



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, REGION I  
5 Post Office Square, Suite 100  
Boston, MA 02109-3912

December 19, 2011

Mr Dominic O'Connor  
Remedial Project Manger  
Environmental Restoration  
NAVFAC MIDLANT OPNEEV  
Bldg Z-144  
9742 Maryland Avenue  
Norfolk, VA 23511-3095

Superfund Records Center  
SITE New London  
BREAK 8.3  
OTILK \_\_\_\_\_

Re Third Five-Year Review for the Naval Submarine Base New London Superfund Site

Dear Mr O'Connor

Thank you for the opportunity to review the *Third Five-Year Review for CERCLA Sites at Naval Submarine Base New London, Groton, CT*, dated December 2011. EPA reviewed this document in light of its compliance with the *Comprehensive Five-Year Review Guidance* (OSWER No 9355 7-03B-P dated June 2001). This statutory review is consistent with the guidance provided in the OSWER directives. Upon review, EPA concurs with the findings that the remedies that have been implemented at the Area A Landfill, the Goss Cove Landfill, the Defense Reutilization and Marketing Office, the Area A Downstream/Over Bank Disposal Area, the Area A Weapons Center, the Torpedo Shops, and Basewide Groundwater are protective of human health and the environment.

For those operable units that are still under investigation, EPA is pleased to see the Navy's continued commitment to following the CERCLA process in accordance with the Federal Facilities Agreement. Access is restricted at most of the sites that have not yet been remediated to minimize potential threats to human health. EPA agrees that the protectiveness of the selected remedies for the sites currently under investigation (Lower Subbase and Sites 9 and 23) and the Area A Wetland that is currently under construction will be evaluated in subsequent five-year reviews.

During EPA's site walkover on April 6, 2011, numerous issues were identified with respect to the on-going maintenance of several remedies currently in place. These issues are summarized appropriately in Table 18-2 of the *Third Five-Year Review* report along with corresponding recommendations to address them. EPA is pleased that the Navy has already put in place plans to correct these deficiencies and looks forward to working with you to ameliorate them and to reviewing the revised instruction.

This third five-year review requirement was established by the first five-year review (completed on December 7, 2001) that was prompted by the remedial action start for the Area A Landfill.

Consistent with Section 121(c) of the CERCLA, the next five-year review must be finalized on or before December 20, 2016

Sincerely,



James T. Owens, Director  
Office of Site Remediation and Restoration

cc Mark Lewis, CTDEEP, Hartford, CT  
Tracey McKenzie, USN, Groton, CT  
Bryan Olson, EPA, Boston, M A  
Kymberlee Keckler, EPA, Boston, M A





# TETRA TECH

PITT-12-11-051

December 15, 2011

Project Number 112G03386

NAVFAC MID-ATLANTIC, Northeast IPT  
Attn: Mr. Dominic O'Connor (Code OPTE3-1)  
Bldg Z-144  
9742 Maryland Avenue  
Norfolk, Virginia 23511-3095

Reference: CLEAN Contract No. N62470-08-D-1001  
Contract Task Order WE33

Subject: Final Third Five-Year Review Report  
Naval Submarine Base-New London, Groton, Connecticut

Dear Mr. O'Connor:

Please find enclosed two hard copies and two electronic copies (CDs) of the subject report for your files. Copies of the report were also distributed to the other members of the New London team per the distribution list provided below for their files.

EPA and CTDEEP provided concurrence on the redline-strikeout changes included in the draft final Third Five-Year Review Report on December 8, 2011 and December 9, 2011, respectively. The final version of the report was prepared by accepting the redline-strikeout changes and making minor formatting/editorial changes to the Navy Cover Page to help facilitate the New London Commanding Officer's acceptance and sign-off.

If you have any other questions regarding the enclosed report, please contact me at (412) 921-8984.

Sincerely,

Corey A. Rich, P.E.  
New London Base Coordinator/Project Manager

CAR/clm  
Enclosure(s)

c: Ms. Kymberlee Keckler, EPA (3 copies/CDs)  
Mr. Mark Lewis, CTDEEP (1 copy/CD)  
Mr. Ken Finkelstein, NOAA (1 copy/CD)  
Mr. Ken Munney, USF&W (1 copy/CD)  
Ms. Tracey McKenzie, NSB-NLON (3 copies/CDs)  
Mike Brown, NSB-NLON (1 copy/CD)  
Mr. Paul Steinberg, Mabbett (2 copies/CDs)  
Mr. Garth Glenn, Tetra Tech – Norfolk (letter only)  
Mr. Glenn Wagner, Tetra Tech – Pittsburgh (1 copy/CD)  
Ms. Nina Balsamo, Tetra Tech – Pittsburgh (1 copy/CD)  
CTO WE33 – File Copy (1 copy/CD)

**Tetra Tech**

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# **Third Five - Year Review Report**

for

## **CERCLA Sites at Naval Submarine Base New London Groton, Connecticut**



### **Naval Facilities Engineering Command Mid-Atlantic**

**Contract Number N62470-08-D1001**

**Contract Task Order WE33**

December 2011

REVISION 1  
DECEMBER 2011

**THIRD FIVE-YEAR REVIEW REPORT  
FOR  
CERCLA SITES AT  
NAVAL SUBMARINE BASE - NEW LONDON  
GROTON, CONNECTICUT**

**COMPREHENSIVE LONG-TERM  
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT**

**Submitted to:  
Naval Facilities Engineering Command Mid-Atlantic  
9742 Maryland Avenue  
Norfolk, Virginia 23511-3095**

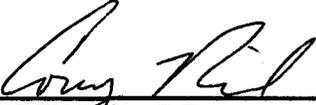
**Submitted by:  
Tetra Tech NUS, Inc.  
234 Mall Boulevard, Suite 260  
King of Prussia, Pennsylvania 19406**

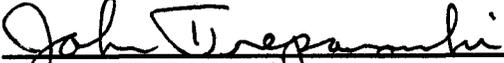
**CONTRACT NUMBER N62470-08-D1001  
CONTRACT TASK ORDER WE33**

**DECEMBER 2011**

**PREPARED UNDER DIRECTION OF:**

**APPROVED FOR SUBMISSION BY:**

  
\_\_\_\_\_  
**COREY RICH, P.E.  
PROJECT MANAGER  
TETRA TECH NUS, INC  
PITTSBURGH, PENNSYLVANIA**

  
\_\_\_\_\_  
**JOHN J. TREPANOWSKI, P.E.  
PROGRAM MANAGER  
TETRA TECH NUS, INC  
KING OF PRUSSIA, PENNSYLVANIA**

Navy Five-Year Review Signature Cover

Key Review Information

Site Identification		
Site Name: Naval Submarine Base New London		EPA ID: CTD980906515
Region: 1	State: CT	City/County: Groton/New London
Site Status		
NPL Status: Final		
Remediation Status (under construction, operating, complete): Under Construction and Operating		
Multiple OU's* (highlight): <input checked="" type="checkbox"/> N		Number of Sites/OUs: 24/12
Construction Completion Date: To be determined		
Has site been put into reuse? (highlight): <input checked="" type="checkbox"/> N		
Review Status		
Lead Agency (EPA, State, Tribe, Other Federal Agency): Naval Facilities Engineering Command, Mid-Atlantic		
Author Name: Dominic O'Connor		Author Title: Remedial Project Manager
Author Affiliation: Department of the Navy, Naval Facilities Engineering Command, Mid-Atlantic		
Review Period: December 2006 to December 2011		Date(s) of Site Inspection: April 6, 2011
Type of review: <input checked="" type="checkbox"/> Post-SARA <input type="checkbox"/> Non-NPL Remedial Action Site <input type="checkbox"/> Regional Discretion		Review Number (1, 2, etc)  3
<input type="checkbox"/> Pre-SARA <input type="checkbox"/> NPL - Removal Only <input type="checkbox"/> NPL State/Tribe-Lead		
Triggering Action Event: Initiation of the remedial action for Site 2 - Area A Landfill (OU1)		
Trigger Action Date: <i>December, 1996</i>		
Due Date: <i>December, 2011</i>		

\* OU refers to Operable Unit

**Issues:**

One deficiency and several operation and maintenance (O&M) issues were noted for Site 2A – Area A Landfill [Operable Unit (OU)1/OU9] during the review process. The one deficiency is that equipment and materials continue to be improperly stored on the cap within the no-load zone. Allowing this practice to continue could result in damage to the asphalt that might in turn allow surface water to enter the cap drainage layer. Equipment in the no load zone along the wetland edge could cause sloughing of the landfill face, potentially leading to a progressive slope failure of the landfill. Materials and equipment should be moved from the no load zone. The O&M Issues are summarized as follows:

(1) Heavy equipment that may exceed the weight limit continues to be stored on the cap, which could result in damage to the asphalt that could lead to surface water entering the cap drainage layer. Equipment and materials stored on the cap should be evaluated to determine whether they exceed the 500 pounds per square foot weight limit.

(2) Longitudinal cracks continue to form in the asphalt. Many of the cracks have been sealed, but if the new cracks are not sealed, surface water will penetrate the asphalt and cause further deterioration during freeze-thaw cycles.

(3) The gate near the Salt Storage Building is damaged and cannot be locked.

(4) The sign at the gate near the Salt Storage Building does not include contact information and is partially obscured by vegetation.

(5) The deployed parking area fence posts are bent and bottom clips are missing.

(6) Debris and vegetation (*Phragmites*) clog portions of Channels A, B (the ADS culvert area), and E. If the debris and vegetation are not removed, it may result in surface water overtopping the channels and flowing across the cap system. Continued *Phragmites* growth may result in the root system penetrating the cap because the roots can penetrate up to 2 meters.

(7) The no load zone is not marked between Gas Vent Riser (GVR)-13 and Staff Gauge (SG)-15, although it should be marked along the entire Area A Wetland edge of the landfill. Improper storage of equipment in the no load zone could result in damage to the asphalt that may allow surface water to enter the cap drainage layer.

(8) A minor depression in the asphalt has formed above Culvert 1. Surface water could accumulate in the depression. If the situation is not addressed, over the long term, the cap system could be impacted in this location.

(9) The cover of monitoring well 4MW1S is broken and the riser is bent, which could lead to the integrity of the well being compromised.

(10) Minor settling of concrete has occurred around well 2LMW20S.

(11) The cover on Site 3 monitoring well 3MW12D is broken, which could lead to the integrity of the well being compromised. This well is part of the Site 2A monitoring program.

(12) Debris (e.g., canvas bags, other trash) has been placed on the northern edge of the site. The site was not intended to be used for waste disposal. Although it is unlikely that the debris will impact the functionality of the cap system, it should be removed and properly disposed.

(13) A number of observations were made concerning gas vents:

A) the screen was missing from GVR-21, which could allow foreign material to enter the vent;

B) the asphalt around GVR-22 is damaged, which could allow surface water to infiltrate the cap;

- C) the jersey barrier adjacent to GVR-18 has fallen over;
- D) trash and debris have accumulated around Site 2A gas vents;
- E) equipment has been placed near GVR-14.

The remedy for Site 2A groundwater (OU9) includes land use controls (LUCs), which have been implemented under the OU9 LUC Remedial Design (RD). Until the Site 2A soil LUC RD is completed and implemented, soil LUCs are being enforced under the NSB-NLON Instruction [SOPA (ADMIN) New London Instruction 5090.25 (Navy, 2009b)] and the O&M program.

The ROD for Site 2B, Area A Wetland (OU12) was signed August 2010 and the remedy has not yet been implemented. The Site 2B sediment (OU12) LUC RD is being prepared. The remedy for Site 2B groundwater (OU9) includes LUCs, which have been implemented under the OU9 LUC RD. The Site 2B groundwater remedy does not require groundwater monitoring. Until the OU12 LUC RD is completed and implemented, sediment LUCs are being enforced under the NSB-NLON Instruction. The focus of the inspection was on the condition of the wetland and included visual observations. The Navy, in cooperation with the Connecticut Department of Energy and Environmental Protection (CTDEEP) Wetlands Habitat and Mosquito Management Program's Phragmites Control Team, initiated a program in 2010 to control *Phragmites* in the Area A Wetland through mechanical and chemical methods. The inspection team observed that in general, the removal of *Phragmites* was successful and the wetland is in good condition; however, the team identified as an O&M issue the presence of some *Phragmites* remaining around open water areas. The United States Environmental Protection Agency (USEPA) recommended that the remaining *Phragmites* should be cut/treated to enhance wetland habitat. Additional herbicide treatment of the *Phragmites* was completed in October 2011.

The remedies for Site 3 soil (OU3) and Site 3 groundwater (OU9) were evaluated in this Five-Year review. The inspection of Site 3 found that the concrete cover was in good condition and working as intended. The wetland restoration was successful and the planted vegetation and ponds are in good condition. It was noted, however, that the cover on a well in Site 3 (3MW12D), that is part of the Site 2A monitoring program, is broken. That O&M issue has the potential to negatively affect the Site 2A long-term groundwater monitoring program and should be repaired. The remedy for Site 3 groundwater includes LUCs, which have been implemented under the OU9 LUC RD. Until a LUC RD for the concrete-encapsulated soil (OU3) is completed and implemented, concrete-encapsulated soil LUCs are being enforced under the NSB-NLON Instruction and the O&M program. *Phragmites* management is being completed under the Navy's Natural and Cultural Resources Program.

During the review process for Site 6 (OU2), one deficiency and several O&M issues were identified that, if not addressed, could negatively affect the long-term performance of the cap system. The deficiency was that boats are being stored on the cap without blocking to prevent point-load damage to the asphalt. The O&M issues included the following:

- (1) The asphalt has a few minor longitudinal cracks. If the cracks are not sealed, surface water will penetrate the asphalt and further deteriorate the asphalt during freeze-thaw cycles.
- (2) The well pad for well 6MW1S is in need of replacement.
- (3) A bolt on cover for well 6MW9S is damaged.
- (4) Leaf litter, trees, and other debris have accumulated in the perimeter channel, which could result in surface water ponding on the asphalt adjacent to the perimeter channel.
- (5) Leaf litter has accumulated around the drop inlet and needs to be cleared.
- (6) The outlet structure could not be accessed during the inspection. There is no access to the outlet through the security fencing. However, based on inspection from the landward side, this outlet structure appeared to be functioning properly.

(7) A sign was missing Public Works contact information. Until a LUC RD for Site 6 is completed and implemented, LUCs are being enforced under the NSB-NLON Instruction and the O&M program.

The Site 7 (OU8/OU9) selected remedy for soil contamination was excavation and off-site disposal. The remedy was successfully implemented and completion documented in a completion report issued in December 2006. Groundwater contamination was addressed as a part of the Basewide groundwater OU9. The OU9 Remedial Action Completion Report (RACR) issued June 2010 acknowledged that the groundwater remedial action was completed and required no further actions (i.e., groundwater monitoring and five-year reviews of Site 7 could be discontinued).

One deficiency and a number of O&M issues were identified at Site 8 (OU5) through the review process. Most of the issues were minor and overall the site is in good condition. The one deficiency identified had the potential to impact the long-term performance of the cap. An above-ground storage tank (AST), its foundation (concrete pad), and associated piping were installed on the cap without prior knowledge or permission from the Installation Restoration Program (IRP) Manager. The pad and piping for the AST were subsequently investigated for possible major impacts to the cap system. An investigation was planned and executed in October 2011 to determine if the cap was damaged, or a portion of the cap removed during the AST installation, allowing infiltrating surface water to flow through the waste material in the landfill and promoting contaminant migration to groundwater. The investigation determined that the liner system was not compromised. Therefore, the Navy did not need to remediate any damage to the cap. Additionally, a subsequent investigation is being completed to determine whether the AST pad can be enlarged without impacting the cap. The O&M issues are summarized as follows:

(1) Trees and shrubs have been planted on the cap area. Any plant with woody roots and a root depth greater than the cap thickness could puncture the geomembrane. There has not been an evaluation of whether the roots of these trees might penetrate deep enough to cause damage.

(2) There has been some apparent settling of the pavers beneath the gun and missile hatch displays. The displays should be monitored to detect any additional settling that potentially could lead to future cap damage.

(3) The liquid petroleum gas (LPG) tank in the snack/picnic area is beginning to sink into the ground. A concrete pad should be installed beneath this tank to prevent potential impacts to the landfill cap.

(4) The sprinkler head near Gas Vent M, adjacent to the damaged curb, is damaged, a condition that could lead to pooling of surface water. A follow-up inspection of the area by Sovereign Consulting Inc., the O&M contractor, noted that the head was bent at an angle and missing part of its cap, and recommended that the sprinkler head be replaced and the angle adjusted to provide proper irrigation of the area.

(5) The man gate on the north end of the landfill cap was not locked during the site inspection. This gate should be kept locked to prevent unauthorized access to the landfill cap.

(6) Minor settling of the asphalt around Light Pole 11 was observed during the inspection. The asphalt should be repaired to prevent water from penetrating the asphalt and entering the cap drainage layer.

(7) Minor longitudinal cracks in the asphalt were observed during the inspection. These cracks need to be repaired to prevent water from penetrating the asphalt and entering the cap drainage layer.

(8) Gas Vent N is not secured. All vents should be secured to prevent tampering.

(9) The covers for wells 8MW6D, 8MW2S, and 8MW2D have missing or damaged bolts.

(10) The bladder pump in well 8MW2D may not be functioning properly.

(11) There is a possible obstruction in well 8MW2D, which needs to be evaluated, and actions identified.

(12) Well 8MW9S is no longer sampled and has not been properly abandoned. Subsequent to the inspection, it was observed that the well location had been paved over.

(13) A sign had incorrect contact information. Until a LUC RD for Site 8 is completed and implemented, LUCs are being enforced under the NSB-NLON Instruction and the O&M program.

No deficiencies or O&M issues were identified for the groundwater at Sites 9 or 23 during the review process. Groundwater at these sites is a part of OU9. However, it was identified that Comprehensive Response, Compensation, and Liability Act (CERCLA) closure documentation was not completed for the soil at both sites. The soil at these sites were investigated and closed under authority of the State of Connecticut underground storage tank (UST) program. Preparation of Study Area Screening Evaluations (SASEs) is necessary to document full closure of soil at these sites under CERCLA. The remedy for Site 23 groundwater, including Site 9 groundwater, includes LUCs, which have been implemented under the OU9 LUC RD.

A Record of Decision (ROD) has not been signed for the Lower Subbase sites [Sites 10, 11, 13, 17, 19, 21, 22, 24, and 25 (all OU4)]. Inclusion of the Lower Subbase sites in the Third Five-Year Review Report is not required because a final remedy has not been selected nor implemented. These sites are addressed here as a courtesy, for information purposes, and to present a comprehensive description of active and potential IRP actions at NSB-NLON. It is not possible to make a protectiveness assessment at this time, or to assess them for deficiencies in the remedial actions. The sites were visually inspected for any conditions that might have the potential to enhance contaminant migration. The only issue observed was associated with an excavation near Site 21, within Zone 7. The excavation was located near the southeastern corner of Building 106. The stockpiled soil from the excavation had not been placed on a plastic liner and was not protected from weather by a cover. The NSB-NLON Instruction requires that for excavations in an IR site, soil must be stockpiled in accordance with best management practices for erosion control and stormwater protection. The protection of the soil stockpile was not in conformance with best management practices and so was not compliant with the NSB-NLON Instruction.

#### **Recommendations and Follow-Up Actions:**

The Third Five-Year Review was performed on completed, ongoing, and pending remedial actions at 17 of the 24 IRP sites at NSB-NLON. Sites 1 (OU1) and 4 (OU10) were not included in this review, as recommended in the First Five-Year Review Report. Sites 14 (OU8/OU9), 15 (OU6/OU9), 16 (OU11), 18 (OU11/OU9), and 20 (OU7/OU9) were not included, as recommended in the Second Five-Year Review Report.

The recommendations and actions required for Site 2A (OU1/OU9) are as follows:

- (1) Mark and enforce the "no load" zones for the capped area.
- (2) Continue O&M of the site and address the identified O&M issues.
- (3) Label all gas vents.
- (4) Abandon 15 idle wells at Sites 2A and 2B.
- (5) Develop, implement, and enforce an equipment storage plan that would organize storage, provide safe methods for storage of equipment on the cap, and eliminate storage of overweight equipment and materials on the cap. Enforce the "no load" zones.
- (6) Ensure that access gates are secured at all times.

- (7) Continue enforcement of the NSB-NLON Instruction until a LUC RD can be completed and implemented.
- (8) Complete and implement Revision 2 of the O&M Manual.
- (9) Complete a RACR to document completion of the remedial action.
- (10) Investigate warning signs and update if needed.
- (11) Implement corrective actions for LUC compliance by doing the following:
  - (a) Environmental Division to perform quarterly LUC inspections.
  - (b) Dig permits to require concurrence of Environmental Division.
  - (c) Environmental Division to use Geospatial Information and Services (GIS) and Naval Installation Restoration Information Solution (NIRIS) to identify LUC areas and wells for planners.
  - (d) Revise Mid-Atlantic (MIDLANT) Regional Instruction. Quarterly LUC inspections, concurrence of the Environmental Division for dig permits, and use for GIS and NIRIS to identify LUC areas has now been instituted at NSB-NLON and are ongoing.

The recommendations and actions for OU12 at Site 2B are:

- (1) Continue to manage *Phragmites* in the Area A Wetland during the planned remedial action, and subsequently under the Navy's Natural and Cultural Resources Program.
- (2) Complete and implement design of the selected remedy.
- (3) After the remedy has been implemented, perform at least yearly monitoring of Institutional Control compliance and incorporate the monitoring reports into future five-year reviews. The recommendation for OU9 at Site 2B is (1) Abandon monitoring wells 2WMW5D and 2WMW5S.

The recommendations and actions for Site 3 (OU3/OU9) are as follows:

- (1) Continue O&M (annual inspections and monitoring) and repair the broken cover on well 3MW12D, the one O&M issue identified.
- (2) Continue enforcement of the NSB-NLON Instruction until a LUC RD can be developed.
- (3) Abandon monitoring wells 2DMW25S, 2DMW28D, 3MW15S, and 3MW15I that are not currently being used for the monitoring program.
- (4) Complete and implement Revision 2 of the O&M Manual.
- (5) Complete a RACR to document completion of the remedial action.
- (6) Continue to manage *Phragmites* at Site 3 under the Navy's Natural and Cultural Resources Program.

The recommendations and actions for Site 6 (OU2) are as follows:

- (1) Continue O&M of the site and address the identified O&M issues.
- (2) Continue enforcement of the NSB-NLON Instruction until a LUC RD can be completed.
- (3) Complete and implement Revision 2 of the O&M Manual.
- (4) Complete a RACR to document completion of the remedial action.

- (5) Consider abandoning well 6MW1S because it is cross-gradient from the cap and not downgradient. However, retaining it may be beneficial to support the Site 3 monitoring program.
- (6) Review the contact information on the main gate signs for accuracy and update if necessary.
- (7) Place blocking underneath the supports used to store the boats. (Blocking was placed underneath the supports used to store the boats in November 2011.)
- (8) Implement corrective actions for LUC compliance by doing the following:
  - (a) Environmental Division to perform quarterly LUC inspections.
  - (b) Dig permits to require concurrence of Environmental Division.
  - (c) Environmental Division to use GIS and NIRIS to identify LUC areas and wells for planners. (Quarterly LUC inspections, concurrence of the Environmental Division for dig permits, and use for GIS and NIRIS to identify LUC areas has now been instituted at NSB-NLON and are ongoing.)
  - (d) Revise MIDLANT Regional Instruction.

It is recommended that no future five-year reviews of Site 7 (OU8/OU9) be conducted because the completed remedies implemented at the site resulted in no hazardous substances, pollutants, or contaminants remaining on site in excess of action levels that allow for unlimited use and unrestricted exposure. The eight remaining groundwater monitoring wells should be properly abandoned.

The recommendations and actions for Site 8 (OU5) are as follows:

- (1) An AST investigation, which determined that the liner system was not compromised, was completed in October 2011; therefore, no remediation of the cap system was required. Further investigate whether this pad can be enlarged.
- (2) Place reference document at gate with Nautilus Command Suite and Pier Watch. (The reference document was placed at the gate in May 2011.)
- (3) Improve internal communication within the Navy by conducting a meeting with Nautilus personnel to communicate IRP requirements. (A meeting was held with Nautilus personnel on May 2011.)
- (4) Implement corrective actions for LUC compliance by doing the following:
  - (a) Environmental Division to perform quarterly LUC inspections.
  - (b) Dig permits to require concurrence of Environmental Division.
  - (c) Environmental Division to use GIS and NIRIS to identify LUC areas and wells for planners. (Quarterly LUC inspections, concurrence of the Environmental Division for dig permits, and use for GIS and NIRIS to identify LUC areas has now been instituted at NSB-NLON and are ongoing.)
  - (d) Revise MIDLANT Regional Instruction.
- (5) Continue O&M and address deficiencies, such as evaluation of tree and shrub roots.
- (6) Investigate warning signs and update if needed.
- (7) Complete and implement Revision 2 of the O&M Manual.
- (8) Complete a RACR to document completion of the remedial action.

The recommendations and actions for Sites 9 and 23 (OU9) are as follows:

- (1) Continue enforcement of the OU9 LUC RD for groundwater at the sites.
- (2) Develop and implement SASEs for the soil at both sites to determine if there are any remaining CERCLA issues.

(3) Continue to manage soil at the sites under the NSB-NLON Instruction until it is determined if a soil LUC RD is necessary and prepared.

(4) Initiate annual compliance inspections for groundwater LUCs and incorporate inspection reports into future five-year reviews.

(5) Ensure that current rework of the athletic fields at Site 23 does not change land use in any way that is inconsistent with the OU9 LUC RD or the NSB-NLON Instruction.

Although inclusion of the Lower Subbase sites in this five-year review is not required, recommendations were developed to improve their management. The recommendations and actions for the Lower Subbase sites (Sites 10, 11, 13, 17, 19, 21, 22, 24, and 25) are as follows:

(1) Complete the Lower Subbase ROD to select remedial actions for these sites that are protective of human health and the environment.

(2) Continue and strengthen enforcement of the NSB-NLON Instruction and monitor its implementation until a final remedy is selected and implemented. Naval Subbase (NAVSUBASE) New London Request for Permit to Excavate Procedure (June 2008) now requires Environmental Division concurrence before issuance of dig permits, and NSB-NLON's Environmental Division (PWD EV) will now perform quarterly LUC inspections.

**Protectiveness Statement(s):**

Remedial actions to address immediate or potential future threats from exposure to soil and sediment have been implemented at Sites 1, 2A (Area A Landfill), 3, 4, 6, 7, 8, 9, 13, 17, and 23. Groundwater monitoring programs are ongoing at Sites 2 (Area A Landfill), 3, 6, and 8 to monitor contaminant trends and confirm the protectiveness of the soil remedial actions completed at the sites. Recent detected concentrations at Site 2A groundwater and surface water (OU9) are below promulgated 2011 criteria, groundwater at Sites 2B, 9, and 23 (OU9) do not require monitoring, and Site 3 groundwater (OU9) monitoring indicates that concentrations are decreasing and recent results are below remedial goals; therefore the OU9 remedies are protective. Monitoring of Site 7 groundwater showed that contaminant concentrations were below remedial goals and no further actions were required.

Groundwater monitoring determined that for 2011 O&M Plan parameters and criteria, no Site 6 (OU2) concentrations exceeded criteria since 2006, and no Site 8 (OU5) downgradient well concentrations exceeded criteria in 2009 or 2010 (the most recent results available); therefore the OU2 and OU5 remedies are protective for groundwater.

The selected remedies for several of the sites include LUCs. A LUC RD was developed and implemented for groundwater in OU9, but LUC RDs for soil OUs at several sites require development and implementation. The LUC RDs will serve as the enforceable mechanism to implement and manage LUCs for these sites. NSB-NLON currently implements LUCs via the NSB-NLON Instruction, which also establishes management policies for sites that are still being investigated under CERCLA and do not have LUC RDs. The NSB-NLON Instruction limits exposure by prohibiting soil excavation and groundwater extraction in CERCLA ER sites unless coordinated with the Public Works Environmental Division. Upon finalization of the LUC RDs, the actions currently identified in the base instruction to implement NSB-NLON LUCs will be incorporated into each LUC RD. NSB-NLON will continue enforcement of the NSB-NLON Instruction at each site until the LUC RDs for soil at Sites 2A, 2B, and 3 are completed, the LUC RDs for soil and groundwater at Sites 6 and 8 are completed, the SASEs for Sites 9 and 23 are completed, and the CERCLA process for the Lower Subbase sites is completed. Also, because Sites 9 and 23 are included in the Navy's LUC tracker system as controlled areas, they are inspected annually, Navy personnel exposure to site media is limited, and public exposure to site media is controlled by Base security, current conditions for soil at Sites 9 and 23 are considered to be protective

until the SASEs are completed. The Site 2B sediment (OU12) LUC RD is currently being prepared. Due to construction of the AST at Site 8 authorization from the IRP Manager, the Navy is revising internal instructions to improve oversight of LUCs.

The ROD for Site 2B was signed August 2010, but the remedial design has not been completed and consequently implementation has not been initiated and it is not possible to make a protectiveness determination at this time.

The Navy is continuing CERCLA investigations at the Lower Subbase (OU4) - Sites 10, 11, 13, 17, 19, 21, 22, 24, and 25. All of the media at these sites are included in OU4. An FS for the Lower Subbase was issued December 2010 and a draft FS Addendum issued March 2011. It is anticipated that the ROD will be completed in 2012. Once final remedies have been selected, remedial designs will be developed and implemented. Protectiveness determinations for these sites will not be possible until the remedies are implemented. It is expected that protectiveness determinations will be feasible for the fourth five-year review.

No further action (NFA) decision documents have been signed for Sites 1, 4, 14, 15, 16, 18, and 20 because there are no hazardous substances, pollutants, and contaminants remaining at the sites that could result in immediate or potential future threats. Consequently, it was concluded that the selected remedies are protective of human health and the environment.

**Other Comments:**

In accordance with Navy guidance, the five-year review completed for NSB-NLON included all relevant CERCLA/IRP sites, regardless of whether decision documents have been prepared for the sites. It is believed that inclusion of all of the sites in this Third Five-Year Review Report will simplify preparation of future five-year review reports.

**Next Review:**

The next five-year review of NSB-NLON sites will be completed by December 2016.

Signature of U.S. Department of the Navy and Date

  
\_\_\_\_\_  
Marc W. Denne, CAPT, USN  
Commanding Officer  
Naval Submarine Base - New London

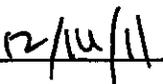
  
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## ACRONYMS

ARAR	Applicable or Relevant and Appropriate Requirement
AS/SVE	Air sparging/soil vapor extraction
AST	Above-ground storage tank
Atlantic	Atlantic Environmental Services, Inc.
AVS	Acid volatile sulfide
AWQC	Ambient Water Quality Criterion
B&RE	Brown and Root Environmental
BAF	Bioaccumulation factor
BEHP	bis(2-Ethylhexyl) phthalate
BGOURI	Basewide Groundwater Operable Unit Remedial Investigation
bgs	Below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
CBU	Construction Battalion Unit
CERCLA	Comprehensive Response, Compensation, and Liability Act
CIF	Controlled Industrial Facility
CFR	Code of Federal Regulations
CGS	Connecticut General Statutes
CLEAN	Comprehensive Long-Term Environmental Action Navy
cm/sec	Centimeters/second
CMMA	Command Master at Arms
CMP	Corrugated metal pipe
COC	Chemical of concern
COD	Chemical oxygen demand
COPC	Chemical of potential concern
CPAH	Carcinogenic polynuclear aromatic hydrocarbon
CQA	Construction Quality Assurance
CQC	Construction Quality Control
CSF	Cancer slope factor
CTDEEP	Connecticut Department of Energy and Environmental Protection
CTDEP	Connecticut Department of Environmental Protection
CTE	Central tendency exposure
CTO	Contract Task Order
DCE	Dichloroethene
DDD	p,p'-Dichlorodiphenyl dichloroethane
DDE	p,p'-Dichlorodiphenyl dichloroethylene

DDT	p,p'-Dichlorodiphenyl trichloroethane
DDTR	DDT and its derivatives (e.g., DDD, and DDE)
DGI	Data Gap Investigation
DoD	Department of Defense
DRMO	Defense Reutilization and Marketing Office
ECC	Environmental Chemical Corporation
ECOC	Ecological contaminant of concern
ECOSAR	Ecological Structure Activity Relationships
Eco SSL	Ecological Soil Screening Level
EE/CA	Engineering Evaluation/Cost Analysis
ELUR	Environmental Land Use Restriction
E. O.	Executive Order
ERA	Ecological Risk Assessment
ER-L	Effects range-low
ER-M	Effects range-medium
ERM	Environmental Resource Management
ESD	Explanation of Significant Difference
ESQD	Explosive Safety Quantity Distance
EV	Environmental Office
FAC	Facultative
FACW	Facultative wetland
FFA	Federal Facilities Agreement
FFDC	Federal Food, Drug, and Cosmetics
FFS	Focused Feasibility Study
FR	Federal Register
FS	Feasibility Study
FWEC	Foster Wheeler Environmental Corporation
GCL	Geosynthetic clay liner
GIS	Geospatial Information and Services
GMR	Groundwater Monitoring Report
GZA	Goldberg-Zoino & Associates
HASP	Health and Safety Plan
HHRA	Human health risk assessment
HI	Hazard Index
HNUS	Halliburton NUS Corporation
H&S	H&S Environmental, Inc.
HQ	Hazard Quotient

IAS	Initial Assessment Study
IEMP	Installation Environmental Program Manager
IEUBK	Integrated Exposure Uptake Biokinetic
ILCR	incremental lifetime cancer risk
IR	Installation Restoration
IRA	Interim remedial action
IRIS	Integrated Risk Information System
IRP	Installation Restoration Program
K <sub>oc</sub>	organic carbon partition coefficient
LDPE	Low-density polyethylene
LIR	Landfill Inspection Report
LLDPE	Linear low-density polyethylene
LNAPL	light non-aqueous phase liquid
LOAEL	lowest-observed adverse-effect level
LOEC	lowest-observed-effect concentration
LPG	liquid petroleum gas
LT	lieutenant
LTM	Long-term monitoring
LUC	Land use control
MCL	Maximum Contaminant Level
µg/L	micrograms per liter
MIDLANT	Mid-Atlantic
MQA	Material Quality Assurance
MWR	Morale, Welfare, and Recreation
NACIP	Navy Assessment and Control of Installation Pollutants
NAVD 88	North American Vertical Datum of 1988
NAVSUBASE	Naval Subbase
NCP	National Contingency Plan
NEESA	Naval Energy and Environmental Support Activity
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NESO	Naval Environmental Support Office
NEX	Naval Exchange
NFA	No further action
NIRIS	Naval Installation Restoration Information Solution
NMOC	Non-methane organic compounds
NOAA	National Oceanographic and Atmospheric Administration
NOAEL	No-observed-adverse-effects level

NOEC	No-observed-effect concentration
NPDES	National Pollution Discharge Elimination System
NPL	National Priorities List
NRWQC	National Recommended Water Quality Criteria
NSA	New Source Area
NSB-NLON	Naval Submarine Base - New London
NTCRA	Non-time critical removal action
O&M	Operation and maintenance
OBDA	Overbank Disposal Area
OBDA NE	Overbank Disposal Area Northeast
OBL	Obligate wetland
OME	Ontario Ministry of the Environment
ORP	Oxidation-reduction potential
OSWER	Office of Solid Waste and Emergency Response
OT	Oil tank
OU	Operable unit
OVA	Organic vapor analyzer
PAH	Polynuclear aromatic hydrocarbon
PCB	Polychlorinated biphenyl
PCE	Tetrachloroethene
PDI	Pre-design investigation
PPE	Personal protective equipment
PRG	Preliminary Remediation Goal
PWD	Public Works Department
QA	Quality assurance
QC	Quality control
RAB	Restoration Advisory Board
RAC	Remedial Action Contractor
RACR	Remedial action completion report
RAO	Remedial action objective
RAOMAC	Remedial Action Operations Multiple Award Contract
RBC	Risk-Based Concentration
RCRA	Resource Conservation and Recovery Act
RCSA	Regulations of Connecticut State Agencies
RD	Remedial design
RfD	Reference dose
RFI	RCRA Facility Investigation

RG	Remediation goal
RI	Remedial Investigation
RME	Reasonable maximum exposure
ROD	Record of Decision
RSL	Regional Screening Level
RSR	Remediation Standard Regulations (Connecticut)
SAIC	Science Applications International Corporation
SASDA	Spent Acid Storage and Disposal Area
SASE	Study Area Screening Evaluation
SEM	Simultaneous extracted metals
SG	Staff gauge
SOP	Standard operating procedure
SOPA	Standard operating procedure - administrative
SSL	Soil Screening Level
SVOC	Semivolatile organic compound
SWMU	Solid Waste Management Unit
SWPC	Surface Water Protection Criteria
TAL	Target Analyte List
TBC	To be considered
TCE	Trichloroethene
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
TCRA	Time-critical removal action
TDS	Total dissolved solids
TIE	Toxicity Identification Evaluation
TOC	Total organic carbon
TPH	Total petroleum hydrocarbons
TSCA	Toxic Substances Control Act
TSS	Total suspended solids
Tetra Tech	Tetra Tech, Inc.
Tetra Tech EC	Tetra Tech EC, Inc.
U.S.C.	United States Code
USEPA	United States Environmental Protection Agency
UST	Underground storage tank
VOC	Volatile organic compound
WQC	Water quality criterion

WQS Water quality standard  
WQSV Water-quality screening value

## 1.0 INTRODUCTION

The Navy, in conjunction with the United States Environmental Protection Agency (USEPA) Region I and Connecticut Department of Energy and Environmental Protection (CTDEEP), conducted the third five-year review of the remedial actions implemented at the Naval Submarine Base-New London (NSB-NLON) in New London County, Connecticut. The National Superfund electronic database identification number for NSB-NLON is CTD980906515.

This Third Five-Year Review Report was prepared by Tetra Tech, Inc. (Tetra Tech) for Naval Facilities Engineering Command Mid-Atlantic under Contract Task Order (CTO) WE33 of Contract Number N62470-08-D1001. In March 2011, Tetra Tech initiated document and data review for the five-year review of the completed, ongoing, and pending remedial actions at 17 of the 24 Installation Restoration Program (IRP) sites at NSB-NLON, Planning for the on-site inspection was also initiated in March 2011 and then performed April 6, 2011. Evaluation of documents, monitoring data, and inspection results, and preparation of the final Third Five-Year Review Report continued into December 2011. The Navy issued a revised policy for the conduct of five-year reviews (Navy, 2011) on June 7, 2011, while this review was in process. Initial plans for this five-year review were designed to conform to the USEPA Comprehensive Five-Year Review Guidance (USEPA, 2001a) and the Navy Policy for Conducting Five-Year Reviews Under the Installation Restoration Program (Navy, 2004a). Tetra Tech reviewed the Navy's 2011 policy and concluded that the review was being conducted in accordance with the provisions of the policy.

The sites included in the third five-year review at NSB-NLON are: Site 2A (OU1/OU9), Site 2B (OU12/OU9), Site 3 (OU3/OU9), Site 6 (OU2), Site 7 (OU8/OU9), Site 8 (OU5), Site 9 (OU9), and the OU4 sites: Site 10, Site 11, Site 13, Site 17, Site 19, Site 21, Site 22, Site 23, Site 24, and Site 25. Final remedies have not been selected for the Lower Subbase Sites - Sites 10, 11, 13, 17, 19, 21, 22, 24, and 25. Consequently a five-year review is not required for the Lower Subbase Sites. Those sites were included in the Third Five-Year Review Report as a courtesy for information purposes, and to present a comprehensive description of active and potential IRP actions at NSB-NLON. Two sites [Site 1 – CBU Drum Storage Area (OU1) and Site 4 – Rubble Fill at Bunker A-86 (OU10)] were not included in the third five-year review, based on the recommendations of the First Five-Year Review Report. An additional five sites [Site 14 (OU8/OU9), Site 15 (OU6/OU9), Site 16 (OU11), Site 18 (OU11/OU9), and Site 20 (OU7/OU9)] were not included in the third five-year review, based on the recommendations of the Second Five-Year Review Report. Table 1-1 presents a summary of the sites included in the Third Five-Year Review Report. A general site location map of NSB-NLON is shown on Figure 1-1 and the locations of the sites are shown on Figure 1-2.

## 1.1 PURPOSE

The purpose of the five-year review is to evaluate the implementation and performance of the remedies at the sites to determine whether the remedies are protective of human health and the environment. The methods, findings, and conclusions of the reviews are documented in five-year review reports. In addition, five-year review reports identify deficiencies found during the review, if any, and provide recommendations to address them.

This five-year review is required by statute. The Navy must implement five-year reviews consistent with the 42 U.S.C. §9601 *et seq.*, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and 40 Code of Federal Regulations (CFR) Part 300, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). CERCLA Section §121(c), as amended, states:

If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented.

The NCP Part 300.430(f)(4)(ii) of the CFR states:

If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.

This is the third five-year review of NSB-NLON. The triggering action for this review was the initiation of the remedial action for Site 2A - Area A Landfill (soil), which began in December 1996. Because hazardous substances remain at the site above levels that allow for unrestricted use and unlimited exposure, subsequent five-year reviews are required.

As discussed in the USEPA Comprehensive Five-Year Review Guidance (USEPA, 2001a), a five-year review determines whether the remedy at a site is protective of human health and the environment. When a remedial action is still under construction, a five-year review determines whether immediate threats have been addressed and whether the remedy is expected to be protective when all remedial actions are completed. In addition, a five-year review identifies any deficiencies and recommends steps to correct them. To do this, the technical assessment conducted during a five-year review examines the three questions shown below.

- Question A: Is the remedy functioning as intended by the decision documents?
- Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy selection still valid?
- Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

These questions will be answered for the sites at NSB-NLON where a remedy has been implemented or is currently being implemented in Sections 2.0 through 17.0. To answer these questions, this five-year review included several steps. The review included a review of documents, discussions with personnel associated with the sites, and a site inspection of NSB-NLON. This report also includes the findings of the review of newly promulgated standards, and changes in the standards that were identified as applicable or relevant and appropriate requirements (ARARs), "to be considered" (TBCs), and the factors used to develop site-specific, risk-based levels at the time the Record of Decision (ROD) was signed. This information was reviewed to determine if changes since the time of the ROD may call into question the protectiveness of the remedy. It was determined that recalculation of risk or a risk assessment was not necessary to determine whether a remedy protects human health and the environment, as will be discussed in later sections. Where applicable, monitoring and sampling data and the documentation of operation and maintenance (O&M) were examined and the information included in the subsequent site-specific sections.

## 1.2 OVERVIEW OF NSB-NLON

NSB-NLON currently provides base command for submarine activities in the Atlantic Ocean. It also provides housing for Navy personnel and their families and supports submarine training facilities, military offices, medical facilities, and facilities for submarine maintenance, repair, and overhaul. The following sections provide the physical and geologic conditions at NSB-NLON as well as a history and chronology.

### 1.2.1 Land Use

NSB-NLON is located in southeastern Connecticut in the towns of Ledyard and Groton. NSB-NLON is situated on the east bank of the Thames River, approximately 6 miles north of Long Island Sound. It is bordered on the east by Connecticut Route 12, on the south by Crystal Lake Road, and on the west by the Thames River. The northern border is a low ridge that trends approximately east-southeast from the Thames River to Baldwin Hill.

Currently, NSB-NLON consists of over 207 buildings on 687 acres of land. The density of buildings is high along the central bedrock high, in the southern valley, and along the Thames River. In the northern valley are streams, a wetland, and a golf course. The northern bedrock high is not heavily developed except along the southern face at the Area A Weapons Center and the Torpedo Shops. The top and northern faces of the northern ridge are wooded, undeveloped areas.

Land use adjacent to the base is residential and commercial. Residential development along Military Highway, Sleepy Hollow, Long Cove Road, and Pinelock Drive borders the site to the north and extends northward into the Gales Ferry section of Ledyard. Property along Route 12, which is east of the base, consists of widely spaced private homes and open, wooded land. Development is mixed commercial and residential farther south on Route 12. This area includes a church, automobile sale and repair facilities, convenience stores, restaurants, and a gas station. Private residences and an automobile service station are located along the southern side of Crystal Lake Road. Housing for Navy personnel exists farther south of Crystal Lake Road.

### **1.2.2 History and Site Chronology**

Important NSB-NLON historical events and relevant dates in the site chronology are listed in the following table. The identified events are illustrative, not comprehensive.

<i><b>Event</b></i>	<i><b>Date</b></i>
State of Connecticut donates 112-acres on the east bank of the Thames River to the Navy	1867
Navy officially designates property as a Navy Yard	1868
Navy designates site as a Submarine Base	1916
Six piers and 81 buildings were added	World War I
Submarine school established	1917
Submarine Medical Center founded	1918
180 buildings built and land acquired adjacent to site	1935 to 1945
Medical Research Laboratory was established	1946
Submarine School became largest tenant	1968
Naval Submarine Support Facility established	1974
Naval Undersea Medical Institute established	1975
First environmental study for investigation of oil contamination of groundwater	1979
Navy initiated the Naval Assessment and Control of Installation Pollutants (NACIP) Program	1980
Initial Assessment Study completed	1983
U.S. Department of Defense (DoD) developed the IR Program, which was the catalyst for environmental investigations at NSB-NLON	1986
Inclusion of NSB-NLON on the Federal Agency Hazardous Waste Compliance Docket	1988

<i><b>Event</b></i>	<i><b>Date</b></i>
USEPA proposes that NSB-NLON be added to the National Priorities List (NPL)	1989
Placed on the NPL	August 1990
Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) completed	1992
Phase I Remedial Investigation (RI) completed	1992
Federal Facilities Agreement (FFA) signed	1995
Initiation of the remedial action for Site 2 - Area A Landfill soil	December 1996
Phase II RI completed	1997
First Five-Year Review Report completed	2001
Basewide Groundwater Operable Unit (OU) RI (BGOURI) completed	January 2002
BGOURI Update/Feasibility Study (FS) completed	July 2004
Final O&M Manual - Volumes I, II, III, IV, and V	January 2006
Second Five-Year Review Report completed	December 2006
Basewide Groundwater OU9 ROD approved	September 2008
Standard operating procedure – administrative (SOPA) (ADMIN) New London Instruction 5090.18D issued	September 2008
O&M Manual - Volumes I, II, III, IV, and V (Revision 2 Draft) completed	November 2008
SOPA (ADMIN) New London Instruction 5090.25 issued	June 2009
Basewide Groundwater OU9 RA Report completed	June 2010
Site 2B – Area A Wetland ROD approved	August 2010
O&M Manual - Volumes I, II, III, IV, and V (Rev 2 Draft Final) completed	November 2010
Final Lower Subbase FS Submitted	December 2010
Draft Lower Subbase Soil and Groundwater Pre-Design Investigation (PDI) Completion Report and FS Addendum Submitted	March 2011

Investigations were initiated at NSB-NLON by the Navy Environmental Support Office (NESO) in 1979 to identify the source and extent of oil found in soils along the Thames River at three sites on the Lower Subbase. NESO drilled and sampled 16 soil borings and piezometers. Envirodyne Engineers, Inc. completed an Initial Assessment Study (IAS) in 1982, as part of the NACIP program. The IAS recommended that various actions and studies be conducted at several sites for further characterization. A Phase I RI was completed in 1992 by Atlantic Environmental Services, Inc. for 11 sites.

Additional investigations, include but are not limited to the Phase II RI (Brown and Root Environmental [B&RE], 1997a), Lower Subbase RI (Tetra Tech, 1999b), BGOURI (Tetra Tech, 2002a), BGOURI Update/FS (Tetra Tech, 2004), and several Focused Feasibility Studies (FFSs), FSs, and Engineering Evaluation/Cost Analyses (EE/CAs) have been completed to further evaluate sites at NSB-NLON. In addition, numerous decision documents have been signed and remedial actions completed for soil and groundwater at IRP sites at NSB-NLON. In 2006, Revision 1 of the O&M Manual for IRP Sites at NSB-NLON was finalized. Additional information regarding the investigations, decision documents, and remedial actions is presented in Sections 2.0 through 17.0.

### 1.2.3 Site Information

This five-year review report addresses the 17 of the 24 IRP sites at NSB-NLON that are undergoing investigation and remediation under CERCLA. As noted previously, seven sites (Sites 1, 4, 14, 15, 16, 18, and 20) were not included in this review because continuing five-year reviews for them are no longer required. The sites included in the review and the rationales for including them are provided below. The OUs associated with the sites and media are also provided.

The CERCLA remedial process continued through RODs for the following sites and media:

- Site 2A - Area A Landfill soil (OU1) and groundwater (OU9)
- Site 2B – Area A Wetland sediment (OU12) and groundwater (OU9)
- Site 3 - Area A Downstream/Overbank Disposal Area (OBDA) soil and sediment (OU3) and groundwater (OU9)
- Site 6 - Defense Reutilization and Marketing Office (DRMO) soil and groundwater (OU2)
- Site 7 - Torpedo Shops soil (OU8) and groundwater (OU9)
- Site 8 - Goss Cove Landfill soil (OU5)
- Sites 9 and 23 - Oil Tank OT-5 and Fuel Farm groundwater (OU9)

RODs were completed for soil at Site 2A in September 1995, for soil and sediment at Site 3 in March 1998, for soil and groundwater at Site 6 in March 1998, and for soil and sediment at Site 8 in September 1999. A remedy of excavation and off-site disposal for Site 7 soil, as required by the OU8 ROD (Navy, 2004c), was completed in 2006. A No Further Action (NFA) decision document for soil was completed for Site 1 in July 1996. An NFA ROD for soil at Site 4 was completed in June 1998 after a removal action was completed in 1997. An NFA ROD for soil at Site 15 was completed in September 1997. A final ROD requiring NFA for soil at Sites 16 and 18 was signed in 2004 (Navy, 2004d). A non-time-critical removal action at Site 14 and a remedial action at Site 20 were both completed in 2001. The soil ROD for OU8 required NFA for Site 14 soil (Navy, 2004c). Institutional Controls and Monitoring was selected as the final remedy for Site 7 groundwater in the OU9 ROD (Navy, 2008b). In the OU9 RACR, the selected remedial goal was deemed to have been achieved at Site 7 and further groundwater monitoring and land use controls (LUCs) were no longer necessary. In addition, the final groundwater ROD for OU9 (Navy, 2008b) included Institutional Controls remedy for groundwater at Sites 9 and 23 and NFA as the final remedy for groundwater at Sites 14, 15, 18, and 20. A ROD was signed in August 2010 for Site 2B sediment that requires excavation and offsite disposal of the contaminated sediment; however, the design of the remedy was still being completed at the time of this five-year review and no remedial action had been implemented.

The OU9 ROD for Basewide Groundwater applies to Site 9 and 23. No CERCLA documents exist for soil at these sites because closures were performed under authority of the State of Connecticut underground storage tank (UST) program. Detailed summaries of the closure work done for Sites 9 and 23 were provided to USEPA in an email dated September 21, 2011. In subsequent discussions, USEPA expressed desire for further documentation. The Navy is considering preparation of Study Area Screening Evaluations (SASEs) to document full closure of soil at these sites.

Five-year reviews were conducted at the following sites for which removal actions or interim remedial actions (IRAs) have been completed. However, all of the sites are still being evaluated under CERCLA. Because there have been no final remedies selected for these sites, their inclusion in this review is not required, but they are discussed in this report as a courtesy.

- Site 9 – Former OT-5 and Site 23 – Former Fuel Farm soil
- Site 10 – Fuel Storage Tanks and Tank 54-H (OU4)
- Site 11 – Power Plant Oil Tanks (OU4)
- Site 13 – Building 79 Waste Oil Pit and Thames River Sediment (Inner and Outer Pier 1) (OU4)
- Site 17 – Hazardous Materials/Solvent Storage Area – Building 31 (OU4)

Five-year reviews were also conducted at the following sites for which no removal actions or IRAs have been conducted and no decision documents have been prepared. CERCLA investigation activities are ongoing at these sites. Because there have been no final remedies selected for these sites, their inclusion in this review is not required, but they are discussed in this report as a courtesy.

- Site 19 – Solvent Storage Area – Building 316 (OU4)
- Site 21 – Berth 16 (OU4)
- Site 22 – Pier 33 (OU4)
- Site 24 – Central Point Accumulation Area – Building 174 (OU4)
- Site 25 – Classified Material Incinerator (OU4)

### **1.3 FIVE-YEAR REVIEW PROCESS**

The NSB-NLON five-year review was led by Dominic O'Connor, the Navy Remedial Project Manager and James Gravette, the former Navy Remedial Project Manager. The following team members assisted in the review:

- Kymberlee Keckler, USEPA Region I Remedial Project Manager
- Mark Lewis, CTDEEP Remedial Project Manager
- Tracey McKenzie, NSB-NLON Natural Resource Manager
- Richard Conant, NSB-NLON IRP Coordinator (former)
- Michael Brown, NSB-NLON Environmental Director
- Corey Rich, Tetra Tech Project Manager (Navy Comprehensive Long-Term Environmental Action Navy (CLEAN) contractor)
- Rachel Leary, Sovereign Lead Engineer (Navy O&M contractor)
- James Smith, Sovereign Project Manager (Navy O&M contractor)

The five-year review consisted of the following activities: a review of relevant documents, site inspections, and limited interviews. The final report will be placed in the Information Repositories for NSB-NLON. Most project documentation can be found at the following Information Repository locations:

- Groton Public Library (860) 441-6750  
52 Newtown Road, Groton, CT 06340
- Bill Library (860) 464-9912  
718 Colonel Ledyard Highway, Ledyard, CT 06399

Notice of the preparation of the Third Five-Year Review Report for NSB-NLON was provided to the Restoration Advisory Board (RAB) during the June 16, 2011 meeting and in the *Subase RAB News*, Spring, 2011 (Navy, 2011b). A summary of the final Third Five-Year Review Report will be provided to the RAB at a future meeting (tentatively, January 2012). A notice of availability of the final Third Five-Year Review Report will be provided to the public in *The Day*, New London's daily newspaper, and the *Norwich Bulletin*, Norwich's daily newspaper. The notice will indicate that the Navy made copies of the report available in the Information Repositories listed above.

