# Table of Contents

EXECUTIVE SUMMARY ......................................................................................................... IV

1.0 INTRODUCTION .............................................................................................................. 1
  1.1 Purpose and Scope of Work ......................................................................................... 1
  1.2 Significant Assumptions ........................................................................................... 3
  1.3 Limitations and Exceptions of Assessment ............................................................... 4
  1.4 User Reliance ............................................................................................................ 4
  1.5 Qualifications and Report Certification ..................................................................... 5

2.0 SITE DESCRIPTION ......................................................................................................... 6
  2.1 Parcel Locations ....................................................................................................... 6
  2.2 Physical Setting ....................................................................................................... 6
  2.3 Sites and Vicinity ...................................................................................................... 6
  2.4 General Description of Structures, Roads, and Utilities ........................................... 8
  2.5 Current Use of Properties ....................................................................................... 9
  2.6 Current Use of Adjoining Properties ....................................................................... 10

3.0 USER-PROVIDED INFORMATION ............................................................................... 11

4.0 RECORDS REVIEW ...................................................................................................... 14
  4.1 Sanborn Fire Insurance Maps .................................................................................. 14
  4.2 Historic Topographic Maps ..................................................................................... 14
  4.3 Historic Aerial Photographs ................................................................................... 15
  4.4 Historic City Directories ......................................................................................... 16
  4.5 Federal, State, and Local Databases ........................................................................ 16

5.0 SITE RECONNAISSANCE ............................................................................................ 33
  5.1 Methodology and Limiting Conditions ................................................................... 33
  5.2 Hazardous Waste .................................................................................................... 33
  5.3 Hazardous Substances ............................................................................................ 33
  5.4 Biological Hazards .................................................................................................. 33
  5.5 Aboveground Storage Tanks ................................................................................... 34
  5.6 Underground Storage Tanks ................................................................................... 34
  5.7 Laboratory Fume Hoods, Ductwork, and Drains ....................................................... 34
  5.8 Evidence of Environmental Contamination ............................................................. 35
  5.9 Input from Regulatory Agencies ............................................................................. 36

6.0 INTERVIEWS .................................................................................................................. 37
  6.1 Facility Mission ........................................................................................................ 37
  6.2 Environmental Permits ............................................................................................ 37
  6.3 USTs and ASTs ........................................................................................................ 38
  6.4 Utilities .................................................................................................................... 38
  6.5 Laboratory Fume Hoods, Ductwork, and Drains ....................................................... 38
  6.6 Past Uses of Properties ............................................................................................ 39
  6.7 Chemical Use and Storage ..................................................................................... 39
  6.8 Spills ....................................................................................................................... 41
  6.9 Hazardous Wastes .................................................................................................. 41

7.0 FINDINGS ....................................................................................................................... 42

8.0 DATA GAP ANALYSIS ............................................................................................... 43

9.0 OPINION ....................................................................................................................... 44

10.0 CONCLUSIONS .......................................................................................................... 46

11.0 ADDITIONAL INVESTIGATION BEYOND ASTM E1527-05 ................................. 47
List of Figures

Figure 1. AFSRC Parcel Locations Near Beaver, West Virginia ................................................... 7

List of Tables

Table 1. Summary of Standard Environmental Records Search.................................................. 18
Table 2. Summary of Additional Environmental Records Search............................................... 25
Table 3. Personnel Interviewed .................................................................................................... 37

Appendices

A.1 Site Maps and Layouts
A.2 Site Photographs
A.3 GSA Excess Real Property Checklists
A.4 Correspondence
A.5 EDR Reports
A.6 Relevant Site Documentation
A.7 Qualifications of Environmental Professional
List of Acronyms and Abbreviations

AAI  All Appropriate Inquiries
AFSRC Appalachian Farming Systems Research Center
ARS Agricultural Research Service
ASTM American Society for Testing and Materials, now known as ASTM International
AST Aboveground Storage Tank
AUL Activity and Use Limitation
BTEX Benzene, Toluene, Ethylbenzene, and Xylene
CDC Centers for Disease Control and Prevention
CERCLA Comprehensive Environmental Response, Compensation, and Liability Act
CESQG Conditionally Exempt Small Quantity Generator
CFR Code of Federal Regulations
CIH Certified Industrial Hygienist
CPAIS Corporate Property Automated Information System
CSP Certified Safety Professional
EDR Environmental Data Resources, Inc.
EPA United States Environmental Protection Agency
ESA Environmental Site Assessment
FIFRA Federal Insecticide, Fungicide, and Rodenticide Act
FUDS Formerly Used Defense Sites
GSA General Services Administration
LQG Large Quantity Generator
LUST Leaking Underground Storage Tank
mg/L Milligrams per liter
MSHA Mine Safety and Health Administration
NAA North Atlantic Area
NCP National Oil and Hazardous Substances Pollution Contingency Plan
NPL National Priorities List
PAH Polynuclear Aromatic Hydrocarbons
PCB Polychlorinated Biphenyls
PE Professional Engineer
ppb Parts per billion
ppm Parts per million
RCRA Resource Conservation and Recovery Act
REC Recognized Environmental Conditions
REHS Registered Environmental Health Specialist
SARA Superfund Amendments and Reauthorization Act
SF Square Feet
SQG Small Quantity Generator
TSCA Toxic Substances Control Act
TSD Treatment, Storage, and Disposal Facility
TPH Total Petroleum Hydrocarbons
USDA United States Department of Agriculture
USGS United States Geological Survey
UST Underground Storage Tank
VEC Vapor Encroachment Condition
WVDA West Virginia Department of Agriculture
WVDEP West Virginia Department of Environmental Protection
WVDNR West Virginia Division of Natural Resources
THIS PAGE INTENTIONALLY LEFT BLANK
EXECUTIVE SUMMARY

In accordance with the requirements of ASTM International (known until 2001 as the American Society for Testing and Materials) “Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process” (ASTM E1527-05) and the United States Environmental Protection Agency (EPA) “Standards and Practices for All Appropriate Inquiries” (AAI, 40 CFR Part 312), the following United States Department of Agriculture (USDA) properties were evaluated:

- Appalachian Farming Systems Research Center (42.7 acres; Beaver, West Virginia);
- Reba Plumley Farm (126.6 acres; Shady Spring, West Virginia);
- School House Farm (54.8 acres; Shady Spring, West Virginia);
- Peters Farm (54 acres; Cool Ridge, West Virginia); and
- Roscoe Plumley Farm (15 acres; Shady Spring, West Virginia).

Appendix A.1 provides available site maps and layouts for these parcels. Appendix A.2 provides photographs taken during site reconnaissance. No on-site recognized environmental conditions (RECs) were identified for any of the properties. RECs are defined in the ASTM E1527-05 standard as:

“...the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include de minimis conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be de minimis are not recognized environmental conditions.”

The following historical REC (where a REC has resulted from historical uses or conditions, but apparently no longer persists at the site) exists at the AFSRC Main Laboratory:

- Soil contamination was observed during the 1992 replacement of two steel underground storage tanks (USTs) with fiberglass reinforced plastic USTs. The USTs were used to store petroleum products. Tank registration records indicate that both USTs stored gasoline. WVDEP was notified and a site characterization report was submitted to the state. WVDEP concurred that no further action was necessary after the contaminated soil was excavated and disposed. No groundwater wells are present at the AFSRC Main Laboratory and drinking water is supplied by Raleigh County. AFSRC also operated in accordance with a groundwater protection plan, which was first submitted to WVDEP in 1995. Therefore, this historical REC meets de minimis conditions and is not a REC.

The following two off-site locations, within 1/4-1/2 mile from AFSRC Main Laboratory, were identified through database searches performed by EDR.

- CC Mart #1 (1125 Airport Road, Beaver, WV) – According to Leaking Underground Storage Tank (LUST) data obtained by Environmental Data Resources, Inc. (EDR), groundwater contamination (but no known drinking water contamination) occurred at this site, which is located southwest of the AFSRC lab boundary. The release date and cleanup completion
Phase I ESA
Agricultural Research Service  AFSRC Beaver, West Virginia

Date are listed as 2/12/2002 and 3/7/2005 respectively. EDR data searches indicated that three USTs are currently in use (two 12,000-gallon gasoline tanks and one 20,000-gallon diesel tank).

- **DOT/FAA VORTAC (Raleigh County Airport, Beaver, WV)** – According to LUST data obtained by EDR, soil contamination occurred at this site, which is located northwest of the AFSRC lab boundary, after a release occurred on 11/3/1994. The cleanup completion date is listed as 5/1/1996. One 1,000-gallon diesel tank (closed on 10/28/1994 and removed from the ground) and one 600-gallon diesel tank (closed on 8/18/1997 and removed from the ground) are identified in the UST records searched by EDR.

Vapor migration from these facilities would only occur if a release occurred and was not remediated or if only limited (e.g., soil only, and not groundwater) remediation took place. According to ASTM E2600-10 (Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions), for off-site LUST properties, a vapor encroachment condition (VEC) would not be likely on the target property if these properties were more than 528 feet away from the target property in the up-gradient (groundwater flow) direction; 100 feet away from the target property in the down-gradient direction; and 195 feet away from the target property in the cross-gradient direction. None of these facilities are located within 528 feet of the target properties. These facilities meet *de minimis* conditions and do not have any material impact on the target properties.

The following off-site location, within 1/8 mile from Reba Plumley Farm, was also identified through database searches performed by EDR.

- **Pluto #1 Surface (Standard Pocahontas Coal, Raleigh County, WV)** – According to data obtained by EDR from the Mines Master Index File, a mine located near the eastern edge of the property boundary was classified as abandoned on 9/25/1979 by the Mine Safety and Health Administration. No additional data for this site are available.

Additional findings identified in the Summary of Relevant Findings portion of Section 3 of this report meet *de minimis* conditions.

Questions 8 through 19 of GSA Excess Real Property Checklist (dated November 2011) were completed. These checklists contain information related to asbestos; hazardous substance activity certification, lead-based paint; RCRA permits and landfills (including RCRA corrective actions); underground storage tanks (active, abandoned, closed in place or removed); polychlorinated biphenyls (PCBs); mold; radon, and pesticides (including herbicides, fungicides, and rodenticides). Note that this checklist only applies to USDA-owned properties, and therefore does not apply to the Roscoe Plumley Farm, which was formerly leased by USDA. Completed checklists are provided in Appendix A.3. Appendix A.4 contains correspondence with the West Virginia Field Office of the United States Fish and Wildlife Service (USFWS) and the West Virginia State Historic Preservation Office (WV SHPO). Appendix A.5 contains the complete results of EDR database searches for each property.

Potential liabilities associated with possible hazardous contamination of sink drains and traps, fume hoods and exhaust duct work were identified. During interviews, site personnel indicated that perchloric acid was used in AFSRC lab fume hoods in the past. The lab is equipped with fume hoods with water washdowns that are specifically designed and labeled for perchloric acid use. In addition to being a corrosive liquid, under some circumstances perchloric acid may act as an oxidizer and present an explosion hazard. Organic materials are especially susceptible to
combustion if mixed or contacted with perchloric acid. Under some circumstances, perchloric acid vapors form perchlorate salts that deposit in duct work, which are shock sensitive. The existing water washdown systems in the fume hoods are designed to prevent these perchloric acid hazards.

During interviews, site personnel indicated that radiological materials were used at the AFSRC Main Laboratory. Isotope research was conducted in Room 27 (approximately 200 SF) of the main facility in the past. This research was conducted intermittently, beginning in the 1980s. Radioactive isotopes of phosphorus were primarily used: $^{32}\text{P}$ (half-life of approximately 14.3 days) and $^{33}\text{P}$ (half-life of approximately 25.3 days). Plant DNA was tagged with phosphorus radioisotopes and exposed to X-ray film for imaging. The last use of radioisotopes occurred in 2006. In 2008, the decision was made by the facility managers to terminate and proceed with the close out of the radioactive materials use program through the USDA Radiation Safety Staff office (RSS). All remaining radioactive materials at the facility were shipped for disposal to Thermo-Fisher Scientific in Austin, Texas (August 2008) and NSSI Recovery Services in Houston, Texas (October 2008). Appendix A.6 contains the related closure documentation and shipping manifest, along with other site documentation. Room 27 was then released by RSS for unrestricted use. Appendix A.7 documents the qualifications of the environmental professional that conducted the Phase I environmental site assessment of the USDA properties.
1.0 INTRODUCTION

ASTM International (known until 2001 as the American Society for Testing and Materials) “Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process” (ASTM E1527-05) was originally published in 1993. The purpose of the standard is to define good commercial and customary practice for performing environmental site assessments (ESAs) of parcels of real estate. The original purpose of an ESA was to satisfy the “Innocent Landowner” provisions of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, a.k.a. Superfund), thereby reducing the liability associated with taking ownership of property where hazardous substances are present.

