	10	< 12	< 12	< 12	< 12
Diesel	10	< 12	< 12	< 12	< 12
Fuel Oil #6	10	< 12	< 12	< 12	< 12
Lubricating Oil	10	< 12	< 12	< 12	< 12
Detection Limit Multiplier		1.20	1.19	1.17	1.20
Percent Solids, %		81.7	79.7	80.7	81.6

- a Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986; Methylene chloride extraction by modified EPA Method 3550; modification as per California State Water Resources Control Board LUFT Manual protocols. Concentration calculated on a dry weight basis.

ANALYTICAL RESULTS

Hydrocarbon Screen in Water
 by GC FID^a

GTEL Sample Number		040308-14	040308-15	040308-16	--
Client Identification		MW-1	MW-3	BLANK	--
Date Sampled		04/09/93	04/09/93	04/09/93	--
Date Extracted		04/13/93	04/13/93	04/13/93	--
Date Analyzed		04/15/93	04/16/93	04/16/93	--
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Gasoline	50	16000	7900	< 50	--
Mineral Spirits	50	< 50	< 50	< 50	--
Kerosine	50	< 50	< 50	< 50	--
Diesel	50	< 50 ^b	< 50 ^b	< 50	--
Fuel Oil #6	50	< 50 ^b	< 50 ^b	< 50	--
Lubricating Oil	50	< 50	< 50	< 50	--
Detection Limit Multiplier		1.00	1.00	1.00	--

- a Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986; Methylene chloride extraction by modified EPA Method 3510; modification as per California State Water Resources Control Board LUFT Manual protocols.
- b The sample chromatogram shows the presence of hydrocarbon peaks in the boiling point range of C₁₃ to C₂₅ that appear to be petroleum in nature but do not match instrument standards. Identification of these compounds is beyond the scope of this analysis.

Client Number: 830011088
 Project ID: LANTDIV
 Login Number: M3-04-0308

ANALYTICAL RESULTS

Organochlorine Pesticides and PCBs in Soil
 EPA Method 8080^a

GTEL Sample Number		040308-13	--	--	--
Client Identification		SOIL COMP	--	--	--
Date Sampled		04/08/93	--	--	--
Date Extracted		04/12/93	--	--	--
Date Analyzed		04/17/93	--	--	--
Analyte	Detection Limit, ug/kg	Concentration, ug/kg			
alpha-BHC	1.0	< 1.2	--	--	--
beta-BHC	2.0	< 2.4	--	--	--
delta-BHC	3.0	< 3.6	--	--	--
gamma-BHC (Lindane)	1.3	< 1.6	--	--	--
Heptachlor	1.0	< 1.2	--	--	--
Aldrin	1.3	< 1.6	--	--	--
Heptachlor Epoxide	27	< 33	--	--	--
Endosulfan I	4.6	< 5.6	--	--	--
Dieldrin	0.66	< 0.80	--	--	--
4,4'-DDE	1.3	< 1.6	--	--	--
Endrin	2.0	< 2.4	--	--	--
Endosulfan II	1.3	< 1.6	--	--	--
4,4'-DDD	3.6	< 4.4	--	--	--
Endrin Aldehyde	7.7	< 9.3	--	--	--
Endosulfan Sulfate	22	< 27	--	--	--
4,4'-DDT	4.0	< 4.8	--	--	--
Methoxychlor	58	< 70	--	--	--
Chlordane	4.6	< 5.6	--	--	--
Toxaphene	80	< 97	--	--	--
Detection Limit Multiplier ^b		1.21	--	--	--

ANALYTICAL RESULTS
 Metals in TCLP Leachate^a

GTEL Sample Number		040308-13	--	--	--
Client Identification		SOIL COMP.	--	--	--
Date Sampled		04/08/93	--	--	--
Dates Leached		04/13/93- 04/14/93	--	--	--
Extraction Fluid		1	--	--	--
Date Analyzed (Method 7470)		04/14/93	--	--	--
Date Analyzed (Method 6010)		04/15/93	--	--	--
Analyte	Method ^b	Quantitation Limit, mg/L	Concentration, mg/L		
Arsenic	6010	0.50	< 0.50	--	--
Barium	6010	1.0	< 1.0	--	--
Cadmium	6010	0.050	< 0.050	--	--
Chromium	6010	0.050	< 0.050	--	--
Lead	6010	0.50	< 0.50	--	--
Mercury	7470	0.002	< 0.002	--	--
Selenium	6010	0.20	< 0.20	--	--
Silver	6010	0.050	< 0.050	--	--
Quantitation Limit Multiplier ^c		1.00	--	--	--

- a Federal Register, June 29, 1990, 40 CFR, Part 261, Appendix II - Method 1311. These data are corrected for analytical bias as required by Method 1311 by applying a correction determined by matrix spike recovery.
- b Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA, November 1986; Digestion by Method 3050 (except mercury).
- c The quantitation limit multiplier indicates the adjustments made to the data and detection limits for sample dilutions.

ANALYTICAL RESULTS

Organochlorine Pesticides and PCBs in Soil
 EPA Method 8080a

GTEL Sample Number		040308-13	--	--	--
Client Identification		SOIL COMP	--	--	--
Date Sampled		04/08/93	--	--	--
Date Extracted		04/12/93	--	--	--
Date Analyzed		04/17/93	--	--	--
Analyte	Detection Limit, ug/kg	Concentration, ug/kg			
Aroclor-1221	40	< 48	--	--	--
Aroclor-1232	40	< 48	--	--	--
Aroclor-1242 (1016)	40	< 48	--	--	--
Aroclor-1248	40	< 48	--	--	--
Aroclor-1254	40	< 48	--	--	--
Aroclor-1260	40	< 48	--	--	--
Detection Limit Multiplier ^b		1.21	--	--	--
Percent Solids, %		82.5	--	--	--

- a Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986; Extraction by EPA Method 3550 (low-level sonication). Results are reported on a dry weight basis.
- b The detection limit multiplier indicates the adjustments made to the data and detection limits as a result of dilutions and percent solids.

ANALYTICAL RESULTS

Extractable Organic Halides in Soil^a

Sample Identification		Date Sampled	Date Analyzed	Percent Solids, %	Detection Limit, mg/kg	Concentration, mg/kg
GTEL No.	Client ID	--	--	--	--	--
040308-13	SOIL COMP.	04/08/93	04/13/93	82.5	74	< 74

a EPA 600/4-84-008, Appendix D, Method for Extractable Organic Halides in Soil, US EPA, June, 1983. Concentration is calculated on a dry weight basis.

ANALYTICAL RESULTS

Polynuclear Aromatic Hydrocarbons in Water
 EPA Method 610^a

GTEL Sample Number		040308-14	040308-15	040308-16	--
Client Identification		MW-1	MW-3	BLANK	--
Date Sampled		04/09/93	04/09/93	04/09/93	--
Date Extracted		04/12/93	04/12/93	04/12/93	--
Date Analyzed		04/13/93 ^c	04/13/93	04/13/93	--
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Naphthalene	1.8	170 ^c	9.7	< 1.8	--
Acenaphthylene	2.3	3.5	< 2.3	< 2.3	--
1-Methylnaphthalene	1.8	18	< 1.8	< 1.8	--
2-Methylnaphthalene	1.8	44	2.3	< 1.8	--
Acenaphthene	1.8	2.7	< 1.8	< 1.8	--
Fluorene	0.21	5.2	0.46	< 0.21	--
Phenanthrene	0.64	< 0.64	< 0.64	< 0.64	--
Anthracene	0.66	< 0.66	< 0.66	< 0.66	--
Fluoranthene	0.21	< 0.21	< 0.21	< 0.21	--
Pyrene	0.27	< 0.27	< 0.27	< 0.27	--
Benzo[a]anthracene	0.013	< 0.013	< 0.013	< 0.013	--
Chrysene	0.15	< 0.15	< 0.15	< 0.15	--
Benzo[b]fluoranthene	0.018	< 0.018	< 0.018	< 0.018	--
Benzo[k]fluoranthene	0.017	< 0.017	< 0.017	< 0.017	--
Benzo[a]pyrene	0.023	< 0.023	< 0.023	< 0.023	--
Dibenzo[a,h]anthracene	0.030	< 0.030	< 0.030	< 0.030	--
Benzo[g,h,i]perylene	0.076	< 0.076	< 0.076	< 0.076	--
Indeno[1,2,3-cd]pyrene	0.043	< 0.043	< 0.043	< 0.043	--
Detection Limit Multiplier ^b		1.00 ^c	1.00	1.00	--

- a Federal Register, Vol. 49, October 26, 1984. Sample preparation by liquid/liquid extraction.
- b The detection limit multiplier indicates the adjustments made to the data and detection limits for sample dilutions.
- c Detection Limit Multiplier for analyte noted = 10.0, Date Analyzed = 04/14/93.

ANALYTICAL RESULTS

Percent Moisture
EPA CLP Method^a

Sample Identification		Date Sampled	Date Analyzed	Percent Moisture
GTEL No.	Client ID	--	--	--
040308-13	SOIL COMP.	04/08/93	04/12/93	17.5

a EPA CLP Statement of Work, ILM 01.01, Section IV, Part F.

ANALYTICAL RESULTS

Total Recoverable Petroleum Hydrocarbons in Soil
 by Infrared Spectrometry
 Modified EPA Method 418.1^a

Sample Identification		Date Sampled	Date Extracted	Date Analyzed	Percent Solids, %	Detection Limit, mg/kg	Concentration, mg/kg
GTEL No.	Client ID	--	--	--	--	--	--
040308-01	SB-1 1.5-3.5'	04/07/93	04/13/93	04/14/93	83.8	38	< 38
040308-02	SB-4 0-2'	04/07/93	04/13/93	04/14/93	77.8	41	< 41
040308-03	SB-2 0-2'	04/07/93	04/13/93	04/14/93	83.8	37	46
040308-04	SB-3 0-2'	04/07/93	04/13/93	04/14/93	82.9	39	< 39
040308-05	SB-5 3-5'	04/07/93	04/13/93	04/14/93	76.7	42	57
040308-06	SB-6 3-5'	04/07/93	04/13/93	04/14/93	81.2	39	53
040308-07	SB-8 3.5-5.5'	04/08/93	04/13/93	04/14/93	78.5	39	63
040308-08	SB-9 5-7'	04/08/93	04/13/93	04/14/93	79.4	42	< 42
040308-09	SB-10 5-7'	04/08/93	04/13/93	04/14/93	81.7	39	< 39
040308-10	SB-7 7-9'	04/08/93	04/13/93	04/14/93	79.7	39	100
040308-11	SB-11 0-2'	04/08/93	04/13/93	04/14/93	80.7	40	< 40
040308-12	SB-12 4-6'	04/08/93	04/13/93	04/14/93	81.6	39	49
040308-13	SOIL COMP.	04/08/93	04/13/93	04/14/93	82.5	40	< 40

a EPA 600/4-79-020, March 1983 revision. Extraction modified for soils (Soxhlet). Concentration calculated on a dry weight basis.

Client Number: 830011088
Project ID: LANTDIV
Login Number: M3-04-0308

ANALYTICAL RESULTS

Total Recoverable Petroleum Hydrocarbons in Water
by Infrared Spectrometry
EPA Method 418.1^a

Sample Identification		Date Sampled	Date Extracted	Date Analyzed	Detection Limit, mg/L	Concentration, mg/L
GTEL No.	Client ID	--	--	--	--	--
040308-14	MW-1	04/09/93	04/13/93	04/14/93	0.49	4.1
040308-15	MW-3	04/09/93	04/13/93	04/14/93	0.50	1.9
040308-16	BLANK	04/09/93	04/13/93	04/14/93	0.50	< 0.50

a EPA 600/4-79-020, March 1983 revision.



GTTEL
ENVIRONMENTAL
LABORATORIES, INC.
MILFORD, NH 03055
(603) 672-4835
(800) LAB-GTEL

CHAIN-CUSTODY RECORD
AND ANALYSIS REQUEST

54862

Company Name: **GTI**
 Company Address: **12446 Executive Blvd. #106 Chesapeake, VA**
 Phone #: **804-426-7881**
 FAX #: **804-436-2312**
 Site location: **Sugar Grove, VA**
 Client Project ID: **(#) 83001088142.03**
 Project Manager: **P. Taylor Seward**
 ANALYSIS REQUEST

Field Sample ID	GTEL Lab # (Lab use only)	# Containers	Matrix										Method Preserved		Sampling		
			WATER	SOIL	AIR	SLUDGE	PRODUCT	OTHER	HCl	HNO ₃	H ₂ SO ₄	ICE	UNRESERVED	OTHER (Specify)	DATE	TIME	
Blank	16	2	X											X		4-9	12:05
Blank	1	4	X											X		4-9	2:05
Blank		3	X											X		4-9	12:05

<input checked="" type="checkbox"/> BTEX/Gas Hydrocarbons PID/FID with MTBE	<input type="checkbox"/> BTEX/602	<input checked="" type="checkbox"/> 8020	<input type="checkbox"/> with MTBE
<input type="checkbox"/> Hydrocarbons GC/FID Gas	<input type="checkbox"/> Diesel	<input type="checkbox"/> Sreep	<input type="checkbox"/> Sreep
<input type="checkbox"/> Hydrocarbon Profile (SIMDIS)	<input type="checkbox"/> Oil and Grease 413.1	<input type="checkbox"/> 413.2	<input type="checkbox"/> SM 503
<input type="checkbox"/> TPH/IR 418	<input checked="" type="checkbox"/> SM 503	<input type="checkbox"/> EDB by 504	<input type="checkbox"/> DRCP by 504
<input type="checkbox"/> EPA 503.1	<input type="checkbox"/> EPA 502.2	<input type="checkbox"/> EPA 601	<input type="checkbox"/> EPA 8010
<input type="checkbox"/> EPA 602	<input type="checkbox"/> EPA 8020	<input type="checkbox"/> EPA 608	<input type="checkbox"/> 8080
<input type="checkbox"/> PCB only	<input type="checkbox"/> EPA 624/PPL	<input type="checkbox"/> 8240/TAL	<input type="checkbox"/> NBS (+15)
<input type="checkbox"/> EPA 625/PPL	<input type="checkbox"/> 8270/TAL	<input type="checkbox"/> NBS (+25)	<input type="checkbox"/> EPA 610
<input checked="" type="checkbox"/> 8310	<input type="checkbox"/> EPA TOX Metals	<input type="checkbox"/> Pesticides	<input type="checkbox"/> Herbicides
<input type="checkbox"/> TCLP Metals	<input type="checkbox"/> VOA	<input type="checkbox"/> Semi-VOA	<input type="checkbox"/> Pest
<input type="checkbox"/> Herb	<input type="checkbox"/> EPA Metals - Priority Pollutant	<input type="checkbox"/> TAL	<input type="checkbox"/> RCRA
<input type="checkbox"/> CAM Metals	<input type="checkbox"/> TLCLC	<input type="checkbox"/> STLC	<input type="checkbox"/> Lead 239.2
<input type="checkbox"/> 200.7	<input type="checkbox"/> 7420	<input type="checkbox"/> 7421	<input type="checkbox"/> 6010
<input type="checkbox"/> Organic Lead	<input type="checkbox"/> Corrosivity	<input type="checkbox"/> Flash Point	<input type="checkbox"/> Reactivity

REMARKS
5 Day TAT!!!

SPECIAL DETECTION LIMITS

SPECIAL REPORTING REQUIREMENTS
Lab Use Only Lot # **W2A 10-41A**
Storage Location:

Relinquished by, Sampler: *Angela Bont*
 Relinquished by: *Angela Bont*
 Relinquished by: *Michelle Braden*

DATE/TIME
 Date: **4-9-93** Time: **5:00**
 Date: _____ Time: _____
 Date: **4/10/93** Time: **12:30**

GTTEL CONTACT
 GTEL Contact: _____
 Quote/Contract #: _____
 Confirmation #: _____
 PO #: _____

QA/QC LEVEL:
 LUE CLP OTHER

WORK ORDER #
 Received by: _____
 Received by: _____

WAT
 Priority (24 hr)
 Expedited (48 hr)
 Business Days
 Other **5 Day TAT**
 Business Days

CUSTODY RECORD



ADDC/INDUSTRIAL FACILITIES
MILFORD, NH 03055
(603) 672-4835
(800) LAB-GTEL

JUST RECEIVED
ANALYSIS REQUEST

54860

Company Name: Granada Water Tech
 Phone #: 804-436-7881
 Company Address: 244 B Executive Blvd. #100 Chesapeake, VA
 FAX #: 804-436-2312
 Site location: Sugar Grove, VA
 Client Project #: 830011088.42.03
 (NAME) LANTIDIN
 Sampler Name (Print): Angela Bont
 P. Taylor Sward
 test that the proper field sampling procedures were used during the collection of these samples.

Field Sample ID	GTEL Lab # (Lab use only)	# Containers	Matrix						Method Preserved	Sampling			
			WATER	SOIL	AIR	SLUDGE	PRODUCT	OTHER		HCl	HNO ₃	H ₂ SO ₄	ICE
B-1	15-35'	5	X	X	X	X	X	X	X	X	X	4-7	2:10
B-4	0-2'	5	X	X	X	X	X	X	X	X	X	4-7	1:45
B-2	0-2'	5	X	X	X	X	X	X	X	X	X	4-7	3:20
B-3	0-2'	5	X	X	X	X	X	X	X	X	X	4-7	3:40
B-5	0-5'	5	X	X	X	X	X	X	X	X	X	4-7	4:25
B-5	0-5'	5	X	X	X	4-7	4:25						
B-6	3-5'	5	X	X	X	X	X	X	X	X	X	4-7	5:00
B-8	3.5-5.5'	5	X	X	X	X	X	X	X	X	X	4-8	10:30
B-9	5-7'	5	X	X	X	X	X	X	X	X	X	4-8	11:20
B-10	5-7'	5	X	X	X	X	X	X	X	X	X	4-8	12:35

SPECIAL DETECTION LIMITS

SPECIAL REPORTING REQUIREMENTS

QA / QC LEVEL
 BLUE CLP OTHER _____
 Relinquished by Sampler: Angela Bont

REMARKS
5 Day TAT!
 Labels dated 4/6/93 should be dated 4/7/93
 Lab Use Only Lot # _____ Storage Location: A. Bont
23LB 10-4A W2A
 Work Order # _____
 Received by: _____
 Received by: _____
 Received by Laboratory: Mione Bell
 Wavehill # (67) 67001111

CUSTODY RECORD

Priority (24 hr)
 Expedited (48 hr)
 Business Days
 Other 5 Day TAT
 Business Days

Date Time: 4-9-93 5:00
 Date Time: 4/10/93 12:30

**MONITORING
AND
SAMPLING
REPORTS**

Jim Maurin
Office of Environmental Remediation
2031 Pleasant Valley Road, Suite #1
Fairmont, WV 26554

RE: WV ID # 3604470; LEAK ID # 93-048
USTs 201 and 202
Naval Security Group Activity
Sugar Grove, West Virginia

RECEIVED

MAY 4 2004

Dear Mr. Maurin,

I hope this letter finds you well. Per our phone conversation of 7 May 2004, I am forwarding four quarterly Monitoring reports detailing results of investigations conducted at the above referenced site. These efforts are in support of a quest for a "No Further Action" status.

Also attached is your letter dated June 12, 2002 for review.

Should you have any questions, feel free to give me a call at (757) 322-4779.

I look forward to hearing from you.

Regards,

Lori Reuther 5/7/04

Lori Reuther, Code EV14LR
NAVFAC Atlantic
6506 Hampton Blvd.
Norfolk, VA 23508-1276

RECEIVED
MAY 4 2004

Copy to: Mr. Steve Niethamer (w/o enclosures)
Environmental Programs, Code N45
NAVSECGRUACT Sugar Grove WV
Sugar Grove, WV 26815

RECEIVED

MAY 14 2004

**FOURTH QUARTER 2003
MONITORING REPORT
USTS 201 AND 202
NAVAL SECURITY GROUP ACTIVITY
SUGAR GROVE, WEST VIRGINIA
WVDEP FACILITY NO.: 3604470
WVDEP RELEASE NO.: 93-048**

FEBRUARY 19, 2004

CONTRACT NO.: N62470-01-D-3009
DELIVERY ORDER NO.: 0050
MID-ATLANTIC PROJECT NO.: 000R1243.50

1. All wells meet FDWS. 40K
mw-3 → 30K

Prepared By:

Mid-Atlantic Associates, Inc.
409 Rogers View Court
Raleigh, North Carolina 27610
(919) 250-9918

MID-ATLANTIC
ASSOCIATES, INC.
Engineering & Environmental Solutions

409 Rogers View Court / Raleigh / North Carolina / 27610
800-486-7568 / 919-250-9918 / 919-250-9950 Facsimile
www.maaonline.com

**FOURTH QUARTER 2003
MONITORING REPORT
USTS 201 AND 202
NAVAL SECURITY GROUP ACTIVITY
SUGAR GROVE, WEST VIRGINIA
WVDEP FACILITY NO.: 3604470
WVDEP RELEASE NO.: 93-048**

Mid-Atlantic Job No. 000R1243.50

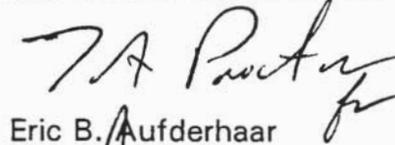
February 19, 2004

Prepared For:

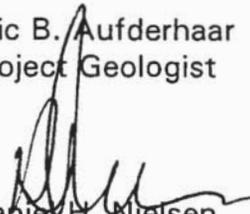
Commanding General
Naval Facilities Engineering Command
Atlantic Headquarters, Env. Division
Technical Services Branch
1510 Gilbert Street
Norfolk, Virginia 23511-6287

Prepared By:

MID-ATLANTIC ASSOCIATES, INC.



Eric B. Aufderhaar
Project Geologist



Daniel H. Nielsen
Principal Engineer

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3.0 GROUNDWATER SAMPLING AND ANALYTICAL RESULTS	2
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DRAWINGS

Drawing 1.1	Topographic Site Location Map
Drawing 1.2	Monitoring Well and Sample Location Map
Drawing 2.1	Estimated Water Table Contour Map - December 2003
Drawing 3.1	VOCs in Groundwater ($\mu\text{g/L}$)
Drawing 3.2	Total PAHs in Groundwater ($\mu\text{g/L}$)

TABLES

Table 2.1	Summary of Groundwater Depth Measurements, December 2003
Table 3.1	Summary of Groundwater Sampling Results ($\mu\text{g/L}$)
Table 3.2	Year to Date Groundwater Sampling Results ($\mu\text{g/L}$), Monitoring Wells MW-1 through MW-6

APPENDICES

Appendix	Quarterly Groundwater Monitoring Laboratory Analytical Report and Chain-of-Custody Record
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1.0 INTRODUCTION

Mid-Atlantic Associates, Inc. (Mid-Atlantic) was retained by CATLIN Engineers & Scientists (CATLIN) to complete four quarterly monitoring events at the Naval Security Group Activity (NSGA), located near Sugar Grove, Pendleton County, West Virginia (Drawing 1.1). The NSGA military reservation is situated approximately five miles north of Sugar Grove on County Road 21. This report documents the results from our fourth quarterly monitoring event completed on December 22, 2003.

Six monitoring wells were installed at the NSGA in 1994 and 1996 following confirmation of a petroleum release in March 1993. The wells were installed in the vicinity of underground storage tanks (USTs) 201 and 202 formerly operated near Buildings 20 and 22 (Drawing 1.2). These buildings are used for a gymnasium and offices (Building 20) and a garage/paint storage facility (Building 22). Petroleum-contaminated soils were excavated in 1995 from a former pump island area located southwest of Building 22.

Further background site information was summarized in our first quarterly monitoring report, submitted to the Naval Facilities Engineering Command Atlantic Division (LANTDIV) and the NSGA on June 2, 2003. Please reference the June 2, 2003 report for a discussion regarding the *January 2002 Groundwater Monitoring and Sampling Report* prepared by NFE Technologies, Inc. (NFE) and response letter issued by the West Virginia Department of Environmental Protection (WVDEP). In response to WVDEP correspondence, LANTDIV authorized the monitoring program by issuing Delivery Order No. 0050 to CATLIN. CATLIN is the prime contractor under Navy Contract N62470-01-D-3009.

2.0 WATER TABLE AND FREE PRODUCT MEASUREMENTS

On December 22, 2003, a representative of Mid-Atlantic visited the subject site for the purpose of collecting groundwater samples and to measure the depth to groundwater and free product thickness (if present) within site monitoring wells (Drawing 1.2).

Depth to groundwater and free product measurements were obtained using an electronic oil/water interface probe from a surveyed measuring point at the top of each well casing. This information is included in the summary of groundwater elevations table for this quarterly monitoring event (Table 2.1).

Groundwater flow direction for this monitoring event is shown on Drawing 2.1 and was prepared using the water elevation data from Table 2.1. Groundwater elevation data from monitoring wells MW-3 and MW-6 were not used to generate water-table elevation contours. Well MW-3 was dry¹ on the date of sampling, and well MW-6 is screened at a different elevation than the other wells within shale bedrock. As shown, the shallow groundwater at the site is migrating in a generally northwesterly direction, which is generally consistent with the local topography. The South Branch of the Potomac River borders the west side of the NSGA property. Based on groundwater table elevations calculated from December 22, 2003 monitoring data, the apparent groundwater flow direction within the monitoring well system is more northerly than the flow direction estimated from the September 2003 (third quarter) groundwater data. However, the northerly groundwater flow direction is similar to the direction estimated from March 2003 (first quarter) groundwater elevation data in the northern portion of the site. In the southern portion of the site, near well MW-5, the apparent groundwater flow direction is also to the northwest. This varies from previous quarters, where westerly to southwesterly groundwater flow directions were estimated. The different groundwater flow direction in this region is due to the presence of the water table at a shallower depth than in previous months. The increased groundwater table elevation may be due to increased recharge of groundwater from precipitation events during the winter months. Well MW-5 is located in a grassed area.

We did not identify a measurable thickness of free product in the six site monitoring wells.

3.0 GROUNDWATER SAMPLING AND ANALYTICAL RESULTS

The monitoring wells, except for MW-3, were purged for sample collection by removing three standing volumes of water from each well or until the well exhibited dryness. Wells MW-5 and MW-6 were purged of 3.2 well volumes without exhibiting dryness. The other wells exhibited dryness after 5 to 9 gallons of water were removed. Wells MW-4 and MW-1 most quickly exhibited dryness, after approximately six gallons of water were removed from well MW-4 and eight gallons were removed from well MW-1. We measured 4.02 feet of water in well MW-4 and 5.76 feet of water in well MW-1 prior to purging. Well MW-3 was dry as previously noted. Historically, we have measured a thin water column in MW-3 during previous

¹ Ice was identified at 6.39 feet below the top of casing for the monitoring well. The top of the well casing is positioned at land surface and the well is reported to be 6.45 feet deep.

sampling events (1.7, 3.74 and 4.03 feet during the first three quarterly sampling events, respectively). This well has also historically been low yielding, requiring subsequent visits to fill groundwater sample containers.

New nitrile gloves were worn by the sampler and a pre-cleaned disposable bailer was used for purging and for collecting the groundwater samples. The groundwater samples were decanted into laboratory-supplied glassware, packed on ice and delivered under chain-of-custody to Paradigm Analytical Laboratories, Inc. (Paradigm) in Wilmington, NC. The groundwater samples were analyzed for gasoline range total petroleum hydrocarbons (TPH) according to EPA Method 5030; diesel fuel range TPH according to EPA Method 3510; purgeable aromatics including methyl-tert-butyl ether (MTBE) and diisopropyl ether according to EPA Method 602 and polynuclear aromatic hydrocarbons (PAHs) according to EPA method 625. PAH compounds, typically listed as EPA Method 610 analytes, were tested by EPA Method 625 (gas chromatography mass spectrometry or GCMS) to reduce error from "false positive" results. Laboratory personnel stated that the EPA Method 610 methodology does not permit confirmation of contaminant concentrations and is more appropriate for sites of known contaminants with known concentrations.

Paradigm is certified by the State of West Virginia to perform these laboratory tests under WVDEP Certificate No. 293 (see certification document within the laboratory report in the Appendix). The laboratory analytical results from analyses performed on the groundwater samples, in addition to the corresponding West Virginia Groundwater Quality Standards (WVGWQS), are summarized in Table 3.1. The results from the previous quarterly sampling events along with this sampling event are summarized in Table 3.2. Copies of the laboratory analytical report and chain-of-custody from this sampling event are included in the Appendix.

The laboratory did not report concentrations of total petroleum hydrocarbons (TPH) above the practical quantitation limit (PQL) of 500 µg/L.

Volatile organic compound (VOC) concentrations in groundwater are shown in Drawing 3.1. Diisopropyl ether (DIPE) and methyl tert-butyl ether (MTBE) were reported as estimated² concentrations and denoted with a "J" on Drawing 3.1, Tables 3.1 and 3.2, and in the laboratory report (Appendix). Laboratory results with a "J" flag (aka "J values") refer to analytes that are quantified at levels greater than the laboratory method detection limit (MDL) but less than the laboratory practical quantitation limit (PQL). The PQL refers to the level of analyte that can be routinely

² The concentrations are considered "estimated" because the detected values were below the instrument calibration limits.

detected and quantified in a real matrix while the MDL is the minimum level of analyte that can be detected with 99% confidence that the analytical response is greater than zero (ENCO, 2001). As indicated by the drawing, concentrations of MTBE are limited in aerial extent. MTBE was detected above the MDL in groundwater samples MW-1 (23 $\mu\text{g/L}$), MW-2 (30 $\mu\text{g/L}$), MW-4 (16 $\mu\text{g/L}$) and MW-5 (0.38 $\mu\text{g/L}$). Currently, there is no WVGWQS for MTBE. The EPA has placed MTBE on the Drinking Water Contaminant Candidate List (CCL). The CCL includes contaminants that are considered priorities for establishment of future groundwater standards. The EPA did not specify a recommended groundwater standard for MTBE in the CCL. In 1997, EPA issued a Drinking Water Advisory and stated that there is little likelihood that MTBE concentrations between 200 and 400 $\mu\text{g/L}$ would cause negative health effects (EPA, 2003).

PAHs were not detected above the laboratory MDLs in the groundwater samples collected from the December 2003 sampling event (Drawing 3.2). The MDLs and PQLs are shown on the laboratory report included in the Appendix.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the findings of this fourth quarterly sampling event, Mid-Atlantic provides the following conclusions.

- DIPE and MTBE were detected in groundwater samples during this sampling event. Groundwater standards have not been established by West Virginia for DIPE or MTBE. The detected concentrations of MTBE ranged from .38 $\mu\text{g/L}$ ("J" value) at well MW-5 to 30 $\mu\text{g/L}$ at well MW-2. DIPE was detected in one well at a concentration less than the laboratory PQL of 1 $\mu\text{g/L}$.
- Contaminants were detected in well MW-3 during the first quarter sampling event³ but were not detected during the two subsequent sampling events (MW-3 was dry during this fourth sampling event). The PAH compounds originally detected in well MW-3 are thought to have entered the well via a monitoring well cap that did not seal tightly in the well. A new expandable cap was installed in the well during July 2003 and has effectively sealed the well from contaminants entering the well via surface water.

³ Recall that during the March 2003 (first quarter) sampling event, nine PAH compounds were reported in well MW-3. Of the nine contaminants, benzo[a]pyrene was reported at a concentration of 17 $\mu\text{g/L}$. This concentration was above the WVGWQS of 2 $\mu\text{g/L}$.

Based upon the results of this sampling event and the prior three sampling events, Mid-Atlantic recommends the following:

- LANTDIV should submit this final quarterly monitoring report to the WVDEP with a request for closure of the release incident.
- After approval by the WVDEP, the six monitoring wells at the site should be closed in accordance with West Virginia regulations.

5.0 REFERENCES CITED

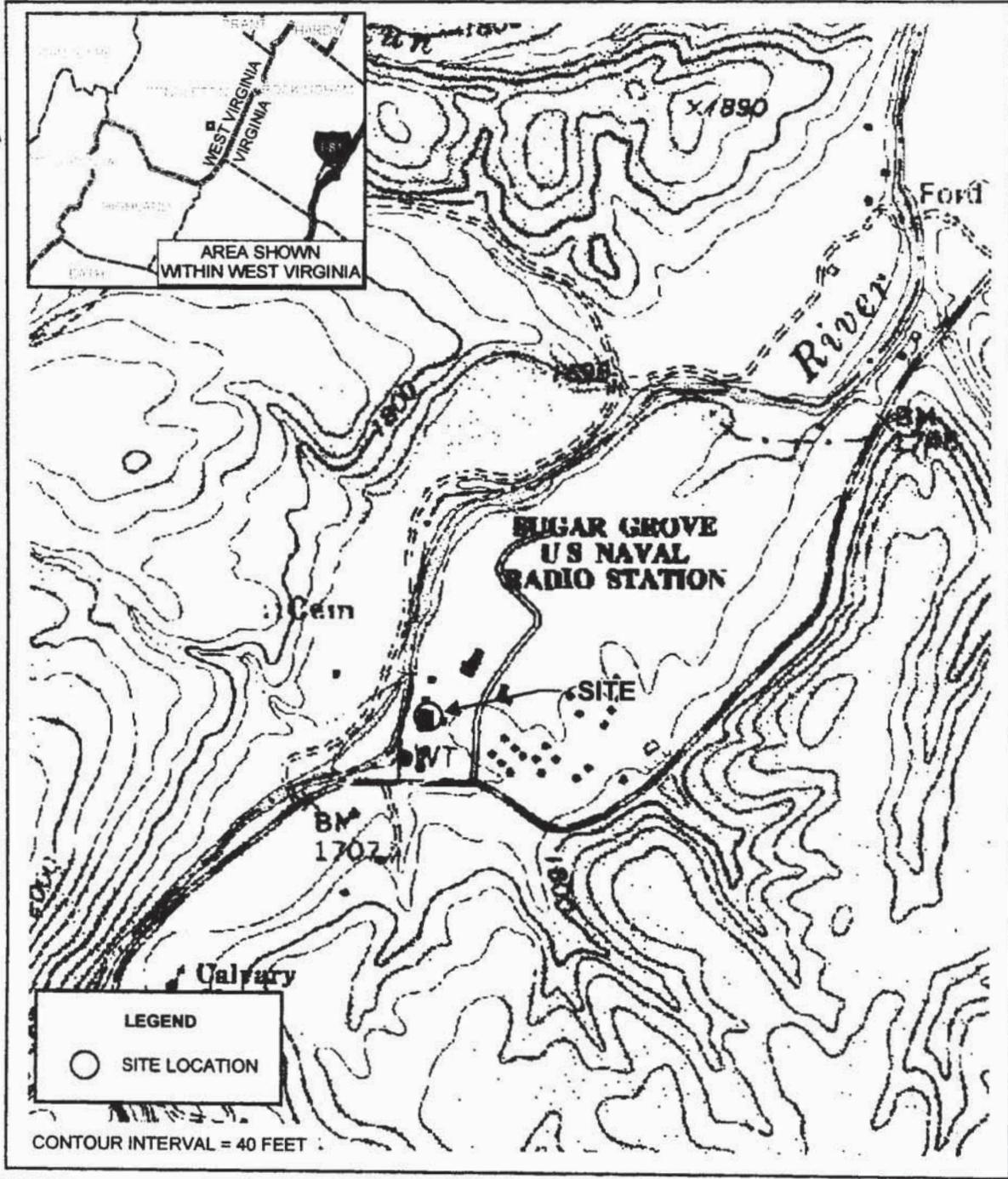
ENCO, 2001, *Environmental Analytical Chemistry for People Who Don't Really Care by Those Who Do*, Sixth Edition, Environmental Conservation Laboratories, Inc., March 2001, Page 4.

EPA, 2003, *MTBE (methyl tertiary-butyl ether) and Underground Storage Tanks*, Office of USTs, U.S. Environmental Protection Agency, March 10, 2003. [Internet Site: www.epa.gov/swerust1/mtbe/index.htm]

HHS, 2001, *Polycyclic Aromatic Hydrocarbons, 15 Listings in Ninth Annual Report on Carcinogens*, U.S. Department of Health and Human Services, Public Health Service, National Toxicology Program, January 2001.

NFE, 2002, *Groundwater Monitoring and Sampling Report, U.S. Navy, NAVSECGRUACT, Sugar Grove, WV*, NFE Technologies, Inc., January 2002.

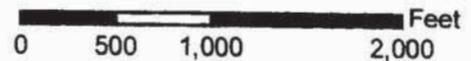
DRAWINGS



REFERENCES:

1. SUGAR GROVE, WV DIGITAL RASTER GRAPHIC, USGS. SCANNED FROM 1:24,000-SCALE SUGAR GROVE, WV TOPOGRAPHIC MAP, PUBLISHED 1989, PHOTOREVISED 1981, USGS. DOWNLOADED FROM WEST VIRGINIA DEP INTERNET SITE.
2. INSET MAP DIGITAL DATA FROM ESRI.

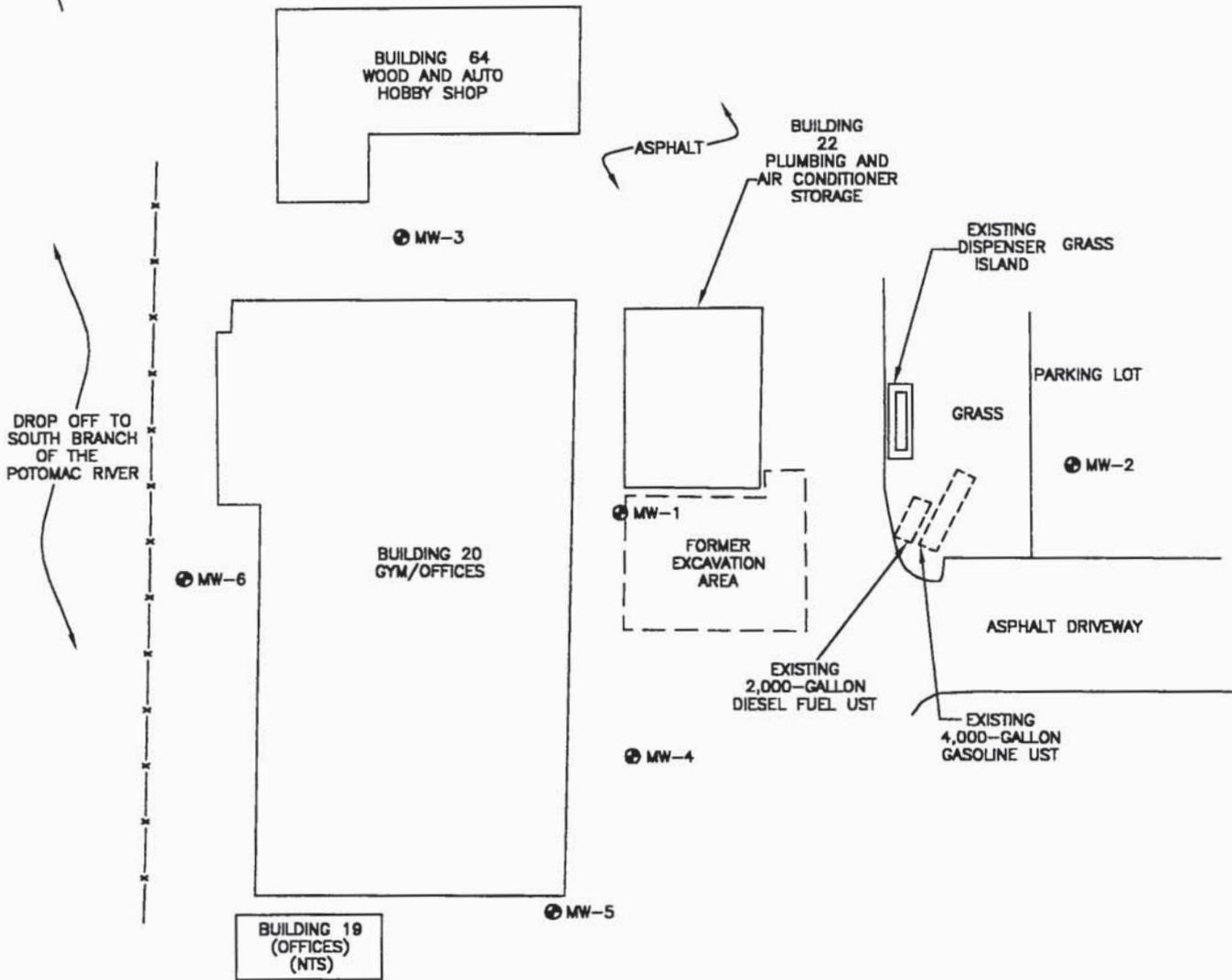
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MID-ATLANTIC
ASSOCIATES, INC.
Engineering & Environmental Solutions

TOPOGRAPHIC SITE LOCATION MAP
USTS 201 AND 202
NAVAL SECURITY GROUP ACTIVITY
SUGAR GROVE, WEST VIRGINIA

DRAWN BY: <i>EJA</i>	DATE: NOVEMBER 2003
DRAFT CHECK:	JOB NO: 000R1243.50
ENG. CHECK: <i>DN</i>	GIS NO: 01G-1243.50-1
APPROVAL: <i>EJA</i>	DWG NO: 1.1



WATER PLANT (NTS)

LEGEND

- MW-1 (NTS) MONITORING WELL LOCATION NOT TO SCALE
- x—x—x—x— FENCE

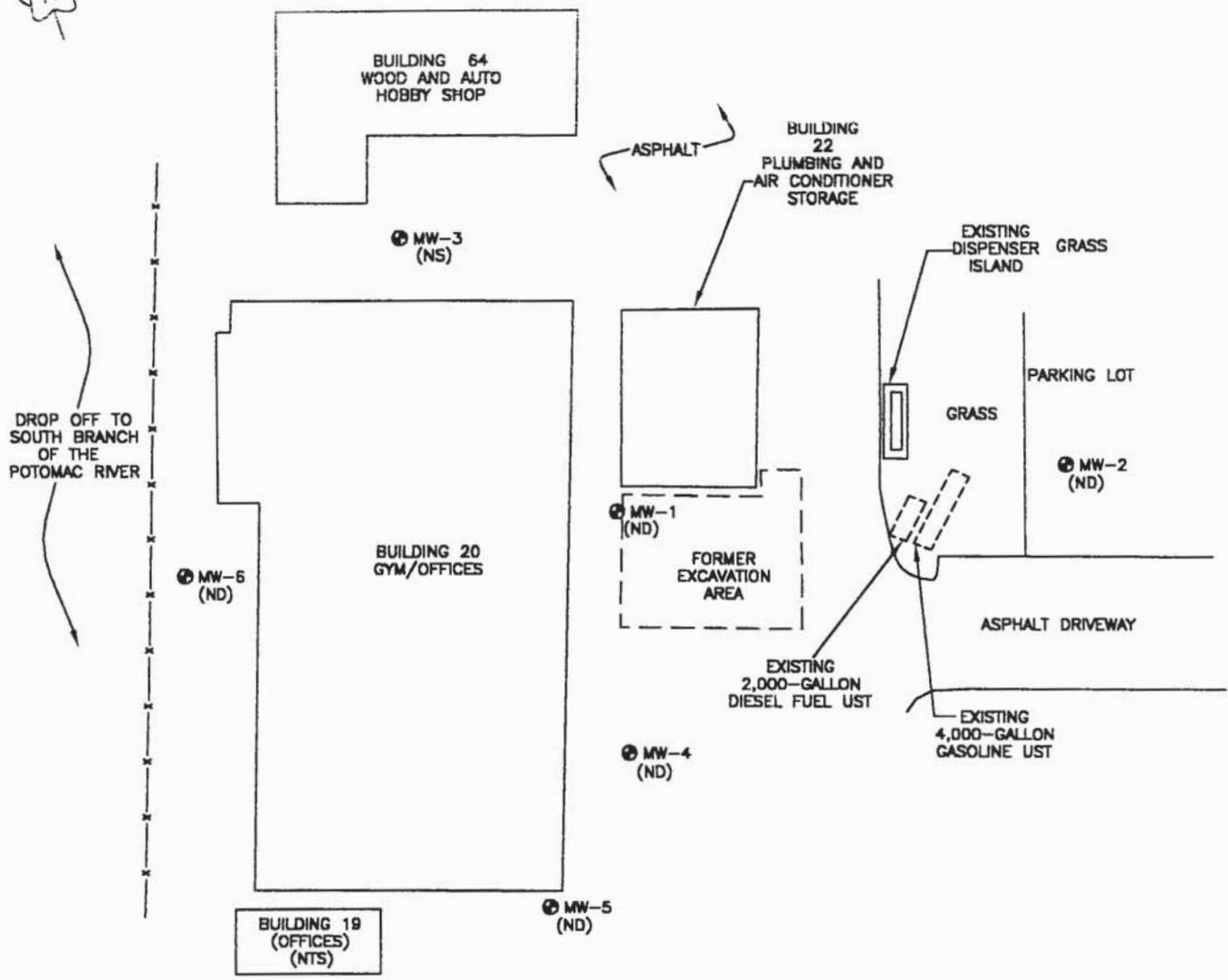


MID-ATLANTIC ASSOCIATES, INC.
Engineering & Environmental Solutions

MONITORING WELL AND SAMPLE LOCATION MAP
NAVAL SECURITY GROUP ACTIVITY
USTs 201 AND 202
SUGAR GROVE, WEST VIRGINIA

DRAWN BY: <i>[Signature]</i>	DATE: NOVEMBER 2003
DRAFT CHECK: <i>[Signature]</i>	JOB NO: 000R1243.50
ENG CHECK: <i>[Signature]</i>	CAD NO: 01-124306-50
APPROVAL: <i>[Signature]</i>	DWG NO: 1.2

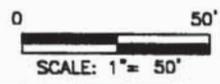
REFERENCE: NFE SITE MAP DATED 1/23/02; MID-ATLANTIC FIELD NOTES & ON-SITE MEASUREMENTS.



WATER PLANT (NTS)

LEGEND

- MW-1 (NTS) MONITORING WELL LOCATION NOT TO SCALE
- x—x—x—x— FENCE
- PAHs POLYNUCLEAR AROMATIC HYDROCARBONS
- (ND) NOT DETECTED ABOVE LABORATORY METHOD DETECTION LIMIT (MDL)
- (NS) NOT SAMPLED



MID-ATLANTIC ASSOCIATES, INC.
Engineering & Environmental Solutions

TOTAL PAHs IN GROUNDWATER (ug/L)
NAVAL SECURITY GROUP ACTIVITY
USTs 201 AND 202
SUGAR GROVE, WEST VIRGINIA

DRAWN BY: <i>[Signature]</i>	DATE: JANUARY 2004
DRAFT CHECK:	JOB NO: 000R1243.50
ENG CHECK: <i>[Signature]</i>	CAD NO: 01-124309-50
APPROVAL: <i>[Signature]</i>	DWG NO: 3.2

REFERENCE: NFE SITE MAP DATED 1/23/02; MID-ATLANTIC FIELD NOTES & ON-SITE MEASUREMENTS.

TABLES

TABLE 2.1
SUMMARY OF GROUNDWATER DEPTH MEASUREMENTS, DECEMBER 22, 2003
NAVAL SECURITY GROUP ACTIVITY
SUGAR GROVE, WEST VIRGINIA
WVDEP FACILITY NO. 3604470//RELEASE NO. 93-048

Well ID	Top-of-Casing Elevation (ft.)	Screen Interval (ft. bls)	Depth to Water, Below TOC (ft.)	Groundwater Elevation (ft.)
MW-1	99.97	1.8 - 11.8	4.42	95.55
MW-2	102.14	3.93 - 13.93	4.91	97.23
MW-3	99.77	1.45 - 6.45	6.39 (Top of Ice)	Dry ²
MW-4	100.29	2.92 - 7.92	4.02	96.27
MW-5	100.29	1.03 - 10.03	2.39	97.90
MW-6 ³	97.59	10 - 28	9.70	87.89

Notes:

*Top-of-casing (TOC) elevations calculated by R.E. Wright Associates, 1994, relative to an arbitrary 100 ft. benchmark.

² Ice thickness estimated at 0.06 feet (0.7 inches).

³ Well screened in shale bedrock encountered at 7 ft. bls during drilling. Groundwater may originate from deeper water bearing zone. Well MW-6 sealing materials include grout from 0 to 6 ft. bls and bentonite clay from 6 to 8 ft. bls.

bls - below land surface

Table 3.1: Summary of Groundwater Sampling Results (ug/L)

Date: December 2003 Release Number and Name: 93-048, USTs 201 and 202, Naval Security Group Facility ID #: 3604407

Well ID	Analytical Method	Contaminant of Concern		TPH-DRO EPA 3510	TPH-GRO EPA 3510	VOC EPA 602	VOC EPA 602	VOC EPA 602	Methyl tert-butyl ether (MTBE)	Diisopropyl Ether (DPE)	PAH EPA 610/625	PAH EPA 610/625	PAH EPA 610/625
		Sample ID	Date Collected (m/d/yyyy)										
MW-1		MW-1	12/22/2003	<500	<500	<.16	23	0.40 J (1)	<3.1	<2.4	<2.4	<2.6	
MW-2		MW-2	12/22/2003	<500	<500	<.16	30	<.18	<3.1	<2.4	<2.4	<2.6	
MW-3		MW-3	Dry	Well "Dry" (0.6 inches of ice on bottom). Sample not collected.									
MW-4		MW-4	12/22/2003	<500	<500	<.16	16	<.18	<3.1	<2.4	<2.4	<2.6	
MW-5		MW-5	12/22/2003	<500	<500	<.16	.38 J (2)	<.18	<3.1	<2.4	<2.4	<2.6	
MW-6		MW-6	12/22/2003	<500	<500	<.16	<.35	<.18	<3.1	<2.4	<2.4	<2.6	
N/A		Trip Blank	Laboratory-Supplied	NT	NT	<.16	<.35	<.18	NT	NT	NT	NT	
N/A		Field Blank	12/22/2003	NT	NT	<.16	<.35	<.18	<3.1	<2.4	<2.4	<2.6	
West Virginia Groundwater Quality Standards (ug/L)¹				Not Est.	Not Est.	5	Not Est. ²	Not Est.	0.2	Not Est.	Not Est.	Not Est.	

Notes:

1 = Title 46, Legislative Rule Environmental Quality Board, Series 12 - Requirements Governing Groundwater Standards.

2 = Methyl-tert-butyl ether (MTBE) is on the EPA's Drinking Water Contaminant Candidate List (CCL). A proposed standard for MTBE was not listed in the CCL.

J = Contaminant detected between Method Detection Limit (MDL) and Practical Quantitation Limit (PQL). Concentration shown is estimated. Reporting Limit is shown in p.p.b.

PAH = Polynuclear Aromatic Hydrocarbons

TPH = Total Petroleum Hydrocarbons

<0.5 = Compound not detected at or greater than the laboratory MDL or PQL. The MDL is shown for EPA 602 and EPA 610/625 tests. PQL is shown for TPH tests.

ug/L = micrograms per liter (parts per billion)

Not Est. = Not Established

NT = Sample not tested for this parameter or laboratory test method.

TABLE 3.2
 YEAR-TO-DATE GROUNDWATER SAMPLING RESULTS (ug/L), MONITORING WELLS MW-1 THROUGH MW-6
 USTS 201 AND 202, NAVAL SECURITY GROUP ACTIVITY
 SUGAR GROVE, WEST VIRGINIA
 WVDEP FACILITY NO. 3604470 / RELEASE NO. 93-048
 MID-ATLANTIC JOB NO. 000R1243.50

Well Number	WVGWQS	Sample Date	TPH, Diesel Fuel	Not Est.	1-H, Gasoline Range Organics (ug/L)	5	Not Est.	MTBE (ug/L)	Not Est.	DIPE (ug/L)	Not Est.	Benzo(a)anthracene (ug/L)	Not Est.	Benzo(b)fluoranthene (ug/L)	Not Est.	Benzo(g,h,i)perylene (ug/L)	Not Est.	Benzo(k)fluoranthene (ug/L)	0.2	Chrysene (ug/L)	Not Est.	Fluoranthene (ug/L)	Not Est.	Ideno(1,2,3-cd)pyrene (ug/L)	Not Est.	Pyrene (ug/L)	Not Est.
MW-1		03/05/03	-	-	-	-	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-1		05/12/03	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-1		10/01/03	-	-	0.445	-	26	0.36 J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-1		12/22/03	-	-	-	-	23	0.40 J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-2		03/06/03	-	-	-	-	51	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-2		05/09/03	-	-	-	-	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-2		10/01/03	-	-	-	-	40	0.51 J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-2		12/22/03	-	-	-	-	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-3		03/06/03	-	-	-	-	-	-	8 J	-	27	15	11	17	18	23	14	22	-	-	-	-	-	-	-	-	-
MW-3		05/09/03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-3		05/12/03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-3		09/30/03, 10/01/03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-3		12/22/03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Well "Dry" (0.6 inches of ice on bottom). Sample not collected.																											
MW-4		03/05/03	-	-	-	-	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-4		05/12/03	-	-	-	-	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-4		10/01/03	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-4		12/22/03	-	-	-	-	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-5		03/05/03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-5		05/09/03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-5		09/30/03	-	-	-	-	1.5 J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-5		12/22/03	-	-	-	-	38 J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-6		03/05/03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-6		05/12/03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-6		10/01/03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-6		12/22/03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
 -- = Concentration not detected at or above laboratory practical quantitation limit (PQL) or method detection limit (MDL). See Table 3.1 of sampling reports for MDLs and PQLs.
 J = Contaminant concentration detected below PQL but above laboratory MDL. Concentration Shown is Estimated.
 Not Est. = Not established
 Shaded values in bold exceed WV Groundwater Quality Standards (WVGWQS)
 ug/L = micrograms per liter
 MTBE = methyl tertiary-butyl ether
 PAHs = Polynuclear Aromatic Hydrocarbons
 TPH = Total Petroleum Hydrocarbons

APPENDIX

**QUARTERLY GROUNDWATER MONITORING LABORATORY
REPORT AND CHAIN OF CUSTODY RECORD**

Attachment I

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

ANNUAL CERTIFIED PARAMETER LIST

for

PARADIGM ANALYTICAL LABORATORIES, INC.
Wilmington, North Carolina

PARAMETERS CERTIFIED

METALS(CVAA/GFAA/ICP/ICP-MS): Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc***

GC and GC/MS: Purgeable Halocarbons[EPA 601], Purgeable Aromatics[EPA 602], Halogenated and Aromatic Volatiles[8021B], Organochlorine Pesticides[8081A], Polychlorinated Biphenyls(PCB)[8082], Chlorinated Herbicides[8151A], Volatile Organic Compounds[EPA 624/8260B], Semivolatile Organic Compounds[EPA 625/8270C], Total Petroleum Hydrocarbons[8015B], EDB & DBCP[8011], Polynuclear Aromatic Hydrocarbons[8310]***

ARACTERISTICS: Corrosivity[9045C], Paint Filter Liquids Test[9095A]***

TOXICITY: Toxicity Characteristic Leaching Procedure(TCLP)[1311]***

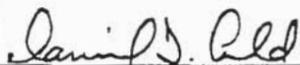
DIOXIN/FURAN: Polychlorinated dibenzo-*p*-dioxins and dibenzofurans(PCDD/Fs)[8280A/8290/1613']***

* This certification does not include drinking water analysis.

This laboratory may test ONLY for those environmental parameters listed above for compliance reporting purposes. All testing must be by the test method cited in the current application for certification.

This Certification Expires: **December 31, 2003**

Certificate No. 293



December 31, 2002

Daniel T. Arnold
Quality Assurance Officer

PARADIGM ANALYTICAL LABORATORIES, INC.

5500 Business Drive
Wilmington, North Carolina 28405
(910) 350-1903
Fax (910) 350-1557

RECEIVED

BY:.....

Mr. Eric Aufderhaar
Mid-Atlantic Associates
409 Rogers View Ct.
Raleigh, NC 27610

January 6, 2004

Report Number: G122-2364

Client Project ID: Sugar Grove 1243.50

Dear Mr. Aufderhaar,

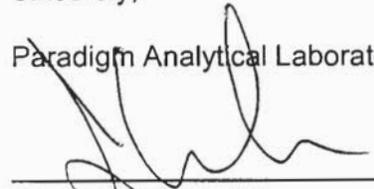
Enclosed are the results of the analytical services performed under the referenced project. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or the services performed during this project, please call Paradigm at (910) 350-1903. We will be happy to answer any questions or concerns which you may have.

Thank you for using Paradigm Analytical Labs for your analytical services. We look forward to working with you again on any additional analytical needs which you may have.

Sincerely,

Paradigm Analytical Laboratories, Inc.



Laboratory Director
J. Patrick Weaver

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC/FID

Client Sample ID: MW-1

Analyzed By: BMS

Client Project ID: Sugar Grove 1243.50

Date Collected: 12/22/03 0:00

Lab Sample ID: 85791

Date Received: 12/24/03 0:00

Lab Project ID: G122-2364

Matrix: Water

Analyte	Result MG/L	Report Limit MG/L	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	0.5	5030	1	12/29/03
Diesel Range Organics	BQL	0.5	3550	1	12/30/03

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC/FID

Client Sample ID: MW-2

Analyzed By: BMS

Client Project ID: Sugar Grove 1243.50

Date Collected: 12/22/03 0:00

Lab Sample ID: 85792

Date Received: 12/24/03 0:00

Lab Project ID: G122-2364

Matrix: Water

Analyte	Result MG/L	Report Limit MG/L	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	0.5	5030	1	12/29/03
Diesel Range Organics	BQL	0.5	3550	1	12/30/03

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons

by GC/FID

Client Sample ID: MW-4

Analyzed By: BMS

Client Project ID: Sugar Grove 1243.50

Date Collected: 12/22/03 0:00

Lab Sample ID: 85793

Date Received: 12/24/03 0:00

Lab Project ID: G122-2364

Matrix: Water

Analyte	Result MG/L	Report Limit MG/L	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	0.5	5030	1	12/29/03
Diesel Range Organics	BQL	0.5	3550	1	12/30/03

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons

by GC/FID

Client Sample ID: MW-5

Analyzed By: BMS

Client Project ID: Sugar Grove 1243.50

Date Collected: 12/22/03 0:00

Lab Sample ID: 85794

Date Received: 12/24/03 0:00

Lab Project ID: G122-2364

Matrix: Water

Analyte	Result MG/L	Report Limit MG/L	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	0.5	5030	1	12/29/03
Diesel Range Organics	BQL	0.5	3550	1	12/30/03

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons

by GC/FID

Client Sample ID: MW-6

Client Project ID: Sugar Grove 1243.50

Lab Sample ID: 85795

Lab Project ID: G122-2364

Analyzed By: BMS

Date Collected: 12/22/03 0:00

Date Received: 12/24/03 0:00

Matrix: Water

Analyte	Result MG/L	Report Limit MG/L	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	0.5	5030	1	12/29/03
Diesel Range Organics	BQL	0.5	3550	1	12/30/03

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum
Hydrocarbons
by GC

Client Sample ID:
Client Project ID:
Lab Sample ID: PB774
Lab Project ID:
Matrix: Water

Date Collected:
Date Received:
Analyzed By: BMS

Compound	Result (MG/L)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	0.5	3510	1.0	12/30/03

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.
Results for Laboratory Control Spike (LCS)
by GC 8015B

Client Sample ID: Batch QC
Client Project ID:
Lab Sample ID: LCS122903
Lab Project ID:
Matrix: Water

Date Analyzed: 12/29/03
Analyzed By: BMS
Dilution: 1.0

Compound	Spiked	Result	Limits	
			Lower	Upper
Gasoline Range Organics	0.50	0.45	0.35	0.65

Results reported are amounts in mg/L.

Reviewed By: MC

PARADIGM ANALYTICAL LABORATORIES, INC.
Results for Laboratory Control Spike (LCS)
by GC 8015B

Client Sample ID: Batch QC
Client Project ID:
Lab Sample ID: WLCS 774
Lab Project ID:
Matrix: Water

Date Analyzed: 12/30/03
Analyzed By: BMS
Dilution: 1.0

Compound	Spiked	Result	Limits	
			Lower	Upper
Diesel Range Organics	2.0	1.9	1.4	2.6

Results reported are amounts in mg/L.

Reviewed By: WV

PARADIGM ANALYTICAL LABORATORIES, INC.

MS/MSD Results for TPH

by GC 8015B

Client Sample ID: Batch QC

Date Analyzed: 12/30/03

Client Project ID:

Analyzed By: BMS

Lab Sample ID: WQC 774

Dilution: 1.0

Lab Project ID:

Matrix: Water

Compound	Sample	MS	%Rec	MSD	%Rec	RPD
Diesel Range Organics	BQL	1.9	97%	1.9	94%	3.2

Comments:

BQL = Below Quantitation Limit

Results reported are amounts in mg/L

Reviewed By: me

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: MW-1

Analyzed By: DCS

Client Project ID: Sugar Grove 1243.50

Date Collected: 12/22/03

Lab Sample ID: 85791

Date Received: 12/24/03

Lab Project ID: G122-2364

Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	BQL	1.0	0.16	1	12/29/03	
Diisopropyl ether (DIPE)	0.40	1.0	0.18	1	12/29/03	J
Ethylbenzene	BQL	1.0	0.17	1	12/29/03	
Methyl-tert butyl ether (MTBE)	23	2.0	0.35	1	12/29/03	
Toluene	BQL	1.0	0.19	1	12/29/03	
m/p-Xylene	BQL	2.0	0.35	1	12/29/03	
o-Xylene	BQL	2.0	0.17	1	12/29/03	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	41.7	104

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: MW-2

Analyzed By: DCS

Client Project ID: Sugar Grove 1243.50

Date Collected: 12/22/03

Lab Sample ID: 85792

Date Received: 12/24/03

Lab Project ID: G122-2364

Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	BQL	1.0	0.16	1	12/29/03	
Diisopropyl ether (DIPE)	BQL	1.0	0.18	1	12/29/03	
Ethylbenzene	BQL	1.0	0.17	1	12/29/03	
Methyl-tert butyl ether (MTBE)	30	2.0	0.35	1	12/29/03	
Toluene	BQL	1.0	0.19	1	12/29/03	
m/p-Xylene	BQL	2.0	0.35	1	12/29/03	
o-Xylene	BQL	2.0	0.17	1	12/29/03	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	41.2	103

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: MW-4

Analyzed By: DCS

Client Project ID: Sugar Grove 1243.50

Date Collected: 12/22/03

Lab Sample ID: 85793

Date Received: 12/24/03

Lab Project ID: G122-2364

Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	BQL	1.0	0.16	1	12/29/03	
Diisopropyl ether (DIPE)	BQL	1.0	0.18	1	12/29/03	
Ethylbenzene	BQL	1.0	0.17	1	12/29/03	
Methyl-tert butyl ether (MTBE)	16	2.0	0.35	1	12/29/03	
Toluene	BQL	1.0	0.19	1	12/29/03	
m/p-Xylene	BQL	2.0	0.35	1	12/29/03	
o-Xylene	BQL	2.0	0.17	1	12/29/03	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	41.2	103

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: MW-5

Analyzed By: DCS

Client Project ID: Sugar Grove 1243.50

Date Collected: 12/22/03

Lab Sample ID: 85794

Date Received: 12/24/03

Lab Project ID: G122-2364

Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	BQL	1.0	0.16	1	12/29/03	
Diisopropyl ether (DIPE)	BQL	1.0	0.18	1	12/29/03	
Ethylbenzene	BQL	1.0	0.17	1	12/29/03	
Methyl-tert butyl ether (MTBE)	0.38	2.0	0.35	1	12/29/03	J
Toluene	BQL	1.0	0.19	1	12/29/03	
m/p-Xylene	BQL	2.0	0.35	1	12/29/03	
o-Xylene	BQL	2.0	0.17	1	12/29/03	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	41.3	103

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: MW-6

Analyzed By: DCS

Client Project ID: Sugar Grove 1243.50

Date Collected: 12/22/03

Lab Sample ID: 85795

Date Received: 12/24/03

Lab Project ID: G122-2364

Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	BQL	1.0	0.16	1	12/29/03	
Diisopropyl ether (DIPE)	BQL	1.0	0.18	1	12/29/03	
Ethylbenzene	BQL	1.0	0.17	1	12/29/03	
Methyl-tert butyl ether (MTBE)	BQL	2.0	0.35	1	12/29/03	
Toluene	BQL	1.0	0.19	1	12/29/03	
m/p-Xylene	BQL	2.0	0.35	1	12/29/03	
o-Xylene	BQL	2.0	0.17	1	12/29/03	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	41.3	103

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: Trip Blank

Analyzed By: DCS

Client Project ID: Sugar Grove 1243.50

Date Collected: 12/22/03

Lab Sample ID: 85796

Date Received: 12/24/03

Lab Project ID: G122-2364

Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	BQL	1.0	0.16	1	12/29/03	
Diisopropyl ether (DIPE)	BQL	1.0	0.18	1	12/29/03	
Ethylbenzene	BQL	1.0	0.17	1	12/29/03	
Methyl-tert butyl ether (MTBE)	BQL	2.0	0.35	1	12/29/03	
Toluene	BQL	1.0	0.19	1	12/29/03	
m/p-Xylene	BQL	2.0	0.35	1	12/29/03	
o-Xylene	BQL	2.0	0.17	1	12/29/03	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	39.6	99

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: Field Blank

Analyzed By: DCS

Client Project ID: Sugar Grove 1243.50

Date Collected: 12/22/03

Lab Sample ID: 85797

Date Received: 12/24/03

Lab Project ID: G122-2364

Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	BQL	1.0	0.16	1	12/29/03	
Diisopropyl ether (DIPE)	BQL	1.0	0.18	1	12/29/03	
Ethylbenzene	BQL	1.0	0.17	1	12/29/03	
Methyl-tert butyl ether (MTBE)	BQL	2.0	0.35	1	12/29/03	
Toluene	BQL	1.0	0.19	1	12/29/03	
m/p-Xylene	BQL	2.0	0.35	1	12/29/03	
o-Xylene	BQL	2.0	0.17	1	12/29/03	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	39.8	99.5

Comments:

All values corrected for dilution.
BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: Method Blank

Analyzed By: DCS

Client Project ID:

Date Collected:

Lab Sample ID: VBLK3122903E

Date Received:

Lab Project ID:

Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	BQL	1.0	0.16	1	12/29/03	
Diisopropyl ether (DIPE)	BQL	1.0	0.18	1	12/29/03	
Ethylbenzene	BQL	1.0	0.17	1	12/29/03	
Methyl-tert butyl ether (MTBE)	BQL	2.0	0.35	1	12/29/03	
Toluene	BQL	1.0	0.19	1	12/29/03	
m/p-Xylene	BQL	2.0	0.35	1	12/29/03	
o-Xylene	BQL	2.0	0.17	1	12/29/03	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	41.3	103

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: Method Blank

Analyzed By: DCS

Client Project ID:

Date Collected:

Lab Sample ID: VBLK1122903E

Date Received:

Lab Project ID:

Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	BQL	1.0	0.16	1	12/29/03	
Diisopropyl ether (DIPE)	BQL	1.0	0.18	1	12/29/03	
Ethylbenzene	BQL	1.0	0.17	1	12/29/03	
Methyl-tert butyl ether (MTBE)	BQL	2.0	0.35	1	12/29/03	
Toluene	BQL	1.0	0.19	1	12/29/03	
m/p-Xylene	BQL	2.0	0.35	1	12/29/03	
o-Xylene	BQL	2.0	0.17	1	12/29/03	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	39.8	99.4

Comments:

All values corrected for dilution.
BQL = Below quantitation limit.

Control Limits for QC Check / Laboratory Control Spike

Method: 602 Spike[ppb]: 10

Filename : 122903\023r0101.txt

Compound	ppb	Q(%)	QC Limits		P _s (%)	LCS Limits	
			Lower	Upper		Lower	Upper
Benzene	9.9	98.6	77.0	123.0	99	39	150
Chlorobenzene	9.9	99.4	80.5	119.5	99	55	135
1,2-Dichlorobenzene	9.7	97.0	68.0	132.0	97	37	154
1,3-Dichlorobenzene	9.4	94.5	72.5	127.5	94	50	141
1,4-Dichlorobenzene	9.7	97.1	69.5	130.5	97	42	143
• Diisopropyl ether	9.6	96.0	43.1	156.9	96	30	170
Ethylbenzene	9.6	95.5	63.0	137.0	96	32	160
• MTBE	9.8	98.0	46.8	153.2	98	35	165
Toluene	10.1	101.1	77.5	127.0	101	46	148
• m,p-Xylene	18.9	94.4	11.2	188.8	94	D	239
• o-Xylene	10.0	99.7	47.6	152.4	100	36	164

Flags :

- + = out of QC limits.
- = lab generated limits.
- D = Detected

Control Limits for MS-MSD

Method: 602 Spike[ppb]: 10

Sample : 122903\036r0101.txt

MS : 122903\037r0101.txt

MSD : 122903\038r0101.txt

Compound	µg/L			P(%)		P Limits	
	Sam.	MS	MSD	MS	MSD	Lower	Upper
Benzene	ND	10.3	9.8	103	98	39	150
Chlorobenzene	ND	10.5	10.2	105	102	55	135
1,2-Dichlorobenzene	ND	9.9	10.0	99	100	37	154
1,3-Dichlorobenzene	ND	9.8	9.8	98	98	50	141
1,4-Dichlorobenzene	ND	9.6	9.6	96	96	42	143
• Diisopropyl ether	ND	10.6	10.4	106	104	30	170
Ethylbenzene	3.7	14.2	14.5	105	107	32	160
• MTBE	ND	10.3	9.9	103	99	35	165
Toluene	ND	10.5	10.3	105	103	46	148
• m,p-Xylene	31.9	52.7	55.8	104	119	D	239
• o-Xylene	ND	10.6	10.4	106	104	36	164

Flags :

- + = out of QC limits.
- = lab generated limits.
- D = Detected
- ND = None Detected

Control Limits for QC Check / Laboratory Control Spike

Method: 602 Spike[ppb]: 10

Filename : 122903\022r0101.txt

Compound	ppb	Q(%)	QC Limits		P _s (%)	LCS Limits	
			Lower	Upper		Lower	Upper
Benzene	10.5	104.7	77.0	123.0	105	39	150
Chlorobenzene	10.4	103.9	80.5	119.5	104	55	135
1,2-Dichlorobenzene	9.6	96.3	68.0	132.0	96	37	154
1,3-Dichlorobenzene	10.0	100.5	72.5	127.5	100	50	141
1,4-Dichlorobenzene	9.5	95.0	69.5	130.5	95	42	143
• Diisopropyl ether	10.6	105.7	43.1	156.9	106	30	170
Ethylbenzene	10.3	103.3	63.0	137.0	103	32	160
• MTBE	10.7	106.7	46.8	153.2	107	35	165
Toluene	10.5	104.7	77.5	127.0	105	46	148
• m,p-Xylene	20.8	103.8	11.2	188.8	104	D	239
• o-Xylene	10.3	103.2	47.6	152.4	103	36	164

Flags :

- + = out of QC limits.
- = lab generated limits.
- D = Detected

PARADIGM ANALYTICAL LABORATORIES, INC.

Control Limits for MS-MSD

Method: 602 Spike[ppb]: 10

Sample : 123003\002r0101.txt

MS : 123003\003r0101.txt

MSD : 123003\004r0101.txt

Compound	µg/L			P(%)		P Limits	
	Sam.	MS	MSD	MS	MSD	Lower	Upper
Benzene	4.4	15.1	15.4	107	110	39	150
Chlorobenzene	ND	10.3	10.6	106	109	55	135
1,2-Dichlorobenzene	ND	10.1	10.6	100	105	37	154
1,3-Dichlorobenzene	ND	10.2	10.5	104	107	50	141
1,4-Dichlorobenzene	ND	9.9	10.5	103	108	42	143
• Diisopropyl ether	2.0	12.7	12.9	106	109	30	170
Ethylbenzene	4.6	15.5	15.7	108	111	32	160
• MTBE	2.1	13.0	13.3	109	112	35	165
Toluene	3.4	14.0	14.3	107	109	46	148
• m,p-Xylene	9.9	31.5	32.1	108	111	D	239
• o-Xylene	5.4	16.1	16.4	107	110	36	164

Flags :

- + = out of QC limits.
- = lab generated limits.
- D = Detected
- ND = None Detected

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: MW-1

Date Collected: 12/22/03

Client Project ID: Sugar Grove 1243.50

Date Received: 12/24/03

Lab Sample ID: 85791

Date Analyzed: 12/30/03

Lab Project ID: G122-2364

Analyzed By: MRC

Matrix: Water

Dilution: 1

Compound	Practical Quantitation Limit (ug/L)	Method Detection Limit (ug/L)	Result *
Acenaphthene	5	2.8	BQL
Acenaphthylene	5	2.9	BQL
Anthracene	5	2.7	BQL
Benzo[a]anthracene	5	1.8	BQL
Benzo[a]pyrene	5	3.1	BQL
Benzo[b]fluoranthene	5	2.5	BQL
Benzo[g,h,i]perylene	5	2.1	BQL
Benzo[k]fluoranthene	5	3.1	BQL
Chrysene	5	2.5	BQL
Dibenzo[a,h]anthracene	5	2	BQL
Fluoranthene	5	2.4	BQL
Fluorene	5	2.8	BQL
Indeno(1,2,3-c,d)pyrene	5	2.2	BQL
1-Methylnaphthalene	5	2.8	BQL
2-Methylnaphthalene	5	3	BQL
Naphthalene	5	3.1	BQL
Phenanthrene	5	2.3	BQL
Pyrene	5	2.6	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.0	80
Nitrobenzene-d5	10	8.7	87
4-Terphenyl-d14	10	10.3	103

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

* = Reported to the Method Detection Limit (MDL)

J = Estimated value, detected value is below the instrument calibration limits.

Reviewed By: AWP

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: MW-2

Client Project ID: Sugar Grove 1243.50

Lab Sample ID: 85792

Lab Project ID: G122-2364

Matrix: Water

Date Collected: 12/22/03

Date Received: 12/24/03

Date Analyzed: 12/30/03

Analyzed By: MRC

Dilution: 1

Compound	Practical Quantitation Limit (ug/L)	Method Detection Limit (ug/L)	Result * (ug/L)
Acenaphthene	5	2.8	BQL
Acenaphthylene	5	2.9	BQL
Anthracene	5	2.7	BQL
Benzo[a]anthracene	5	1.8	BQL
Benzo[a]pyrene	5	3.1	BQL
Benzo[b]fluoranthene	5	2.5	BQL
Benzo[g,h,i]perylene	5	2.1	BQL
Benzo[k]fluoranthene	5	3.1	BQL
Chrysene	5	2.5	BQL
Dibenzo[a,h]anthracene	5	2	BQL
Fluoranthene	5	2.4	BQL
Fluorene	5	2.8	BQL
Indeno(1,2,3-c,d)pyrene	5	2.2	BQL
1-Methylnaphthalene	5	2.8	BQL
2-Methylnaphthalene	5	3	BQL
Naphthalene	5	3.1	BQL
Phenanthrene	5	2.3	BQL
Pyrene	5	2.6	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.5	85
Nitrobenzene-d5	10	8.9	89
4-Terphenyl-d14	10	10.7	107

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

* = Reported to the Method Detection Limit (MDL)

J = Estimated value, detected value is below the instrument calibration limits.

Reviewed By: mrc

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: MW-4

Date Collected: 12/22/03

Client Project ID: Sugar Grove 1243.50

Date Received: 12/24/03

Lab Sample ID: 85793

Date Analyzed: 12/30/03

Lab Project ID: G122-2364

Analyzed By: MRC

Matrix: Water

Dilution: 1

Compound	Practical Quantitation Limit (ug/L)	Method Detection Limit (ug/L)	Result * (ug/L)
Acenaphthene	5	2.8	BQL
Acenaphthylene	5	2.9	BQL
Anthracene	5	2.7	BQL
Benzo[a]anthracene	5	1.8	BQL
Benzo[a]pyrene	5	3.1	BQL
Benzo[b]fluoranthene	5	2.5	BQL
Benzo[g,h,i]perylene	5	2.1	BQL
Benzo[k]fluoranthene	5	3.1	BQL
Chrysene	5	2.5	BQL
Dibenzo[a,h]anthracene	5	2	BQL
Fluoranthene	5	2.4	BQL
Fluorene	5	2.8	BQL
Indeno(1,2,3-c,d)pyrene	5	2.2	BQL
1-Methylnaphthalene	5	2.8	BQL
2-Methylnaphthalene	5	3	BQL
Naphthalene	5	3.1	BQL
Phenanthrene	5	2.3	BQL
Pyrene	5	2.6	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.3	83
Nitrobenzene-d5	10	8.6	86
4-Terphenyl-d14	10	10.5	105

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

* = Reported to the Method Detection Limit (MDL)

J = Estimated value, detected value is below the instrument calibration limits.

Reviewed By: *mrc*

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: MW-5

Client Project ID: Sugar Grove 1243.50

Lab Sample ID: 85794

Lab Project ID: G122-2364

Matrix: Water

Date Collected: 12/22/03

Date Received: 12/24/03

Date Analyzed: 12/30/03

Analyzed By: MRC

Dilution: 1

Compound	Practical Quantitation Limit (ug/L)	Method Detection Limit (ug/L)	Result * (ug/L)
Acenaphthene	5	2.8	BQL
Acenaphthylene	5	2.9	BQL
Anthracene	5	2.7	BQL
Benzo[a]anthracene	5	1.8	BQL
Benzo[a]pyrene	5	3.1	BQL
Benzo[b]fluoranthene	5	2.5	BQL
Benzo[g,h,i]perylene	5	2.1	BQL
Benzo[k]fluoranthene	5	3.1	BQL
Chrysene	5	2.5	BQL
Dibenzo[a,h]anthracene	5	2	BQL
Fluoranthene	5	2.4	BQL
Fluorene	5	2.8	BQL
Indeno(1,2,3-c,d)pyrene	5	2.2	BQL
1-Methylnaphthalene	5	2.8	BQL
2-Methylnaphthalene	5	3	BQL
Naphthalene	5	3.1	BQL
Phenanthrene	5	2.3	BQL
Pyrene	5	2.6	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.9	79
Nitrobenzene-d5	10	8.1	81
4-Terphenyl-d14	10	9.6	96

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

* = Reported to the Method Detection Limit (MDL)

J = Estimated value, detected value is below the instrument calibration limits.

Reviewed By: mrc

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: MW-6

Client Project ID: Sugar Grove 1243.50

Lab Sample ID: 85795

Lab Project ID: G122-2364

Matrix: Water

Date Collected: 12/22/03

Date Received: 12/24/03

Date Analyzed: 12/30/03

Analyzed By: MRC

Dilution: 1

Compound	Practical Quantitation Limit (ug/L)	Method Detection Limit (ug/L)	Result * (ug/L)
Acenaphthene	5	2.8	BQL
Acenaphthylene	5	2.9	BQL
Anthracene	5	2.7	BQL
Benzo[a]anthracene	5	1.8	BQL
Benzo[a]pyrene	5	3.1	BQL
Benzo[b]fluoranthene	5	2.5	BQL
Benzo[g,h,i]perylene	5	2.1	BQL
Benzo[k]fluoranthene	5	3.1	BQL
Chrysene	5	2.5	BQL
Dibenzo[a,h]anthracene	5	2	BQL
Fluoranthene	5	2.4	BQL
Fluorene	5	2.8	BQL
Indeno(1,2,3-c,d)pyrene	5	2.2	BQL
1-Methylnaphthalene	5	2.8	BQL
2-Methylnaphthalene	5	3	BQL
Naphthalene	5	3.1	BQL
Phenanthrene	5	2.3	BQL
Pyrene	5	2.6	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.8	78
Nitrobenzene-d5	10	8.3	83
4-Terphenyl-d14	10	9.9	99

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

* = Reported to the Method Detection Limit (MDL)

J = Estimated value, detected value is below the instrument calibration limits.

Reviewed By: mrc

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: Field Blank

Client Project ID: Sugar Grove 1243.50

Lab Sample ID: 85797

Lab Project ID: G122-2364

Matrix: Water

Date Collected: 12/22/03

Date Received: 12/24/03

Date Analyzed: 12/30/03

Analyzed By: MRC

Dilution: 1

Compound	Practical Quantitation Limit (ug/L)	Method Detection Limit (ug/L)	Result * (ug/L)
Acenaphthene	5	2.8	BQL
Acenaphthylene	5	2.9	BQL
Anthracene	5	2.7	BQL
Benzo[a]anthracene	5	1.8	BQL
Benzo[a]pyrene	5	3.1	BQL
Benzo[b]fluoranthene	5	2.5	BQL
Benzo[g,h,i]perylene	5	2.1	BQL
Benzo[k]fluoranthene	5	3.1	BQL
Chrysene	5	2.5	BQL
Dibenzo[a,h]anthracene	5	2	BQL
Fluoranthene	5	2.4	BQL
Fluorene	5	2.8	BQL
Indeno(1,2,3-c,d)pyrene	5	2.2	BQL
1-Methylnaphthalene	5	2.8	BQL
2-Methylnaphthalene	5	3	BQL
Naphthalene	5	3.1	BQL
Phenanthrene	5	2.3	BQL
Pyrene	5	2.6	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.4	84
Nitrobenzene-d5	10	8.7	87
4-Terphenyl-d14	10	10.8	108

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

* = Reported to the Method Detection Limit (MDL)

J = Estimated value, detected value is below the instrument calibration limits.

Reviewed By: MRC

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: Method Blank
 Client Project ID: Sugar Grove 1243.50
 Lab Sample ID: PB773
 Lab Project ID: G122-2364
 Matrix: Water

Date Collected:
 Date Received:
 Date Analyzed: 12/30/03
 Analyzed By: MRC
 Dilution: 1

Compound	Practical Quantitation Limit (ug/L)	Method Detection Limit (ug/L)	Result * (ug/L)
Acenaphthene	5	2.8	BQL
Acenaphthylene	5	2.9	BQL
Anthracene	5	2.7	BQL
Benzo[a]anthracene	5	1.8	BQL
Benzo[a]pyrene	5	3.1	BQL
Benzo[b]fluoranthene	5	2.5	BQL
Benzo[g,h,i]perylene	5	2.1	BQL
Benzo[k]fluoranthene	5	3.1	BQL
Chrysene	5	2.5	BQL
Dibenzo[a,h]anthracene	5	2	BQL
Fluoranthene	5	2.4	BQL
Fluorene	5	2.8	BQL
Indeno(1,2,3-c,d)pyrene	5	2.2	BQL
1-Methylnaphthalene	5	2.8	BQL
2-Methylnaphthalene	5	3	BQL
Naphthalene	5	3.1	BQL
Phenanthrene	5	2.3	BQL
Pyrene	5	2.6	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.4	84
Nitrobenzene-d5	10	7.9	79
4-Terphenyl-d14	10	10.9	109

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

* = Reported to the Method Detection Limit (MDL)

J = Estimated value, detected value is below the instrument calibration limits.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results For Water Laboratory Control Standard (LCS)

by GCMS

Client Sample ID: Batch QC

Client Project ID:

Lab Sample ID: W-773A

Lab Project ID:

Matrix: Water

Date Collected:

Date Received:

Date Analyzed: 12/30/03

Analyzed By: MRC

	Spiked ng	LCS ng	LCS % Rec.	LIMITS	
				LOWER	UPPER
Acenaphthylene	10	9.68	97	80	114
4-Chloro-3-methylphenol	10	9.12	91	75	105
2-Chlorophenol	10	8.44	84	65	99
1,4-Dichlorobenzene	10	7.04	70	35	90
2,4-Dinitrotoluene	10	10.01	100	85	120
N-Nitrosodi-n-propylamine	10	9.21	92	69	116
4-Nitrophenol	10	9.30	93	44	137
Pentachlorophenol	10	7.98	80	33	111
Phenol	10	8.66	87	66	104
Pyrene	10	11.36	114	70	149
1,2,4-Trichlorobenzene	10	8.73	87	61	100

Comments:

Concentrations are on column amounts.

Flags:

* = Out of limits.

NA = Not applicable.

Reviewed By: MRC

PARADIGM ANALYTICAL LABORATORIES, INC.

627 Northchase Parkway SE, Wilmington, NC 28405

Phone: (910)-350-1903 FAX: (910)-350-1557

Chain-of Custody Record & Analytical Request

COC# 36827

Page 1 of 1

Client: Mild-AZULE Project ID: 124350 Date: 12/22/03
 Address: 409 Rogers Blvd. c.t. Contact: Eric B. Edwards Turnaround: 1-24hrs
 Address: Raleigh, NC 27610 Phone: 919 250 4918 Job Number: 124350
 Quote #: DaD 101 Fax: 919 250-9950 P.O. Number: —

Report To: Eric A. Edwards
 Invt: —
 Invoice To: Spartan

Sample ID	Date	Time	Matrix	Preservatives		Analyses					Comments: Please specify any special reporting requirements	
				HCL	HCL	3510	5030	602 MTRG	602 MTRG	PRHs by		PRHs by
MW-1	12/22/03	1345	H ₂ O	X	X	X	X	X	X	X	5 ppb DL For bio Ass.	
MW-2		1500		X	X	X	X	X	X	X		
MW-4		1410		X	X	X	X	X	X	X		
MW-5		1245		X	X	X	X	X	X	X		
MW-6		1430		X	X	X	X	X	X	X		
Trip Blank		—		X	X	X	X	X	X	X	602 only for TB	
Field Blank	12/22/07	1445	H ₂ O	X	X	X	X	X	X	X	602, PAH for EQ	
Relinquished By: <u>[Signature]</u> Date: <u>12/22/03</u> Time: <u>1700</u> Received By: <u>Fedor Am Bill H</u> Date: <u>8/25/04</u> Time: <u>1345</u> Temperature: <u>0.8°C</u> State Certification Requested: <u>NC X SC</u> Other: <u>—</u> SEE REVERSE FOR TERMS AND CONDITIONS												

RECEIVED

MAY 14 2004

**THIRD QUARTER 2003
MONITORING REPORT
USTS 201 AND 202
NAVAL SECURITY GROUP ACTIVITY
SUGAR GROVE, WEST VIRGINIA
WVDEP FACILITY NO.: 3604470
WVDEP RELEASE NO.: 93-048**

DECEMBER 17, 2003

CONTRACT NO.: N62470-01-D-3009
DELIVERY ORDER NO.: 0050
MID-ATLANTIC PROJECT NO.: 000R1243.50

1. All 6 wells meet FDWS. (20K)
20K → mw-3

Prepared By:

Mid-Atlantic Associates, Inc.
409 Rogers View Court
Raleigh, North Carolina 27610
(919) 250-9918

MID-ATLANTIC
ASSOCIATES, INC.
Engineering & Environmental Solutions

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**THIRD QUARTER 2003
MONITORING REPORT
USTS 201 AND 202
NAVAL SECURITY GROUP ACTIVITY
SUGAR GROVE, WEST VIRGINIA
WVDEP FACILITY NO.: 3604470
WVDEP RELEASE NO.: 93-048**

Mid-Atlantic Job No. 000R1243.50

December 17, 2003

Prepared For:

Commanding General
Naval Facilities Engineering Command
Atlantic Headquarters, Env. Division
Technical Services Branch
1510 Gilbert Street
Norfolk, Virginia 23511-6287

Prepared By:

MID-ATLANTIC ASSOCIATES, INC.



Eric B. Aufderhaar
Project Geologist



Daniel H. Nielsen
Principal Engineer

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2.0 WATER TABLE AND FREE PRODUCT MEASUREMENTS	1
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4.0 CONCLUSIONS AND RECOMMENDATIONS	4
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Drawing 1.1	Topographic Site Location Map
Drawing 1.2	Monitoring Well and Sample Location Map
Drawing 2.1	Estimated Water Table Contour Map - September 2003
Drawing 3.1	VOCs in Groundwater ($\mu\text{g/L}$)
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Table 3.1	Summary of Groundwater Sampling Results ($\mu\text{g/L}$)
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APPENDICES

Appendix	Quarterly Groundwater Monitoring Laboratory Analytical Report and Chain-of-Custody Record
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1.0 INTRODUCTION

Mid-Atlantic Associates, Inc. (Mid-Atlantic) was retained by CATLIN Engineers & Scientists (CATLIN) to complete four quarterly monitoring events at the Naval Security Group Activity (NSGA), located near Sugar Grove, Pendleton County, West Virginia (Drawing 1.1). The NSGA military reservation is situated approximately five miles north of Sugar Grove on County Road 21. This report documents the results from our third quarterly monitoring event completed on September 30 and October 1, 2003.

Six monitoring wells were installed at the NSGA in 1994 and 1996 following confirmation of a petroleum release in March 1993. The wells were installed in the vicinity of underground storage tanks (USTs) 201 and 202 formerly operated near Buildings 20 and 22 (Drawing 1.2). These buildings are used for a gymnasium and offices (Building 20) and a garage/paint storage facility (Building 22). Petroleum-contaminated soils were excavated in 1995 from a former pump island area located southwest of Building 22.

Further background site information was summarized in our first quarterly monitoring report, submitted to the Naval Facilities Engineering Command Atlantic Division (LANTDIV) and the NSGA on June 2, 2003. Please reference the June 2, 2003 report for a discussion regarding the *January 2002 Groundwater Monitoring and Sampling Report* prepared by NFE Technologies, Inc. (NFE) and response letter issued by the West Virginia Department of Environmental Protection (WVDEP). In response to WVDEP correspondence, LANTDIV authorized the monitoring program by issuing Delivery Order No. 0050 to CATLIN. CATLIN is the prime contractor under Navy Contract N62470-01-D-3009.

2.0 WATER TABLE AND FREE PRODUCT MEASUREMENTS

On September 30 and October 1, 2003, a representative of Mid-Atlantic visited the subject site for the purpose of collecting groundwater samples and to measure the depth to groundwater and free product thickness (if present) within site monitoring wells (Drawing 1.2). The second day of sampling (October 1, 2003) was needed in order to provide enough time for the wells to recharge and yield sufficient groundwater volumes for sampling.

Depth to groundwater and free product measurements were obtained on September 30, 2003, using an electronic oil/water interface probe from a surveyed measuring point at the top of each well casing. This information is included in the summary of groundwater elevations table for this quarterly monitoring event (Table 2.1).

Groundwater flow direction for this monitoring event is shown on Drawing 2.1 and was prepared using the water elevation data from Table 2.1. Monitoring well MW-6 has not been used to date to generate water table contour maps because it is screened at a different elevation than the other wells within shale bedrock. As shown, the shallow groundwater at the site is migrating in a generally westerly to southwesterly direction, which is consistent with the local topography. The South Branch of the Potomac River borders the west side of the NSGA property. The apparent groundwater flow direction within the monitoring well system is consistent with the May 2003 sampling event.

We did not identify a measurable thickness of free product in the six site monitoring wells.

3.0 GROUNDWATER SAMPLING AND ANALYTICAL RESULTS

The monitoring wells were purged for sample collection by removing three standing volumes of water from each well or until the well exhibited dryness. Well MW-5 was purged of 3.3 well volumes without exhibiting dryness. The other wells exhibited dryness after 3 to 12 gallons of water was removed. Wells MW-3 and MW-6 most quickly exhibited dryness, after approximately four gallons of water were removed from well MW-3 and three gallons were removed from well MW-6. We measured 4.03 feet of water in well MW-3 and 10.2 feet of water in well MW-6 prior to purging. Groundwater samples were collected from well MW-3 over two days (September 30, 2003 and October 1, 2003) to obtain sufficient sample volume for laboratory analysis. This well has historically been low yielding, requiring subsequent visits to fill groundwater sample containers.

New nitrile gloves were worn by the sampler and a pre-cleaned Teflon or disposable bailer was used for purging and for collecting the groundwater samples. The groundwater samples were decanted into laboratory-supplied glassware, packed on ice and delivered under chain-of-custody to Paradigm Analytical Laboratories, Inc. (Paradigm) in Wilmington, NC. The groundwater samples were analyzed for gasoline range total petroleum hydrocarbons (TPH) according to EPA Method 5030; diesel fuel range TPH according to EPA Method 3510; purgeable aromatics including methyl-tert-butyl ether (MTBE) and diisopropyl ether according to EPA Method 602 and polynuclear aromatic hydrocarbons (PAHs) according to EPA method 625. PAH compounds listed under the EPA Method 610 methodology were tested by EPA Method 625 (GCMS) to reduce error from "false positive" results. Laboratory personnel stated that the EPA Method 610 methodology does not permit confirmation of contaminant concentrations and is more appropriate for sites of known contaminants with known concentrations.

Paradigm is certified by the State of West Virginia to perform these laboratory tests under WVDEP Certificate No. 293 (see certification document within the laboratory report in the Appendix). The laboratory analytical results from analyses performed on the groundwater samples, in addition to the corresponding West Virginia Groundwater Quality Standards (WVGWQS), are summarized in Table 3.1. The results from the previously quarterly sampling events along with this sampling event are summarized in Table 3.2. Copies of the laboratory analytical report and chain-of-custody from this sampling event are included in the Appendix.

The laboratory did not report concentrations of total petroleum hydrocarbons (TPH) above the practical quantitation limit (PQL) of 500 µg/L.

Volatile organic compound (VOC) concentrations in groundwater are shown in Drawing 3.1. Benzene and diisopropyl ether (DIPE) were reported as estimated¹ concentrations and denoted with a "J" on Drawing 3.1, Tables 3.1 and 3.2, and in the laboratory report (Appendix). Laboratory results with a "J" flag (aka "J values") refer to analytes that are quantified at levels greater than the laboratory method detection limit (MDL) but less than the laboratory quantitation limit (PQL). The PQL refers to the level of analyte that can be routinely detected and quantified in a real matrix while the MDL is the minimum level of analyte that can be detected with 99% confidence that the analytical response is greater than zero (ENCO, 2001). As indicated by the drawing, concentrations of MTBE are limited in aerial extent. MTBE was detected above the MDL in groundwater samples MW-1 (26 µg/L), MW-2 (40 µg/L), MW-4 (3 µg/L) and MW-5 (1.5 J µg/L). Currently, there is no WVGWQS for MTBE. The EPA has placed MTBE on the Drinking Water Contaminant Candidate List (CCL). The CCL includes contaminants that are considered priorities for establishment of future groundwater standards. The EPA did not specify a recommended groundwater standard for MTBE in the CCL. In 1997, EPA issued a Drinking Water Advisory and stated that there is little likelihood that MTBE concentrations between 200 and 400 µg/L would cause negative health effects (EPA, 2003).

Total polynuclear aromatic hydrocarbons (PAHs) were not detected above the laboratory MDLs in the groundwater samples collected from the September 2003 sampling event (Drawing 3.2). The MDLs and PQLs are shown on the laboratory report included in the Appendix.

¹ The concentrations are considered "estimated" because the detected values were below the instrument calibration limits.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the findings of this third quarterly sampling event, Mid-Atlantic provides the following conclusions.

- Benzene, MTBE, and DIPE were detected in groundwater samples during this sampling event. The reported concentration of benzene was less than the 5 $\mu\text{g/L}$ WVGWQS. Groundwater standards have not been established by West Virginia for MTBE or DIPE. The detected concentrations of MTBE ranged from 3 $\mu\text{g/L}$ at well MW-4 to 40 $\mu\text{g/L}$ at well MW-2. DIPE was detected at concentrations less than the laboratory PQL of 1 $\mu\text{g/L}$.
- No groundwater contaminants were reported by the laboratory in groundwater sample MW-3 at concentrations above the laboratory MDLs and PQLs (the PQLs were reported for the TPH analyses). During the March 2003 (first quarter) sampling event, nine PAH compounds were reported in well MW-3. Of the nine contaminants, benzo[a]pyrene was previously reported at a concentration of 17 $\mu\text{g/L}$. This concentration was above the WVGWQS of 2 $\mu\text{g/L}$.
- The absence of PAH compounds in well MW-3 during the May 2003 (second quarter) and this third quarter 2003 sampling event supports our conclusion in the June 2003 monitoring report that surface water runoff previously carried contaminants into the casing of well MW-3. The expandable caps installed in July 2003 by NSGA personnel appears to be effective in preventing further infiltration of surface water into the well.

We recommend that LANTDIV submit this quarterly monitoring report to the WVDEP and continue with the final scheduled sampling event. Mid-Atlantic has scheduled this last quarterly groundwater-sampling event for mid-December 2003.

5.0 REFERENCES CITED

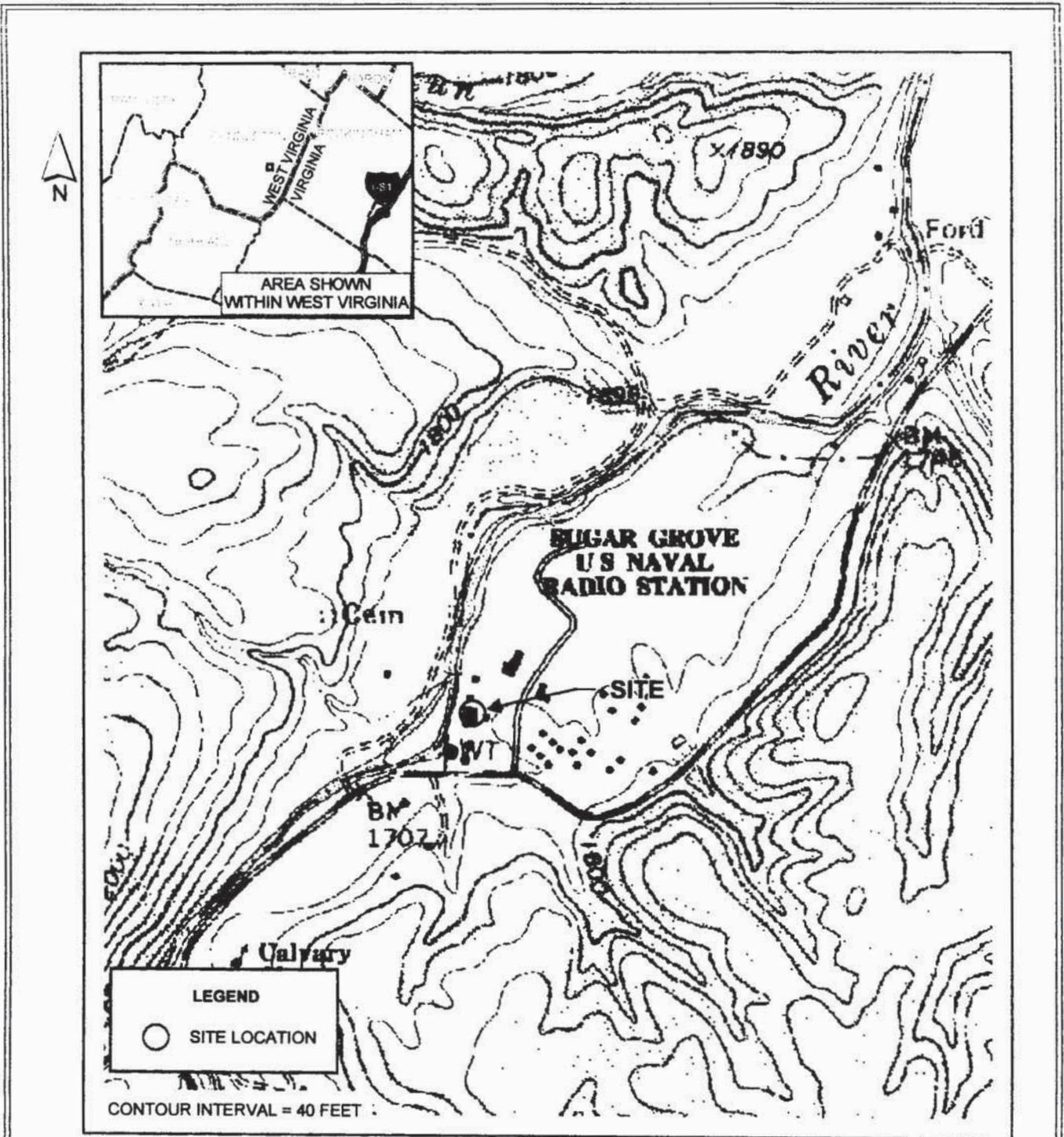
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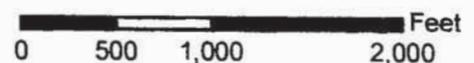
DRAWINGS



REFERENCES:

1. SUGAR GROVE, WV DIGITAL RASTER GRAPHIC, USGS. SCANNED FROM 1:24,000-SCALE SUGAR GROVE, WV TOPOGRAPHIC MAP, PUBLISHED 1969, PHOTOREVISED 1981, USGS. DOWNLOADED FROM WEST VIRGINIA DEP INTERNET SITE.
2. INSET MAP DIGITAL DATA FROM ESRI.

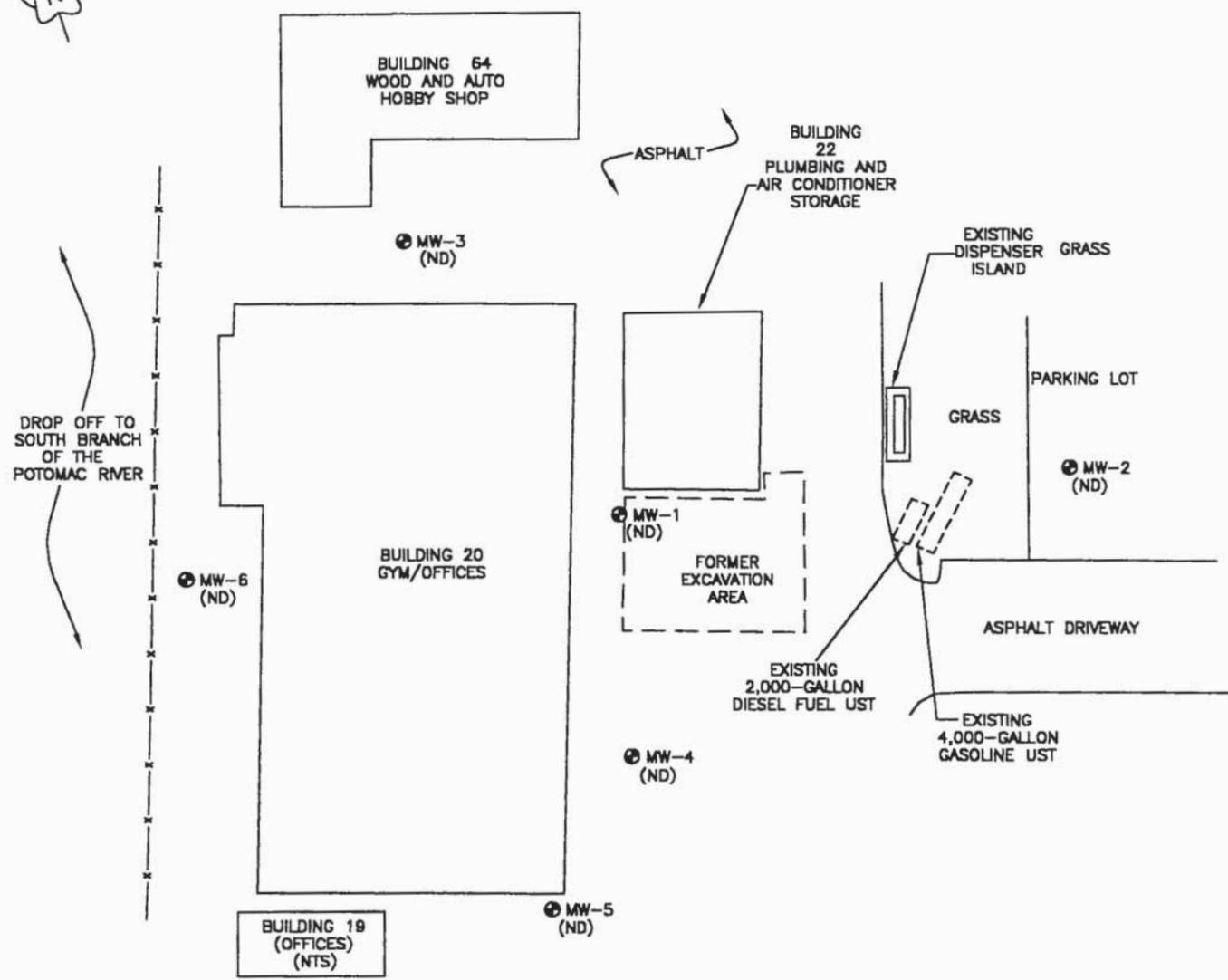
SCALE: 1:12,000



MID-ATLANTIC
ASSOCIATES, INC.
Engineering & Environmental Solutions

TOPOGRAPHIC SITE LOCATION MAP
USTS 201 AND 202
NAVAL SECURITY GROUP ACTIVITY
SUGAR GROVE, WEST VIRGINIA

DRAWN BY: <i>EJA</i>	DATE: NOVEMBER 2003
DRAFT CHECK:	JOB NO: 000R1243.50
ENG. CHECK: <i>DN</i>	GIS NO: 01G-1243.50-1
APPROVAL: <i>EJA</i>	DWG NO: 1.1



WATER PLANT (NTS)

LEGEND

- ⊕ MW-1 (NTS) MONITORING WELL LOCATION NOT TO SCALE
- x—x—x— FENCE
- PAHs POLYNUCLEAR AROMATIC HYDROCARBONS
- (ND) NOT DETECTED ABOVE LABORATORY METHOD DETECTION LIMIT (MDL)



MID-ATLANTIC ASSOCIATES, INC. <i>Engineering & Environmental Solutions</i>	TOTAL PAHs IN GROUNDWATER (ug/L) NAVAL SECURITY GROUP ACTIVITY USTs 201 AND 202 SUGAR GROVE, WEST VIRGINIA		DRAWN BY: <i>[Signature]</i>	DATE: NOVEMBER 2003
			DRAFT CHECK:	JOB NO: 000R1243.50
			ENG CHECK: <i>[Signature]</i>	CAD NO: 01-124309-50
			APPROVAL: <i>[Signature]</i>	DWG NO: 3.2

REFERENCE: NFE SITE MAP DATED 1/23/02; MID-ATLANTIC FIELD NOTES & ON-SITE MEASUREMENTS.

TABLES

TABLE 2.1
SUMMARY OF GROUNDWATER DEPTH MEASUREMENTS, SEPTEMBER 30, 2003
NAVAL SECURITY GROUP ACTIVITY
SUGAR GROVE, WEST VIRGINIA
WVDEP FACILITY NO. 3604470 / RELEASE NO. 93-048

Well ID	Top-of-Casing Elevation (ft.)	Screen Interval (ft. bls)	Depth to Water, Below TOC (ft.)	Groundwater Elevation (ft.)
MW-1	99.97	1.8 - 11.8	3.96	96.01
MW-2	102.14	3.93 - 13.93	4.69	97.45
MW-3	99.77	1.45 - 6.45	2.47	97.30
MW-4	100.29	2.92 - 7.92	3.25	97.04
MW-5	100.29	1.03 - 10.03'	7.30	92.99
MW-6+	97.59	10 - 28	17.80	79.79

Notes:

*Top-of-casing (TOC) elevations calculated by R.E. Wright Associates, 1994, relative to an arbitrary 100 ft. benchmark.

+ Well screened in shale bedrock encountered at 7 ft. bls during drilling. Groundwater may originate from deeper water bearing zone. Well MW-6 sealing materials include grout from 0 to 6 ft. bls and bentonite clay from 6 to 8 ft. bls.

bls - below land surface

Table 3.1: Summary of Groundwater Sampling Results (ug/L)

Date: October 2003

Release Number and Name: 93-048, USTs 201 and 202, Naval Security Group

Facility ID #: 3604407

Well ID	Analytical Method	Contaminant of Concern	Sample ID	Date Collected (m/dd/yy)	TPH-DRO	TPH-GRO	VOC	VOC	VOC	PAH	PAH	PAH	PAH
					EPA 3510	EPA 3510	EPA 602	EPA 602	EPA 602	EPA 610/625	EPA 610/625	EPA 610/625	EPA 610/625
MW-1			MW-1	10/1/03	<500	<500	0.44 J	26	0.36J (1)	<3.1	<2.4	<2.6	<2.6
MW-2			MW-2	10/1/03	<500	<500	<0.16	40	0.51J (1)	<3.1	<2.4	<2.6	<2.6
MW-3			MW-3	9/30/03, 10/01/03 ⁺	<500	<500	<0.16	<0.35	<0.18	<3.1	<2.4	<2.6	<2.6
MW-4			MW-4	10/1/03	<500	<500	<0.16	3	<0.18	<3.1	<2.4	<2.6	<2.6
MW-5			MW-5	9/30/03	<500	<500	<0.16	1.5J	<0.18	<3.1	<2.4	<2.6	<2.6
MW-6			MW-6	9/30/03	<500	<500	<0.16	<0.35	<0.18	<3.1	<2.4	<2.6	<2.6
N/A			Trip Blank	Laboratory-Supplied	NT	NT	<0.16	<0.35	<0.18	<3.1	<2.4	<2.6	<2.6
N/A			Equipment Blank	10/1/03	NT	<500	<0.16	<0.35	<0.18	<3.1	<2.4	<2.6	<2.6
West Virginia Groundwater Quality Standards (ug/L)¹													
					Not Est.	Not Est.	5	Not Est. ²	Not Est.	0.2	Not Est.	Not Est.	Not Est.