#### **1.4 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND SITE-SPECIFIC ACTION LEVEL CHANGES**

The third five-year review is being conducted for two purposes:

- To determine if the remedial actions are being implemented, as specified in the RODs, to protect human health and the environment.

- To determine if there have been changes in the ARARs or site-specific action levels that call into question the protectiveness of the remedy.

The chemical-specific ARARs identified in each of the RODs were reviewed, as were new federal and state regulations that have been promulgated. This section describes the overall impacts of the new or changed ARARs on the determination of the protectiveness of the remedy. It was determined that recalculation of risk or risk assessments was not necessary to determine whether a remedy continues to protect human health and the environment. ARARs are also discussed in the “ARAR and Site-Specific Action Level Changes” and “Assessment” subsections for each Operable Unit.

The human health risk assessments (HHRAs) for the sites were conducted primarily following the USEPA Human Health Evaluation Manual and supplemental documents (USEPA, 1989; 1991; 1992a) and USEPA Region I Risk Updates, Numbers 2, 3, 4, and 5 (USEPA, 1994a; 1995a; 1996c; 1999b). Since the HHRAs were prepared, the USEPA has issued new guidance documents (USEPA, 2001b; 2002a; 2002b; 2004a; 2004b; 2005b; 2005c; and 2009a). The new guidance documents do not impact the conclusions of the original HHRAs. Future HHRAs and five-year reviews will consider the most recent USEPA guidance. In addition to changes to the HHRA guidance the toxicity criteria for a number of chemicals (most notably trichloroethene) have changed since the HHRAs for the individual sites were prepared. If toxicity criteria change significantly for a known site contaminant, the Navy will evaluate whether the changes are likely to call into question the protectiveness of the remedy or the remedial action objectives (RAOs), and whether risks for those contaminant should be recalculated. If recalculation demonstrates that there are unacceptable risks, the target cleanup levels will be adjusted to address the risks so that the remedial actions remain protective of human health.

The benchmarks used to select chemicals of potential concern (COPCs) for direct contact with soil and sediment included USEPA Region III Risk-Based Concentrations (RBCs), USEPA Region IX Preliminary Remedial Goals (PRGs), USEPA Regional Screening Levels (RSLs), and Connecticut Remediation Standard Regulations (RSRs). In addition, USEPA Soil Screening Levels (SSLs) for the protection of migration from soil to groundwater and soil to air and Connecticut RSRs for pollutant mobility and volatilization from soil to indoor air were used to select COPCs for soil migration pathways. In May 2008, the USEPA Region III RBCs and the USEPA Region IX PRGs were discontinued and replaced with the USEPA RSLs. The CTDEP RSRs were issued initially in 1996 (CTDEP, 1996), additional RSRs were issued in 1999 (CTDEP, 1999a), proposed revisions to the volatilization criteria were issued in 2003 (CTDEP, 2003), and an updated CTDEP regulated criteria summary table was issued in October 2007.

The benchmarks used to select COPCs for groundwater included USEPA Region III RBCs, USEPA Region IX PRGs, USEPA RSLs, USEPA Maximum Contaminant Levels (MCLs), Connecticut MCLs, and

CTDEP Groundwater Protection Criteria. In addition, CTDEP RSRs for surface water protection and migration from groundwater to indoor air were used to select COPCs for groundwater migration pathways.

The benchmarks used to select COPCs for surface water included USEPA Ambient Water Quality Criteria (AWQC) (currently known as National Recommended Water Quality Criteria [NRWQC]) and Connecticut Water Quality Standards (WQSs). The USEPA NRWQC were last updated in 2006 (USEPA, 2006), and the Connecticut WQSs were last updated in February 2011 (CTDEP, 2011).

Groundwater and surface water at Site 2A (Area A Landfill) (OU9) are being monitored to evaluate the effectiveness of the remedy for soil. The primary monitoring criteria for Site 2A are the CTDEP Surface Water Protection Criteria (SWPC). The SWPC were updated in April 1999 (CTDEP, 1999a), but the SWPC for the chemicals of concern (COCs) at Site 2A have not changed. The secondary monitoring criteria for Site 2A are the lower of the Federal NRWQC and the Connecticut WQS. As noted above and discussed in Section 2.3.3 of this report, these criteria have been updated since the 2010 Groundwater Monitoring Plan for Site 2A was issued. Changes to freshwater WQSs for many contaminants were proposed in 2009, but the values for semi-volatile organic compounds (SVOCs) were not promulgated. However, the proposed values for the SVOCs were incorporated into the Long-Term Groundwater Monitoring Plan for Site 2A. The WQS for cadmium was revised in 2011. The changes in the NRWQC and WQS do not impact the protectiveness of the remedy for Site 2A.

The ROD for Site 2B (Area A Wetland) (OU12) was signed in August 2010, but has not been implemented. The remedial goals are based on site-specific sediment toxicity results and there have been no changes in the remedial goals. There have been no changes to the ARARs.

At Site 6 (OU2), CTDEP WQSs published in 1992 were used as ARARs in the Interim and Final RODs. As discussed in Section 4, these WQSs have been updated since the last Five-Year Review. The changes in the WQSs do not impact the effectiveness of the final selected remedy for Site 6.

The ROD for Site 8 (OU5) did not include groundwater remedial goals, so groundwater monitoring results were compared to primary criteria consisting of site-specific SWPC developed in 1999 and CTDEP SWPC updated in April 1999 (CTDEP, 1999a) and volatilization criteria published in 1996 (CTDEP, 1996). The CTDEP volatilization criteria were revised prior to 2010. The Connecticut WQSs were updated in February 2011; therefore, the site-specific SWPC and primary criteria were updated in 2011. As determined by USEPA during the resolution of O&M Manual comments in 2011, secondary criteria will no longer be used at Site 8. The changes in the WQSs do not impact the protectiveness of the remedy.

At Sites 3 and 7, Federal MCLs and CTDEP drinking water/groundwater quality criteria were used as ARARs in the OU9 ROD. At Site 3, a more restrictive groundwater volatilization criterion for vinyl chloride was selected as the remedial goal instead of the MCL. However, the MCL for arsenic changed from 50 micrograms per liter ( $\mu\text{g/L}$ ) to 10  $\mu\text{g/L}$  in January 2000 and USEPA Region I issued new guidance for evaluating risks associated with manganese in November 1996. The USEPA revised the oral reference dose for manganese in the Integrated Risk Information System (IRIS) database in May 1995. In November 1996, USEPA Region I issued guidance for evaluating exposures to manganese in soil and groundwater using the revised IRIS oral reference dose. The USEPA Region I guidance for manganese has been used in all human health risk assessments prepared for NSB-NLON since November 1996. There have been no revisions to the location- and action-specific ARARs at Sites 3 and 7 that affect the protectiveness of the remedy.

The OU9 ROD included groundwater at Site 23. Site 9 groundwater was addressed with Site 23 groundwater in the OU9 ROD. There is no groundwater monitoring at Site 23, so there are no remedial goals or monitoring criteria to evaluate. There have been no revisions to the location- and action-specific ARARs at Site 23 that affect the protectiveness of the remedy. No final remedies or ARARs have been selected yet for the soil at Sites 9 and 23.

The selected remedies for several of the sites will include LUCs. A LUC remedial design (RD) will be developed and will serve as the enforceable mechanism to implement and manage LUCs for these sites. NSB-NLON currently implements LUCs via the NSB-NLON Land Use Restriction Instruction [SOPA (ADMIN) New London Instruction 5090.25 (Navy, 2009b)]. Upon finalization of the LUC RD, the actions currently identified in the base instruction to implement NSB-NLON LUCs will be incorporated into the LUC RD. NSB-NLON will continue enforcement of New London Instruction 5090.25 at each site until a LUC RD can be completed.

The ecological risk assessments (ERAs) for the sites were conducted primarily following USEPA ERA guidance documents from 1992 (Framework for Ecological Risk Assessment) (USEPA, 1992b) and 1994 (Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments, Review Draft) (USEPA, 1994b). The 1994 ERA guidance did not change significantly when it was updated in 1997 as an interim final document (USEPA, 1997). The risk assessments also re-evaluated some of the conservative assumptions used to obtain a "screening-level" risk, which corresponds to the Step 3a evaluation in the Navy Policy for Conducting ERAs (Navy, 1999a). Therefore, the risk assessment methodology has not changed significantly over the last five years.

At sites where food-chain modeling was conducted, exposure factors were obtained from the Wildlife Exposure Factors Handbook (USEPA, 1993b). This document is still the primary source for exposure

factors in current ERAs. Also, many of the wildlife toxicity data were obtained from the Toxicological Benchmarks for Wildlife: 1994 Revision (Opresko *et al.*, 1994). This document was updated in 1996 (Sample *et al.*, 1996); however, many of the values did not change. Some of the uncertainty factors applied to the toxicity data are currently not standard practice, but most of the uncertainty factors were removed when the less conservative exposure scenarios were presented. USEPA recently published Ecological Soil Screening Levels (Eco SSLs) for a few chemicals (USEPA, 2005a). The Eco SSLs were developed for the following receptors; plants, invertebrates, mammals, and birds. Some of the exposure factors and toxicity data for mammals and birds in the Eco SSL document are different than those in the documents mentioned above but the differences are not expected to cause significant changes to the overall results of the risk assessments.

The benchmarks used to select ecological contaminants of concern (ECOCs) were obtained from different sources because there is no single document that contains criteria for all the chemicals typically detected in the media. The following paragraphs briefly discuss the primary sources of benchmarks used in the ERAs and whether or not they have been updated.

The primary source of surface water benchmarks was the Connecticut chronic WQSs. These criteria were last updated in February 2011 (CTDEP, 2011). Many of the WQSs are based on the USEPA WQC, which were updated in 2009 (USEPA, 2009b). Other surface water benchmarks were based on the Ecotox Thresholds (USEPA, 1996a). Several of the values in the Ecotox Thresholds were updated (Suter and Tsao, 1996) since its publication. Toxicity data from the literature were used as benchmarks for chemicals not listed in the above documents.

The primary sources of sediment benchmarks were site-specific benchmarks based on equilibrium partitioning, using site-specific total organic carbon values, surface water benchmarks, and chemical-specific organic carbon partition coefficient (Koc) values. Because some of the surface water benchmarks were updated, some of the sediment benchmarks will change. Other sediment benchmarks used included the Effects Range-Low (ER-L) values (Long *et al.*, 1995), the Sediment Quality Guidelines from the Ontario Ministry of Environment (OME, 1992), and the Washington State Freshwater Apparent Effects Thresholds (Washington State, 1994). The ER-L values have not been updated and are still being used as sediment benchmarks in current ERAs. The OME (OME, 1992) and Washington State (1994) documents were updated in 1993 (OME, 1993) and 1997 (Cubbage *et al.*, 1997), respectively. Several of the values were revised in the updates.

For soil, benchmarks for plants were primarily obtained from Will and Suter (1994), and benchmarks for soil invertebrates were primarily derived using the Ecological Structure Activity Relationships (ECOSAR) computer program (USEPA, 2009c). The Will and Suter document was updated by Efroymsen *et al.*,

(1997a). Also, Efroymsen *et al.*, (1997b) developed a screening benchmark document for earthworms that is currently being used for soil benchmarks. The plant benchmarks in Efroymsen *et al.*, (1997a) are very similar to those in Will and Suter (1994). Efroymsen *et al.*, (1997b) has some earthworm benchmarks for chemicals that did not have ECOSAR values. In 2005, USEPA published Eco SSLs for a few chemicals (USEPA, 2005a). The Eco SSLs were developed for the following receptors: plants, invertebrates, mammals, and birds. In many cases, the plant and invertebrates values are similar to or greater than the plant and invertebrates benchmarks discussed above.

In general, most of the changes in the updated guidance and reference documents are not expected to significantly change the overall conclusions of the ERAs. Some of the benchmarks are lower in the updated documents, and some of the values are higher. Therefore, different chemicals may have been retained as ECOCs in recent sampling rounds than in previous rounds. However, the decision to remediate a site is typically not based on screening benchmarks, because of the conservative nature of the benchmarks. A decision to remediate a site or decision on cleanup levels typically consists of other factors such as the collection of site-specific biological data (i.e., toxicity tests, biological surveys). The site-specific data would not be changed because of updates in the screening benchmarks.

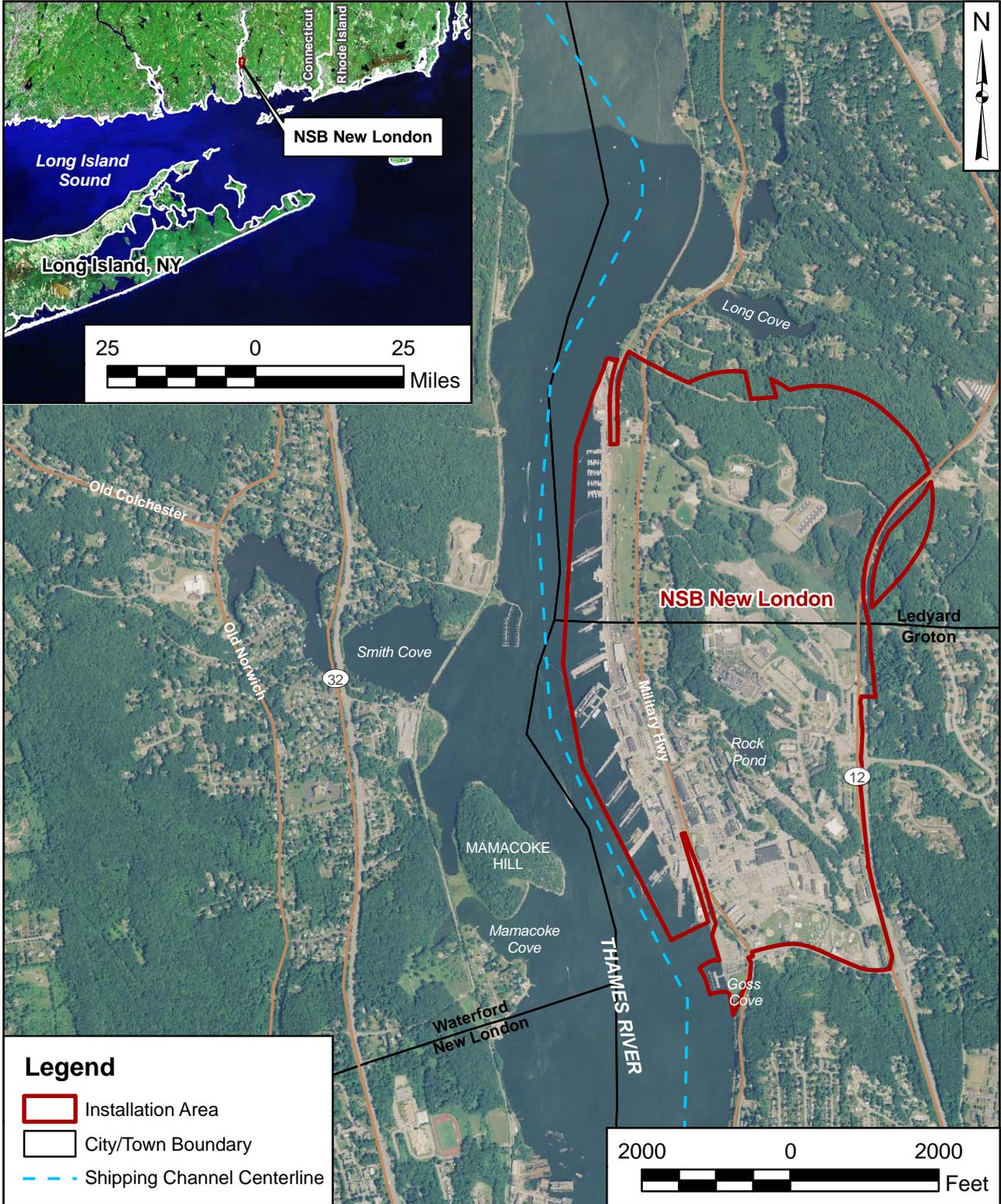
## **1.5 REPORT ORGANIZATION**

This report has been organized with the intent of meeting the general format requirements specified in the Comprehensive Five-Year Review Guidance document (USEPA, 2001a), and summarizing the results of the five-year review for the 17 IRP sites in a cohesive and comprehensive manner. Section 1.0 gives an overview of NSB-NLON and five-year review process, as well as a discussion of changes in ARARs and site-specific action levels. Sections 2.0 through 17.0 summarize the five-year reviews conducted for each of the individual sites. Section 18.0 provides a general summary, conclusions, and protectiveness statement for NSB-NLON. This section also identifies when the next five-year review is required and other tasks that should be performed as part of that five-year review. Five appendices are included in this report. Appendix A contains inspection report checklists and deficiency logs completed for O&M activities. Appendix B contains photographs of the sites. Appendix C contains the third five-year review inspection checklists. Appendix D contains the NSB-NLON Land Use Restriction Instruction [SOPA (ADMIN) New London Instruction 5090.25 (Navy, 2009b)], Appendix E contains Mid-Atlantic (MIDLANT) Instruction 5090.2 (Navy, 2003), and Appendix F presents the field investigation of the above-ground storage tank (AST).

TABLE 1-1

**SITE SUMMARY  
THIRD FIVE-REVIEW REPORT  
NSB-NLON, GROTON, CONNECTICUT**

Site	Operable Unit	Five-Year Review Required?	Included in Third Five Year Review?	Discontinue Five-Year Reviews?
Site 1 – Former CBU Drum Storage Area	OU1	No	No	Yes
Site 2A – Area A Landfill	OU1/OU9	Yes	Yes	No
Site 2B - Area A Wetland	OU12/OU9	Yes	Yes	No
Site 3 – Area A Downstream Watercourses/OBDA	OU3/OU9	Yes	Yes	No
Site 4 – Former Rubble Fill - Bunker A-86	OU10	No	No	Yes
Site 6 – Former DRMO	OU2	Yes	Yes	No
Site 7 – Torpedo Shops	OU8/OU9	Yes	Yes	Yes
Site 8 – Goss Cove Landfill	OU5	Yes	Yes	No
Site 9 – Former Oily Wastewater Tank OT-5	OU9	Yes	Yes	No
Site 10 – Lower Subbase – Fuel Storage Tanks and Former Tank 54-H	OU4	No	Yes	No
Site 11 – Lower Subbase – Power Plant Oil Tanks	OU4	No	Yes	No
Site 13 – Lower Subbase – Building 79 Former Waste Oil Pit	OU4	No	Yes	No
Site 14 – Former Overbank Disposal Area Northeast	OU8/OU9	No	No	Yes
Site 15 – Former Spent Acid Storage and Disposal Area	OU6/OU9	No	No	Yes
Site 16 – Former Hospital Incinerators	OU11	No	No	Yes
Site 17 – Lower Subbase – Former Hazardous Materials /Solvent Storage Area	OU4	No	Yes	No
Site 18 – Solvent Storage Area	OU11/OU9	No	No	Yes
Site 19 – Lower Subbase – Former Solvent Storage Area	OU4	No	Yes	No
Site 20 – Area A Weapons Center	OU7/OU9	No	No	Yes
Site 21 – Lower Subbase – Berth 16	OU4	No	Yes	No
Site 22 – Lower Subbase – Pier 33	OU4	No	Yes	No
Site 23 – Former Fuel Farm	OU9	Yes	Yes	No
Site 24 – Lower Subbase – Central Paint Accumulation Area	OU4	No	Yes	No
Site 25 – Lower Subbase – Former Classified Materials Incinerator	OU4	No	Yes	No



**Legend**

- Installation Area
- City/Town Boundary
- Shipping Channel Centerline

DRAWN BY T. WHEATON	DATE 04/07/10
CHECKED BY N. BALSAMO	DATE 05/23/11
COST/SCHEDULE AREA	
SCALE AS NOTED	



**FACILITY LOCATION MAP**  
**NAVAL SUBMARINE BASE - NEW LONDON**  
**GROTON, CONNECTICUT**

CONTRACT NUMBER CTO WE33	
APPROVED BY C. RICH	DATE 05/23/11
APPROVED BY	DATE
FIGURE NO. FIGURE 1-1	REV 0

**LEGEND:**

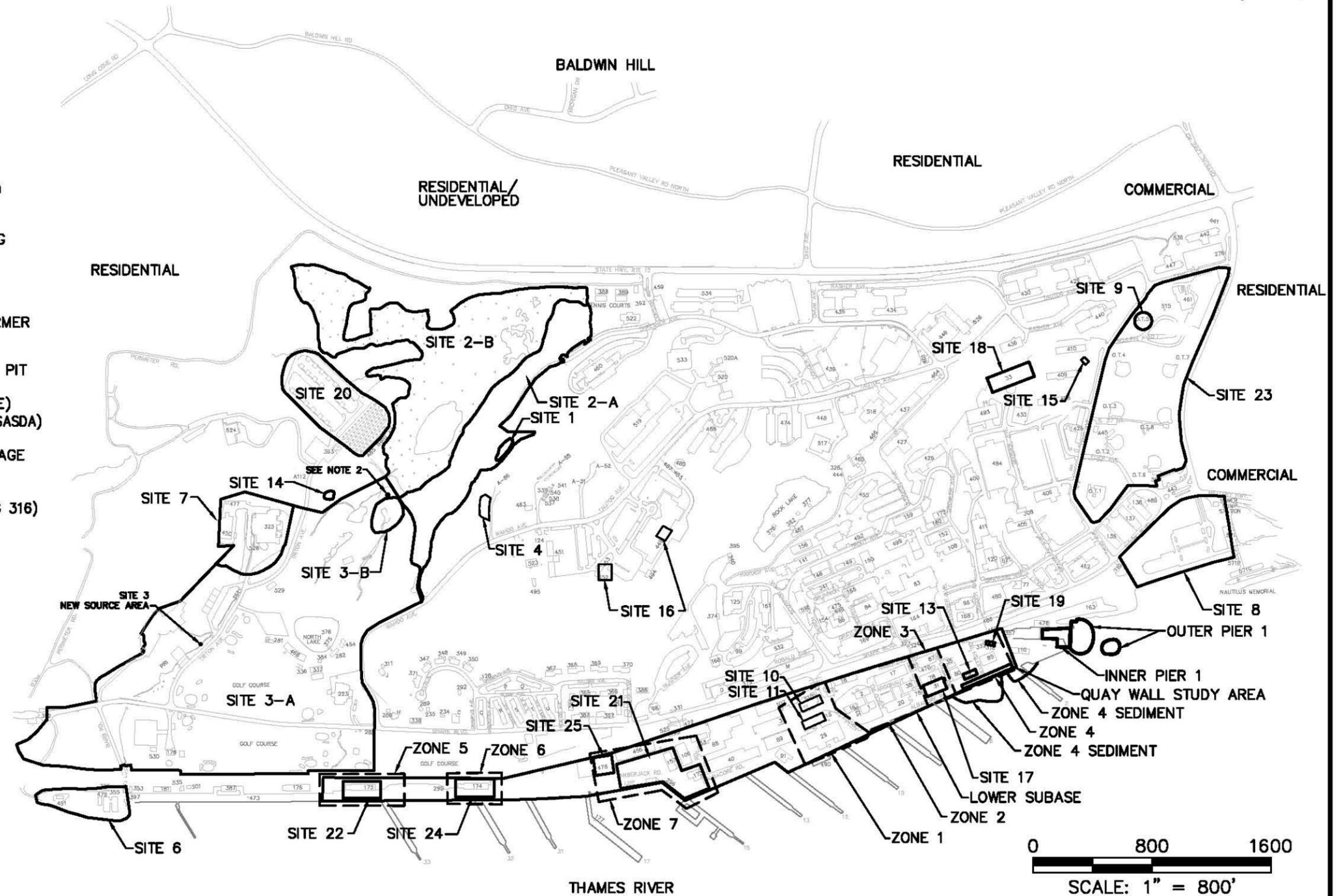
- SITE BOUNDARY
- - - - LOWER SUBBASE REMEDIAL INVESTIGATION ZONE BOUNDARY

**SITE IDENTIFICATION:**

- SITE 1 - FORMER CONSTRUCTION BATTALION UNIT (CBU) DRUM STORAGE AREA
- SITE 2 - (A) AREA A LANDFILL AND (B) AREA A WETLAND
- SITE 3 - (A) AREA A DOWNSTREAM WATER COURSES AND (B) FORMER OVBANK DISPOSAL AREA (OBDA)
- SITE 4 - FORMER RUBBLE FILL AREA AT BUNKER A-86
- SITE 6 - FORMER DEFENSE REUTILIZATION AND MARKETING OFFICE (DRMO)
- SITE 7 - TORPEDO SHOPS
- SITE 8 - GOSS COVE LANDFILL
- SITE 9 - FORMER OILY WASTEWATER TANK (OT-5)
- SITE 10 - LOWER SUBBASE-FUEL STORAGE TANKS AND FORMER TANK 54-H
- SITE 11 - LOWER SUBBASE-POWER PLANT OIL TANKS
- SITE 13 - LOWER SUBBASE-BUILDING 79 FORMER WASTE OIL PIT AND INNER AND OUTER PIER 1
- SITE 14 - OVBANK DISPOSAL AREA NORTHEAST (OBDANE)
- SITE 15 - FORMER SPENT ACID STORAGE AND DISPOSAL AREA (SASDA)
- SITE 16 - FORMER HOSPITAL INCINERATORS
- SITE 17 - FORMER HAZARDOUS MATERIALS/SOLVENT STORAGE AREA (FORMER BUILDING 31)
- SITE 18 - SOLVENT STORAGE AREA (BUILDING 33)
- SITE 19 - FORMER SOLVENT STORAGE AREA (FORMER BUILDING 316)
- SITE 20 - AREA A WEAPONS CENTER
- SITE 21 - BERTH 16
- SITE 22 - PIER 33
- SITE 23 - FORMER FUEL FARM
- SITE 24 - CENTRAL PAINT ACCUMULATION
- SITE 25 - LOWER SUBBASE-FORMER CLASSIFIED MATERIALS INCINERATOR

**NOTES:**

1. SITE BOUNDARIES ARE APPROXIMATE.
2. LOCATION OF CONCRETE-CAPPED SOIL.



DRAWN BY	DATE
BH	5/6/10
CHECKED BY	DATE
NJB	5/6/10
REVISED BY	DATE
SCALE	
1" = 800'	



**SITE LOCATION MAP  
NSB-NLON  
GROTON, CONNECTICUT**

CONTRACT NO. <b>WE33</b>	
OWNER NO. <b>3386</b>	
APPROVED BY <b>CAR</b>	DATE <b>5/10/10</b>
DRAWING NO. <b>FIGURE 1-2</b>	REV.

## 2.0 SITE 2A – AREA A LANDFILL (OU1 AND OU9) AND SITE 2B - AREA A WETLAND (OU12 AND OU9)

Site 2A - Area A Landfill and Site 2B - Area A Wetland are included under the Navy's IRP. Site 2A and Site 2B were originally identified as one site and designated as Site 2, but were subsequently addressed as distinct sites for investigation and remediation. Because of their history and to maintain continuity with earlier documents, both sites are discussed in Section 2.0 of this report; however, they are reviewed separately because decision documents and remedial actions are being completed independently.

This five-year review of Site 2A - Area A Landfill is required by statute because hazardous substances, pollutants, or contaminants remain on site that do not allow for unlimited use or unrestricted exposure. A remedial action for the Area A Landfill soil OU (OU1) was completed in September 1997. Site 2A groundwater is a portion of OU9, the Basewide Groundwater. The final ROD for OU9 was signed in September 2008 (Navy, 2008b). Groundwater and surface water have been analyzed to monitor Site 2A since the remedial action was completed to assess its effectiveness. As of this third five-year review, groundwater and surface water have been monitored for 12 years and the landfill cap has been inspected annually for 9 years. Data collected during the monitoring and inspection programs are evaluated in this report.

The sediment in the Site 2B - Area A Wetland was designated as OU12. A ROD for OU12 was signed in August 2010 (Navy, 2010d). Sediment samples were collected as part of a PDI in April 2011, and the results will be used to refine the extent of contamination and volume of contaminated sediment that requires excavation (Tetra Tech, 2011d). Site 2B groundwater is also included in OU9. Groundwater sampling at Site 2B has been discontinued, but surface water continues to be sampled at Site 2B as part of the Site 2A monitoring program. LUCs are required at OU12 to prevent unrestricted exposure throughout the wetland, and a LUC RD is currently being prepared.

### 2.1 HISTORY AND SITE CHRONOLOGY

A list of important Site 2A and Site 2B historical events and relevant dates in the site chronology is shown in the table below. The identified events are illustrative, not comprehensive.

#### SITE 2A - AREA A LANDFILL

Event	Date
Landfill operations.	1957 to 1973
Final IAS completed.	March 1983
Verification Step 1A Study.	February 1988

<b>Event</b>	<b>Date</b>
Phase I RI completed.	August 1992
Remedial Design for OU1 began.	1994
Focused FS finalized.	May 1995
Proposed Plan for OU1 issued.	June 1995
Public Meeting for OU1.	June 1995
ROD for OU1 signed.	September 1995
Remedial Design for OU1 completed.	December 1996
Remedial Action for OU1 began.	December 1996
Phase II RI finalized.	March 1997
Remedial Action for OU1 completed.	September 1997
Final Report for Remedial Action at OU1 issued.	March 1998
Final Groundwater Monitoring Plan issued.	January 1999
Groundwater Monitoring Program initiated.	October 1999
Final Year 1 Groundwater Monitoring Report (GMR) issued.	May 2001
First Five-Year Review Report completed.	December 2001
BGOURI completed.	January 2002
Draft Final O&M Manual - Volumes I, III, IV, and V completed.	September 2002
Year 2 GMR for Area A Landfill issued.	December 2002
SOPA (ADMIN) New London Instruction 5090.18B issued.	February 2003
Draft O&M Manual - Volume II issued.	March 2003
Year 3 GMR issued.	July 2003
2003 Annual Landfill Inspection Report (LIR) issued.	November 2004
Year 4 GMR issued.	December 2004
2004 Annual LIR issued.	September 2005
Year 5 GMR issued.	August 2005
2005 Annual LIR issued.	October 2005
Final O&M Manual - Volumes I, II, III, IV, and V (Rev 1) completed.	January 2006
Final Year 6 GMR for Area A Landfill issued	July 2006
SOPA (ADMIN) New London Instruction 5090.18C issued.	December 2006
Second Five-Year Review completed.	December 2006
Monitoring Well Inventory Report and Abandonment Plan issued.	September 2007
Proposed Plan for Basewide Groundwater OU9 issued.	June 2008
2006 Annual LIR issued.	June 2008
Final Year 7 GMR for Area A Landfill issued.	June 2008
2007 Annual LIR completed.	August 2008
ROD for OU9 Basewide Groundwater signed.	September 2008
SOPA (ADMIN) New London Instruction 5090.18D issued.	September 2008
Final Year 8 GMR for Area A Landfill issued.	October 2008
O&M Manual - Volumes I, II, III, IV, and V (Revision 2 Draft) completed.	November 2008
2008 Annual LIR issued (Final).	May 2009
SOPA (ADMIN) New London Instruction 5090.25 issued.	June 2009

<b>Event</b>	<b>Date</b>
Final Year 9 GMR for Area A Landfill issued.	August 2009
Letter sent to Town of Ledyard, Land and Groundwater Use Restrictions.	September 2009
Letter sent to Town of Groton, Land and Groundwater Use Restrictions.	September 2009
Remedial Design for Land Use Controls on Basewide Groundwater OU9.	November 2009
2009 Annual Inspection Report for Site 2A, Site 6, Site 8 and Site 3 issued.	December 2009
Resolution of Monitoring Criteria for Site 2 – Area A Landfill, Rev 1.	March 2010
Remedial Action Completion Report for OU9 Basewide Groundwater.	June 2010
2009 Annual GMR for Sites 2, 3, and 8 issued.	August 2010
O&M Manual - Volumes I, II, III, IV, and V (Rev 2 Draft Final) completed.	November 2010
2010 Annual GMR for Sites 2A, 3, 6, and 8 issued.	March 2011
2010 Annual Inspection Report for Sites 2A, Site 6, Site 8, and Site 3 issued.	January 2011
Resolution of Monitoring Criteria for Site 2A – Area A Landfill, Rev 2.	April 2011

**SITE 2B - AREA A WETLAND**

<b>Event</b>	<b>Date</b>
Wetland created with Thames River dredge spoils.	1950s
Phase I RI completed.	August 1992
Phase II RI completed.	March 1997
First Five-Year Review Report completed.	December 2001
BGOURI completed.	January 2002
Second Five-Year Review completed.	December 2006
SOPA (ADMIN) New London Instruction 5090.18C issued.	December 2006
Monitoring Well Inventory Report and Abandonment Plan issued.	September 2007
Proposed Plan for Basewide Groundwater OU9 issued.	June 2008
ROD for OU9 Basewide Groundwater signed.	September 2008
SOPA (ADMIN) New London Instruction 5090.18D issued.	September 2008
SOPA (ADMIN) New London Instruction 5090.25 issued.	June 2009
Letter sent to Town of Ledyard, Land and Groundwater Use Restrictions.	September 2009
Letter sent to Town of Groton, Land and Groundwater Use Restrictions.	September 2009
Remedial Design for Land Use Controls on Basewide Groundwater OU9.	November 2009
RI Update/FS for Sediment at Area A Wetland – Site 2B.	June 2010
Remedial Action Completion Report for OU9 Basewide Groundwater.	June 2010
Proposed Plan for Sediment at Area A Wetland – Site 2B issued.	August 2010
Record of Decision for Site 2B - Area A Wetland signed.	August 2010
Field Sampling and Analysis Plan for Sediment for Area A Wetland – Site 2B.	March 2011

## 2.2 BACKGROUND

### 2.2.1 Site 2A – Area A Landfill

The Area A Landfill is a relatively flat area bordered by a steep, wooded hillside that rises to the south, a steep wooded ravine to the west, and the Area A Wetland to the north. Figure 2-1 shows a site plan of the Area A Landfill. The location of Site 2 relative to other IR sites is shown on Figure 1-2.

According to the IAS Report (NEESA, 1983), the landfill opened sometime before 1957. However, a 1957 aerial photograph shows no apparent landfilling, which may indicate a somewhat later start-up date. All combustible materials generated by base operations that were not salvageable were incinerated, and the residues were disposed in the former DRMO (Site 6), Goss Cove (Site 8), and Area A Landfills. The base incinerator, which was located in the Lower Subbase along the waterfront at the present location of Building 478, ceased operation in 1963. From 1963 to 1973, refuse and debris were disposed in the Area A Landfill. Landfilling operations ceased in 1973. The thickness of the landfill materials is estimated to range from 10 to 20 feet, based on test boring data.

The area fill method was reportedly used in landfill operations. New refuse was dumped along the face of previously deposited refuse and covered with earth. The cover material used on the landfill was sand and gravel obtained from the Groton water supply reservoir. After closure, a concrete pad was constructed in the southwestern portion of the landfill, adjacent to and northeast of Building 373, for above-ground storage of industrial wastes. Up to the time of the remedial action at the Area A Landfill, the pad was still in existence. In the early 1980s, 42 steel drums, 87 transformers [mineral oil and polychlorinated biphenyls (PCBs)], and 60 to 80 electrical switches were found to be stored on the pad. Two transformers and several electrical switches were reportedly leaking. Past leakage of oil was also evident. Most drums were stacked on wooden pallets, and those having PCB labels were covered and bound with plastic sheeting. All these materials were properly disposed off site.

The IAS Report indicated that refuse, including steel drums, oxygen candles, wood and metal scrap, concrete, and tires, was exposed at the edge of the landfill adjacent to the wetland. The IAS Report also stated that petroleum compounds had recently been poured from containers and had flowed into the Area-A Wetland at two locations (northwestern portions of the landfill). According to the report, when batteries were overhauled, spent sulfuric acid solution was transferred to barrels and transported to the Area A Landfill for disposal. The acid was poured into trenches dug with a bulldozer and subsequently covered with soil. Based on records, established policy, and interviews, the potential for radioactive material having been disposed on site is considered to be effectively zero.

During a 1988 inspection of the site, iron floc was observed along the toe of the slope of the landfill, extending from the dike to the eastern end of the deployed parking lot. Iron floc occurs when groundwater with high concentrations of iron discharges to an oxygen-rich environment. Bacteria use the iron and oxygen to form the orange iron floc. The slope of the landfill had been covered with cover material, and the landfill material was not visible. Sand bags, salt, supplies, and equipment were stored on top of the landfill. Several transformers, underground storage tanks (USTs), crane weights, and other equipment were previously stored on the concrete pad in the southwestern portion of the landfill.

A two-phase RI was conducted to determine the nature and extent of contamination at the Area A Landfill. Phase I RI field activities were conducted from 1990 to 1992 (Atlantic, 1992). The Phase I RI of the Area A Landfill included test borings, monitoring well installation, and soil and groundwater sampling. Landfill materials encountered included glass, brick, wood, plastic, and ash intermixed with sand and gravel material used as cover. The Phase I RI concluded that risks associated with several exposure scenarios exceeded acceptable regulatory levels and that an FS should be performed for the Area A Landfill site.

Phase II RI field activities were conducted from 1993 to 1995 (B&RE, 1997a). The Phase II RI of the Area A Landfill included test borings, monitoring well installation, and soil and groundwater sampling. The Phase II RI concluded that shallow groundwater contamination [i.e., volatile organic compounds (VOCs), PCBs, and inorganics] exists at the site, the landfill soil may pose a threat to human receptors due to PCB concentrations, and chemicals in soil could adversely impact ecological receptors. The Phase II RI recommended that, in addition to the installation of a landfill cover system, institutional controls, including access/use restrictions and groundwater monitoring, should be implemented at the site.

A low-permeability cover system was designed and installed on the Area A Landfill as the remedial action for soil at the site. Investigations were conducted to support the design of the cover system. Installation of the cover system was completed in September 1997. The CBU Drum Storage Area (Site 1) and the Rubble Fill Area at Bunker A-86 (Site 4) were also addressed during the remedial action at the Area A Landfill. The CBU Drum Storage Area (Site 1), formerly located within the boundary of the Area A Landfill, was capped at the same time as the landfill, and an NFA Decision Document was signed for Site 1. The Rubble Fill Area at Bunker A-86 (Site 4) was located along the southern boundary of the Area A Landfill. Construction debris and contaminated soil and sediment from the site were removed as part of a time-critical removal action and incorporated into the Area A Landfill subgrade. After the removal action, only exposed bedrock was left at the former Rubble Fill Area at Bunker A-86. An NFA Decision Document was also signed for this site. A majority of the Area A Landfill is paved and currently used for storage of equipment and vehicles.

Access to the western end of the landfill is via a gate off Wahoo Avenue, and access to the eastern end of the landfill is via a gate on Thresher Avenue, adjacent to a parking lot and Area A recreational facilities (See Figure 2-1). Access through either of these gates requires check-in and sign-out at the Command Master at Arms (CMAA) warehouse located at the Thresher Avenue gate. An additional gate provides access to the Salt Storage Building from the landfill (H&S Environmental, Inc. [H&S], 2010; Navy, 2010e). Access to the deployed parking area portion of the landfill is through a separate gate off Thresher Avenue. Subbase Security must be contacted in Building 462 to access the key to the deployed parking gate (Navy, 2010e).

A groundwater and surface water monitoring program to assess the Site 2A remedial action was implemented in 1999 (Tetra Tech, 1999a). The analytical results from Year 1, Round 4 of the post-remedial action monitoring program were evaluated in the BGOURI Report (Tetra Tech, 2002a). The BGOURI recommended that the monitoring program be continued in order to gather data for evaluation of long-term trends in contaminant concentrations. The decision to proceed to an FS should be made after sufficient data have been collected and evaluated. The Area A Landfill HHRA performed during the BGOURI evaluated potential risks from exposures to groundwater by construction workers. The risk assessment determined that risks for construction workers were within acceptable levels. The risk assessment was updated in a 2008 memorandum to account for current risk assessment guidance and Year 7 sampling results. The assessment confirmed that risks to construction workers exposed to groundwater would be within acceptable limits; however, the assessment showed that there are potential risks to hypothetical residents that would exceed USEPA and CTDEP acceptable levels if groundwater is used as a drinking water supply. These risks are mitigated by the existing institutional controls that prohibit residential development of Site 2A. Potential risks resulting from volatilization of chemicals from groundwater and the migration through building foundations into indoor air were also evaluated. Using the USEPA and CTDEP screening criteria, concentrations of chloroform, tetrachloroethene (PCE), and trichloroethene (TCE) exceeded the USEPA screening criteria and were further evaluated using the USEPA Johnson and Ettinger Vapor Intrusion Model. Modeling results showed that cancer risks and hazard indices (HIs) for residential and industrial scenarios were within USEPA and CTDEP acceptable levels; therefore, vapor intrusion is not an issue at Site 2A (Navy, 2008b). The ROD for Operable Unit 9 Basewide Groundwater (Navy, 2008b) recommended NFA for the site because Site 2A groundwater is already being monitored under OU1.

A well inventory was conducted at NSB-NLON in 2007. This inventory included 47 Site 2A wells (Tetra Tech, 2007c). As a result of the inventory, 41 Site 2A wells that were not part of an active monitoring program were abandoned in 2007 (ECC, 2007b; Tetra Tech, 2008a).

### 2.2.2 Site 2 B - Area A Wetland

Site 2B, the Area A Wetland is located north of the Area A Landfill (see Figures 1-2 and 2-2). The location of the Area A Wetland was undeveloped, wooded land that was possibly wetland until the late 1950s. In the late 1950s, dredge spoils from the Thames River were pumped to this area and contained within an earthen dike that extends from the Area A Landfill to the southern side of the Area A Weapons Center.

The Area A Wetland is underlain by dredge spoils that consist of silt and clay with traces of fine sand and shell fragments. The thickness of dredge spoils ranges from 25 to 35 feet on the southern side of the wetland, adjacent to the landfill, and from 10 to 15 feet on the northeastern side of the wetland. The total volume of dredged material in the wetlands is approximately 1.2 million cubic yards.

A small pond is located in the southern portion of the wetland, and between 1 and 3 feet of standing water is present in the pond during all seasons. Phragmites is the predominant type of vegetation. It was reported that pesticide "bricks" were placed on the ice in the wetland during winter and allowed to dissolve as a mosquito control measure. These "bricks" consisted of formulated (water-soluble) 1,1,1-trichloro-2,2-bis(4-chlorophenyl)ethane (4,4'-DDT) and were used in the 1960s, prior to the 1972 ban on 4,4'-DDT.

A two-phase RI was conducted to determine the nature and extent of contamination at the Area A Wetland. Phase I RI field activities were conducted from 1990 to 1992 (Atlantic, 1992). The Phase I RI of the Area A Wetland included test borings, monitoring well installation, and soil, sediment, and groundwater sampling. The Phase I RI concluded that risks associated with several exposure scenarios exceeded acceptable regulatory levels and that an FS should be performed for the Area A Wetland site.

Phase II RI field investigation activities were conducted from 1993 to 1995 (B&RE, 1997a). The Phase II RI of the Area A Wetland included test borings, monitoring well installation, and sediment, surface water, and groundwater sampling. The Phase II RI concluded that little surface water or groundwater contamination exists at the site; the site may pose a risk to a construction worker due to potential exposure to manganese in the groundwater; and significant pesticide, PCB, and polynuclear aromatic hydrocarbon (PAH) concentrations exist in site soil and sediments. The recommendations in the Phase II RI indicated that an FS to evaluate a limited action alternative including groundwater monitoring and access/use restrictions should be conducted for this site.

A well inventory was conducted at NSB-NLON in 2007. This inventory included 24 Site 2B wells (Tetra Tech, 2007c). As a result of the inventory, three Site 2B wells that were not part of an active monitoring program were abandoned (ECC, 2007b; Tetra Tech, 2008a).

The Phase II RI HHRA was updated in a 2008 memorandum to account for current risk assessment guidance and Year 7 sampling results. The assessment confirmed that risks to construction workers exposed to groundwater would be acceptable; however, the assessment showed that there are potential risks to hypothetical residents that would exceed USEPA and CTDEP acceptable levels if groundwater is used as a drinking water supply. These risks are mitigated by the existing institutional controls that prohibit residential development of Site 2B. Potential risks resulting from exposure to chemical volatilization from groundwater and the migration to indoor air through building foundations were also evaluated in a separate memorandum. TCE and PCE exceeded USEPA and CTDEP screening criteria and they were further evaluated in the USEPA Johnson and Ettinger Vapor Intrusion Model. Modeling results showed that cancer risks and HIs for residential and industrial scenarios were within USEPA and CTDEP acceptable levels and vapor intrusion is not an issue at Site 2B (Navy, 2008b).

An RI update and FS for sediments in OU12 were completed in 2010 (Tetra Tech, 2010e). A Phase III investigation of the sediments at Site 2B was conducted in October 2007 (Tetra Tech, 2008b). The major objectives of the investigation were to further refine the nature and extent of contamination in sediments and to provide sufficient data to determine potential risks to ecological receptors from contaminated sediments. A secondary objective of the investigation was to determine the thickness of the overlying organic layer that has formed above the dredge spoils. A Phase IV Investigation of the sediments at Site 2B was planned in 2008 (Tetra Tech, 2008e) and conducted in October 2009. The objective of that investigation was to collect sediment samples for chemical analysis and toxicity testing to determine whether the samples were toxic to sediment invertebrates.

The sediment toxicity tests were conducted on sediment samples collected from 12 site locations and two reference locations. The results in the site samples were compared to the results in the reference samples to determine whether survival and/or growth of sediment invertebrates was reduced in the site samples compared to the reference samples. The chemical data were then evaluated to determine which chemicals (and their associated concentrations) could be related to the toxicity test results so that no-observed-effects concentrations (NOECs) and lowest-observed-effects concentrations (LOECs) could be developed. The geometric means of the NOECs and LOECs were then selected as the site-specific PRGs. Based on this evaluation, the following PRGs were developed:

Total PAHs – 6,585 microgram per kilogram ( $\mu\text{g}/\text{kg}$ )

Total DDT – 1,504  $\mu\text{g}/\text{kg}$

Total Aroclor – 532  $\mu\text{g}/\text{kg}$

In addition, it was agreed by the project team that samples with 10 or more chemicals that exceed threshold effects concentrations (MacDonald, 2000) would be considered impacted, unless toxicity testing at that location indicated that the sample was not toxic.

The PRGs were used in the FS to establish areas that will be remediated and restored with wetland vegetation. A Proposed Plan for sediment at Site 2B (Navy, 2010c) was completed and a ROD for OU12 was signed in August 2010 (Navy, 2010d).

A PDI sampling and analysis plan was prepared to address data gaps in the RI Update/FS Report for the Area A Wetland (Tetra Tech, 2011d) and to better define the extent of contaminated sediment that requires excavation. The samples have been collected during three sampling events (April 2011, September 2011, and November 2011). Samples from each of the three sampling events were analyzed in two phases, with the second set of samples from each event analyzed contingent on the results of the first phase. The results will be used in conjunction with the existing data to refine the extent of contamination and volume of contaminated sediment that requires excavation (Tetra Tech, 2011d).

Outside of CERCLA, the Navy, in cooperation with the CTDEP Wetlands Habitat and Mosquito Management Program's Phragmites Control Team, initiated a program in 2010 to control *Phragmites* in the Area A Wetland through mechanical and chemical methods. The extent of the program includes mowing the *Phragmites* twice (spring 2010 and winter 2010/2011) and applying herbicide after each mowing event (summer 2010 and fall 2011). The biomass created during the mowing will be left in place as mulch to naturally degrade. The initial mowing and herbicide treatment were completed in 2010. The second mowing was completed in February 2011 and the second herbicide treatment was conducted in October 2011. After the *Phragmites* has been removed and the area shows signs of recovery, the Navy will work with the regulatory agencies to assess natural recruitment and coordinate potential future mitigation measures.

## **2.3 REMEDIAL ACTIONS**

### Site 2A- Area A Landfill

Based on the results of the RI/FS process, it was determined that a remedial action was necessary for the Area A Landfill OU1. A ROD for OU1 was signed in September 1995 (Navy, 1995). The process used to select and implement the OU1 remedial action is described below.

The ROD for OU9, Basewide Groundwater (groundwater at Sites 2A, 2B, 3, 7, 9, 14, 15, 18, 20, and 23), was signed in September 2008 (Navy, 2008b). The OU9 ROD determined that groundwater monitoring

at Sites 2A and 2B would continue, as required by the OU1 ROD and the O&M Manual. However, in 2010, USEPA concluded that it was no longer necessary to sample the Site 2B monitoring wells.

#### Site 2B – Area A Wetland

The ROD for OU12 was signed in August 2010 (Navy, 2010d). The extent of contaminated sediment at Area A Wetland (OU12) is still being refined, and the selected remedial alternative has not yet been completed.

### **2.3.1 Remedy Selection**

#### **2.3.1.1 Site 2A – Area A Landfill**

An FFS for the Area A Landfill (Atlantic, 1995c) was completed in response to the recommendations of the Phase I and Phase II RIs. The FFS evaluated several remedial alternatives, and concluded that the off-site disposal and off-site incineration alternatives would provide superior protection of the environment, but that the capping alternative would be more cost effective than the incineration alternative. The capping alternative was selected as the preferred remedial alternative for OU1 at the Area A Landfill. The alternative was presented in the Proposed Plan in June 1995 and was formally selected in the ROD signed in September 1995.

Based on ARARs and risk assessment results, the following remedial action objectives (RAOs) were selected for OU1 at Area A Landfill:

- Protect potential human and ecological receptors from exposure to contaminated soil.
- Reduce contaminant migration from the site by preventing exposure of contaminated soils to wind and erosive elements and by preventing infiltration of rainwater through contaminated areas of the unsaturated zone.

To meet the RAOs, the selected remedy for the Area A Landfill, as defined in the ROD, consisted of the following components:

- Access Restrictions – Access to contaminated areas of the site was to be limited via perimeter fencing and institutional controls. Access was to be limited to workers and other persons having business in these areas. The institutional controls would provide notice of hazardous materials at the site and ensure maintenance of cap integrity, worker protection, and other considerations.

- Site Grading and Stormwater Management – As part of the cap installation process, the site was to be graded to promote runoff and prevent run-on. In addition, a groundwater interception system was to be installed to collect shallow groundwater flowing to the landfill and reroute it around the landfill to reduce groundwater contact with landfill contents/soils.
- Horizontal Barrier Cap Installation – A low-permeability cap, covering approximately 13 acres, was to be installed over contaminated areas of the Area A Landfill. The components of the cap system were to vary, depending on location. The final cover system in the plateau areas was to consist of the following components in ascending order: bedding/gas collection layer, geosynthetic clay liner and geomembrane, drainage layer/subbase, woven geotextile, base course, and bituminous concrete surface course. The final cover system along the side slope areas was to consist of the following components in ascending order: bedding/gas collection layer, non-woven geotextile, cohesive backfill, textured geomembrane, drainage layer, non-woven geotextile, and riprap.
- Leachate Collection and Treatment – A leachate collection system was to be considered (TBC) to stabilize the cap and to further contain landfill wastes. The system was to isolate and collect leachate for treatment and/or disposal. A pre-design study was to be completed to determine the need for such a system and, if necessary, the type of system that would be required.
- Post-Closure Groundwater Monitoring – The groundwater at the site was to be monitored after the installation of the cap system to assess the impacts of the cap system. The results were to be used to determine the need for groundwater remediation.

#### **2.3.1.2 Site 2B – Area B Landfill**

The major components of the Selected Remedy for Site 2B include the following:

- Excavation of contaminated sediment greater than remediation goals (RGs) and transport of sediment off-site for proper disposal.
- Restoration of excavated areas to pre-existing elevations with clean organic soil.
- Seeding the restored area to establish native wetland vegetation.
- Monitoring of the area to ensure that the native wetland vegetation has been established.
- LUCs to prevent future residential use of the Area A Wetland.

**2.3.2 Remedy Implementation**

**2.3.2.1 Site 2A – Area A Landfill**

The remedial design (RD) for OU1 began in 1994 and was completed for the Navy by two different contractors, Atlantic and B&RE. Additional field work (i.e., field survey, geotechnical field investigation, and geotechnical laboratory testing program) was conducted to collect the data necessary to complete the design. An extensive groundwater modeling study was also completed to address design issues (i.e., leachate collection system, slope stability, etc.). The RD was completed in phases and was finalized in December 1996 (B&RE, 1996b).