The ASTM standard has been revised periodically since 1993 in response to changes in good customary practices and in response to changes or amendments in Federal laws [e.g., the Superfund Amendments and Reauthorization Act of 1986 (SARA); the Asset Conservation, Lender Liability, and Deposit Insurance Protection Act of 1996 (Lender Liability Amendments); and Small Business Liability Relief and Brownfields Revitalization Act of 2001 (Brownfields Amendments)]. The most recent changes to the ASTM Standard (2005) are a result of requirements in the United States Environmental Protection Agency (EPA) “Standards and Practices for All Appropriate Inquiries” (AAI, 40 CFR Part 312) regulations, which went into effect in November 2006. Note that a revision to ASTM E1527 is anticipated by the end of 2013.

The EPA AAI regulations went into effect in November 2006 and were promulgated to establish specific standards and requirements for investigating the prior ownership and historical use of a property to qualify for the following CERCLA landowner liability protections to property owners: innocent landowner defense, bona fide prospective purchaser defense, or contiguous property owner defense. The AAI rule increased the search distances over those included in the 2000 revision of the ASTM Standard, required searches for engineering and institutional controls, and required review of local government and tribal records. The AAI records review also requires a search of reasonably ascertainable land title and lien records to identify environmental liens or activity and use limitations, if any, that are recorded against the property.

The AAI historical ownership/use review requires that ownership and/or use of the property be traced back to 1940, or first developed use, whichever is earlier. Data gaps identified for the property, along with their associated significance must be reported. The AAI Rule also requires taking into account commonly known or reasonably ascertainable information within a local community. AAI requires that inquiries be conducted by an environmental professional, which is specifically defined within the rule. According to §312.20(a) and §312.20(b) of the AAI Rule, a Phase I ESA must be conducted within one year prior to the date of acquisition of the subject property and certain components of the all appropriate inquiries must be conducted or updated within 180 days of and prior to the date of acquisition of the subject property.

1.1 Purpose and Scope of Work

In accordance with the requirements of ASTM E1527-05 and the United States Environmental Protection Agency (EPA) “Standards and Practices for All Appropriate Inquiries” (AAI, 40 CFR Part 312), the following United States Department of Agriculture (USDA) properties were evaluated:

- Appalachian Farming Systems Research Center (42.7 acres; Beaver, West Virginia);
- Reba Plumley Farm (126.6 acres; Shady Spring, West Virginia);
- School House Farm (54.8 acres; Shady Spring, West Virginia);
- Peters Farm (54 acres; Cool Ridge, West Virginia); and
• Roscoe Plumley Farm (15 acres; Shady Spring, West Virginia).

This Phase I ESA assists USDA with the two main objectives listed below.

• To identify whether recognized environmental conditions (RECs) are present on the following properties. RECs are defined in the ASTM E1527-05 standard as:

  “...the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include de minimis conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be de minimis are not recognized environmental conditions."

• To possibly qualify USDA for relief from liabilities as one of three defenses identified in the 2002 Brownfields Amendments to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 9607 (All Appropriate Inquiry subsections). USDA should consider consulting legal counsel should it wish to qualify for any of these defenses. A “user” is defined by ASTM E1527-05 as the party seeking to complete an ESA of the project area and may include a potential purchaser of land in the project area, a potential tenant of the project area, an owner of land in the project area, a lender, or a project area manager.

The scope of work of this project includes the following:

• Provide a description of the properties including current land uses;

• Review reasonably ascertainable regulatory information published by federal, state, local, tribal, health, and/or environmental agencies pertaining to the properties;

• Review historical data sources for the properties, including aerial photographs, topographic maps, fire insurance maps, city directories, and other reasonably ascertainable data (e.g., geologic, hydrogeologic data);

• Conduct site reconnaissance and an environmental review, with a focus on known or suspected releases of hazardous substances or petroleum products.

• Interview the current owner of the properties and interview other persons with knowledge of the use and activities associated with the properties; and

• Prepare a written report of methods, findings, and conclusions.

USDA requested that the following project tasks, which are beyond the scope of ASTM E1527-05 requirements, also be performed:

• Complete questions 8 through 19 of GSA Excess Real Property Checklist dated November 2011 (asbestos; hazardous substance activity certification, lead-based paint; RCRA permits and landfills (including RCRA corrective actions); underground storage tanks (active,
abandoned, closed in place or removed); polychlorinated biphenyls (PCBs); mold; radon, and pesticides (including herbicides, fungicides, and rodenticides)); note that this checklist only applies to USDA-owned properties, and therefore does not apply to the Roscoe Plumley Farm, which was formerly leased by USDA;

- Identify the potential for liabilities associated with possible hazardous contamination of sink drains and traps, fume hoods and exhaust duct work; and

- If the location utilized radiological and/or biological materials, verify that appropriate closure documentation exists, and document the rationale for each determination referencing previous surveys, inventories and other documents utilized to make the determination.

1.2 Significant Assumptions

The following significant assumptions were made in preparing this assessment:

- Data provided by the client, as well as data gathered from the site and secondary sources (e.g., libraries, public regulatory agencies, Environmental Data Resources, Inc.), are accurate and reliable;

- Site operations reflect site conditions relative to potential releases and no intentional concealment of environmental conditions or releases has occurred;

- Interview information is directly reported as gathered by the assessor and is limited by the accuracy of the interviewee’s recollection and experience;

- Published geologic information and site observations made by the environmental professional are used to estimate likely contaminant migration pathways in the subsurface; these estimates by the environmental professional are limited in accuracy and are generally cross-referenced with existing information about similar sites and environmental releases in the area;

- Regulatory information is limited to sites identified after the late 1980s because reliable records were not kept by regulatory agencies prior to that time frame

- Inapplicable data or information of limited value is not discussed in this report. However, in accordance with ASTM 1527-05 and AAI, if the lack of available documentation results in a data gap, this data gap and its associated significance are identified and incorporated into the appropriate sections of this report.

- Where a REC has resulted from historical uses or conditions, but apparently no longer persists at the site, the term “historical REC” is used.

- The findings and conclusions presented in this report are based on a review of the available literature cited in this report, reasonably ascertainable information, conditions noted at the time of this Phase I ESA, and interpretation of the information obtained as part of this Phase I ESA. The findings and conclusions are limited to the specific project and properties described in this report, and by the accuracy and completeness of the information provided by others. An ESA cannot entirely eliminate uncertainty regarding the potential for RECs. Conducting this assessment is intended to reduce, but not eliminate, uncertainty regarding the potential for RECs in connection with a project area within reasonable limits of time and cost.
1.3 Limitations and Exceptions of Assessment

Solv has prepared this Phase I ESA using reasonable efforts to attempt to identify areas of potential liability associated with RECs at the properties. Solv’s services in the development of this report were conducted in a manner consistent with that level of care and skill ordinarily exercised by members of the same professions currently practicing in the same locality under similar conditions, and no other guarantee, warranty, or representation, either express or implied, is included or intended herein.

Per Section 7.4 of ASTM E1527-05, no sampling or physical testing of materials was performed for this Phase I ESA. For example, soil; soil gas; groundwater; drinking water; wastewater; indoor air quality; ambient air quality; stack; underground storage tank (UST) or aboveground storage tank (AST) tank or line testing; asbestos; radon; lead-based paint; mold; vapor intrusion; hazardous materials; or any other sampling or testing was not performed. Consequently, the conclusions in this report were based solely on a visual review of the properties, reasonably ascertainable records, interviews, and other secondary sources. Solv does not warrant that contamination that may exist on the properties has been discovered; that the properties are suitable for any particular purpose; or that the properties are clean or free of liability. Any cost estimates are based on general comparisons with past projects of similar scope and size, and actual cost or design-phase estimates may vary substantially from these estimates.

The scope of services performed in execution of this investigation may not be appropriate to satisfy the needs of other users, and any use or reuse of this document or the findings, conclusions, or recommendations presented herein is at the sole risk of the user. Opinions and recommendations presented herein apply to the site conditions existing at the time of the site reconnaissance and cannot necessarily apply to site changes of which Solv is not aware and has not had the opportunity to evaluate. Changes in the conditions of this property may occur with time due to natural processes or anthropogenic activities on the properties and adjacent properties. Changes in applicable standards may also occur as a result of legislation or other causes. Accordingly, the findings of this report may be invalidated, wholly or in part, by changes beyond Solv’s control. Opinions and judgments expressed herein are based on Solv’s understanding and interpretation of current regulatory standards, and should not be construed as legal opinions. Solv makes no representations regarding the value or marketability of this property or the suitability for any particular use, and none should be inferred based on this report.

1.4 User Reliance

This report has been prepared for use by the United States Department of Agriculture. If this report is transferred to any other party or used for any other purpose without the express written authorization of Solv, Solv will not be held liable or responsible for any decisions or outcomes made by such parties.
1.5 Qualifications and Report Certification

This Phase I ESA was prepared by Purvagna Amin, PE, LEED AP, a Senior Environmental Engineer at Solv. Mr. Amin has more than 16 years of experience providing site assessment, permitting and compliance, pollution prevention, and other evaluations related to the release or potential release of contaminants to the environment. Mr. Amin’s resume is presented in Appendix A.7.

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in 40 CFR Part 312.10 and ASTM E1527-05. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. Solv has developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in ASTM 1527-05 and 40 CFR Part 312.

Purvagna Amin, PE, LEED AP
Senior Environmental Engineer
Solv LLC – Arlington, VA
2.0 SITE DESCRIPTION

The USDA Agricultural Research Service (ARS) Appalachian Farming Systems Research Center (AFSRC) consists of five parcels of property, totaling approximately 293 acres and 65,000 square feet (SF) of buildings and structures, located in the Appalachian Region of southern West Virginia. Additional information related to these properties is described in the following sections.

2.1 Parcel Locations

The five USDA ARS AFSRC parcels evaluated for this Phase I ESA are located within a 15-mile radius of Beckley, West Virginia. Four of the parcels are owned by USDA, while one parcel is leased. Figure 1 presents the name, owner, size, address, buildings, and location associated with each parcel. Note that the addresses for all of the properties, except for the AFSRC Main Laboratory, are based on a reverse lookup of latitude and longitude coordinates (Source: Google Maps).

2.2 Physical Setting

The United States Geological Survey (USGS) 7.5-minute quadrangle maps for the properties indicate that the elevation of the sites range from 2,520 to approximately 2,910 feet above mean sea level (amsl). The topography of the properties is variable, with both relatively flat and steep regions. The elevation of the areas within 1 mile of the properties ranges from 1,310 to approximately 2,940 feet amsl. The dominant soil composition in the general area of the AFRSC main laboratory is Dekalb, a Hydrologic Group Class A soil with high infiltration rates that range from 6 to 20 inches per hour. The dominant soil composition of the other four properties is Lily, a Hydrologic Group Class B soil with moderate infiltration rates that range from 0.6 to 6 inches per hour. The presence of springs at some of the properties indicates that the groundwater table can be shallow. Groundwater flow direction for the parcels cannot be ascertained from existing information. Regional groundwater flow maps and adequate groundwater depth data associated with existing wells are not available.

2.3 Sites and Vicinity

The main laboratory of the AFRSC is located on Airport Road in Beaver, West Virginia. The 42-acre site is bounded by Airport Road (west), trees (north), Southern West Virginia Asphalt (east), and an unnamed road (south) that leads to the Southern Regional and Correctional Facility. Raleigh County Memorial Airport is located within one mile north of the lab, along Airport Road. The Mine Safety and Health Administration (MSHA) Educational Field Services – Eastern Field Office is located to the west of the lab, across Airport Road. There are several businesses located within approximately a ½ mile of the lab to the southwest on Airport Road, including a Shell CC Mart gas station, Sleep Inn, and Tudor’s Biscuit World. These businesses are located between the lab and Interstate 64 exit 125.

Reba Plumley Farm is located on County Route 27/Bragg Road in Shady Spring, West Virginia, approximately 1 mile north of Interstate 64 exit 133. This approximately 126-acre property is surrounded by other farms, residences, and wooded areas. According to the Environmental Data Resources, Inc. (EDR) Radius Map, Pocahontas Coal Mining is located within 1/8 mile east of the property boundary (Refer to Appendix A.5).
## Locations of USDA Parcels in Appalachian Region of West Virginia

<table>
<thead>
<tr>
<th>Parcel</th>
<th>Name/Owner/Size</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AFSRC Main Laboratory USDA &lt;br&gt;42 acres</td>
<td>1224 Airport Road &lt;br&gt;Beaver, WV 25813</td>
</tr>
<tr>
<td>2</td>
<td>Reba Plumley Farm USDA &lt;br&gt;126.6 acres</td>
<td>898 County Route 27 &lt;br&gt;Shady Spring, WV 25918</td>
</tr>
<tr>
<td>3</td>
<td>School House Farm USDA &lt;br&gt;54.8 acres</td>
<td>4352 Pluto Rd &lt;br&gt;Shady Spring, WV 25918</td>
</tr>
<tr>
<td>4</td>
<td>Peters Farm USDA &lt;br&gt;54 acres</td>
<td>227 Peters Ct &lt;br&gt;Cool Ridge, WV 25825</td>
</tr>
<tr>
<td>5</td>
<td>Roscoe Plumley Farm &lt;br&gt;Jewell G. Plumley &lt;br&gt;15 acres &lt;br&gt;Lease No. 57-3615-9-001 &lt;br&gt;Expiration 9/30/2011</td>
<td>526 Plumley Knob Rd &lt;br&gt;Shady Spring, WV 25918</td>
</tr>
</tbody>
</table>

*Figure 1. AFSRC Parcel Locations Near Beaver, West Virginia*
School House Farm, a 54.8-acre property, is located on County Route 27/Pluto Road in Shady Spring, West Virginia, approximately 1 mile south of Interstate 64 exit 133. The northwestern portion of property is bounded by Pluto Road. Trailer homes, along with several businesses (Affordable Towing and Repair, Glen's Auto Salvage, and Outback Woodworking) are located along the western border of the property, along Pluto Road. A residence and farm is located across from Pluto Road (northwest), while wooded areas surround the property to the southwest, south, southeast, and northeast. Additional homes, including trailer homes, and farms are located on the northern and a portion of the northeastern property boundary.