Notes:

1 = Title 46, Legislative Rule Environmental Quality Board, Series 12 - Requirements Governing Groundwater Standards.

2 = Methyl-tert-butyl ether (MTBE) is on the EPA's Drinking Water Contaminant Candidate List (CCL). A proposed standard for MTBE was not listed in the CCL.

J = Contaminant detected between Method Detection Limit (MDL) and Practical Quantitation Limit (PQL). Concentration shown is estimated. Reporting Limit is shown in parentheses.

PAH = Polynuclear Aromatic Hydrocarbons

TPH = Total Petroleum Hydrocarbons

<0.5 = Compound not detected at or greater than the laboratory MDL or PQL. The MDL is shown for EPA 602 and EPA 610/625 tests. PQL is shown for TPH tests.

ug/L = micrograms per liter (parts per billion)

Not Est. = Not Established

NT = Sample not tested for this parameter or laboratory test method.

+ = Groundwater sample for PAHs collected on 10/01/2003 due to slow groundwater recharge.

TABLE 3.2
YEAR-TO-DATE GROUNDWATER SAMPLING RESULTS (ug/L), MONITORING WELLS MW-1 THROUGH MW-6
USTS 201 AND 202, NAVAL SECURITY GROUP ACTIVITY
SUGAR GROVE, WEST VIRGINIA
WVDEP FACILITY NO. 3604470 / RELEASE NO. 93-048
MID-ATLANTIC JOB NO. 000R1243.50

Well Number	WVGWQS	Sample Date	TPH, Diesel Fuel Range Organics (ug/L)	TPH, Gasoline Range Organics (ug/L)	5	Not Est.	MTBE (ug/L)	DIBE (ug/L)	Benzo(a)anthracene (ug/L)	Benzo(b)fluoranthene (ug/L)	Benzo(g,h,i)perylene (ug/L)	Benzo(k)fluoranthene (ug/L)	0.2 Benzo(a)pyrene (ug/L)	Chrysene (ug/L)	Fluoranthene (ug/L)	Not Est.	Benzo(1,2,3-cd)pyrene (ug/L)	Not Est.	Pyrene (ug/L)	Not Est.	
MW-1		03/05/03	-	-	-	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-1		05/12/03	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-1		10/01/03	-	-	0.445	26	0.36J	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-2		03/06/03	-	-	-	51	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-2		05/09/03	-	-	-	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-2		10/01/03	-	-	-	40	0.51J	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-3		03/06/03	-	-	-	-	-	8J	11	15	27	17	18	23	14	22	-	-	-	-	-
MW-3		05/09/03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-3		05/12/03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-3		09/30/03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-3		10/01/03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-4		03/05/03	-	-	-	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-4		05/12/03	-	-	-	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-4		10/01/03	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-5		03/05/03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-5		05/09/03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-5		09/30/03	-	-	-	1.5J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-6		03/05/03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-6		05/12/03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-6		10/01/03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
 -- = Concentration not detected at or above laboratory practical quantitation limit (PQL) or method detection limit (MDL). See Table 3.1 of sampling reports for MDLs and PQLs.
 J = Contaminant concentration detected below PQL but above laboratory MDL. Concentration Shown is Estimated.
 Not Est. = Not established
 Shaded values in bold exceed WV Groundwater Quality Standards (WVGWQS)
 ug/L = micrograms per liter
 MTBE = methyl tertiary-butyl ether
 PAHs = Polynuclear Aromatic Hydrocarbons
 TPH = Total Petroleum Hydrocarbons

APPENDIX

**QUARTERLY GROUNDWATER MONITORING LABORATORY
REPORT AND CHAIN OF CUSTODY RECORD**

Attachment I

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

ANNUAL CERTIFIED PARAMETER LIST

for

PARADIGM ANALYTICAL LABORATORIES, INC.
Wilmington, North Carolina

PARAMETERS CERTIFIED

METALS(CVAA/GFAA/ICP/ICP-MS): Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc***

GC and GC/MS: Purgeable Halocarbons[EPA 601], Purgeable Aromatics[EPA 602], Halogenated and Aromatic Volatiles[8021B], Organochlorine Pesticides[8081A], Polychlorinated Biphenyls(PCB)[8082], Chlorinated Herbicides[8151A], Volatile Organic Compounds[EPA 624/8260B], Semivolatile Organic Compounds[EPA 625/8270C], Total Petroleum Hydrocarbons[8015B], EDB & DBCP[8011], Polynuclear Aromatic Hydrocarbons[8310]***

CHARACTERISTICS: Corrosivity[9045C], Paint Filter Liquids Test[9095A]***

TOXICITY: Toxicity Characteristic Leaching Procedure(TCLP)[1311]***

DIOXIN/FURAN: Polychlorinated dibenzo-*p*-dioxins and dibenzofurans(PCDD/Fs)[8280A/8290/1613]***

* This certification does not include drinking water analysis.

This laboratory may test ONLY for those environmental parameters listed above for compliance reporting purposes. All testing must be by the test method cited in the current application for certification.

This Certification Expires: **December 31, 2003**

Certificate No. 293



December 31, 2002

Daniel T. Arnold
Quality Assurance Officer

PARADIGM ANALYTICAL LABORATORIES, INC.

5500 Business Drive
Wilmington, North Carolina 28405
(910) 350-1903
Fax (910) 350-1557

Mr. Eric Aufderhaar
Mid-Atlantic Associates
409 Rogersview Ct.
Raleigh, NC 27610

October 20, 2003

Report Number: G122-2300

Client Project ID: NSGA Sugar Grove

Dear Mr. Aufderhaar,

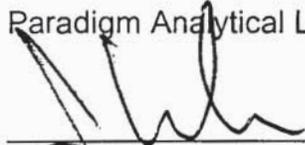
Enclosed are the results of the analytical services performed under the referenced project. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or the services performed during this project, please call for assistance. We will be happy to answer any questions or concerns which you may have.

Thank you for using Paradigm Analytical Labs for your analytical services. We look forward to working with you again on any additional analytical needs which you may have.

Sincerely,

Paradigm Analytical Laboratories, Inc.



Laboratory Director
J. Patrick Weaver

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: MW-1

Analyzed By: DCS

Client Project ID: NSGA Sugar Grove

Date Collected: 10/1/03

Lab Sample ID: 81466

Date Received: 10/3/03

Lab Project ID: G122-2300

Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	0.44	1.0	0.16	1	10/6/03	J
Diisopropyl ether (DIPE)	0.36	1.0	0.18	1	10/6/03	J
Ethylbenzene	BQL	1.0	0.17	1	10/6/03	
Methyl-tert butyl ether (MTBE)	26	2.0	0.35	1	10/6/03	
Toluene	BQL	1.0	0.19	1	10/6/03	
m/p-Xylene	BQL	2.0	0.35	1	10/6/03	
o-Xylene	BQL	2.0	0.17	1	10/6/03	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	39.0	97.5

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: MW-2
 Client Project ID: NSGA Sugar Grove
 Lab Sample ID: 81467
 Lab Project ID: G122-2300

Analyzed By: DCS
 Date Collected: 10/1/03
 Date Received: 10/3/03
 Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	BQL	1.0	0.16	1	10/6/03	
Diisopropyl ether (DIPE)	0.51	1.0	0.18	1	10/6/03	J
Ethylbenzene	BQL	1.0	0.17	1	10/6/03	
Methyl-tert butyl ether (MTBE)	40	2.0	0.35	1	10/6/03	
Toluene	BQL	1.0	0.19	1	10/6/03	
m/p-Xylene	BQL	2.0	0.35	1	10/6/03	
o-Xylene	BQL	2.0	0.17	1	10/6/03	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	38.6	96.5

Comments:

All values corrected for dilution.
 BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: MW-3

Client Project ID: NSGA Sugar Grove

Lab Sample ID: 81468

Lab Project ID: G122-2300

Analyzed By: DCS

Date Collected: 9/30/03

Date Received: 10/3/03

Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	BQL	1.0	0.16	1	10/6/03	
Diisopropyl ether (DIPE)	BQL	1.0	0.18	1	10/6/03	
Ethylbenzene	BQL	1.0	0.17	1	10/6/03	
Methyl-tert butyl ether (MTBE)	BQL	2.0	0.35	1	10/6/03	
Toluene	BQL	1.0	0.19	1	10/6/03	
m/p-Xylene	BQL	2.0	0.35	1	10/6/03	
o-Xylene	BQL	2.0	0.17	1	10/6/03	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	38.7	96.6

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GC 602

Client Sample ID: MW-4
Client Project ID: NSGA Sugar Grove
Lab Sample ID: 81469
Lab Project ID: G122-2300

Analyzed By: DCS
Date Collected: 10/1/03
Date Received: 10/3/03
Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	BQL	1.0	0.16	1	10/6/03	
Diisopropyl ether (DIPE)	BQL	1.0	0.18	1	10/6/03	
Ethylbenzene	BQL	1.0	0.17	1	10/6/03	
Methyl-tert butyl ether (MTBE)	3.0	2.0	0.35	1	10/6/03	
Toluene	BQL	1.0	0.19	1	10/6/03	
m/p-Xylene	BQL	2.0	0.35	1	10/6/03	
o-Xylene	BQL	2.0	0.17	1	10/6/03	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	38.5	96.4

Comments:

All values corrected for dilution.
BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GC 602

Client Sample ID: MW-5

Analyzed By: DCS

Client Project ID: NSGA Sugar Grove

Date Collected: 9/30/03

Lab Sample ID: 81470

Date Received: 10/3/03

Lab Project ID: G122-2300

Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	BQL	1.0	0.16	1	10/6/03	
Diisopropyl ether (DIPE)	BQL	1.0	0.18	1	10/6/03	
Ethylbenzene	BQL	1.0	0.17	1	10/6/03	
Methyl-tert butyl ether (MTBE)	1.5	2.0	0.35	1	10/6/03	J
Toluene	BQL	1.0	0.19	1	10/6/03	
m/p-Xylene	BQL	2.0	0.35	1	10/6/03	
o-Xylene	BQL	2.0	0.17	1	10/6/03	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	38.5	96.2

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: MW-6

Analyzed By: DCS

Client Project ID: NSGA Sugar Grove

Date Collected: 9/30/03

Lab Sample ID: 81471

Date Received: 10/3/03

Lab Project ID: G122-2300

Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	BQL	1.0	0.16	1	10/6/03	
Diisopropyl ether (DIPE)	BQL	1.0	0.18	1	10/6/03	
Ethylbenzene	BQL	1.0	0.17	1	10/6/03	
Methyl-tert butyl ether (MTBE)	BQL	2.0	0.35	1	10/6/03	
Toluene	BQL	1.0	0.19	1	10/6/03	
m/p-Xylene	BQL	2.0	0.35	1	10/6/03	
o-Xylene	BQL	2.0	0.17	1	10/6/03	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	38.5	96.4

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: EQBLK

Analyzed By: DCS

Client Project ID: NSGA Sugar Grove

Date Collected: 10/1/03

Lab Sample ID: 81472

Date Received: 10/3/03

Lab Project ID: G122-2300

Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	BQL	1.0	0.16	1	10/6/03	
Diisopropyl ether (DIPE)	BQL	1.0	0.18	1	10/6/03	
Ethylbenzene	BQL	1.0	0.17	1	10/6/03	
Methyl-tert butyl ether (MTBE)	BQL	2.0	0.35	1	10/6/03	
Toluene	BQL	1.0	0.19	1	10/6/03	
m/p-Xylene	BQL	2.0	0.35	1	10/6/03	
o-Xylene	BQL	2.0	0.17	1	10/6/03	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	38.7	96.6

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GC 602

Client Sample ID: TB
Client Project ID: NSGA Sugar Grove
Lab Sample ID: 81473
Lab Project ID: G122-2300

Analyzed By: DCS
Date Collected: 10/1/03
Date Received: 10/3/03
Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	BQL	1.0	0.16	1	10/6/03	
Diisopropyl ether (DIPE)	BQL	1.0	0.18	1	10/6/03	
Ethylbenzene	BQL	1.0	0.17	1	10/6/03	
Methyl-tert butyl ether (MTBE)	BQL	2.0	0.35	1	10/6/03	
Toluene	BQL	1.0	0.19	1	10/6/03	
m/p-Xylene	BQL	2.0	0.35	1	10/6/03	
o-Xylene	BQL	2.0	0.17	1	10/6/03	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	38.6	96.5

Comments:

All values corrected for dilution.
BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID:

Analyzed By: DCS

Client Project ID: NSGA Sugar Grove

Date Collected:

Lab Sample ID: VBLK3100603b

Date Received:

Lab Project ID: G122-2300

Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	BQL	1.0	0.16	1	10/6/03	
Diisopropyl ether (DIPE)	BQL	1.0	0.18	1	10/6/03	
Ethylbenzene	BQL	1.0	0.17	1	10/6/03	
Methyl-tert butyl ether (MTBE)	BQL	2.0	0.35	1	10/6/03	
Toluene	BQL	1.0	0.19	1	10/6/03	
m/p-Xylene	BQL	2.0	0.35	1	10/6/03	
o-Xylene	BQL	2.0	0.17	1	10/6/03	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	38.6	96.5

Comments:

All values corrected for dilution.
BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Control Limits for MS-MSD

Method : 601 Spike[ppb] : 10

Sample : 100603\015r0101.txt
 MS : 100603\016r0101.txt
 MSD : 100603\017r0101.txt

Compound	µg/L			P(%)		P Limits	
	Sam.	MS	MSD	MS	MSD	Lower	Upper
Bromodichloromethane	ND	10.3	10.3	103	103	42	172
Bromoform	ND	9.6	9.2	96	92	13	159
Bromomethane	ND	7.1	8.9	71	89	D	144
Carbon tetrachloride	ND	10.7	10.7	107	107	43	143
Chlorobenzene	ND	10.0	10.1	100	101	38	150
Chloroethane	ND	9.4	11.3	94	113	46	137
Chloroform	ND	10.6	10.7	106	107	49	133
Chloromethane	ND	9.5	10.9	94	109	D	193
Dibromochloromethane	ND	10.1	10.2	101	102	24	191
• 1,2-Dibromoethane	ND	10.0	9.5	100	95	D	206
1,2-Dichlorobenzene	ND	10.6	10.4	106	104	D	208
1,3-Dichlorobenzene	ND	10.5	10.6	105	106	7	187
1,4-Dichlorobenzene	ND	10.8	10.6	108	106	42	143
1,1-Dichloroethane	ND	10.8	10.8	108	108	47	132
1,2-Dichloroethane	ND	10.3	10.5	103	105	51	147
1,1-Dichloroethene	ND	11.8	12.2	118	122	28	167
• cis-1,2-Dichloroethene	ND	10.9	10.6	109	106	19	181
trans-1,2-Dichloroethene	ND	10.8	10.8	108	108	38	155
1,2-Dichloropropane	ND	9.7	9.8	97	98	44	156
cis-1,3-Dichloropropene	ND	10.8	10.8	108	108	22	178
trans-1,3-Dichloropropene	ND	10.5	10.1	105	101	22	178
Methylene Chloride	ND	11.1	11.2	113	114	25	162
1,1,2,2-Tetrachloroethane	ND	10.1	10.1	101	101	8	184
Tetrachloroethane	ND	10.6	10.7	115	116	26	162
1,1,1-Trichloroethane	ND	10.5	10.7	105	107	41	138
1,1,2-Trichloroethane	ND	10.4	10.4	104	104	39	136
Trichloroethene	ND	10.3	10.2	103	102	35	146
Trichlorofluoromethane	ND	9.4	11.0	94	110	21	156
Vinyl Chloride	ND	9.9	11.7	103	121	28	163

Method: 602 Spike[ppb] : 10

Sample : 100603\015r0101.txt
 MS : 100603\016r0101.txt
 MSD : 100603\017r0101.txt

Compound	µg/L			P(%)		P Limits	
	Sam.	MS	MSD	MS	MSD	Lower	Upper
Benzene	3.7	13.8	14.1	100	103	39	150
Chlorobenzene	ND	9.9	10.2	100	104	55	135
1,2-Dichlorobenzene	ND	11.1	11.4	101	104	37	154
1,3-Dichlorobenzene	4.2	10.2	10.6	60	64	50	141
1,4-Dichlorobenzene	2.2	9.6	9.9	74	77	42	143
• Diisopropyl ether	ND	11.0	11.4	107	111	30	170
Ethylbenzene	9.6	19.9	20.1	102	105	32	160
• MTBE	ND	9.9	10.1	99	102	35	165
Toluene	21.9	31.6	31.9	97	100	46	148
• m,p-Xylene	32.4	52.5	53.1	100	104	D	239
• o-Xylene	6.4	16.8	17.2	104	108	36	164

Flags :

- + = out of QC limits.
- = lab generated limits.
- D = Detected
- ND = None Detected

PARADIGM ANALYTICAL LABORATORIES, INC.

Control Limits for QC Check / Laboratory Control Spike

Method : 601 Spike[ppb] : 10

Filename : 100603\003f0101.txt

Compound	ppb	Q(%)	QC Limits		P _s (%)	LCS Limits	
			Lower	Upper		Lower	Upper
Bromodichloromethane	10.3	103.3	76.0	124.0	103	42	172
Bromoform	9.8	97.8	73.5	126.5	98	13	159
Bromomethane	8.8	87.8	58.5	141.5	88	D	144
Carbon tetrachloride	10.8	108.3	68.5	131.5	108	43	143
Chlorobenzene	10.2	101.9	72.0	128.0	102	38	150
Chloroethane	11.2	111.6	77.0	123.0	112	46	137
Chloroform	10.9	108.8	75.0	125.0	109	49	133
Chloromethane	11.0	109.9	59.5	140.5	110	D	193
Dibromochloromethane	10.1	101.3	65.5	134.5	101	24	191
1,2-Dibromoethane	9.7	96.7	13.6	186.4	97	D	206
1,2-Dichlorobenzene	10.7	107.1	70.0	130.0	107	D	208
1,3-Dichlorobenzene	10.8	107.9	49.5	150.5	108	7	187
1,4-Dichlorobenzene	11.0	110.1	69.5	130.5	110	42	143
1,1-Dichloroethane	10.9	108.6	84.0	116.0	109	47	132
1,2-Dichloroethane	10.5	104.9	71.5	128.5	105	51	147
1,1-Dichloroethene	12.0	120.1	63.0	137.0	120	28	167
cis-1,2-Dichloroethene	11.4	114.1	34.4	180.6	114	19	181
trans-1,2-Dichloroethene	10.8	108.4	64.0	136.0	108	38	155
1,2-Dichloropropane	10.8	108.4	74.0	126.0	108	44	156
cis-1,3-Dichloropropene	11.1	110.9	64.0	136.0	111	22	178
trans-1,3-Dichloropropene	10.7	106.8	64.0	136.0	107	22	178
Methylene Chloride	11.0	110.3	77.5	122.5	110	25	162
1,1,2,2-Tetrachloroethane	10.3	103.3	49.0	151.0	103	8	184
Tetrachloroethane	10.8	107.8	70.0	130.0	108	26	162
1,1,1-Trichloroethane	10.6	105.6	71.0	129.0	106	41	138
1,1,2-Trichloroethane	10.3	103.5	78.5	121.5	103	39	136
Trichloroethene	10.6	105.8	77.0	123.0	106	35	146
Trichlorofluoromethane	11.2	112.2	66.5	133.5	112	21	156
Vinyl Chloride	11.6	115.8	68.5	131.5	116	28	163

Method: 602 Spike[ppb] : 10

Filename : 100603\003r0101.txt

Compound	ppb	Q(%)	QC Limits		P _s (%)	LCS Limits	
			Lower	Upper		Lower	Upper
Benzene	10.2	101.9	77.0	123.0	102	39	150
Chlorobenzene	10.1	101.2	80.5	119.5	101	55	135
1,2-Dichlorobenzene	10.3	103.0	68.0	132.0	103	37	154
1,3-Dichlorobenzene	10.2	101.6	72.5	127.5	102	50	141
1,4-Dichlorobenzene	10.4	103.9	69.5	130.5	104	42	143
Diisopropyl ether	10.1	101.4	43.1	156.9	101	30	170
Ethylbenzene	10.2	102.0	63.0	137.0	102	32	160
MTBE	10.1	101.2	46.8	153.2	101	35	165
Toluene	10.2	101.9	77.5	127.0	102	46	148
m,p-Xylene	20.6	102.8	11.2	188.8	103	D	239
o-Xylene	10.6	105.6	47.6	152.4	106	36	164

Flags :

- + = out of QC limits.
- = lab generated limits.
- D = Detected

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum
Hydrocarbons
by GC

Client Sample ID: EQBLK Date Collected: 10/1/03
Client Project ID: NSGA Sugar Grove Date Received: 10/3/03
Lab Sample ID: 81472 Analyzed By: BMS
Lab Project ID: G122-2300
Matrix: Water

Compound	Result (MG/L)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	0.5	5030	1.0	10/8/03

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum

Hydrocarbons

by GC

Client Sample ID: Method Blank

Date Collected:

Client Project ID:

Date Received:

Lab Sample ID: Blk100803

Analyzed By: BMS

Lab Project ID:

Matrix: Water

Compound	Result (MG/L)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	0.5	5030	1.0	10/8/03

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum
Hydrocarbons
by GC

Client Sample ID: Method Blank
Client Project ID:
Lab Sample ID: Blk100603W
Lab Project ID:
Matrix: Water
Date Collected:
Date Received:
Analyzed By: BMS

Compound	Result (MG/L)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	0.5	3510	1.0	10/8/03

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

MS/MSD Results for TPH

by GC 8015B

Client Sample ID: Batch QC
Client Project ID:
Lab Sample ID: WQC100703
Lab Project ID:
Matrix: Water

Date Analyzed: 10/7/03
Analyzed By: BMS
Dilution: 1.0

Compound	Sample	MS	%Rec	MSD	%Rec	RPD
Gasoline Range Organics	BQL	0.46	92%	0.52	104%	12.2

Comments:

BQL = Below Quantitation Limit

Results reported are in mg/L.

Reviewed By: MHC

PARADIGM ANALYTICAL LABORATORIES, INC.
Results for Laboratory Control Spike (LCS)
by GC 8015B

Client Sample ID: Batch QC
Client Project ID:
Lab Sample ID: LCS100703
Lab Project ID:
Matrix: Water

Date Analyzed: 10/7/03
Analyzed By: BMS
Dilution: 1.0

Compound	Spiked	Result	Limits	
			Lower	Upper
Gasoline Range Organics	0.50	0.49	0.35	0.65

Results reported are amounts in mg/L.

Reviewed By: mmc

PARADIGM ANALYTICAL LABORATORIES, INC.

MS/MSD Results for TPH
by GC 8015B

Client Sample ID: Batch QC
Client Project ID:
Lab Sample ID: WQC100803
Lab Project ID:
Matrix: Water
Date Analyzed: 10/8/03
Analyzed By: BMS
Dilution: 1.0

Compound	Sample	MS	%Rec	MSD	%Rec	RPD
Gasoline Range Organics	BQL	0.50	100%	0.49	98%	2.0

Comments:

BQL = Below Quantitation Limit

Results reported are in mg/L

Reviewed By: mmc

PARADIGM ANALYTICAL LABORATORIES, INC.
Results for Laboratory Control Spike (LCS)
by GC 8015B

Client Sample ID: Batch QC
Client Project ID:
Lab Sample ID: LCS100803
Lab Project ID:
Matrix: Water

Date Analyzed: 10/8/03
Analyzed By: BMS
Dilution: 1.0

Compound	Spiked	Result	Limits	
			Lower	Upper
Gasoline Range Organics	0.50	0.44	0.35	0.65

Results reported are amounts in mg/L.

Reviewed By: mme

PARADIGM ANALYTICAL LABORATORIES, INC.

MS/MSD Results for TPH

by GC 8015B

Client Sample ID: Batch QC
Client Project ID:
Lab Sample ID: WQC 569
Lab Project ID:
Matrix: Water

Date Analyzed: 4/26/01
Analyzed By: BMS
Dilution: 10.0

Compound	Sample	MS	%Rec	MSD	%Rec	RPD
Diesel Range Organics	N/A	N/A	N/A	N/A	N/A	N/A

N/A = Not applicable, matrix spike diluted out. Use LCS for batch validation.

Comments:

BQL = Below Quantitation Limit

Results reported are amounts in mg/L.

Reviewed By: mae

PARADIGM ANALYTICAL LABORATORIES, INC.
Results for Laboratory Control Spike (LCS)
by GC 8015B

Client Sample ID: Batch QC
Client Project ID:
Lab Sample ID: WLCS 567
Lab Project ID:
Matrix: Water

Date Analyzed: 9/9/03
Analyzed By: BMS
Dilution: 1.0

Compound	Spiked	Result	Limits	
			Lower	Upper
Diesel Range Organics	2.0	1.6	1.4	2.6

Results reported are amounts in mg/L.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: MW-1

Client Project ID: NSGA Sugar Grove

Lab Sample ID: 81466

Lab Project ID: G122-2300

Matrix: Water

Date Collected: 10/1/03

Date Received: 10/3/03

Date Analyzed: 10/9/03

Analyzed By: MRC

Dilution: 1

Compound	Practical Quantitation Limit (ug/L)	Method Detection Limit (ug/L)	Result *
Acenaphthene	5	2.8	BQL
Acenaphthylene	5	2.9	BQL
Anthracene	5	2.7	BQL
Benzo[a]anthracene	5	1.8	BQL
Benzo[a]pyrene	5	3.1	BQL
Benzo[b]fluoranthene	5	2.5	BQL
Benzo[g,h,i]perylene	5	2.1	BQL
Benzo[k]fluoranthene	5	3.1	BQL
Chrysene	5	2.5	BQL
Dibenzo[a,h]anthracene	5	2	BQL
Fluoranthene	5	2.4	BQL
Fluorene	5	2.8	BQL
Indeno(1,2,3-c,d)pyrene	5	2.2	BQL
1-Methylnaphthalene	5	2.8	BQL
2-Methylnaphthalene	5	3	BQL
Naphthalene	5	3.1	BQL
Phenanthrene	5	2.3	BQL
Pyrene	5	2.6	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	10.3	103
Nitrobenzene-d5	10	10.4	104
4-Terphenyl-d14	10	11.0	110

Comments:

Results are corrected for %solids and dilution where applicable.

Flags: * = Reported to the Method Detection Limit (MDL)

BQL = Below Quantitation Limit.

J = Estimated value, detected value is below the instrument calibration limits.

Reviewed By: mrc

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: MW-2
 Client Project ID: NSGA Sugar Grove
 Lab Sample ID: 81467
 Lab Project ID: G122-2300
 Matrix: Water

Date Collected: 10/1/03
 Date Received: 10/3/03
 Date Analyzed: 10/9/03
 Analyzed By: MRC
 Dilution: 1

Compound	Practical Quantitation Limit (ug/L)	Method Detection Limit (ug/L)	Result * (ug/L)
Acenaphthene	5	2.8	BQL
Acenaphthylene	5	2.9	BQL
Anthracene	5	2.7	BQL
Benzo[a]anthracene	5	1.8	BQL
Benzo[a]pyrene	5	3.1	BQL
Benzo[b]fluoranthene	5	2.5	BQL
Benzo[g,h,i]perylene	5	2.1	BQL
Benzo[k]fluoranthene	5	3.1	BQL
Chrysene	5	2.5	BQL
Dibenzo[a,h]anthracene	5	2	BQL
Fluoranthene	5	2.4	BQL
Fluorene	5	2.8	BQL
Indeno(1,2,3-c,d)pyrene	5	2.2	BQL
1-Methylnaphthalene	5	2.8	BQL
2-Methylnaphthalene	5	3	BQL
Naphthalene	5	3.1	BQL
Phenanthrene	5	2.3	BQL
Pyrene	5	2.6	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	10.3	103
Nitrobenzene-d5	10	10.4	104
4-Terphenyl-d14	10	11.1	111

Comments:

Results are corrected for %solids and dilution where applicable.

Flags: * = Reported to the Method Detection Limit (MDL)

BQL = Below Quantitation Limit.

J = Estimated value, detected value is below the instrument calibration limits.

Reviewed By: mrc

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: MW-4

Date Collected: 10/1/03

Client Project ID: NSGA Sugar Grove

Date Received: 10/3/03

Lab Sample ID: 81469

Date Analyzed: 10/9/03

Lab Project ID: G122-2300

Analyzed By: MRC

Matrix: Water

Dilution: 1

Compound	Practical Quantitation Limit (ug/L)	Method Detection Limit (ug/L)	Result * (ug/L)
Acenaphthene	5	2.8	BQL
Acenaphthylene	5	2.9	BQL
Anthracene	5	2.7	BQL
Benzo[a]anthracene	5	1.8	BQL
Benzo[a]pyrene	5	3.1	BQL
Benzo[b]fluoranthene	5	2.5	BQL
Benzo[g,h,i]perylene	5	2.1	BQL
Benzo[k]fluoranthene	5	3.1	BQL
Chrysene	5	2.5	BQL
Dibenzo[a,h]anthracene	5	2	BQL
Fluoranthene	5	2.4	BQL
Fluorene	5	2.8	BQL
Indeno(1,2,3-c,d)pyrene	5	2.2	BQL
1-Methylnaphthalene	5	2.8	BQL
2-Methylnaphthalene	5	3	BQL
Naphthalene	5	3.1	BQL
Phenanthrene	5	2.3	BQL
Pyrene	5	2.6	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	9.3	93
Nitrobenzene-d5	10	8.9	89
4-Terphenyl-d14	10	10.4	104

Comments:

Results are corrected for %solids and dilution where applicable.

Flags: * = Reported to the Method Detection Limit (MDL)

BQL = Below Quantitation Limit.

J = Estimated value, detected value is below the instrument calibration limits.

Reviewed By: mmc

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: MW-5
 Client Project ID: NSGA Sugar Grove
 Lab Sample ID: 81470
 Lab Project ID: G122-2300
 Matrix: Water

Date Collected: 9/30/03
 Date Received: 10/3/03
 Date Analyzed: 10/9/03
 Analyzed By: MRC
 Dilution: 1

Compound	Practical Quantitation Limit (ug/L)	Method Detection Limit (ug/L)	Result * (ug/L)
Acenaphthene	5	2.8	BQL
Acenaphthylene	5	2.9	BQL
Anthracene	5	2.7	BQL
Benzo[a]anthracene	5	1.8	BQL
Benzo[a]pyrene	5	3.1	BQL
Benzo[b]fluoranthene	5	2.5	BQL
Benzo[g,h,i]perylene	5	2.1	BQL
Benzo[k]fluoranthene	5	3.1	BQL
Chrysene	5	2.5	BQL
Dibenzo[a,h]anthracene	5	2	BQL
Fluoranthene	5	2.4	BQL
Fluorene	5	2.8	BQL
Indeno(1,2,3-c,d)pyrene	5	2.2	BQL
1-Methylnaphthalene	5	2.8	BQL
2-Methylnaphthalene	5	3	BQL
Naphthalene	5	3.1	BQL
Phenanthrene	5	2.3	BQL
Pyrene	5	2.6	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	9.7	97
Nitrobenzene-d5	10	9.8	98
4-Terphenyl-d14	10	10.0	100

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

* = Reported to the Method Detection Limit (MDL)

BQL = Below Quantitation Limit.

J = Estimated value, detected value is below the instrument calibration limits.

Reviewed By: MRC

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: MW-6

Date Collected: 9/30/03

Client Project ID: NSGA Sugar Grove

Date Received: 10/3/03

Lab Sample ID: 81471

Date Analyzed: 10/9/03

Lab Project ID: G122-2300

Analyzed By: MRC

Matrix: Water

Dilution: 1

Compound	Practical Quantitation Limit (ug/L)	Method Detection Limit (ug/L)	Result * (ug/L)
Acenaphthene	5	2.8	BQL
Acenaphthylene	5	2.9	BQL
Anthracene	5	2.7	BQL
Benzo[a]anthracene	5	1.8	BQL
Benzo[a]pyrene	5	3.1	BQL
Benzo[b]fluoranthene	5	2.5	BQL
Benzo[g,h,i]perylene	5	2.1	BQL
Benzo[k]fluoranthene	5	3.1	BQL
Chrysene	5	2.5	BQL
Dibenzo[a,h]anthracene	5	2	BQL
Fluoranthene	5	2.4	BQL
Fluorene	5	2.8	BQL
Indeno(1,2,3-c,d)pyrene	5	2.2	BQL
1-Methylnaphthalene	5	2.8	BQL
2-Methylnaphthalene	5	3	BQL
Naphthalene	5	3.1	BQL
Phenanthrene	5	2.3	BQL
Pyrene	5	2.6	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	10.0	100
Nitrobenzene-d5	10	10.2	102
4-Terphenyl-d14	10	12.4	124

Comments:

Results are corrected for %solids and dilution where applicable.

Flags: * = Reported to the Method Detection Limit (MDL)

BQL = Below Quantitation Limit.

J = Estimated value, detected value is below the instrument calibration limits.

Reviewed By: MRC

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: EQBLK
 Client Project ID: NSGA Sugar Grove
 Lab Sample ID: 81472
 Lab Project ID: G122-2300
 Matrix: Water

Date Collected: 10/1/03
 Date Received: 10/3/03
 Date Analyzed: 10/9/03
 Analyzed By: MRC
 Dilution: 1

Compound	Practical Quantitation Limit (ug/L)	Method Detection Limit (ug/L)	Result * (ug/L)
Acenaphthene	5	2.8	BQL
Acenaphthylene	5	2.9	BQL
Anthracene	5	2.7	BQL
Benzo[a]anthracene	5	1.8	BQL
Benzo[a]pyrene	5	3.1	BQL
Benzo[b]fluoranthene	5	2.5	BQL
Benzo[g,h,i]perylene	5	2.1	BQL
Benzo[k]fluoranthene	5	3.1	BQL
Chrysene	5	2.5	BQL
Dibenzo[a,h]anthracene	5	2	BQL
Fluoranthene	5	2.4	BQL
Fluorene	5	2.8	BQL
Indeno(1,2,3-c,d)pyrene	5	2.2	BQL
1-Methylnaphthalene	5	2.8	BQL
2-Methylnaphthalene	5	3	BQL
Naphthalene	5	3.1	BQL
Phenanthrene	5	2.3	BQL
Pyrene	5	2.6	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	10.3	103
Nitrobenzene-d5	10	10.3	103
4-Terphenyl-d14	10	11.1	111

Comments:

Results are corrected for %solids and dilution where applicable.

Flags: * = Reported to the Method Detection Limit (MDL)

BQL = Below Quantitation Limit.

J = Estimated value, detected value is below the instrument calibration limits.

Reviewed By: MRC

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: TB
 Client Project ID: NSGA Sugar Grove
 Lab Sample ID: 81473
 Lab Project ID: G122-2300
 Matrix: Water

Date Collected: 10/1/03
 Date Received: 10/3/03
 Date Analyzed: 10/9/03
 Analyzed By: MRC
 Dilution: 1

Compound	Practical Quantitation Limit (ug/L)	Method Detection Limit (ug/L)	Result * (ug/L)
Acenaphthene	5	2.8	BQL
Acenaphthylene	5	2.9	BQL
Anthracene	5	2.7	BQL
Benzo[a]anthracene	5	1.8	BQL
Benzo[a]pyrene	5	3.1	BQL
Benzo[b]fluoranthene	5	2.5	BQL
Benzo[g,h,i]perylene	5	2.1	BQL
Benzo[k]fluoranthene	5	3.1	BQL
Chrysene	5	2.5	BQL
Dibenzo[a,h]anthracene	5	2	BQL
Fluoranthene	5	2.4	BQL
Fluorene	5	2.8	BQL
Indeno(1,2,3-c,d)pyrene	5	2.2	BQL
1-Methylnaphthalene	5	2.8	BQL
2-Methylnaphthalene	5	3	BQL
Naphthalene	5	3.1	BQL
Phenanthrene	5	2.3	BQL
Pyrene	5	2.6	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	9.5	95
Nitrobenzene-d5	10	9.1	91
4-Terphenyl-d14	10	11.3	113

Comments:

Results are corrected for %solids and dilution where applicable.

Flags: * = Reported to the Method Detection Limit (MDL)

BQL = Below Quantitation Limit.

J = Estimated value, detected value is below the instrument calibration limits.

Reviewed By: J.M.C.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: MW-3

Date Collected: 10/1/03

Client Project ID: NSGA Sugar Grove

Date Received: 10/3/03

Lab Sample ID: 81474

Date Analyzed: 10/9/03

Lab Project ID: G122-2300

Analyzed By: MRC

Matrix: Water

Dilution: 1

Compound	Practical Quantitation Limit (ug/L)	Method Detection Limit (ug/L)	Result * (ug/L)
Acenaphthene	5	2.8	BQL
Acenaphthylene	5	2.9	BQL
Anthracene	5	2.7	BQL
Benzo[a]anthracene	5	1.8	BQL
Benzo[a]pyrene	5	3.1	BQL
Benzo[b]fluoranthene	5	2.5	BQL
Benzo[g,h,i]perylene	5	2.1	BQL
Benzo[k]fluoranthene	5	3.1	BQL
Chrysene	5	2.5	BQL
Dibenzo[a,h]anthracene	5	2	BQL
Fluoranthene	5	2.4	BQL
Fluorene	5	2.8	BQL
Indeno(1,2,3-c,d)pyrene	5	2.2	BQL
1-Methylnaphthalene	5	2.8	BQL
2-Methylnaphthalene	5	3	BQL
Naphthalene	5	3.1	BQL
Phenanthrene	5	2.3	BQL
Pyrene	5	2.6	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	10.3	103
Nitrobenzene-d5	10	10.3	103
4-Terphenyl-d14	10	10.9	109

Comments:

Results are corrected for %solids and dilution where applicable.

Flags: * = Reported to the Method Detection Limit (MDL)

BQL = Below Quantitation Limit.

J = Estimated value, detected value is below the instrument calibration limits.

Reviewed By: MRC

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: Method Blank
 Client Project ID: NSGA Sugar Grove
 Lab Sample ID: WBLK100603A
 Lab Project ID: G122-2300
 Matrix: Water

Date Collected:
 Date Received:
 Date Analyzed: 10/8/03
 Analyzed By: MRC
 Dilution: 1

Compound	Practical Quantitation Limit (ug/L)	Method Detection Limit (ug/L)	Result *
Acenaphthene	5	2.8	BQL
Acenaphthylene	5	2.9	BQL
Anthracene	5	2.7	BQL
Benzo[a]anthracene	5	1.8	BQL
Benzo[a]pyrene	5	3.1	BQL
Benzo[b]fluoranthene	5	2.5	BQL
Benzo[g,h,i]perylene	5	2.1	BQL
Benzo[k]fluoranthene	5	3.1	BQL
Chrysene	5	2.5	BQL
Dibenzo[a,h]anthracene	5	2	BQL
Fluoranthene	5	2.4	BQL
Fluorene	5	2.8	BQL
Indeno(1,2,3-c,d)pyrene	5	2.2	BQL
1-Methylnaphthalene	5	2.8	BQL
2-Methylnaphthalene	5	3	BQL
Naphthalene	5	3.1	BQL
Phenanthrene	5	2.3	BQL
Pyrene	5	2.6	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.1	81
Nitrobenzene-d5	10	8.3	83
4-Terphenyl-d14	10	11.1	111

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

* = Reported to the Method Detection Limit (MDL)
 BQL = Below Quantitation Limit.
 J = Estimated value, detected value is below the instrument calibration limits.

Reviewed By: hmc

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: Method Blank
 Client Project ID: NSGA Sugar Grove
 Lab Sample ID: WBLK100603B
 Lab Project ID: G122-2300
 Matrix: Water

Date Collected:
 Date Received:
 Date Analyzed: 10/8/03
 Analyzed By: MRC
 Dilution: 1

Compound	Practical Quantitation Limit (ug/L)	Method Detection Limit (ug/L)	Result * (ug/L)
Acenaphthene	5	2.8	BQL
Acenaphthylene	5	2.9	BQL
Anthracene	5	2.7	BQL
Benzo[a]anthracene	5	1.8	BQL
Benzo[a]pyrene	5	3.1	BQL
Benzo[b]fluoranthene	5	2.5	BQL
Benzo[g,h,i]perylene	5	2.1	BQL
Benzo[k]fluoranthene	5	3.1	BQL
Chrysene	5	2.5	BQL
Dibenzo[a,h]anthracene	5	2	BQL
Fluoranthene	5	2.4	BQL
Fluorene	5	2.8	BQL
Indeno(1,2,3-c,d)pyrene	5	2.2	BQL
1-Methylnaphthalene	5	2.8	BQL
2-Methylnaphthalene	5	3	BQL
Naphthalene	5	3.1	BQL
Phenanthrene	5	2.3	BQL
Pyrene	5	2.6	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	10.2	102
Nitrobenzene-d5	10	10.2	102
4-Terphenyl-d14	10	11.3	113

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

* = Reported to the Method Detection Limit (MDL)

BQL = Below Quantitation Limit.

J = Estimated value, detected value is below the instrument calibration limits.

Reviewed By: WYY

PARADIGM ANALYTICAL LABORATORIES, INC.

Results For Water Matrix Spike / Matrix Spike Duplicate (MS/MSD)
by GCMS

Client Sample ID: Batch QC

Date Collected:

Client Project ID:

Date Received:

Lab Sample ID: W-590

Date Analyzed: 10/08/03

Lab Project ID:

Analyzed By: MRC

Matrix: Water

Dilution: 1

	Sample ng	Spiked ng	MS %	MSD %	Limits		RPD %	Limit
					Lower %	Upper %		Max. %
Acenaphthylene	BQL	10	118	117	84	125	0.9	30
4-Chloro-3-methylphenol	BQL	10	114	115	81	126	0.5	30
2-Chlorophenol	BQL	10	94	102	68	114	7.7	30
1,4-Dichlorobenzene	BQL	10	68	76	40	104	11.1	30
2,4-Dinitrotoluene	BQL	10	120	118	72	138	2.2	30
N-Nitrosodi-n-propylamine	BQL	10	130 *	129 *	72	120	0.8	30
4-Nitrophenol	BQL	10	123	120	44	165	2.6	30
Pentachlorophenol	BQL	10	90	88	40	151	2.1	30
Phenol	BQL	10	103	107	60	127	4.0	30
Pyrene	BQL	10	134 *	129	81	130	3.3	30
1,2,4-Trichlorobenzene	BQL	10	88	95	61	105	7.2	30

Comments:

Concentrations are on column amounts.

Flags:

* = Out of limits.

NA = Not applicable.

Reviewed By: mrc

PARADIGM ANALYTICAL LABORATORIES, INC.

Results For Water Laboratory Control Standard (LCS)
by GCMS

Client Sample ID: Batch QC
 Client Project ID:
 Lab Sample ID: W-590A
 Lab Project ID:
 Matrix: Water

Date Collected:
 Date Received:
 Date Analyzed: 10/08/03
 Analyzed By: MRC

	Spiked ng	LCS ng	LCS % Rec.	LIMITS	
				LOWER	UPPER
Acenaphthylene	10	11.63	116	84	128
4-Chloro-3-methylphenol	10	11.27	113	77	127
2-Chlorophenol	10	9.83	98	69	118
1,4-Dichlorobenzene	10	6.69	67	31	101
2,4-Dinitrotoluene	10	11.71	117	75	134
N-Nitrosodi-n-propylamine	10	12.63	126	68	129
4-Nitrophenol	10	11.37	114	45	153
Pentachlorophenol	10	8.51	85	24	146
Phenol	10	10.45	104	61	130
Pyrene	10	13.06	131	80	132
1,2,4-Trichlorobenzene	10	8.89	89	57	105

Comments:

Concentrations are on column amounts.

Flags:

* = Out of limits.
 NA = Not applicable.

Reviewed By: me

RECEIVED

MAY 14 2004

**SECOND QUARTER 2003
MONITORING REPORT
USTS 201 AND 202
NAVAL SECURITY GROUP ACTIVITY
SUGAR GROVE, WEST VIRGINIA
WVDEP FACILITY NO.: 3604470
WVDEP RELEASE NO.: 93-048**

AUGUST 4, 2003

CONTRACT NO.: N62470-01-D-3009
DELIVERY ORDER NO.: 0050
MID-ATLANTIC PROJECT NO.: 000R1243.50

1. All 6 wells meet FD WS! (20K)
10K → MW-3

Prepared By:

Mid-Atlantic Associates, Inc.
409 Rogers View Court
Raleigh, North Carolina 27610
(919) 250-9918

MID-ATLANTIC
ASSOCIATES, INC.
Engineering & Environmental Solutions

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**SECOND QUARTER 2003
MONITORING REPORT
USTS 201 AND 202
NAVAL SECURITY GROUP ACTIVITY
SUGAR GROVE, WEST VIRGINIA
WVDEP FACILITY NO.: 3604470
WVDEP RELEASE NO.: 93-048**

Mid-Atlantic Job No. 000R1243.50

August 4, 2003

Prepared For:

Commanding General
Naval Facilities Engineering Command
Atlantic Headquarters, Env. Division
Technical Services Branch
1510 Gilbert Street
Norfolk, Virginia 23511-6287

Prepared By:

MID-ATLANTIC ASSOCIATES, INC.


Eric B. Aufderhaar
Project Geologist

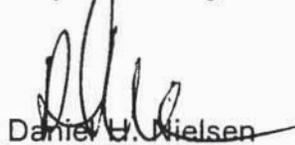

Daniel H. Nielsen
Principal Engineer

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Drawing 1.2	Monitoring Well and Sample Location Map
Drawing 2.1	Estimated Water Table Contour Map - May 2003
Drawing 3.1	MTBE in Groundwater (mg/L)
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TABLES

Table 2.1	Summary of Groundwater Depth Measurements, May 9, 2003
Table 3.1	Summary of Groundwater Sampling Results (mg/L)
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APPENDICES

Appendix A	Quarterly Groundwater Monitoring Laboratory Analytical Report and Chain-of-Custody Record
Appendix B	Site Photographs, Well MW-3 Wellhead (Courtesy of NSGA)

1.0 INTRODUCTION

Mid-Atlantic Associates, Inc. (Mid-Atlantic) was retained by CATLIN Engineers & Scientists (CATLIN) to complete four quarterly monitoring events at the Naval Security Group Activity (NSGA), located approximately five miles north of Sugar Grove, West Virginia (Drawing 1.1). This report documents the results from our second quarterly monitoring event completed on May 9th and 12th, 2003.

The subject site is the Naval Security Group Activity (NSGA), located near Sugar Grove, Pendleton County, West Virginia (Drawing 1.1). The NSGA military reservation is situated approximately five miles north of Sugar Grove on County Road 21. The South Branch of the Potomac River borders the west side of the NSGA property.

Six monitoring wells were installed at the NSGA in 1994 and 1996 following confirmation of a petroleum release in March 1993. The wells were installed in the vicinity of underground storage tanks (USTs) 201 and 202 formerly operated near Buildings 20 and 22 (Drawing 1.2). These buildings are used for a gymnasium and offices (Building 20) and a garage/paint storage facility (Building 22). Petroleum-contaminated soils were excavated in 1995 from a former pump island area located southwest of Building 22.

Further background site information was summarized in our first quarterly monitoring report, submitted to the Naval Facilities Engineering Command Atlantic Division (LANTDIV) and the NSGA on June 2, 2003. Please reference the June 2, 2003 report for a discussion regarding the *January 2002 Groundwater Monitoring and Sampling Report* prepared by NFE Technologies, Inc. (NFE) and response letter issued by the West Virginia Department of Environmental Protection (WVDEP). In response to WVDEP correspondence, LANTDIV authorized the monitoring program by issuing Delivery Order No. 0050 to CATLIN. CATLIN is the prime contractor under Navy Contract N62470-01-D-3009.

2.0 WATER TABLE AND FREE PRODUCT MEASUREMENTS

On May 9 and 12, 2003, a representative of Mid-Atlantic visited the subject site for the purpose of collecting groundwater samples and to measure the depth to groundwater and free product thickness (if present) within site monitoring wells (Drawing 1.2). The second day of sampling (May 12th) was needed in order to provide enough time for the wells to recharge and yield sufficient groundwater volumes for sampling.

Depth to groundwater and free product measurements were obtained on May 9, 2003 using an electronic oil/water interface probe from a surveyed measuring point at the top of each well casing. This information is included in the summary of groundwater elevations table for this quarterly monitoring event (Table 2.1).

Groundwater flow direction for this monitoring event is shown on Drawing 2.1 and was prepared using the water elevation data from Table 2.1. A depth to water (DTW) measurement in deep well MW-6 was not obtained due to equipment malfunction. However, monitoring well MW-6 has not been used to date to generate water table contour maps because it is screened at a different elevation than the other wells within shale bedrock. As shown, the shallow groundwater at the site is migrating in a generally westerly to southwesterly direction, which is consistent with the local topography. The apparent groundwater flow direction in the southern portion of the site (vicinity of MW-4 and MW-5) is consistent with our March 2003 data. In the northern half of the site, our May 2003 groundwater elevation data indicate an apparent, trough-like feature that is similar to that shown by NFE in their January 2002 report. This feature is different than the apparent northwesterly groundwater flow direction identified based on the March 2003 DTW data (see June 3, 2003 report). A greater thickness of water was measured in well MW-3 in May 2003 (3.75 feet) versus March 2003 (1.7 feet), resulting in a higher groundwater table elevation calculated from the May 2003 measurement. The higher groundwater table elevation may be partially attributable to heavy precipitation received at the site during the week of May 9, 2003.

We did not identify a measurable thickness of free product in the six site monitoring wells.

3.0 GROUNDWATER SAMPLING AND ANALYTICAL RESULTS

The monitoring wells were purged for sample collection by removing three standing volumes of water from each well or until the well exhibited dryness. Wells MW-2 and MW-5 were purged of at least three well volumes. The other wells exhibited dryness after 3 to 8 gallons of water were removed. Wells MW-3 and MW-6 most quickly exhibited dryness, after approximately three gallons of water were bailed from the wells (we measured 3.74 feet of water in well MW-3 prior to purging, a DTW measurement could not be obtained from well MW-6). Groundwater samples were collected from well MW-3 over two days (Friday, May 9th and Monday May 12th) to obtain sufficient sample volume for laboratory analysis. This well has historically been low yielding, requiring subsequent visits to fill groundwater sample containers.

New nitrile gloves were worn by the sampler and a pre-cleaned Teflon or disposable bailer was used for purging and for collecting the groundwater samples. The groundwater samples were decanted into laboratory-supplied glassware, packed on ice and delivered under chain-of-custody to Paradigm Analytical Laboratories, Inc. (Paradigm) in Wilmington, NC. The groundwater samples were analyzed for gasoline

range total petroleum hydrocarbons (TPH) according to EPA Method 5030; diesel fuel range TPH according to EPA Method 3510; purgeable aromatics including methyl-tert-butyl ether (MTBE) and diisopropyl ether according to EPA Method 602 and polynuclear aromatic hydrocarbons (PAHs) according to EPA method 625. PAH compounds listed under the EPA Method 610 methodology were tested by EPA Method 625 (GCMS) to reduce error from "false positive" results. Laboratory personnel stated that the EPA Method 610 methodology does not permit confirmation of contaminant concentrations and is more appropriate for sites of known contaminants with known concentrations.

Paradigm is certified by the State of West Virginia to perform these laboratory tests under WVDEP Certificate No. 293 (see certification document within the laboratory report, Appendix A). The laboratory analytical results from analyses performed on the groundwater samples, in addition to the corresponding West Virginia Groundwater Quality Standards (WVGWQS), are summarized in Table 3.1. The results from the first two quarterly sampling events are summarized in Table 3.2. Copies of the laboratory analytical report and chain-of-custody from this sampling event are included in Appendix A.

MTBE concentrations in groundwater are shown in Drawing 3.1. As indicated by the drawing, concentrations of MTBE are limited in aerial extent. MTBE was detected above the laboratory practical quantitation limit (PQL) in groundwater samples MW-1 (.008 mg/L), MW-2 (.029 mg/L) and MW-4 (.028 mg/L). Currently, there is no WVGWQS for MTBE. The EPA has placed MTBE on the Drinking Water Contaminant Candidate List (CCL). The CCL includes contaminants that are considered priorities for establishment of future groundwater standards. The EPA did not specify a recommended groundwater standard for MTBE in the CCL. In 1997, EPA issued a Drinking Water Advisory and stated that there is little likelihood that MTBE concentrations between .020 and .040 mg/L would cause negative health effects (EPA, 2003). Other nearby states have established MTBE groundwater standards, suggested guidelines or advisory levels. These states include Kentucky (.050 mg/L), Virginia (.015 mg/L) and North Carolina (.200 mg/L) (EPA, 2001).

Total PAHs were not detected above the laboratory PQL in the groundwater samples collected in May 2003 (Drawing 3.2). During our first quarter sampling event in March 2003, eight PAHs were detected in one well (MW-3) at concentrations above the laboratory PQLs (Table 3.2). One of the eight PAH compounds detected during the March 2003 groundwater sampling event (benzo[a]pyrene (BaP), 0.017 mg/L) exceeded the WVGWQS of .0002 mg/L. The laboratory method detection limits (MDLs) and PQLs are shown on the laboratory report (Appendix A).

4.0 MAINTENANCE OF MONITORING WELLS

Mid-Atlantic replaced a well cap at monitoring well MW-3 on May 9, 2003. A low profile expandable well cap was installed to replace a standard-issue, expandable well cap installed at the well during April 2003. In March 2003, we noted that a non water-tight well cap (constructed out of duct tape) was at monitoring well MW-3. Eight PAHs, typically associated with coal tar, coal tar pitch, creosote and petroleum asphalt, were detected in groundwater sample MW-3 at low concentrations (Table 3.2). The presence of these compounds in the MW-3 sample supported the notion that surface water runoff carrying these PAHs entered well MW-3 through the previous duct tape well cap.

The top of the PVC well casing in well MW-3 is located 0.22 feet below the adjacent asphalt, according to survey data (ground surface survey location is not known). Due to this minimal clearance, the flush-mount well cover would not close over the top of the low profile cap installed by Mid-Atlantic on May 9, 2003 (Photograph 1 in Appendix B). NSGA personnel placed a traffic cone over the wellhead to reduce the potential hazard (Photograph 2).

LANTDIV personnel identified an alternate well cap with a very low profile design. This well cap, manufactured by Eon Products, Inc. extends only 0.25 inches above the top of casing according to product specifications. Mid-Atlantic purchased the well cap and shipped it to the NSGA. On July 29, 2003, Mr. Steve Niethamer at the NSGA replaced the current well cap with the Eon Products Inc. well cap.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the findings of this second quarterly sampling event, Mid-Atlantic provides the following conclusions.

- MTBE was detected in three groundwater samples at concentrations above the laboratory PQL of .002 mg/L. Concentrations ranged from .008 mg/L at well MW-1 to .029 mg/L at well MW-2. A WVGWQS has not been established for MTBE. Well MW-1 is located at the former release area (source area) while well MW-2 is located upgradient with respect to the local groundwater flow direction.

- No groundwater contaminants were reported by the laboratory in groundwater sample MW-3 at concentrations above the laboratory PQLs. Previously, nine PAH compounds were reported in the well MW-3 groundwater sample: benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[g,h,i]perylene, benzo[k]fluoranthene, chrysene, fluoranthene, indeno(1,2,3-c,d)pyrene and pyrene. Benzo[a]pyrene was previously reported at a concentration of .017 mg/L, above the WVGWQS of .0002 mg/L.
- The absence of PAH compounds in well MW-3 during the May 2003 sampling event appears to support our conclusion in the June 2003 monitoring report that surface water runoff carried contaminants into the casing of well MW-3. The expandable caps used to replace the duct tape-fashioned well cap appears to have prevented further infiltration of surface water into the well.
- The flush-mount well cover at monitoring well MW-3 would not close over the newly installed, low-profile expandable well cap due to a clearance of only 0.22 feet between the top of casing and ground surface. A new well cap with a reported thickness of 0.25 inches was recently installed at the wellhead. The flushmount well cover can now be closed and lies flush with the ground.

We recommend that LANTDIV submit this quarterly monitoring report to the WVDEP and continue with the two subsequent sampling events. Our third quarterly groundwater-sampling event is scheduled for September 2003.

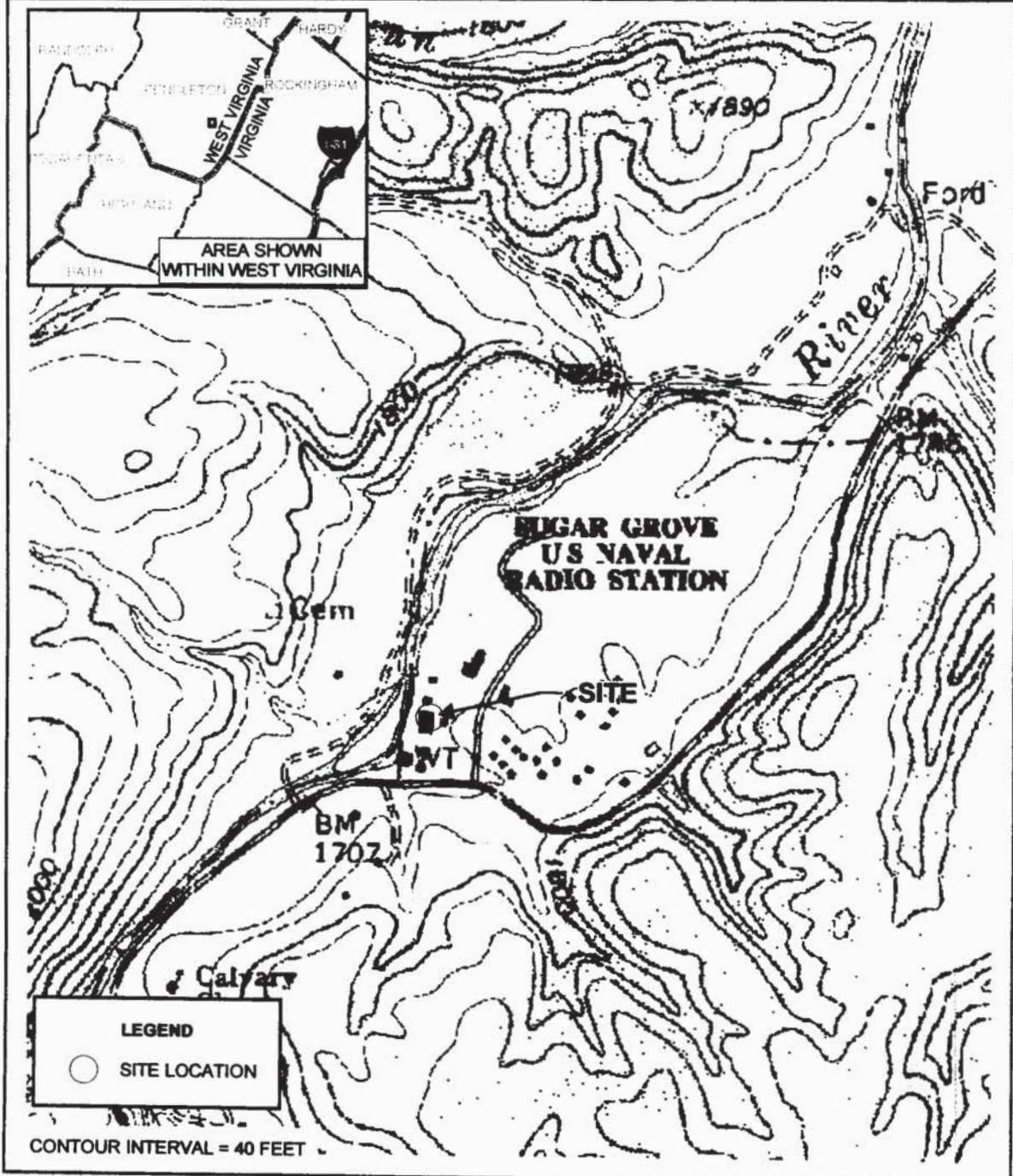
6.0 REFERENCES CITED

EPA, 2003, *MTBE (methyl tertiary-butyl ether) and Underground Storage Tanks*, Office of USTs, U.S. Environmental Protection Agency, March 10, 2003. [Internet Site: www.epa.gov/swerust1/mtbe/index.htm]

HHS, 2001, *Polycyclic Aromatic Hydrocarbons, 15 Listings in Ninth Annual Report on Carcinogens*, U.S. Department of Health and Human Services, Public Health Service, National Toxicology Program, January 2001.

NFE, 2002, *Groundwater Monitoring and Sampling Report*, U.S. Navy, NAVSECGRUACT, Sugar Grove, WV, NFE Technologies, Inc., January 2002.

DRAWINGS

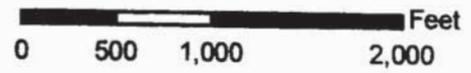


LEGEND
○ SITE LOCATION

CONTOUR INTERVAL = 40 FEET

REFERENCES:
1. SUGAR GROVE, WV DIGITAL RASTER GRAPHIC, USGS. SCANNED FROM 1:24,000-SCALE SUGAR GROVE, WV TOPOGRAPHIC MAP, PUBLISHED 1969, PHOTOREVISED 1981, USGS. DOWNLOADED FROM WEST VIRGINIA DEP INTERNET SITE.
2. INSET MAP DIGITAL DATA FROM ESRI.

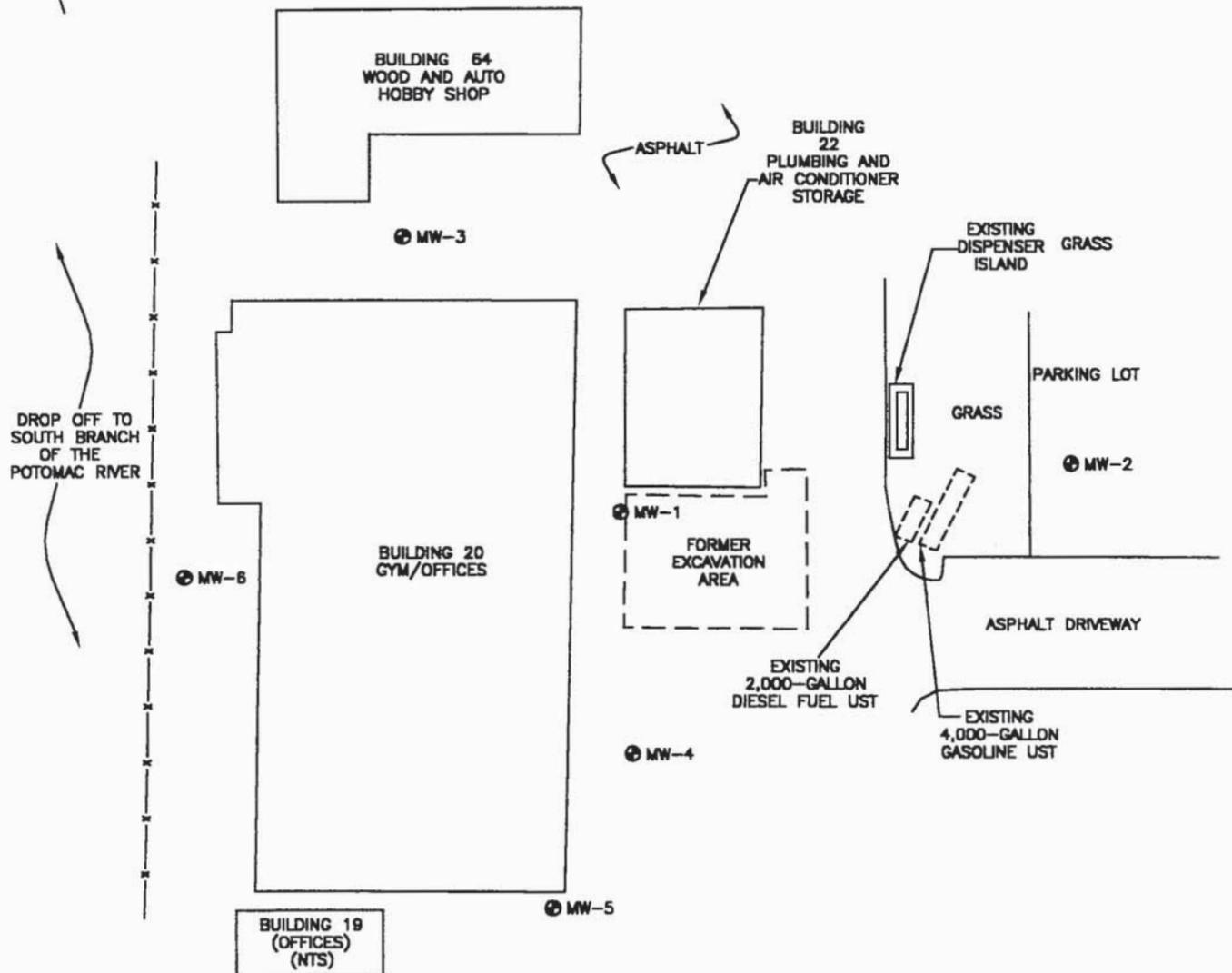
SCALE: 1:12,000



MID-ATLANTIC ASSOCIATES, INC.
Environmental & Engineering Solutions

TOPOGRAPHIC SITE LOCATION MAP
USTS 201 AND 202
NAVAL SECURITY GROUP ACTIVITY
SUGAR GROVE, WEST VIRGINIA

DRAWN BY: <i>EHA</i>	DATE: MAY 2003
DRAFT CHECK:	JOB NO: 000R1243.50
ENG. CHECK: <i>DW</i>	GIS NO: 01G-1243.50-1
APPROVAL: <i>EM</i>	DWG NO: 1.1



WATER PLANT (NTS)

LEGEND

- ⊕ MW-1 (NTS) MONITORING WELL LOCATION
- x—x—x—x— NOT TO SCALE
- x—x—x—x— FENCE



MID-ATLANTIC ASSOCIATES, INC.
Engineering & Environmental Solutions

MONITORING WELL AND SAMPLE LOCATION MAP
 NAVAL SECURITY GROUP ACTIVITY
 USTs 201 AND 202
 SUGAR GROVE, WEST VIRGINIA

DRAWN BY: <i>[Signature]</i>	DATE: JUNE 2003
DRAFT CHECK:	JOB NO: 000R1243.50
ENG CHECK: <i>[Signature]</i>	CAD NO: 01-124306-50
APPROVAL: <i>[Signature]</i>	DWG NO: 1.2

REFERENCE: NFE SITE MAP DATED 1/23/02; MID-ATLANTIC FIELD NOTES & ON-SITE MEASUREMENTS.



DROP OFF TO SOUTH BRANCH OF THE POTOMAC RIVER

BUILDING 64
WOOD AND AUTO
HOBBY SHOP

BUILDING 22
PLUMBING AND
AIR CONDITIONER
STORAGE

EXISTING
DISPENSER GRASS
ISLAND

PARKING LOT

GRASS

ASPHALT DRIVEWAY

MW-3
(97.07')

MW-2
(97.32')

96.5'

MW-1
(95.87')

FORMER
EXCAVATION
AREA

EXISTING
2,000-GALLON
DIESEL FUEL UST

EXISTING
4,000-GALLON
GASOLINE UST

MW-8^o
(NM)

BUILDING 2D
GYM/OFFICES

95.5'

95.0'

MW-4
(96.63')

94.5'

94.0'

93.5'

93.0'

MW-5
(92.94')

BUILDING 19
(OFFICES)
(NTS)

WATER
PLANT
(NTS)

LEGEND

⊕ MW-1
(NTS)

MONITORING WELL LOCATION
NOT TO SCALE

— x — x — x —

FENCE

(NM)

NOT MEASURED



GROUNDWATER FLOW DIRECTION

(96.63')

GROUNDWATER ELEVATION (AT LOCATION)

96.0'

ESTIMATED GROUNDWATER CONTOUR

NOTES:

CONTOUR INTERVAL= 0.5 FEET
*WELL SCREENED IN SHALE BEDROCK;
DOES NOT INTERFACE WATER TABLE.

0 50'

SCALE: 1"= 50'

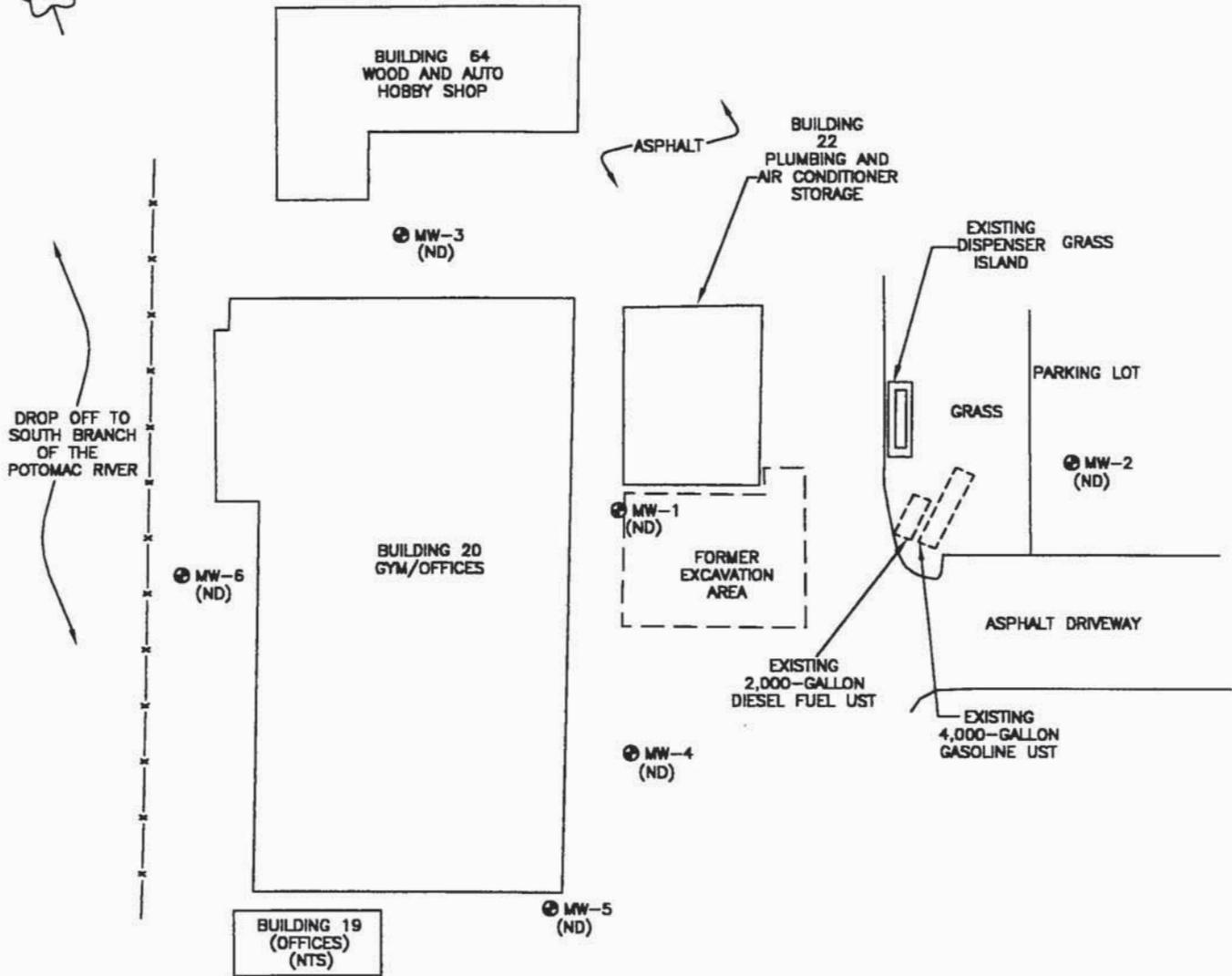
MID-ATLANTIC ASSOCIATES, INC.
Engineering & Environmental Solutions

ESTIMATED WATER TABLE
CONTOUR MAP—MAY 2003
NAVAL SECURITY GROUP
ACTIVITY
USTs 201 AND 202
SUGAR GROVE, WEST VIRGINIA

DRAWN BY: *[Signature]*
DRAFT CHECK:
ENG CHECK: *[Signature]*
APPROVAL: *EPA*

DATE: JUNE 2003
JOB NO: 000R1243.50
CAD NO: 01-124307-50
DWG NO: 2.1

REFERENCE: NFE SITE MAP DATED 1/23/02; MID-ATLANTIC FIELD NOTES & ON-SITE MEASUREMENTS.



WATER PLANT (NTS)

LEGEND

- ⊕ MW-1 (NTS) MONITORING WELL LOCATION
- ⊕ MW-2 (ND) NOT TO SCALE
- ⊕ MW-3 (ND) FENCE
- ⊕ MW-4 (ND) PAHs POLYNUCLEAR AROMATIC HYDROCARBONS
- ⊕ MW-5 (ND) (ND) NOT DETECTED ABOVE LABORATORY PRACTICAL QUANTITATION LIMIT (PQL)
- ⊕ MW-6 (ND)



MID-ATLANTIC ASSOCIATES, INC. <i>Engineering & Environmental Solutions</i>	TOTAL PAHs IN GROUNDWATER (mg/L) NAVAL SECURITY GROUP ACTIVITY USTs 201 AND 202 SUGAR GROVE, WEST VIRGINIA		DRAWN BY: <i>[Signature]</i>	DATE: JUNE 2003
			DRAFT CHECK:	JOB NO: 000R1243.50
			ENG CHECK: <i>[Signature]</i>	CAD NO: 01-124309-50
			APPROVAL: <i>[Signature]</i>	DWG NO: 3.2

REFERENCE: NFE SITE MAP DATED 1/23/02; MID-ATLANTIC FIELD NOTES & ON-SITE MEASUREMENTS.

TABLES

TABLE 2.1
SUMMARY OF GROUNDWATER DEPTH MEASUREMENTS, MAY 9, 2003
NAVAL SECURITY GROUP ACTIVITY
SUGAR GROVE, WEST VIRGINIA
WVDEP FACILITY NO. 3604470 / RELEASE NO. 93-048

Well ID	Top-of-Casing Elevation (ft.)*	Screen Interval (ft. bls)	Depth to Water, Below TOC (ft.)	Groundwater Table Elevation (ft.)
MW-1	99.97	1.8 - 11.8	4.10	95.87
MW-2	102.14	3.93 - 13.93	4.82	97.32
MW-3	99.77	1.45 - 6.45	2.70	97.07
MW-4	100.29	2.92 - 7.92	3.66	96.63
MW-5	100.29	1.03 - 10.03'	7.35	92.94
MW-6+	97.59	10 - 28	Equipment Malfunction	Not Calculated

*Top-of-casing (TOC) elevations calculated by R.E. Wright Associates, 1994, relative to an arbitrary 100 ft. benchmark.

+ Well screened in shale bedrock encountered at 7 ft. bls during drilling. Groundwater may originate from deeper water bearing zone. Well MW-6 sealing materials include grout from 0 to 6 ft. bls and bentonite clay from 6 to 8 ft. bls.

Equipment Malfunction - Water Level Meter malfunctioned. Would not sound due to moisture penetrating inside of meter.

bls - below land surface

NA - Not Available

NM - Depth to Water Not Measured

Date: July 2003Facility ID#: 3604470

Analytical Method →		PAH PA 9/625	PAH EPA 610/625	PAH EPA 610/625	PAH EPA 610/625
Contaminant of Concern		Chrysene	Fluoranthene	Indeno(1,2,3-c,d)pyrene	Pyrene
Well ID	Sample ID				
MW-1	MW-1	005	<.005	<.005	<.005
MW-2	MW-2	005	<.005	<.005	<.005
MW-3	MW-3	005	<.005*	<.005	<.005*
MW-4	MW-4	005	<.005	<.005	<.005
MW-5	MW-5	005	<.005	<.005	<.005
MW-6	MW-6	005	<.005	<.005	<.005
N/A	Trip Blank	NT	NT	NT	NT
N/A	Field Blank	005	<.005	<.005	<.005
West Virginia Groundwater Quality		Est.	Not Est.	Not Est.	Not Est.

Notes:

1 = West Virginia has adopted the F

2 = Methyl-tert-butyl ether (MTBE) and considered priorities for rulemaking consideration (EPA, 2003). A p

PAH = Polynuclear Aromatic Hydroc

TPH = Total Petroleum Hydrocarbon

<0.5 = Compound not detected at

mg/L = milligrams per liter

Not Est. = Not Established

NT = Sample not tested for this par

* = Contaminant detected between

+ = Groundwater sample for TPH, (

TABLE 3.2

YEAR-TO-DATE GROUNDWATER SAMPLING RESULTS (MG/L), MONITORING WELLS MW-1 THROUGH MW-6
 USTS 201 AND 202, NAVAL SECURITY GROUP ACTIVITY
 SUGAR GROVE, WEST VIRGINIA
 WVDEP FACILITY NO. 3604470 / RELEASE NO. 93-048
 MID-ATLANTIC JOB NO. 000R1243.50

Well Number	Sample Date	TPH, Diesel Fuel Range Organics (mg/L)	TPH, Gasoline Range Organics (mg/L)	MTBE (mg/L)	Benzo(a)anthracene (mg/L)	Benzo(b)fluoranthene (mg/L)	Benzo(g,h,i)perylene (mg/L)	Benzo(k)fluoranthene (mg/L)	0.0002	Chrysene (mg/L)	Fluoranthene (mg/L)	Ideno(1,2,3-cd)pyrene (mg/L)	Pyrene (mg/L)
		Not Est.	Not Est.	Not Est.	Not Est.	Not Est.	Not Est.	Not Est.	0.0002	Not Est.	Not Est.	Not Est.	Not Est.
MW-1	03/05/03	ND	ND	0.007	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-1	05/12/03	ND	ND	0.008	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-2	03/06/03	ND	ND	0.051	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-2	05/09/03	ND	ND	0.029	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-3	03/06/03	ND	ND	ND	.008 J	0.027	0.015	0.011	0.017	0.018	0.023	0.014	0.022
MW-3	5/9/03, 5/12/03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-4	03/05/03	ND	ND	0.013	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-4	05/12/03	ND	ND	0.028	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-5	03/05/03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-5	05/09/03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-6	03/05/03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-6	05/12/03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

- 1 = West Virginia has adopted the Federal (EPA) Drinking Water Standards as their Groundwater Quality Standards.
 J = Contaminant concentration detected below PQL but above laboratory method detection limit (MDL). Concentration Shown is Estimated.
 ND = Concentration not detected at or above laboratory practical quantitation limit (PQL) or method detection limit (for PAHs). See Table 3.1 of sampling reports for MDLs and PQLs.
 NT = Sample not tested for this parameter or laboratory test.
 Not Est. = Not established
 Bold values exceed WV Groundwater Quality Standards (WVGWQS)
 mg/L = milligrams per liter
 MTBE = methyl tertiary-butyl ether
 PAHs = Polynuclear Aromatic Hydrocarbons
 TPH = Total Petroleum Hydrocarbons

APPENDIX A

**QUARTERLY GROUNDWATER MONITORING LABORATORY REPORT
AND CHAIN OF CUSTODY RECORD**

PARADIGM ANALYTICAL LABORATORIES, INC.

5500 Business Drive
Wilmington, North Carolina 28405
(910) 350-1903
Fax (910) 350-1557



BY:.....

Mr. Dan Nielsen
Mid-Atlantic Associates
409 Rogersview Ct.
Raleigh, NC 27610

May 28, 2003

Report Number: G122-2154

Client Project ID: Sugar Grove, WV

Dear Mr. Nielsen,

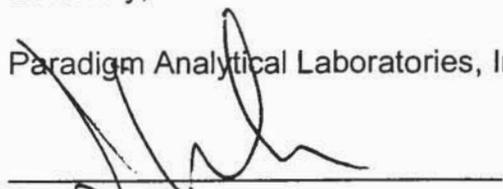
Enclosed are the results of the analytical services performed under the referenced project. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or the services performed during this project, please call for assistance. We will be happy to answer any questions or concerns which you may have.

Thank you for using Paradigm Analytical Labs for your analytical services. We look forward to working with you again on any additional analytical needs which you may have.

Sincerely,

Paradigm Analytical Laboratories, Inc.



Laboratory Director
J. Patrick Weaver

PARADIGM ANALYTICAL LABORATORIES, INC.
Results for Total Petroleum

Hydrocarbons

by GC

Client Sample ID: MW-2 Date Collected: 5/9/03
Client Project ID: Sugar Grove, WV Date Received: 5/13/03
Lab Sample ID: 72538 Analyzed By: BMS
Lab Project ID: G122-2154
Matrix: Water

Compound	Result (MG/L)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	0.5	5030	1.0	5/15/03
Diesel Range Organics	BQL	0.5	3510	1.0	5/14/03

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.
Results for Total Petroleum
Hydrocarbons
by GC

Client Sample ID: MW-5	Date Collected: 5/9/03
Client Project ID: Sugar Grove, WV	Date Received: 5/13/03
Lab Sample ID: 72541	Analyzed By: BMS
Lab Project ID: G122-2154	
Matrix: Water	

Compound	Result (MG/L)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	0.5	5030	1.0	5/15/03
Diesel Range Organics	BQL	0.5	3510	1.0	5/14/03

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.
Results for Total Petroleum
Hydrocarbons
by GC

Client Sample ID:	Field Blank	Date Collected:	5/12/03
Client Project ID:	Sugar Grove, WV	Date Received:	5/13/03
Lab Sample ID:	72544	Analyzed By:	BMS
Lab Project ID:	G122-2154		
Matrix:	Water		

Compound	Result (MG/L)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	0.5	5030	1.0	5/15/03
Diesel Range Organics	BQL	0.5	3510	1.0	5/14/03

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.
Results for Total Petroleum
Hydrocarbons
by GC

Client Sample ID: MW-3	Date Collected: 5/12/03
Client Project ID: Sugar Grove, WV	Date Received: 5/13/03
Lab Sample ID: 72545	Analyzed By: BMS
Lab Project ID: G122-2154	
Matrix: Water	

Compound	Result (MG/L)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	0.5	5030	1.0	5/15/03

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: MW-1
 Client Project ID: Sugar Grove, WV
 Lab Sample ID: 72537
 Lab Project ID: G122-2154

Analyzed By: DCS
 Date Collected: 5/12/03
 Date Received: 5/13/03
 Matrix: Water

Analyte	Result ug/L	Report Limit ug/L	Dilution Factor	Date Analyzed
Benzene	BQL	1.0	1	5/15/03
Diisopropyl ether (DIPE)	BQL	1.0	1	5/15/03
Ethylbenzene	BQL	1.0	1	5/15/03
Methyl-tert butyl ether (MTBE)	8.3	2.0	1	5/15/03
Toluene	BQL	1.0	1	5/15/03
m/p-Xylene	BQL	2.0	1	5/15/03
o-Xylene	BQL	2.0	1	5/15/03

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	41.2	103

Comments:

All values corrected for dilution.
 BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: MW-2
Client Project ID: Sugar Grove, WV
Lab Sample ID: 72538
Lab Project ID: G122-2154

Analyzed By: DCS
Date Collected: 5/9/03
Date Received: 5/13/03
Matrix: Water

Analyte	Result ug/L	Report Limit ug/L	Dilution Factor	Date Analyzed
Benzene	BQL	1.0	1	5/15/03
Diisopropyl ether (DIPE)	BQL	1.0	1	5/15/03
Ethylbenzene	BQL	1.0	1	5/15/03
Methyl-tert butyl ether (MTBE)	29	2.0	1	5/15/03
Toluene	BQL	1.0	1	5/15/03
m/p-Xylene	BQL	2.0	1	5/15/03
o-Xylene	BQL	2.0	1	5/15/03

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	39.9	99.8

Comments:

All values corrected for dilution.
BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: MW-4
 Client Project ID: Sugar Grove, WV
 Lab Sample ID: 72540
 Lab Project ID: G122-2154

Analyzed By: DCS
 Date Collected: 5/12/03
 Date Received: 5/13/03
 Matrix: Water

Analyte	Result ug/L	Report Limit ug/L	Dilution Factor	Date Analyzed
Benzene	BQL	1.0	1	5/15/03
Diisopropyl ether (DIPE)	BQL	1.0	1	5/15/03
Ethylbenzene	BQL	1.0	1	5/15/03
Methyl-tert butyl ether (MTBE)	28	2.0	1	5/15/03
Toluene	BQL	1.0	1	5/15/03
m/p-Xylene	BQL	2.0	1	5/15/03
o-Xylene	BQL	2.0	1	5/15/03

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	40.8	102

Comments:

All values corrected for dilution.
 BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: MW-5
Client Project ID: Sugar Grove, WV
Lab Sample ID: 72541
Lab Project ID: G122-2154

Analyzed By: DCS
Date Collected: 5/9/03
Date Received: 5/13/03
Matrix: Water

Analyte	Result ug/L	Report Limit ug/L	Dilution Factor	Date Analyzed
Benzene	BQL	1.0	1	5/15/03
Diisopropyl ether (DIPE)	BQL	1.0	1	5/15/03
Ethylbenzene	BQL	1.0	1	5/15/03
Methyl-tert butyl ether (MTBE)	BQL	2.0	1	5/15/03
Toluene	BQL	1.0	1	5/15/03
m/p-Xylene	BQL	2.0	1	5/15/03
o-Xylene	BQL	2.0	1	5/15/03

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	39.8	99.4

Comments:

All values corrected for dilution.
BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: MW-6
Client Project ID: Sugar Grove, WV
Lab Sample ID: 72542
Lab Project ID: G122-2154

Analyzed By: DCS
Date Collected: 5/12/03
Date Received: 5/13/03
Matrix: Water

Analyte	Result ug/L	Report Limit ug/L	Dilution Factor	Date Analyzed
Benzene	BQL	1.0	1	5/15/03
Diisopropyl ether (DIPE)	BQL	1.0	1	5/15/03
Ethylbenzene	BQL	1.0	1	5/15/03
Methyl-tert butyl ether (MTBE)	BQL	2.0	1	5/15/03
Toluene	BQL	1.0	1	5/15/03
m/p-Xylene	BQL	2.0	1	5/15/03
o-Xylene	BQL	2.0	1	5/15/03
Surrogate Spike Recoveries		Spike Added	Spike Result	Percent Recovery
Trifluorotoluene		40	39.9	99.7

Comments:

All values corrected for dilution.
BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: Trip Blank
Client Project ID: Sugar Grove, WV
Lab Sample ID: 72543
Lab Project ID: G122-2154

Analyzed By: DCS
Date Collected: 5/12/03
Date Received: 5/13/03
Matrix: Water

Analyte	Result ug/L	Report Limit ug/L	Dilution Factor	Date Analyzed
Benzene	BQL	1.0	1	5/16/03
Diisopropyl ether (DIPE)	BQL	1.0	1	5/16/03
Ethylbenzene	BQL	1.0	1	5/16/03
Methyl-tert butyl ether (MTBE)	BQL	2.0	1	5/16/03
Toluene	BQL	1.0	1	5/16/03
m/p-Xylene	BQL	2.0	1	5/16/03
o-Xylene	BQL	2.0	1	5/16/03

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.
BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: Field Blank
Client Project ID: Sugar Grove, WV
Lab Sample ID: 72544
Lab Project ID: G122-2154

Analyzed By: DCS
Date Collected: 5/12/03
Date Received: 5/13/03
Matrix: Water

Analyte	Result ug/L	Report Limit ug/L	Dilution Factor	Date Analyzed
Benzene	BQL	1.0	1	5/15/03
Diisopropyl ether (DIPE)	BQL	1.0	1	5/15/03
Ethylbenzene	BQL	1.0	1	5/15/03
Methyl-tert butyl ether (MTBE)	BQL	2.0	1	5/15/03
Toluene	BQL	1.0	1	5/15/03
m/p-Xylene	BQL	2.0	1	5/15/03
o-Xylene	BQL	2.0	1	5/15/03

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	40.8	102

Comments:

All values corrected for dilution.
BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: MW-3
Client Project ID: Sugar Grove, WV
Lab Sample ID: 72545
Lab Project ID: G122-2154

Analyzed By: DCS
Date Collected: 5/12/03
Date Received: 5/13/03
Matrix: Water

Analyte	Result ug/L	Report Limit ug/L	Dilution Factor	Date Analyzed
Benzene	BQL	1.0	1	5/15/03
Diisopropyl ether (DIPE)	BQL	1.0	1	5/15/03
Ethylbenzene	BQL	1.0	1	5/15/03
Methyl-tert butyl ether (MTBE)	BQL	2.0	1	5/15/03
Toluene	BQL	1.0	1	5/15/03
m/p-Xylene	BQL	2.0	1	5/15/03
o-Xylene	BQL	2.0	1	5/15/03

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.
BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: MW-1
 Client Project ID: Sugar Grove, WV
 Lab Sample ID: 72537
 Lab Project ID: G122-2154
 Matrix: Water

Date Collected: 5/12/2003
 Date Received: 5/13/2003
 Date Analyzed: 5/20/2003
 Analyzed By: MRC
 Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	5	BQL
Acenaphthylene	5	BQL
Anthracene	5	BQL
Benzo[a]anthracene	5	BQL
Benzo[a]pyrene	5	BQL
Benzo[b]fluoranthene	5	BQL
Benzo[g,h,i]perylene	5	BQL
Benzo[k]fluoranthene	5	BQL
Chrysene	5	BQL
Dibenzo[a,h]anthracene	5	BQL
Fluoranthene	5	BQL
Fluorene	5	BQL
Indeno(1,2,3-c,d)pyrene	5	BQL
1-Methylnaphthalene	5	BQL
2-Methylnaphthalene	5	BQL
Naphthalene	5	BQL
Phenanthrene	5	BQL
Pyrene	5	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.0	80
Nitrobenzene-d5	10	8.5	85
4-Terphenyl-d14	10	9.1	91

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: MRC

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: MW-2
 Client Project ID: Sugar Grove, WV
 Lab Sample ID: 72538
 Lab Project ID: G122-2154
 Matrix: Water

Date Collected: 5/9/2003
 Date Received: 5/13/2003
 Date Analyzed: 5/20/2003
 Analyzed By: MRC
 Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	5	BQL
Acenaphthylene	5	BQL
Anthracene	5	BQL
Benzo[a]anthracene	5	BQL
Benzo[a]pyrene	5	BQL
Benzo[b]fluoranthene	5	BQL
Benzo[g,h,i]perylene	5	BQL
Benzo[k]fluoranthene	5	BQL
Chrysene	5	BQL
Dibenzo[a,h]anthracene	5	BQL
Fluoranthene	5	BQL
Fluorene	5	BQL
Indeno(1,2,3-c,d)pyrene	5	BQL
1-Methylnaphthalene	5	BQL
2-Methylnaphthalene	5	BQL
Naphthalene	5	BQL
Phenanthrene	5	BQL
Pyrene	5	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.8	78
Nitrobenzene-d5	10	8.4	84
4-Terphenyl-d14	10	4.0	40

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: MRC

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: MW-3
 Client Project ID: Sugar Grove, WV
 Lab Sample ID: 72539
 Lab Project ID: G122-2154
 Matrix: Water

Date Collected: 5/9/2003
 Date Received: 5/13/2003
 Date Analyzed: 5/20/2003
 Analyzed By: MRC
 Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	5	BQL
Acenaphthylene	5	BQL
Anthracene	5	BQL
Benzo[a]anthracene	5	BQL
Benzo[a]pyrene	5	BQL
Benzo[b]fluoranthene	5	BQL
Benzo[g,h,i]perylene	5	BQL
Benzo[k]fluoranthene	5	BQL
Chrysene	5	BQL
Dibenzo[a,h]anthracene	5	BQL
Fluoranthene	5	BQL
Fluorene	5	BQL
Indeno(1,2,3-c,d)pyrene	5	BQL
1-Methylnaphthalene	5	BQL
2-Methylnaphthalene	5	BQL
Naphthalene	5	BQL
Phenanthrene	5	BQL
Pyrene	5	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.0	80
Nitrobenzene-d5	10	8.7	87
4-Terphenyl-d14	10	5.0	50

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: MRC

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: MW-4
 Client Project ID: Sugar Grove, WV
 Lab Sample ID: 72540
 Lab Project ID: G122-2154
 Matrix: Water

Date Collected: 5/12/2003
 Date Received: 5/13/2003
 Date Analyzed: 5/21/2003
 Analyzed By: MRC
 Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	5	BQL
Acenaphthylene	5	BQL
Anthracene	5	BQL
Benzo[a]anthracene	5	BQL
Benzo[a]pyrene	5	BQL
Benzo[b]fluoranthene	5	BQL
Benzo[g,h,i]perylene	5	BQL
Benzo[k]fluoranthene	5	BQL
Chrysene	5	BQL
Dibenzo[a,h]anthracene	5	BQL
Fluoranthene	5	BQL
Fluorene	5	BQL
Indeno(1,2,3-c,d)pyrene	5	BQL
1-Methylnaphthalene	5	BQL
2-Methylnaphthalene	5	BQL
Naphthalene	5	BQL
Phenanthrene	5	BQL
Pyrene	5	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.9	79
Nitrobenzene-d5	10	8.2	82
4-Terphenyl-d14	10	6.2	62

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: mrc

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: MW-5
 Client Project ID: Sugar Grove, WV
 Lab Sample ID: 72541
 Lab Project ID: G122-2154
 Matrix: Water

Date Collected: 5/9/2003
 Date Received: 5/13/2003
 Date Analyzed: 5/21/2003
 Analyzed By: MRC
 Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	5	BQL
Acenaphthylene	5	BQL
Anthracene	5	BQL
Benzo[a]anthracene	5	BQL
Benzo[a]pyrene	5	BQL
Benzo[b]fluoranthene	5	BQL
Benzo[g,h,i]perylene	5	BQL
Benzo[k]fluoranthene	5	BQL
Chrysene	5	BQL
Dibenzo[a,h]anthracene	5	BQL
Fluoranthene	5	BQL
Fluorene	5	BQL
Indeno(1,2,3-c,d)pyrene	5	BQL
1-Methylnaphthalene	5	BQL
2-Methylnaphthalene	5	BQL
Naphthalene	5	BQL
Phenanthrene	5	BQL
Pyrene	5	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.0	80
Nitrobenzene-d5	10	8.6	86
4-Terphenyl-d14	10	6.8	68

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: mrc

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: MW-6
 Client Project ID: Sugar Grove, WV
 Lab Sample ID: 72542
 Lab Project ID: G122-2154
 Matrix: Water

Date Collected: 5/12/2003
 Date Received: 5/13/2003
 Date Analyzed: 5/21/2003
 Analyzed By: MRC
 Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	5	BQL
Acenaphthylene	5	BQL
Anthracene	5	BQL
Benzo[a]anthracene	5	BQL
Benzo[a]pyrene	5	BQL
Benzo[b]fluoranthene	5	BQL
Benzo[g,h,i]perylene	5	BQL
Benzo[k]fluoranthene	5	BQL
Chrysene	5	BQL
Dibenzo[a,h]anthracene	5	BQL
Fluoranthene	5	BQL
Fluorene	5	BQL
Indeno(1,2,3-c,d)pyrene	5	BQL
1-Methylnaphthalene	5	BQL
2-Methylnaphthalene	5	BQL
Naphthalene	5	BQL
Phenanthrene	5	BQL
Pyrene	5	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.9	79
Nitrobenzene-d5	10	8.5	85
4-Terphenyl-d14	10	7.1	71

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: mrc

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: Field Blank
 Client Project ID: Sugar Grove, WV
 Lab Sample ID: 72544
 Lab Project ID: G122-2154
 Matrix: Water

Date Collected: 5/12/2003
 Date Received: 5/13/2003
 Date Analyzed: 5/21/2003
 Analyzed By: MRC
 Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	5	BQL
Acenaphthylene	5	BQL
Anthracene	5	BQL
Benzo[a]anthracene	5	BQL
Benzo[a]pyrene	5	BQL
Benzo[b]fluoranthene	5	BQL
Benzo[g,h,i]perylene	5	BQL
Benzo[k]fluoranthene	5	BQL
Chrysene	5	BQL
Dibenzo[a,h]anthracene	5	BQL
Fluoranthene	5	BQL
Fluorene	5	BQL
Indeno(1,2,3-c,d)pyrene	5	BQL
1-Methylnaphthalene	5	BQL
2-Methylnaphthalene	5	BQL
Naphthalene	5	BQL
Phenanthrene	5	BQL
Pyrene	5	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.6	76
Nitrobenzene-d5	10	8.1	81
4-Terphenyl-d14	10	9.2	92

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: MRC

Client: Mid-Atlantic Assoc. Project ID: Sugar Science UV Date: 5/9/03 Report To: Dan Miliser
 Address: 409 Regatta View Ct. Contact: Dan Miliser Turnaround: NORMAL
 Address: Raleigh, NC 27610 Phone: 919 250-9918 Job Number: 1293.50
 Quote #: --- Fax: 919 250-9950 P.O. Number: --- Invoice To: Same

Sample ID	Date	Time	Matrix	Preservatives		Analyses				Comments: Please specify any special reporting requirements
				ICR	HCL	3510	5030	602 MTC	XYLINS	
MW-1	5/12/03	1220	H ₂ O	X	X	X	X	X	X	6122-2154
MW-2	5/19/03	1600		X	X	X	X	X	X	5 ppb DL For bio List.
MW-3	5/19/03	1615		X	X	X	X	X	X	Water DITVS Sampled For hold Times.
MW-4	5/12/03	1150		X	X	X	X	X	X	
MW-5	5/19/03	1340		X	X	X	X	X	X	
MW-6	5/12/03 5/14/03	1130 1045		X	X	X	X	X	X	
Trip Blank	5/11/03	---		X	X	X	X	X	X	Trip Blank only for
Field Blank	5/12/03	---	H ₂ O	X	X	X	X	X	X	see per D. Nielsen
MW-3	5/12/03	11:05	M ₂ O	X	X	X	X	X	X	513B ag
Relinquished By	Date	Time	Received By	Date	Time	Temperature	State Certification Requested			
<i>[Signature]</i>	5/12/03	1760	Fed ex Air Bill #	840973636507	840973636518		NC <input checked="" type="checkbox"/> SC <input type="checkbox"/> Other <input type="checkbox"/>			
				840973636529			SEE REVERSE FOR TERMS AND CONDITIONS			

[Signature] ORIGINAL 5/13/03 10:05 AM C/8, 06°C, 0.4°C

PARADIGM ANALYTICAL LABORATORIES, INC.

5500 Business Drive
Wilmington, North Carolina 28405
(910) 350-1903
Fax (910) 350-1557

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AUG 01 2003

BY:.....

Mr. Eric Aufderhaar
Mid-Atlantic Associates
409 Rogersview Ct.
Raleigh, NC 27610

July 31, 2003

Report Number: G122-2154

Client Project ID: Sugar Grove, WV

RE: Revised Data

Dear Mr. Aufderhaar,

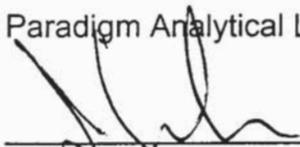
Enclosed are the results of the analytical services performed under the referenced project. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or the services performed during this project, please call for assistance. We will be happy to answer any questions or concerns which you may have.

Thank you for using Paradigm Analytical Labs for your analytical services. We look forward to working with you again on any additional analytical needs which you may have.

Sincerely,

Paradigm Analytical Laboratories, Inc.



Laboratory Director
J. Patrick Weaver

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: MW-1
 Client Project ID: Sugar Grove, WV
 Lab Sample ID: 72537
 Lab Project ID: G122-2154
 Matrix: Water

Date Collected: 5/12/03
 Date Received: 5/13/03
 Date Analyzed: 5/20/03
 Analyzed By: MRC
 Dilution: 1

Compound	Practical Quantitation Limit (ug/L)	Method Detection Limit (ug/L)	Result * (ug/L)
Acenaphthene	5	2.8	BQL
Acenaphthylene	5	2.9	BQL
Anthracene	5	2.7	BQL
Benzo[a]anthracene	5	1.8	BQL
Benzo[a]pyrene	5	3.1	BQL
Benzo[b]fluoranthene	5	2.5	BQL
Benzo[g,h,i]perylene	5	2.1	BQL
Benzo[k]fluoranthene	5	3.1	BQL
Chrysene	5	2.5	BQL
Dibenzo[a,h]anthracene	5	2	BQL
Fluoranthene	5	2.4	BQL
Fluorene	5	2.8	BQL
Indeno(1,2,3-c,d)pyrene	5	2.2	BQL
1-Methylnaphthalene	5	2.8	BQL
2-Methylnaphthalene	5	3	BQL
Naphthalene	5	3.1	BQL
Phenanthrene	5	2.3	BQL
Pyrene	5	2.6	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.0	80
Nitrobenzene-d5	10	8.5	85
4-Terphenyl-d14	10	9.1	91

Comments:

Results are corrected for %solids and dilution where applicable.

Flags: * = Reported to the Method Detection Limit (MDL)

BQL = Below Quantitation Limit.

J = Estimated value, detected value is below the instrument calibration limits.

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: MW-2
 Client Project ID: Sugar Grove, WV
 Lab Sample ID: 72538
 Lab Project ID: G122-2154
 Matrix: Water

Date Collected: 5/9/03
 Date Received: 5/13/03
 Date Analyzed: 5/20/03
 Analyzed By: MRC
 Dilution: 1

Compound	Practical Quantitation Limit (ug/L)	Method Detection Limit (ug/L)	Result * (ug/L)
Acenaphthene	5	2.8	BQL
Acenaphthylene	5	2.9	BQL
Anthracene	5	2.7	BQL
Benzo[a]anthracene	5	1.8	BQL
Benzo[a]pyrene	5	3.1	BQL
Benzo[b]fluoranthene	5	2.5	BQL
Benzo[g,h,i]perylene	5	2.1	BQL
Benzo[k]fluoranthene	5	3.1	BQL
Chrysene	5	2.5	BQL
Dibenzo[a,h]anthracene	5	2	BQL
Fluoranthene	5	2.4	BQL
Fluorene	5	2.8	BQL
Indeno(1,2,3-c,d)pyrene	5	2.2	BQL
1-Methylnaphthalene	5	2.8	BQL
2-Methylnaphthalene	5	3	BQL
Naphthalene	5	3.1	BQL
Phenanthrene	5	2.3	BQL
Pyrene	5	2.6	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.8	78
Nitrobenzene-d5	10	8.4	84
4-Terphenyl-d14	10	4.0	40

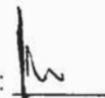
Comments:

Results are corrected for %solids and dilution where applicable.

Flags: * = Reported to the Method Detection Limit (MDL)

BQL = Below Quantitation Limit.

J = Estimated value, detected value is below the instrument calibration limits.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: MW-3
 Client Project ID: Sugar Grove, WV
 Lab Sample ID: 72539
 Lab Project ID: G122-2154
 Matrix: Water

Date Collected: 5/9/03
 Date Received: 5/13/03
 Date Analyzed: 5/20/03
 Analyzed By: MRC
 Dilution: 1

Compound	Practical Quantitation Limit (ug/L)	Method Detection Limit (ug/L)	Result * (ug/L)	
Acenaphthene	5	2.8	BQL	
Acenaphthylene	5	2.9	BQL	
Anthracene	5	2.7	BQL	
Benzo[a]anthracene	5	1.8	BQL	
Benzo[a]pyrene	5	3.1	BQL	
Benzo[b]fluoranthene	5	2.5	BQL	
Benzo[g,h,i]perylene	5	2.1	BQL	
Benzo[k]fluoranthene	5	3.1	BQL	
Chrysene	5	2.5	BQL	
Dibenzo[a,h]anthracene	5	2	BQL	
Fluoranthene	5	2.4	4.1	J
Fluorene	5	2.8	BQL	
Indeno(1,2,3-c,d)pyrene	5	2.2	BQL	
1-Methylnaphthalene	5	2.8	BQL	
2-Methylnaphthalene	5	3	BQL	
Naphthalene	5	3.1	BQL	
Phenanthrene	5	2.3	BQL	
Pyrene	5	2.6	3.2	J

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.0	80
Nitrobenzene-d5	10	8.7	87
4-Terphenyl-d14	10	5.0	50

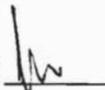
Comments:

Results are corrected for %solids and dilution where applicable.

Flags: * = Reported to the Method Detection Limit (MDL)

BQL = Below Quantitation Limit.

J = Estimated value, detected value is below the instrument calibration limits.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: MW-4
 Client Project ID: Sugar Grove, WV
 Lab Sample ID: 72540
 Lab Project ID: G122-2154
 Matrix: Water

Date Collected: 5/12/03
 Date Received: 5/13/03
 Date Analyzed: 5/21/03
 Analyzed By: MRC
 Dilution: 1

Compound	Practical Quantitation Limit (ug/L)	Method Detection Limit (ug/L)	Result *
Acenaphthene	5	2.8	BQL
Acenaphthylene	5	2.9	BQL
Anthracene	5	2.7	BQL
Benzo[a]anthracene	5	1.8	BQL
Benzo[a]pyrene	5	3.1	BQL
Benzo[b]fluoranthene	5	2.5	BQL
Benzo[g,h,i]perylene	5	2.1	BQL
Benzo[k]fluoranthene	5	3.1	BQL
Chrysene	5	2.5	BQL
Dibenzo[a,h]anthracene	5	2	BQL
Fluoranthene	5	2.4	BQL
Fluorene	5	2.8	BQL
Indeno(1,2,3-c,d)pyrene	5	2.2	BQL
1-Methylnaphthalene	5	2.8	BQL
2-Methylnaphthalene	5	3	BQL
Naphthalene	5	3.1	BQL
Phenanthrene	5	2.3	BQL
Pyrene	5	2.6	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.9	79
Nitrobenzene-d5	10	8.2	82
4-Terphenyl-d14	10	6.2	62

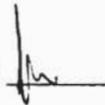
Comments:

Results are corrected for %solids and dilution where applicable.

Flags: * = Reported to the Method Detection Limit (MDL)

BQL = Below Quantitation Limit.

J = Estimated value, detected value is below the instrument calibration limits.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: MW-5

Client Project ID: Sugar Grove, WV

Lab Sample ID: 72541

Lab Project ID: G122-2154

Matrix: Water

Date Collected: 5/9/03

Date Received: 5/13/03

Date Analyzed: 5/21/03

Analyzed By: MRC

Dilution: 1

Compound	Practical Quantitation Limit (ug/L)	Method Detection Limit (ug/L)	Result *
Acenaphthene	5	2.8	BQL
Acenaphthylene	5	2.9	BQL
Anthracene	5	2.7	BQL
Benzo[a]anthracene	5	1.8	BQL
Benzo[a]pyrene	5	3.1	BQL
Benzo[b]fluoranthene	5	2.5	BQL
Benzo[g,h,i]perylene	5	2.1	BQL
Benzo[k]fluoranthene	5	3.1	BQL
Chrysene	5	2.5	BQL
Dibenzo[a,h]anthracene	5	2	BQL
Fluoranthene	5	2.4	BQL
Fluorene	5	2.8	BQL
Indeno(1,2,3-c,d)pyrene	5	2.2	BQL
1-Methylnaphthalene	5	2.8	BQL
2-Methylnaphthalene	5	3	BQL
Naphthalene	5	3.1	BQL
Phenanthrene	5	2.3	BQL
Pyrene	5	2.6	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.0	80
Nitrobenzene-d5	10	8.6	86
4-Terphenyl-d14	10	6.8	68

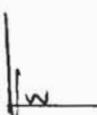
Comments:

Results are corrected for %solids and dilution where applicable.

Flags: * = Reported to the Method Detection Limit (MDL)

BQL = Below Quantitation Limit.

J = Estimated value, detected value is below the instrument calibration limits.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: MW-6
 Client Project ID: Sugar Grove, WV
 Lab Sample ID: 72542
 Lab Project ID: G122-2154
 Matrix: Water

Date Collected: 5/12/03
 Date Received: 5/13/03
 Date Analyzed: 5/21/03
 Analyzed By: MRC
 Dilution: 1

Compound	Practical Quantitation Limit (ug/L)	Method Detection Limit (ug/L)	Result * (ug/L)
Acenaphthene	5	2.8	BQL
Acenaphthylene	5	2.9	BQL
Anthracene	5	2.7	BQL
Benzo[a]anthracene	5	1.8	BQL
Benzo[a]pyrene	5	3.1	BQL
Benzo[b]fluoranthene	5	2.5	BQL
Benzo[g,h,i]perylene	5	2.1	BQL
Benzo[k]fluoranthene	5	3.1	BQL
Chrysene	5	2.5	BQL
Dibenzo[a,h]anthracene	5	2	BQL
Fluoranthene	5	2.4	BQL
Fluorene	5	2.8	BQL
Indeno(1,2,3-c,d)pyrene	5	2.2	BQL
1-Methylnaphthalene	5	2.8	BQL
2-Methylnaphthalene	5	3	BQL
Naphthalene	5	3.1	BQL
Phenanthrene	5	2.3	BQL
Pyrene	5	2.6	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.9	79
Nitrobenzene-d5	10	8.5	85
4-Terphenyl-d14	10	7.1	71

Comments:

Results are corrected for %solids and dilution where applicable.

Flags: * = Reported to the Method Detection Limit (MDL)

BQL = Below Quantitation Limit.

