SUSQUEHANNA MARINE SURVEYS

July 30, 2011
SMS File 11168

US Department of Interior
C & O Canal National Park Service
1850 Dual Highway, Suite 100
Hagerstown, MD 21740

Attn: Mr. John Adams, CSP
Safety Officer

Owner: C & O Canal National Park Service
Reference: Appropriation/ Allotment No. 3109-I34
Vessel: The Georgetown (canal boat)

FINAL REPORT OF SURVEY

This is to certify that the undersigned surveyor did, on July 21, 2011 @ 0900 hours EST attend the vessel described below, for the purpose of conducting an inspection to establish condition of structure. This inspection was conducted at the request of C & O Canal NHP.

Equipment Particulars:

MANUFACTURER/ BUILDER: Marine Power, Inc.
VESSEL NAME: Georgetown USE: Commercial
VESSEL TYPE Canal Boat/ Barge (reproduction) YEAR BUILT 1982
UNIT SERIAL NUMBER (HIN) Non Found
BEAM 12' LENGTH OVERALL Approx. 85' DRAFT approx. 12"
WEIGHT (empty) unknown MAX. PASSENGER CAPACITY 70
PROPULSION Mule Drawn SERIAL No. N/A MODEL N/A
NO. OF ENGINES N/A FUEL TYPE N/A NO. OF TANKS N/A
VESSEL WAS LOCATED AT Canal pool between Locks 2 & 3 of the C & O Canal
Georgetown, Washington, DC

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Details of Inspection:

The undersigned traveled to the Vessel's location and met with the Safety officer for the National Historical Parks system, Mr. John Adams. This inspection was perfomed as a final inspection to determine if there were any conditions found that could indicate the need to remove the vessel from service to either rebuild/ recondition or replace. The vessel had been dry docked at the pool between the C & O canal locks 2 & 3 in Georgetown, Washington, DC.

NHP employees had removed all of the floor panels for access to inspect the bilge/ bunker areas. Due to the vessel being double ended, for this report the bow is where the stable is (also the upstream end).

The conditions found , such as wet/ deteriorated core material, hull cracks, osmotic blistering, deteriorated frames, are listed with photos below:

Photo 1: shows vessel at dry dock in Georgetown, MD for inspection/ survey.

Photo 2. Shows crack along port side of vessel. Shows tightly closed. When the vessel was afloat during the preliminary inspection,this crack was appox. 3/8" open width. This crack involves the core material and goes through to the inside.

Photo 3. Shows same crack on inside of vessel. A core sample was pulled (hole shown in photo) and wet/ deteriorated core (balsa) was pulled out.

Photo 4. Shows shows major delamination of FRP at port side of bow

Photo 5. Shows starboard gunwale deck. Both port and starboard,bow and stern decks are soft/ weak due to deteriorated core material.

Photo 6. Shows deteriorated forward starboard cabin corner

Photo 7. Shows worn and deteriorated starboard bow chine. core material of chine appears to be deteriorated and no longer structural.

Photo 8. Shows deteriorated/ delaminated FRP chine along port side near bow

Photo 9. Shows cracked/ broken/ deteriorated rudder to shaft connection on Bow rudder

Photo 10. Shows a crack forming at starboard side companion way. The core material in this area is wet and deteriorated as found by core sample

Photo 11. Shows water intrusion and deteriorated wood deck. (under bow deck)

Photo 12. Shows chine at port aft chine broken with core missing

Photo 13: shows cracks along hull bottom.

Photo 14: Shows broken side batten reveals unsealed bolt hole that has been allowing water to intrude into the hull core material as well as the bilge area.

Photo 15: shows damaged chine along starboard side. Core material is wet and deteriorated.

Photo 16: shows hull bottom is covered with osmotic blistering.

Photo 17: shows hull bottom cracks and blistering

Photo 18: shows multiple cracks in hull bottom from blistering and delaminatioin process

Photo 19: shows piece of hull bottom that has come off. This piece was found in the water.

Photo 20: shows were hull bottom is delaminating and area where the piece that was found had come off.