Peters Farm is located on Peters Court in Cool Ridge, West Virginia. The farm is approximately 54 acres and is bounded by the West Virginia Turnpike (State Route 77) to the east. An underground natural gas pipeline owned by the local utility company intersects into the western portion of the property. Natural gas meters for this pipeline are also located on the western portion of the property. A cemetery is located adjacent to the property on the west. The remainder of the property is surrounded by residences.

USDA formerly leased approximately 15 acres of land at Roscoe Plumley Farm. This farm is located approximately 2 miles north of the Reba Plumley Farm, along County Route 27/Abraham Road and Plumley Knob Road. This property, located within farmland owned by various members of the Roscoe Plumley family, is surrounded by farmland and residences.

Appendix A.1 provides available site maps and layouts for these parcels. Appendix A.2 provides photographs taken during site reconnaissance.

### 2.4 General Description of Structures, Roads, and Utilities

The AFSRC's main laboratory consists of the following main structures:

- Main lab and office building – 31,288 square feet (SF);
- Hydrology laboratory – 7,064 SF;
- Engineering shop – 3,276 SF;
- Equipment storage building – 2,424 SF; and
- Equipment maintenance; soils, plant, and pesticide storage; chemical storage; hazardous waste storage; and greenhouses.

Note that square footage estimates are based on USDA's Corporate Property Automated Information System (CPAIS). An access road extends from Airport Road to a parking lot, and between the structures of the AFSRC main laboratory property. Potable water and sanitary sewer service is supplied to the lab by Raleigh County. Electricity is provided by the local utility company. One 4,000-gallon unleaded gasoline underground storage tank (UST) and one 4,000-gallon diesel fuel UST are located at the facility. The facility is equipped with an emergency power generator to provide backup power for the structures. A 1,500-gallon diesel fuel aboveground storage tank (AST) supplies the emergency generator. The laboratory is also equipped with a reverse osmosis water treatment system, hot water heater, compressed air system, and external compressed laboratory gas feed system. A fence surrounds portions of the property.

Reba Plumley Farm consists of the following main areas and associated structures:

- Mainside – red metal barn, red corral barn, green barn, and pole barn;
- Block 1 – old sheep red wood barn, open-walled shed (canopy), white equipment shed; and
- Block 2 – red metal equipment shed, leaning wood barn, and red canopy.
A 1,000-gallon diesel fuel AST is located on a concrete pad under an enclosed addition attached to the red metal barn at the mainside of Reba Plumley Farm. Two wells are present for use of water for livestock and vegetation. These wells are located in the mainside and northern portions of the property and are connected to distributed underground water lines. Overhead electrical lines tie into the mainside portion of the farm with underground electrical lines between the red metal barn and other structures. No sanitary sewer or septic tanks systems are present at the farm. A wet pond and one dry pond are present at the southern portion of the farms. A wet pond is also present near the structures at the mainside portion of the farm. Paved roads provide vehicular access to the main farm entrances, while gravel roads provide access to structures and other portions of the property. A fence surrounds portions of the property.

School House Farm consists of the following main structures:

- Cut stone barn;
- Gray metal equipment shed with adjoining red wood shed;
- Red metal barn;
- Red canopy and outdoor wood burning furnace;
- Stone building for housing fence charging equipment;
- White storage shed and aboveground plastic water tank with stand.

School House Farm is equipped with two wells for livestock and vegetation; however, one well is plumbed but not in use. Underground water lines are connected to the active well for distribution to various points of the property. Both wells are located near the red metal barn, due south of the central portion of the property. Electricity for the red metal barn is supplied via an overhead electrical line, with an underground line that extends from the nearest pole to the red metal barn. A springhead with a 1,000-gallon concrete underground tank is located near the cut stone barn. This tank is connected to an underground water line for distribution to livestock and irrigation. A fence surrounds portions of the property. A gravel road provides vehicular access to the structures and other portions of the property.

The structures at Peters Farm consist of a wooden barn and a roofless metal shed. An underground natural gas line intersects the western portion of the property. Natural gas meters are also located in this area. Electricity for the wooden barn is provided via an overhead electrical line, with approximately 10 feet of underground electrical line from the electrical pole to the barn. No other utilities, including roads, are present at the property.

Roscoe Plumley Farm structures consist of a brown goat shed; white water pump shed; sheep pen; 1,000-gallon concrete underground cistern for spring water; and aboveground plastic water storage tank. Electricity is supplied via overhead line to the water pump shed. No paved or gravel roads are present on the leased portion of the property.

Several test wells, ranging from 2 inches to 6 inches in diameter, and 6 feet to 12 feet in depth, are located at the Reba Plumley Farm, Peters Farm, and Roscoe Plumley Farm. These test wells are typically tubes made of polyvinyl chloride (PVC) with white caps, and were used to collect soil and groundwater to measure analytes, such as nitrogen and phosphorus content, for agricultural research.

### 2.5 Current Use of Properties

USDA has ceased research activities at all five parcels. Official closure of the AFSRC properties occurred in mid-June of 2012. AFSRC’s mission was to develop knowledge and
technology to increase the profitability of small-farm agricultural enterprises in the Appalachian Region while enhancing soil and water quality and environmental integrity. Past research activities identified and targeted products to satisfy niche market demands and explore practices that help farmers overcome the challenges presented by climate, steep terrain and eroded soil.

The main laboratory was formally dedicated by Senator Robert C. Byrd in 1980 as the Appalachian Soil and Water Conservation Research Laboratory to focus on soil and water issues associated with re-claimed strip mining and watershed ecology from agricultural practices. The facility name was changed in 1999 to the Appalachian Farming Systems Research Center and the research has focused on managed hill-land agriculture for production of cattle, sheep and goats, along with soil and water quality of agricultural systems. The Reba Plumley Farm, School House Farm, and Peters Farm were acquired by USDA to expand this research in the mid-1990s. USDA has leased approximately 15 acres of the Roscoe Plumley Farm since 1992. The last lease renewal occurred in August 2008 and expired on September 30, 2011.

2.6 Current Use of Adjoining Properties

As described in Section 2.3, the primary land use of the properties adjoining the five USDA parcels is rural or residential. Of the five properties, the main AFRSC laboratory is located in a relatively more developed area, with Southern West Virginia Asphalt, Southern Regional Jail and Correctional Facility, Raleigh County Memorial Airport, Mine Safety and Health Administration (MSHA) Educational Field Services – Eastern Field Office, and businesses such as Shell CC Mart gas station, Sleep Inn, and Tudor’s Biscuit World within a ½ mile to mile radius.

Reba Plumley Farm is surrounded by other farms, residences, and wooded areas. According to the Environmental Data Resources, Inc. (EDR) Radius Map, Pocahontas Coal Mining is located within 1/8 mile east of the property boundary (Refer to Appendix A.5).

School House Farm is adjoined by wooded areas, trailer homes, other residences, and farms, along with several businesses are located along the western border of the property, including Affordable Towing and Repair, Glen’s Auto Salvage and Surplus Merchandise, and Outback Woodworking.

Peters Farm is bounded by the West Virginia Turnpike (State Route 77) to the east. An underground natural gas pipeline owned by the local utility company intersects into the western portion of the property. Natural gas meters for this pipeline are also located on the western portion of the property. A cemetery is located adjacent to the property on the west. The remainder of the property is surrounded by residences and wooded areas.

The land formerly leased by USDA at Roscoe Plumley Farm is surrounded by other farmland and residences.
3.0 USER-PROVIDED INFORMATION

This section identifies the documentation provided by USDA and summarizes the relevant information obtained from the review of these materials. Survey maps with parcel boundaries for all properties except Roscoe Plumley Farm (which was leased by USDA), as well as USDA Corporate Property Automated Information System (CPAIS) data for five parcels, were provided and reviewed. The following USDA documentation and materials were also reviewed.

**AFSRC Main Laboratory**

- 1972 soil boring report;
- 1991 AST information;
- 1992 UST removal and installation records;
- 1992 site characterization report;
- 1992 groundwater protection plan;
- 1993 installation of drain line from UST monitoring sump;
- 1993-1994 closure of 100-gallon tank under chemical storage building; testing of liquid in drum suspected of containing pesticides; and testing of area suspected of containing pesticides;
- 1994 UST inventory;
- 1994 spill prevention control and countermeasures plan;
- 1996 preliminary environmental assessment of main laboratory;
- 1998 notification of abatement, demolition, or renovation and asbestos workers’ certification and asbestos safety plan;
- 2005 hazardous waste program compliance report;
- 2007 UST compliance report;
- 2010 WVDEP industrial facility closure guidance document;
- 2010 WVDEP UST inspection report;
- 2011 facility safety and environmental compliance report;
- 2012 Beaver WV EPCRA Tier II report;
- 2012 (March) chemical inventory (lab, bulk lab, pesticides, and veterinary); and
- 2012 (March) hazardous waste inventory.
Farms

- 1995 to present pesticide application records;
- 1995 Reba Plumley Farm environmental site assessment;
- 1996 Peters Farm and School House Farm environmental site assessment;
- 2002 well design information for Reba Plumley Farm;
- 2003 well design information for School House Farm; and
- 2008 Roscoe Plumley Farm lease agreement.

USDA personnel stated that no environmental liens or activity and use limitations (AULs) have been identified for any of the properties. Appendix A.6 contains relevant site documentation.

Summary of Relevant Findings

The 1992 UST removal and installation records document that two 5,000-gallon steel USTs were excavated and removed from the AFSRC main laboratory on May 21 and 27. An AST containing diesel fuel was also removed at this time. During the excavation and removal of the tanks, it was determined that a release of petroleum products contaminated soil. A confirmed release notification was issued by the West Virginia Department of Natural Resources (WVDNR) on May 28, 1992. According to the July 1992 initial site characterization report, it was not possible to determine the exact cause of the release, but leaking pipes from the USTs, repeated spills, or a leak from the AST were suspected as possible reasons. The USTs appeared intact upon removal. Samples of soil, along with groundwater and surface water that accumulated in the excavation area, were taken and analyzed.

Approximately 3,800 gallons of accumulated water was pumped out of the excavation area and collected into 85-gallon plastic overpack drums. Soil samples were collected on June 9, 1992. On June 10, 1992, a composite 500 ml sample of water was collected from four of the 85-gallon plastic overpack drums. Using EPA- and WVDEP-approved analytical methods, the water sample was analyzed for total petroleum hydrocarbons (TPH); benzene, toluene, ethylbenzene, and xylene (BTEX); polynuclear aromatic hydrocarbons (PAH); and lead. According to the analysis, the sample was found to have 13.2 parts per million (ppm) TPH and 147 parts per billion (ppb) BTEX (54 ppb toluene and 93 ppb xylene). PAH and lead were not detected. According to the 1992 groundwater protection plan, no other groundwater quality data for the facility was known or gathered. Public water was provided to the facility by the Beckley Water Company and there were no groundwater withdrawal or monitoring wells on site. The plan also stated that since the facility was located in a remote and wooded area, it was likely that there were no wells within a quarter mile radius of the facility. Remediation was accomplished by excavation and disposal of the soil determined to be contaminated. A closure report for the two steel USTs that were replaced was submitted and approved by WVDNR. The steel USTs were replaced with two 4,000-gallon fiberglass reinforced plastic USTs to store unleaded gasoline and diesel fuel. Both double-walled USTs are equipped with containment sumps and a Veeder Root interstitial monitoring leak detection system. Available UST records and compliance inspection reports for the replacement tanks were reviewed and do not indicate past, existing, or possible releases.

In 1993, the 100-gallon underground holding tank for the chemical storage building floor drains was full of water. This holding tank was designed to contain spills from the chemical storage building. However, roof leaks during rain events entered the floor drains and filled the holding tank. The roof leaks were repaired and, using EPA- and WVDEP-approved analytical methods, the water was tested for hazardous waste characteristics because of suspected contamination. Sampling results indicated that the water did not meet the criteria of a hazardous waste, and
after receiving approval from the Beckley Sanitary Board, this water was discharged to the sanitary sewer system. In 1994, the drains in the chemical storage building were plugged and the holding tank was filled with concrete.