J = Estimated value, detected value is below the instrument calibration limits.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: Field Blank
 Client Project ID: Sugar Grove, WV
 Lab Sample ID: 72544
 Lab Project ID: G122-2154
 Matrix: Water

Date Collected: 5/12/03
 Date Received: 5/13/03
 Date Analyzed: 5/21/03
 Analyzed By: MRC
 Dilution: 1

Compound	Practical Quantitation Limit (ug/L)	Method Detection Limit (ug/L)	Result * (ug/L)
Acenaphthene	10	2.8	BQL
Acenaphthylene	10	2.9	BQL
Anthracene	10	2.7	BQL
Benzo[a]anthracene	10	1.8	BQL
Benzo[a]pyrene	10	3.1	BQL
Benzo[b]fluoranthene	10	2.5	BQL
Benzo[g,h,i]perylene	10	2.1	BQL
Benzo[k]fluoranthene	10	3.1	BQL
Chrysene	10	2.5	BQL
Dibenzo[a,h]anthracene	10	2	BQL
Fluoranthene	10	2.4	BQL
Fluorene	10	2.8	BQL
Indeno(1,2,3-c,d)pyrene	10	2.2	BQL
1-Methylnaphthalene	10	2.8	BQL
2-Methylnaphthalene	10	3	BQL
Naphthalene	10	3.1	BQL
Phenanthrene	10	2.3	BQL
Pyrene	10	2.6	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.6	76
Nitrobenzene-d5	10	8.1	81
4-Terphenyl-d14	10	9.2	92

Comments:

Results are corrected for %solids and dilution where applicable.

Flags: * = Reported to the Method Detection Limit (MDL)

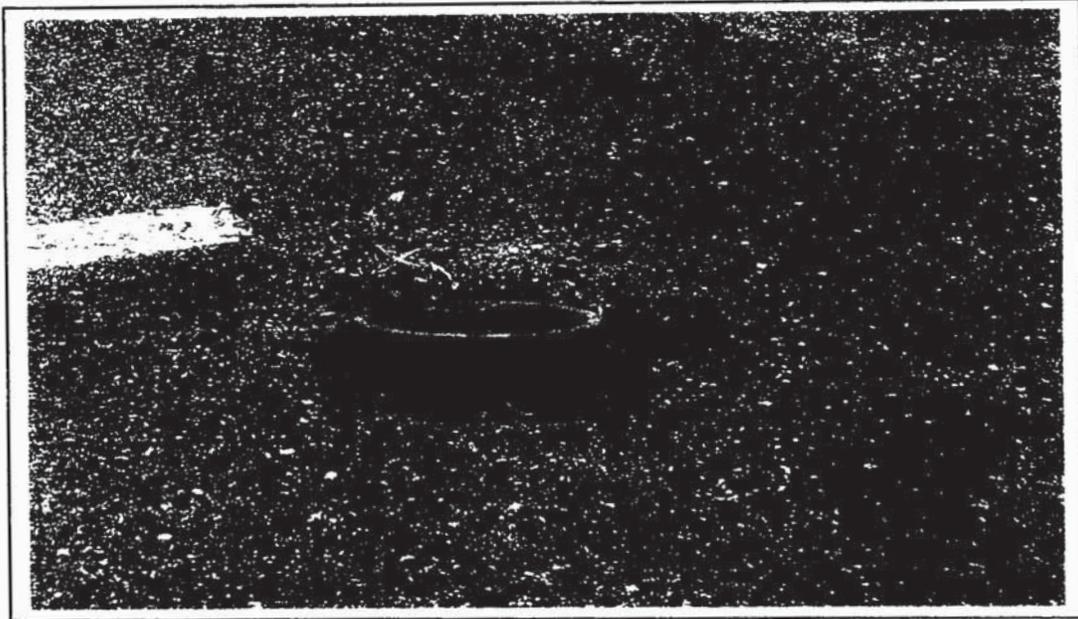
BQL = Below Quantitation Limit.

J = Estimated value, detected value is below the instrument calibration limits.

Reviewed By: MRC

APPENDIX B

**SITE PHOTOGRAPHS, WELL MW-3 WELLHEAD
(COURTESY OF NSGA)**



PHOTOGRAPH 1 - CLOSEUP PICTURE OF MW-3 WELLHEAD. THE FLUSHMOUNT COVER WILL NOT CLOSE DUE TO MINIMAL CLEARANCE BETWEEN THE TOP OF CASING AND GROUND SURFACE.



PHOTOGRAPH 2 - MORE DISTANT VIEW OF WELL MW-3 WELLHEAD. NSGA HAS PLACED A CONE OVER THE WELL TO TEMPORARILY MINIMIZE THE TRIP AND TRAFFIC HAZARD POSED BY THE WELL.

RECEIVED

MAY 14 2004

**FIRST QUARTER 2003
MONITORING REPORT
USTS 201 AND 202
NAVAL SECURITY GROUP ACTIVITY
SUGAR GROVE, WEST VIRGINIA
WVDEP FACILITY NO.: 3604470
WVDEP RELEASE NO.: 93-048**

MAY 30, 2003

CONTRACT NO.: N62470-01-D-3009
DELIVERY ORDER NO.: 0050
MID-ATLANTIC PROJECT NO.: 000R1243.50

- ① MW-3 had Benzo-A-pyrene above FDWS
② All other wells (5) meet FDWS (1.0K)

Prepared By:

Mid-Atlantic Associates, Inc.
409 Rogers View Court
Raleigh, North Carolina 27610
(919) 250-9918

MID-ATLANTIC
ASSOCIATES, INC.
Engineering & Environmental Solutions

409 Rogers View Court / Raleigh / North Carolina / 27610
800-486-7568 / 919-250-9918 / 919-250-9950 Facsimile
www.maaonline.com

**FIRST QUARTER 2003
MONITORING REPORT
USTS 201 AND 202
NAVAL SECURITY GROUP ACTIVITY
SUGAR GROVE, WEST VIRGINIA
WVDEP FACILITY NO.: 3604470
WVDEP RELEASE NO.: 93-048**

Mid-Atlantic Job No. 000R1243.50

May 30, 2003

Prepared For:

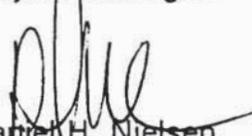
Commanding General
Naval Facilities Engineering Command
Atlantic Headquarters, Env. Division
Technical Services Branch
1510 Gilbert Street
Norfolk, Virginia 23511-6287

Prepared By:

MID-ATLANTIC ASSOCIATES, INC.



Eric B. Aufderhaar
Project Geologist



Daniel H. Nielsen
Principal Engineer

TABLE OF CONTENTS

1.0 INTRODUCTION	1
2.0 WATER TABLE AND FREE PRODUCT MEASUREMENTS	2
3.0 GROUNDWATER SAMPLING AND ANALYTICAL RESULTS	2
4.0 MAINTENANCE OF MONITORING WELLS	4
5.0 CONCLUSIONS AND RECOMMENDATIONS	4
6.0 REFERENCES CITED	5

DRAWINGS

Drawing 1.1	Topographic Site Location Map
Drawing 1.2	Monitoring Well and Sample Location Map
Drawing 2.1	Estimated Water Table Contour Map – March 2003
Drawing 3.1	MTBE in Groundwater (mg/L)
Drawing 3.2	Total PAHs in Groundwater (mg/L)

TABLES

Table 2.1	Summary of Groundwater Depth Measurements, March 5, 2003
Table 3.1	Summary of Quarterly Groundwater Sampling Results (mg/L)

APPENDICES

Appendix A	Quarterly Groundwater Monitoring Laboratory Analytical Report and Chain-of-Custody Record
------------	--

1.0 INTRODUCTION

Mid-Atlantic Associates, Inc. (Mid-Atlantic) was retained by Catlin Engineers & Scientists (CATLIN) to complete four quarterly monitoring events at the Naval Security Group Activity (NSGA), located approximately five miles north of Sugar Grove, West Virginia (Drawing 1.1). This report documents the results from our first quarterly monitoring event on March 5 - 6, 2003.

The subject site is the Naval Security Group Activity (NSGA), located near Sugar Grove, Pendleton County, West Virginia (Drawing 1.1). The NSGA military reservation is situated approximately five miles north of Sugar Grove on County Road 21. The South Branch of the Potomac River borders the west side of the NSGA property.

Six monitoring wells were installed at the NSGA in 1994 and 1996 following confirmation of a petroleum release in March 1993. The wells were installed in the vicinity of underground storage tanks (USTs) 201 and 202 formerly operated near Buildings 20 and 22 (Drawing 1.2). These buildings are used for a gymnasium and offices (Building 20) and a garage/paint storage facility (Building 22). Petroleum-contaminated soils were excavated in 1995 from a former pump island area located southwest of Building 22.

Site information provided to Mid-Atlantic included a January 2003 *Groundwater Monitoring and Sampling Report* (NFE, 2002), well construction records prepared by R.E. Wright Associates, Inc. and Bedford Environmental Drilling, Inc., and a June 12, 2002 letter from Mr. Jim Maurin, Project Manager, with the West Virginia Department of Environmental Protection (WVDEP). Based upon the WVDEP correspondence, a site assessment report was prepared in August 1996 (report author not known). Please reference the August 1996 and January 2002 reports for further site information.

Within the June 2002 letter, Mr. Maurin requested that LANTDIV continue with a quarterly monitoring program for the six wells at the site. He indicated that if groundwater sample laboratory results are below the Federal drinking water standards¹ for a minimum of four quarters, the site would be eligible for "No Further Action" consideration. In response to the WVDEP letter, LANTDIV authorized the monitoring program by issuing Delivery Order No. 0050 to CATLIN. CATLIN is the prime contractor under Navy Contract N62470-01-D-3009.

¹ According to Mr. Jim Maurin of the WVDEP, the State of West Virginia has adopted the Federal Drinking Water Standards established by the EPA as their groundwater quality standards.

2.0 WATER TABLE AND FREE PRODUCT MEASUREMENTS

On March 5 and 6, 2003, a representative of Mid-Atlantic visited the subject site for the purpose of collecting groundwater samples and to measure the depth to groundwater and free product thickness (if present) within site monitoring wells (Drawing 1.2). Well MW-4 was first uncovered by removing asphalt pavement that had been placed over its flush-mount well cover.

Depth to groundwater and free product (if present) measurements were obtained on March 5, 2003 using an electronic oil/water interface probe from a surveyed measuring point at the top of each well casing. This information is included in the summary of groundwater elevations table for this quarterly monitoring event (Table 2.1).

Groundwater flow direction for this monitoring event is shown on Drawing 2.1 and was prepared using the water elevation data from Table 2.1. The water table elevation data from monitoring well MW-6 was not used to generate this map since MW-6 is screened at a different elevation than the other shallow wells within shale bedrock. As shown, the shallow groundwater at the site is migrating in a generally westerly to northwesterly direction, which is consistent with the local topography. NFE identified a more westerly groundwater flow direction in their January 2002 report, however they did not include potentiometric data from well MW-4. At the time of NFE's well gauging event, well MW-4 was paved over with asphalt.

We did not identify a measurable thickness of free product in the six site monitoring wells.

3.0 GROUNDWATER SAMPLING AND ANALYTICAL RESULTS

The monitoring wells were purged for sample collection by removing three standing volumes of water from each well or until the well exhibited dryness. Only well MW-5 was purged of three well volumes. The other wells exhibited dryness after 1 to 8 gallons of water were removed. Well MW-3 most quickly exhibited dryness, after approximately one gallon of water was bailed from the well (we measured 1.69 feet of water in well MW-3 prior to purging). Well MW-3 also exhibited the slowest rate of groundwater recharge. We collected a groundwater sample from well MW-3 on the subsequent day (March 6, 2003) to obtain enough sample volume.

New nitrile gloves were worn by the sampler and a pre-cleaned Teflon or disposable bailer was used for purging and for collecting the groundwater samples. The groundwater samples were decanted into laboratory-supplied glassware, packed on ice and delivered under chain-of-custody to Paradigm Analytical Laboratories, Inc. (Paradigm) in Wilmington, NC. The groundwater samples were analyzed for gasoline range total petroleum hydrocarbons (TPH) according to EPA Method 5030; diesel fuel range TPH according to EPA Method 3510; purgeable aromatics including methyl-tert-butyl ether (MTBE) and diisopropyl ether according to EPA Method 602 and polynuclear aromatic hydrocarbons (PAHs) according to EPA method 625. PAH compounds were tested by EPA Method 625 (GCMS) to reduce error from "false positive" results. We originally requested Paradigm to test the samples by EPA Method 610. Laboratory personnel stated that the EPA Method 610 methodology does not permit confirmation of contaminant concentrations and is more appropriate for sites of known contaminants with known concentrations.

Paradigm is certified by the State of West Virginia to perform these laboratory tests under WVDEP Certificate No. 293 (see certification document within the laboratory report, Appendix A). The laboratory analytical results from analyses performed on the groundwater samples, in addition to the corresponding West Virginia Groundwater Quality Standards (WVGWQS), are summarized in Table 3.1. Copies of the laboratory analytical report and chain-of-custody from this sampling event are included in Appendix A.

An isoconcentration map for MTBE is shown in Drawing 3.1. As indicated by the drawing, concentrations of MTBE are limited in aerial extent. MTBE was detected above the laboratory practical quantitation limit (PQL) in groundwater samples MW-1 (.007 mg/L), MW-2 (.051 mg/L) and MW-4 (.013 mg/L). Currently, there is no WVGWQS for MTBE. The EPA has placed MTBE on the Drinking Water Contaminant Candidate List (CCL). The CCL includes contaminants that are considered priorities for establishment of future groundwater standards. The EPA did not specify a recommended groundwater standard for MTBE in the CCL. In 1997, EPA issued a Drinking Water Advisory and stated that there is little likelihood that MTBE concentrations between .020 and .040 mg/L would cause negative health effects (EPA, 2003). Other nearby states have established MTBE groundwater standards, suggested guidelines or advisory levels. These states include Kentucky (.050 mg/L), Virginia (.015 mg/L) and North Carolina (.200 mg/L) (EPA, 2001).

The distribution of total PAHs detected in the groundwater samples is shown on Drawing 3.2. Eight PAHs were detected in one well (MW-3) at concentrations above the laboratory PQLs. Groundwater standards have not been established for the PAH compounds, except for benzo[a]pyrene (.0002 mg/L). The laboratory reported

benzo[a]pyrene (BaP) at a concentration of 0.017 mg/L in groundwater sample MW-3. BaP was not detected in the other groundwater samples above the laboratory method detection limit (MDL) of .005 mg/L and PQL of .010 mg/L. The PQLs are shown on the laboratory report (Appendix A).

4.0 MAINTENANCE OF MONITORING WELLS

During sampling of the monitoring wells on March 5 - 6, 2003, we noted that a water-tight, expandable cap was not installed in groundwater monitoring well MW-3. Instead, we observed that a well cap had been improvised with several layers of duct tape pressed together into a round, cap-like shape. In April 2003, we purchased and sent a 4-inch diameter expandable well cap to our contact at the NSGA, Mr. Steve Niethamer. Mr. Niethamer replaced the duct tape cap with the expandable well cap, but then advised Mid-Atlantic that the manhole would not lie flush on top of the well vault. The expansion bolt in the center of the cap protruded above the well cap disc and prevented the cover from lying flush. Mid-Atlantic purchased a second expandable cap with a different, lower-profile design. We installed this well cap in MW-3 on May 9, 2003. Replacement of the well cap will prevent surface contaminants from migrating into the well.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the findings of this first quarterly sampling event, Mid-Atlantic provides the following conclusions.

- MTBE was detected in three groundwater samples at concentrations above the laboratory PQL of .002 mg/L. Concentrations ranged from .007 mg/L at well MW-1 to .051 mg/L at well MW-2. A WVGWQS has not been established for MTBE. Well MW-1 is located at the former release area (source area) while well MW-2 is located upgradient with respect to the local groundwater flow direction.
- Groundwater contaminants were reported by the laboratory in one groundwater sample (MW-3) at concentrations above the laboratory method detection limits (MDLs). The contaminants included nine PAH compounds: benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[g,h,i]perylene, benzo[k]fluoranthene, chrysene, fluoranthene, indeno(1,2,3-c,d)pyrene and pyrene. Benzo[a]pyrene was reported at a concentration of .017 mg/L, above the WVGWQS of .0002 mg/L.

- Well MW-3 is located hydraulically downgradient of the former fuel dispenser and two active, existing UST systems. However, other potential contaminant sources exist in the vicinity of the well. MW-3 is located near a building recently used as a vehicle maintenance facility. The PAH compounds reported in sample MW-3 are often associated with coal tar, coal tar pitch, creosote and petroleum asphalt (HHS, 2001). Groundwater samples from the monitoring wells installed closest to the former excavation area, MW-1 and MW-4, were not detected with TPH, VOC or PAH contaminants. Former and existing diesel fuel/gasoline USTs were located or are currently operated in the vicinity of wells MW-1 and MW-4. The absence of typical diesel fuel/gasoline petroleum-related contaminants within these wells support the notion of an alternate contaminant source for the PAH compounds detected in groundwater sample MW-3.
- The PAH compounds detected in groundwater sample MW-3 may be the result of surface water runoff that entered the inside annular space of well MW-3. We did not observe a water-tight, expandable well cap at the MW-3 well-head. Instead, a well cap had been fashioned out of duct tape. This duct tape well cap was replaced on May 9, 2003 with a four-inch diameter, expandable cap.

We recommend that LANTDIV submit this quarterly monitoring report to the WVDEP and continue with the three subsequent sampling events. On May 9th and 12th, 2003, we collected our second quarter groundwater samples at the NSGA site. In addition, Mid-Atlantic recommends that groundwater quality in well MW-3 be closely monitored to observe if PAH contaminant concentrations decrease due to the newly-installed expandable well cap. This evaluation would assist in identification of the PAH contaminant source.

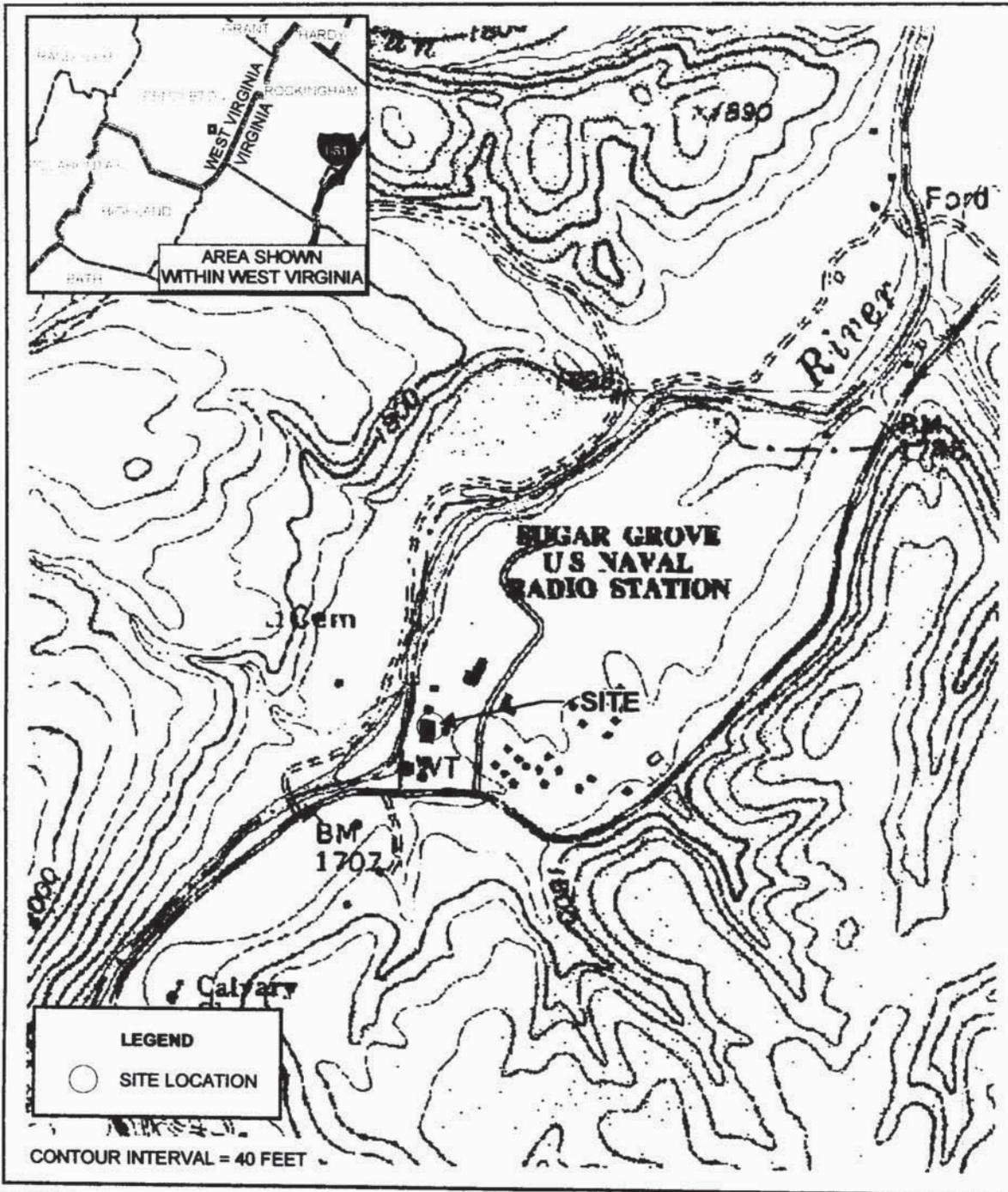
6.0 REFERENCES CITED

EPA, 2003, *MTBE (methyl tert-butyl ether) and Underground Storage Tanks*, Office of USTs, U.S. Environmental Protection Agency, March 10, 2003. [Internet Site: www.epa.gov/swerust1/mtbe/index.htm]

HHS, 2001, *Polycyclic Aromatic Hydrocarbons, 15 Listings* in Ninth Annual Report on Carcinogens, U.S. Department of Health and Human Services, Public Health Service, National Toxicology Program, January 2001.

NFE, 2002, *Groundwater Monitoring and Sampling Report*, U.S. Navy, NAVSECGRUACT, Sugar Grove, WV, NFE Technologies, Inc., January 2002.

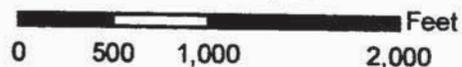
DRAWINGS



REFERENCES:

1. SUGAR GROVE, WV DIGITAL RASTER GRAPHIC, USGS. SCANNED FROM 1:24,000-SCALE SUGAR GROVE, WV TOPOGRAPHIC MAP, PUBLISHED 1989, PHOTOREVISED 1981, USGS. DOWNLOADED FROM WEST VIRGINIA DEP INTERNET SITE.
2. INSET MAP DIGITAL DATA FROM ESRI.

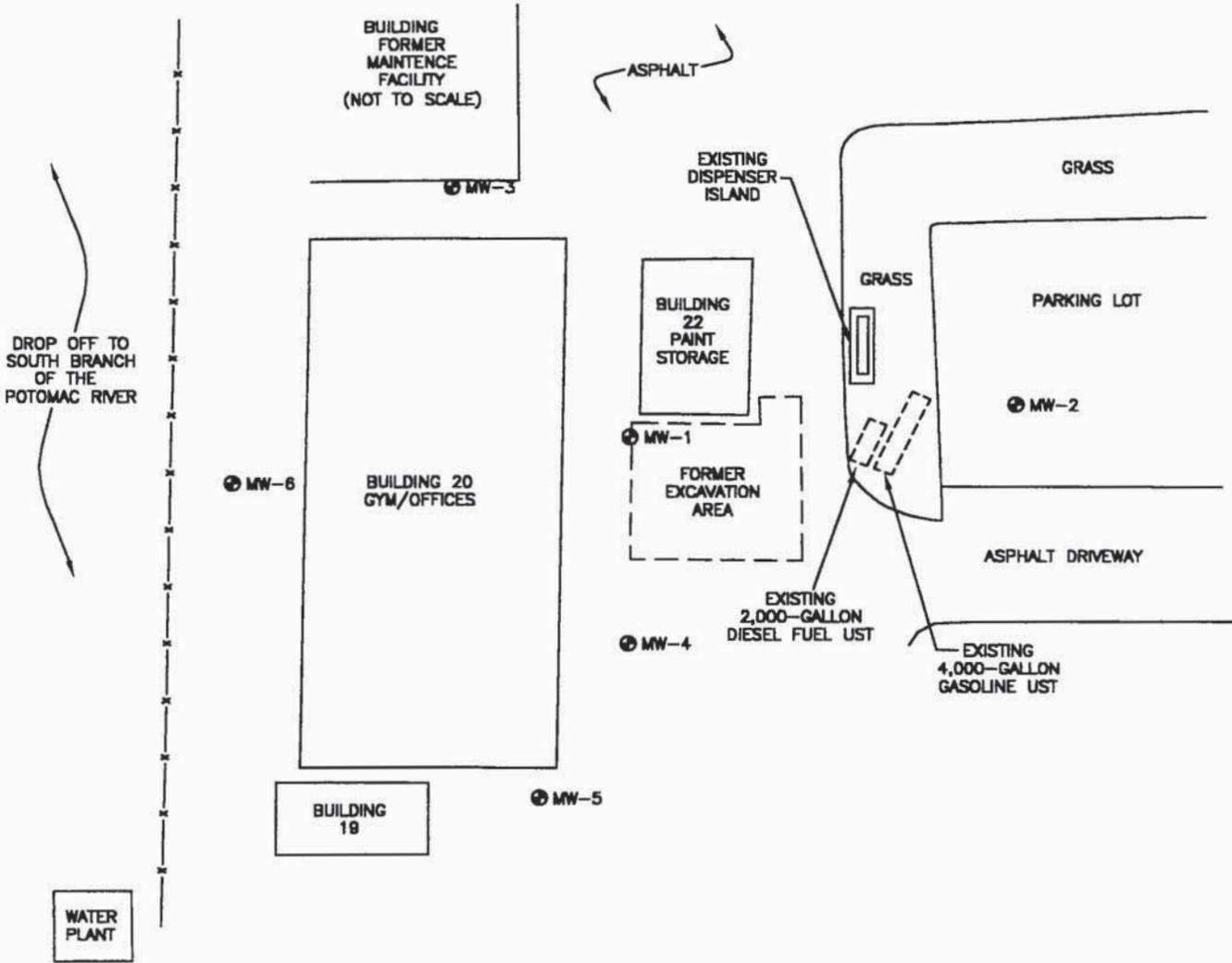
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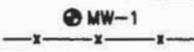
MID-ATLANTIC
ASSOCIATES, INC.
Environmental & Engineering Solutions

TOPOGRAPHIC SITE LOCATION MAP
USTS 201 AND 202
NAVAL SECURITY GROUP ACTIVITY
SUGAR GROVE, WEST VIRGINIA

DRAWN BY: <i>EJA</i>	DATE: MAY 2003
DRAFT CHECK:	JOB NO: 000R1243.50
ENG. CHECK: <i>DAU</i>	GIS NO: 01G-1243.50-1
APPROVAL: <i>EM</i>	DWG NO: 1.1



LEGEND



MONITORING WELL LOCATION
FENCE

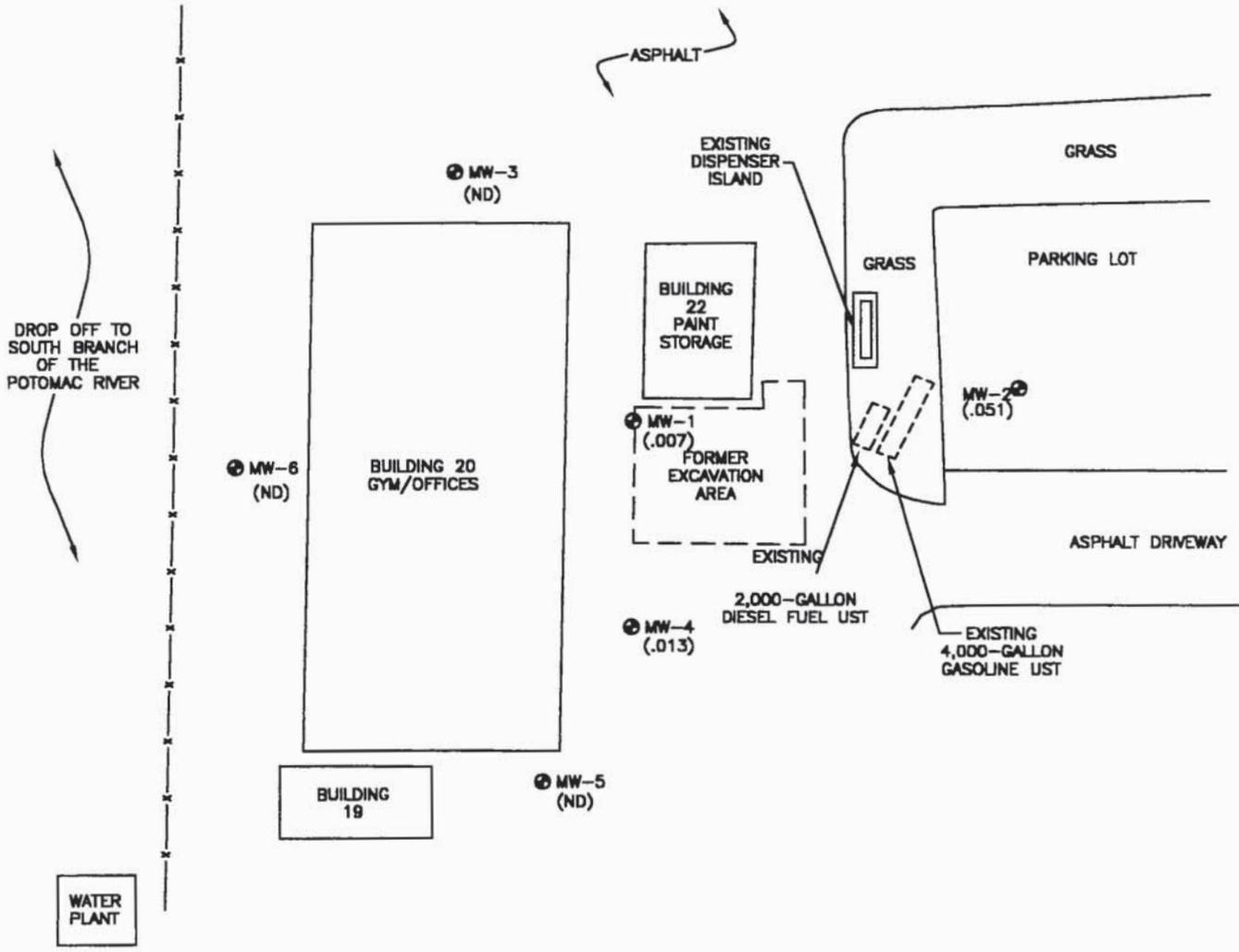


MID-ATLANTIC ASSOCIATES, INC.
Engineering & Environmental Solutions

MONITORING WELL AND SAMPLE LOCATION MAP
USTs 201 AND 202
NAVAL SECURITY GROUP
ACTIVITY
SUGAR GROVE, WEST VIRGINIA

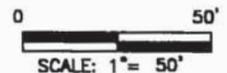
DRAWN BY: <i>[Signature]</i>	DATE: MAY 2003
DRAFT CHECK:	JOB NO: 000R1243.50
ENG CHECK: <i>[Signature]</i>	CAD NO: 01-124301-50
APPROVAL: <i>[Signature]</i>	DWG NO: 1.2

REFERENCE: NFE SITE MAP DATED 1/23/02; MID-ATLANTIC FIELD NOTES.



LEGEND

- ⊕ MW-1 MONITORING WELL LOCATION
- x—x—x—x— FENCE
- MTBE METHYL TERT-BUTYL ETHER
- (ND) NOT DETECTED
- (.007) MTBE CONCENTRATION, mg/L



MID-ATLANTIC ASSOCIATES, INC.
Engineering & Environmental Solutions

MTBE IN GROUNDWATER (mg/L)
 USTs 201 AND 202
 NAVAL SECURITY GROUP
 ACTIVITY
 SUGAR GROVE, WEST VIRGINIA

DRAWN BY: <i>[Signature]</i>	DATE: MAY 2003
DRAFT CHECK:	JOB NO: 000R1243.50
ENG CHECK: <i>[Signature]</i>	CAD NO: 01-124303-50
APPROVAL: <i>[Signature]</i>	DWG NO: 3.1

REFERENCE: NFE SITE MAP DATED 1/23/02; MID-ATLANTIC FIELD NOTES.

TABLES

TABLE 2.1
SUMMARY OF GROUNDWATER DEPTH MEASUREMENTS, MARCH 5, 2003
NAVAL SECURITY GROUP ACTIVITY
SUGAR GROVE, WEST VIRGINIA
WVDEP FACILITY NO. 3604470 / RELEASE NO. 93-048

Well ID	Top-of-Casing Elevation (ft.*)	Screen Interval (ft. bls)	Depth to Water, Below TOC (ft.)	Groundwater Table Elevation (ft.)
MW-1	99.97	1.8 - 11.8	3.28	96.69
MW-2	102.14	3.93 - 13.93	4.10	98.04
MW-3	99.77	1.45 - 6.45	4.75	95.02
MW-4	100.29	2.92 - 7.92	2.96	97.33
MW-5	100.29	1.03 - 10.03'	4.53	95.76
MW-6+	97.59	10 - 28	15.83	81.76

*Top-of-casing (TOC) elevations calculated by R.E. Wright Associates, 1994, relative to an arbitrary 100 ft. benchmark.

+ Well screened in shale bedrock encountered at 7 ft. bls during drilling. Groundwater may originate from deeper water bearing zone. Well MW-6 sealing materials include grout from 0 to 6 ft. bls and bentonite clay from 6 to 8 ft. bls.

bls - below land surface

NA - Not Available

NM - Depth to Water Not Measured

Date: May 2003

Facility ID#: 3604470

Analytical Method →		PAH EPA 161/625	PAH EPA 610/625	PAH EPA 610/625	PAH EPA 610/625
Contaminant of Concern		Chrysene	Fluoranthene	Indeno(1,2,3-c,d)pyrene	Pyrene
Well ID	Sample ID				
MW-1	MW-1	005	<.005	<.005	<.005
MW-2	MW-2	005	<.005	<.005	<.005
MW-3	MW-3	18	.023	.014	.022
MW-4	MW-4	005	<.005	<.005	<.005
MW-5	MW-5	005	<.005	<.005	<.005
MW-6	MW-6	005	<.005	<.005	<.005
N/A	Trip Blank	NT	NT	NT	NT
N/A	Field Blank	005	<.005	<.005	<.005
West Virginia Groundwater Quality Standard		Est.	Not Est.	Not Est.	Not Est.

Notes:

- 1 = West Virginia has adopted the Federal Maximum Contaminant Level (MCL) for this contaminant and considered priorities for rulemaking
- 2 = Methyl-tert-butyl ether (MTBE) is a priority contaminant for rulemaking consideration (EPA, 2003). A priority contaminant for rulemaking consideration (EPA, 2003). A priority contaminant for rulemaking consideration (EPA, 2003). A priority contaminant for rulemaking consideration (EPA, 2003).
- J = Contaminant concentration detected
- PAH = Polynuclear Aromatic Hydrocarbons
- TPH = Total Petroleum Hydrocarbons
- <0.5 = Compound not detected at 0.5 mg/L.
- mg/L = milligrams per liter
- Not Est. = Not Established
- NT = Sample not tested for this parameter
- Bold = Concentration is equal to or greater than the MCL

APPENDIX A

**QUARTERLY GROUNDWATER MONITORING LABORATORY REPORT
AND CHAIN OF CUSTODY RECORD**

PARADIGM ANALYTICAL LABORATORIES, INC.
2627 Northchase Parkway S.E.
Wilmington, North Carolina 28405
(910) 350-1903
Fax (910) 350-1557

RECEIVED
MAR 24 2003

BY:.....

Mr. Dan Nielsen
Mid-Atlantic Associates
409 Rogersview Ct.
Raleigh, NC 27610

March 24, 2003

Report Number: G122-2077

Client Project ID: Sugar Grove, WV

Dear Mr. Nielsen,

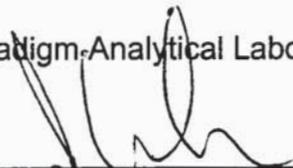
Enclosed are the results of the analytical services performed under the referenced project. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or the services performed during this project, please call for assistance. We will be happy to answer any questions or concerns which you may have.

Thank you for using Paradigm Analytical Labs for your analytical services. We look forward to working with you again on any additional analytical needs which you may have.

Sincerely,

Paradigm Analytical Laboratories, Inc.



Laboratory Director
J. Patrick Weaver

Attachment I

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

ANNUAL CERTIFIED PARAMETER LIST

for

PARADIGM ANALYTICAL LABORATORIES, INC.
Wilmington, North Carolina

PARAMETERS CERTIFIED

METALS(CVAA/GFAA/ICP/ICP-MS): Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc***

GC and GC/MS: Purgeable Halocarbons[EPA 601], Purgeable Aromatics[EPA 602], Halogenated and Aromatic Volatiles[8021B], Organochlorine Pesticides[8081A], Polychlorinated Biphenyls(PCB)[8082], Chlorinated Herbicides[8151A], Volatile Organic Compounds[EPA 624/8260B], Semivolatile Organic Compounds[EPA 625/8270C], Total Petroleum Hydrocarbons[8015B], EDB & DBCP[8011], Polynuclear Aromatic Hydrocarbons[8310]***

CHARACTERISTICS: Corrosivity[9045C], Paint Filter Liquids Test[9095A]***

TOXICITY: Toxicity Characteristic Leaching Procedure(TCLP)[1311]***

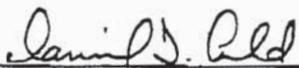
DIOXIN/FURAN: Polychlorinated dibenzo-*p*-dioxins and dibenzofurans(PCDD/Fs)[8280A/8290/1613*]***

* This certification does not include drinking water analysis.

This laboratory may test ONLY for those environmental parameters listed above for compliance reporting purposes. All testing must be by the test method cited in the current application for certification.

This Certification Expires: **December 31, 2003**

Certificate No. 293



December 31, 2002

Daniel T. Arnold
Quality Assurance Officer

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum
Hydrocarbons
by GC

Client Sample ID: MW-3
Client Project ID: Sugar Grove, WV
Lab Sample ID: 65275
Lab Project ID: G122-2077
Matrix: Water

Date Collected: 3/6/03
Date Received: 3/7/03
Analyzed By: BMS

Compound	Result (MG/L)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	0.5	5030	1.0	3/11/03
Diesel Range Organics	BQL	0.5	3510	1.0	3/11/03

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum
Hydrocarbons
by GC

Client Sample ID: MW-6 Date Collected: 3/5/03
Client Project ID: Sugar Grove, WV Date Received: 3/7/03
Lab Sample ID: 65278 Analyzed By: BMS
Lab Project ID: G122-2077
Matrix: Water

Compound	Result (MG/L)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	0.5	5030	1.0	3/11/03
Diesel Range Organics	BQL	0.5	3510	1.0	3/11/03

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum
Hydrocarbons
by GC

Client Sample ID: Field Blank Date Collected: 3/6/03
Client Project ID: Sugar Grove, WV Date Received: 3/7/03
Lab Sample ID: 65280 Analyzed By: BMS
Lab Project ID: G122-2077
Matrix: Water

Compound	Result (MG/L)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	0.5	5030	1.0	3/11/03
Diesel Range Organics	BQL	0.5	3510	1.0	3/11/03

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: MW-1

Analyzed By: DCS

Client Project ID: Sugar Grove, WV

Date Collected: 3/5/03

Lab Sample ID: 65273

Date Received: 3/7/03

Lab Project ID: G122-2077

Matrix: Water

Analyte	Result ug/L	Report Limit ug/L	Dilution Factor	Date Analyzed
Benzene	BQL	1	1	3/11/03
Diisopropyl ether (DIPE)	BQL	1	1	3/11/03
Ethylbenzene	BQL	1	1	3/11/03
Methyl-tert butyl ether (MTBE)	7	2	1	3/11/03
Toluene	BQL	1	1	3/11/03
m/p-Xylene	BQL	2	1	3/11/03
o-Xylene	BQL	2	1	3/11/03

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	40.6	101

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: MW-2

Analyzed By: JTF

Client Project ID: Sugar Grove, WV

Date Collected: 3/6/03

Lab Sample ID: 65274

Date Received: 3/7/03

Lab Project ID: G122-2077

Matrix: Water

Analyte	Result ug/L	Report Limit ug/L	Dilution Factor	Date Analyzed
Benzene	BQL	1.0	1	3/13/03
Diisopropyl ether (DIPE)	BQL	1.0	1	3/13/03
Ethylbenzene	BQL	1.0	1	3/13/03
Methyl-tert butyl ether (MTBE)	51	2.0	1	3/13/03
Toluene	BQL	1.0	1	3/13/03
m/p-Xylene	BQL	2.0	1	3/13/03
o-Xylene	BQL	2.0	1	3/13/03

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	40.8	102

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: MW-3

Analyzed By: JTF

Client Project ID: Sugar Grove, WV

Date Collected: 3/6/03

Lab Sample ID: 65275

Date Received: 3/7/03

Lab Project ID: G122-2077

Matrix: Water

Analyte	Result ug/L	Report Limit ug/L	Dilution Factor	Date Analyzed
Benzene	BQL	1.0	1	3/13/03
Diisopropyl ether (DIPE)	BQL	1.0	1	3/13/03
Ethylbenzene	BQL	1.0	1	3/13/03
Methyl-tert butyl ether (MTBE)	BQL	2.0	1	3/13/03
Toluene	BQL	1.0	1	3/13/03
m/p-Xylene	BQL	2.0	1	3/13/03
o-Xylene	BQL	2.0	1	3/13/03

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	40.7	102

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: MW-4

Analyzed By: DCS

Client Project ID: Sugar Grove, WV

Date Collected: 3/5/03

Lab Sample ID: 65276

Date Received: 3/7/03

Lab Project ID: G122-2077

Matrix: Water

Analyte	Result ug/L	Report Limit ug/L	Dilution Factor	Date Analyzed
Benzene	BQL	1.0	1	3/12/03
Diisopropyl ether (DIPE)	BQL	1.0	1	3/12/03
Ethylbenzene	BQL	1.0	1	3/12/03
Methyl-tert butyl ether (MTBE)	13	2.0	1	3/12/03
Toluene	BQL	1.0	1	3/12/03
m/p-Xylene	BQL	2.0	1	3/12/03
o-Xylene	BQL	2.0	1	3/12/03

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	39.2	98.0

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: MW-5

Analyzed By: DCS

Client Project ID: Sugar Grove, WV

Date Collected: 3/5/03

Lab Sample ID: 65277

Date Received: 3/7/03

Lab Project ID: G122-2077

Matrix: Water

Analyte	Result ug/L	Report Limit ug/L	Dilution Factor	Date Analyzed
Benzene	BQL	1.0	1	3/12/03
Diisopropyl ether (DIPE)	BQL	1.0	1	3/12/03
Ethylbenzene	BQL	1.0	1	3/12/03
Methyl-tert butyl ether (MTBE)	BQL	2.0	1	3/12/03
Toluene	BQL	1.0	1	3/12/03
m/p-Xylene	BQL	2.0	1	3/12/03
o-Xylene	BQL	2.0	1	3/12/03

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	39.3	98.2

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: MW-6

Analyzed By: DCS

Client Project ID: Sugar Grove, WV

Date Collected: 3/5/03

Lab Sample ID: 65278

Date Received: 3/7/03

Lab Project ID: G122-2077

Matrix: Water

Analyte	Result ug/L	Report Limit ug/L	Dilution Factor	Date Analyzed
Benzene	BQL	1.0	1	3/12/03
Diisopropyl ether (DIPE)	BQL	1.0	1	3/12/03
Ethylbenzene	BQL	1.0	1	3/12/03
Methyl-tert butyl ether (MTBE)	BQL	2.0	1	3/12/03
Toluene	BQL	1.0	1	3/12/03
m/p-Xylene	BQL	2.0	1	3/12/03
o-Xylene	BQL	2.0	1	3/12/03

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	40.2	100

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: Trip Blank

Analyzed By: DCS

Client Project ID: Sugar Grove, WV

Date Collected: 3/5/03

Lab Sample ID: 65279

Date Received: 3/7/03

Lab Project ID: G122-2077

Matrix: Water

Analyte	Result ug/L	Report Limit ug/L	Dilution Factor	Date Analyzed
Benzene	BQL	1.0	1	3/12/03
Diisopropyl ether (DIPE)	BQL	1.0	1	3/12/03
Ethylbenzene	BQL	1.0	1	3/12/03
Methyl-tert butyl ether (MTBE)	BQL	2.0	1	3/12/03
Toluene	BQL	1.0	1	3/12/03
m/p-Xylene	BQL	2.0	1	3/12/03
o-Xylene	BQL	2.0	1	3/12/03

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	39.7	99.2

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: Field Blank

Analyzed By: JTF

Client Project ID: Sugar Grove, WV

Date Collected: 3/6/03

Lab Sample ID: 65280

Date Received: 3/7/03

Lab Project ID: G122-2077

Matrix: Water

Analyte	Result ug/L	Report Limit ug/L	Dilution Factor	Date Analyzed
Benzene	BQL	1.0	1	3/13/03
Diisopropyl ether (DIPE)	BQL	1.0	1	3/13/03
Ethylbenzene	BQL	1.0	1	3/13/03
Methyl-tert butyl ether (MTBE)	BQL	2.0	1	3/13/03
Toluene	BQL	1.0	1	3/13/03
m/p-Xylene	BQL	2.0	1	3/13/03
o-Xylene	BQL	2.0	1	3/13/03

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	40.8	102

Comments:

All values corrected for dilution.

BQL = Below quantitation limit.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: MW-1
 Client Project ID: Sugar Grove, WV
 Lab Sample ID: 65273
 Lab Project ID: G122-2077
 Matrix: Water

Date Collected: 3/5/2003
 Date Received: 3/7/2003
 Date Analyzed: 3/13/2003
 Analyzed By: MRC
 Dilution: 1

Compound	Practical Quantitation Limit (ug/L)	Estimated Detection Limit (ug/L)	Result *
Acenaphthene	10	5	BQL
Anthracene	10	5	BQL
Benzo[a]anthracene	10	5	BQL
Benzo[a]pyrene	10	5	BQL
Benzo[b]fluoranthene	10	5	BQL
Benzo[g,h,i]perylene	10	5	BQL
Benzo[k]fluoranthene	10	5	BQL
Chrysene	10	5	BQL
Dibenzo[a,h]anthracene	10	5	BQL
Fluoranthene	10	5	BQL
Fluorene	10	5	BQL
Indeno(1,2,3-c,d)pyrene	10	5	BQL
1-Methylnaphthalene	10	5	BQL
2-Methylnaphthalene	10	5	BQL
Naphthalene	10	5	BQL
Pyrene	10	5	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.7	87
Nitrobenzene-d5	10	8.0	80
4-Terphenyl-d14	10	5.7	57

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

* = Reported to the Estimated Detection Limit (MDL)
 BQL = Below Quantitation Limit.
 J = Estimated value, detected value is below the instrument calibration limits.

Reviewed By: MRC

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: MW-3
 Client Project ID: Sugar Grove, WV
 Lab Sample ID: 65275
 Lab Project ID: G122-2077
 Matrix: Water

Date Collected: 3/6/2003
 Date Received: 3/7/2003
 Date Analyzed: 3/13/2003
 Analyzed By: MRC
 Dilution: 1

Compound	Practical Quantitation Limit (ug/L)	Estimated Detection Limit (ug/L)	Result * (ug/L)
Acenaphthene	10	5	BQL
Anthracene	10	5	BQL
Benzo[a]anthracene	10	5	8.3
Benzo[a]pyrene	10	5	17
Benzo[b]fluoranthene	10	5	27
Benzo[g,h,i]perylene	10	5	15
Benzo[k]fluoranthene	10	5	11
Chrysene	10	5	18
Dibenzo[a,h]anthracene	10	5	BQL
Fluoranthene	10	5	23
Fluorene	10	5	BQL
Indeno(1,2,3-c,d)pyrene	10	5	14
1-Methylnaphthalene	10	5	BQL
2-Methylnaphthalene	10	5	BQL
Naphthalene	10	5	BQL
Pyrene	10	5	22

J

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.5	75
Nitrobenzene-d5	10	8.0	80
4-Terphenyl-d14	10	2.6	26

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

* = Reported to the Estimated Detection Limit (MDL)

BQL = Below Quantitation Limit.

J = Estimated value, detected value is below the instrument calibration limits.

Reviewed By: MRC

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: MW-4
 Client Project ID: Sugar Grove, WV
 Lab Sample ID: 65276
 Lab Project ID: G122-2077
 Matrix: Water

Date Collected: 3/5/2003
 Date Received: 3/7/2003
 Date Analyzed: 3/13/2003
 Analyzed By: MRC
 Dilution: 1

Compound	Practical Quantitation Limit (ug/L)	Estimated Detection Limit (ug/L)	Result * (ug/L)
Acenaphthene	10	5	BQL
Anthracene	10	5	BQL
Benzo[a]anthracene	10	5	BQL
Benzo[a]pyrene	10	5	BQL
Benzo[b]fluoranthene	10	5	BQL
Benzo[g,h,i]perylene	10	5	BQL
Benzo[k]fluoranthene	10	5	BQL
Chrysene	10	5	BQL
Dibenzo[a,h]anthracene	10	5	BQL
Fluoranthene	10	5	BQL
Fluorene	10	5	BQL
Indeno(1,2,3-c,d)pyrene	10	5	BQL
1-Methylnaphthalene	10	5	BQL
2-Methylnaphthalene	10	5	BQL
Naphthalene	10	5	BQL
Pyrene	10	5	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.2	82
Nitrobenzene-d5	10	7.8	78
4-Terphenyl-d14	10	5.1	51

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

* = Reported to the Estimated Detection Limit (MDL)
 BQL = Below Quantitation Limit.
 J = Estimated value, detected value is below the instrument calibration limits.

Reviewed By: MRC

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: MW-5
 Client Project ID: Sugar Grove, WV
 Lab Sample ID: 65277
 Lab Project ID: G122-2077
 Matrix: Water

Date Collected: 3/5/2003
 Date Received: 3/7/2003
 Date Analyzed: 3/13/2003
 Analyzed By: MRC
 Dilution: 1

Compound	Practical Quantitation Limit (ug/L)	Estimated Detection Limit (ug/L)	Result * (ug/L)
Acenaphthene	10	5	BQL
Anthracene	10	5	BQL
Benzo[a]anthracene	10	5	BQL
Benzo[a]pyrene	10	5	BQL
Benzo[b]fluoranthene	10	5	BQL
Benzo[g,h,i]perylene	10	5	BQL
Benzo[k]fluoranthene	10	5	BQL
Chrysene	10	5	BQL
Dibenzo[a,h]anthracene	10	5	BQL
Fluoranthene	10	5	BQL
Fluorene	10	5	BQL
Indeno(1,2,3-c,d)pyrene	10	5	BQL
1-Methylnaphthalene	10	5	BQL
2-Methylnaphthalene	10	5	BQL
Naphthalene	10	5	BQL
Pyrene	10	5	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	6.8	68
Nitrobenzene-d5	10	6.2	62
4-Terphenyl-d14	10	9.5	95

Comments:

Results are corrected for %solids and dilution where applicable.

Flags: * = Reported to the Estimated Detection Limit (MDL)

BQL = Below Quantitation Limit.

J = Estimated value, detected value is below the instrument calibration limits.

Reviewed By: MRC

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: MW-6
 Client Project ID: Sugar Grove, WV
 Lab Sample ID: 65278
 Lab Project ID: G122-2077
 Matrix: Water

Date Collected: 3/5/2003
 Date Received: 3/7/2003
 Date Analyzed: 3/13/2003
 Analyzed By: MRC
 Dilution: 1

Compound	Practical Quantitation Limit (ug/L)	Estimated Detection Limit (ug/L)	Result * (ug/L)
Acenaphthene	10	5	BQL
Anthracene	10	5	BQL
Benzo[a]anthracene	10	5	BQL
Benzo[a]pyrene	10	5	BQL
Benzo[b]fluoranthene	10	5	BQL
Benzo[g,h,i]perylene	10	5	BQL
Benzo[k]fluoranthene	10	5	BQL
Chrysene	10	5	BQL
Dibenzo[a,h]anthracene	10	5	BQL
Fluoranthene	10	5	BQL
Fluorene	10	5	BQL
Indeno(1,2,3-c,d)pyrene	10	5	BQL
1-Methylnaphthalene	10	5	BQL
2-Methylnaphthalene	10	5	BQL
Naphthalene	10	5	BQL
Pyrene	10	5	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.0	80
Nitrobenzene-d5	10	7.1	71
4-Terphenyl-d14	10	8.1	81

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

* = Reported to the Estimated Detection Limit (MDL)

BQL = Below Quantitation Limit.

J = Estimated value, detected value is below the instrument calibration limits.

Reviewed By: MAC

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 625

Client Sample ID: Field Blank
 Client Project ID: Sugar Grove, WV
 Lab Sample ID: 65280
 Lab Project ID: G122-2077
 Matrix: Water

Date Collected: 3/6/2003
 Date Received: 3/7/2003
 Date Analyzed: 3/13/2003
 Analyzed By: MRC
 Dilution: 1

Compound	Practical Quantitation Limit (ug/L)	Estimated Detection Limit (ug/L)	Result *
Acenaphthene	10	5	BQL
Anthracene	10	5	BQL
Benzo[a]anthracene	10	5	BQL
Benzo[a]pyrene	10	5	BQL
Benzo[b]fluoranthene	10	5	BQL
Benzo[g,h,i]perylene	10	5	BQL
Benzo[k]fluoranthene	10	5	BQL
Chrysene	10	5	BQL
Dibenzo[a,h]anthracene	10	5	BQL
Fluoranthene	10	5	BQL
Fluorene	10	5	BQL
Indeno(1,2,3-c,d)pyrene	10	5	BQL
1-Methylnaphthalene	10	5	BQL
2-Methylnaphthalene	10	5	BQL
Naphthalene	10	5	BQL
Pyrene	10	5	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.9	79
Nitrobenzene-d5	10	7.1	71
4-Terphenyl-d14	10	10.4	104

Comments:

Results are corrected for %solids and dilution where applicable.

Flags: * = Reported to the Estimated Detection Limit (MDL)

BQL = Below Quantitation Limit.

J = Estimated value, detected value is below the instrument calibration limits.

Reviewed By: MRC

Client: Mid-Atlantic Associates Project ID: SUGAR GROVE, WV Date: 3/6/03 Report To: Don Nielsen
 Address: 409 Rogers View Court Contact: Don Nielsen Turnaround: NORMAL
 Address: Elizabeth, NC 27610 Phone: 919 250-4918 Job Number: 124350 Invoice To: SPAMD
 Note #: _____ Fax: 919 250-9950 P.O. Number: _____

Sample ID	Date	Time	Matrix	Preservatives		Analyses				Comments: Please specify any special reporting requirements
				ICE	HCL	3510	5030	602 MTRF+	KMIB	
MW-1	3/5/03	1300	H ₂ O	X	X	X	X	X	X	612-2077
MW-2	3/6/03	0840		X	X	X	X	X	X	Freez Food Rates. Navy rules per Dan Nielsen March 3/7/03
MW-3	3/6/03	0920		X	X	X	X	X	X	
MW-4	3/5/03	1430		X	X	X	X	X	X	
MW-5	3/5/03	1330		X	X	X	X	X	X	
MW-6	3/5/03	1400		X	X	X	X	X	X	
TRIP BLANK	3/5/03			X	X					
Field Blank	3/6/03	0700	H ₂ O	X	X	X	X	X	X	
Relinquished By				Date	Time	Received By	Date	Time	Temperature	State Certification Requested
<u>John P. [Signature]</u>				3/6/03	1700	<u>Feder [Signature]</u>	3/34 7000	2541	8°C	NC <input checked="" type="checkbox"/> SC <input type="checkbox"/> Other _____

SEE REVERSE FOR TERMS AND CONDITIONS

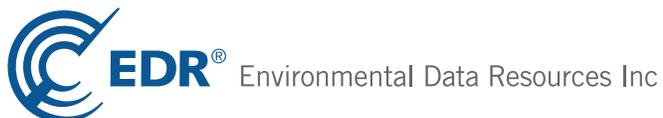
Appendix I
EDR Reports

- 1 - Radius Map with GeoCheck
- 2 - Historical Topographic Map Report
- 3 - Aerial Photographs
- 4 - Certified Sanborn Map Report
- 5 - City Directory Abstract

NSA Sugar Grove Lower Base
ECKARD ST
Sugar Grove, WV 26815

Inquiry Number: 3738459.2s
September 24, 2013

The EDR Radius Map™ Report with GeoCheck®



440 Wheelers Farms Road
Milford, CT 06461
Toll Free: 800.352.0050
www.edrnet.com

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Thank you for your business.
 Please contact EDR at 1-800-352-0050
 with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

ECKARD ST
SUGAR GROVE, WV 26815

COORDINATES

Latitude (North): 38.5697000 - 38° 34' 10.92"
Longitude (West): 79.2727000 - 79° 16' 21.72"
Universal Transverse Mercator: Zone 17
UTM X (Meters): 650480.6
UTM Y (Meters): 4270235.0
Elevation: 1733 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map: 38079-E3 SUGAR GROVE, WV
Most Recent Revision: 1981

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from: 2011, 2012
Source: USDA

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL..... National Priority List

EXECUTIVE SUMMARY

Proposed NPL..... Proposed National Priority List Sites
NPL LIENS..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL..... National Priority List Deletions

Federal CERCLIS list

CERCLIS..... Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY..... Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP..... CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG..... RCRA - Large Quantity Generators
RCRA-SQG..... RCRA - Small Quantity Generators
RCRA-CESQG..... RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

US ENG CONTROLS..... Engineering Controls Sites List
US INST CONTROL..... Sites with Institutional Controls
LUCIS..... Land Use Control Information System

Federal ERNS list

ERNS..... Emergency Response Notification System

State- and tribal - equivalent CERCLIS

SHWS..... This state does not maintain a SHWS list. See the Federal CERCLIS list and Federal NPL list.

State and tribal landfill and/or solid waste disposal site lists

SWF/LF..... List of M.S.W. Landfills/Transfer Station Listing
LCP..... Landfill Closure Program

State and tribal leaking storage tank lists

LUST..... Leaking Underground Storage Tanks
INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

UST..... Underground Storage Tank Database

EXECUTIVE SUMMARY

INDIAN UST..... Underground Storage Tanks on Indian Land
FEMA UST..... Underground Storage Tank Listing

State and tribal institutional control / engineering control registries

INST CONTROL..... Sites with Institutional Controls

State and tribal voluntary cleanup sites

VCP..... Voluntary Remediation Sites
INDIAN VCP..... Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

BROWNFIELDS..... Brownfields Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

ODI..... Open Dump Inventory
DEBRIS REGION 9..... Torres Martinez Reservation Illegal Dump Site Locations
INDIAN ODI..... Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL..... Clandestine Drug Labs
CDL..... Drug Lab Site Locations
US HIST CDL..... National Clandestine Laboratory Register

Local Land Records

LIENS 2..... CERCLA Lien Information

Records of Emergency Release Reports

HMIRS..... Hazardous Materials Information Reporting System
SPILLS..... Spills Listing

Other Ascertainable Records

RCRA NonGen / NLR..... RCRA - Non Generators
DOT OPS..... Incident and Accident Data
DOD..... Department of Defense Sites
FUDS..... Formerly Used Defense Sites
CONSENT..... Superfund (CERCLA) Consent Decrees
ROD..... Records Of Decision
UMTRA..... Uranium Mill Tailings Sites
US MINES..... Mines Master Index File
TRIS..... Toxic Chemical Release Inventory System

EXECUTIVE SUMMARY

TSCA.....	Toxic Substances Control Act
FTTS.....	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS.....	FIFRA/TSCA Tracking System Administrative Case Listing
SSTS.....	Section 7 Tracking Systems
ICIS.....	Integrated Compliance Information System
PADS.....	PCB Activity Database System
MLTS.....	Material Licensing Tracking System
RADINFO.....	Radiation Information Database
FINDS.....	Facility Index System/Facility Registry System
RAATS.....	RCRA Administrative Action Tracking System
RMP.....	Risk Management Plans
UIC.....	Underground Injection Wells
DRYCLEANERS.....	Listing of Drycleaner Locations
NPDES.....	Wastewater Discharge Permits Listing
AIRS.....	Permitted Facility and Emissions Listing
INDIAN RESERV.....	Indian Reservations
SCRD DRYCLEANERS.....	State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR.....	Financial Assurance Information
EPA WATCH LIST.....	EPA WATCH LIST
2020 COR ACTION.....	2020 Corrective Action Program List
PRP.....	Potentially Responsible Parties
US AIRS.....	Aerometric Information Retrieval System Facility Subsystem
LEAD SMELTERS.....	Lead Smelter Sites
Financial Assurance.....	Financial Assurance Information Listing
PCB TRANSFORMER.....	PCB Transformer Registration Database
COAL ASH DOE.....	Steam-Electric Plant Operation Data
COAL ASH EPA.....	Coal Combustion Residues Surface Impoundments List
COAL ASH.....	Coal Ash Landfills

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP.....	EDR Proprietary Manufactured Gas Plants
EDR US Hist Auto Stat.....	EDR Exclusive Historic Gas Stations
EDR US Hist Cleaners.....	EDR Exclusive Historic Dry Cleaners

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were not identified.

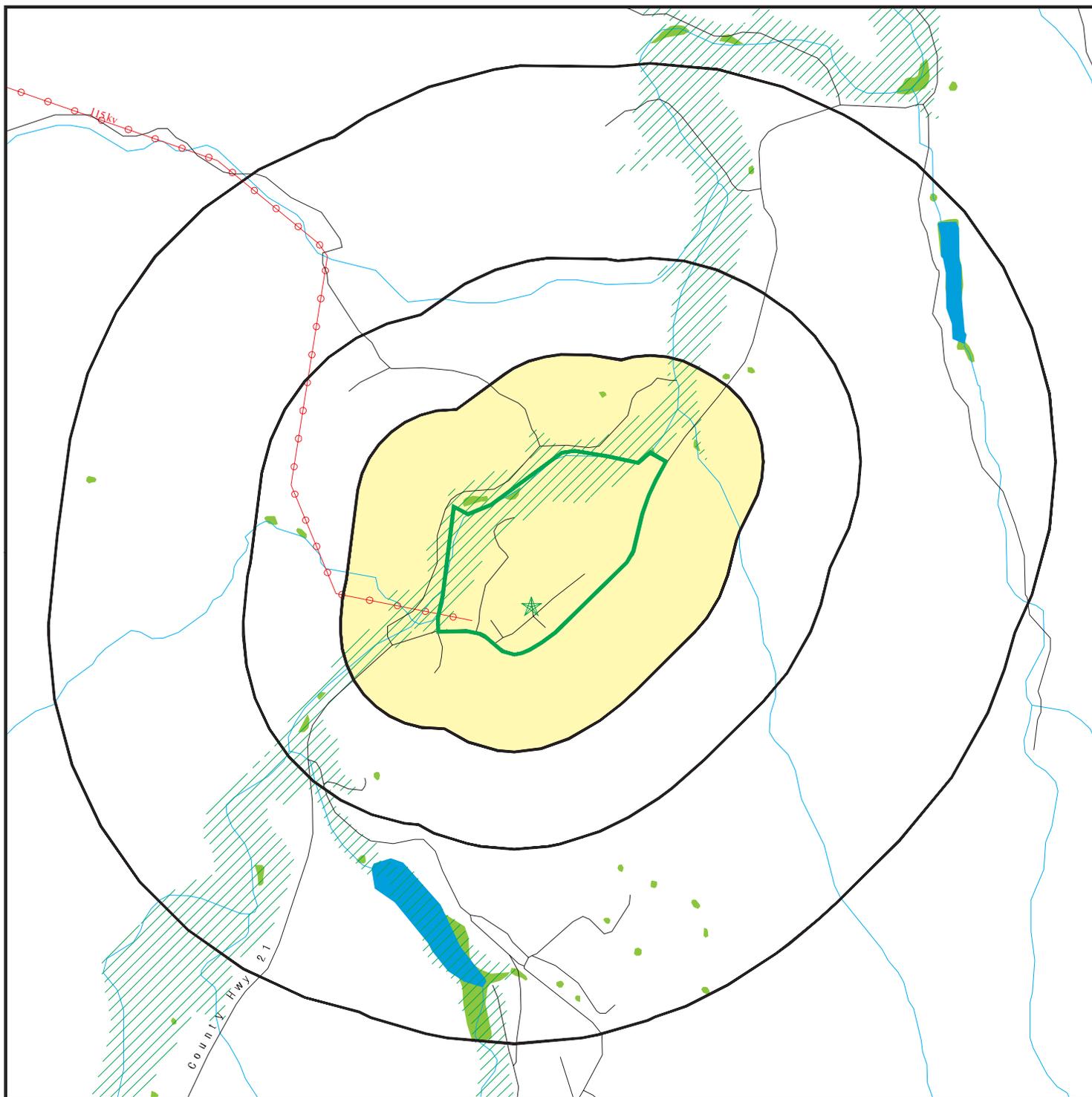
Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 10 records.

<u>Site Name</u>	<u>Database(s)</u>
SUGAR GROVE SUB-STATION	NPDES
SUGAR GROVE SUB-STATION	NPDES
SUGAR GROVE, WV NSGA	NPDES
NAVAL RADIO STATION SUGAR GROVE #2	CERC-NFRAP
NAVAL RADIO STATION SUGAR GROVE #1	CERC-NFRAP
SUGAR GROVE SUB STA 08363	LUST, UST
NIOC SUGAR GROVE	RCRA-CESQG, FINDS
SUGAR GROVE SUB-STATION	FINDS
NAVY INFORMATION OPERATIONS COMMAN	FINDS
FRANKLIN TO SUGAR GROVE TRANSM	FINDS

OVERVIEW MAP - 3738459.2s



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

Indian Reservations BIA

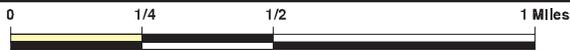
Power transmission lines

Oil & Gas pipelines from USGS

100-year flood zone

500-year flood zone

National Wetland Inventory

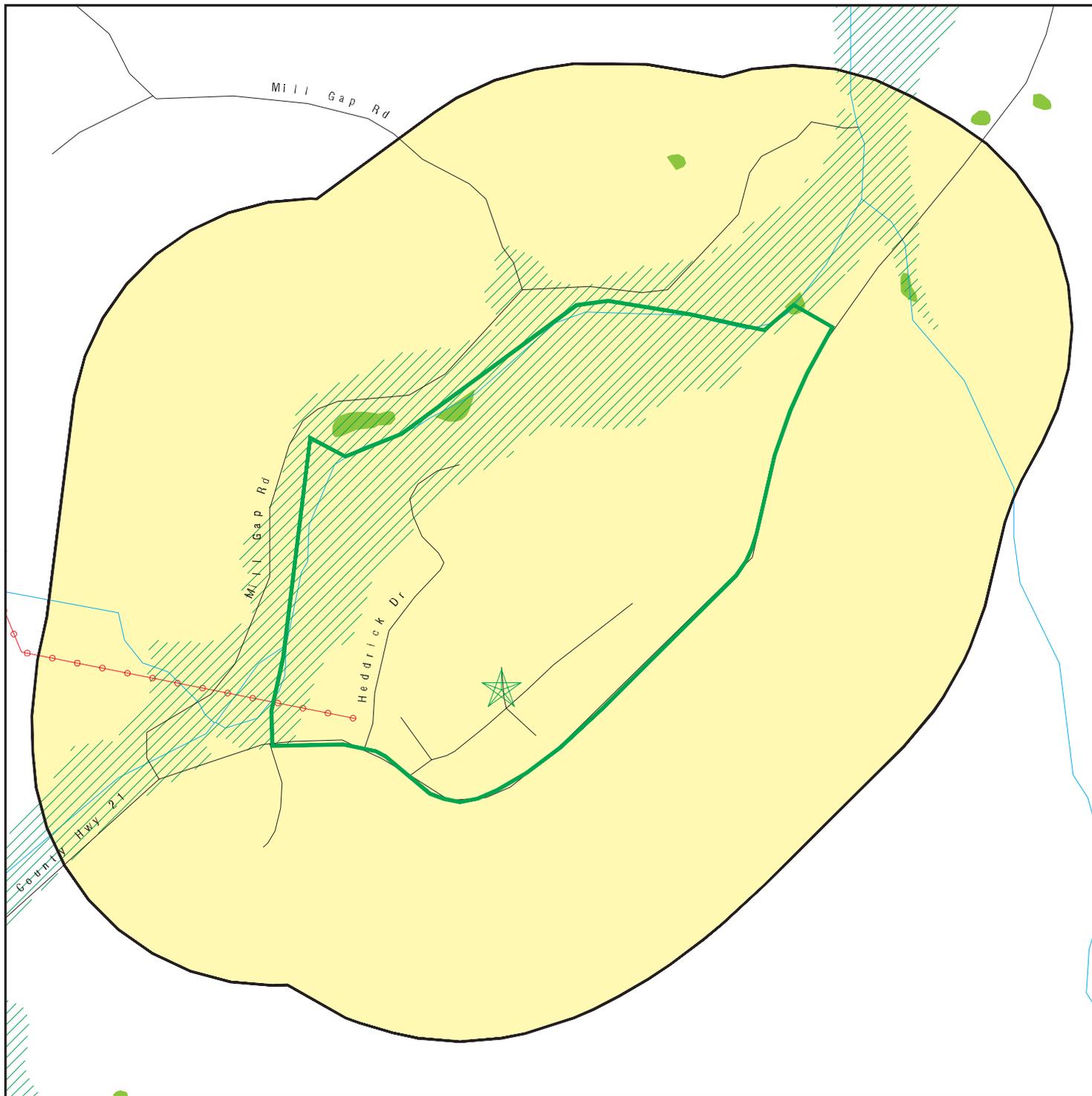


This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: NSA Sugar Grove Lower Base
 ADDRESS: ECKARD ST
 Sugar Grove WV 26815
 LAT/LONG: 38.5697 / 79.2727

CLIENT: Michael Baker Jr. Inc.
 CONTACT: William Harris
 INQUIRY #: 3738459.2s
 DATE: September 24, 2013 4:16 pm

DETAIL MAP - 3738459.2s



 Target Property

 Sites at elevations higher than or equal to the target property

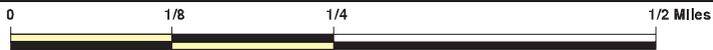
 Sites at elevations lower than the target property

 Manufactured Gas Plants

 Sensitive Receptors

 National Priority List Sites

 Dept. Defense Sites



 Indian Reservations BIA

 Power transmission lines

 Oil & Gas pipelines from USGS

 100-year flood zone

 500-year flood zone

 National Wetland Inventory



This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: NSA Sugar Grove Lower Base
 ADDRESS: ECKARD ST
 Sugar Grove WV 26815
 LAT/LONG: 38.5697 / 79.2727

CLIENT: Michael Baker Jr. Inc.
 CONTACT: William Harris
 INQUIRY #: 3738459.2s
 DATE: September 24, 2013 4:18 pm

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
<i>Federal NPL site list</i>								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
<i>Federal Delisted NPL site list</i>								
Delisted NPL	1.000		0	0	0	0	NR	0
<i>Federal CERCLIS list</i>								
CERCLIS	0.500		0	0	0	NR	NR	0
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
<i>Federal CERCLIS NFRAP site List</i>								
CERC-NFRAP	0.500		0	0	0	NR	NR	0
<i>Federal RCRA CORRACTS facilities list</i>								
CORRACTS	1.000		0	0	0	0	NR	0
<i>Federal RCRA non-CORRACTS TSD facilities list</i>								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
<i>Federal RCRA generators list</i>								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
<i>Federal institutional controls / engineering controls registries</i>								
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
LUCIS	0.500		0	0	0	NR	NR	0
<i>Federal ERNS list</i>								
ERNS	TP		NR	NR	NR	NR	NR	0
<i>State- and tribal - equivalent CERCLIS</i>								
SHWS	N/A		N/A	N/A	N/A	N/A	N/A	N/A
<i>State and tribal landfill and/or solid waste disposal site lists</i>								
SWF/LF	0.500		0	0	0	NR	NR	0
LCP	0.500		0	0	0	NR	NR	0
<i>State and tribal leaking storage tank lists</i>								
LUST	0.500		0	0	0	NR	NR	0
INDIAN LUST	0.500		0	0	0	NR	NR	0
<i>State and tribal registered storage tank lists</i>								
UST	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN UST	0.250		0	0	NR	NR	NR	0
FEMA UST	0.250		0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
INST CONTROL	0.500		0	0	0	NR	NR	0
State and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL	TP		NR	NR	NR	NR	NR	0
CDL	TP		NR	NR	NR	NR	NR	0
US HIST CDL	TP		NR	NR	NR	NR	NR	0
Local Land Records								
LIENS 2	TP		NR	NR	NR	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
SPILLS	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
DOD	1.000		0	0	0	0	NR	0
FUDS	1.000		0	0	0	0	NR	0
CONSENT	1.000		0	0	0	0	NR	0
ROD	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
HIST FTTS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
AIRS	TP		NR	NR	NR	NR	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
COAL ASH	0.500		0	0	0	NR	NR	0

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	1.000		0	0	0	0	NR	0
EDR US Hist Auto Stat	0.250		0	0	NR	NR	NR	0
EDR US Hist Cleaners	0.250		0	0	NR	NR	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

N/A = This State does not maintain a SHWS list. See the Federal CERCLIS list.

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

NO SITES FOUND

Count: 10 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
SUGAR GROVE	1015737383	NAVAL RADIO STATION SUGAR GROVE #2	RT 21	26815	CERC-NFRAP
SUGAR GROVE	S110125547	SUGAR GROVE SUB-STATION	CORD 21 N	26815	NPDES
SUGAR GROVE	S108351750	SUGAR GROVE SUB-STATION	CORD 21	26815	NPDES
SUGAR GROVE	1007219768	SUGAR GROVE SUB-STATION	CORD 21		FINDS
SUGAR GROVE	1000148289	NIOC SUGAR GROVE	38 N DEG 34 MIN 21	26815	RCRA-CESQG, FINDS
SUGAR GROVE	S109148348	SUGAR GROVE; WV NSGA	WV MIDWAY BETWEEN SUGAR GRV	26815	NPDES
SUGAR GROVE	1005902142	NAVY INFORMATION OPERATIONS COMMAN	WV MIDWAY BETWEEN SUGA		FINDS
SUGAR GROVE	1015855333	FRANKLIN TO SUGAR GROVE TRANSM	SUGAR GROVE RD		FINDS
SUGAR GROVE	1015737385	NAVAL RADIO STATION SUGAR GROVE #1	10 MI SW OF	26815	CERC-NFRAP
SUGAR GROVE	U003770240	SUGAR GROVE SUB STA 08363	S US NAVY STATION CIR		LUST, UST

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 04/26/2013	Source: EPA
Date Data Arrived at EDR: 05/09/2013	Telephone: N/A
Date Made Active in Reports: 07/10/2013	Last EDR Contact: 07/12/2013
Number of Days to Update: 62	Next Scheduled EDR Contact: 10/21/2013
	Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 04/26/2013	Source: EPA
Date Data Arrived at EDR: 05/09/2013	Telephone: N/A
Date Made Active in Reports: 07/10/2013	Last EDR Contact: 07/12/2013
Number of Days to Update: 62	Next Scheduled EDR Contact: 10/21/2013
	Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991	Source: EPA
Date Data Arrived at EDR: 02/02/1994	Telephone: 202-564-4267
Date Made Active in Reports: 03/30/1994	Last EDR Contact: 08/15/2011
Number of Days to Update: 56	Next Scheduled EDR Contact: 11/28/2011
	Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 04/26/2013	Source: EPA
Date Data Arrived at EDR: 05/09/2013	Telephone: N/A
Date Made Active in Reports: 07/10/2013	Last EDR Contact: 07/12/2013
Number of Days to Update: 62	Next Scheduled EDR Contact: 10/21/2013
	Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 04/26/2013	Source: EPA
Date Data Arrived at EDR: 05/29/2013	Telephone: 703-412-9810
Date Made Active in Reports: 08/09/2013	Last EDR Contact: 09/13/2013
Number of Days to Update: 72	Next Scheduled EDR Contact: 12/09/2013
	Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 07/31/2012	Source: Environmental Protection Agency
Date Data Arrived at EDR: 10/09/2012	Telephone: 703-603-8704
Date Made Active in Reports: 12/20/2012	Last EDR Contact: 07/08/2013
Number of Days to Update: 72	Next Scheduled EDR Contact: 10/21/2013
	Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 04/26/2013	Source: EPA
Date Data Arrived at EDR: 05/29/2013	Telephone: 703-412-9810
Date Made Active in Reports: 08/09/2013	Last EDR Contact: 09/13/2013
Number of Days to Update: 72	Next Scheduled EDR Contact: 12/09/2013
	Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 07/11/2013
Date Data Arrived at EDR: 08/08/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 36

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 07/11/2013
Date Data Arrived at EDR: 08/08/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 36

Source: Environmental Protection Agency
Telephone: 800-438-2474
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 07/11/2013
Date Data Arrived at EDR: 08/08/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 36

Source: Environmental Protection Agency
Telephone: 800-438-2474
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 07/11/2013
Date Data Arrived at EDR: 08/08/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 36

Source: Environmental Protection Agency
Telephone: 800-438-2474
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 07/11/2013
Date Data Arrived at EDR: 08/08/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 36

Source: Environmental Protection Agency
Telephone: 800-438-2474
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 03/14/2013	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/29/2013	Telephone: 703-603-0695
Date Made Active in Reports: 05/10/2013	Last EDR Contact: 09/10/2013
Number of Days to Update: 42	Next Scheduled EDR Contact: 12/23/2013
	Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 03/14/2013	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/29/2013	Telephone: 703-603-0695
Date Made Active in Reports: 05/10/2013	Last EDR Contact: 09/10/2013
Number of Days to Update: 42	Next Scheduled EDR Contact: 12/23/2013
	Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005	Source: Department of the Navy
Date Data Arrived at EDR: 12/11/2006	Telephone: 843-820-7326
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 08/15/2013
Number of Days to Update: 31	Next Scheduled EDR Contact: 09/02/2013
	Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2012	Source: National Response Center, United States Coast Guard
Date Data Arrived at EDR: 01/17/2013	Telephone: 202-267-2180
Date Made Active in Reports: 02/15/2013	Last EDR Contact: 07/01/2013
Number of Days to Update: 29	Next Scheduled EDR Contact: 10/14/2013
	Data Release Frequency: Annually

State- and tribal - equivalent CERCLIS

SHWS: This state does not maintain a SHWS list. See the Federal CERCLIS list and Federal NPL list.

State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: N/A	Source: Department of Environmental Protection
Date Data Arrived at EDR: N/A	Telephone: 304-926-0455
Date Made Active in Reports: N/A	Last EDR Contact: 09/10/2013
Number of Days to Update: N/A	Next Scheduled EDR Contact: 12/09/2013
	Data Release Frequency: N/A

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: List of M.S.W. Landfills/Transfer Station Listing

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 01/04/2011	Source: Division of Environmental Protection
Date Data Arrived at EDR: 01/11/2011	Telephone: 304-926-0499
Date Made Active in Reports: 03/04/2011	Last EDR Contact: 06/28/2013
Number of Days to Update: 52	Next Scheduled EDR Contact: 10/14/2013
	Data Release Frequency: Varies

LCP: Landfill Closure Program

The WV DEP's LCAP aids the owners/permittees of landfills that were required to cease operations because of certain statutory closure deadlines for non-composite lined facilities

Date of Government Version: 12/31/2012	Source: Department of Environmental Protection
Date Data Arrived at EDR: 03/13/2013	Telephone: 304-926-0499
Date Made Active in Reports: 04/04/2013	Last EDR Contact: 09/10/2013
Number of Days to Update: 22	Next Scheduled EDR Contact: 12/23/2013
	Data Release Frequency: Annually

State and tribal leaking storage tank lists

LUST: Leaking Underground Storage Tanks

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 03/27/2013	Source: Division of Environmental Protection
Date Data Arrived at EDR: 06/07/2013	Telephone: 304-926-0455
Date Made Active in Reports: 07/22/2013	Last EDR Contact: 09/05/2013
Number of Days to Update: 45	Next Scheduled EDR Contact: 12/16/2013
	Data Release Frequency: Semi-Annually

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 08/27/2012	Source: EPA Region 8
Date Data Arrived at EDR: 08/28/2012	Telephone: 303-312-6271
Date Made Active in Reports: 10/16/2012	Last EDR Contact: 07/24/2013
Number of Days to Update: 49	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 12/31/2012	Source: EPA Region 7
Date Data Arrived at EDR: 02/28/2013	Telephone: 913-551-7003
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 07/24/2013
Number of Days to Update: 43	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 02/05/2013	Source: EPA Region 10
Date Data Arrived at EDR: 02/06/2013	Telephone: 206-553-2857
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 07/24/2013
Number of Days to Update: 65	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 03/01/2013	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/01/2013	Telephone: 415-972-3372
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 07/24/2013
Number of Days to Update: 42	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Quarterly

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 09/28/2012	Source: EPA Region 1
Date Data Arrived at EDR: 11/01/2012	Telephone: 617-918-1313
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 08/02/2013
Number of Days to Update: 162	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 02/06/2013	Source: EPA Region 4
Date Data Arrived at EDR: 02/08/2013	Telephone: 404-562-8677
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 07/24/2013
Number of Days to Update: 63	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Semi-Annually

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 09/12/2011	Source: EPA Region 6
Date Data Arrived at EDR: 09/13/2011	Telephone: 214-665-6597
Date Made Active in Reports: 11/11/2011	Last EDR Contact: 07/24/2013
Number of Days to Update: 59	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Varies

State and tribal registered storage tank lists

UST: Underground Storage Tank Database

Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 03/05/2013	Source: Division of Environmental Protection
Date Data Arrived at EDR: 03/07/2013	Telephone: 304-926-0495
Date Made Active in Reports: 04/05/2013	Last EDR Contact: 09/03/2013
Number of Days to Update: 29	Next Scheduled EDR Contact: 12/16/2013
	Data Release Frequency: Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 09/28/2012	Source: EPA, Region 1
Date Data Arrived at EDR: 11/07/2012	Telephone: 617-918-1313
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 08/02/2013
Number of Days to Update: 156	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 02/06/2013	Source: EPA Region 4
Date Data Arrived at EDR: 02/08/2013	Telephone: 404-562-9424
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 07/24/2013
Number of Days to Update: 63	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 08/02/2012	Source: EPA Region 5
Date Data Arrived at EDR: 08/03/2012	Telephone: 312-886-6136
Date Made Active in Reports: 11/05/2012	Last EDR Contact: 07/24/2013
Number of Days to Update: 94	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 05/10/2011	Source: EPA Region 6
Date Data Arrived at EDR: 05/11/2011	Telephone: 214-665-7591
Date Made Active in Reports: 06/14/2011	Last EDR Contact: 07/24/2013
Number of Days to Update: 34	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Semi-Annually

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 12/31/2012	Source: EPA Region 7
Date Data Arrived at EDR: 02/28/2013	Telephone: 913-551-7003
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 07/24/2013
Number of Days to Update: 43	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 08/27/2012	Source: EPA Region 8
Date Data Arrived at EDR: 08/28/2012	Telephone: 303-312-6137
Date Made Active in Reports: 10/16/2012	Last EDR Contact: 07/24/2013
Number of Days to Update: 49	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 02/05/2013	Source: EPA Region 10
Date Data Arrived at EDR: 02/06/2013	Telephone: 206-553-2857
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 07/24/2013
Number of Days to Update: 65	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 02/21/2013	Source: EPA Region 9
Date Data Arrived at EDR: 02/26/2013	Telephone: 415-972-3368
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 07/24/2013
Number of Days to Update: 45	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Quarterly

FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010	Source: FEMA
Date Data Arrived at EDR: 02/16/2010	Telephone: 202-646-5797
Date Made Active in Reports: 04/12/2010	Last EDR Contact: 07/19/2013
Number of Days to Update: 55	Next Scheduled EDR Contact: 10/28/2013
	Data Release Frequency: Varies

State and tribal institutional control / engineering control registries

INST CONTROL: Sites with Institutional Controls

Sites that have institutional controls in place.

Date of Government Version: 04/01/2013	Source: Department of Environmental Protection
Date Data Arrived at EDR: 05/28/2013	Telephone: 304-558-2508
Date Made Active in Reports: 07/22/2013	Last EDR Contact: 08/23/2013
Number of Days to Update: 55	Next Scheduled EDR Contact: 12/09/2013
	Data Release Frequency: Varies

State and tribal voluntary cleanup sites

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 09/28/2012	Source: EPA, Region 1
Date Data Arrived at EDR: 10/02/2012	Telephone: 617-918-1102
Date Made Active in Reports: 10/16/2012	Last EDR Contact: 07/02/2013
Number of Days to Update: 14	Next Scheduled EDR Contact: 10/14/2013
	Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008	Source: EPA, Region 7
Date Data Arrived at EDR: 04/22/2008	Telephone: 913-551-7365
Date Made Active in Reports: 05/19/2008	Last EDR Contact: 04/20/2009
Number of Days to Update: 27	Next Scheduled EDR Contact: 07/20/2009
	Data Release Frequency: Varies

VCP: Voluntary Remediation Sites

Sites involved in the Voluntary Remediation Program.

Date of Government Version: 04/01/2013	Source: Department of Environmental Protection
Date Data Arrived at EDR: 05/28/2013	Telephone: 304-558-2745
Date Made Active in Reports: 07/22/2013	Last EDR Contact: 08/23/2013
Number of Days to Update: 55	Next Scheduled EDR Contact: 12/09/2013
	Data Release Frequency: Semi-Annually

State and tribal Brownfields sites

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

BROWNFIELDS: Brownfields Sites Listing

Brownfields are abandoned, idle or underused commercial or industrial properties, where the expansion or redevelopment is hindered by real or perceived contamination. Brownfields vary in size, location, age, and past use -- they can be anything from a five-hundred acre automobile assembly plant to a small, abandoned corner gas station.

Date of Government Version: 05/14/2013
Date Data Arrived at EDR: 07/05/2013
Date Made Active in Reports: 08/15/2013
Number of Days to Update: 41

Source: Department of Environmental Protection
Telephone: 304-926-0455
Last EDR Contact: 07/05/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 06/24/2013
Date Data Arrived at EDR: 06/25/2013
Date Made Active in Reports: 08/09/2013
Number of Days to Update: 45

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 09/24/2013
Next Scheduled EDR Contact: 01/08/2014
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 07/26/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 07/31/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 03/04/2013	Source: Drug Enforcement Administration
Date Data Arrived at EDR: 03/12/2013	Telephone: 202-307-1000
Date Made Active in Reports: 05/10/2013	Last EDR Contact: 09/04/2013
Number of Days to Update: 59	Next Scheduled EDR Contact: 12/16/2013
	Data Release Frequency: Quarterly

CDL: Drug Lab Site Locations

A listing of clandestine drug lab site locations.

Date of Government Version: 11/26/2012	Source: Department of Environmental Protection
Date Data Arrived at EDR: 11/29/2012	Telephone: 304-926-0499
Date Made Active in Reports: 12/18/2012	Last EDR Contact: 08/16/2013
Number of Days to Update: 19	Next Scheduled EDR Contact: 12/02/2013
	Data Release Frequency: Varies

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/01/2007	Source: Drug Enforcement Administration
Date Data Arrived at EDR: 11/19/2008	Telephone: 202-307-1000
Date Made Active in Reports: 03/30/2009	Last EDR Contact: 03/23/2009
Number of Days to Update: 131	Next Scheduled EDR Contact: 06/22/2009
	Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ("Superfund") lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/06/2013	Source: Environmental Protection Agency
Date Data Arrived at EDR: 04/25/2013	Telephone: 202-564-6023
Date Made Active in Reports: 05/10/2013	Last EDR Contact: 07/24/2013
Number of Days to Update: 15	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Varies

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/31/2012	Source: U.S. Department of Transportation
Date Data Arrived at EDR: 01/03/2013	Telephone: 202-366-4555
Date Made Active in Reports: 02/27/2013	Last EDR Contact: 07/01/2013
Number of Days to Update: 55	Next Scheduled EDR Contact: 10/14/2013
	Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SPILLS: Spills Listing

A listing of spills and releases reported to the Office of Emergency Services, they do not include any TRI information.

Date of Government Version: 06/30/2013	Source: Office of Emergency Services
Date Data Arrived at EDR: 07/30/2013	Telephone: 304-558-5380
Date Made Active in Reports: 08/15/2013	Last EDR Contact: 07/24/2013
Number of Days to Update: 16	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Varies

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 07/11/2013	Source: Environmental Protection Agency
Date Data Arrived at EDR: 08/08/2013	Telephone: 800-438-2474
Date Made Active in Reports: 09/13/2013	Last EDR Contact: 08/08/2013
Number of Days to Update: 36	Next Scheduled EDR Contact: 10/14/2013
	Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transportation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012	Source: Department of Transportation, Office of Pipeline Safety
Date Data Arrived at EDR: 08/07/2012	Telephone: 202-366-4595
Date Made Active in Reports: 09/18/2012	Last EDR Contact: 08/05/2013
Number of Days to Update: 42	Next Scheduled EDR Contact: 11/18/2013
	Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005	Source: USGS
Date Data Arrived at EDR: 11/10/2006	Telephone: 888-275-8747
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 07/19/2013
Number of Days to Update: 62	Next Scheduled EDR Contact: 10/28/2013
	Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2011	Source: U.S. Army Corps of Engineers
Date Data Arrived at EDR: 02/26/2013	Telephone: 202-528-4285
Date Made Active in Reports: 03/13/2013	Last EDR Contact: 09/10/2013
Number of Days to Update: 15	Next Scheduled EDR Contact: 12/23/2013
	Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2011	Source: Department of Justice, Consent Decree Library
Date Data Arrived at EDR: 01/15/2013	Telephone: Varies
Date Made Active in Reports: 03/13/2013	Last EDR Contact: 06/25/2013
Number of Days to Update: 57	Next Scheduled EDR Contact: 10/14/2013
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 12/18/2012	Source: EPA
Date Data Arrived at EDR: 03/13/2013	Telephone: 703-416-0223
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 09/13/2013
Number of Days to Update: 30	Next Scheduled EDR Contact: 12/23/2013
	Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010	Source: Department of Energy
Date Data Arrived at EDR: 10/07/2011	Telephone: 505-845-0011
Date Made Active in Reports: 03/01/2012	Last EDR Contact: 05/28/2013
Number of Days to Update: 146	Next Scheduled EDR Contact: 09/09/2013
	Data Release Frequency: Varies

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 02/05/2013	Source: Department of Labor, Mine Safety and Health Administration
Date Data Arrived at EDR: 04/18/2013	Telephone: 303-231-5959
Date Made Active in Reports: 05/10/2013	Last EDR Contact: 09/05/2013
Number of Days to Update: 22	Next Scheduled EDR Contact: 12/16/2013
	Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2011	Source: EPA
Date Data Arrived at EDR: 07/31/2013	Telephone: 202-566-0250
Date Made Active in Reports: 09/13/2013	Last EDR Contact: 08/30/2013
Number of Days to Update: 44	Next Scheduled EDR Contact: 12/09/2013
	Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2006	Source: EPA
Date Data Arrived at EDR: 09/29/2010	Telephone: 202-260-5521
Date Made Active in Reports: 12/02/2010	Last EDR Contact: 09/24/2013
Number of Days to Update: 64	Next Scheduled EDR Contact: 01/08/2014
	Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act) FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009	Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 08/22/2013
Number of Days to Update: 25	Next Scheduled EDR Contact: 12/09/2013
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009	Source: EPA
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 08/22/2013
Number of Days to Update: 25	Next Scheduled EDR Contact: 12/09/2013
	Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/01/2007	Telephone: 202-564-2501
Date Made Active in Reports: 04/10/2007	Last EDR Contact: 12/17/2007
Number of Days to Update: 40	Next Scheduled EDR Contact: 03/17/2008
	Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/01/2007	Telephone: 202-564-2501
Date Made Active in Reports: 04/10/2007	Last EDR Contact: 12/17/2008
Number of Days to Update: 40	Next Scheduled EDR Contact: 03/17/2008
	Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009	Source: EPA
Date Data Arrived at EDR: 12/10/2010	Telephone: 202-564-4203
Date Made Active in Reports: 02/25/2011	Last EDR Contact: 07/24/2013
Number of Days to Update: 77	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 07/20/2011	Source: Environmental Protection Agency
Date Data Arrived at EDR: 11/10/2011	Telephone: 202-564-5088
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 07/01/2013
Number of Days to Update: 61	Next Scheduled EDR Contact: 10/28/2013
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 11/01/2012	Source: EPA
Date Data Arrived at EDR: 01/16/2013	Telephone: 202-566-0500
Date Made Active in Reports: 05/10/2013	Last EDR Contact: 07/17/2013
Number of Days to Update: 114	Next Scheduled EDR Contact: 10/28/2013
	Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 03/14/2013	Source: Nuclear Regulatory Commission
Date Data Arrived at EDR: 03/20/2013	Telephone: 301-415-7169
Date Made Active in Reports: 07/10/2013	Last EDR Contact: 09/10/2013
Number of Days to Update: 112	Next Scheduled EDR Contact: 12/23/2013
	Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 04/09/2013	Source: Environmental Protection Agency
Date Data Arrived at EDR: 04/11/2013	Telephone: 202-343-9775
Date Made Active in Reports: 05/10/2013	Last EDR Contact: 07/12/2013
Number of Days to Update: 29	Next Scheduled EDR Contact: 10/21/2013
	Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 03/08/2013	Source: EPA
Date Data Arrived at EDR: 03/21/2013	Telephone: (215) 814-5000
Date Made Active in Reports: 07/10/2013	Last EDR Contact: 09/11/2013
Number of Days to Update: 111	Next Scheduled EDR Contact: 12/23/2013
	Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995	Source: EPA
Date Data Arrived at EDR: 07/03/1995	Telephone: 202-564-4104
Date Made Active in Reports: 08/07/1995	Last EDR Contact: 06/02/2008
Number of Days to Update: 35	Next Scheduled EDR Contact: 09/01/2008
	Data Release Frequency: No Update Planned

RMP: Risk Management Plans

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 05/08/2012	Source: Environmental Protection Agency
Date Data Arrived at EDR: 05/25/2012	Telephone: 202-564-8600
Date Made Active in Reports: 07/10/2012	Last EDR Contact: 07/24/2013
Number of Days to Update: 46	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2011	Source: EPA/NTIS
Date Data Arrived at EDR: 02/26/2013	Telephone: 800-424-9346
Date Made Active in Reports: 04/19/2013	Last EDR Contact: 08/26/2013
Number of Days to Update: 52	Next Scheduled EDR Contact: 12/09/2013
	Data Release Frequency: Biennially

UIC: Underground Injection Wells

A listing of underground injection well locations.

Date of Government Version: 07/22/2011	Source: Department of Environmental Protection
Date Data Arrived at EDR: 07/22/2011	Telephone: 304-926-0499
Date Made Active in Reports: 09/12/2011	Last EDR Contact: 07/15/2013
Number of Days to Update: 52	Next Scheduled EDR Contact: 10/28/2013
	Data Release Frequency: Varies

DRYCLEANERS: Listing of Drycleaner Locations

A listing of drycleaners which use perchloroethylene.

Date of Government Version: 01/03/2013	Source: Department of Environmental Protection
Date Data Arrived at EDR: 02/27/2013	Telephone: 304-926-0475
Date Made Active in Reports: 04/04/2013	Last EDR Contact: 08/16/2013
Number of Days to Update: 36	Next Scheduled EDR Contact: 12/02/2013
	Data Release Frequency: Varies

NPDES: Wastewater Discharge Permits Listing

A listing of wastewater discharge permits.

Date of Government Version: 01/19/2010	Source: Department of Environmental Protection
Date Data Arrived at EDR: 01/21/2010	Telephone: 304-926-0495
Date Made Active in Reports: 02/25/2010	Last EDR Contact: 07/17/2013
Number of Days to Update: 35	Next Scheduled EDR Contact: 11/04/2013
	Data Release Frequency: Varies

AIRS: Permitted Facility and Emissions Listing

Permitted facility and emissions information listing.

Date of Government Version: 09/01/2009	Source: Department of Environmental Protection
Date Data Arrived at EDR: 09/02/2009	Telephone: 304-926-0499
Date Made Active in Reports: 09/21/2009	Last EDR Contact: 07/24/2013
Number of Days to Update: 19	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005	Source: USGS
Date Data Arrived at EDR: 12/08/2006	Telephone: 202-208-3710
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 07/19/2013
Number of Days to Update: 34	Next Scheduled EDR Contact: 10/28/2013
	Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/09/2011	Telephone: 615-532-8599
Date Made Active in Reports: 05/02/2011	Last EDR Contact: 08/01/2013
Number of Days to Update: 54	Next Scheduled EDR Contact: 11/04/2013
	Data Release Frequency: Varies

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 01/23/2013	Source: EPA
Date Data Arrived at EDR: 01/30/2013	Telephone: 202-564-5962
Date Made Active in Reports: 05/10/2013	Last EDR Contact: 06/25/2013
Number of Days to Update: 100	Next Scheduled EDR Contact: 10/14/2013
	Data Release Frequency: Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005	Source: U.S. Geological Survey
Date Data Arrived at EDR: 02/06/2006	Telephone: 888-275-8747
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 07/19/2013
Number of Days to Update: 339	Next Scheduled EDR Contact: 10/28/2013
	Data Release Frequency: N/A

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 06/30/2013	Source: Environmental Protection Agency
Date Data Arrived at EDR: 08/13/2013	Telephone: 617-520-3000
Date Made Active in Reports: 09/13/2013	Last EDR Contact: 08/07/2013
Number of Days to Update: 31	Next Scheduled EDR Contact: 11/25/2013
	Data Release Frequency: Quarterly

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 03/04/2013
Date Data Arrived at EDR: 03/15/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 56

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 08/23/2013
Next Scheduled EDR Contact: 12/02/2013
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 11/11/2011
Date Data Arrived at EDR: 05/18/2012
Date Made Active in Reports: 05/25/2012
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 08/16/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 08/02/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 01/23/2013
Date Data Arrived at EDR: 01/30/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-5962
Last EDR Contact: 06/25/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Annually

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 08/17/2010
Date Data Arrived at EDR: 01/03/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 77

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 09/13/2013
Next Scheduled EDR Contact: 12/23/2013
Data Release Frequency: Varies

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 04/15/2013
Date Data Arrived at EDR: 07/03/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 72

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 07/03/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COAL ASH: Coal Ash Landfills

A listing of coal ash landfill site locations.

Date of Government Version: 04/07/2011
Date Data Arrived at EDR: 04/27/2011
Date Made Active in Reports: 06/02/2011
Number of Days to Update: 36

Source: Department of Environmental Protection
Telephone: 304-926-0499
Last EDR Contact: 06/28/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Varies

Financial Assurance: Financial Assurance Information Listing

A listing of financial assurance information for underground storage tank facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 03/05/2013
Date Data Arrived at EDR: 03/07/2013
Date Made Active in Reports: 04/05/2013
Number of Days to Update: 29

Source: Department of Environmental Protection
Telephone: 304-926-0499
Last EDR Contact: 09/03/2013
Next Scheduled EDR Contact: 12/16/2013
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 01/29/2013
Date Data Arrived at EDR: 02/14/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 13

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 09/24/2013
Next Scheduled EDR Contact: 10/21/2013
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931 and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust.