The final cover system developed during the design included a majority of the components of the system included in the ROD. Minor modifications were made as a result of normal refinement of details during the design. The two most significant modifications were the following:

- No leachate collection system
- Increased protection at the toe of the side slope area

The decision for not including a leachate collection system was based on the results of the groundwater modeling study. For the design, the riprap layer at the toe of the side slope was replaced with a gabion basket system to provide increased resistance to shallow-based stability failures at the toe of slope and to prevent potential hydrostatic uplift on the low-permeability component of the side slope cap system. A comparison of the ROD and design cap components is provided below.

**Plateau Areas**

<b>Cap Components in ROD</b>	<b>Cap Components in Final Design</b>
• Bedding/gas collection layer	• Granular bedding/gas management layer (12-inch-thick) and passive gas vent system
• Geosynthetic clay liner and geomembrane	• Geosynthetic clay liner and 40-mil low-density polyethylene (LDPE) geomembrane
• Drainage layer/subbase	• Granular drainage layer (12-inch-thick)
• Woven geotextile	• Woven geotextile
• Base course	• Base course (6-inch-thick)
• Bituminous concrete surface course	• Bituminous concrete (3-inch-thick)

**Side Slope Areas**

<b>Cap Components in ROD</b>	<b>Cap Components in Final Design</b>
• Bedding/gas collection layer	• Granular bedding/gas management layer (12-inch thick) and passive gas vent system
• Non-woven geotextile	• Non-woven geotextile
• Cohesive backfill	• Cohesive backfill (6-inch thick)
• Textured geomembrane	• 40-mil LDPE textured geomembrane
• Drainage layer	• Granular drainage layer (12-inch thick)
• Non-woven geotextile	• Non-woven geotextile
• Riprap	• Riprap (12-inch thick)/gabion basket system

The Navy's Remedial Action Contractor (RAC) mobilized to the site to begin preliminary construction activities in December 1996, and the remedial action was completed in September 1997. Details regarding the remedial action are summarized in the Final Remedial Action Report (B&RE, 1998b). The most significant change that occurred during the implementation of the remedial action was the inclusion of soil and debris excavated from Site 4 (OU10) under the cap. This change resulted in a 2.8-foot elevation increase in one area of the landfill that necessitated modifications to the cover system that was installed, primarily to the slopes of three drainage channels.

To ensure the quality of the remedial action, quality control testing and inspection were completed during the remedial action in accordance with the Construction Quality Control (CQC) Plan and the Material Quality Assurance (MQA)/Construction Quality Assurance (CQA) Plan. Two non-conformances were noted during quality control testing and inspection, but neither was regarded as significant enough to affect the performance of the cap system.

The cost estimate for implementation of the preferred remedial alternative was estimated at \$5,700,000 in the ROD. This estimate included costs associated with a groundwater collection and treatment system, cap O&M, and groundwater monitoring. A revised estimate was prepared during the RD that included only construction costs. The estimated cost for implementation of the RD was approximately \$4,500,000. This estimate did not include costs associated with a groundwater collection and treatment system, cap O&M, or groundwater monitoring. The actual final cost for implementation of the RD was approximately \$6,000,000. The major reason for the cost increase was the removal action that was completed at Site 4 (OU10) concurrent with the implementation of the OU1 RD.

Based on the Final ROD for OU9, an RD for LUCs on Basewide Groundwater OU9 was prepared to provide the details of the LUCs for groundwater. The RD includes LUC objectives and implementation procedures for Site 2A (Tetra Tech, 2009e). The Remedial Action Completion Report (RACR) for OU9

was prepared to document completion of site remedies and ongoing activities at OU9, including Site 2A (Tetra Tech, 2009b).

The site use restrictions document [SOPA (ADMIN) New London Instruction 5090.18C] was updated in 2006 (Navy, 2006c) to address allowable loading pressures for the Area A Landfill asphalt and again in 2008 to include maps of existing and abandoned wells and an updated map of soil and groundwater LUCs (Navy, 2008c). To meet the LUC requirements in the ROD, the Navy implemented an updated instruction [SOPA (ADMIN) New London Instruction 5090.25] (Navy, 2009b). The instruction implements the Area A Landfill OU1 and OU9 ROD and the RD for LUCs and established management policies for sites still being investigated under the Navy IRP. The instruction prohibits excavation in, and groundwater extraction from Site 2A, as well as alteration of or damage to monitoring wells and the landfill cap. In 2009, a table and map were filed in the land record offices of the towns of Groton and Ledyard, Connecticut to show the location of monitoring wells, note the remedy in place, and list COCs and LUCs imposed at Site 2A (Navy, 2009c; 2009d).

Other components of the remedial action, including long-term groundwater monitoring and O&M, are discussed in Section 2.3.3.

#### **2.3.2.1 Site 2B- Area A Wetland**

The Site 2B sediment remedy has not yet been implemented. The PDI results will be used in conjunction with the existing data to refine the extent of contamination and volume of contaminated sediment that requires excavation under the selected remedy (Tetra Tech, 2011d). It is estimated that Site 2B contaminated sediment will be excavated in 2012. The Site 2B sediment (OU12) LUC RD is currently being prepared.

Site 2B groundwater LUCs have been implemented. Based on the Final ROD for OU9, an RD for LUCs on Basewide Groundwater OU9 was prepared to provide the details of the LUCs for groundwater. The RD includes LUCs for Site 2B (Tetra Tech, 2009e). The RACR for OU9 was prepared to document the completion of site remedies and ongoing activities at OU9, including Site 2B (Tetra Tech, 2010b). The SOPA (ADMIN) New London Instruction policy regarding ground surface and subsurface disturbances of soils/sediment and/or groundwater extraction at installation restoration (IR) sites was updated in 2006 as version 5090.18C (Navy, 2006c), in 2008 as version 5090.18D (Navy, 2008c), and in 2009 as version 5090.25 (Navy, 2009b). SOPA (ADMIN) New London Instruction 5090.25 includes maps of existing and abandoned wells and a map of soil and groundwater LUCs (Navy, 2009b). In 2009, a table and map were filed in the land record offices of the towns of Groton and Ledyard, Connecticut to show the location of monitoring wells and to list the groundwater restrictions imposed at Site 2B (Navy, 2009c; 2009d).

Surface water (and formerly groundwater) have been monitored at Site 2B for the purpose of monitoring the Site 2A landfill.

### **2.3.3 Site 2A – Area A Landfill - System Operations/Operation and Maintenance**

#### **2.3.3.1 Monitoring Program**

The Navy implemented a monitoring program for groundwater and surface water at the Area A Landfill in October 1999. The results of the program are being used to assess the effectiveness of the remedial action. Sampling was completed at the site in accordance with the final Groundwater Monitoring Plan for Area A Landfill (Tetra Tech, 1999a) from the initiation of the program through 2005. Since 2006, sampling activities at the site have been done in accordance with Volume II – Groundwater Monitoring Plan of the O&M Manual (Tetra Tech, 2006a). Volume II (Groundwater Monitoring Plan) of the O&M Manual was revised in 2008 (REV 2 Draft) and 2010 (REV 2 Draft Final) to address USEPA comments on the 2006 O&M Manual (Tetra Tech, 2008g; 2010h). The Final O&M Manual (REV 2) is expected to be completed in 2011.

Monitoring at the Area A Landfill was initially conducted quarterly, then during Year 3 the monitoring frequency was reduced to semi-annually. Year 3 monitoring activities continued with the collection of two rounds of quarterly samples (Rounds 9 and 10) and one round of semi-annual samples (Round 11). During Years 4 through 7, monitoring was performed and reported semi-annually and subsequently combined into yearly reports. During Years 8 through 12, monitoring and reporting were performed annually.

Groundwater and surface water samples collected under the original monitoring plan were analyzed for VOCs, SVOCs, PAHs, PCBs, metals (total and dissolved), and water quality parameters [total organic carbon (TOC), chemical oxygen demand (COD), total dissolved solids (TDS), alkalinity, chloride, sulfate, and hardness]. Over time, VOCs, pesticides, and PCBs were eliminated from the groundwater and surface water monitoring program due to lack of detection of these compounds. Samples collected under the 2006 monitoring program have been analyzed for SVOCs, PAHs, metals (total and dissolved), and water quality parameters [TDS, alkalinity, total suspended solids (TSS), and hardness].

Monitoring wells are located to monitor groundwater from different geologic units including a dredge spoil reference location, upgradient alluvium, upgradient bedrock, alluvium beneath Site 2A, downgradient dredge spoil, downgradient alluvium, and downgradient bedrock. Over the years, monitoring at some wells has been discontinued. In 2010, the USEPA agreed that the dredge spoil wells may be removed for the Site 2A Groundwater Monitoring Program (GMP) (USEPA, 2010a). The wells that remain in the active monitoring program are 2LMW20S, 2LOW1D, 4MW1S, 3MW37S, and 3MW12D (Table 2-1).

Surface water samples have been collected near staff gauges in Site 2B and from a seep (3MSP01) at the toe of the dike. Over the years, monitoring at some staff gauges has been discontinued. In 2010, the USEPA determined that surface water monitoring at Site 2B should be continued as an indicator for water quality impacts from Site 2A (USEPA, 2010b). The surface water sampling locations that remain in the active monitoring program are SG-19, SG-20, SG-21, SG-23, and 3MSP01 (Table 2-2).

Groundwater at the Area A Landfill has been monitored for 12 years. Annual reports have been issued each year to summarize the results of the monitoring program (Tetra Tech, 2001b; 2002d; 2003a; ECC, 2004e; 2005c; 2006d; 2008b; 2008n; 2009e; H&S, 2010; 2011b). All of the monitoring reports have been submitted to the USEPA and CTDEP for review and comment. The results of the monitoring program during this five-year review period are discussed in Section 2.5.2.1.

### **2.3.3.2 Operation and Maintenance**

The O&M Manual for the IRP Sites at NSB-NLON, which included Area A Landfill, was issued as a draft in September 2002 (Tetra Tech, 2002c) and finalized in 2006 (Tetra Tech, 2006a). Volume III of the manual includes site-specific instructions for O&M activities and an inspection checklist for the Area A Landfill. The O&M Manual was revised in 2008 (REV 2 Draft) and 2010 (REV 2 Draft Final) to address USEPA comments on the 2006 O&M Manual and update site information for Site 2A (Tetra Tech, 2008g; 2010h). The Final O&M Manual (REV 2) is expected to be completed in 2011.

The O&M process for the site includes annual inspections, reporting of results, and correcting any identified problems. The findings of the inspections for 2003 through 2010 were documented in the field on inspection checklists, then summarized in Annual Landfill Inspection Reports (LIRs) (ECC, 2004a; 2005e; 2005h; 2008d; 2008k; 2009b; 2009i; H&S, 2011a). The inspections of the landfill focused on institutional controls, landscaping features, cap areas, stormwater features, and housekeeping and maintenance. Each Inspection Report indicated that deficiencies identified during the prior-year inspection had been repaired, and the reports often noted that they were repaired before the final inspection report was issued. The results of the inspections conducted during this five-year review period are discussed in Section 2.5.2.2.

### **2.3.4 Site 2B – Area A Wetland - System Operations/Operation and Maintenance**

No routine monitoring or O&M activities have been initiated at Site 2B because a final remedy has not been implemented.

## 2.4 PROGRESS SINCE LAST REVIEW

### 2.4.1 Site 2A - Area A Landfill

This is the third five-year review of the Area A Landfill. The recommendations from the Second Five-Year Review Report (Tetra Tech, 2006c) are provided below, along with the actions taken to address the recommendations. In general, the site inspection found that the cap system was working as intended. However, even though the Navy has implemented an O&M program for Site 2A and corrective actions have been taken, a number of items were identified during the site inspection that, if not addressed, could negatively affect the long-term performance of the cap system. Based on the results of the site inspection and review, the following recommendations were made for Site 2A in the Second Five-Year Review Report (Tetra Tech, 2006c):

Continue O&M of the site and address the O&M deficiencies listed in the Second Five-Year Review (sediment, debris, and vegetation in drainage channels or riprap, pavement, and settlement of the riprap).

- Removal of sediment, debris, and vegetation from the drainage channels has been conducted annually by the Navy's subcontractor. Routine maintenance has controlled vegetative growth in the riprap and gabions. Settlement of the riprap in the northwestern corner of the landfill (near 2WMW38DS) was monitored four times from March 2007 to July 2008 by surveying temporary markers. Preliminary results indicated that no additional settlement occurred during this period. Cracks and bulges in the pavement noted in 2006 have been sealed, and damaged pavement in areas of heavy equipment storage was repaired. Since the Second Five-Year Review, the site has been inspected annually and each inspection report indicated that deficiencies identified during the prior-year inspection had been repaired.

Install screens on every gas vent and add an additional jersey barrier for gas vents GVR-1 and GVR-11.

- Screens were installed on all gas vents in 2007. It was determined that two barriers were adequate to protect GVR-1 as the exposed third side faces a hillside, but a third jersey barrier was placed to protect GVR-11.

Continue the monitoring program, but reduce sampling frequency to annually and further optimize the analytical parameter list, as appropriate. Develop and implement a well abandonment program to eliminate wells that are no longer required for the monitoring program. The wells that should be abandoned at Site 2A include 2LMW8S, 2LMW18S, 2LMW18D, 2LMW20D, and 2LMW34DS.

- The sampling frequency was reduced to annually in 2007, and annual monitoring has continued to date. The parameter lists for surface water and groundwater have not been reduced in the past

5 years. Numerous wells at Site 2A, including 2LMW8S, 2LMW18S, 2LMW18D, 2LMW20D, and 2LMW34DS were properly abandoned in 2007.

Develop and implement an equipment storage plan that would organize storage, provide safe methods for storage of equipment on the cap, and eliminate storage of equipment on top of active monitoring wells.

- Allowable loading pressures on the Site 2A cap were determined in a November 2006 memorandum, which has been incorporated into the 2011 O&M Manual. White lines were painted onto the Area A Landfill asphalt to designate allowable storage areas (ECC, 2008d; 2009b). Line items have been added to the 2011 inspection checklist regarding allowable loads of equipment and stored materials, and to confirm that storage is within designated areas. In addition, in the May 4, 2011, response to USEPA comments on the O&M Manual, it was agreed that the Navy will develop a LUC RD for Site 2A soil that will include an equipment storage plan.

Select an appropriate remedial action for the groundwater OU and document the remedy in a Proposed Plan and ROD.

- A Proposed Plan and ROD have been prepared for groundwater OU9, which includes Site 2A (Navy, 2008a and 2008b).

Continue enforcement of New London Instruction 5090.18C. Continue control of the site by CMAA, but consider further restricting access to the site to eliminate dumping of waste on the site.

- New London Instruction 5090.25, the most current Instruction, includes Site 2A and is enforced. Access through the gates at either Wahoo Avenue or Thresher Avenue requires check-in and sign-out at the CMAA warehouse, located at the Thresher Avenue gate. Dumping of waste on the site will be addressed in the soil LUC RD.

Perform at least yearly monitoring of institutional control compliance, with the monitoring reports incorporated into future five-year reviews.

- Confirmation of the current institutional control document has been added to the inspection checklist and will be confirmed annually. A review of the past 5 years of O&M is being incorporated into this Third Five-Year Review Report.

Amend O&M Manual to remove federal AWQC.

- The GMP in Volume II was amended to remove federal AWQCs from groundwater and surface water monitoring criteria.

**2.4.2 Site 2B - Area A Wetland**

There were no recommendations made in the second five-year review report for Site 2B.

**2.5 FIVE-YEAR REVIEW PROCESS**

This section provides a summary of the five-year review process and the actions taken to complete this review.

**2.5.1 Document Review**

**2.5.1.1 Site 2A - Area A Landfill**

The documents reviewed for the third five-year review for Site 2A are listed below, and key information obtained from the documents is summarized in the following sections.

Final O&M Manual, Volumes I, II, and III, Rev 1	January 2006
Final Year 6 GMR for Area A Landfill issued	July 2006
Second Five-Year Review Completed	December 2006
2006 Annual LIR	June 2008
Final Year 7 GMR for Area A Landfill issued	June 2008
2007 Annual LIR completed	August 2008
Final Year 8 GMR for Area A Landfill issued	October 2008
2008 Annual LIR issued (Final)	May 2009
Final Year 9 GMR for Area A Landfill issued	August 2009
2009 Annual Inspection Report for Site 2A, Site 6, Site 8 and Site 3	December 2009
2009 Annual GMR for Sites 2, 3, and 8	August 2010
2010 Annual GMR for Sites 2A, 3, 6, and 8	March 2011
Resolution of Monitoring Criteria for Site 2 – Area A Landfill, Rev 1	March 2010
2010 Annual Inspection Report for Sites 2A, Site 6, Site 8 and Site 3	January 2011
Resolution of Monitoring Criteria for Site 2A – Area A Landfill, Rev 2	April 2011
Final O&M Manual, Volumes I, II, and III, Rev 2	TBD

**2.5.1.2 Site 2B - Area A Wetland**

No documents for Site 2B were reviewed other than those discussed in Sections 2.1 through 2.3 above.

## 2.5.2 Data Review

### 2.5.2.1 **Monitoring Data and Criteria Review**

#### 2.5.2.1.1 Site 2A – Area A Landfill

Groundwater and surface water monitoring are being conducted as part of post-closure activities associated with Site 2A to evaluate the effectiveness of the remedial action. The monitoring program was designed to determine the following:

- The effectiveness of the remedial action in preventing the migration of COPCs at concentrations greater than the monitoring criteria to underlying groundwater and to surface water in nearby wetlands.
- The effectiveness of the remedial action in eliminating health risks.
- Whether criteria used for evaluating the data have been met.
- Whether a groundwater plume exists and/or interferes with existing use of groundwater.

The ultimate goal of the monitoring program is to show compliance with the selected monitoring criteria for those COPCs migrating, or having the potential to migrate, from the site. The criteria used to screen the data are a combination of Connecticut WQs and background concentrations.

A technical memorandum regarding resolution of monitoring criteria issues at the Area A Landfill (Resolution Memorandum) was written in March 2010 (Tetra Tech, 2010c). The Resolution Memorandum reviewed potential water quality screening criteria and hydrogeologic and geochemical conditions at Site 2A. Historically, CTDEP WQs for freshwater aquatic life (chronic concentrations) were selected as surface water monitoring criteria. However, no aquatic life WQs existed under the 2002 CTDEP surface WQs; therefore, no SVOC criteria were selected for the 2006 and 2008 O&M Manuals (Tetra Tech, 2006a; 2008g). In the 2010 Resolution Memorandum, Site 2A groundwater and surface water criteria for SVOCs and arsenic were recommended based on proposed CTDEP aquatic life WQs (Tetra Tech, 2010b). Based on the conceptual site model, it was concluded that dredge spoil pore water is not actively connected to local groundwater flows and recommended that monitoring of dredge spoil wells be discontinued. The USEPA agreed that the dredge spoil wells may be removed from the Site 2A GMP (USEPA, 2010a), although the USEPA determined that surface water monitoring at Site 2B should be continued as an indicator for water quality impacts from Site 2A (USEPA, 2010b).

In the March 2010 Resolution Memorandum, the Navy recommended criteria for SVOCs based on aquatic life WQs proposed by CTDEP December 22, 2009. New CTDEP WQs were promulgated February 25, 2011, and no aquatic life SVOC WQs were included in the 2011 promulgated WQs;

therefore, the SVOC criteria for the O&M Manual were re-evaluated in a second revision of the memorandum (Tetra Tech, 2011g). After the WQSs were promulgated in 2011, promulgated WQSs were compared to the 2008 and 2010 O&M Manual criteria for all COCs and it was determined that the applicable cadmium WQS had changed in 2011. The cadmium criterion had not been address in the March 2010 version of the memorandum, but was addressed in the 2011 version due to the change in WQS. In addition to criteria changes, the Resolution Memorandum determined that for inorganics, unfiltered (total) groundwater results would be compared to criteria. The Site 2A criteria presented in the 2011 technical memorandum is expected to be incorporated into the 2011 O&M Manual.

For groundwater constituents in which the background concentrations are greater than WQSs, the background concentrations will be considered the groundwater criterion in the 2011 O&M Manual.

Data from Years 7 through 11 of the monitoring program are presented and evaluated in this Third Five-Year Review Report. The results of Year 1 of the program were presented in the First Five-Year Review Report (Tetra Tech, 2001c) and results of Years 2 through 6 were presented in the Second Five-Year Review Report.

Figure 2-3 identifies the locations of wells and surface samples in the active monitoring program and identified locations that exceeded 2011 criteria. No groundwater results at downgradient monitoring wells 3MW12D or 3MW37S exceeded criteria, but some surface water results at seep 3MSP01 exceeded 2011 criteria. Exceedances of the 2011 criteria for benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, and phenanthrene occurred in 2007, but more recent results were below criteria. Bis(2-ethylhexyl)phthalate and dissolved zinc were consistently below criteria. Dissolved lead results for 3MSP01 did not exceed criteria, although detection limits for some years were greater than 2011 criteria. Benzo(a)pyrene concentrations in surface water samples collected at 3MSP01 exceeded the 2009 proposed CTDEP aquatic life WQS criterion. Because the criterion has not been promulgated by CTDEP WQS, it is denoted as to be considered (TBC). The dissolved copper concentration in the surface water sample collected from 3MSP01 in 2009 was 32 µg/L, which is greater than the criteria of 4.8 µg/L but less than background value of 39.4 µg/L. Although background groundwater concentrations are not typically relevant to surface water, they may be relevant to seeps, which emit from the ground. In 2010, dissolved copper was not detected, and although the detection limit for dissolved copper was greater than criteria, it was below the background concentration. In summary, the only recent exceedance of 2011 criteria was benzo(a)pyrene at 3MSP01, which exceeded a TBC criteria, and overall, the surface water and groundwater concentrations downgradient of Site 2A were low. Consequently, the remedy was deemed protective. Tables 2-1 and 2-2 present a summary of wells and surface sample locations and sampling frequency during the third five-year review period. Samples were taken semi-annually in 2006 and annually since 2007.

Table 2-3 presents a summary of analytes and results of non-dredge spoil downgradient wells during 2006 through 2011. Groundwater samples were analyzed for select SVOCs and PAHs and total and dissolved inorganics during each round. Although the 2006 O&M Manual specifies that dissolved inorganic concentrations should be compared to groundwater criteria, the 2011 O&M Manual specifies, based on CTDEP input, that total inorganic concentrations should be compared to groundwater criteria; therefore, only total inorganic results are shown in Table 2-3. As shown in Table 2-3, of the SVOCs, benzo(a)pyrene and BEHP were not detected in wells 3MW12D and 3MW37S, although the BEHP detection limit was greater than criteria but less than the CTDEP-specified limit of detection (LOD). Of the inorganics, beryllium was not detected in Years 7 and 8, after which it was eliminated from the monitoring program. The remaining SVOC and inorganic COPCs were detected in at least one of the two wells but did not exceed criteria.

Tables 2-4 and 2-5 present a summary of surface water results for Site 2A staff gauges and the downgradient seep 3MSP01 during 2006 through 2011. Trend graphs are presented for surface water for all monitored SVOCs and PAHs (Figures 2-4 through 2-9), and for inorganics that exceeded criteria (Figures 2-10 through 2-12). Although no criteria were available for SVOCs and PAHs in the 2006 O&M Manual, the 2006 through 2010 results were compared to 2011 criteria on the tables and trend graphs. On the trend graphs, the average is shown for duplicate samples and non-detected samples are shown at one-half the detection limit.

As shown in Tables 2-4 and 2-5, beryllium was not detected in surface water in Years 7 and 8, after which it was eliminated from the monitoring program. Remaining COPCs were detected in surface water during 2006 through 2010. Benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, and phenanthrene in the seep exceeded criteria in 2006, but did not exceed criteria in later years or in other surface water samples. Benzo(a)pyrene exceeded criterion in seep 3MSP01 and staff gauge samples during 2006, and in seep 3MSP01 during 2008, 2009, and 2010. BEHP exceeded criterion in staff gauge samples. BEHP was not detected in seep samples, but for 2006 through 2010, the seep BEHP detection limit was greater than 2011 criterion but less than the 2011 CTDEP-specified LOD. Dissolved copper exceeded criterion in one staff gauge sample in 2006 and in seep 3MSP01 in 2009. Dissolved lead exceeded criterion in one staff gauge sample in 2006 and in one staff gauge sample in 2009. Detection limits for dissolved copper and lead exceeded criteria in 2008 and 2010. Dissolved zinc exceeded criterion in one staff gauge in 2006 through 2008. Remaining dissolved zinc detections were below criterion during 2006 through 2010.

2.5.2.1.2 Site 2B – Area A Wetland

There has been no groundwater monitoring performed for Site 2B during the five-year period addressed by this review.

**2.5.2.2 O&M Data Review**

2.5.2.2.1 Site 2A – Area A Landfill

Inspections are being conducted as part of post-closure O&M activities associated with Site 2A. The goal of the inspections is to determine if appropriate O&M is being performed to maintain effectiveness of the remedial action. As shown in the table below, five inspections have been performed at Site 2A since the Second Five Year Review and within the period being evaluated in this Third Five Year Review.

<b>Year</b>	<b>Initial Date of Inspection</b>	<b>Final Report Date</b>
2006	October 26, 2006	June 2008
2007	November 8, 2007	August 2008
2008	August 27, 2008	May 2009
2009	August 19, 2009	December 2009
2010	August 19, 2010	January 2011

Copies of the completed Inspection Checklists for Area A Landfill for 2006 through 2010 are provided in Appendix A. The conclusions of the inspections for each year were that land use for the site had remained unchanged and in general, the landfill and its associated features appeared to be functioning as designed, were overall good condition, and meeting the long-term remedial objectives. However, the reports for each year identified some deficiencies that, if left unaddressed, could eventually affect the integrity of the cap system. The types of deficiencies were relatively consistent over the five-year period, although they were not necessarily all observed each year and typically were not in the same locations. Common deficiencies related to cracks, or bulges in the asphalt surface, particularly in the deployed parking area; sediment and vegetation buildup in the drainage channels and around some monitoring wells and gas vents; missing caps or locks for some monitoring wells; and minor damage to some gas vents and monitoring wells. During the 2010 inspection, equipment was observed within the “No Load Zone” of the asphalt cap and a work request was submitted for its removal. The 2010 inspection also recommended that several wells be properly abandoned. Each inspection report indicated that deficiencies identified during the prior-year inspection had been repaired, and the reports often noted that they were repaired before the final inspection report was issued. The deficiency logs for Years 2006 through 2010 are included in Appendix A.

#### 2.5.2.2.2 Site 2B – Area A Wetland

Because a final remedy has not been implemented for Site 2B, there are no O&M data to review.

### 2.5.3 ARAR and Site-Specific Action Level Changes

#### 2.5.3.1 **Site 2A – Area A Landfill**

The remedial action implemented for soil at the Area A Landfill includes an engineered cap system, LUCs, groundwater monitoring, and O&M. ARARs and TBCs were reviewed to determine whether there have been changes since the Remedial Design Report and 2011 Groundwater Monitoring Plan. Listings of chemical-, location-, and action-specific ARARs, advisories, and guidance considered in the ROD are listed in Tables 2-6, 2-7, and 2-8, respectively. With the exception of monitoring criteria, the chemical-specific ARARs have not been amended since the Remedial Design and 2011 Groundwater Monitoring Plan. Changes associated with monitoring are addressed in the response to Question 2 of Section 2.6. The only other change related to ARARs is that 40 CFR 6, Appendix A (Statement of Procedures on Floodplain Management and Wetlands Protection) which is a regulatory citation associated with Executive Order (E.O.) 11990 (Protection of Wetlands) has been deleted. However, E.O. 11990 remains in effect.

The ERA for the Area A Landfill indicated that chemicals detected in surface soil present a potential risk to ecological receptors. The site was subsequently capped, which eliminated the exposure pathway. Therefore, any changes in the screening values since the completion of the ERA would not impact the effectiveness of the remedial action.

#### 2.5.3.2 **Site 2B – Area A Wetland**

The ROD for the Area A Wetland has not been implemented yet. There have been no changes in the remedial goals, which are based on site-specific sediment toxicity data.

### 2.5.4 Site Inspection

#### 2.5.4.1 **Area 2A - Area A Landfill**

The Area A Landfill was inspected April 6, 2011. The focus of the inspection was on the engineered cap system installed over the landfill. Weather conditions during the inspection were cool (mid-50s), sunny, and windy. Representatives from the Navy, USEPA, CTDEP, Tetra Tech, and Sovereign participated in the inspection. Photographs taken of site features during the inspection are provided in Appendix B. The site inspection checklist completed during the inspection is provided in Appendix C.

The site inspection included visual observations of the current condition of the engineered landfill cap system at Site 2A. During the site inspection, the team found that the land use for the site has temporarily changed since the remedial action and second five-year review were completed. A portion of the cap is temporarily being used as a laydown area for a base project. The laydown area is adjacent to the no loading zone and some of the equipment being stored in the area may exceed the 500 pounds per square foot maximum loading requirement. Temporary fencing is being used to mark off the laydown area. This land use change has not impacted the landfill cap, but may impact it in the future if the loading requirement continues to be exceeded. The Navy has continued to use the remaining area for equipment storage and vehicle parking. Additionally, a future off-site land use change was noted during the inspection. A building for an Indoor Shooting Range is planned for construction southeast of Site 2A. Signs were observed during the inspection at the entrances to the Site 2A, warning that access is only for authorized users and that personnel should not dig at the site.

In general, the site inspection found that the cap system was working as intended. However, even though the Navy has implemented an O&M program for Site 2A and corrective actions have been taken, a number of issues were identified during the site inspection that, if not addressed, could negatively affect the long-term performance of the cap system, either directly or indirectly. Issues have been categorized as deficiencies or O&M issues. Deficiencies are defined as those observations that have a potential to directly affect the protectiveness of a remedy, whether currently, or in the future. O&M issues are defined as those observations related to O&M of a site that could indirectly compromise protectiveness in the future if no action is taken. These issues are noted in the site inspection checklist provided in Appendix C and summarized in Table 2-10, and locations are shown on Figure 2-1. The issues and their potential long-term impacts on the cap system are as follows:

### **Deficiencies**

- Equipment and materials continue to be stored in the no load zone. Stored materials in the no load zone along the wetland edge could cause sloughing of the landfill face, which could lead to a progressive slope failure of the landfill. The cross section of the dike between Site 2A/2B and Site 3 is unknown; therefore, the effect of loading the north end of Site 2A near the dike cannot be analyzed. However, the dike holds back the dredge spoil upon which the landfill is constructed; therefore, no materials should be stored in the no load zone near the dike

### **O&M Issues**

- Heavy equipment that may exceed the weight limit continues to be stored on the cap, which could result in damage to the asphalt that could lead to surface water entering the cap drainage layer.

Equipment and materials stored on the cap should be evaluated to determine whether they exceed the 500 pounds per square foot weight limit. Additionally, equipment storage is disorganized.

- Longitudinal cracks continue to form in the asphalt. Many of the cracks have been sealed, but have reopened. Most of the cracks are minor, but one long crack was observed in the deployed parking area. If the new cracks are not sealed, surface water will penetrate the asphalt and cause further deterioration during freeze-thaw cycles.
- The access gates near the Salt Storage Building is damaged and cannot be closed or locked, which could allow unauthorized access and/or storage of equipment.
- The sign at the Salt Storage gate does not include contact information and vegetation in front of the sign partially obscures it. This could lead to unauthorized access to the area or improper activities.
- The deployed parking area fence posts are bent and clips are missing from the bottom of the fence, reducing the effectiveness of the fencing to limit access.
- Debris and vegetation (*Phragmites*) clog portions of Channels A, B (the ADS culvert area), and E. The affected portions of the channels are shown on Figure 2-1. If the debris and vegetation are not removed, it may result in surface water overtopping the channels and flowing across the cap system. Continued *Phragmites* growth may result in the root system penetrating the cap because the roots can penetrate up to 2 meters.
- The no load zone is not marked between Gas Vent Riser (GVR)-13 and SG-15, although it should be marked along the entire Area A Wetland edge of the landfill. Improper storage of equipment in the no load zone could result in damage to the asphalt that may allow surface water to enter the cap drainage layer.
- A minor depression in the asphalt has formed above Culvert 1. The area is shown on Figure 2-1. Surface water could accumulate in the depression. If the situation is not addressed, over the long term, the cap system could be impacted in this location.
- The cover of monitoring well 4MW1S is broken and the riser is bent, which could lead to the integrity of the well being compromised.
- Minor settling of concrete has occurred around well 2LMW20S.

- The cover on Site 3 monitoring well 3MW12D is broken, which could lead to the integrity of the well being compromised. This well is part of the Site 2A monitoring program.
- Debris (e.g., canvas bags, other trash) has been placed on the northern edge of the site. The site was not intended to be used for waste disposal. It is unlikely that the debris will impact the functionality of the cap system, but it should be removed and disposed at an approved off-site disposal facility (i.e., municipal landfill).
- A number of observations were made concerning gas vents: 1) the screen was missing from GVR-21, which could allow foreign material to enter the vent; 2) the asphalt around GVR-22 is damaged, which could allow surface water to infiltrate the cap; 3) the jersey barrier adjacent to GVR-18 has fallen over; 4) trash and debris have accumulated around Site 2A gas vents; 5) equipment has been placed near GVR-14, which could impede access to the vent or interfere with its functioning.
- A sign was missing Public Works contact information. Investigate warning signs and update as needed.

#### 2.5.4.2 Area 2B – Area A Wetland

The Area A wetland was inspected April 6, 2011. The focus of the inspection was on the condition of the wetland. Weather conditions during the inspection were cool (mid-50s), sunny, and windy. Representatives from the Navy, USEPA, CTDEP, Tetra Tech, and Sovereign participated in the inspection. Photographs taken of site features during the inspection are provided in Appendix B. The site inspection checklist completed during the inspection is provided in Appendix C.

The site inspection included visual observations of the current condition of the Site 2B wetland. During the site inspection, the team found that the land use for the site has not changed from the decision document. In general, the removal of *Phragmites* from the wetland was successful and the wetland is in good condition; however, one O&M issue was identified during the site inspection that needs to be addressed to improve the quality of the wetland. This issue, noted in the site inspection checklist provided in Appendix C and on Figure 2-2, is that some *Phragmites* remain around open water areas. The USEPA recommended that the remaining *Phragmites* should be cut or treated to enhance wetland habitat. As noted above, under the CTDEP Wetlands Habitat and Mosquito Management Program, additional herbicide treatment of the *Phragmites* was completed in October 2011. Further invasive species control will be conducted under the Navy's Natural and Cultural Resources Program.

Two existing monitoring wells at Site 2B, 2WMW5D and 2WMW5S, are not used in a monitoring program and should be properly abandoned.

### 2.5.5 Site Interviews

No official interviews were conducted as part of the third 5-year review. Relevant discussions with the inspection team regarding the site are documented on the site inspection checklist (see Appendix C).

## 2.6 ASSESSMENT

### 2.6.1 Area 2A – Area A Landfill

The following conclusions support the determination that the remedy for the Area A Landfill OU1 is currently protective of human health and the environment.

#### ***Question 1. Is the remedy functioning as intended by the decision documents?***

- ***Remedial Action Performance:*** The engineered landfill cap system installed at the Area A Landfill is currently effective in limiting direct exposure to contaminated soil and minimizing contaminant migration from the site. A monitoring program is being conducted to evaluate the cap's performance regarding minimizing contaminant migration. The data do not indicate any significant contaminant migration concerns. If future groundwater or surface water data indicate the need to evaluate additional remedial actions, the Navy will perform the evaluation at that time. O&M of the cap began in 2003, and annual maintenance is being performed to maintain proper long-term performance of the cap system.
- ***System Operations/O&M:*** Installation of the engineered cap system was completed in September 1997. An O&M Manual was developed and implemented in 2003. The cap system is still functioning as intended, and O&M of the cap system is being performed annually at the site. The items noted in Section 2.5.4 should be addressed to improve the O&M of the site.

Actual costs for the monitoring program have ranged from approximately \$10,000 per year to \$232,000 per year (see table below). Costs have generally decreased due to optimization of the monitoring program. The costs include those associated with sampling, analysis, validation, and reporting. Costs associated with preparing and updating the GMP and maintaining the groundwater monitoring wells are not included in the costs.

Source	Cost of Monitoring
Projected Annual Cost in ROD	\$125,000
Actual Year 7 Cost (2006)	\$232,300
Actual Year 8 Cost (2007)	\$133,400
Actual Year 9 Cost (2008)	\$137,900
Actual Year 10 Cost (2009)	\$22,500
Actual Year 11 Cost (2010)	\$48,700
Actual Year 12 Cost (2011)	\$10,000

The cost for annual O&M estimated during preparation of the ROD was \$11,100. O&M of the cap system began in 2003, and costs have ranged from approximately \$8,800 per year to \$104,500 per year (see table below). Costs have fluctuated due to the amount of maintenance required and the amount of funding available. The annual O&M costs include those for landfill inspections, reporting, and maintenance.

Source	Cost of O&M
Projected Annual Cost in ROD	\$11,100
Actual Year 4 Cost (2006)	\$14,200
Actual Year 5 Cost (2007)	\$14,600
Actual Year 6 Cost (2008)	\$15,000
Actual Year 7 Cost (2009)	\$104,500
Actual Year 8 Cost (2010)	\$29,800
Actual Year 9 Cost (2011)	\$8,800

- Opportunities for Optimization:** The sampling frequency of the monitoring program was annual over the last six years. No reduction to monitoring frequency or number of monitored COPCs is suggested at this time.
- Early Indicators of Potential Issues:** There was one deficiency and several O&M issues noted during the inspections of the cap system. Currently, these issues do not compromise the protectiveness of the remedy, but if they are left unaddressed, they could result in remedy failure in the future. In particular, storage of equipment and material in “no load” areas of the cap, or the storage of heavy items have the potential to damage the geomembrane liner or contribute to slope failure of the landfill.
- Implementation of Institutional Controls and Other Measures:** Institutional controls associated with the Area A Landfill are not being implemented in accordance with New London Instruction 5090.25. Some equipment and materials have been stored on the cap without verification that they conform to the 500 pounds per square foot weight limit. In addition, materials are being stored in the

“no load” areas. Adequate fencing is in place around the site, and signs are posted at the entrances of Site 2A warning that access is only for authorized users, that a cap is in place, and no digging is allowed. During the inspection it was noted that the gate at the Salt Storage Area is broken and cannot be closed, which could allow unauthorized access to the cap area, and signs on the gate at the Salt Storage Area need to be updated with current contact information. A LUC RD is to be prepared for the Area A Landfill to replace New London Instruction 5090.25, and it is anticipated that these issues will be addressed during its implementation. In addition, the Navy has implemented corrective actions to improve LUC compliance, as detailed in Section 18.

**Question 2. Are the exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the remedy selection still valid?**

- **Changes in Standards and TBCs:** ARARs and TBCs considered during preparation of the ROD were reviewed to determine changes since the RD and the 2011 GMP were issued. As presented in Section 2.5.3, there have been no changes to currently relevant ARARs, with the exception of monitoring criteria.

In the first GMP for the Area A Landfill (Tetra Tech, 1999a), Connecticut SWPCs were identified as the primary monitoring criteria for the Area A Landfill, and the lesser of the federal AWQC and the Connecticut WQs were identified as the secondary criteria. The monitoring plan and criteria for the Area A Landfill were recently updated during the 2011 finalization of the O&M Manual (Tetra Tech, 2011h). The following changes were noted between the 2006 and 2011 plans:

- For the second five-year review, the SWPC for phenanthrene (0.077 µg/L) in the 1996 CTDEP RSRs was found to be incorrect and was updated to 0.3 µg/L, but the value has not been changed in the regulations. This correction was confirmed with the CTDEP. None of the other SWPCs for the COCs at the Area A Landfill have changed.
- The Connecticut surface WQs, including SVOCs and inorganics, were updated in February 2011. The WQS for cadmium decreased from 1.35 µg/L to 0.125 µg/L.
- For the 2011 O&M Manual, CTDEP SWPCs were eliminated as monitoring criteria.
- In 2009, the CTDEP proposed new surface WQs for many SVOC COCs. These proposed values were incorporated into the 2011 GMP. However, the 2009 values were not promulgated and when new WQs were promulgated in 2011; no aquatic life criteria were included for

SVOCs. Per the CTDEP, the 2009 values have been retained as TBC in the GMP to provide a benchmark for evaluating the protectiveness of the remedy.

- A comparison of the old and new criteria is presented in Table 2-9.

The changes in criteria do not impact the protectiveness of the remedy.

The ROD for Site 2B – Area A Wetland was finalized in 2010. The remedial goals are based on site-specific sediment toxicity data and would not be affected by changes in cleanup criteria.

- **Changes in Exposure Pathways:** There have been no changes at the site that would have resulted in new exposure pathways to human or ecological receptors.
- **Changes in Toxicity and Other Contaminant Characteristics:** There have been no changes in the human health toxicity criteria that will impact the primary or secondary monitoring criteria.
- **Changes in Risk Assessment Methods:** As discussed in Section 1.4, there have been no major changes in HHRA methodology since the signing of the ROD that will impact the protectiveness of the remedy.
- **Expected Progress Towards Meeting RAOs:** The RAOs for OU1 were met by installing and maintaining the engineered cap system and conducting groundwater monitoring. RAOs for the groundwater at the Area A Landfill, a portion of OU9, will be defined in the future.

**Question 3. Has any other information come to light that could call into question the protectiveness of the remedy?**

No additional information has been identified that would call into question the protectiveness of the remedy.

#### **2.6.2 Area 2B – Area A Wetland**

The remedy for the Area A Wetland has not been implemented yet. After the pre-design investigation and RD are complete, contaminated sediments will be removed and the site restored. The remedy will be assessed during the next five-year review.

## 2.7 ISSUES

### 2.7.1 Area 2A – Area A Landfill

One deficiency that has the potential to impact remedy protectiveness in the future, if not addressed, and several O&M issues were identified during the five-year review site inspection of Site 2A. The deficiency and O&M issues for Site 2A are presented in Section 2.5.4.1 and summarized in Table 2-10.

### 2.7.2 Area 2B – Area A Wetland

One O&M issue was identified for Site 2B during the inspection. That issue is discussed in Section 2.5.4.2.

## 2.8 RECOMMENDATIONS AND FOLLOW-UP ACTIONS

### 2.8.1 Area 2A – Area A Landfill

Based on the results of the site inspection and review, the following recommendations are made for Site 2A:

#### Deficiencies

- Mark and enforce the “no load” zones for the capped area.
  
- Implement corrective actions for LUC compliance by doing the following:
  - Environmental Office to perform quarterly LUC inspections.
  - Dig permits to require concurrence of Environmental Office.
  - Environmental Office to use Geospatial Information and Services (GIS) and Naval Installation Restoration Information Solution (NIRIS) to identify LUC areas and wells for planners.
  - Revise MIDLANT Regional Instruction.

Quarterly LUC inspections, concurrence of the Environmental Office for dig permits, and use for GIS and NIRIS to identify LUC areas has now been instituted at NSB-NLON and are ongoing.

#### O&M Issues

- Continue O&M (annual inspections and monitoring) and address the O&M issues discussed in Section 2.5.4.1 and summarized in Table 2-10.

### Other Recommendations

- Label all gas vents.
- Abandon the fifteen idle wells at Sites 2A and 2B (shown on Figure 2-1): 2WMW21S, 2WMW21D, 2WMW3S, 2WMW3D, 2WMW38DS, 2WMW39DS, 2WMW40DS, 2WMW41DS, 2WMW42DS, 2WMW43DS, 2WMW44DS, 2WMW45DS, 2WMW46DS, 2WMW47DS, and 4MW4D.
- Ensure that access gates are secured at all times.
- Continue enforcement of New London Instruction 5090.25 until a Land Use Control Remedial Design (LUC RD) can be completed and implemented. Continue control of the site by Command Master at Arms (CMAA). A meeting should be scheduled with CMAA/1<sup>st</sup> Lieutenant (LT) personnel to communicate IRP requirements at Site 2A. Additionally, an IRP reference document should be placed at the gate with CMAA/1<sup>st</sup> LT personnel so that personnel at Area 2A can be made aware of all site requirements.
- Complete and implement Revision 2 of the O&M Manual.
- Complete a RACR to document completion of the remedial action.

Follow-up actions should be completed by the Navy in a timely manner to address the recommendations.

### 2.8.2 Area 2B – Area A Wetland

Based on the results of the site inspection and review, the following recommendations are made for Site 2B:

#### Deficiencies

- None

#### O&M Issues

- Continue to manage Phragmites in the Area A Wetland during the planned remedial action, and subsequently under the Navy's Natural and Cultural Resources Program.

## Other Recommendations

- Complete and implement design of the selected remedy.
- After the remedy has been implemented, perform at least yearly monitoring of Institutional Control compliance and incorporate monitoring reports into future five-year reviews.
- Abandon monitoring wells 2WMW5D and 2WMW5S.

Follow-up actions should be completed by the Navy in a timely manner to address the recommendations.

## 2.9 PROTECTIVENESS STATEMENT

### 2.9.1 Area 2A – Area A Landfill

The remedy at the Area A Landfill is currently protective of human health and the environment. The source of contamination is contained. The engineered cap system minimizes infiltration and subsequent contaminant migration and prevents direct contact with soil. A monitoring program is being implemented to verify that the cap is performing as designed, and the results of the program suggest that the cap is performing as planned. Continued implementation of land use controls and O&M will maintain the effectiveness of the remedy into the future.

### 2.9.2 Area 2B – Area A Wetland

A protectiveness determination for the Area A Wetland cannot be made at this time because the selected remedy has not yet been implemented. After the remedy has been implemented for the Area A Wetland, its protectiveness will be determined.

TABLE 2-1

SUMMARY OF SITE 2A GROUNDWATER SAMPLING 2006 THROUGH 2011  
 THIRD FIVE-YEAR REVIEW REPORT  
 NSB-NLON, GROTON, CONNECTICUT

Well ID	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12
	Rounds 18-19	Round 20	Round 21	Round 22	Round 23	Round 24
	2006	2007	2008	2009	2010	2011
<b>Reference Well</b>						
2WMW21S	x	x	x	x	NS	NS
<b>Upgradient Well - Alluvium</b>						
2LMW20S	dry	x	x	x	dry	x
<b>Upgradient Well - Bedrock</b>						
4MW1S	x	x	x	x	x	x
<b>Landfill Footprint - Alluvium</b>						
2LOW1D	x	x	x	x	x	x
<b>Downgradient Wells - Dredge Spoil</b>						
2WMW40DS	x	x	x	x	NS	NS
2WMW42DS	x	x	x	x	NS	NS
2WMW43DS	x	x	x	x	NS	NS
2WMW44DS	x	x	x	x	NS	NS
2WMW46DS	x	x	x	x	NS	NS
<b>Downgradient Wells - Alluvium</b>						
3MW37S	x	x	x	x	x	x
<b>Downgradient Wells - Bedrock</b>						
3MW12D <sup>(1)</sup>	x	x	x	x	x	x

1 Destroyed during Year 1, Round 4; 3MW12D was replaced and sampled again starting in Round 11.

NS - Well not sampled.

x - Well sampled.

TABLE 2-2

SUMMARY OF SITE 2A SURFACE WATER SAMPLING 2006 THROUGH 2011  
 THIRD FIVE-YEAR REVIEW REPORT  
 NSB-NLON, GROTON, CONNECTICUT

Surface Water Sampling Locations	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12
	Rounds 18-19	Round 20	Round 21	Round 22	Round 23	Round 24
	2006	2007	2008	2009	2010	2011
<b>Staff Gauges</b>						
SG19	x	x	x	x	x	x
SG20	x	x	x	x	x	x
SG21	x	x	x	x	x	x
SG23	x	x	x	x	x	x
<b>Seep</b>						
3MSP01	x	x	x	x	x	x

x - Location sampled that year.

TABLE 2-3

**SUMMARY OF SITE 2A GROUNDWATER RESULTS FROM NON-DREDGE SPOIL DOWNGRADIENT WELLS<sup>(1)</sup> 2006 THROUGH 2011  
THIRD FIVE-YEAR REVIEW REPORT  
NSB-NLON, GROTON, CONNECTICUT**

COCs	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12
	Rounds 18-19	Round 20	Round 21	Round 22	Round 23	Round 24
	2006	2007	2008	2009	2010	2011
<b>SVOCs and PAHs</b>						
Benzo(a)anthracene	x	ND	ND	ND	ND	TBD
Benzo(a)pyrene	ND	ND	ND <sup>(2)</sup>	ND <sup>(3)</sup>	ND <sup>(3)</sup>	TBD
Benzo(b)fluoranthene	ND	ND	x	ND	ND	TBD
Benzo(k)fluoranthene	ND	ND	x	ND	ND	TBD
Bis(2-ethylhexyl)phthalate	ND <sup>(3)</sup>	TBD				
Phenanthrene	x	ND	ND	ND	ND	TBD
<b>Inorganics - Total</b>						
Arsenic	x	x	ND	ND	ND	TBD
Beryllium	ND	ND	NA	NA	NA	NA
Cadmium	x	ND	ND <sup>(4)</sup>	x	ND	TBD
Chromium	x	ND	ND	ND	x	TBD
Copper	x	x	ND <sup>(5)</sup>	x	x	TBD
Lead	x	ND	ND <sup>(4)</sup>	ND	ND	TBD
Zinc	x	ND	ND	ND	x	TBD

1 Wells 3MW12D and 3MW37S

2 The reporting limit from the laboratory exceeded the 2011 criterion and CTDEP-specified limit of detection (LOD).

3 The reporting limit from the laboratory exceeded the 2011 criterion was less than or equal to the CTDEP-specified LOD.

4 The reporting limit from the laboratory exceeded the 2011 criterion and background, if applicable.

5 The reporting limit from the laboratory exceeded the 2011 criterion but not background, if applicable.

NA - Not analyzed.

ND - Not detected.

NC - No applicable criteria.

TBD - To Be Determined

x - Parameter detected in at least one well but did not exceed 2011 O&M Manual criteria.

TABLE 2-4

SUMMARY OF SURFACE WATER SAMPLING RESULTS FROM SITE 2A STAFF GAUGES<sup>(1)</sup> 2006 THROUGH 2011  
 THIRD FIVE-YEAR REVIEW REPORT  
 NSB-NLON, GROTON, CONNECTICUT

COCs	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12
	Rounds 18-19	Round 20	Round 21	Round 22	Round 23	Round 24
	2006	2007	2008	2009	2010	2011
<b>SVOCs and PAHs</b>						
Benzo(a)anthracene	x	ND	x	ND	x	TBD
Benzo(a)pyrene	P	ND	ND <sup>(2)</sup>	ND	P	TBD
Benzo(b)fluoranthene	x	ND	x	ND	x	TBD
Benzo(k)fluoranthene	x	ND	x	ND	ND	TBD
Bis(2-ethylhexyl)phthalate	ND <sup>(2)</sup>	P	ND <sup>(3)</sup>	P	ND <sup>(2)</sup>	TBD
Phenanthrene	x	x	x	x	x	TBD
<b>Inorganics - Dissolved</b>						
Arsenic	x	ND	ND	ND	ND	TBD
Beryllium	ND	ND	NA	NA	NA	TBD
Cadmium	x	ND	ND	ND	ND <sup>(4)</sup>	TBD
Chromium	x	ND	ND	ND	ND	TBD
Copper	P	x	ND <sup>(4)</sup>	x	ND <sup>(4)</sup>	TBD
Lead	x	x	ND	P	x	TBD
Zinc	P	P	P	x	x	TBD

1 Results from staff gauges SG19, SG-20, SG-21, and SG-23.

2 The reporting limit from the laboratory exceeded the 2011 criterion and CTDEP-specified limit of detection (LOD).

3 The reporting limit from the laboratory exceeded the 2011 criterion but not the CTDEP-specified LOD.

4 The reporting limit from the laboratory exceeded the 2011 criterion.

NA - Not analyzed.

NC - No applicable criteria.

ND - Not detected in staff gauge surface water samples.

P - At least one result from at least one surface water sample exceeded criteria. Criteria was not adjusted for hardness.

x - Parameter detected in at least one result from at least one surface water sample but did not exceed 2011 O&M Manual criteria.

TABLE 2-5

SUMMARY OF SITE 2A SURFACE WATER RESULTS FROM SEEP 3MSP01 2006 THROUGH 2011  
 THIRD FIVE-YEAR REVIEW REPORT  
 NSB-NLON, GROTON, CONNECTICUT

COCs	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12
	Rounds 18-19	Round 20	Round 21	Round 22	Round 23	Round 24
	2006	2007	2008	2009	2010	2011
<b>SVOCs and PAHs</b>						
Benzo(a)anthracene	P	x	x	x	x	TBD
Benzo(a)pyrene	P	ND	P	P	P	TBD
Benzo(b)fluoranthene	P	x	x	x	x	TBD
Benzo(k)fluoranthene	P	x	x	x	x	TBD
Bis(2-ethylhexyl)phthalate	ND <sup>(1)</sup>	TBD				
Phenanthrene	P	x	x	x	x	TBD
<b>Inorganics - Dissolved</b>						
Arsenic	x	x	ND	ND	ND	TBD
Beryllium	ND	ND	NA	NA	NA	TBD
Cadmium	ND	ND	ND	ND	ND <sup>(2)</sup>	TBD
Chromium	ND	ND	ND	ND	ND	TBD
Copper	x	x	ND <sup>(2)</sup>	P	ND <sup>(2)</sup>	TBD
Lead	x	x	ND	ND	ND <sup>(2)</sup>	TBD
Zinc	x	x	ND	x	ND	TBD

1 The reporting limit from the laboratory exceeded the 2011 criterion but not the CTDEP-specified LOD.

2 The reporting limit from the laboratory exceeded the 2011 criterion.

NA - Not analyzed.