A drum containing liquid suspected of being contaminated with pesticides was discovered at the AFSRC main lab in 1993. Using EPA- and WVDEP-approved analytical methods, the liquid was tested for hazardous waste characteristics and analyzed for pesticide content based on pesticides known to be used at the facility. Sampling results indicated the presence of the following pesticides and herbicides: 647 milligrams per liter (mg/L) of glyphosate, 0.425 mg/L of atrazine, 0.0590 mg/L of 2,4-DB, and 0.0042 mg/L of 2,4-D. These concentrations were comparable to that found in unused spray material from pesticide applications. The contents of the drum did not meet the criteria for hazardous wastes. Site personnel believe the contents of the drum may have been reapplied to one of the research farm properties in a manner consistent with pesticide application requirements of the Monsanto product called Roundup.

Also in 1993, USDA identified an area of concern near the vehicle storage area where pesticide rinsate water from tank cleaning had been historically applied to the ground. Soil samples of this area were taken and analyzed for dimethylamine (volatile organic compound) and the following pesticides and herbicides: glyphosate, atrazine, 2,4-DB, 2,4-D, metribuzin, terbacil, sethoxydim, pronamide, and hexazinone. None of these analytes were detected.

The 1994 spill plan and 1996 preliminary environmental assessment indicate that transite lining, which contains non-friable asbestos, is present in the standard fume hoods in the laboratories. The 1998 West Virginia notification of abatement, demolition, or renovation forms associated with a roofing replacement project indicate the presence of 5% asbestos in the roofing materials that were removed. This information is noted in the GSA Excess Real Property Checklists in Appendix A.3.

According to the 1996 Phase I environmental site assessment for the Reba Plumley Farm and School House Farm (also referred to as the Richmond School Farm), farming activities at the Reba Plumley location date back to the 1850s. This report references, and includes an excerpt of, a Phase I Cultural Resources Survey and Threatened and Endangered Plant Species Survey. The excerpt states that Site 46Rg181 is a historic site and recommends that Phase II cultural resource surveys be performed. This information is noted in the GSA Excess Real Property Checklists in Appendix A.3.

Hazardous waste and pesticide application records were reviewed and do not indicate potential compliance issues or notices of violation.
4.0 RECORDS REVIEW

A records review of the following historical sources was conducted to identify the historical uses, physical settings, and recognized environmental conditions associated with the five properties evaluated in this ESA:

- Sanborn fire insurance maps
- Topographic maps;
- Aerial photographs
- City directories;
- Federal, state, and local databases;

These records were provided by Environmental Data Resources, Inc. (EDR) and are contained in Appendix A.5. The following subsections summarize observations from the review of this data. Note that a search of property ownership information based on EDR's property tax databases did not yield any results. Additional sources for tax records and parcels were not reviewed.

4.1 Sanborn Fire Insurance Maps

Sanborn maps were originally created for assessing fire insurance liability in urbanized areas in the United States. This collection of more than 1.2 million fire insurance maps tracks historic property use for approximately 12,000 U.S. towns and cities from 1867 to 2007. EDR searched the complete holdings of the Sanborn library. However, no fire insurance maps covering any of the target properties were found (Refer to Appendix A.5).

4.2 Historic Topographic Maps

Where available, EDR obtained historic topography maps for the target properties and surrounding areas (Refer to Appendix A.5). These maps were reviewed and no potential indicators of improper dumping and burial or possible environmental releases were discovered. Other observations, along with the corresponding years of the maps reviewed, are summarized in the subsections below.

AFSRC Main Laboratory

1897, 1902, 1932, 1969, 1976, and 1989 – The 1969 and 1989 maps indicate that a strip mine was located approximately 1,000 to 1,500 feet west of the present property, west of the present MSHA office. The 1969 map also indicates the presence of a quarry near the present location of the asphalt company, approximately 500 to 1,000 feet east of the target property. The topographic relief of the site and immediate vicinity appear relatively unchanged over this time period.

Reba Plumley Farm, School House Farm, and Roscoe Plumley Farm

1892, 1915, 1969, 1988, and 1996 – The topographic relief of the three sites and the immediate vicinity appear relatively unchanged over this time period. Adjoining quad maps from 1968 and 1976 indicate the presence of strip mines approximately 1 mile to the southeast of the School House Farm.
**Peters Farm**

1897, 1902, 1914, 1932, 1968, 1976 – The topographic relief of the site and the immediate vicinity appear relatively unchanged over this time period. An adjoining quad map from 1976 indicates the presence of strip mines more than 1 mile west of the target property.

**4.3 Historic Aerial Photographs**

Where available, EDR obtained historic aerial photographs for the target properties and surrounding areas. A review of these photographs did not indicate evidence of dumping (e.g., tire tracks in remote areas that were cleared for no apparent reason) or environmental releases. Other observations, along with the corresponding years of the photographs reviewed, are summarized in the subsections below (Refer to Appendix A.5).

**AFSRC Main Laboratory**

1960 – The current site of the lab is wooded area and vegetation. Raleigh County Memorial Airport and Airport Road were present, but the Southern West Virginia Asphalt, and Mine Safety and Health Administration (MSHA) Educational Field Services – Eastern Field Office were not present during this period. It also appears that Interstate 64 and the Southern Regional Jail and Correctional Facility were not yet constructed, and businesses such as Shell CC Mart gas station, Sleep Inn, and Tudor's Biscuit World were not present during this era.

1970 – Although the resolution of this photograph is not clear, the majority of the land use in the area appears similar to the 1960 photograph.

1976 – Development of the AFSRC site and Southern West Virginia Asphalt sites has not started, but the construction of the MSHA office complex appears complete.

1986 – The AFSRC site development is complete and shown in the photograph. Interstate 64 appears under construction or present. Based on the resolution of the photograph, it is not clear whether the jail is present.

1990 – The development of the site and the surrounding area appears similar to that of the site today, except that the asphalt company is not present and the businesses to the south of the target property may be different.

1996 – The majority of the land use in the area appears similar to the 1990 photograph.

2007 – The development of the site and the surrounding area appears similar to present day; however, the Southern West Virginia Asphalt site that is currently east of the AFSRC property is not present.

**Reba Plumley Farm**

1956, 1960, 1970, 1976, 1982, 1986, and 1990 – With the exception of the lack of several roads to the west of the target property, home development, and variations in farming patterns, the site and surrounding areas during this era appear very similar to present day.

**School House Farm**

property, the overall land use pattern of the area appears unchanged throughout this time period. The auto salvage property to the west of the target property first appears in the 2007 map.

**Peters Farm**


**Roscoe Plumley Farm**


### 4.4 Historic City Directories

EDR obtained historic city directories, where available for the five properties and surrounding areas. For the AFSRC main laboratory, Polk’s City Directory listings from 1999, 2005, and 2011 were available. The Southern Regional Jail and Correctional Facility (1200 Airport Road), Mine Safety and Health Administration (MSHA) office (1301 Airport Road), and Sleep Inn (1124 Airport Road) appear in all of the listings. The Shell CC Mart gas station (1125 Airport Road) and Tudor’s Biscuit World (1125 Airport Road) do not appear in the 1999 city directory. The Southern West Virginia Asphalt Company (currently present at 1716 Airport Road) does not appear in any of these listings.

Polk’s City Directory listings from 1999, 2005, and 2011 were available for the School House Farm. Glen’s Auto Salvage (4131 Pluto Road) is listed in all three directories, while Affordable Towing and Repair (4151 Pluto Road) is listed in the 2005 and 2011 directories. Outback Woodworking (4160 Pluto Road) is listed as a business and a residence in the 2011 directory, but 4160 Pluto Road is only identified as a residence in the 1999 and 2005 directories.

EDR’s search of city directory records for the Reba Plumley Farm and Peters Farm did not yield any listings. A city directory search was not requested for the Roscoe Plumley Farm (leased property).

### 4.5 Federal, State, and Local Databases

Environmental Data Resources, Inc. (EDR) conducted a computerized environmental information database search for the properties within various search distances. The summary of the distance and database is presented in Tables 1 and 2. Note that EDR conducted a separate search for each of the five parcels. Tables 1 and 2 provide a collective summary of all facilities identified within specified search distances for all of the parcels. Data that is not applicable is denoted with dashes (---) in Tables 1 and 2. EDR’s search of federal, state, local, tribal, and EDR proprietary databases and corresponding search distances meets the requirements specified by ASTM E1527-05. A complete copy of the EDR environmental database report for each parcel is included in Appendix A.5. Note that the order of the databases presented in these tables matches ASTM E1527-05 and the EDR reports in the appendix.
According to EDR’s GeoCheck (physical setting source map) search of an oil and gas database, the following two oil and gas wells were identified within ½ mile to 1 mile north of Peters Farm:

- **Eastern American Energy Co.**
  Fuller-Sayre Farm, Raleigh County, WV
  Status: Plugged

- **Energy Search, Inc.**
  Theodore Crook Jr. Farm, Raleigh County, WV
  Status: Never Drilled.

The presence of a groundwater well within a ½ mile to 1 mile southwest of the Reba Plumley Farm was also identified. The well depth and groundwater levels for this well were not reported. It is likely that this well is a residential or farming well.

A groundwater well ¼ mile north of the School House Farm was identified. The well depth is 138 feet, with a reported groundwater level (1/1/1978) of 48 feet below ground level. It is likely that this well is a residential or farming well.

EDR’s GeoCheck also indicates the presence of a groundwater well within a ¼ mile to ½ mile southwest of the Roscoe Plumley Farm. The well depth is 40 feet, with a reported groundwater level (7/7/1982) of 16.4 feet below ground level.
## Table 1. Summary of Standard Environmental Records Search

<table>
<thead>
<tr>
<th>Database</th>
<th>Description</th>
<th>Search Distance (Miles)</th>
<th>Facilities Listed Within Search Distance</th>
<th>Target Property Listed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Federal NPL Site List</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NPL</td>
<td>The National Priorities List (NPL) is a subset of Comprehensive Environmental Response, Compensation, and Liability Information System (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.</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Proposed NPL</td>
<td>A site that has been proposed for listing on the NPL through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to comments, and places on the NPL those sites that continue to meet the requirements for listing.</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>NPL LIENS</td>
<td>Under the authority granted to EPA by CERCLA of 1980, EPA 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. EPA compiles a listing of filed notices of federal Superfund Liens.</td>
<td>Target Property</td>
<td>---</td>
<td>0</td>
</tr>
<tr>
<td><strong>Federal Delisted NPL Site List</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delisted NPL</td>
<td>The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that 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.</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Table 1. Summary of Standard Environmental Records Search (Continued)

<table>
<thead>
<tr>
<th>Database</th>
<th>Description</th>
<th>Search Distance (Miles)</th>
<th>Facilities Listed Within Search Distance</th>
<th>Target Property Listed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal CERCLIS List</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CERCLIS</td>
<td>Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) contains data on potentially hazardous waste sites that have been reported to EPA by states, municipalities, private companies and private persons, pursuant to Section 103 of CERCLA. CERCLIS contains sites which are either proposed to or on the NPL and sites which are in the screening and assessment phase for possible inclusion on the NPL.</td>
<td>0.5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>FEDERAL FACILITY</td>
<td>A listing of NPL and Base Realignment and Closure (BRAC) sites found in the CERCLIS database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Federal CERCLIS NFRAP Site List</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CERCLIS-NFRAP</td>
<td>CERCLIS No Further Remedial Action Planned sites have been removed and archived from the CERCLIS inventory. Archived status indicates that a site assessment has been completed and that EPA has determined no further steps will be taken to list this site on the 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.</td>
<td>0.5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Database</td>
<td>Description</td>
<td>Search Distance (Miles)</td>
<td>Facilities Listed Within Search Distance</td>
<td>Target Property Listed</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>-------------------------</td>
<td>------------------------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Federal RCRA CORRACTS Facilities List</td>
<td>CORRACTS Corrective Action Report (CORRACTS) identifies hazardous waste handlers with RCRA corrective action activity.</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Federal RCRA Non-CORRACTS TSD Facilities List</td>
<td>RCRA-TSDF RCRAInfo is EPA’s comprehensive information system, providing access to data supporting 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 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.</td>
<td>0.5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Federal RCRA Generators List</td>
<td>RCRA-LQG RCRA-Large Quantity Generators (LQGs); RCRAInfo is EPA’s comprehensive information system, providing access to data supporting the RCRA of 1976 and the 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 RCRA. LQGs generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.</td>
<td>0.25</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
**Table 1. Summary of Standard Environmental Records Search (Continued)**