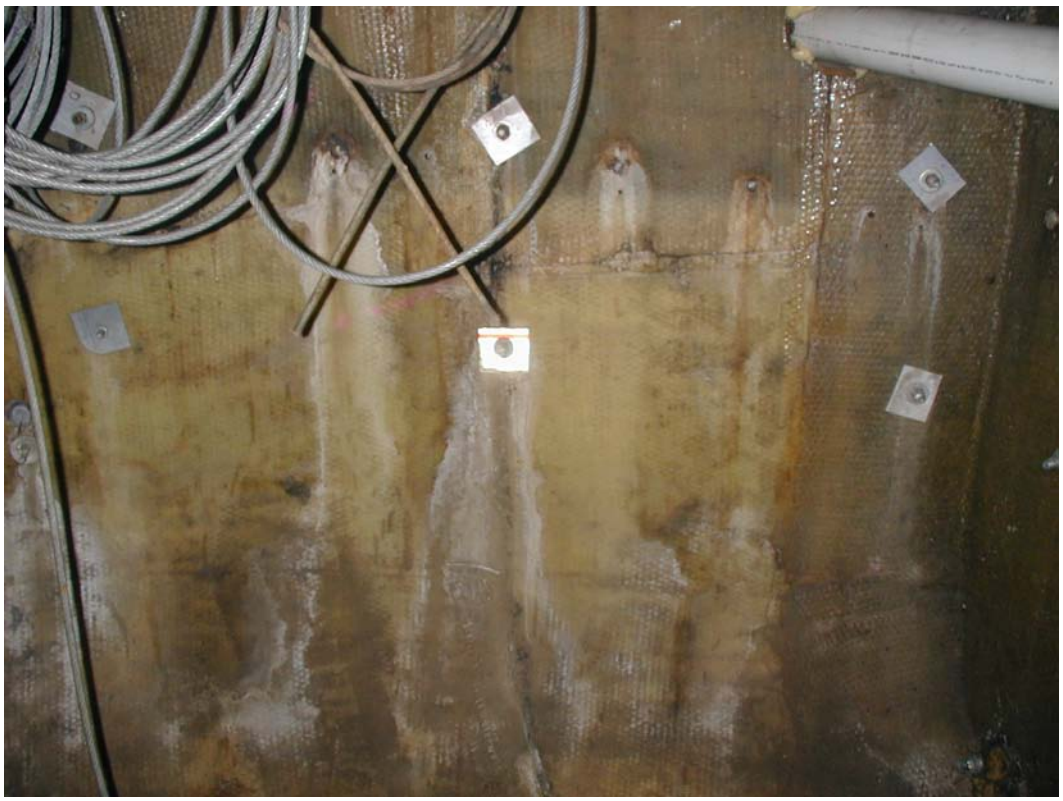

Photo 21: shows signs of water leakage through bolt holes. These bolts hold the wood boards to the sides and ends of the vessel.

Findings : Through a careful inspection and core sampling of the vessel listed, The following was found;

1. Bow, stern, port and starboard gunwales showed wet and deteriorated core material. The core of the vessel is end grain balsa.
2. Port side crack at the unused companion way bottom aft corner. This crack has affected the structural integrity of this vessel as shown by the amount of open area when the vessel is afloat vs. dry docked when the crack showed to be closed. This crack is complete to the inner laminate and approximately 15" long. Several core samples were taken around this location with wet and deteriorated core material found.
3. Starboard crack at the used companionway lower aft corner. This crack has allowed water to infiltrate to the core material causing it to deteriorate
4. Water leaks were found at most of the holes for the side board bolts. The water has also intruded into the hull core material in these areas causing it to become deteriorated. This deterioration is reducing the structural integrity of the hull
5. The chines of the hull bottom have several crushed areas .
6. The hull bottom shows to be cracked and affected with osmotic blistering along the entire length of the hull
7. The forward rudder lower swivel was cracked and broken.
8. The framing of the stable house (forward cabin) shows deterioration at the bottom / ends of the frames. The cabin bulkhead was no longer attached to the hull due to delamination of the FRP tabbing on both port and starboard sides.
9. The side / gunwale decks were found to be soft due to deteriorated structural core material. The deterioration is due to water intrusion around the fore and aft cabins
10. The cockpit subfloor was found to be soft/ deteriorated in 2 areas due to water intrusion from improper deck drainage. This improper water drainage also caused parts of the deck framing to become wet and deteriorated.
11. After reviewing the original vessel building plans, it was found that the vessel was not correctly rebuilt after the fire in 1998. Much of the required structure components were not replaced or correctly installed.

Recommendations:

It is highly recommended that the vessel be taken out of service due to the number of deteriorated structural components.

The vessel is repairable, however it would be done so at large expence and require the vessel to be hauled out, disassembled and placed upside down just to facilitate the hull bottom repair. An estimated cost of repair reserve would begin at $450,000.00.

CONDITIONS OF REPORT ACCEPTANCE

This survey report is a description of the condition of the subject marine vessel found by the undersigned at the time of the survey. The findings and observations are subject to the limitations set forth in the Scope of Survey and any others mentioned in the text of this survey report. Although the survey was carried out in a thorough manner within the constraints of the Scope of Survey, and the surveyor exercised due care and diligence in making a complete inspection, no guarantee can be made that every deficiency was discovered within the time allotted for the survey. The facts as discovered and presented in this report are in no way to be deemed a guarantee and / or warranty, either expressed or implied for the subject marine vessel.

This survey was made and the report was prepared, signed, and submitted in confidence to the person, persons or entity on whose behalf the survey was performed without prejudice to the rights or interests of whom it may concern. Any fraudulent use of this report will be prosecuted by the fullest extent of the law.

The undersigned reserves the right to amend or change the context or information within this report upon receipt of information from additional testings or inspections.

Respectfully submitted on July 30, 2011

Robert P. Stefanowicz, AMS ®

Susquehanna Marine Surveys