NC - No applicable criteria.

ND - Not detected in any seep samples at the site.

TBD - To be determined.

x - Parameter detected but did not exceed 2011 O&M Manual criteria.

TABLE 2-6

**CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE  
 SITE 2A – AREA A LANDFILL OU1  
 NAVAL SUBMARINE BASE NEW LONDON  
 GROTON, CONNECTICUT  
 PAGE 1 OF 2**

<b>Requirement</b>	<b>Citation</b>	<b>Status</b>	<b>Requirement Synopsis</b>	<b>Current Status / Applicability</b>
<b>Federal</b>				
USEPA Human Health Assessment Cancer Slope Factors (CSFs)	Not applicable	To be Considered (TBC)	CSFs are guidance values used to evaluate the potential carcinogenic hazard caused by exposure to contaminants.	The selected remedy prevents exposure to contaminated media and thereby minimizes human health concerns, although any changes to the cap in the future could allow exposure.
USEPA Reference Dose (RfDs)	Not applicable	TBC	RfDs are guidance values use to evaluate the potential noncarcinogenic hazard caused by exposure to contaminants.	The selected remedy prevents exposure to contaminated media and thereby minimizes human health concerns, although any changes to the cap in the future could allow exposure.
<b>Connecticut</b>				
Water Quality Standards (WQSs)	General Statutes of Connecticut (CGS) 22a-426	Applicable	Connecticut's WQSs establish specific numeric criteria, designated uses, and anti-degradation policies for groundwater and surface water.	Standards are being used to evaluate monitoring results to determine if further remedial action is required to protect resources. Remedial activities were undertaken in a manner that was consistent with the antidegradation policy in the WQSs. Updates to the Connecticut WQSs are discussed in Section 2.6.

TABLE 2-6

**CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE  
 SITE 2A – AREA A LANDFILL OU1  
 NAVAL SUBMARINE BASE NEW LONDON  
 GROTON, CONNECTICUT  
 PAGE 2 OF 2**

Requirement	Citation	Status	Requirement Synopsis	Current Status / Applicability
<b>Connecticut (Continued)</b>				
Cleanup Standard Regulations	CGS §22a-133k (Updated to Regulations of Connecticut State Agencies (RCSA) Section 22a-133k-1 through 3)	TBC	These regulations provide specific numeric cleanup criteria for a wide variety of contaminants in soil and groundwater. Separate criteria are established for threats to human health and environmental receptors posed by direct contact with contaminants.	These were replaced by the Connecticut Department of Environmental Protection Remediation Standard Regulations. The selected remedy complies with these standards because of employment of the engineered control.
Water Pollution Control	RCSA §22a-430-1 through 8	Applicable	These rules establish permitting requirements and criteria for water discharge to surface water.	This regulation was addressed during construction. Now that the cap construction has been completed, these requirements are carried forward to future operation and maintenance of the remedy.

TABLE 2-7

LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE  
 SITE 2A – AREA A LANDFILL OU1  
 NAVAL SUBMARINE BASE NEW LONDON  
 GROTON, CONNECTICUT  
 PAGE 1 OF 2

Requirement	Citation	Status	Requirement Synopsis	Current Status / Applicability
<b>Federal</b>				
Executive Order (E.O.) on Protection of Wetlands	E. O. 11990, 40 Code of Federal Regulations (CFR) Part 6, Appendix A	Applicable	Requires federal agencies to avoid impacts associated with the destruction or loss or wetlands, minimize potential harm, preserve and enhance wetlands, and avoid support of new construction in wetlands if a practicable alternative exists.	The cap was designed to minimize impacts to the adjacent wetlands. Now that cap construction has been completed, these requirements are carried forward to future operation and maintenance of the remedy. E.O. 11990 remains in effect, but 40 CFR 6 Appendix A, has been deleted.
Clean Water Act §404 – Dredge and Fill Activities	40 CFR Parts 230; 33 CFR Parts 320-328	Applicable	Requires that for dredging or filling of wetlands: no practicable alternatives exist, the activity will not cause a violation of state water quality standards or significant degradation of the water, and adverse effects will be minimized.	The landfill cap was designed to meet these standards and minimize the impacts to adjacent wetlands. Now that cap construction has been completed, these requirements are carried forward to future operation and maintenance of the remedy.

TABLE 2-7

LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE  
 SITE 2A – AREA A LANDFILL OU1  
 NAVAL SUBMARINE BASE NEW LONDON  
 GROTON, CONNECTICUT  
 PAGE 2 OF 2

Requirement	Citation	Status	Requirement Synopsis	Current Status / Applicability
<b>Connecticut</b>				
Inland Wetlands and Watercourses Regulations	Regulations of Connecticut State Agencies (RCSA) §§22a-39-1 through 15	Applicable	Regulates any operation within or use of a wetland or watercourse involving removal or deposition of material, or any obstruction, construction, alteration, or pollution of such wetland or watercourse.	The landfill cap was designed to meet these standards and minimize the impacts to adjacent wetlands. Now that cap construction has been completed, these requirements are carried forward to future operation and maintenance of the remedy.
Inland Wetlands and Watercourses Regulations	General Statutes of Connecticut (CGS) §§22a-45a	TBC	Governs minor activities including installation of water quality monitoring equipment such as water quality testing devices, and survey activities including test pits and core sampling. The Connecticut Department of Environmental Protection was drafting these requirements during preparation of the Focused Feasibility Study.	This regulation was addressed during construction. Now that cap construction has been completed, these requirements are carried forward to future operation and maintenance of the remedy.

TABLE 2-8

**ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE  
SITE 2A – AREA A LANDFILL OU1  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT  
PAGE 1 OF 6**

Requirement	Citation	Status	Requirement Synopsis	Current Status / Applicability
<b>Federal</b>				
Resource Conservation and Recovery Act (RCRA) – General Requirements	40 Code of Federal Regulations (CFR) Part 264 Subpart A	Relevant and Appropriate	Established general requirements for owners and operators of hazardous waste treatment, storage, and disposal facilities.	The cap and associated systems were designed to meet these requirements. Now that cap construction has been completed, these requirements are carried forward to future operation and maintenance of the remedy.
RCRA – Preparedness and Prevention	40 CFR Part 264 Subpart C	Relevant and Appropriate	Established requirements for minimizing the possibility of fire, explosion, or release of hazardous material.	The cap and associated systems were designed and remedial action was carried out to meet these requirements. Now that cap construction has been completed, these requirements are carried forward to future operation and maintenance of the remedy.
RCRA – Contingency Plan and Emergency Procedures	40 CFR Part 264 Subpart D	Relevant and Appropriate	Established contingency plan requirements on the event of fire, explosion, or release from a facility.	This regulation was addressed during construction. Now that cap construction has been completed, these requirements are carried forward to future operation and maintenance of the remedy.

TABLE 2-8

**ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE  
SITE 2A – AREA A LANDFILL OU1  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT  
PAGE 2 OF 6**

Requirement	Citation	Status	Requirement Synopsis	Current Status / Applicability
<b>Federal (Continued)</b>				
RCRA – Releases from Solid Waste Management Units	40 CFR Part 264 Subpart F	Relevant and Appropriate	Regulates releases from Solid Waste Management Units (SWMUs).	This regulation was addressed during construction. Now that cap construction has been completed, possible releases are being addressed by groundwater monitoring. Section 264.99 specified a sequence of at least four samples from each well collected at least semi-annually during the compliance period, and Section 264.96 specified a compliance period of demonstrating groundwater protection for a period of three consecutive years beyond closure. Groundwater and surface water sampling continue at the site based on the requirements specified in the Groundwater Monitoring Plan.
RCRA – Closure and Post-Closure Requirements	40 CFR Part 264 Subpart G	Relevant and Appropriate	Establishes general requirements for closure and post-closure of hazardous waste landfills.	The cap and associated systems were designed to meet these requirements. Post-closure groundwater monitoring is addressed under Subpart F.
Federal Clean Air Act – National Emission Standard for Hazardous Air Pollutants (NESHAPs)	40 CFR Part 61	Relevant and Appropriate	Establishes emission levels for eight listed hazardous air pollutants emitted from particular types of facilities.	This act was considered during the selection of the remedy. The selected remedy included passive gas management but no sampling; therefore this requirement is no longer necessary.

TABLE 2-8

**ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE  
SITE 2A – AREA A LANDFILL OU1  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT  
PAGE 3 OF 6**

Requirement	Citation	Status	Requirement Synopsis	Current Status / Applicability
<b>Federal (Continued)</b>				
Federal Clean Air Act – Non-methane Organic Compounds (NMOCs)	Proposed Rule – 56 FR 24468, to be codified at 40 CFR Part 60 Subpart WWW.	To be Considered (TBC)	Regulations would require specific gas collection and control systems, monitoring, and gas generation estimates. The proposed rule would establish a performance standard for NMOC emissions from municipal and solid waste landfills.	This act was considered during the selection of the remedy. The selected remedy included passive gas management but no sampling; therefore this requirement is no longer necessary.
Clean Water Act, Section 402, National Pollution Discharge Elimination System (NPDES)	40 CFR 122 through 125, 131	Applicable	NPDES permits are required for any discharges to navigable waters. If remedial activities include such a discharge, the NPDES standards would be appliance.	This regulation was addressed during construction. Now that cap construction has been completed, these requirements are carried forward to future operation and maintenance of the remedy.
Poly-chlorinated biphenyl (PCB) Regulation under Toxic Substances Control Act (TSCA)	40 Part CFR 761	Applicable	These standards govern the storage of PCB items.	PCB contamination was addressed by capping the site, although any changes to the cap in the future would require revisiting this issue.

TABLE 2-8

**ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE  
SITE 2A – AREA A LANDFILL OU1  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT  
PAGE 4 OF 6**

Requirement	Citation	Status	Requirement Synopsis	Current Status / Applicability
<b>Federal (Continued)</b>				
EPA Technical Guidance – Final Covers on Hazardous Waste Landfills and Surface Impoundments	EPA/530-SW-89-047	TBC	Presents technical specifications for the design of multi-layer covers at landfills where hazardous wastes were disposed.	The cap and associated systems were designed to meet these requirements. Now that cap construction has been completed, these requirements are carried forward to future operation and maintenance of the remedy.
<b>Connecticut</b>				
Hazardous Waste Management: Generator and Handler Requirements	Regulations of Connecticut State Agencies (RCSA) § 22a-449(c) 100-101	Applicable	These sections establish standards for listing and identification of hazardous waste. The standards of 40 CFR Parts 260 and 261 are incorporated by reference.	This regulation was addressed during construction. Now that cap construction has been completed, these requirements are carried forward to future operation and maintenance of the remedy.
Hazardous Waste Management: Generator Standards	RCSA § 22a-449(c)-102	Applicable	This section establishes standards for various classes of generators. The standards of 40 CFR Part 262 are incorporated by reference. Storage requirements in 40 CFR Part 265.15 are also included.	Any hazardous wastes generated during the remedial action were managed in accordance with the substantive requirements of these regulations. Now that cap construction has been completed, these requirements are carried forward to future operation and maintenance of the remedy.

TABLE 2-8

**ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE  
SITE 2A – AREA A LANDFILL OU1  
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Requirement	Citation	Status	Requirement Synopsis	Current Status / Applicability
<b>Connecticut (Continued)</b>				
Hazardous Waste Management: Treatment, Storage and Disposal Facility Standards	RCSA § 22a-449(c)-104	Relevant and Appropriate	This section establishes standards for treatment, storage, and disposal or hazardous waste, and establishes standards for closure, post-closure, and groundwater monitoring. The standards or 40 CFR Part 364 are incorporated by reference.	The remedial action does not include any on-site treatment, storage, or disposal of hazardous waste. The proposed cap design complied with the closure requirements of this regulation. The remedial action includes groundwater monitoring. This regulation was last amended in 1994; therefore, compliance with this regulation is current.
Hazardous Waste Management: Interim Status Facilities and Groundwater Monitoring Requirements, Closure and Post-Closure Requirements	RCSA §§ 22a-449(c)-105	Relevant and Appropriate	This section establishes interim status standards for treatment, storage, and disposal or hazardous waste, and establishes standards for closure, post-closure, and groundwater monitoring. The standards or 40 CFR Part 364 are incorporated by reference.	The proposed cap design complied with the closure requirements of this regulation. The remedial action includes groundwater monitoring. This regulation was last amended in 1994; therefore, compliance with this regulation is current.
Solid Waste Management	RCSA 22a-209-1 through 15	Applicable	Establishes standards for closure of solid waste disposal areas	Those portions of the regulations that are more stringent than federal RCRA Subtitle D regulations were met. This regulation was last amended in 1996; therefore, compliance with this regulation is current.
Transportation of Oil and Chemical Liquids	RCSA 29-337-1 through 3	Applicable	These rules govern the transportation of hazardous materials, including flammable liquids and other chemicals.	This regulation was addressed during construction. Now that cap construction has been completed, these requirements are carried forward to future operation and maintenance of the remedy.

TABLE 2-8

**ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE  
SITE 2A – AREA A LANDFILL OU1  
NAVAL SUBMARINE BASE NEW LONDON  
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Requirement	Citation	Status	Requirement Synopsis	Current Status / Applicability
<b>Connecticut (Continued)</b>				
Control of Noise	RCSA 22a-69-1 through 7.4	Applicable	These regulations establish allowable noise levels.	This regulation was addressed during construction. Now that cap construction has been completed, these requirements are carried forward to future operation and maintenance of the remedy.
Air Pollution Control – Organic Compound Emissions, Odors, Hazardous Air Pollutants, Particulate Emissions, Stationary Sources, Sulfur Compound Emissions	RCSA § 22a-174-1 through 29	Applicable	These regulations require permits to construct and operate specified types of emission sources and contain emission standards that must be met prior to issuance of a permit. Pollutant abatement controls may be required. Specific standards pertain to fugitive dust (18b) and control of odors (23).	The remedial action activities were implemented following the requirements of this regulation. The selected remedy included passive gas management but no sampling; therefore, this requirement is no longer necessary.

TABLE 2-9

COMPARISON OF MONITORING CRITERIA  
 SITE 2A - AREA A LANDFILL OU9  
 NAVAL SUBMARINE BASE NEW LONDON  
 GROTON, CONNECTICUT

Chemical	CTDEP SWPC <sup>(1)</sup>			CTDEP WQSS <sup>(2)</sup>			Selected Criteria		
	1999 <sup>(3)</sup>	2006 <sup>(4)</sup>	2011 <sup>(7)</sup>	April 1996	December 2002	2011	1999	2006	2011
<b>VOCs (ug/L)</b>									
1,1,2,2-TETRACHLOROETHANE	110	---	X	NA	---	---	110	---	---
ETHYLBENZENE	580,000	---	X	NA	---	---	580000	---	---
XYLENES, TOTAL	NA	---	X	NA	---	---	NA	---	---
<b>SVOCs (ug/L)</b>									
BENZO(A)ANTHRACENE	0.3	0.3	X	NA	NA	4.7 <sup>(8)</sup>	0.3	0.3 <sup>(10)</sup> /NC <sup>(11)</sup>	4.7 <sup>(8,9)</sup>
BENZO(A)PYRENE	0.3	0.3	X	NA	NA	0.06 <sup>(8)</sup> (0.1 LOD)	0.3	0.3 <sup>(10)</sup> /NC <sup>(11)</sup>	0.06 <sup>(8,9)</sup> (0.1 LOD)
BENZO(B)FLUORANTHENE	0.3	0.3	X	NA	NA	2.6 <sup>(8)</sup>	0.3	0.3 <sup>(10)</sup> /NC <sup>(11)</sup>	2.6 <sup>(8,9)</sup>
BENZO(K)FLUORANTHENE	0.3	0.3	X	NA	NA	2.6 <sup>(8)</sup>	0.3	0.3 <sup>(10)</sup> /NC <sup>(11)</sup>	2.6 <sup>(8,9)</sup>
BIS(2-ETHYLHEXYL)PHTHALATE	59	59	X	NA	NA	1 <sup>(8)</sup> (5 LOD)	59	59 <sup>(10)</sup> /NC <sup>(11)</sup>	1 <sup>(8,9)</sup> (5 LOD)
PHENANTHRENE	0.077	0.3	X	NA	NA	2.3 <sup>(8)</sup>	0.077	0.3 <sup>(10)</sup> /NC <sup>(11)</sup>	2.3 <sup>(8,9)</sup>
<b>Pesticides/PCBs (ug/L)</b>									
AROCLOR-1016	0.5	---	X	0.014	---	---	0.5	---	---
AROCLOR-1254	0.5	---	X	0.014	---	---	0.5	---	---
AROCLOR-1260	0.5	---	X	0.014	---	---	0.5	---	---
DIELDRIN	0.1	---	X	0.0019	---	---	0.1	---	---
HEPTACHLOR	0.05	---	X	0.0038	---	---	0.05	---	---
<b>Inorganics (total/dissolved) (ug/L)<sup>(13)</sup></b>									
ARSENIC	4	4	X	190	150	150	4	150	150
BERYLLIUM	4	4	X	NA	NA	NA	4	4	---
CADMIUM	6	6	X	0.62	1.35	0.125	6	0.25 <sup>(14)</sup>	0.125
CHROMIUM <sup>(2)</sup>	1,200/110 <sup>(5)</sup>	110 <sup>(6)</sup>	X	10	11	11 <sup>(6)</sup>	110	42/11 <sup>(5)</sup>	11 <sup>(6)</sup>
COPPER	48	48	X	4.8	4.8	4.8	48	4.8	107 <sup>(12)</sup>
LEAD	13	13	X	1.3	1.2	1.2	13	1.2	6.63 <sup>(12)</sup>
ZINC	123	123	X	12.3	65	65	123	65	131 <sup>(12)</sup>

1 - CTDEP Surface Water Protection Criteria from Connecticut RSRs (1996).

2 - CTDEP Water Quality Standards - Fresh Water.

3 - Area A Landfill Groundwater Monitoring Plan (Tetra Tech, 1999).

4 - Area A Landfill Groundwater Monitoring Plan, Volume II of the O&M Manual (Tetra Tech, 2006a).

5 - Criteria listed are for trivalent chromium and hexavalent chromium.

6 - Criteria listed are for hexavalent chromium.

7 - Area A Landfill Groundwater Monitoring Plan, Volume II of the O&M Manual, Appendix II-D, Table 3 (Tetra Tech, 2011).

8 - Proposed in 2009, but not promulgated.

9 - These values are to be considered (TBC) in the O&M Manual (Tetra Tech, 2011).

10 - Selected criteria for groundwater.

11 - Selected criteria for surface water.

12 - Total Background Concentration.

13 - For surface water, dissolved concentrations were used for 2006 and 2011. For groundwater, dissolved concentrations were used for 2006 and total concentrations were used for 2011.

14 - Federal AWQC.

LOD - Limit of Detection.

NA - Not Available.

--- - Contaminant is no longer part of the monitoring program.

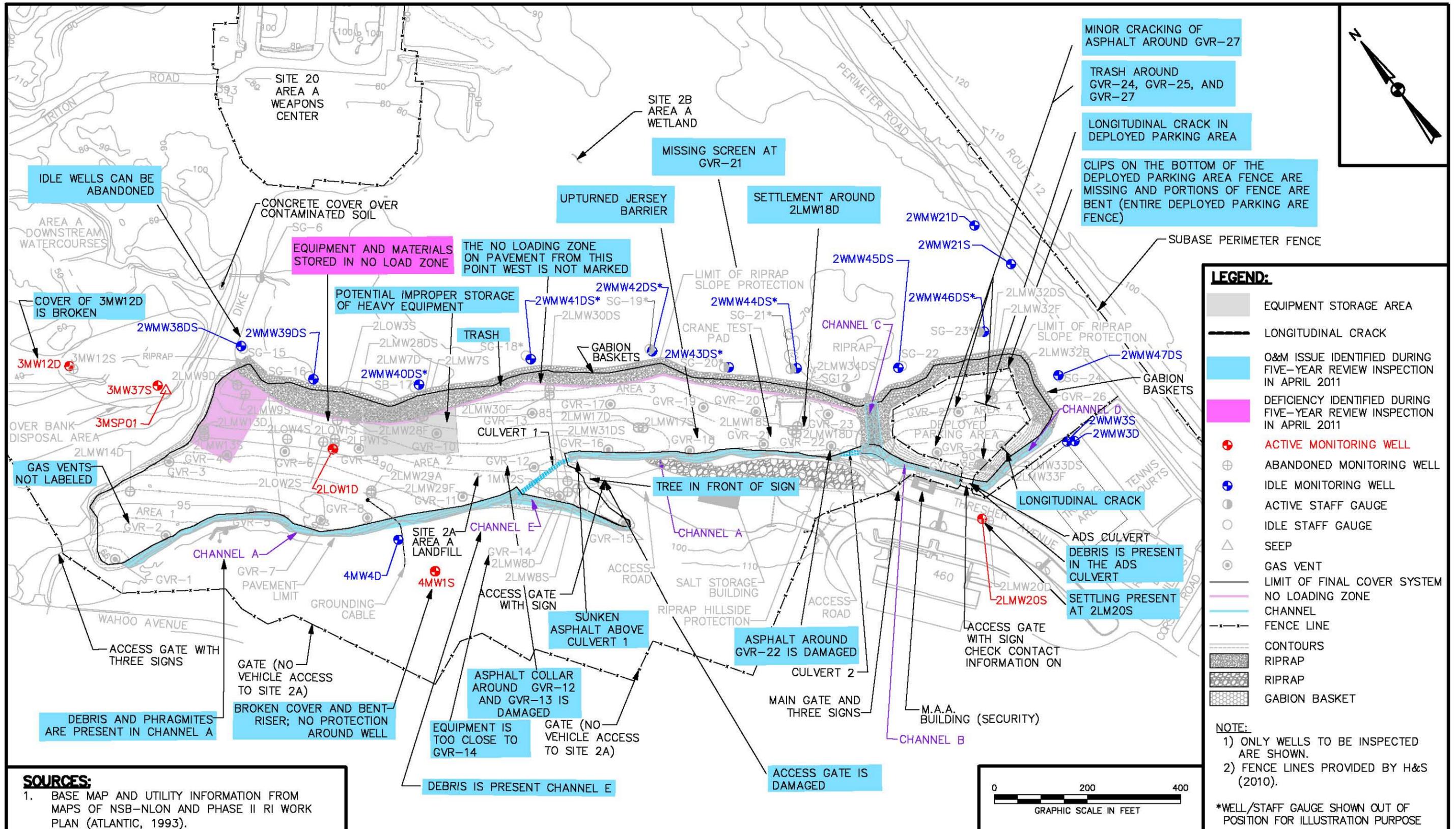
X - CTDEP SWPCs were deleted as a comparison criteria in 2011, per O&M Manual (Tetra Tech, 2011)..

Shading indicates that the criteria has changed since the last five-year review.

TABLE 2-10

ISSUES IDENTIFIED FOR  
 SITE 2A – AREA A LANDFILL AND SITE 2B – AREA A WETLAND  
 NAVAL SUBMARINE BASE NEW LONDON  
 GROTON, CONNECTICUT

Issue	Effects Protectiveness?	
	Current	Future Potential
<b>SITE 2A – AREA A LANDFILL</b>		
<b>Deficiencies</b>		
Equipment and materials continue to be improperly stored within the no-load zone.	N	Y
<b>O&amp;M Issues</b>		
Heavy equipment that may exceed the weight limit is being stored on the cap.	N	Y
Longitudinal cracks are present in the asphalt.	N	Y
Gate near the Salt Storage Building is damaged and cannot be locked.	N	N
Sign at gate near the Salt Storage Building does not include contact information and is partially obscured by vegetation.	N	N
The deployed parking area fence posts are bent and bottom clips are missing.	N	N
Debris and vegetation ( <i>Phragmites</i> ) clog portions of Channels A, B (the ADS culvert area), and E.	N	Y
The no load zone between GVR-13 and SG-15 is not marked.	N	Y
A minor depression in the asphalt has formed above Culvert 1.	N	Y
The cover of monitoring well 4MW1S is broken and the riser is bent.	N	Y
Minor settling of concrete has occurred around well 2LMW20S.	N	N
The cover on Site 3 monitoring well 3MW12D is broken.	N	N
Debris (e.g., canvas bags and trash) has been placed on the northern edge of the site.	N	N
Maintenance needs were identified around gas vents.	N	Y
<b>SITE 2B – AREA A WETLAND</b>		
<b>O&amp;M Issues</b>		
Some <i>Phragmites</i> remain around open water areas.	N	N

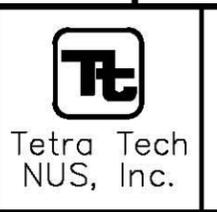


- SOURCES:**
1. BASE MAP AND UTILITY INFORMATION FROM MAPS OF NSB-NLON AND PHASE II RI WORK PLAN (ATLANTIC, 1993).
  2. GAS VENT COORDINATE INFORMATION FROM SAI SURVEY CO. FOSTER WHEELER AS-BUILT REPORT 11-1-97.

**NOTE:**  
MONITORING WELL 3MW12D REINSTALLED OCTOBER 2002 DURING ROUND 11 MONITORING ACTIVITIES

- NOTE:**
- 1) ONLY WELLS TO BE INSPECTED ARE SHOWN.
  - 2) FENCE LINES PROVIDED BY H&S (2010).
- \*WELL/STAFF GAUGE SHOWN OUT OF POSITION FOR ILLUSTRATION PURPOSE

DRAWN BY CK	DATE 3/10/10
CHECKED BY BC	DATE 5/25/11
REVISED BY CW	DATE 10/20/10
SCALE AS NOTED	



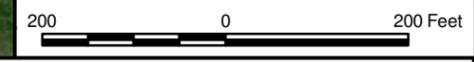
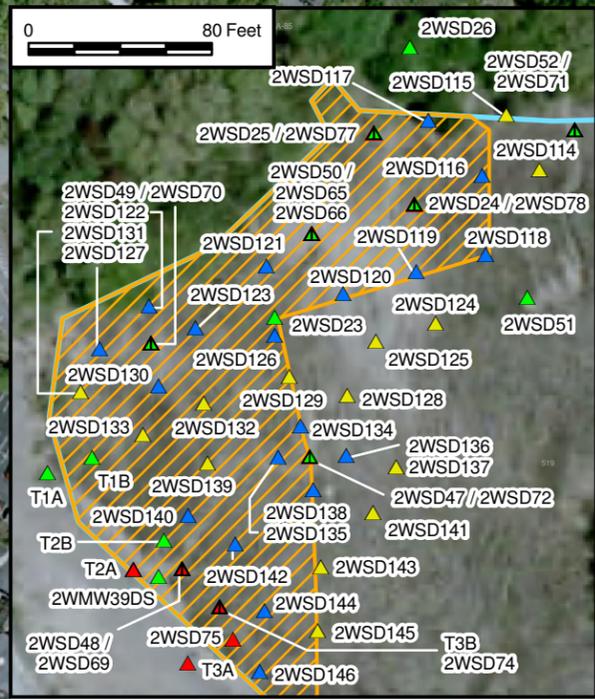
SITE PLAN FOR  
SITE 2A - AREA A LANDFILL  
NSB-NLON  
GROTON, CONNECTICUT

CONTRACT NO. WE33	
OWNER NO. 3386	
APPROVED BY CAR	DATE 5/25/11
DRAWING NO. FIGURE 2-1	REV. 2

Aerial photograph taken in 2008, and supplied by the NAVFAC Mid-Atlantic Georeadiness Center.



2011 Sediment Sample Location (Phase I Analysis)



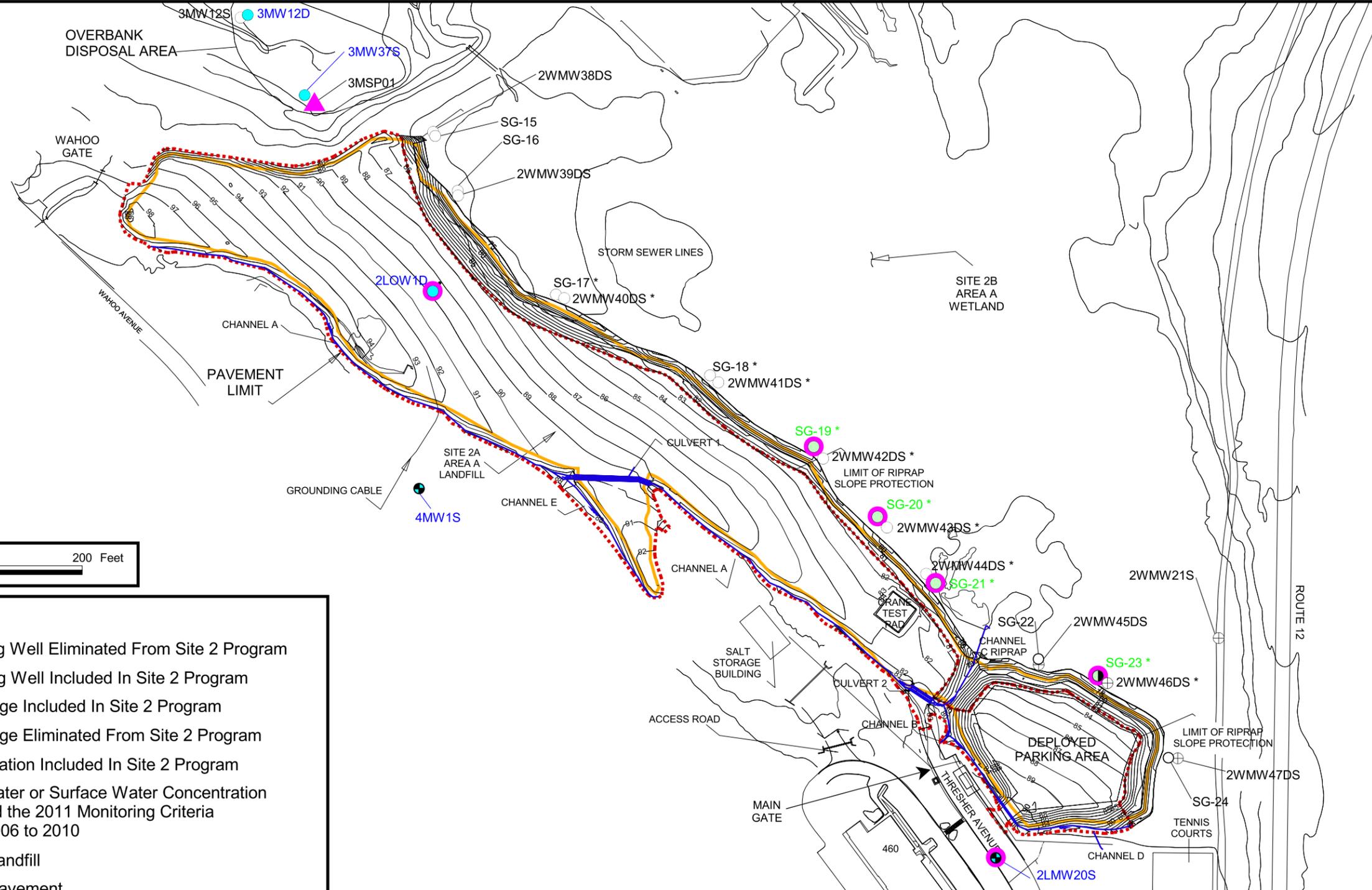
Legend	
	Existing Well Location
	2011 Sediment Sample Location (Phase I Analysis)
	2011 Sediment Sample Location (Phase II Analysis)
	2008 Sediment Sampling Location
	Previous Sampling Location
	Sediment Sample Location Does Not Exceed PRGs
	Sediment Sample Location Exceeds PRGs
	O & M Issue Identified During April 2011 Inspection
	Potential Extent of Contaminated Sediment
	Area A Wetland Boundary

DRAWN BY	DATE
J. ENGLISH	04/14/11
CHECKED BY	DATE
B. COLLINS	07/20/11
REVISED BY	DATE
SCALE	AS NOTED



**SITE 2B  
AREA A WETLAND  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT**

CONTRACT NUMBER	CTO NUMBER
3386	WE33
APPROVED BY	DATE
CAR	05/24/11
APPROVED BY	DATE
FIGURE NO.	REV
FIGURE 2-2	0



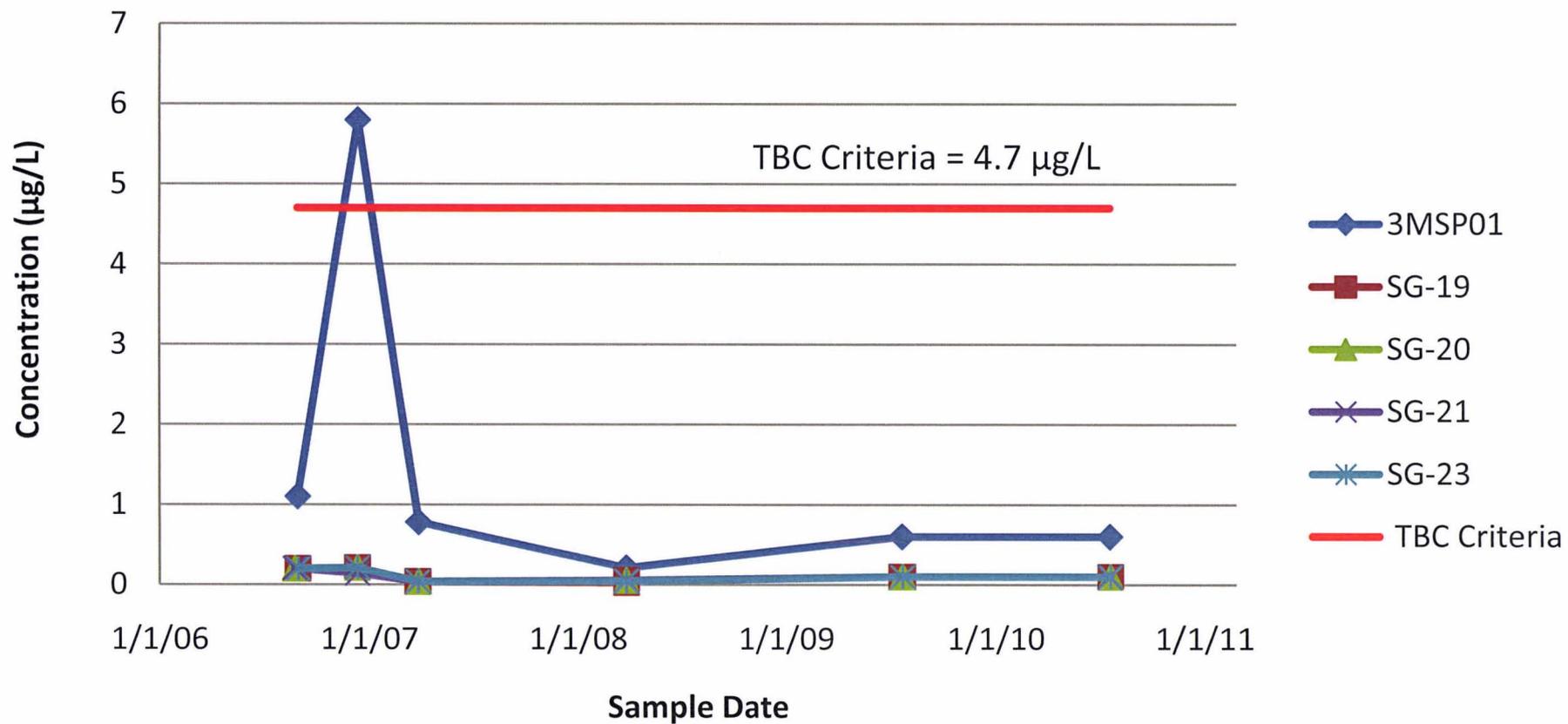
**LEGEND**

- ⊕ Monitoring Well Eliminated From Site 2 Program
- Monitoring Well Included In Site 2 Program
- ◐ Staff Gauge Included In Site 2 Program
- Staff Gauge Eliminated From Site 2 Program
- ▲ Seep Location Included In Site 2 Program
- Groundwater or Surface Water Concentration Exceeded the 2011 Monitoring Criteria During 2006 to 2010
- Limit of Landfill
- Limit of Pavement
- 97 — Ground Surface Contour

\* Well or staff gauge shown out of position for illustrative purposes.  
 Notes:  
 1) Well 3MW12D was replaced during the Round 11 monitoring activities.  
 2) The datum for the elevations is the Base 1982 datum.

DRAWN BY J. ENGLISH CHECKED BY N. [unclear] REVISED BY [unclear]	DATE 09/02/10 DATE 05/23/11 DATE	Tetra Tech NUS, Inc.	CONTRACT NUMBER CTO WE33	OWNER NUMBER 3386
SCALE AS NOTED		SITE FEATURES AND SAMPLING LOCATIONS FOR GROUNDWATER AND SURFACE WATER MONITORING SITE 2A NSB-NLON, GROTON, CONNECTICUT	APPROVED BY _____ DATE _____	APPROVED BY _____ DATE _____
			DRAWING NO. FIGURE 2-3	REV 1

Figure 2-4  
Site 2A - Area A Landfill  
Benzo(a)anthracene in Surface Water, 2006 Through 2010  
Third Five-Year Review Report  
NSB-NLON, Groton, Connecticut



**Figure 2-5**  
**Site 2A - Area A Landfill**  
**Benzo(a)pyrene in Surface Water, 2006 Through 2010**  
**Third Five-Year Review Report**  
**NSB-NLON, Groton, Connecticut**

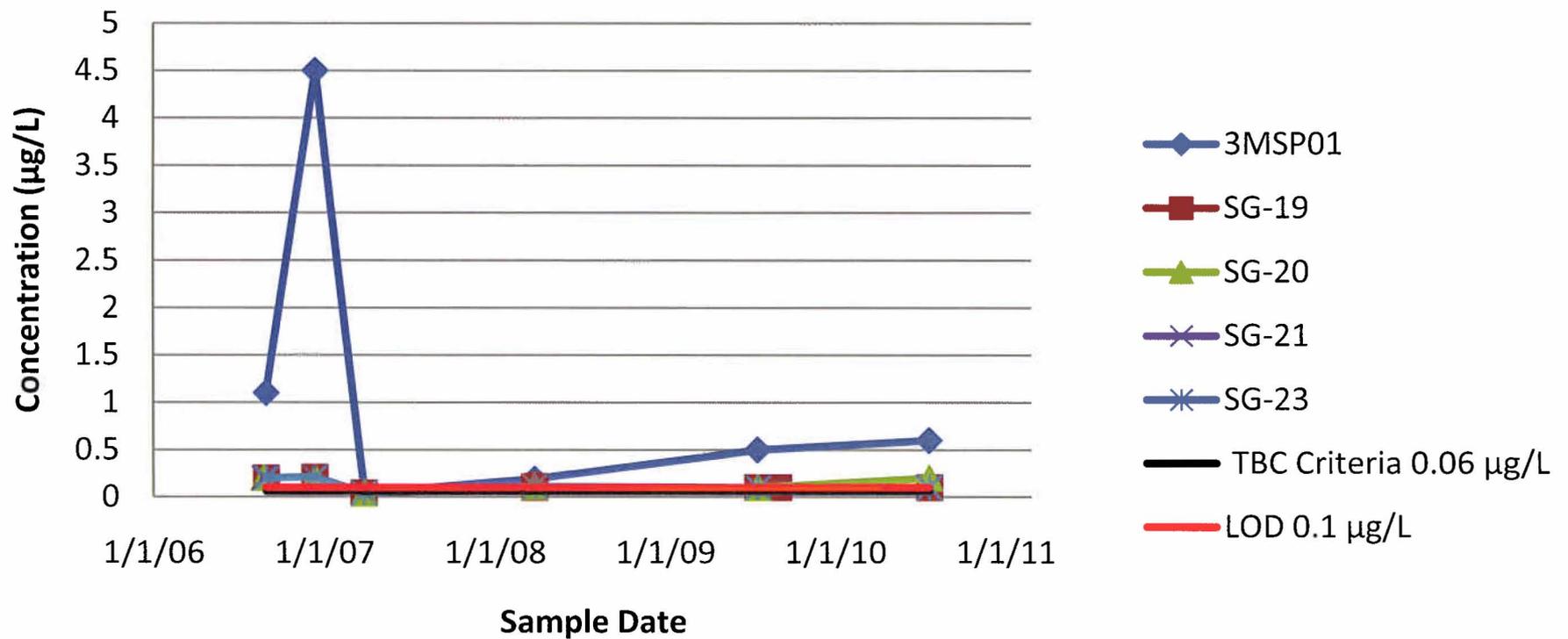


Figure 2-6  
Site 2A - Area A Landfill  
Benzo(b)fluoranthene in Surface Water, 2006 Through 2010  
Third Five-Year Review Report  
NSB-NLON, Groton, Connecticut

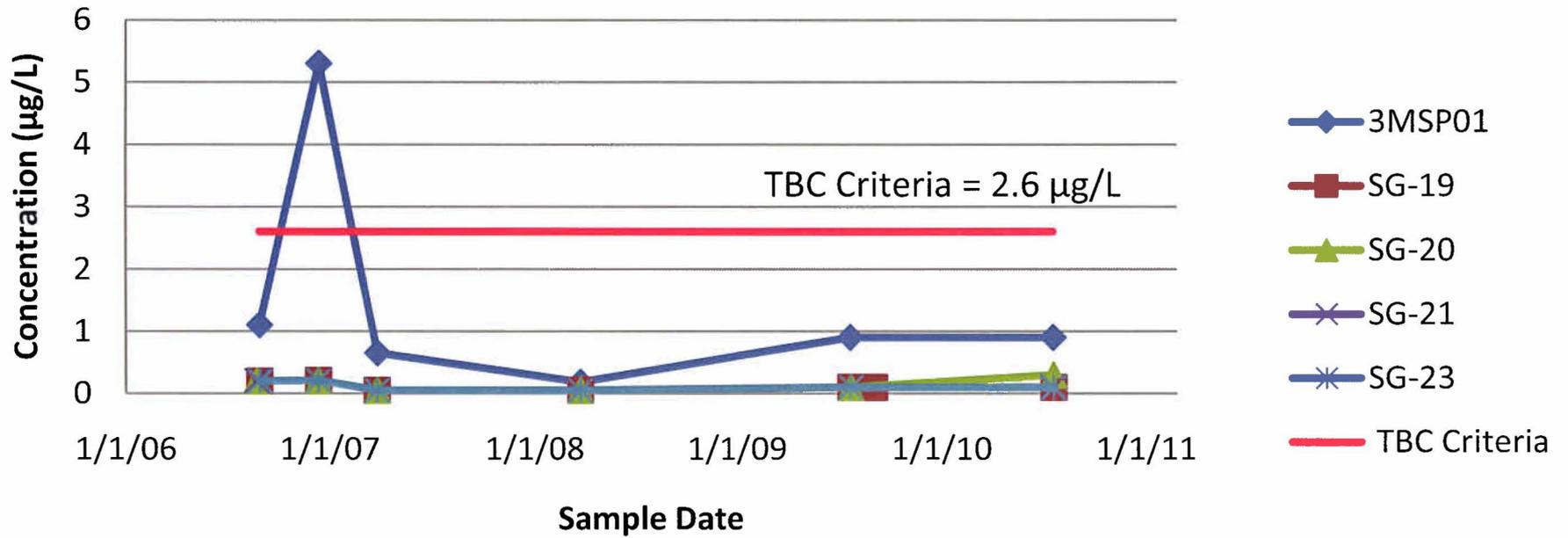


Figure 2-7  
Site 2A - Area A Landfill  
Benzo(k)fluoranthene in Surface Water, 2006 Through 2010  
Third Five-Year Review Report  
NSB-NLON, Groton, Connecticut

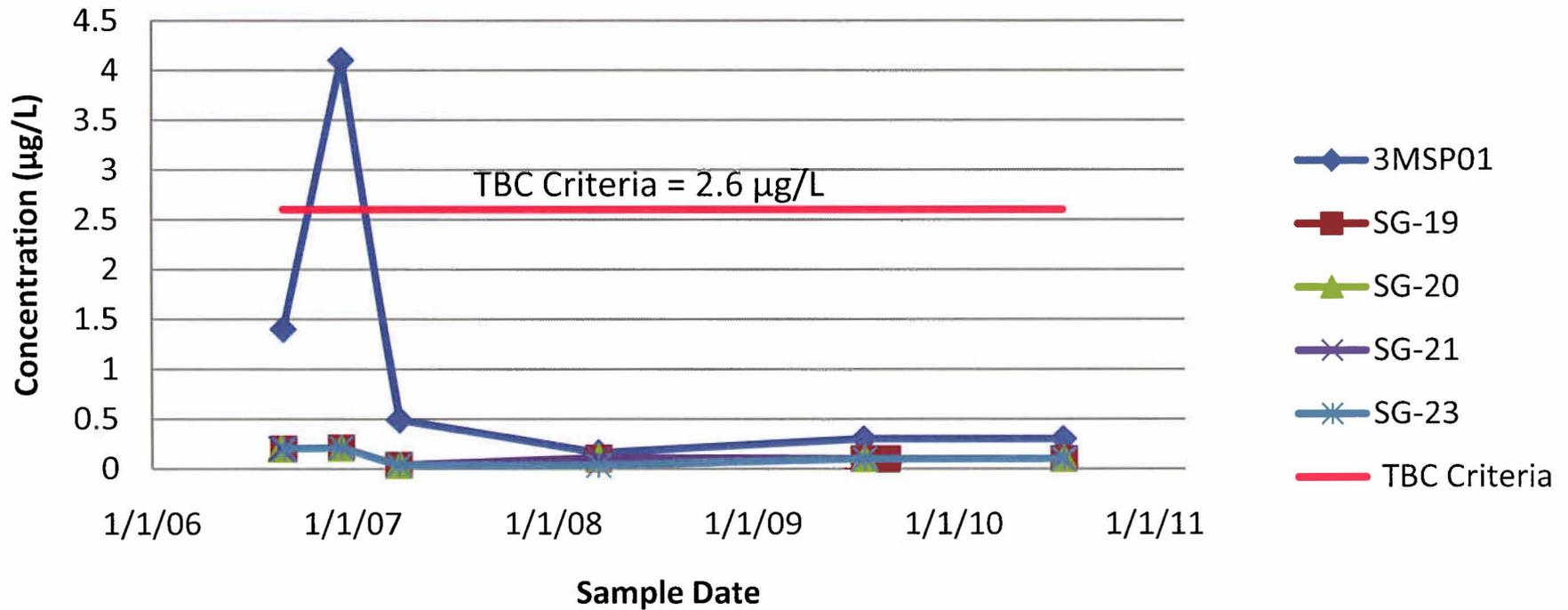
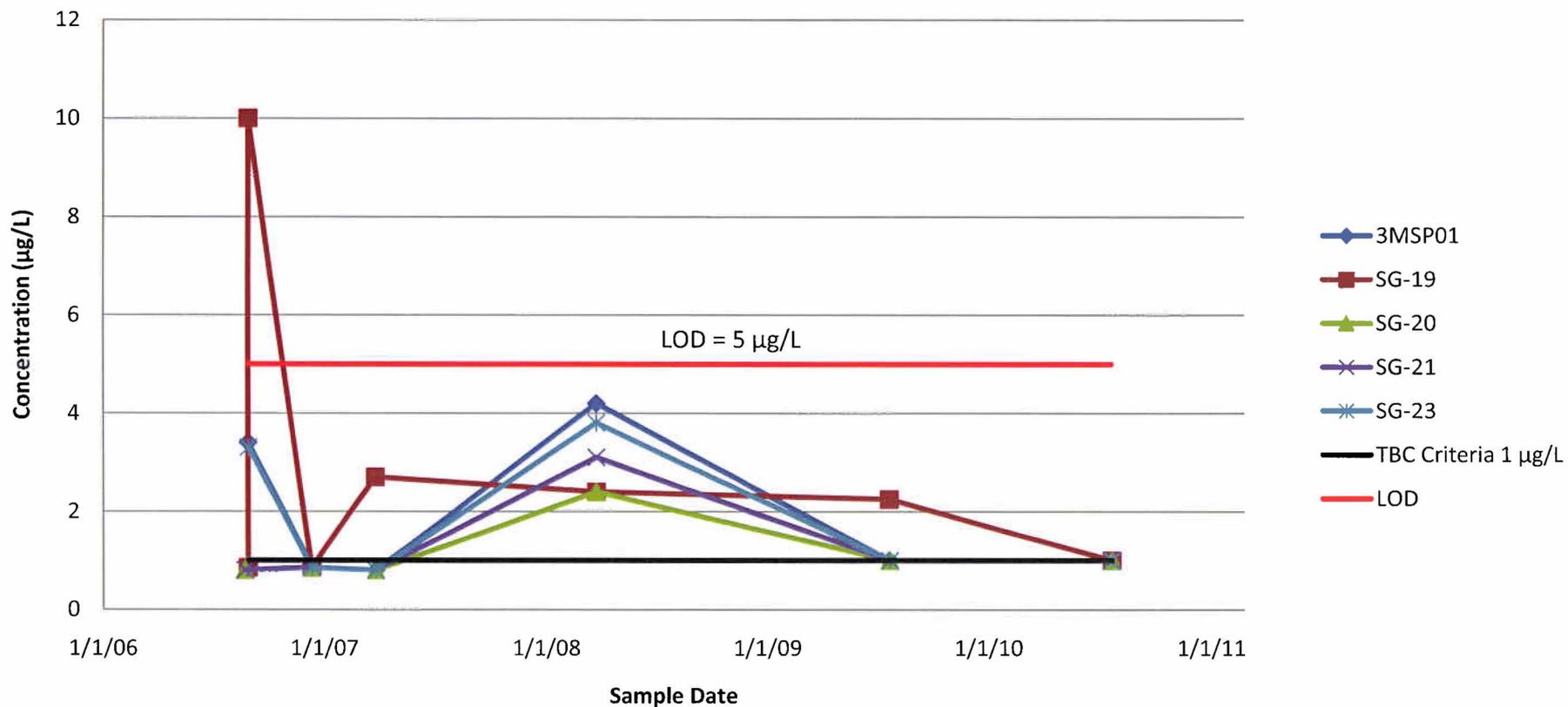


Figure 2-8  
Site 2A - Area A Landfill  
Bis(2-ethylhexyl)phthalate in Surface Water, 2006 Through 2010  
Third Five-Year Review Report  
NSB-NLON, Groton, Connecticut



**Figure 2-9**  
**Site 2A - Area A Landfill**  
**Phenanthrene in Surface Water, 2006 Through 2010**  
**Third Five-Year Review Report**  
**NSB-NLON, Groton, Connecticut**

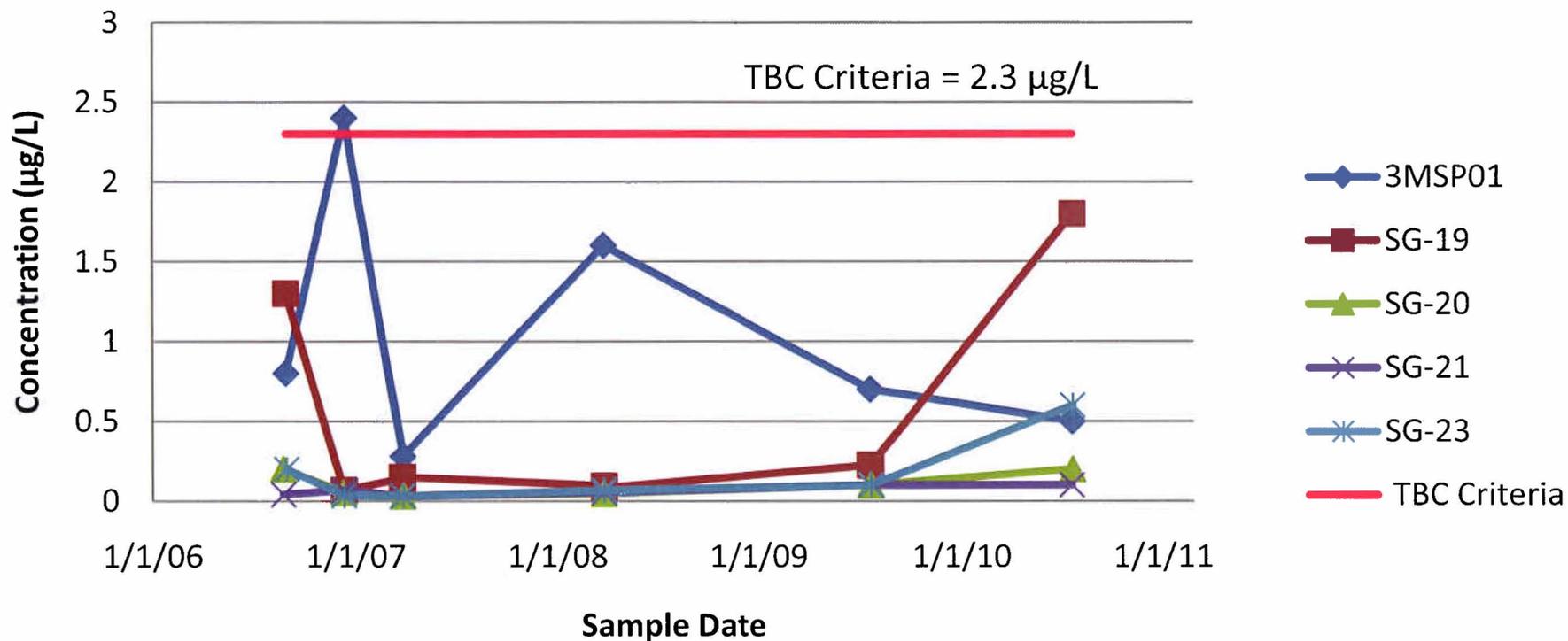


Figure 2-10  
Site 2A - Area A Landfill  
Dissolved Copper in Surface Water, 2006 Through 2010  
Third Five-Year Review Report  
NSB-NLON, Groton, Connecticut