<table>
<thead>
<tr>
<th>Database</th>
<th>Description</th>
<th>Search Distance (Miles)</th>
<th>Facilities Listed Within Search Distance</th>
<th>Target Property Listed</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCRA-SQG</td>
<td>RCRA - Small Quantity Generators (SQGs); RCRAInfo is EPA’s comprehensive information system, providing access to data supporting the RCRA of 1976 and the HSWA of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by RCRA. SQGs generate between 100 kg and 1,000 kg of hazardous waste per month.</td>
<td>0.25</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>RCRA-CESQG</td>
<td>RCRA - Conditionally Exempt Small Quantity Generators (CESQGs); RCRAInfo is EPA’s comprehensive information system, providing access to data supporting the RCRA of 1976 and the HSWA of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by RCRA. CESQGs generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.</td>
<td>0.25</td>
<td>1 (within 1/8-1/4 mile from AFSRC Main Laboratory) Leslie Equipment Co. 136 Clifftop Drive Beaver, WV</td>
<td>AFSRC Main Laboratory</td>
</tr>
<tr>
<td><strong>Federal Institutional Controls/Engineering Controls Registries</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US ENG CONTROLS</td>
<td>Engineering Controls Sites List (US ENG CONTROLS); 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.</td>
<td>0.5</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Table 1. Summary of Standard Environmental Records Search (Continued)

<table>
<thead>
<tr>
<th>Database</th>
<th>Description</th>
<th>Search Distance (Miles)</th>
<th>Facilities Listed Within Search Distance</th>
<th>Target Property Listed</th>
</tr>
</thead>
<tbody>
<tr>
<td>US INST CONTROL</td>
<td>Sites with Institutional Controls (US INST CONTROL); a listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use, construction, and 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.</td>
<td>0.5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Federal ERNS List</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ERNS</td>
<td>Emergency Response Notification System (ERNS) records and stores information on reported releases of oil and hazardous substances.</td>
<td>Target Property</td>
<td>---</td>
<td>0</td>
</tr>
<tr>
<td>State- and Tribal-</td>
<td>Equivalent CERCLIS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SHWS</td>
<td>State Hazardous Waste Sites (SHWS) 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. West Virginia does not maintain a SHWS list. See the Federal CERCLIS list.</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>State and Tribal Landfill and/or Solid Waste Disposal Site Lists</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SWF/LF</td>
<td>List of M.S.W. Landfills/Transfer Station Listing Solid Waste Facilities/Landfill Sites (SWF/LF). 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.</td>
<td>0.5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>LCP</td>
<td>Landfill Closure Program (LCP); the WVDEP’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.</td>
<td>0.5</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
### Table 1. Summary of Standard Environmental Records Search (Continued)

<table>
<thead>
<tr>
<th>Database</th>
<th>Description</th>
<th>Search Distance (Miles)</th>
<th>Facilities Listed Within Search Distance</th>
<th>Target Property Listed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>State and Tribal Leaking Storage Tank Lists</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LUST</td>
<td>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.</td>
<td>0.5</td>
<td>2 (within 1/4-1/2 mile from AFSRC Main Laboratory)</td>
<td>AFSRC Main Laboratory</td>
</tr>
<tr>
<td></td>
<td>CC Mart #1 1125 Airport Road, Beaver, WV</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Priority: Groundwater, but no known drinking water contamination</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Release Date: 2/12/2002</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cleanup Complete Date: 3/7/2005</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Three USTs are listed in the UST database as currently in use (two 12,000-gallon gasoline tanks and one 20,000-gallon diesel tank)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DOT/FAA VORTAC Raleigh County Airport Beaver, WV</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Priority: Soil contamination only</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Release Date: 11/3/1994</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cleanup Complete Date: 5/1/1996</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>One 1,000-gallon diesel tank (closed on 10/28/1994 and removed from the ground) and one 600-gallon diesel tank (closed on 8/18/1997 and removed from the ground) are identified in the UST database.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>INDIAN LUST</strong></td>
<td>Leaking Underground Storage Tanks on Indian Land.</td>
<td>0.5</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Table 1. Summary of Standard Environmental Records Search (Continued)

<table>
<thead>
<tr>
<th>Database</th>
<th>Description</th>
<th>Search Distance (Miles)</th>
<th>Facilities Listed Within Search Distance</th>
<th>Target Property Listed</th>
</tr>
</thead>
<tbody>
<tr>
<td>State and Tribal Registered Storage Tank Lists</td>
<td>Underground Storage Tank (UST) database; 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.</td>
<td>0.25</td>
<td>1 (within 1/8 mile of School House Farm) Richmond Elementary School Route 1, Box 77, Shady Spring, WV Tank Capacity: 1,000 gallons Date Last Used: 6/06/1990 Date Closed: 9/12/1990 Status: Tank removed from ground</td>
<td>AFSRC Main Laboratory</td>
</tr>
<tr>
<td>UST</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INDIAN UST</td>
<td>USTs on Indian Land</td>
<td>0.25</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>FEMA UST</td>
<td>A listing of all FEMA owned USTs.</td>
<td>0.25</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>State and Tribal Institutional Control / Engineering Control Registries</td>
<td>Sites with Institutional Controls Sites that have institutional controls in place.</td>
<td>0.5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>INST CONTROL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State and Tribal Voluntary Cleanup Sites</td>
<td>Sites involved in the Voluntary Cleanup Program.</td>
<td>0.5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>VCP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INDIAN VCP</td>
<td>A listing of voluntary cleanup priority sites located on Indian Land.</td>
<td>0.5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>State and Tribal Brownfields Sites</td>
<td>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.</td>
<td>0.5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>BROWNFIELDS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 2. Summary of Additional Environmental Records Search

<table>
<thead>
<tr>
<th>Database</th>
<th>Description</th>
<th>Search Distance (Miles)</th>
<th>Facilities Listed Within Search Distance</th>
<th>Target Property Listed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Local Brownfield Lists</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US BROWNFIELDS</td>
<td>Brownfields are real property of which the expansion, redevelopment, or reuse 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 and information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community, which provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.</td>
<td>0.5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Local Lists of Landfill / Solid Waste Disposal Sites</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ODI</td>
<td>Open Dump Inventory (ODI); 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.</td>
<td>0.5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>INDIAN ODI</td>
<td>Report on the status of open dumps on Indian lands.</td>
<td>0.5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Local Lists of Hazardous Waste/Contaminated Sites</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US CDL</td>
<td>Clandestine Drug Labs; a listing of clandestine drug lab locations. The U.S. Department of Justice (&quot;the Department&quot;) 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. This database is updated by the Department quarterly.</td>
<td>Target Property</td>
<td>---</td>
<td>0</td>
</tr>
<tr>
<td>CDL</td>
<td>A listing of clandestine drug lab site locations provided by the West Virginia Department of Environmental Protection.</td>
<td>Target Property</td>
<td>---</td>
<td>0</td>
</tr>
</tbody>
</table>
### Table 2. Summary of Additional Environmental Records Search (Continued)

<table>
<thead>
<tr>
<th>Database</th>
<th>Description</th>
<th>Search Distance (Miles)</th>
<th>Facilities Listed Within Search Distance</th>
<th>Target Property Listed</th>
</tr>
</thead>
<tbody>
<tr>
<td>US HIST CDL</td>
<td>National Clandestine Laboratory Register; a listing of clandestine drug lab locations. The U.S. Department of Justice (&quot;the Department&quot;) 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. This database is historical and is no longer updated.</td>
<td>Target Property</td>
<td>---</td>
<td>0</td>
</tr>
<tr>
<td>Local Land Records</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LIENS 2</td>
<td>CERCLA Lien Information; a Federal CERCLA (&quot;Superfund&quot;) 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.</td>
<td>Target Property</td>
<td>---</td>
<td>0</td>
</tr>
<tr>
<td>LUCIS</td>
<td>Land Use Control Information System (LUCIS) contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.</td>
<td>0.5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Records of Emergency Release Reports</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HMIRS</td>
<td>Hazardous Materials Incident Report System (HMIRS) contains hazardous material spill incidents reported to DOT.</td>
<td>Target Property</td>
<td>---</td>
<td>0</td>
</tr>
<tr>
<td>SPILLS</td>
<td>A listing of spills and releases reported to the Office of Emergency Services, they do not include any Toxic Release Inventory (TRI) information.</td>
<td>Target Property</td>
<td>---</td>
<td>0</td>
</tr>
</tbody>
</table>
### Table 2. Summary of Additional Environmental Records Search (Continued)

<table>
<thead>
<tr>
<th>Database</th>
<th>Description</th>
<th>Search Distance (Miles)</th>
<th>Facilities Listed Within Search Distance</th>
<th>Target Property Listed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Other Ascertainable Records</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RCRA-NonGen</td>
<td>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.</td>
<td>0.25</td>
<td>1 (within 1/4-1/2 mile from AFSRC Main Laboratory) CC Mart #! 1125 Airport Road Beaver, WV (Identified on EDR orphan record summary for AFSRC Main Laboratory search). 1 (within 1/8 mile from School House Farm) Affordable Towing &amp; Repair 4109 Pluto Road Shady Spring, WV</td>
<td>0</td>
</tr>
<tr>
<td>DOT OPS</td>
<td>Incident and Accident Data; Department of Transportation, Office of Pipeline Safety Incident and Accident data.</td>
<td>Target Property</td>
<td>---</td>
<td>0</td>
</tr>
<tr>
<td>DOD</td>
<td>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.</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>FUDS</td>
<td>Formerly Used Defense Sites (FUDS); 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.</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Database</td>
<td>Description</td>
<td>Search Distance (Miles)</td>
<td>Facilities Listed Within Search Distance</td>
<td>Target Property Listed</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-------------------------</td>
<td>------------------------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>CONSENT</td>
<td>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.</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>ROD</td>
<td>Record of Decision (ROD) documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>UMTRA</td>
<td>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.</td>
<td>0.5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>MINES</td>
<td>The Mines Master Index File contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.</td>
<td>0.25</td>
<td>1 (within 1/8 mile from Reba Plumley Farm)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Pluto #1 Surface Standard Pocahontas Coal Raleigh County, WV</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Status Date: 9/25/1979 Operation Class: Coal Mining Status: D (abandoned)</td>
<td></td>
</tr>
<tr>
<td>TRIS</td>
<td>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.</td>
<td></td>
<td>Target Property</td>
<td>---</td>
</tr>
<tr>
<td>TSCA</td>
<td>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.</td>
<td></td>
<td>Target Property</td>
<td>---</td>
</tr>
<tr>
<td>Database</td>
<td>Description</td>
<td>Search Distance (Miles)</td>
<td>Facilities Listed Within Search Distance</td>
<td>Target Property Listed</td>
</tr>
<tr>
<td>----------</td>
<td>-------------</td>
<td>-------------------------</td>
<td>-----------------------------------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>FTTS</td>
<td>FIFRA (Federal Insecticide, Fungicide, &amp; Rodenticide Act)/TSCA (Toxic Substances Control Act) Tracking System (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 EPA on a quarterly basis.</td>
<td>Target Property</td>
<td>---</td>
<td>0</td>
</tr>
<tr>
<td>HIST FTTS</td>
<td>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.</td>
<td>Target Property</td>
<td>---</td>
<td>0</td>
</tr>
<tr>
<td>SSTs</td>
<td>Section 7 Tracking Systems (SSTS); 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.</td>
<td>Target Property</td>
<td>---</td>
<td>0</td>
</tr>
<tr>
<td>ICIS</td>
<td>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.</td>
<td>Target Property</td>
<td>---</td>
<td>0</td>
</tr>
<tr>
<td>PADS</td>
<td>PCB Activity Database (PADS) identifies generators, transporters, commercial storage and/or brokers and disposers of PCB’s who are required to notify the EPA of such activities.</td>
<td>Target Property</td>
<td>---</td>
<td>0</td>
</tr>
<tr>
<td>Database</td>
<td>Description</td>
<td>Search Distance (Miles)</td>
<td>Facilities Listed Within Search Distance</td>
<td>Target Property Listed</td>
</tr>
<tr>
<td>---------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------------------</td>
<td>------------------------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>MLTS</td>
<td>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.</td>
<td>Target Property</td>
<td>---</td>
<td>0</td>
</tr>
<tr>
<td>RADINFO</td>
<td>The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.</td>
<td>Target Property</td>
<td>---</td>
<td>0</td>
</tr>
<tr>
<td>FINDS</td>
<td>Facility Index System/Facility Registry 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).</td>
<td>Target Property</td>
<td>---</td>
<td>AFSRC Main Laboratory</td>
</tr>
<tr>
<td>RAATS</td>
<td>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.</td>
<td>Target Property</td>
<td>---</td>
<td>0</td>
</tr>
<tr>
<td>UIC</td>
<td>Underground Injection Wells (UIC); a listing of underground injection well locations.</td>
<td>Target Property</td>
<td>---</td>
<td>0</td>
</tr>
</tbody>
</table>
Table 2. Summary of Additional Environmental Records Search (Continued)