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

COAL ASH DOE: Sleam-Electric Plan Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 07/19/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Varies

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR US Hist Auto Stat: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Proprietary Historic Dry Cleaners - Cole

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: N/A
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Auto Stat: EDR Proprietary Historic Gas Stations - Cole

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: N/A
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/19/2012
Date Made Active in Reports: 08/28/2012
Number of Days to Update: 40

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 07/19/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 08/01/2013
Date Data Arrived at EDR: 08/07/2013
Date Made Active in Reports: 09/10/2013
Number of Days to Update: 34

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 08/07/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Annually

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 07/24/2013
Date Made Active in Reports: 08/19/2013
Number of Days to Update: 26

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 07/18/2013
Next Scheduled EDR Contact: 11/04/2013
Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 06/21/2013
Date Made Active in Reports: 08/05/2013
Number of Days to Update: 45

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 08/23/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Annually

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/19/2012
Date Made Active in Reports: 09/27/2012
Number of Days to Update: 70

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 09/16/2013
Next Scheduled EDR Contact: 12/30/2013
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data

Source: Rextag Strategies Corp.
Telephone: (281) 769-2247

U.S. Electric Transmission and Power Plants Systems Digital GIS Data

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:

Source: American Hospital Association, Inc.
Telephone: 312-280-5991

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Medical Centers: Provider of Services Listing

Source: Centers for Medicare & Medicaid Services

Telephone: 410-786-3000

A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes

Source: National Institutes of Health

Telephone: 301-594-6248

Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Day Care Center List

Source: Office of Social Services

Telephone: 304-558-7980

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)

Source: United States Geologic Survey

A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

STREET AND ADDRESS INFORMATION

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GEOCHECK[®] - PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

NSA SUGAR GROVE LOWER BASE
ECKARD ST
SUGAR GROVE, WV 26815

TARGET PROPERTY COORDINATES

Latitude (North):	38.5697 - 38° 34' 10.92"
Longitude (West):	79.2727 - 79° 16' 21.72"
Universal Tranverse Mercator:	Zone 17
UTM X (Meters):	650480.6
UTM Y (Meters):	4270235.0
Elevation:	1733 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	38079-E3 SUGAR GROVE, WV
Most Recent Revision:	1981

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

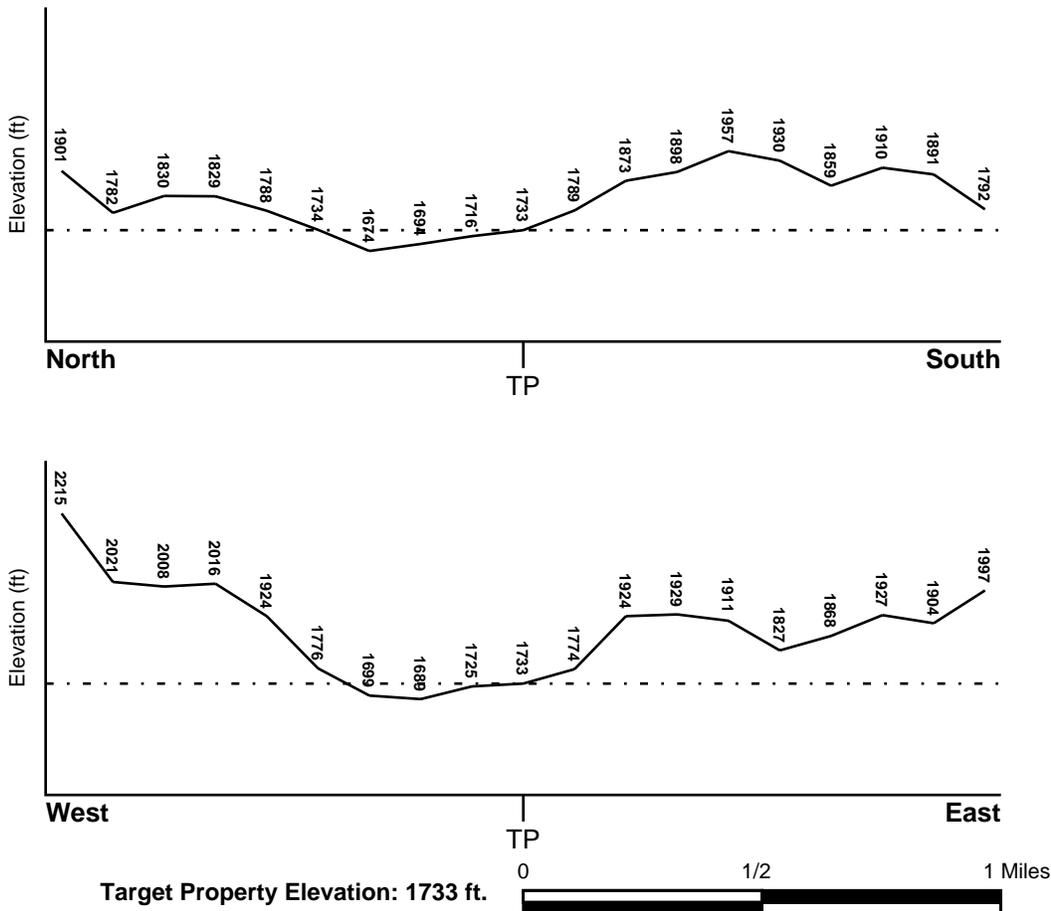
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General WNW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

<u>Target Property County</u>	<u>FEMA Flood Electronic Data</u>
PENDLETON, WV	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 54071C - FEMA DFIRM Flood data

Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY

<u>NWI Quad at Target Property</u>	<u>NWI Electronic Data Coverage</u>
SUGAR GROVE	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

<u>MAP ID</u>	<u>LOCATION FROM TP</u>	<u>GENERAL DIRECTION GROUNDWATER FLOW</u>
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

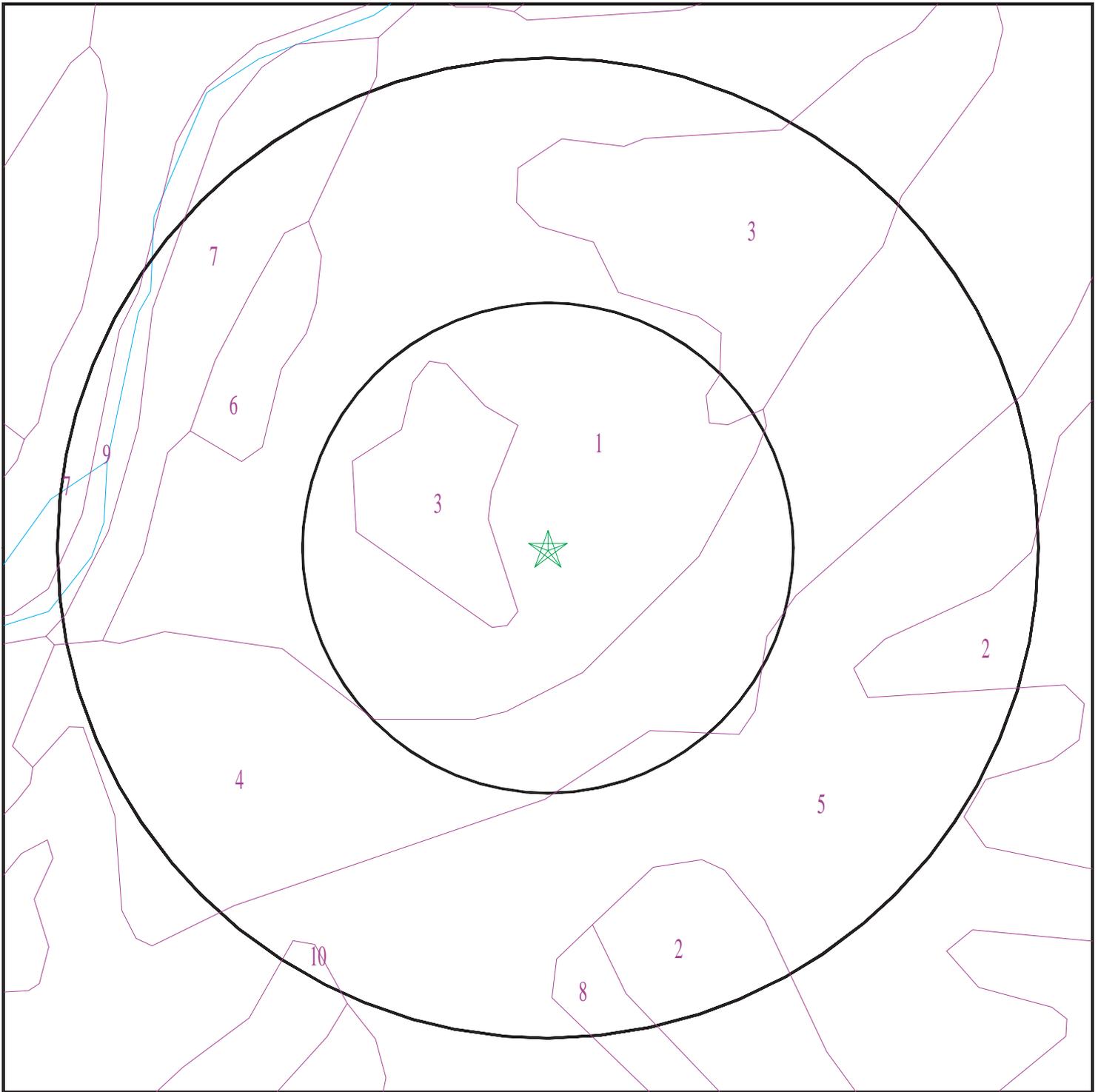
Era:	Paleozoic
System:	Devonian
Series:	Devonian
Code:	D (<i>decoded above as Era, System & Series</i>)

GEOLOGIC AGE IDENTIFICATION

Category: Stratified Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 3738459.2s



- ★ Target Property
- ∩ SSURGO Soil
- ∩ Water



SITE NAME: NSA Sugar Grove Lower Base
ADDRESS: ECKARD ST
Sugar Grove WV 26815
LAT/LONG: 38.5697 / 79.2727

CLIENT: Michael Baker Jr. Inc.
CONTACT: William Harris
INQUIRY #: 3738459.2s
DATE: September 24, 2013 4:18 pm

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Monongahela

Soil Surface Texture: silt loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Unknown

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 46 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	7 inches	silt loam	Not reported	Not reported	Max: 4 Min: 1.4	Max: 5.5 Min: 4.5
2	7 inches	25 inches	silt loam	Not reported	Not reported	Max: 4 Min: 1.4	Max: 5.5 Min: 4.5
3	25 inches	48 inches	silt loam	Not reported	Not reported	Max: 4 Min: 1.4	Max: 5.5 Min: 4.5
4	48 inches	64 inches	cobbly loam	Not reported	Not reported	Max: 4 Min: 1.4	Max: 5.5 Min: 4.5

Soil Map ID: 2

Soil Component Name: Berks

Soil Surface Texture: channery silt loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Unknown

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	5 inches	channery silt loam	Not reported	Not reported	Max: 1.4 Min: 0	Max: Min:
2	5 inches	22 inches	very channery silt loam	Not reported	Not reported	Max: 1.4 Min: 0	Max: Min:
3	22 inches	37 inches	extremely channery silt loam	Not reported	Not reported	Max: 1.4 Min: 0	Max: Min:
4	37 inches	40 inches	weathered bedrock	Not reported	Not reported	Max: 1.4 Min: 0	Max: Min:

Soil Map ID: 3

Soil Component Name: Purdy

Soil Surface Texture: silt loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Poorly drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 15 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	5 inches	silt loam	Not reported	Not reported	Max: 1.4 Min: 0.42	Max: 5.5 Min: 3.6

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
2	5 inches	35 inches	silty clay	Not reported	Not reported	Max: 1.4 Min: 0.42	Max: 5.5 Min: 3.6
3	35 inches	64 inches	silty clay	Not reported	Not reported	Max: 1.4 Min: 0.42	Max: 5.5 Min: 3.6

Soil Map ID: 4

Soil Component Name: Monongahela

Soil Surface Texture: silt loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Unknown

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 46 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	7 inches	silt loam	Not reported	Not reported	Max: 4 Min: 1.4	Max: 5.5 Min: 4.5
2	7 inches	25 inches	silt loam	Not reported	Not reported	Max: 4 Min: 1.4	Max: 5.5 Min: 4.5
3	25 inches	48 inches	silt loam	Not reported	Not reported	Max: 4 Min: 1.4	Max: 5.5 Min: 4.5
4	48 inches	64 inches	cobbly loam	Not reported	Not reported	Max: 4 Min: 1.4	Max: 5.5 Min: 4.5

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 5

Soil Component Name: Berks

Soil Surface Texture: channery silt loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	5 inches	channery silt loam	Not reported	Not reported	Max: 1.4 Min: 0	Max: Min:
2	5 inches	22 inches	very channery silt loam	Not reported	Not reported	Max: 1.4 Min: 0	Max: Min:
3	22 inches	37 inches	extremely channery silt loam	Not reported	Not reported	Max: 1.4 Min: 0	Max: Min:
4	37 inches	40 inches	weathered bedrock	Not reported	Not reported	Max: 1.4 Min: 0	Max: Min:

Soil Map ID: 6

Soil Component Name: Allegheny

Soil Surface Texture: loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Unknown

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	7 inches	loam	Not reported	Not reported	Max: 14 Min: 4	Max: 5.5 Min: 3.6
2	7 inches	64 inches	loam	Not reported	Not reported	Max: 14 Min: 4	Max: 5.5 Min: 3.6

Soil Map ID: 7

Soil Component Name: Potomac

Soil Surface Texture: very cobbly fine sandy loam

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Unknown

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	7 inches	very cobbly fine sandy loam	Not reported	Not reported	Max: 141 Min: 42	Max: 7.8 Min: 5.1
2	7 inches	64 inches	extremely cobbly loamy sand	Not reported	Not reported	Max: 141 Min: 42	Max: 7.8 Min: 5.1

Soil Map ID: 8

Soil Component Name: Berks

Soil Surface Texture: channery silt loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	5 inches	channery silt loam	Not reported	Not reported	Max: 1.4 Min: 0	Max: Min:
2	5 inches	22 inches	very channery silt loam	Not reported	Not reported	Max: 1.4 Min: 0	Max: Min:
3	22 inches	37 inches	extremely channery silt loam	Not reported	Not reported	Max: 1.4 Min: 0	Max: Min:
4	37 inches	40 inches	weathered bedrock	Not reported	Not reported	Max: 1.4 Min: 0	Max: Min:

Soil Map ID: 9

Soil Component Name: Berks

Soil Surface Texture: channery silt loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	5 inches	channery silt loam	Not reported	Not reported	Max: 1.4 Min: 0	Max: Min:

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
2	5 inches	22 inches	very channery silt loam	Not reported	Not reported	Max: 1.4 Min: 0	Max: Min:
3	22 inches	37 inches	extremely channery silt loam	Not reported	Not reported	Max: 1.4 Min: 0	Max: Min:
4	37 inches	40 inches	weathered bedrock	Not reported	Not reported	Max: 1.4 Min: 0	Max: Min:

Soil Map ID: 10

Soil Component Name: Tygart

Soil Surface Texture: silt loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Somewhat poorly drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 31 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	9 inches	silt loam	Not reported	Not reported	Max: 1.4 Min: 0.42	Max: 5.5 Min: 3.6
2	9 inches	38 inches	silty clay	Not reported	Not reported	Max: 1.4 Min: 0.42	Max: 5.5 Min: 3.6
3	38 inches	64 inches	silty clay	Not reported	Not reported	Max: 1.4 Min: 0.42	Max: 5.5 Min: 3.6

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

<u>DATABASE</u>	<u>SEARCH DISTANCE (miles)</u>
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
1	USGS40001298753	0 - 1/8 Mile ESE
A3	USGS40001298768	1/4 - 1/2 Mile WNW
A4	USGS40001298767	1/4 - 1/2 Mile WNW
5	USGS40001298733	1/4 - 1/2 Mile WSW
B7	USGS40001298811	1/2 - 1 Mile NE
B8	USGS40001298812	1/2 - 1 Mile NE
C9	USGS40001298714	1/2 - 1 Mile SW
C10	USGS40001298715	1/2 - 1 Mile SW
11	USGS40001298826	1/2 - 1 Mile NNW
12	USGS40001298832	1/2 - 1 Mile NNE

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

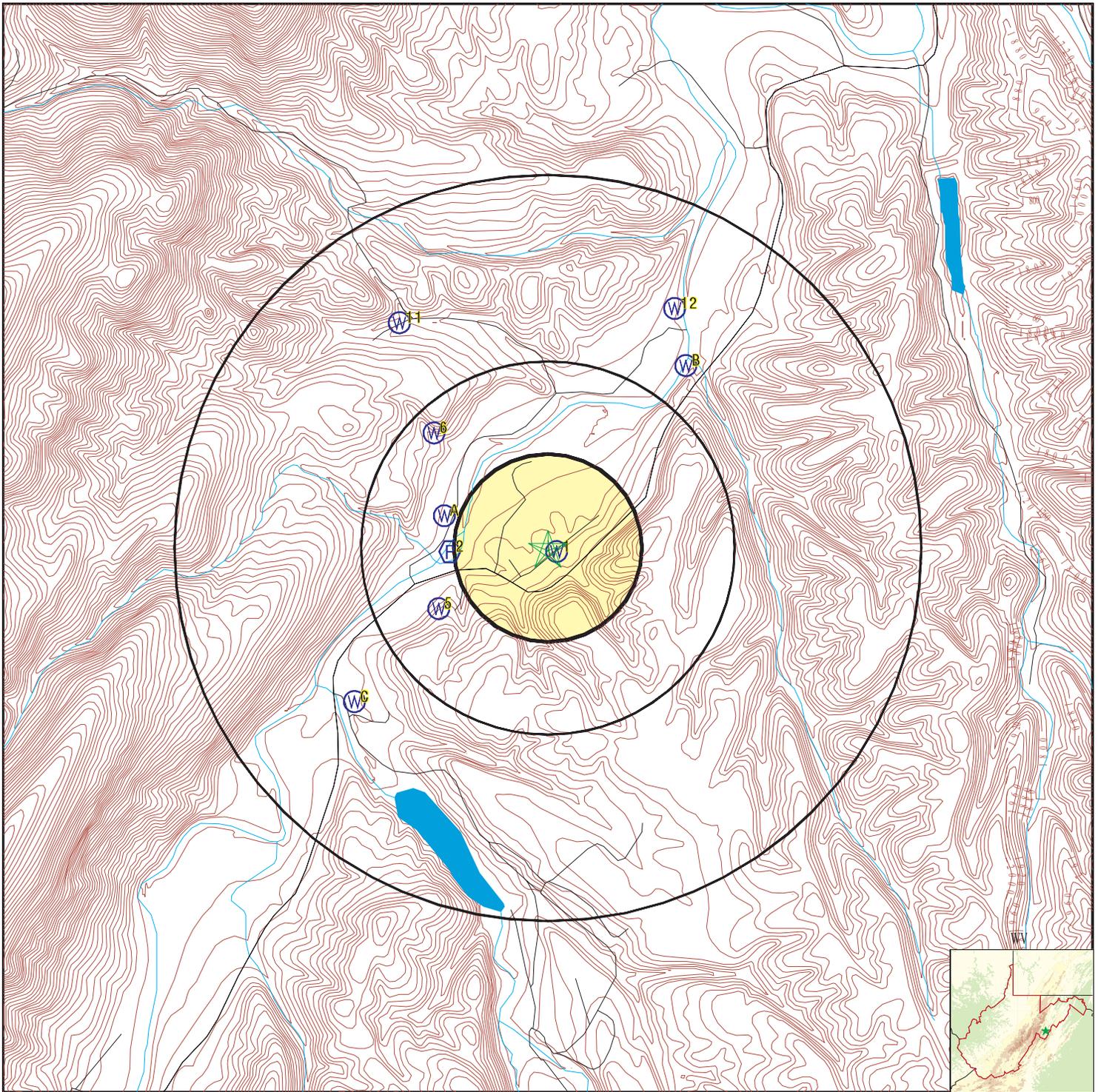
<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
2	WV3303604	1/4 - 1/2 Mile West

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
6	WVWELL1325	1/4 - 1/2 Mile NW

PHYSICAL SETTING SOURCE MAP - 3738459.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons

- Groundwater Flow Direction
- Indeterminate Groundwater Flow at Location
- Groundwater Flow Varies at Location
- Oil, gas or related wells

SITE NAME: NSA Sugar Grove Lower Base
 ADDRESS: ECKARD ST
 Sugar Grove WV 26815
 LAT/LONG: 38.5697 / 79.2727

CLIENT: Michael Baker Jr. Inc.
 CONTACT: William Harris
 INQUIRY #: 3738459.2s
 DATE: September 24, 2013 4:18 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
 Direction
 Distance
 Elevation

Database EDR ID Number

1
ESE
0 - 1/8 Mile
Higher
FED USGS USGS40001298753

Org. Identifier:	USGS-WV		
Formal name:	USGS West Virginia Water Science Center		
Monloc Identifier:	USGS-383410079162101		
Monloc name:	Pen-0046		
Monloc type:	Well		
Monloc desc:	Original station name was 2606019		
Huc code:	02070001	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	38.5695641
Longitude:	-79.2722616	Sourcemap scale:	Not Reported
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1750.00
Vert measure units:	feet	Vertacc measure val:	50
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Valley and Ridge aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	30
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

2
West
1/4 - 1/2 Mile
Lower
FRDS PWS WV3303604

Pwsid:	WV3303604	Epa region:	03
State:	WV	County:	Pendleton
Pws name:	NAVY INFORMATION OPERATIONS COMAND/MB		
Population Served:	250	Pwssvconn:	100
PWS Source:	Surface_water		
Pws type:	CWS		
Status:	Active	Owner type:	Fed_Govt
Facility id:	10212		
Facility name:	DISTRIBUTION SYSTEM		
Facility type:	Distribution_system_zone	Treatment process:	fluoridation
Treatment objective:	other		
Contact name:	DOSS, LIEUTENANT		
Original name:	DOSS, LIEUTENANT		
Contact phone:	340-249-6340	Contact address1:	PUBLIC WORKS DEPARTMENT
Contact address2:	63 HEDRICK DRIVE		
Contact city:	SUGAR GROVE		
Contact zip:	26815		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Facility id:	4108		
Facility name:	TREATMENT PLANT		
Facility type:	Treatment_plant	Treatment process:	fluoridation
Treatment objective:	other		
Facility id:	4733		
Facility name:	INTAKE-S FORK OF THE S BRANCH OF POTOMAC		
Facility type:	Intake	Treatment process:	fluoridation
Treatment objective:	other		
Facility id:	10212		
Facility name:	DISTRIBUTION SYSTEM		
Facility type:	Distribution_system_zone	Treatment process:	filtration, rapid sand
Treatment objective:	particulate removal		
Facility id:	4108		
Facility name:	TREATMENT PLANT		
Facility type:	Treatment_plant	Treatment process:	filtration, rapid sand
Treatment objective:	particulate removal		
Facility id:	4733		
Facility name:	INTAKE-S FORK OF THE S BRANCH OF POTOMAC		
Facility type:	Intake	Treatment process:	filtration, rapid sand
Treatment objective:	particulate removal		
Facility id:	10212		
Facility name:	DISTRIBUTION SYSTEM		
Facility type:	Distribution_system_zone	Treatment process:	filtered
Treatment objective:	particulate removal		
Facility id:	4108		
Facility name:	TREATMENT PLANT		
Facility type:	Treatment_plant	Treatment process:	filtered
Treatment objective:	particulate removal		
Facility id:	4733		
Facility name:	INTAKE-S FORK OF THE S BRANCH OF POTOMAC		
Facility type:	Intake	Treatment process:	filtered
Treatment objective:	particulate removal		
PWS ID:	WV3303604		
Date Initiated:	Not Reported	Date Deactivated:	Not Reported
PWS Name:	US NAVEL RADIO STATION PUBLIC WORKS DEPT PUBLIC WORKS DEPT SUGAR GROVE, WV 26815		
Addressee / Facility:	Not Reported		
Facility Latitude:	38 34 10.0000	Facility Longitude:	79 16 40.0000
City Served:	Not Reported		
Treatment Class:	Mixed (treated and untreated)	Population:	250

Violations information not reported.

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

ENFORCEMENT INFORMATION:

Truedate: 03/31/2009 Pwsid: WV3303604
 Pwsname: NAVY INFORMATION OPERATIONS COMAND/MB
 Retpopsrvd: 250 Pwstypecod: C
 Vioiid: 1V01 Contaminant: 7000
 Viol. Type: CCR Complete Failure to Report
 Complperbe: 7/1/2001 0:00:00
 Complperen: 10/26/2001 0:00:00 Enfdate: 10/26/2001 0:00:00
 Enf action: Fed Compliance Achieved
 Violmeasur: 0

Truedate: 03/31/2009 Pwsid: WV3303604
 Pwsname: NAVY INFORMATION OPERATIONS COMAND/MB
 Retpopsrvd: 250 Pwstypecod: C
 Vioiid: 1V01 Contaminant: 7000
 Viol. Type: CCR Complete Failure to Report
 Complperbe: 7/1/2001 0:00:00
 Complperen: 10/26/2001 0:00:00 Enfdate: 8/29/2001 0:00:00
 Enf action: Fed Formal NOV Issued
 Violmeasur: 0

Truedate: 03/31/2009 Pwsid: WV3303604
 Pwsname: NAVY INFORMATION OPERATIONS COMAND/MB
 Retpopsrvd: 250 Pwstypecod: C
 Vioiid: 422806 Contaminant: 7000
 Viol. Type: CCR Complete Failure to Report
 Complperbe: 7/1/2005 0:00:00
 Complperen: 6/27/2006 0:00:00 Enfdate: 11/16/2005 0:00:00
 Enf action: State Formal NOV Issued
 Violmeasur: Not Reported

Truedate: 03/31/2009 Pwsid: WV3303604
 Pwsname: NAVY INFORMATION OPERATIONS COMAND/MB
 Retpopsrvd: 250 Pwstypecod: C
 Vioiid: 422806 Contaminant: 7000
 Viol. Type: CCR Complete Failure to Report
 Complperbe: 7/1/2005 0:00:00
 Complperen: 6/27/2006 0:00:00 Enfdate: 6/27/2006 0:00:00
 Enf action: State Compliance Achieved
 Violmeasur: Not Reported

Truedate: 03/31/2009 Pwsid: WV3303604
 Pwsname: NAVY INFORMATION OPERATIONS COMAND/MB
 Retpopsrvd: 250 Pwstypecod: C
 Vioiid: 423006 Contaminant: COLIFORM (TCR)
 Viol. Type: Monitoring, Routine Major (TCR)
 Complperbe: 11/1/2005 0:00:00
 Complperen: 11/30/2005 0:00:00 Enfdate: 12/30/2005 0:00:00
 Enf action: State Formal NOV Issued
 Violmeasur: Not Reported

Truedate: 03/31/2009 Pwsid: WV3303604
 Pwsname: NAVY INFORMATION OPERATIONS COMAND/MB
 Retpopsrvd: 250 Pwstypecod: C
 Vioiid: 423006 Contaminant: COLIFORM (TCR)
 Viol. Type: Monitoring, Routine Major (TCR)
 Complperbe: 11/1/2005 0:00:00
 Complperen: 11/30/2005 0:00:00 Enfdate: 12/30/2005 0:00:00
 Enf action: State Public Notif Requested
 Violmeasur: Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Truedate: 03/31/2009 Pwsid: WV3303604
 Pwsname: NAVY INFORMATION OPERATIONS COMAND/MB
 Retpopsrvd: 250 Pwstypecod: C
 Vioid: 423006 Contaminant: COLIFORM (TCR)
 Viol. Type: Monitoring, Routine Major (TCR)
 Complperbe: 11/1/2005 0:00:00
 Complperen: 11/30/2005 0:00:00 Enfdate: 12/5/2005 0:00:00
 Enf action: State Compliance Achieved
 Violmeasur: Not Reported

Truedate: 03/31/2009 Pwsid: WV3303604
 Pwsname: NAVY INFORMATION OPERATIONS COMAND/MB
 Retpopsrvd: 250 Pwstypecod: C
 Vioid: 423206 Contaminant: 2456
 Viol. Type: Monitoring and Reporting Stage 1
 Complperbe: 1/1/2006 0:00:00
 Complperen: 3/31/2006 0:00:00 Enfdate: 4/12/2006 0:00:00
 Enf action: State Compliance Achieved
 Violmeasur: Not Reported

Truedate: 03/31/2009 Pwsid: WV3303604
 Pwsname: NAVY INFORMATION OPERATIONS COMAND/MB
 Retpopsrvd: 250 Pwstypecod: C
 Vioid: 423206 Contaminant: 2456
 Viol. Type: Monitoring and Reporting Stage 1
 Complperbe: 1/1/2006 0:00:00
 Complperen: 3/31/2006 0:00:00 Enfdate: 5/18/2006 0:00:00
 Enf action: State Formal NOV Issued
 Violmeasur: Not Reported

Truedate: 03/31/2009 Pwsid: WV3303604
 Pwsname: NAVY INFORMATION OPERATIONS COMAND/MB
 Retpopsrvd: 250 Pwstypecod: C
 Vioid: 423206 Contaminant: 2456
 Viol. Type: Monitoring and Reporting Stage 1
 Complperbe: 1/1/2006 0:00:00
 Complperen: 3/31/2006 0:00:00 Enfdate: 6/23/2006 0:00:00
 Enf action: State Public Notif Received
 Violmeasur: Not Reported

Truedate: 03/31/2009 Pwsid: WV3303604
 Pwsname: NAVY INFORMATION OPERATIONS COMAND/MB
 Retpopsrvd: 250 Pwstypecod: C
 Vioid: 423206 Contaminant: 2456
 Viol. Type: Monitoring and Reporting Stage 1
 Complperbe: 1/1/2006 0:00:00
 Complperen: 3/31/2006 0:00:00 Enfdate: 5/18/2006 0:00:00
 Enf action: State Public Notif Requested
 Violmeasur: Not Reported

Truedate: 03/31/2009 Pwsid: WV3303604
 Pwsname: NAVY INFORMATION OPERATIONS COMAND/MB
 Retpopsrvd: 250 Pwstypecod: C
 Vioid: 423306 Contaminant: TTHM
 Viol. Type: Monitoring and Reporting Stage 1
 Complperbe: 1/1/2006 0:00:00
 Complperen: 3/31/2006 0:00:00 Enfdate: 4/12/2006 0:00:00
 Enf action: State Compliance Achieved
 Violmeasur: Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Truedate: 03/31/2009 Pwsid: WV3303604
 Pwsname: NAVY INFORMATION OPERATIONS COMAND/MB
 Retpopsrvd: 250 Pwstypecod: C
 Vioid: 423306 Contaminant: TTHM
 Viol. Type: Monitoring and Reporting Stage 1
 Complperbe: 1/1/2006 0:00:00
 Complperen: 3/31/2006 0:00:00 Enfdate: 5/18/2006 0:00:00
 Enf action: State Formal NOV Issued
 Violmeasur: Not Reported

Truedate: 03/31/2009 Pwsid: WV3303604
 Pwsname: NAVY INFORMATION OPERATIONS COMAND/MB
 Retpopsrvd: 250 Pwstypecod: C
 Vioid: 423306 Contaminant: TTHM
 Viol. Type: Monitoring and Reporting Stage 1
 Complperbe: 1/1/2006 0:00:00
 Complperen: 3/31/2006 0:00:00 Enfdate: 5/18/2006 0:00:00
 Enf action: State Public Notif Requested
 Violmeasur: Not Reported

Truedate: 03/31/2009 Pwsid: WV3303604
 Pwsname: NAVY INFORMATION OPERATIONS COMAND/MB
 Retpopsrvd: 250 Pwstypecod: C
 Vioid: 423306 Contaminant: TTHM
 Viol. Type: Monitoring and Reporting Stage 1
 Complperbe: 1/1/2006 0:00:00
 Complperen: 3/31/2006 0:00:00 Enfdate: 6/23/2006 0:00:00
 Enf action: State Public Notif Received
 Violmeasur: Not Reported

Truedate: 03/31/2009 Pwsid: WV3303604
 Pwsname: NAVY INFORMATION OPERATIONS COMAND/MB
 Retpopsrvd: 250 Pwstypecod: C
 Vioid: 423709 Contaminant: 7000
 Viol. Type: CCR Complete Failure to Report
 Complperbe: 7/1/2007 0:00:00
 Complperen: 8/28/2007 0:00:00 Enfdate: 8/14/2007 0:00:00
 Enf action: State Formal NOV Issued
 Violmeasur: Not Reported

Truedate: 03/31/2009 Pwsid: WV3303604
 Pwsname: NAVY INFORMATION OPERATIONS COMAND/MB
 Retpopsrvd: 250 Pwstypecod: C
 Vioid: 423709 Contaminant: 7000
 Viol. Type: CCR Complete Failure to Report
 Complperbe: 7/1/2007 0:00:00
 Complperen: 8/28/2007 0:00:00 Enfdate: 8/28/2007 0:00:00
 Enf action: State Compliance Achieved
 Violmeasur: Not Reported

System Name: NAVY INFORMATION OPERATIONS COMAND/MB
 Violation Type: CCR Complete Failure to Report
 Contaminant: 7000
 Compliance Period: 7/1/2001 0:00:00 - 10/26/2001 0:00:00
 Violation ID: 1V01
 Enforcement Date: 10/26/2001 0:00:00 Enf. Action: Fed Compliance Achieved

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

ENFORCEMENT INFORMATION:

System Name:	NAVY INFORMATION OPERATIONS COMAND/MB	
Violation Type:	CCR Complete Failure to Report	
Contaminant:	7000	
Compliance Period:	7/1/2001 0:00:00 - 10/26/2001 0:00:00	
Violation ID:	1V01	
Enforcement Date:	8/29/2001 0:00:00	Enf. Action: Fed Formal NOV Issued
System Name:	NAVY INFORMATION OPERATIONS COMAND/MB	
Violation Type:	CCR Complete Failure to Report	
Contaminant:	7000	
Compliance Period:	7/1/2001 0:00:00 - 10/26/2001 0:00:00	
Violation ID:	1V01	
Enforcement Date:	10/26/2001 0:00:00	Enf. Action: Fed Compliance Achieved
System Name:	NAVY INFORMATION OPERATIONS COMAND/MB	
Violation Type:	CCR Complete Failure to Report	
Contaminant:	7000	
Compliance Period:	7/1/2001 0:00:00 - 10/26/2001 0:00:00	
Violation ID:	1V01	
Enforcement Date:	8/29/2001 0:00:00	Enf. Action: Fed Formal NOV Issued
System Name:	NAVY INFORMATION OPERATIONS COMAND/MB	
Violation Type:	CCR Complete Failure to Report	
Contaminant:	7000	
Compliance Period:	7/1/2005 0:00:00 - 6/27/2006 0:00:00	
Violation ID:	422806	
Enforcement Date:	11/16/2005 0:00:00	Enf. Action: State Formal NOV Issued
System Name:	NAVY INFORMATION OPERATIONS COMAND/MB	
Violation Type:	CCR Complete Failure to Report	
Contaminant:	7000	
Compliance Period:	7/1/2005 0:00:00 - 6/27/2006 0:00:00	
Violation ID:	422806	
Enforcement Date:	6/27/2006 0:00:00	Enf. Action: State Compliance Achieved
System Name:	NAVY INFORMATION OPERATIONS COMAND/MB	
Violation Type:	CCR Complete Failure to Report	
Contaminant:	7000	
Compliance Period:	7/1/2005 0:00:00 - 6/27/2006 0:00:00	
Violation ID:	422806	
Enforcement Date:	6/27/2006 0:00:00	Enf. Action: State Compliance Achieved
System Name:	NAVY INFORMATION OPERATIONS COMAND/MB	
Violation Type:	CCR Complete Failure to Report	
Contaminant:	7000	
Compliance Period:	7/1/2005 0:00:00 - 6/27/2006 0:00:00	
Violation ID:	422806	
Enforcement Date:	11/16/2005 0:00:00	Enf. Action: State Formal NOV Issued
System Name:	NAVY INFORMATION OPERATIONS COMAND/MB	
Violation Type:	Monitoring, Routine Major (TCR)	
Contaminant:	COLIFORM (TCR)	
Compliance Period:	11/1/2005 0:00:00 - 11/30/2005 0:00:00	
Violation ID:	423006	
Enforcement Date:	12/5/2005 0:00:00	Enf. Action: State Compliance Achieved
System Name:	NAVY INFORMATION OPERATIONS COMAND/MB	
Violation Type:	Monitoring, Routine Major (TCR)	
Contaminant:	COLIFORM (TCR)	
Compliance Period:	11/1/2005 0:00:00 - 11/30/2005 0:00:00	
Violation ID:	423006	
Enforcement Date:	12/30/2005 0:00:00	Enf. Action: State Public Notif Requested

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

ENFORCEMENT INFORMATION:

System Name:	NAVY INFORMATION OPERATIONS COMAND/MB	
Violation Type:	Monitoring, Routine Major (TCR)	
Contaminant:	COLIFORM (TCR)	
Compliance Period:	11/1/2005 0:00:00 - 11/30/2005 0:00:00	
Violation ID:	423006	
Enforcement Date:	12/5/2005 0:00:00	Enf. Action: State Compliance Achieved
System Name:	NAVY INFORMATION OPERATIONS COMAND/MB	
Violation Type:	Monitoring, Routine Major (TCR)	
Contaminant:	COLIFORM (TCR)	
Compliance Period:	11/1/2005 0:00:00 - 11/30/2005 0:00:00	
Violation ID:	423006	
Enforcement Date:	12/30/2005 0:00:00	Enf. Action: State Public Notif Requested
System Name:	NAVY INFORMATION OPERATIONS COMAND/MB	
Violation Type:	Monitoring, Routine Major (TCR)	
Contaminant:	COLIFORM (TCR)	
Compliance Period:	11/1/2005 0:00:00 - 11/30/2005 0:00:00	
Violation ID:	423006	
Enforcement Date:	12/30/2005 0:00:00	Enf. Action: State Formal NOV Issued
System Name:	NAVY INFORMATION OPERATIONS COMAND/MB	
Violation Type:	Monitoring, Routine Major (TCR)	
Contaminant:	COLIFORM (TCR)	
Compliance Period:	11/1/2005 0:00:00 - 11/30/2005 0:00:00	
Violation ID:	423006	
Enforcement Date:	12/30/2005 0:00:00	Enf. Action: State Formal NOV Issued
System Name:	NAVY INFORMATION OPERATIONS COMAND/MB	
Violation Type:	Monitoring and Reporting Stage 1	
Contaminant:	2456	
Compliance Period:	1/1/2006 0:00:00 - 3/31/2006 0:00:00	
Violation ID:	423206	
Enforcement Date:	5/18/2006 0:00:00	Enf. Action: State Public Notif Requested
System Name:	NAVY INFORMATION OPERATIONS COMAND/MB	
Violation Type:	Monitoring and Reporting Stage 1	
Contaminant:	2456	
Compliance Period:	1/1/2006 0:00:00 - 3/31/2006 0:00:00	
Violation ID:	423206	
Enforcement Date:	5/18/2006 0:00:00	Enf. Action: State Formal NOV Issued
System Name:	NAVY INFORMATION OPERATIONS COMAND/MB	
Violation Type:	Monitoring and Reporting Stage 1	
Contaminant:	2456	
Compliance Period:	1/1/2006 0:00:00 - 3/31/2006 0:00:00	
Violation ID:	423206	
Enforcement Date:	6/23/2006 0:00:00	Enf. Action: State Public Notif Received
System Name:	NAVY INFORMATION OPERATIONS COMAND/MB	
Violation Type:	Monitoring and Reporting Stage 1	
Contaminant:	2456	
Compliance Period:	1/1/2006 0:00:00 - 3/31/2006 0:00:00	
Violation ID:	423206	
Enforcement Date:	6/23/2006 0:00:00	Enf. Action: State Public Notif Received
System Name:	NAVY INFORMATION OPERATIONS COMAND/MB	
Violation Type:	Monitoring and Reporting Stage 1	
Contaminant:	2456	
Compliance Period:	1/1/2006 0:00:00 - 3/31/2006 0:00:00	
Violation ID:	423206	
Enforcement Date:	5/18/2006 0:00:00	Enf. Action: State Public Notif Requested

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

ENFORCEMENT INFORMATION:

System Name:	NAVY INFORMATION OPERATIONS COMAND/MB	
Violation Type:	Monitoring and Reporting Stage 1	
Contaminant:	2456	
Compliance Period:	1/1/2006 0:00:00 - 3/31/2006 0:00:00	
Violation ID:	423206	
Enforcement Date:	5/18/2006 0:00:00	Enf. Action: State Formal NOV Issued
System Name:	NAVY INFORMATION OPERATIONS COMAND/MB	
Violation Type:	Monitoring and Reporting Stage 1	
Contaminant:	2456	
Compliance Period:	1/1/2006 0:00:00 - 3/31/2006 0:00:00	
Violation ID:	423206	
Enforcement Date:	4/12/2006 0:00:00	Enf. Action: State Compliance Achieved
System Name:	NAVY INFORMATION OPERATIONS COMAND/MB	
Violation Type:	Monitoring and Reporting Stage 1	
Contaminant:	TTHM	
Compliance Period:	1/1/2006 0:00:00 - 3/31/2006 0:00:00	
Violation ID:	423306	
Enforcement Date:	4/12/2006 0:00:00	Enf. Action: State Compliance Achieved
System Name:	NAVY INFORMATION OPERATIONS COMAND/MB	
Violation Type:	Monitoring and Reporting Stage 1	
Contaminant:	TTHM	
Compliance Period:	1/1/2006 0:00:00 - 3/31/2006 0:00:00	
Violation ID:	423306	
Enforcement Date:	5/18/2006 0:00:00	Enf. Action: State Formal NOV Issued
System Name:	NAVY INFORMATION OPERATIONS COMAND/MB	
Violation Type:	Monitoring and Reporting Stage 1	
Contaminant:	TTHM	
Compliance Period:	1/1/2006 0:00:00 - 3/31/2006 0:00:00	
Violation ID:	423306	
Enforcement Date:	5/18/2006 0:00:00	Enf. Action: State Public Notif Requested
System Name:	NAVY INFORMATION OPERATIONS COMAND/MB	
Violation Type:	Monitoring and Reporting Stage 1	
Contaminant:	TTHM	
Compliance Period:	1/1/2006 0:00:00 - 3/31/2006 0:00:00	
Violation ID:	423306	
Enforcement Date:	5/18/2006 0:00:00	Enf. Action: State Formal NOV Issued
System Name:	NAVY INFORMATION OPERATIONS COMAND/MB	
Violation Type:	Monitoring and Reporting Stage 1	
Contaminant:	TTHM	
Compliance Period:	1/1/2006 0:00:00 - 3/31/2006 0:00:00	
Violation ID:	423306	
Enforcement Date:	5/18/2006 0:00:00	Enf. Action: State Public Notif Requested
System Name:	NAVY INFORMATION OPERATIONS COMAND/MB	
Violation Type:	Monitoring and Reporting Stage 1	
Contaminant:	TTHM	
Compliance Period:	1/1/2006 0:00:00 - 3/31/2006 0:00:00	
Violation ID:	423306	
Enforcement Date:	6/23/2006 0:00:00	Enf. Action: State Public Notif Received
System Name:	NAVY INFORMATION OPERATIONS COMAND/MB	
Violation Type:	Monitoring and Reporting Stage 1	
Contaminant:	TTHM	
Compliance Period:	1/1/2006 0:00:00 - 3/31/2006 0:00:00	
Violation ID:	423306	
Enforcement Date:	6/23/2006 0:00:00	Enf. Action: State Public Notif Received

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

ENFORCEMENT INFORMATION:

System Name:	US NAVEL RADIO STATION		
Violation Type:	Treatment Technique (SWTR)		
Contaminant:	SWTR		
Compliance Period:	1995-09-01 - 1995-09-30		
Violation ID:	9504223		
Enforcement Date:	1995-09-20	Enf. Action:	State Public Notif Requested
System Name:	US NAVEL RADIO STATION		
Violation Type:	Treatment Technique (SWTR)		
Contaminant:	SWTR		
Compliance Period:	1995-09-01 - 1995-09-30		
Violation ID:	9504223		
Enforcement Date:	1995-09-20	Enf. Action:	State Formal NOV Issued

CONTACT INFORMATION:

Name:	NAVY INFORMATION OPERATIONS COMMAND	Phone:	250
Contact:	DOSS, LIEUTENANT	Phone:	340-249-6340
Address:	PUBLIC WORKS DEPARTMENT		
Address 2:	63 HEDRICK DRIVE		
	SUGAR GROVE, WV 26815		

A3
WNW
1/4 - 1/2 Mile
Lower

FED USGS USGS40001298768

Org. Identifier:	USGS-WV		
Formal name:	USGS West Virginia Water Science Center		
Monloc Identifier:	USGS-383415079164102		
Monloc name:	Pen-0048		
Monloc type:	Well		
Monloc desc:	Original station name was 2606014		
Huc code:	02070001	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	38.5709529
Longitude:	-79.2778173	Sourcemap scale:	Not Reported
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1720.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Valley and Ridge aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	18
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel

1958-07-01	17.00	

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
 Direction
 Distance
 Elevation

Database EDR ID Number

A4
WNW
1/4 - 1/2 Mile
Lower

FED USGS USGS40001298767

Org. Identifier:	USGS-WV		
Formal name:	USGS West Virginia Water Science Center		
Monloc Identifier:	USGS-383415079164101		
Monloc name:	Pen-0047		
Monloc type:	Well		
Monloc desc:	Original station name was 2606013		
Huc code:	02070001	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	38.5709529
Longitude:	-79.2778173	Sourcemap scale:	Not Reported
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1720.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Valley and Ridge aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported		
Welldepth units:	ft	Welldepth:	23
Wellholedepth units:	Not Reported	Wellholedepth:	Not Reported

Ground-water levels, Number of Measurements: 1

	Feet below	Feet to
Date	Surface	Sealevel

1958-07-01	16.00	

5
WSW
1/4 - 1/2 Mile
Higher

FED USGS USGS40001298733

Org. Identifier:	USGS-WV		
Formal name:	USGS West Virginia Water Science Center		
Monloc Identifier:	USGS-383402079164201		
Monloc name:	Pen-0045		
Monloc type:	Well		
Monloc desc:	Original station name was 2606018		
Huc code:	02070001	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	38.5673419
Longitude:	-79.2780951	Sourcemap scale:	Not Reported
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1750.00
Vert measure units:	feet	Vertacc measure val:	50
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Valley and Ridge aquifers		
Formation type:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Aquifer type:	Not Reported	Welldepth:	20
Construction date:	Not Reported	Wellholedepth:	Not Reported
Welldepth units:	ft		
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

6
NW
1/4 - 1/2 Mile
Higher

WV WELLS WWELL1325

Id number:	2628	Pwsid:	WV3303613
Sys name:	PENDLETON CO. PSD(BRANDYWINE)		
Facility id:	564646		
Fac name:	FALLING SPRING		
City:	FRANKLIN	County:	PENDLETON
Act status:	A	Water type:	Groundwater under the direct influence of surface water
Owner type:	Local	Daily prod:	0
Sys popula:	658	Sys type:	Community
Latitude:	38.574167	Longitude:	-79.278333
Elevation:	0	Updated:	Not Reported
Wdate:	Not Reported		
Descriptio:	Not Reported		
User initi:	Not Reported	Gudi statu:	Not Reported
Sourcetype:	Not Reported	Whp radius:	500
Prod gpd:	0	Conv facto:	0
Calc pop:	0	Seasonbegi:	Not Reported
Season end:	Not Reported	Facility type:	Spring

B7
NE
1/2 - 1 Mile
Lower

FED USGS USGS40001298811

Org. Identifier:	USGS-WV		
Formal name:	USGS West Virginia Water Science Center		
Monloc Identifier:	USGS-383436079155801		
Monloc name:	Pen-0050		
Monloc type:	Well		
Monloc desc:	Original station name was 2606020		
Huc code:	02070001	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	38.5767862
Longitude:	-79.2658725	Sourcemap scale:	Not Reported
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsyz:	NAD83	Vert measure val:	1700.00
Vert measure units:	feet	Vertacc measure val:	50
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsyz:	NGVD29	Countrycode:	US
Aquifername:	Valley and Ridge aquifers		
Formation type:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Aquifer type:	Not Reported	Welldepth:	18
Construction date:	Not Reported	Wellholedepth:	Not Reported
Welldepth units:	ft		
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel

1958-07-01	15.00	

B8
NE
1/2 - 1 Mile
Lower

FED USGS USGS40001298812

Org. Identifier:	USGS-WV		
Formal name:	USGS West Virginia Water Science Center		
Monloc Identifier:	USGS-383436079155802		
Monloc name:	Pen-0051		
Monloc type:	Well		
Monloc desc:	Original station name was 2606021		
Huc code:	02070001	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	38.5767862
Longitude:	-79.2658725	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1700.00
Vert measure units:	feet	Vertacc measure val:	50
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Valley and Ridge aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	85
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

C9
SW
1/2 - 1 Mile
Lower

FED USGS USGS40001298714

Org. Identifier:	USGS-WV		
Formal name:	USGS West Virginia Water Science Center		
Monloc Identifier:	USGS-383349079165701		
Monloc name:	Pen-0040		
Monloc type:	Well		
Monloc desc:	Original station name was 2606016		
Huc code:	02070001	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	38.5637309
Longitude:	-79.2822619	Sourcemap scale:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1740.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Valley and Ridge aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	30
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

C10
SW
1/2 - 1 Mile
Lower

FED USGS USGS40001298715

Org. Identifier:	USGS-WV		
Formal name:	USGS West Virginia Water Science Center		
Monloc Identifier:	USGS-383349079165702		
Monloc name:	Pen-0041		
Monloc type:	Well		
Monloc desc:	Original station name was 2606017		
Huc code:	02070001	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	38.5637309
Longitude:	-79.2822619	Sourcemap scale:	Not Reported
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1740.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Valley and Ridge aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	80
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

11
NNW
1/2 - 1 Mile
Higher

FED USGS USGS40001298826

Org. Identifier:	USGS-WV		
Formal name:	USGS West Virginia Water Science Center		
Monloc Identifier:	USGS-383442079164901		
Monloc name:	Pen-0053		
Monloc type:	Well		
Monloc desc:	Original station name was 2606015		
Huc code:	02070001	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	38.5784526
Longitude:	-79.2800397	Sourcemap scale:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1810.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Valley and Ridge aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	14
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel

1958-07-01	7.00	

12
NNE
1/2 - 1 Mile
Lower

FED USGS USGS40001298832

Org. Identifier:	USGS-WV		
Formal name:	USGS West Virginia Water Science Center		
Monloc Identifier:	USGS-383444079160001		
Monloc name:	Pen-0054		
Monloc type:	Well		
Monloc desc:	Original station name was 2606022		
Huc code:	02070001	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	38.5790083
Longitude:	-79.266428	Sourcemap scale:	Not Reported
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1680.00
Vert measure units:	feet	Vertacc measure val:	50
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Valley and Ridge aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	Not Reported
Welldepth units:	Not Reported	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS RADON

AREA RADON INFORMATION

EPA Region 3 Statistical Summary Readings for Zip Code: 26815

Number of sites tested: 3.

Maximum Radon Level: 7.4 pCi/L.

Minimum Radon Level: 1.2 pCi/L.

<u>pCi/L</u> <u><4</u>	<u>pCi/L</u> <u>4-10</u>	<u>pCi/L</u> <u>10-20</u>	<u>pCi/L</u> <u>20-50</u>	<u>pCi/L</u> <u>50-100</u>	<u>pCi/L</u> <u>>100</u>
2 (66.67%)	1 (33.33%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)

Source: United States Geologic Survey

EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)

Source: United States Geologic Survey

A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW^R Information System

Source: EDR proprietary database of groundwater flow information

EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit

Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)

Telephone: 800-672-5559

SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)

This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

West Virginia Water Well Information

Source: Bureau of Public Health

Telephone: 304-558-6765

OTHER STATE DATABASE INFORMATION

West Virginia Oil and Gas Well Database

Source: Department of Environmental Protection

Telephone: 304-926-0450

Oil and Gas well locations in the state.

RADON

Area Radon Information

Source: USGS

Telephone: 703-356-4020

The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones

Source: EPA

Telephone: 703-356-4020

Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

EPA Region 3 Statistical Summary Readings

Source: Region 3 EPA

Telephone: 215-814-2082

Radon readings for Delaware, D.C., Maryland, Pennsylvania, Virginia and West Virginia.

OTHER

Airport Landing Facilities: Private and public use landing facilities

Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater

Source: Department of Commerce, National Oceanic and Atmospheric Administration

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

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NSA Sugar Grove Lower Base

ECKARD ST

Sugar Grove, WV 26815

Inquiry Number: 3738459.4

September 24, 2013

EDR Historical Topographic Map Report

EDR Historical Topographic Map Report

Environmental Data Resources, Inc.s (EDR) Historical Topographic Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topographic Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the early 1900s.

Thank you for your business.
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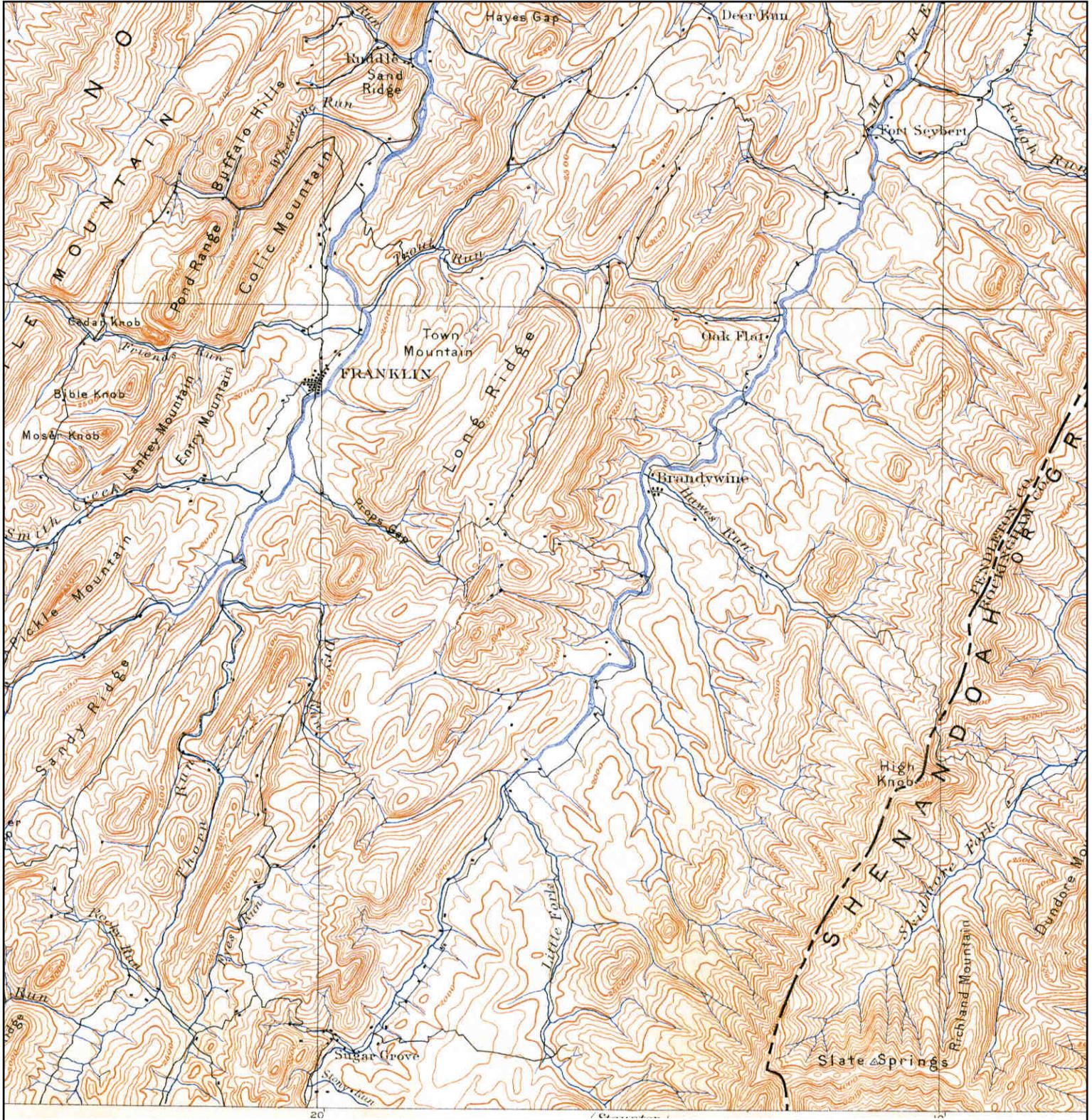
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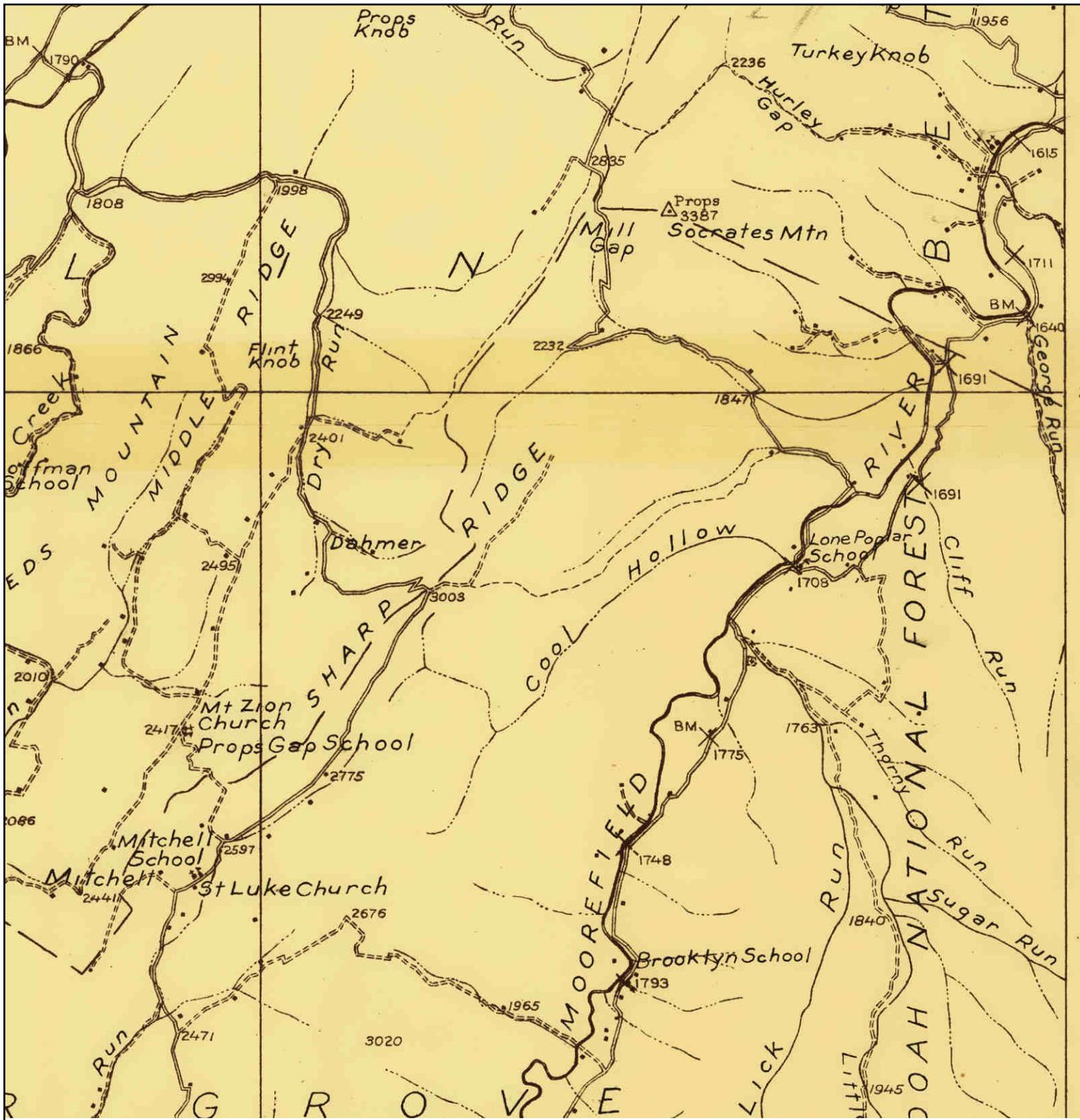
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Historical Topographic Map



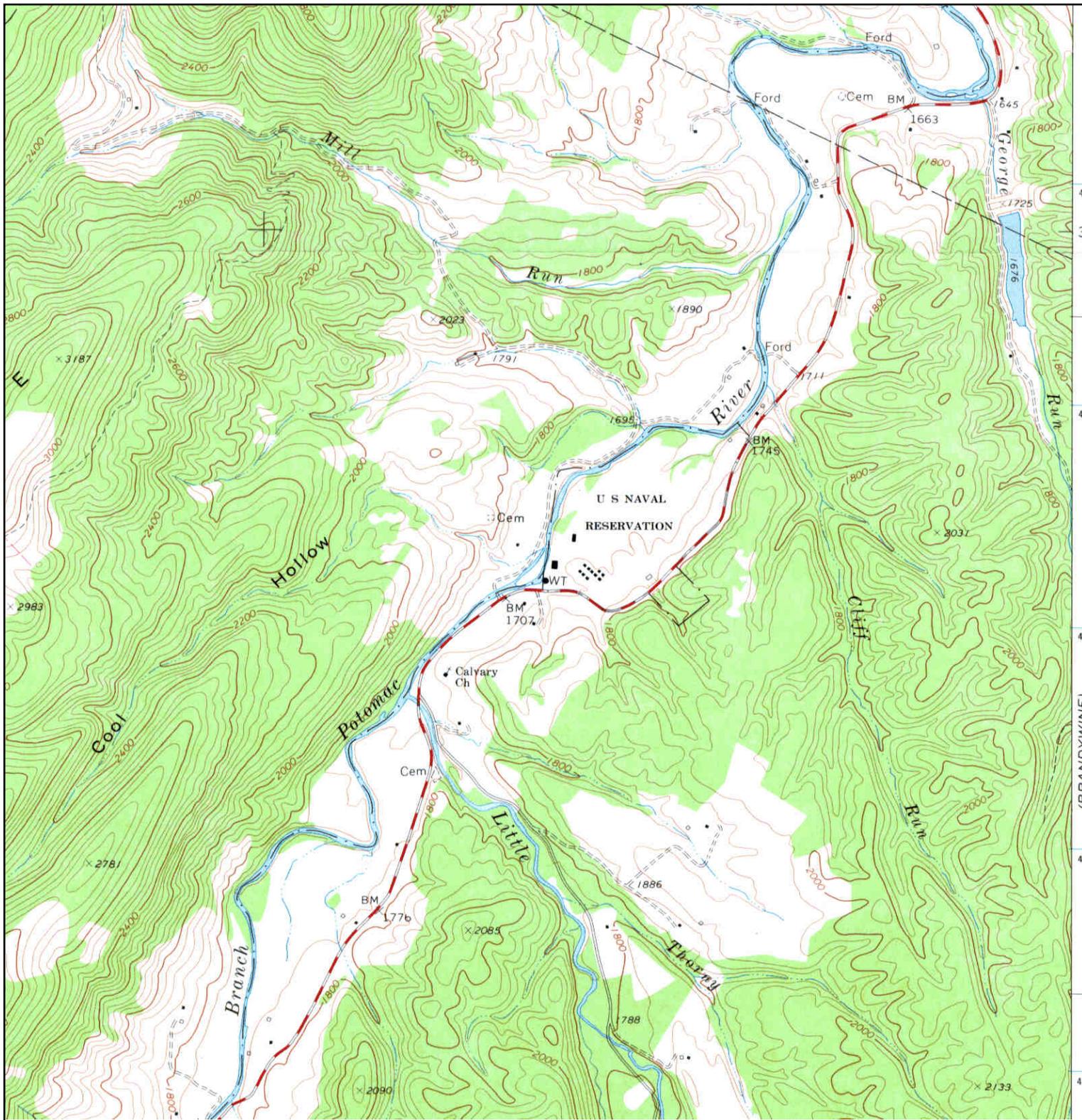
 <p>N</p>	TARGET QUAD	SITE NAME: NSA Sugar Grove Lower Base	CLIENT: Michael Baker Jr. Inc.
	NAME: FRANKLIN	ADDRESS: ECKARD ST	CONTACT: William Harris
	MAP YEAR: 1896	Sugar Grove, WV 26815	INQUIRY#: 3738459.4
	SERIES: 30	LAT/LONG: 38.5697 / -79.2727	RESEARCH DATE: 09/24/2013
	SCALE: 1:125000		

Historical Topographic Map



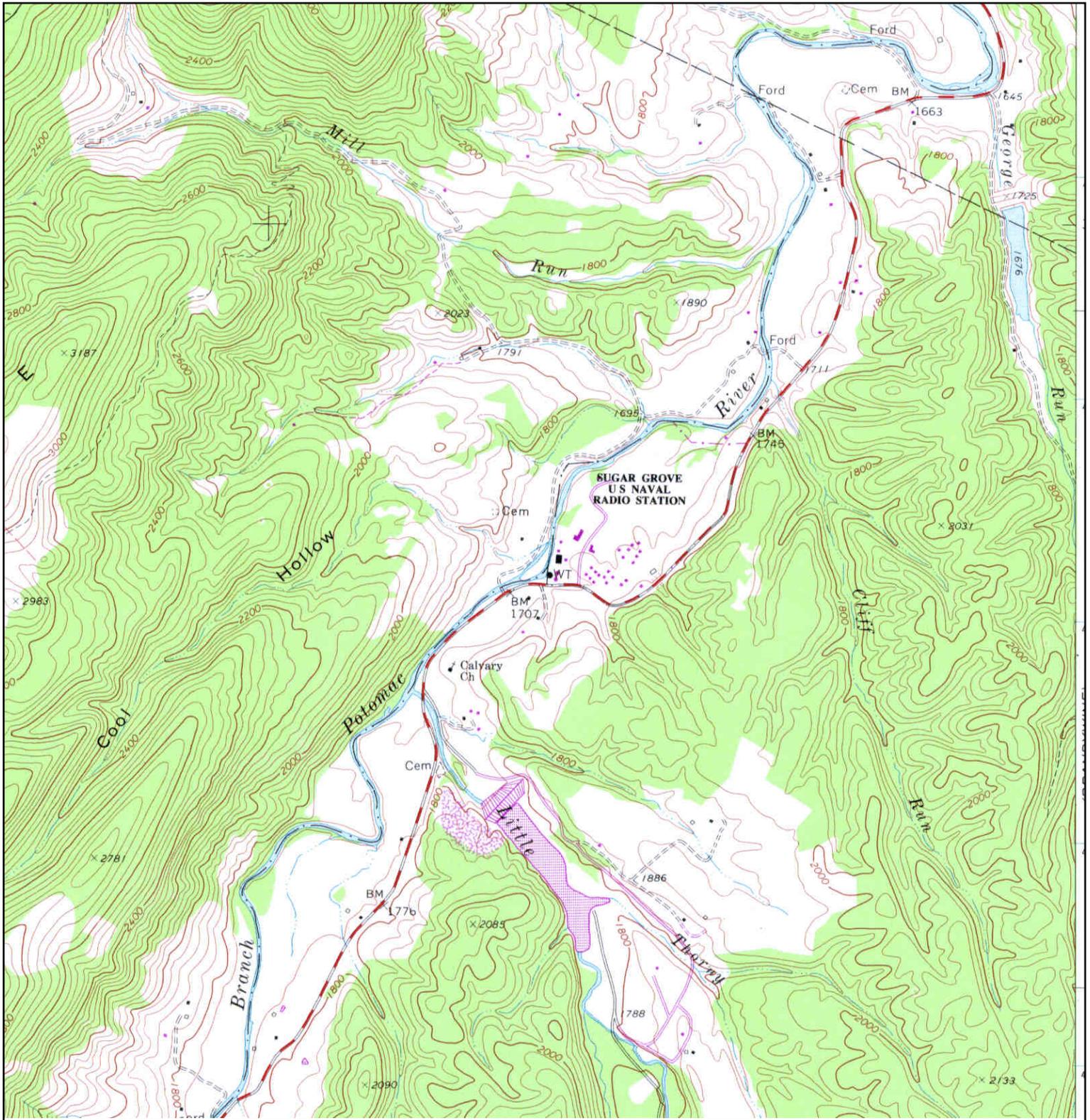
 <p>N</p>	TARGET QUAD	SITE NAME: NSA Sugar Grove Lower Base	CLIENT: Michael Baker Jr. Inc.
	NAME: CIRCLEVILLE	ADDRESS: ECKARD ST	CONTACT: William Harris
	MAP YEAR: 1922	Sugar Grove, WV 26815	INQUIRY#: 3738459.4
	SERIES: 15	LAT/LONG: 38.5697 / -79.2727	RESEARCH DATE: 09/24/2013
	SCALE: 1:48000		

Historical Topographic Map



	TARGET QUAD	SITE NAME: NSA Sugar Grove Lower Base	CLIENT: Michael Baker Jr. Inc.
	NAME: SUGAR GROVE	ADDRESS: ECKARD ST	CONTACT: William Harris
	MAP YEAR: 1969	Sugar Grove, WV 26815	INQUIRY#: 3738459.4
	SERIES: 7.5	LAT/LONG: 38.5697 / -79.2727	RESEARCH DATE: 09/24/2013
	SCALE: 1:24000		

Historical Topographic Map



	TARGET QUAD	SITE NAME: NSA Sugar Grove Lower Base	CLIENT: Michael Baker Jr. Inc.
	NAME: SUGAR GROVE	ADDRESS: ECKARD ST	CONTACT: William Harris
	MAP YEAR: 1981	Sugar Grove, WV 26815	INQUIRY#: 3738459.4
	PHOTOREVISED FROM : 1969	LAT/LONG: 38.5697 / -79.2727	RESEARCH DATE: 09/24/2013
	SERIES: 7.5		
	SCALE: 1:24000		



NSA Sugar Grove Lower Base

ECKARD ST

Sugar Grove, WV 26815

Inquiry Number: 3738459.5

September 25, 2013

The EDR Aerial Photo Decade Package

EDR Aerial Photo Decade Package

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Date EDR Searched Historical Sources:

Aerial Photography September 25, 2013

Target Property:

ECKARD ST

Sugar Grove, WV 26815

<u>Year</u>	<u>Scale</u>	<u>Details</u>	<u>Source</u>
1960	Aerial Photograph. Scale: 1"=1000'	Panel #: 38079-E3, Sugar Grove, WV; Flight Date: October 25, 1960	EDR
1966	Aerial Photograph. Scale: 1"=750'	Panel #: 38079-E3, Sugar Grove, WV; Flight Date: May 04, 1966	EDR
1982	Aerial Photograph. Scale: 1"=1000'	Panel #: 38079-E3, Sugar Grove, WV; Flight Date: April 18, 1982	EDR
1990	Aerial Photograph. Scale: 1"=500'	Panel #: 38079-E3, Sugar Grove, WV; DOQQ - acquisition dates: October 16, 1990	EDR
1991	Aerial Photograph. Scale: 1"=750'	Panel #: 38079-E3, Sugar Grove, WV; Flight Date: April 11, 1991	EDR
1997	Aerial Photograph. Scale: 1"=750'	Panel #: 38079-E3, Sugar Grove, WV; Flight Date: March 27, 1997	EDR
2006	Aerial Photograph. Scale: 1"=500'	Panel #: 38079-E3, Sugar Grove, WV; Flight Year: 2006	EDR
2007	Aerial Photograph. Scale: 1"=500'	Panel #: 38079-E3, Sugar Grove, WV; Flight Year: 2007	EDR
2009	Aerial Photograph. Scale: 1"=500'	Panel #: 38079-E3, Sugar Grove, WV; Flight Year: 2009	EDR
2011	Aerial Photograph. Scale: 1"=500'	Panel #: 38079-E3, Sugar Grove, WV; Flight Year: 2011	EDR



INQUIRY #: 3738459.5

YEAR: 1960

| = 1000'





INQUIRY #: 3738459.5

YEAR: 1966

 = 750'





INQUIRY #: 3738459.5

YEAR: 1982

| = 1000'



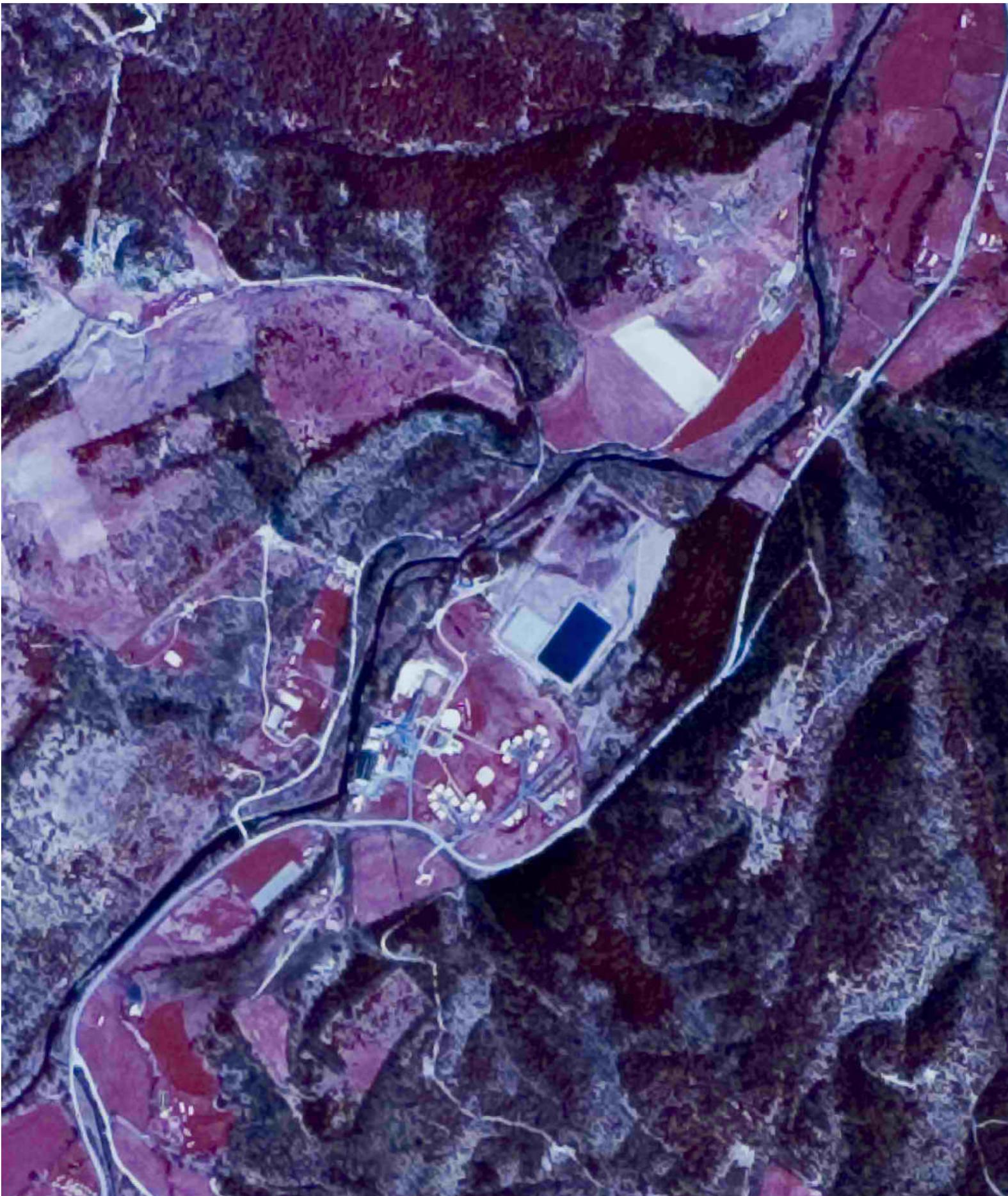


INQUIRY #: 3738459.5

YEAR: 1990

 = 500'





INQUIRY #: 3738459.5

YEAR: 1991

| = 750'





INQUIRY #: 3738459.5

YEAR: 1997

| = 750'





INQUIRY #: 3738459.5

YEAR: 2006

 = 500'





INQUIRY #: 3738459.5

YEAR: 2007

 = 500'





INQUIRY #: 3738459.5

YEAR: 2009

| = 500'





INQUIRY #: 3738459.5

YEAR: 2011

| = 500'





NSA Sugar Grove Lower Base

ECKARD ST

Sugar Grove, WV 26815

Inquiry Number: 3738459.3

September 24, 2013

Certified Sanborn® Map Report

Certified Sanborn® Map Report

9/24/13

Site Name:

NSA Sugar Grove Lower Base
ECKARD ST
Sugar Grove, WV 26815

Client Name:

Michael Baker Jr. Inc.
272 Bendix Road
Virginia Beach, VA 23452

EDR Inquiry # 3738459.3

Contact: William Harris



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Certified Sanborn Results:

Site Name: NSA Sugar Grove Lower Base
Address: ECKARD ST
City, State, Zip: Sugar Grove, WV 26815
Cross Street:
P.O. # 137359 Task 1
Project: NSA Sugar Grove Lower Base ECP
Certification # 4D54-4B86-8D25



Sanborn® Library search results
Certification # 4D54-4B86-8D25

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

The Sanborn Library includes more than 1.2 million Sanborn fire insurance maps, which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- Library of Congress
- University Publications of America
- EDR Private Collection

The Sanborn Library LLC Since 1866™

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NSA Sugar Grove Lower Base

ECKARD ST
Sugar Grove, WV 26815

Inquiry Number: 3738459.6
September 24, 2013

The EDR-City Directory Abstract

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EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Abstract is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Abstract includes a search and abstract of available city directory data. For each address, the directory lists the name of the corresponding occupant at five year intervals.

Business directories including city, cross reference and telephone directories were reviewed, if available, at approximately five year intervals for the years spanning 1999 through 2012. This report compiles information gathered in this review by geocoding the latitude and longitude of properties identified and gathering information about properties within 660 feet of the target property.

A summary of the information obtained is provided in the text of this report.

RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. An "X" indicates where information was identified in the source and provided in this report.

<u>Year</u>	<u>Source</u>	<u>TP</u>	<u>Adjoining</u>	<u>Text Abstract</u>	<u>Source Image</u>
2012	Cole Information Services	-	-	-	-
2007	Cole Information Services	-	-	-	-
2002	Cole Information Services	-	-	-	-
1999	Cole Information Services	-	-	-	-

FINDINGS

TARGET PROPERTY INFORMATION

ADDRESS

ECKARD ST
Sugar Grove, WV 26815

FINDINGS DETAIL

Target Property research detail.

FINDINGS

ADJOINING PROPERTY DETAIL

The following Adjoining Property addresses were researched for this report. Detailed findings are provided for each address.

No Addresses Found

FINDINGS

TARGET PROPERTY: ADDRESS NOT IDENTIFIED IN RESEARCH SOURCE

The following Target Property addresses were researched for this report, and the addresses were not identified in the research source.

Address Researched

ECKARD ST

Address Not Identified in Research Source

2012, 2007, 2002, 1999

Appendix J
List of Records Reviewed

The following required federal, state, and tribal environmental databases were reviewed during the preparation of this report:

- Federal National Priority List (NPL) site list
- Federal Delisted NPL site list
- Record of Decision (ROD),
- Enforcement and Compliance History Online (ECHO)
- Federal Comprehensive Environmental Response, compensation and Liability Information System (CERCLIS)
- No Further Remedial Action Planned (NFRAP) list
- Federal Resource Conservation and Recovery Act (RCRA) Corrective Action Sites (CORRACTS) facilities list
- Federal RCRA non-CORRACTS Treatment, Storage and Disposal facilities list
- Federal RCRA generators list
- Federal institutional controls / engineering controls registries
- Federal Emergency Response Notification System (ERNS) list
- State- and tribal-equivalent CERCLIS
- State and tribal landfill and/or solid waste disposal site lists
- State and tribal registered storage tank lists
- State and tribal Leaking Storage Tank (LTANK) list;
- State and tribal Leaking Underground Storage Tank (LUST) list;
- State and tribal institutional control / engineering control registries
- State and tribal voluntary cleanup sites
- State and tribal Brownfield sites
- National Response Center (NRC)
- West Virginia State Historic Preservation Office (SHPO)
- US Department of Agriculture (USDA) Geospatial Data Gateway
- USDA Web Soil Survey
- US Fish and Wildlife Service (USFWS) Environmental Conservation Online System

The following documents were reviewed during the preparation of this report:

AH Environmental, 2000, *Final Potomac River Water Quality Monitoring and Control Study*, Naval Security Group, Sugar Grove, West Virginia, N62470-98-D-4527 DO-0010, February 2000.

AGVIO, CH2M Hill, 2006, *Final Environmental Liability Report for Other Accrued Environmental Liabilities at Naval Information Operations Command (NIOC) Sugar Grove, West Virginia*, N62470-03-4401 DO-058, August 2006.

DoN, 1991, Commander, Atlantic Division, Naval Facilities Engineering Command, *Navy Radon Assessment and Mitigation Program (NAVRAMP) Screening Results: Radon Screening Results for Naval Radio Station, Sugar Grove*, February 14, 1991.

DoN, 1994, Commander, Atlantic Division, Naval Facilities Engineering Command, *Navy Radon Assessment and Mitigation Program (NAVRAMP) Assessment Results: Radon Test Results for Naval Security Group Activity, Sugar Grove*, May 4, 1994.

Environmental Science & Engineering, Inc., 1996a, *Final Site Assessment Report – Underground Storage Tank Site 201/202, Naval Security Group Activity Sugar Grove, Sugar Grove, West Virginia*, N62470-93-D-4019 DO 0042, February 1996.

Environmental Science & Engineering, Inc., 1996b, *Final Site Assessment Report – Underground Storage Tank Site 205/206, Naval Security Group Activity Sugar Grove, Sugar Grove, West Virginia*, N62470-93-D-4019 DO 0042, February 1996.

Gannett Fleming Inc., 1997, *Naval Security Group Activity Sugar Grove, Sugar Grove, West Virginia*, N62470-94-D-2408 DO-0014, 5 March 1997

Jones Technologies, Inc, 2002, *Solid Waste Management Plan, Sugar Grove, West Virginia*, N62470-00-M3177, August 2002.

Jones Technologies, Inc. and IT Corporation, 2001, *Pollution Prevention Plan, Naval Security Group Activity Sugar Grove, West Virginia*, N62470-99-R-4681 DO-0007, April 2001.

Malcolm Pirnie Inc., 1998, *Draft Management Action Plan, Naval Security Group Activity, Sugar Grove, West Virginia*, N62470-96-D-5905 DO-0013, May 1998.

Michael Baker Jr., Inc., (Baker) 2004, *Asbestos and Lead-Based Paint Inspection and Risk Assessment for Military Family Housing, Naval Security Group Activity Sugar Grove, Sugar Grove, West Virginia*, N62470-01-D-3010, February, 2004.

Michael Baker Jr., Inc., 2005, *Final Phase I- Environmental Baseline Survey, Privatization of Family Housing for Mid-Atlantic Sites- Hampton Roads Activities*, N62470-01-D-3010 DO-001, February 11, 2005.

Mid-Atlantic Associates, Inc., 2003, *First Quarter 2003 Monitoring Report – USTs 201 and 202, Naval Security Group Activity Sugar Grove, West Virginia*, N62470-01-D-3009 DO 0050, May 30, 2003.

Mid-Atlantic Associates, Inc., 2004a, *Fourth Quarter 2003 Monitoring Report – USTs 201 and 202, Naval Security Group Activity Sugar Grove, West Virginia*, N62470-01-D-3009 DO 0050, February 19, 2004.

Mid-Atlantic Associates, Inc., 2004b, *Monitoring Well Abandonment – USTs 201 and 202, Naval Security Group Activity Sugar Grove, West Virginia*, N62470-01-D-3009, November 24, 2004.

Naval Facilities Engineering Command (NAVFAC) Mid- Atlantic, *Environmental Quality Assessment of Naval Security Group Activity Sugar Grove*, 12-16 June 2000.

NAVFAC Mid- Atlantic, 2011, *Integrated Contingency Plan, Naval Information Operations Command Sugar Grove, Sugar Grove, West Virginia*, June 2011.

Naval Energy and Environmental Support Activity (NEESA), 1985, *Assessment of Waste Disposal Sites, Naval Radio Station, Sugar Grove, West Virginia, Port Hueneme, California*, September 1985.

Naval Energy and Environmental Support Activity (NEESA), 1988. *Preliminary Assessment Report, Naval Radio Station Sugar Grove, West Virginia 26816*, NEESA 13-138PA, Port Hueneme, California 93043, March 1988.

R. Christopher Goodwin and Associates, 1998, *Phase II Archaeological Evaluation of Site 46PD290, Naval Security Group Activity Sugar Grove, Pendleton County, West Virginia*, November 27, 1998.

R. Christopher Goodwin and Associates, 1999, *Phase I Cultural Resources Survey of Naval Security Group Activity Sugar Grove, Pendleton County, West Virginia*, March 8, 1999.

Tetra Tech, Inc., 2010, *Final Integrated Natural Resources Management Plan, Naval Information Operation Command Sugar Grove, Sugar Grove, West Virginia*, May 2010.

Appendix K
Additional Supporting Documents

- 1- Michael Baker Jr., Inc., (Baker), 2004, *Asbestos and Lead-Based Paint Inspection and Risk Assessment for Military Family Housing, Naval Security Group Activity Sugar Grove, Sugar Grove, West Virginia*, N62470-01-D-3010, February, 2004.
- 2- Michael Baker Jr., Inc., (Baker) 2005, *Final Phase I- Environmental Baseline Survey, Privatization of Family Housing for Mid-Atlantic Sites-Hampton Roads Activities*, Section 12, N62470-01-D-3010 DO-001, 11 February 2005.
- 3- Naval Energy and Environmental Support Activity (NEESA), 1988. *Preliminary Assessment Report, Naval Radio Station Sugar Grove, West Virginia 26816*, NEESA 13-138PA, Port Hueneme, California 93043, March 1988.
- 4- DoN, 1991, Commander, Atlantic Division, Naval Facilities Engineering Command, *Navy Radon Assessment and Mitigation Program (NAVRAMP) Screening Results: Radon Screening Results for Naval Radio Station, Sugar Grove*, 14 February 1991.

**ASBESTOS AND LEAD-BASED PAINT INSPECTION
AND
RISK ASSESSMENT REPORT
FOR
MILITARY FAMILY HOUSING
NAVAL SECURITY GROUP ACTIVITY SUGAR GROVE
SUGAR GROVE, WEST VIRGINIA**

Contract N62470-01-D-3010

February 2004

**Prepared by:
Baker Environmental, Inc.**

**Under Contract with:
Department of the Navy
Naval Facilities Engineering Command
Atlantic Division**

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EXECUTIVE SUMMARY

Regulatory Background - Asbestos

The United States Environmental Protection Agency (USEPA) and the state of West Virginia define asbestos-containing material (ACM) as any material that contains greater than one percent asbestos. Title 40 of the Code of Federal Regulations, Part 61 (40 CFR 61), Subpart M (USEPA National Emission Standards for Hazardous Air Pollutants) requires that an asbestos inspection be conducted prior to renovation/demolition activities. However, the regulation does not apply where the residential structure being renovated or demolished contains four or fewer dwelling units.

Federal property management regulations require that, prior to property disposal, all available information on the existence and extent of ACM be provided to the transferee.

Regulatory Background – Lead Paint

The United States Environmental Protection Agency (USEPA) and the United States Department of Housing and Urban Development (HUD) define lead-based paint (LBP) as paint that contains greater than or equal to 1.0 milligram per square centimeter (mg/cm^2) lead or greater than or equal to 0.5 percent lead by weight. The state of West Virginia defines lead-based paint (LBP) as paint that contains greater than or equal to 1.0 milligram per square centimeter (mg/cm^2) lead or greater than or equal to 0.5 percent lead by weight.

The Department of Defense (DoD) recognizes that the Residential Lead-Based Paint Hazard Reduction Act (Act) governs LBP activities in DoD residential housing. The Act, commonly known as Title X of the Housing and Community Development Act of 1992 (42 United States Code 4822), requires federal departments and agencies to address lead hazards in residential properties. Section 1003 of Title X (42 United States Code 4851 (a)(6)) states that Congress intends “to reduce the threat of childhood lead poisoning in housing owned, assisted, or transferred by the Federal Government.” Section 1013 of Title X “requires the inspection and abatement of lead-based paint hazards in all federally-owned target housing constructed prior to 1960” as well as the “inspection for lead-based paint and lead-based paint hazards in all federally owned target housing constructed between 1960-1977” for transferring property. Sections 1012 and 1013 of Title X require the HUD to issue

regulations for transferring residential property to perform inspections, risk assessments, interim controls and abatements of LBP hazards in federally-owned target housing and target housing receiving federal assistance. Section 1018 includes requirements for disclosing known LBP and LBP hazards before sale or lease of federally-owned and federally-assisted housing. Title X also amended the Toxic Substances Control Act (TSCA) (15 United States Code 2681) by adding provisions for developing regulations for identifying LBP hazards on residential property (Section 403), including standards for dust and soil. Training and certification for people involved in LBP activities is authorized under Section 402 (15 United States Code 2680). TSCA (15 United States Code 2688) also contains a waiver of sovereign immunity, thereby subjecting the federal government to state laws and regulations.

HUD and the USEPA developed regulations to implement Title X. The implementing regulations are 24 CFR 35 and 40 CFR 745. Within 24 CFR 35, Subpart A describes disclosure responsibilities, Subpart B provides definitions and establishes programs, Subpart C considers federal property transfers, and Subpart R establishes methods and standards for assessing LBP hazards. Within 40 CFR 745, Subpart D provides information on identifying dangerous levels of lead, and Subpart L establishes the criteria for risk.

LBP hazards are defined in 40 CFR 745 Subpart D as follows:

Potential LBP Hazard	LBP Hazard Criteria
Painted Surface	LBP is present and is deteriorated.
Friction Surface	LBP is present on the friction surface, the LBP shows signs of abrasion, and lead levels in dust on nearest horizontal surface underneath the friction surface exceed dust-lead hazard standards (40 ug/ft ² for floors; 250 ug/ft ² for windowsills).
Impact Surface	LBP is present on the impact surface, the LBP is damaged/deteriorated, and the damage is caused by impact of a related building component.
Chewable Surface	LBP is present on the chewable surface and teeth marks are evident.
Dust	≥ 40 micrograms per square foot (ug/ft ²) on floors ≥ 250 ug/ft ² on windowsills
Bare Soil	≥ 400 ppm in children's play areas ≥ 1200 ppm all other areas

Introduction

It is the intention of the US Navy to privatize all of the Family and Officer Housing Units located within the Commander Naval Mid Atlantic Area of Responsibility (CNRMA AOR). The Atlantic Division, Naval Facilities Engineering Command, contracted Baker Environmental (Baker), under Contract N62470-01-D-3010, to conduct a Phase I– Environmental Baseline Survey (EBS) of the real property and assets considered in this privatization. The objective of the EBS is to identify areas of environmental concern and constraints, and to recommends opportunities to avoid, minimize, and mitigate future environmental damage. As part of the Phase I-EBS, Baker conducted an asbestos and lead-based paint (LBP) inspection and LBP risk assessment at the housing units during the period of October 13 to October 21, 2003.

The inspection was conducted by Baker employees and/or subcontractors. Employees who worked during this investigation were EPA-certified Building Inspectors and/or Management Planners for asbestos and EPA-certified Inspectors/Risk Assessors for lead. Baker is located at 770 Lynnhaven Parkway, Suite 240, Virginia Beach, Virginia, 23452, telephone number 757-463-8770.

The asbestos inspection involved a review of historical data, the identification of suspect homogeneous building materials, sampling and laboratory analysis of building materials, and an assessment of the condition, friability, quantity, location, accessibility, and potential for damage of building materials. Laboratory analysis of samples was conducted by EMSL Analytical, Inc. of Westmont, New Jersey using Polarized Light Microscopy (PLM), EPA Method for Determination of Asbestos in Bulk Building Materials, EPA/600/R-93/116 (7/93 Edition).

The LBP inspection involved a surface-by-surface investigation of the painted components within the building to document the presence of LBP. The LBP inspection was conducted using an RMD, Inc. LPA-1B x-ray fluorescence analyzer. The LBP risk assessment involved a visual assessment of building conditions and an evaluation for potential LBP hazards including visible dust, impact surfaces, friction surfaces, and teeth marks on surfaces coated in LBP. The risk assessment also involved the collection of dust wipe samples and soil samples. Laboratory analysis of dust wipe and soil samples was conducted by EMSL Analytical, Inc. of Westmont, New Jersey using EPA Method 3050B/7420.

Disclaimer

The information that is presented in this report reflects the conditions that were observed in the apartments during the time frame that the inspections were conducted. However, conditions could change due to vandalism, deterioration, or maintenance activities. Although every effort was made to identify all potential suspect bulk material, paints, and varnishes, there is no guarantee that additional materials, paints, or varnishes are not present. Conditions may exist such that inaccessible materials, paints, or varnishes may only become apparent during renovation or demolition activities. If any suspect material, paints, or varnishes are identified during renovation or demolition activities, they should be assumed to be ACM or LBP, or should be sampled and analyzed prior to disturbance.

Housing Areas

Site A

Housing Area Summary

The buildings that were inspected at Site A included 16 of the 20 housing units. In the course of this investigation, 16 of the 20 three-bedroom (3BR) housing units were inspected.

Asbestos

Baker identified and collected bulk samples for 6 new homogeneous materials that were suspected to be asbestos-containing in the housing units. Laboratory results indicated that two different homogeneous materials were identified to be ACM. Materials that contain greater than one percent (>1%) asbestos are considered to be ACM as defined by the USEPA. The laboratory analyses indicated that the remaining homogeneous materials contained no detectable amounts of asbestos. Appropriate tables in the housing area report will list the suspected homogeneous materials for the individual housing units. The tables will list the identified ACM, and include a summary of damaged ACM. All of the ACM identified were in good condition or had only minor damage. No significantly damaged ACM was identified. The results of the bulk material sample analyses are included in appendices in the main report. It should be noted that ACM inspections were conducted at these

facilities by others prior to this investigation. Baker attempted to use this data when characterizing the suspect materials found in each apartment. The historical data is included as part of the report.

The following chart provides details on the identified ACM for the apartment types.

Housing Unit Style	Number of Previous ACM	Number of Previous ACM Found	Number of New Homogeneous Materials Identified	Number of New Identified ACM	Total Number of ACM
Three-bedroom (3BR)	6	3	6	2	5

Lead Paint

Baker collected a total of approximately 253 XRF readings. The XRF results on a surface-by-surface basis for each apartment inspected are presented in an appendix of the housing area report. Summaries of the XRF results by housing community are presented to document the painted components. Lead-based Paint (LBP) is defined as paint that contains greater than or equal to 1.0 milligram per cubic centimeter (mg/cm²) lead. The data indicated that the surfaces tested are not coated with LBP. Figure 7.1, Multifamily Decision Flowchart, in the HUD Guidelines provides a means to evaluate if LBP is present development-wide on a given component where testing was conducted in a subset of the total units in the development. In accordance with Figure 7.1, the components that are listed in the report should be assumed to be coated with LBP in the housing units in which XRF testing was not conducted.

The following chart provides details on the identified LBP for the apartment types.

Housing Unit Style	Number of Painted Homogeneous Components Tested	Identified LBP Components
Three-bedroom (3BR)	29	0

Baker collected 48 dust wipe samples and 48 soil samples during the LBP risk assessment investigation. Dust wipe samples data and results and soil sample data and results are presented in the appropriate appendix of the housing area report. Summaries of LBP Hazards per housing community are presented, and the tables are organized by type of hazard and associated apartment number. As

depicted in the report tables and the summary below, no LBP hazards were identified which would include deteriorated LBP (painted surface hazards), friction surfaces, impact surfaces, dust, soil, or chewable surface LBP hazards.

The following chart provides details on the LBP hazards for the housing unit types.

Housing Unit Type	Painted Surface Hazards		Friction Surface Hazards	Impact Surface Hazards	Chewable Surface Hazards	Dust Hazards	Bare Soil Hazards
	Fair ¹	Poor ²					
3BR	0	0	0	0	0	0	0

¹ Although paint that is in “fair” condition is considered a LBP hazard by definition, only minimal hazard reduction activities (e.g., repainting and/or paint stabilization) are needed. These activities can be conducted as routine maintenance.

² Paint that is in “poor” condition is considered a LBP hazard by definition, and may require more significant lead hazard reduction activities that are best conducted by trained and licensed professionals.

Recommendations

Asbestos

In general, the ACM identified appear to present little or no potential hazard to building occupants and can be managed in-place. However, if minor areas of damaged interior ACM were identified, then they should be repaired in apartments that are occupied or that will be occupied. If renovation or demolition is scheduled, the ACM that will be disturbed should be properly removed and disposed of appropriately.

Lead Paint

Since no LBP and LBP hazards were found in the apartments that were surveyed, the only recommendation would be to continue current maintenance and to maintain all painted surfaces in good condition. Even though there was no LBP identified, residents should be made aware of the presence of some lead in all of the paint in their apartments. Furthermore, the United States Occupational Safety & Health Administration (OSHA) Lead Standard (29 CFR 1926.26) will still apply to contractors and their employees during activities that disturb painted surfaces. The Lead

Standard applies to any workplace where an exposure to airborne lead may occur. The Lead Standard includes requirements for worker training, employee exposure monitoring, and personal protective equipment, among other requirements.

Site B

Housing Area Summary

The buildings that were inspected at Site B included 13 of the 16 housing units. In the course of this investigation, 3 of the 4 two-bedroom (2BR), 5 of the 6 three-bedroom (3BR), 3 of the 4 four-bedroom (4BR), and 2 of the 2 four-bedroom handicapped (4BR-HC) housing units were inspected.

Asbestos

Baker identified and collected bulk samples for 17 new homogeneous materials that were suspected to be asbestos-containing in the housing units. The laboratory analyses indicated that all of the homogeneous materials contained no detectable amounts of asbestos. Materials that contain greater than one percent (>1%) asbestos are considered to be ACM as defined by the USEPA. Appropriate tables in the housing area report will list the suspected homogeneous materials for the individual housing units. The results of the bulk material sample analyses are included in appendices in the main report. It should be noted that ACM inspections were conducted at these facilities by others prior to this investigation. Baker attempted to use this data when characterizing the suspect materials found in each apartment. The historical data is included as part of the report.

The following chart provides details on the identified ACM for the apartment types.

Housing Unit Style	Number of Previous ACM	Number of Previous ACM Found	Number of New Homogeneous Materials Identified	Number of New Identified ACM	Total Number of ACM
Two-bedroom (2BR)	1	1	4	0	1
Three-bedroom (3BR)	1	1	4	0	1
Four-bedroom (4BR)	1	1	4	0	1
Four-bedroom Handicap (4BR-HC)	1	1	5	0	1

Lead Paint

Baker collected a total of approximately 779 XRF readings. The XRF results on a surface-by-surface basis for each apartment inspected are presented in an appendix of the housing area report. Summaries of the XRF results by housing community are presented to document the painted components. Lead-based Paint (LBP) is defined as paint that contains greater than or equal to 1.0 milligram per cubic centimeter (mg/cm²) lead. The data indicated that the surfaces tested are not coated with LBP. Figure 7.1, Multifamily Decision Flowchart, in the HUD Guidelines provides a means to evaluate if LBP is present development-wide on a given component where testing was conducted in a subset of the total units in the development. In accordance with Figure 7.1, the components that are listed in the report should be assumed to be coated with LBP in the housing units in which XRF testing was not conducted.

The following chart provides details on the identified LBP for the apartment types.

Housing Unit Style	Number of Painted Homogeneous Components Tested	Identified LBP Components
Two-bedroom (2BR)	27	0
Three-bedroom (3BR)	30	0
Four-bedroom (4BR)	36	0
Four-bedroom Handicap (4BR-HC)	36	0

Baker collected 12 dust wipe samples and 12 soil samples during the LBP risk assessment investigation. Dust wipe samples data and results and soil sample data and results are presented in the appropriate appendix of the housing area report. Summaries of LBP Hazards per housing community are presented, and the tables are organized by type of hazard and associated apartment number. As depicted in the report tables and the summary below, no LBP hazards were identified which would include deteriorated LBP (painted surface hazards), friction surfaces, impact surfaces, dust, soil, or chewable surface LBP hazards.

The following chart provides details on the LBP hazards for the housing unit types.

Housing Unit Type	Painted Surface Hazards		Friction Surface Hazards	Impact Surface Hazards	Chewable Surface Hazards	Dust Hazards	Bare Soil Hazards
	Fair ¹	Poor ²					
2BR	0	0	0	0	0	0	0
3BR	0	0	0	0	0	0	0
4BR	0	0	0	0	0	0	0
4BR-HC	0	0	0	0	0	0	0

¹ Although paint that is in “fair” condition is considered a LBP hazard by definition, only minimal hazard reduction activities (e.g., repainting and/or paint stabilization) are needed. These activities can be conducted as routine maintenance.

² Paint that is in “poor” condition is considered a LBP hazard by definition, and may require more significant lead hazard reduction activities that are best conducted by trained and licensed professionals.

Recommendations

Asbestos

In general, the ACM identified appear to present little or no potential hazard to building occupants and can be managed in-place. However, if minor areas of damaged interior ACM were identified, then they should be repaired in apartments that are occupied or that will be occupied. If renovation or demolition is scheduled, the ACM that will be disturbed should be properly removed and disposed of appropriately.

Lead Paint

Since no LBP and LBP hazards were found in the apartments that were surveyed, the only recommendation would be to continue current maintenance and to maintain all painted surfaces in good condition. Even though there was no LBP identified, residents should be made aware of the presence of some lead in all of the paint in their apartments. Furthermore, the United States Occupational Safety & Health Administration (OSHA) Lead Standard (29 CFR 1926.26) will still apply to contractors and their employees during activities that disturb painted surfaces. The Lead Standard applies to any workplace where an exposure to airborne lead may occur. The Lead Standard includes requirements for worker training, employee exposure monitoring, and personal protective equipment, among other requirements.

Site C

Housing Area Summary

The buildings that were inspected at Site C included 4 housing units. In the course of this investigation, 2 of the 2 three-bedroom (3BR) and 2 of the 2 four-bedroom (4BR) housing units were inspected.

Asbestos

Baker identified and collected bulk samples for 12 new homogeneous materials that were suspected to be asbestos-containing in the housing units. The laboratory analyses indicated that all of the homogeneous materials contained no detectable amounts of asbestos. Materials that contain greater than one percent (>1%) asbestos are considered to be ACM as defined by the USEPA. Appropriate tables in the housing area report will list the suspected homogeneous materials for the individual housing units. The results of the bulk material sample analyses are included in appendices in the main report. It should be noted that ACM inspections were conducted at these facilities by others prior to this investigation. Baker attempted to use this data when characterizing the suspect materials found in each apartment. The historical data is included as part of the report.

The following chart provides details on the identified ACM for the apartment types.

Housing Unit Style	Number of Previous ACM	Number of Previous ACM Found	Number of New Homogeneous Materials Identified	Number of New Identified ACM	Total Number of ACM
Three-bedroom (3BR)	0	0	6	0	0
Four-bedroom (4BR)	0	0	6	0	0

Lead Paint

Baker collected a total of approximately 469 XRF readings. The XRF results on a surface-by-surface basis for each apartment inspected are presented in an appendix of the housing area report. Summaries of the XRF results by housing community are presented to document the painted

components. Lead-based Paint (LBP) is defined as paint that contains greater than or equal to 1.0 milligram per cubic centimeter (mg/cm²) lead. The data indicated that the surfaces tested are not coated with LBP. Figure 7.1, Multifamily Decision Flowchart, in the HUD Guidelines provides a means to evaluate if LBP is present development-wide on a given component where testing was conducted in a subset of the total units in the development. In accordance with Figure 7.1, the components that are listed in the report should be assumed to be coated with LBP in the housing units in which XRF testing was not conducted.

The following chart provides details on the identified LBP for the apartment types.

Housing Unit Style	Number of Painted Homogeneous Components	
	Tested	Identified LBP Components
Three-bedroom (3BR)	40	0
Four-bedroom (4BR)	40	0

Baker collected 6 dust wipe samples and 6 soil samples during the LBP risk assessment investigation. Dust wipe samples data and results and soil sample data and results are presented in the appropriate appendix of the housing area report. Summaries of LBP Hazards per housing community are presented, and the tables are organized by type of hazard and associated apartment number. As depicted in the report tables and the summary below, no LBP hazards were identified which would include deteriorated LBP (painted surface hazards), friction surfaces, impact surfaces, dust, soil, or chewable surface LBP hazards.

The following chart provides details on the LBP hazards for the housing unit types.

Housing Unit Type	Painted Surface Hazards		Friction Surface Hazards	Impact Surface Hazards	Chewable Surface Hazards	Dust Hazards	Bare Soil Hazards
	Fair ¹	Poor ²					
3BR	0	0	0	0	0	0	0
4BR	0	0	0	0	0	0	0

¹ Although paint that is in "fair" condition is considered a LBP hazard by definition, only minimal hazard reduction activities (e.g., repainting and/or paint stabilization) are needed. These activities can be conducted as routine maintenance.

² Paint that is in “poor” condition is considered a LBP hazard by definition, and may require more significant lead hazard reduction activities that are best conducted by trained and licensed professionals.

Recommendations

Asbestos

Since no ACM was found in the apartments that were surveyed, no recommendations are warranted.

Lead Paint

Since no LBP and LBP hazards were found in the apartments that were surveyed, the only recommendation would be to continue current maintenance and to maintain all painted surfaces in good condition. Even though there was no LBP identified, residents should be made aware of the presence of some lead in all of the paint in their apartments. Furthermore, the United States Occupational Safety & Health Administration (OSHA) Lead Standard (29 CFR 1926.26) will still apply to contractors and their employees during activities that disturb painted surfaces. The Lead Standard applies to any workplace where an exposure to airborne lead may occur. The Lead Standard includes requirements for worker training, employee exposure monitoring, and personal protective equipment, among other requirements.

Site D

Housing Area Summary

The buildings that were inspected at Site D included 10 housing units. In the course of this investigation, 2 of the 2 two-bedroom (2BR) and 8 of the 8 four-bedroom (4BR) housing units were inspected.

Asbestos

Baker identified and collected bulk samples for 8 new homogeneous materials that were suspected to be asbestos-containing in the housing units. The laboratory analyses indicated that all of the homogeneous materials contained no detectable amounts of asbestos. Materials that contain greater than one percent (>1%) asbestos are considered to be ACM as defined by the USEPA. Appropriate

tables in the housing area report will list the suspected homogeneous materials for the individual housing units. The results of the bulk material sample analyses are included in appendices in the main report. It should be noted that ACM inspections were conducted at these facilities by others prior to this investigation. Baker attempted to use this data when characterizing the suspect materials found in each apartment. The historical data is included as part of the report.

The following chart provides details on the identified ACM for the apartment types.

Housing Unit Style	Number of Previous ACM	Number of Previous ACM Found	Number of New Homogeneous Materials Identified	Number of New Identified ACM	Total Number of ACM
Two-bedroom (2BR)	5	0	4	0	0
Four-bedroom (4BR)	5	0	4	0	0

Lead Paint

Baker collected a total of approximately 469 XRF readings. The XRF results on a surface-by-surface basis for each apartment inspected are presented in an appendix of the housing area report. Summaries of the XRF results by housing community are presented to document the painted components. Lead-based Paint (LBP) is defined as paint that contains greater than or equal to 1.0 milligram per cubic centimeter (mg/cm²) lead. The data indicated that the surfaces tested are not coated with LBP. Figure 7.1, Multifamily Decision Flowchart, in the HUD Guidelines provides a means to evaluate if LBP is present development-wide on a given component where testing was conducted in a subset of the total units in the development. In accordance with Figure 7.1, the components that are listed in the report should be assumed to be coated with LBP in the housing units in which XRF testing was not conducted.

The following chart provides details on the identified LBP for the apartment types.

Housing Unit Style	Number of Painted Homogeneous Components	
	Tested	Identified LBP Components
Two-bedroom (2BR)	20	0
Four-bedroom (4BR)	28	0

Baker collected 30 dust wipe samples and 30 soil samples during the LBP risk assessment investigation. Dust wipe samples data and results and soil sample data and results are presented in the appropriate appendix of the housing area report. Summaries of LBP Hazards per housing community are presented, and the tables are organized by type of hazard and associated apartment number. As depicted in the report tables and the summary below, no LBP hazards were identified which would include deteriorated LBP (painted surface hazards), friction surfaces, impact surfaces, dust, soil, or chewable surface LBP hazards.

The following chart provides details on the LBP hazards for the housing unit types.

Housing Unit Type	Painted Surface Hazards		Friction Surface Hazards	Impact Surface Hazards	Chewable Surface Hazards	Dust Hazards	Bare Soil Hazards
	Fair ¹	Poor ²					
2BR	0	0	0	0	0	0	0
4BR	0	0	0	0	0	0	0

¹ Although paint that is in “fair” condition is considered a LBP hazard by definition, only minimal hazard reduction activities (e.g., repainting and/or paint stabilization) are needed. These activities can be conducted as routine maintenance.

² Paint that is in “poor” condition is considered a LBP hazard by definition, and may require more significant lead hazard reduction activities that are best conducted by trained and licensed professionals.

Recommendations

Asbestos

Since no ACM was found in the apartments that were surveyed, no recommendations are warranted.

Lead Paint

Since no LBP and LBP hazards were found in the apartments that were surveyed, the only recommendation would be to continue current maintenance and to maintain all painted surfaces in good condition. Even though there was no LBP identified, residents should be made aware of the presence of some lead in all of the paint in their apartments. Furthermore, the United States Occupational Safety & Health Administration (OSHA) Lead Standard (29 CFR 1926.26) will still

apply to contractors and their employees during activities that disturb painted surfaces. The Lead Standard applies to any workplace where an exposure to airborne lead may occur. The Lead Standard includes requirements for worker training, employee exposure monitoring, and personal protective equipment, among other requirements.

Site E

Housing Area Summary

According to the project's scope, the buildings that were inspected at Site E included 2 of 8 housing units. In the course of this investigation, 2 of the 8 two-bedroom (2BR) were to be inspected. However, upon review of the site, it was discovered that the housing units were built after 1994; therefore, it was requested that they not be inspected. Thus, no asbestos and lead paint investigation was conducted at this housing area due to the construction date.

Site F

Housing Area Summary

According to the project's scope, the buildings that were inspected at Site F included 2 of 21 housing units. In the course of this investigation, 1 of the 20 two-bedroom (2BR) and 1 of 1 two-bedroom handicap (2BR-HC) were to be inspected. However, upon review of the site, it was discovered that the housing units were built after 1998; therefore, it was requested that they not be inspected. Thus, no asbestos and lead paint investigation was conducted at this housing area due to the construction date.

Site G

Housing Area Summary

According to the project's scope, the buildings that were inspected at Site G included 1 of 4 housing units. In the course of this investigation, 1 of the 4 four-bedroom (4BR) was to be inspected. However, upon review of the site, it was discovered that the housing units were built after 1998;

therefore, it was requested that they not be inspected. Thus, no asbestos and lead paint investigation was conducted at this housing area due to the construction date.

1.0 INTRODUCTION

1.1 General

It is the intention of the US Navy to privatize all of the Family and Officer Housing Units located within the Commander Naval Mid Atlantic Area of Responsibility (CNRMA AOR). The Atlantic Division, Naval Facilities Engineering Command, contracted Baker Environmental (Baker), under Contract N62470-01-D-3010, to conduct a Phase I – Environmental Baseline Survey (EBS) of the real property and assets considered in this privatization. The objective of the EBS is to identify areas of environmental concern and constraints, and to recommends opportunities to avoid, minimize, and mitigate future environmental damage. As part of the Phase I-EBS, Baker conducted an asbestos and lead-based paint (LBP) inspection and LBP risk assessment at the housing units during the period of October 13 to October 21, 2003.

This report summarizes the activities and procedures used to identify the ACM, LBP, and LBP hazards during the project, and presents the survey findings and recommendations. The text of this report is supplemented by information found within Appendices A through F. Appendix A contains floor plans for each type of apartment. Appendix B contains copies of training certificates for the staff that conducted the investigation and the analytical laboratory's certificate of accreditation. Appendix C contains the XRF analyzer performance characteristic sheet. Appendix D contains historical ACM and LBP inspection and risk assessment data. Appendix E contains analytical laboratory reports for the asbestos, paint, dust wipe and/or soil samples. Appendix F contains asbestos, paint, soil, dust, building condition, and quality control data for all of the apartments.

Due to the limits of this non-destructive inspection (walls were not opened, thus interior cavities were not accessible), it is recommended that confirmation sampling be performed in the event that any additional suspect materials and/or paints are identified. While an attempt was made to survey and discover all of the different materials and/or paints used in the buildings during this survey, Baker accepts no liability for the extrapolation of our field observations, sample results, and related recommendations for the buildings.

1.2 Relevant Regulations

1.2.1 Asbestos

Relevant regulations and policies, which mandate the inspection of ACM, are summarized below.

- The United States Environmental Protection Agency (USEPA) defines ACM as any material that contains greater than 1 percent asbestos.
- Title 40 of the Code of Federal Regulations, Part 61 (40 CFR 61), Subpart M (USEPA National Emission Standards for Hazardous Air Pollutants) requires that an asbestos inspection be conducted prior to renovation/demolition activities. However, the regulation does not apply where the residential structure being renovated or demolished contains four or fewer dwelling units.
- Federal property management regulations require that, prior to property disposal, all available information on the existence and extent of ACM be provided to the transferee.

1.2.1 Lead Paint

Relevant regulations and policies, which mandate the inspection of LBP, are summarized below.

The United States Environmental Protection Agency (USEPA) and the United States Department of Housing and Urban Development (HUD) define LBP as paint that contains greater than or equal to 1.0 mg/cm² lead or greater than or equal to 0.5 percent lead by weight. HUD regulations at Title 24 of the Code of Federal Regulations Part 35 (24 CFR 35), Subpart C require a lead-based paint inspection and risk assessment in federally-owned housing constructed between 1960 and 1977 prior to transfer of the property. The risk assessment must be conducted no more than 12 months prior to transfer. For federally owned housing constructed prior to 1960, a LBP inspection, risk assessment, and abatement of LBP hazards are required prior to transfer of the property.

EPA regulations at 40 CFR 745, Subpart L provide minimum requirements for conducting LBP inspections and risk assessments, including certification requirements for LBP inspectors and risk assessors. In addition, EPA regulations require that results of LBP inspections and risk assessments be disclosed to the transferee in the transfer agreement.

LBP hazards, as defined in 45 CFR 745 Subpart D, are described as follows.

Potential LBP Hazard	LBP Hazard Criteria
Painted Surface	LBP is present and is deteriorated.
Friction Surface	LBP is present on the friction surface, the LBP shows signs of abrasion, and lead levels in dust on nearest horizontal surface underneath the friction surface exceed dust-lead hazard standards (40 ug/ft ² for floors; 250 ug/ft ² for windowsills).
Impact Surface	LBP is present on the impact surface, the LBP is damaged/deteriorated, and the damage is caused by impact of a related building component.
Chewable Surface	LBP is present on the chewable surface and teeth marks are evident.
Dust	≥ 40 micrograms per square foot (ug/ft ²) on floors ≥ 250 ug/ft ² on windowsills
Bare Soil	≥ 400 ppm in children's play areas ≥ 1200 ppm all other areas

1.3 Selection of Apartments for Inspection

The apartments in which the ACM and LBP inspections and risk assessments were conducted are presented below. The number of apartments to inspect and/or assess was stipulated in the scope of work. For this housing area, the identifications of apartments to inspect and/or assess were chosen randomly by the outlined scope of work or by the housing office. Floor plans for each type of apartment are included in Appendix A.

APARTMENTS INSPECTED/ASSESSED

Housing Community	Apartments Inspected/Assessed
Site A	101A, 101B, 102A, 102B, 103A, 104B, 105B, 106A, 106B, 107A, 107B, 108A, 108B, 109B, 110A, 110B,
Site B	111A, 112A, 112B, 113A, 113B, 114A, 114B, 115A, 115B, 116B, 117A, 117B, 118B,
Site C	119A, 119B, 120A, 120B
Site D	121A, 121B, 121C, 121D, 122A, 122B, 122C, 122D, 123A, 123B
Site E	No inspections were conducted due to the construction date.
Site F	No inspections were conducted due to the construction date.
Site G	No inspections were conducted due to the construction date.

2.0 INSPECTION PROCEDURES

2.1 General

The inspection and risk assessment field activities were conducted by Baker employees and their subcontractors. The inspection and risk assessment were conducted during the period of October 13 to October 21, 2003.

Baker utilized EMSL Analytical, Inc. of Westmont, New Jersey for laboratory analysis of collected samples. EMSL Analytical, Inc. is accredited in accordance with standards set by the U.S. National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP), and by the American Industrial Hygiene Association (AIHA) for asbestos analysis. EMSL also is accredited in accordance with standards set by the U.S. National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP), and by the American Industrial Hygiene Association (AIHA) for lead analysis.

2.2 Historical Data

ACM and LBP inspections and risk assessments were conducted in the housing units by others. Tabulated summaries of the results of the inspections/risk assessments that were identified at the time of those inspections, taken from the various reports are presented in Appendix D. Also noted in the tabulated summaries is an indication as to whether Baker observed painted surfaces meeting those descriptions at the time of the 2003 inspection.

2.3 Asbestos Inspection

Within the housing units, the inspector conducted a thorough search to identify potential asbestos-containing building materials. Suspect building materials were grouped into homogeneous materials, defined as materials that are uniform in texture, appearance, color, physical characteristics, function, and date of installation. Each homogeneous material was given a unique identification number. The buildings within each housing community that were constructed at the same time and the associated building materials were considered distinct. Therefore, the buildings constructed at the same time within each housing community were assigned a unique grouping of homogeneous materials.

Insulation materials that appeared to be composed of fiberglass were not considered potential (i.e., suspect) ACM. For each suspect homogeneous material, the material description, location(s), approximate quantity, friability, condition, accessibility, and potential for damage were recorded. The definition of a friable material is one that can be crushed, pulverized, or reduced to powder under hand pressure when dry. The definition of a non-friable material is one that cannot be crushed, pulverized, or reduced to powder under hand pressure when dry. Material condition was assessed as described in the chart below.