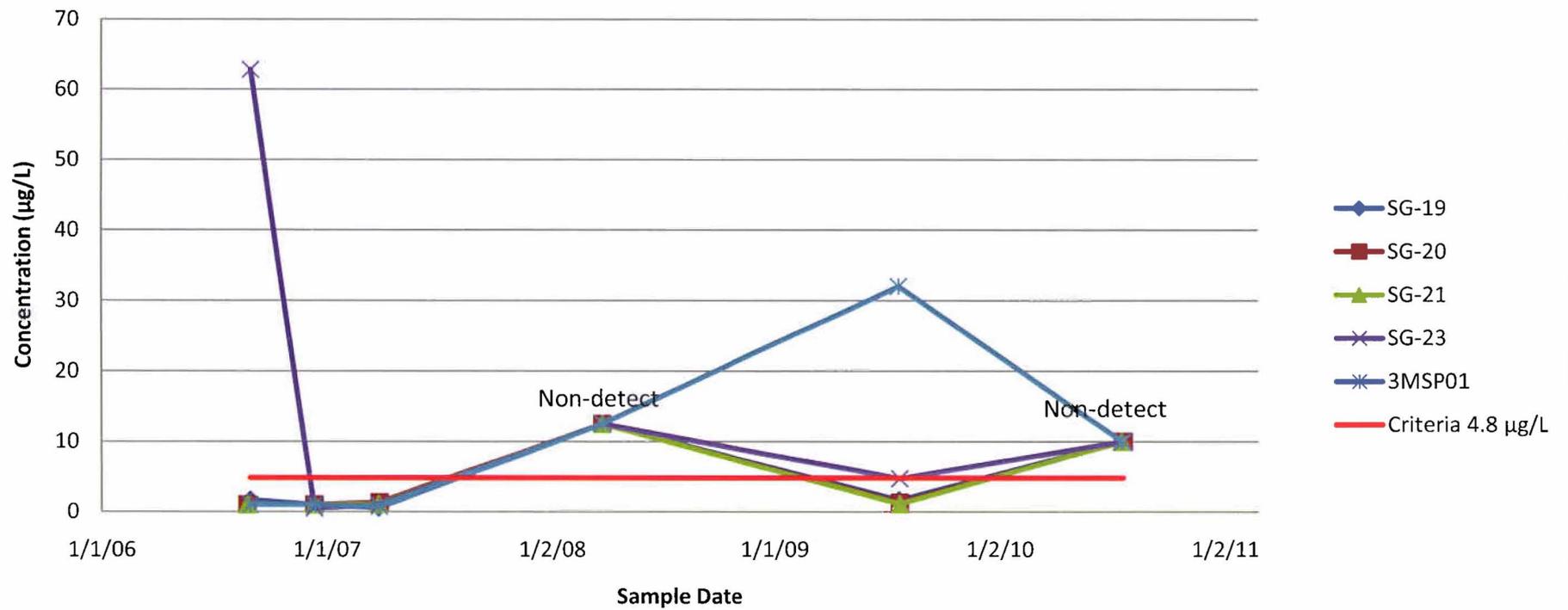


Figure 2-11  
Site 2A - Area A Landfill  
Dissolved Lead in Surface Water, 2006 Through 2010  
Third Five-Year Review Report  
NSB-NLON, Groton, Connecticut

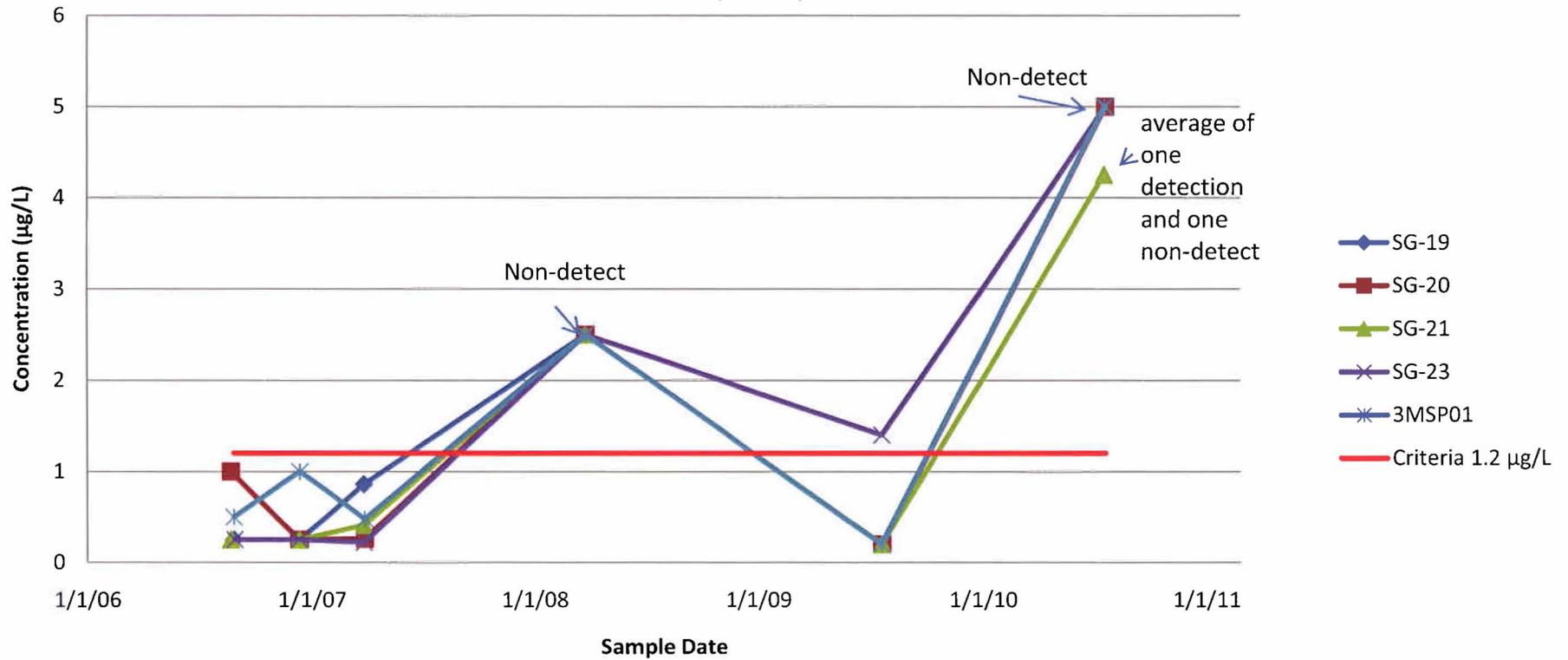
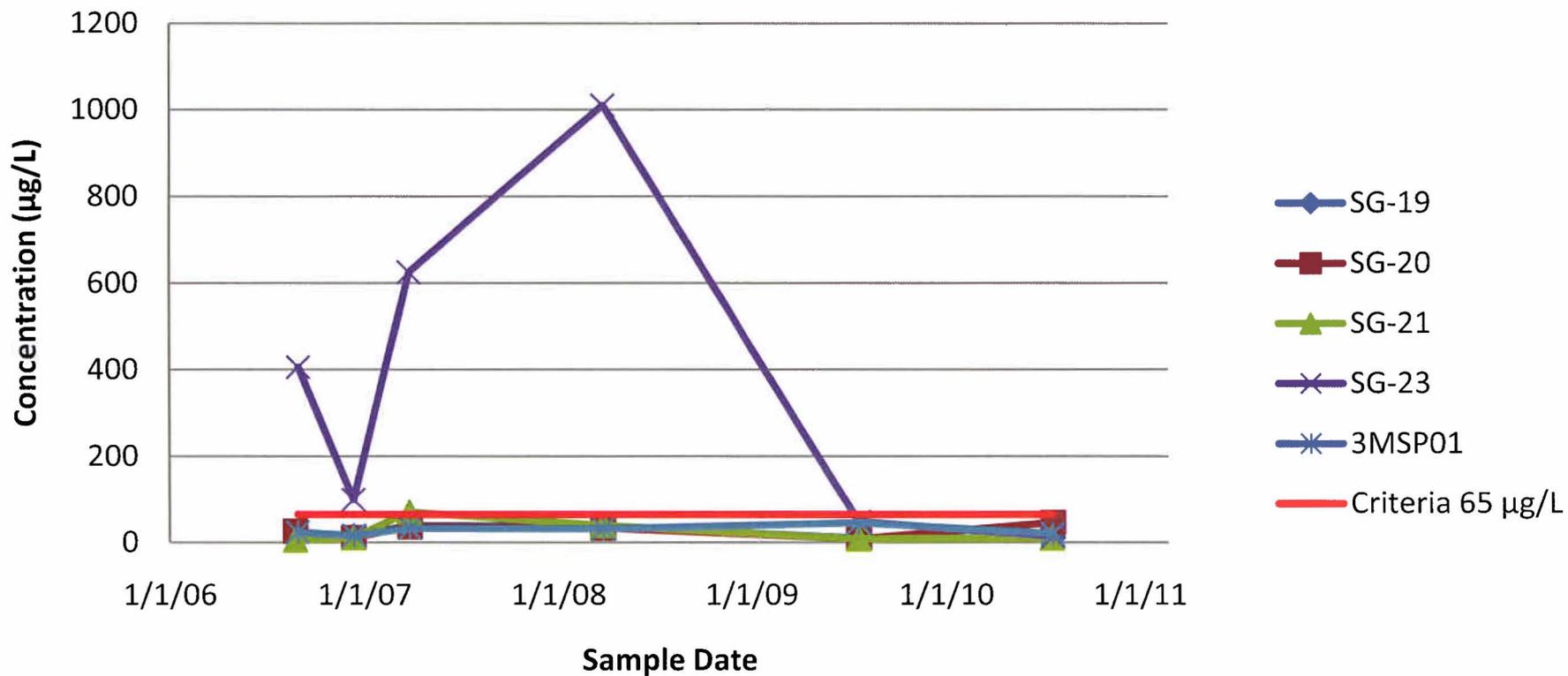


Figure 2-12  
Site 2A - Area A Landfill  
Dissolved Zinc in Surface Water, 2006 Through 2010  
Third Five-Year Review Report  
NSB-NLON, Groton, Connecticut



### 3.0 SITE 3 – AREA A DOWNSTREAM WATERCOURSES/OBDA (OU3 AND OU9)

Site 3 under the Navy's IRP includes the Area A Downstream Watercourses and the OBDA. This five-year review of Site 3 is required by statute because hazardous substances, pollutants, or contaminants remain in soil and groundwater that do not allow for unlimited use or unrestricted exposure. The soil OU associated with the OBDA was addressed through a non-time-critical removal action (NTCRA). The Action Memorandum for the OBDA was signed in July 1997 (Navy, 1997b). The soil and sediment OU (OU3) associated with the Area A Downstream Watercourses was addressed through a remedial action. The ROD for the soil and sediment OU was signed in March 1998 (Navy, 1998b). After completion of the BGOURI Update/FS, an Interim ROD for the groundwater in OU9, which includes Site 3, was signed in December 2004 (Navy, 2004e). The selected remedy for Site 3 groundwater was institutional controls with monitoring. The final ROD for OU9 was signed in September 2008 (Navy, 2008b).

#### 3.1 HISTORY AND SITE CHRONOLOGY

A list of important Site 3 historical events and relevant dates in the site chronology is shown below. The identified events are illustrative, not comprehensive.

Event	Date
Pesticides used in waterbodies.	1960s
Final IAS completed.	March 1983
Phase I RI completed.	August 1992
Draft FFS issued.	April 1994
Phase II RI finalized.	March 1997
OBDA NTCRA completed.	March 1997
Proposed Plan for soil and sediment (OU3) issued.	July 1997
EE/CA for OBDA issued and Action Memorandum for OBDA signed.	July 1997
Final Post-Removal Report for OBDA issued.	July 1997
Public Meeting for soil and sediment (OU3) conducted.	August 1997
ROD for soil and sediment (OU3) signed.	March 1998
Remedial Design for soil and sediment (OU3) completed.	1999
Remedial Action for soil and sediment (OU3) completed.	August 2000
First Five-Year Review completed.	December 2001
BGOURI completed.	January 2002
Restoration and Long-Term Monitoring of OU3 completed.	2003
BGOURI Update/Feasibility Study completed.	July 2004
Proposed Plan for Site 3 - NSA Soil (OU3) completed.	July 2004
ROD for Site 3 - NSA Soil (OU3) signed.	September 2004

<b>Event</b>	<b>Date</b>
Proposed Plan for Sites 3, 7, 14, 15, 18, and 20 Groundwater (OU9) issued.	September 2004
Interim ROD for Sites 3, 7, 14, 15, 18, and 20 Groundwater (OU9) signed.	December 2004
Land Use Control (LUC) Remedial Design for Sites 3 and 7 Groundwater completed.	June 2005
Final O&M Manual - Volumes I, II, III, IV and V	January 2006
Work Plan for Remedial Action at Sites 3 and 7 completed.	March 2006
Round 1 of groundwater monitoring at Sites 3 and 7 completed.	May 2006
SOPA (ADMIN) New London Instruction 5090.18C issued.	December 2006
Work Plan for POL Removal Action for Site 3 NSA issued.	August 2007
Second Five-Year Review Completed	December 2006
Explanation of Significant Difference for the OU3 ROD	May 2007
Year 1 GMR for Sites 3 and 7	September 2007
Monitoring Well Inventory Report and Abandonment Plan	September 2007
Final Completion Report for POL Removal Action for Site 3 NSA issued.	June 2008
Proposed Plan for Basewide Groundwater OU9	June 2008
Year 2 GMR for Sites 3 and 7	July 2008
Record of Decision of Operable Unit 9 Basewide Groundwater signed	September 2008
SOPA (ADMIN) New London Instruction 5090.18D issued	September 2008
O&M Manual - Volumes I, II, III, IV, and V (Revision 2 Draft) completed	November 2008
Round 9 GMR for Sites 3 and 7	November 2008
Letter Regarding Construction Restrictions at Monitoring Well 2DMW29S	March 2009
SOPA (ADMIN) New London Instruction 5090.25 issued	June 2009
Letter to Town of Ledyard, Land and Groundwater Use Restrictions	September 2009
Letter to Town of Groton, Land and Groundwater Use Restrictions	September 2009
Remedial Design for Land Use Controls on Basewide Groundwater OU9	November 2009
2009 Annual Inspection Report for Site 2A, Site 6, Site 8 and Site 3	December 2009
Remedial Action Completion Report for OU9 Basewide Groundwater	June 2010
2009 Annual GMR for Sites 2, 3, and 8	August 2010
O&M Manual - Volumes I, II, III, IV, and V (Rev 2 Draft Final) completed	November 2010
2010 Annual Inspection Report for Sites 2A, Site 6, Site 8 and Site 3	January 2011
2010 Annual GMR for Sites 2A, 3, 6, and 8	March 2011

## **3.2 BACKGROUND**

### **3.2.1 Area A Downstream Watercourses**

The Area A Downstream Watercourses receive surface water and groundwater recharge from the Area A Landfill, Area A Wetland, Torpedo Shops, OBDA, OBDANE, and surrounding areas and convey them to the Thames River. The Area A Downstream Watercourses include North Lake and several small ponds (Upper Pond, Lower Pond, and OBDA Pond) and interconnected streams (Streams 1 through 6). The

general configuration of the Area A Downstream Watercourses and adjacent areas is shown on Figure 3-1. The location of this site relative to other IR sites at NSB-NLON is shown on Figure 1-2.

The primary water discharge point from the Area A Wetland to the Area A Downstream Watercourses is through four 24-inch-diameter metal culvert pipes located within the dike that separates the Area A Wetland from the Area A Downstream Watercourses. The discharge from these culverts forms a small stream (Stream 4) that flows westward for approximately 200 feet into Upper Pond. Upper Pond discharges to Stream 3, which flows northward and then westward toward Triton Avenue (past the OBDANE site) to the entrance of the Torpedo Shops. At this location, it meets the drainage channel from the Torpedo Shops and forms Stream 5. Stream 5 flows westward along Triton Avenue through the Small Arms Range and under Shark Boulevard and eventually discharges to the Thames River at the DRMO outfall. A second pond (Lower Pond), northwest of Upper Pond, is a natural depression and is recharged by groundwater inflow. The outlet of Lower Pond forms Stream 2, which enters a storm sewer and flows west around North Lake.

Groundwater passing beneath the Area A Landfill/Wetland dike discharges to a small pond (the OBDA Pond) located at the base of the dike and the OBDA. Stream 1 flows from this pond westward toward North Lake, a recreational swimming area for Navy personnel. Under normal flow conditions, the stream enters a culvert that bypasses North Lake and discharges to Stream 6 below the outfall of the lake. Stream 6, which is formed by Stream 1, Stream 2, and the outflow of North Lake, flows westward under Shark Boulevard and through the golf course to the Thames River. North Lake is filled with potable water every year and drained at the end of the season. Surface water levels in North Lake do not appear to coincide with groundwater levels in adjacent monitoring wells, indicating little hydraulic connection between surface water in North Lake and the shallow groundwater.

Most of Site 3 is within designated Explosive Safety Quantity Distance (ESQD) arcs of the Area A Weapons Center; therefore, further development is not planned for this area. Navy regulations prohibit construction of inhabited buildings or structures within these arcs and, although existing buildings operate under a waiver of these regulations, no further construction is planned.

The main cause of contamination at the Area A Downstream Watercourses was the application of pesticides. These pesticides were reportedly applied on the surface of water bodies to control mosquito proliferation adjacent to the nearby base recreational facilities (North Lake and golf course). Additional contaminants are inorganic constituents of river dredge spoil and Area A Landfill material carried over from adjacent sites. Samples of surface soil and sediment showed the presence of mainly DDT, 1,1-dichloro-2,2-bis(4-chlorophenyl)ethane (DDD), 1,1-dichloro-2,2-bis(4-chlorophenyl)ethene (DDE) [collectively referred to as total DDT isomers ODDTR)], and small amounts of other pesticides such as

dieldrin. Samples of sediment also contained relatively high levels of several metals (such as arsenic, beryllium, cadmium, lead, and zinc) compared to less contaminated reference areas outside the site.

A two-phase RI/FS was conducted to investigate and determine appropriate remedial alternatives for Site 3. Phase I RI field activities were conducted from 1990 to 1992 (Atlantic, 1992) and included test borings, monitoring well installation, and soil, surface water, sediment, and groundwater sampling. The RI concluded that risks associated with several exposure scenarios exceeded acceptable regulatory levels and that an FS should be performed for the site. A draft FFS (Atlantic, 1994c) was completed for the soil and sediment at the site. Additional soil and sediment samples were collected and analyzed during the FFS to further define the extent of contamination. The FFS concluded that off-site landfilling and on-site thermal desorption provide superior protection of the environment and that the landfilling alternative would be more cost effective than the on-site thermal desorption alternative.

Phase II RI field activities were conducted from 1993 to 1995 (B&RE, 1997b) and included test borings, monitoring well installation, and soil, surface water, sediment, and groundwater sampling. A soil gas survey and an extensive ecological investigation were also completed during the Phase II RI. The Phase II RI concluded that VOCs were present in groundwater at Site 3, that the site poses noncarcinogenic risks to the site worker and older child trespasser, and that notable concentrations of pesticides exist in site soil and sediments. The Phase II RI recommended that the FS for this site be revisited to focus on pesticides in soil and sediment, that more sampling is required to delineate pesticide contamination and determine the origin of VOCs in groundwater, and that the debris associated with the OBDA should be removed.

Following the Phase II RI, an FS was completed in 1997 for soil and sediment at Site 3 (B&RE, 1997j). An alternative that included dredging, on-site dewatering, off-site disposal of sediment and soil, restoration of wetlands and waterways, and monitoring was selected for the site, and the selected remedy was included in the proposed plan (B&RE, 1997d) and finalized in a ROD signed in March 1998 (B&RE, 1998c). A Remedial Design was completed for soil and sediment at Site 3 in 1998 and 1999 (FWEC, 2000), and the Remedial Action for Site 3 soil and sediment was completed in 1999 and 2000. The following general tasks were completed during the remedial action:

- Dewater and treat water, if necessary.
- Properties sampling for match to fill material prior to excavation.
- Excavate soil/sediment and load directly to front-end loader.
- Transfer soil/sediment to material-handling pad.
- Sample excavated soil and sediment for waste characterization purposes prior to stabilization.
- Sample excavation sidewalls/base at the frequency specified in the Sampling and Analysis Plan.

- Perform field immunoassay screening in conjunction with off-site laboratory analysis for pesticides and metals.
- Backfill or continue excavation based on field screening and laboratory analysis.
- Mix contaminated sediment on material handling pad with stabilizing agent.
- Load stabilized material onto dump trucks and transport to disposal/recycling facility.

Approximately 18,050 tons of soil and sediment were excavated and disposed off-site during the remedial action. Post-excavation confirmatory sampling and analysis were performed to confirm that remedial goals had been met prior to closing the excavation. Post-construction restoration and long-term monitoring were conducted for 3 years at the site to ensure that vegetation and habitat were properly restored.

During the remedial action excavation activities, contaminated soil and sediment were discovered in and around two abandoned pipes at the headwaters of Stream 4. Because this contaminated material could not be removed without seriously compromising the integrity of the Area A Dike, the ends of the pipes were isolated and encapsulated with concrete.

A previously unknown source of petroleum contamination was detected during the remedial action at Site 3. The source, found during the remediation of Stream 5, is located on the northern side of the stream just east of the Small Arms Range. Petroleum product was discovered emanating from the northern side of the excavation. Upon further investigation, a small disposal area (i.e., buried drums, cable, etc.) was discovered upgradient of the location where petroleum was discovered. The site was named the Site 3 – NSA. The Site 3 – NSA was not remediated at the time of the RA-C because the nature and extent of contamination were unknown; however, absorbent booms and hay bales were put in place during construction activities to minimize the migration of contamination downstream, and plastic sheeting was placed along the stream bank prior to backfilling to minimize further contaminant migration to Stream 5.

Based on the recommendations of the Phase II RI, further investigation of groundwater at Site 3 was completed during the BGOURI (Tetra Tech, 2002a). The field work for the BGOURI was completed prior to the identification of the Site 3 – NSA. The scope of the investigation included the installation of temporary monitoring wells and sampling of groundwater in temporary and existing permanent monitoring wells. Chlorinated VOCs similar to those detected during the Phase II RI were detected at lower concentrations during the BGOURI. It was hypothesized that the Site 3 – NSA, or an upgradient source such as the leach fields at Site 7, may have been the source of the VOCs.

A DGI was conducted at Site 3 in fall 2002 to investigate the NSA and to confirm the groundwater results of the BGOURI. The results of the DGI were presented in the BGOURI Update/FS (Tetra Tech, 2004).

The soil sampling program and a portion of the groundwater sampling program were concentrated on determining the overall nature and extent of contamination at the Site 3 – NSA. The remaining portion of the groundwater sampling program was focused on confirming the nature and magnitude of the groundwater contamination identified during the BGOURI. Petroleum contamination was identified at the Site 3 – NSA during the DGI; however, no significant source of VOC contamination was identified at the Site 3 – NSA.

The groundwater data collected during the DGI indicated that VOCs were originally released upgradient in the vicinity of Site 7 and are in the process of migrating through Site 3. It is likely that the primary original compound released was trichloroethene (TCE). There were detections of VOCs along Stream 5 from Site 7 to the Thames River. Comparisons of results from the Phase II RI, BGOURI, and DGI show that VOC concentrations in groundwater are decreasing steadily and that degradation products from the dechlorination of TCE have been detected, indicating that natural attenuation is occurring.

An FS was completed to identify and evaluate appropriate remedial alternatives for the soil at Site 3 – NSA and the groundwater at Site 3 (Tetra Tech, 2004). A ROD was signed for the Site 3 – NSA soil in September 2004 (Navy, 2004b). The ROD called for NFA for the petroleum-contaminated soil under CERCLA because petroleum is excluded from consideration under CERCLA; however, the Navy's cleanup plan to address the petroleum-contaminated soil under other applicable regulations was also detailed in an appendix to the ROD. The work plan for the Site 3 – NSA soil corrective action was issued August 2007 (Shaw, 2007). The corrective action was completed to meet Connecticut regulations in October 2007 and the final completion report issued June 2008 (Shaw, 2008).

Institutional controls and monitoring were selected as the remedy for Site 3 groundwater in the Interim ROD in 2004 (Navy, 2004e). A LUC RD was subsequently completed for Site 3 groundwater in June 2005 (Tetra Tech, 2005). To meet the LUC requirements in the ROD, the Navy implemented an updated instruction [SOPA (ADMIN) New London Instruction 5090.25] (Navy, 2009b). The instruction defined the Navy's policy regarding ground surface disturbance of soils/sediments, subsurface disturbance of soils/sediments and/or groundwater extraction, and disturbance of any remedial infrastructure at IR sites.

A well inventory was conducted at NSB-NLON in 2007. This inventory included 22 Site 3A wells (Tetra Tech, 2007c). As a result of the inventory, 11 Site 3A wells that were not part of an active monitoring program were abandoned (ECC, 2007b). The Instruction was updated in 2008 as SOPA (ADMIN)

5090.18D to include current mapping of existing and abandoned wells (Navy, 2008c). The current instruction is SOPA (ADMIN) 5090.25 (Navy, 2009b).

The Navy began implementation of the groundwater monitoring program as described in the Remedial Action Work Plan (Tetra Tech, 2006b) and Site 3 Groundwater Monitoring Plan in April 2006.

### **3.2.2 OBDA**

The OBDA was located on the slope of the dike below and adjacent to the Area A Landfill. It was located on the southwestern end of the dike where the angle of the slope approaches 45 degrees. A small wetland at the base of the dike has been designated as the OBDA Pond. The OBDA was used as a disposal site after the earthen dike was constructed in 1957. The IAS Report (NEESA, 1983) indicated that the material had been there for many years. The IAS Report also indicated that the materials were not covered and included 30 partially covered 200-gallon metal fuel tanks and scrap lumber. The site was inspected in 1998, and it was observed that the tanks were still present at the site and old creosote telephone poles, several empty unlabeled 55-gallon drums, and rolls of wire were present at the site. Orange iron floc was observed in sediments in the area where water was discharging from the base of the dike embankment.

As discussed above, the OBDA Pond, located downgradient of the OBDA, was investigated as part of the Area A Downstream Watercourses during the Phase I and II RIs and the FFS and FS for the site. No investigative activities were completed within the limits of the disposal area. All the debris from the OBDA area was removed and disposed off site as part of a NTCRA in 1997. This removal action was completed during the Area A Landfill Remedial Action because the sites are located adjacent to one another. An EE/CA and Action Memorandum were prepared in 1997 to document the decision process for the NTCRA (Navy, 1997b).

A well inventory was conducted at NSB-NLON in 2007. This inventory included four Site 3B wells (Tetra Tech, 2007c). As a result of the inventory, two Site 3B wells that were not part of an active monitoring program were abandoned (ECC, 2007b; Tetra Tech 2008a).

### 3.3 REMEDIAL ACTIONS

#### 3.3.1 Remedy Selection

##### 3.3.1.1 Area A Downstream Watercourses

###### Soil and Sediment

Following the Phase II RI, an FS for soil and sediment at Site 3 was completed (B&RE, 1997j). No additional samples were collected during the study. Four remedial alternatives were evaluated during the FS. Although groundwater was not the focus of the FS, the cross-medium impact from contaminated soil and sediment was considered during the evaluation of alternatives. Based on site information such as types of contaminants, environmental media of concern, and potential exposure pathways, RAOs were developed to aid in the development of alternatives. The following RAOs were selected to mitigate existing and future potential threats to public health and the environment from the soil and sediment OU (OU3):

- Protection of potential human receptors by preventing incidental ingestion of contaminated soil and sediment containing DDT, DDD, and dieldrin at concentrations exceeding 27 mg/kg, 38 mg/kg, and 0.57 mg/kg, respectively.
- Protection of potential human receptors by preventing incidental ingestion of sediment containing arsenic and beryllium at concentrations exceeding 6.1 mg/kg and 2.1 mg/kg, respectively.
- Protection of ecological receptors by preventing contaminated soil (containing DDTR concentrations exceeding 5.6 mg/kg, rounded down to 5.0 mg/kg to be conservative) and contaminated sediment (containing DDTR concentrations exceeding 2.0 mg/kg and dieldrin concentrations exceeding 0.045 mg/kg) from entering the food chain.
- Protection of ecological receptors from potential toxicity of sediment containing cadmium, lead, and zinc at concentrations exceeding their respective effects range-medium (ER-M) values of 9.6 mg/kg, 218 mg/kg, and 410 mg/kg.

The preferred alternative selected in the FS and documented in the ROD was excavation of contaminated soil and sediment followed by on-site dewatering and disposal at an off-site landfill. The sequence of actions envisioned at the conceptual stage were as follows: (1) removal, on-site treatment, and discharge of standing water from ponds and streams with appropriate stream flow diversions; (2) clearing/grubbing of contaminated soil areas; (3) dredging, on-site dewatering, and off-site disposal of contaminated

sediment; (4) excavation, on-site dewatering, and off-site disposal of contaminated soil; (5) placement of clean soil backfill over the excavated soil areas with topsoil cover and revegetation to replace altered wetland functions and values; and (6) placement of suitable borrow material over the dredged sediment areas (such as sand in ponds and gravel in streams) and restoration of aquatic habitats. It was assumed that fencing and security measures would be present and would continue during the remedial action.

The remedial goals selected for the soil and sediment remedial action are summarized in Table 3-1. The arsenic and beryllium remedial goals were derived for protection of human receptors, and the remaining remedial goals were derived for protection of ecological receptors of concern. The ecological remedial goals are sufficiently low to be protective of human receptors of concern. The human health remedial goals are contaminant concentrations that would reduce potential health risks to receptors of concern (i.e., older child trespasser and construction worker) to acceptable levels. The bases for the ecological remedial goals are as follows:

- The soil remedial goal for DDTR was based on potential impacts to the short-tail shrew via ingestion of soil and contaminated prey items. The no-observed-adverse effects level (NOAEL) used for the shrew was 0.8 mg/kg-day (Opresko et al., 1994). The soil-to-earthworm bioaccumulation factor (BAF) was determined based on a site-specific bioaccumulation study. The exposure parameters in the food-chain model (i.e., ingestion rates) were obtained from the Wildlife Exposure Factors Handbook (USEPA, 1993b).
- The sediment remedial goals for metals were based on the ER-M value from Long et al. (1995).
- The sediment remedial goal for DDTR was based on empirical relationships between effects to benthic macroinvertebrates and DDTR concentrations.
- The sediment remedial goal for dieldrin was based on equilibrium partitioning using site-specific TOC concentrations, chemical-specific  $K_{oc}$  value, and water-quality screening value (WQSV) for dieldrin. The WQSV for dieldrin (0.062 µg/L) was obtained from the draft Sediment Quality Criteria for the Protection of Benthic Organisms: Dieldrin (USEPA, 1993a) and was used because it is based on risks to aquatic organisms.

The cost associated with the selected remedy was estimated to be \$8,125,000. The cost for wetland restoration and O&M for years 0 through 5 was estimated at \$50,000 per year.

The Remedial Design for the soil and sediment OU began in 1998 and was completed in 1999. Additional sampling was conducted in the fall and winter of 1998 to further delineate the extent of

contamination. The focus of the design was to develop a work plan and construction drawings that showed the details for excavating and disposing of the contaminated soil and sediment. The work plan and drawings developed described and showed construction sequencing, equipment lay-down areas, stream and pond dewatering details, dewatering pads, site restoration details, final grading plans, erosion and sediment control details, etc. for the remedial action. A verification sampling plan was also included in the work plan. The goal of the plan was to verify that the remedial action met the remedial goals defined above.

### Groundwater

Remedial alternatives for Site 3 groundwater were developed and evaluated in the BGOURI Update/FS (Tetra Tech, 2004) to meet the following RAOs:

- Protect current receptors (construction workers) from incidental exposure to groundwater contaminated with petroleum and chlorinated hydrocarbons at concentrations greater than PRGs.
- Protect potential future receptors (potable water supply) from regular ingestion of groundwater contaminated with chlorinated hydrocarbons at concentrations greater than PRGs.
- Protect aquatic ecological receptors by preventing the migration of groundwater contaminated with petroleum hydrocarbons at concentrations greater than PRGs to surface water.

The two alternatives developed and evaluated during the FS were No Action and Institutional Controls with Monitoring. A remedy of Institutional Controls with Monitoring was selected for Site 3 groundwater in an Interim ROD (Navy, 2004e) to address the potential risks to future receptors from exposure to groundwater. Risks to current human and ecological receptors were shown not to be of significant concern, but there were potentially significant risks to hypothetical future human receptors from routine, long-term consumption of contaminated groundwater. It was expected that the selected remedy for groundwater at Site 3, a portion of OU9, would be the final remedy after remedial actions were selected for all portions of OU9. The selected remedy complied with regulatory requirements and included the following major components:

- Implementation of institutional controls that identify the location and magnitude of groundwater contamination and restrict extraction and use of the groundwater. The details of the administration of institutional controls would be provided in the remedial design documentation. In the event of property transfer and with confirmation that contaminated groundwater remains at the sites, a deed restriction would be recorded that would conform to state law, and would be used to prohibit the use of groundwater.

- Monitoring the degradation and potential migration of groundwater contaminants until concentrations decrease to the remedial goals in Table 3-2 by natural processes and until the resulting concentrations are shown to be protective of human health and the environment. Additional details regarding the scope and duration of the monitoring program would be provided in the groundwater monitoring plan.

### **3.3.1.2 OBDA**

The decision process for selecting the NTCRA for OBDA was documented in the Action Memorandum for the OBDA (Navy, 1997b). The NTCRA was completed to eliminate the potential threat to human and ecological receptors caused by the migration of contamination from potentially leaking tanks, drums, or other containers. It was determined that the most effective way to address this threat was to perform a NTCRA and dispose of the material off site. Other actions considered included institutional controls and containment. The ARARs/TBCs for the NTCRA were CTDEP Pollutant Mobility Criteria, CTDEP Direct Exposure Criteria for soil, and FFDC action tolerance levels. The estimated cost of the NTCRA, as presented in the Action Memorandum, was \$500,000.

### **3.3.2 Remedy Implementation**

#### **3.3.2.1 Area A Downstream Watercourses**

##### Soil and Sediment

The remedial action for the Area A Downstream Watercourses/OBDA soil and sediment OU (OU3) was completed during July 1999 and August 2000. The details of the remedial action were documented in the Remedial Action Completion Report for Area A Downstream/OBDA Remediation (FWEC, 2001a). The actual cost of remediation was approximately \$6,000,000. This cost does not include O&M costs.

Remediation and restoration of the site was completed in phases (i.e., Phases I through VI). The waterbodies addressed in each phase are as follows.

- Phase I – Stream 4
- Phase II – Stream 3
- Phase III – Stream 5
- Phase IV – Upper Pond
- Phase V – Lower Pond/Stream 2
- Phase VI – OBDA Pond/Stream 1/Base of OBDA Slope/Discharge Channel Structure

Although conditions varied between watercourses, the following general tasks were completed during each phase:

- Dewater and treat water as necessary.
- Perform properties sampling for match to fill material prior to excavation.
- Excavate soil/sediment and load directly to front-end loader.
- Transfer soil/sediment to material-handling pad.
- Sample excavated soil and sediment for waste characterization purposes prior to stabilization.
- Sample excavation sidewalls/base at the specified frequency.
- Perform field immunoassay screening in conjunction with off-site laboratory analysis for pesticides and metals.
- Backfill or continue excavation based on field screening and laboratory analysis.
- Mix contaminated sediment on material handling pad with stabilizing agent.
- Load stabilized material onto dump trucks and transport to disposal/recycling facility.

Approximately 18,050 tons of soil and sediment were excavated and disposed off-site during the remedial action. Post-excavation confirmatory sampling and analysis was performed to confirm that remedial goals at each excavation had been met prior to closing the excavation. Field sampling and screening for DDTR was used as the decision-making tool regarding excavation depth and area.

Several changes were made to the Remedial Design during the Remedial Action. The most significant change occurred during the remediation of Stream 4. Abandoned pipes were uncovered during the excavation of soil and sediment at the headwaters of the stream. Stream 4 is formed by the discharge from the Area A Wetland. These abandoned pipes were below the existing outlet structure for the Area A Wetland. It was felt that excavation and removal of the pipes would compromise the integrity of the Area A Wetland dike. Analytical results for a soil sample collected from around the pipes showed a concentration of DDTR of approximately 33 mg/kg, which is above the soil remediation goal of 5 mg/kg. To address the problem, the area around the piping was isolated and encapsulated using a cement/bentonite grout. In order to minimize erosion immediately beneath the Area A Wetland outfall structure, concrete was placed to form an apron and anchor the rock structure in part of the excavation.

Based on the discovery and encapsulation of contaminated material during the Site 3 soil remedial action, an Explanation of Significant Difference (ESD) was prepared to document the change in the remedy as presented in the 1998 ROD (Navy, 2007). The selected remedy described in the ROD included excavation and off-site disposal of contaminated soil. The remedial action, which included excavation and disposal of approximately 18,050 tons of contaminated soil and sediment, was completed in 2000.

However, as described above, an area of contaminated soil and sediment in and around two abandoned pipes could not be excavated without compromising the integrity of the Area A Dike; therefore, this area was encapsulated with concrete rather than excavated. The estimated volume of sediment within the pipes, based on assumptions that the two pipes are completely filled with sediment and that the pipes are 18 inches in diameter and 100 feet long, is 13 cubic yards. The estimated volume of contaminated soil left in place around the pipes is a few cubic yards. Because contaminated material was left in place instead of removed (as was planned based on the remedy detailed in the ROD), institutional controls are now required as part of the remedy. The Site 2 Inspection Checklist in Volume III of the O&M Manual was revised in 2008 to include inspection of the Site 3 ESD concrete cover and institutional controls document (Tetra Tech, 2008g). Volume VI was added to the O&M Manual for Site 3 inspection, including inspection of the Site 3 ESD concrete cover, institutional controls, and groundwater monitoring wells (Tetra Tech, 2010h).

To meet the land use control requirements in the ROD, the Navy implemented an instruction [i.e., SOPA (ADMIN) New London Instruction 5090.18C (Navy, 2008c)] to restrict use at IR sites at NSB-NLON. The current instruction that defines the Navy's policy regarding ground surface disturbance of soils or any subsurface disturbance of soils and/or groundwater at IR sites is SOPA (ADMIN) New London Instruction 5090.25 (Navy, 2009b). Other components of the remedial action, including long-term monitoring and O&M, are discussed in Section 3.3.3.

### Groundwater

The ROD for OU9, Basewide Groundwater was completed in September 2008 (Navy, 2008b). The final selected remedy for groundwater at Site 3 is Institutional Controls with Monitoring. Tetra Tech Volume II (Groundwater Monitoring Plan) of the O&M Manual was revised in 2008 (REV 2 Draft) and 2010 (REV 2 Draft Final) to address the USEPA comments on the 2006 O&M Manual and to update site information for Site 3 (Tetra Tech, 2008g; 2010h).

A Remedial Design for Land Use Controls was completed for Site 3 groundwater in June 2005 (Tetra Tech, 2005). The Navy incorporated the information in the Remedial Design into the New London Instruction 5090.25 (Navy, 2009b). Based on the Final ROD for OU9, the 2004 LUC RD was updated to include the entire Basewide Groundwater OU9 (Tetra Tech, 2009e). The RACR for OU9 was prepared to document the completion of site remedies and ongoing activities at Site 3A (Tetra Tech, 2009b). In 2009, a table and map were filed in the land record offices of the Towns of Groton and Ledyard, Connecticut to show the location of monitoring wells, note the remedy in place, and list contaminants of concern and LUCs imposed at Site 3A (Navy, 2009c; Navy 2009d).

The objective of the Site 3 Groundwater Monitoring Plan was to conduct long-term monitoring of the degradation and potential migration of COCs until concentrations decrease to levels at which unrestricted use of and unlimited exposure to groundwater may be permitted, as stated in the OU9 ROD. The monitoring program will continue until compliance with remedial goals within the site boundaries are shown, and it is confirmed that contamination is not migrating from the site at concentrations in excess of remedial goals. The groundwater at Site 3 is designated as GB by the State of Connecticut; however, the Navy's goal for groundwater remediation at these sites was to meet GA requirements to eliminate groundwater use restrictions in the future. Based on State regulations, monitoring can be discontinued after 3 years of data that show compliance with the applicable criteria. After the monitoring program can be discontinued, the groundwater use restrictions can be eliminated, and five-year reviews will no longer be necessary at the site. Annual reports will be issued to summarize the results of the monitoring program and provide thorough evaluations of each year of data collected under the program.

The Navy began implementation of the Groundwater Monitoring Program as described in the Remedial Action Work Plan (Tetra Tech, 2006b) and Site 3 Groundwater Monitoring Plan was incorporated into the O&M Manual (Tetra Tech, 2006a) to address implementation of the groundwater monitoring program at Site 3. Four new monitoring wells were installed at Site 3 to complete the monitoring well network. A total of nine monitoring wells (five existing and four new) were then sampled and analyzed for VOCs under the monitoring program. The monitoring program initially consisted of quarterly sampling events. The analytical program and monitoring well network has been modified as necessary as the monitoring program has been optimized, as discussed in Section 3.5.2.

The estimated cost of the selected remedy for Site 3 groundwater in the ROD was \$319,500, which included capital, monitoring, and O&M costs. A Remedial Design for Land Use Controls was subsequently completed for Site 3 groundwater in June 2005 (Tetra Tech, 2005). The Navy also prepared the Remedial Action Work Plan (Tetra Tech, 2006b) and Site 3 Groundwater Monitoring Plan was incorporated into the O&M Manual (Tetra Tech, 2006a) to address implementation of the groundwater monitoring program at Site 3.

### **3.3.2.2 OBDA**

The NTCRA for the OBDA was completed during January 1997 and March 1997. The details of the NTCRA were documented in the Final Post Removal Action Report for Over-Bank Disposal Area (FWEC, 1997c). Tanks, large metal items, timbers, and miscellaneous construction debris resting on or protruding through the existing ground surface were removed from the OBDA during the NTCRA. Material removed from the site was decontaminated, if necessary, stockpiled, and subsequently transported off site for disposal. Potentially contaminated debris was wipe sampled and analyzed for DDT. Soil was also sampled and analyzed for DDT. DDT was not detected in either sample. After excavation, rock was

placed in the excavation to stabilize it, and then the excavation area was restored with topsoil and hydroseeded.

### **3.3.3 System Operations/Operation and Maintenance**

#### **3.3.3.1 Wetland Restoration and Long-Term Monitoring**

##### Restoration

As a result of soil and sediment excavation and removal during the Site 3 remedial action, 2.90 acres of palustrine wetlands were disturbed. Compensatory mitigation for this impact required the restoration of 2.43 acres of palustrine wetlands and 0.47 acre of open water. All areas excavated during the Area A Downstream/OBDA remedial action were restored and reseeded in accordance with the Wetland Restoration Plan in the 100% Design (FWEC, 2000). This activity was considered Stage 1 of restoration activities and was completed on August 24, 2000. Vegetation, hydrologic conditions, and fish and wildlife use at Site 3 were monitored weekly between August 14 and October 26, 2000. A baseline benthic survey was also conducted in October 2000 in conjunction with the post-construction monitoring. The results of the monitoring were documented in the Post Construction Monitoring Report, Area A Downstream/OBDA (FWEC, 2001a). In general, all of the initial monitoring results were positive and indicated that restoration activities were successful. Planting of woody species (i.e., shrubs and trees) at Site 3 was completed in April and May 2001. This activity was considered Stage 2 of the restoration activities.

##### Long-Term Monitoring

As detailed in the final Long-Term Wetland Monitoring Plan (FWEC, 2001b), long-term monitoring consisted of four components: vegetation, soils, hydrology, and functions and values. Long-term monitoring commenced upon the completion of the Stage 2 plantings. The performance standards for the monitoring were as follows:

##### Vegetation

- A minimum of 80 percent areal cover, excluding planned open water areas, by non-invasive hydrophytic species for all seeded areas.
- Greater than 50 percent of dominant plant species that have a wetland indicator status of facultative (FAC), facultative wetland (FACW), or obligate wetland (OBL) with no more than 50 percent of FAC species.

- For planted woody species, a minimum of 80 percent survival based on stem count.
- A 20 percent increase in tree height and diameter at breast height.

#### Soils

- Trend towards hydric condition within the upper 18 inches of the soil profile.

#### Hydrology

- Emergent zone hydrology that consists of soil saturated to the surface, water on the surface, or a combination of surface water and saturated soils for at least 10 consecutive days during the growing season.
- Scrub/shrub and forested zone hydrology that consists of soil saturated to the surface, or the groundwater table within 10 inches of the surface, for at least 10 consecutive days of the growing season.

#### Functions and Values

- All streams and ponds show a trend toward greater biological diversity in the benthic invertebrate community.
- Post-remedial functions and values equal to or greater than pre-remedial functions and values.
- Predicted potential habitat for 27 percent (16) of all wetland-dependent amphibians, reptiles, and mammals evaluated by the WEThings Method.
- Restoration of 1.26 acres of emergent wetland, 1.17 acres of scrub/shrub/forested wetland, and 0.47 acres of open water.

The Wetland was monitored for 3 years. The monitoring results and corrective actions were documented in an annual report for each of those years.

The performance standards were generally met by the end of Year 3 and restoration was considered complete; therefore the Navy discontinued the long-term monitoring program after 3 years.

### 3.3.3.2 Groundwater Monitoring Program

Site 3 O&M costs were \$13,570 for 2010 and \$2,670 for 2011. The majority of the O&M costs were for inspection and reporting. The projected annual cost from the ROD and actual groundwater monitoring costs for 2006 through 2011 are presented in Section 3.6.

### 3.3.3.3 Concrete Encapsulated Soil Area

Inspection of the concrete encapsulated soil area was instituted in 2010 and will be performed annually. O&M costs for 2010 and 2011 for this area are presented in Section 3.6.

## 3.4 PROGRESS SINCE LAST REVIEW

This is the third five-year review of Site 3. No significant issues were noted during the second 5-year review inspection. Based on the results of the second 5-year review site inspection, the following recommendations were made for Site 3:

#### Continue implementation of the Groundwater Monitoring Plan.

- The groundwater monitoring plan continues to be implemented.

#### Conduct the removal action for Site 3 – NSA.

- The RA for Site 3 - NSA to address the concrete-capped soil was completed in 2007 (Shaw, 2008).

#### Continue to enforce the New London Instruction 5090.18C.

- The Base Instruction was updated in 2009 as 5090.25 (Navy, 2009b) and includes items specific to Site 3 LUCs.

#### Maintain the existing monitoring well network and/or properly abandon unnecessary monitoring wells.

- Thirteen Site 3 monitoring wells have been properly abandoned and the remaining wells have been inspected annually and maintained as necessary.

Perform at least yearly monitoring of Institutional Control compliance with the monitoring reports incorporated into future five-year reviews.

- An inspection checklist was prepared and has been included in the O&M Manual to provide annual monitoring of LUCs. The results of these inspections were incorporated into this third five-year review.

Prepare and issue an ESD for the capped wastes at Stream 4 that addresses CERCLA requirements.

- The Site 3 ESD to address the concrete-capped soil was completed in 2007 (Navy, 2007).

### **3.5 FIVE-YEAR REVIEW PROCESS**

This section provides a summary of the 5-year review process and the actions taken to complete this review.

#### **3.5.1 Document Review**

The documents reviewed for the third five-year review are listed below, and key information obtained from the documents is summarized in the following sections.

Second Five-Year Review Completed	December 2006
Explanation of Significant Difference for the OU3 ROD	May 2007
Year 1 GMR for Sites 3 and 7	September 2007
Monitoring Well Inventory Report and Abandonment Plan	September 2007
Remediation of Site 3 – NSA Soil	October 2007
Proposed Plan for Basewide Groundwater OU9	June 2008
Year 2 GMR for Sites 3 and 7	July 2008
Record of Decision of Operable Unit 9 Basewide Groundwater signed	September 2008
SOPA (ADMIN) New London Instruction 5090.18D issued	September 2008
O&M Manual - Volumes I, II, III, IV, and V (Revision 2 Draft) completed	November 2008
Round 9 GMR for Sites 3 and 7	November 2008
Letter Regarding Construction Restrictions at Monitoring Well 2DMW29S	March 2009
SOPA (ADMIN) New London Instruction 5090.25 issued	June 2009
Letter to Town of Ledyard, Land and Groundwater Use Restrictions	September 2009
Letter to Town of Groton, Land and Groundwater Use Restrictions	September 2009
Remedial Design for Land Use Controls on Basewide Groundwater OU9	November 2009
2009 Annual Inspection Report for Site 2A, Site 6, Site 8 and Site 3	December 2009
Remedial Action Completion Report for OU9 Basewide Groundwater	June 2010
2009 Annual GMR for Sites 2, 3, and 8	August 2010

O&M Manual - Volumes I, II, III, IV, and V (Rev 2 Draft Final) completed	November 2010
2010 Annual Inspection Report for Sites 2A, Site 6, Site 8 and Site 3	January 2011
2010 Annual GMR for Sites 2A, 3, 6, and 8	March 2011

### 3.5.2 Data Review

The Navy began implementation of the groundwater monitoring program, as described in the Remedial Action Work Plan (Tetra Tech, 2006b) and Site 3 Groundwater Monitoring Plan was incorporated into the O&M Manual (Tetra Tech, 2006a) to address implementation of the groundwater monitoring program at Site 3. Site 3 wells were monitored quarterly during Years 1 and 2, once in Year 3, twice in Year 4, and the frequency was changed to annually starting in Year 5 (Tetra Tech, 2007d; ECC, 2008g; Tetra Tech, 2008h; H&S, 2010, 2011b). After Round 9, it was recommended that Site 3 monitoring wells 2DMW25S, 2DMW28D, 3MW15I, and 3MW15S be abandoned by the Navy if they are no longer needed for other programs because there were no detections of contaminants of concern (COCs) during Rounds 1 through 9 (Tetra Tech, 2008h). In a letter to CTDEP, the Navy addressed installation restoration of monitoring well 2DMW29S (Navy, 2009a). In the most recent groundwater monitoring report (2010), no vinyl chloride was detected and TCE was below criteria in samples from all five monitored wells. It was recommended in the report that wells 2DMW16S, 2DMW16D, 3MW16S, 3MW16D, and 2DMW29S continue to be monitored for TCE and vinyl chloride (H&S, 2011b).

Monitoring results for TCE and vinyl chloride are tabulated on Tables 3-3 and 3-4. Table 3-3 indicates that since the second five-year review in 2006, the TCE remedial goal (RG) has been exceeded in wells 2DMW16D and 3MW16D but has not been detected in the other wells. Figure 3-2 shows that TCE concentrations are decreasing in monitoring well 2DMW16D and are typically below the RG at monitoring well 3MW16D. Because Site 6 wells 6MW6D and 6MW6S are located on the western edge of Site 3 and VOCs related to Site 3 have previously been detected in these wells, the O&M Manual suggests that analytical results from 6MW6S and 6MW6D should be considered during the evaluation of the Site 3 monitoring data. Figure 3-2 shows that TCE concentrations have dropped at 6MW6D and were below the Site 3 RG in 2010. The 6MW6S TCE results were detected below the RG or not detected in the past 5 years. Table 3-4 shows that the vinyl chloride RG was exceeded only in monitoring well 2DMW29S, and was detected in other wells only during Round 8 (2008). Figure 3-3 shows that vinyl chloride concentrations at 2DMW29S fluctuated above and below the RG, but were below the RG in 2010 and 2011. Vinyl chloride results for 6MW6D and 6MW6S were below the Site 3 RG for the past 5 years.

#### 3.5.2.1 **O&M Data Review**

Soil at Site 3 was remediated in 2000 through the removal of the bulk of the contaminated soil. A portion of the soil around steel pipes passing through the Area A dike could not be removed without

compromising the integrity of the dike. The contaminated soil was encapsulated in concrete and requirements put in place for institutional control and 5-year review. The Navy has concluded that the Site 2A controls are adequate for controlling access to Site 3 and that no other fences or signage are necessary. This conclusion is based in part on the fact that there is limited access to the remote location, and there is steep terrain and a heavily wooded area surrounding the site. Consequently, inspections have not addressed Site-3 specific access controls. There are no regularly scheduled maintenance activities at the site. As shown in the table below, two inspections have been performed at Site 3 since the Second Five Year Review and within the period being evaluated in this Third Five-Year Review. Site 3 inspections were performed in 2009 and 2010. The inspection at Site 3 during 2009 was limited to the concrete encapsulation of contaminated soils. In 2010, monitoring wells were also inspected. The inspection reports did not address other features of the Site. Inspection Checklists for Site 3, for 2009 and 2010, are provided in Appendix A.