<table>
<thead>
<tr>
<th>Database</th>
<th>Description</th>
<th>Search Distance (Miles)</th>
<th>Facilities Listed Within Search Distance</th>
<th>Target Property Listed</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRYCLEANERS</td>
<td>A listing of drycleaners locations which use perchloroethylene.</td>
<td>0.25</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>NPDES</td>
<td>A listing of wastewater discharge permits</td>
<td>Target Property</td>
<td>---</td>
<td>0</td>
</tr>
<tr>
<td>AIRS</td>
<td>Permitted facility and emissions information listing.</td>
<td>Target Property</td>
<td>---</td>
<td>0</td>
</tr>
<tr>
<td>INDIAN RESERV</td>
<td>This map layer portrays Indian administered lands of the United States (Indian reservations) that have any area equal to or greater than 640 acres.</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>SCRD DRYCLEANERS</td>
<td>State Coalition for Remediation of Drycleaners (SCRD) Listing; SCRD was established in 1998, with support from the 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.</td>
<td>0.5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>COAL ASH EPA</td>
<td>Coal combustion residues surface impoundments list; a listing of coal combustion residues surface impoundments with high hazard potential ratings.</td>
<td>0.5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>COAL ASH DOE</td>
<td>Steam-electric plant operation data; a listing of power plants that store ash in surface ponds.</td>
<td>Target Property</td>
<td>---</td>
<td>0</td>
</tr>
<tr>
<td>PCB TRANSFORMER</td>
<td>The database of PCB transformer registrations that includes all PCB registration submittals.</td>
<td>Target Property</td>
<td>---</td>
<td>0</td>
</tr>
<tr>
<td>FINANCIAL ASSURANCE</td>
<td>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.</td>
<td>Target Property</td>
<td>---</td>
<td>AFSRC Main Laboratory</td>
</tr>
</tbody>
</table>
### Table 2. Summary of Additional Environmental Records Search (Continued)

<table>
<thead>
<tr>
<th>Database</th>
<th>Description</th>
<th>Search Distance (Miles)</th>
<th>Facilities Listed Within Search Distance</th>
<th>Target Property Listed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufactured Gas Plants (EDR Proprietary Records)</td>
<td>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 1800s to 1950s 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.</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
5.0 SITE RECONNAISSANCE

A visual reconnaissance of the five properties was conducted by CAPT Jeff Church, REHS, CIH, CSP (Federal Occupational Health Environmental Health Services) and Purvagna Amin, PE (Solv) from April 16–20, 2012. The following USDA personnel accompanied the site reconnaissance team for portions of the site visit: Danny Carter, Matthew Huffman, Glen Davis, and Bonnie Disalvo. Photographic documentation of the properties is provided in Appendix A.2 and illustrates the conditions existing at the properties during the site reconnaissance. The following sections summarize site reconnaissance activities and observations for all five parcels. Note that additional information related to these topics is contained in Section 6 (Interviews) of this report and Appendix A.3 GSA Excess Real Property Checklists.

5.1 Methodology and Limiting Conditions

A combination of sport utility vehicles, all-terrain vehicles, and walking was utilized to traverse the majority of the approximately 293 acres and 65,000 square feet of structures. Areas that could not be traversed by these transportation methods because of time limitations, terrain, or steep slopes were viewed within a line of sight to ensure coverage of the entire properties and associated peripheries.

5.2 Hazardous Waste

Because of the closure of the USDA properties, all chemicals associated with the AFSRC main laboratory were segregated and stored in the chemical storage building, hazardous waste marshaling building, pesticide storage building, and Room 49 of the main lab building for disposal as hazardous waste. At the time of the site visit, USDA had issued a request for proposal for hazardous waste pickup, transport, and disposal. All hazardous chemical waste was packaged and transported from AFSRC the week of May 21st, 2012 by CleanVenture, Lewisberry, PA. No hazardous waste was present at any of the other properties. Prior to closure, the main laboratory was designated as a RCRA Conditionally Exempt Small Quantity Generator (CESQG) under EPA ID Number WV1120532121. According to 40 CFR Part 261, CESQGs generate 100 kilograms or less per month of hazardous waste, or 1 kilogram or less per month of acutely hazardous waste. Requirements for CESQGs include identifying all the hazardous waste generated, not accumulating more than 1,000 kilograms of hazardous waste at any time, and ensuring that hazardous waste is delivered to a person or facility who is authorized to manage it. WVDEP completed a hazardous waste inspection of the facility on May 23, 2012. Appendix A.6 contains the WVDEP hazardous waste inspection report.

5.3 Hazardous Substances

As described in Section 5.2, all chemicals and hazardous waste remaining on the site had been consolidated and segregated at the AFSRC main laboratory. A final chemical inventory was developed by site personnel. These substances were removed from the premises and disposed as hazardous waste in May and June 2012 prior to facility closure. Transite lining, which contains non-friable asbestos, was observed in fume hoods and floor cabinets beneath the fume hoods in several labs. The transite lining appeared to be in excellent condition during the site visit. Fume hoods designated for perchloric acid use were labeled with signage. Note that site personnel were not aware of perchloric acid use at the site in the last 15 to 20 years.

5.4 Biological Hazards

Biohazard labels were observed on several freezers in the labs. According to site personnel, these labels were present to caution staff of the presence of groundwater samples and blood and fecal samples from animals; materials that would be categorized as Biohazard Level 1
according to the Centers for Disease Control and Prevention (CDC). CDC defines Biohazard Level 1 as bacteria and viruses including *Bacillus subtilis*, *canine hepatitis*, *Escherichia coli*, *varicella* (chicken pox), as well as some cell cultures and non-infectious bacteria. At this level precautions against the biohazardous materials in question are minimal, most likely involving gloves and some sort of facial protection. Usually, contaminated materials are left in open (but separately indicated) waste receptacles. Decontamination procedures for this level are similar in most respects to modern precautions against everyday viruses and bacteria (i.e., washing one's hands with anti-bacterial soap, washing all exposed surfaces of the lab with disinfectants, etc.). AFSRC groundwater samples, animal blood samples, and animal fecal samples were decontaminated by autoclaving prior to disposal.

5.5 Aboveground Storage Tanks

One 1,500-gallon AST is present at the AFSRC main laboratory for emergency fuel supply for the on-site, dual-fired boiler. The AST was installed around 1986 or 1987, is equipped with secondary containment, and is located outside of the boiler room on the east side of the building (adjacent to the ancillary building access road). The fuel in this tank will remain in place for future occupants of the building. A portable 500-gallon irrigation water tank was placed outside near storage sheds on the southeastern portion of the lab (near the equipment storage, chemical storage, and hazardous waste storage areas). Reba Plumley farm has a 1,000-gallon off-road diesel AST with secondary containment in the north side of the red barn on the property. This AST was relocated from the main parcel to Reba Plumley Farm. The fuel remaining in the tank (estimated at 60 gallons) was below the pump suction line and was removed by a contractor prior to facility closure. None of the other parcels contain any ASTs.

5.6 Underground Storage Tanks

Two 4,000-gallon (actual capacity is 3,782 gallons) USTs are located at the main facility. These USTS are constructed of fiberglass reinforced plastic and were installed in 1992 to replace steel USTS that were installed with the original facility construction in the late 1970s. Both double-walled USTS are equipped with containment sumps and a Veeder Root interstitial monitoring leak detection system. No other farm contains any USTS. WVDEP conducted a UST inspection on May 22, 2012, prior to the USTS being placed out-of-service. All fuel from the USTS was removed. Appendix A.6 contains the notification form and May 2012 WVDEP UST inspection report.

5.7 Laboratory Fume Hoods, Ductwork, and Drains

The AFSRC laboratory is equipped with a total of twelve fume hoods. Several of these hoods are equipped with water washdowns for perchloric acid use. According to site personnel, the perchloric acid hood in the Analytical Lab was designated as the primary hood for perchloric acid use. Laboratory supply air is exhausted through a laboratory fume hood exhaust system and a separate room air exhaust system.

The main laboratory is equipped with floor drains in the greenhouses, boiler room, machine room, growth chamber room, and engineering shop. All of these drains empty into the local sanitary sewer system, except the drain in the engineering shop. The single small drain in the center of the east room of the engineering shop drains to a stormwater discharge line. The chemical storage building used to have operational floor drains in each of the two chambers, which led to a single 100-gallon underground holding tank. In 1994, these drains were plugged and the holding tank was filled with concrete. No signs of environmental contamination were observed at any of these locations.

No floor drains are present at the farms. At the Reba Plumley Farm, a sink drain in the red metal
equipment shed is piped to a dry well located outside of the shed. Note that this dry well may be considered a Class V underground injection well, which is defined by EPA as a well that is used to inject non-hazardous fluids underground. Site personnel were not aware of any existing EPA or WVDEP permits for this well.

Stormwater drains and culverts were observed in various locations of the AFSRC main laboratory property. Along the eastern boundary fence line, a stormwater discharge culvert from a berm on the neighboring asphalt company property discharges stormwater runoff near the fence line and onto the AFSRC property.

5.8 Evidence of Environmental Contamination

No evidence of environmental contamination was observed during the site reconnaissance. At the AFSRC main laboratory, areas with red/orange colored soil were observed near a stormwater culvert at the eastern boundary of the property (near the western berm of the neighboring asphalt company), in a stream near the northeastern property boundary, and near a stormwater drainage outlet in the auxiliary parking area. The red/orange color of the soil is believed to be attributed to naturally occurring iron content of the soil that is prevalent in the area and indicated by Munsell soil color charts. Similar red/orange soil was observed at the School House Farm (photograph 9 for Parcel 3 in Appendix A.2). The following debris was observed at the following properties during the site walkthroughs:

- AFSRC main laboratory – a concrete and rebar pile; a brush and wood chip pile; and a soil pile (photographs 31 and 32 for Parcel 1 in Appendix A.2);
- Reba Plumley Farm – brush and compost piles (photographs 16, 30 and 34 for Parcel 2 in Appendix A.2), empty glass bottles and metal debris (photographs not shown);
- School House Farm – metal debris, including a toaster and partially buried galvanized drums; glass debris, several syringes; and two compost piles (photographs 17 through 20 for Parcel 3 in Appendix A.2; note that the second compost pile near the wood burning furnace is not shown in the photographs); and
- Peters Farm – two tires, plastic sheeting, a plastic bottle, an old vehicle fender, and a partial truck body (photographs 9 and 10 for Parcel 4 in Appendix A.2).

Note that all of the debris observed at the Reba Plumley Farm, School House Farm, and Peters Farm originated from previous property owners. Debris from the School House Farm was removed by USDA after the site reconnaissance. The areas containing and surrounding the debris did not exhibit stressed vegetation or any other visual indications of environmental contamination. Stressed vegetation, or other indications of contamination on or adjacent to the properties were not discovered at any of the properties at the time of the reconnaissance.

Several test wells, ranging from 2 inches to 6 inches in diameter, and 6 feet to 12 feet in depth, were observed at the Reba Plumley Farm, Peters Farm, and Roscoe Plumley Farm. These test wells are typically tubes made of polyvinyl chloride (PVC) with white caps. The test wells were used by USDA to collect soil and groundwater samples to measure analytes such as nitrogen and phosphorus content in the laboratory and do not pose environmental risks.
5.9 Input from Regulatory Agencies

The West Virginia State Historic Preservation Office (WV SHPO) reviewed their existing records and provided the following input:

- Appalachian Farming Systems Research Center – WV SHPO does not have any records of architectural or archaeological resources or surveys;

- Reba Plumley Farm – WV SHPO does not have any records of architectural resources or surveys, but indicated that three previously recorded archaeological sites are present at this parcel;

- School House Farm – WV SHPO does not have any records of architectural resources or surveys, but indicated that two previously recorded archaeological sites are present at this parcel;

- Peters Farm – WV SHPO does not have any records of architectural or archaeological resources or surveys; and

- Roscoe Plumley Farm – WV SHPO does not have any records of architectural or archaeological resources or surveys.

WV SHPO indicated that for every property, except Roscoe Plumley Farm (a leased property not owned by USDA), a Section 106 National Historic Preservation Act review would be required if properties are transferred out of federal ownership. Appendix A.4 contains correspondence with WV SHPO.

The West Virginia Field Office of the United States Fish and Wildlife Service (USFWS) reviewed existing records and determined that no rare, threatened, or endangered plants or animals are present at any of the properties. Appendix A.4 contains correspondence with USFWS.

Appendix A.5 contains the results of relevant searches of regulatory agency databases.

Appendix A.6 contains the results of the hazardous waste inspection and UST inspection conducted by WVDEP prior to closure of the AFSRC main laboratory.
6.0 INTERVIEWS

Table 3 below lists current and former USDA personnel that were interviewed to obtain information related to possible recognized environmental conditions. These personnel were identified as persons knowledgeable about the activities and use of the properties.