MATERIAL CONDITION DESCRIPTIONS

Condition	Description
Undamaged	Material is intact
Damaged	Less than 10% distributed damage, or less than 25% localized damage
Significantly Damaged	10% or more distributed damage, or 25% or more localized damage

Baker sampled materials that were not previously sampled by others. Baker also resampled materials that were previously sampled or assumed, if possible, to clarify conditions. Samples were collected by using chisels, utility knives, etc. to remove small pieces of building materials. Each sample was placed into a re-sealable plastic bag and given a unique sample identification number. During sampling activities, the inspectors exercised care to prevent any suspected ACM from becoming airborne. Wet wiping was used during the sampling to immediately clean up any debris generated by the sampling process. Sample locations were patched with spackling or caulking, or were duct taped to prevent the potential release of asbestos fibers.

All bulk samples were submitted with chain-of-custody documentation to EMSL Analytical, Inc. The samples were analyzed by Polarized Light Microscopy (PLM), EPA Method for Determination of Asbestos in Bulk Building Materials, EPA/600/R-93/116 (7/93 Edition).

2.4 Lead-Based Paint Inspection

Baker conducted a LBP inspection using an RMD LPA-1 x-ray fluorescence (XRF) analyzer. The XRF analyzer detects lead in paint by emitting gamma radiation and collecting and quantifying the x-rays that are emitted by lead in the paint. The LBP inspection was conducted in general accordance

with the 1995 HUD Guidelines for the Evaluation and Control of Lead Based Paint Hazards in Housing and the 1997 Chapter 7 Revision. The calibration of the XRF analyzer was checked at the start, mid-point, and completion of each workday using a manufacturer-supplied paint standard [1.0 milligrams lead per square centimeter (mg/cm²) and unpainted wood (0 mg/cm²)]. Readings collected for calibration purposes were conducted in 60-Second Standard Mode, as recommended by the manufacturer. All other readings were collected in Quick Mode.

Each testing combination in each room equivalent was tested for lead. A room equivalent refers to a distinct room (e.g., Kitchen, Bedroom 1), while a testing combination refers to a given room, component, and substrate combination (e.g., kitchen, window sash, wood). While one reading was taken on each testing combination in each room equivalent, four readings were collected from the walls in each room equivalent, one from each wall.

For each apartment, testing combinations, paint colors, paint conditions, location(s), XRF readings, paint chip sample identifications, and paint chip sample results were recorded. The condition categories and associated descriptions are described in the following chart.

PAINT CONDITION DESCRIPTIONS

Condition	Applicable to Interior and/or Exterior	Description
Intact	Interior and Exterior	Paint is not deteriorated (i.e., not damaged, separated from substrate, peeling, chipping, chalking, or cracking).
Fair		Paint has some deterioration:
	Interior	≤ 2 square feet for large components (e.g., walls and ceilings)
	Exterior	≤ 10 square feet for large components
Poor	Interior and Exterior	≤ 10 percent for small components (e.g., baseboards, window casings, etc.)
		Paint has significant deterioration:
	Interior	> 2 square feet for large interior components
	Exterior	> 10 square feet for large components
	Interior and Exterior	> 10 percent for small components

The identification of walls for a given room is as follows: Wall 1 is the wall that is located on the street side of the room, when in the room looking toward the street. Walls 2, 3, and 4 are the walls that are present going clockwise from Wall 1.

2.5 Lead-Based Paint Risk Assessment

2.5.1 General

Risk assessment procedures were conducted in accordance with the 1995 HUD Guidelines, and consisted of a visual inspection, and sampling of dust and soil, as described in the following sections.

2.5.2 Visual Inspection

Each apartment was visually inspected for the presence of the following:

- Dust on floors and windowsills adjacent to LBP surfaces
- Bare soil
- Friction surfaces with abraded LBP
- Impact surfaces with deteriorated/damaged LBP
- Any surface coated with LBP with teeth marks

The visual inspection also included a building condition assessment including observation for the presence of holes or cracks in the roof, missing exterior siding, foundation cracks, etc.

2.5.3 Dust Wipe Samples

For each apartment, dust wipe samples were collected from apparent locations (based on visual observation) to determine the presence of LBP hazards. Where a LBP friction surface that displayed abraded paint was observed, a wipe sample was collected from the floor or windowsill surface immediately below the friction surface.

The following materials were used to collect dust wipe samples:

- single-use, individually-packaged Ghost Wipes that meet the requirements of ASTM Standard E-1792-01e1
- single-use, non-powdered nitrile gloves

- single-use cardboard or re-useable plastic templates (12" X 12" size for floors, 4" X 4" size for windowsills)
- laboratory-provided plastic centrifuge tubes
- masking tape

A new pair of single-use gloves was donned for each wipe sample. A template was affixed to the floor or windowsill surface using masking tape. Using a new Ghost wipe, the floor or window sill surface within the template boundaries was wiped from side to side in one direction, folded in half, wiped side to side in the direction perpendicular to the original direction, wiped along the inside edges, and then the wipe was folded in half again. The wipe was then placed in a centrifuge tube and given a unique identification number. Field blanks (1 per 50 wipe samples) were collected in the same manner, except that the wipe was not exposed to a floor or windowsill surface. All samples were submitted with chain of custody documentation to EMSL Analytical, Inc. for lead analysis by EPA Method 3050B/7420.

For each dust wipe, the following information was recorded: sample number, room identification, surface type, surface substrate, and area of wiped area.

2.5.4 Soil Samples

Up to three composite soil samples were collected from bare soil around each apartment. Composite samples were collected from bare soil from the following locations, if present:

- drip line (≤ 3 feet from foundation walls)
- mid-yard (areas not including drip line or play area)
- child's play area (if observations permitted discernment of play area)

Each composite sample consisted of at least three discrete samples collected from the top $\frac{1}{2}$ inch of soil (from a 2 inch diameter circle) from three different locations. A stainless steel or plastic trowel was used to obtain the samples. Each trowel was cleaned with an Alconox solution prior to the collection of each composite sample. Soil samples were placed in laboratory-supplied resealable plastic bags, given unique sample identification numbers, and shipped with chain-of-custody

documentation to EMSL Analytical, Inc. The soil samples were analyzed for lead by EPA Method 3050B/7420.

For each soil sample, the following data were recorded: sample number, sample location, and area of bare soil.

3.0 SUMMARY OF FINDINGS

3.1 Asbestos Inspection

Summaries of the results by housing community and unit are presented in Table 1, which follow the text of this report. Materials containing greater than one percent (>1%) asbestos are considered to be asbestos-containing materials as defined by the EPA. The data indicate that the vast majority of materials tested are not classified as ACM.

The National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 CFR, Part 61, requires that any asbestos sample containing less than 10 percent asbestos when analyzed by PLM be re-analyzed using the PLM point counting procedure, otherwise the material must be considered an ACM. For this investigation, the Scope of Work did not require confirmation of asbestos content through additional analysis; thus, the building materials containing <1% asbestos are assumed to be ACM.

3.1.1 Site A

In Site A, two 3BR housing units were inspected for asbestos.

In Unit 103A, a 3BR unit at Site A, the previous asbestos inspection identified three ACM: wallboard (Material Number 004), vinyl floor tile (Material Number 005), and rope gasket (Material Number 006). The previously identified ACM was located, assessed, and their quantities were confirmed. The Baker field team identified and sampled three suspect asbestos materials: sink coating (Material Number 001), vinyl floor sheeting (Material Numbers 003), and asphaltic roofing material (Material Number 002). Two of the newly sampled materials tested positive for asbestos: sink coating (Material Number 001) and the vinyl floor sheeting (Material Number 003). The remaining newly sampled material tested negative for asbestos. The summary of this unit and these materials is presented in Table 1. Table 1 presents homogeneous material number, material description, asbestos content, locations, friability, condition, and quantity. These materials will be considered to be present (typical) within all of housing units of this type. Table 2 lists the homogeneous materials that are ACM in the housing units. Table 3 lists the damaged ACM in the housing units.

In Unit 106B, a 3BR unit at Site A, the previous asbestos inspection identified three ACM: wallboard (Material Number 010), vinyl floor tile (Material Number 011), and rope gasket (Material Number 012). The previously identified ACM was located, assessed, and their quantities were confirmed. The Baker field team identified and sampled three suspect asbestos materials: sink coating (Material Number 007), vinyl floor sheeting (Material Numbers 008), and asphaltic roofing material (Material Number 009). One of the newly sampled material, sink coating (Material Number 007), tested positive for asbestos. The remaining newly sampled materials tested negative for asbestos. The summary of this unit and these materials is presented in Table 1. Table 1 presents homogeneous material number, material description, asbestos content, locations, friability, condition, and quantity. These materials will be considered to be present (typical) within all of housing units of this type. Table 2 lists the homogeneous materials that are ACM in the housing units. Table 3 lists the damaged ACM in the housing units.

3.1.2 Site B

In Site B, one of each type of housing unit (2BR, 3BR, 4BR and 4-HC) was inspected for asbestos.

In Unit 112A, a 2BR unit in Site B, the previous asbestos inspection identified one ACM, vinyl floor tile (Material Number 017). The previously identified ACM was located, assessed, and its quantity was confirmed. The Baker field team identified and sampled four suspect asbestos materials: sink coating (Material Number 013), asphaltic roofing material (Material Number 014), vinyl floor tile (Material Number 015), and vinyl floor sheeting (Material Number 016). All of the newly sampled materials tested negative for asbestos. The summary of this unit and these materials is presented in Table 1. Table 1 presents homogeneous material number, material description, asbestos content, locations, friability, condition, and quantity. These materials will be considered to be present (typical) within all of housing units of this type. Table 2 lists the homogeneous materials that are ACM in the housing units. Table 3 lists the damaged ACM in the housing units.

In Unit 117B, a 3BR unit in Site B, the previous asbestos inspection identified one ACM, vinyl floor tile (Material Number 021). The previously identified ACM was located, assessed, and its quantity was confirmed. The Baker field team identified and sampled four suspect asbestos materials: vinyl floor sheeting (Material Number 018), sink coating (Material Number 019), asphaltic roofing material

(Material Number 020), and vinyl floor tile (Material Number 022). All of the newly sampled materials tested negative for asbestos. The summary of this unit and these materials is presented in Table 1. Table 1 presents homogeneous material number, material description, asbestos content, locations, friability, condition, and quantity. These materials will be considered to be present (typical) within all of housing units of this type. Table 2 lists the homogeneous materials that are ACM in the housing units. Table 3 lists the damaged ACM in the housing units.

In Unit 114A, a 4BR unit in Site B, the previous asbestos inspection identified one ACM, vinyl floor tile (Material Number 023). The previously identified ACM was located, assessed, and its quantity was confirmed. The Baker field team identified and sampled four suspect asbestos materials: sink coating (Material Number 024), vinyl floor sheeting (Material Number 025), vinyl floor tile (Material Number 026), and asphaltic roofing material (Material Number 027). All of the newly sampled materials tested negative for asbestos. The summary of this unit and these materials is presented in Table 1. Table 1 presents homogeneous material number, material description, asbestos content, locations, friability, condition, and quantity. These materials will be considered to be present (typical) within all of housing units of this type. Table 2 lists the homogeneous materials that are ACM in the housing units. Table 3 lists the damaged ACM in the housing units.

In Unit 115A, a 4-HC unit in Site B, the previous asbestos inspection identified one ACM, vinyl floor tile (Material Number 030). The previously identified ACM was located, assessed, and its quantity was confirmed. The Baker field team identified and sampled five suspect asbestos materials: asphaltic roofing material (Material Number 028), vinyl floor tile (Material Number 029), two types of vinyl floor sheeting (Material Numbers 031 and 032), and sink coating (Material Number 033). All of the newly sampled materials tested negative for asbestos. The summary of this unit and these materials is presented in Table 1. Table 1 presents homogeneous material number, material description, asbestos content, locations, friability, condition, and quantity. These materials will be considered to be present (typical) within all of housing units of this type. Table 2 lists the homogeneous materials that are ACM in the housing units. Table 3 lists the damaged ACM in the housing units.

3.1.3 Site C

In Site C, one of each type of housing unit (3BR and 4BR) was inspected for asbestos.

In Unit 119A, a 3BR unit in Site C, no previous asbestos inspection was performed. The Baker field team identified and sampled six suspect asbestos materials: vinyl floor sheeting (Material Number 048), wallboard (Material Number 049), asphaltic roofing material (Material Number 050), two types of vinyl floor tile (Material Number 051 and 052), and sink coating (Material Number 053). All of the sampled materials tested negative for asbestos. The summary of this unit and these materials is presented in Table 1. Table 1 presents homogeneous material number, material description, asbestos content, locations, friability, condition, and quantity. These materials will be considered to be present (typical) within all of housing units of this type. Table 2 lists the homogeneous materials that are ACM in the housing units. Table 3 lists the damaged ACM in the housing units.

In Unit 120A, a 4BR unit in Site C, no previous asbestos inspection was performed. The Baker field team identified and sampled six suspect asbestos materials: two types of vinyl floor tile (Material Number 042 and 045), sink coating (Material Number 043), vinyl floor sheeting (Material Number 044), wallboard (Material Number 046), and asphaltic roofing material (Material Number 047). All of the sampled materials tested negative for asbestos. The summary of this unit and these materials is presented in Table 1. Table 1 presents homogeneous material number, material description, asbestos content, locations, friability, condition, and quantity. These materials will be considered to be present (typical) within all of housing units of this type. Table 2 lists the homogeneous materials that are ACM in the housing units. Table 3 lists the damaged ACM in the housing units.

3.1.4 Site D

In Site D, one of each type of housing unit (2BR and 4BR) was inspected for asbestos.

In Unit 123A, a 2BR unit in Site D, the previous asbestos inspection identified five ACM: four types of vinyl floor tile (Material Numbers 054, 055, 057, and 058), and vinyl floor sheeting (Material Number 056). The previously identified ACM could not be located. The Baker field team identified and sampled four suspect asbestos materials: vinyl floor tile (Material Number 034), two types of vinyl floor sheeting (Material Numbers 035 and 037), and sink coating (Material Number 036). One of the newly sampled materials, vinyl floor tile (Material Number 034) tested positive for asbestos. The remaining newly sampled materials tested negative for asbestos. The summary of this unit and these materials is presented in Table 1. Table 1 presents homogeneous material number, material description, asbestos content, locations, friability, condition, and quantity. These materials will be

considered to be present (typical) within all of housing units of this type. Table 2 lists the homogeneous materials that are ACM in the housing units. Table 3 lists the damaged ACM in the housing units.

In Unit 121B, a 4BR unit in Site D, the previous asbestos inspection identified five ACM: four types of vinyl floor tile (Material Numbers 059, 060, 062, and 063), and vinyl floor sheeting (Material Number 061). The previously identified ACM could not be located. The Baker field team identified and sampled four suspect asbestos materials: vinyl floor tile (Material Number 039), two types of vinyl floor sheeting (Material Numbers 038 and 040), and sink coating (Material Number 041). All of the newly sampled materials tested negative for asbestos. The summary of this unit and these materials is presented in Table 1. Table 1 presents homogeneous material number, material description, asbestos content, locations, friability, condition, and quantity. These materials will be considered to be present (typical) within all of housing units of this type. Table 2 lists the homogeneous materials that are ACM in the housing units. Table 3 lists the damaged ACM in the housing units.

3.1.5 Site E

No inspection work was completed in these housing units due to the construction date.

3.1.6 Site F

No inspection work was completed in these housing units due to the construction date.

3.1.7 Site G

No inspection work was completed in these housing units due to the construction date.

3.2 Lead-Based Paint Inspection

Baker collected a total of approximately 1955 XRF readings. The XRF results on a surface-by-surface basis for each apartment are presented in Appendix F. Summaries of the results by housing community are presented in Tables 4 through 7, which follow the text of this report. LBP is defined as

paint that contains greater than or equal to 1.0 milligram per square centimeter (mg/cm²) lead. The data indicate that the surfaces tested are not coated in LBP.

3.2.1 Site A

In Site A, two lead-based paint inspections were performed which represented the 3BR housing units. Summaries of the results by housing community are presented in Table 4. No components were identified as containing lead-based paint.

3.2.2 Site B

In Site B, four lead-based paint inspections were performed which represented one 2BR unit, one 3BR unit, one 4BR unit, and one 4BR-HC housing unit. Summaries of the results by housing community are presented in Table 5. No components were identified as containing lead-based paint.

3.2.3 Site C

In Site C, two lead-based paint inspections were performed which represented one 3BR unit and one 4BR housing unit. Summaries of the results by housing community are presented in Table 6. No components were identified as containing lead-based paint.

3.2.4 Site D

In Site D, fifteen lead-based paint inspections were performed which represented one 2BR unit and one 4BR housing unit. Summaries of the results by housing community are presented in Table 7. No components were identified as containing lead-based paint.

3.2.5 Site E

No inspection work was completed in these housing units due to the construction date.

3.2.6 Site F

No inspection work was completed in these housing units due to the construction date.

3.2.7 Site G

No inspection work was completed in these housing units due to the construction date.

3.3 Lead-Based Paint Risk Assessment

Baker collected 102 dust wipe samples and 102 soil samples during the LBP risk assessment investigation. Dust wipe and soil sample data and results are presented in Appendix F. Analytical laboratory reports are included in Appendix E. No LBP hazards were identified in these housing units.

3.3.1 Site A

In Site A, 16 risk assessments were performed. The Baker field team identified and sampled 48 dust wipe locations and 48 soil sample locations. All of the wipe samples did not identify any lead-based paint hazards. All of the soil samples were reported to be below action levels.

3.3.2 Site B

In Site B, 4 risk assessments were performed. The Baker field team identified and sampled 12 dust wipe locations and 12 soil sample locations. All of the wipe samples did not identify any lead-based paint hazards. All of the soil samples were reported to be below action levels.

3.3.3 Site C

In Site C, 4 risk assessments were performed. The Baker field team identified and sampled 12 dust wipe locations and 12 soil sample locations. All of the wipe samples did not identify any lead-based

paint hazards. All of the soil samples were reported to be below action levels.

3.3.4 Site D

In Site D, 10 risk assessments were performed. The Baker field team identified and sampled 30 dust wipe locations and 30 soil sample locations. All of the wipe samples did not identify any lead-based paint hazards. All of the soil samples were reported to be below action levels.

3.3.5 Site E

No risk assessment work was completed in these housing units due to the construction date.

3.3.6 Site F

No risk assessment work was completed in these housing units due to the construction date.

3.3.7 Site G

No risk assessment work was completed in these housing units due to the construction date.

4.0 RECOMMENDATIONS

Asbestos

In general, the ACM identified appear to present little or no potential hazard to building occupants and can be managed in-place. However, if minor areas of damaged interior ACM were identified, then they should be repaired in apartments that are occupied or that will be occupied. If renovation or demolition is scheduled, the ACM that will be disturbed should be properly removed and disposed of appropriately.

Lead Paint

Since no LBP and LBP hazards were found in the apartments that were surveyed, the only recommendation would be to continue current maintenance and to maintain all painted surfaces in good condition. Even though there was no LBP identified, residents should be made aware of the presence of some lead in all of the paint in their apartments. Furthermore, the United States Occupational Safety & Health Administration (OSHA) Lead Standard (29 CFR 1926.26) will still apply to contractors and their employees during activities that disturb painted surfaces. The Lead Standard applies to any workplace where an exposure to airborne lead may occur. The Lead Standard includes requirements for worker training, employee exposure monitoring, and personal protective equipment, among other requirements.

5.0 LIMITATIONS OF THE INSPECTION

The information that is presented in this report reflects the conditions that were observed in the apartments during the time frame that the inspections were conducted. However, conditions could change due to vandalism, deterioration, or maintenance activities. Although every effort was made to identify all potential suspect bulk material, paints, and varnishes, there is no guarantee that additional materials, paints, or varnishes are not present. Conditions may exist such that inaccessible materials, paints, or varnishes may only become apparent during renovation or demolition activities. If any suspect material, paints, or varnishes are identified during renovation or demolition activities, they should be assumed to be ACM or LBP, or should be sampled and analyzed prior to disturbance.

TABLES

**SITE A Family Housing
0488**

TABLE 1 - RESULTS OF THE INSPECTION

INSPECTION DATE: 13 - 21 OCT 2003
BUILDING NUMBER: 103A

HOMO. MATRL. NO.	MATERIAL TYPE (MATERIAL DESCRIPTION)	AHRA CAT.	MATERIAL LOCATION(S)	QTY.	SAMPLE INFORMATION			FRI-ABLE	OVERALL CONDITION	ACCESS.	EPA ASS. CAT	MANAGE-MENT ACTION	COMMENTS
					NUMBER	DATE	RESULT						
001	SINK COATING (BLACK, ROUGH)	MACM	KITCHEN	4 SF	1003-SGF-001A	10/14/03	2% CH	YES	UNDAMAGED	LOW	7	O&M	
003	VINYL FLOOR SHEETING (WHITE, GREY, TAN STONE PATTERN)	MACM	BATH 2	30 SF	1003-SGF-003A	10/14/03	10% CH	NO	UNDAMAGED	HIGH	5	O&M	ADHESIVE INCLUDED, NEW MATERIAL SINCE PRIOR SURVEY
004	WALLBOARD (WHITE WITH GREY)	MACM	BATH 1, BATH 2, BEDROOM 1, BEDROOM 2, BEDROOM 3, CLOSET 1, CLOSET 2, CLOSET 3, HALL 1, HALL 2, KITCHEN, LIVING 1, MECHANICAL, STAIRWAY 1, UTILITY 1	6,100 SF	ASSUMED ACM	10/14/03		NO	UNDAMAGED	HIGH	5	O&M	SAME MATERIAL LOCATED, AS FOUND IN PRIOR SURVEY
005	VINYL FLOOR TILE (1X1 TAN WITH BROWN/BEIGH STREAKS, SMOOTH)	MACM	BATH 1, CLOSET 1, CLOSET 2, HALL 1, KITCHEN, LIVING 1, UTILITY 1	550 SF	ASSUMED ACM	10/14/03		NO	UNDAMAGED	HIGH	5	O&M	SAME MATERIAL AS FOUND IN PRIOR SURVEY
006	ROPE GASKET (WHITE/GRAY, CLOTH)	MACM	MECHANICAL	2 SF	ASSUMED ACM	10/14/03		NO	DAMAGED / LOCALIZED	LOW	6	REMOVE	MATERIAL PREVIOUSLY SURVEYED, FOUND TO BE ACM. DAMAGE MAY BE FROM PREVIOUS SAMPLING/ DETERIORATION. 2 SQUARE FEET OF THIS MATERIAL <IS/ARE> DAMAGED AND NEEDS TO BE <REPAIRED/REMOVED>.

THE FOLLOWING ASBESTOS MATERIALS WERE IDENTIFIED IN BUILDING 103A

**SITE A Family Housing
0488**

TABLE 1 - RESULTS OF THE INSPECTION

INSPECTION DATE: 13 - 21 OCT 2003
BUILDING NUMBER: 103A

HOMO. MATRL. NO.	MATERIAL TYPE (MATERIAL DESCRIPTION)	AHERA CAT.	MATERIAL LOCATION(S)	QTY.	SAMPLE INFORMATION			FR-ABLE	OVERALL CONDITION	ACCESS.	EPA ASS. CAT	MANAGE-MENT ACTION	COMMENTS
					NUMBER	DATE	RESULT						

THE FOLLOWING NON-ASBESTOS MATERIALS WERE IDENTIFIED IN BUILDING 103A

002	ASPHALTIC ROOFING MATERIALS (SHINGLE, WHITE WITH GREY SPECKS, ROUGH)	MACM	EXTERIOR	1,500 SF	1003-SGF-002A	10/14/03	ND						
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NEW MATERIAL SINCE PREVIOUS SURVEY.

**SITE A Family Housing
0488**

TABLE 1 - RESULTS OF THE INSPECTION

INSPECTION DATE: 13 - 21 OCT 2003
BUILDING NUMBER: 106B

HOMO. MATL. NO.	MATERIAL TYPE (MATERIAL DESCRIPTION)	AHRA CAT.	MATERIAL LOCATION(S)	QTY.	SAMPLE INFORMATION			FR-ABLE	OVERALL CONDITION	ACCESS.	EPA ASS. CAT	MANAGE-MENT ACTION	COMMENTS
					NUMBER	DATE	RESULT						
007	SINK COATING (BLACK, ROUGH)	MACM	KITCHEN 1	4 SF	1003-SGF-007A	10/14/03	2% CH	YES	UNDAMAGED	LOW	7	O&M	
010	WALLBOARD (WHITE WITH GREY)	MACM	BATH 1, BATH 2, BEDROOM 1, BEDROOM 2, BEDROOM 3, CLOSET 1, CLOSET 2, CLOSET 3, HALL 1, HALL 2, KITCHEN 1, LIVING 1, MECHANICAL, STAIRWAY, UTILITY 1	5,800 SF	ASSUMED ACM	10/14/03		NO	UNDAMAGED	HIGH	5	O&M	MATERIAL PREVIOUSLY SURVEYED, FOUND TO BE ACM.
011	VINYL FLOOR TILE (1X1 TAN WITH BROWN/BEIGE STREAKS)	MACM	BATH 1, CLOSET 1, CLOSET 2, HALL 1, KITCHEN 1, LIVING 1, UTILITY 1	550 SF	ASSUMED ACM	10/14/03		NO	UNDAMAGED	HIGH	5	O&M	MATERIAL PREVIOUSLY SURVEYED, FOUND TO BE ACM.
012	ROPE GASKET (WHITE/GREY CLOTH)	MACM	MECHANICAL	2 SF	ASSUMED ACM	10/14/03		NO	DAMAGED / LOCALIZED	LOW	6	REMOVE	MATERIAL PREVIOUSLY SURVEYED, FOUND TO BE ACM. DAMAGE MAY BE FROM PREVIOUS SAMPLING/ DETERIORATION. 2 SQUARE FEET OF THIS MATERIAL <IS/ARE> DAMAGED AND NEEDS TO BE <REPAIRED/REMOVED>.

THE FOLLOWING ASBESTOS MATERIALS WERE IDENTIFIED IN BUILDING 106B

**SITE A Family Housing
0488**

TABLE 1 - RESULTS OF THE INSPECTION

INSPECTION DATE: 13 - 21 OCT 2003
BUILDING NUMBER: 106B

HOMO. MATRL. NO.	MATERIAL TYPE (MATERIAL DESCRIPTION)	AHERA CAT.	MATERIAL LOCATION(S)	QTY.	SAMPLE INFORMATION			FR-ABLE	OVERALL CONDITION	ACCESS.	EPA ASS. CAT	MANAGE-MENT ACTION	COMMENTS
					NUMBER	DATE	RESULT						
008	ASPHALTIC ROOFING MATERIALS (SHINGLE, WHITE WITH GREY SPECKS, ROUGH)	MACM	EXTERIOR	1,500 SF	1003-SGF-008A	10/14/03	ND						NEW MATERIAL, RENOVATED SINCE LAST SURVEY
009	VINYL FLOOR SHEETING (WHITE, GREY, TAN STONE PATTERN)	MACM	BATH 2	30 SF	1003-SGF-009A	10/14/03	ND						ADHESIVE INCLUDED

THE FOLLOWING NON-ASBESTOS MATERIALS WERE IDENTIFIED IN BUILDING 106B

**SITE B Family Housing
0489**

TABLE 1 - RESULTS OF THE INSPECTION

INSPECTION DATE: 13 - 21 OCT 2003
BUILDING NUMBER: 112A

HOMO. MAT'L. NO.	MATERIAL TYPE (MATERIAL DESCRIPTION)	AHERA CAT.	MATERIAL LOCATION(S)	QTY.	SAMPLE INFORMATION			FR-ABLE	OVERALL CONDITION	ACCESS.	EPA ASS. CAT	MANAGE-MENT ACTION	COMMENTS
					NUMBER	DATE	RESULT						

THE FOLLOWING ASBESTOS MATERIALS WERE IDENTIFIED IN BUILDING 112A

017	VINYL FLOOR TILE (1X1 BEIGE WITH BROWN STREAKS, SMOOTH.)	MACM	BEDROOM 1, BEDROOM 2, CLOSET 1, CLOSET 2, CLOSET 3, CLOSET 4, HALL 1, HALL 2, LIVING 1	1,109 SF	ASSUMED ACM	10/15/03	NO	DAMAGED / LOCALIZED	HIGH	6	REPAIR O&M	DISCOVERED IN PRIOR SURVEY AS ACM. MASTIC ONLY IN UNDER LAYER. NOTE: DAMAGE IN BEDROOM 2, APPEARS LIKE WATER DAMAGE FROM UTILITY 1. SEE PHOTO.
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**SITE B Family Housing
0489**

TABLE 1 - RESULTS OF THE INSPECTION

INSPECTION DATE: 13 - 21 OCT 2003
BUILDING NUMBER: 112A

HOMO. MATL. NO.	MATERIAL TYPE (MATERIAL DESCRIPTION)	AHERA CAT.	MATERIAL LOCATION(S)	QTY.	SAMPLE INFORMATION			FRI-ABLE	OVERALL CONDITION	ACCESS.	EPA ASS. CAT	MANAGE-MENT ACTION	COMMENTS
					NUMBER	DATE	RESULT						
013	SINK COATING (BLACK, ROUGH)	MACM	KITCHEN	4 SF	1003-SGF-013A	10/15/03	ND						
014	ASPHALTIC ROOFING MATERIALS (SHINGLE, WHITE WITH GREY SPECKS)	MACM	EXTERIOR	1,500 SF	1003-SGF-014A	10/15/03	ND						
015	VINYL FLOOR TILE (1X1 WHITE W/ITG GREY STREAKS)	MACM	BREAKFAST	100 SF	1003-SGF-015A	10/15/03	ND						ADHESIVE INCLUDED, ADDED SINCE RENOVATIONS, PRIOR SURVEY NOT INCLUDED
016	VINYL FLOOR SHEETING (TAN STONE SQUARE/ RECTANGLE PATTERN)	MACM	KITCHEN	150 SF	1003-SGF-016A	10/15/03	ND						ADHESIVE INCLUDED, ADDED SINCE PRIOR SURVEY, RENOVATIONS.

THE FOLLOWING NON-ASBESTOS MATERIALS WERE IDENTIFIED IN BUILDING 112A

**SITE B Family Housing
0489**

TABLE 1 - RESULTS OF THE INSPECTION

INSPECTION DATE: 13 - 21 OCT 2003
BUILDING NUMBER: 114A

HOMO. MATL. NO.	MATERIAL TYPE (MATERIAL DESCRIPTION)	AHERA CAT.	MATERIAL LOCATION(S)	QTY.	SAMPLE INFORMATION			FR-ABLE	OVERALL CONDITION	ACCESS.	EPA ASS. CAT	MANAGE-MENT ACTION	COMMENTS
					NUMBER	DATE	RESULT						

THE FOLLOWING ASBESTOS MATERIALS WERE IDENTIFIED IN BUILDING 114A

023	VINYL FLOOR TILE (1X1 BEIGE WITH BROWN STREAKS, SMOOTH)	MACM	BEDROOM 1, BEDROOM 2, BEDROOM 3, BEDROOM 4, CLOSET 1, CLOSET 2, CLOSET 3, HALL 1, LIVING 1	796 SF	ASSUMED ACM	10/16/03	NO	UNDAMAGED	HIGH	5	O&M	SAME MATERIAL FROM PRIOR SURVEY. ACM IS MASTIC OF FIRST LAYER.
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**SITE B Family Housing
0489**

TABLE 1 - RESULTS OF THE INSPECTION

INSPECTION DATE: 13 - 21 OCT 2003
BUILDING NUMBER: 114A

HOMO. MATL. NO.	MATERIAL TYPE (MATERIAL DESCRIPTION)	AHRA CAT.	MATERIAL LOCATION(S)	QTY.	SAMPLE INFORMATION			FRP ABLE	OVERALL CONDITION	ACCESS.	EPA ASS. CAT	MANAGEMENT ACTION	COMMENTS
					NUMBER	DATE	RESULT						
024	SINK COATING (BLACK, ROUGH)	MACM	KITCHEN 1	4 SF	1003-SGF-024A	10/16/03	ND						
025	VINYL FLOOR SHEETING (TAN STONE SQUARE/RECTANGLE PATTERN)	MACM	KITCHEN 1	111 SF	1003-SGF-025A	10/16/03	ND						ADDED SINCE RENOVATIONS
026	VINYL FLOOR TILE (1X1 WHITE WTH GREY SPECKS)	MACM	DINING 1	70 SF	1003-SGF-026A	10/16/03	ND						ADDED SINCE RENOVATIONS
027	ASPHALTIC ROOFING MATERIALS (SHINGLE, WHITE WITH GREY, ROUGH)	MACM	EXTERIOR	1,500 SF	1003-SGF-027A	10/16/03	ND						ADDED SINCE RENOVATION

THE FOLLOWING NON-ASBESTOS MATERIALS WERE IDENTIFIED IN BUILDING 114A

**SITE B Family Housing
0489**

TABLE 1 - RESULTS OF THE INSPECTION

INSPECTION DATE: 13 - 21 OCT 2003
BUILDING NUMBER: 115A

HOMO. MATRL. NO.	MATERIAL TYPE (MATERIAL DESCRIPTION)	AHERA CAT.	MATERIAL LOCATION(S)	QTY.	SAMPLE INFORMATION			FR-ABLE	OVERALL CONDITION	ACCESS.	EPA ASS. CAT	MANAGE-MENT ACTION	COMMENTS
					NUMBER	DATE	RESULT						

THE FOLLOWING ASBESTOS MATERIALS WERE IDENTIFIED IN BUILDING 115A

030	VINYL FLOOR SHEETING (1X1 BEIGE WITH BROWN STREAKS, SMOOTH, 2 LAYERS)	MACM	BEDROOM 1, BEDROOM 2, HALL 1, LIVING ROOM	625 SF	ASSUMED ACM	10/17/03	NO	UNDAMAGED	HIGH	5	O&M	SAME MATERIAL. ACM IS MASTIC FIRST LAYER.
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**SITE B Family Housing
0489**

TABLE 1 - RESULTS OF THE INSPECTION

INSPECTION DATE: 13 - 21 OCT 2003
BUILDING NUMBER: 115A

HOMO. MATRL. NO.	MATERIAL TYPE (MATERIAL DESCRIPTION)	AHERA CAT.	MATERIAL LOCATION(S)	QTY.	SAMPLE INFORMATION			FR-ABLE	OVERALL CONDITION	ACCESS.	EPA ASS. CAT	MANAGE-MENT ACTION	COMMENTS
					NUMBER	DATE	RESULT						

THE FOLLOWING NON-ASBESTOS MATERIALS WERE IDENTIFIED IN BUILDING 115A

028	ASPHALTIC ROOFING MATERIALS (SHINGLE, WHITE WITH GREY, ROUGH)	MACM	EXTERIOR	1,700 SF	1003-SGF-028A	10/17/03	ND						ADD SINCE PRIOR SURVEY
029	VINYL FLOOR TILE (1X1 WHITE WITH GREY SPECKS)	MACM	BEDROOM 3, BEDROOM 4, BREAKFAST, CLOSET 1, CLOSET 2, CLOSET 3, HALL 1, HALL 2, HALL 3	503 SF	1003-SGF-029A	10/17/03	ND						RENOVATED TILE. ADHESIVE INCL.
031	VINYL FLOOR SHEETING (TAN STONE SQUARE/RECTANGLE PATTERN)	MACM	KITCHEN	150 SF	1003-SGF-031A	10/17/03	ND						ADHESIVE INCL.
032	VINYL FLOOR SHEETING (4X4 BROWN AND TAN SQUARE PATTERN)	MACM	BATH 1, BATH 2	60 SF	1003-SGF-032A	10/17/03	ND						ADDED IN RENOVATION
033	SINK COATING (BLACK, ROUGH)	MACM	KITCHEN	4 SF	1003-SGF-033A	10/17/03	ND						

**SITE B Family Housing
0489**

TABLE 1 - RESULTS OF THE INSPECTION

INSPECTION DATE: 13 - 21 OCT 2003
BUILDING NUMBER: 117B

HOMO. MATRL. NO.	MATERIAL TYPE (MATERIAL DESCRIPTION)	AHERA CAT.	MATERIAL LOCATION(S)	QTY.	SAMPLE INFORMATION			FR-ABLE	OVERALL CONDITION	ACCESS.	EPA ASS. CAT	MANAGE-MENT ACTION	COMMENTS
					NUMBER	DATE	RESULT						
021	VINYL FLOOR TILE (1X1 BEIGE WITH BROWN STREAKS, SMOOTH, 2 LAYERS)	MACM	BEDROOM 1, BEDROOM 2, BEDROOM 3, CLOSET 1, CLOSET 2, HALL 1, HALL 2, LIVING ROOM, UTILITY ROOM	978 SF	ASSUMED ACM	10/16/03	NO	UNDAMAGED	HIGH	5	O&M	SAME MATERIAL DISCOVERED IN PRIOR SURVEY. 1ST LAYER ADHESIVE/MASTIC IS ACM.	

THE FOLLOWING ASBESTOS MATERIALS WERE IDENTIFIED IN BUILDING 117B

**SITE B Family Housing
0489**

TABLE 1 - RESULTS OF THE INSPECTION

INSPECTION DATE: 13 - 21 OCT 2003
BUILDING NUMBER: 117B

HOMO. MATRL. NO.	MATERIAL TYPE (MATERIAL DESCRIPTION)	AHERA CAT.	MATERIAL LOCATION(S)	QTY.	SAMPLE INFORMATION			FRI-ABLE	OVERALL CONDITION	ACCESS.	EPA ASS. CAT	MANAGE-MENT ACTION	COMMENTS
					NUMBER	DATE	RESULT						
018	VINYL FLOOR SHEETING (TAN STONE SQUARE/RECTANGLE PATTERN)	MACM	KITCHEN	80 SF	1003-SGF-018A	10/16/03	ND						ADHESIVE INCLUDED
019	SINK COATING (BLACK, ROUGH)	MACM	KITCHEN	4 SF	1003-SGF-019A	10/16/03	ND						
020	ASPHALTIC ROOFING MATERIALS (SHINGLE, WHITE WITH GREY, ROUGH)	MACM	EXTERIOR	1,500 SF	1003-SGF-020A	10/16/03	ND						
022	VINYL FLOOR TILE (1X1 WHITE WITH GREY SPECKS)	MACM	DINING 1	70 SF	1003-SGF-022A	10/16/03	ND						ADDED SINCE RENOVATIONS/ PRIOR SURVEY. ADHESIVE INCLUDED.

**SITE C Family Housing
0489**

TABLE 1 - RESULTS OF THE INSPECTION

INSPECTION DATE: 13 - 21 OCT 2003
BUILDING NUMBER: 119A

HOMO. MATL. NO.	MATERIAL TYPE (MATERIAL DESCRIPTION)	AHERA CAT.	MATERIAL LOCATION(S)	QTY.	SAMPLE INFORMATION			OVERALL CONDITION	ACCESS.	EPA ASS. CAT	MANAGEMENT ACTION	COMMENTS
					NUMBER	DATE	RESULT					
048	VINYL FLOOR SHEETING (TAN STONE SQUARE/RECTANGLE PATTERN)	MACM	DINING 1, KITCHEN	220 SF	1003-SGF-048A	10/21/03	ND					ADHESIVE INCLUDED
049	WALLBOARD (WHITE WITH GREY)	MACM	BATH 1, BATH 2, BATH 3, BEDROOM 1, BEDROOM 2, BEDROOM 3, BEDROOM 4, CLOSET 1, CLOSET 2, CLOSET 3, CLOSET 4, DINING 1, HALL 1, HALL 2, KITCHEN, LIVING ROOM, STAIRWAY 1, STORAGE 1, UTILITY ROOM	6,850 SF	1003-SGF-049A	10/21/03	ND					JOINT COMPOUND INCLUDED
050	ASPHALTIC ROOFING MATERIALS (SHINGLE, WHITE WITH GREY)	MACM	EXTERIOR	1,500 SF	1003-SGF-050A	10/21/03	ND					
051	VINYL FLOOR TILE (1X1 BEIGE, SMOOTH)	MACM	HALL 1	75 SF	1003-SGF-051A	10/21/03	ND					ADHESIVE INCLUDED
052	VINYL FLOOR TILE (TAN WITH BEIGE/BROWN STREAKS)	MACM	BEDROOM 1, BEDROOM 2, BEDROOM 3, BEDROOM 4, CLOSET 1, CLOSET 2, CLOSET 3, CLOSET 4, HALL 2, LIVING ROOM	834 SF	1003-SGF-052A	10/21/03	ND					ADHESIVE INCLUDED. SAME MATERIAL AS PRIOR SURVEYS IN OTHER UNITS. NO PRIOR SURVEY ON SITE.
053	SINK COATING (BLACK, ROUGH)	MACM	KITCHEN	4 SF	1003-SGF-053A	10/21/03	ND					

THE FOLLOWING NON-ASBESTOS MATERIALS WERE IDENTIFIED IN BUILDING 119A

**SITE C Family Housing
0489**

TABLE 1 - RESULTS OF THE INSPECTION

INSPECTION DATE: 13 - 21 OCT 2003
BUILDING NUMBER: 120A

HOMO. MATRL. NO.	MATERIAL TYPE (MATERIAL DESCRIPTION)	AHERA CAT.	MATERIAL LOCATION(S)	QTY.	SAMPLE INFORMATION			FR-ABLE	OVERALL CONDITION	ACCESS.	EPA ASS. CAT	MANAGE-MENT ACTION	COMMENTS
					NUMBER	DATE	RESULT						
042	VINYL FLOOR TILE (1'X1' BEIGE)	MACM	HALL 1	50 SF	1003-SGF-042A	10/20/03	ND						ADHESIVE INCLUDED.
043	SINK COATING (BLACK, ROUGH)	MACM	KITCHEN	4 SF	1003-SGF-043A	10/20/03	ND						
044	VINYL FLOOR SHEETING (TAN STONE SQUARE/RECTANGLE)	MACM	DINING 1, KITCHEN	90 SF	1003-SGF-044A	10/20/03	ND						ADHESIVE INCLUDED.
045	VINYL FLOOR TILE (1'X1' TAN WITH BROWN AND BEIGE STREAKS)	MACM	BEDROOM 1, BEDROOM 2, BEDROOM 3, CLOSET 1, CLOSET 2, HALL 2, LIVING ROOM	756 SF	1003-SGF-045A	10/20/03	ND						ADHESIVE INCLUDED. APPEARS TO BE SAME MATERIAL AS FOUND IN PRIOR SURVEYS. NO PRIOR FOUND FOR SITE C.
046	WALLBOARD (WHITE WITH GREY)	MACM	BATH 1, BATH 2, BATH 3, BEDROOM 1, BEDROOM 2, BEDROOM 3, CLOSET 1, CLOSET 2, DINING 1, HALL 1, HALL 2, KITCHEN, LIVING ROOM, STAIRWAY 1, STORAGE 1, STORAGE 2, UTILITY ROOM	5,880 SF	1003-SGF-046A	10/20/03	ND						JOINT COMPOUND INCLUDED.
047	ASPHALTIC ROOFING MATERIALS (SHINGLE, WHITE WITH GREY)	MACM	EXTERIOR	1,500 SF	1003-SGF-047A	10/20/03	ND						

**SITE D Family Housing
0490**

TABLE 1 - RESULTS OF THE INSPECTION

INSPECTION DATE: 13 - 21 OCT 2003
BUILDING NUMBER: 121B

HOMO. MATL. NO.	MATERIAL TYPE (MATERIAL DESCRIPTION)	AHERA CAT.	MATERIAL LOCATION(S)	QTY.	SAMPLE INFORMATION			FRI-ABLE	OVERALL CONDITION	ACCESS.	EPA ASS. CAT	MANAGE-MENT ACTION	COMMENTS
					NUMBER	DATE	RESULT						
038	VINYL FLOOR SHEETING (TAN STONE SQUARE/RECTANGLE PATTERN)	MACM	DINING, KITCHEN	194 SF	1003-SGF-038A	10/20/03	ND						ADHESIVE INCLUDED. NEW MATERIAL ADDED SINCE PRIOR SURVEY.
039	VINYL FLOOR TILE (1X1 WHITE WITH GREY SPECKS)	MACM	BEDROOM 1, BEDROOM 2, BEDROOM 3, BEDROOM 4, CLOSET 1, CLOSET 2, CLOSET 3, CLOSET 4, HALL 1, HALL 2, LIVING ROOM, UTILITY ROOM	1,055 SF	1003-SGF-039A	10/20/03	ND						ADHESIVE INCLUDED. NEW MATERIAL ADDED SINCE PRIOR SURVEY.
040	VINYL FLOOR SHEETING (4X4 TAN/BROWN SQUARE PATTERN)	MACM	BATH 1, BATH 2, BATH 3	90 SF	1003-SGF-040A	10/20/03	ND						ADHESIVE INCLUDED. NEW MATERIAL ADDED SINCE PRIOR SURVEY.
041	SINK COATING (BLACK, ROUGH)	MACM	KITCHEN	4 SF	1003-SGF-041A	10/20/03	ND						

**SITE D Family Housing
0490**

TABLE 1 - RESULTS OF THE INSPECTION

INSPECTION DATE: 13 - 21 OCT 2003
BUILDING NUMBER: 121B

HOMO. MATR. NO.	MATERIAL TYPE (MATERIAL DESCRIPTION)	AHERA CAT.	MATERIAL LOCATION(S)	QTY.	SAMPLE INFORMATION			FR-ABLE	OVERALL CONDITION	ACCESS.	EPA ASS. CAT	MANAGE-MENT ACTION	COMMENTS
					NUMBER	DATE	RESULT						
059	VINYL FLOOR TILE (LT GREY WITH BEIGE/TAN STREAKS, WITH ADHESIVE)	MACM	KITCHEN	100 SF	UNKNOWN 059A	01/01/96							OLD ACM. AT THE TIME OF THE 2003 INSPECTION, THIS PREVIOUSLY IDENTIFIED MATERIAL COULD NOT BE LOCATED.
060	VINYL FLOOR TILE (TAN WITH BROWN STREAKS, WITH ADHESIVE)	MACM	BEDROOM 1	100 SF	UNKNOWN 060A	01/01/96							OLD ACM. AT THE TIME OF THE 2003 INSPECTION, THIS PREVIOUSLY IDENTIFIED MATERIAL COULD NOT BE LOCATED.
061	VINYL FLOOR SHEETING (TAN WITH WHITE SPECKS, WITH ADHESIVE)	MACM	BATH 1	25 SF	UNKNOWN 061A	01/01/96							OLD ACM. AT THE TIME OF THE 2003 INSPECTION, THIS PREVIOUSLY IDENTIFIED MATERIAL COULD NOT BE LOCATED.
062	VINYL FLOOR TILE (LT BROWN STREAKED, WITH ADHESIVE)	MACM	BEDROOM 2	100 SF	UNKNOWN 062A	01/01/96							OLD ACM. AT THE TIME OF THE 2003 INSPECTION, THIS PREVIOUSLY IDENTIFIED MATERIAL COULD NOT BE LOCATED.
063	VINYL FLOOR TILE (ROSE/GREY WITH GREEN STREAKS, WITH ADHESIVE)	MACM	KITCHEN	100 SF	UNKNOWN 063A	01/01/96							OLD ACM. AT THE TIME OF THE 2003 INSPECTION, THIS PREVIOUSLY IDENTIFIED MATERIAL COULD NOT BE LOCATED.

THE FOLLOWING MATERIALS COULD NOT BE LOCATED IN BUILDING 121B

**SITE D Family Housing
0490**

TABLE 1 - RESULTS OF THE INSPECTION

INSPECTION DATE: 13 - 21 OCT 2003
BUILDING NUMBER: 123A

HOMO. MATRL. NO.	MATERIAL TYPE (MATERIAL DESCRIPTION)	AHERA CAT.	MATERIAL LOCATION(S)	QTY.	SAMPLE INFORMATION			FR-ABLE	OVERALL CONDITION	ACCESS.	EPA ASS. CAT	MANAGE-MENT ACTION	COMMENTS
					NUMBER	DATE	RESULT						

THE FOLLOWING ASBESTOS MATERIALS WERE IDENTIFIED IN BUILDING 123A

034	VINYL FLOOR TILE (1X1 WHITE WITH GREY SPECKS)	MACM	BEDROOM 1, BEDROOM 2, CLOSET 1, CLOSET 2, CLOSET 3, HALL 1, HALL 2, LIVING ROOM, UTILITY ROOM	770 SF	1003-SGF-034A	10/17/03	5% CH	NO	UNDAMAGED	HIGH	5	O&M	ADHESIVE INCLUDED.
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**SITE D Family Housing
0490**

TABLE 1 - RESULTS OF THE INSPECTION

INSPECTION DATE: 13 - 21 OCT 2003
BUILDING NUMBER: 123A

HOMO. MATL. NO.	MATERIAL TYPE (MATERIAL DESCRIPTION)	AHERA CAT.	MATERIAL LOCATION(S)	QTY.	SAMPLE INFORMATION			FR- ABLE	OVERALL CONDITION	ACCESS.	EPA ASS. CAT	MANAGE- MENT ACTION	COMMENTS
					NUMBER	DATE	RESULT						

THE FOLLOWING NON-ASBESTOS MATERIALS WERE IDENTIFIED IN BUILDING 123A

035	VINYL FLOOR SHEETING (TAN STONE SQUARE/RECTANGLE PATTERN)	MACM	KITCHEN	50 SF	1003-SGF-035A	10/17/03	ND						ADHESIVE INCLUDED
036	SINK COATING (BLACK, ROUGH)	MACM	KITCHEN	4 SF	1003-SGF-036A	10/17/03	ND						
037	VINYL FLOOR SHEETING (4X4 BROWN/TAN SQUARE PATTERN)	MACM	BATH 1	30 SF	1003-SGF-037A	10/17/03	ND						ADHESIVE INCLUDED.

**SITE D Family Housing
0490**

TABLE 1 - RESULTS OF THE INSPECTION

INSPECTION DATE: 13 - 21 OCT 2003
BUILDING NUMBER: 123A

HOMO. MATL. NO.	MATERIAL TYPE (MATERIAL DESCRIPTION)	AHERA CAT.	MATERIAL LOCATION(S)	QTY.	SAMPLE INFORMATION			FRI-ABLE	OVERALL CONDITION	ACCESS.	EPA ASS. CAT	MANAGE-MENT ACTION	COMMENTS
					NUMBER	DATE	RESULT						

THE FOLLOWING MATERIALS COULD NOT BE LOCATED IN BUILDING 123A

054	VINYL FLOOR TILE (12" LT GREY WITH BEIGE STREAKS, WITH ADHESIVE)	MACM	KITCHEN	50 SF UNKNOWN 054A	01/01/96								OLD ACM. AT THE TIME OF THE 2003 INSPECTION, THIS PREVIOUSLY IDENTIFIED MATERIAL COULD NOT BE LOCATED.
055	VINYL FLOOR TILE (12" TAN WITH BROWN STREAKS, WITH ADHESIVE)	MACM	BEDROOM 1	100 SF UNKNOWN 055A	01/01/96								OLD ACM. AT THE TIME OF THE 2003 INSPECTION, THIS PREVIOUSLY IDENTIFIED MATERIAL COULD NOT BE LOCATED.
056	VINYL FLOOR SHEETING (TAN WITH WHITE SPECKS, WITH ADHESIVE)	MACM	BATH 1	25 SF UNKNOWN 056A	01/01/96								OLD ACM. AT THE TIME OF THE 2003 INSPECTION, THIS PREVIOUSLY IDENTIFIED MATERIAL COULD NOT BE LOCATED.
057	VINYL FLOOR TILE (LT BROWN STREAKED, WITH ADHESIVE)	MACM	BEDROOM 2	100 SF UNKNOWN 057A	01/01/96								OLD ACM. AT THE TIME OF THE 2003 INSPECTION, THIS PREVIOUSLY IDENTIFIED MATERIAL COULD NOT BE LOCATED.
058	VINYL FLOOR TILE (ROSE/GRAY WITH GREEN STREAKS, WITH ADHESIVE)	MACM	KITCHEN	100 SF UNKNOWN 058A	01/01/96								OLD ACM. AT THE TIME OF THE 2003 INSPECTION, THIS PREVIOUSLY IDENTIFIED MATERIAL COULD NOT BE LOCATED.

Table 2

Summary of Identified ACM

Site A (3 Bedrooms)
1 Wallboard 2 Vinyl Floor Tile 3 Rope Gasket
Site B (2 Bedrooms)
1 Vinyl Floor Tile
Site B (3 Bedrooms)
1 Vinyl Floor Tile
Site B (4 Bedrooms)
1 Vinyl Floor Tile
Site B (4-HC Bedrooms)
1 Vinyl Floor Tile
Site C (3 Bedrooms)
No ACM Identified
Site C (4 Bedrooms)
No ACM Identified

Table 2

Summary of Identified ACM

Site D (2 Bedrooms)
No ACM Identified

Site D (4 Bedrooms)
No ACM Identified

Table 3

Summary of Damaged ACM

Site A (3 Bedrooms)
1 Rope Gasket - Minor Damage should be removed or repaired.

Site B (2 Bedrooms)
1 Vinyl Floor Tile - Minor Damage should be removed or repaired.

Site B (3 Bedrooms)
No Damaged ACM Identified

Site B (4 Bedrooms)
1 Vinyl Floor Tile - Minor Damage should be removed or repaired.

Site B (4 HC Bedrooms)
No Damaged ACM Identified

Site C (3 Bedrooms)
No Damaged ACM Identified

Site C (4 Bedrooms)
No Damaged ACM Identified

Table 3

Summary of Damaged ACM

Site D (2 Bedrooms)
No Damaged ACM Identified

Site D (4 Bedrooms)
No Damaged ACM Identified

Table 4

Summary of LBP for Site A

FloorPlan: 3 Bedrooms

	Component Type	Number of Positive Results	Number of Negative Results	Percent Positive
1	ACCESS DOOR Metal	0	2	0
2	ACCESS DOOR TRIM Metal	0	2	0
3	BALUSTER MOUNT Wood	0	2	0
4	BALUSTER Wood	0	2	0
5	Baseboard Wood	0	30	0
6	Ceiling Drywall	0	30	0
7	Ceiling Vinyl	0	4	0
8	CLOSET DOOR CASING Wood	0	6	0
9	CLOSET DOOR TRIM Wood	0	6	0
10	CLOSET DOOR Wood	0	4	0
11	Column(s) Wood	0	7	0
12	CURTAIN SASH Wood	0	2	0
13	Door Casing/Jamb Wood	0	26	0
14	Door Metal	0	4	0
15	Door Trim Wood	0	24	0
16	Door Wood	0	6	0
17	Floor Wood	0	2	0
18	Gutters and Downspouts Metal	0	5	0
19	Handrail Wood	0	4	0
20	Screen Door CASING/TRIM Metal	0	2	0
21	Screen Door CASING/TRIM Vinyl	0	2	0
22	Screen Door Metal	0	3	0
23	Shelf Support Wood	0	6	0
24	Shelf Wood	0	14	0
25	Stair Stringer Wood	0	2	0
26	Wall Drywall	0	120	0
27	Window Casing Wood	0	12	0
28	Window Sill Wood	0	10	0
29	Window Trim Wood	0	14	0

Table 5

Summary of LBP for Site B

FloorPlan: 2 Bedrooms

	Component Type	Number of Positive Results	Number of Negative Results	Percent Positive
1	ACCESS DOOR TRIM Wood	0	3	0
2	ACCESS DOOR Wood	0	2	0
3	ATTIC DOOR TRIM Wood	0	1	0
4	ATTIC DOOR Wood	0	2	0
5	Baseboard Wood	0	30	0
6	Ceiling Drywall	0	34	0
7	Ceiling Vinyl	0	4	0
8	CLOSET DOOR CASING Wood	0	9	0
9	CLOSET DOOR TRIM Wood	0	9	0
10	CLOSET DOOR Wood	0	9	0
11	CLOSET SHELF SUPPORT Wood	0	9	0
12	CLOSET SHELF Wood	0	9	0
13	Column(s) Wood	0	4	0
14	CURTAIN SASH Wood	0	2	0
15	Door Casing/Jamb Wood	0	24	0
16	Door Metal	0	2	0
17	Door Trim Wood	0	27	0
18	Door Wood	0	21	0
19	Gutters and Downspouts Metal	0	4	0
20	Handrail Wood	0	3	0
21	Screen Door CASING/TRIM Vinyl	0	4	0
22	Screen Door Metal	0	4	0
23	Shelf Support Wood	0	11	0
24	Shelf Wood	0	11	0
25	Wall Drywall	0	135	0
26	Window Casing Wood	0	17	0
27	Window Sill Wood	0	14	0
28	Window Trim Wood	0	15	0

FloorPlan: 3 Bedrooms

	Component Type	Number of Positive Results	Number of Negative Results	Percent Positive
29	ACCESS DOOR Metal	0	1	0
30	ACCESS DOOR TRIM Metal	0	1	0

Table 5

Summary of LBP for Site B

	Component Type	Number of Positive Results	Number of Negative Results	Percent Positive
32	ACCESS DOOR TRIM Wood	0	3	0
33	ACCESS DOOR Wood	0	2	0
34	ATTIC DOOR Wood	0	2	0
35	BALUSTER MOUNT Wood	0	1	0
36	BALUSTER Wood	0	1	0
37	Baseboard Wood	0	30	0
38	Ceiling Drywall	0	34	0
39	Ceiling Vinyl	0	4	0
40	CLOSET DOOR CASING Wood	0	9	0
41	CLOSET DOOR TRIM Wood	0	9	0
42	CLOSET DOOR Wood	0	9	0
43	CLOSET SHELF SUPPORT Wood	0	9	0
44	CLOSET SHELF Wood	0	9	0
45	Column(s) Wood	0	4	0
46	CURTAIN SASH Wood	0	2	0
47	Door Casing/Jamb Wood	0	24	0
48	Door Metal	0	5	0
49	Door Trim Wood	0	27	0
50	Door Wood	0	21	0
51	Gutters and Downspouts Metal	0	4	0
52	Handrail Wood	0	3	0
53	Screen Door CASING/TRIM Vinyl	0	4	0
54	Screen Door Metal	0	4	0
55	Shelf Support Wood	0	11	0
56	Shelf Wood	0	11	0
57	Stair Stringer Wood	0	1	0
58	Wall Drywall	0	135	0
59	Window Casing Wood	0	17	0
60	Window Sill Wood	0	14	0
61	Window Trim Wood	0	15	0

FloorPlan: 4 Bedrooms

Component Type	Number of Positive Results	Number of Negative Results	Percent Positive
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Table 5**Summary of LBP for Site B**

	Component Type	Number of Positive Results	Number of Negative Results	Percent Positive
63	ACCESS DOOR Metal	0	1	0
64	ACCESS DOOR TRIM Metal	0	1	0
65	ACCESS DOOR TRIM Wood	0	3	0
66	ACCESS DOOR Wood	0	2	0
67	ATTIC DOOR TRIM Wood	0	1	0
68	ATTIC DOOR Wood	0	2	0
69	BALUSTER MOUNT Wood	0	1	0
70	BALUSTER Wood	0	1	0
71	Baseboard Wood	0	30	0
72	Ceiling Drywall	0	34	0
73	Ceiling Vinyl	0	4	0
74	CLOSET DOOR CASING Wood	0	9	0
75	CLOSET DOOR TRIM Wood	0	9	0
76	CLOSET DOOR Wood	0	9	0
77	CLOSET SHELF SUPPORT Wood	0	9	0
78	CLOSET SHELF Wood	0	9	0
79	Column(s) Wood	0	4	0
80	CURTAIN SASH Wood	0	2	0
81	Door Casing/Jamb Metal	0	1	0
82	Door Casing/Jamb Wood	0	24	0
83	Door Metal	0	5	0
84	Door Trim Metal	0	1	0
85	Door Trim Wood	0	27	0
86	Door Wood	0	21	0
87	Gutters and Downspouts Metal	0	4	0
88	Handrail Wood	0	3	0
89	Screen Door CASING/TRIM Vinyl	0	4	0
90	Screen Door Metal	0	4	0
91	Shelf Support Wood	0	11	0
92	Shelf Wood	0	11	0
93	Stair Stringer Wood	0	1	0
94	Wall Drywall	0	135	0
95	Window Casing Wood	0	17	0

Table 5

Summary of LBP for Site B

	Component Type	Number of Positive Results	Number of Negative Results	Percent Positive
97	Window Sill Wood	0	14	0
98	Window Trim Wood	0	15	0

Table 6

Summary of LBP for Site C

FloorPlan: 3 Bedrooms

	Component Type	Number of Positive Results	Number of Negative Results	Percent Positive
1	ACCESS DOOR TRIM Wood	0	1	0
2	ACCESS DOOR Wood	0	1	0
3	ATTIC DOOR TRIM Wood	0	1	0
4	ATTIC DOOR Wood	0	1	0
5	BALUSTER MOUNT Wood	0	1	0
6	BALUSTER Wood	0	1	0
7	Baseboard Wood	0	13	0
8	Ceiling Drywall	0	16	0
9	Ceiling Vinyl	0	3	0
10	Ceiling Wood	0	1	0
11	CLOSET DOOR CASING Wood	0	4	0
12	CLOSET DOOR TRIM Wood	0	3	0
13	CLOSET DOOR Wood	0	4	0
14	CLOSET SHELF SUPPORT Wood	0	3	0
15	CLOSET SHELF Wood	0	3	0
16	Column(s) Wood	0	5	0
17	CURTAIN SASH Metal	0	2	0
18	CURTAIN SASH Wood	0	1	0
19	Door Casing/Jamb Metal	0	1	0
20	Door Casing/Jamb Wood	0	12	0
21	Door Drywall	0	1	0
22	Door Metal	0	3	0
23	Door Trim Metal	0	1	0
24	Door Trim Wood	0	12	0
25	Door Wood	0	9	0
26	Exterior Trim Vinyl	0	1	0
27	Exterior Trim Wood	0	1	0
28	Gutters and Downspouts Metal	0	2	0
29	Handrail Wood	0	3	0
30	Screen Door CASING/TRIM Vinyl	0	2	0
31	Screen Door Metal	0	2	0
32	Shelf Support Wood	0	6	0
33	Shelf Wood	0	6	0

Table 6**Summary of LBP for Site C**

	Component Type	Number of Positive Results	Number of Negative Results	Percent Positive
35	Stair Stringer Wood	0	1	0
36	Wall Drywall	0	60	0
37	Wall Wood	0	3	0
38	Window Casing Wood	0	9	0
39	Window Sill Wood	0	7	0
40	Window Trim Wood	0	9	0

FloorPlan: 4 Bedrooms

	Component Type	Number of Positive Results	Number of Negative Results	Percent Positive
41	ACCESS DOOR TRIM Wood	0	1	0
42	ACCESS DOOR Wood	0	1	0
43	ATTIC DOOR TRIM Wood	0	1	0
44	ATTIC DOOR Wood	0	1	0
45	BALUSTER MOUNT Wood	0	1	0
46	BALUSTER Wood	0	1	0
47	Baseboard Wood	0	13	0
48	Ceiling Drywall	0	16	0
49	Ceiling Vinyl	0	3	0
50	Ceiling Wood	0	1	0
51	CLOSET DOOR CASING Wood	0	4	0
52	CLOSET DOOR TRIM Wood	0	3	0
53	CLOSET DOOR Wood	0	4	0
54	CLOSET SHELF SUPPORT Wood	0	3	0
55	CLOSET SHELF Wood	0	3	0
56	Column(s) Wood	0	5	0
57	CURTAIN SASH Metal	0	2	0
58	CURTAIN SASH Wood	0	1	0
59	Door Casing/Jamb Metal	0	1	0
60	Door Casing/Jamb Wood	0	12	0
61	Door Drywall	0	1	0
62	Door Metal	0	3	0
63	Door Trim Metal	0	1	0
64	Door Trim Wood	0	12	0

Table 6

Summary of LBP for Site C

	Component Type	Number of Positive Results	Number of Negative Results	Percent Positive
66	Door Wood	0	9	0
67	Exterior Trim Vinyl	0	1	0
68	Exterior Trim Wood	0	1	0
69	Gutters and Downspouts Metal	0	2	0
70	Handrail Wood	0	3	0
71	Screen Door CASING/TRIM Vinyl	0	2	0
72	Screen Door Metal	0	2	0
73	Shelf Support Wood	0	6	0
74	Shelf Wood	0	6	0
75	Stair Stringer Wood	0	1	0
76	Wall Drywall	0	60	0
77	Wall Wood	0	3	0
78	Window Casing Wood	0	9	0
79	Window Sill Wood	0	7	0
80	Window Trim Wood	0	9	0

Table 7

Summary of LBP for Site D

FloorPlan: 2 Bedrooms

	Component Type	Number of Positive Results	Number of Negative Results	Percent Positive
1	ATTIC DOOR TRIM Wood	0	1	0
2	ATTIC DOOR Wood	0	1	0
3	Baseboard Wood	0	14	0
4	Ceiling Drywall	0	19	0
5	Ceiling Vinyl	0	2	0
6	CLOSET DOOR CASING Wood	0	4	0
7	CLOSET DOOR TRIM Wood	0	4	0
8	CLOSET SHELF SUPPORT Wood	0	4	0
9	CLOSET SHELF Wood	0	4	0
10	Column(s) Wood	0	2	0
11	Door Casing/Jamb Metal	0	1	0
12	Door Casing/Jamb Wood	0	14	0
13	Door Metal	0	3	0
14	Door Trim Metal	0	1	0
15	Door Trim Wood	0	14	0
16	Gutters and Downspouts Metal	0	4	0
17	Handrail Wood	0	1	0
18	Screen Door CASING/TRIM Vinyl	0	2	0
19	Screen Door Metal	0	2	0
20	Shelf Support Wood	0	6	0
21	Shelf Wood	0	6	0
22	Siding Wood	0	2	0
23	Wall Drywall	0	76	0
24	Window Casing Wood	0	5	0
25	Window Sill Wood	0	5	0
26	Window Trim Wood	0	5	0

FloorPlan: 4 Bedrooms

	Component Type	Number of Positive Results	Number of Negative Results	Percent Positive
27	ATTIC DOOR TRIM Wood	0	1	0
28	ATTIC DOOR Wood	0	1	0
29	Baseboard Vinyl	0	1	0
30	Baseboard Wood	0	14	0

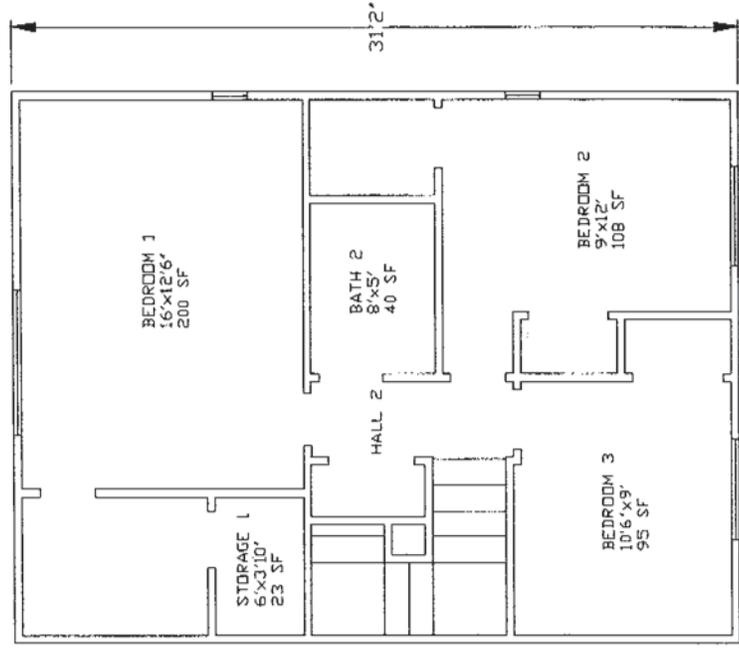
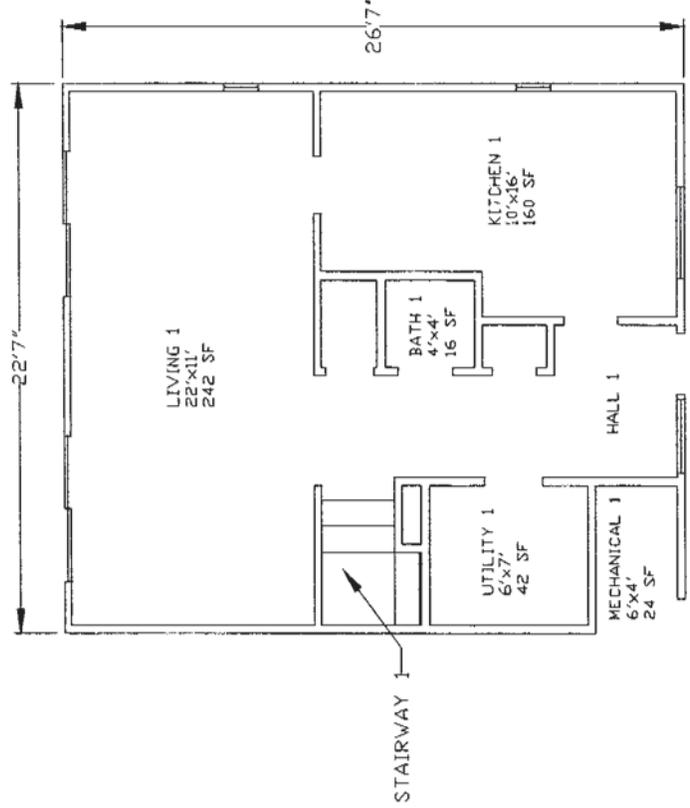
Table 7**Summary of LBP for Site D**

	Component Type	Number of Positive Results	Number of Negative Results	Percent Positive
32	Ceiling Drywall	0	19	0
33	Ceiling Vinyl	0	2	0
34	CLOSET DOOR CASING Wood	0	4	0
35	CLOSET DOOR TRIM Wood	0	4	0
36	CLOSET SHELF SUPPORT Wood	0	4	0
37	CLOSET SHELF Wood	0	4	0
38	Column(s) Wood	0	2	0
39	Door Casing/Jamb Metal	0	1	0
40	Door Casing/Jamb Wood	0	14	0
41	Door Metal	0	3	0
42	Door Trim Metal	0	1	0
43	Door Trim Wood	0	14	0
44	Gutters and Downspouts Metal	0	4	0
45	Screen Door CASING/TRIM Vinyl	0	2	0
46	Screen Door Metal	0	2	0
47	Shelf Support Wood	0	6	0
48	Shelf Wood	0	6	0
49	Siding Wood	0	2	0
50	Stair Stringer Wood	0	1	0
51	Wall Drywall	0	76	0
52	Window Casing Wood	0	5	0
53	Window Sill Wood	0	5	0
54	Window Trim Wood	0	5	0

Appendix A

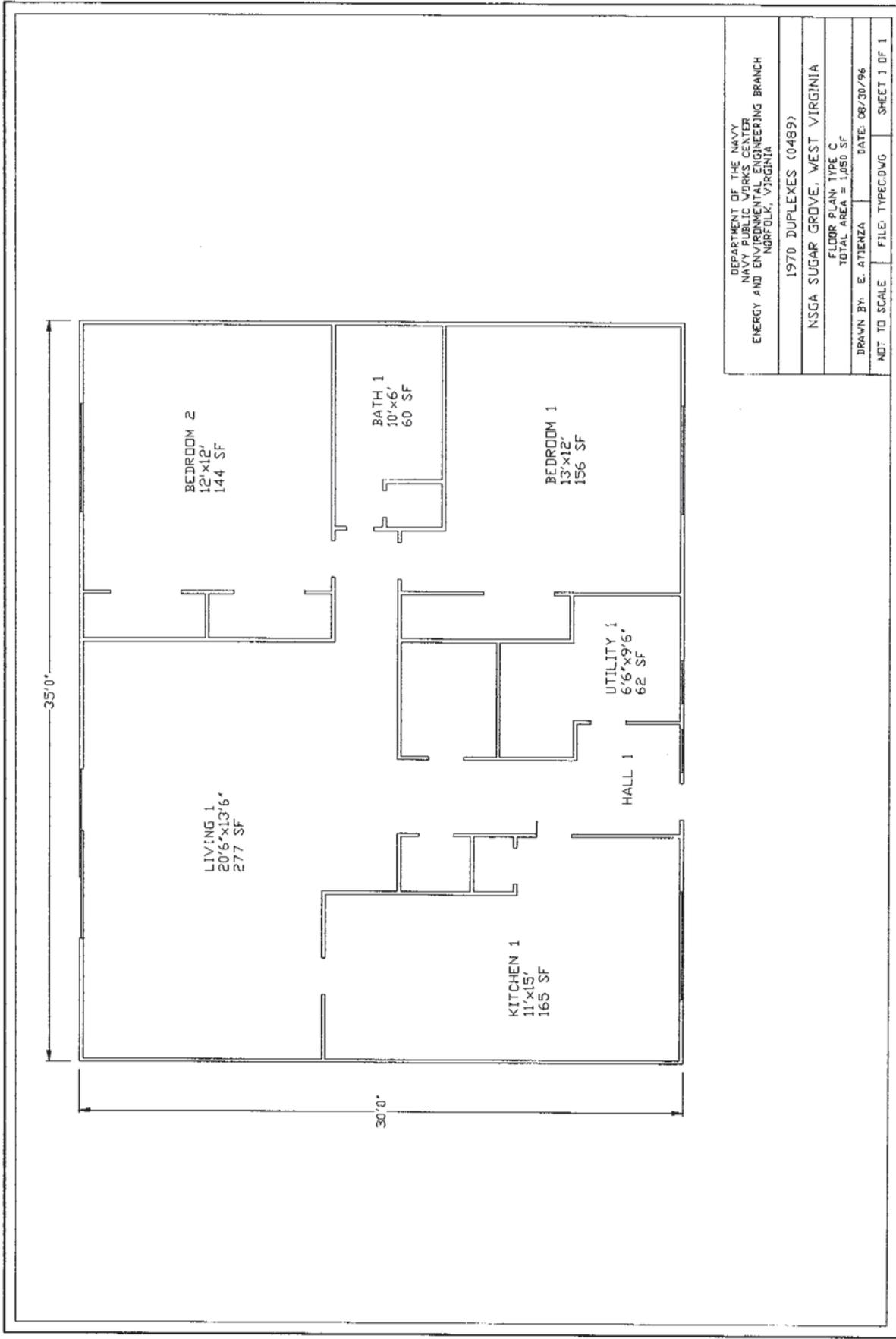
Floor Plans

Site A

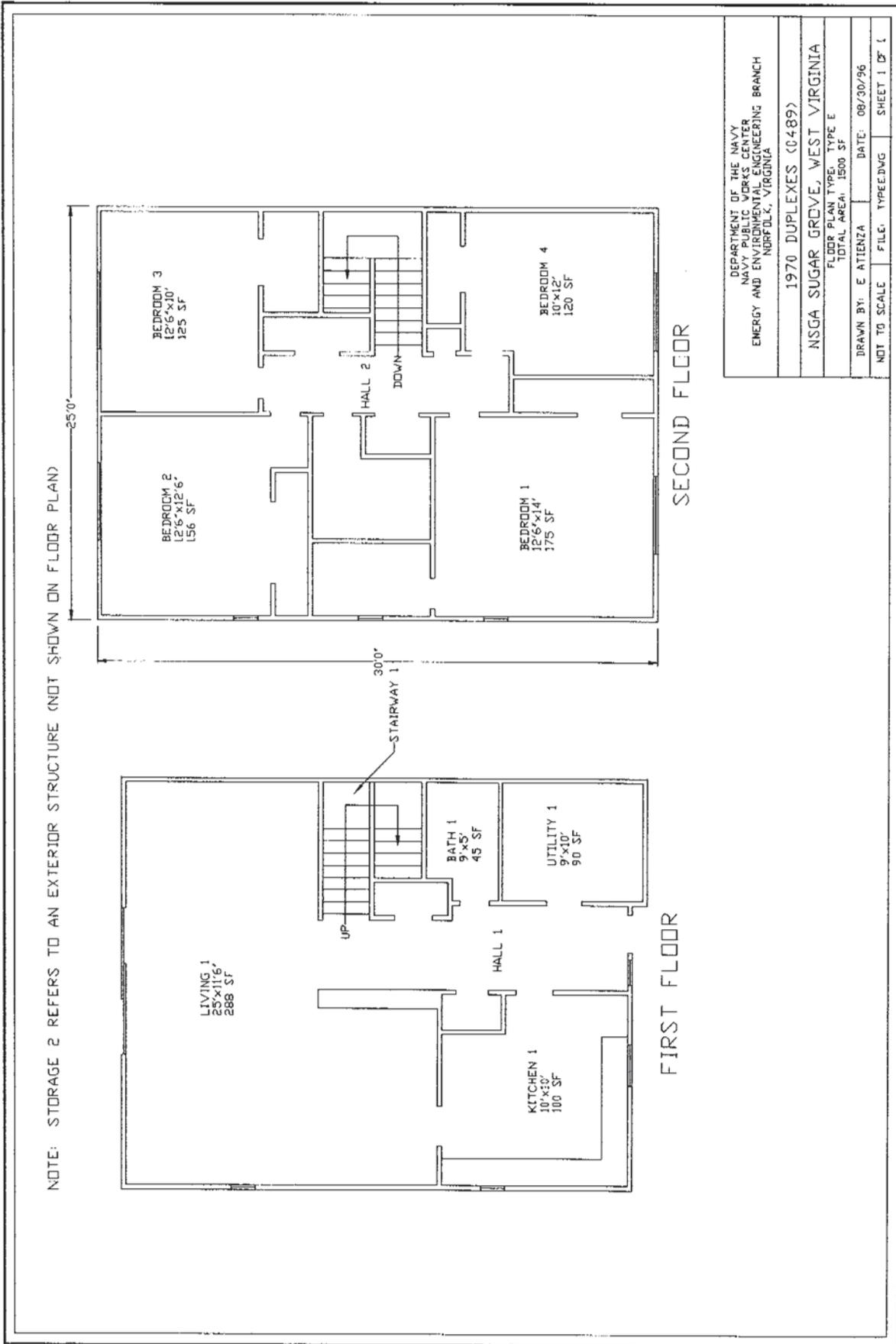


DEPARTMENT OF THE NAVY NAVAL FACILITIES ENERGY AND ENVIRONMENTAL ENGINEERING BRANCH NORFOLK, VIRGINIA	
1968 DUPLEXES (0488)	
NSGA SUGAR GROVE, WEST VIRGINIA	
FLOOR PLAN TYPE: TYPE A	
TOTAL AREA: 1430 SF	
DRAWN BY: A AGUSTIN	DATE: 04/02/97
NOT TO SCALE	FILE: TYPEA.DWG
	SHEET 1 OF 1

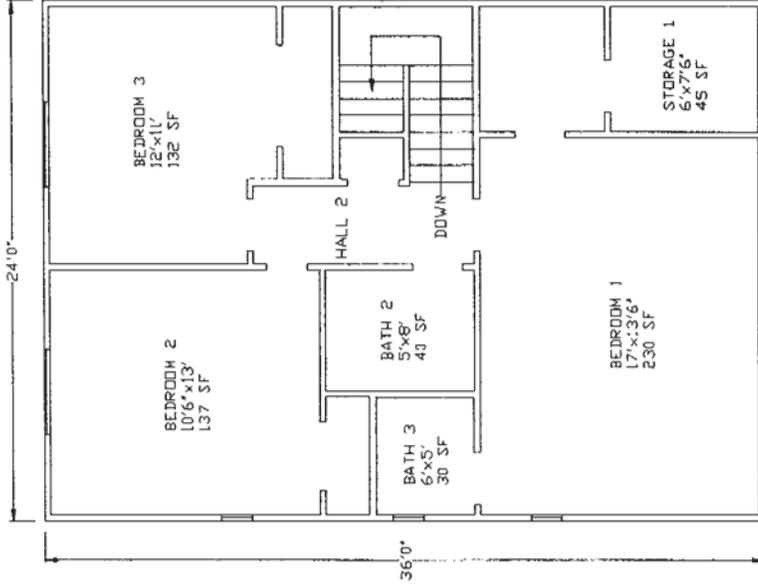
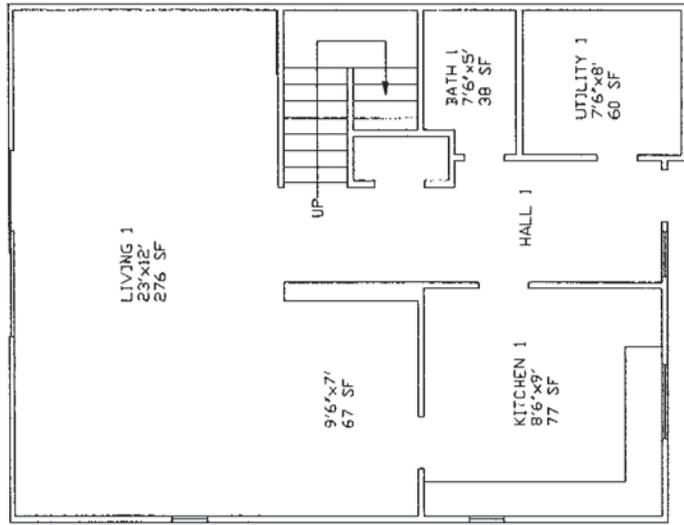
Site B



DEPARTMENT OF THE NAVY NAVY PUBLIC WORKS CENTER ENERGY AND ENVIRONMENTAL ENGINEERING BRANCH NORFOLK, VIRGINIA			
1970 DUPLEXES (0489)			
NSGA SUGAR GROVE, WEST VIRGINIA			
FLOOR PLAN TYPE C TOTAL AREA = 1,090 SF			
DRAWN BY: E. ATIENZA	FILE: TYPE.C/DWG	DATE: 08/30/96	SHEET 1 OF 1



NOTE: STORAGE 2 REFERS TO AN EXTERIOR STRUCTURE (NOT SHOWN ON FLOOR PLAN)

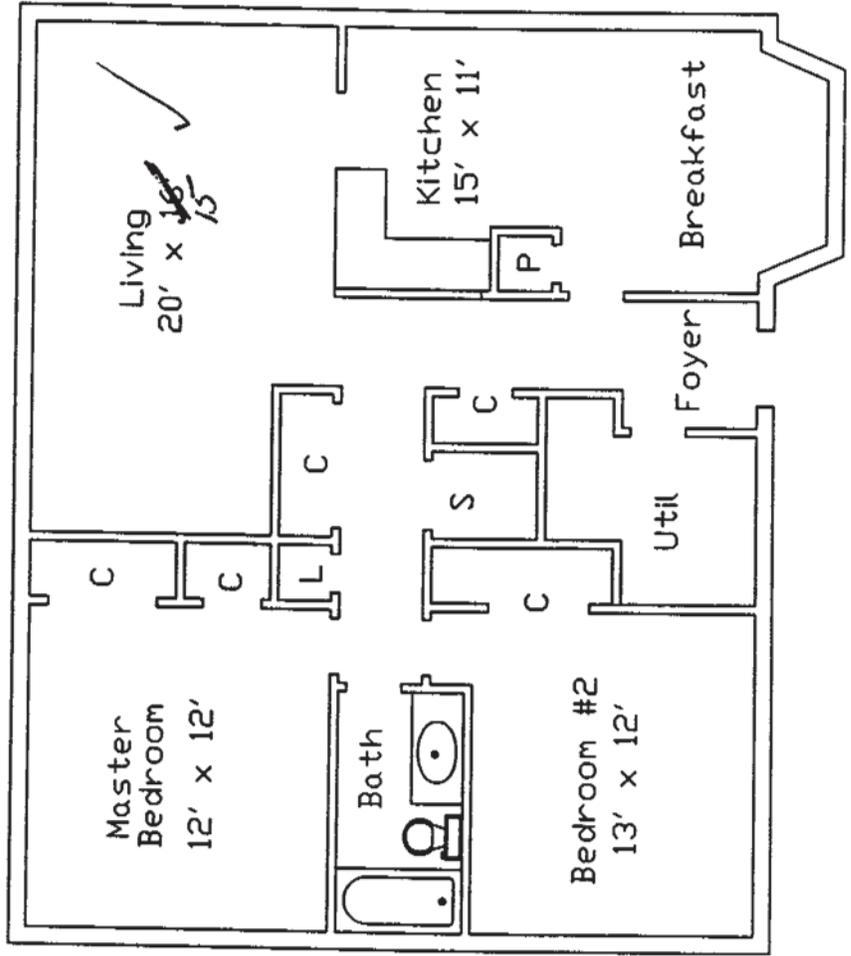


DEPARTMENT OF THE NAVY NAVY PUBLIC WORKS CENTER ENERGY AND ENVIRONMENTAL ENGINEERING BRANCH NORFOLK, VIRGINIA			
1970 DUPLEXES (0489)			
NSGA SUGAR GROVE, WEST VIRGINIA			
FLOOR PLAN TYPE, TYPE F			
TOTAL AREA, 1728 SF			
DRAWN BY	E. ATIENZA	DATE	08/30/96
NOT TO SCALE	FILE: TYPE/DWG	SHEET 1 OF 1	

Site B

'B' UNITS

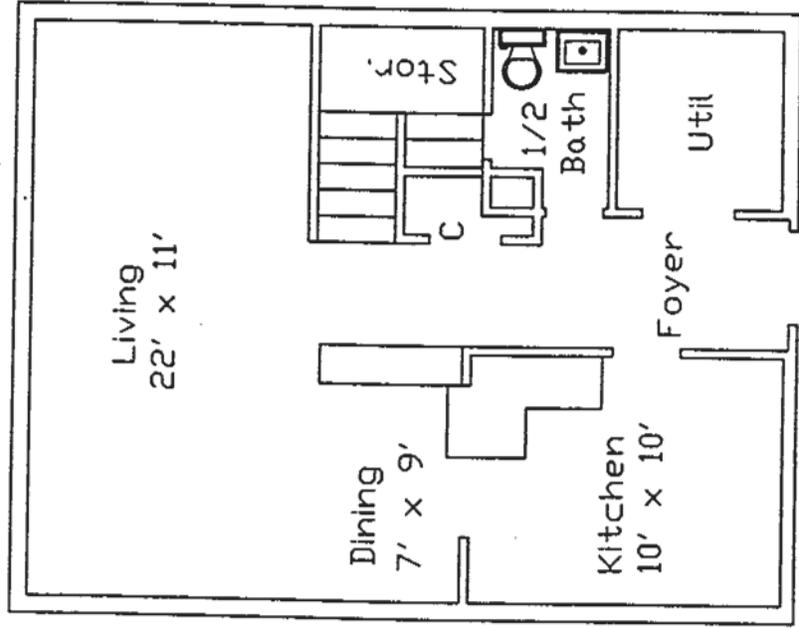
2-BEDROOM * ENLISTED * TYPE 'F' * 112 & 118 (RIGHT UNIT)



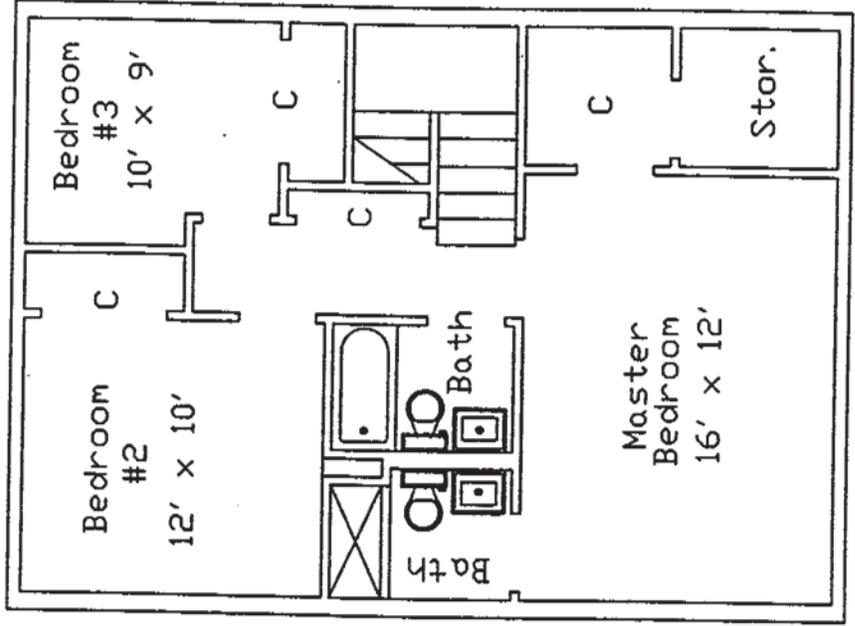
Site B

3-BEDROOM * ENLISTED * TYPE 'E' * 111,113,117 (LEFT UNIT) * "A" UNITS

1ST FLOOR



2ND FLOOR

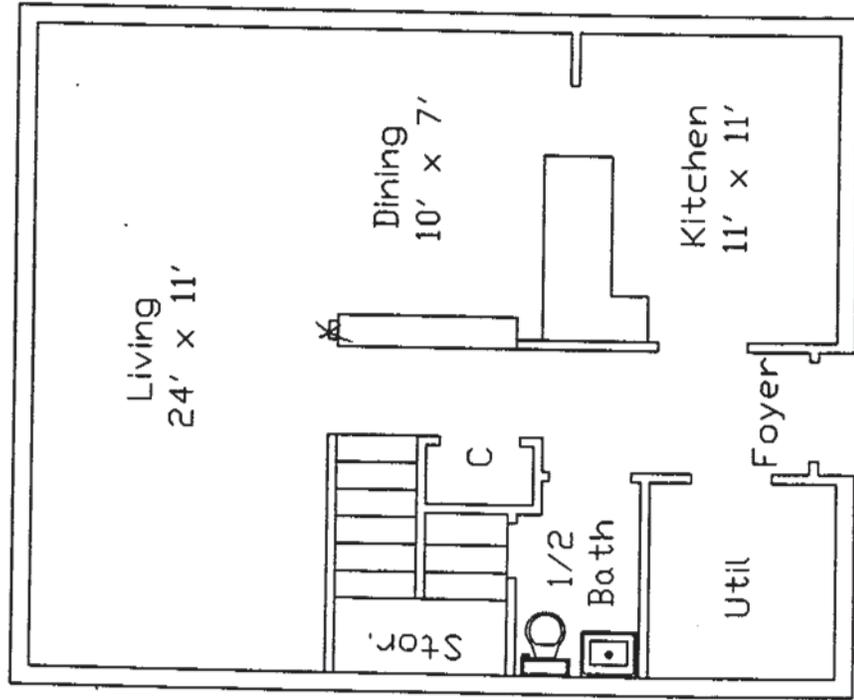


Site B

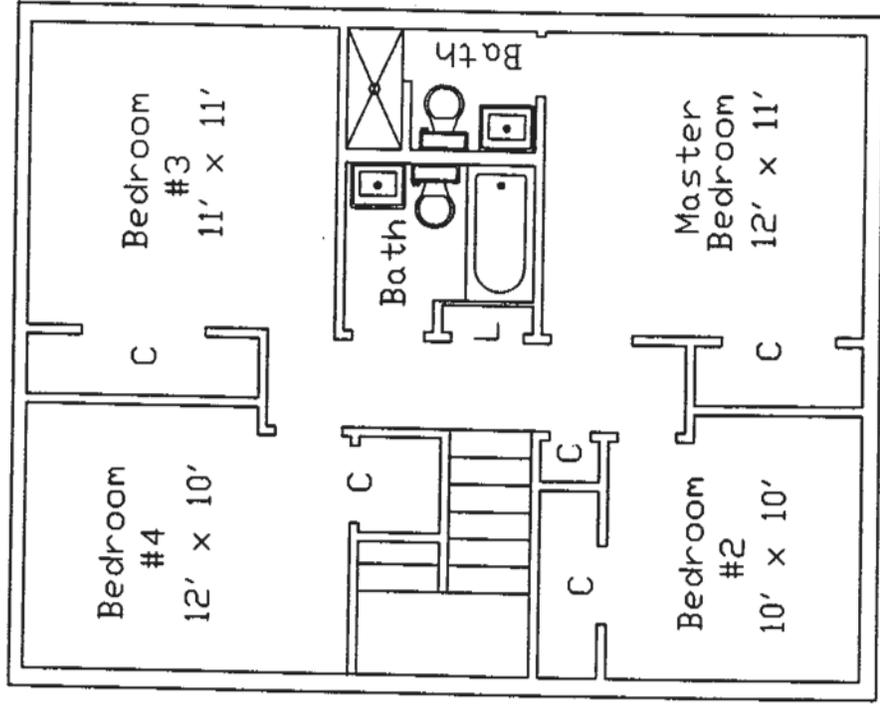
'B' UNITS

4-BEDROOM * ENLISTED * TYPE 'C' * 114, 116 (RIGHT UNIT)

1ST FLOOR



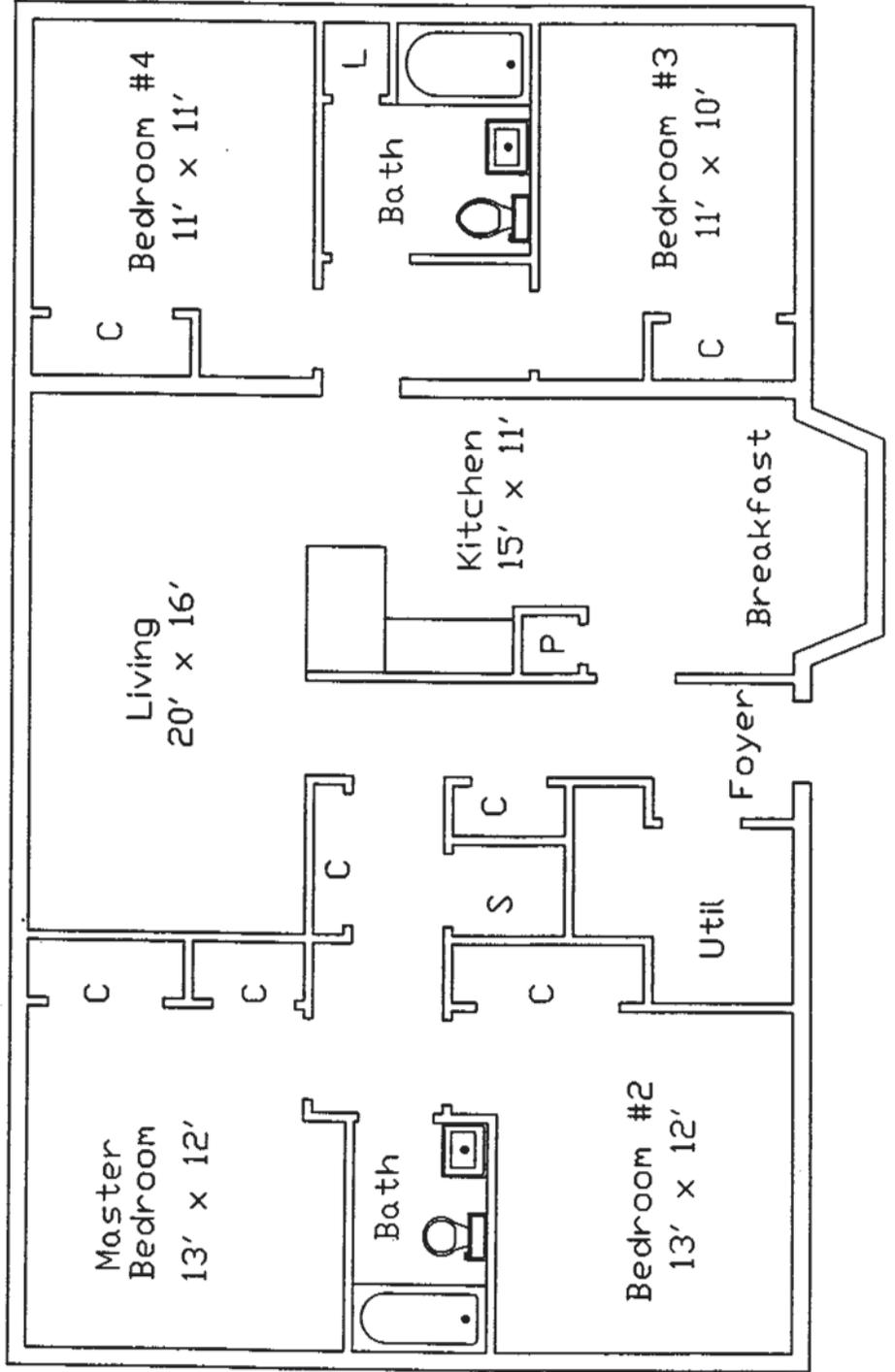
2ND FLOOR



Site B

3 UNITS

4-BEDROOM * ENLISTED * TYPE 'F-HC' * 115 (RIGHT UNIT)



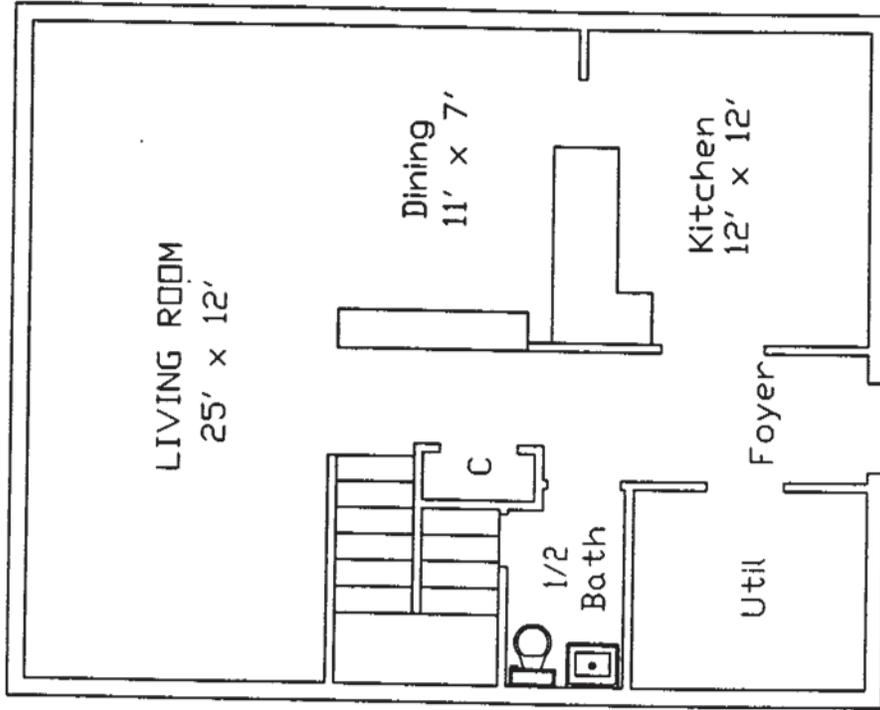
Site C

Site C

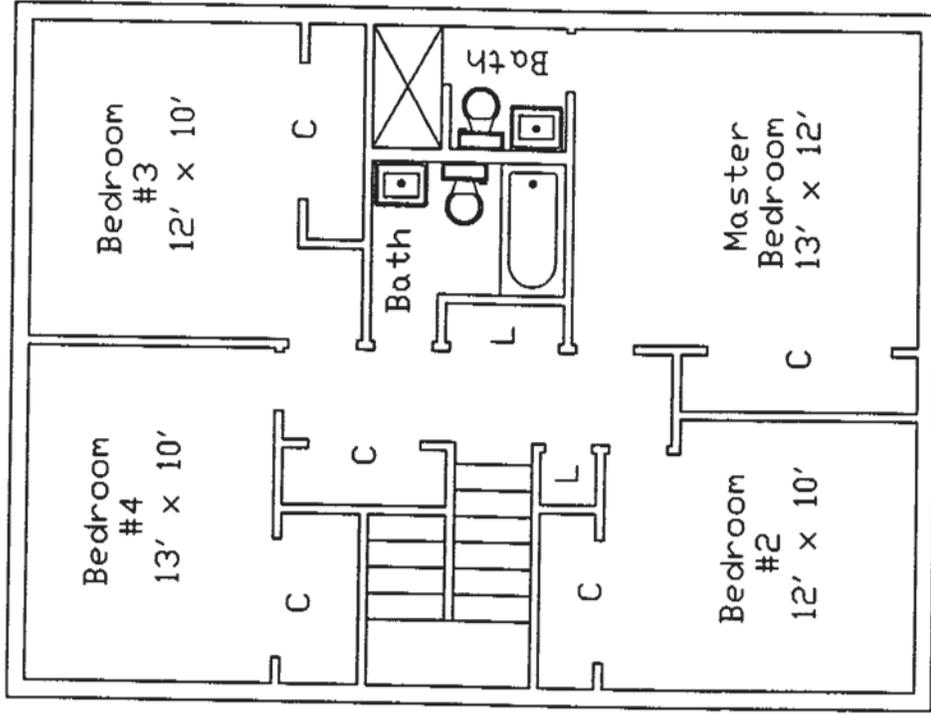
"B" UNIT

4-BEDROOM * OFFICER * TYPE "A" * 119 (RIGHT UNIT)

1ST FLOOR



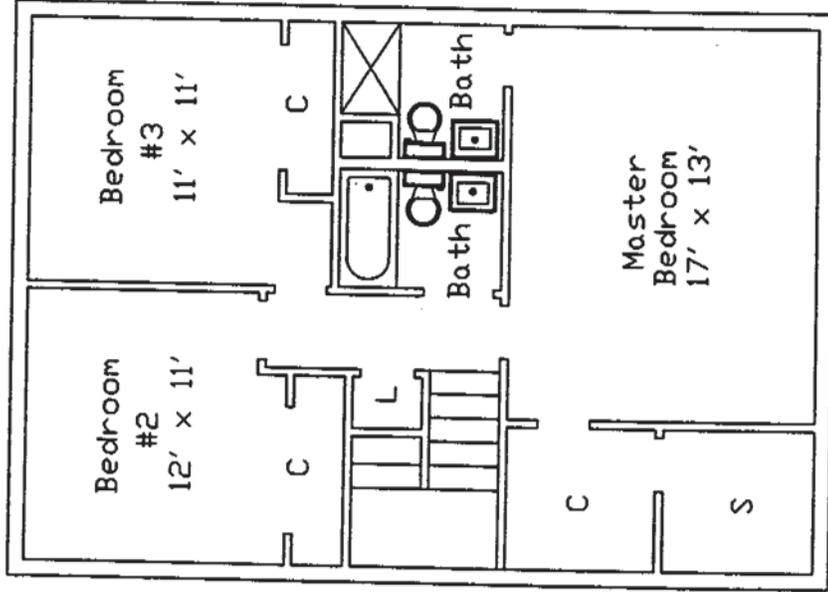
2ND FLOOR



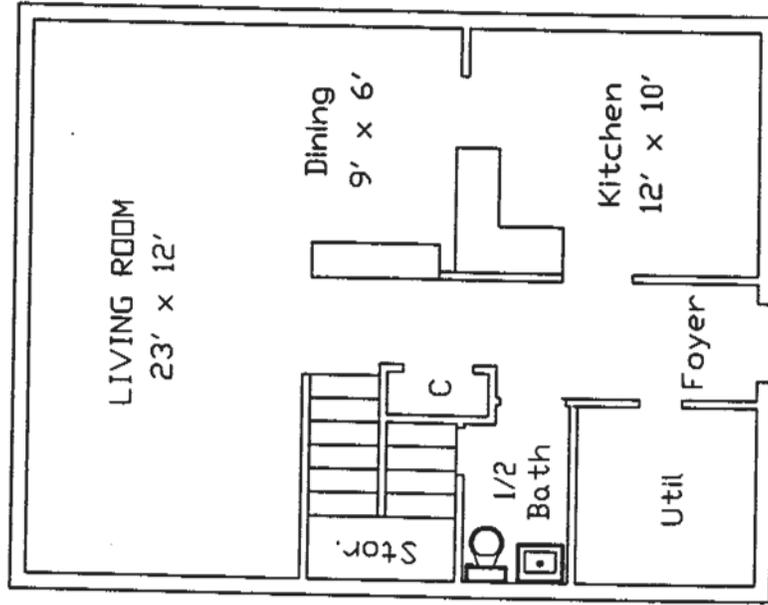
Sitec

'B' UNIT
3-BEDROOM * OFFICER * TYPE 'B' * 120B (RIGHT UNIT)

2ND FLOOR

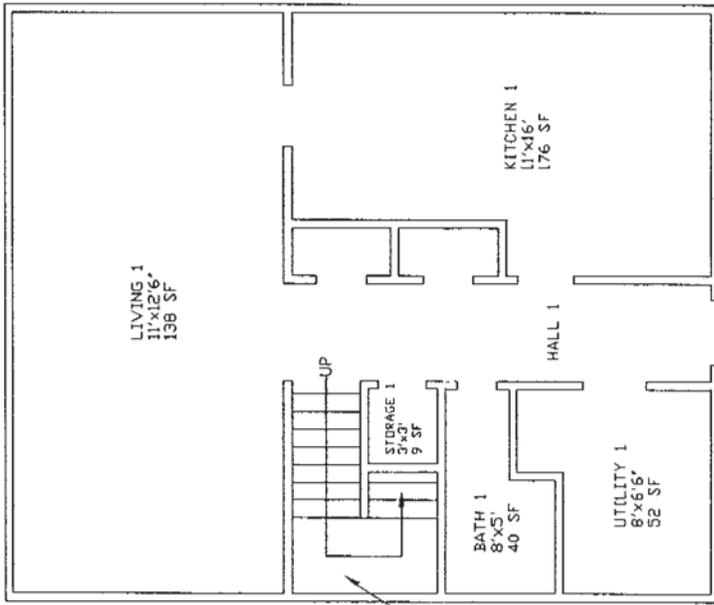


1ST FLOOR

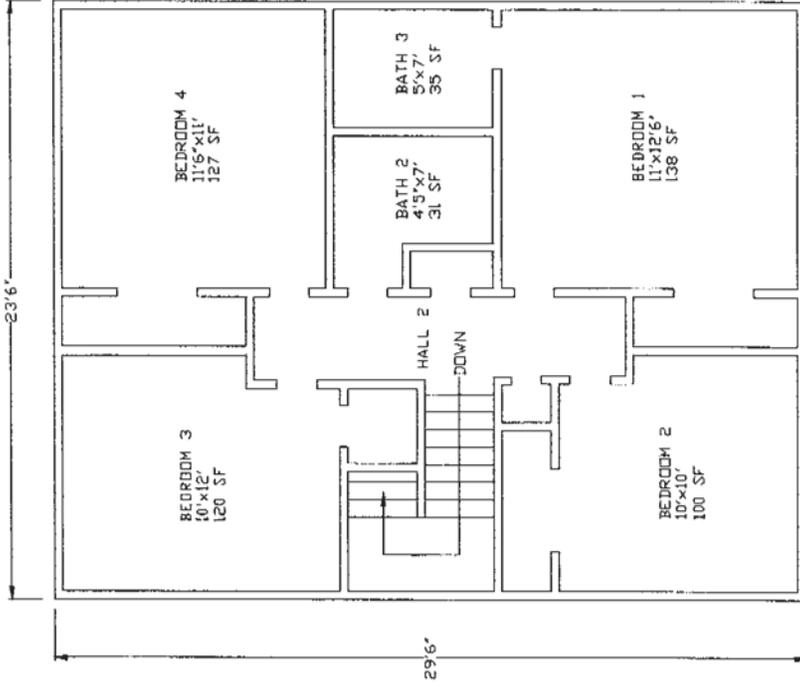


Site D

NOTE: STORAGE 2 REFERS TO A DETACHED STRUCTURE (NOT SHOWN ON FLOOR PLAN)



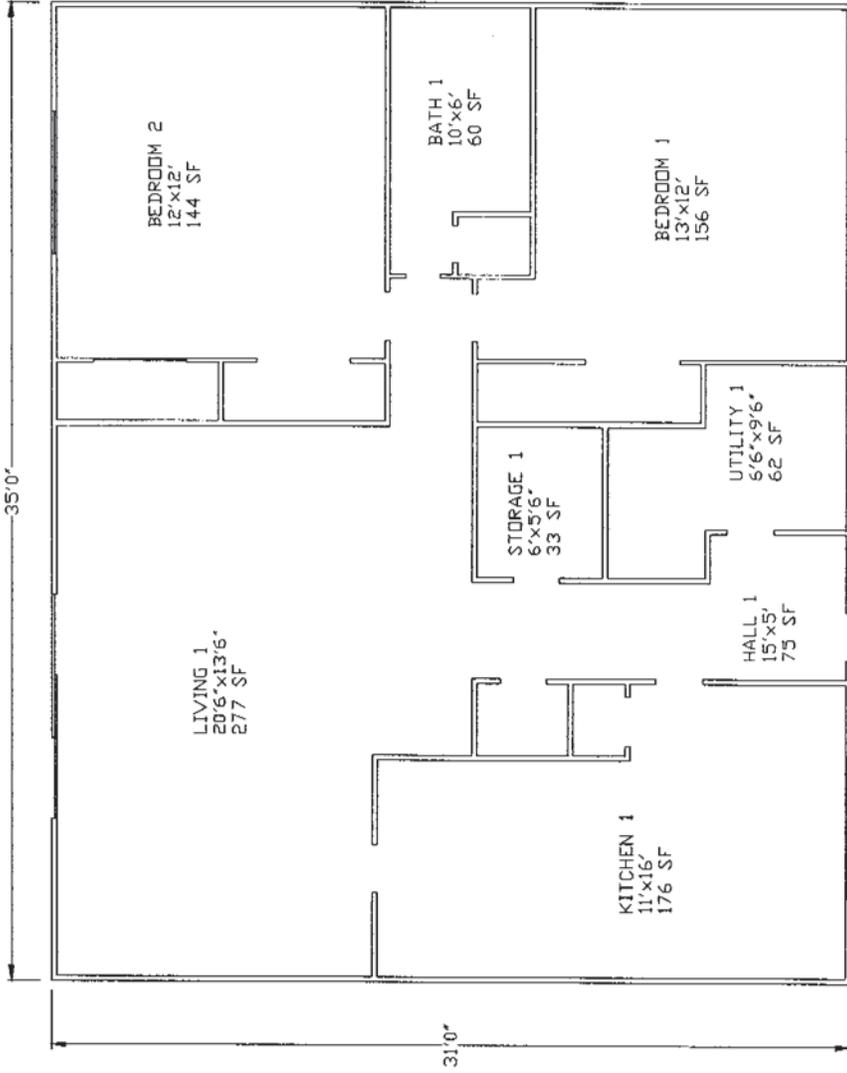
FIRST FLOOR



SECOND FLOOR

DEPARTMENT OF THE NAVY NAVAL PUBLIC WORKS CENTER ENERGY AND ENVIRONMENTAL ENGINEERING BRANCH NORFOLK, VIRGINIA	
1977 HOUSING (0490)	
NSGA SUGAR GROVE, WEST VIRGINIA	
FLOOR PLAN TYPE TYPE G	
TOTAL AREA: 1387 SF	
DRAWN BY: E. ATIENZA	DATE: 04/08/97
NBT TO SCALE	FILE: TYPEEDWG SHEET 1 OF 1

NOTE: STORAGE 2 REFERS TO A DETACHED STRUCTURE (NOT SHOWN ON FLOOR PLAN)



FLOOR PLAN

DEPARTMENT OF THE NAVY NAVY PUBLIC WORKS CENTER ENERGY AND ENVIRONMENTAL ENGINEERING BRANCH NORFOLK, VIRGINIA	
1977 HOUSING (0490)	
NSCA SUGAR GROVE, WEST VIRGINIA	
FLOOR PLAN TYPE H TOTAL AREA = 1085 SF	
DRAWN BY: E. ATIENZA	DATE: 08/31/96
NOT TO SCALE	FILE: TYPE/DWG SHEET 1 OF 1

Appendix B

Training Certificates and Certificates of Accreditation



Lab details

Advanced Search

- Home
- Services ▶
- Lab Locations
- Qualifications ▶
- News
- Event Calendar ▶
- Sampling Guides
- Product Catalog
- Chain Of Custody
- Resources ▶
- About EMSL ▶
- Contact Us
- LABConnect™ ▶

Westmont, NJ

107 Haddon Avenue , Westmont, NJ, 08108
 Phone: (856) 858-4800 Fax: (856) 858-4960 (856) 427-1608
 Email: jfrasca@emsl.com
[Click here for map/directions \(courtesy Yahoo maps \)](#)

The Westmont Lab is the World Headquarters for EMSL.