<b>Year</b>	<b>Initial Date of Inspection</b>	<b>Final Report Date</b>
2006	N/A	N/A
2007	N/A	N/A
2008	N/A	N/A
2009	August 19, 2009	December 2009
2010	August 19, 2010	January 2011

The 2009 inspection focused on the general site condition and whether there was evidence of intrusive activities or inappropriate dumping. The inspection report noted that there were no monitoring wells on Site 3. However, that statement is applicable only to the concrete encapsulated portion of the Site; groundwater monitoring reports reviewed as a part of the Third Five-Year Review include monitoring data collected as early as 2006 from wells located within Site 3. The summary conclusion of the inspection of Site 3 was that the concrete encapsulation was functioning as designed, the shotcrete that was placed there is in good condition, and it was preventing erosion of contaminated soil and exposure to the underlying soil. The deficiency log from the 2009 inspection, provided in Appendix A, shows that no deficiencies were identified during the inspection.

Nine groundwater monitoring wells were sampled through 2009 and five wells, that are monitored annually remain in the Site 3 monitoring program. Evaluations of the well conditions were included in 2010 inspection Report. The report text states that in July 2010, all of the wells were noted as being in satisfactory condition, although the source of that information is not referenced. Four of the wells were removed from the monitoring program and the only deficiency noted during the inspection was that those wells should be properly abandoned. While not specifically identified as a deficiency, the report notes that a large partially fallen tree was located directly above drainage pipes in the Site and that monitoring

of the condition of the tree should continue to determine whether the tree should be removed to prevent damage to the pipes. The 2010 Deficiency Log is provided in Appendix A.

### **3.5.3 ARAR and Site-Specific Action Level Changes**

#### **3.5.3.1 Soil and Sediment**

The selected remedy for soil and sediment at the Area A Downstream was excavation and off-site disposal of the material. The ARARs/TBCs considered during preparation of the ROD are presented in Tables 3-5, 3-6, and 3-7. These ARARs/TBCs were generally met during implementation of the remedial action. No new human health ARARs have been promulgated that would call into question the protectiveness of the remedy for soil and sediment.

Title 40 CFR 6, Appendix A (Statement of Procedures on Floodplain Management and Wetlands Protection) which is a regulatory citation associated with Executive Order (E.O.) 11990 (Protection of Wetlands) has been deleted. However, E.O. 11990 remains in effect. This change was captured on Table 3-6.

Because phragmites control was not included in the Site 3 ROD, ARARs do not include 7 U.S.C. 2814; however, invasive species at Site 3 are currently managed under the Navy's Natural and Cultural Resources Program, which implement applicable U.S.C. laws and E.O. policies.

Remedial action goals for arsenic and beryllium were based on potential impacts to older child trespassers exposed by incidental ingestion of soil/sediment. The remedial goal of 2.1 mg/kg for beryllium was based on carcinogenic health effects. In April 1998 USEPA withdrew the carcinogenic toxicity criteria for oral exposures to beryllium. The remedial goal for potential exposures to beryllium in soil/sediment by an older child trespasser based on noncarcinogenic effects would be 2,600 mg/kg. Since the revised remedial goal for beryllium is higher and therefore less stringent than the remedial goal presented in the FS and ROD, the revised remedial goal for beryllium does not call into question the effectiveness of the remedy.

The soil RG of 5.0 mg/kg for DDTR was based on potential impacts to the short-tail shrew via ingestion of soil and contaminated prey items. The toxicity data used to develop this value have not changed since the preparation of the ROD and FS, but would result in an increase if the RG were to be based on a lowest observed effects level, so the original RG of 5 mg/kg is still protective. A site-specific soil-to-earthworm BAF was determined, so this value has not changed. In addition, the exposure parameters in the food-chain model have not changed since the derivation of the original RGs. Consequently, the effectiveness of the remedy for soil remains valid.

The sediment remedial goals for metals were based on the ER-M values from Long et al. (1995), which have not changed or been updated in the last 5 years. Also, because the sediment remedial goal for DDTR was based on site-specific empirical relationships between effects to benthic macroinvertebrates and DDTR concentrations, no changes can be made to this remedial goal. Therefore, the effectiveness of the remedy for sediment has not changed in the last 5 year.

The sediment remedial goal for dieldrin was based on equilibrium partitioning using site-specific TOC concentrations, the chemical-specific  $K_{oc}$  values, and the WQSV for dieldrin. The only update to the parameters used in this equation was the WQSV, which was decreased from 0.062  $\mu\text{g/L}$  (USEPA, 1993a) to 0.056  $\mu\text{g/L}$  (USEPA, 1999a). This would produce a slightly lower sediment action level. Dieldrin was only detected in one post-removal sediment sample at an estimated concentration of 0.0022 mg/kg. This value was significantly less than the sediment action level of 0.045 mg/kg, and would only decrease slightly using the updated WQSV. Therefore, the revised WQSV for dieldrin does not call into question the effectiveness of the remedy.

#### **3.5.3.2 Groundwater**

The ARARs/TBCs considered during preparation of the OU 9 ROD (Navy, 2008b) are presented in Tables 3-8, 3-9, and 3-10. These ARARs/TBCs have been or will be met by implementation of the remedial action. A Land Use Control Remedial Design was completed, and controls have been implemented through the New London Instruction 5090.25 (Navy, 2009b). A groundwater monitoring program was initiated, and the results have been reported in monitoring reports. The CTDEP criterion for volatilization from groundwater for vinyl chloride was revised prior to the OU 9 ROD to a value of 1.6  $\mu\text{g/L}$ . This is slightly less than the drinking water criterion of 2  $\mu\text{g/L}$  that was carried through the FS and the interim ROD. However, this value is very similar to the previous value and does not call into question the protectiveness of the remedy for groundwater. No other new human health ARARs have been promulgated since the ROD that would call into question the protectiveness of the remedy for groundwater.

Title 40 CFR Part 6, Appendix A (Statement of Procedures on Floodplain Management and Wetlands Protection) has been deleted. However, the related Executive Orders, EO 11988 (Floodplain Management) and E.O. 11990 (Protection of Wetlands), remain in effect.

#### **3.5.4 Site Inspection**

Five-year review site inspections were completed on April 6, 2011. The site inspection included a visual review of several Site 3 features (i.e., concrete encapsulated soil, general condition of the wetland

restoration, and monitoring wells for the groundwater monitoring program) was completed during the inspection. Weather conditions during the inspection were cool (mid-50s), sunny, and windy. Representatives from the Navy, CTDEP, and Tetra Tech participated in the inspection. Photographs of the concrete encapsulated area are provided in Appendix B. One minor O&M issue was noted during the inspection.

During the site inspection, the team found that the land use for the site had not changed since the remedial action and second five-year review were completed. The area remains a natural, undeveloped area with streams, ponds, and wetlands. A future off-site land use change was noted during the inspection (i.e., the Shooting Range will be moved to a new location near Site 2A). The site inspection found that the concrete cap was in good condition and working as intended. The wetland restoration was successful and the planted vegetation and ponds are in good condition. It was noted that the cover on a well in Site 3 that is part of the Site 2A monitoring program (3MW12D) is broken, which could negatively affect the Site 2A long-term groundwater monitoring program and needs to be repaired. This O&M issue is included in Table 3-11 and the site inspection checklist provided in Appendix C, and on Figure 3-1.

### 3.5.5 Site Interviews

No official interviews were conducted as part of the third five-year review. The status of site restoration monitoring was discussed with the Navy. Details of the site restoration monitoring are discussed in Section 3.3.3.1.

## 3.6 ASSESSMENT

The following conclusions support the determination that the remedy for the Site 3 soil and sediment OU (OU3) is protective of human health and the environment and that the remedy for the Site 3 groundwater OU, a portion of OU9, is protective of human health and the environment.

### ***Question 1. Is the remedy functioning as intended by the decision documents?***

- ***Remedial Action Performance:*** All contaminated soil and sediment in excess of remediation goals (Table 3-1) were excavated and disposed off site, with the exception of a small area in Stream 4, which was capped in place using concrete. The effectiveness of the OU3 remedial action and site restoration activities was monitored for 3 years. The results of the monitoring showed that restoration activities were successful and that no further actions were necessary. The concrete encapsulated soil has been monitored for the past two years and has been found to be competent. The results of the groundwater monitoring program indicate that contaminant concentrations are declining. The results of the groundwater monitoring program indicate that natural attenuation is occurring. Because

phragmites control was not included in the Site 3 ROD, ARARs do not include 7 U.S.C. 2814; however, invasive species at Site 3 are currently managed under the Navy's Natural and Cultural Resources Program, which implement applicable U.S.C. laws and E.O. policies.

- **System Operations/O&M:** Issues noted during the post-construction monitoring program (e.g., invasive vegetation and deer browse) for OU3 were addressed as appropriate. For the groundwater OU, four new monitoring wells were installed to complete the monitoring well network, and five existing wells were redeveloped as part of the groundwater monitoring program. Four of the wells were later removed from the monitoring program and wells 2DMW16S, 2DMW16D, 3MW16S, 3MW16D, and 2DMW29S continue to be monitored for TCE and vinyl chloride (H&S, 2011b).

Actual costs for the monitoring program have ranged from approximately \$5,500 per year to \$158,500 per year (see table below). Costs have generally decreased due to optimization of the monitoring program. The costs include the costs associated with sampling, analysis, validation, and reporting. Costs associated with preparing and updating the Groundwater Monitoring Plan and maintaining the groundwater monitoring wells are not included in the costs.

Source	Cost of Monitoring
Projected Annual Cost in ROD	\$88,500
Actual Year 6 Cost (2006)	\$158,500
Actual Year 7 Cost (2007)	\$88,500
Actual Year 8 Cost (2008)	\$22,100
Actual Year 9 Cost (2009)	\$38,300
Actual Year 10 Cost (2010)	\$29,200
Actual Year 11 Cost (2011)	\$5,500

No annual cost was estimated in the ROD for the cost of O&M of the concrete encapsulated soil area. O&M of the concrete cap began in 2010, and costs have ranged from approximately \$2,700 per year to \$13,600 per year (see table below). Costs have fluctuated due to the amount of maintenance required and the amount of funding available. The annual O&M costs include the costs for inspections, reporting, and maintenance.

Source	Cost of O&M
Projected Annual Cost in ROD	\$NA
Actual Year 1 Cost (2010)	\$13,600
Actual Year 2 Cost (2011)	\$2,700

- **Opportunities for Optimization:** Since initiation of the monitoring program, four of the nine monitoring wells have been eliminated from the monitoring program; therefore those four wells should be abandoned.

Although Site 3 groundwater classification is GB, the Navy's goal is to meet the GA groundwater criteria. Based on state regulations, monitoring can be discontinued in a GA area after one year of data that shows compliance with applicable criteria followed by 3 years of post-remediation monitoring that demonstrates continued compliance. The RGs were met for all wells during the last two rounds of monitoring. After the monitoring program is discontinued, the groundwater use restrictions could be eliminated, and five-year reviews would no longer be necessary for groundwater at the site; however, five-year reviews would be continued for the concrete-encapsulated soil.

- **Early Indicators of Potential Remedy Failure:** There are no indicators of potential remedy failure.
- **Implementation of Institutional Controls and Other Measures:** Institutional controls associated with Site 3 soil are discussed in the New London Instruction 5090.25 (Navy, 2009b). Controls on the area where a small amount of contaminated soil was encapsulated at Stream 4 were incorporated into the instruction. Some areas of Site 3 are fenced and access is restricted. A significant portion of the site is within designated ESQD arcs of the Area A Weapons Center; therefore, further development is not planned for the area. A Land Use Control Remedial Design for OU9, Basewide groundwater, including Site 3 groundwater, was completed, and the controls have been implemented through the New London Instruction 5090.25. In 2009, a table and map were filed in the land record offices of the Towns of Groton and Ledyard, Connecticut to show the location of monitoring wells, note the remedy in place, and list contaminants of concern and LUCs imposed at Site 3A (includes 3B) (Navy, 2009c; Navy 2009d).

**Question 2. Are the exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the remedy selection still valid?**

- **Changes in Standards and TBCs:** There have been no changes in standards or TBCs that call into question the protectiveness of the soil and sediment OU or groundwater OU remedies. As presented in Section 3.5.3, the WQSV for dieldrin decreased from 0.062 µg/L to 0.056 µg/L. None of the other standards/TBCs have changed since the ERA was conducted. As presented in Section 3.5.3.2, the remedial goal for vinyl chloride changed from 2 µg/L to 1.6 µg/L based on the more stringent CTDEP volatilization from groundwater criterion.

- **Changes in Exposure Pathways:** Because all contaminated soil and sediment with concentrations greater than remedial goals was either excavated and disposed off site or capped in place, the direct exposure pathway for human and ecological receptors to come into contact with the soil and sediment has been eliminated. This change was planned as part of the remedial action. Groundwater at Site 3 is not currently used as a drinking water source, and municipal potable water is available at the site, which would minimize the likelihood that groundwater would be used as a drinking water source in the future.
- **Changes in Toxicity and Other Contaminant Characteristics:** In April 1998, the USEPA withdrew the oral CSF for beryllium. In addition, the oral RfD for beryllium was lowered from 0.005 mg/kg/day to 0.002 mg/kg/day. As discussed in Section 3.5.3, the changes in the toxicity criteria for beryllium do not call into question the effectiveness of the remedy for the soil and sediment OU. At the time the HHRA was prepared there were no toxicity criteria available for TCE in USEPA's IRIS database. Exposures to TCE in groundwater were evaluated using provisional criteria. In September 2011 USEPA published toxicity criteria for TCE in IRIS. The oral CSF changed from  $0.011 \text{ (mg/kg/day)}^{-1}$  to  $0.046 \text{ (mg/kg/day)}^{-1}$ . The inhalation unit risk changed from  $1.7 \times 10^{-6} \text{ (}\mu\text{g/m}^3\text{)}^{-1}$  to  $4.1 \times 10^{-6} \text{ (}\mu\text{g/m}^3\text{)}^{-1}$ . The oral RfD changed from 0.006 mg/kg/day to 0.0005 mg/kg/day. There was no inhalation reference concentration available for TCE when the baseline HHRA was prepared, whereas the current inhalation reference concentration is 0.002 mg/kg/day. The new oral CSF, oral RfD, and inhalation reference concentration are more stringent than the provisional values used in the baseline HHRA, while the inhalation unit risk is less stringent than the value used in the baseline HHRA. The changes in the toxicity criteria for TCE do not call into question the effectiveness of the remedy for groundwater because the CTDEP SWPC were selected as RGs for groundwater and these values have not changed. Also as part of the ROD for OU9 risks from potential exposures through vapor intrusion were evaluated and cancer and noncancer risks from TCE were found to be within acceptable levels. Cancer and noncancer risks would still be within acceptable levels using the new toxicity criteria for TCE. None of the ecological toxicity data have changed since the ERA was conducted.
- **Changes in Risk Assessment Methods:** Since the human health risk assessments were prepared USEPA has issued new guidance documents, as discussed in Section 1.4. The new guidance documents do not impact the conclusions of the original human health risk assessments. As discussed in Section 1.4, ecological risk assessment methodology has not changed significantly over the past 5 years.
- **Expected Progress Towards Meeting RAOs:** The RAOs for OU3 were met by conducting the remedial action that included excavation and off site disposal of a majority of the contaminated soil

and sediment and capping in place of a small amount of contaminated soil/sediment in Stream 4. RAOs for the groundwater at Site 3, a portion of OU9, are in the progress of being met. A Remedial Design for LUCs was prepared for groundwater and was incorporated in the current New London Instruction. A Groundwater Monitoring Plan was implemented in May 2006 to monitor COCs until concentrations reach the remedial goals.

***Question 3. Has any other information come to light that could call into question the protectiveness of the remedy?***

No additional information has been identified that would call into question the protectiveness of the remedy.

### **3.7 ISSUES**

The following O&M issue was identified during this review:

- The cover of well 3MW12D is broken and needs to be replaced.

### **3.8 RECOMMENDATIONS AND FOLLOW-UP ACTIONS**

Based on the results of the site inspection and review, the following recommendations are made for Site 3:

#### **Deficiencies**

- None

#### **O&M Issues**

- Continue O&M (annual inspections and monitoring) and address the O&M issue identified in Section 3.5.4 and presented in Table 3-11.

#### **Other Recommendations**

- Continue enforcement of New London Instruction 5090.25 until a LUC RD can be developed.
- Abandon monitoring wells 2DMW25S, 2DMW28D, 3MW15S, and 3MW15I that are not currently being used for the monitoring program.

- Complete and implement Revision 2 of the O&M Manual.
- Complete a RACR to document completion of the remedial action.

Follow-up actions should be completed by the Navy in a timely manner to address the recommendations.

### **3.9 PROTECTIVENESS STATEMENT**

The remedy implemented for soil and sediment at Site 3 (OU3), including Site 3 – NSA, is protective of human health and the environment.

The remedy for groundwater at Site 3 is expected to be protective of human health and the environment. The groundwater OU for Site 3 is being addressed with institutional controls and monitoring. There are no immediate threats to human health or the environment from the OU (i.e., groundwater is not currently used as a drinking water source). Continued implementation of institutional controls and monitoring maintain the effectiveness of the remedy into the future.

TABLE 3-1

SUMMARY OF REMEDIAL GOALS FOR SITE 3 SOIL AND SEDIMENT  
SITE 3 – AREA A DOWNSTREAM WATERCOURSES/OBDA  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT

Contaminant of Concern	Medium of Concern	
	Soil	Sediment
DDTR	5.0 mg/kg	2.0 mg/kg
Dieldrin	Not a COC	0.045 mg/kg
Arsenic	Not a COC	6.1 mg/kg
Beryllium	Not a COC	2.1 mg/kg
Cadmium	Not a COC	9.6 mg/kg
Lead	Not a COC	218 mg/kg
Zinc	Not a COC	410 mg/kg

TABLE 3-2

SUMMARY OF REMEDIAL GOALS FOR SITE 3 GROUNDWATER  
 SITE 3 – AREA A DOWNSTREAM WATERCOURSES/OBDA  
 NAVAL SUBMARINE BASE NEW LONDON  
 GROTON, CONNECTICUT

Contaminant of Concern	Remedial Goal for Protection of Future Potential Receptors <sup>(1)</sup>
<b>Volatile Organic Compounds</b>	
Trichloroethene	5 µg/L <sup>(1)</sup>
Vinyl chloride	1.6 µg/L <sup>(2)</sup>
<b>Semi-volatile Organic Compounds</b>	
Hexachlorobenzene	NA <sup>(3)</sup>

Shaded block indicates a change from previous Five-Year Review.

- 1 From OU9 ROD, human health remedial goal is based on federal Maximum Contaminant Level and Connecticut Remediation Standard Regulation (RSR).
- 2 From OU9 ROD, human health remedial goal is based on Connecticut RSR for groundwater volatilization.
- 3 Per OU9 ROD, hexachlorobenzene is not a contaminant of concern.

TABLE 3-3

SITE 3 GROUNDWATER MONITORING PROGRAM 2006 THROUGH 2011  
TCE SAMPLING AND RESULTS  
THIRD FIVE-YEAR REVIEW REPORT  
NSB-NLON, GROTON, CONNECTICUT

Well ID	Year 1	Year 1	Year 1	Year 1	Year 2	Year 2	Year 2	Year 2	Year 3	Year 4	Year 4	Year 5	Year 6
	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6	Round 7	Round 8	Round 9	Round 10	Round 11	Round 12	Round 13
	2006	2006	2007	2007	2007	2007	2007	2008	2008	2009	2009	2010	2011
<b>Monitoring Wells</b>													
2DMW16S	ND	ND	ND	TBD									
2DMW16D	>RG	>RG	>RG	>RG	x	>RG	>RG	x	>RG	x	x	x	TBD
2DMW25S	ND	NS	NS	NS									
2DMW28D	ND	NS	NS	NS									
2DMW29S	ND	ND	ND	TBD									
3MW15S	ND	NS	NS	NS									
3MW15I	ND	NS	NS	NS									
3MW16S	ND	ND	ND	TBD									
3MW16D	>RG	x	x	x	x	x	x	>RG	>RG	x	x	x	TBD

ND Not detected.

NS Not sampled.

x Parameter detected but did not exceed the remedial goal.

>RG Result greater than remedial goal of 5 µg/L.

TBD To Be Determined.

TABLE 3-4

**SITE 3 GROUNDWATER MONITORING PROGRAM 2006 THROUGH 2011  
THIRD FIVE-YEAR REVIEW REPORT  
VINYL CHLORIDE SAMPLING AND RESULTS  
NSB-NLON, GROTON, CONNECTICUT**

Well ID	Year 1	Year 1	Year 1	Year 1	Year 2	Year 2	Year 2	Year 2	Year 3	Year 4	Year 4	Year 5	Year 6
	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6	Round 7	Round 8	Round 9	Round 10	Round 11	Round 12	Round 13
	2006	2006	2007	2007	2007	2007	2007	2008	2008	2009	2009	2010	2011
<b>Monitoring Wells</b>													
2DMW16S	ND	x	ND	ND	ND	ND	TBD						
2DMW16D	ND	x	ND	ND	ND	ND	TBD						
2DMW25S	ND	NS	NS	NS									
2DMW28D	ND	NS	NS	NS									
2DMW29S	x	>RG1	ND	>RG1	>RG1	ND	>RG1	x	>RG2	>RG2	ND	ND	TBD
3MW15S	ND	NS	NS	NS									
3MW15I	ND	NS	NS	NS									
3MW16S	ND	x	ND	ND	ND	ND	TBD						
3MW16D	ND	ND	ND	TBD									

ND Not detected.

NS Not sampled.

x Parameter detected but did not exceed the remedial goal.

>RG1 Result greater than remedial goal of 2 µg/L.

>RG2 Result greater than remedial goal of 1.6 µg/L.

TABLE 3-5

**CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE FOR SOIL AND SEDIMENT  
 SITE 3 – AREA A DOWNSTREAM WATERCOURSE/OBDA  
 NAVAL SUBMARINE BASE NEW LONDON  
 GROTON, CONNECTICUT  
 PAGE 1 OF 3**

Requirement	Citation	Status	Synopsis of Requirement	Current Status / Applicability
<b>Federal</b>				
Water Quality Criteria for DDT and Metabolites (EPA 440-80-038), 1980 [Note: actual title is Ambient Water Quality Criteria for DDT (440/5-80-038)]	Not Applicable (NA)	To be Considered (TBC)	Provides criteria for assessing toxicity of DDT and metabolics to aquatic organisms.	DDTR-contaminated soil/sediment was either excavated, removed, and replaced with uncontaminated material or capped. Remaining soil/sediment provides no source of contamination to surface waters and poses no hazard to potential aquatic receptors. Because waste was capped in place at Stream 4, these requirements are carried forward to the future operation and maintenance of the remedy.
Technical Basis for deriving Sediment Quality Criteria for Non-Ionic Organic Contaminants for Protection of Benthic organisms by Using Equilibrium Partitioning (EPA-822-R-93-011), 1993	NA	TBC	Guidance for estimating cleanup goals for sediment contamination.	Contaminated sediment was either excavated, removed, and replaced with uncontaminated material or capped. Remaining sediment poses no hazard to potential receptors. Removal of contaminated sediment achieved protection of receptors of concern; therefore, this requirement is no longer necessary.

TABLE 3-5

**CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE FOR SOIL AND SEDIMENT  
SITE 3 – AREA A DOWNSTREAM WATERCOURSE/OBDA  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT  
PAGE 2 OF 3**

<b>Requirement</b>	<b>Citation</b>	<b>Status</b>	<b>Synopsis of Requirement</b>	<b>Current Status / Applicability</b>
<b>Federal (Continued)</b>				
National Oceanographic and Atmospheric Administration (NOAA) Incidence of Adverse Biological Effects within Ranges of Chemical Concentration in Marine and Estuarine Sediments (Long et. al., 1995)	NA	TBC	Guidance on concentration ranges of contaminants in sediment that would rarely or more likely to have adverse effects. Findings comparable with fresh-water sediments.	Contaminated sediment was either excavated, removed, and replaced with uncontaminated material or capped. Remaining sediment poses no hazard to potential receptors. Remedial actions achieved protection of receptors of concern; therefore, this requirement is no longer necessary.
Cancer Slope Factors (CSFs)	NA	TBC	These are guidance values used to evaluate the potential carcinogenic hazard caused by exposure to contaminants.	Contaminated sediment was either excavated, removed, and replaced with uncontaminated material or capped. Remaining sediment poses no hazard to potential receptors. Because waste was capped in place at Stream 4, these requirements are carried forward to the future operation and maintenance of the remedy.
Reference Doses (RfDs)	NA	TBC	These are guidance values used to evaluate the potential noncarcinogenic hazard caused by exposure to contaminants.	Contaminated soil/sediment was either excavated, removed, and replaced with uncontaminated material or capped. Because waste was capped in place at Stream 4, these requirements are carried forward to the future operation and maintenance of the remedy.

TABLE 3-5

**CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE FOR SOIL AND SEDIMENT  
 SITE 3 – AREA A DOWNSTREAM WATERCOURSE/OBDA  
 NAVAL SUBMARINE BASE NEW LONDON  
 GROTON, CONNECTICUT  
 PAGE 3 OF 3**

Requirement	Citation	Status	Synopsis of Requirement	Current Status / Applicability
<b>Connecticut</b>				
Soil Remediation Standards	Regulations of Connecticut State Agencies (RCSA) § 22a-133k-1 through 2	Applicable	Regulations specify remediation standards for direct exposure to soil and sediments. Regulations also specify groundwater protection standards for contaminated soil in areas with a state groundwater classification of GB.	Contaminated soil/sediment was either excavated, removed, and replaced with uncontaminated material or capped. Because waste was capped in place at Stream 4, these requirements are carried forward to the future operation and maintenance of the remedy. The groundwater aquifer is expected to meet the standards for the GB groundwater classification after the completion of the groundwater operable unit activities.

TABLE 3-6

LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE FOR SOIL AND SEDIMENT  
 SITE 3 – AREA A DOWNSTREAM WATERCOURSES/OBDA  
 NAVAL SUBMARINE BASE NEW LONDON  
 GROTON, CONNECTICUT  
 PAGE 1 OF 5

Requirement	Citation	Status	Synopsis of Requirement	Current Status / Applicability
<b>Federal</b>				
Clean Water Act, Section 404	33 United States Code (USC) 1344; 40 Code of Federal Regulations (CFR) Part 230 and 33 CFR Parts 320-323	Applicable	These rules regulate the discharge of dredge and fill materials in wetlands and navigable waters. Such discharges are not allowed if practicable alternatives are available.	Remedial action included dredging of soil and sediment from contaminated wetlands and replacement/restoration with uncontaminated material. Measures were taken to minimize adverse effects and to replace or restore protected wetland functions and values. Because waste was capped in place at Stream 4, these requirements are carried forward to the future operation and maintenance of the remedy.

TABLE 3-6

LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE FOR SOIL AND SEDIMENT  
 SITE 3 – AREA A DOWNSTREAM WATERCOURSES/OBDA  
 NAVAL SUBMARINE BASE NEW LONDON  
 GROTON, CONNECTICUT  
 PAGE 2 OF 5

Requirement	Citation	Status	Synopsis of Requirement	Current Status / Applicability
<b>Federal (Continued)</b>				
Executive Order 11990 RE: Protection of Wetlands	Executive Order (E.O.)11990, 40 CFR Part 6, Appendix A	Applicable	This order requires Federal agencies to take action to avoid adversely impacting wetlands wherever possible, to minimize wetlands destruction and to preserve the values of wetlands, and to prescribe procedures to implement the policies and procedures of this Executive Order.	Remedial action included dredging of soil and sediment from the contaminated wetlands and replacement/restoration with uncontaminated material. Measures were taken to minimize adverse effects and to replace or restore protected wetland functions and values. Wetlands restoration was completed according to the Wetlands Restoration Plan. The substantive requirements of the wetlands regulations have been met. Changes in remedial goals for soil and sediment as related to wildlife and benthic organisms are presented in Section 3.5.3. Because waste was capped in place at Stream 4, these requirements are carried forward to the future operation and maintenance of the remedy. Title 40 CFR Part 6, Appendix A has been deleted, but E.O. 11990 remains in effect.

TABLE 3-6

LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE FOR SOIL AND SEDIMENT  
 SITE 3 – AREA A DOWNSTREAM WATERCOURSES/OBDA  
 NAVAL SUBMARINE BASE NEW LONDON  
 GROTON, CONNECTICUT  
 PAGE 3 OF 5

Requirement	Citation	Status	Synopsis of Requirement	Current Status / Applicability
<b>Federal (Continued)</b>				
Fish and Wildlife Coordination Act	16 USC Part 661 <i>et. seq.</i> , 40 CFR 122.49	Applicable	This act protects fish and wildlife when Federal actions result in control or structural modification of a natural stream or body of water.	Remedial action included dredging of soil and sediment from the contaminated wetlands and replacement/restoration with uncontaminated material. Measures were taken to minimize adverse effects on fish and wildlife. Changes in remedial goals for soil and sediment as related to wildlife and benthic organisms are presented in Section 3.5.3. Because waste was capped in place at Stream 4, these requirements are carried forward to the future operation and maintenance of the remedy.
Coastal Zone Management Act	16 USC Parts 1451 <i>et. seq.</i>	Applicable	Requires that any actions must be conducted in a manner consistent with state approved management programs.	Dredging, filling, regrading, and restoration of vegetation were completed. Because waste was capped in place at Stream 4, these requirements are carried forward to the future operation and maintenance of the remedy.

TABLE 3-6

LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE FOR SOIL AND SEDIMENT  
 SITE 3 – AREA A DOWNSTREAM WATERCOURSES/OBDA  
 NAVAL SUBMARINE BASE NEW LONDON  
 GROTON, CONNECTICUT  
 PAGE 4 OF 5

Requirement	Citation	Status	Synopsis of Requirement	Current Status / Applicability
<b>Federal (Continued)</b>				
Executive Order 11988 RE: Floodplain Management	Executive Order 11988	Applicable	This order requires federal agencies to evaluate the potential effects of actions it may take within a designated 100-year floodplain of a waterway to avoid adversely impacting floodplains whenever possible.	Dredging, filling, regrading, and restoration of vegetation were completed. Because waste was capped in place at Stream 4, these requirements are carried forward to the future operation and maintenance of the remedy
<b>Connecticut</b>				
Inland Wetlands and Watercourses	General Statutes of Connecticut (CGS) § 22a-37 thru 45, Regulations of Connecticut State Agencies (RCSA) § 22a-39-1 through 15	Applicable	These rules regulate all activities in wetlands and watercourses.	Contaminated soil and sediment were dredged from wetlands and watercourses, which were restored using uncontaminated material. Wetlands restoration was successfully completed in accordance with the Wetlands Restoration Plan. Changes in remedial goals for soil and sediment as related to wildlife and benthic organisms are presented in Section 3.5.3. Because waste was capped in place at Stream 4, these requirements are carried forward to the future operation and maintenance of the remedy

TABLE 3-6

LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE FOR SOIL AND SEDIMENT  
 SITE 3 – AREA A DOWNSTREAM WATERCOURSES/OBDA  
 NAVAL SUBMARINE BASE NEW LONDON  
 GROTON, CONNECTICUT  
 PAGE 5 OF 5

Requirement	Citation	Status	Synopsis of Requirement	Current Status / Applicability
<b>Connecticut (Continued)</b>				
Coastal Management	CGS §§22a-92 and 94	Applicable	Federal facilities are required to file a coastal zone consistency determination under these rules, which includes the goal that development, preservation, or use of land and water resources of a coastal area proceed without significantly disrupting the natural environment.	Contaminated soil and sediment were removed from areas within the coastal zone, which were restored using uncontaminated material. The substantive requirements of the Connecticut standards were met to address the alteration of the coastal zone. Restoration of vegetation has been completed. Because waste was capped in place at Stream 4, these requirements are carried forward to the future operation and maintenance of the remedy
CT Endangered Species Act	CGS § 26-303 through 314	Relevant and Appropriate	Regulates activities affecting state-listed endangered or threatened species or their critical habitat.	Dredging, filling, regrading, and restoration of vegetation have been completed. Because waste was capped in place at Stream 4, these requirements are carried forward to the future operation and maintenance of the remedy

TABLE 3-7

**ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE FOR SOIL AND SEDIMENT  
SITE 3 – AREA A DOWNSTREAM WATERCOURSES/OBDA  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT  
PAGE 1 OF 3**

Requirement	Citation	Status	Synopsis of Requirement	Current Status / Applicability
<b>Federal</b>				
Clean Water Act, Section 402, National Pollution Discharge Elimination System (NPDES)	33 United States Code (USC) 1342; 40 Code of Federal Regulations (CFR) 122 through 125	Applicable	These standards govern the discharge of water into surface waters.	Surface water removed prior to dredging, along with water from the sediment/soil dewatering process, was treated by filtration and carbon adsorption to meet discharge criteria according to substantive requirements of NPDES. Because waste was capped in place at Stream 4, these requirements are carried forward to the future operation and maintenance of the remedy.
<b>Connecticut</b>				
Water Pollution Control	Regulations of Connecticut State Agencies (RCSA) § 22a-430-1 through 8	Applicable	These rules regulate water discharge to surface water.	Surface water removed prior to dredging, along with water from the sediment/soil dewatering process, was treated by filtration and carbon adsorption in compliance with these regulations. Because waste was capped in place at Stream 4, these requirements are carried forward to the future operation and maintenance of the remedy.
Water Quality Standards	General Statutes of Connecticut (CGS) 22a-426	Applicable	Connecticut's Water Quality Standards establish specific numeric criteria, designated uses, and anti-degradation policies for groundwater and surface water.	Surface water removed prior to dredging, along with water from the sediment/soil dewatering process, was treated by filtration and carbon adsorption in a manner that is consistent with the anti-degradation policy in the Water Quality Standards. Because waste was capped in place at Stream 4, these requirements are carried forward to the future operation and maintenance of the remedy.

TABLE 3-7

**ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE FOR SOIL AND SEDIMENT  
SITE 3 – AREA A DOWNSTREAM WATERCOURSES/OBDA  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT  
PAGE 2 OF 3**

Requirement	Citation	Status	Synopsis of Requirement	Current Status / Applicability
<b>Connecticut (Continued)</b>				
Hazardous Waste Management: Generator and Handler Requirements, Listing and Identification	RCSA § 22a-449(c) 100-101	Applicable	Connecticut is delegated to administrate the federal Resource Conservation and Recovery Act statute through its State regulations. These sections establish standards for listing and identification of hazardous waste. The standards of 40 CFR 260-261 are incorporated by reference.	Hazardous waste determinations were performed on all contaminated soils/sediments excavated to determine that levels of regulated constituents do not exceed applicable limits. Also, wastes produced from surface water and dewatering treatment were tested to determine whether levels of certain regulated constituents (lead, mercury, heptachlor, etc.) exceed Toxicity Characteristic Leaching Procedure limits. Any contaminated soils/sediments that exceeded applicable limits were managed in accordance with requirements of these regulations. Because waste was capped in place at Stream 4, these requirements are carried forward to the future operation and maintenance of the remedy.
Hazardous Waste Management: Generator Standards	RCSA § 22a-449(c)-102	Applicable	This section establishes standards for various classes of generators. The standards of 40 CFR 262 are incorporated by reference.	Surface water treatment residues (spent filtration media and activated carbon) were tested for hazardous characteristics during remediation. Because waste was capped in place at Stream 4, these requirements are carried forward to the future operation and maintenance of the remedy.
Hazardous Waste Management: TSDF Standards	RCSA § 22a-449 (c) 104	Applicable	This section establishes standards for treatment, storage, and disposal facilities. The standards of 40 CFR 264 are incorporated by reference.	Because waste was capped in place at Stream 4, these requirements are carried forward to the future operation and maintenance of the remedy.

TABLE 3-7

**ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE FOR SOIL AND SEDIMENT  
SITE 3 – AREA A DOWNSTREAM WATERCOURSES/OBDA  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT  
PAGE 3 OF 3**

Requirement	Citation	Status	Synopsis of Requirement	Current Status / Applicability
<b>Connecticut (Continued)</b>				
Air Pollution Control	RCSA § 22a-174 1-20	Applicable	These regulations require permits to construct and operate specified types of emission sources and contain emission standards that must be met prior to issuance of a permit. Pollutant abatement controls may be required. Specific standards pertain to fugitive dust (18b), and control of odors (23) .	Emission standards for fugitive dust from excavation and restoration operations were met with dust control measures. Odors/emissions from the dewatering piles were managed to comply with these standards. Because waste was capped in place at Stream 4, these requirements are carried forward to the future operation and maintenance of the remedy.
Water Diversion Policy Act	RCSA § 22a-377(b)	Relevant and Appropriate	These rules regulate a wide variety of water diversions.	Surface water diversions during remediation were conducted using best management practices. Because waste was capped in place at Stream 4, these requirements are carried forward to the future operation and maintenance of the remedy.
Connecticut Guidelines for Soil Erosion and Sediment Control	CT Council on Soil and Water Conservation	To be Considered (TBC)	Technical and administrative guidance for development, adoption and implementation of erosion and sediment control program.	Guidelines were followed during remediation. Dredging, filling, regrading, and restoration of vegetation have been completed. Because waste was capped in place at Stream 4, these requirements are carried forward to the future operation and maintenance of the remedy.

TABLE 3-8

**CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE FOR GROUNDWATER  
SITE 3 – AREA A DOWNSTREAM WATERCOURSE/OBDA  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT  
PAGE 1 OF 2**

Requirement	Citation	Status	Synopsis of Requirement	Evaluation/Action to be Taken
<b>Federal</b>				
Cancer Slope Factors	Not Applicable	To Be Considered (TBC)	These are guidance values used in risk assessment to evaluate the potential carcinogenic hazard caused by exposure to contaminants.	The selected remedy prevents exposure to contaminated groundwater and monitors the migration and degradation of contaminants until concentrations achieve acceptable levels that meet human health concerns.
Reference Doses	Not Applicable	TBC	These are guidance values used in risk assessment to evaluate the potential non-carcinogenic hazard caused by exposure to contaminants.	The selected remedy prevents exposure to contaminated groundwater and monitors the migration and degradation of contaminants until concentrations achieve acceptable levels that meet human health concerns.
Guidelines for Carcinogen Risk Assessment	EPA/630/P-03/001F (March 2005)	TBC	Guidance for assessing cancer risk from exposures to pollutants and other agents in the environment. As part of the characterization process, explicit evaluations are made of the hazard and risk potential for susceptible lifestages, including children.	The selected remedy meets this standard because potential carcinogenic risks caused by exposure to contaminants will be addressed.
Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens	EPA/630/R-03/003F (March 2005)	TBC	Guidance for assessing cancer risks to children. Addresses a number of issues pertaining to cancer risks associated with early-life exposures and also provides specific guidance on potency adjustments for carcinogens acting through the mutagenic mode of action.	The selected remedy meets this standard because potential carcinogenic risks caused by exposure to contaminants will be addressed.

TABLE 3-8

**CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE FOR GROUNDWATER  
SITE 3 – AREA A DOWNSTREAM WATERCOURSE/OBDA  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT  
PAGE 2 OF 2**

Requirement	Citation	Status	Synopsis of Requirement	Evaluation/Action to be Taken
<b>Connecticut</b>				
Remediation Standard Regulations	General Statutes of Connecticut (CGS) 22a-133k; Regulations of Connecticut State Agencies (RCSA) 22a-133k - 1 through 3	Applicable	This regulation provides specific numerical cleanup criteria for contaminants in groundwater. Requirements are based on groundwater in the area being classified by the state as GB.	<p>The selected remedy meets these standards by restricting access to contaminated GB groundwater through institutional controls (NSB-NLON Site Use Restrictions document for as long as the Navy owns the property) or environmental land use restrictions (if the Navy transfers ownership of the property).</p> <p>Groundwater monitoring tracks the location, migration, and degradation of contaminants until concentrations achieve acceptable levels. Updates to the monitoring criteria based on Connecticut Remediation Standard Regulations are discussed in Section 3.6.</p>

TABLE 3-9

LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE FOR GROUNDWATER  
 SITE 3 – AREA A DOWNSTREAM WATERCOURSE/OBDA  
 NAVAL SUBMARINE BASE NEW LONDON  
 GROTON, CONNECTICUT  
 PAGE 1 OF 2

Requirement	Citation	Status	Synopsis of Requirement	Evaluation/Action to be Taken
<b>Federal</b>				
Coastal Zone Management Act	16 United States Code (USC) Parts 1451 et. seq.	Applicable	Requires that any actions must be conducted in a manner consistent with state-approved management programs.	This site is located in a State coastal flood zone (within the 100-year floodplain). Therefore, applicable State coastal zone management requirements were considered during determination of the Selected Remedy. This regulation would be applicable if the site use was changed or the site was altered.
Floodplain Management	40 Code of Federal Regulations (CFR) §6.302(b); Appendix A	Applicable	This regulation codifies standards established under E.O. 11988 and requires action to avoid long- and short-term impacts associated with occupancy and modifications related to floodplain development, wherever there is a practicable alternative. Promotes the preservation and restoration of floodplains so that their natural and beneficial value can be realized.	This regulation was addressed during monitoring well installation within the 100-year floodplain. This requirement is carried forward during well abandonment and operation and maintenance (O&M) of the remedy. 40 CFR §6.302(b), Appendix A has been deleted, but E.O. 11988 remains in effect.
Protection of Wetlands	40 CFR §6.302(a); Appendix A	Applicable	This regulation codifies standards established under Executive Order 11990. Under this requirement, no activity that adversely affects a wetland shall be permitted if a practicable alternative with lesser effects is available. If activity takes place, impacts must be minimized to the maximum extent.	This regulation was addressed during monitoring well installation within the river's tidal zone. This requirement is carried forward during well abandonment and O&M of the remedy. 40 CFR §6.302(a), Appendix A has been deleted, but E.O. 11990 remains in effect.

TABLE 3-9

LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE FOR GROUNDWATER  
 SITE 3 – AREA A DOWNSTREAM WATERCOURSE/OBDA  
 NAVAL SUBMARINE BASE NEW LONDON  
 GROTON, CONNECTICUT  
 PAGE 2 OF 2

Requirement	Citation	Status	Synopsis of Requirement	Evaluation/Action to be Taken
<b>Federal (Continued)</b>				
Clean Water Act	33 USC §1344; Section 404(b)(1)	Applicable	Under this requirement, no activity that adversely affects a wetland shall be permitted if a practicable alternative with lesser effects is available. If activity takes place, impacts must be minimized to the maximum extent. This act controls discharges of dredged or fill material to protect aquatic ecosystems.	This regulation was addressed during monitoring well installation within the river's tidal zone. This requirement is carried forward during well abandonment and O&M of the remedy.
Guidelines for Specification of Disposal Sites for Dredged or Fill Material	40 CFR Parts 230 and 231 and 33 C.F.R. Parts 320 through 323			
<b>Connecticut</b>				
Connecticut Coastal Management Act	General Statutes of Connecticut (CGS) §22a-444	Applicable	The sites are in a coastal zone management area; therefore, requirements for site planning must include approval of activities within the coastal zone to minimize project impacts to this area.	This regulation was addressed during monitoring well installation within the 100-year floodplain. This requirement is carried forward during well abandonment and O&M of the remedy.
Inland Wetland and Watercourses Act and Regulations	CGS 22a-36 through 45; Regulations of Connecticut State Agencies (RCSA) 22a-39-1 through 15	Applicable	These standards regulate any operation in or affecting an inland wetland or watercourse, involving removal or deposition of material or any obstruction, alteration, or pollution of such wetlands. The standards incorporate local wetland regulations, which include additional substantive requirements and a wetland and watercourse boundary map for the Town of Groton.	This regulation was addressed during monitoring well installation within the river's tidal zone. This requirement is carried forward during well abandonment and O&M of the remedy.

TABLE 3-10

**ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE FOR GROUNDWATER  
SITE 3 – AREA A DOWNSTREAM WATERCOURSE/OBDA  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT  
PAGE 1 OF 3**

Requirement	Citation	Status	Synopsis of Requirement	Evaluation/Action to be Taken
<b>Federal</b>				
Clean Water Act, Section 403, Pretreatment Regulations	Section 403	Applicable	General pretreatment requirements for discharge to a publicly-owned treatment works (POTW).	Groundwater extracted during groundwater monitoring activities is tested prior to discharge, according to the requirements of the POTW.
<b>Connecticut</b>				
Hazardous Waste Management: Generator and Handler Requirements	Regulations of Connecticut State Agencies (RCSA) § 22a-449(c) 100-101	Applicable	Connecticut is delegated to administer the federal Resource Conservation and Recovery Act statute through its state regulations. These sections establish standards for listing and identification of hazardous waste. The standards of 40 Code of Federal Regulations (CFR) 260-261 are incorporated by reference.	Waste generated during the installation of monitoring wells and monitoring activities under these alternatives was properly characterized for disposal. This requirement is carried forward during well abandonment and operation and maintenance (O&M) of the remedy.
Hazardous Waste Management: Treatment, Storage, or Disposal Facility Standards	RCSA § 22a-449(c) 104	Applicable	These sections establish standards for treatment, storage, and disposal facilities. The standards of 40 CFR 264 are incorporated by reference.	Any hazardous waste generated during the installation of monitoring wells and monitoring activities and temporarily stored on site is managed in accordance with these regulations. This requirement is carried forward during well abandonment and O&M of the remedy.

TABLE 3-10

**ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE FOR GROUNDWATER  
SITE 3 – AREA A DOWNSTREAM WATERCOURSE/OBDA  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT  
PAGE 2 OF 3**

Requirement	Citation	Status	Synopsis of Requirement	Evaluation/Action to be Taken
<b>State of Connecticut (continued)</b>				
Standards of Water Quality/Water Quality Standards (WQSs) IV	General Statutes of Connecticut (CGS) 22a-426 and promulgated standards	Applicable	Standards have been promulgated in accordance with CGS 22a-426 to preserve and enhance the quality of state groundwater and surface water. Groundwater at the sites is classified as GB.	These standards for groundwater will be met through monitoring of natural degradation processes. Institutional controls prevent the aquifer from being used as a water supply until these standards are attained.
Connecticut Regulations for the Well Drilling Industry	RSCA 25-128-33 through 64	Applicable	These rules apply mainly to any new water supply or withdrawal wells. The rules specify that non-water supply wells must be constructed so that they are not a source or cause of groundwater contamination. Procedures for abandonment of wells apply to both water wells and other types of wells.	These regulations were followed during the installation of new monitoring wells. This requirement is carried forward during well abandonment.
Connecticut Water Pollution Control Act - Permitting Regulations	RSCA 22a-430 1-8	Relevant and Appropriate	Establishes permitting requirements for discharges to surface water, groundwater, and POTWs.	There were no direct discharges as part of the selected remedy.

TABLE 3-10

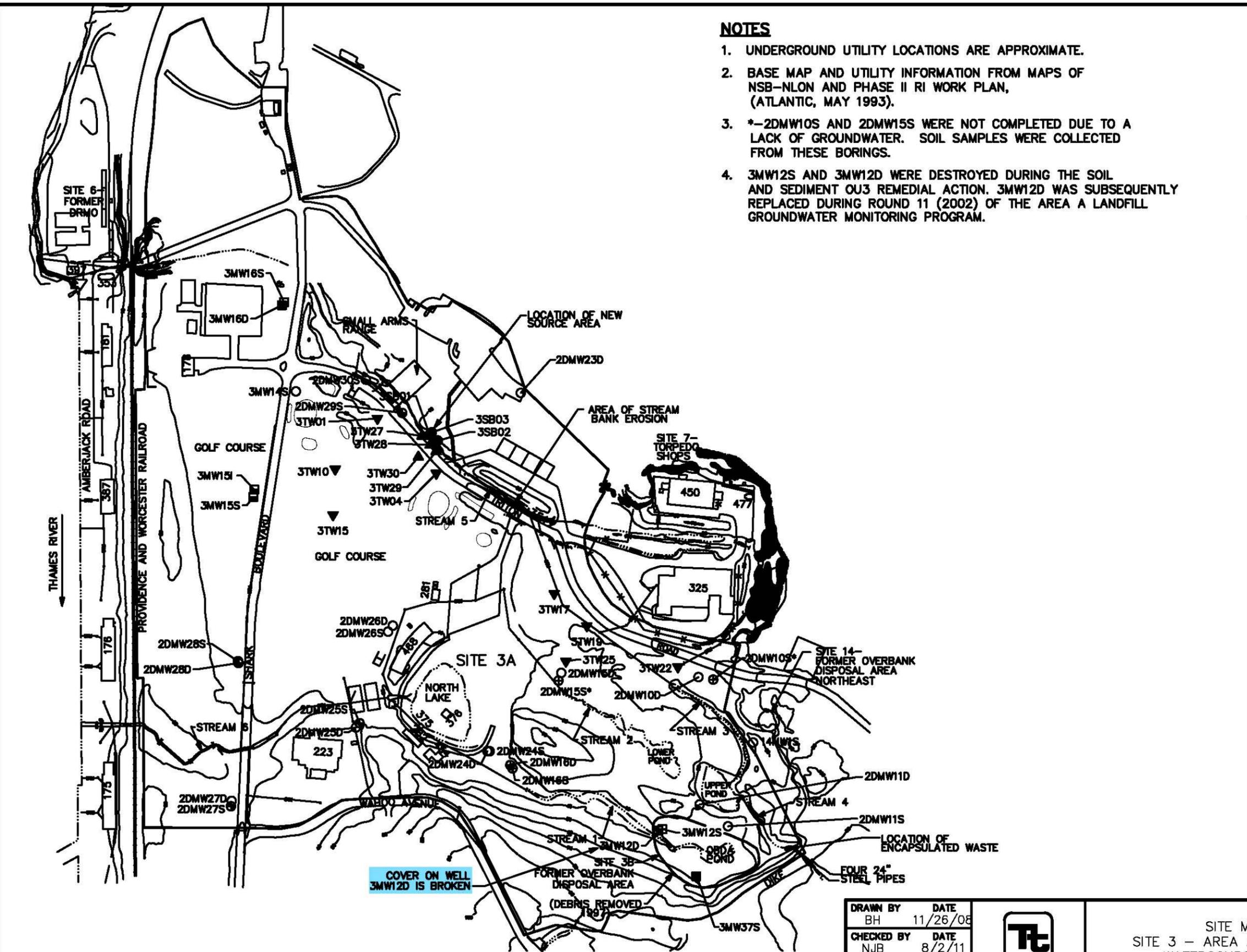
**ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE FOR GROUNDWATER  
SITE 3 – AREA A DOWNSTREAM WATERCOURSE/OBDA  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT  
PAGE 3 OF 3**

Requirement	Citation	Status	Synopsis of Requirement	Evaluation/Action to be Taken
<b>Connecticut (continued)</b>				
Connecticut Environmental Land Use Restriction Regulations	RCSA 22A-133q-1	Applicable	Requirements to prevent disturbance of contaminated soil and to ensure that contaminated groundwater is not used for human consumption.	Implementation of environmental land use restrictions were included in the New London Instruction 5090.25.
Connecticut Soil Vapor Remediation Standards Regulations	RCSA 22a-133k-3(c)	Applicable	These standards establish volatilization criteria to address volatile organic substances in groundwater and soil vapor.	These standards are included in the development of the Remedial Goals. For areas where data show the potential for an unacceptable indoor inhalation risk, remedial actions (e.g., sub-slab depressurization systems) will be applied, as needed, to comply with the substantive provisions of these regulations. However, there have been no activities necessitating the implementation of vapor intrusion controls.

**TABLE 3-11**

**ISSUES IDENTIFIED FOR  
SITE 3 – AREA A DOWNSTREAM WATERCOURSES/OBDA  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT**

<b>O&amp;M Issues</b>	<b>Effects Protectiveness?</b>	
	<b>Current</b>	<b>Future Potential</b>
The cover on well 3MW12D is broken.	N	N

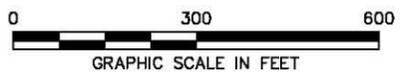


**NOTES**

1. UNDERGROUND UTILITY LOCATIONS ARE APPROXIMATE.
2. BASE MAP AND UTILITY INFORMATION FROM MAPS OF NSB-NLON AND PHASE II RI WORK PLAN, (ATLANTIC, MAY 1993).
3. \*-2DMW10S AND 2DMW15S WERE NOT COMPLETED DUE TO A LACK OF GROUNDWATER. SOIL SAMPLES WERE COLLECTED FROM THESE BORINGS.
4. 3MW12S AND 3MW12D WERE DESTROYED DURING THE SOIL AND SEDIMENT OU3 REMEDIAL ACTION. 3MW12D WAS SUBSEQUENTLY REPLACED DURING ROUND 11 (2002) OF THE AREA A LANDFILL GROUNDWATER MONITORING PROGRAM.