Table 3. Personnel Interviewed

<table>
<thead>
<tr>
<th>Contact</th>
<th>Role at USDA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kelly Alley</td>
<td>Facility Maintenance</td>
</tr>
<tr>
<td>Robert Arnold</td>
<td>Collateral Duty Safety Officer (CDSO)/Chemicals Inventory and Management (Retired)</td>
</tr>
<tr>
<td>Dr. David Belesky</td>
<td>Research Agronomist</td>
</tr>
<tr>
<td>Michael Canady</td>
<td>Past Administrative Officer</td>
</tr>
<tr>
<td>Danny Carter</td>
<td>Facilities Maintenance and Pesticide Applicator</td>
</tr>
<tr>
<td>Jerry Carter</td>
<td>Biological Technician</td>
</tr>
<tr>
<td>Dr. Bill Clapham</td>
<td>Research Animal Scientist</td>
</tr>
<tr>
<td>Glen Davis</td>
<td>Environmental Protection Specialist</td>
</tr>
<tr>
<td>Bonnie Disalvo</td>
<td>Area Safety and Health Manager</td>
</tr>
<tr>
<td>Matthew Huffman</td>
<td>Past CDSO/Environmental Management System (EMS) Coordinator</td>
</tr>
<tr>
<td>Dr. James Neel</td>
<td>Acting Research Leader</td>
</tr>
<tr>
<td>Dwayne Snuffer</td>
<td>Acting Administrative Officer/EMS Coordinator</td>
</tr>
<tr>
<td>Dr. Ken Turner</td>
<td>Research Animal Scientist</td>
</tr>
</tbody>
</table>

The following subsections summarize information provided during interviews.

6.1 Facility Mission

The research focus at the AFSRC properties was related to small farm issues in the Appalachian Region. The facility initially opened as the Appalachian Soil and Water Conservation Research Laboratory focusing on soil and water issues associated with re-claimed strip mining and watershed ecology from agricultural practices. The name was changed to the Appalachian Farming Systems Research Center and the research was focused on managed hill-land agriculture for production of cattle, sheep and goats with soil and water quality of agricultural enterprises becoming a part of the research.

In the 1970s, the primary research was mine reclamation for agricultural use. From the 1980s to present, the research focus shifted to agricultural practices related to small farm operations, such as plant farming for sheeps and goats, natural methods to mitigate internal parasite problems, hydrology issues associated with nitrogen runoff, soil and bacteria, animal RNA and DNA, and silvopastural farming practices.

6.2 Environmental Permits

There are no existing permits (past or present) at the main facility or farms. The main facility uses city water systems for potable water and sewage. The existing boiler unit is below permitting thresholds and does not require an air permit. The main laboratory was designated as a RCRA Conditionally Exempt Small Quantity Generator (CESQG). According to 40 CFR Part 261, CESQGs generate 100 kilograms or less per month of hazardous waste, or 1 kilogram or less per month of acutely hazardous waste. Requirements for CESQGs include identifying all the hazardous waste generated, not accumulating more than 1,000 kilograms of hazardous waste at any time, and ensuring that hazardous waste is delivered to a person or facility who is
authorized to manage it. The farms do not have any utilities or septic systems (other than electricity and wells used for livestock). The farms used portable bathrooms when required by staff.

6.3 USTs and ASTs

Two 4,000-gallon (that actually hold 3,780 gallons) USTs are located at the main AFSRC facility. These USTs are constructed of fiberglass reinforced plastic and were installed in 1992 to replace two 5,000-gallon steel USTs that were installed with the original facility construction in the late 1970s. The steel USTs were closed and removed. The fiberglass reinforced plastic USTs were installed in the same location as the old USTs. The main lab also contains one 1,500-gallon AST that is an emergency fuel tank for the on-site, dual-fired boiler. The AST, equipped with secondary containment, was installed around 1986 or 1987 when electric-fired boilers were replaced with dual-fired boilers. Reba Plumley farm has a 1,000-gallon off-road diesel AST with secondary containment. This AST was relocated from the main lab to Reba Plumley. The fuel remaining in this tank (estimated at 60 gallons) was below the pump suction line and will be removed by a contractor prior to facility closure. No other farm contains any USTs or ASTs.

6.4 Utilities

Reba Plumley Farm has two groundwater wells, while School House Farm has one groundwater well. All of the wells are used for livestock care only. Several test wells, ranging from 2 inches to 6 inches in diameter, and 6 feet to 12 feet in depth, are located at the Reba Plumley Farm, Peters Farm, and Roscoe Plumley Farm. These test wells are typically tubes made of polyvinyl chloride (PVC) with white caps, and were used to collect soil and groundwater samples for measurement of various analytes, such as nitrogen and phosphorus content, for agricultural research.

Wastewater from the lab sinks of the main lab is collected in three underground tanks, which are part of the existing sewage and wastewater infrastructure for the main lab. Each tank is standard reinforced concrete (36” by 6” concrete foundation reinforced with No. 4 rebar) and contains two coats of acid-resisting concrete paint and crushed limestone). The tanks are approximately 4 feet in diameter with varying depths, up to 9 feet deep (the manhole cover is 32 inches). Wastewater from the tanks is gravity fed to the sanitary sewer line. Site personnel were not aware of any repairs required for these tanks, which were installed with the original facility and sewer system. A restroom and conference room was added in 2004 near the west side of the building and the restroom was tied into the sewer line near one of the tanks.

At the main facility, most utilities are overhead, with the exception of water, sewer, and gas lines. There are also some underground electrical lines from poles to buildings. Lab gases are centrally stored and distributed throughout the main facility. Peters Farm has overhead electrical lines, while the other farms have a combination of overhead and underground electrical lines. The School House Farm has a natural spring supplied cistern (separate from wells that were previously discussed). No personnel were aware of any abandoned septic or abandoned wells at the farms, or of any constructed animal waste collection systems. Underground water lines are present at the School House Farm and Reba Plumley Farm.

6.5 Laboratory Fume Hoods, Ductwork, and Drains

The main facility consists of about eight labs that are approximately 540 SF each. Each lab typically has two sinks and fume hoods (several labs do not have fume hoods). No floor drains are present in any of the eight labs. The original metal ductwork with fiberboard insulation lining is present on the east side of the lab. From 2005 to 2008, original ductwork for the four labs on
the west side of the facility was replaced with stainless steel ductwork in phases. The remaining phases to replace the east side ductwork were not funded. The HVAC system for the fume hoods is a dedicated system. The lab is still equipped with original, chemical-resistant plumbing installed during facility construction in the late 1970s. The site maintained a policy that prohibited emptying of chemicals into drains. Lab sinks were used for rinsing lab equipment, hands of employees, and cloths used to wipe lab countertops and floors.

Two fume hood systems are equipped with water washdowns in the exhaust air stacks. These fume hoods were specifically designed for lab work involving the handling of perchloric acid. The use of perchloric acid is discussed further in the Chemical Use and Storage subsection below.

6.6 Past Uses of Properties

The main facility was constructed around 1976 to 1977 and became operational in approximately 1978. The parcel for the main facility was all wooded area prior to facility construction and was owned by Raleigh County Airport. The land was given to USDA in 1971 by Raleigh County.

According to USDA personnel, the Reba Plumley farm was a cattle farm, at least 20 years prior to the USDA acquisition in the mid-1990s. The School House Farm practiced cattle and tobacco farming prior to USDA acquisition. The School House Farm was owned by the Raleigh County board of education. It was called the Vo-agricultural farm. Apples and field corn were also previously grown on the School House Farm.

Site personnel believe that the Reba Plumley Farm and Roscoe Plumley Farm have been owned by the Plumley family for generations.

6.7 Chemical Use and Storage

Main Laboratory

A chemical inventory provided by site personnel provides a summary of typical chemicals that have been present at the facility. Isotope research was conducted in Room 27 (approximately 200 SF) of the main facility in the past. This research was conducted intermittently, beginning in the 1980s. Radioactive isotopes of phosphorus were primarily used: $^{32}$P (half-life of approximately 14.3 days) and $^{33}$P (half-life of approximately 25.3 days). The most recent isotope research in Room 27 was conducted in approximately 2003 or 2004. Plant DNA was tagged with phosphorus radioisotopes and exposed to X-ray film for imaging. The last use of radioisotopes occurred in 2006. In 2008, the decision was made by the facility managers to terminate and proceed with the close out of the radioactive materials use program through the USDA Radiation Safety Staff office (RSS). All remaining radioactive materials at the facility were shipped for disposal to Thermo-Fisher Scientific in Austin, Texas (August 2008) and NSSI Recovery Services in Houston, Texas (October 2008). Appendix A.6 contains the related closure documentation and shipping manifest. Room 27 was then released by RSS for unrestricted use.

Scientists in the lab typically used chemicals in small amounts (quantities in milliliters or grams). Small quantities of chemicals for daily lab use were stored in small flammable and other storage cabinets in several rooms of the main facility. Now that the facility is shutting down, all remaining acids and flammables are stored in the bulk storage area. The bulk chemical storage area is located in a separate structure, constructed in 1976-1977, and equipped with a separate HVAC system and secondary containment. The labs and bulk storage area do not have floor drains.
All chemicals previously used at the site are scheduled to be picked up and disposed as hazardous waste prior to facility closure in June 2012.

Salts (30 to 40 grams at a time) were used to make growth medias, as well as some acids and bases (milliliters of materials to adjust pHs of media) – on a weekly basis. Some soil and DNA extractions also used salts or buffers.

Film developer and film fixer were used in the dark room for about 7 or 8 years (approximately 1998 to 2006). High-salt concentration solutions were also used in the research labs during this time period. For most chemicals, approximately 200 to 300 ml were used, once per week. For some of the high-salt concentration solutions, a couple of liters may have been used at a frequency of a couple of times per month.

Perchloric acid was used for digestion techniques in the analytical lab the most frequently. Dried plant material was extracted with a few milliliters of perchloric or hydrochloric acid. The resulting clear solution was evaluated for cation content.

Hydrofluoric acid was also used in a digestion experiment. Roughly 6 to 8 500-milliliter bottles were stored at one point. One or two bottles of potassium cyanide were also used for lab analysis.

Ethanol, methanol, butanol, acetonitrile, acetone, chloroform, and ether were commonly used solvents in AFSRC research. Hydrochloric, sulfuric, nitric, phosphoric, and glacial acetic acids were commonly used acids in small quantities. These chemicals were used for plant tissue and soil extractions and for subsequent chemical analyses.

Neutral detergent fiber containing sodium lauryl sulfate and acid detergent fiber (a weak sulfuric acid solution which also contains sodium lauryl sulfate) were used in the plant nutrition chemistry labs to measure the structural composition of plant tissues. Approximately 16 gallons of these solutions were mixed at a time, using approximately 100 milliliters in the samples at a time. The 16 gallons lasted approximately two to three weeks. Approximately 1200 milliliters were used per run, at a frequency of 5 or 10 runs per week, 5 months per year. Twenty years ago, research techniques employed the use of acetone but evolved toward the use of methanol and ethanol for most lab applications. Non-hazardous spent solutions and equipment cleaning wastewater were disposed through the sink.

Small quantities of pesticides and herbicides were stored in the herbicide/pesticide storage area of the main lab. This area has a dedicated HVAC system, separate enclosure, and no drains.

Farms

Standard commercial fertilizers, as well as pulverized limestone (calcium carbonate) were routinely applied to fields in all of the farms. Nitrogen, phosphorus, and potassium (NPK) fertilizers were applied (in varying compositions based on the crop). Typically 200 pounds (lbs) per acre were applied. This could vary from 50 to 60 lbs to 200 lbs per acre. Crushed natural limestone was applied at approximately two to three tons per acre. Occasionally, herbicides were applied. Legumes (e.g., clovers) were used to provide nitrogen sources, as well as ammonium nitrate. Phosphate rock or composted poultry materials were also used.

Pesticides, fungicides, and herbicides were used at all of the farms. Approximately 15 different (total) pesticides, fungicides, and herbicides, were in stored in containers ranging from a small spray container to a 2-gallon canister. Typically no more than three or four 1-gallon to 2-gallon
containers were stored at one time. Fertilizers along with mulch were stored in approximately 50-lb to 100-lb bags. Generally, 8 or 10 bags of mulch and 15 to 20 bags of fertilizer were stored at one time. Roundup was typically used to eliminate grass or crop types in small paddock areas prior to conducting new crop or grass research. For example, at the School House Farm, this was done several times in the early 1990s. Herbicide was applied at the fence lines of most farms to ensure that the electric charge on the fences (to keep livestock on the properties) would not be disrupted. Soil pH between 6.2 and 6.8 was typically desired. Herbicides were only applied by licensed applicators. Pesticides were used infrequently. Site personnel mentioned an instance when a pesticide for alfalfa beetle at the School House Farm was applied. Herbicides 2-4-D and Roundup were applied in small amounts. Triple 10 or Triple 20 fertilizers were used by technicians. Periodically 30 pounds of Nitrogen was applied to paddocks.