Services carried out by this Laboratory (click for details)

- | | |
|---|------------------|
| Asbestos Lab Services | Chain of Custody |
| Environmental Chemistry Lab Services | Chain of Custody |
| Environmental Microbiology Lab Services | Chain of Custody |
| Indoor Air Quality Lab Services | Chain of Custody |
| Industrial Hygiene Lab Services | Chain of Custody |
| Lead Lab Services | Chain of Custody |
| Materials Testing, Characterization & Forensic Lab Services | Chain of Custody |

Other services provided by EMSL

List of Qualifications (click for details)

ELLAP	100194
EMLAP	100194
IHLAP	100194
ELPAT - Paint Chips, Soil, Dust Wipes, Air	100194
EMPAT - Bacteria and Fungi	100194
IHPAT - Asbestos, Metals, Silica, Organics and 3M Diffusive Sampler	100194
NVLAP - Air and Bulk	101048-0
USDA - Soil Permit	S-50747
AL - Lead and Asbestos 100.1 and 100.2	41260
AZ - Air and Bulk Asbestos	AZ0909
CA - Lead	1877
CA - Bulk Asbestos and Microbiology	2492
PA - PCM, PLM and TEM	137
CT - PCM, PLM and TEM	PH-0566
CT - Paint Chips, Dust Wipes, Soil, Inorganic and Organic Chemicals	PH-0270
FL - Asbestos in Drinking Water - 100.1 and 100.2	E87788
FL - Lead	E87786
GA - Asbestos in Drinking Water	964
HI - Bulk Asbestos	L-01-032
IN - Lead and Asb. in D. Water - 100.1	C-NJ-02
KY - Chemistry - Drinking Water	90123
LA - Lead	04047
ME - Air Asbestos Analysis	LA-0038
ME - Bulk Asbestos Analysis	LB-0039
MD - Lead	297
MA - Chemistry and Asbestos in D.W. 100.2	M-NJ337
MA - PCM, PLM and TEM	AA000056
MT - Asbestos 100.1 & 100. 2 and Lead	CERT0016
NH - Lead - Drinking Water	252003
NJ - Chemistry	04653
NJ - Asbestos and Microbiology	04006
NY - ELAP - Chemistry	10896
NY - ELAP - Air and Emissions	10872
NY - ELAP - Potable Water - 100.1 and 100.2	10872
NY - ELAP - Solid and Hazardous Waste	10872
NC - Copper and Lead	34700
OH - Lead	10002
PA - Lead - Drinking Water	68-367
PA - Asbestos in Drinking Water	68-581
RI - PCM, PLM and TEM	AAL-075T3
RI - Chemistry	129
SC - Asbestos	94017001

SC - WPP and SDWA	94014001
SC - SHW	94014002
TN - Asbestos in Drinking Water	02856
TX - PCM, PLM and TEM	30-0161
TX - Lead and Asb. in DW 100.1 & 100.2	TX242-2002A
VT - PCM, PLM and TEM	AL015617
VT - Lead	LL015548
VA - PCM, PLM and TEM	3333 000075
VA - Lead and Asb. in D. W. 100.1 & 100.2	00103
WV - Air and Bulk Asbestos	LT000199

Instrumentation used at this Lab (click for details)

- Auger Electron Spectroscopy (AES)
- Cryo-Microtome
- Energy Dispersive X-Ray Analyzer (EDXA)
- Flame Atomic Absorption (FAA)
- Fourier Transform Infrared Microscope (micro-FTIR)
- Fourier Transform Infrared Spectrometer (FTIR)
- Gas Chromatograph (GC)
- Gas Chromatograph/Electron Capture Detector
- Gas Chromatograph/Flame Ionization
- Gas Chromatograph/Flame Photometric Detector
- Gas Chromatograph/Hall-PID Detectors
- Gas Chromatograph/Mass Spectrometer (GC/MS)
- Gas Chromatograph/Microbial ID System
- Gas Chromatograph/Nitrogen Phosphorus Detector
- Gas Chromatograph/Thermal Conductivity Detector
- Graphite Furnace Atomic Absorption (GFAA)
- High Performance Liquid Chromatography/Diode Array/Fluorescence Detectors
- Inductively Coupled Plasma Spectrometer (ICP)
- Near Infrared Spectroscopy (NIR)
- Phase Contrast Microscope (PCM)
- Polarized Light Microscope (PLM)
- Precision Ion Polishing System (PIPS)
- Real Time PCR (Real-Time Polymerase Chain Reaction)
- Scanning Electron Microscope (SEM)
- Tinius Olson Impact Tester
- Transmission Electron Microscope (TEM)
- X-Ray Diffractometer (XRD)
- X-ray Fluorescence Spectrometer (WD-XRF)





The American Industrial Hygiene Association
acknowledges that

EMSL Analytical, Inc.
3 Cooper Street, Westmont, NJ 08108
Laboratory ID: 100194



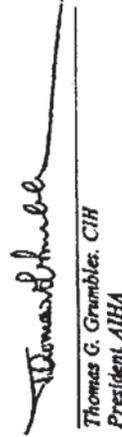
has fulfilled the requirements of the AIHA Laboratory Quality Assurance Programs (LQAP), thereby, conforming to the ISO/IEC 17025 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories*.
The above named laboratory has been accredited by AIHA in the following:

ACCREDITATION PROGRAMS

- | | | |
|-------------------------------------|----------------------------|-----------------------------------|
| <input checked="" type="checkbox"/> | INDUSTRIAL HYGIENE | Accreditation Expires: 09/01/2006 |
| <input checked="" type="checkbox"/> | ENVIRONMENTAL LEAD | Accreditation Expires: 09/01/2006 |
| <input checked="" type="checkbox"/> | ENVIRONMENTAL MICROBIOLOGY | Accreditation Expires: 09/01/2005 |
| <input type="checkbox"/> | FOOD | Accreditation Expires: |
| <input type="checkbox"/> | UNIQUE SCOPE | Accreditation Expires: |

Specific categories of testing, within each Accreditation Program, for which the above named laboratory maintains accreditation is outlined on the attached Scope of Accreditation. Continued accreditation is contingent upon successful on-going compliance with LQAP requirements. This certificate is not valid without the attached Scope of Accreditation.


Gustavo A. Delgado, PhD
Chairperson, Analytical Accreditation Board


Thomas G. Grambles, CIH
President, AIHA

Date Issued: 10/01/2003



AIHA Laboratory Quality Assurance Programs

SCOPE OF ACCREDITATION

EMSL Analytical, Inc.
3 Cooper Street, Westmont, NJ 08108

Laboratory ID: 100194
Issue Date: 10/01/2003

Clients are urged to verify the laboratory's accreditation status for particular categories of testing. A complete listing of currently accredited Environmental Lead laboratories is available on the AIHA website at www.aiha.org/LaboratoryServices/html/ellapsla.htm.

The "✓" symbol in the table below indicates that the laboratory is approved by AIHA for that specific field(s) of testing. A list of current analytical methods covering the scopes for which the laboratory is accredited shall be available to customers and the accreditation body from the laboratory upon request.

✓ **ELLAP** Initial Accreditation Date: 01/18/1995

The EPA recognizes the AIHA ELLAP program as meeting the requirements of the National Lead Laboratory Accreditation Program (NLLAP) established under Title X of the Residential Lead-Based Paint Hazard Reduction Act of 1992 and includes paint, soil and dust wipe analysis. Air analysis is not included as part of the NLLAP.

- Paint
- Soil
- Dust
- Air

United States Department of Commerce
National Institute of Standards and Technology

NVLAP[®]

ISO/IEC 17025:1999
ISO 9002:1994

Certificate of Accreditation



EMSL ANALYTICAL, INC.
WESTMONT, NJ

*is recognized by the National Voluntary Laboratory Accreditation Program
for satisfactory compliance with criteria set forth in NIST Handbook 150:2001,
all requirements of ISO/IEC 17025:1999, and relevant requirements of ISO 9002:1994.
Accreditation is awarded for specific services, listed on the Scope of Accreditation, for:*

BULK ASBESTOS FIBER ANALYSIS

June 30, 2004

Effective through

For the National Institute of Standards and Technology
NVLAP Lab Code: 101048-0

National Institute
of Standards and Technology



National Voluntary
Laboratory Accreditation Program

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation



Page: 1 of 1

BULK ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 101048-0

EMSL ANALYTICAL, INC.

107 Haddon Avenue

Westmont, NJ 08108-2799

Mr. Stephen Siegel, CIH

Phone: 856-858-4800 Fax: 856-858-4960

E-Mail: ssiegel@emsl.com

URL: <http://www.emsl.com>

NVLAP Code

Designation

18/A01

EPA-600/M4-82-020: Interim Method for the Determination of Asbestos in Bulk Insulation Samples

June 30, 2004

Effective through

A handwritten signature in cursive script, reading "C. D. Faison".

For the National Institute of Standards and Technology

Professional Training Associates, Inc.

ASBESTOS BUILDING INSPECTOR

Refresher Training Course

Gary R. Case

has successfully completed the Asbestos Building Inspector Refresher Course and passed the course examination for purposes of accreditation under Section 206 of Title II of the Toxic Substance Control Act (TSCA). Conducted by Professional Training Associates, Inc., 46 South Linden Street, Suite C, Duquesne, PA 15110, (412) 460-0266.

CASEGAR
BIR071003DUQUESN

July 10, 2003

Examination:

Duquesne, PA

July 10, 2004

Expiration:

July 10, 2003

Certificate Number: PTA 03 - 23 - 12118

Course Director:

William W. Tomlinson



Professional Training Associates, Inc.

ASBESTOS MANAGEMENT PLANNER

Refresher Training Course

Gary R. Case

has successfully completed the Asbestos Management Planner Refresher Course and passed the course examination for purposes of accreditation under section 206 of Title II of the Toxic Substance Control Act (TSCA). Conducted by Professional Training Associates, Inc., 46 South Linden Street, Suite C, Duquesne, PA 15110, (412) 460-0266.

CASEGAR
MPR071003DUQUESN

Location: Duquesne, PA Examination: July 10, 2003

Course Date: July 10, 2004 Expiration: July 10, 2004

Course Director:  William W. Tomlinson Certificate Number: PTA 03 - 24 - 12125

Certificate of Achievement

This is to certify that

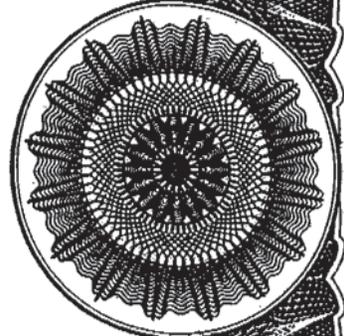
Gary Case
of Baker Environmental, Inc.

on the 16th day of July 1996 successfully completed the factory training for

RMD's LPA-1 Lead Paint Inspection System

including, but not limited to, the topics of Radiation Safety
and the Proper Use of the Instrument.


Sir Akshar, Product Manager of RMD
44 Hunt St., Watertown, Massachusetts



Baker

Engineering & Energy

Michael Baker Jr., Inc.

770 Lynnhaven Parkway, Suite 240, Virginia Beach VA 23452
Phone: (757) 463-8770 Fax: (757) 463-0503

This certificate certifies that

Gary Case

Main Street, PO Box 26, Seminole, PA 16253
173-54-7386

has successfully completed the

16 Hour Lead Based Paint Risk Assessor Initial Course

In accordance with EPA, OSHA, HUD Guidelines, the Virginia Lead Based paint Activities Regulations and Title 54.1 of the Code of Virginia



William Bounds
Training Manager



William Bounds
Primary Instructor

Class Number: LRA-2003-0130
Class Dates: 1/30/2003 to 1/31/2003
Certificate Number: 2003018

Training Location: 770 Lynnhaven Parkway, Virginia Beach, VA 23452 (757) 463-8770

Exam Date: 1/31/2003
Expiration Date: 1/31/2006

Baker

Engineering & Energy

Michael Baker Jr., Inc.

770 Lynnhaven Parkway, Suite 240, Virginia Beach VA 23452
Phone: (757) 463-8770 Fax: (757) 463-0503

This certificate certifies that

Gary Case

Main Street, PO Box 26, Seminole, PA 16253
173-54-7386

has successfully completed the

24 Hour Lead Based Paint Inspector Initial Course

In accordance with EPA, OSHA, HUD Guidelines, the Virginia Lead Based Paint Activities Regulations and Title 54.1 of the Code of Virginia



William Bounds
Training Manager



William Bounds
Primary Instructor

Class Number: LI-2003-0127
Class Dates: 1/27/2003 to 1/29/2003
Certificate Number: 2003009

Exam Date: 1/29/2003
Expiration Date: 1/29/2006

Training Location: 770 Lynnhaven Parkway, Virginia Beach, VA 23452 (757) 463-8770

Certificate of Achievement

This is to certify that

J. C. Douglass
Baker Environmental

on the 3rd day of April 2003 successfully completed the factory training for

RMD's LPA-1 Lead Paint Inspection System

including, but not limited to, the topics of Radiation Safety and the Proper Use of the Instrument.



Jacob Paster, Vice President, RMD
44 Hunt St., Watertown, Massachusetts



Baker

Engineering & Energy

Michael Baker Jr., Inc.

770 Lynnhaven parkway, Suite 240, Virginia beach VA 23452

Phone: (757) 463-8770 Fax: (757) 463-0503

This certificate certifies that

JC Douglass

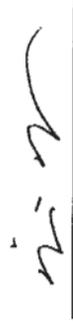
1015 Redgate Avenue A-8 Norfolk, VA 23507

239-47-0935

has successfully completed the

24 Hour Lead Based Paint Inspector Initial Course

In accordance with EPA, OSHA, HUD Guidelines, the Virginia Lead Based paint Activities Regulations and Title 54.1 of the Code of Virginia



William Bounds
Training Manger



William Bounds
Primary Instructor

Class Number: LII-2003-0127

Class Dates: 1/27/2003 to 1/29/2003

Certificate Number: 2003010

Training Location: 770 Lynnhaven Parkway, Virginia Beach, VA 23452 (757) 463-8770

Exam Date: 1/29/2003

Expiration Date: 1/29/2006

Baker

Engineering & Energy

Michael Baker Jr., Inc.

770 Lynnhaven parkway, Suite 240, Virginia beach VA 23452
Phone: (757) 463-8770 Fax: (757) 463-0503

This certificate certifies that

JC Douglass

1015 Redgate Avenue A-8 Norfolk, 23507
239-47-0935

has successfully completed the

16 Hour Lead Based Paint Risk Assessor Initial Course

In accordance with EPA, OSHA, HUD Guidelines, the Virginia Lead Based paint Activities Regulations and Title 54.1 of the Code of Virginia



William Bounds
Training Manger



William Bounds
Primary Instructor

Class Number: LRA-2003-0130
Class Dates: 1/30/2003 to 1/31/2003
Certificate Number: 2003017

Exam Date: 1/31/2003
Expiration Date: 1/31/2006

Training Location: 770 Lynnhaven Parkway, Virginia Beach, VA 23452 (757) 463-8770

Appendix C

XRF Performance Characteristic Sheet

Performance Characteristic Sheet

EFFECTIVE DATE: October 24, 2000

EDITION NO.: 4

MANUFACTURER AND MODEL:

Make: Radiation Monitoring Devices

Model: LPA-1

Source: ⁵⁷Co

Note: This sheet supersedes all previous sheets for the XRF instrument of the make, model, and source shown above for instruments sold or serviced after June 26, 1995. For other instruments, see prior editions.

FIELD OPERATION GUIDANCE

OPERATING PARAMETERS

Quick mode or nominal 30-second standard mode readings.

XRF CALIBRATION CHECK LIMITS

0.7 to 1.3 mg/cm ² (inclusive)

SUBSTRATE CORRECTION:

For XRF results below 4.0 mg/cm², substrate correction is recommended for:

Metal using 30-second standard mode readings.

None using quick mode readings.

Substrate correction is not needed for:

Brick, Concrete, Drywall, Plaster, and Wood using 30-second standard mode readings

Brick, Concrete, Drywall, Metal, Plaster, and Wood using quick mode readings

THRESHOLDS:

30-SECOND STANDARD MODE READING DESCRIPTION	SUBSTRATE	THRESHOLD (mg/cm ²)
Results corrected for substrate bias on metal substrate only	Brick	1.0
	Concrete	1.0
	Drywall	1.0
	Metal	0.9
	Plaster	1.0
	Wood	1.0

QUICK MODE READING DESCRIPTION	SUBSTRATE	THRESHOLD (mg/cm ²)
Readings not corrected for substrate bias on any substrate	Brick	1.0
	Concrete	1.0
	Drywall	1.0
	Metal	1.0
	Plaster	1.0
	Wood	1.0

BACKGROUND INFORMATION

EVALUATION DATA SOURCE AND DATE:

This sheet is supplemental information to be used in conjunction with Chapter 7 of the HUD Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (HUD Guidelines). Performance parameters shown on this sheet are calculated from the EPA/HUD evaluation using archived building components. Testing was conducted on approximately 150 test locations in July 1995. The instrument that performed testing in September had a new source installed in June 1995 with 12 mCi initial strength.

OPERATING PARAMETERS:

Performance parameters shown in this sheet are applicable only when properly operating the instrument using the manufacturer's instructions and procedures described in Chapter 7 of the HUD Guidelines.

XRF CALIBRATION CHECK:

The calibration of the XRF instrument should be checked using the paint film nearest 1.0 mg/cm² in the NIST Standard Reference Material (SRM) used (e.g., for NIST SRM 2579, use the 1.02 mg/cm² film).

If readings are outside the acceptable calibration check range, follow the manufacturer's instructions to bring the instruments into control before XRF testing proceeds.

SUBSTRATE CORRECTION VALUE COMPUTATION

Chapter 7 of the HUD Guidelines provides guidance on correcting XRF results for substrate bias. Supplemental guidance for using the paint film nearest 1.0 mg/cm² for substrate correction is provided:

XRF results are corrected for substrate bias by subtracting from each XRF result a correction value determined separately in each house for single-family housing or in each development for multifamily housing, for each substrate. The correction value is an average of XRF readings taken over the NIST SRM paint film nearest to 1.0 mg/cm² at test locations that have been scraped bare of their paint covering. Compute the correction values as follows:

Using the same XRF instrument, take three readings on bare substrate area covered with the NIST SRM paint film nearest 1 mg/cm². Repeat this procedure by taking three more readings on a second bare substrate area of the same substrate covered with the NIST SRM.

Compute the correction value for each substrate type where XRF readings indicate substrate correction is needed by computing the average of all six readings as shown below.

For each substrate type (the 1.02 mg/cm² NIST SRM is shown in this example; use the actual lead loading of the NIST SRM used for substrate correction):

$$\text{Correction value} = (1\text{st} + 2\text{nd} + 3\text{rd} + 4\text{th} + 5\text{th} + 6\text{th Reading}) / 6 - 1.02 \text{ mg/cm}^2$$

Repeat this procedure for each substrate requiring substrate correction in the house or housing development.

EVALUATING THE QUALITY OF XRF TESTING:

Randomly select ten testing combinations for retesting from each house or from two randomly selected units in multifamily housing. Use either 15-second readings or 60-second readings.

Conduct XRF re-testing at the ten testing combinations selected for retesting.

Determine if the XRF testing in the units or house passed or failed the test by applying the steps below.

Compute the Retest Tolerance Limit by the following steps:

Determine XRF results for the original and retest XRF readings. Do not correct the original or retest results for substrate bias. In single-family housing a result is defined as the average of three readings. In multifamily housing, a result is a single reading. Therefore, there will be ten original and ten retest XRF results for each house or for the two selected units.

Calculate the average of the original XRF result and retest XRF result for each testing combination.

Square the average for each testing combination.

Add the ten squared averages together. Call this quantity C.

Multiply the number C by 0.0072. Call this quantity D.

Add the number 0.032 to D. Call this quantity E.

Take the square root of E. Call this quantity F.

Multiply F by 1.645. The result is the Retest Tolerance Limit.

Compute the average of all ten original XRF results.

Compute the average of all ten re-test XRF results.

Find the absolute difference of the two averages.

If the difference is less than the Retest Tolerance Limit, the inspection has passed the retest. If the difference of the overall averages equals or exceeds the Retest Tolerance Limit, this procedure should be repeated with ten new testing combinations. If the difference of the overall averages is equal to or greater than the Retest Tolerance Limit a second time, then the inspection should be considered deficient.

Use of this procedure is estimated to produce a spurious result approximately 1% of the time. That is, results of this procedure will call for further examination when no examination is warranted in approximately 1 out of 100 dwelling units tested.

BIAS AND PRECISION:

Do not use these bias and precision data to correct for substrate bias. These bias and precision data were computed without substrate correction from samples with reported laboratory results less than 4.0 mg/cm² lead. The data which were used to determine the bias and precision estimates given in the table below have the following properties. During the July 1995 testing, there were 15 test locations with a laboratory-reported result equal to or greater than 4.0 mg/cm² lead. Of these, one 30-second standard mode reading was less than 1.0 mg/cm² and none of the quick mode readings were less than 1.0 mg/cm². The instrument that tested in July is representative of instruments sold or serviced after June 26, 1995. These data are for illustrative purposes only. Actual bias must be determined on the site. Results provided above already account for bias and precision. Bias and precision ranges are provided to show the variability found between machines of the same model.

30-SECOND STANDARD MODE READING MEASURED AT	SUBSTRATE	BIAS (mg/cm ²)	PRECISION (mg/cm ²)
0.0 mg/cm ²	Brick	0.0	0.1
	Concrete	0.0	0.1
	Drywall	0.1	0.1
	Metal	0.3	0.1
	Plaster	0.1	0.1
	Wood	0.0	0.1
0.5 mg/cm ²	Brick	0.0	0.2
	Concrete	0.0	0.2
	Drywall	0.0	0.2
	Metal	0.2	0.2
	Plaster	0.0	0.2
	Wood	0.0	0.2
1.0 mg/cm ²	Brick	0.0	0.3
	Concrete	0.0	0.3
	Drywall	0.0	0.3
	Metal	0.2	0.3
	Plaster	0.0	0.3
	Wood	0.0	0.3
2.0 mg/cm ²	Brick	-0.1	0.4
	Concrete	-0.1	0.4
	Drywall	-0.1	0.4
	Metal	0.1	0.4
	Plaster	-0.1	0.4
	Wood	-0.1	0.4

Precision at 1 standard deviation.

CLASSIFICATION RESULTS:

XRF results are classified as positive if they are greater than the upper boundary of the inconclusive range, and negative if they are less than the lower boundary of the inconclusive range, or inconclusive if in between. The inconclusive range includes both its upper and lower bounds. Earlier editions of this *XRF Performance Characteristics Sheet* did not include both bounds of the inconclusive range as "inconclusive." While this edition of the Performance Characteristics Sheet uses a different system, the specific XRF readings that are considered positive, negative, or inconclusive for a given XRF model and substrate remain unchanged, so previous inspection results are not affected.

DOCUMENTATION:

An EPA document titled *Methodology for XRF Performance Characteristic Sheet* provides an explanation of the statistical methodology used to construct the data in the sheets, and provides empirical results from using the recommended inconclusive ranges or thresholds for specific XRF instruments. For a copy of this document call the National Lead Information Center Clearinghouse at 1-800-424-LEAD. A HUD document titled *A Nonparametric Method for Estimating the 5th and 95th Percentile Curves of Variable-Time XRF Readings Based on Monotone Regression* provides supplemental information on the methodology for variable-time XRF instruments. A copy of this document can be obtained from the HUD lead web site, www.hud.gov/lea.

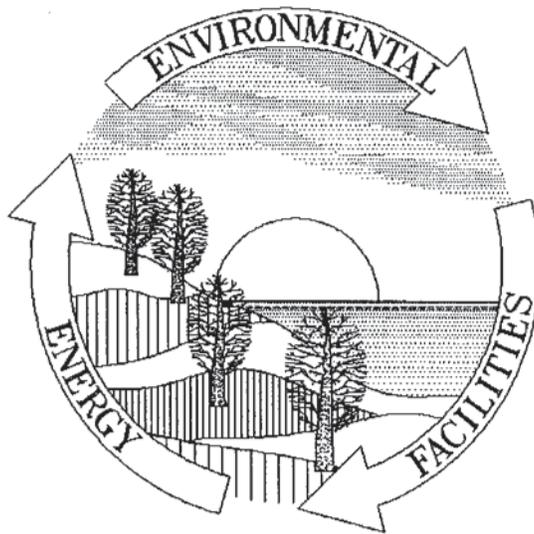
This edition of the XRF Performance Characteristic Sheet was developed by QuanTech, Inc., under a contract from the U.S. Department of Housing and Urban Development (HUD). HUD has determined that the information provided here is acceptable when used as guidance in conjunction with Chapter 7, Lead-Based Paint Inspection, of HUD's *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*.

Appendix D

Historical LBP Inspection and Risk Assessment Data

ASBESTOS ACTIVITY SUMMARY

NAVAL SECURITY GROUP ACTIVITY SUGAR GROVE SUGAR GROVE, WEST VIRGINIA



SPONSORED BY:

Department of the Navy
Naval Facilities Engineering Command
200 Stovall Street
Alexandria, Virginia 22332-2300

PREPARED BY:

Department of the Navy
Navy Public Works Center
Energy and Environmental Engineering Branch, Code 333
9742 Maryland Avenue
Norfolk, Virginia 23511-3095

April 1997

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EXECUTIVE SUMMARY

The Department of the Navy, attentive to the safety and well-being of its personnel and their families, has initiated a worldwide program to assess Navy and Marine Corps Family Housing for asbestos. Naval Facilities Engineering Command (NAVFACENGCOM) has retained Public Works Center (PWC) - Norfolk, Virginia to develop and manage the environmental assessment. The Navy Family Housing Lead Based Paint/Asbestos Inventory Program is outlined in a 09 November 1992 letter from Commander, Naval Facilities Engineering Command.

The assessment provides strategies to ensure the safety of residents and workers. The National Emission Standards for Hazardous Air Pollutants (NESHAP [40 CFR 61 PART M]) and the Asbestos Hazard Emergency Response Act (AHERA [40 CFR 763]) specify the legislative and statutory requirements for the assessment.

United States Environmental Protection Agency (USEPA) Certified Inspectors performed inspections following USEPA and Naval Facilities Engineering Service Center (NFESC) methodology and procedures. The assessment objectives were to:

- Determine the location of asbestos containing materials (ACM)
- Evaluate the potential hazards due to the presence of the ACM
- Prioritize the ACM hazards and specify an action response per associated time-frame
- Estimate costs for action responses

This document supplements individual community Asbestos Management Plans for NSGA Sugar Grove with program background information, testing protocol and practices, and reference material. Each individual management plan provides the inspection parameters, floor plans, test findings and analysis, and recommendations for each specific community. The provided Document Package contains the referenced regulatory standards and asbestos management documents and will assist in the development and implementation of a program to control ACM in-place while minimizing potential hazards.

A total of 26 suspect asbestos homogeneous areas were established and analyzed during the asbestos assessment of NSGA Sugar Grove. Eleven of these homogeneous areas are ACM. None of the ACM present a moderate to high potential hazard therefore require no short-term action response. The Asbestos Survey Summary section of this document provides a brief description of the survey findings and recommended action responses for each housing community of NSGA Sugar Grove. For community specific results, technical details, and a breakdown of all conclusions, consult each respective Community Asbestos Management Plan.

There is no short-term hazard minimization cost for the ACM located in NSGA Sugar Grove Housing. The estimated cost to develop an effective and proactive asbestos operation and maintenance (O&M) program to control ACM in-place while minimizing hazards is \$7,684.00. The estimated annual cost to maintain the O&M program is \$9,585.79. The Cost Estimates section of this document provides a brief overview of the individual costs for each housing community of NSGA Sugar Grove. For specific community cost details, consult the respective Community Asbestos Management Plan.

ACTIVITY DESCRIPTION

A summary of NSGA Sugar Grove inspection is in Table 1. Provided in each individual community management plan for this activity are listings of the housing units inspected.

- **Activity UIC Number:** N31188¹
- **Inspection Dates:** 04-27 Sep 96

Table 1 - Inspection Parameters			
Housing Type	Total # of Units	# of Units Inspected for Asbestos	Year(s) of Construction
Community 0488 - 1968 Duplexes			
3 Bedrooms	20	20	1968
Community 0489 - 1970 Duplexes			
2 Bedrooms	6	6	1970
3 Bedrooms	8	8	1970
4 Bedrooms	6	6	1970
Community 0490 - 1977 Housing			
Duplex			
2 Bedrooms	2	2	1977
Quadraplexes			
4 Bedrooms	8	8	1977
Community 0491 - 1994 Duplexes			
2 Bedrooms	8	5	1994
Totals	58	55	

¹See Definitions - Appendix I.

ASBESTOS SURVEY SUMMARY

FINDINGS AND ANALYSIS

Community 0488 - 1968 Duplexes

Five of the eight homogeneous areas (HA) sampled were determined to be asbestos-containing materials (ACM).

The following ACM represent a low potential hazard to occupants and workers due to being low/non-friable and in good condition.

- Floor Tile & Mastic, HA#1
- Linoleum & Mastic, HA#3
- Gasket, HA#4
- Rolled Roofing, HA#6
- Linoleum & Mastic, HA#8

Community 0489 - 1970 Duplexes

One of the five homogeneous areas sampled was determined to be an ACM.

The following ACM represents a low potential hazard to occupants and workers due to being low/non-friable and in good condition.

- Floor Tile & Mastic, HA#1

The floor tile samples that were collected were composed of two layers. It is likely that the top layer of floor tile is a result of previous testing which had identified asbestos-containing floor tile. The purpose of the top layer is to enclose the tile which contains asbestos.

Community 0490 - 1977 Housing

Five of the nine homogeneous areas sampled were determined to be ACM.

The following ACM represent a low potential hazard to occupants and workers due to being low/non-friable and in good condition.

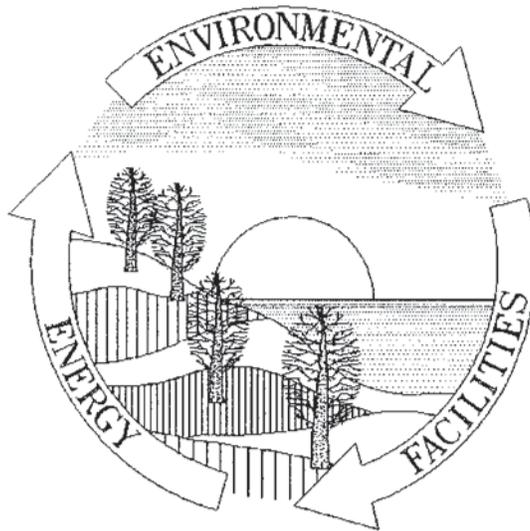
- Floor Tile & Mastic, HA#1
- Floor Tile & Mastic, HA#2
- Linoleum & Mastic, HA#4
- Floor Tile & Mastic, HA#7
- Floor Tile & Mastic, HA#8

Community 0491 - 1994 Duplexes

None of the four materials sampled were found to contain asbestos. Results of this assessment show that no potential hazards exist due to ACM.

LEAD ACTIVITY SUMMARY

NAVAL SECURITY GROUP ACTIVITY SUGAR GROVE SUGAR GROVE, WEST VIRGINIA



SPONSORED BY:

Department of the Navy
Naval Facilities Engineering Command
200 Stovall Street
Alexandria, Virginia 22332-2300

PREPARED BY:

Department of the Navy
Navy Public Works Center
Energy and Environmental Engineering Branch, Code 333
9742 Maryland Avenue
Norfolk, Virginia 23511-3095

April 1997

ACTIVITY DESCRIPTION

A summary of NSGA Sugar Grove inspection is in Table 1. Provided in each individual community management plan for this activity are listings of the housing units inspected.

- Activity UIC Number: N31188¹
- Inspection Dates: 04-27 Sep 96

Table 1 - Inspection Parameters					
Housing Type	Total # of Units	# of Units Inspected			Year(s) of Construction
		Paint	Dust	Soil	
Community 0488 - 1968 Duplexes					
3 Bedrooms	20	20	5	5	1968
Community 0489 - 1970 Duplexes					
2 Bedrooms	6	6	1	1	1970
3 Bedrooms	8	8	3	3	1970
4 Bedrooms	6	6	1	1	1970
Community 0490 - 1977 Housing					
Duplex					
2 Bedrooms	2	2	2	*1	1977
Quadraplexes					
4 Bedrooms	8	8	3	*2	1977
Community 0491 - 1994 Duplexes					
2 Bedrooms	8	N/A	5	5	1994
Community 0493 - Playground					
Playground	1	1	N/A	1	1992/1993
**Totals	58	50	20	18	

¹See Definitions - Appendix I.
 * Soil samples collected per building
 **Does not include the playground.

LEAD SURVEY SUMMARY

FINDINGS AND ANALYSIS

Lead in Paint

Community 0488 - 1968 Duplexes

A total of ninety different housing components were assessed for the presence of LBP. No LBP was found based upon this assessment. The plastic mini-blinds located throughout most of the interior of the units were tested using the XRF instrument and contained lead levels above the lead paint threshold.

Community 0489 - 1970 Duplexes

A total of 132 different housing components were assessed for the presence of LBP. No LBP was found based upon this assessment. However, the ceramic baseboards and lower ceramic walls located in bathroom 1 did contain lead above the lead paint threshold.

Community 0490 - 1977 Housing

A total of seventy-seven different housing components were assessed for the presence of LBP. No LBP was found based upon this assessment.

Community 0491 - 1994 Duplexes

A lead-based paint inspection was not performed.

Community 0493 - Playground

The testing results for the playground show that there is no LBP on the equipment.

Lead in Dust

Community 0488 - 1968 Duplexes

A total of five randomly selected units were inspected for lead in dust. Samples were taken from floors and window sills in several locations throughout the homes. The samples analyzed did not have levels that exceeded the corresponding action limit.

Community 0489 - 1970 Duplexes

A total of five randomly selected units were inspected for lead in dust. Samples were taken from floors and window sills in several locations throughout the homes. The samples analyzed did not have levels that exceeded the corresponding action limit.

Community 0490 - 1977 Housing

A total of five randomly selected units were inspected for lead in dust. Samples were taken from floors and window sills in several locations throughout the home. The samples analyzed did not have levels that exceeded the corresponding action limit.

Community 0491 - 1994 Duplexes

A total of five randomly selected units were inspected for lead in dust. Samples were taken from floors and window sills in several locations throughout the home. The samples analyzed did not have levels that exceeded the corresponding action limit.

Community 0493 - Playground

Dust samples were not collected.

Lead in Soil***Community 0488 - 1968 Duplexes***

A total of five randomly selected units were inspected for lead in soil. Samples were collected from foundation areas, roadsides, and along sidewalks. Background samples were also collected to identify the natural background occurrence of lead at the sampling site. The samples analyzed did not have lead levels that exceeded the action limit.

Community 0489 - 1970 Duplexes

A total of five randomly selected units were inspected for lead in soil. Samples were collected from foundation areas and along sidewalks, parking lots, and driveways. Background samples were also collected to identify the natural background occurrence of lead at the sampling site. The samples analyzed did not have lead levels that exceeded the action limit.

Community 0490 - 1977 Housing

The three buildings which compose the 1977 Housing community were inspected for lead in soil. Samples were collected from along

foundation areas, driveways, and parking lots. Background samples were also collected to identify the natural background occurrence of lead at the sampling site. The samples analyzed did not have lead levels that exceeded the action limit.

Community 0491 - 1994 Duplexes

A total of five randomly selected units were inspected for lead in soil. Samples were collected from foundation areas, and along driveways. Background samples were also collected to identify the natural background occurrence of lead at the sampling site. The samples analyzed did not have lead levels that exceeded the action limit.

Community 0493 - Playground

The playground is covered with a layer of mulch with a thickness ranging from 3-5 inches. The mulch was not included in the soil samples. The soil samples collected from the playground area had concentrations of lead below the threshold.

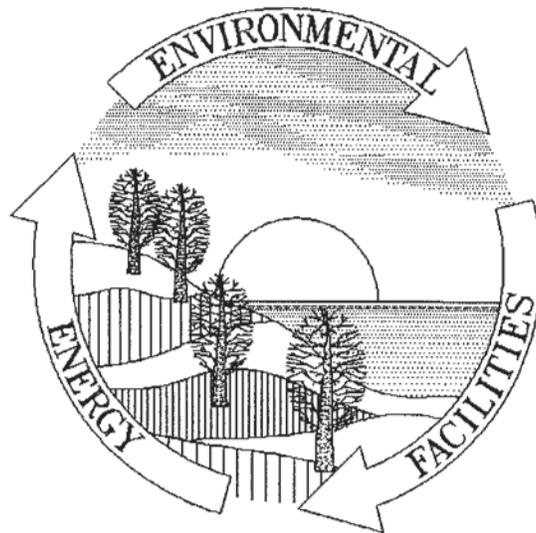
RECOMMENDATIONS***Community 0488 - 1968 Duplexes***

HUD and EPA have not established an action limit for lead in mini-blinds, however, because lead was detected through the use of the XRF, precautions should be taken to minimize any associated risks. Although the dust samples collected at the time of the inspection were negative, the lead containing blinds should be replaced due to the potential release of leaded dust through their deterioration.

Site A

ASBESTOS MANAGEMENT PLAN

1968 DUPLEXES NAVAL SECURITY GROUP ACTIVITY SUGAR GROVE SUGAR GROVE, WEST VIRGINIA



SPONSORED BY:

Department of the Navy
Naval Facilities Engineering Command
200 Stovall Street
Alexandria, Virginia 22332-2300

PREPARED BY:

Department of the Navy
Navy Public Works Center
Energy and Environmental Engineering Branch, Code 333
9742 Maryland Avenue
Norfolk, Virginia 23511-3095

October 1996

COMMUNITY DESCRIPTION

A summary of the 1968 Duplexes Community inspection is in Table 1 below. Provided in Appendix I is a listing of the housing units inspected.

- **Community Number:** 0488¹
- **Activity UIC Number:** N31188¹
- **Inspection Dates:** 04-13 Sep 96

Table 1 - Inspection Parameters					
Housing Type	Square Footage	Total # of Units	# of Units Inspected for Asbestos	Floor Plan Type	Year(s) of Construction
Duplexes					
3 Bedrooms	1,430	20	20	Type A	1968
Totals	28,600	20	20		

¹ See Definitions - Appendix II.
² See Floor Plans - Appendix I.

Table A - Suspect Asbestos-Containing Material

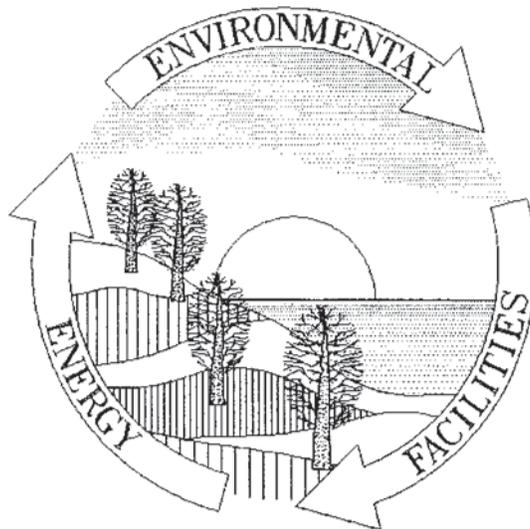
(Listed Numerically by Homogeneous Area #)

Location	Material	HA #	ACM (Y/N)	Asbestos %	Type of Asbestos	Comments
Bathroom 1 Hallway 1 Kitchen 1 Living 1 Utility 1	ROOF TILE & CEMENT MASTIC	1	Yes	5	Chrysotile	
Description: tan background with brown beige streaks; 12" x 12" x 1/4" smooth texture						
Throughout Interior	DRYWALL	2	Yes	<1	Chrysotile	Not ACM as defined by Appendix II.
Description: white/gray; smooth texture						
Bathroom 2	LINOLEUM & MASTIC	3	Yes	60	Chrysotile	
Description: green, gray, brown specks with 1/4" Squares						
Mechanical 1	GASKET	4	Yes	60	Chrysotile	
Description: white/gray, cloth; around water heater exhaust vent						
Exterior	WALL DRIVET	5	No	0	N/A	
Description: beige/gray; rough texture						
Exterior	ROOFED ROOFING	6	Yes	40	Chrysotile	
Description: gray, rough texture						
Exterior Storage Room	ROOF SHINGLES	7	No	0	N/A	
Description: gray; rough texture						
Bathroom 2	LINOLEUM & MASTIC	8	Yes	15	Chrysotile	
Description: beige with red, blue, and brown specks; smooth texture						

¹See Floor Plans - Appendix I.
², ³, ⁴See Definitions - Appendix II.

LEAD MANAGEMENT PLAN

1968 DUPLEXES NAVAL SECURITY GROUP ACTIVITY SUGAR GROVE SUGAR GROVE, WEST VIRGINIA



SPONSORED BY:

Department of the Navy
Naval Facilities Engineering Command
200 Stovall Street
Alexandria, Virginia 22332-2300

PREPARED BY:

Department of the Navy
Navy Public Works Center
Energy and Environmental Engineering Branch, Code 333
9742 Maryland Avenue
Norfolk, Virginia 23511-3095

October 1996

COMMUNITY DESCRIPTION

A summary of the 1968 Duplexes Community inspection is in Table 1 below. Provided in Appendix I is a listing of the housing units inspected.

- Community Number: 0488¹
- Activity UIC Number: N31188¹
- Inspection Dates: 04-13 Sep 96

Table 1 - Inspection Parameters							
Housing Type	Square Footage	Total # of Units	# of Units Inspected			Floor Plan Type ²	Year(s) of Construction
			Paint	Dust	Soil		
Duplexes							
3 Bedroom	1,430	20	20	5	5	Type A	1968
Totals	28,600	20	20	5	5		
¹ See Definitions - Appendix II. ² See Floor Plans - Appendix I.							

FINDINGS AND ANALYSIS

The primary objective of the lead assessment of the 1968 Duplexes community is to determine if a potential lead-based paint (LBP) hazard exists in the community and recommend methods to minimize all potential hazards. The Department of Housing and Urban Development (HUD) Guidelines outline the general scheme applied for the assessment testing protocol.

HUD surveys indicate that lead in dust is the major route for lead exposure for children. Lead in dust is primarily the result of deteriorating LBP. Soil contaminated with lead from weathering, chalking, and deterioration of exterior LBP can contribute to the dwelling's interior lead in dust levels by being tracked into living areas. HUD surveys confirm a relationship between the presence of LBP with lead in dust and lead in soil. The surveys also list other potential sources of lead. The scope of this assessment is LBP and its associated hazards; however, the NSGA Sugar Grove Lead Action Summary document does contain a discussion of the other potential sources for lead. For this LBP assessment, the analysis of LBP, lead in dust, and lead in soil in residential environments determine the overall lead hazard potential to the residents and workers of the 1968 Duplexes community.

A component within a room is determined to be positive for LBP community-wide if at least ten percent of those tested are found to be positive. If the testing results for that same component show there were none identified to be positive then that component is negative community-wide. Lastly, if the testing results for that component show one to nine percent were identified as containing LBP, further analysis is required to make a community-wide determination. This analysis encompasses statistical comparison of that component with the same and similar components at different levels. The first level of analysis compares the component to similar components in the same room. The second level of analysis compares the component to the same component in all other rooms. The third and last level compares the component to similar components in all other rooms. All representative interior and exterior components were analyzed to determine the presence of LBP.

LEAD IN PAINT

A total of ninety different housing components were assessed for the presence of LBP. No LBP was found based upon this assessment. The plastic mini-blinds located throughout most of the interior of the units were tested using the XRF instrument and contained lead levels above the lead paint threshold.

Appendix III (Table P - Lead in Paint Inspection Summary) provides a composite summary of the inspection results. The table does show a few components with small percentages of positives. These components were retested and shown not to contain lead above the threshold.

Storage 2 is an exterior storage room and is not shown on the floor plan.

LEAD IN DUST

A total of five randomly selected units were inspected for lead in dust. Samples were taken from floors and window sills in several locations throughout the homes. Results of sampling are located in Appendix IV - Lead in Dust.

The samples analyzed did not have levels that exceeded the corresponding action limit. A hazard associated with lead in dust does not exist in this community at this time. However, the presence of lead containing mini-blinds creates the potential for elevated lead in dust levels.

LEAD IN SOIL

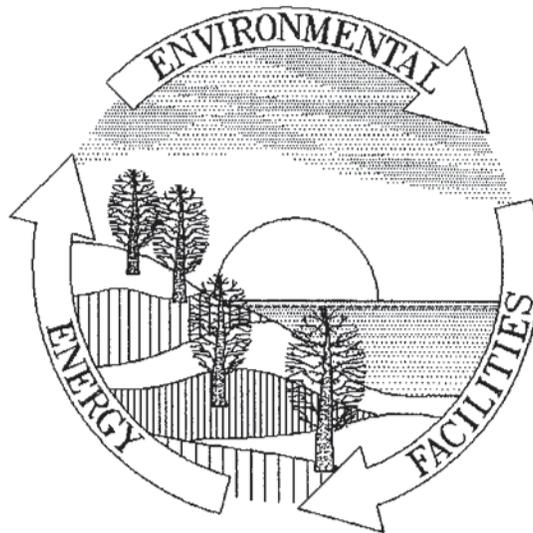
A total of five randomly selected units were inspected for lead in soil. Samples were collected from foundation areas, roadsides, and along sidewalks. Background samples were also collected to identify the natural background occurrence of lead at the sampling site. Appendix V - Lead in Soil contains the results of the soil sampling conducted in the 1968 Duplexes community.

The samples analyzed did not have lead levels that exceeded the action limit. A hazard associated with lead in soil does not exist in this community at this time.

Site B

ASBESTOS MANAGEMENT PLAN

1970 DUPLEXES NAVAL SECURITY GROUP ACTIVITY SUGAR GROVE SUGAR GROVE, WEST VIRGINIA



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Naval Facilities Engineering Command
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Department of the Navy
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November 1996

COMMUNITY DESCRIPTION

A summary of the 1970 Duplexes Community inspection is in Table 1 below. Provided in Appendix I is a listing of the housing units inspected.

- **Community Number:** 0489¹
- **Activity UIC Number:** N31188¹
- **Inspection Dates:** 13-24 Sep 96

Table 1 - Inspection Parameters

Housing Type	Square Footage	Total # of Units	# of Units Inspected for Asbestos	Floor Plan Type ²	Year(s) of Construction
Duplexes					
2 Bedrooms	1,050	6	6	Type C	1970
3 Bedrooms	1,728	8	8	Type F	1970
4 Bedrooms	1,500	6	6	Type E	1970
Totals	29,124	20	20		

¹ See Definitions - Appendix II.

² See Floor Plans - Appendix I.

Table A - Suspect Asbestos-Containing Material

(Listed Numerically by Homogeneous Area #)

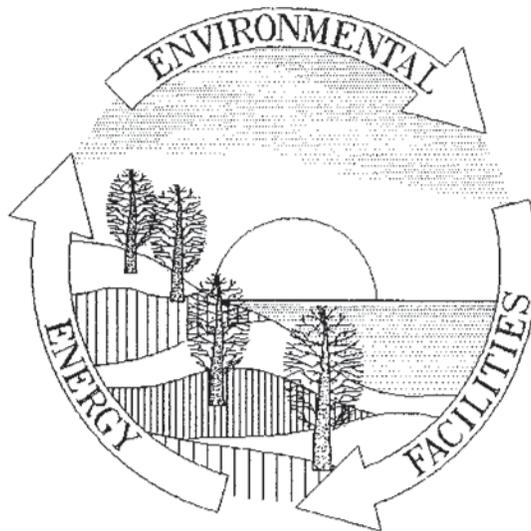
Location ¹	Material	HA # ²	ACM ³ (Y/N)	Asbestos	Type of Asbestos	Comments
Throughout Interior	FLOOR TILE & MASTIC	1	Yes	30	Gray tile	
Description: beige with brown streaks; 12"x12" VFT; smooth texture; 2 layers of tile.						
Throughout Interior	DRYWALL	2	No	0	N/A	
Description: white/gray; smooth texture						
Utility 1	VINYL BASEBOARD & MASTIC	3	No	0	N/A	
Description: beige; 4" width; smooth texture						
Exterior Storage 2	ROOF SHINGLE	4	No	0	N/A	
Description: gray; rough texture						
Exterior	DRIVET	5	No	0	N/A	
Description: rough texture						

¹ See Floor Plans - Appendix I.

^{2, 3, 4} See Definitions - Appendix II.

LEAD MANAGEMENT PLAN

1970 DUPLEXES NAVAL SECURITY GROUP ACTIVITY SUGAR GROVE SUGAR GROVE, WEST VIRGINIA



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November 1996

FINDINGS AND ANALYSIS

The primary objective of the lead assessment of the 1970 Duplexes community is to determine if a potential lead-based paint (LBP) hazard exists in the community and recommend methods to minimize all potential hazards. The Department of Housing and Urban Development (HUD) Guidelines outline the general scheme applied for the assessment testing protocol.

HUD surveys indicate that lead in dust is the major route for lead exposure for children. Lead in dust is primarily the result of deteriorating LBP. Soil contaminated with lead from weathering, chalking, and deterioration of exterior LBP can contribute to the dwelling's interior lead in dust levels by being tracked into living areas. HUD surveys confirm a relationship between the presence of LBP with lead in dust and lead in soil. The surveys also list other potential sources of lead. The scope of this assessment is LBP and its associated hazards; however, the NSGA Sugar Grove Lead Action Summary document does contain a discussion of the other potential sources for lead. For this LBP assessment, the analysis of LBP, lead in dust, and lead in soil in residential environments determine the overall lead hazard potential to the residents and workers of the 1970 Duplexes community.

A component within a room is determined to be positive for LBP community-wide if at least ten percent of those tested are found to be positive. If the testing results for that same component show there were none identified to be positive then that component is negative community-wide. Lastly, if the testing results for that component show one to nine percent were identified as containing LBP, further analysis is required to make a community-wide determination. This analysis encompasses statistical comparison of that component with the same and similar components at different levels. The first level of analysis compares the component to similar components in the same room. The second level of analysis compares the component to the same component in all other rooms. The third and last level compares the component to similar components in all other rooms. All representative interior and exterior components were analyzed to determine the presence of LBP.

LEAD IN PAINT

A total of 132 different housing components were assessed for the presence of LBP. No LBP was found based upon this assessment. However, the ceramic baseboards and lower ceramic walls located in Bathroom 1 did contain lead above the lead paint threshold.

Appendix III (Table P - Lead in Paint Inspection Summary) provides a composite summary of the inspection results. The table does show a few components with small percentages of positives. These components were retested and shown not to contain lead above the threshold.

Storage 2 is an exterior storage room and is not shown on the floor plan.

LEAD IN DUST

A total of five randomly selected units were inspected for lead in dust. Samples were taken from floors and window sills in several locations throughout the homes. Results of sampling are located in Appendix IV - Lead in Dust.

The samples analyzed did not have levels that exceeded the corresponding action limit. A hazard associated with lead in dust does not exist in this community at this time.

LEAD IN SOIL

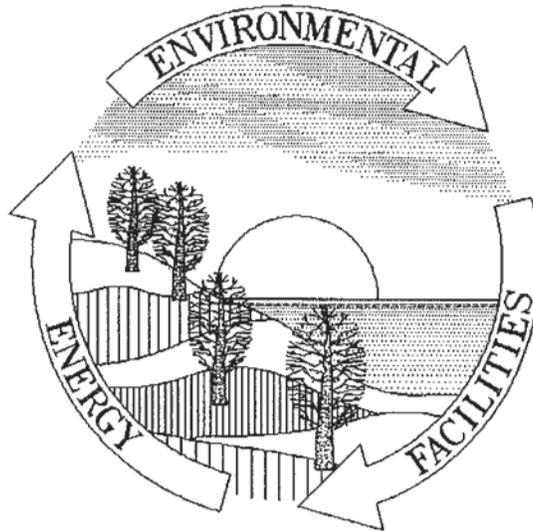
A total of five randomly selected units were inspected for lead in soil. Samples were collected from foundation areas and along sidewalks, parking lots, and driveways. Background samples were also collected to identify the natural background occurrence of lead at the sampling site. Appendix V - Lead in Soil contains the results of the soil sampling conducted in the 1970 Duplexes community.

The samples analyzed did not have lead levels that exceeded the action limit. A hazard associated with lead in soil does not exist in this community at this time.

Site D

ASBESTOS MANAGEMENT PLAN

1977 HOUSING NAVAL SECURITY GROUP ACTIVITY SUGAR GROVE SUGAR GROVE, WEST VIRGINIA



SPONSORED BY:

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Energy and Environmental Engineering Branch, Code 333
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Norfolk, Virginia 23511-3095

December 1996

COMMUNITY DESCRIPTION

A summary of the 1977 Housing Community inspection is in Table 1 below. Provided in Appendix I is a listing of the housing units inspected.

- **Community Number:** 0490¹
- **Activity UIC Number:** N31188¹
- **Inspection Dates:** 23-26 Sep 96

Table 1 - Inspection Parameters					
Housing Type	Square Footage	Total # of Units	# of Units Inspected for Asbestos	Floor Plan Type²	Year(s) of Construction
Duplex					
2 Bedrooms	1,085	2	2	Type H	1977
Quadrplexes					
4 Bedrooms	1,387	8	8	Type G	1977
Totals	13,266	10	10		

¹ See Definitions - Appendix II.
² See Floor Plans - Appendix I.

Table A - Suspect Asbestos Containing Material

(Listed Numerically by Homogeneous Area #)

Location	Material	HA #	ACM (Y/N)	Asbestos %	Type of Asbestos	Comments
Kitchen 1	FLOOR TILE MASTIC	1	Yes	10	Chrysotile	
Description: Light gray background with beige and tan streaks; 12"x12" VFT; smooth texture						
Throughout except Bathroom and Kitchen	FLOOR TILE MASTIC	2	Yes	30	Chrysotile	
Description: tan background with brown streaks; 12"x12" VFT; smooth texture						
Throughout	VINYL BASEBOARD & MASTIC	3	No	0	N/A	
Description: brown; 4" width; smooth texture						
Bathroom 1	LINOLEUM	4	Yes	50	Chrysotile	
Bathroom 2	MASTIC					
Bathroom 3						
Description: tan background with white specks; smooth texture						
Throughout	DRYWALL	5	No	0	N/A	
Description: white/gray; smooth texture						
Exterior Storage 2	ROOF SHINGLE	6	No	0	N/A	
Description: brown; rough texture						
Bedroom 2	FLOOR TILE & MASTIC	7	Yes	5	Chrysotile	
Description: light brown background with brown streaks; 12"x12" VFT; smooth texture; in closet						
Kitchen 1	FLOOR TILE & MASTIC	8	Yes	5	Chrysotile	
Description: rose/gray background with dark green streaks; 12"x12" VFT; smooth texture						

Table A - Suspect Asbestos Containing Material

(Listed Numerically by Homogeneous Area #)

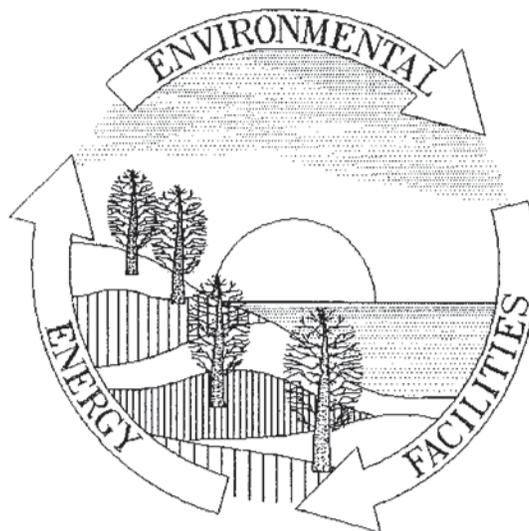
Location ¹	Material	EA # ²	ACM ³ (Y/N)	% Asbestos	Type of Asbestos ⁴	Comments
Utility 1	ELBOW INSULATION	9	No	0	N/A	
Description: gray/white						

¹See Floor Plans - Appendix I.

^{2, 3, 4}See Definitions - Appendix II.

LEAD MANAGEMENT PLAN

1977 HOUSING NAVAL SECURITY GROUP ACTIVITY SUGAR GROVE SUGAR GROVE, WEST VIRGINIA



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PREPARED BY:

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December 1996

COMMUNITY DESCRIPTION

A summary of the 1977 Housing Community inspection is in Table 1 below. Provided in Appendix I is a listing of the housing units inspected.

- Community Number: 0490¹
- Activity UIC Number: N31188¹
- Inspection Dates: 23-26 Sep 96

Table 1 - Inspection Parameters

Housing Type	Square Footage	Total # of Units	# of Units Inspected			Floor Plan Type ²	Year(s) of Construction
			Paint	Dust	Soil		
Duplex							
2 Bedrooms	1,085	2	2	2	*1	Type H	1977
Quadrplexes							
4 Bedrooms	1,387	8	8	3	*2	Type G	1977
Totals	13,266	10	10	5	*3		

¹ See Definitions - Appendix II.
² See Floor Plans - Appendix I.
 * Soil samples collected per building.

FINDINGS AND ANALYSIS

The primary objective of the lead assessment of the 1977 Housing community is to determine if a potential lead-based paint (LBP) hazard exists in the community and recommend methods to minimize all potential hazards. The Department of Housing and Urban Development (HUD) Guidelines outline the general scheme applied for the assessment testing protocol.

HUD surveys indicate that lead in dust is the major route for lead exposure for children. Lead in dust is primarily the result of deteriorating LBP. Soil contaminated with lead from weathering, chalking, and deterioration of exterior LBP can contribute to the dwelling's interior lead in dust levels by being tracked into living areas. HUD surveys confirm a relationship between the presence of LBP with lead in dust and lead in soil. The surveys also list other potential sources of lead. The scope of this assessment is LBP and its associated hazards; however, the NSGA Sugar Grove Lead Action Summary document does contain a discussion of the other potential sources for lead. For this LBP assessment, the analysis of LBP, lead in dust, and lead in soil in residential environments determine the overall lead hazard potential to the residents and workers of the 1977 Housing community.

A component within a room is determined to be positive for LBP community-wide if at least ten percent of those tested are found to be positive. If the testing results for that same component show there were none identified to be positive then that component is negative community-wide. Lastly, if the testing results for that component show one to nine percent were identified as containing LBP, further analysis is required to make a community-wide determination. This analysis encompasses statistical comparison of that component with the same and similar components at different levels. The first level of analysis compares the component to similar components in the same room. The second level of analysis compares the component to the same component in all other rooms. The third and last level compares the component to similar components in all other rooms. All representative interior and exterior components were analyzed to determine the presence of LBP.

LEAD IN PAINT

A total of seventy-seven different housing components were assessed for the presence of LBP. No LBP was found based upon this assessment.

Appendix III (Table P - Lead in Paint Inspection Summary) provides a composite summary of the inspection results.

Storage 2 is an exterior storage room and is not shown on the floor plan.

LEAD IN DUST

A total of five randomly selected units were inspected for lead in dust. Samples were taken from floors and window sills in several locations throughout the home. Results of sampling are located in Appendix IV - Lead in Dust.

The samples analyzed did not have levels that exceeded the corresponding action limit. A hazard associated with lead in dust does not exist in this community at this time.

LEAD IN SOIL

The three buildings which compose the 1977 Housing community were inspected for lead in soil. Samples were collected from along foundation areas, driveways, and parking lots. Background samples were also collected to identify the natural background occurrence of lead at the sampling site. Appendix V - Lead in Soil contains the results of the soil sampling conducted in 1977 Housing.

The samples analyzed did not have lead levels that exceeded the action limit. A hazard associated with lead in soil does not exist in this community at this time.

Appendix E

Analytical Laboratory Reports

Asbestos Sample Results

EMSL Analytical, Inc.

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EMSLAttn: Gary Case
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Fax: (412) 269-6057 Phone: (412) 269-6381

Project: SUGAR GROVE OFFICERS AND MFH

Customer ID: BAKE51

Customer PO:

Received: 11/10/03 10:16 AM

EMSL Order: 040319358

EMSL Project ID:

Analysis Date: 11/21/03

Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Location	Appearance	Treatment	Non-Asbestos		Asbestos
				% Fibrous	% Non-Fibrous	% Type
1003-SGF-001 040319358-0001	SITE A	Black/Tan Non-Fibrous Heterogeneous	Dissolved			98% Non-fibrous (other) 2% Chrysotile
1003-SGF-002 040319358-0002	SITE A	Gray/Black Fibrous Heterogeneous	Teased Dissolved	15% Glass		85% Non-fibrous (other) None Detected
1003-SGF-003A 040319358-0003	SITE A	Cream Fibrous Heterogeneous	Teased Melted	10% Cellulose		80% Non-fibrous (other) 10% Chrysotile
1003-SGF-007A 040319358-0004	SITE A	Black Non-Fibrous Homogeneous	Dissolved			98% Non-fibrous (other) 2% Chrysotile
1003-SGF-008A 040319358-0005	SITE A	Gray/Black Fibrous Heterogeneous	Teased Dissolved	15% Glass		85% Non-fibrous (other) None Detected
1003-SGF-009A 040319358-0006	SITE A	White/Gray Fibrous Heterogeneous	Teased Dissolved	25% Cellulose 5% Glass 5% Synthetic		65% Non-fibrous (other) None Detected
1003-SGF-013A 040319358-0007	SITE B	Black/Brown Non-Fibrous Homogeneous	Dissolved			100% Non-fibrous (other) None Detected
1003-SGF-014A 040319358-0008	SITE B	Black Fibrous Heterogeneous	Teased Dissolved	15% Glass		85% Non-fibrous (other) None Detected
1003-SGF-015A 040319358-0009	SITE B	White/Tan Non-Fibrous Homogeneous	Dissolved			100% Non-fibrous (other) None Detected

Analyst(s)

Margaret Phillips (48)

*Stephen Siegel*Stephen Siegel, CIH
or other approved signatory

PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. Negative PLM results cannot be guaranteed. Samples reported as <1% or none detected should be tested with TEM. The above test report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. The above test must not be used by the client to claim product endorsement by NVLAP nor any agency of the United States Government.

Analysis performed by EMSL Westmont (NVLAP #101048-0), NY ELAP 10872



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Attn: Gary Case
Baker Environmental
100 Airside Drive
Moon Township, PA 15108

Fax: (412) 269-6057 Phone: (412) 269-6381
Project: SUGAR GROVE OFFICERS AND MFH

Customer ID: BAKE51
Customer PO:
Received: 11/10/03 10:16 AM
EMSL Order: 040319358
EMSL Project ID:
Analysis Date: 11/21/03

Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

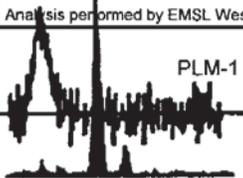
Sample	Location	Appearance	Treatment	Non-Asbestos		Asbestos % Type
				% Fibrous	% Non-Fibrous	
1003-SGF-016A 040319358-0010	SITE B	Beige Fibrous Heterogeneous	Teased Dissolved	20% Cellulose 2% Glass	78% Non-fibrous (other)	None Detected
1003-SGF-018A 040319358-0011	SITE B	Tan Fibrous Heterogeneous	Teased Dissolved	20% Cellulose 5% Glass 5% Synthetic	70% Non-fibrous (other)	None Detected
1003-SGF-019A 040319358-0012	SITE B	Black Non-Fibrous Homogeneous	Dissolved		100% Non-fibrous (other)	None Detected
1003-SGF-020A 040319358-0013	SITE B	White/Black Fibrous Heterogeneous	Teased Dissolved	15% Glass	85% Non-fibrous (other)	None Detected
1003-SGF-022A 040319358-0014	SITE B	Beige Fibrous Heterogeneous	Teased Dissolved	5% Cellulose	95% Non-fibrous (other)	None Detected
1003-SGF-024A 040319358-0015	SITE B	Black Non-Fibrous Homogeneous	Dissolved		100% Non-fibrous (other)	None Detected
1003-SGF-025A 040319358-0016	SITE B	White/Gray Fibrous Heterogeneous	Teased Dissolved	25% Cellulose 5% Glass 5% Synthetic	65% Non-fibrous (other)	None Detected
1003-SGF-026A 040319358-0017	SITE B	White Non-Fibrous Homogeneous	Dissolved		100% Non-fibrous (other)	None Detected
1003-SGF-027A 040319358-0018	SITE B	White/Black Fibrous Heterogeneous	Teased Dissolved	15% Glass	85% Non-fibrous (other)	None Detected

Analyst(s)

Margaret Phillips (48)


Stephen Siegel, CIH
or other approved signatory

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Analysis performed by EMSL Westmont (NVLAP #101048-0), NY ELAP 10872



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Fax: (412) 269-6057 Phone: (412) 269-6381

Project: SUGAR GROVE OFFICERS AND MFH

Customer ID: BAKE51

Customer PO:

Received: 11/10/03 10:16 AM

EMSL Order: 040319358

EMSL Project ID:

Analysis Date: 11/21/03

Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Location	Appearance	Treatment	Non-Asbestos		Asbestos
				% Fibrous	% Non-Fibrous	% Type
1003-SGF-028A 040319358-0019	SITE B	Gray/Black Fibrous Heterogeneous	Teased Dissolved	15% Glass	85% Non-fibrous (other)	None Detected
1003-SGF-029A Tile 040319358-0020	SITE B	Beige Non-Fibrous Homogeneous	Dissolved		100% Non-fibrous (other)	None Detected
1003-SGF-029A Mastic 040319358-0044	SITE B	Tan Non-Fibrous Homogeneous	Dissolved	2% Cellulose	98% Non-fibrous (other)	None Detected
1003-SGF-031A 040319358-0021	SITE B	Beige Fibrous Heterogeneous	Teased Dissolved	30% Cellulose 5% Glass 5% Synthetic	60% Non-fibrous (other)	None Detected
1003-SGF-032A 040319358-0022	SITE B	White Fibrous Heterogeneous	Teased Dissolved	50% Cellulose	50% Non-fibrous (other)	None Detected
1003-SGF-033A 040319358-0023	SITE B	Black Non-Fibrous Homogeneous	Dissolved		100% Non-fibrous (other)	None Detected
1003-SGF-034A Tile 040319358-0024	SITE D	Beige Non-Fibrous Homogeneous	Dissolved		100% Non-fibrous (other)	None Detected
1003-SGF-034A Mastic 040319358-0045	SITE D	Black Non-Fibrous Homogeneous	Dissolved		95% Non-fibrous (other)	5% Chrysotile
1003-SGF-035A 040319358-0025	SITE D	Beige Fibrous Heterogeneous	Teased Dissolved	35% Cellulose	65% Non-fibrous (other)	None Detected

Analyst(s)

Margaret Phillips (48)


 Stephen Siegel, CIH
 or other approved signatory

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PLM-1

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Fax: (412) 269-6057 Phone: (412) 269-6381

Project: SUGAR GROVE OFFICERS AND MFH

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EMSL Project ID:

Analysis Date: 11/21/03

Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Location	Appearance	Treatment	Non-Asbestos		Asbestos
				% Fibrous	% Non-Fibrous	% Type
1003-SGF-036A 040319358-0026	SITE D	Black Non-Fibrous Homogeneous	Dissolved			100% Non-fibrous (other) None Detected
1003-SGF-037A 040319358-0027	SITE D	White Fibrous Heterogeneous	Teased Dissolved	30% Cellulose 5% Glass 5% Synthetic		60% Non-fibrous (other) None Detected
1003-SGF-038A 040319358-0028	SITE D	White Fibrous Heterogeneous	Teased Dissolved	30% Cellulose 5% Glass 5% Synthetic		60% Non-fibrous (other) None Detected
1003-SGF-039A Tile 040319358-0029	SITE D	White Non-Fibrous Homogeneous	Dissolved			100% Non-fibrous (other) None Detected
1003-SGF-039A Mastic 040319358-0046	SITE D	Yellow Non-Fibrous Homogeneous	Dissolved	2% Cellulose		98% Non-fibrous (other) None Detected
1003-SGF-040A 040319358-0030	SITE D	White Fibrous Heterogeneous	Teased Dissolved	40% Cellulose		60% Non-fibrous (other) None Detected
1003-SGF-041A 040319358-0031	SITE D	Black Non-Fibrous Homogeneous	Dissolved			100% Non-fibrous (other) None Detected
1003-SGF-042A Tile 040319358-0032	SITE C	Beige Non-Fibrous Homogeneous	Dissolved			100% Non-fibrous (other) None Detected

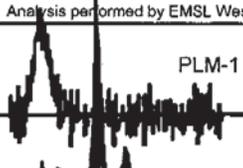
Analyst(s)

Margaret Phillips (48)

Stephen Siegel, CIH
 or other approved signatory

PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. Negative PLM results cannot be guaranteed. Samples reported as <1% or none detected should be tested with TEM. The above test report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. The above test must not be used by the client to claim product endorsement by NVLAP nor any agency of the United States Government.

Analysis performed by EMSL Westmont (NVLAP #101048-0), NY ELAP 10872



EMSL Analytical, Inc.

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Baker Environmental
100 Airside Drive
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Fax: (412) 269-6057 Phone: (412) 269-6381

Project: SUGAR GROVE OFFICERS AND MFH

Customer ID: BAKE51
Customer PO:
Received: 11/10/03 10:16 AM
EMSL Order: 040319358
EMSL Project ID:
Analysis Date: 11/21/03**Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy**

Sample	Location	Appearance	Treatment	Non-Asbestos		Asbestos
				% Fibrous	% Non-Fibrous	% Type
1003-SGF-042A Mastic 040319358-0047	SITE C	Beige Non-Fibrous Homogeneous	Dissolved		100% Non-fibrous (other)	None Detected
1003-SGF-043A 040319358-0033	SITE C	Black Non-Fibrous Homogeneous	Dissolved		100% Non-fibrous (other)	None Detected
1003-SGF-044A 040319358-0034	SITE C	Beige Fibrous Heterogeneous	Teased Dissolved	30% Cellulose 5% Glass 5% Synthetic	60% Non-fibrous (other)	None Detected
1003-SGF-045A 040319358-0035	SITE C	White Non-Fibrous Homogeneous	Dissolved		100% Non-fibrous (other)	None Detected
1003-SGF-046A 040319358-0036	SITE C	White Non-Fibrous Homogeneous	Dissolved		100% Non-fibrous (other)	None Detected
1003-SGF-047A 040319358-0037	SITE C	White/Black Fibrous Heterogeneous	Teased Dissolved	15% Glass	85% Non-fibrous (other)	None Detected
1003-SGF-048A 040319358-0038	SITE C	Beige Fibrous Heterogeneous	Teased Dissolved	30% Cellulose 5% Glass 5% Synthetic	60% Non-fibrous (other)	None Detected
1003-SGF-049A 040319358-0039	SITE C	White Non-Fibrous Homogeneous	Dissolved		100% Non-fibrous (other)	None Detected
1003-SGF-050A 040319358-0040	SITE C	White/Black Fibrous Heterogeneous	Teased Dissolved	15% Glass	85% Non-fibrous (other)	None Detected

Analyst(s) _____

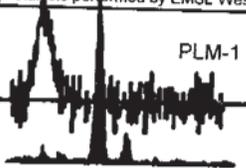
Margaret Phillips (48)



 Stephen Siegel, CIH
 or other approved signatory

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Analysis performed by EMSL Westmont (NVLAP #101048-0), NY ELAP 10872



EMSL Analytical, Inc.

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100 Airside Drive
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Fax: (412) 269-6057 Phone: (412) 269-6381

Project: SUGAR GROVE OFFICERS AND MFH

Customer ID: BAKE51
Customer PO:
Received: 11/10/03 10:16 AM
EMSL Order: 040319358
EMSL Project ID:
Analysis Date: 11/21/03**Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy**

Sample	Location	Appearance	Treatment	Non-Asbestos		Asbestos
				% Fibrous	% Non-Fibrous	% Type
1003-SGF-051A Tile 040319358-0041	SITE C	Pink Non-Fibrous Homogeneous	Dissolved		100% Non-fibrous (other)	None Detected
1003-SGF-051A Mastic 040319358-0048	SITE C	Yellow Non-Fibrous Homogeneous	Dissolved	2% Cellulose	98% Non-fibrous (other)	None Detected
1003-SGF-052A 040319358-0042	SITE C	White Non-Fibrous Homogeneous	Dissolved		100% Non-fibrous (other)	None Detected
1003-SGF-053A 040319358-0043	SITE C	Black Non-Fibrous Homogeneous	Dissolved		100% Non-fibrous (other)	None Detected

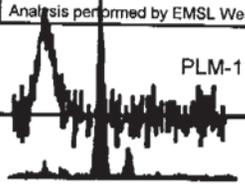
Analyst(s)

Margaret Phillips (48)

Stephen Siegel, CIH
or other approved signatory

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Analysis performed by EMSL Westmont (NVLAP #101048-0), NY ELAP 10872

**THIS IS THE LAST PAGE OF THE REPORT.**

Soil Sample Results

EMSL Analytical

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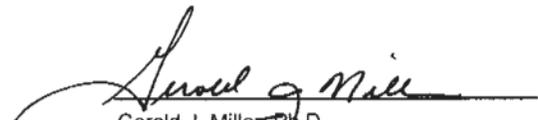
Attn: Gary Case
Baker Environmental
100 Airside Drive
Moon Township, PA 15108

Fax: (412) 269-6057 Phone: (412) 269-6381
Project: LANTDIV/ Sugar Grove Officers & MFH/ S.O.# B25609-
002-0000-08001

Customer ID: BAKE51
Customer PO:
Received: 11/10/03 10:20 AM
EMSL Order: 200313398
EMSL Project ID:

Lead in Soils by Flame AAS (SW 846, 7420)

Client Sample Description	Lab ID	Analyzed	Lead Concentration
1003-SGF-S001	0001	11/26/03	<40 mg/Kg
1003-SGF-S002	0002	11/26/03	<40 mg/Kg
1003-SGF-S003	0003	11/26/03	<40 mg/Kg
1003-SGF-S004	0004	11/26/03	<40 mg/Kg
1003-SGF-S005	0005	11/26/03	<40 mg/Kg
1003-SGF-S006	0006	11/26/03	<40 mg/Kg
1003-SGF-S007	0007	11/26/03	<40 mg/Kg
1003-SGF-S008	0008	11/26/03	<40 mg/Kg
1003-SGF-S009	0009	11/26/03	<40 mg/Kg
1003-SGF-S010	0010	11/26/03	<40 mg/Kg
1003-SGF-S011	0011	11/26/03	<40 mg/Kg
1003-SGF-S012	0012	11/26/03	<40 mg/Kg
1003-SGF-S013	0013	11/26/03	<40 mg/Kg
1003-SGF-S014	0014	11/26/03	<40 mg/Kg
1003-SGF-S015	0015	11/26/03	<40 mg/Kg
1003-SGF-S016	0016	11/26/03	<40 mg/Kg
1003-SGF-S017	0017	11/26/03	<40 mg/Kg
1003-SGF-S018	0018	11/26/03	<40 mg/Kg
1003-SGF-S019	0019	11/26/03	<40 mg/Kg
1003-SGF-S020	0020	11/26/03	<40 mg/Kg
1003-SGF-S021	0021	11/26/03	<40 mg/Kg
1003-SGF-S022	0022	11/26/03	<40 mg/Kg
1003-SGF-S023	0023	11/26/03	<40 mg/Kg
1003-SGF-S024	0024	11/26/03	<40 mg/Kg



Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Reporting limit is 40 mg/kg. The QC data associated with the sample results included in this report meet the recovery and precision requirements established by the AIHA, unless specifically indicated otherwise in the comment section.

ACCREDITATIONS: AIHA Environmental Lead Laboratory Approval Program # 100194

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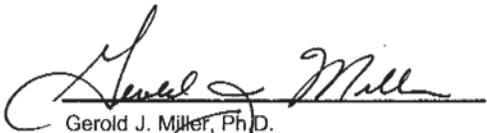
Attn: Gary Case
Baker Environmental
100 Airside Drive
Moon Township, PA 15108

Fax: (412) 269-6057 Phone: (412) 269-6381
Project: LANTDIV/ Sugar Grove Officers & MFH/ S.O.# B25609-
002-0000-08001

Customer ID: BAKE51
Customer PO:
Received: 11/10/03 10:20 AM
EMSL Order: 200313398
EMSL Project ID:

Lead in Soils by Flame AAS (SW 846, 7420)

Client Sample Description	Lab ID	Analyzed	Lead Concentration
1003-SGF-S025	0025	11/26/03	<40 mg/Kg
1003-SGF-S026	0026	11/26/03	<40 mg/Kg
1003-SGF-S027	0027	11/26/03	<40 mg/Kg
1003-SGF-S028	0028	11/26/03	<40 mg/Kg
1003-SGF-S029	0029	11/26/03	<40 mg/Kg
1003-SGF-S030	0030	11/26/03	<40 mg/Kg
1003-SGF-S031	0031	11/26/03	<40 mg/Kg
1003-SGF-S032	0032	11/26/03	<40 mg/Kg
1003-SGF-S033	0033	11/26/03	<40 mg/Kg
1003-SGF-S034	0034	11/26/03	<40 mg/Kg
1003-SGF-S035	0035	11/26/03	<40 mg/Kg
1003-SGF-S036	0036	11/26/03	<40 mg/Kg
1003-SGF-S037	0037	11/26/03	<40 mg/Kg
1003-SGF-S038	0038	11/26/03	<40 mg/Kg
1003-SGF-S039	0039	11/26/03	<40 mg/Kg
1003-SGF-S040	0040	11/26/03	<40 mg/Kg
1003-SGF-S041	0041	11/26/03	<40 mg/Kg
1003-SGF-S042	0042	11/26/03	<40 mg/Kg
1003-SGF-S043	0043	11/26/03	<40 mg/Kg
1003-SGF-S044	0044	11/26/03	<40 mg/Kg
1003-SGF-S045	0045	11/26/03	<40 mg/Kg
1003-SGF-S046	0046	11/26/03	<40 mg/Kg
1003-SGF-S047	0047	11/26/03	<40 mg/Kg
1003-SGF-S048	0048	11/26/03	<40 mg/Kg



Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04853
AIHA: 100194
or other approved signatory

Reporting limit is 40 mg/kg. The QC data associated with the sample results included in this report meet the recovery and precision requirements established by the AIHA, unless specifically indicated otherwise in the comment section.

ACCREDITATIONS: AIHA Environmental Lead Laboratory Approval Program # 100194

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EMSL

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 Baker Environmental
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 Moon Township, PA 15108

Customer ID: BAKE51
 Customer PO:
 Received: 11/10/03 10:20 AM

Fax: (412) 269-6057 Phone: (412) 269-6381

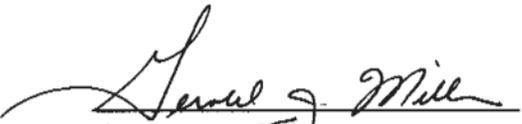
EMSL Order: 200313398

Project: LANTDIV/ Sugar Grove Officers & MFH/ S.O.# B25609-
 002-0000-08001

EMSL Project ID:

Lead in Soils by Flame AAS (SW 846, 7420)

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
1003-SGF-S049	0049	11/26/03	<40 mg/Kg
1003-SGF-S050	0050	11/26/03	<40 mg/Kg
1003-SGF-S051	0051	11/26/03	<40 mg/Kg
1003-SGF-S052	0052	11/26/03	<40 mg/Kg
1003-SGF-S053	0053	11/26/03	<40 mg/Kg
1003-SGF-S054	0054	11/26/03	<40 mg/Kg
1003-SGF-S055	0055	11/26/03	<40 mg/Kg
1003-SGF-S056	0056	11/26/03	41 mg/Kg
1003-SGF-S057	0057	11/26/03	<40 mg/Kg
1003-SGF-S058	0058	11/26/03	<40 mg/Kg
1003-SGF-S059	0059	11/26/03	<40 mg/Kg
1003-SGF-S060	0060	11/26/03	<40 mg/Kg
1003-SGF-S061	0061	11/26/03	<40 mg/Kg
1003-SGF-S062	0062	11/26/03	<40 mg/Kg
1003-SGF-S063	0063	11/26/03	<40 mg/Kg
1003-SGF-S064	0064	11/26/03	<40 mg/Kg
1003-SGF-S065	0065	11/26/03	<40 mg/Kg
1003-SGF-S066	0066	11/26/03	<40 mg/Kg
1003-SGF-S067	0067	11/26/03	<40 mg/Kg
1003-SGF-S068	0068	11/26/03	<40 mg/Kg
1003-SGF-S069	0069	11/26/03	<40 mg/Kg
1003-SGF-S070	0070	11/26/03	<40 mg/Kg
1003-SGF-S071	0071	11/26/03	<40 mg/Kg
1003-SGF-S072	0072	11/26/03	<40 mg/Kg



Gerold J. Miller, Ph.D.
 Laboratory Director
 NJ-NELAP: 04653
 AIHA: 100194
 or other approved signatory

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ACCREDITATIONS: AIHA Environmental Lead Laboratory Approval Program # 100194

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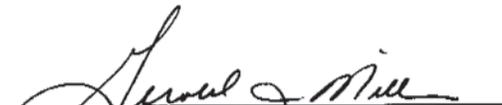
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Moon Township, PA 15108

Fax: (412) 269-6057 Phone: (412) 269-6381
Project: LANTDIV/ Sugar Grove Officers & MFH/ S.O.# B25609-
002-0000-08001

Customer ID: BAKE51
Customer PO:
Received: 11/10/03 10:20 AM
EMSL Order: 200313398
EMSL Project ID:

Lead in Soils by Flame AAS (SW 846, 7420)

Client Sample Description	Lab ID	Analyzed	Lead Concentration
1003-SGF-S073	0073	11/26/03	<40 mg/Kg
1003-SGF-S074	0074	11/26/03	<40 mg/Kg
1003-SGF-S075	0075	11/26/03	<40 mg/Kg
1003-SGF-S076	0076	11/26/03	<40 mg/Kg
1003-SGF-S077	0077	11/26/03	<40 mg/Kg
1003-SGF-S078	0078	11/26/03	<40 mg/Kg
1003-SGF-S079	0079	11/26/03	<40 mg/Kg
1003-SGF-S080	0080	11/26/03	<40 mg/Kg
1003-SGF-S081	0081	11/26/03	<40 mg/Kg
1003-SGF-S082	0082	11/26/03	<40 mg/Kg
1003-SGF-S083	0083	11/26/03	<40 mg/Kg
1003-SGF-S084	0084	11/26/03	<40 mg/Kg
1003-SGF-S085	0085	11/26/03	<40 mg/Kg
1003-SGF-S086	0086	11/26/03	<40 mg/Kg
1003-SGF-S087	0087	11/26/03	<40 mg/Kg
1003-SGF-S088	0088	11/26/03	<40 mg/Kg
1003-SGF-S089	0089	11/26/03	<40 mg/Kg
1003-SGF-S090	0090	11/26/03	<40 mg/Kg
1003-SGF-S091	0091	11/26/03	<40 mg/Kg
1003-SGF-S092	0092	11/26/03	<40 mg/Kg
1003-SGF-S093	0093	11/26/03	<40 mg/Kg
1003-SGF-S094	0094	11/26/03	<40 mg/Kg
1003-SGF-S095	0095	11/26/03	<40 mg/Kg
1003-SGF-S096	0096	11/26/03	<40 mg/Kg



Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

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ACCREDITATIONS: AIHA Environmental Lead Laboratory Approval Program # 100194

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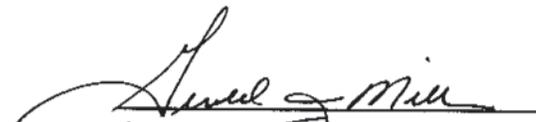
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002-0000-08001

Customer ID: BAKE51
Customer PO:
Received: 11/10/03 10:20 AM
EMSL Order: 200313398
EMSL Project ID:

Lead in Soils by Flame AAS (SW 846, 7420)

Client Sample Description	Lab ID	Analyzed	Lead Concentration
1003-SGF-S097	0097	11/26/03	<40 mg/Kg
1003-SGF-S098	0098	11/26/03	<40 mg/Kg
1003-SGF-S099	0099	11/26/03	<40 mg/Kg
1003-SGF-S100	0100	11/26/03	<40 mg/Kg
1003-SGF-S101	0101	11/26/03	41 mg/Kg
1003-SGF-S102	0102	11/26/03	<40 mg/Kg
1003-SGF-S103	0103	11/26/03	<40 mg/Kg
1003-SGF-S104	0104	11/26/03	<40 mg/Kg
1003-SGF-S105	0105	11/26/03	<40 mg/Kg
1003-SGF-S106	0106	11/26/03	<40 mg/Kg
1003-SGF-S107	0107	11/26/03	<40 mg/Kg
1003-SGF-S108	0108	11/26/03	<40 mg/Kg
1003-SGF-S109	0109	11/26/03	<40 mg/Kg
1003-SGF-S110	0110	11/26/03	<40 mg/Kg
1003-SGF-S111	0111	11/26/03	<40 mg/Kg
1003-SGF-S112	0112	11/26/03	<40 mg/Kg
1003-SGF-S113	0113	11/26/03	<40 mg/Kg
1003-SGF-S114	0114	11/26/03	<40 mg/Kg
1003-SGF-S115	0115	11/26/03	<40 mg/Kg
1003-SGF-S116	0116	11/26/03	<40 mg/Kg
1003-SGF-S117	0117	11/26/03	<40 mg/Kg
1003-SGF-S118	0118	11/26/03	<40 mg/Kg
1003-SGF-S119	0119	11/26/03	<40 mg/Kg
1003-SGF-S120	0120	11/26/03	<40 mg/Kg



Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

Reporting limit is 40 mg/kg. The QC data associated with the sample results included in this report meet the recovery and precision requirements established by the AIHA, unless specifically indicated otherwise in the comment section.

ACCREDITATIONS: AIHA Environmental Lead Laboratory Approval Program # 100194

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Moon Township, PA 15108

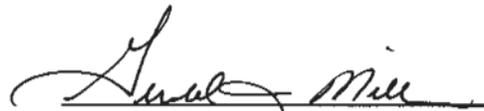
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Fax: (412) 269-6057 Phone: (412) 269-6381
Project: LANTDIV/ Sugar Grove Officers & MFH/ S.O.# B25609-
002-0000-08001

EMSL Order: 200313398
EMSL Project ID:

Lead in Soils by Flame AAS (SW 846, 7420)

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
1003-SGF-S121	0121	11/26/03	<40 mg/Kg
1003-SGF-S122	0122	11/26/03	<40 mg/Kg
1003-SGF-S123	0123	11/26/03	<40 mg/Kg
1003-SGF-S124	0124	11/26/03	<40 mg/Kg
1003-SGF-S125	0125	11/26/03	<40 mg/Kg
1003-SGF-S126	0126	11/26/03	<40 mg/Kg
1003-SGF-S127	0127	11/26/03	<40 mg/Kg
1003-SGF-S128	0128	11/26/03	<40 mg/Kg
1003-SGF-S129	0129	11/26/03	<40 mg/Kg



Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

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Wipe Sample Results

EMSL Analytical

3 Cooper St., Westmont, NJ 08108

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Attn: Gary Case
Baker Environmental
100 Airside Drive
Moon Township, PA 15108

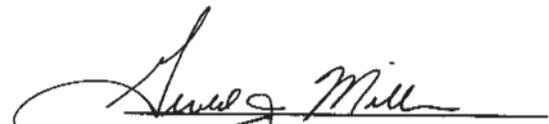
Customer ID: BAKE51
Customer PO:
Received: 11/10/03 10:20 AM

Fax: (412) 269-6057 Phone: (412) 269-6381
Project: LANTDIV Sdugar Grove Officers and MFH/ S.O.# B25609-002-0000-08001

EMSL Order: 200313335
EMSL Project ID:

Lead in Wipes by Flame AAS (SW 846, 7420)

Client Sample Description	Lab ID	Analyzed	Area Sampled	Lead Concentration
1003-SGF-W001	0001	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W002	0002	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W003	0003	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W004	0004	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W005	0005	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W006	0006	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W007	0007	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W008	0008	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W009	0009	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W010	0010	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W011	0011	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W012	0012	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W013	0013	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W014	0014	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W015	0015	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W016	0016	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W017	0017	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W018	0018	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W019	0019	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W020	0020	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W021	0021	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W022	0022	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W023	0023	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W024	0024	11/25/03	144 in ²	<10.0 µg/ft ²



Gerold J. Miller, Ph.D.
Laboratory Director
NJ-NELAP: 04653
AIHA: 100194
or other approved signatory

The QC data associated with the sample results included in this report meet the recovery and precision requirements established by the AIHA, unless specifically indicated otherwise in the comment section.

ACCREDITATIONS: AIHA Environmental Lead Laboratory Approval Program # 100194

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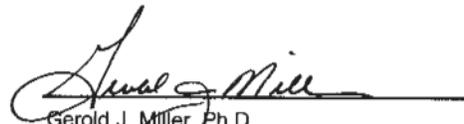
EMSL Order: 200313335

Project: LANTDIV Sdugar Grove Officers and MFH/ S.O.# B25609-002-0000-08001

EMSL Project ID:

Lead in Wipes by Flame AAS (SW 846, 7420)

Client Sample Description	Lab ID	Analyzed	Area Sampled	Lead Concentration
1003-SGF-W025	0025	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W026	0026	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W027	0027	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W028	0028	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W029	0029	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W030	0030	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W031	0031	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W032	0032	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W033	0033	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W034	0034	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W035	0035	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W036	0036	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W037	0037	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W038	0038	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W039	0039	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W040	0040	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W041	0041	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W042	0042	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W043	0043	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W044	0044	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W045	0045	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W046	0046	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W047	0047	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W048	0048	11/25/03	144 in ²	<10.0 µg/ft ²



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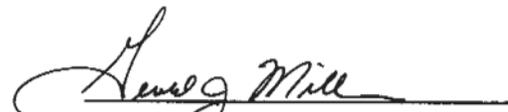
EMSL Order: 200313335

Project: LANTDIV Sdugar Grove Officers and MFH/ S.O.# B25609-002-0000-08001

EMSL Project ID:

Lead in Wipes by Flame AAS (SW 846, 7420)

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Analyzed</i>	<i>Area Sampled</i>	<i>Lead Concentration</i>
1003-SGF-W049	0049	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W050	0050	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W051	0051	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W052	0052	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W053	0053	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W054	0054	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W055	0055	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W056	0056	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W057	0057	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W058	0058	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W059	0059	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W060	0060	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W061	0061	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W062	0062	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W063	0063	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W064	0064	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W065	0065	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W066	0066	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W067	0067	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W068	0068	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W069	0069	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W070	0070	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W071	0071	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W072	0072	11/25/03	144 in ²	<10.0 µg/ft ²



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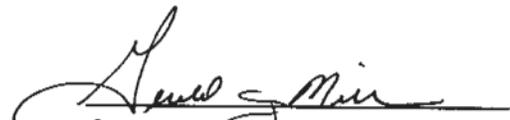
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EMSL Project ID:

Project: LANTDIV Sdugar Grove Officers and MFH/ S.O.# B25609-002-0000-08001

Lead in Wipes by Flame AAS (SW 846, 7420)

Client Sample Description	Lab ID	Analyzed	Area Sampled	Lead Concentration
1003-SGF-W073	0073	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W074	0074	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W075	0075	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W076	0076	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W077	0077	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W078	0078	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W079	0079	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W080	0080	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W081	0081	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W082	0082	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W083	0083	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W084	0084	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W085	0085	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W086	0086	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W087	0087	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W088	0088	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W089	0089	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W090	0090	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W091	0091	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W092	0092	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W093	0093	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W094	0094	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W095	0095	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W096	0096	11/25/03	144 in ²	<10.0 µg/ft ²



Gerold J. Miller, Ph.D.
Laboratory Director
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AC CREDITATIONS: AIHA Environmental Lead Laboratory Approval Program # 100194

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EMSL Project ID:

Lead in Wipes by Flame AAS (SW 846, 7420)

Client Sample Description	Lab ID	Analyzed	Area Sampled	Lead Concentration
1003-SGF-W097	0097	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W098	0098	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W099	0099	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W100	0100	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W101	0101	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W102	0102	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W103	0103	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W104	0104	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W105	0105	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W106	0106	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W107	0107	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W108	0108	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W109	0109	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W110	0110	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W111	0111	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W112	0112	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W113	0113	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W114	0114	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W115	0115	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W116	0116	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W117	0117	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W118	0118	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W119	0119	11/25/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W120	0120	11/25/03	144 in ²	<10.0 µg/ft ²

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NJ-NELAP: 04653
AIHA: 100194
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Lead in Wipes by Flame AAS (SW 846, 7420)

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Analyzed</i>	<i>Area Sampled</i>	<i>Lead Concentration</i>
1003-SGF-W121	0121	11/21/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W122	0122	11/21/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W123	0123	11/21/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W124	0124	11/21/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W125	0125	11/21/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W126	0126	11/21/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W127	0127	11/21/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W128	0128	11/21/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W129	0129	11/21/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W130	0130	11/21/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W131	0131	11/21/03	144 in ²	<10.0 µg/ft ²
1003-SGF-W132	0132	11/21/03	144 in ²	<10.0 µg/ft ²

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Appendix F

Building Condition, Dust, Soil, and Paint Data

Site A
Building Condition Reports

Building Condition Report

Site A

Date 10/15/03

FloorPlan 3 Bedrooms

Building

101A

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site A

Date 10/15/03 **FloorPlan** 3 Bedrooms **Building** 101B

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site A

Date 10/15/03 **FloorPlan** 3 Bedrooms **Building** 102A

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site A

Date 10/14/03 **FloorPlan** 3 Bedrooms **Building** 102B

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site A

Date 10/14/03 **FloorPlan** 3 Bedrooms **Building** 103A

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site A

Date 10/14/03 **FloorPlan** 3 Bedrooms **Building** 104B

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site A

Date 10/15/03 **FloorPlan** 3 Bedrooms **Building** 105B

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site A

Date 10/15/03 **FloorPlan** 3 Bedrooms **Building** 106A

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site A

Date 10/14/03 **FloorPlan** 3 Bedrooms **Building** 106B

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site A

Date 10/15/03

FloorPlan 3 Bedrooms **Building**

107A

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site A

Date 10/15/03

FloorPlan 3 Bedrooms **Building**

107B

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously out of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site A

Date 10/15/03 **FloorPlan** 3 Bedrooms **Building** 108A

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site A

Date 10/15/03 **FloorPlan** 3 Bedrooms **Building** 108B

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site A

Date 10/15/03

FloorPlan 3 Bedrooms **Building**

109B

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site A

Date 10/15/03

FloorPlan 3 Bedrooms **Building**

110A

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site A

Date 10/15/03 **FloorPlan** 3 Bedrooms **Building** 110B

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Site B
Building Condition Reports

Building Condition Report

Site B

Date 10/16/03

FloorPlan 3 Bedrooms Building

111A

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site B

Date 10/15/03

FloorPlan 2 Bedrooms Building

112A

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously out of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input checked="" type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site B

Date 10/16/03 **FloorPlan** 2 Bedrooms **Building** 112B

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	
Question #2: Roof has holes or large cracks?	
Question #3 - Gutters or downspouts broken?	
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site B

Date 10/16/03 **FloorPlan** 3 Bedrooms **Building** 113A

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site B

Date 10/16/03

FloorPlan 3 Bedrooms **Building**

113B

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site B

Date 10/16/03 **FloorPlan** 4 Bedrooms **Building** 114A

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site B

Date 10/17/03 **FloorPlan** 4 Bedrooms **Building** 114B

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site B

Date 10/17/03

FloorPlan 4 Bedrooms Building

115A

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site B

Date 10/17/03 **FloorPlan** 4 Bedrooms **Building** 115B

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously out of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site B

Date 10/17/03

FloorPlan 4 Bedrooms **Building**

116B

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site B

Date 10/16/03 **FloorPlan** 3 Bedrooms **Building** 117A

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site B

Date 10/16/03

FloorPlan 3 Bedrooms **Building**

117B

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site B

Date 10/16/03

FloorPlan 2 Bedrooms Building

118B

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously out of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Site C
Building Condition Reports

Building Condition Report

Site C

Date 10/21/03 **FloorPlan** 3 Bedrooms **Building** 119A

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site C

Date 10/21/03 **FloorPlan** 3 Bedrooms **Building** 119B

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards, shakes, etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously out of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans, or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site C

Date 10/20/03 **FloorPlan** 4 Bedrooms **Building** 120A

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site C

Date 10/21/03 **FloorPlan** 4 Bedrooms **Building** 120B

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Site D
Building Condition Reports

Building Condition Report

Site D

Date 10/20/03 **FloorPlan** 4 Bedrooms **Building** 121A

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site D

Date 10/20/03

FloorPlan 4 Bedrooms **Building**

121B

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site D

Date 10/20/03

FloorPlan 4 Bedrooms Building

121C

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site D

Date 10/20/03 **FloorPlan** 4 Bedrooms **Building** 121D

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site D

Date 10/20/03

FloorPlan 4 Bedrooms **Building**

122A

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site D

Date 10/20/03

FloorPlan 4 Bedrooms **Building**

122B

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site D

Date 10/20/03 **FloorPlan** 4 Bedrooms **Building** 122C

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site D

Date 10/20/03

FloorPlan 4 Bedrooms Building

122D

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site D

Date 10/17/03 **FloorPlan** 2 Bedrooms **Building** 123A

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Building Condition Report

Site D

Date 10/17/03 **FloorPlan** 2 Bedrooms **Building** 123B

Condition	Yes
Question #1: Roof missing parts of surfaces (tiles, boards,shakes,etc.)	<input type="checkbox"/>
Question #2: Roof has holes or large cracks?	<input type="checkbox"/>
Question #3 - Gutters or downspouts broken?	<input type="checkbox"/>
Question #4 - Chimney masonry cracked, bricks loose or missing, obviously our of plumb?	<input type="checkbox"/>
Question #5 - Exterior or interior walls have obvious large cracks or holes, requiring more than routine pointing (if masonry) or painting?	<input type="checkbox"/>
Question #6 - Exterior siding has missing boards or shingles?	<input type="checkbox"/>
Question #7 - Water stains on interior walls or ceilings?	<input type="checkbox"/>
Question #8 - Plaster walls or ceilings deteriorated?	<input type="checkbox"/>
Question #9 - Two or more windows or doors broken, missing, or boarded up?	<input type="checkbox"/>
Question #10 - Porch or steps have major elements broken, missing, or boarded up?	<input type="checkbox"/>
Question #11 - Foundation has major cracks, missing material, structure leans. or visibly unsound?	<input type="checkbox"/>

Site A
Dust Sample Reports

Dust Sample Report

Community Site A

Building ID 101A

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W016	10/15/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W017	10/15/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W018	10/15/03	Hall 1	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site A

Building ID 101B

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W019	10/15/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W020	10/15/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W021	10/15/03	Hall 1	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site A

Building ID 102A

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W022	10/15/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W023	10/15/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W024	10/15/03	Hall 1	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site A

Building ID 102B

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W010	10/14/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W011	10/14/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W012	10/14/03	Hall 1	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site A

Building ID 103A

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W001	10/14/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W002	10/14/03	Living 1	1	Floor	<10	ug/ft2
1003-SGF-W003	10/14/03	Hall 1	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site A

Building ID 104B

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W007	10/14/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W008	10/14/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W009	10/14/03	Hall 1	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site A

Building ID 105B

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W013	10/15/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W014	10/15/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W015	10/15/03	Hall 1	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site A

Building ID 106A

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W025	10/15/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W026	10/15/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W027	10/15/03	Hall 1	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site A

Building ID 106B

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W004	10/14/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W005	10/14/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W006	10/14/03	Hall 1	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site A

Building ID 107A

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W028	10/15/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W029	10/15/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W030	10/15/03	Hall 1	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site A

Building ID 107B

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W034	10/15/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W035	10/15/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W036	10/15/03	Hall 1	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site A

Building ID 108A

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W031	10/15/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W032	10/15/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W033	10/15/03	Hall 1	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site A

Building ID 108B

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W040	10/15/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W041	10/15/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W042	10/15/03	Hall 1	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site A

Building ID 109B

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W043	10/15/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W044	10/15/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W045	10/15/03	Hall 1	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site A

Building ID 110A

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W046	10/15/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W047	10/15/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W048	10/15/03	Hall 1	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site A

Building ID 110B

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W049	10/15/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W050	10/15/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W051	10/15/03	Hall 1	1	Floor	<10	ug/ft2

Site B
Dust Sample Reports

Dust Sample Report

Community Site B

Building ID 111A

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W065	10/16/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W066	10/16/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W067	10/16/03	Hall 1	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site B

Building ID 112A

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W037	10/15/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W038	10/15/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W039	10/15/03	Hall 2	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site B

Building ID 112B

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W053	10/16/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W054	10/16/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W055	10/16/03	Hall 2	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site B

Building ID 113A

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W068	10/16/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W069	10/16/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W070	10/16/03	Hall 1	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site B

Building ID 113B

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W071	10/16/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W072	10/16/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W073	10/16/03	Hall 1	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site B

Building ID 114A

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W074	10/16/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W075	10/16/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W076	10/16/03	Hall 1	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site B

Building ID 114B

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W077	10/17/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W078	10/17/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W079	10/17/03	Hall 1	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site B

Building ID 115A

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W083	10/17/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W084	10/17/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W085	10/17/03	Hall 2	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site B

Building ID 115B

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W086	10/17/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W087	10/17/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W088	10/17/03	Hall 2	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site B

Building ID 116B

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W080	10/17/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W081	10/17/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W082	10/17/03	Hall 1	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site B

Building ID 117A

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W062	10/16/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W063	10/16/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W064	10/16/03	Hall 1	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site B

Building ID 117B

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W059	10/16/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W060	10/16/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W061	10/16/03	Hall 1	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site B

Building ID 118B

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W056	10/16/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W057	10/16/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W058	10/16/03	Hall 2	1	Floor	<10	ug/ft2

Site C
Dust Sample Reports

Dust Sample Report

Community Site C

Building ID 119A

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W123	10/21/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W124	10/21/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W125	10/21/03	Hall 1	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site C

Building ID 119B

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W126	10/21/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W127	10/21/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W128	10/21/03	Hall 1	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site C

Building ID 120A

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W120	10/20/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W121	10/20/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W122	10/20/03	Hall 1	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site C

Building ID 120B

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W129	10/21/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W130	10/21/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W131	10/21/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W132	10/21/03				<10	ug/ft2

Site D
Dust Sample Reports

Dust Sample Report

Community Site D

Building ID 121A

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W098	10/20/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W099	10/20/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W100	10/20/03				<10	ug/ft2
1003-SGF-W101	10/20/03	Hall 1	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site D

Building ID 121B

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W095	10/20/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W096	10/20/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W097	10/20/03	Hall 1	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site D

Building ID 121C

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W102	10/20/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W103	10/20/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W104	10/20/03	Hall 1	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site D

Building ID 121D

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W105	10/20/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W106	10/20/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W107	10/20/03	Hall 1	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site D

Building ID 122A

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W114	10/20/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W115	10/20/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W116	10/20/03	Hall 1	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site D

Building ID 122B

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W108	10/20/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W109	10/20/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W110	10/20/03	Hall 1	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site D

Building ID 122C

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W117	10/20/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W118	10/20/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W119	10/20/03	Hall 1	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site D

Building ID 122D

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W111	10/20/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W112	10/20/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W113	10/20/03	Hall 1	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site D

Building ID 123A

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W089	10/17/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W090	10/17/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W091	10/17/03	Hall 2	1	Floor	<10	ug/ft2

Dust Sample Report

Community Site D

Building ID 123B

Project ID LANTDIV

Sample ID	Date	Room	Area (Sq ft)	Surface Type	Result	Result Unit
1003-SGF-W092	10/17/03	Hall 1	1	Floor	<10	ug/ft2
1003-SGF-W093	10/17/03	Living Room	1	Floor	<10	ug/ft2
1003-SGF-W094	10/17/03	Hall 2	1	Floor	<10	ug/ft2

Site A
Soil Sample Reports

Soil Sample Report

Community Site A

Building ID 102B **Project ID** LANTDIV

Sample ID	Location	Area (ft2)	Date	Result	Result Unit
1003-SGF-S010	Drip Line		10/14/03	<40	ppm
1003-SGF-S011	Mid Yard		10/14/03	<40	ppm
1003-SGF-S012	Play Area		10/14/03	<40	ppm

Soil Sample Report

Community Site A

Building ID 105B **Project ID** LANTDIV

Sample ID	Location	Area (ft2)	Date	Result	Result Unit
1003-SGF-S013	Drip Line		10/15/03	<40	ppm
1003-SGF-S014	Mid Yard		10/15/03	<40	ppm
1003-SGF-S015	Play Area		10/15/03	<40	ppm

Soil Sample Report

Community Site A

Building ID 106B **Project ID** LANTDIV

Sample ID	Location	Area (ft2)	Date	Result	Result Unit
1003-SGF-S004	Drip Line		10/14/03	<40	ppm
1003-SGF-S005	Mid Yard		10/14/03	<40	ppm
1003-SGF-S006	Play Area		10/14/03	<40	ppm

Soil Sample Report

Community Site A

Building ID 107B **Project ID** LANTDIV

Sample ID	Location	Area (ft2)	Date	Result	Result Unit
1003-SGF-S034	Drip Line		10/15/03	<40	ppm
1003-SGF-S035	Mid Yard		10/15/03	<40	ppm
1003-SGF-S036	Play Area		10/15/03	<40	ppm



Soil Sample Report

Community Site A

Building ID 108A **Project ID** LANTDIV

Sample ID	Location	Area (ft2)	Date	Result	Result Unit
1003-SGF-S031	Drip Line		10/15/03	<40	ppm
1003-SGF-S032	Mid Yard		10/15/03	<40	ppm
1003-SGF-S033	Play Area		10/15/03	<40	ppm

Soil Sample Report

Community Site A

Building ID 108B **Project ID** LANTDIV

Sample ID	Location	Area (ft2)	Date	Result	Result Unit
1003-SGF-S040	Drip Line		10/15/03	<40	ppm
1003-SGF-S041	Mid Yard		10/15/03	<40	ppm
1003-SGF-S042	Play Area		10/15/03	<40	ppm