**LEGEND:**

- O&M ISSUE IDENTIFIED DURING FIVE-YEAR REVIEW INSPECTION IN APRIL 2011
- AREA A LANDFILL GROUNDWATER MONITORING PROGRAM MONITORING WELL
- 3MW37S
- 3TW1
- 3TW1
- 3TW1
- 3TW27
- SOIL BORING
- 3SB01
- REPLACED WELL
- 3MW12D
- ABANDONED WELL
- 3MW12S
- PHASE I MONITORING WELL
- 2DMW25D
- PHASE II MONITORING WELL
- 2DMW26D
- POST-ROD MONITORING WELL
- 3MW16S
- ABANDONED MONITORING WELL
- 2DMW25D
- TOPOGRAPHIC CONTOUR
- BUILDING No.
- WATERCOURSE
- STORM SEWER AND CATCH BASIN
- EXPOSED BEDROCK
- FENCE
- SITE 3 BOUNDARY



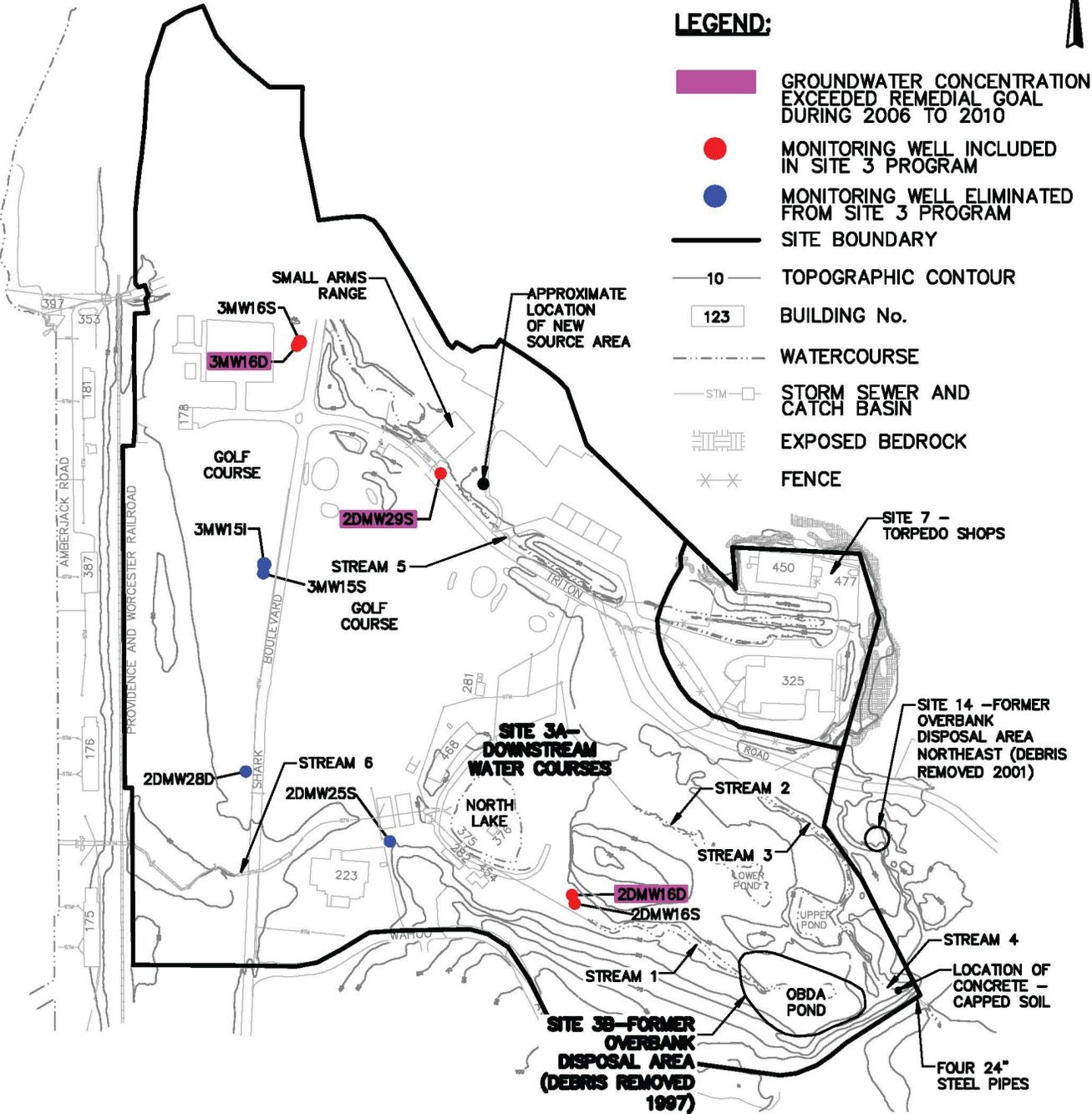
BASE MAP SOURCE: PREPARED BY THE NAVAL SUBMARINE BASE PUBLIC WORKS DEPT., ENGINEERING DIVISION, MARCH 2006, DRAWING NO. A-867.

DRAWN BY	DATE
BH	11/26/08
CHECKED BY	DATE
NJB	8/2/11
REVISED BY	DATE
SCALE	AS NOTED



SITE MAP  
SITE 3 - AREA A DOWNSTREAM  
WATERCOURSES/OBDA  
NSB-NLON  
GROTON, CONNECTICUT

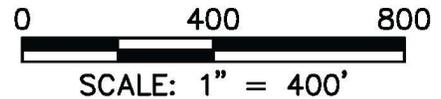
CONTRACT NO. WE.33	
OWNER NO. 3386	
APPROVED BY CAR	DATE 8/2/11
DRAWING NO. FIGURE 3-1	REV. 1



**LEGEND:**

- GROUNDWATER CONCENTRATION EXCEEDED REMEDIAL GOAL DURING 2006 TO 2010
- MONITORING WELL INCLUDED IN SITE 3 PROGRAM
- MONITORING WELL ELIMINATED FROM SITE 3 PROGRAM
- SITE BOUNDARY
- TOPOGRAPHIC CONTOUR
- 123 BUILDING No.
- WATERCOURSE
- STM  STORM SEWER AND CATCH BASIN
- EXPOSED BEDROCK
- FENCE

BASE MAP SOURCE: PREPARED BY THE NAVAL SUBMARINE BASE PUBLIC WORKS DEPT., ENGINEERING DIVISION. MARCH 2006, DRAWING NO. A-667.



DRAWN BY <b>MF</b>	DATE <b>5/18/11</b>
CHECKED BY <b>NJB</b>	DATE <b>3/29/11</b>
REVISED BY —	DATE —
SCALE <b>1"=400'</b>	



**LOCATION OF MONITORING WELLS AND  
REMEDIAL GOAL EXCEEDANCES  
SITE 3  
NSB - NLON  
GROTON, CONNECTICUT**

CONTRACT NO. <b>064</b>	
OWNER NO. <b>0616</b>	
APPROVED BY <b>CAR</b>	DATE <b>3/29/11</b>
DRAWING NO. <b>FIGURE 3-2</b>	REV. <b>0</b>

Figure 3-3  
Site 3 - Area A Downstream Watercourses  
Trichloroethene in Groundwater, 2006 Through 2010  
Third Five-Year Review Report  
NSB-NLON, Groton, Connecticut

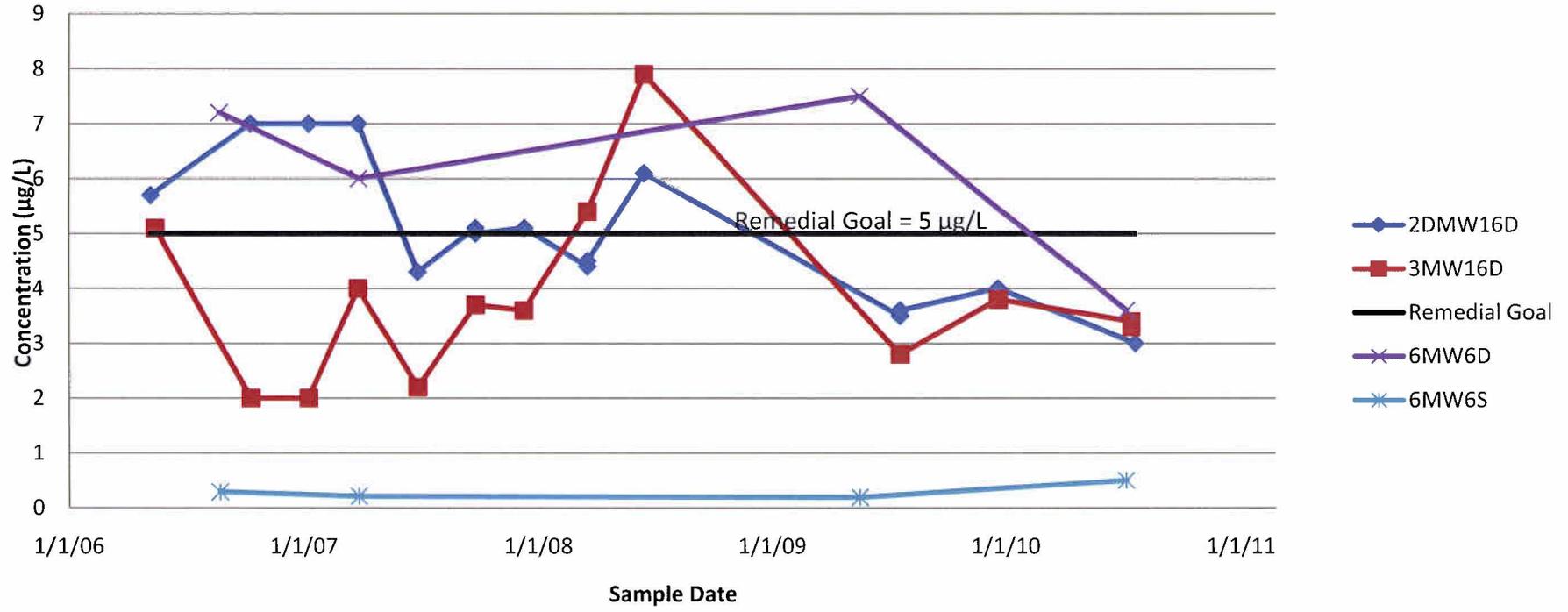
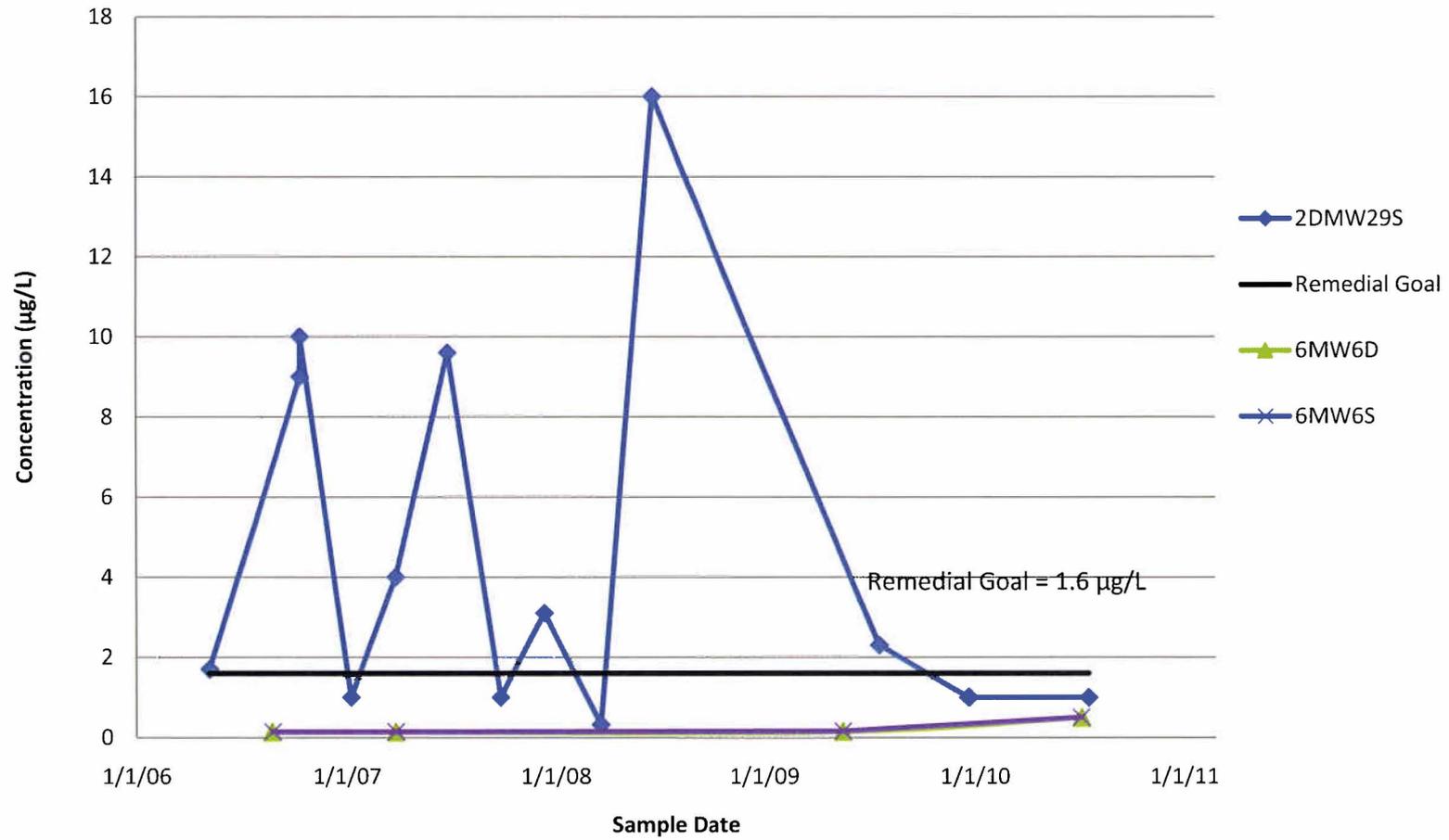


Figure 3-4  
Site 3 - Area A Downstream Watercourses  
Vinyl Chloride in Groundwater, 2006 Through 2010  
Third Five-Year Review Report  
NSB-NLON, Groton, Connecticut



## 4.0 SITE 6 – FORMER DEFENSE REUTILIZATION AND MARKETING OFFICE (OU2)

This 5-year review of Site 6 – Former DRMO is required by statute because hazardous substances, pollutants, or contaminants remain on site that do not allow for unlimited use or unrestricted exposure. A time-critical removal action (TCRA) completed at Site 6 in January 1995 focused on the removal of soil contaminated with lead, PAHs, and PCBs from the northern half of the site. After completion of the removal activities, the area was backfilled with clean borrow material, capped with a geosynthetic clay/geotextile layer, and overlaid by gravel/asphalt. An interim ROD addressing the contaminated soil and groundwater (OU2) and the impacts on the surface water of the Thames River was completed in March 1998 (Navy, 1998a). Groundwater monitoring has been conducted for 12 years, and annual O&M landfill inspections have been completed for 9 years as part of the remedy selected in the interim ROD. Data collected during the monitoring and inspection programs are evaluated within this report. A final ROD for soil and groundwater at Site 6 was signed in December 2006 (Navy, 2006b). The final remedy selected for Site 6 is similar to the one selected in the interim ROD and includes institutional controls and monitoring.

### 4.1 HISTORY AND SITE CHRONOLOGY

A list of important Site 6 historical events and relevant dates in the site chronology is shown below. The identified events are illustrative, not comprehensive.

Event	Date
DRMO used as a landfill and waste burning area.	1950 to 1969
Final IAS completed.	March 1983
Phase I RI completed.	August 1992
Draft FFS completed.	March 1994
TCRA completed.	January 1995
Action Memorandum completed.	March 1995
Final Report for IRA completed.	September 1995
Phase II RI completed.	March 1997
Proposed Plan issued.	September 1997
Public Meeting conducted.	September 1997
Groundwater Monitoring Plan finalized.	February 1998
Final Interim ROD for OU2 signed.	March 1998
Groundwater Monitoring Program initiated.	April 1998
Year 1 Annual GMR completed.	November 1999
Year 2 Annual GMR completed.	October 2000
First Five-Year Review performed.	December 2001

<b>Event</b>	<b>Date</b>
Year 3 Annual GMR completed.	March 2002
Draft Final O&M Manual – Volumes I, III, IV, and V completed.	September 2002
SOPA (ADMIN) New London Instruction 5090.18B completed.	February 2003
Draft O&M Manual – Volume II completed.	March 2003
Year 4 Annual GMR completed.	August 2003
2003 Annual LIR completed.	November 2004
Year 5 Annual GMR completed.	December 2004
2004 Annual LIR completed.	September 2005
Year 6 Annual GMR completed.	August 2005
2005 Annual LIR completed.	October 2005
Draft Year 7 Annual GMR completed.	January 2006
Final O&M Manual – Volumes I, II, III, IV, and V completed.	January 2006
SOPA (ADMIN) New London Instruction 5090.18C issued.	December 2006
Second Five-Year Review completed.	December 2006
Record of Decision for Operable Unit 2 – Site 6 Soil and Groundwater signed.	December 2006
Remedial Action Completion Report for Operable Unit 2 – Site 6 (Draft).	August 2007
Monitoring Well Inventory Report and Abandonment Plan.	September 2007
2006 Annual LIR completed.	June 2008
Year 8 Annual GMR issued.	June 2008
Year 9 Annual GMR issued.	July 2008
2007 Annual LIR completed.	August 2008
SOPA (ADMIN) New London Instruction 5090.18D issued.	September 2008
O&M Manual - Volumes I, II, III, IV, and V (Revision 2 Draft) completed.	November 2008
2008 Annual LIR completed.	May 2009
SOPA (ADMIN) New London Instruction 5090.25 issued.	June 2009
Year 11 Annual GMR completed	September 2009
Sent Letter to Town of Ledyard, Land and Groundwater Use Restrictions.	September 2009
Sent Letter to Town of Groton, Land and Groundwater Use Restrictions.	September 2009
2009 Annual Inspection Report for Site 2A, Site 6, Site 8 and Site 3.	December 2009
O&M Manual - Volumes I, II, III, IV, and V (Rev 2 Draft Final) completed.	November 2010
2010 Annual GMR for Sites 2A, 3, 6, and 8 issued.	March 2011
2010 Annual Inspection Report for Sites 2A, Site 6, Site 8 and Site 3 issued.	January 2011

## **4.2 BACKGROUND**

The Former DRMO (Site 6) is located adjacent to the Thames River in the northwestern section of NSB-NLON. The site's location relative to other IR sites is shown on Figure 1-2. The site is located between a bedrock outcrop that runs roughly parallel to the Providence and Worcester Railroad to the east and the Thames River to the west. The site covers approximately 3 acres of land gently sloping toward the

Thames River. A majority of the site is paved with an asphalt layer, and the site features buildings, a weighing scale, and an area for boat storage and miscellaneous storage piles. Figure 4-1 displays the general site arrangement. Historically, Site 6 was used as a storage and collection facility for items such as computers, file cabinets, and other office equipment to be sold, but during the past 5 years a majority of the site has changed to a small boat storage area for the Navy's Morale, Welfare and Recreation (MWR) Department.

From 1950 to 1969, the Former DRMO was used as a landfill and waste-burning area. Non-salvageable waste items, including construction materials and combustible scrap were burned along the Thames River shoreline, and the residue was pushed to the shoreline and partially covered.

During the review of archived aerial photographs of the Former DRMO area, the 1934 photographs show fill in the southern portion of the site. Fill for bulkheads and docks south of Former DRMO did not exist at that time. Aerial photographs from 1951 show the land in its present configuration, except for the northwestern portion, which was not filled at that time.

During a site inspection on September 30, 1988, it was noted that metal and wood products were stored throughout most of the site. Buildings 355 and Building 479 are located in the southern, paved portion of the site and are primarily used for storage. A large scrap yard is located north of Building 479. Building 491, located in the northern, unpaved, portion of the site was used to store miscellaneous items including batteries. Metal scrap bailing operations are performed adjacent to Building 491 on a gravel surface. Building 491 formerly housed a battery-acid-handling facility. Submarine batteries were previously stored in the southeastern portion of the site, adjacent to the railroad tracks. No evidence of leaks was observed. An in-ground rubber-lined tank and associated pumping facilities were noted on the site drawings. Site 6 personnel indicated that the tank actually may have been installed directly adjacent to the building to the east.

A Conforming Storage Facility Report (GZA, 1988) for Site 6 was prepared in 1988 as a requirement for the siting of a hazardous waste storage facility in the northern portion of Site 6. The study performed for the report indicated the presence of PCBs and other contaminants at Site 6.

A two-phase RI was conducted to determine the nature and extent of contamination at Site 6. Phase I RI field activities were conducted from 1990 to 1992 (Atlantic, 1992) and included test borings, monitoring well installation, and soil, surface water, and groundwater sampling. Some evidence of the former landfill was encountered during drilling, including wood fragments, brick, and metal but predominately earth fill material. The thickness of the fill varied from 0 to 8 feet. Human health risks were determined for Navy workers based on exposure to PCBs, PAHs, and beryllium in surface soil and lead in soil in the northern portion of

the site. In addition, groundwater quality exceeded drinking water standards; however, no drinking water wells were within the affected area, nor could they be, due to the proximity of the brackish Thames River. Risks to fish in the Thames River estuary were determined to be low from contaminants in groundwater discharged from the site. It was recommended that the site proceed to the FS phase. It was also recommended that specific health and safety provisions be made for all subgrade construction projects at the site. The risks were primarily related to incidental oral and dermal exposure of site workers to contaminated surface soils (Atlantic, 1992).

A field investigation in support of the draft FFS was performed at Site 6 in October 1993, to better define the extent of soil contamination. Surface and subsurface soil samples were collected from 17 borings, and one of the borings was completed as a monitoring well. The soil borings indicated that the depth of fill ranged from approximately 1.5 to 20 feet. Fill material consisted of wood, glass, and metal scrap in a predominately sand and gravel matrix (Atlantic, 1994a).

A TCRA was completed in January 1995. Initial activities associated with the TCRA at the site, which included pre-excavation sampling and analysis focused on better defining the limits of PCB-contaminated soils in the areas to be excavated. Confirmatory soil sampling and analysis were conducted on the sidewalls of the excavations. Human health and ecological risks associated with the soil left in place after the removal action were evaluated during the Phase II RI. Additional details of the TCRA are provided in Section 4.3.2.1.

Phase II RI field activities were conducted from 1993 to 1995 (B&RE, 1997b) and included installation of five new monitoring wells, two rounds of groundwater sampling, and subsurface soil sampling. The Phase II RI concluded that the majority of contaminated soil had been removed during the TCRA, the groundwater was not significantly affected, and that relatively low human health and ecological risks were associated with the DRMO. The Phase II RI recommended that NFA be conducted at Site 6 for soil and groundwater and that groundwater monitoring be conducted to verify that significant contamination is not leaching to groundwater.

An FS (B&RE, 1997g) was completed for soil and groundwater at Site 6, and the selected remedial alternative (institutional controls and monitoring) was documented in an Interim ROD (B&RE, 1997h; 1998b). As part of the FS, volumes of soil that exceeded PRGs remaining at the site after the 1995 TCRA were estimated, based on the current industrial land use scenario and a future residential land use scenario. The majority of remaining contaminated soil is below the water table. Soil, with contaminant concentrations greater than industrial PRGs, remains in three areas, totaling 11,230 square feet to depths from 6 to 10 feet. That results in a total approximate volume of 3,150 cubic yards. Soil, with contaminant concentrations greater than residential PRGs, remains in six areas, totaling 107,780 square feet to depths from 3 to 10 feet; that results in a total approximate volume of 13,572 cubic yards.

O&M of the cover system at the Site 6 is being performed in accordance with the final O&M Manual for Installation Restoration Program Sites (Tetra Tech, 2006a). The O&M process includes annual inspections, reporting of results, and correcting any identified problems. Site 6 has been inspected annually since 2003. A groundwater monitoring program began at Site 6 in April 1998, in accordance with the Groundwater Monitoring Plan (B&RE, 1998a) and is ongoing. The results of the program are being used to verify the effectiveness of the cap in reducing infiltration and leaching of contaminants and to confirm that contamination is not migrating from soil to groundwater and eventually to the Thames River. To date, the monitoring results have not shown any significant contaminant migration issues.

Based on the positive results of the monitoring program, a final ROD for Site 6 was signed in December 2006 (Navy, 2006b). The selected remedial alternative is similar to the interim remedy selected in 1998. The remedy includes institutional controls, monitoring, and five-year reviews. A RACR was prepared to document implementation of the soil and groundwater remedies at the site (Tetra Tech, 2007b).

Volume II (Groundwater Monitoring Plan) and Volume VI (Site 6 O&M) of the O&M Manual was revised in 2008 (REV 2 Draft) and 2010 (REV 2 Draft Final) to address USEPA comments on the 2006 O&M Manual and update site information for Site 6 (Tetra Tech, 2008g; 2010h). The Final O&M Manual (REV 2) is expected to be completed in 2011.

A well inventory was conducted at NSB-NLON in 2007. This inventory included 15 Site 6 wells (Tetra Tech, 2007c). As a result of the inventory, seven Site 6 wells, not part of the active monitoring program, were abandoned (ECC, 2007b).

#### **4.3 REMEDIAL ACTIONS**

A TCRA was completed in January 1995 to remove soil containing elevated concentrations of lead, PAHs, and PCBs from the northern half of Site 6. Additional soil and groundwater sampling was conducted during the Phase II RI after the TCRA. Based on the results of the Phase II RI, NFA was recommended for the DRMO. An Interim ROD (B&RE, 1998b) was signed for Site 6 soil and groundwater (OU2). Institutional controls and monitoring were selected as the remedial action in the Interim ROD. By implementing institutional controls and maintaining the existing cap [asphalt and geosynthetic clay liner (GCL)], the Navy will protect potential human receptors from adverse health effects of exposure to the underlying contaminants. By implementing monitoring, the Navy will verify that contaminants in the soil are not migrating to the Thames River through the groundwater.

#### 4.3.1 Remedy Selection

##### 4.3.1.1 TCRA

Several previous investigations at Site 6 confirmed that a release of contaminants into the environment had occurred and that contamination remained at the site. Moderate concentrations of VOCs and pesticides and higher concentrations of PCBs, SVOCs, and heavy metals were detected.

Target cleanup levels were developed in the Action Memorandum (Atlantic, 1995b) to ensure the following:

- Limited opportunity for individuals to encounter hot spots where contaminants may be present at elevated concentrations.
- Overall human health risks associated with activities at Site 6 are less than acceptable levels.

The proposed TCRA at Site 6 consisted of excavation and off-site disposal of contaminated soil hot spots and an in-ground spent acid tank at a RCRA landfill, followed by the placement of an impervious cap throughout all unpaved areas of the site. Soil PRGs used to identify hot spots included:

- Lead - 500 mg/kg
- PCBs - 10 mg/kg
- Carcinogenic polycyclic aromatic hydrocarbons (CPAHs) - 100 mg/kg

At Site 6, accessible soil was determined to be soil from the ground surface to a depth of 3 feet. After the tank and hot spot removals were completed, the site was to be covered by an impervious bentonite geocomposite liner between layers of nonwoven geotextile and covered with 12 inches of compacted crushed stone. Access to the site would continue to be restricted via perimeter fencing and security procedures (Atlantic, 1995b).

##### 4.3.1.2 Post TCRA

An FS for Site 6 was completed in response to the Phase II RI. The FS evaluated several remedial alternatives for Site 6. The recommended interim remedy of institutional controls and monitoring was presented in the Proposed Plan (B&RE, 1997h) and was formally selected in the ROD for the soil and groundwater OU (OU2) that was signed in March 1998. A final ROD was signed for the site in December 2006 (Navy, 2006b). The final remedy includes institutional controls, monitoring, and five-year reviews.

Based on information relating to types of contaminants, environmental media of concern, and potential exposure pathways, RAOs were developed to aid in the development of alternatives. The following RAOs were developed to mitigate existing and future potential threats to public health and the environment:

- Prevent unacceptable risks to human receptors from exposure to contaminated soil under either a current industrial or future (although unlikely) residential land use scenario through either institutional controls and/or removal/treatment/disposal.
- Prevent unacceptable risk to ecological receptors in the Thames River from potential migration of contaminants.

The final remedy for the DRMO was selected to meet the RAOs. The selected remedy, as defined in the ROD, consisted of the following components:

- Institutional controls will include maintenance of the existing cap, limitations on site access, restrictions on land use, and monitoring and enforcement of compliance with land use restrictions. Maintenance of the existing asphalt and GCL cap will consist of regular inspections to assess the integrity of the asphalt and GCL cap. Items to be inspected and maintained include fencing, signs, asphalt cap, catch basin, culvert outlet, riprap, and monitoring wells. Record of Findings, Plan of Action, and Completion Reports will be prepared as needed, based on each annual inspection. Periodic repair and replacement of the asphalt layer, monitoring wells, and any other remedy components will be performed as needed. Land use restrictions for the DRMO will limit activities such as excavation, drilling, residential use of property, and excessive vehicular use. While the area is under jurisdiction of the Navy, there shall be a Base Instruction [i.e., NSB-NLON Installation Restoration Site Use Restrictions Instruction document (5090.18C) (Navy, 2006c)] or other Navy mechanism that documents the restriction on land use and controls of the site. The Navy will, at least annually, inspect the area and document compliance with the land use restrictions. This documented compliance will be included in future Five-Year Reviews of the site. If the site is ever transferred from Navy control, the Navy will create a deed for the property that will include the land use restrictions. The restrictions will meet all applicable state property law standards for placing environmental land use restrictions on contaminated property. Although the Navy may later transfer these procedural responsibilities to another party by contract, property transfer agreement, or through other means, the Navy shall retain the ultimate responsibility for remedy integrity.
- Groundwater monitoring is to be performed in accordance with Volume II - GMP of the O&M Manual (Tetra Tech, 2006a). Samples collected under the new monitoring program will be analyzed for

VOCs, SVOCs, PAHs, and metals (total) to evaluate whether contamination is migrating to the Thames River and potentially causing adverse effects to the ecological receptors. As appropriate, the monitoring program may be revised, based on the analytical data collected from the previous sampling events. Data will be evaluated to determine the need for additional remedial action at the site or the need to modify the monitoring program.

- A site review will be conducted every 5 years for as long as contamination onsite poses a CERCLA risk to evaluate the site status and determine whether further action is necessary.

#### **4.3.2 Remedy Implementation**

##### **4.3.2.1 TCRA**

OHM Remediation Services Corporation (OHM), the Navy's RAC, completed a TCRA at the DRMO in January 1995 (OHM, 1995a). During the TCRA, soils containing concentrations of lead, PAHs, and PCBs in excess of PRGs were excavated and removed from the northern half of the DRMO. The PRGs used for soil screening of lead, PCBs, and PAHs were 500, 10, and 100 mg/kg, respectively. Excavation extended to a maximum depth of approximately 3 feet below the ground surface or to the water table. Approximately 4,700 tons of soil were excavated and transported to a RCRA landfill located in Grand View, Idaho. Residual contamination in excess of PRGs remained after excavation was completed because the excavation was limited to 3 feet by the shallow water table and because of exceedances of the allotted time for the project (B&RE, 1997h). Additionally, a steel-walled, spent-acid-storage tank was excavated, cut into manageable pieces, and disposed off site with the contaminated soil.

The excavated area was backfilled with clean borrow material from an off-site location. A cap consisting of woven geotextile fabric, a GCL, and nonwoven geotextile fabric was installed. Approximately 12 inches of crushed stone and 3 inches of asphalt were placed over the clay/geotextile cover. This cap does not meet RCRA Title C requirements. The remaining (unpaved) portion of the DRMO was also upgraded via placement of an asphalt layer. The total cost of the TCRA was approximately \$2,500,000.

##### **4.3.2.2 Post TCRA**

Groundwater monitoring for the DRMO began in April 1998, and annual O&M was initiated in 2003. Further details of the long-term monitoring and O&M are discussed in Section 4.3.3.

To meet the LUC requirements in the interim ROD, the Navy prepared and implemented an instruction [i.e. SOPA (ADMIN) New London Instruction 5090.18B (Navy, 2003)] to restrict use at IR sites at NSB-NLON. The instruction defines the Navy's policy regarding ground surface disturbance of soils and any

subsurface disturbance of soils and/or groundwater at IR sites. To meet the requirements in the final ROD, the Navy prepared and implemented SOPA (ADMIN) New London Instruction 5090.18C (Navy, 2006c). This instruction was updated as SOPA (ADMIN) New London Instruction 5090.18D (Navy, 2008c) to include maps of existing and abandoned wells, and again as SOPA (ADMIN) New London Instruction 5090.25 (Navy, 2009b). The instruction defines the Navy's policy regarding ground surface disturbance of soils/sediments, subsurface disturbance of soils/sediments and/or groundwater extraction, and disturbance of any remedial infrastructure at IR sites. In 2009, a table and map were filed in the land record offices of the towns of Groton and Ledyard, Connecticut to show the location of monitoring wells, note the remedy in place, and list contaminants of concern and LUCs that have been imposed at Site 6 (Navy, 2009c; 2009d).

Access to Site 6 is restricted. A security fence prevents on-base access from Amberjack Road. Building 397 serves as the Site 6 office, where personnel must receive permission and sign a log entry book for access to the area (Navy, 2010c). A sign located at the front gate warns personnel not to dig at Site 6. North of Site 6, another fence deters trespassers from coming onto NSB-NLON. To the east, the fence parallels an active railroad line between the railroad line and Site 6. In 2005, the Navy installed a new razor wire security fence along the shoreline of the Thames River from the Building 397 to the northern boundary of Site 6, where it connects with existing fencing (ECC, 2009c).

### **4.3.3 System Operations/Operation and Maintenance**

#### **4.3.3.1 Monitoring Program**

The Navy implemented a groundwater monitoring program at Site 6 in April 1998. The results of the program are being used to verify the effectiveness of the cap installed as part of the TCRA to reduce precipitation infiltration and leaching of contaminants and to confirm that contamination is not migrating through soil into groundwater and ultimately discharging to the Thames River. Sampling and analysis were completed at the site, in accordance with the final Groundwater Monitoring Plan for DRMO (B&RE, 1998a) from the initiation of the program through 2005. Since 2006, sampling activities at the site have been completed in accordance with Volume II – Groundwater Monitoring Plan of the O&M Manual (Tetra Tech, 2006a).

Monitoring at Site 6 was initially conducted quarterly, and during Year 4, the monitoring frequency was reduced to semi-annually. During Year 5, the monitoring frequency was further reduced to annually. Monitoring was conducted annually during Years 5 through 9 (2003 through 2007). The monitoring frequency was then changed to biennial; therefore, groundwater was not sampled in 2008. Groundwater was sampled and analyzed in 2009 (Year 11) and 2010 (Year 12), and will next be sampled in 2012. Groundwater samples collected under the original monitoring plan were analyzed for VOCs, SVOCs,

pesticides/PCBs, and metals (total and dissolved). Samples collected under the 2006 monitoring program were analyzed for VOCs, SVOCs, PAHs, and metals (total).

Annual reports were prepared for each year of monitoring (Tetra Tech, 1999f; 2000a; 2002b; 2003b; ECC, 2004f; 2005d; 2006a; 2008c; 2008h; 2009f; H&S, 2011b). The annual reports include a thorough evaluation of each year of data collected under the program. All of the monitoring reports have been submitted to the USEPA and CTDEP for review and comment. The results of the monitoring program during this five-year review period are discussed in Section 4.5.2.1.

#### **4.3.3.2 Operation and Maintenance**

Site 6 has been inspected annually since 2003. The Navy issued a draft O&M Manual for the IR Program Sites at NSB-NLON, which included the former DRMO, in September 2002 (Tetra Tech, 2002c). Volume IV of the five-volume manual included site-specific instructions for O&M activities and an inspection checklist for Site 6. O&M inspections of Site 6 were conducted from 2003 through 2005 (3 years) based on the draft O&M Manual. The O&M Manual was finalized in 2006 (Tetra Tech, 2006a), and it provides the basis for current O&M activities at Site 6.

The O&M process for the site includes annual inspections, reporting of results, and correcting any identified problems. The findings of the inspections are documented in the field on inspection checklists, then summarized in Annual LIRs (ECC, 2004b; 2005f; 2005i; 2008e; 2008i; 2009c; 2009i; H&S, 2011a). The inspections of the landfill focused on institutional controls, the asphalt cap, stormwater features, and monitoring wells. Deficiencies noted during the inspections are addressed through the preparation of a Plan of Action and then executing the Plan of Action. Typically, the inspections are conducted in the fall, and corrective actions are completed during the following summer. The results of the inspections conducted during this five-year review period are discussed in Section 4.5.2.2.

#### **4.4 PROGRESS SINCE LAST REVIEW**

This is the third five-year review of the DRMO. In general, the second five-year review site inspection found that the cap system was working as intended. However, even though the Navy had implemented an O&M program for Site 6 and corrective actions had been taken, a number of items were identified during the site inspection that, if not addressed, could have negatively affected the long-term performance of the cap system. Based on the results of the second five-year review site inspection, the following recommendations were made for Site 6, along with the actions that were taken to address the recommendations.

Continue O&M of the site and address the O&M deficiencies noted (asphalt cracks, a depression).

- A depressed area of the cap was repaired and cracks were sealed. Site 6 has been inspected annually and maintenance issues continue to be addressed.

Continue the monitoring program, but reduce sampling frequency to every 2 years and further optimize the analytical parameter list, as appropriate.

- Pesticides/PCBs were eliminated from the analytical program after 2006 (Year 8) and the sampling frequency was reduced to biennial after 2007 (Year 9).

Develop and implement a well abandonment program to eliminate wells no longer required for the monitoring program (e.g., 6MW5S, 6MW5D, and 6MW7S).

- A well inventory was performed in 2007, and as recommended in the 2007 abandonment plan (Tetra Tech, 2007c), wells 6MW2D, 6MW5D, 6MW5S, 6MW7S, 6MW8S, 6MW10D, and 6MW11D were abandoned (ECC, 2007a & 2007b).

Develop and implement an equipment storage plan that would prevent storage of equipment on top of active monitoring well(s).

- An equipment storage plan has not been developed for Site 6. In the May 4, 2011, response to USEPA comments on the O&M Manual, it was agreed that the Navy will develop a LUC RD for Site 6 soil and groundwater, which will include an equipment storage plan.

Address ponding and sediment buildup due to the jersey barriers.

- O&M activities to remove sediment buildup at the jersey barriers successfully helped reduce ponding.

Continue enforcement of New London Instruction 5090.18C. If the site use changes to yacht club parking, enforcement of New London Instruction 5090.18C should be continued.

- New London Instruction 5090.25, the current instruction, includes Site 6 and is being enforced.

At least yearly monitoring of Institutional Control compliance with the monitoring reports incorporated into future five-year reviews.

- Confirmation of the current institutional control document has been added to the inspection checklist and will be confirmed annually. A review of the past 5 years of O&M is being incorporated into this Third 5-Year Review Report.

Amend O&M Manual to remove federal AWQC.

- The GMP in Volume II has been amended to remove federal AWQCs as Former DRMO groundwater monitoring criteria. In accordance with the 2006 ROD, federal AWQCs were not selected as secondary criteria because it was determined that the Connecticut WQs were applicable to Connecticut surface water and selection of the Connecticut WQs provides consistency with the primary criteria (Alternative SWPC, SWPC, and volatilization criteria).

#### **4.5 FIVE-YEAR REVIEW FINDINGS**

##### **4.5.1 Document Review**

The documents reviewed for the third five-year review are listed below, and key information obtained from the documents is summarized in the following sections.

Second Five-Year Review	December 2006
Record of Decision for Operable Unit 2 – Site 6 Soil and Groundwater	December 2006
Remedial Action Completion Report for Operable Unit 2 – Site 6 (Draft)	August 2007
Monitoring Well Inventory Report and Abandonment Plan	September 2007
2006 Annual LIR	June 2008
Year 8 Annual GMR	June 2008
Year 9 Annual GMR	July 2008
2007 Annual LIR	August 2008
SOPA (ADMIN) New London Instruction 5090.18D.	September 2008
O&M Manual - Volumes I, II, III, IV, and V (Revision 2 Draft)	November 2008
2008 Annual LIR	May 2009
SOPA (ADMIN) New London Instruction 5090.25	June 2009
Year 11 Annual GMR	September 2009
Letter to Town of Ledyard, Land and Groundwater Use Restrictions	September 2009
Letter to Town of Groton, Land and Groundwater Use Restrictions	September 2009
2009 Annual Inspection Report for Site 2A, Site 6, Site 8 and Site 3	December 2009
O&M Manual - Volumes I, II, III, IV, and V (Rev 2 Draft Final)	November 2010

2010 Annual GMR for Sites 2A, 3, 6, and 8	March 2011
2010 Annual Inspection Report for Sites 2A, Site 6, Site 8 and Site 3	January 2011

**4.5.2 Data Review**

**4.5.2.1 Monitoring Data Review**

Groundwater monitoring is being conducted as part of post-closure activities associated with Site 6 to evaluate the effectiveness of the remedial action. The monitoring program was designed to determine the following:

- The effectiveness of the remedial action in preventing the migration of COPCs at concentrations greater than monitoring criteria to underlying groundwater and ultimately to surface water in the adjacent Thames River.
- The effectiveness of the remedial action in eliminating health risks.
- Whether the criteria used for evaluating the data have been met.
- Whether a groundwater plume exists and/or interferes with any existing use of groundwater.

The ultimate goal of the monitoring program is to show compliance with the selected monitoring criteria for those COPCs migrating or having the potential to migrate from the site. The screening criteria used for data evaluation are a combination of site-specific SWPC (based on Connecticut WQSS), CTDEP Volatilization Criteria, and background groundwater concentrations.

Data from Years 8 through 12 of the monitoring program are presented and evaluated in this Third Five-Year Review. The results of Years 1 and 2 of the program were presented in the First Five-Year Review Report and Years 3 through 7 were presented in the Second Five-Year Review Report.

Table 4-1 presents a summary of wells and sampling frequency during the third five-year review period. During this 5-year review period, Site 6 groundwater was analyzed in 2006, 2007, 2009 and 2010. A summary of downgradient groundwater results compared to 2011 criteria is presented in Table 4-2. Tables and graphs do not identify when results exceed secondary criteria, as it was determined by USEPA that secondary criteria will no longer be used starting in 2011. During the past 5 years 1,1,2,2-tetrachloroethane, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, fluorene, naphthalene, and phenanthrene were never detected. Pesticides were not detected in 2006, and were removed from the monitoring program in 2007.

Detected COPCs were plotted as trend graphs using 2006 through 2010 monitoring data on Figures 4-2 through 4-16. On the trend graphs, the average is shown for duplicate samples and non-detected

samples are shown at one-half the detection limit. Total arsenic exceeded primary criteria at one well, 6MW2S, in 2006. No other detections of any COPCs exceeded primary criteria for Site 6 during 2006 through 2010. Maximum detections of 1,2-dichloroethane, 1,2-dichlorobenzene, bis(2-ethylhexyl)phthalate, fluoranthene, pyrene, total barium, and total silver, were 100 times less than their criteria. The results indicate that the TCRA at the site removed sufficient contaminant source material and reduced infiltration of precipitation through any remaining source material so that significant contaminant migration from the site to the Thames River is not occurring.

**4.5.2.2 O&M Data Review**

Inspections are being conducted as part of post-closure O&M activities associated with Site 6. The goal of the inspections is to determine if appropriate O&M is being performed to maintain the effectiveness of the remedial action. As shown in the table below, five inspections have been performed at Site 6 since the second five-year review and within the period being evaluated in this third five-year review.

<b>Year</b>	<b>Initial Date of Inspection</b>	<b>Final Report Date</b>
2006	October 25, 2006	June 2008
2007	November 7, 2007	August 2008
2008	August 26, 2008	May 2009
2009	August 18, 2009	December 2009
2010	August 18, 2010	January 2011

Copies of the completed Inspection Checklists for Site 6 from 2006 through 2010 are provided in Appendix A. The overall conclusions of the inspections for each year were that the land use for the site had remained unchanged and in general, the landfill and its associated features appeared to be functioning as designed, were in overall good condition, and meeting the long-term remedial objectives. However, the reports for each year identified some maintenance-related deficiencies that, if left unaddressed, could eventually affect the integrity of the cap system. The types of deficiencies were relatively consistent over the 5-year period, although they were not necessarily all observed each year and typically were not in the same locations. The 2006 Inspection Report identified 11 deficiencies, the largest number for the five-year period. Subsequent years identified only three or fewer. Common deficiencies related to cracks, or depressions in the asphalt surface; sediment on the asphalt pad and in the catch basin; occasional vegetation penetrating through the asphalt pad; vegetative build-up around some monitoring wells; missing or damaged bolts for some monitoring-well caps; and minor damage to the concrete around monitoring wells. Damage to the asphalt pad was attributed to boats and other heavy equipment being stored without proper protection for the pad. Each Inspection Report indicated that deficiencies identified during the prior-year's inspection had been repaired, and the reports often noted that they were repaired before the final inspection report was issued. During the 2010 inspection, excess

vegetative growth was observed in the drainage swales and it was noted that storage racks did not have blocking to prevent penetration of the pad. The vegetation was removed during maintenance activities completed in October 2010 and a work request was submitted to correct the lack of blocking. The deficiency logs for years 2006 and 2008 through 2010 are included in Appendix A.

#### **4.5.3 ARAR and Site-Specific Action Level Changes**

The final remedial action implemented for soil and groundwater at the Former DRMO includes monitoring of groundwater and institutional controls. No new human health ARARs have been promulgated that would call into question the protectiveness of the remedy for soil. ARARs and TBCs were reviewed to determine whether there have been changes since the Interim ROD and GMP were issued. Listings of chemical-, location-, and action-specific ARARs, advisories and guidance considered in the Final ROD are listed in Tables 4-3, 4-4, and 4-5, respectively. With the exception of monitoring criteria, the ARARs were addressed during monitoring well installation or selection of the remedy but would also be applicable during future operation and maintenance activities for the remedy. Changes associated with monitoring are addressed in the response to Question 2 of Section 4.5.

The presence of the cap effectively eliminated direct contact with contaminated soil at the site; therefore the soil at the DRMO represents little potential risk to ecological receptors. Therefore, any changes in screening values since the completion of the ERA would not impact the effectiveness of the remedial action. If the cap would be destroyed in the future due to artificial or natural forces, there could be a potential risk to ecological receptors.

#### **4.5.4 Site Inspection**

The DRMO was inspected April 6, 2011. The focus of the inspection was on the engineered cap system installed over the DRMO. Weather conditions during the inspection were cool (mid-50s), sunny, and windy. Representatives from the Navy, CTDEP, and Tetra Tech participated in the inspection. Photographs taken of site features during the inspection are provided in Appendix B. The site inspection checklist completed during the inspection is provided in Appendix C.

The site inspection included visual observations of the current condition of the cap system at Site 6. During the site inspection, the team found that the land use for the site has changed since the remedial action and the second five-year review were completed. It was noted in the Second Five-Year Review Report that the land use may change in the future (i.e., the site may become a parking lot for the NSB-NLON Yacht Club). This land use change has occurred but has not impacted the landfill cap. The Navy has continued to use a portion of the area for equipment storage. A sign was posted at the gate to the site, noting land use restrictions. Visitors to the site are typically required to sign in, but the inspection

team was not required to do so and was not escorted by site personnel throughout the inspection. In general, the site inspection found that the cap system was working as intended. However, even though the Navy has implemented an O&M program for Site 6 and corrective actions have been taken, a number of O&M issues were identified during the site inspection that, if not addressed, could negatively affect the long-term performance of the cap system. These issues are noted in the site inspection checklist provided in Appendix C and on Figure 4-1. The issues and their potential long-term impacts on the cap system are as follows:

### **Deficiencies**

- Boats are being stored on the cap without blocking to prevent point-load damage to the asphalt.

### **O&M Issues**

- The asphalt has a few minor longitudinal cracks. If the cracks are not sealed, surface water may penetrate the asphalt and further deteriorate the asphalt during freeze-thaw cycles.
- The well pad for well 6MW1S is in need of replacement.
- A bolt on the cover for well 6MW9S is damaged.
- Leaf litter, trees, and other debris have accumulated in the perimeter channel, which could result in surface-water ponding on the asphalt adjacent to the perimeter channel.
- Leaf litter has accumulated around the drop inlet and needs to be cleared.
- The outlet structure could not be accessed during the inspection. There is no access to the outlet through the security fencing. However, based on inspection from the landward side, this outlet structure appeared to be functioning properly.
- A sign was missing Public Works contact information. Investigate warning signs and update as needed.

#### **4.5.5 Site Interviews**

No official interviews were conducted as part of the third five-year review. Relevant discussions with the inspection team regarding the site are documented on the site inspection checklist.

4.6 ASSESSMENT

The following conclusions support the determination that the remedy at Site 6 is protective of human health and the environment.

**Question 1. Is the remedy functioning as intended by the decision documents?**

- Remedial Action Performance:** A TCRA was completed and a cap was installed at Site 6. The cap is currently effective in limiting direct exposure to remaining contaminated soil and minimizing infiltration and contaminant migration from the site. A groundwater monitoring program has been implemented as part of the final remedy for the site to evaluate the performance of the cap regarding minimizing contaminant migration to the Thames River. The results of 12 years of monitoring indicate that no significant contaminant migration is occurring from Site 6. Should groundwater data indicate the need to evaluate additional remedial actions at some point in the future, the Navy will perform the evaluation at that time. Proper O&M is necessary to maintain proper long-term performance of the cap.
- System Operations/O&M:** Site 6 has been inspected annually since 2003, when the O&M Manual was developed and implemented. The cap system is still functioning as intended, and O&M of the cap system is being performed annually at the site. The items noted in Section 4.5.4 should be addressed to improve the O&M of the site.

Actual costs for the monitoring program have ranged from approximately \$29,900 per year to \$45,600 per year (see table below). Costs have generally decreased due to optimization of the monitoring program. The costs include those associated with sampling, analysis, validation, and reporting. Costs associated with preparing and updating the Monitoring Plan and maintaining the groundwater monitoring wells are not included.

Source	Cost of Monitoring
Projected Annual Cost in ROD	\$84,000 for the first 3 years
Actual Year 8 Cost (2006)	\$42,800
Actual Year 9 Cost (2007)	\$44,200
Actual Year 11 Cost (2009)	\$45,600
Actual Year 12 Cost (2010)	\$29,900

The cost for annual O&M estimated during preparation of the ROD was \$10,200. O&M of the cap system began in 2003, and costs have ranged from approximately \$10,300 to \$47,700 per year (see table below). Costs have fluctuated due to the amount of maintenance required and the amount of

funding available. The annual O&M costs include the costs for landfill inspections, reporting, and maintenance.

Source	Cost of O&M
Projected Annual Cost in ROD	\$10,200
Actual Year 4 Cost (2006)	\$10,300
Actual Year 5 Cost (2007)	\$10,700
Actual Year 6 Cost (2008)	\$10,900
Actual Year 7 Cost (2009)	\$47,700
Actual Year 8 Cost (2010)	\$14,100
Actual Year 9 Cost (2011)	\$8,400

- Opportunities for Optimization:** The sampling frequency of the monitoring program was reduced from annually to biennially, based on the recommendations of the Second Five-Year Review Report. During the past 5 years 1,1,2,2-tetrachloroethane, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, fluorene, naphthalene and phenanthrene were not detected. Maximum detections of 1,2-dichloroethane, 1,2-dichloroethene, bis(2-ethylhexyl)phthalate, fluoranthene, pyrene, total barium, and total silver, were less than 1/100<sup>th</sup> of their criteria. COPCs that were not detected or were detected at 100 times less than criteria could be eliminated from the monitoring program. Monitoring well 6MW1S could be abandoned if it is determined that this well is not needed.
- Early Indicators of Potential Remedy Failure:** Boats are being stored on the cap without blocking, which could cause point-load damage to the asphalt. There were also maintenance issues noted during the O&M inspections of the cap system that are minor and are routinely repaired. Currently, the deficiency does not compromise the protectiveness of the remedy, but if left unaddressed, it could result in remedy failure in the future.
- Implementation of Institutional Controls and Other Measures:** Institutional controls associated with Site 6 are being implemented in accordance with New London Instruction 5090.25. The area is secured with fencing and signs are posted warning personnel not to dig in the area. In addition, the Navy has implemented corrective actions to improve LUC compliance, as detailed in Section 18.

**Question 2. Are the exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the remedy selection still valid?**

- Changes in Standards and TBCs:** In the first Groundwater Monitoring Plan for the DRMO (B&RE, 1998), a combination of site-specific SWPC, Connecticut SWPC, and Connecticut Volatilization

Criteria were identified as the primary monitoring criteria. It was determined by the USEPA that secondary criteria will no longer be used starting in 2011. The monitoring plan and criteria for the DRMO are currently being updated, and the Final O&M Manual (REV 2) is expected to be completed in 2011. The following changes were noted between the plans:

- The Connecticut surface water WQSs were updated in February 2011.
- Site-specific SWPC were updated, based on the changes to the Connecticut WQSs and Thames River dilution factors.
- CTDEP criteria for volatilization from groundwater were revised since the last five-year review.
- In the Second Five-Year Review, the SWPC for phenanthrene (0.077 µg/L) in the 1996 CTDEP RSRs was found to be incorrect and was updated to 0.3 µg/L, but has not been changed in the regulations. This correction was confirmed with the CTDEP. None of the other CTDEP SWPCs for the COCs have changed.

A comparison of the old and new primary criteria is presented in Table 4-6. The changes in criteria do not impact the protectiveness of the remedy.

- **Changes in Exposure Pathways:** Because a cap was installed at the DRMO, the direct exposure pathway for human and ecological receptors to come into contact with contaminated soil related to the Former DRMO was eliminated. This change was planned as part of the TCRA. The land use of the Former DRMO has changed to a small boat storage area for the Navy's MWR Department. The change in site conditions should not effect exposure pathways (i.e., there are no new contaminants, sources, or direct routes of exposure).
- **Changes in Toxicity and Other Contaminant Characteristics:** There have been no changes in the human health toxicity criteria that would impact the soil or groundwater remedial goals.
- **Changes in Risk Assessment Methods:** As discussed in Section 1.4, there have been no major changes in HHRA methodologies since the signing of the Interim ROD. In addition, as presented in Section 1.4, no significant changes have occurred in the ERA methodology since the ERA was conducted.
- **Expected Progress Towards Meeting RAOs:** The RAOs for OU2 were met by performing the removal action, installing and maintaining the cap system, and conducting groundwater monitoring.