Chemicals, such as Round-Up, Sevin, and Butyrac, were used sparingly for spot applications at all of the farms. The farms primarily used fertilizer and lime to simulate small farm practices. The West Virginia Department of Agriculture (WVDA) has records of the amount of herbicides and pesticides that were applied in small quantities. USDA’s practice was to employ licensed applicators for all of these chemicals. Usable pesticides and herbicides were transferred to the USDA North Atlantic Area (NAA) Kearneysville, WV and Ft. Detrick, MD research programs in April 2012.

For livestock, commercially available de-worming (Ivormectin and Valbazen) agents were used at all of the farms. Copper oxide and zinc oxide were used to treat animals for foot rot. Blood and fecal samples were analyzed and autoclaved for disposal.

6.8 Spills

Site personnel were aware of two chemical spills that occurred in Room 14 on separate occasions. These spills were contained inside Room 14 and cleaned up immediately. One spill occurred prior to 1994, when an acid was poured into water to create an acid bath. The other spill occurred in March 1996, when a bottle of nitric acid ruptured violently causing the breakage of an adjacent bottle containing sulfuric acid inside an acid storage cabinet. No materials from the spills entered a drain. Floors and countertops were cleaned after the spills.

In the late 1990s or around 2000, a 2.5-liter bottle of potassium dichromate – sulfuric solution (chromic acid used to clean glassware) was spilled in the Analytical Lab. Cabinets, countertops, and the floor were cleaned.

6.9 Hazardous Wastes

In 1998-1999, a modular steel chemical storage building was installed for the storage of hazardous waste. The building is equipped with secondary containment shelving and floor and is sited on a concrete pad. Prior to 1998, all hazardous wastes were stored in a section of the Chemical Storage Building in secondary containment trays. The Beaver facility is a Conditionally Exempt Small Quantity Generator. Materials in the hazardous waste storage area were typically picked up once per year. According to site personnel, since 1994, the longest time material stayed in storage was two years. Typically, high performance liquid chromatography (HPLC) solvents were the most prevalent chemicals present in the hazardous waste storage area. USDA maintained a hazardous waste inventory and also has documentation of hazardous waste pickups in 1999, 2000, 2002, 2003, 2005, 2008, and 2011. A final waste pickup occurred in May 2012. No on-site disposal of any waste occurred at any USDA properties.

Veterinary products were stored at the School House Farm and Reba Plumley Farm in cabinets. These materials were stored in the hazardous waste storage area and picked up in May 2012.
7.0 FINDINGS

No on-site recognized environmental conditions (RECs) were identified for any of the properties. The following on-site historical REC (where a REC has resulted from historical uses or conditions, but apparently no longer persists at the site) exists at the AFSRC Main Laboratory:

- Soil contamination was observed during the 1992 replacement of two steel USTs with fiberglass reinforced plastic USTs. The USTs were used to store petroleum products. Tank registration records indicate that both USTs stored gasoline. WVDEP was notified and a site characterization report was submitted to the state. WVDEP concurred that no further action was necessary after the contaminated soil was excavated and disposed.

The following two off-site locations, within 1/4-1/2 mile from AFSRC Main Laboratory, were identified through database searches performed by EDR.

- CC Mart #1 (1125 Airport Road, Beaver, WV) – According to Leaking Underground Storage Tank (LUST) data obtained by Environmental Data Resources, Inc. (EDR), groundwater contamination (but no known drinking water contamination) occurred at this site, which is located southwest of the AFSRC lab boundary. The release date and cleanup completion date are listed as 2/12/2002 and 3/7/2005 respectively. EDR data searches indicated that three USTs are currently in use (two 12,000-gallon gasoline tanks and one 20,000-gallon diesel tank).

- DOT/FAA VORTAC (Raleigh County Airport, Beaver, WV) – According to LUST data obtained by EDR, soil contamination occurred at this site, which is located northwest of the AFSRC lab boundary, after a release occurred on 11/3/1994. The cleanup completion date is listed as 5/1/1996. One 1,000-gallon diesel tank (closed on 10/28/1994 and removed from the ground) and one 600-gallon diesel tank (closed on 8/18/1997 and removed from the ground) are identified in the UST records searched by EDR.

The following off-site location, within 1/8 mile from Reba Plumley Farm, was also identified through database searches performed by EDR.

- Pluto #1 Surface (Standard Pocahontas Coal, Raleigh County, WV) – According to data obtained by EDR from the Mines Master Index File, a mine located near the eastern edge of the property boundary was classified as abandoned on 9/25/1979 by the Mine Safety and Health Administration. No additional data for this site are available.

Additional findings related to the review of user-provided information are identified in the Summary of Relevant Findings portion of Section 3 of this report.
8.0 DATA GAP ANALYSIS

ASTM E1527-05 standard requires a listing of data gaps encountered during the investigative process that may affect the validity of the conclusions drawn by the environmental professional. The ASTM E1527-05 standard also requires that the environmental professional estimate the relative importance of the data gaps. Generally, gaps in available data are related to the availability of historical data sources for specific sites of concern. The environmental professional uses multiple historical data sources as a method to provide coverage for data gaps. Historical information is collected on a recurring basis, and the passage of time between data sets may or may not constitute a significant gap in data coverage. For this project, the following items may constitute a data gap as defined by ASTM:

- Review of historical data back to 1940 or first developed use of the properties (whichever is earlier) – Historic aerial photographs of the AFSRC Main Laboratory site indicate that this property was first developed in the late 1970s by USDA. However, the earliest aerial photograph for any of the properties dates back to 1956. Although topographic maps for some of the properties date back to the 1890s, these maps do not provide additional insight on the historic use of the properties. Sanborn fire insurance maps were searched, but none are available for any of the properties. Consequently, specific practices and activities associated with these properties cannot be ascertained prior to the 1950s.

- Review of regulatory files of adjacent property listings – the state files for the Shell CC Mart #1 and Raleigh County Airport USTs near the AFSRC Main Laboratory were not available by the time this report was drafted.

- The Mine Safety and Health Administration (MSHA) was contacted via telephone on May 4, 2012, to determine the extent of historical information available related to Pluto #1 Surface (Standard Pocahontas Coal, Raleigh County, WV), an abandoned coal mine site located near the eastern edge of the Reba Plumley farm property boundary. MSHA records indicate that the mine had an active status on October 20, 1978, but no operational hours were reported; the site contact was James Daniels (President) at P.O. Box 35, Oak Hill, West Virginia, 25901; and that the mine was officially abandoned on December 12, 1980. MSHA was established in 1978. Additional legacy data passed on from the government organizations that preceded it (Mining Enforcement and Safety Administration and Bureau of Mines) for this site do not exist in MSHA data repositories.

- Review of groundwater flow and groundwater table data – information related to groundwater levels and flow near the AFSRC Main Laboratory and Reba Plumley Farm are not available. Without such data, migration pathways cannot be ascertained and can only be assumed.

These data gaps do not significantly impact the conclusions in this report.
9.0 OPINION

No on-site recognized environmental conditions (RECs) were identified for any of the properties. The following historical REC (where a REC has resulted from historical uses or conditions, but apparently no longer persists at the site) exists at the AFSRC Main Laboratory:

- Soil contamination was observed during the 1992 replacement of two steel USTs with fiberglass reinforced plastic USTs. The USTs were used to store petroleum products. Tank registration records indicate that both USTs stored gasoline. WVDEP was notified and a site characterization report was submitted to the state. WVDEP concurred that no further action was necessary after the contaminated soil was excavated and disposed. No groundwater wells are present at the AFSRC Main Laboratory and drinking water is supplied by Raleigh County. AFSRC also operated in accordance with a groundwater protection plan, which was first submitted to WVDEP in 1995. Therefore, this historical REC meets *de minimis* conditions and is not a REC.

The following two off-site locations, within 1/4-1/2 mile from AFSRC Main Laboratory, were identified through database searches performed by EDR.

- CC Mart #1 (1125 Airport Road, Beaver, WV) – According to Leaking Underground Storage Tank (LUST) data obtained by Environmental Data Resources, Inc. (EDR), groundwater contamination (but no known drinking water contamination) occurred at this site, which is located southwest of the AFSRC lab boundary. The release date and cleanup completion date are listed as 2/12/2002 and 3/7/2005 respectively. EDR data searches indicated that three USTs are currently in use (two 12,000-gallon gasoline tanks and one 20,000-gallon diesel tank).

- DOT/FAA VORTAC (Raleigh County Airport, Beaver, WV) – According to LUST data obtained by EDR, soil contamination occurred at this site, which is located northwest of the AFSRC lab boundary, after a release occurred on 11/3/1994. The cleanup completion date is listed as 5/1/1996. One 1,000-gallon diesel tank (closed on 10/28/1994 and removed from the ground) and one 600-gallon diesel tank (closed on 8/18/1997 and removed from the ground) are identified in the UST records searched by EDR.

Vapor migration from these facilities would only occur if a release occurred and was not remediated or if only limited (e.g., soil only, and not groundwater) remediation took place. According to ASTM E2600-10 (Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions), for off-site LUST properties, a vapor encroachment condition (VEC) would not be likely on the target property if these properties were more than 528 feet away from the target property in the up-gradient (groundwater flow) direction; 100 feet away from the target property in the down-gradient direction; and 195 feet away from the target property in the cross-gradient direction. Although groundwater flow direction is not known, none of these facilities are located within 528 feet of the target properties. These facilities meet *de minimis* conditions and do not have any material impact on the target properties.

The following off-site location, within 1/8 mile from Reba Plumley Farm, was also identified through database searches performed by EDR.

- Pluto #1 Surface (Standard Pocahontas Coal, Raleigh County, WV) – According to data obtained by EDR from the Mines Master Index File, a mine located near the eastern edge of the property boundary was classified as abandoned on 9/25/1979 by the Mine Safety and Health Administration. No additional data for this site are available.
Additional findings identified in the Summary of Relevant Findings portion of Section 3 of this report meet *de minimis* conditions.
10.0 CONCLUSIONS

The Phase I ESA was performed in conformance with the scope and limitations of ASTM E1527-05 for the following properties:

- Appalachian Farming Systems Research Center (42.7 acres; Beaver, West Virginia);
- Reba Plumley Farm (126.6 acres; Shady Spring, West Virginia);
- School House Farm (54.8 acres; Shady Spring, West Virginia);
- Peters Farm (54 acres; Cool Ridge, West Virginia); and
- Roscoe Plumley Farm (15 acres; Shady Spring, West Virginia).

Any exceptions to, or deletions from, this practice are described in Section 1.3 of this report. This assessment has revealed no evidence of recognized environmental conditions in connection with the properties. Therefore, Phase II testing is not recommended.
11.0 ADDITIONAL INVESTIGATION BEYOND ASTM E1527-05

The following project tasks, which are beyond the scope of ASTM E1527-05 requirements, were also performed:

- Questions 8 through 19 of GSA Excess Real Property Checklist (dated November 2011) were completed. These checklists contain information related to asbestos; hazardous substance activity certification, lead-based paint; RCRA permits and landfills (including RCRA corrective actions); underground storage tanks (active, abandoned, closed in place or removed); polychlorinated biphenyls (PCBs); mold; radon, and pesticides (including herbicides, fungicides, and rodenticides). Note that this checklist only applies to USDA-owned properties, and therefore does not apply to the Roscoe Plumley Farm, which was formerly leased by USDA. Completed checklists are provided in Appendix A.3.

- Potential liabilities associated with possible hazardous contamination of sink drains and traps, fume hoods and exhaust duct work were identified. During interviews, site personnel indicated that perchloric acid was used in AFSRC lab fume hoods in the past. The lab is equipped with fume hoods with water washdowns that are specifically designed and labeled for perchloric acid use. In addition to being a corrosive liquid, under some circumstances perchloric acid may act as an oxidizer and present an explosion hazard. Organic materials are especially susceptible to combustion if mixed or contacted with perchloric acid. Under some circumstances, perchloric acid vapors form perchlorate salts that deposit in duct work, which are shock sensitive. The existing water washdown systems in the fume hoods are designed to prevent these perchloric acid hazards.

During interviews, site personnel indicated that radiological materials were used at the AFSRC Main Laboratory. Isotope research was conducted in Room 27 (approximately 200 SF) of the main facility in the past. This research was conducted intermittently, beginning in the 1980s. Radioactive isotopes of phosphorus were primarily used: \(^{32}\)P (half-life of approximately 14.3 days) and \(^{33}\)P (half-life of approximately 25.3 days). The most recent isotope research in Room 27 was conducted in approximately 2003 or 2004. Plant DNA was tagged with phosphorus radioisotopes and exposed to X-ray film for imaging. The last use of radioisotopes occurred in 2006. In 2008, the decision was made by the facility managers to terminate and proceed with the close out of the radioactive materials use program through the USDA Radiation Safety Staff office (RSS). All remaining radioactive materials at the facility were shipped for disposal to Thermo-Fisher Scientific in Austin, Texas (August 2008) and NSSI Recovery Services in Houston, Texas (October 2008). Appendix A.6 contains the related closure documentation and shipping manifests. Room 27 was then released by RSS for unrestricted use.