Soil Sample Report

Community Site A

Building ID 110A **Project ID** LANTDIV

Sample ID	Location	Area (ft2)	Date	Result	Result Unit
1003-SGF-S046	Drip Line		10/15/03	<40	ppm
1003-SGF-S047	Mid Yard		10/15/03	<40	ppm
1003-SGF-S048	Play Area		10/15/03	<40	ppm

Soil Sample Report

Community Site A

Building ID 110B **Project ID** LANTDIV

Sample ID	Location	Area (ft2)	Date	Result	Result Unit
1003-SGF-S049	Drip Line		10/15/03	<40	ppm
1003-SGF-S050	Mid Yard		10/15/03	<40	ppm
1003-SGF-S051	Play Area		10/15/03	<40	ppm



Site B
Soil Sample Reports

Soil Sample Report

Community Site B

Building ID 111A **Project ID** LANTDIV

Sample ID	Location	Area (ft2)	Date	Result	Result Unit
1003-SGF-S064	Drip Line		10/16/03	<40	ppm
1003-SGF-S065	Mid Yard		10/16/03	<40	ppm
1003-SGF-S066	Play Area		10/16/03	<40	ppm

Soil Sample Report

Community Site B

Building ID 112A **Project ID** LANTDIV

Sample ID	Location	Area (ft2)	Date	Result	Result Unit
1003-SGF-S037	Drip Line		10/15/03	<40	ppm
1003-SGF-S038	Mid Yard		10/15/03	<40	ppm
1003-SGF-S039	Play Area		10/15/03	<40	ppm

Soil Sample Report

Community Site B

Building ID 112B **Project ID** LANTDIV

Sample ID	Location	Area (ft2)	Date	Result	Result Unit
1003-SGF-S052	Drip Line		10/16/03	<40	ppm
1003-SGF-S053	Mid Yard		10/16/03	<40	ppm
1003-SGF-S054	Play Area		10/16/03	<40	ppm

Soil Sample Report

Community Site B

Building ID 113A **Project ID** LANTDIV

Sample ID	Location	Area (ft2)	Date	Result	Result Unit
1003-SGF-S067	Drip Line		10/16/03	<40	ppm
1003-SGF-S068	Mid Yard		10/16/03	<40	ppm
1003-SGF-S069	Play Area		10/16/03	<40	ppm

Soil Sample Report

Community Site B

Building ID 113B **Project ID** LANTDIV

Sample ID	Location	Area (ft2)	Date	Result	Result Unit
1003-SGF-S070	Drip Line		10/16/03	<40	ppm
1003-SGF-S071	Mid Yard		10/16/03	<40	ppm
1003-SGF-S072	Play Area		10/16/03	<40	ppm

Soil Sample Report

Community Site B

Building ID 114A **Project ID** LANTDIV

Sample ID	Location	Area (ft2)	Date	Result	Result Unit
1003-SGF-S073	Drip Line		10/16/03	<40	ppm
1003-SGF-S074	Mid Yard		10/16/03	<40	ppm
1003-SGF-S075	Play Area		10/16/03	<40	ppm

Soil Sample Report

Community Site B

Building ID 114B **Project ID** LANTDIV

Sample ID	Location	Area (ft2)	Date	Result	Result Unit
1003-SGF-S076	Drip Line		10/17/03	<40	ppm
1003-SGF-S077	Mid Yard		10/17/03	<40	ppm
1003-SGF-S078	Play Area		10/17/03	<40	ppm

Soil Sample Report

Community Site B

Building ID 115A **Project ID** LANTDIV

Sample ID	Location	Area (ft2)	Date	Result	Result Unit
1003-SGF-S082	Drip Line		10/17/03	<40	ppm
1003-SGF-S083	Mid Yard		10/17/03	<40	ppm
1003-SGF-S084	Play Area		10/17/03	<40	ppm

Soil Sample Report

Community Site B

Building ID 115B **Project ID** LANTDIV

Sample ID	Location	Area (ft2)	Date	Result	Result Unit
1003-SGF-S085	Drip Line		10/17/03	<40	ppm
1003-SGF-S086	Mid Yard		10/17/03	<40	ppm
1003-SGF-S087	Play Area		10/17/03	<40	ppm

Soil Sample Report

Community Site B

Building ID 116B **Project ID** LANTDIV

Sample ID	Location	Area (ft2)	Date	Result	Result Unit
1003-SGF-S079	Drip Line		10/17/03	<40	ppm
1003-SGF-S080	Mid Yard		10/17/03	<40	ppm
1003-SGF-S081	Play Area		10/17/03	<40	ppm

Soil Sample Report

Community Site B

Building ID 117B **Project ID** LANTDIV

Sample ID	Location	Area (ft2)	Date	Result	Result Unit
1003-SGF-S058	Drip Line		10/16/03	<40	ppm
1003-SGF-S059	Mid Yard		10/16/03	<40	ppm
1003-SGF-S060	Play Area		10/16/03	<40	ppm

Site C
Soil Sample Reports

Soil Sample Report

Community Site C

Building ID 119A **Project ID** LANTDIV

Sample ID	Location	Area (ft2)	Date	Result	Result Unit
1003-SGF-S121	Drip Line		10/21/03	<40	ppm
1003-SGF-S122	Mid Yard		10/21/03	<40	ppm
1003-SGF-S123	Play Area		10/21/03	<40	ppm

Soil Sample Report

Community Site C

Building ID 120A **Project ID** LANTDIV

Sample ID	Location	Area (ft2)	Date	Result	Result Unit
1003-SGF-S118	Drip Line		10/21/03	<40	ppm
1003-SGF-S119	Mid Yard		10/21/03	<40	ppm
1003-SGF-S120	Play Area		10/21/03	<40	ppm

Soil Sample Report

Community Site C

Building ID 120B **Project ID** LANTDIV

Sample ID	Location	Area (ft2)	Date	Result	Result Unit
1003-SGF-S127	Drip Line		10/21/03	<40	ppm
1003-SGF-S128	Mid Yard		10/21/03	<40	ppm
1003-SGF-S129	Play Area		10/21/03	<40	ppm

Site D
Soil Sample Reports

Soil Sample Report

Community Site D

Building ID 121A **Project ID** LANTDIV

Sample ID	Location	Area (ft2)	Date	Result	Result Unit
1003-SGF-S097	Drip Line		10/20/03	<40	ppm
1003-SGF-S098	Mid Yard		10/20/03	<40	ppm
1003-SGF-S099	Play Area		10/20/03	<40	ppm

Soil Sample Report

Community Site D

Building ID 121C **Project ID** LANTDIV

Sample ID	Location	Area (ft2)	Date	Result	Result Unit
1003-SGF-S100	Drip Line		10/20/03	<40	ppm
1003-SGF-S101	Mid Yard		10/20/03	41	ppm
1003-SGF-S102	Play Area		10/20/03	<40	ppm

Soil Sample Report

Community Site D

Building ID 121D **Project ID** LANTDIV

Sample ID	Location	Area (ft2)	Date	Result	Result Unit
1003-SGF-S103	Drip Line		10/20/03	<40	ppm
1003-SGF-S104	Mid Yard		10/20/03	<40	ppm
1003-SGF-S105	Play Area		10/20/03	<40	ppm

Soil Sample Report

Community Site D

Building ID 122A **Project ID** LANTDIV

Sample ID	Location	Area (ft2)	Date	Result	Result Unit
1003-SGF-S112	Drip Line		10/20/03	<40	ppm
1003-SGF-S113	Mid Yard		10/20/03	<40	ppm
1003-SGF-S114	Play Area		10/20/03	<40	ppm

Soil Sample Report

Community Site D

Building ID 122B **Project ID** LANTDIV

Sample ID	Location	Area (ft2)	Date	Result	Result Unit
1003-SGF-S106	Drip Line		10/20/03	<40	ppm
1003-SGF-S107	Mid Yard		10/20/03	<40	ppm
1003-SGF-S108	Play Area		10/20/03	<40	ppm

Soil Sample Report

Community Site D

Building ID 122C **Project ID** LANTDIV

Sample ID	Location	Area (ft2)	Date	Result	Result Unit
1003-SGF-S115	Drip Line		10/20/03	<40	ppm
1003-SGF-S116	Mid Yard		10/20/03	<40	ppm
1003-SGF-S117	Play Area		10/20/03	<40	ppm

Soil Sample Report

Community Site D

Building ID 122D **Project ID** LANTDIV

Sample ID	Location	Area (ft2)	Date	Result	Result Unit
1003-SGF-S109	Drip Line		10/20/03	<40	ppm
1003-SGF-S110	Mid Yard		10/20/03	<40	ppm
1003-SGF-S111	Play Area		10/20/03	<40	ppm

Soil Sample Report

Community Site D

Building ID 123A **Project ID** LANTDIV

Sample ID	Location	Area (ft2)	Date	Result	Result Unit
1003-SGF-S088	Drip Line		10/17/03	<40	ppm
1003-SGF-S089	Mid Yard		10/17/03	<40	ppm
1003-SGF-S090	Play Area		10/17/03	<40	ppm

Soil Sample Report

Community Site D

Building ID 123B **Project ID** LANTDIV

Sample ID	Location	Area (ft2)	Date	Result	Result Unit
1003-SGF-S091	Drip Line		10/17/03	<40	ppm
1003-SGF-S092	Mid Yard		10/17/03	<40	ppm
1003-SGF-S093	Play Area		10/17/03	<40	ppm

Site A
XRF Results

XRF Results

Community

Project ID

Building ID

Site A

LANTDIV

103A

Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
Bathroom 1	Wall	1	Drywall	White	Intact		-0.1
Bathroom 1	Ceiling		Drywall	White	Intact		-0.1
Bathroom 1	Wall	3	Drywall	White	Intact		-0.2
Bathroom 1	Wall	2	Drywall	White	Intact		-0.1
Bathroom 1	Wall	4	Drywall	White	Intact		-0.2
Bathroom 1	Door Trim		Wood	White	Intact		-0.1
Bathroom 1	Baseboard		Wood	White	Intact		-0.2
Bathroom 1	Door Casing/Jamb		Wood	White	Intact		0.0
Bathroom 2	Ceiling		Drywall	White	Intact		-0.1
Bathroom 2	Wall	3	Drywall	White	Intact		-0.1
Bathroom 2	Wall	1	Drywall	White	Intact		-0.1
Bathroom 2	Wall	2	Drywall	White	Intact		-0.1
Bathroom 2	Wall	4	Drywall	White	Intact		0.0
Bathroom 2	Baseboard		Wood	White	Intact		-0.1
Bathroom 2	Door Trim		Wood	White	Intact		0.1
Bathroom 2	Door Casing/Jamb		Wood	White	Intact		0.0
Bedroom 1	Wall	3	Drywall	White	Intact		-0.1
Bedroom 1	Wall	4	Drywall	White	Intact		0.0
Bedroom 1	Wall	2	Drywall	White	Intact		-0.1
Bedroom 1	Wall	1	Drywall	White	Intact		-0.1
Bedroom 1	Ceiling		Drywall	White	Intact		0.0
Bedroom 1	Window Trim		Wood	White	Intact		-0.1
Bedroom 1	Window Sill		Wood	White	Intact		0.0
Bedroom 1	CLOSET DOOR CASING		Wood	White	Intact		0.0
Bedroom 1	Door		Wood	White	Intact		-0.1
Bedroom 1	Window Casing		Wood	White	Intact		-0.1
Bedroom 1	Shelf		Wood	White	Intact		0.0
Bedroom 1	Baseboard		Wood	White	Intact		-0.1
Bedroom 1	Door Casing/Jamb		Wood	White	Intact		0.2
Bedroom 1	CLOSET DOOR TRIM		Wood	White	Intact		0.0
Bedroom 2	Ceiling		Drywall	White	Intact		0.0
Bedroom 2	Wall	2	Drywall	White	Intact		0.0
Bedroom 2	Wall	3	Drywall	White	Intact		-0.1
Bedroom 2	Wall	1	Drywall	White	Intact		0.0

XRF Results

Community

Project ID

Building ID

Site A

LANTDIV

103A

Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
Bedroom 2	Wall	4	Drywall	White	Intact		0.0
Bedroom 2	ACCESS DOOR		Metal	White	Intact		-0.1
Bedroom 2	ACCESS DOOR TRIM		Metal	White	Intact		-0.1
Bedroom 2	Shelf		Wood	White	Intact		-0.1
Bedroom 2	CLOSET DOOR TRIM		Wood	White	Intact		-0.1
Bedroom 2	Door Casing/Jamb		Wood	White	Intact		0.0
Bedroom 2	Window Sill		Wood	White	Intact		-0.1
Bedroom 2	Window Casing		Wood	White	Intact		0.0
Bedroom 2	Baseboard		Wood	White	Intact		0.0
Bedroom 2	CLOSET DOOR		Wood	White	Intact		-0.1
Bedroom 2	CLOSET DOOR CASING		Wood	White	Intact		-0.1
Bedroom 2	Door Trim		Wood	White	Intact		-0.1
Bedroom 2	Window Trim		Wood	White	Intact		0.0
Bedroom 3	Wall	2	Drywall	White	Intact		-0.1
Bedroom 3	Wall	4	Drywall	White	Intact		0.0
Bedroom 3	Wall	3	Drywall	White	Intact		-0.1
Bedroom 3	Ceiling		Drywall	White	Intact		-0.4
Bedroom 3	Wall	1	Drywall	White	Intact		0.0
Bedroom 3	Baseboard		Wood	White	Intact		-0.1
Bedroom 3	Window Casing		Wood	White	Intact		-0.2
Bedroom 3	Door Trim		Wood	White	Intact		-0.1
Bedroom 3	Door Casing/Jamb		Wood	White	Intact		-0.1
Bedroom 3	Window Sill		Wood	White	Intact		-0.1
Bedroom 3	Window Trim		Wood	White	Intact		-0.1
Bedroom 3	Shelf		Wood	White	Intact		0.0
Bedroom 3	CLOSET DOOR TRIM		Wood	White	Intact		0.0
Bedroom 3	CLOSET DOOR CASING		Wood	White	Intact		-0.1
Bedroom 3	CLOSET DOOR		Wood	White	Intact		0.1
Closet 1	Ceiling		Drywall	White	Intact		-0.1
Closet 1	Wall	2	Drywall	White	Intact		-0.2
Closet 1	Wall	3	Drywall	White	Intact		-0.1
Closet 1	Wall	1	Drywall	White	Intact		0.0
Closet 1	Wall	4	Drywall	White	Intact		-0.1
Closet 1	Baseboard		Wood	White	Intact		-0.1

XRF Results

Community

Project ID

Building ID

Site A

LANTDIV

103A

Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
Closet 1	Door Trim		Wood	White	Intact		-0.1
Closet 1	Shelf		Wood	White	Intact		0.0
Closet 1	Door Casing/Jamb		Wood	White	Intact		0.0
Closet 2	Wall	4	Drywall	White	Intact		0.0
Closet 2	Wall	2	Drywall	White	Intact		-0.2
Closet 2	Wall	3	Drywall	White	Intact		-0.1
Closet 2	Ceiling		Drywall	White	Intact		-0.1
Closet 2	Wall	1	Drywall	White	Intact		0.0
Closet 2	Door Trim		Wood	White	Intact		0.2
Closet 2	Shelf Support		Wood	White	Intact		-0.1
Closet 2	Shelf		Wood	White	Intact		-0.2
Closet 2	Door Casing/Jamb		Wood	White	Intact		0.0
Closet 2	Baseboard		Wood	White	Intact		0.0
Closet 3	Wall	3	Drywall	White	Intact		-0.2
Closet 3	Wall	2	Drywall	White	Intact		0.0
Closet 3	Ceiling		Drywall	White	Intact		-0.1
Closet 3	Wall	1	Drywall	White	Intact		-0.1
Closet 3	Wall	4	Drywall	White	Intact		-0.1
Closet 3	Door Trim		Wood	White	Intact		0.1
Closet 3	Shelf Support		Wood	White	Intact		-0.1
Closet 3	Door		Wood	White	Intact		0.0
Closet 3	Floor		Wood	White	Intact		-0.2
Closet 3	Shelf		Wood	White	Intact		-0.3
Closet 3	Baseboard		Wood	White	Intact		0.1
Closet 3	Door Casing/Jamb		Wood	White	Intact		-0.1
ENTRY 1	Screen Door		Metal	White	Intact		-0.1
ENTRY 1	Handrail		Wood	White	Intact		0.0
ENTRY 1	Column(s)		Wood	White	Intact		0.0
ENTRY 1	Window Trim		Wood	White	Intact		0.0
ENTRY 1	Window Casing		Wood	White	Intact		0.2
ENTRY 2	Screen Door CASING/TRIM		Metal	White	Intact		-0.1
ENTRY 2	Column(s)		Wood	White	Intact		-0.1
EXTERIOR	Gutters and Downspouts		Metal	White	Intact		-0.1
EXTERIOR	Gutters and Downspouts		Metal	White	Intact		-0.2

XRF Results

Community

Project ID

Building ID

Site A

LANTDIV

103A

Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm ²)
Hall 1	Wall	3	Drywall	White	Intact		-0.1
Hall 1	Wall	1	Drywall	White	Intact		-0.1
Hall 1	Wall	2	Drywall	White	Intact		-0.1
Hall 1	Wall	4	Drywall	White	Intact		-0.1
Hall 1	Ceiling		Drywall	White	Intact		0.0
Hall 1	Baseboard		Wood	White	Intact		-0.1
Hall 1	Window Trim		Wood	White	Intact		0.0
Hall 2	Ceiling		Drywall	White	Intact		0.0
Hall 2	Wall	2	Drywall	White	Intact		0.0
Hall 2	Wall	4	Drywall	White	Intact		-0.1
Hall 2	Wall	1	Drywall	White	Intact		-0.2
Hall 2	Wall	3	Drywall	White	Intact		-0.1
Hall 2	Baseboard		Wood	White	Intact		-0.1
Kitchen	Wall	4	Drywall	White	Intact		-0.1
Kitchen	Wall	3	Drywall	White	Intact		0.0
Kitchen	Ceiling		Drywall	White	Intact		-0.1
Kitchen	Wall	1	Drywall	White	Intact		-0.1
Kitchen	Wall	2	Drywall	White	Intact		0.0
Kitchen	Window Casing		Wood	White	Intact		-0.1
Kitchen	Door Casing/Jamb		Wood	White	Intact		-0.1
Kitchen	Door Casing/Jamb		Wood	White	Intact		-0.1
Kitchen	Door Trim		Wood	White	Intact		-0.1
Kitchen	Door		Wood	White	Intact		-0.1
Kitchen	Door Trim		Wood	White	Intact		0.0
Kitchen	Window Trim		Wood	White	Intact		0.0
Kitchen	Baseboard		Wood	White	Intact		-0.1
Kitchen	Window Sill		Wood	White	Intact		0.0
Living Room	Wall	1	Drywall	White	Intact		-0.1
Living Room	Wall	2	Drywall	White	Intact		-0.1
Living Room	Wall	3	Drywall	White	Intact		-0.1
Living Room	Wall	4	Drywall	White	Intact		-0.1
Living Room	Ceiling		Drywall	White	Intact		0.0
Living Room	Door		Metal	White	Intact		0.0
Living Room	Door Trim		Wood	White	Intact		0.0

XRF Results

Community

Project ID

Building ID

Site A

LANTDIV

103A

Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
Living Room	Window Sill		Wood	White	Intact		-0.2
Living Room	Baseboard		Wood	White	Intact		-0.1
Living Room	Door Casing/Jamb		Wood	White	Intact		0.2
Living Room	CURTAIN SASH		Wood	White	Intact		-0.1
Living Room	Window Trim		Wood	White	Intact		-0.1
Living Room	Window Casing		Wood	White	Intact		-0.1
MECHANICAL	Wall	2	Drywall	White	Intact		-0.1
MECHANICAL	Ceiling		Drywall	White	Intact		0.0
MECHANICAL	Wall	3	Drywall	White	Intact		-0.1
MECHANICAL	Wall	1	Drywall	White	Intact		-0.1
MECHANICAL	Wall	4	Drywall	White	Intact		0.0
MECHANICAL	Door		Metal	BROWN	Intact		-0.1
MECHANICAL	Baseboard		Wood	White	Intact		0.0
MECHANICAL	Door Casing/Jamb		Wood	White	Intact		-0.1
MECHANICAL	Door Trim		Wood	White	Intact		0.0
Stairway	Wall	1	Drywall	White	Intact		0.0
Stairway	Wall	2	Drywall	White	Intact		-0.1
Stairway	Wall	4	Drywall	White	Intact		-0.2
Stairway	Ceiling		Drywall	White	Intact		0.0
Stairway	Wall	3	Drywall	White	Intact		-0.2
Stairway	Baseboard		Wood	White	Intact		0.3
Stairway	BALUSTER MOUNT		Wood	White	Intact		0.1
Stairway	BALUSTER		Wood	White	Intact		0.0
Stairway	Stair Stringer		Wood	White	Intact		0.1
Stairway	Handrail		Wood	White	Intact		-0.1
Utility Closet	Wall	2	Drywall	White	Intact		-0.1
Utility Closet	Ceiling		Drywall	White	Intact		-0.1
Utility Closet	Wall	1	Drywall	White	Intact		0.0
Utility Closet	Wall	4	Drywall	White	Intact		-0.1
Utility Closet	Wall	3	Drywall	White	Intact		0.0
Utility Closet	Door Trim		Wood	White	Intact		-0.1
Utility Closet	Baseboard		Wood	White	Intact		0.0
Utility Closet	Door Casing/Jamb		Wood	White	Intact		-0.1
Utility Closet	Shelf		Wood	White	Intact		0.0

XRF Results

Community

Project ID

Building ID

Site A

LANTDIV

103A

Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm ²)
Utility Closet	Column(s)		Wood	White	Intact		-0.1
Utility Closet	Shelf Support		Wood	White	Intact		-0.1

XRF Results

Community

Project ID

Building ID

Site A

LANTDIV

106B

Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
Bathroom 1	Wall	4	Drywall	White	Intact		0.0
Bathroom 1	Wall	1	Drywall	White	Intact		-0.2
Bathroom 1	Wall	3	Drywall	White	Intact		-0.2
Bathroom 1	Wall	2	Drywall	White	Intact		-0.2
Bathroom 1	Ceiling		Drywall	White	Intact		-0.1
Bathroom 1	Door Casing/Jamb		Wood	White	Intact		-0.1
Bathroom 1	Door Trim		Wood	White	Intact		0.0
Bathroom 1	Baseboard		Wood	White	Intact		-0.1
Bathroom 2	Wall	2	Drywall	White	Intact		-0.1
Bathroom 2	Wall	3	Drywall	White	Intact		0.0
Bathroom 2	Wall	4	Drywall	White	Intact		-0.1
Bathroom 2	Ceiling		Drywall	White	Intact		-0.2
Bathroom 2	Wall	1	Drywall	White	Intact		-0.1
Bathroom 2	Door Casing/Jamb		Wood	White	Intact		-0.1
Bathroom 2	Door Trim		Wood	White	Intact		-0.1
Bathroom 2	Baseboard		Wood	White	Intact		0.0
Bedroom 1	Wall	3	Drywall	White	Intact		0.0
Bedroom 1	Ceiling		Drywall	White	Intact		-0.1
Bedroom 1	Wall	1	Drywall	White	Intact		-0.2
Bedroom 1	Wall	4	Drywall	White	Intact		-0.1
Bedroom 1	Wall	2	Drywall	White	Intact		-0.1
Bedroom 1	Shelf		Wood	White	Intact		-0.2
Bedroom 1	Door Casing/Jamb		Wood	White	Intact		0.1
Bedroom 1	Door		Wood	White	Intact		0.0
Bedroom 1	Baseboard		Wood	White	Intact		-0.1
Bedroom 1	Window Sill		Wood	White	Intact		0.0
Bedroom 1	CLOSET DOOR TRIM		Wood	White	Intact		-0.1
Bedroom 1	CLOSET DOOR CASING		Wood	White	Intact		0.0
Bedroom 1	Window Casing		Wood	White	Intact		-0.1
Bedroom 1	Window Trim		Wood	White	Intact		-0.1
Bedroom 2	Wall	2	Drywall	White	Intact		0.0
Bedroom 2	Ceiling		Drywall	White	Intact		0.0
Bedroom 2	Wall	4	Drywall	White	Intact		-0.2
Bedroom 2	Wall	3	Drywall	White	Intact		-0.1

XRF Results

Community

Project ID

Building ID

Site A

LANTDIV

106B

Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
Bedroom 2	Wall	1	Drywall	White	Intact		-0.2
Bedroom 2	ACCESS DOOR TRIM		Metal	White	Intact		-0.1
Bedroom 2	ACCESS DOOR		Metal	White	Intact		-0.1
Bedroom 2	Door Casing/Jamb		Wood	White	Intact		0.1
Bedroom 2	CLOSET DOOR		Wood	White	Intact		-0.1
Bedroom 2	CLOSET DOOR TRIM		Wood	White	Intact		0.0
Bedroom 2	Shelf		Wood	White	Intact		0.0
Bedroom 2	CLOSET DOOR CASING		Wood	White	Intact		-0.1
Bedroom 2	Window Casing		Wood	White	Intact		-0.1
Bedroom 2	Window Sill		Wood	White	Intact		-0.1
Bedroom 2	Baseboard		Wood	White	Intact		-0.1
Bedroom 2	Window Trim		Wood	White	Intact		-0.1
Bedroom 2	Door Trim		Wood	White	Intact		0.0
Bedroom 3	Wall	4	Drywall	White	Intact		0.0
Bedroom 3	Wall	2	Drywall	White	Intact		0.0
Bedroom 3	Wall	1	Drywall	White	Intact		-0.1
Bedroom 3	Wall	3	Drywall	White	Intact		-0.2
Bedroom 3	Ceiling		Drywall	White	Intact		-0.1
Bedroom 3	Door Casing/Jamb		Wood	White	Intact		-0.1
Bedroom 3	Door Trim		Wood	White	Intact		-0.1
Bedroom 3	CLOSET DOOR CASING		Wood	White	Intact		0.0
Bedroom 3	CLOSET DOOR		Wood	White	Intact		-0.1
Bedroom 3	Shelf		Wood	White	Intact		-0.1
Bedroom 3	Window Sill		Wood	White	Intact		0.0
Bedroom 3	CLOSET DOOR TRIM		Wood	White	Intact		0.0
Bedroom 3	Window Trim		Wood	White	Intact		-0.1
Bedroom 3	Window Casing		Wood	White	Intact		-0.1
Bedroom 3	Baseboard		Wood	White	Intact		-0.1
Closet 1	Wall	3	Drywall	White	Intact		0.0
Closet 1	Wall	4	Drywall	White	Intact		0.0
Closet 1	Wall	2	Drywall	White	Intact		-0.1
Closet 1	Ceiling		Drywall	White	Intact		-0.1
Closet 1	Wall	1	Drywall	White	Intact		-0.1
Closet 1	Shelf		Wood	White	Intact		-0.1

XRF Results

Community

Project ID

Building ID

Site A

LANTDIV

106B

Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm ²)
Closet 1	Door Trim		Wood	White	Intact		-0.1
Closet 1	Baseboard		Wood	White	Intact		-0.1
Closet 1	Door Casing/Jamb		Wood	White	Intact		0.0
Closet 2	Ceiling		Drywall	White	Intact		-0.1
Closet 2	Wall	3	Drywall	White	Intact		0.0
Closet 2	Wall	4	Drywall	White	Intact		-0.1
Closet 2	Wall	1	Drywall	White	Intact		0.0
Closet 2	Wall	2	Drywall	White	Intact		-0.1
Closet 2	Shelf		Wood	White	Intact		-0.2
Closet 2	Door Trim		Wood	White	Intact		-0.1
Closet 2	Baseboard		Wood	White	Intact		0.0
Closet 2	Door Casing/Jamb		Wood	White	Intact		0.0
Closet 2	Shelf Support		Wood	White	Intact		-0.2
Closet 3	Wall	2	Drywall	White	Intact		0.0
Closet 3	Wall	4	Drywall	White	Intact		0.0
Closet 3	Ceiling		Drywall	White	Intact		-0.1
Closet 3	Wall	3	Drywall	White	Intact		-0.1
Closet 3	Wall	1	Drywall	White	Intact		-0.1
Closet 3	Door Trim		Wood	White	Intact		0.1
Closet 3	Floor		Wood	White	Intact		-0.3
Closet 3	Baseboard		Wood	White	Intact		-0.1
Closet 3	Door Casing/Jamb		Wood	White	Intact		0.1
Closet 3	Shelf		Wood	White	Intact		0.0
Closet 3	Door		Wood	White	Intact		-0.2
Closet 3	Shelf Support		Wood	White	Intact		-0.1
ENTRY 1	Screen Door		Metal	White	Intact		-0.3
ENTRY 1	Handrail		Wood	White	Intact		-0.1
ENTRY 1	Window Trim		Wood	White	Intact		-0.1
ENTRY 1	Window Casing		Wood	White	Intact		0.0
ENTRY 1	Column(s)		Wood	White	Intact		-0.1
ENTRY 2	Screen Door CASING/TRIM		Metal	White	Intact		0.1
ENTRY 2	Screen Door		Metal	White	Intact		-0.2
ENTRY 2	Column(s)		Wood	White	Intact		0.0
ENTRY 2	Column(s)		Wood	White	Intact		-0.1

XRF Results

Community

Project ID

Building ID

Site A

LANTDIV

106B

Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
EXTERIOR	Gutters and Downspouts		Metal	White	Intact		-0.1
EXTERIOR	Gutters and Downspouts		Metal	White	Intact		-0.2
EXTERIOR	Gutters and Downspouts		Metal	White	Intact		-0.1
Hall 1	Wall	2	Drywall	White	Intact		-0.2
Hall 1	Wall	1	Drywall	White	Intact		0.0
Hall 1	Ceiling		Drywall	White	Intact		-0.1
Hall 1	Wall	3	Drywall	White	Intact		-0.1
Hall 1	Wall	4	Drywall	White	Intact		-0.4
Hall 1	Window Trim		Wood	White	Intact		0.0
Hall 1	Baseboard		Wood	White	Intact		-0.1
Hall 2	Wall	3	Drywall	White	Intact		0.0
Hall 2	Wall	2	Drywall	White	Intact		-0.1
Hall 2	Ceiling		Drywall	White	Intact		0.0
Hall 2	Wall	4	Drywall	White	Intact		-0.1
Hall 2	Wall	1	Drywall	White	Intact		-0.1
Hall 2	Baseboard		Wood	White	Intact		-0.1
Kitchen	Wall	4	Drywall	White	Intact		0.2
Kitchen	Wall	2	Drywall	White	Intact		-0.1
Kitchen	Ceiling		Drywall	White	Intact		-0.1
Kitchen	Wall	3	Drywall	White	Intact		0.0
Kitchen	Wall	1	Drywall	White	Intact		-0.1
Kitchen	Door Trim		Wood	White	Intact		-0.1
Kitchen	Door Trim		Wood	White	Intact		-0.1
Kitchen	Baseboard		Wood	White	Intact		0.0
Kitchen	Window Casing		Wood	White	Intact		0.0
Kitchen	Window Sill		Wood	White	Intact		-0.1
Kitchen	Window Trim		Wood	White	Intact		-0.2
Kitchen	Door Casing/Jamb		Wood	White	Intact		0.0
Kitchen	Door		Wood	White	Intact		-0.1
Kitchen	Door Casing/Jamb		Wood	White	Intact		-0.1
Living Room	Wall	4	Drywall	White	Intact		-0.1
Living Room	Ceiling		Drywall	White	Intact		-0.1
Living Room	Wall	2	Drywall	White	Intact		-0.2
Living Room	Wall	3	Drywall	White	Intact		-0.1

XRF Results

Community

Project ID

Building ID

Site A

LANTDIV

106B

Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
Living Room	Wall	1	Drywall	White	Intact		0.0
Living Room	Door		Metal	White	Intact		0.3
Living Room	Window Trim		Wood	White	Intact		-0.1
Living Room	Window Sill		Wood	White	Intact		-0.1
Living Room	Door Trim		Wood	White	Intact		0.0
Living Room	Baseboard		Wood	White	Intact		-0.1
Living Room	Window Casing		Wood	White	Intact		0.1
Living Room	CURTAIN SASH		Wood	White	Intact		-0.1
Living Room	Door Casing/Jamb		Wood	White	Intact		0.1
MECHANICAL	Wall	1	Drywall	White	Intact		-0.2
MECHANICAL	Wall	2	Drywall	White	Intact		0.0
MECHANICAL	Ceiling		Drywall	White	Intact		0.0
MECHANICAL	Wall	3	Drywall	White	Intact		0.0
MECHANICAL	Wall	4	Drywall	White	Intact		-0.1
MECHANICAL	Door		Metal	BROWN	Intact		0.2
MECHANICAL	Door Casing/Jamb		Wood	White	Intact		-0.1
MECHANICAL	Door Trim		Wood	White	Intact		-0.1
MECHANICAL	Baseboard		Wood	White	Intact		-0.2
Stairway	Wall	4	Drywall	White	Intact		-0.4
Stairway	Ceiling		Drywall	White	Intact		0.1
Stairway	Wall	2	Drywall	White	Intact		-0.1
Stairway	Wall	3	Drywall	White	Intact		0.0
Stairway	Wall	1	Drywall	White	Intact		0.0
Stairway	Baseboard		Wood	White	Intact		0.1
Stairway	Handrail		Wood	White	Intact		0.0
Stairway	BALUSTER MOUNT		Wood	White	Intact		0.0
Stairway	BALUSTER		Wood	White	Intact		-0.1
Stairway	Stair Stringer		Wood	White	Intact		0.0
Utility Closet	Wall	3	Drywall	White	Intact		0.0
Utility Closet	Wall	2	Drywall	White	Intact		-0.1
Utility Closet	Wall	1	Drywall	White	Intact		-0.1
Utility Closet	Ceiling		Drywall	White	Intact		-0.2
Utility Closet	Wall	4	Drywall	White	Intact		-0.1
Utility Closet	Column(s)		Wood	White	Intact		-0.2

XRF Results

Community

Project ID

Building ID

Site A

LANTDIV

106B

Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm ²)
Utility Closet	Baseboard		Wood	White	Intact		0.0
Utility Closet	Shelf Support		Wood	White	Intact		-0.1
Utility Closet	Door Trim		Wood	White	Intact		-0.1
Utility Closet	Door Casing/Jamb		Wood	White	Intact		0.0
Utility Closet	Shelf		Wood	White	Intact		0.0

Site B
XRF Results

XRF Results

Community

Project ID

Building ID

Site B

LANTDIV

112A

Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm ²)
Bathroom 1	Wall	1	Drywall	White	Intact		0.0
Bathroom 1	Wall	3	Drywall	White	Intact		-0.2
Bathroom 1	Ceiling		Drywall	White	Intact		0.0
Bathroom 1	Wall	4	Drywall	White	Intact		-0.1
Bathroom 1	Wall	2	Drywall	White	Intact		-0.2
Bathroom 1	Door		Wood	White	Intact		-0.2
Bathroom 1	Door Casing/Jamb		Wood	White	Intact		0.0
Bathroom 1	Baseboard		Wood	White	Intact		-0.1
Bathroom 1	Door Trim		Wood	White	Intact		0.0
Bedroom 1	Wall	1	Drywall	White	Intact		-0.4
Bedroom 1	Wall	2	Drywall	White	Intact		-0.3
Bedroom 1	Wall	4	Drywall	White	Intact		0.0
Bedroom 1	Wall	3	Drywall	White	Intact		-0.2
Bedroom 1	Ceiling		Drywall	White	Intact		0.0
Bedroom 1	CLOSET SHELF		Wood	White	Intact		-0.1
Bedroom 1	Door		Wood	White	Intact		-0.1
Bedroom 1	Baseboard		Wood	White	Intact		-0.1
Bedroom 1	CLOSET SHELF SUPPORT		Wood	White	Intact		-0.1
Bedroom 1	Window Trim		Wood	White	Intact		0.0
Bedroom 1	CLOSET DOOR CASING		Wood	White	Intact		0.0
Bedroom 1	Door Trim		Wood	White	Intact		0.0
Bedroom 1	CLOSET DOOR TRIM		Wood	White	Intact		-0.2
Bedroom 1	Door Casing/Jamb		Wood	White	Intact		0.0
Bedroom 1	Window Casing		Wood	White	Intact		0.0
Bedroom 1	Window Sill		Wood	White	Intact		0.1
Bedroom 1	CLOSET DOOR		Wood	White	Intact		0.0
Bedroom 2	Wall	2	Drywall	White	Intact		-0.1
Bedroom 2	Wall	4	Drywall	White	Intact		0.0
Bedroom 2	Wall	3	Drywall	White	Intact		0.0
Bedroom 2	Wall	1	Drywall	White	Intact		-0.4
Bedroom 2	Ceiling		Drywall	White	Intact		0.0
Bedroom 2	CLOSET SHELF SUPPORT		Wood	White	Intact		-0.1
Bedroom 2	CLOSET SHELF		Wood	White	Intact		-0.1
Bedroom 2	Door		Wood	White	Intact		0.0

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Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm ²)
Bedroom 2	Door Trim		Wood	White	Intact		-0.1
Bedroom 2	Door Casing/Jamb		Wood	White	Intact		0.0
Bedroom 2	Window Casing		Wood	White	Intact		-0.1
Bedroom 2	CLOSET DOOR CASING		Wood	White	Intact		-0.1
Bedroom 2	CLOSET DOOR TRIM		Wood	White	Intact		-0.1
Bedroom 2	Baseboard		Wood	White	Intact		0.0
Bedroom 2	Window Trim		Wood	White	Intact		0.0
Bedroom 2	CLOSET DOOR		Wood	White	Intact		-0.1
Bedroom 2	ACCESS DOOR TRIM		Wood	White	Intact		-0.1
Bedroom 2	Window Sill		Wood	White	Intact		0.0
Bedroom 2	ACCESS DOOR		Wood	White	Intact		0.2
BREAKFAST	Wall	2	Drywall	White	Intact		-0.2
BREAKFAST	Wall	3	Drywall	White	Intact		-0.2
BREAKFAST	Ceiling		Drywall	White	Intact		-0.3
BREAKFAST	Wall	4	Drywall	White	Intact		0.0
BREAKFAST	Wall	1	Drywall	White	Intact		-0.2
BREAKFAST	Baseboard		Wood	White	Intact		0.0
BREAKFAST	CLOSET SHELF SUPPORT		Wood	White	Intact		-0.1
BREAKFAST	Window Casing		Wood	White	Intact		-0.2
BREAKFAST	Window Sill		Wood	White	Intact		-0.2
BREAKFAST	CLOSET DOOR CASING		Wood	White	Intact		0.2
BREAKFAST	CLOSET DOOR TRIM		Wood	White	Intact		0.0
BREAKFAST	CLOSET DOOR		Wood	White	Intact		-0.2
BREAKFAST	CLOSET SHELF		Wood	White	Intact		0.0
Closet 1	Wall	4	Drywall	White	Intact		-0.1
Closet 1	Wall	1	Drywall	White	Intact		-0.2
Closet 1	Wall	3	Drywall	White	Intact		0.0
Closet 1	Wall	2	Drywall	White	Intact		0.0
Closet 1	Ceiling		Drywall	White	Intact		0.0
Closet 1	Door		Wood	White	Intact		0.0
Closet 1	Baseboard		Wood	White	Intact		-0.2
Closet 1	Door Casing/Jamb		Wood	White	Intact		0.0
Closet 1	Shelf Support		Wood	White	Intact		-0.1
Closet 1	Shelf		Wood	White	Intact		0.0

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Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
Closet 1	Door Trim		Wood	White	Intact		0.0
Closet 2	Wall	1	Drywall	White	Intact		-0.1
Closet 2	Wall	2	Drywall	White	Intact		0.0
Closet 2	Wall	3	Drywall	White	Intact		-0.1
Closet 2	Ceiling		Drywall	White	Intact		0.1
Closet 2	Wall	4	Drywall	White	Intact		-0.2
Closet 2	Door		Wood	White	Intact		0.0
Closet 2	Door Trim		Wood	White	Intact		-0.1
Closet 2	Shelf Support		Wood	White	Intact		-0.1
Closet 2	Door Casing/Jamb		Wood	White	Intact		-0.1
Closet 2	Shelf		Wood	White	Intact		0.0
Closet 2	Baseboard		Wood	White	Intact		-0.1
Closet 3	Wall	2	Drywall	White	Intact		0.0
Closet 3	Wall	3	Drywall	White	Intact		0.0
Closet 3	Wall	1	Drywall	White	Intact		-0.2
Closet 3	Wall	4	Drywall	White	Intact		-0.2
Closet 3	Ceiling		Drywall	White	Intact		-0.1
Closet 3	Baseboard		Wood	White	Intact		0.0
Closet 3	Door		Wood	White	Intact		0.1
Closet 3	Shelf Support		Wood	White	Intact		-0.1
Closet 3	ATTIC DOOR TRIM		Wood	White	Intact		-0.2
Closet 3	Shelf		Wood	White	Intact		-0.1
Closet 3	Door Casing/Jamb		Wood	White	Intact		0.0
Closet 3	ATTIC DOOR		Wood	White	Intact		0.0
Closet 3	Door Trim		Wood	White	Intact		-0.1
Closet 4	Wall	2	Drywall	White	Intact		0.0
Closet 4	Wall	4	Drywall	White	Intact		-0.3
Closet 4	Wall	1	Drywall	White	Intact		0.0
Closet 4	Ceiling		Drywall	White	Intact		0.0
Closet 4	Wall	3	Drywall	White	Intact		0.0
Closet 4	Door		Wood	White	Intact		-0.3
Closet 4	Door Casing/Jamb		Wood	White	Intact		0.0
Closet 4	Shelf Support		Wood	White	Intact		0.0
Closet 4	Shelf		Wood	White	Intact		0.1

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Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm ²)
Closet 4	Door Trim		Wood	White	Intact		0.2
Closet 4	Baseboard		Wood	White	Intact		0.1
ENTRY 1	Screen Door		Metal	White	Intact		-0.3
ENTRY 1	Window Casing		Wood	White	Intact		0.0
ENTRY 1	Window Trim		Wood	White	Intact		0.0
ENTRY 1	Handrail		Wood	White	Intact		0.0
ENTRY 1	Column(s)		Wood	White	Intact		-0.1
ENTRY 2	Screen Door		Metal	White	Intact		0.4
ENTRY 2	Gutters and Downspouts		Metal	White	Intact		0.0
ENTRY 2	Column(s)		Wood	White	Intact		0.1
EXTERIOR	Gutters and Downspouts		Metal	White	Intact		-0.1
Hall 1	Ceiling		Drywall	White	Intact		-0.1
Hall 1	Wall	2	Drywall	White	Intact		0.0
Hall 1	Wall	3	Drywall	White	Intact		0.0
Hall 1	Wall	4	Drywall	White	Intact		-0.1
Hall 1	Wall	1	Drywall	White	Intact		0.0
Hall 1	Door		Metal	White	Intact		0.0
Hall 1	Window Sill		Wood	White	Intact		-0.1
Hall 1	Baseboard		Wood	White	Intact		0.0
Hall 1	Window Casing		Wood	White	Intact		0.0
Hall 1	Door Casing/Jamb		Wood	White	Intact		-0.1
Hall 1	Door Trim		Wood	White	Intact		0.0
Hall 2	Wall	4	Drywall	White	Intact		0.0
Hall 2	Wall	1	Drywall	White	Intact		-0.3
Hall 2	Wall	3	Drywall	White	Intact		0.0
Hall 2	Ceiling		Drywall	White	Intact		0.0
Hall 2	Wall	2	Drywall	White	Intact		0.0
Hall 2	Baseboard		Wood	White	Intact		-0.1
Kitchen	Ceiling		Drywall	White	Intact		-0.2
Kitchen	Wall	1	Drywall	White	Intact		-0.2
Kitchen	Wall	3	Drywall	White	Intact		-0.3
Kitchen	Wall	4	Drywall	White	Intact		0.0
Kitchen	Wall	2	Drywall	White	Intact		-0.1
Kitchen	Baseboard		Wood	White	Intact		-0.2

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Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
Living Room	Wall	3	Drywall	White	Intact		-0.2
Living Room	Wall	4	Drywall	White	Intact		-0.2
Living Room	Wall	2	Drywall	White	Intact		-0.2
Living Room	Ceiling		Drywall	White	Intact		-0.1
Living Room	Wall	1	Drywall	White	Intact		0.0
Living Room	Door		Metal	White	Intact		0.2
Living Room	CURTAIN SASH		Wood	White	Intact		-0.2
Living Room	Door Casing/Jamb		Wood	White	Intact		0.3
Living Room	Door Trim		Wood	White	Intact		0.0
Living Room	Baseboard		Wood	White	Intact		0.1
Utility Closet	Ceiling		Drywall	White	Intact		0.0
Utility Closet	Wall	2	Drywall	White	Intact		-0.3
Utility Closet	Wall	3	Drywall	White	Intact		-0.2
Utility Closet	Wall	1	Drywall	White	Intact		0.0
Utility Closet	Wall	4	Drywall	White	Intact		-0.1
Utility Closet	Shelf Support		Wood	White	Intact		0.0
Utility Closet	Window Trim		Wood	White	Intact		-0.1
Utility Closet	Window Sill		Wood	White	Intact		0.1
Utility Closet	Shelf		Wood	White	Intact		-0.1
Utility Closet	Window Casing		Wood	White	Intact		0.0
Utility Closet	Door Casing/Jamb		Wood	White	Intact		0.0
Utility Closet	Door Trim		Wood	White	Intact		-0.1
Utility Closet	Door		Wood	White	Intact		-0.1

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Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
Bathroom 1	Ceiling		Drywall	White	Intact		-0.1
Bathroom 1	Wall	2	Drywall	White	Intact		-0.2
Bathroom 1	Wall	3	Drywall	White	Intact		-0.1
Bathroom 1	Wall	4	Drywall	White	Intact		-0.1
Bathroom 1	Wall	1	Drywall	White	Intact		0.0
Bathroom 1	Door Casing/Jamb		Wood	White	Intact		0.0
Bathroom 1	Door Trim		Wood	White	Intact		-0.1
Bathroom 1	Door		Wood	White	Intact		-0.1
Bathroom 1	Baseboard		Wood	White	Intact		0.0
Bathroom 1	ACCESS DOOR TRIM		Wood	White	Intact		0.0
Bathroom 1	ACCESS DOOR		Wood	White	Intact		-0.1
Bathroom 2	Ceiling		Drywall	White	Intact		-0.2
Bathroom 2	Wall	1	Drywall	White	Intact		-0.2
Bathroom 2	Wall	2	Drywall	White	Intact		-0.3
Bathroom 2	Wall	4	Drywall	White	Intact		-0.1
Bathroom 2	Wall	3	Drywall	White	Intact		0.0
Bathroom 2	Door Casing/Jamb		Wood	White	Intact		0.0
Bathroom 2	Door		Wood	White	Intact		0.0
Bathroom 2	Door Trim		Wood	White	Intact		-0.1
Bathroom 2	Baseboard		Wood	White	Intact		0.0
Bathroom 3	Wall	3	Drywall	White	Intact		-0.2
Bathroom 3	Wall	4	Drywall	White	Intact		0.0
Bathroom 3	Ceiling		Drywall	White	Intact		0.2
Bathroom 3	Wall	2	Drywall	White	Intact		0.0
Bathroom 3	Wall	1	Drywall	White	Intact		0.0
Bathroom 3	Window Trim		Wood	White	Intact		-0.1
Bathroom 3	Door		Wood	White	Intact		0.0
Bathroom 3	Door Casing/Jamb		Wood	White	Intact		-0.1
Bathroom 3	Window Casing		Wood	White	Intact		-0.1
Bathroom 3	Door Trim		Wood	White	Intact		0.0
Bathroom 3	Window Sill		Wood	White	Intact		0.0
Bedroom 1	Ceiling		Drywall	White	Intact		0.0
Bedroom 1	Wall	3	Drywall	White	Intact		-0.2
Bedroom 1	Wall	1	Drywall	White	Intact		0.0

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Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
Bedroom 1	Wall	2	Drywall	White	Intact		-0.1
Bedroom 1	Wall	4	Drywall	White	Intact		0.0
Bedroom 1	Window Trim		Wood	White	Intact		0.0
Bedroom 1	Window Casing		Wood	White	Intact		0.0
Bedroom 1	Window Sill		Wood	White	Intact		-0.1
Bedroom 1	CLOSET DOOR		Wood	White	Intact		0.0
Bedroom 1	Door Trim		Wood	White	Intact		0.0
Bedroom 1	CLOSET DOOR CASING		Wood	White	Intact		-0.1
Bedroom 1	Door Casing/Jamb		Wood	White	Intact		-0.2
Bedroom 1	Door		Wood	White	Intact		-0.4
Bedroom 1	CLOSET SHELF SUPPORT		Wood	White	Intact		0.0
Bedroom 1	CLOSET DOOR TRIM		Wood	White	Intact		-0.2
Bedroom 1	Baseboard		Wood	White	Intact		-0.2
Bedroom 1	CLOSET SHELF		Wood	White	Intact		0.0
Bedroom 2	Wall	1	Drywall	White	Intact		0.0
Bedroom 2	Wall	2	Drywall	White	Intact		0.0
Bedroom 2	Wall	3	Drywall	White	Intact		0.0
Bedroom 2	Wall	4	Drywall	White	Intact		0.0
Bedroom 2	Ceiling		Drywall	White	Intact		0.0
Bedroom 2	CLOSET SHELF		Wood	White	Intact		0.0
Bedroom 2	CLOSET DOOR CASING		Wood	White	Intact		-0.1
Bedroom 2	CLOSET DOOR		Wood	White	Intact		0.0
Bedroom 2	Door Casing/Jamb		Wood	White	Intact		-0.1
Bedroom 2	Window Sill		Wood	White	Intact		0.0
Bedroom 2	Window Trim		Wood	White	Intact		0.0
Bedroom 2	Baseboard		Wood	White	Intact		0.1
Bedroom 2	Door Trim		Wood	White	Intact		0.0
Bedroom 2	CLOSET DOOR TRIM		Wood	White	Intact		0.0
Bedroom 2	Window Casing		Wood	White	Intact		-0.2
Bedroom 2	CLOSET SHELF SUPPORT		Wood	White	Intact		-0.1
Bedroom 2	Door		Wood	White	Intact		-0.2
Bedroom 3	Wall	1	Drywall	White	Intact		-0.4
Bedroom 3	Wall	2	Drywall	White	Intact		-0.4
Bedroom 3	Ceiling		Drywall	White	Intact		0.0

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Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm ²)
Bedroom 3	Wall	3	Drywall	White	Intact		-0.2
Bedroom 3	Wall	4	Drywall	White	Intact		0.0
Bedroom 3	CLOSET DOOR		Wood	White	Intact		0.0
Bedroom 3	Door		Wood	White	Intact		-0.2
Bedroom 3	Baseboard		Wood	White	Intact		0.2
Bedroom 3	CLOSET SHELF		Wood	White	Intact		0.0
Bedroom 3	Window Trim		Wood	White	Intact		0.0
Bedroom 3	CLOSET SHELF SUPPORT		Wood	White	Intact		-0.1
Bedroom 3	Window Sill		Wood	White	Intact		-0.1
Bedroom 3	Door Casing/Jamb		Wood	White	Intact		0.0
Bedroom 3	CLOSET DOOR TRIM		Wood	White	Intact		0.0
Bedroom 3	Door Trim		Wood	White	Intact		-0.1
Bedroom 3	CLOSET DOOR CASING		Wood	White	Intact		-0.1
Bedroom 3	Window Casing		Wood	White	Intact		-0.1
Bedroom 4	Wall	4	Drywall	White	Intact		0.0
Bedroom 4	Wall	3	Drywall	White	Intact		-0.1
Bedroom 4	Wall	2	Drywall	White	Intact		0.0
Bedroom 4	Wall	1	Drywall	White	Intact		0.0
Bedroom 4	Ceiling		Drywall	White	Intact		-0.1
Bedroom 4	ACCESS DOOR TRIM		Metal	White	Intact		0.0
Bedroom 4	ACCESS DOOR		Metal	White	Intact		-0.1
Bedroom 4	Door Casing/Jamb		Wood	White	Intact		0.0
Bedroom 4	CLOSET DOOR TRIM		Wood	White	Intact		-0.1
Bedroom 4	Door Trim		Wood	White	Intact		0.0
Bedroom 4	Window Casing		Wood	White	Intact		0.0
Bedroom 4	Baseboard		Wood	White	Intact		0.1
Bedroom 4	CLOSET DOOR		Wood	White	Intact		0.0
Bedroom 4	CLOSET DOOR CASING		Wood	White	Intact		-0.1
Bedroom 4	Window Sill		Wood	White	Intact		0.2
Bedroom 4	Door		Wood	White	Intact		-0.3
Bedroom 4	Window Trim		Wood	White	Intact		0.0
Bedroom 4	CLOSET SHELF		Wood	White	Intact		0.0
Bedroom 4	CLOSET SHELF SUPPORT		Wood	White	Intact		-0.2
Closet 1	Wall	3	Drywall	White	Intact		0.0

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Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
Closet 1	Wall	2	Drywall	White	Intact		-0.1
Closet 1	Ceiling		Drywall	White	Intact		0.0
Closet 1	Wall	1	Drywall	White	Intact		0.0
Closet 1	Wall	4	Drywall	White	Intact		0.0
Closet 1	Door Trim		Wood	White	Intact		0.0
Closet 1	Shelf		Wood	White	Intact		0.0
Closet 1	Baseboard		Wood	White	Intact		0.0
Closet 1	Door		Wood	White	Intact		-0.1
Closet 1	Door Casing/Jamb		Wood	White	Intact		0.1
Closet 1	Shelf Support		Wood	White	Intact		-0.1
Closet 2	Wall	3	Drywall	White	Intact		0.0
Closet 2	Wall	2	Drywall	White	Intact		0.0
Closet 2	Wall	1	Drywall	White	Intact		0.0
Closet 2	Wall	4	Drywall	White	Intact		-0.1
Closet 2	Ceiling		Drywall	White	Intact		0.0
Closet 2	Shelf		Wood	White	Intact		-0.1
Closet 2	Shelf Support		Wood	White	Intact		0.1
Closet 2	Door Trim		Wood	White	Intact		0.0
Closet 2	Baseboard		Wood	White	Intact		-0.1
Closet 2	Door		Wood	White	Intact		0.0
Closet 2	Door Casing/Jamb		Wood	White	Intact		-0.1
Closet 3	Wall	1	Drywall	White	Intact		-0.1
Closet 3	Ceiling		Drywall	White	Intact		0.0
Closet 3	Wall	2	Drywall	White	Intact		-0.1
Closet 3	Wall	3	Drywall	White	Intact		-0.1
Closet 3	Wall	4	Drywall	White	Intact		-0.1
Closet 3	Door Casing/Jamb		Wood	White	Intact		0.0
Closet 3	Door		Wood	White	Intact		-0.1
Closet 3	Baseboard		Wood	White	Intact		0.0
Closet 3	Shelf		Wood	White	Intact		0.2
Closet 3	Door Trim		Wood	White	Intact		0.0
Closet 3	Shelf Support		Wood	White	Intact		-0.1
DINING 1	Wall	1	Drywall	White	Intact		-0.4
DINING 1	Ceiling		Drywall	White	Intact		0.0

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Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
DINING 1	Wall	2	Drywall	White	Intact		-0.2
DINING 1	Wall	4	Drywall	White	Intact		-0.1
DINING 1	Baseboard		Wood	White	Intact		0.0
DINING 1	Shelf Support		Wood	White	Intact		0.2
DINING 1	Shelf		Wood	White	Intact		-0.1
ENTRY 1	Screen Door		Metal	White	Intact		-0.2
ENTRY 1	Window Trim		Wood	White	Intact		0.0
ENTRY 1	Handrail		Wood	White	Intact		0.1
ENTRY 1	Column(s)		Wood	White	Intact		0.0
ENTRY 1	Window Casing		Wood	White	Intact		-0.1
ENTRY 2	Screen Door		Metal	White	Intact		0.0
ENTRY 2	Column(s)		Wood	White	Intact		0.0
EXTERIOR	Gutters and Downspouts		Metal	White	Intact		0.2
EXTERIOR	Gutters and Downspouts		Metal	White	Intact		0.1
Hall 1	Ceiling		Drywall	White	Intact		0.0
Hall 1	Wall	1	Drywall	White	Intact		0.0
Hall 1	Wall	2	Drywall	White	Intact		-0.2
Hall 1	Wall	3	Drywall	White	Intact		0.0
Hall 1	Wall	4	Drywall	White	Intact		-0.1
Hall 1	Door		Metal	BROWN	Intact		0.0
Hall 1	Door Casing/Jamb		Wood	White	Intact		0.0
Hall 1	Door Trim		Wood	White	Intact		0.1
Hall 1	Window Trim		Wood	White	Intact		0.0
Hall 1	Window Casing		Wood	White	Intact		-0.1
Hall 1	Baseboard		Wood	White	Intact		-0.2
Hall 2	Wall	2	Drywall	White	Intact		0.0
Hall 2	Wall	4	Drywall	White	Intact		0.0
Hall 2	Wall	3	Drywall	White	Intact		0.0
Hall 2	Ceiling		Drywall	White	Intact		-0.1
Hall 2	Wall	1	Drywall	White	Intact		-0.2
Hall 2	Baseboard		Wood	White	Intact		0.0
Hall 2	ACCESS DOOR TRIM		Wood	White	Intact		0.1
Hall 2	ATTIC DOOR		Wood	White	Intact		-0.1
Kitchen	Wall	2	Drywall	White	Intact		-0.2

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Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
Kitchen	Wall	1	Drywall	White	Intact		0.0
Kitchen	Wall	3	Drywall	White	Intact		-0.1
Kitchen	Ceiling		Drywall	White	Intact		0.0
Kitchen	Wall	4	Drywall	White	Intact		0.0
Kitchen	Window Sill		Wood	White	Intact		-0.2
Kitchen	Window Trim		Wood	White	Intact		0.0
Kitchen	Baseboard		Wood	White	Intact		-0.1
Kitchen	Window Casing		Wood	White	Intact		0.1
Living Room	Wall	2	Drywall	White	Intact		0.0
Living Room	Ceiling		Drywall	White	Intact		-0.1
Living Room	Wall	4	Drywall	White	Intact		0.0
Living Room	Wall	3	Drywall	White	Intact		0.0
Living Room	Wall	1	Drywall	White	Intact		-0.1
Living Room	Door		Metal	White	Intact		0.3
Living Room	CURTAIN SASH		Wood	White	Intact		-0.1
Living Room	Window Trim		Wood	White	Intact		0.4
Living Room	Window Sill		Wood	White	Intact		-0.1
Living Room	Baseboard		Wood	White	Intact		0.0
Living Room	Window Casing		Wood	White	Intact		0.0
Living Room	Door Trim		Wood	White	Intact		0.1
Living Room	Door Casing/Jamb		Wood	White	Intact		0.0
Stairway	Wall	3	Drywall	White	Intact		-0.2
Stairway	Wall	4	Drywall	White	Intact		0.0
Stairway	Wall	2	Drywall	White	Intact		-0.3
Stairway	Ceiling		Drywall	White	Intact		-0.2
Stairway	Wall	1	Drywall	White	Intact		-0.3
Stairway	Stair Stringer		Wood	White	Intact		0.0
Stairway	BALUSTER MOUNT		Wood	White	Intact		-0.2
Stairway	Baseboard		Wood	White	Intact		0.0
Stairway	Handrail		Wood	White	Intact		0.0
Stairway	BALUSTER		Wood	White	Intact		-0.2
Utility Closet	Wall	1	Drywall	White	Intact		-0.2
Utility Closet	Ceiling		Drywall	White	Intact		-0.1
Utility Closet	Wall	4	Drywall	White	Intact		-0.1

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Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm ²)
Utility Closet	Wall	2	Drywall	White	Intact		-0.2
Utility Closet	Wall	3	Drywall	White	Intact		-0.1
Utility Closet	Shelf Support		Wood	White	Intact		0.0
Utility Closet	Door		Wood	White	Intact		-0.1
Utility Closet	Door Casing/Jamb		Wood	White	Intact		0.0
Utility Closet	Door Trim		Wood	White	Intact		-0.1
Utility Closet	Shelf		Wood	White	Intact		0.0

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Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
Bathroom 1	Ceiling		Drywall	White	Intact		0.0
Bathroom 1	Wall	1	Drywall	White	Intact		0.0
Bathroom 1	Wall	3	Drywall	White	Intact		-0.1
Bathroom 1	Wall	2	Drywall	White	Intact		-0.1
Bathroom 1	Wall	4	Drywall	White	Intact		0.0
Bathroom 1	Door Casing/Jamb		Wood	White	Intact		0.0
Bathroom 1	Door Trim		Wood	White	Intact		0.0
Bathroom 1	Door		Wood	White	Intact		-0.3
Bathroom 1	Baseboard		Wood	White	Intact		-0.1
Bathroom 2	Ceiling		Drywall	White	Intact		-0.1
Bathroom 2	Wall	4	Drywall	White	Intact		0.0
Bathroom 2	Wall	2	Drywall	White	Intact		-0.2
Bathroom 2	Wall	3	Drywall	White	Intact		-0.2
Bathroom 2	Wall	1	Drywall	White	Intact		0.0
Bathroom 2	Door Trim		Wood	White	Intact		0.0
Bathroom 2	Door Trim		Wood	White	Intact		0.1
Bathroom 2	Shelf		Wood	White	Intact		-0.2
Bathroom 2	Baseboard		Wood	White	Intact		0.2
Bathroom 2	Door		Wood	White	Intact		-0.2
Bathroom 2	Shelf Support		Wood	White	Intact		0.1
Bedroom 1	Wall	2	Drywall	White	Intact		0.0
Bedroom 1	Wall	1	Drywall	White	Intact		-0.1
Bedroom 1	Wall	3	Drywall	White	Intact		-0.1
Bedroom 1	Ceiling		Drywall	White	Intact		-0.1
Bedroom 1	Wall	4	Drywall	White	Intact		0.0
Bedroom 1	Baseboard		Wood	White	Intact		-0.1
Bedroom 1	CLOSET DOOR TRIM		Wood	White	Intact		-0.1
Bedroom 1	CLOSET SHELF		Wood	White	Intact		0.0
Bedroom 1	CLOSET DOOR CASING		Wood	White	Intact		0.0
Bedroom 1	Door		Wood	White	Intact		-0.2
Bedroom 1	Door Trim		Wood	White	Intact		0.0
Bedroom 1	Door Casing/Jamb		Wood	White	Intact		-0.1
Bedroom 1	Window Casing		Wood	White	Intact		0.1
Bedroom 1	Window Trim		Wood	White	Intact		-0.1

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Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
Bedroom 1	CLOSET DOOR		Wood	White	Intact		0.0
Bedroom 1	Window Sill		Wood	White	Intact		0.0
Bedroom 1	CLOSET SHELF SUPPORT		Wood	White	Intact		0.0
Bedroom 2	Wall	4	Drywall	White	Intact		-0.1
Bedroom 2	Wall	2	Drywall	White	Intact		-0.1
Bedroom 2	Wall	1	Drywall	White	Intact		-0.2
Bedroom 2	Ceiling		Drywall	White	Intact		-0.1
Bedroom 2	Wall	3	Drywall	White	Intact		-0.2
Bedroom 2	Door Casing/Jamb		Wood	White	Intact		0.1
Bedroom 2	CLOSET DOOR		Wood	White	Intact		0.0
Bedroom 2	Window Trim		Wood	White	Intact		-0.1
Bedroom 2	CLOSET DOOR CASING		Wood	White	Intact		-0.1
Bedroom 2	Door Trim		Wood	White	Intact		0.0
Bedroom 2	CLOSET DOOR TRIM		Wood	White	Intact		-0.1
Bedroom 2	Baseboard		Wood	White	Intact		-0.1
Bedroom 2	ACCESS DOOR TRIM		Wood	White	Intact		-0.1
Bedroom 2	CLOSET SHELF		Wood	White	Intact		-0.1
Bedroom 2	CLOSET SHELF SUPPORT		Wood	White	Intact		-0.1
Bedroom 2	Window Casing		Wood	White	Intact		0.0
Bedroom 2	Window Sill		Wood	White	Intact		0.0
Bedroom 2	Door		Wood	White	Intact		-0.4
Bedroom 2	ACCESS DOOR		Wood	White	Intact		-0.1
Bedroom 3	Wall	4	Drywall	White	Intact		-0.4
Bedroom 3	Wall	1	Drywall	White	Intact		-0.1
Bedroom 3	Wall	2	Drywall	White	Intact		0.0
Bedroom 3	Ceiling		Drywall	White	Intact		-0.1
Bedroom 3	Wall	3	Drywall	White	Intact		-0.1
Bedroom 3	Window Trim		Wood	White	Intact		0.1
Bedroom 3	CLOSET DOOR TRIM		Wood	White	Intact		0.0
Bedroom 3	CLOSET DOOR CASING		Wood	White	Intact		0.1
Bedroom 3	Door Casing/Jamb		Wood	White	Intact		0.0
Bedroom 3	CLOSET DOOR		Wood	White	Intact		-0.1
Bedroom 3	Window Sill		Wood	White	Intact		-0.1
Bedroom 3	Window Casing		Wood	White	Intact		-0.1

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Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm ²)
Bedroom 3	Door		Wood	White	Intact		-0.3
Bedroom 3	Door Trim		Wood	White	Intact		-0.1
Bedroom 3	CLOSET SHELF SUPPORT		Wood	White	Intact		0.1
Bedroom 3	Baseboard		Wood	White	Intact		0.0
Bedroom 3	CLOSET SHELF		Wood	White	Intact		0.1
Bedroom 3	Door Trim		Wood	White	Intact		
Bedroom 4	Wall	2	Drywall	White	Intact		-0.2
Bedroom 4	Wall	4	Drywall	White	Intact		-0.1
Bedroom 4	Wall	1	Drywall	White	Intact		-0.1
Bedroom 4	Ceiling		Drywall	White	Intact		-0.1
Bedroom 4	Wall	3	Drywall	White	Intact		-0.1
Bedroom 4	CLOSET DOOR TRIM		Wood	White	Intact		0.1
Bedroom 4	Baseboard		Wood	White	Intact		-0.1
Bedroom 4	Door		Wood	White	Intact		-0.4
Bedroom 4	CLOSET DOOR CASING		Wood	White	Intact		0.0
Bedroom 4	CLOSET DOOR		Wood	White	Intact		0.0
Bedroom 4	CLOSET SHELF SUPPORT		Wood	White	Intact		0.3
Bedroom 4	Door Casing/Jamb		Wood	White	Intact		-0.1
Bedroom 4	Window Casing		Wood	White	Intact		-0.1
Bedroom 4	Window Trim		Wood	White	Intact		0.0
Bedroom 4	Door Trim		Wood	White	Intact		0.1
Bedroom 4	CLOSET SHELF		Wood	White	Intact		0.2
Bedroom 4	Window Sill		Wood	White	Intact		-0.1
BREAKFAST	Wall	1	Drywall	White	Intact		0.0
BREAKFAST	Wall	2	Drywall	White	Intact		-0.1
BREAKFAST	Wall	3	Drywall	White	Intact		-0.2
BREAKFAST	Wall	4	Drywall	White	Intact		-0.1
BREAKFAST	Ceiling		Drywall	White	Intact		-0.2
BREAKFAST	CLOSET SHELF		Wood	White	Intact		0.0
BREAKFAST	CLOSET SHELF SUPPORT		Wood	White	Intact		0.0
BREAKFAST	CLOSET DOOR CASING		Wood	White	Intact		0.0
BREAKFAST	CLOSET DOOR TRIM		Wood	White	Intact		0.0
BREAKFAST	Baseboard		Wood	White	Intact		-0.1
BREAKFAST	Window Sill		Wood	White	Intact		0.0

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Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
BREAKFAST	CLOSET DOOR		Wood	White	Intact		-0.1
BREAKFAST	Window Casing		Wood	White	Intact		-0.1
Closet 1	Ceiling		Drywall	White	Intact		0.0
Closet 1	Wall	4	Drywall	White	Intact		-0.4
Closet 1	Wall	3	Drywall	White	Intact		-0.3
Closet 1	Wall	2	Drywall	White	Intact		0.0
Closet 1	Wall	1	Drywall	White	Intact		0.0
Closet 1	Door Casing/Jamb		Wood	White	Intact		0.2
Closet 1	Door Trim		Wood	White	Intact		0.0
Closet 1	Shelf		Wood	White	Intact		0.0
Closet 1	Door		Wood	White	Intact		-0.1
Closet 1	Shelf Support		Wood	White	Intact		-0.1
Closet 1	Baseboard		Wood	White	Intact		0.0
Closet 2	Wall	1	Drywall	White	Intact		-0.1
Closet 2	Wall	4	Drywall	White	Intact		-0.4
Closet 2	Wall	3	Drywall	White	Intact		0.1
Closet 2	Ceiling		Drywall	White	Intact		-0.1
Closet 2	Wall	2	Drywall	White	Intact		-0.1
Closet 2	Door		Wood	White	Intact		-0.1
Closet 2	Shelf		Wood	White	Intact		-0.1
Closet 2	Shelf Support		Wood	White	Intact		-0.1
Closet 2	Baseboard		Wood	White	Intact		-0.1
Closet 2	Door Casing/Jamb		Wood	White	Intact		-0.1
Closet 2	Door Trim		Wood	White	Intact		0.2
Closet 3	Wall	3	Drywall	White	Intact		0.0
Closet 3	Wall	4	Drywall	White	Intact		-0.1
Closet 3	Ceiling		Drywall	White	Intact		-0.2
Closet 3	Wall	1	Drywall	White	Intact		0.0
Closet 3	Wall	2	Drywall	White	Intact		0.0
Closet 3	Door Trim		Wood	White	Intact		-0.2
Closet 3	ATTIC DOOR TRIM		Wood	White	Intact		-0.1
Closet 3	ATTIC DOOR		Wood	White	Intact		0.0
Closet 3	Baseboard		Wood	White	Intact		0.0
Closet 3	Shelf Support		Wood	White	Intact		-0.1

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Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm ²)
Closet 3	Door		Wood	White	Intact		-0.2
Closet 3	Shelf		Wood	White	Intact		0.0
Closet 3	Door Casing/Jamb		Wood	White	Intact		0.0
ENTRY 1	Screen Door		Metal	White	Intact		-0.3
ENTRY 1	Handrail		Wood	White	Intact		0.0
ENTRY 1	Column(s)		Wood	White	Intact		-0.1
ENTRY 1	Window Casing		Wood	White	Intact		0.0
ENTRY 1	Window Trim		Wood	White	Intact		0.0
ENTRY 2	Gutters and Downspouts		Metal	White	Intact		0.0
ENTRY 2	Screen Door		Metal	White	Intact		-0.4
ENTRY 2	Column(s)		Wood	White	Intact		0.1
EXTERIOR	Gutters and Downspouts		Metal	White	Intact		0.0
Hall 1	Wall	3	Drywall	White	Intact		0.0
Hall 1	Wall	1	Drywall	White	Intact		-0.1
Hall 1	Wall	4	Drywall	White	Intact		-0.1
Hall 1	Wall	2	Drywall	White	Intact		0.0
Hall 1	Ceiling		Drywall	White	Intact		-0.2
Hall 1	Door		Metal	BROWN	Intact		0.0
Hall 1	Baseboard		Wood	White	Intact		0.1
Hall 1	Window Sill		Wood	White	Intact		0.0
Hall 1	Window Casing		Wood	White	Intact		-0.2
Hall 1	Door Trim		Wood	White	Intact		-0.1
Hall 1	Door Casing/Jamb		Wood	White	Intact		-0.1
Hall 2	Wall	3	Drywall	White	Intact		-0.1
Hall 2	Wall	2	Drywall	White	Intact		-0.2
Hall 2	Ceiling		Drywall	White	Intact		0.0
Hall 2	Wall	1	Drywall	White	Intact		-0.1
Hall 2	Wall	4	Drywall	White	Intact		-0.1
Hall 2	Baseboard		Wood	White	Intact		0.1
Hall 3	Wall	3	Drywall	White	Intact		0.0
Hall 3	Wall	4	Drywall	White	Intact		0.1
Hall 3	Wall	2	Drywall	White	Intact		0.2
Hall 3	Ceiling		Drywall	White	Intact		0.0
Hall 3	Wall	1	Drywall	White	Intact		-0.1

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Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm ²)
Hall 3	Baseboard		Wood	White	Intact		0.0
Kitchen	Wall	1	Drywall	White	Intact		-0.1
Kitchen	Wall	2	Drywall	White	Intact		-0.4
Kitchen	Wall	4	Drywall	White	Intact		-0.1
Kitchen	Ceiling		Drywall	White	Intact		-0.1
Kitchen	Wall	3	Drywall	White	Intact		-0.3
Kitchen	Baseboard		Wood	White	Intact		-0.2
Living Room	Wall	3	Drywall	White	Intact		-0.1
Living Room	Wall	4	Drywall	White	Intact		-0.2
Living Room	Wall	2	Drywall	White	Intact		0.0
Living Room	Wall	1	Drywall	White	Intact		-0.1
Living Room	Ceiling		Drywall	White	Intact		0.0
Living Room	Door		Metal	White	Intact		0.0
Living Room	CURTAIN SASH		Wood	White	Intact		0.0
Living Room	Baseboard		Wood	White	Intact		0.0
Living Room	Door Casing/Jamb		Wood	White	Intact		-0.1
Living Room	Door Trim		Wood	White	Intact		0.1
STORAGE	Wall		Drywall	White	Intact		0.0
STORAGE	Wall	1	Drywall	White	Intact		0.0
STORAGE	Wall	2	Drywall	White	Intact		0.0
STORAGE	Wall	3	Drywall	White	Intact		-0.1
STORAGE	Ceiling		Drywall	White	Intact		0.0
STORAGE	Door Casing/Jamb		Metal	White	Intact		-0.1
STORAGE	Door		Metal	BROWN	Intact		-0.1
STORAGE	Door Trim		Metal	White	Intact		0.0
STORAGE	Shelf		Wood	White	Intact		0.2
STORAGE	Shelf Support		Wood	White	Intact		-0.2
Utility Closet	Ceiling		Drywall	White	Intact		0.0
Utility Closet	Wall	2	Drywall	White	Intact		-0.3
Utility Closet	Wall	3	Drywall	White	Intact		0.0
Utility Closet	Wall	4	Drywall	White	Intact		-0.1
Utility Closet	Wall	1	Drywall	White	Intact		0.0
Utility Closet	Shelf Support		Wood	White	Intact		-0.1
Utility Closet	Door Trim		Wood	White	Intact		-0.1

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Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm ²)
Utility Closet	Door Casing/Jamb		Wood	White	Intact		-0.1
Utility Closet	Window Sill		Wood	White	Intact		-0.1
Utility Closet	Shelf		Wood	White	Intact		-0.1
Utility Closet	Window Trim		Wood	White	Intact		-0.2
Utility Closet	Window Casing		Wood	White	Intact		-0.1
Utility Closet	Door		Wood	White	Intact		0.0

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Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
Bathroom 1	Ceiling		Drywall	White	Intact		-0.1
Bathroom 1	Wall	3	Drywall	White	Intact		0.0
Bathroom 1	Wall	2	Drywall	White	Intact		-0.1
Bathroom 1	Wall	1	Drywall	White	Intact		-0.1
Bathroom 1	Wall	4	Drywall	White	Intact		0.0
Bathroom 1	ACCESS DOOR TRIM		Wood	White	Intact		-0.1
Bathroom 1	ACCESS DOOR		Wood	White	Intact		-0.2
Bathroom 1	Door Trim		Wood	White	Intact		-0.1
Bathroom 1	Door		Wood	White	Intact		-0.2
Bathroom 1	Baseboard		Wood	White	Intact		0.0
Bathroom 1	Door Casing/Jamb		Wood	White	Intact		0.0
Bathroom 2	Wall	2	Drywall	White	Intact		-0.1
Bathroom 2	Wall	4	Drywall	White	Intact		0.0
Bathroom 2	Ceiling		Drywall	White	Intact		-0.1
Bathroom 2	Wall	1	Drywall	White	Intact		-0.4
Bathroom 2	Wall	3	Drywall	White	Intact		-0.1
Bathroom 2	Door Trim		Wood	White	Intact		0.0
Bathroom 2	Door Casing/Jamb		Wood	White	Intact		-0.1
Bathroom 2	Door		Wood	White	Intact		0.0
Bathroom 2	Baseboard		Wood	White	Intact		0.0
Bathroom 3	Wall	2	Drywall	White	Intact		-0.1
Bathroom 3	Wall	1	Drywall	White	Intact		0.0
Bathroom 3	Wall	3	Drywall	White	Intact		-0.3
Bathroom 3	Wall	4	Drywall	White	Intact		0.0
Bathroom 3	Ceiling		Drywall	White	Intact		0.0
Bathroom 3	Door Casing/Jamb		Wood	White	Intact		0.0
Bathroom 3	Window Trim		Wood	White	Intact		-0.2
Bathroom 3	Window Sill		Wood	White	Intact		-0.1
Bathroom 3	Door		Wood	White	Intact		0.0
Bathroom 3	Door Trim		Wood	White	Intact		0.0
Bathroom 3	Window Casing		Wood	White	Intact		0.0
Bedroom 1	Wall	1	Drywall	White	Intact		-0.1
Bedroom 1	Wall	4	Drywall	White	Intact		0.0
Bedroom 1	Wall	3	Drywall	White	Intact		0.0

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Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm ²)
Bedroom 1	Wall	2	Drywall	White	Intact		0.0
Bedroom 1	Ceiling		Drywall	White	Intact		-0.1
Bedroom 1	CLOSET SHELF		Wood	White	Intact		-0.1
Bedroom 1	Window Sill		Wood	White	Intact		-0.2
Bedroom 1	CLOSET SHELF SUPPORT		Wood	White	Intact		0.0
Bedroom 1	Window Trim		Wood	White	Intact		-0.1
Bedroom 1	Door Trim		Wood	White	Intact		0.3
Bedroom 1	Baseboard		Wood	White	Intact		0.0
Bedroom 1	CLOSET DOOR		Wood	White	Intact		-0.2
Bedroom 1	Door		Wood	White	Intact		-0.2
Bedroom 1	Window Casing		Wood	White	Intact		0.2
Bedroom 1	CLOSET DOOR TRIM		Wood	White	Intact		-0.2
Bedroom 1	Door Casing/Jamb		Wood	White	Intact		-0.1
Bedroom 1	CLOSET DOOR CASING		Wood	White	Intact		-0.1
Bedroom 2	Wall	2	Drywall	White	Intact		-0.2
Bedroom 2	Ceiling		Drywall	White	Intact		0.0
Bedroom 2	Wall	4	Drywall	White	Intact		0.0
Bedroom 2	Wall	3	Drywall	White	Intact		-0.1
Bedroom 2	Wall	1	Drywall	White	Intact		-0.2
Bedroom 2	ACCESS DOOR TRIM		Metal	White	Intact		0.2
Bedroom 2	ACCESS DOOR		Metal	White	Intact		0.0
Bedroom 2	CLOSET DOOR		Wood	White	Intact		0.0
Bedroom 2	CLOSET SHELF		Wood	White	Intact		-0.1
Bedroom 2	CLOSET SHELF SUPPORT		Wood	White	Intact		0.0
Bedroom 2	Window Trim		Wood	White	Intact		0.2
Bedroom 2	Baseboard		Wood	White	Intact		-0.1
Bedroom 2	Window Casing		Wood	White	Intact		-0.2
Bedroom 2	Window Sill		Wood	White	Intact		-0.2
Bedroom 2	Door Trim		Wood	White	Intact		0.0
Bedroom 2	CLOSET DOOR CASING		Wood	White	Intact		0.0
Bedroom 2	Door		Wood	White	Intact		-0.2
Bedroom 2	Door Casing/Jamb		Wood	White	Intact		0.0
Bedroom 2	CLOSET DOOR TRIM		Wood	White	Intact		-0.1
Bedroom 3	Wall	3	Drywall	White	Intact		0.0

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Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
Bedroom 3	Wall	4	Drywall	White	Intact		-0.1
Bedroom 3	Wall	2	Drywall	White	Intact		0.0
Bedroom 3	Ceiling		Drywall	White	Intact		0.0
Bedroom 3	Wall	1	Drywall	White	Intact		-0.1
Bedroom 3	Door Trim		Wood	White	Intact		0.0
Bedroom 3	CLOSET DOOR		Wood	White	Intact		-0.1
Bedroom 3	Door Casing/Jamb		Wood	White	Intact		0.0
Bedroom 3	Door		Wood	White	Intact		-0.2
Bedroom 3	Window Casing		Wood	White	Intact		-0.2
Bedroom 3	CLOSET SHELF SUPPORT		Wood	White	Intact		0.0
Bedroom 3	CLOSET SHELF		Wood	White	Intact		0.0
Bedroom 3	Window Trim		Wood	White	Intact		-0.1
Bedroom 3	Baseboard		Wood	White	Intact		0.1
Bedroom 3	CLOSET DOOR TRIM		Wood	White	Intact		-0.1
Bedroom 3	CLOSET DOOR CASING		Wood	White	Intact		0.0
Bedroom 3	Window Sill		Wood	White	Intact		0.0
Closet 1	Wall	4	Drywall	White	Intact		0.0
Closet 1	Ceiling		Drywall	White	Intact		-0.2
Closet 1	Wall	3	Drywall	White	Intact		-0.1
Closet 1	Wall	1	Drywall	White	Intact		0.0
Closet 1	Wall	2	Drywall	White	Intact		-0.1
Closet 1	Door Trim		Wood	White	Intact		-0.1
Closet 1	Shelf Support		Wood	White	Intact		0.0
Closet 1	Baseboard		Wood	White	Intact		0.0
Closet 1	Shelf		Wood	White	Intact		-0.1
Closet 1	Door		Wood	White	Intact		-0.2
Closet 1	Door Casing/Jamb		Wood	White	Intact		-0.1
Closet 2	Wall	1	Drywall	White	Intact		-0.1
Closet 2	Wall	2	Drywall	White	Intact		0.0
Closet 2	Wall	3	Drywall	White	Intact		0.0
Closet 2	Wall	4	Drywall	White	Intact		-0.1
Closet 2	Ceiling		Drywall	White	Intact		-0.3
Closet 2	Baseboard		Wood	White	Intact		0.1
Closet 2	Door		Wood	White	Intact		0.0

XRF Results

Community

Project ID

Building ID

Site B

LANTDIV

117B

Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm ²)
Closet 2	Door Trim		Wood	White	Intact		0.1
Closet 2	Shelf Support		Wood	White	Intact		-0.1
Closet 2	Shelf		Wood	White	Intact		0.0
Closet 2	Door Casing/Jamb		Wood	White	Intact		0.0
DINING 1	Wall	2	Drywall	White	Intact		-0.1
DINING 1	Wall	4	Drywall	White	Intact		0.0
DINING 1	Ceiling		Drywall	White	Intact		0.0
DINING 1	Wall	1	Drywall	White	Intact		0.0
DINING 1	Shelf Support		Wood	White	Intact		0.0
DINING 1	Shelf		Wood	White	Intact		0.0
DINING 1	Baseboard		Wood	White	Intact		-0.1
ENTRY 1	Screen Door		Metal	White	Intact		-0.2
ENTRY 1	Window Casing		Wood	White	Intact		0.0
ENTRY 1	Window Trim		Wood	White	Intact		0.0
ENTRY 1	Column(s)		Wood	White	Intact		0.0
ENTRY 1	Handrail		Wood	White	Intact		0.0
ENTRY 2	Screen Door		Metal	White	Intact		-0.1
ENTRY 2	Column(s)		Wood	White	Intact		0.0
EXTERIOR	Gutters and Downspouts		Metal	White	Intact		-0.2
EXTERIOR	Gutters and Downspouts		Metal	White	Intact		0.0
Hall 1	Wall	2	Drywall	White	Intact		-0.1
Hall 1	Wall	4	Drywall	White	Intact		-0.2
Hall 1	Wall	1	Drywall	White	Intact		-0.1
Hall 1	Wall	3	Drywall	White	Intact		-0.2
Hall 1	Ceiling		Drywall	White	Intact		0.0
Hall 1	Door		Metal	BROWN	Intact		0.1
Hall 1	Baseboard		Wood	White	Intact		-0.1
Hall 1	Door Casing/Jamb		Wood	White	Intact		0.0
Hall 1	Window Trim		Wood	White	Intact		0.0
Hall 1	Window Casing		Wood	White	Intact		0.0
Hall 1	Door Trim		Wood	White	Intact		-0.1
Hall 2	Wall	4	Drywall	White	Intact		-0.3
Hall 2	Wall	3	Drywall	White	Intact		0.0
Hall 2	Wall	2	Drywall	White	Intact		0.0

XRF Results

Community

Project ID

Building ID

Site B

LANTDIV

117B

Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
Hall 2	Ceiling		Drywall	White	Intact		-0.1
Hall 2	Wall	1	Drywall	White	Intact		0.0
Hall 2	ATTIC DOOR		Wood	White	Intact		-0.1
Hall 2	ACCESS DOOR TRIM		Wood	White	Intact		-0.2
Hall 2	Baseboard		Wood	White	Intact		0.0
Kitchen	Wall	2	Drywall	White	Intact		-0.2
Kitchen	Wall	3	Drywall	White	Intact		0.0
Kitchen	Wall	4	Drywall	White	Intact		-0.2
Kitchen	Wall	1	Drywall	White	Intact		-0.5
Kitchen	Ceiling		Drywall	White	Intact		0.0
Kitchen	Baseboard		Wood	White	Intact		-0.1
Kitchen	Window Trim		Wood	White	Intact		0.0
Kitchen	Window Sill		Wood	White	Intact		-0.1
Kitchen	Window Casing		Wood	White	Intact		-0.1
Living Room	Ceiling		Drywall	White	Intact		-0.3
Living Room	Wall	3	Drywall	White	Intact		-0.2
Living Room	Wall	2	Drywall	White	Intact		-0.3
Living Room	Wall	4	Drywall	White	Intact		0.0
Living Room	Wall	1	Drywall	White	Intact		0.0
Living Room	Door		Metal	White	Intact		0.0
Living Room	Door Casing/Jamb		Wood	White	Intact		-0.1
Living Room	Window Casing		Wood	White	Intact		-0.1
Living Room	CURTAIN SASH		Wood	White	Intact		0.0
Living Room	Baseboard		Wood	White	Intact		0.1
Living Room	Window Sill		Wood	White	Intact		-0.1
Living Room	Window Trim		Wood	White	Intact		0.0
Living Room	Door Trim		Wood	White	Intact		0.0
Stairway	Wall	4	Drywall	White	Intact		-0.1
Stairway	Ceiling		Drywall	White	Intact		-0.1
Stairway	Wall	1	Drywall	White	Intact		-0.2
Stairway	Wall	2	Drywall	White	Intact		0.0
Stairway	Wall	3	Drywall	White	Intact		-0.2
Stairway	BALUSTER MOUNT		Wood	White	Intact		-0.1
Stairway	BALUSTER		Wood	White	Intact		0.2

XRF Results

Community

Project ID

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Site B

LANTDIV

117B

Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
Stairway	Stair Stringer		Wood	White	Intact		0.0
Stairway	Handrail		Wood	White	Intact		-0.1
Stairway	Baseboard		Wood	White	Intact		-0.1
Utility Closet	Ceiling		Drywall	White	Intact		-0.2
Utility Closet	Wall	3	Drywall	White	Intact		-0.1
Utility Closet	Wall	4	Drywall	White	Intact		0.0
Utility Closet	Wall	2	Drywall	White	Intact		-0.1
Utility Closet	Wall	1	Drywall	White	Intact		-0.1
Utility Closet	Door Trim		Wood	White	Intact		0.0
Utility Closet	Shelf		Wood	White	Intact		-0.1
Utility Closet	Shelf Support		Wood	White	Intact		-0.1
Utility Closet	Door		Wood	White	Intact		0.0
Utility Closet	Door Casing/Jamb		Wood	White	Intact		0.0

Site C
XRF Results

XRF Results

Community	Project ID	Building ID
Site C	LANTDIV	119A

Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
Bathroom 1	Wall	4	Drywall	White	Intact		-0.2
Bathroom 1	Ceiling		Drywall	White	Intact		0.0
Bathroom 1	Wall	3	Drywall	White	Intact		-0.1
Bathroom 1	Wall	2	Drywall	White	Intact		-0.2
Bathroom 1	Wall	1	Drywall	White	Intact		-0.1
Bathroom 1	Door		Wood	White	Intact		-0.1
Bathroom 1	Baseboard		Wood	White	Intact		0.0
Bathroom 1	ACCESS DOOR		Wood	White	Intact		-0.4
Bathroom 1	Door Casing/Jamb		Wood	White	Intact		0.0
Bathroom 1	ACCESS DOOR TRIM		Wood	White	Intact		0.1
Bathroom 1	Door Trim		Wood	White	Intact		0.0
Bathroom 2	Wall	3	Drywall	White	Intact		-0.1
Bathroom 2	Ceiling		Drywall	White	Intact		-0.2
Bathroom 2	Wall	4	Drywall	White	Intact		-0.2
Bathroom 2	Wall	1	Drywall	White	Intact		-0.2
Bathroom 2	Wall	2	Drywall	White	Intact		-0.4
Bathroom 2	Door Casing/Jamb		Wood	White	Intact		0.0
Bathroom 2	Baseboard		Wood	White	Intact		-0.1
Bathroom 2	Door		Wood	White	Intact		-0.2
Bathroom 2	Door Trim		Wood	White	Intact		-0.1
Bathroom 3	Wall	1	Drywall	White	Intact		-0.2
Bathroom 3	Ceiling		Drywall	White	Intact		0.0
Bathroom 3	Wall	3	Drywall	White	Intact		-0.2
Bathroom 3	Wall	4	Drywall	White	Intact		-0.1
Bathroom 3	Wall	2	Drywall	White	Intact		0.0
Bathroom 3	Door Trim		Wood	White	Intact		-0.1
Bathroom 3	Door Casing/Jamb		Wood	White	Intact		-0.2
Bathroom 3	Window Casing		Wood	White	Intact		-0.1
Bathroom 3	Window Sill		Wood	White	Intact		-0.1
Bathroom 3	Window Trim		Wood	White	Intact		0.0
Bathroom 3	Door		Wood	White	Intact		0.0
Bedroom 1	Wall	4	Drywall	White	Intact		0.0
Bedroom 1	Wall	1	Drywall	White	Intact		-0.1
Bedroom 1	Wall	2	Drywall	White	Intact		0.0

XRF Results

Community

Project ID

Building ID

Site C

LANTDIV

119A

Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
Bedroom 1	Wall	3	Drywall	White	Intact		0.0
Bedroom 1	Ceiling		Drywall	White	Intact		0.0
Bedroom 1	CLOSET DOOR		Wood	White	Intact		0.0
Bedroom 1	CLOSET SHELF SUPPORT		Wood	White	Intact		-0.2
Bedroom 1	Door Casing/Jamb		Wood	White	Intact		0.0
Bedroom 1	Baseboard		Wood	White	Intact		0.0
Bedroom 1	Door		Wood	White	Intact		-0.1
Bedroom 1	CLOSET SHELF		Wood	White	Intact		-0.1
Bedroom 1	Door Trim		Wood	White	Intact		0.0
Bedroom 1	CLOSET DOOR TRIM		Wood	White	Intact		0.0
Bedroom 1	Window Casing		Wood	White	Intact		-0.1
Bedroom 1	Window Trim		Wood	White	Intact		-0.1
Bedroom 1	CLOSET DOOR CASING		Wood	White	Intact		0.0
Bedroom 1	Window Sill		Wood	White	Intact		0.0
Bedroom 2	Wall	3	Drywall	White	Intact		-0.1
Bedroom 2	Wall	2	Drywall	White	Intact		-0.1
Bedroom 2	Wall	1	Drywall	White	Intact		0.0
Bedroom 2	Ceiling		Drywall	White	Intact		-0.1
Bedroom 2	Wall	4	Drywall	White	Intact		0.0
Bedroom 2	CURTAIN SASH		Metal	White	Intact		0.0
Bedroom 2	CLOSET SHELF		Wood	White	Intact		0.0
Bedroom 2	CLOSET DOOR CASING		Wood	White	Intact		-0.4
Bedroom 2	Window Trim		Wood	White	Intact		0.0
Bedroom 2	Window Casing		Wood	White	Intact		0.2
Bedroom 2	Door Trim		Wood	White	Intact		-0.1
Bedroom 2	CLOSET DOOR TRIM		Wood	White	Intact		-0.1
Bedroom 2	Door		Wood	White	Intact		0.0
Bedroom 2	CLOSET DOOR		Wood	White	Intact		-0.1
Bedroom 2	Door Casing/Jamb		Wood	White	Intact		-0.1
Bedroom 2	CLOSET SHELF SUPPORT		Wood	White	Intact		0.0
Bedroom 2	Window Sill		Wood	White	Intact		0.0
Bedroom 2	Baseboard		Wood	White	Intact		0.0
Bedroom 3	Wall	3	Drywall	White	Intact		-0.1
Bedroom 3	Wall	1	Drywall	White	Intact		-0.2

XRF Results

Community

Project ID

Building ID

Site C

LANTDIV

119A

Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
Bedroom 3	Wall	2	Drywall	White	Intact		-0.2
Bedroom 3	Ceiling		Drywall	White	Intact		-0.2
Bedroom 3	Wall	4	Drywall	White	Intact		0.0
Bedroom 3	CURTAIN SASH		Metal	White	Intact		-0.1
Bedroom 3	CLOSET DOOR		Wood	White	Intact		-0.1
Bedroom 3	Door Trim		Wood	White	Intact		0.0
Bedroom 3	CLOSET DOOR CASING		Wood	White	Intact		0.0
Bedroom 3	Door		Wood	White	Intact		-0.2
Bedroom 3	CLOSET DOOR TRIM		Wood	White	Intact		0.0
Bedroom 3	Window Trim		Wood	White	Intact		0.0
Bedroom 3	Baseboard		Wood	White	Intact		0.0
Bedroom 3	Door Casing/Jamb		Wood	White	Intact		0.2
Bedroom 3	Window Casing		Wood	White	Intact		-0.1
Bedroom 3	CLOSET SHELF		Wood	White	Intact		-0.1
Bedroom 3	Window Sill		Wood	White	Intact		-0.3
Bedroom 3	CLOSET SHELF SUPPORT		Wood	White	Intact		0.0
Bedroom 4	Wall	4	Drywall	White	Intact		0.0
Bedroom 4	Wall	3	Drywall	White	Intact		0.0
Bedroom 4	Ceiling		Drywall	White	Intact		-0.1
Bedroom 4	Wall	1	Drywall	White	Intact		0.0
Bedroom 4	Wall	2	Drywall	White	Intact		-0.1
Bedroom 4	Door Casing/Jamb		Wood	White	Intact		-0.1
Bedroom 4	CLOSET DOOR CASING		Wood	White	Intact		0.0
Bedroom 4	CLOSET DOOR TRIM		Wood	White	Intact		0.0
Bedroom 4	CLOSET SHELF		Wood	White	Intact		-0.2
Bedroom 4	CLOSET SHELF SUPPORT		Wood	White	Intact		-0.2
Bedroom 4	Window Trim		Wood	White	Intact		-0.1
Bedroom 4	Baseboard		Wood	White	Intact		0.0
Bedroom 4	Window Sill		Wood	White	Intact		-0.1
Bedroom 4	CLOSET DOOR		Wood	White	Intact		-0.1
Bedroom 4	Door Trim		Wood	White	Intact		0.0
Bedroom 4	Door		Wood	White	Intact		0.0
Bedroom 4	Window Casing		Wood	White	Intact		0.0
CARPORT	Ceiling		Wood	White	Intact		0.1

XRF Results

Community

Project ID

Building ID

Site C

LANTDIV

119A

Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
CARPORT	Column(s)		Wood	White	Intact		0.0
CARPORT	Column(s)		Wood	White	Intact		-0.1
Closet 1	Wall	4	Drywall	White	Intact		-0.1
Closet 1	Wall	1	Drywall	White	Intact		0.0
Closet 1	Wall	3	Drywall	White	Intact		-0.1
Closet 1	Wall	2	Drywall	White	Intact		-0.1
Closet 1	Ceiling		Drywall	White	Intact		0.0
Closet 1	Door		Wood	White	Intact		-0.2
Closet 1	Door Trim		Wood	White	Intact		0.0
Closet 1	Door Casing/Jamb		Wood	White	Intact		0.0
Closet 1	Shelf Support		Wood	White	Intact		-0.1
Closet 1	Shelf		Wood	White	Intact		-0.1
Closet 1	Baseboard		Wood	White	Intact		-0.1
Closet 1	Shelf Support		Wood	White	Intact		0.0
Closet 1	Shelf		Wood	White	Intact		0.0
Closet 2	Wall	2	Drywall	White	Intact		-0.1
Closet 2	Wall	1	Drywall	White	Intact		0.0
Closet 2	Wall	4	Drywall	White	Intact		-0.1
Closet 2	Ceiling		Drywall	White	Intact		0.0
Closet 2	Wall	3	Drywall	White	Intact		-0.1
Closet 2	Baseboard		Wood	White	Intact		-0.1
Closet 2	Door		Wood	White	Intact		0.0
Closet 2	Shelf		Wood	White	Intact		-0.1
Closet 2	Shelf Support		Wood	White	Intact		0.0
Closet 2	Door Casing/Jamb		Wood	White	Intact		0.0
Closet 2	Door Trim		Wood	White	Intact		0.0
Closet 3	Wall	1	Drywall	White	Intact		0.0
Closet 3	Wall	3	Drywall	White	Intact		0.0
Closet 3	Wall	4	Drywall	White	Intact		0.0
Closet 3	Wall	2	Drywall	White	Intact		0.0
Closet 3	Ceiling		Drywall	White	Intact		-0.1
Closet 3	Shelf		Wood	White	Intact		-0.1
Closet 3	Baseboard		Wood	White	Intact		0.0
Closet 3	Door Casing/Jamb		Wood	White	Intact		-0.2

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Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
Closet 3	Shelf Support		Wood	White	Intact		0.2
Closet 3	Door Trim		Wood	White	Intact		0.0
Closet 3	Door		Wood	White	Intact		0.0
Closet 4	Wall	4	Drywall	White	Intact		-0.1
Closet 4	Wall	3	Drywall	White	Intact		-0.2
Closet 4	Wall	2	Drywall	White	Intact		0.0
Closet 4	Wall	1	Drywall	White	Intact		-0.2
Closet 4	Ceiling		Drywall	White	Intact		-0.2
Closet 4	Door Trim		Wood	White	Intact		0.3
Closet 4	Shelf Support		Wood	White	Intact		0.0
Closet 4	Door Casing/Jamb		Wood	White	Intact		-0.1
Closet 4	Door		Wood	White	Intact		-0.1
Closet 4	Shelf		Wood	White	Intact		0.0
Closet 4	Baseboard		Wood	White	Intact		-0.1
DINING 1	Wall	4	Drywall	White	Intact		-0.1
DINING 1	Ceiling		Drywall	White	Intact		-0.1
DINING 1	Wall	1	Drywall	White	Intact		-0.1
DINING 1	Wall	2	Drywall	White	Intact		-0.2
DINING 1	Shelf		Wood	White	Intact		-0.2
DINING 1	CLOSET DOOR		Wood	White	Intact		-0.2
DINING 1	CLOSET DOOR CASING		Wood	White	Intact		0.0
DINING 1	Baseboard		Wood	White	Intact		-0.1
DINING 1	Shelf Support		Wood	White	Intact		-0.3
ENTRY 1	Screen Door		Metal	White	Intact		-0.2
ENTRY 1	Window Casing		Wood	White	Intact		0.0
ENTRY 1	Handrail		Wood	White	Intact		-0.1
ENTRY 1	Handrail		Wood	White	Intact		-0.1
ENTRY 1	Column(s)		Wood	White	Intact		0.0
ENTRY 1	Column(s)		Wood	White	Intact		-0.1
ENTRY 1	Window Trim		Wood	White	Intact		-0.1
ENTRY 2	Screen Door		Metal	White	Intact		-0.2
ENTRY 2	Window Sill		Wood	White	Intact		0.0
ENTRY 2	Window Casing		Wood	White	Intact		-0.1
ENTRY 2	Window Trim		Wood	White	Intact		0.0

XRF Results

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Site C

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119A

Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm ²)
ENTRY 2	Column(s)		Wood	White	Intact		0.2
ENTRY 2	Exterior Trim		Wood	White	Intact		0.0
EXTERIOR	Gutters and Downspouts		Metal	White	Intact		0.2
EXTERIOR	Gutters and Downspouts		Metal	White	Intact		0.2
Hall 1	Ceiling		Drywall	White	Intact		-0.1
Hall 1	Wall	4	Drywall	White	Intact		-0.2
Hall 1	Wall	3	Drywall	White	Intact		-0.1
Hall 1	Wall	2	Drywall	White	Intact		0.0
Hall 1	Wall	1	Drywall	White	Intact		-0.1
Hall 1	Door		Metal	BROWN	Intact		0.0
Hall 1	Window Casing		Wood	White	Intact		0.0
Hall 1	Baseboard		Wood	White	Intact		0.0
Hall 1	Window Trim		Wood	White	Intact		0.0
Hall 1	Door Casing/Jamb		Wood	White	Intact		0.2
Hall 1	Door Trim		Wood	White	Intact		-0.1
Hall 2	Wall	2	Drywall	White	Intact		0.0
Hall 2	Wall	3	Drywall	White	Intact		-0.1
Hall 2	Wall	4	Drywall	White	Intact		0.0
Hall 2	Wall	1	Drywall	White	Intact		-0.1
Hall 2	Ceiling		Drywall	White	Intact		-0.2
Hall 2	ATTIC DOOR TRIM		Wood	White	Intact		0.0
Hall 2	ATTIC DOOR		Wood	White	Intact		-0.2
Hall 2	Baseboard		Wood	White	Intact		-0.2
Kitchen	Wall	2	Drywall	White	Intact		-0.2
Kitchen	Wall	4	Drywall	White	Intact		-0.3
Kitchen	Wall	3	Drywall	White	Intact		-0.1
Kitchen	Wall	1	Drywall	White	Intact		-0.1
Kitchen	Ceiling		Drywall	White	Intact		0.0
Kitchen	Window Casing		Wood	White	Intact		0.0
Kitchen	Window Trim		Wood	White	Intact		0.0
Kitchen	Window Sill		Wood	White	Intact		-0.1
Kitchen	Baseboard		Wood	White	Intact		-0.1
Living Room	Ceiling		Drywall	White	Intact		-0.1
Living Room	Wall	4	Drywall	White	Intact		0.0

XRF Results

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119A

Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
Living Room	Wall	3	Drywall	White	Intact		-0.1
Living Room	Wall	2	Drywall	White	Intact		0.0
Living Room	Wall	1	Drywall	White	Intact		-0.2
Living Room	Door		Metal	White	Intact		-0.1
Living Room	Window Sill		Wood	White	Intact		0.0
Living Room	Window Casing		Wood	White	Intact		-0.1
Living Room	Window Trim		Wood	White	Intact		-0.1
Living Room	Baseboard		Wood	White	Intact		0.1
Living Room	Door Trim		Wood	White	Intact		0.0
Living Room	CURTAIN SASH		Wood	White	Intact		0.1
Living Room	Door Casing/Jamb		Wood	White	Intact		-0.1
Stairway	Wall	4	Drywall	White	Intact		0.0
Stairway	Wall	1	Drywall	White	Intact		0.0
Stairway	Wall	2	Drywall	White	Intact		-0.1
Stairway	Wall	3	Drywall	White	Intact		-0.1
Stairway	Ceiling		Drywall	White	Intact		-0.2
Stairway	Stair Stringer		Wood	White	Intact		-0.1
Stairway	BALUSTER MOUNT		Wood	White	Intact		0.0
Stairway	BALUSTER		Wood	White	Intact		0.0
Stairway	Handrail		Wood	White	Intact		0.0
Stairway	Baseboard		Wood	White	Intact		0.1
STORAGE 1	Ceiling		Drywall	White	Intact		0.0
STORAGE 1	Door		Drywall	White	Intact		0.2
STORAGE 1	Wall	4	Drywall	White	Intact		0.0
STORAGE 1	Shelf		Wood	White	Intact		0.0
STORAGE 1	Shelf Support		Wood	White	Intact		0.2
STORAGE 1	Wall	3	Wood	White	Intact		-0.1
STORAGE 1	Door Trim		Wood	White	Intact		0.0
STORAGE 1	Wall	1	Wood	White	Intact		0.0
STORAGE 1	Wall	2	Wood	White	Intact		0.1
STORAGE 1	Door Casing/Jamb		Wood	White	Intact		0.0
STORAGE 2	Door Trim		Metal	BROWN	Intact		-0.1
STORAGE 2	Door Casing/Jamb		Metal	BROWN	Intact		0.2
STORAGE 2	Door		Metal	BROWN	Intact		0.0

XRF Results

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Site C

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Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm ²)
Utility Closet	Wall	4	Drywall	White	Intact		0.0
Utility Closet	Ceiling		Drywall	White	Intact		-0.3
Utility Closet	Wall	3	Drywall	White	Intact		-0.2
Utility Closet	Wall	1	Drywall	White	Intact		-0.1
Utility Closet	Wall	2	Drywall	White	Intact		-0.1
Utility Closet	Door Trim		Wood	White	Intact		0.0
Utility Closet	Door		Wood	White	Intact		-0.1
Utility Closet	Shelf Support		Wood	White	Intact		0.0
Utility Closet	Shelf		Wood	White	Intact		0.0
Utility Closet	Door Casing/Jamb		Wood	White	Intact		-0.1

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Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm ²)
Bathroom 1	Wall	3	Drywall	White	Intact		-0.2
Bathroom 1	Wall	4	Drywall	White	Intact		-0.1
Bathroom 1	Wall	1	Drywall	White	Intact		-0.1
Bathroom 1	Wall	2	Drywall	White	Intact		0.0
Bathroom 1	Ceiling		Drywall	White	Intact		-0.3
Bathroom 1	Door		Wood	White	Intact		0.0
Bathroom 1	Baseboard		Wood	White	Intact		-0.1
Bathroom 1	Door Casing/Jamb		Wood	White	Intact		-0.1
Bathroom 1	ACCESS DOOR TRIM		Wood	White	Intact		-0.1
Bathroom 1	ACCESS DOOR		Wood	White	Intact		0.0
Bathroom 1	Door Trim		Wood	White	Intact		-0.1
Bathroom 2	Wall	3	Drywall	White	Intact		0.1
Bathroom 2	Ceiling		Drywall	White	Intact		-0.2
Bathroom 2	Wall	1	Drywall	White	Intact		-0.1
Bathroom 2	Wall	4	Drywall	White	Intact		-0.1
Bathroom 2	Wall	2	Drywall	White	Intact		-0.1
Bathroom 2	Baseboard		Wood	White	Intact		0.0
Bathroom 2	Door Trim		Wood	White	Intact		-0.2
Bathroom 2	Door		Wood	White	Intact		0.0
Bathroom 2	Door Casing/Jamb		Wood	White	Intact		-0.1
Bathroom 3	Wall	3	Drywall	White	Intact		0.0
Bathroom 3	Wall	2	Drywall	White	Intact		-0.1
Bathroom 3	Wall	4	Drywall	White	Intact		-0.1
Bathroom 3	Wall	1	Drywall	White	Intact		-0.1
Bathroom 3	Ceiling		Drywall	White	Intact		-0.1
Bathroom 3	Window Trim		Wood	White	Intact		0.0
Bathroom 3	Door		Wood	White	Intact		0.0
Bathroom 3	Window Sill		Wood	White	Intact		0.0
Bathroom 3	Door Trim		Wood	White	Intact		-0.1
Bathroom 3	Door Casing/Jamb		Wood	White	Intact		0.0
Bathroom 3	Window Casing		Wood	White	Intact		-0.1
Bedroom 1	Wall	4	Drywall	White	Intact		-0.1
Bedroom 1	Wall	2	Drywall	White	Intact		-0.1
Bedroom 1	Wall	3	Drywall	White	Intact		0.0

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Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm ²)
Bedroom 1	Wall	1	Drywall	White	Intact		-0.1
Bedroom 1	Ceiling		Drywall	White	Intact		-0.1
Bedroom 1	Door Trim		Wood	White	Intact		-0.1
Bedroom 1	Baseboard		Wood	White	Intact		-0.1
Bedroom 1	CLOSET DOOR TRIM		Wood	White	Intact		-0.1
Bedroom 1	Door Casing/Jamb		Wood	White	Intact		0.0
Bedroom 1	CLOSET DOOR		Wood	White	Intact		-0.1
Bedroom 1	Window Trim		Wood	White	Intact		-0.1
Bedroom 1	Window Casing		Wood	White	Intact		0.1
Bedroom 1	CLOSET SHELF SUPPORT		Wood	White	Intact		0.0
Bedroom 1	CLOSET DOOR CASING		Wood	White	Intact		0.0
Bedroom 1	Window Sill		Wood	White	Intact		0.0
Bedroom 1	Door		Wood	White	Intact		0.0
Bedroom 1	CLOSET SHELF		Wood	White	Intact		0.0
Bedroom 2	Wall	4	Drywall	White	Intact		-0.1
Bedroom 2	Wall	3	Drywall	White	Intact		-0.1
Bedroom 2	Wall	2	Drywall	White	Intact		-0.2
Bedroom 2	Wall	1	Drywall	White	Intact		-0.3
Bedroom 2	Ceiling		Drywall	White	Intact		0.0
Bedroom 2	CURTAIN SASH		Metal	White	Intact		-0.1
Bedroom 2	CLOSET SHELF		Wood	White	Intact		-0.1
Bedroom 2	Door Casing/Jamb		Wood	White	Intact		0.0
Bedroom 2	Door Trim		Wood	White	Intact		-0.2
Bedroom 2	Door		Wood	White	Intact		0.1
Bedroom 2	Baseboard		Wood	White	Intact		-0.1
Bedroom 2	CLOSET DOOR TRIM		Wood	White	Intact		0.0
Bedroom 2	CLOSET SHELF SUPPORT		Wood	White	Intact		0.1
Bedroom 2	Window Casing		Wood	White	Intact		-0.1
Bedroom 2	CLOSET DOOR		Wood	White	Intact		-0.1
Bedroom 2	Window Sill		Wood	White	Intact		0.0
Bedroom 2	CLOSET DOOR CASING		Wood	White	Intact		0.1
Bedroom 2	Window Trim		Wood	White	Intact		-0.1
Bedroom 3	Wall	2	Drywall	White	Intact		-0.1
Bedroom 3	Ceiling		Drywall	White	Intact		0.0

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Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm ²)
Bedroom 3	Wall	3	Drywall	White	Intact		-0.2
Bedroom 3	Wall	1	Drywall	White	Intact		-0.1
Bedroom 3	Wall	4	Drywall	White	Intact		-0.1
Bedroom 3	CURTAIN SASH		Metal	White	Intact		-0.1
Bedroom 3	CLOSET DOOR		Wood	White	Intact		0.0
Bedroom 3	Door		Wood	White	Intact		-0.2
Bedroom 3	CLOSET SHELF SUPPORT		Wood	White	Intact		0.0
Bedroom 3	Window Trim		Wood	White	Intact		0.3
Bedroom 3	CLOSET DOOR TRIM		Wood	White	Intact		-0.1
Bedroom 3	CLOSET SHELF		Wood	White	Intact		-0.1
Bedroom 3	Door Casing/Jamb		Wood	White	Intact		-0.1
Bedroom 3	Baseboard		Wood	White	Intact		0.1
Bedroom 3	Door Trim		Wood	White	Intact		-0.1
Bedroom 3	Window Casing		Wood	White	Intact		-0.1
Bedroom 3	CLOSET DOOR CASING		Wood	White	Intact		-0.1
Bedroom 3	Window Sill		Wood	White	Intact		-0.1
CARPORT	Ceiling		Wood	White	Intact		
CARPORT	Column(s)		Wood	White	Intact		
CARPORT	Column(s)		Wood	White	Intact		
Closet 1	Wall	3	Drywall	White	Intact		-0.1
Closet 1	Wall	4	Drywall	White	Intact		-0.2
Closet 1	Wall	2	Drywall	White	Intact		-0.1
Closet 1	Ceiling		Drywall	White	Intact		0.0
Closet 1	Wall	1	Drywall	White	Intact		-0.1
Closet 1	Shelf		Wood	White	Intact		-0.2
Closet 1	Door		Wood	White	Intact		-0.2
Closet 1	Baseboard		Wood	White	Intact		-0.1
Closet 1	Shelf Support		Wood	White	Intact		-0.2
Closet 1	Shelf Support		Wood	White	Intact		-0.1
Closet 1	Door Trim		Wood	White	Intact		0.0
Closet 1	Door Casing/Jamb		Wood	White	Intact		-0.2
Closet 1	Shelf		Wood	White	Intact		-0.1
Closet 2	Wall	4	Drywall	White	Intact		0.0
Closet 2	Wall	3	Drywall	White	Intact		-0.2

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Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
Closet 2	Ceiling		Drywall	White	Intact		-0.1
Closet 2	Wall	2	Drywall	White	Intact		-0.1
Closet 2	Wall	1	Drywall	White	Intact		-0.1
Closet 2	Baseboard		Wood	White	Intact		-0.2
Closet 2	Door Casing/Jamb		Wood	White	Intact		0.1
Closet 2	Shelf		Wood	White	Intact		-0.1
Closet 2	Shelf Support		Wood	White	Intact		0.0
Closet 2	Door		Wood	White	Intact		0.0
Closet 2	Door Trim		Wood	White	Intact		-0.1
DINING 1	Wall	2	Drywall	White	Intact		-0.5
DINING 1	Wall	1	Drywall	White	Intact		-0.1
DINING 1	Wall	4	Drywall	White	Intact		0.0
DINING 1	Ceiling		Drywall	White	Intact		-0.2
DINING 1	CLOSET DOOR		Wood	White	Intact		-0.2
DINING 1	CLOSET DOOR CASING		Wood	White	Intact		-0.1
DINING 1	Shelf Support		Wood	White	Intact		-0.1
DINING 1	Baseboard		Wood	White	Intact		-0.1
DINING 1	Shelf		Wood	White	Intact		0.0
ENTRY 1	Screen Door		Metal	White	Intact		0.0
ENTRY 1	Column(s)		Wood	White	Intact		-0.1
ENTRY 1	Window Trim		Wood	White	Intact		-0.1
ENTRY 1	Window Casing		Wood	White	Intact		0.0
ENTRY 1	Handrail		Wood	White	Intact		0.0
ENTRY 1	Handrail		Wood	White	Intact		0.0
ENTRY 1	Column(s)		Wood	White	Intact		0.0
ENTRY 2	Screen Door		Metal	White	Intact		-0.1
ENTRY 2	Column(s)		Wood	White	Intact		-0.1
ENTRY 2	Window Casing		Wood	White	Intact		0.2
ENTRY 2	Window Trim		Wood	White	Intact		0.0
ENTRY 2	Exterior Trim		Wood	White	Intact		0.0
ENTRY 2	Window Sill		Wood	White	Intact		-0.1
EXTERIOR	Gutters and Downspouts		Metal	White	Intact		-0.1
EXTERIOR	Gutters and Downspouts		Metal	White	Intact		0.0
Hall 1	Wall	3	Drywall	White	Intact		-0.1

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Site C

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Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
Hall 1	Wall	4	Drywall	White	Intact		0.0
Hall 1	Ceiling		Drywall	White	Intact		-0.4
Hall 1	Wall	1	Drywall	White	Intact		-0.1
Hall 1	Wall	2	Drywall	White	Intact		-0.3
Hall 1	Door		Metal	BROWN	Intact		0.0
Hall 1	Door Casing/Jamb		Wood	White	Intact		-0.1
Hall 1	Baseboard		Wood	White	Intact		-0.2
Hall 1	Window Trim		Wood	White	Intact		-0.1
Hall 1	Door Trim		Wood	White	Intact		-0.1
Hall 1	Window Casing		Wood	White	Intact		0.0
Hall 2	Wall	2	Drywall	White	Intact		-0.2
Hall 2	Wall	3	Drywall	White	Intact		-0.2
Hall 2	Wall	4	Drywall	White	Intact		-0.1
Hall 2	Wall	1	Drywall	White	Intact		-0.1
Hall 2	Ceiling		Drywall	White	Intact		0.0
Hall 2	Baseboard		Wood	White	Intact		0.0
Hall 2	ATTIC DOOR		Wood	White	Intact		-0.1
Hall 2	ATTIC DOOR TRIM		Wood	White	Intact		-0.1
Kitchen	Wall	2	Drywall	White	Intact		0.0
Kitchen	Wall	1	Drywall	White	Intact		0.0
Kitchen	Ceiling		Drywall	White	Intact		-0.1
Kitchen	Wall	4	Drywall	White	Intact		0.0
Kitchen	Wall	3	Drywall	White	Intact		-0.2
Kitchen	Baseboard		Wood	White	Intact		-0.1
Kitchen	Window Sill		Wood	White	Intact		-0.1
Kitchen	Window Casing		Wood	White	Intact		-0.2
Kitchen	Window Trim		Wood	White	Intact		0.0
Living Room	Ceiling		Drywall	White	Intact		-0.1
Living Room	Wall	2	Drywall	White	Intact		0.0
Living Room	Wall	1	Drywall	White	Intact		0.0
Living Room	Wall	3	Drywall	White	Intact		-0.1
Living Room	Wall	4	Drywall	White	Intact		-0.1
Living Room	Door		Metal	White	Intact		-0.3
Living Room	Window Trim		Wood	White	Intact		-0.1

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Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
Living Room	Door Trim		Wood	White	Intact		0.1
Living Room	CURTAIN SASH		Wood	White	Intact		0.0
Living Room	Window Sill		Wood	White	Intact		-0.1
Living Room	Window Casing		Wood	White	Intact		0.0
Living Room	Baseboard		Wood	White	Intact		0.1
Living Room	Door Casing/Jamb		Wood	White	Intact		-0.1
Stairway	Wall	3	Drywall	White	Intact		-0.1
Stairway	Wall	2	Drywall	White	Intact		-0.1
Stairway	Wall	1	Drywall	White	Intact		-0.1
Stairway	Ceiling		Drywall	White	Intact		-0.1
Stairway	Wall	4	Drywall	White	Intact		0.0
Stairway	BALUSTER MOUNT		Wood	White	Intact		-0.1
Stairway	Baseboard		Wood	White	Intact		0.0
Stairway	BALUSTER		Wood	White	Intact		0.0
Stairway	Stair Stringer		Wood	White	Intact		-0.2
Stairway	Handrail		Wood	White	Intact		-0.1
STORAGE 1	Wall	4	Drywall	White	Intact		-0.1
STORAGE 1	Ceiling		Drywall	White	Intact		-0.1
STORAGE 1	Door		Drywall	White	Intact		0.3
STORAGE 1	Shelf Support		Wood	White	Intact		-0.1
STORAGE 1	Shelf		Wood	White	Intact		0.2
STORAGE 1	Wall	2	Wood	White	Intact		0.1
STORAGE 1	Wall	1	Wood	White	Intact		-0.1
STORAGE 1	Door Trim		Wood	White	Intact		-0.1
STORAGE 1	Wall	3	Wood	White	Intact		0.0
STORAGE 1	Door Casing/Jamb		Wood	White	Intact		0.0
STORAGE 2	Door Casing/Jamb		Metal	BROWN	Intact		0.0
STORAGE 2	Door Trim		Metal	BROWN	Intact		-0.1
STORAGE 2	Door		Metal	BROWN	Intact		-0.4
Utility Closet	Wall	1	Drywall	White	Intact		0.0
Utility Closet	Wall	4	Drywall	White	Intact		0.0
Utility Closet	Wall	3	Drywall	White	Intact		-0.1
Utility Closet	Wall	2	Drywall	White	Intact		-0.1
Utility Closet	Ceiling		Drywall	White	Intact		-0.1

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Site C

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Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
Utility Closet	Door Trim		Wood	White	Intact		0.0
Utility Closet	Door Casing/Jamb		Wood	White	Intact		-0.2
Utility Closet	Door		Wood	White	Intact		-0.2
Utility Closet	Shelf		Wood	White	Intact		-0.1
Utility Closet	Shelf Support		Wood	White	Intact		-0.1

Site D
XRF Results

XRF Results

Community

Project ID

Building ID

Site D

LANTDIV

121B

Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
Bathroom 1	Wall	1	Drywall	White	Intact		-0.1
Bathroom 1	Wall	2	Drywall	White	Intact		-0.2
Bathroom 1	Wall	3	Drywall	White	Intact		-0.1
Bathroom 1	Wall	4	Drywall	White	Intact		-0.2
Bathroom 1	Ceiling		Drywall	White	Intact		-0.2
Bathroom 1	Door Casing/Jamb		Wood	White	Intact		0.0
Bathroom 1	Baseboard		Wood	White	Intact		0.0
Bathroom 1	Door Trim		Wood	White	Intact		0.1
Bathroom 2	Wall	4	Drywall	White	Intact		-0.3
Bathroom 2	Wall	3	Drywall	White	Intact		-0.1
Bathroom 2	Wall	2	Drywall	White	Intact		0.0
Bathroom 2	Wall	1	Drywall	White	Intact		-0.2
Bathroom 2	Ceiling		Drywall	White	Intact		0.0
Bathroom 2	Door Trim		Wood	White	Intact		0.0
Bathroom 2	Door Casing/Jamb		Wood	White	Intact		-0.1
Bathroom 2	Baseboard		Wood	White	Intact		-0.2
Bathroom 3	Wall	1	Drywall	White	Intact		-0.1
Bathroom 3	Wall	2	Drywall	White	Intact		-0.1
Bathroom 3	Wall	3	Drywall	White	Intact		0.0
Bathroom 3	Wall	4	Drywall	White	Intact		0.0
Bathroom 3	Ceiling		Drywall	White	Intact		0.0
Bathroom 3	Baseboard		Wood	White	Intact		0.1
Bathroom 3	Door Casing/Jamb		Wood	White	Intact		-0.1
Bathroom 3	Door Trim		Wood	White	Intact		0.1
Bedroom 1	Wall	4	Drywall	White	Intact		-0.1
Bedroom 1	Wall	1	Drywall	White	Intact		-0.1
Bedroom 1	Wall	3	Drywall	White	Intact		0.0
Bedroom 1	Ceiling		Drywall	White	Intact		-0.1
Bedroom 1	Wall	2	Drywall	White	Intact		0.0
Bedroom 1	CLOSET SHELF SUPPORT		Wood	White	Intact		0.0
Bedroom 1	CLOSET SHELF		Wood	White	Intact		0.0
Bedroom 1	CLOSET DOOR TRIM		Wood	White	Intact		-0.1
Bedroom 1	Window Casing		Wood	White	Intact		-0.1
Bedroom 1	Window Trim		Wood	White	Intact		0.0

XRF Results

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Site D

LANTDIV

121B

Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
Bedroom 1	Door Trim		Wood	White	Intact		-0.1
Bedroom 1	Door Casing/Jamb		Wood	White	Intact		-0.1
Bedroom 1	CLOSET DOOR CASING		Wood	White	Intact		-0.2
Bedroom 1	Baseboard		Wood	White	Intact		-0.2
Bedroom 1	Window Sill		Wood	White	Intact		-0.1
Bedroom 2	Wall	1	Drywall	White	Intact		-0.1
Bedroom 2	Wall		Drywall	White	Intact		-0.1
Bedroom 2	Ceiling		Drywall	White	Intact		-0.1
Bedroom 2	Wall	3	Drywall	White	Intact		0.0
Bedroom 2	Wall	2	Drywall	White	Intact		-0.1
Bedroom 2	CLOSET DOOR CASING		Wood	White	Intact		-0.2
Bedroom 2	Window Trim		Wood	White	Intact		0.0
Bedroom 2	Baseboard		Wood	White	Intact		0.0
Bedroom 2	CLOSET DOOR TRIM		Wood	White	Intact		-0.1
Bedroom 2	CLOSET SHELF		Wood	White	Intact		0.0
Bedroom 2	Window Sill		Wood	White	Intact		-0.3
Bedroom 2	CLOSET SHELF SUPPORT		Wood	White	Intact		-0.1
Bedroom 2	Door Casing/Jamb		Wood	White	Intact		-0.2
Bedroom 2	Window Casing		Wood	White	Intact		-0.1
Bedroom 2	Door Trim		Wood	White	Intact		0.0
Bedroom 3	Wall	4	Drywall	White	Intact		-0.2
Bedroom 3	Ceiling		Drywall	White	Intact		-0.2
Bedroom 3	Wall	1	Drywall	White	Intact		0.0
Bedroom 3	Wall	2	Drywall	White	Intact		-0.1
Bedroom 3	Wall	3	Drywall	White	Intact		-0.1
Bedroom 3	CLOSET DOOR TRIM		Wood	White	Intact		-0.1
Bedroom 3	Door Trim		Wood	White	Intact		-0.1
Bedroom 3	Window Sill		Wood	White	Intact		0.0
Bedroom 3	CLOSET SHELF		Wood	White	Intact		-0.1
Bedroom 3	Window Casing		Wood	White	Intact		-0.1
Bedroom 3	Window Trim		Wood	White	Intact		-0.1
Bedroom 3	Door Casing/Jamb		Wood	White	Intact		-0.2
Bedroom 3	CLOSET SHELF SUPPORT		Wood	White	Intact		-0.1
Bedroom 3	CLOSET DOOR CASING		Wood	White	Intact		0.0

XRF Results

Community

Project ID

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Site D

LANTDIV

121B

Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
Bedroom 3	Baseboard		Wood	White	Intact		-0.2
Bedroom 4	Ceiling		Drywall	White	Intact		0.0
Bedroom 4	Wall	4	Drywall	White	Intact		-0.4
Bedroom 4	Wall	3	Drywall	White	Intact		0.0
Bedroom 4	Wall	2	Drywall	White	Intact		-0.2
Bedroom 4	Wall	1	Drywall	White	Intact		0.0
Bedroom 4	CLOSET DOOR TRIM		Wood	White	Intact		0.0
Bedroom 4	Window Casing		Wood	White	Intact		0.0
Bedroom 4	Window Sill		Wood	White	Intact		0.0
Bedroom 4	Baseboard		Wood	White	Intact		0.1
Bedroom 4	CLOSET SHELF		Wood	White	Intact		0.0
Bedroom 4	CLOSET DOOR CASING		Wood	White	Intact		-0.1
Bedroom 4	Door Trim		Wood	White	Intact		-0.1
Bedroom 4	Door Casing/Jamb		Wood	White	Intact		-0.2
Bedroom 4	Window Trim		Wood	White	Intact		0.1
Bedroom 4	CLOSET SHELF SUPPORT		Wood	White	Intact		
Closet 1	Wall	4	Drywall	White	Intact		0.0
Closet 1	Wall	2	Drywall	White	Intact		-0.1
Closet 1	Wall	1	Drywall	White	Intact		-0.1
Closet 1	Ceiling		Drywall	White	Intact		-0.1
Closet 1	Wall	3	Drywall	White	Intact		0.0
Closet 1	Shelf		Wood	White	Intact		-0.1
Closet 1	Shelf Support		Wood	White	Intact		-0.1
Closet 1	Door Trim		Wood	White	Intact		0.2
Closet 1	Door Casing/Jamb		Wood	White	Intact		-0.1
Closet 2	Wall	1	Drywall	White	Intact		0.0
Closet 2	Wall	2	Drywall	White	Intact		-0.1
Closet 2	Wall	4	Drywall	White	Intact		-0.1
Closet 2	Ceiling		Drywall	White	Intact		-0.1
Closet 2	Wall	3	Drywall	White	Intact		-0.1
Closet 2	Shelf		Wood	White	Intact		-0.1
Closet 2	Door Trim		Wood	White	Intact		-0.1
Closet 2	Shelf Support		Wood	White	Intact		-0.1
Closet 2	Door Casing/Jamb		Wood	White	Intact		-0.1

XRF Results

Community

Project ID

Building ID

Site D

LANTDIV

121B

Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm ²)
Closet 3	Ceiling		Drywall	White	Intact		-0.1
Closet 3	Wall	4	Drywall	White	Intact		-0.1
Closet 3	Wall	1	Drywall	White	Intact		-0.1
Closet 3	Wall	2	Drywall	White	Intact		0.0
Closet 3	Wall	3	Drywall	White	Intact		-0.1
Closet 3	Door Casing/Jamb		Wood	White	Intact		-0.1
Closet 3	Door Trim		Wood	White	Intact		-0.1
Closet 3	Baseboard		Wood	White	Intact		-0.1
Closet 3	Shelf		Wood	White	Intact		0.0
Closet 3	Shelf Support		Wood	White	Intact		0.0
Closet 4	Ceiling		Drywall	White	Intact		-0.1
Closet 4	Wall	2	Drywall	White	Intact		0.0
Closet 4	Wall	1	Drywall	White	Intact		-0.1
Closet 4	Wall	3	Drywall	White	Intact		-0.1
Closet 4	Wall	4	Drywall	White	Intact		0.0
Closet 4	Door Casing/Jamb		Wood	White	Intact		-0.5
Closet 4	Shelf		Wood	White	Intact		-0.1
Closet 4	Door Trim		Wood	White	Intact		-0.1
Closet 4	Shelf Support		Wood	White	Intact		0.1
DINING 1	Wall	2	Drywall	White	Intact		0.0
DINING 1	Wall	1	Drywall	White	Intact		0.0
DINING 1	Wall	4	Drywall	White	Intact		0.0
DINING 1	Ceiling		Drywall	White	Intact		0.1
DINING 1	Wall	3	Drywall	White	Intact		0.0
DINING 1	Window Casing		Wood	White	Intact		0.1
DINING 1	Baseboard		Wood	White	Intact		0.0
DINING 1	Window Trim		Wood	White	Intact		-0.1
DINING 1	Window Sill		Wood	White	Intact		-0.1
ENTRY 1	Screen Door		Metal	White	Intact		-0.1
ENTRY 1	Column(s)		Wood	BROWN	Intact		-0.1
ENTRY 2	Screen Door		Metal	White	Intact		-0.2
ENTRY 2	Column(s)		Wood	BROWN	Intact		-0.1
EXTERIOR	Gutters and Downspouts		Metal	BROWN	Intact		-0.1
EXTERIOR	Gutters and Downspouts		Metal	BROWN	Intact		-0.1

XRF Results

Community

Project ID

Building ID

Site D

LANTDIV

121B

Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
EXTERIOR	Gutters and Downspouts		Metal	BROWN	Intact		0.0
EXTERIOR	Gutters and Downspouts		Metal	BROWN	Intact		-0.1
EXTERIOR	Siding		Wood	TAN	Intact		-0.1
Hall 1	Wall	2	Drywall	White	Intact		-0.1
Hall 1	Wall	3	Drywall	White	Intact		-0.2
Hall 1	Ceiling		Drywall	White	Intact		0.0
Hall 1	Wall	4	Drywall	White	Intact		-0.3
Hall 1	Wall	1	Drywall	White	Intact		0.0
Hall 1	Door		Metal	White	Intact		-0.3
Hall 1	Door Trim		Wood	White	Intact		-0.1
Hall 1	Baseboard		Wood	White	Intact		0.2
Hall 1	Door Casing/Jamb		Wood	White	Intact		0.0
Hall 2	Ceiling		Drywall	White	Intact		0.0
Hall 2	Wall	2	Drywall	White	Intact		0.0
Hall 2	Wall	4	Drywall	White	Intact		-0.1
Hall 2	Wall	3	Drywall	White	Intact		-0.1
Hall 2	Wall	1	Drywall	White	Intact		0.0
Hall 2	Baseboard		Wood	White	Intact		-0.1
Hall 2	ATTIC DOOR TRIM		Wood	White	Intact		0.0
Hall 2	ATTIC DOOR		Wood	White	Intact		-0.2
Kitchen	Ceiling		Drywall	White	Intact		-0.1
Kitchen	Wall	3	Drywall	White	Intact		-0.1
Kitchen	Wall	2	Drywall	White	Intact		-0.1
Kitchen	Wall	1	Drywall	White	Intact		0.0
Kitchen	Wall	4	Drywall	White	Intact		-0.1
Kitchen	Baseboard		Wood	White	Intact		0.0
Living Room	Wall	1	Drywall	White	Intact		0.0
Living Room	Wall	3	Drywall	White	Intact		-0.1
Living Room	Ceiling		Drywall	White	Intact		0.0
Living Room	Wall	2	Drywall	White	Intact		0.0
Living Room	Wall	4	Drywall	White	Intact		-0.1
Living Room	Door		Metal	White	Intact		0.1
Living Room	Baseboard		Wood	White	Intact		-0.1
Living Room	Door Casing/Jamb		Wood	White	Intact		0.2

XRF Results

Community

Project ID

Building ID

Site D

LANTDIV

121B

Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm ²)
Living Room	Door Trim		Wood	White	Intact		-0.1
Stairway	Wall	2	Drywall	White	Intact		-0.1
Stairway	Wall	3	Drywall	White	Intact		-0.1
Stairway	Wall	4	Drywall	White	Intact		0.0
Stairway	Ceiling		Drywall	White	Intact		-0.3
Stairway	Wall	1	Drywall	White	Intact		0.0
Stairway	Baseboard		Wood	White	Intact		-0.1
Stairway	Stair Stringer		Wood	White	Intact		0.0
STORAGE	Wall	1	Drywall	White	Intact		-0.1
STORAGE	Wall	2	Drywall	White	Intact		-0.1
STORAGE	Wall	4	Drywall	White	Intact		0.1
STORAGE	Wall	3	Drywall	White	Intact		0.0
STORAGE	Ceiling		Drywall	White	Intact		-0.1
STORAGE	Door Casing/Jamb		Metal	BROWN	Intact		0.0
STORAGE	Door Trim		Metal	BROWN	Intact		0.0
STORAGE	Door		Metal	BROWN	Intact		-0.3
STORAGE	Shelf		Wood	White	Intact		0.0
STORAGE	Siding		Wood	TAN	Intact		-0.1
STORAGE	Shelf Support		Wood	White	Intact		0.0
Utility Closet	Wall	2	Drywall	White	Intact		-0.1
Utility Closet	Wall	1	Drywall	White	Intact		-0.6
Utility Closet	Wall	4	Drywall	White	Intact		-0.1
Utility Closet	Ceiling		Drywall	White	Intact		-0.2
Utility Closet	Wall	3	Drywall	White	Intact		0.0
Utility Closet	Door Trim		Wood	White	Intact		0.0
Utility Closet	Shelf		Wood	White	Intact		-0.1
Utility Closet	Shelf Support		Wood	White	Intact		-0.2
Utility Closet	Door Casing/Jamb		Wood	White	Intact		-0.1

XRF Results

Community

Project ID

Building ID

Site D

LANTDIV

123A

Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
Bathroom 1	Wall	2	Drywall	White	Intact		0.0
Bathroom 1	Ceiling		Drywall	White	Intact		0.0
Bathroom 1	Wall	1	Drywall	White	Intact		0.0
Bathroom 1	Wall	3	Drywall	White	Intact		0.0
Bathroom 1	Wall	4	Drywall	White	Intact		-0.1
Bathroom 1	Door Trim		Wood	White	Intact		0.0
Bathroom 1	Door Casing/Jamb		Wood	White	Intact		0.0
Bathroom 1	Door Casing/Jamb		Wood	White	Intact		0.0
Bathroom 1	Baseboard		Wood	White	Intact		0.0
Bedroom 1	Wall	4	Drywall	White	Intact		-0.1
Bedroom 1	Wall	3	Drywall	White	Intact		-0.1
Bedroom 1	Wall	2	Drywall	White	Intact		0.0
Bedroom 1	Wall	1	Drywall	White	Intact		-0.2
Bedroom 1	Ceiling		Drywall	White	Intact		-0.1
Bedroom 1	CLOSET DOOR TRIM		Wood	White	Intact		-0.1
Bedroom 1	Baseboard		Wood	White	Intact		0.1
Bedroom 1	Window Sill		Wood	White	Intact		0.0
Bedroom 1	Window Casing		Wood	White	Intact		0.0
Bedroom 1	Door Trim		Wood	White	Intact		-0.1
Bedroom 1	CLOSET SHELF		Wood	White	Intact		-0.4
Bedroom 1	Door Casing/Jamb		Wood	White	Intact		0.0
Bedroom 1	CLOSET SHELF SUPPORT		Wood	White	Intact		-0.1
Bedroom 1	CLOSET DOOR CASING		Wood	White	Intact		-0.1
Bedroom 1	Window Trim		Wood	White	Intact		-0.1
Bedroom 2	Ceiling		Drywall	White	Intact		0.0
Bedroom 2	Wall	3	Drywall	White	Intact		-0.1
Bedroom 2	Wall	2	Drywall	White	Intact		-0.1
Bedroom 2	Wall	1	Drywall	White	Intact		-0.3
Bedroom 2	Wall		Drywall	White	Intact		0.0
Bedroom 2	Door Trim		Wood	White	Intact		0.0
Bedroom 2	Door Casing/Jamb		Wood	White	Intact		-0.1
Bedroom 2	CLOSET SHELF SUPPORT		Wood	White	Intact		-0.1
Bedroom 2	Baseboard		Wood	White	Intact		-0.1
Bedroom 2	CLOSET DOOR TRIM		Wood	White	Intact		0.0

XRF Results

Community

Project ID

Building ID

Site D

LANTDIV

123A

Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm ²)
Bedroom 2	CLOSET DOOR CASING		Wood	White	Intact		0.0
Bedroom 2	CLOSET SHELF		Wood	White	Intact		0.0
Bedroom 2	Window Trim		Wood	White	Intact		0.0
Bedroom 2	Window Sill		Wood	White	Intact		-0.1
Bedroom 2	Window Casing		Wood	White	Intact		0.0
Closet 1	Wall	2	Drywall	White	Intact		0.0
Closet 1	Wall	1	Drywall	White	Intact		0.0
Closet 1	Ceiling		Drywall	White	Intact		0.0
Closet 1	Wall	4	Drywall	White	Intact		-0.1
Closet 1	Wall	3	Drywall	White	Intact		-0.1
Closet 1	Shelf		Wood	White	Intact		0.0
Closet 1	Shelf Support		Wood	White	Intact		0.0
Closet 1	Door Trim		Wood	White	Intact		0.0
Closet 1	Door Casing/Jamb		Wood	White	Intact		-0.1
Closet 2	Wall	2	Drywall	White	Intact		-0.2
Closet 2	Wall	1	Drywall	White	Intact		0.0
Closet 2	Ceiling		Drywall	White	Intact		0.0
Closet 2	Wall	3	Drywall	White	Intact		-0.1
Closet 2	Wall	4	Drywall	White	Intact		0.0
Closet 2	Door Casing/Jamb		Wood	White	Intact		-0.1
Closet 2	Shelf		Wood	White	Intact		0.0
Closet 2	Shelf Support		Wood	White	Intact		0.0
Closet 2	Baseboard		Wood	White	Intact		0.1
Closet 2	Door Trim		Wood	White	Intact		-0.2
Closet 3	Wall	1	Drywall	White	Intact		-0.2
Closet 3	Wall	4	Drywall	White	Intact		-0.1
Closet 3	Wall	3	Drywall	White	Intact		-0.1
Closet 3	Ceiling		Drywall	White	Intact		-0.2
Closet 3	Wall	2	Drywall	White	Intact		0.0
Closet 3	Shelf		Wood	White	Intact		-0.1
Closet 3	ATTIC DOOR TRIM		Wood	White	Intact		0.0
Closet 3	Door Trim		Wood	White	Intact		0.0
Closet 3	Shelf Support		Wood	White	Intact		0.0
Closet 3	Door Casing/Jamb		Wood	White	Intact		-0.1

XRF Results

Community

Project ID

Building ID

Site D

LANTDIV

123A

Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
Closet 3	Baseboard		Wood	White	Intact		0.2
Closet 3	ATTIC DOOR		Wood	White	Intact		-0.1
Closet 4	Wall	3	Drywall	White	Intact		0.0
Closet 4	Wall	2	Drywall	White	Intact		-0.1
Closet 4	Wall	4	Drywall	White	Intact		0.0
Closet 4	Ceiling		Drywall	White	Intact		0.0
Closet 4	Wall	1	Drywall	White	Intact		0.0
Closet 4	Shelf Support		Wood	White	Intact		-0.1
Closet 4	Shelf		Wood	White	Intact		-0.1
Closet 4	Door Trim		Wood	White	Intact		0.0
DINING 1	Ceiling		Drywall	White	Intact		0.0
DINING 1	Wall	4	Drywall	White	Intact		-0.2
DINING 1	Wall	3	Drywall	White	Intact		-0.1
DINING 1	Wall	2	Drywall	White	Intact		0.0
DINING 1	Wall	1	Drywall	White	Intact		-0.2
DINING 1	Window Sill		Wood	White	Intact		-0.2
DINING 1	Window Casing		Wood	White	Intact		-0.1
DINING 1	Window Trim		Wood	White	Intact		0.0
DINING 1	Baseboard		Wood	White	Intact		0.0
ENTRY 1	Screen Door		Metal	White	Intact		-0.3
ENTRY 1	Column(s)		Wood	BROWN	Intact		0.1
ENTRY 1	Handrail		Wood	BROWN	Intact		-0.1
ENTRY 2	Screen Door		Metal	White	Intact		0.0
ENTRY 2	Column(s)		Wood	BROWN	Intact		0.2
EXTERIOR	Gutters and Downspouts		Metal	BROWN	Intact		0.2
EXTERIOR	Gutters and Downspouts		Metal	BROWN	Intact		0.1
Hall 1	Wall	4	Drywall	White	Intact		-0.2
Hall 1	Wall	1	Drywall	White	Intact		-0.1
Hall 1	Wall	2	Drywall	White	Intact		-0.2
Hall 1	Wall	3	Drywall	White	Intact		0.0
Hall 1	Ceiling		Drywall	White	Intact		-0.2
Hall 1	Door		Metal	BROWN	Intact		-0.1
Hall 1	Door Trim		Wood	White	Intact		0.0
Hall 1	Door Casing/Jamb		Wood	White	Intact		-0.2

XRF Results

Community

Project ID

Building ID

Site D

LANTDIV

123A

Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
Hall 1	Baseboard		Wood	White	Intact		0.0
Hall 2	Wall	3	Drywall	White	Intact		0.0
Hall 2	Wall	4	Drywall	White	Intact		0.0
Hall 2	Wall	1	Drywall	White	Intact		0.0
Hall 2	Wall	2	Drywall	White	Intact		-0.1
Hall 2	Ceiling		Drywall	White	Intact		0.0
Hall 2	Baseboard		Wood	White	Intact		0.1
Kitchen	Wall	3	Drywall	White	Intact		-0.2
Kitchen	Wall	1	Drywall	White	Intact		-0.2
Kitchen	Wall	4	Drywall	White	Intact		-0.1
Kitchen	Wall	2	Drywall	White	Intact		-0.1
Kitchen	Ceiling		Drywall	White	Intact		-0.2
Kitchen	Baseboard		Wood	White	Intact		0.2
Living Room	Wall	3	Drywall	White	Intact		-0.2
Living Room	Wall	2	Drywall	White	Intact		-0.2
Living Room	Wall	1	Drywall	White	Intact		0.0
Living Room	Ceiling		Drywall	White	Intact		-0.1
Living Room	Wall	4	Drywall	White	Intact		-0.4
Living Room	Door		Metal	White	Intact		-0.1
Living Room	Window Sill		Wood	White	Intact		-0.1
Living Room	Baseboard		Wood	White	Intact		0.3
Living Room	Window Trim		Wood	White	Intact		-0.1
Living Room	Door Trim		Wood	White	Intact		0.2
Living Room	Window Casing		Wood	White	Intact		0.0
Living Room	Door Casing/Jamb		Wood	White	Intact		0.0
STORAGE	Ceiling		Drywall	White	Intact		0.0
STORAGE	Wall	1	Drywall	White	Intact		0.0
STORAGE	Wall	2	Drywall	White	Intact		0.0
STORAGE	Wall	4	Drywall	White	Intact		-0.2
STORAGE	Wall	3	Drywall	White	Intact		-0.1
STORAGE	Door		Metal	BROWN	Intact		0.4
STORAGE	Door Casing/Jamb		Metal	BROWN	Intact		0.0
STORAGE	Door Trim		Metal	BROWN	Intact		-0.1
STORAGE	Siding		Wood	TAN	Intact		-0.2

XRF Results

Community

Project ID

Building ID

Site D

LANTDIV

123A

Room	Component	Wall Number	Substrate	Color	Condition	Quantity	XRF Result (mg/cm2)
STORAGE	Shelf Support		Wood	White	Intact		-0.1
STORAGE	Shelf		Wood	White	Intact		0.0
Utility Closet	Wall	2	Drywall	White	Intact		0.0
Utility Closet	Wall	1	Drywall	White	Intact		-0.1
Utility Closet	Ceiling		Drywall	White	Intact		0.0
Utility Closet	Wall	3	Drywall	White	Intact		0.2
Utility Closet	Wall	4	Drywall	White	Intact		0.0
Utility Closet	Door Trim		Wood	White	Intact		0.0
Utility Closet	Shelf Support		Wood	White	Intact		0.0
Utility Closet	Door Casing/Jamb		Wood	White	Intact		-0.1
Utility Closet	Shelf		Wood	White	Intact		0.0



**Final Report
Phase I - Environmental Baseline Survey (EBS)
Privatization of Family Housing
United States Navy, Mid Atlantic Region
LANTDIV Area of Responsibility**



Submitted to:

**Department of the Navy, Atlantic Division
Naval Facilities Engineering Command
Norfolk, Virginia**



Baker

Virginia Beach, VA

Contract No. N62470-01-D-3010-D001

February 2005

Environmental Baseline Survey Program

12.0 NAVAL SECURITY GROUP ACTIVITY (NSGA) SUGAR GROVE - SITE SETTING AND BACKGROUND

The following history of Naval Security Group Activity (NSGA) Sugar Grove has been developed from reviews of Base files, land records, aerial photographs and interviews.

12.1 Areas Investigated

It is the intent of the Navy to privatize the Family and Officer Housing Units located on Naval Security Group Activity (NSGA) Sugar Grove, in Sugar Grove, West Virginia. As such, an EBS was conducted at the following housing units:

- Pitsenbarger Family Housing - Buildings 101 – 110
- Eckard Family Housing - Buildings 111-118
- Redwoods Family Housing – Buildings 121 - 123
- New Family Housing Area - Buildings 124 - 138
- Officer Housing - Buildings 119, 120, and 140

Naval Security Group Activity (NSGA) Sugar Grove housing is being addressed under this investigation consists of five separate housing areas. **Figure 12-1** shows the layout of these housing areas.

12.2 History and Current Usage

NSGA Sugar Grove was established in the 1950's. The Activity is composed of two site: the Main Base and the Operations Site. The Main Base consists of personnel and equipment support departments, military housing, drinking water and wastewater treatment facilities, and administration. The Operations Site consists of electronics and communications equipment with associated support facilities.

12.3 Ownership

The Navy has owned the parcel of land upon which the Family Housing Areas are situated since the establishment of NSGA Sugar Grove in the 1950's.

12.4 Environmental Setting

The Naval Security Group Activity (NSGA) Sugar Grove is located in Pendleton County, West Virginia between the town of Sugar Grove and the Virginia/West Virginia border. The northern Main Base is bounded to the north and west by the Potomac River (southern fork of southern branch) and to the south and east by Route 21. The southern Operations Site is bounded by the George Washington National Forest to the north, by Route 24 to the east, by Route 25 to the south, and by Lick Run to the west.

12.4.1 Climate

Local climate is characterized by large amounts of rainfall that is evenly distributed throughout the year. There are marked contrasts between summer and winter temperatures. Annual rainfall averages 32 inches, with a maximum precipitation occurring during June and August in the form of thunderstorms. During the summer months, the daily average maximum temperature is 85° F. Winter snows result in approximately 20-40 inches of accumulation per year, with average minimum temperatures of 23° F. The Main Base is threatened by flash floods in the spring and summer months.

12.4.2 Geology

NSGA Sugar Grove land is located in the flood plain of the south branch of the south fork of the Potomac River. NSGA Sugar Grove is located within the Valley and Ridge Physiographic Province. The region is characterized by folded and faulted Paleozoic sedimentary rocks. The Main Base and Operations Site at NSGA Sugar Grove are underlain by a thick (approximately 3,300 feet) package of Devonian shale, siltstone and mudstone, assigned to the Brallier and Manantango Formations.

Soils in the area of Sugar Grove housing consist of cobbly fine sandy loam defined as the Potomac soil group. Potomac soils are described as having high infiltration rates with deep, well drained to excessively drained sands and gravels. These soils have high hydraulic conductivity and low water holding capacity. Depth to the water table is typically more than 6 feet below ground surface. The pH of Potomac soils ranges from 5.1 to 7.8 giving it a low corrosion potential

12.4.3 Wetlands

The occurrence of wetlands within the study area were determined using existing National Wetland Inventory (NWI) GIS data sets obtained from the USFWS at a scale of 1: 24000, and through direct field observations. No wetlands are in the study area.

12.4.4 Utilities

Utilities on the subject property include water, sanitary sewer, telephone, electric, and natural gas. All housing units are supplied by the base Treatment Plant, which receives its' water from the south fork of the south branch of the Potomac River. All housing units, except Redwoods, are heated with natural gas. The Redwoods Housing Area maintains a boiler that is currently serviced by natural gas. The base wastewater treatment plant handles all sewage from the housing units. Electrical power is provided by the Base.

12.4.5 CERCLA Sites

Sugar Grove has an active Installation Restoration (IR) Program managed by LANTDIV. There are no identified IR sites in the vicinity of the housing units.

12.5 Pitsenbarger Family Housing

12.5.1 Site Background/Location

NSGA Sugar Grove – Pitsenbarger Family Housing Area (Buildings 101 – 110) is situated adjacent to the main base entrance. Hedrick Road borders the subject parcel of land to the west, Armentrout Road to the south/east, and open maintained lawn to the north (**Figure 12-1**).

The Pitsenbarger Family Housing Area consists of ten (10) two-story duplexes with brick veneer and vinyl siding, which were constructed in 1968. No major renovations of the units have been conducted since the original construction date.

12.5.2 Site Reconnaissance

The Baker Team was on site from October 10 – 22, 2004 to conduct a site investigation to assess current site conditions and any environmental impact from current or past land use practices. The following sections address the presence or absence of potential environmental concerns noted during site reconnaissance of the subject property and adjacent properties. Findings of the EDR report for the area and adjacent properties are also presented in the following sections.

12.5.2.1 Drainage

Natural drainage of the property is towards the north into the south fork of the south branch of the Potomac River.

12.5.2.2. Hazardous Materials and Petroleum Products

There was no evidence of hazardous materials or petroleum products on the subject property during site reconnaissance.

12.5.2.3 Solid and Hazardous Waste

Since the subject area has been primarily used for residential purposes, the probability of the generation of hazardous waste. Municipal solid waste (i.e. garbage) generated by the residents is

collected by the base and disposed of in accordance with RCRA Subtitle D. There was no evidence of solid and hazardous waste on the property during the site reconnaissance.

12.5.2.4 Storage Tanks and Pipelines

No storage tanks or pipelines were observed on the subject property during site reconnaissance.

12.5.2.5 Polychlorinated Biphenyls (PCBs)

According to base records, the electrical system serving the subject property is certified PCB-free.

12.5.2.6 Radioactive Materials and Mixed Waste

According to the EDR Report and site inspection there is no evidence or record of radioactive material or mixed waste on the subject property.

12.5.2.7 Radon

According to the EDR Report there is no evidence or record of radon at the subject property. However, Navy housing officials reported that a radon cleanup has been implemented at NSGA Sugar Grove.

12.5.2.8 Pesticides

Other than normal residential application of pesticides, there is no evidence of pesticides or pesticide use on the subject property.

12.5.2.9 Adjacent Property Summary

According to the EDR database search there is one listed site that may have an environmental impact on properties adjacent to the subject property within a 1-mile search radius. A review of the EDR report indicates this site to be a CERC-NFRAP site:

- Naval Communication Area Waste – This IR site was closed in the mid 1990’s under the Navy’s Installation Restoration Program managed by LANTDIV. The site is located approximately 5 miles south of the main base area and housing areas.

A map of the locations of these sites is contained in **Appendix D**.

12.5.3 Lead and Asbestos Survey

12.5.3.1 Background

In accordance with the Work Plan, 16 of the 20 housing units were inspected at Site A – Pitsenbarger Housing Area. In the course of this investigation, 16 of the 20 three-bedroom (3BR) housing units were inspected while in the field.

12.5.3.2 Asbestos

Baker identified and collected bulk samples for 6 new homogeneous materials that were suspected to be asbestos-containing in the housing units. Materials that contain greater than one percent (>1%) asbestos are considered to be ACM as defined by the USEPA. Laboratory results indicated that two different homogeneous materials were identified to be ACM. All of the ACM identified were in good condition or had only minor damage. No significantly damaged ACM was identified. The laboratory analyses indicated that the remaining homogeneous materials contained no detectable amounts of asbestos. A complete asbestos report with raw data is included in **Appendix E**.

The following chart provides details on the identified ACM for the apartment types.

Housing Unit Style	Number of Previous ACM	Number of Previous ACM Found	Number of New Homogeneous Materials Identified	Number of New Identified ACM	Total Number of ACM
Three-bedroom (3BR)	6	3	6	2	5

12.5.3.3 Lead-Based Paint

12.5.3.3.1 XRF Results

Baker collected a total of approximately 253 XRF readings. The XRF results, on a surface-by-surface basis, for each housing unit inspected are presented in **Appendix E**.

Lead-based Paint (LBP) is defined as paint that contains greater than or equal to 1.0 milligram per cubic centimeter (mg/cm²) lead. The data indicated that the surfaces tested are not coated with LBP.

The following chart provides a breakdown of the identified LBP for each of the housing types.

Housing Unit Style	Number of Painted Homogeneous Components Tested	Identified LBP Components
Three-bedroom (3BR)	29	0

12.5.3.3.2 LBP Risk Assessment

Baker collected 48 dust wipe samples and 48 soil samples during the LBP risk assessment investigation. Summaries of LBP Hazards per housing community are presented, and the tables are organized by type of hazard and associated housing unit number in **Appendix E**.

As depicted in the report tables and the summary below, no LBP hazards were identified which would include deteriorated LBP (painted surface hazards), friction surfaces, impact surfaces, dust, soil, or chewable surface LBP hazards.

The following chart provides details on the LBP hazards for the housing unit types.

Housing Unit Type	Painted Surface Hazards		Friction Surface Hazards	Impact Surface Hazards	Chewable Surface Hazards	Dust Hazards	Bare Soil Hazards
	Fair¹	Poor²					
3BR	0	0	0	0	0	0	0

¹ Although paint that is in “fair” condition is considered a LBP hazard by definition, only minimal hazard reduction activities (e.g., repainting and/or paint stabilization) are needed. These activities can be conducted as routine maintenance.

² Paint that is in “poor” condition is considered a LBP hazard by definition, and may require more significant lead hazard reduction activities that are best conducted by trained and licensed professionals.

12.6 Eckard Street Family Housing

12.6.1 Background/Location

The Eckard Street Family Housing Area (Buildings 101 – 118) lies adjacent to the Pitsenbarger Housing Area near the main entrance. The housing complex consists of eight (8) duplexes, both two and one story, with brick veneer and vinyl siding as well as one-story brick duplex units, which were constructed in 1970. There have been no significant renovations to the units since their original construction.

A ball field, open maintained lawn and enlisted bachelors quarters lie to the west/northwest of the subject property. A stormwater holding lagoon lies to the north of the Eckard Street housing complex. The new housing area lies to the northeast of the subject property. The Redwoods and Buildings 119/120 Officers Quarters lie adjacent to Eckard Street to the east and southeast, respectively.

12.6.2 Site Reconnaissance

The Baker Team was on site from October 10 – 22, 2004 to conduct a site investigation to assess current site conditions and any environmental impact from current or past land use practices. The following sections address the presence or absence of potential environmental concerns noted during site reconnaissance of the subject property and adjacent properties. Findings of the EDR report for the area and adjacent properties are also presented in the following sections.

12.6.2.1 Drainage

Natural drainage of the property is towards the north into the south fork of the south branch of the Potomac River.

12.6.2.2 Hazardous Materials and Petroleum Products

During the site inspection, no evidence of hazardous materials or petroleum products were noted on the property.

12.6.2.3 Solid and Hazardous Waste

Since the subject area has been primarily used for residential purposes, the probability of the generation of hazardous waste. Municipal solid waste (i.e. garbage) generated by the residents is collected by the base and disposed of in accordance with RCRA Subtitle D. There was no evidence of solid and hazardous waste on the property during the site reconnaissance.

12.6.2.4 Storage Tanks and Pipelines

There are currently no above or underground storage tanks or associated pipelines on the subject property.

12.6.2.5 Polychlorinated Biphenyls (PCBs)

According to base records, the electrical system serving the subject property is certified PCB-free.

12.6.2.6 Radioactive Materials and Mixed Waste

According to the EDR Report and site inspection there is no evidence or record of radioactive material or mixed waste on the subject property.

12.6.2.7 Radon

According to the EDR Report there is no evidence or record of radon at the subject property. However, Navy housing officials reported that a radon cleanup has been implemented at NSGA Sugar Grove.

12.6.2.8 Pesticides

Other than normal residential application of pesticides, there is no evidence of pesticides or pesticide use on the subject property.

12.6.2.9 Adjacent Property Summary

According to the EDR database search there is one listed site that may have an environmental impact on properties adjacent to the subject property within a 1-mile search radius. A review of the EDR report indicates this site to be a CERC-NFRAP site:

- Naval Communication Area Waste – This IR site was closed in the mid 1990's by the Navy. It is located approximately 5 miles south of the main base area and housing areas.

A map of the locations of these sites is contained in **Appendix D**.

12.6.3 **Lead and Asbestos Survey**

12.6.3.1 Background

In accordance with the Work Plan, the buildings that were inspected at Site B – Eckard Street included 13 of the 16 housing units. In the course of this investigation, 3 of the 4 two-bedroom (2BR) units, 5 of the 6 three-bedroom (3BR) units, 3 of the 4 four-bedroom (4BR) units, and all (2) of the four-bedroom handicapped (4BR-HC) housing units were inspected.

12.6.3.2 Asbestos

Baker identified and collected bulk samples for 17 new homogeneous materials that were suspected to be asbestos-containing in the housing units. Materials that contain greater than one percent (>1%) asbestos are considered to be ACM as defined by the USEPA. The laboratory analyses indicated that all of the homogeneous materials contained no detectable amounts of asbestos. A complete asbestos report with raw data is included in **Appendix E**.

The following chart provides details on the identified ACM for all of the housing types.

Housing Unit Style	Number of Previous ACM	Number of Previous ACM Found	Number of New Homogeneous Materials Identified	Number of New Identified ACM	Total Number of ACM
Two-bedroom (2BR)	1	1	4	0	1
Three-bedroom (3BR)	1	1	4	0	1
Four-bedroom (4BR)	1	1	4	0	1
Four-bedroom Handicap (4BR-HC)	1	1	5	0	1

12.6.3.3 Lead-Based Paint

12.6.3.3.1 XRF Results

Baker collected a total of approximately 779 XRF readings. The XRF results, on a surface-by-surface basis, for each housing unit inspected are presented in **Appendix E**.

Lead-based Paint (LBP) is defined as paint that contains greater than or equal to 1.0 milligram per cubic centimeter (mg/cm²) lead. The data indicated that the surfaces tested are not coated with LBP.

The following chart provides a breakdown of the identified LBP for each of the housing types.

Housing Unit Style	Number of Painted Homogeneous Components Tested	Identified LBP Components
Two-bedroom (2BR)	27	0
Three-bedroom (3BR)	30	0
Four-bedroom (4BR)	36	0
Four-bedroom Handicap (4BR-HC)	36	0

12.6.3.3.2 LBP Risk Assessment

Baker collected 12 dust wipe samples and 12 soil samples during the LBP risk assessment investigation. Summaries of LBP Hazards per housing community are presented, and the tables are organized by type of hazard and associated housing unit number in **Appendix E**.

As depicted in the report tables and the summary below, no LBP hazards were identified which would include deteriorated LBP (painted surface hazards), friction surfaces, impact surfaces, dust, soil, or chewable surface LBP hazards.

The following chart provides details on the LBP hazards for the housing unit types.

Housing Unit Type	Painted Surface Hazards		Friction Surface Hazards	Impact Surface Hazards	Chewable Surface Hazards	Dust Hazards	Bare Soil Hazards
	Fair ¹	Poor ²					
2BR	0	0	0	0	0	0	0
3BR	0	0	0	0	0	0	0
4BR	0	0	0	0	0	0	0
4BR-HC	0	0	0	0	0	0	0

¹ Although paint that is in “fair” condition is considered a LBP hazard by definition, only minimal hazard reduction activities (e.g., repainting and/or paint stabilization) are needed. These activities can be conducted as routine maintenance.

² Paint that is in “poor” condition is considered a LBP hazard by definition, and may require more significant lead hazard reduction activities that are best conducted by trained and licensed professionals.

12.7 Redwoods Family Housing

12.7.1 Background/Location

The Redwoods Family Housing Units (Building 121 – 123) are located on Armentrout Road near the entrance to the main gate. The one duplex (Building 123) and two quadraplexes (Buildings 121-122) units consist of two-story duplexes with brick veneer and vinyl siding, which were constructed in 1978.

The Navy has owned the parcel of land upon which the Redwood Family Housing is situated since the establishment of NSGA Sugar Grove in the 1950's. Adjacent property uses to the northeast, southeast, and west consist of Navy Housing. West Virginia State Route 21 and woodlands lie to the east of the subject property.

12.7.2 Site Reconnaissance

A site inspection was conducted on October 14- 22, 2003 to assess current site conditions and any environmental impact from current or past land use practices. The following sections address the presence or absence of potential environmental concerns noted during site reconnaissance of the subject property and adjacent properties. Findings of the EDR report for the area and adjacent properties are also presented in the following sections.

12.7.2.1 Drainage

Natural drainage of the subject property is towards the north into the south fork of the south branch of the Potomac River.

12.7.2.2 Hazardous Materials and Petroleum Products

There was no evidence of hazardous materials on the subject property during site reconnaissance. Formerly, a 3,000 – gallon heating oil UST was once located at the boiler building which served Housing Units 121, 122, and 123. This UST was removed and clean closed in October 1996.

12.7.2.3 Solid and Hazardous Waste

Since the subject area has been primarily used for residential purposes, the probability of the generation of hazardous waste. Municipal solid waste (i.e. garbage) generated by the residents is collected by the base and disposed of in accordance with RCRA Subtitle D. There was no evidence of solid and hazardous waste on the property during the site reconnaissance.

12.7.2.4 Storage Tanks and Pipelines

No storage tanks or pipelines were observed on the subject property during site reconnaissance. Formerly, a 3,000 – gallon heating oil UST was once located at the boiler building which served Housing Units 121, 122, and 123. This UST was removed and clean closed in October 1996.

12.7.2.5 Polychlorinated Biphenyls (PCBs)

According to base records, the electrical system serving the subject property is certified PCB-free.

12.7.2.6 Radioactive Materials and Mixed Waste

According to the EDR Report and site inspection there is no evidence or record of radioactive material or mixed waste on the subject property.

12.7.2.7 Radon

According to the EDR Report there is no evidence or record of radon at the subject property. However, Navy housing officials reported that a radon cleanup has been implemented at NSGA Sugar Grove.

12.7.2.8 Pesticides

Other than normal residential application of pesticides, there is no evidence of pesticides or pesticide use on the subject property.

12.7.2.9 Adjacent Property Summary

According to the EDR database search there is one listed site that may have an environmental impact on properties adjacent to the subject property within a 1-mile search radius. A review of the EDR report indicates this site to be a CERC-NFRAP site:

- Naval Communication Area Waste – This IR site was closed in the mid 1990's by the Navy. It is located approximately 5 miles south of the main base area and housing areas.

A map of the locations of these sites is contained in **Appendix D**.

12.7.3 **Lead and Asbestos Survey**

12.7.3.1 Background

The buildings that were inspected at Site D included 4 housing units. In the course of this investigation, 2 of the 2 two-bedroom (2BR) and 8 of the 8 four-bedroom (4BR) housing units were inspected.

12.7.3.2 Asbestos

Baker identified and collected bulk samples for 8 new homogeneous materials that were suspected to be asbestos-containing in the housing units. The laboratory analyses indicated that all of the homogeneous materials contained no detectable amounts of asbestos. Materials that contain greater than one percent (>1%) asbestos are considered to be ACM as defined by the USEPA. Appropriate tables in the housing area report will list the suspected homogeneous materials for the individual housing units. The results of the bulk material sample analyses are included in appendices in the main report. It should be noted that ACM inspections were conducted at these facilities by others prior to this investigation. Baker attempted to use this data when characterizing the suspect materials found in each apartment. The historical data is included as part of the report.

The following chart provides details on the identified ACM for the housing types.

Housing Unit Style	Number of Previous ACM	Number of Previous ACM Found	Number of New Homogeneous Materials Identified	Number of New Identified ACM	Total Number of ACM
Two-bedroom (2BR)	5	0	4	0	0
Four-bedroom (4BR)	5	0	4	0	0

12.7.3.3 Lead-Based Paint

12.7.3.3.1 XRF Results

Baker collected a total of approximately 469 XRF readings. The XRF results, on a surface-by-surface basis, for each housing type inspected are presented in Appendix E.

Lead-based Paint (LBP) is defined as paint that contains greater than or equal to 1.0 milligram per cubic centimeter (mg/cm²) lead. The data indicated that the surfaces tested are not coated with LBP.

The following chart provides details on the identified LBP for each of the housing types.

Housing Unit Style	Number of Painted Homogeneous Components Tested	Identified LBP Components
Two-bedroom (2BR)	20	0
Four-bedroom (4BR)	28	0

12.7.3.3.2 LBP Risk Assessment

Baker collected 30 dust wipe samples and 30 soil samples during the LBP risk assessment investigation. Summaries of LBP Hazards per housing community are presented, and the tables are organized by type of hazard and associated housing unit number in **Appendix E**. As depicted in the report tables and the summary below, no LBP hazards were identified which would include

deteriorated LBP (painted surface hazards), friction surfaces, impact surfaces, dust, soil, or chewable surface LBP hazards.

The following chart provides details on the LBP hazards for the housing unit types.

Housing Unit Type	Painted Surface Hazards		Friction Surface Hazards	Impact Surface Hazards	Chewable Surface Hazards	Dust Hazards	Bare Soil Hazards
	Fair¹	Poor²					
2BR	0	0	0	0	0	0	0
4BR	0	0	0	0	0	0	0

¹ Although paint that is in “fair” condition is considered a LBP hazard by definition, only minimal hazard reduction activities (e.g., repainting and/or paint stabilization) are needed. These activities can be conducted as routine maintenance.

² Paint that is in “poor” condition is considered a LBP hazard by definition, and may require more significant lead hazard reduction activities that are best conducted by trained and licensed professionals.

12.8 New Housing Area Family Housing

12.8.1 Site Background/Location

The New Housing Area (Buildings 124 – 138) is situated near the Family Housing Entrance in the eastern portion of the base. These units consist of two-story duplexes with brick veneer and vinyl siding. Buildings 124 through 127 were constructed in 1994, while Buildings 128 through 138 were constructed in 1998.

The New Housing Area is situated between two Navy Housing Areas; Officer Housing and Redwood. A base maintained storm water holding lagoon is situated to the west. An open area of maintained lawn lies to the north of the subject property. West Virginia state Route 21 and an extensive expanse of woodlands lie to the east of the subject property.

12.8.2 Site Reconnaissance

The Baker Team conducted a site inspection on October 14-21, 2003 to assess current site conditions and any environmental impact from current or past land use practices. The following sections address the presence or absence of potential environmental concerns noted during site reconnaissance of the subject property and adjacent properties. Findings of the EDR report for the area and adjacent properties are also presented in the following sections.

12.8.2.1 Drainage

Natural drainage of the subject property is towards the north into the south fork of the south branch of the Potomac River.

12.8.2.2 Hazardous Materials and Petroleum Products

During the site inspection, no evidence of hazardous materials or petroleum products were noted on the property.

12.8.2.3 Solid and Hazardous Waste

Since the subject area has been primarily used for residential, the probability of the generation of hazardous waste. Municipal solid waste (i.e. garbage) generated by the residents is collected by the base and disposed of in accordance with RCRA Subtitle D. There was no evidence of solid and hazardous waste on the property during the site reconnaissance.

12.8.2.4 Storage Tanks and Pipelines

There are currently no above or under ground storage tanks or associated pipelines on the subject property.

12.8.2.5 Polychlorinated Biphenyls (PCBs)

According to base records, the electrical system serving the subject property is certified PCB-free.

12.8.2.6 Radioactive Materials and Mixed Waste

According to the EDR Report and site inspection there is no evidence or record of radioactive material or mixed waste on the subject property.

12.8.2.7 Radon

According to the EDR Report there is no evidence or record of radon at the subject property. However, Navy housing officials reported that a radon cleanup has been implemented at NSGA Sugar Grove.

12.8.2.8 Pesticides

Other than normal residential application of pesticides, there is no evidence of pesticides or pesticide use on the subject property.

12.8.2.9 Adjacent Property Summary

According to the EDR database search there is one listed site that may have an environmental impact on properties adjacent to the subject property within a 1-mile search radius. A review of the EDR report indicates this site to be a CERC-NFRAP site:

- Naval Communication Area Waste – This IR site was closed in the mid 1990's by the Navy. It is located approximately 5 miles south of the main base area and housing areas.

A map of the locations of these sites is contained in **Appendix D**.

12.8.3 Lead and Asbestos Survey

12.8.3.1 Background

According to the project's scope, the buildings that were inspected at Site E included 2 of 8 housing units. In the course of this investigation, 2 of the 8 two-bedroom (2BR) were to be inspected. However, upon review of the site, it was discovered that the housing units were built after 1994; therefore, it was requested that they not be inspected. Thus, no asbestos and lead paint investigation was conducted at this housing area due to the construction date.

According to the project's scope, the buildings that were inspected at Site F included 2 of 21 housing units. In the course of this investigation, 1 of the 20 two-bedroom (2BR) and 1 of 1 two-bedroom handicap (2BR-HC) were to be inspected. However, upon review of the site, it was discovered that the housing units were built after 1998; therefore, it was requested that they not be inspected. Thus, no asbestos and lead paint investigation was conducted at this housing area due to the construction date.

According to the project's scope, the buildings that were inspected at Site G included 1 of 4 housing units. In the course of this investigation, 1 of the 4 four-bedroom (4BR) was to be inspected. However, upon review of the site, it was discovered that the housing units were built after 1998; therefore, it was requested that they not be inspected. Thus, no asbestos and lead paint investigation was conducted at this housing area due to the construction date.

12.9 Officer's Quarters

12.9.1 Background

A total of three housing units (Building 119, 120, and 140) are designated as Officer's Quarters at NSGA Sugar Grove.

The parcel of land that Buildings 119 and 120 are located upon is designated as the Officer's Housing area. These buildings, which were constructed in 1970, are two story brick and stucco duplexes. The third officer's quarters, building 140 is situated in the northern portion of the New Housing area and constructed in 1998.

Adjacent property uses to the west and to the north consist of Navy Housing. West Virginia State Route 21 and an extensive expanse of woodlands lie to the south and to the east of the subject property. The Navy has owned the parcels of land upon which the Officer's Quarters are situated since the establishment of NSGA Sugar Grove in the 1950's.

12.9.2 Site Reconnaissance

A site inspection was conducted on October 14 - 22, 2003 to assess current site conditions and any environmental impact from current or past land use practices. The following sections address the presence or absence of potential environmental concerns noted during site reconnaissance of the subject property and adjacent properties. Findings of the EDR report for the area and adjacent properties are also presented in the following sections.

12.9.2.1 Drainage

Natural drainage of the subject property is towards the north into the south fork of the south branch of the Potomac River.

12.9.2.2 Hazardous Materials and Petroleum Products

There was no evidence of hazardous materials or petroleum products on the subject property during site reconnaissance.

12.9.2.3 Solid and Hazardous Waste

Since the subject area has been primarily used for residential purposes, the probability of the generation of hazardous waste. Municipal solid waste (i.e. garbage) generated by the residents is collected by the base and disposed of in accordance with RCRA Subtitle D. There was no evidence of solid and hazardous waste on the property during the site reconnaissance.

12.9.2.4 Storage Tanks and Pipelines

No storage tanks or pipelines were observed on the subject property during site reconnaissance.

12.9.2.5 Polychlorinated Biphenyls (PCBs)

According to base records, the electrical system serving the subject property is certified PCB-free.

12.9.2.6 Radioactive Materials and Mixed Waste

According to the EDR Report and site inspection there is no evidence or record of radioactive material or mixed waste on the subject property.

12.9.2.7 Radon

According to the EDR Report there is no evidence or record of radon at the subject property. However, Navy housing officials reported that a radon cleanup has been implemented at NSGA Sugar Grove.

12.9.2.8 Pesticides

Other than normal residential application of pesticides, there is no evidence of pesticides or pesticide use on the subject property.

12.9.2.9 Adjacent Property Summary

According to the EDR database search there is one listed site that may have an environmental impact on properties adjacent to the subject property within a 1-mile search radius. A review of the EDR report indicates this site to be a CERC-NFRAP site:

- Naval Communication Area Waste - This IR site was closed in the mid 1990's by the Navy. It is located approximately 5 miles south of the main base area and housing areas.

A map of the locations of these sites is contained in **Appendix D**.

12.9.3 **Lead and Asbestos Survey**

12.9.3.1 Background

In accordance with the Work Plan, all of the Officers Housing Units were to be inspected, with the exception of Building 140, which was constructed in 1998. In the course of this investigation, 2 of the 2 three-bedroom (3BR) and 2 of the 2 four-bedroom (4BR) housing units were inspected.

12.9.3.2 Asbestos

Baker identified and collected bulk samples for 12 new homogeneous materials that were suspected to be asbestos-containing in the housing units. Materials that contain greater than one percent (>1%) asbestos are considered to be ACM as defined by the USEPA. The laboratory analyses indicated that all of the homogeneous materials contained no detectable amounts of asbestos. A complete asbestos report with raw data is included in **Appendix E**.

The following chart provides details on the identified ACM for the housing types.

Housing Unit Style	Number of Previous ACM	Number of Previous ACM Found	Number of New Homogeneous Materials Identified	Number of New Identified ACM	Total Number of ACM
Three-bedroom (3BR)	0	0	6	0	0
Four-bedroom (4BR)	0	0	6	0	0

12.9.3.3 Lead-Based Paint

12.9.3.3.1 XRF Results

Baker collected a total of approximately 469 XRF readings. The XRF results, on a surface-by-surface basis, for each housing unit inspected are presented in **Appendix E**.

Lead-based Paint (LBP) is defined as paint that contains greater than or equal to 1.0 milligram per cubic centimeter (mg/cm²) lead. The data indicated that the surfaces tested are not coated with LBP.

The following chart provides details on the identified LBP for the housing types.

Housing Unit Style	Number of Painted Homogeneous Components Tested	Identified LBP Components
Three-bedroom (3BR)	40	0
Four-bedroom (4BR)	40	0

12.9.3.3.2 Lead-Based Paint Risk Assessment

Baker collected 6 dust wipe samples and 6 soil samples during the LBP risk assessment investigation. Summaries of LBP Hazards per housing community are presented, and the tables are organized by type of hazard and associated housing unit number in **Appendix E**. As depicted in the report tables and the summary below, no LBP hazards were identified which would include

deteriorated LBP (painted surface hazards), friction surfaces, impact surfaces, dust, soil, or chewable surface LBP hazards.

The following chart provides details on the LBP hazards for the housing unit types.

Housing Unit Type	Painted Surface Hazards		Friction Surface Hazards	Impact Surface Hazards	Chewable Surface Hazards	Dust Hazards	Bare Soil Hazards
	Fair¹	Poor²					
3BR	0	0	0	0	0	0	0
4BR	0	0	0	0	0	0	0

¹ Although paint that is in “fair” condition is considered a LBP hazard by definition, only minimal hazard reduction activities (e.g., repainting and/or paint stabilization) are needed. These activities can be conducted as routine maintenance.

² Paint that is in “poor” condition is considered a LBP hazard by definition, and may require more significant lead hazard reduction activities that are best conducted by trained and licensed professionals.

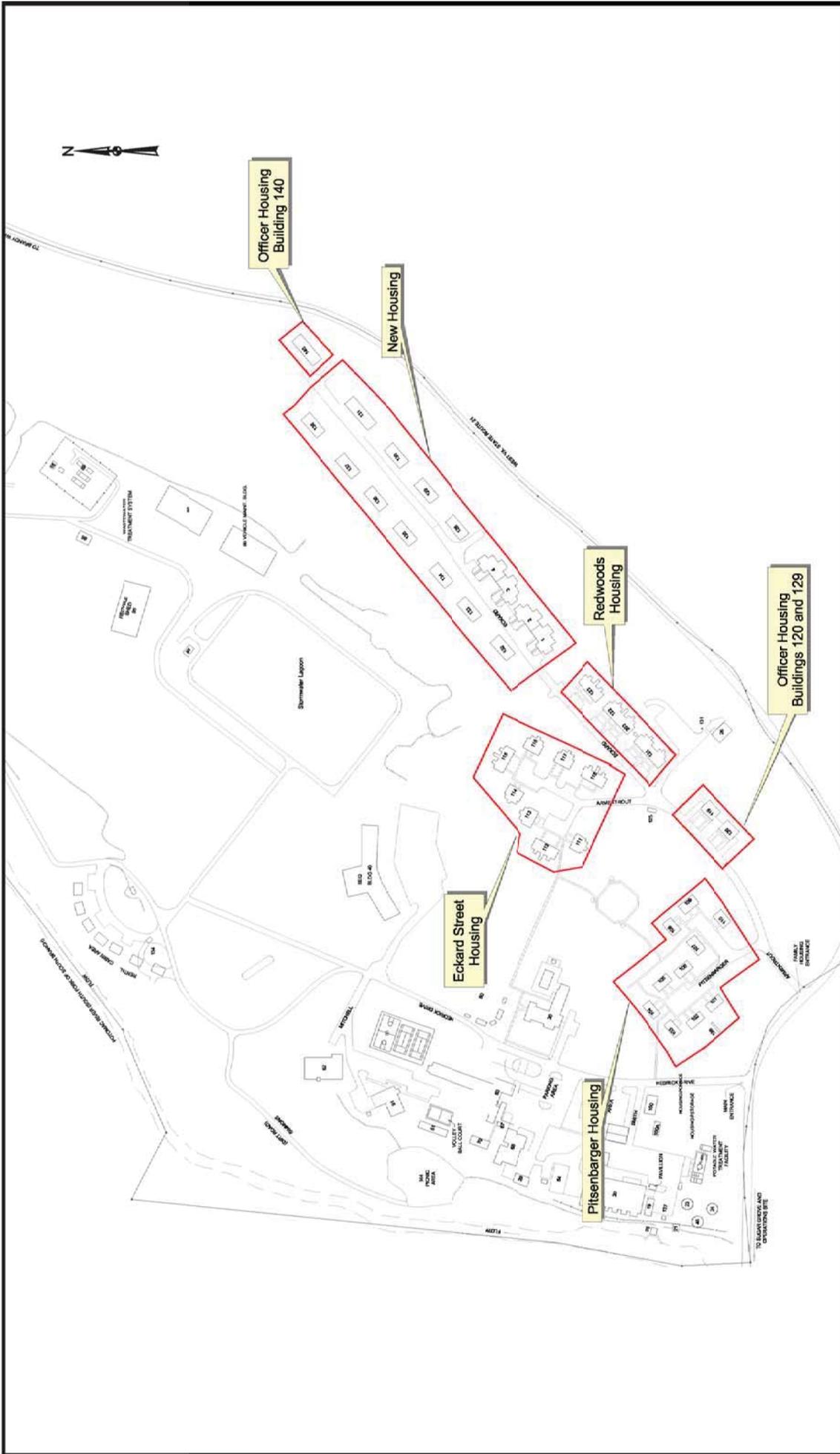
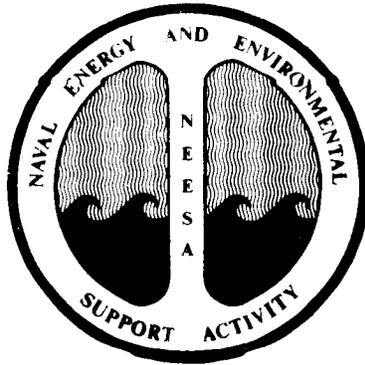


Figure 12-1
Naval Security Group Activity Sugar Grove
Housing Areas

Source: LANTDIV, 2003

200 0 200 400 Feet



**NAVAL ENERGY AND ENVIRONMENTAL
SUPPORT ACTIVITY**

Port Hueneme, California 93043-5014

PRELIMINARY ASSESSMENT
REPORT

NAVAL RADIO STATION (NRS)
SUGAR GROVE, WEST VIRGINIA 26816

EPA
IDENTIFICATION: WV 9170022488

NEESA 13-138PA
MARCH 1988

PRELIMINARY ASSESSMENT
REPORT

Activity Name: Naval Radio Station, Sugar Grove

Address: Sugar Grove, West Virginia

UIC: N70310

EPA Region: 3

EPA

Identification: WV 9170022488

Latitude: 79° 17' 00" N

Longitude: 038° 34' 00" W

Preliminary Assessment Team Members

Ronald E. Tickle, Environmental Engineer
Sherry Van Duyn, Environmental Engineer
Naval Energy and Environmental Support Activity

Prepared by:
Naval Energy and Environmental Support Activity
Port Hueneme, California 93043

NEESA 13 - 138PA
March 1988

Priority for Inspection: None

Naval Radio Station, Sugar Grove, West Virginia is a small quantity generator of hazardous waste; producing waste oils, solvents and paints. Three landfills have been used at the Naval Radio Station since the station began operation in 1968. No hazardous waste is known or suspected to have been disposed to these sites. No spills or releases of hazardous wastes have occurred. The underground storage tanks on the facility have been tested and no leaks were detected. No further work is recommended under the Navy Installation Restoration (IR) program.

1. ACTIVITY DESCRIPTION

1.1 Activity Location. The Naval Radio Station, Sugar Grove is situated in a relatively isolated portion of the south fork of the Potomac River Valley in Pendleton County, West Virginia. The activity occupies two sites, one called the Operational Area, and the other the Support Area which contains the personnel support functions such as administration and public works (Figure 1). The Operations area lies east of the town of Sugar Grove and the two local highways, Routes 21 and 25, and is served by an access road to the site. The Support area is located approximately six miles north of the Operations area and is accessible by Route 21.

A site visit was conducted at the base on 17 December 1987 to collect information for the preliminary assessment. All data presented here are current as of that date.

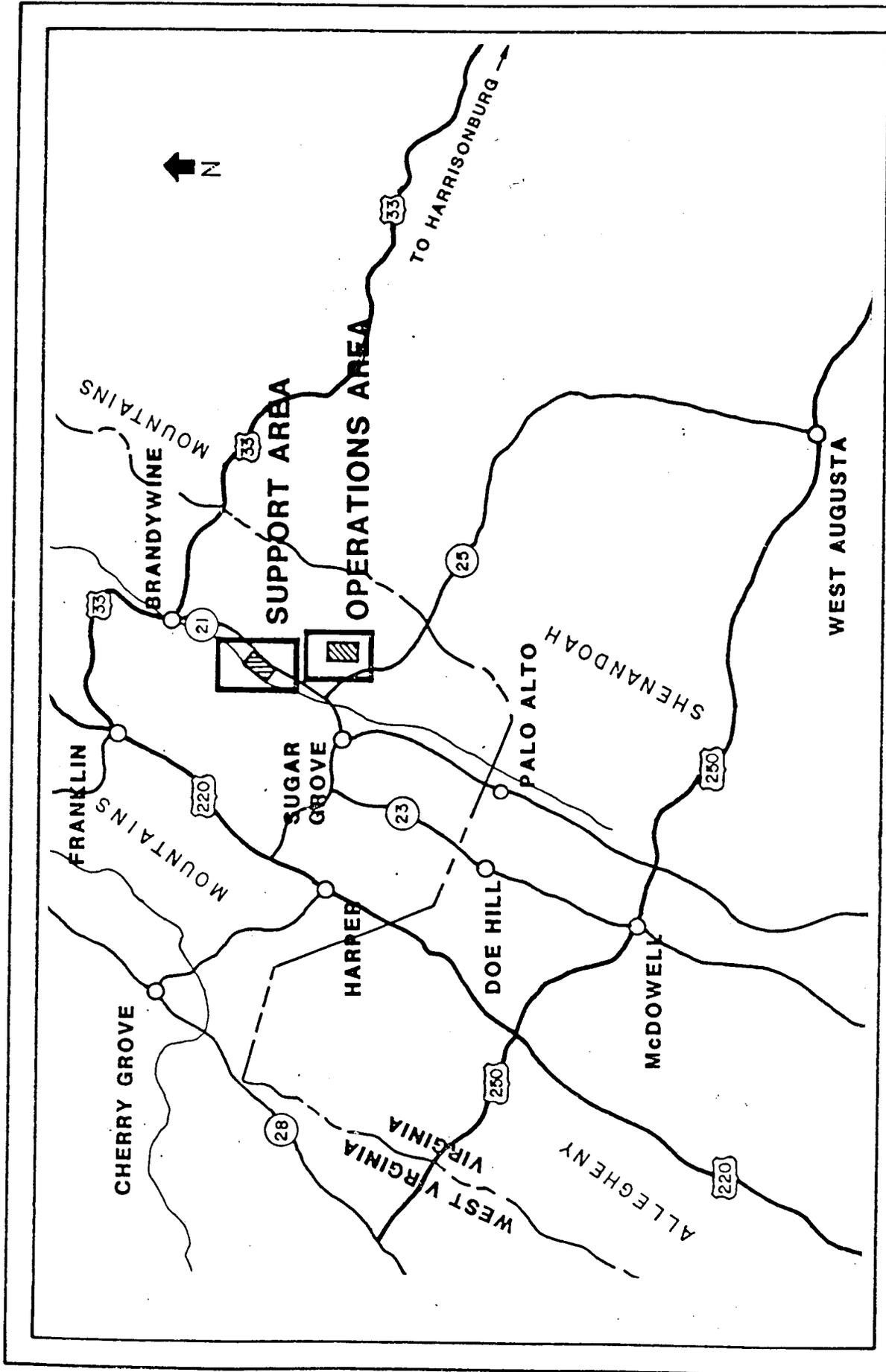
1.2 Activity Mission and History. In 1955, the Navy selected what is now the location of the Naval Radio Station at Sugar Grove as the site for a Naval Research Laboratory (NRL) project. Prior to that time the area consisted of undeveloped wooded lands. The NRL project involved the construction of a large parabolic antenna for advanced electronic communications, research, and intelligence gathering. The construction of the large reflector was discontinued in 1962 due to technological advancements.

It was proposed that the Sugar Grove site be utilized as a radio receiving station in lieu of similar facilities located at Cheltenham, Maryland. The site was appealing because of the facilities left by the NRL and the site's location within the National Radio Quiet Zone (NRQZ) which was established on 19 November 1958. The NRQZ protects NRS Sugar Grove and the National Radio Astronomy Observatory at Green Bank from man-made interference.

The Naval Radio Station was officially established in 1963, although in a developmental status. The Navy officially occupied the NRS in 1968. In 1973, administrative and operational control of the station was transferred to Naval Communication Master Station (NAVCOMMSTA), Norfolk. The NRS became a component of the Naval Communications Area Master Station, Atlantic (NAVCAMS LANT) when the master station concept and title was established in 1976.

The NRS is the primary receiver site for the Atlantic Fleet. The station provides receiver support for fleet operations in the northern, southern, and western Atlantic and Caribbean areas.

NRS Sugar Grove has one major tenant activity located at the



PRELIMINARY ASSESSMENT
 NAVAL RADIO STATION
 Sugar Grove, West Virginia



FIGURE 1
 FACILITY LOCATION

Operations area, the Naval Security Group Detachment, Sugar Grove.

1.3 Surrounding area. A large percentage of the land surrounding the activity is owned by the Federal Government, with the largest portion comprising the George Washington National Forest and Monongahela National Forest. State parks and forests in the area include Calvin, Price, Canaan Valley, Lost River, Brandywine Recreation Area and Seneca. While the area consists primarily of mountains with some farmlands, there are several small industries located in the immediate vicinity. The township of Sugar Grove has a population of 35. The population within a three mile radius of the facilities is estimated at less than 500 (Harr, 1988). The number of personnel at NRS Sugar Grove is estimated at 180 military and civilians (Wallmeyer, 1988).

1.3.1 Climate. The State of West Virginia is considered to have a temperate climate, although cold winters can occur in the higher mountain areas. The mean annual temperature ranges from 56 degrees Fahrenheit in the low lying areas to 48 degrees Fahrenheit in the mountain areas of Pendleton County (LANTNAVFACENGCOM, 1980). The NRS sites have an average annual temperature of 53 degrees Fahrenheit, with a maximum of 90 degrees in August and September and minimums of around 0 to minus 10 degrees in January and February. Lower temperatures have occurred (SCS, 1983).

The prevailing winds vary from northwest to southeast throughout the year at approximately 6 miles per hour. The average annual precipitation is 32.5 inches. The mean annual lake evaporation is 30 inches (SCS, 1983). The 1-year 24-hour rainfall is between 2 and 2 1/2 inches.

1.3.2 Topography and Hydrology

A. OPERATIONAL AREA. The Operational Area is the larger of the two areas with 526.8 acres and is heavily wooded with rugged topography. The topography varies 325 feet from the highest to the lowest point with an average slope of 40 percent (SCS, 1983). The antennas are located on the crests of various ridges which run through the site in a north-south plane.

The surface runoff from the Operations area leads to either Lick Run or to Little Fork creeks. These two creeks lead north to approximately one mile south of the Support area where Lick Run joins the Little Fork. The Little Fork then flows northwest until it joins the South Fork of the South Branch of the Potomac River about one half mile southwest of the Support area.

B. SUPPORT AREA. The Support area is situated in a valley between mountain ridges, and consists of approximately 118 acres. The area is essentially flat and drains to the South Fork of the

South Branch of the Potomac River which runs along the northwest boundary of the Support area. The topography varies approximately 15 feet with an average slope of three percent (SCS, 1983).

1.3.3 Soils and Geology. The NRS is located in the Ridge and Valley Physiographic Province. The bedrock is steeply folded and highly faulted. The NRS is underlain by a thick sequence of sedimentary rocks of Devonian age (SCS, 1983). These rocks consist of interbedded shale, sandstone, and limestone, with shale being the major lithologic unit.

The Harrell and Mahantango geologic formations occupy most of the NRS properties. These shale formations commonly weather into relatively shallow and infertile Berks and Weikert soils. Alluvial and colluvial deposits are located on the valley floors and terraces (SCS, 1983).

The exposed soils at the Operations area consist almost entirely of Berks-Weikert channery silt loams and cut and fill land. While the permeability of the cut and fill land is too variable to rate, the permeability associated with Berks-Weikert channery silt loams ranges from 0.6 to 6.0 inches per hour. Erosion problems are common in this area.

The soils at the Support area range from fine sandy loams and cobbly loams near the river to silt loams over most of the remaining area. The permeabilities of these soils range from 0.6 to greater than 6.0 inches per hour (SCS, 1983).

1.3.4 Hydrogeology. The movement of ground and surface water in the region is influenced by the extensively folded and faulted bedrock. In numerous places perched streams lose water to underlying cavernous limestone and fractured sandstone. In other places streams gain water that is discharged from adjacent aquifers. Ground water discharging to streams in the central part of the Potomac River Basin is derived mainly from springs in sandstone and limestone on anticlinal structures. Studies of streamflow at gaging stations in the Potomac River basin in West Virginia indicate that from 60 to 85 percent of stream discharge in the 1969 water year was derived from ground water sources (USGS, 1972).

Water occurs in the folded and faulted crystalline rocks, sandstones, shales and siltstone, and carbonate rocks that underlie the Potomac basin in West Virginia. The shale rocks in the central part of the Potomac basin in West Virginia are generally the poorest aquifers. The Naval Radio Station is located in this area. The Brallier formation (which includes the Harrell Shale) generally yields less water than the other formations in this hydrologic unit, including the Mahantango

formation.

The well depths in the Brallier and Mahantango formations range from 5 to 962 feet with a median depth of 75 feet. Well yields from these formations range from 0 to 75 gallons per minute (gpm) with a median yield of 8 gpm. Wells have been drilled 400 to 1000 feet into the shale without obtaining a usable quantity of water (USGS, 1972).

In the operational area, ground water is expected to be present at a depth of from 5 to 40 feet below the ground surface. The ground water is found in shale fissures (LANTNAVFACENCOM, 1984). Two existing wells at the Operations area draw water from a depth of approximately 320 feet.

The Support area is located in an alluvial valley bordered by the South Fork of the South Branch of the Potomac River. Ground water is generally encountered between 5 and 40 feet below the ground surface at the Support area. Well depths in the alluvium of the Potomac basin in West Virginia range from 4 to 35 feet, with yields ranging from 0 to 40 gpm (USGS, 1972).

1.3.5 Vegetation and Wildlife. NRS Sugar Grove supports high populations of native vegetation and wildlife, mostly in the Operations area. In the Operations area large tracts of woodlands are present, mostly as uneven aged stands of pine, oak, and hickory. Other vegetation includes grasses, sedges, viburnums, briars and honeysuckle. The dominant wildlife species include whitetail deer and turkey in the woodlands and cottontail rabbits and groundhogs in the more open areas.

The Support Area is a cleared area with a narrow border of indigenous vegetation surrounding it. The indigenous vegetation is composed basically of small stands of pine, oak, gum, maple, and cedar. As a result of the high population density at the Support area, no important concentrations of wildlife are present (LANTNAVFACENCOM, 1980).

Surface water quality is considered good in the surrounding area. Fish species include smallmouth bass, brook trout, darters and minnows. Benthic organisms include larvae of mayfly, stonefly, damselfly, fishfly, caddis fly, and other nymphs.

There is no evidence of rare or endangered plant or animal species in the area of NRS Sugar Grove (LANTNAVFACENCOM, 1980).

1.3.6 Potential Contaminant Migration Pathways. The most likely pathway for contaminant migration is through surface or near surface drainage to one of the streams that cross or border the base. The shallow water tables in alluvium are also susceptible to contamination. In the Support Area, the ground water is shallow and discharges to the South Branch of the South Fork of

the Potomac River. Ground water in the Operations Area is found in shale fissures and the direction of flow is difficult to determine. Contaminants that reach either of the streams in the Operations Area can travel downstream towards the South Fork of the South Branch of the Potomac River.

1.3.7 Potential Human and Environmental Receptors. Potential human receptors include base personnel who could come into direct contact with contaminants in the surface soils. Contaminants could also reach human receptors through drinking water. Two wells used for drinking water are located at the Operations Area. The Support Area draws potable water from the South Fork of the South Branch of the Potomac River. Drainage from the Operations Area and a small part of the Support Area enter the river upstream of the intake.

Other potential receptors are wildlife which use local surface water for drinking or habitat. Humans are also potential receptors through fish and game animals which may ingest contaminants present in the water.

2. FINDINGS

2.1 General Findings. An activity visit to the Naval Radio Station was conducted December 17, 1987. Information in this report is current as of that date.

The Federal Agency Hazardous Waste Compliance Docket indicated that the NRS was placed on the docket because of information submitted under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) section 103(c).

The NRS, Sugar Grove, West Virginia is a small quantity generator of hazardous waste. Estimated yearly waste generation is 150 gallons of "Safety Clean" and 150 gallons of waste oil. The "Safety Clean" is recycled through a commercial vender. Hazardous waste is disposed of through the Defense Reutilization and Marketing Office, in either Richmond, Virginia or Brandywine, Maryland. Waste oil recycling is conducted through the Brandywine Fire Department, Brandywine, West Virginia.

Potable water at the Naval Radio Station comes from two sources. At the Support site, water is taken from the South Fork of the South Branch of the Potomac River and treated. The treatment consists of settling, pressure filtration and disinfection. At the Operations Area, water is obtained from two deep wells located near the northeast corner of the Operation area boundary. Treatment of this water consists solely of chlorination (LANTNAVFACENCOM, 1980).

The wastewater treatment facilities at the NRS consist of two

extended aeration activated sludge treatment plants which operate in parallel. Treated water is discharged to the South Fork of the South Branch of the Potomac River under NPDES permit WV0020117.

Solid waste disposal is provided by a private contractor to an off-site landfill.

Sixteen underground tanks are located at NRS Sugar Grove. A draft leaking underground storage tank study has been prepared. No leaks were detected (Brashear, 1988).

3. SITE SPECIFIC INFORMATION

3.1 Site 1, Operations Area Waste Disposal Site. From 1968 through 1975, wastes generated by the activity were disposed of at the Operations Area in unlined trenches. This waste disposal site is on a bluff above Lick Run and about 200 feet east of Building 303. The location and approximate boundary of this site are shown on Figure 2.

The site has an area of about 20 feet by 2000 feet. Each trench was dug with a backhoe to a length of about 60 feet, a width of 12 feet, and a depth of about 10 feet. Wastes were disposed of twice per week at a rate of one ton per week. From 1968 to the early 1970s, wastes were burned about once per week in the trenches. Reportedly, no fuels were used to ignite the waste since it consisted mostly of paper products. After waste disposal, about three feet of soil was spread over the trench with a bulldozer.

The types of waste reportedly disposed of at Site 1 included office paper, household trash, toluene sludge, automotive engine oil filters containing used oil, empty spray paint cans and toluene cans, and scrap metal and wood. Table 1 summarizes the types and quantities of wastes disposed of at Site 1.

In 1976 a leach field for domestic wastewater from Building 303 was installed in the northern end of Site 1. During construction of the two 50 foot leach lines, scrap wood and metal were dug up and removed from the site. There were no other reports or evidence of additional waste removal from the site.

In 1985, construction debris (sand, re-bar and concrete) covered approximately one half of the site and the remainder was covered with evergreen trees (NEESA, 1985). Since that assessment, the construction debris has been cleared from the site and pushed over the bluff toward Lick Run

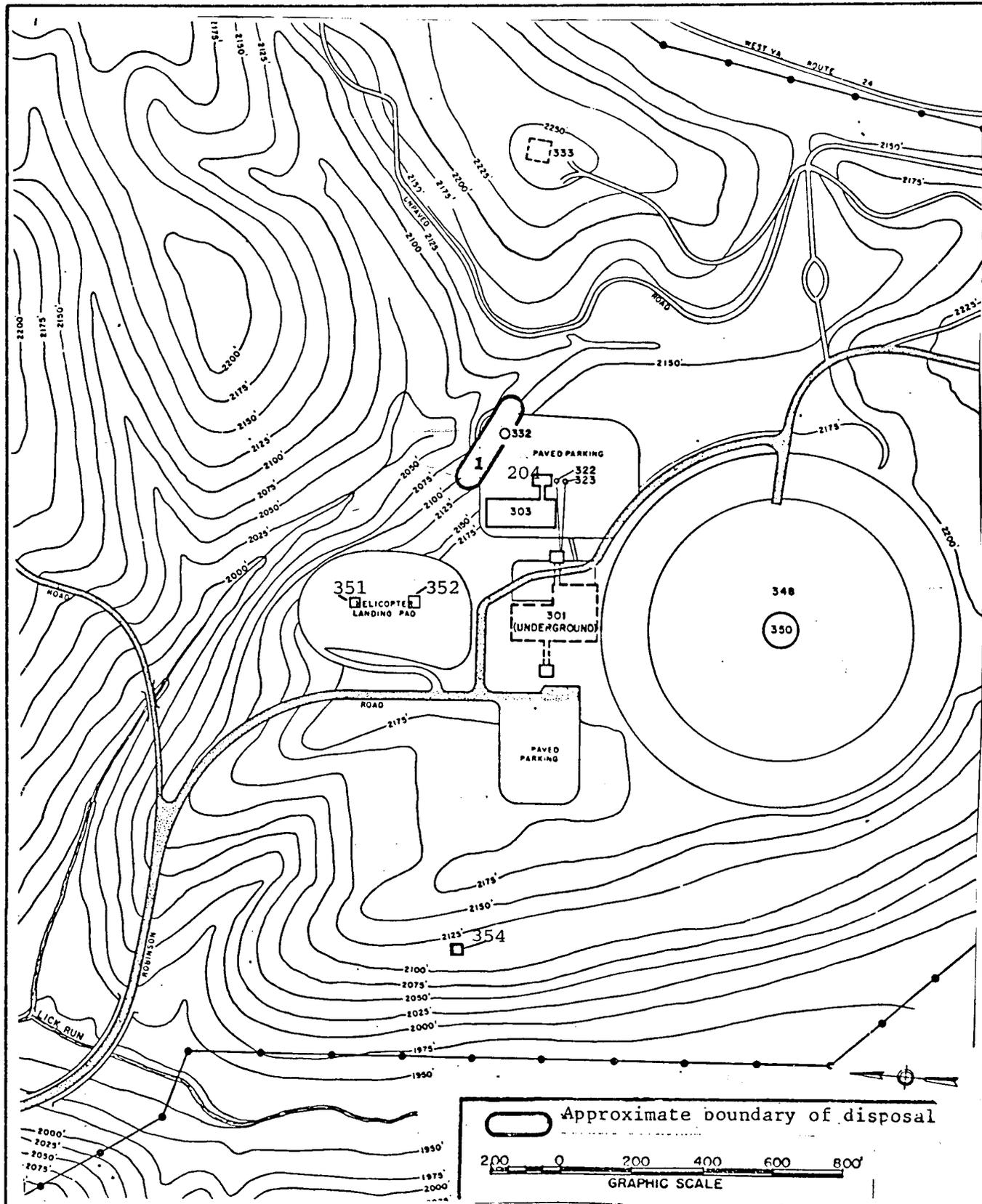


FIGURE 2
 SITE 1-OPERATIONS AREA
 WASTE DISPOSAL SITE



PRELIMINARY ASSESSMENT
 NAVAL RADIO STATION
 Sugar Grove, West Virginia

The only hazardous waste reportedly disposed of at this site consisted of about 70 gallons of toluene sludge disposed of over

Table 1. Types of Waste and Estimated Quantities Disposed of at Site 1, Operations Area Waste Disposal Site, NAVRADSTA Sugar Grove, West Virginia

Period of Disposal	Type of Waste	Estimated Total Quantity
1968 - 1975	Automotive engine oil filters containing oil	14 oil filters 14 quarts of oil
1968 - 1975	Empty spray paint cans	84 12 oz cans
1968 - 1975	Toluene sludge	70 gallons
1968 - 1975	Empty toluene cans	Unknown
1968 - 1975	Household trash	Unknown
1968 - 1975	Office paper	Unknown
1968 - 1975	Scrap metal and wood	Unknown
July 1985 - 1986	Sand, re-bar, and concrete	Unknown

(Source: NEESA, 1985)

a seven year period. Approximately ten gallons of sludge per year was mixed in small quantities with the municipal trash and burned. Because of the small quantity and volatile nature of toluene, it is unlikely that the toluene would have persisted after burning. Therefore, the site does not pose a potential threat to human health or to the environment, and no further work is recommended under the Navy IR Program.

3.2 Site 2, Support Area Burn Pits. From about 1968 until 1970, three or four burn pits were used for the disposal of activity generated waste. The burn pits were located approximately 200 feet north of Building 62. The location and approximate boundary of Site 2 is shown on Figure 3. Each pit was excavated to a depth of six feet, a width of eight feet and a length of ten feet. Waste was disposed of twice per week and burned in the pits. After a pit was filled with waste, two feet of soil was backfilled over the pit with a bulldozer. The types of waste reportedly disposed of at Site 2 include household trash, kitchen waste, wood and metal scraps, paper and cardboard.

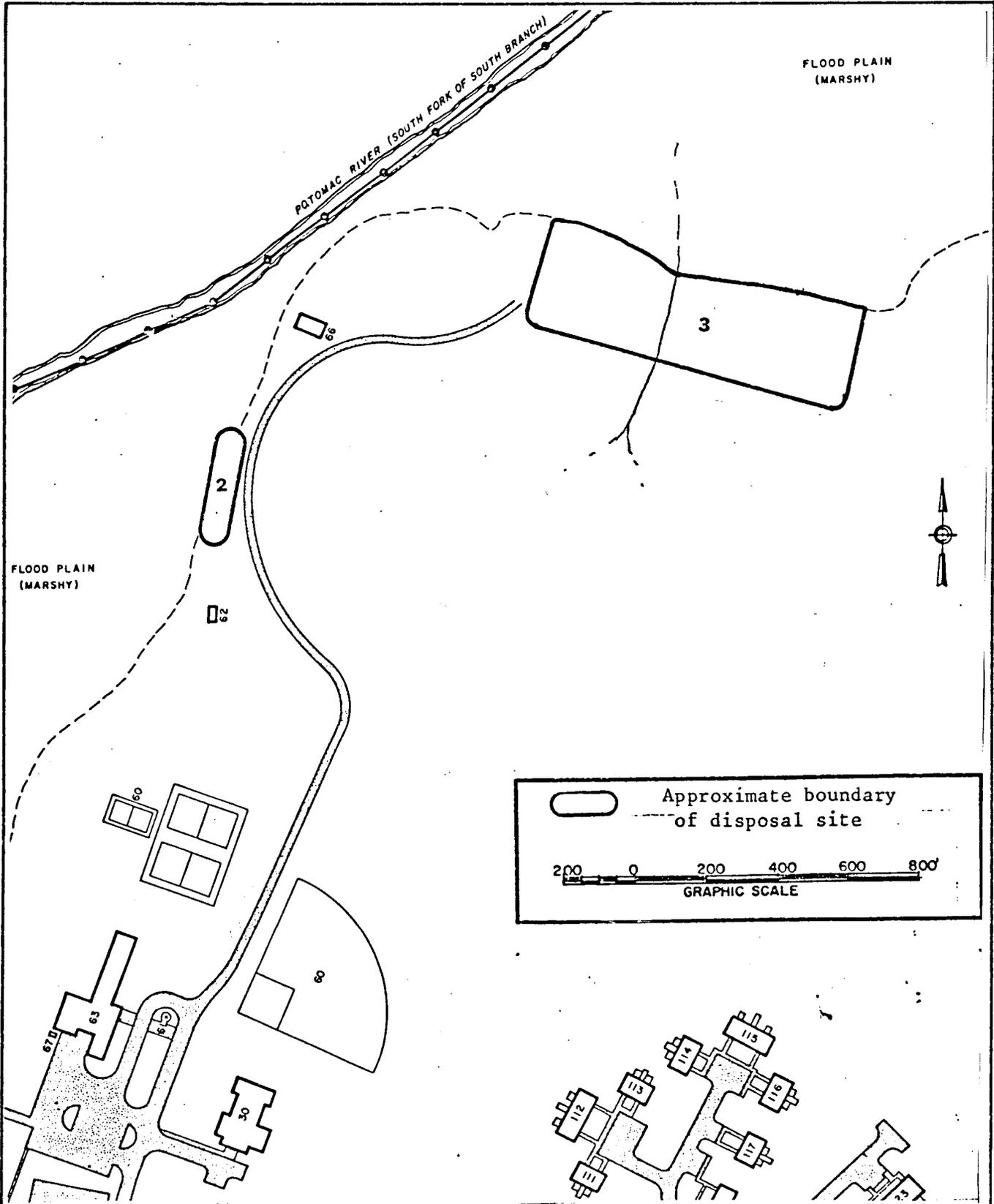


FIGURE 3
 SITE 2-SUPPORT AREA BURN PITS
 SITE 3-SUPPORT AREA LANDFILL



PRELIMINARY ASSESSMENT
 NAVAL RADIO STATION
 Sugar Grove, West Virginia

Currently, the area is overgrown with trees and grass and shows no signs of stress. Because no hazardous waste was disposed of at Site 2, no further work is recommended under the Navy IR Program

3.3 Site 3, Support Area Landfill. In 1970, waste disposal stopped at the burn pit area (Site 2) and was moved to an area located about 400 feet northeast of the pits. The location and approximate boundary of the landfill is shown on Figure 3. Wastes were disposed of in two distinct areas at the site. The two sites are separated by an earthen drainage ditch. The ditch is about 300 feet long by eight feet wide by about four feet deep with intermittent flow.

From 1970 until about 1976, the western side of the site (about 400 feet by 300 feet) was used for waste disposal. From 1976 to 1978, the eastern portion of the site (about 200 feet by 40 feet) was used for waste disposal. Both areas used trenches about 30 feet long by 12 feet wide by about 8 feet deep. Reportedly, it was common practice to dig to the level of the first shale deposit encountered.

Waste was disposed of in the trenches twice a week at the rate of two dump truck loads per week. An inspection of the sanitary landfill operation at Sugar Grove in 1974 (LANTNAVFACENGCOM, 1974) reported a garbage and trash loading rate of 60 cubic yards/month. After a trench was filled with waste, it was backfilled with about one foot of soil. Reportedly, no waste burning took place at either the eastern or the western areas of the site.

The types of waste reportedly disposed of include household trash, empty exterior and interior paint cans, empty drums of paint thinner (Stoddard solvent), air conditioning filters, and scrap wood and metal as shown in Table 2.

Site 3 is located on the fringe of the flood plain. The direction of ground water movement is to the north northeast, toward the South Branch of the South Fork of the Potomac River. The slope of the water table was reported to be 0.032. The ground water is located at about 5 feet below the ground surface. During the operation of Site 3, it was reported that the trenches that were excavated to a depth of 8 feet contained standing water (LANTNAVFACENGCOM, 1984).

Each trench was backfilled with about one foot of soil so the potential for direct human or wildlife contact is not considered likely. Surface and shallow ground water will drain north to the South Fork of the South Branch of the Potomac River which is located approximately 100 yards away. The site is located in

Tioga loam and Potomac fine sandy loams, with the soil to the north between the site and the river consisting also of Potomac fine sandy loam. The Potomac fine sandy loam is reported to have a permeability of between 0.6 to 6.0 inches per hour in the first 8 inch depth of soil, and a permeability of greater than 6.0 inches per hour in the soil from 8 to 60 inches in depth (SCS, 1983).

Table 2. Types of Waste and Estimated Quantities Disposed of at Site 3, Support Area Waste Disposal Area, NAVRADSTA Sugar Grove, West Virginia

Period of Disposal	Type of Waste	Estimated Total Quantity
1970 - 1978	Empty exterior and interior paint cans	960 1-gallon cans
1970 - 1978	Empty paint thinner (Varsol)	8 empty 55 gallon
1970 - 1978	Household trash	Unknown
1970 - 1978	Air conditioning filters	Unknown
1970 - 1978	Scrap wood and metal	Unknown

(Source: NEESA, 1985)

Because no hazardous waste was disposed at Site 3, no further work is recommended under the Navy IR Program.

4.0 AUTHORITY AND SCOPE

Section 211 of the Superfund Amendments and Reauthorization Act of 1986 (SARA 211) provides continued authority for the Department of Defense Environmental Restoration Program (DERP) and the Defense Environmental Restoration Account (DERA). The Navy Installation Restoration (IR) program is authorized by Chief of Naval Operations instruction (OPNAVINST) 5090.1 of 26 May 1983. The Naval Facilities Engineering Command (NAVFACENCOM) manages the Navy program. NAVFACENCOM tasked the Naval Energy and Environmental Support Activity (NEESA) to conduct a preliminary assessment (PA) for each Navy and Marine Corps facility listed on the Federal Facility Hazardous Waste Compliance Docket as required by SARA 120.

PAs are conducted in accordance with Environmental Protection Agency (EPA) draft guidance on "Pre-Remedial Activities at

Federal Facilities" forwarded by EPA memorandum of 8 September 1987. PA recommendations are consistent with the National Contingency Plan.

The PA begins with investigation and review of available records at NEESA and the cognizant NAVFACENGCOM Engineering Field Division. After the record search, the PA team visits the activity to complete documentation of past and present operations and disposal practices. With the assistance of the activity point of contact, the team tours the activity and interviews long term employees. If a potential threat to human health or the environment is present, further appropriate action is recommended.

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SUPPORTING DOCUMENTATION

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DEPARTMENT OF THE NAVY
ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA 23511-6287

TELEPHONE NO.

(804) 445-6783

IN REPLY REFER TO:

6280

1811:RPP

14 FEB 1991

From: Commander, Atlantic Division, Naval Facilities Engineering Command
To: Commanding Officer, Naval Radio Station, Sugar Grove
Subj: NAVY RADON ASSESSMENT AND MITIGATION PROGRAM (NAVRAMP) SCREENING RESULTS
Ref: (a) SECNAV WASHINGTON DC 191631Z JAN 89
Encl: (1) Radon Screening Results for NAVRADSTA R Sugar Grove
(2) Public Affairs Annex

1. Enclosure (1) provides the radon screening results for your activity. These results indicate your activity has some housing units with radon levels in the range of 4 to 20 picocuries per liter (pCi/L). The NAVRAMP, implemented by reference (a), follows Environmental Protection Agency (EPA) guidelines, which recommend mitigation begin within five years of discovering the condition. Since radon levels were measured in each housing unit in all of your housing areas, the next step is to develop projects to mitigate the condition. We will notify you by 30 June 1991 of our schedule for mitigating your housing units and of the deadline for submitting projects. We can provide assistance in developing projects, and in other areas of the radon program. If you need radon assistance, please contact Roberto P. Pagtalunan, Code 1811, at AUTOVON 565-6783 or commercial (804) 445-6783.

2. We recommend these screening results be made available to the occupants of family housing units. A public affairs package, enclosure (2), has been provided for your use in both publicizing these results and answering questions on the Navy's radon program.

J. R. Bailey
J. R. BAILEY
By direction

Copy to:
COMNAVFACENGCOM (182F), Part IV, List H.1
BUMED (21), Part IV, List K.1
COMNAVTELCOM, Part IV, List M.1
CNO (OP-45), Part IV, List R.1

DOE HAZWRAP

4-20 5 YRS
20-70 G.Mc
over 70- ASAP

DETECTOR STATUS FOR UIC: N70310

FACILITY NAME: NRS Sugar Grove, WV

EFD: N LANT DIV

Number of Housing Detectors	Number of Non-housing Detectors	Are More Detectors Expected	Have Enough Detectors Been Received To Determine if Assessment Necessary
SENT/RETRIEVED TO FROM UIC	SENT/RETRIEVED TO FROM UIC	HOUSING/NON-HOUSING	
55 55 (55) *	N/A N/A	YES N/A	YES

*Vendor data received

Radon Screening Results for
SUGAR GROVE NRS-R (WV)
UIC: N70310

Page: 1
Housing Data
As of: 08/25/90

Family Housing Area: MIDDLE HOUSING CAT C
Number of Units: 20

Monitor	Real Property Inventory Number	Radon Concentration (pCi/L)	Confirming Measurement will be Made with CC (* = YES)
138210	A-111	<0.5	
138589	A-112	<0.5	
138591	A-113	<0.5	
138516	A-114	<0.5	
138204	A-115	1.0	
138576	A-116	0.5	
138564	A-117	0.9	
138205	A-118	1.0	
138588	A-119	<0.5	
138247	A-119	<0.5	
138528	A-120	0.6	
138536	B-111	<0.5	
138594	B-112	<0.5	
138540	B-113	<0.5	
138544	B-114	<0.5	
138200	B-115	1.3	
138585	B-116	<0.5	
138390	B-117	0.8	
138549	B-118	2.2	
138553	B-119	<0.5	
138504	B-119	<0.5	
138548	B-120	0.9	

Family Housing Area: NEW HOUSING CAT B
 Number of Units: 10

Monitor	Real Property Inventory Number	Radon Concentration (pCi/L)	Confirming Measurement will be Made with CC (*=YES)
138556	A-121	1.5	
138582	A-122	2.6	
138560	A-123	6.8	
138571	B-121	1.5	
138542	B-122	1.1	
138574	B-122	0.9	
138586	B-123	0.9	
138596	C-121	<0.5	
138578	C-122	<0.5	
138505	D-121	1.2	
138566	D-122	1.4	

2nd Reading
** 9.6 Confirmation*

1) Alpha Track (1yr)
2) E-perm (Follow-up 30 days)
3) 5/yr Mitigation 2-3 days

4) Tap
3 yrs to Mitigate correct method

Radon Screening Results for
SUGAR GROVE NRS-R (WV)
UIC: N70310

Page: 3
Housing Data
As of: 08/25/90

Family Housing Area: OLD HOUSING CAT C
Number of Units: 20

Monitor	Real Property Inventory Number	Radon Concentration (pCi/L)	Confirming Measurement will be Made with CC (* = YES)
138567	A-101	2.0	
138554	A-102	0.9	
138577	A-103	<0.5	
138579	A-104	<0.5	
138552	A-105	1.0	
138573	A-106	0.9	
138391	A-107	1.6	
138211	A-107	1.5	
138557	A-108	0.5	
138570	A-109	1.1	
138598	A-110	1.1	
138561	B-101	1.8	
138580	B-102	1.3	
138584	B-103	<0.5	
138575	B-104	<0.5	
138587	B-105	0.9	
138208	B-106	1.3	
138595	B-107	1.9	
138583	B-108	2.2	
138539	B-109	1.0	
138223	B-110	0.6	
138541	B-110	<0.5	

Radon Screening Results for
SUGAR GROVE NRS-R (WV)
UIC: N70310

Page: 4
Housing Data
As of: 08/25/90

Family Housing Area: TRAVEL BLANKS
Number of Units: 20

Monitor	Real Property Inventory Number	Radon Concentration (pCi/L)	Confirming Measurement will be Made with CC (* = YES)
138235	TRAVEL BLANK(149)	----	
138593	TRAVEL BLANK(149)	----	
138206	TRAVEL BLANK(150)	----	
138599	TRAVEL BLANK(150)	----	
138592	TRAVEL BLANK(151)	----	
138545	TRAVEL BLANK(151)	----	