**Question 3. Has any other information come to light that could call into question the protectiveness of the remedy?**

No additional information has been identified that would call into question the protectiveness of the remedy.

#### **4.7 ISSUES**

One deficiency and several O&M issues were noted during the five-year review site inspection that should be resolved. The deficiency and issues are presented in Section 4.5.4 and summarized in Table 4-7.

#### **4.8 RECOMMENDATIONS AND FOLLOW-UP ACTIONS**

Based on the results of the site inspection and review, the following recommendations are made for Site 6:

##### **Deficiencies**

- Place blocking underneath the supports used to store the boats.
  
- Implement corrective actions for LUC compliance by doing the following:
  - Environmental Office to perform quarterly LUC inspections.
  - Dig permits to require concurrence of Environmental Office.
  - Environmental Office to use GIS and NIRIS to identify LUC areas and wells for planners.
  - Revise MIDLANT Regional Instruction.

Blocking was placed underneath the supports used to store the boats in November 2011. Quarterly LUC inspections, concurrence of the Environmental Office for dig permits, and use for GIS and NIRIS to identify LUC areas has now been instituted at NSB-NLON and are ongoing.

##### **O&M Issues**

- Continue O&M (annual inspections and biennial monitoring) and address the issues noted in Section 4.5.4 and Table 4-7.

### **Other Recommendations**

- Continue enforcement of New London Instruction 5090.25 until a Land Use Control Remedial Design (LUC RD) can be completed.
- Complete and implement Revision 2 of the O&M Manual.
- Complete a RACR to document completion of the remedial action.
- Consider abandoning well 6MW1S because it is cross-gradient from the cap and not down gradient. However, it may be appropriate to retain the well because it may be beneficial for use as the most downgradient well in the Site 3 monitoring program.
- Investigate warning signs and update as needed.

Follow-up actions should be completed by the Navy in a timely manner to address the recommendations.

### **4.9 PROTECTIVENESS STATEMENT**

The remedy at Site 6 is currently protective of human health and the environment. A majority of the original source was removed during a TCRA, and the remaining source material is contained. The cap system minimizes infiltration and subsequent contaminant migration and prevents direct contact with soil. A GMP is being implemented at the site, and the results of the program indicate that the removal action and cap are performing as planned. Continued implementation of the LUCs and O&M will maintain the effectiveness of the remedy into the future.

TABLE 4-1

SUMMARY OF SITE 6 GROUNDWATER SAMPLING 2006 THROUGH 2011  
 THIRD FIVE-YEAR REVIEW REPORT  
 NSB-NLON, GROTON, CONNECTICUT

Well ID	Year 8	Year 9	Year 11	Year 12
	Round 18	Round 19	Round 20	Round 21
	2006	2007	2009	2010
<b>Monitoring Wells - Upgradient</b>				
6MW6S	x	x	x	x
6MW6D	x	x	x	x
6MW9S	x	x	x	x
<b>Monitoring Wells - Downgradient</b>				
6MW1S	x	x	x	x
6MW2S	x	x	x	x
6MW10S	x	x	x	x
6MW11S	x	x	x	x

x - Well sampled.

TABLE 4-2

**SUMMARY OF SITE 6 DOWNGRADE GROUNDWATER RESULTS<sup>(1)</sup> 2006 THROUGH 2011**  
**THIRD FIVE-YEAR REVIEW**  
**NSB-NLON, GROTON, CONNECTICUT**  
**PAGE 1 OF 2**

COPCs	Year 8	Year 9	Year 11	Year 12
	Round 18	Round 19	Round 20	Round 21
	2006	2007	2009	2010
<b>VOCs</b>				
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND
1,2-Dichloroethane	x	ND	ND	ND
1,2-Dichloroethene (total)	x	x	x	x
Trichloroethene	x	x	ND	x
Vinyl Chloride	x	ND	x	x
<b>SVOCs and PAHs</b>				
Benzo(a)anthracene	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND
Benzo(b)fluoranthene	ND	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	ND	ND
Benzoic Acid	ND	ND	ND	x
Bis(2-ethylhexyl)phthalate	x	ND	x	x
Fluoranthene	x	x	ND	x
Fluorene	ND	ND	ND	ND
Napthalene	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND
Pyrene	x	x	ND	x
<b>Pesticides/PCBs</b>				
4,4'-DDD	ND	NA	NA	NA
Heptachlor Epoxide	ND	NA	NA	NA
Aroclor 1254	ND	NA	NA	NA
Aroclor 1260	ND	NA	NA	NA
Hexchlorobiphenyl	NA	NA	NA	NA
<b>Inorganics - Total</b>				
Arsenic	P	x	x	x
Barium	x	x	x	x
Cadmium	x	x	x	x
Chromium	x	x	x	x
Copper	x	x	x	x
Lead	x	x	x	x
Silver	x	x	x	x
Zinc	x	x	x	x

**TABLE 4-2**

**SUMMARY OF SITE 6 DOWNGRAIDENT GROUNDWATER RESULTS<sup>(1)</sup> 2006 THROUGH 2011  
THIRD FIVE-YEAR REVIEW  
NSB-NLON, GROTON, CONNECTICUT  
PAGE 2 OF 2**

- 1 Results from monitoring wells 6MW1S, 6MW2S, 6MW10S, and 6MW11S.
- NA - Not analyzed.
- ND - Not detected in any downgradient wells at the site.
- x - Parameter detected in at least one well but did not exceed the Primary Criterion.
- P - Primary Criteria from 2011 O&M Manual.

TABLE 4-3

**CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE  
SITE 6 - DEFENSE REUTILIZATION AND MARKETING OFFICE  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT  
PAGE 1 OF 2**

Requirement	Citation	Status	Synopsis of Requirements	Current Status / Applicability
<b>Federal</b>				
Cancer Slope Factors (CSFs)	None	To Be Considered (TBC)	CSFs are guidance values used to evaluate the potential carcinogenic hazard caused by exposure to contaminants	The selected remedy prevents exposure to contaminated media and thereby minimizes human health concerns. This TBC would be used to recalculate risks if the site was altered in the future in a way that would change exposure scenarios.
Guidelines for Carcinogen Risk Assessment	EPA/630/P-03/001F (March 2005)	TBC	This is a general guidance document that provides a framework for assessing possible cancer risks from exposures to pollutants or other agents in the environment. The document discusses issues involving hazard identification, dose-response assessment, exposure assessment, and risk characterization with an emphasis on characterization of evidence and conclusions in each area of the assessment. As part of the characterization process, explicit evaluations are made of the hazard and risk potential for susceptible lifestages, including children.	The selected remedy prevents exposure to contaminated media and thereby minimizes human health concerns. This TBC would be used to recalculate risks if the site was altered in the future in a way that would change exposure scenarios.

TABLE 4-3

**CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE  
SITE 6 - DEFENSE REUTILIZATION AND MARKETING OFFICE  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT  
PAGE 2 OF 2**

Requirement	Citation	Status	Synopsis of Requirements	Current Status / Applicability
<b>Federal (Continued)</b>				
Reference Doses (RfDs)	None	TBC	RfDs are guidance values used to evaluate the potential noncarcinogenic hazard caused by exposure to contaminants.	The selected remedy prevents exposure to contaminated media and thereby minimizes human health concerns. This TBC would be used to recalculate risks if the site was altered in the future in a way that would change exposure scenarios.
Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens	EPA/630/R-03/003F (March 2005)	TBC	The Supplemental Guidance addresses a number of issues pertaining to cancer risks associated with early-life exposures generally, but provides specific guidance on potency adjustment for carcinogens acting through a mutagenic mode of action. This guidance recommends a default approach using estimates from chronic studies (i.e., CSFs) with appropriate modifications to address the potential for differential risk of early-lifestage exposure.	The selected remedy prevents exposure to contaminated media and thereby minimizes human health concerns. This TBC would be used to recalculate risks if the site was altered in the future in a way that would change exposure scenarios.
<b>Connecticut</b>				
There are no chemical-specific Applicable or Relevant and Appropriate Requirements.				

TABLE 4-4

LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE  
 SITE 6 - DEFENSE REUTILIZATION AND MARKETING OFFICE  
 NAVAL SUBMARINE BASE NEW LONDON  
 GROTON, CONNECTICUT  
 PAGE 1 OF 2

Requirement	Citation	Status	Synopsis of Requirement	Current Status / Applicability
<b>Federal</b>				
Executive Order 11988 RE: Floodplain Management	Executive Order 11988	Applicable	This order requires federal agencies, wherever possible, to avoid or minimize adverse impacts upon floodplains. Requires reduction of risk of flood loss, minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values of the floodplains.	This requirement was addressed during monitoring well installation within the 100-year floodplain. This requirement is carried forward during well abandonment and operation and maintenance (O&M) of the remedy.
Coastal Zone Management Act	16 United States Code (USC) Parts 1451 <i>et seq.</i>	Applicable	Requires that any actions must be conducted in a manner consistent with state approved management programs.	This site is located in a State coastal flood zone (within the 100-year floodplain). Therefore, applicable State coastal zone management requirements were considered during determination of the Selected Remedy. This regulation would be applicable if the site use was changed or the site was altered.
Fish and Wildlife Coordination Act	16 USC 661 <i>et seq.</i> ; 40 Code of Federal Regulations (CFR) § 6.302	Applicable	Requires action to be taken to protect fish and wildlife from projects affecting streams or rivers. Consultation with U.S. Fish & Wildlife Service to develop measures to prevent and mitigate loss.	This regulation was addressed during monitoring well installation within the river's tidal zone. This requirement is carried forward during well abandonment and O&M of the remedy.
<b>Connecticut</b>				
Coastal Management Act	General Statutes of Connecticut (CGS) §§ 22a-92 and 94	Applicable	Requires projects within a State-designated coastal zone to minimize adverse impacts on natural coastal resources.	This regulation was addressed during monitoring well installation within the 100-year floodplain. This requirement is carried forward during well abandonment and O&M of the remedy.

TABLE 4-4

LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE  
 SITE 6 - DEFENSE REUTILIZATION AND MARKETING OFFICE  
 NAVAL SUBMARINE BASE NEW LONDON  
 GROTON, CONNECTICUT  
 PAGE 2 OF 2

Requirement	Citation	Status	Synopsis of Requirement	Current Status / Applicability
<b>Connecticut (Continued)</b>				
Tidal Wetlands	Regulations of Connecticut State Agencies (RCSA) §§ 22a-30-1 through 17	Applicable	Activities within or affecting tidal wetlands are regulated.	This regulation was addressed during monitoring well installation within the river's tidal zone. This requirement is carried forward during well abandonment and O&M of the remedy.
Connecticut Endangered Species Act	CGS §§ 26-303 through 314	Applicable	Regulates activities affecting State-listed endangered or threatened species or their critical habitat.	The State-threatened Atlantic sturgeon inhabits the Thames River. Because monitoring wells were installed in the river's tidal zone, protection of the Atlantic Sturgeon's habitat was considered during installation. This requirement is carried forward during well abandonment and O&M of the remedy.

TABLE 4-5

**ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE  
SITE 6 - DEFENSE REUTILIZATION AND MARKETING OFFICE  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT  
PAGE 1 OF 2**

<b>Requirement</b>	<b>Citation</b>	<b>Status</b>	<b>Synopsis of Requirement</b>	<b>Current Status / Applicability</b>
<b>Federal</b>				
Guidance on Remedial Actions for Superfund Sites with Polychlorinated Biphenyl (PCB) Contamination	OSWER Directive 9355.4-01	To Be Considered (TBC)	This guidance describes how to address PCB contamination issues.	Low levels of PCBs (47.2 parts per million or less) remain in the soil at the site. The land use (industrial) was selected in accordance with these regulations. This guidance will be followed when conducting operation and maintenance (O&M) or if the site use changes, such as if the site is used for Yacht Club parking.
<b>Connecticut</b>				
Hazardous Waste Management: Generator and Handler Requirements	Regulations of Connecticut State Agencies (RCSA) § 22a-449 (c) 100-101	Applicable	These sections establish standards for listing and identification of hazardous waste. The standards of 40 Code of Federal Regulations (CFR) 260-261 are incorporated by reference.	This regulation was addressed during monitoring well installation. This requirement is carried forward during well abandonment and O&M of the remedy.
Hazardous Waste Management: Treatment, Storage, and Disposal Facility Standards	RCSA § 22a-449 (c) 104	Applicable	This section establishes standards for groundwater monitoring and post-closure. The standards of 40 CFR 264 are incorporated by reference.	The remedy complies with the post-closure requirements of this section through groundwater monitoring and institutional controls at the Site.
Control of Noise Regulations	RCSA § 22a-69-1 through 7.4	Applicable	These regulations establish allowable noise levels. Noise levels from construction activities are exempt from these requirements.	This regulation was addressed during monitoring well installation. This requirement is carried forward during well abandonment and O&M of the remedy.
Guidelines for Soil Erosion and Sediment Control	The Connecticut Council on Soil and Water Conservation	TBC	The guidelines provide technical and administrative guidance for the development, adoption, and implementation of an erosion and sediment control program.	This regulation was addressed during monitoring well installation. This requirement is carried forward during well abandonment and O&M of the remedy.

TABLE 4-5

**ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE  
SITE 6 - DEFENSE REUTILIZATION AND MARKETING OFFICE  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT  
PAGE 2 OF 2**

Requirement	Citation	Status	Synopsis of Requirement	Current Status / Applicability
<b>Connecticut (Continued)</b>				
Water Quality Standards (WQs)	General Statutes of Connecticut (CGS) 22a-426	Applicable	Connecticut's WQs establish specific numeric criteria, designated uses, and anti-degradation policies for groundwater and surface water.	The Connecticut WQs were used to calculate the Alternative surface water protection criteria (SWPC) and are being used as secondary monitoring criteria to evaluate monitoring results and determine if further remedial action is required to protect resources. Updates to the Connecticut WQs are discussed in Section 4.6. Changes to the WQs in the future will need to be considered.
Remediation Standards Regulations	RCSA § 22a-133k-3	Applicable	These regulations provide specific numeric cleanup criteria for a wide variety of contaminants in soil, groundwater, and soil vapor. These criteria include volatilization criteria, pollutant mobility criteria, direct exposure criteria, and SWPCs.	Although no groundwater plume has been identified at this site, groundwater monitoring will continue to be conducted to confirm no chemicals of concern (COCs) are migrating off site at levels above Alternative SWPC or Connecticut Department of Environmental Protection (CTDEP) Volatilization Criteria. Maintenance of the cap and continued implementation of institutional controls will satisfy the Remediation Standard Regulations for soil. The Alternative SWPC for COCs at the site were calculated following the RSRs and are protective of receptors in the Thames River. Updates to the monitoring criteria based on RSRs are discussed in Section 4.6.

TABLE 4-6

**COMPARISON OF PRIMARY MONITORING CRITERIA  
SITE 6 - DEFENSE REUTILIZATION AND MARKETING OFFICE  
NAVAL SUBMARINE BASE NEW LONDON  
NSB-NLON, GROTON, CONNECTICUT**

Chemical	Background Concentration <sup>(1)</sup>	Primary Monitoring Criteria									Selected Criteria		
		Site-Specific SWPC <sup>(2,3)</sup>			CTDEP SWPC <sup>(4)</sup>			CTDEP Volatilization <sup>(5)</sup>			1998 <sup>(9)</sup>	2006	2011
		1998 <sup>(2)</sup>	2006 <sup>(3)</sup>	2011 <sup>(6)</sup>	1998 <sup>(2)</sup>	2006 <sup>(3)</sup>	2011 <sup>(7)</sup>	1998 <sup>(2)</sup>	2006 <sup>(3)</sup>	2011 <sup>(8)</sup>			
<b>VOCs (µg/L)</b>													
1,1,2,2-Tetrachloroethane	NA	1,100	<b>6,050</b>	<b>400</b>	110	110	110	100	<b>64</b>	<b>54</b>	1,100	64	54
1,2-Dichloroethane	NA	29,700	<b>54,500</b>	<b>3,700</b>	2,970	2,970	2,970	90	68	68	29,700	68	68
1,2-Dichloroethene (total)	NA	NA	<b>NA</b>	<b>1,000,000</b>	NA	NA	NA	NA	24,000	24,000	NA	24,000	24,000
Trichloroethene	NA	23,400	<b>42,700</b>	<b>3,000</b>	2,340	2,340	2,340	540	67	67	23,400	67	67
Vinyl chloride	NA	157,500	<b>289,000</b>	<b>240</b>	15,750	15,750	15,750	2	52	52	157,500	52	52
<b>SVOCs and PAHs (µg/L)</b>													
Benzo(a)anthracene	NA	3	<b>270</b>	<b>1.8</b>	0.3	0.3	0.3	NA	NA	NA	3	270	1.8
Benzo(a)pyrene	NA	3	<b>27</b>	<b>1.8</b>	0.3	0.3	0.3	NA	NA	NA	3	27	1.8
Benzo(b)fluoranthene	NA	3	<b>270</b>	<b>1.8</b>	0.3	0.3	0.3	NA	NA	NA	3	270	1.8
Benzo(k)fluoranthene	NA	3	<b>270</b>	<b>1.8</b>	0.3	0.3	0.3	NA	NA	NA	3	270	1.8
Benzoic acid	NA	NA	<b>NA</b>	<b>224,000,000<sup>(10)</sup></b>	NA	NA	NA	NA	NA	NA	NA	NA	224,000,000 <sup>(10)</sup>
Bis(2-ethylhexyl)phthalate	NA	590	<b>3,250</b>	<b>2,200</b>	59	59	59	NA	NA	NA	590	3,250	2,200
Fluoranthene	NA	37000	<b>704</b>	<b>128</b>	3,700	3,700	3,700	NA	NA	NA	37000	704	3,700
Fluorene	NA	1,400,000	<b>27,100</b>	<b>4,920</b>	140,000	140,000	140,000	NA	NA	NA	1,400,000	27,100	140,000
Naphthalene	NA	NA	<b>11,300,000</b>	<b>2,051,300</b>	NA	NA	NA	NA	NA	NA	NA	11,300,000	2,051,300
Phenanthrene	NA	1	<b>27,000</b>	<b>4,917</b>	0.077	0.3	0.3	NA	NA	NA	1	27,000	4,917
Pyrene	NA	1,100,000	<b>27,000</b>	<b>4,917</b>	110,000	110,000	110,000	NA	NA	NA	1,100,000	27,000	110,000
<b>Inorganics (µg/L)<sup>(11)</sup></b>													
Arsenic	1.92/2.55	40	<b>11.6</b>	<b>2.1</b>	4	4	4	NA	NA	NA	40	11.6	10
Barium	227/124	NA	<b>NA</b>	<b>22,000<sup>(10)</sup></b>	NA	NA	NA	NA	NA	NA	NA	NA	22,000 <sup>(10)</sup>
Cadmium	NA	60	<b>5,120</b>	<b>12.5</b>	6	6	6	NA	NA	NA	60	5,120	12.5
Chromium (hexavalent)	49.9/16.0	1,100	<b>25,500</b>	<b>1,100</b>	110	110	110	NA	NA	NA	1,100	25,500	1,100
Copper	107/39.4	480	<b>1,710</b>	<b>310</b>	48	48	48	NA	NA	NA	480	1,710	310
Lead	6.63/2.52	130	<b>4,460</b>	<b>120</b>	13	13	13	NA	NA	NA	130	4,460	120
Silver	NA	120	<b>59,200,000</b>	<b>102</b>	12	12	12	NA	NA	NA	120	59,200,000	102
Zinc	131/109	1,230	<b>44,600</b>	<b>6,500</b>	123	123	123	NA	NA	NA	1,230	44,600	6,500

## Notes:

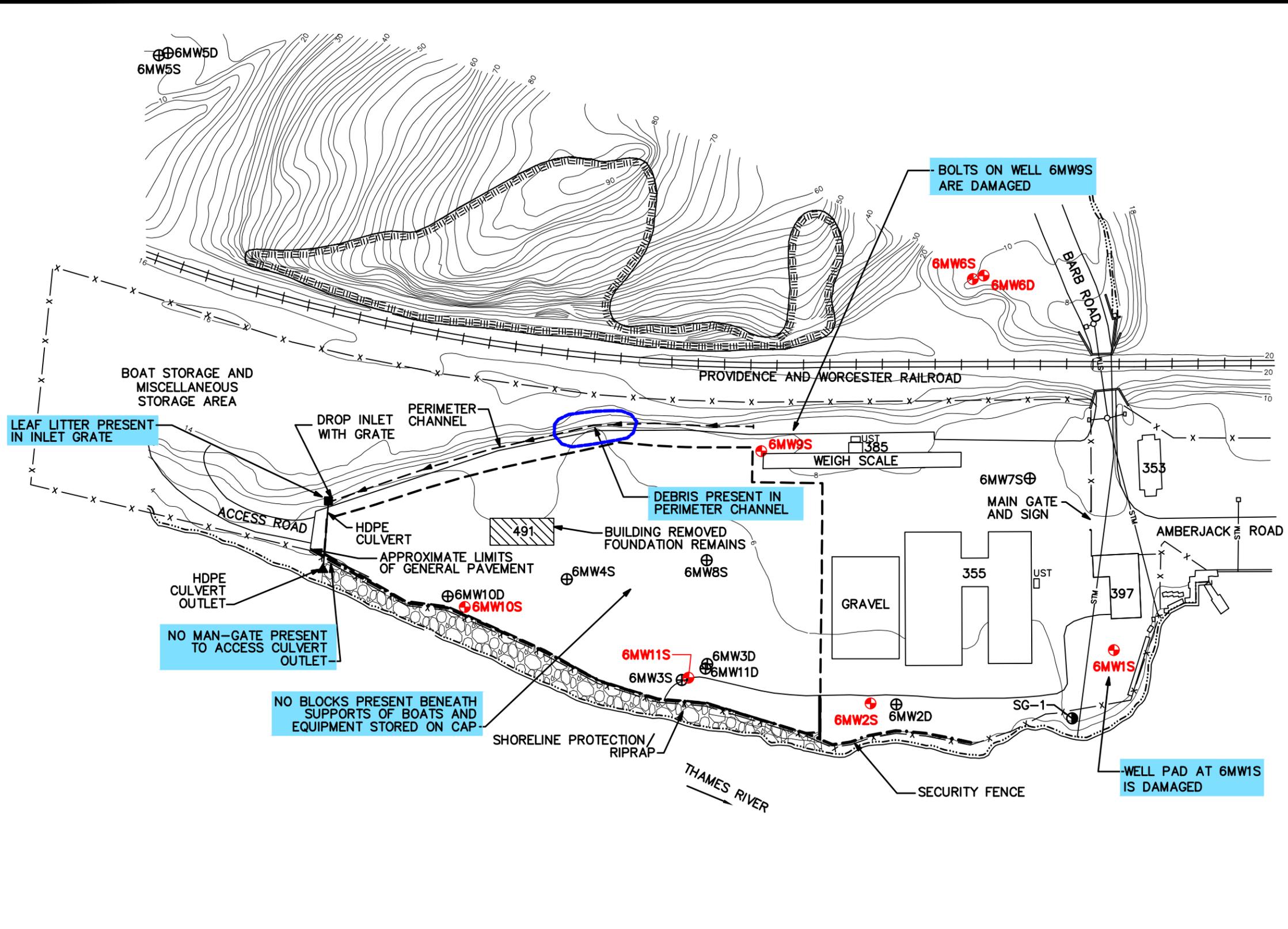
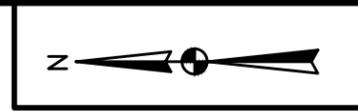
- 1 - Total/dissolved inorganic background concentrations from the BGOURI (Tetra Tech, 2002).
- 2 - Groundwater Monitoring Plan for Defense Reutilization and Marketing Office (B&RE, 1998).
- 3 - Volume II of the O&M Manual for IRP Sites at NSB-NLON (Tetra Tech, 2006).
- 4 - SWPC for substances in groundwater (CTDEP, 1996).
- 5 - Industrial/commercial volatilization criteria for groundwater (CTDEP, 1996 and 2003).
- 6 - From Table 1B in Appendix G of Volume II of the O&M Manual for IRP Sites at NSB-NLON (Tetra Tech, 2011).
- 7 - Appendix D of Connecticut Remediation Standards Regulations.
- 8 - Appendix E of Connecticut Remediation Standards Regulations.
- 9 - A Selected Criteria was not identified. The results were initially compared only to the site-specific SWPC.
- 10 - No criteria. 2009 proposed WQs with 100x dilution factor are to be considered (TBC) per 2011 O&M Manual (Tetra Tech, 2011).
- 11 - Total concentrations were used for 2006 and 2011.

Shading indicates that the criteria has changed since the last five-year review.

TABLE 4-7

ISSUES IDENTIFIED FOR  
 SITE 6 – FORMER DRMO  
 NAVAL SUBMARINE BASE NEW LONDON  
 GROTON, CONNECTICUT

Issues	Effects Protectiveness?	
	Current	Future
<b>Deficiencies</b>		
Boats are being stored without blocking to protect cap.	N	Y
<b>O&amp;M Issues</b>		
Longitudinal cracks are present in the asphalt.	N	Y
The well pad for well 6MW1S is damaged.	N	Y
A bolt on well 6MW9S is damaged.	N	N
Leaf litter and other debris have accumulated in the perimeter channel.	N	Y
Leaf litter has accumulated around the drop inlet.	N	N
The outlet structure could not be accessed during inspection. Outlet appears to be functioning properly.	N	N
Investigate warning signs and update as needed.	N	Y

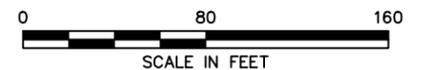


**LEGEND:**

- O&M ISSUE IDENTIFIED DURING FIVE-YEAR REVIEW INSPECTION IN APRIL 2011
- BUILDING REMOVED
- + MONITORING WELL IN SITE 6 GROUNDWATER MONITORING PROGRAM
- ⊕ ABANDONED MONITORING WELL
- HISTORICAL STAFF GAUGE
- x — FENCE
- - - - - APPROXIMATE LIMIT OF CAP
- · - · - APPROXIMATE LOCATION OF JERSEY BARRIER
- - - - - APPROXIMATE LOCATION OF DEBRIS NOTED DURING APRIL 2011 INSPECTION

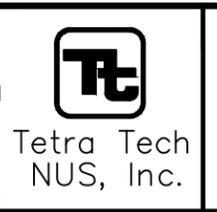
**NOTES:**

1. UNDERGROUND UTILITY LOCATIONS ARE APPROXIMATE.
2. BASE MAP AND UTILITY INFORMATION FROM MAPS OF NSB-NLON AND PHASE II RI WORK PLAN (ATLANTIC, 1993.)
3. APPROXIMATE CAP LIMITS AND OTHER FEATURES COMPILED FROM OHM COMPLETION REPORT AND ATLANTIC DESIGN SHEET C-2.
4. FENCE LINE PROVIDED BY H&S (2010)



REVISIONS			
NO.	DATE	INL	REMARKS
1	10-8-08	BH	UPDATED STATUS OF ABANDONED WELLS INSIDE CAPPED AREA
2	10-19-10	ND	CHANGED FENCE LINE REMOVED BUILDING 479
3	4-19-11	ND	UPDATED SECURITY FENCE ALONG RIVER AND BOAT STORAGE AREA.

DRAWN BY: CK DATE: 11/24/08  
 CHECKED BY: BC DATE: 5/16/11  
 REVISED BY: DATE:  
 SCALE: AS NOTED



SITE PLAN FOR  
 SITE 6  
 NSB-NLON  
 GROTON, CONNECTICUT

CONTRACT NO. WE33	
OWNER NO. 3386	
APPROVED BY CAR	DATE 5/16/11
DRAWING NO. FIGURE 4-1	REV. 2

Figure 4-2  
Site 6 - Former DRMO  
1,2-Dichloroethane in Groundwater, 2006 Through 2010  
Third Five-Year Review Report  
NSB-NLON, Groton, Connecticut

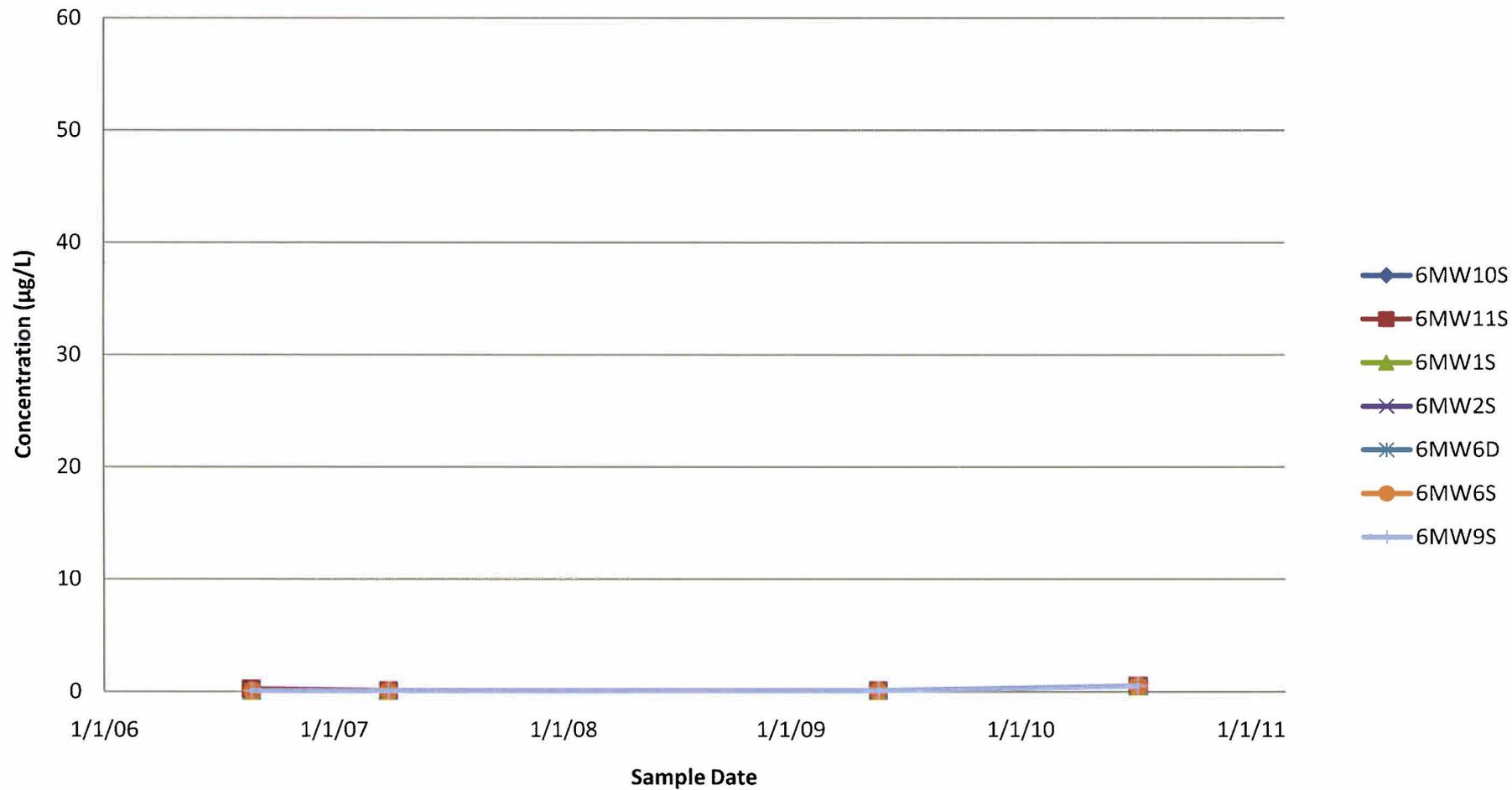


Figure 4-3  
Site 6 - Former DRMO  
1,2-Dichloroethene in Groundwater, 2006 Through 2010  
Third Five-Year Review Report  
NSB-NLON, Groton, Connecticut

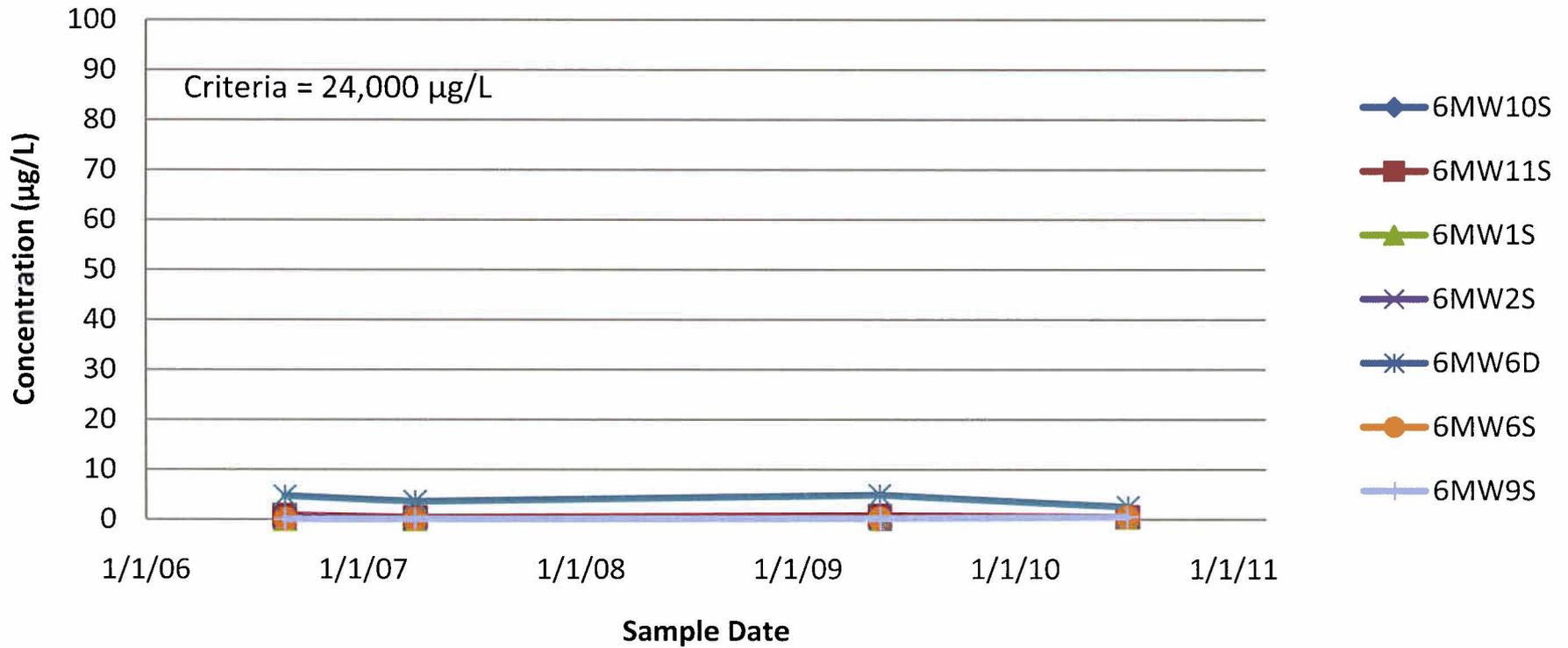


Figure 4-4  
Site 6 - Former DRMO  
Trichloroethene in Groundwater, 2006 Through 2010  
Third Five-Year Review Report  
NSB-NLON, Groton, Connecticut

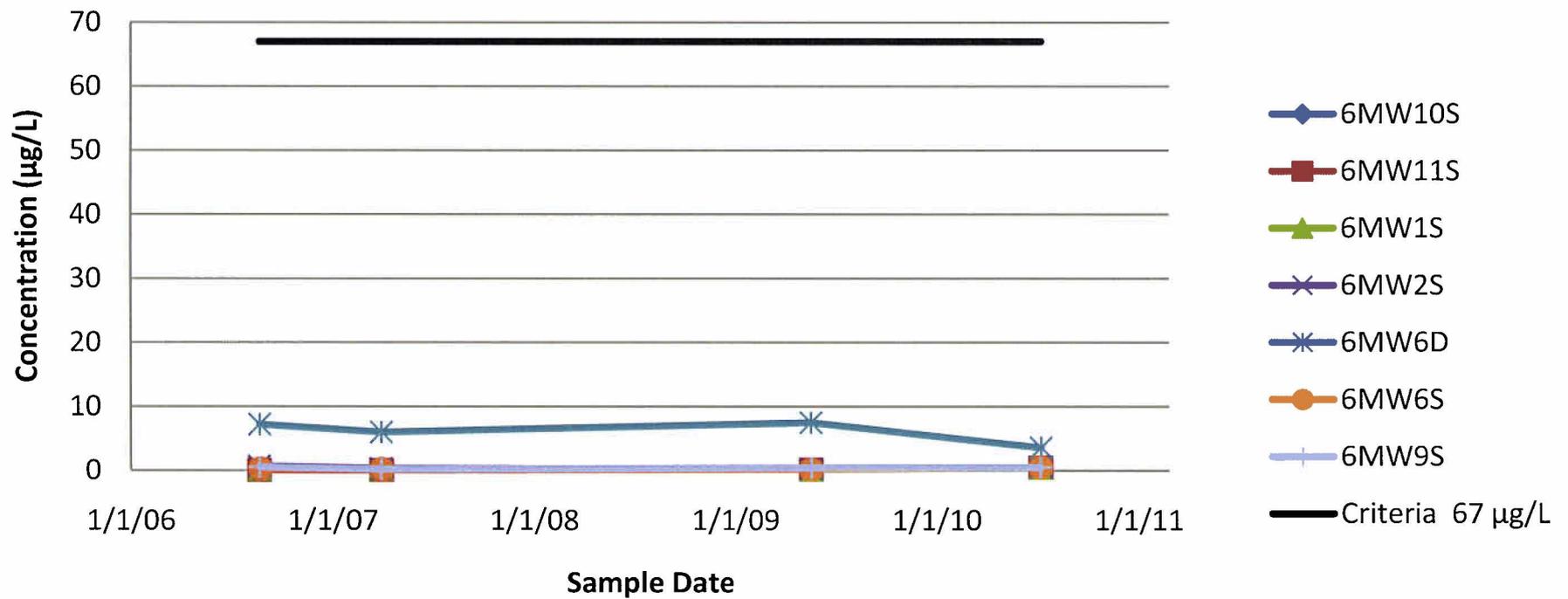


Figure 4-5  
Site 6 - Former DRMO  
Vinyl Chloride in Groundwater, 2006 Through 2010  
Third Five-Year Review Report  
NSB-NLON, Groton, Connecticut

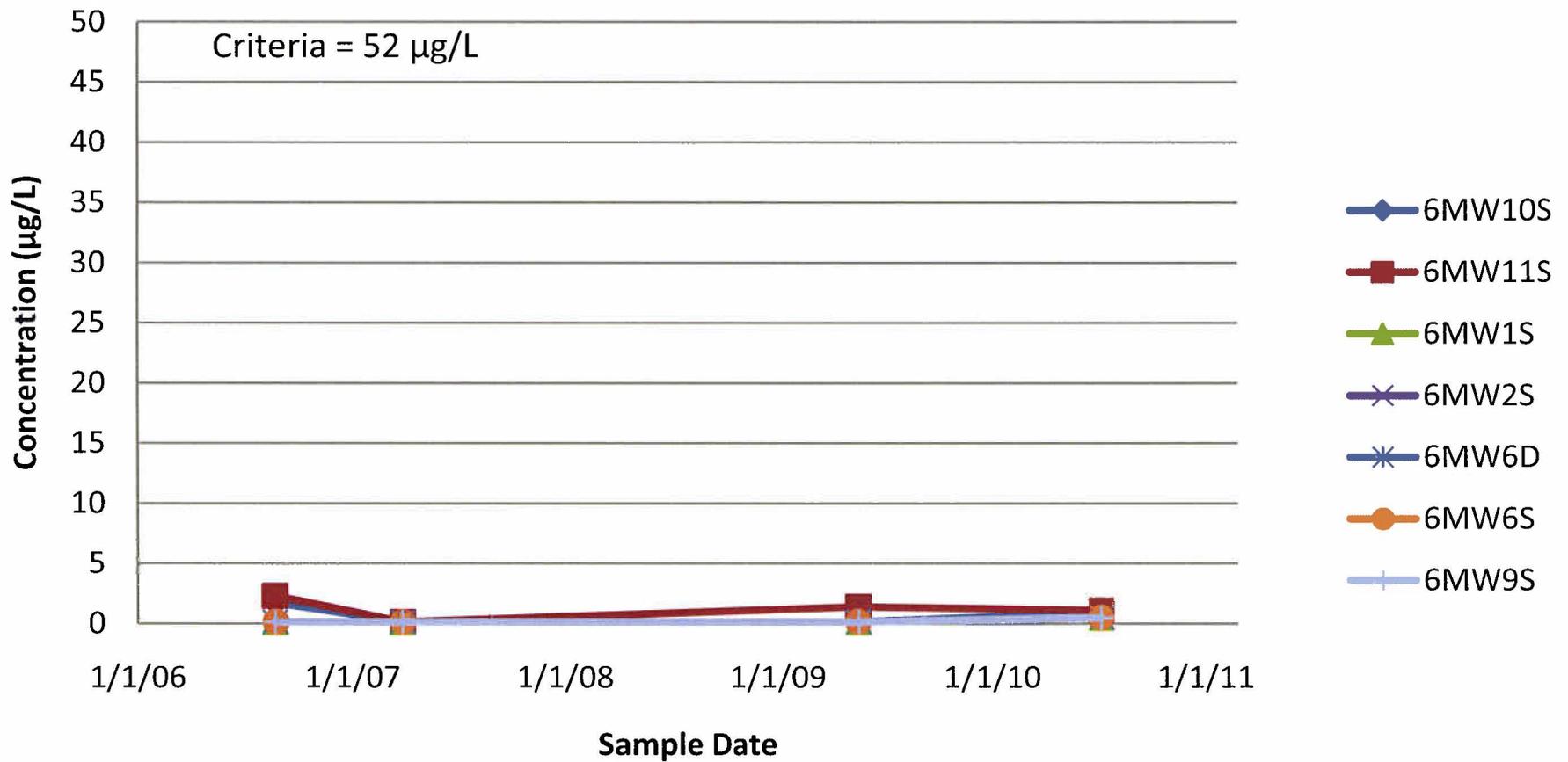
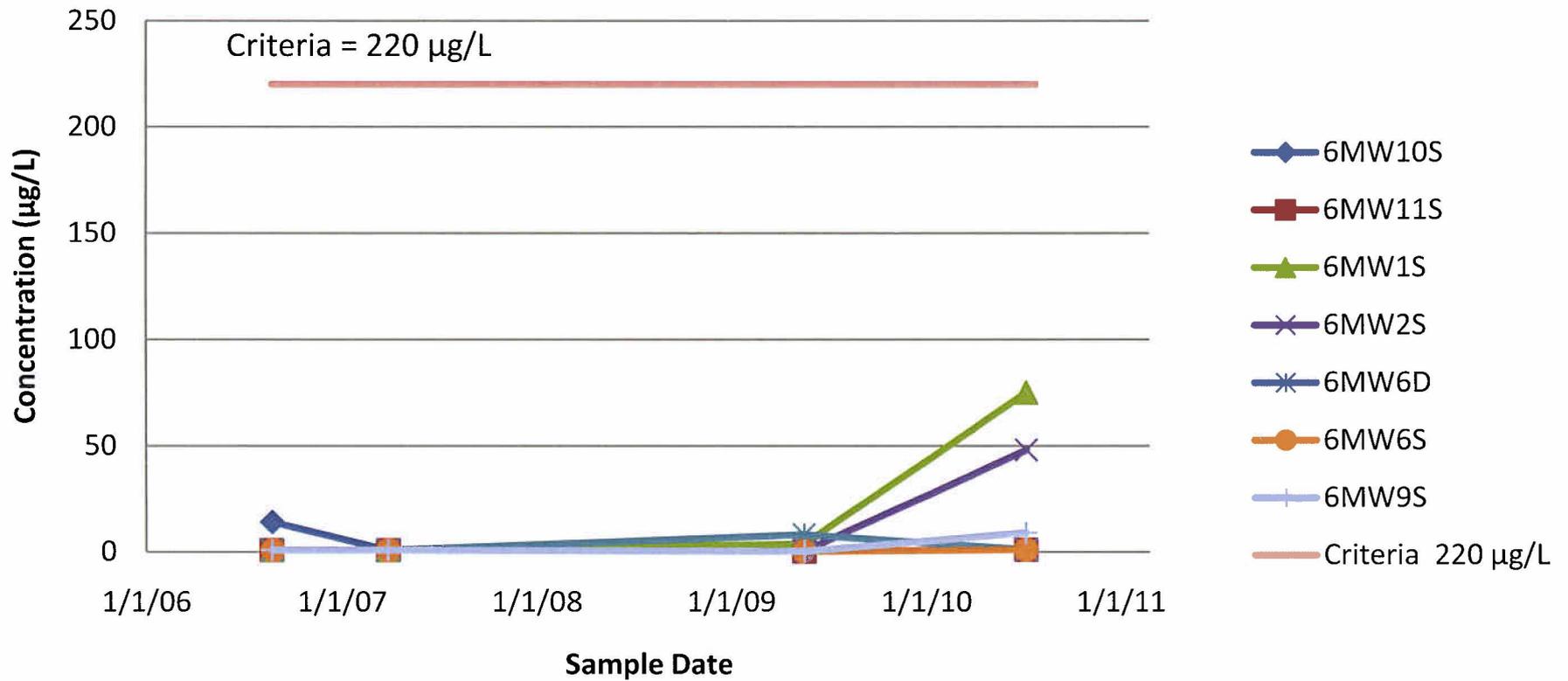


Figure 4-6  
Site 6 - Former DRMO  
Bis(2-ethylhexyl)phthalate in Groundwater, 2006 Through 2010  
Third Five-Year Review Report  
NSB-NLON, Groton, Connecticut



**Figure 4-7**  
**Site 6 - Former DRMO**  
**Fluoranthene in Groundwater, 2006 Through 2010**  
**Third Five-Year Review Report**  
**NSB-NLON, Groton, Connecticut**

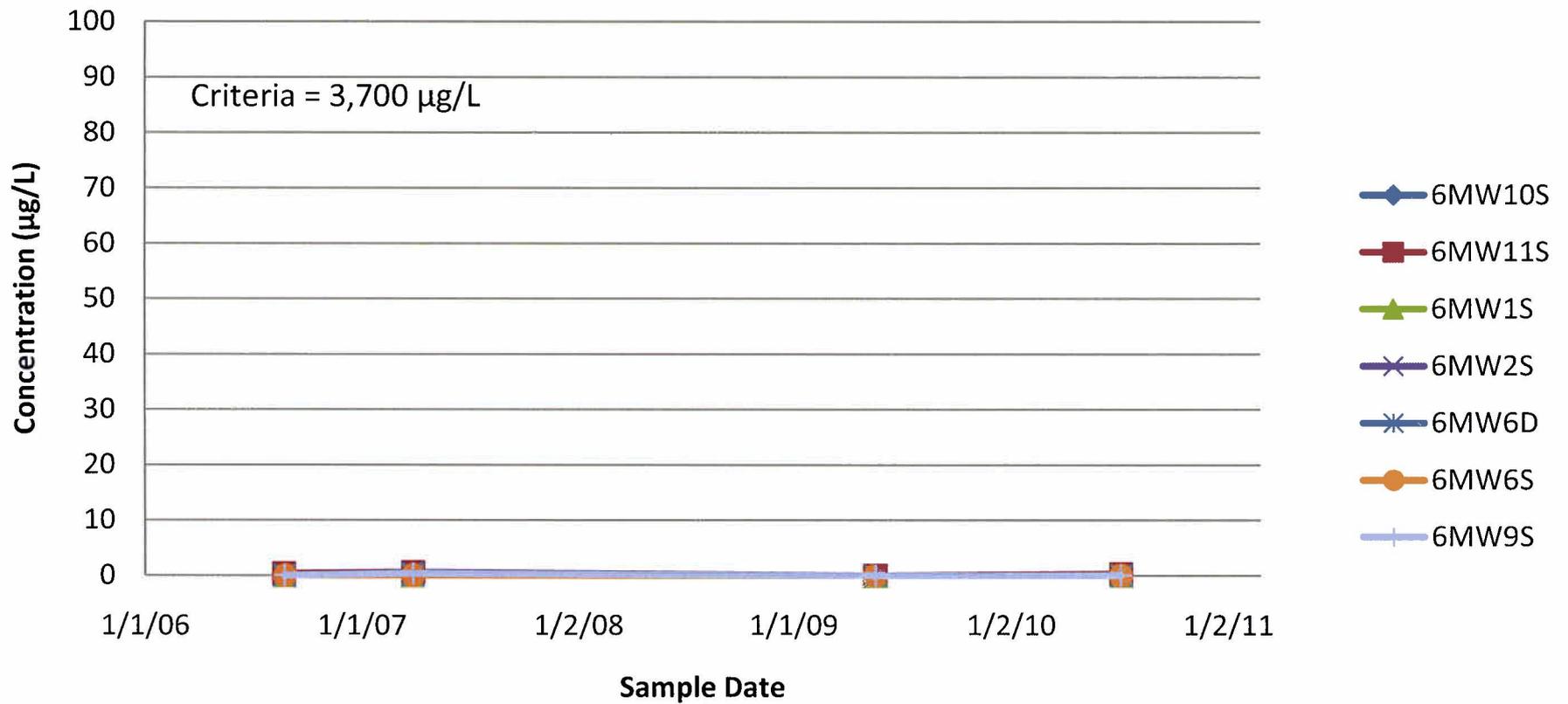


Figure 4-8  
Site 6 - Former DRMO  
Pyrene in Groundwater, 2006 Through 2010  
Third Five-Year Review Report  
NSB-NLON, Groton, Connecticut

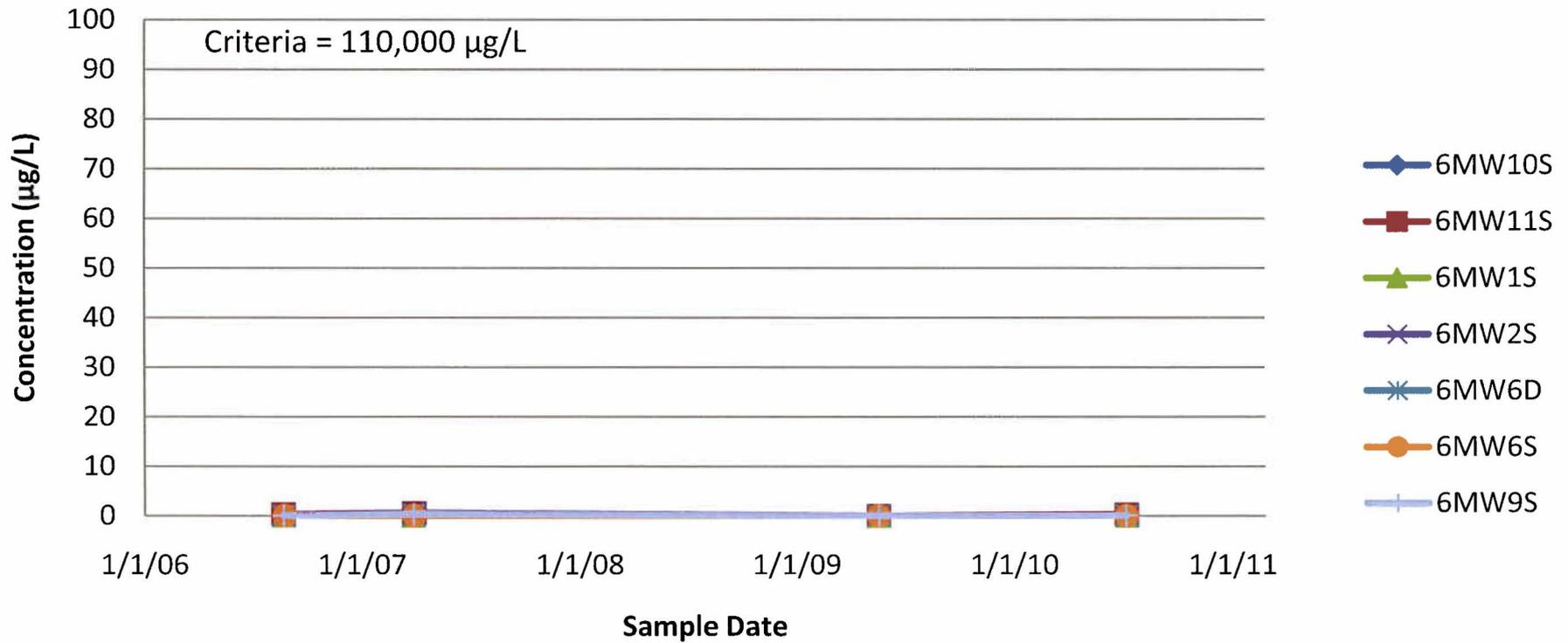


Figure 4-9  
Site 6 - Former DRMO  
Total Arsenic in Groundwater, 2006 Through 2010  
Third Five-Year Review Report  
NSB-NLON, Groton, Connecticut

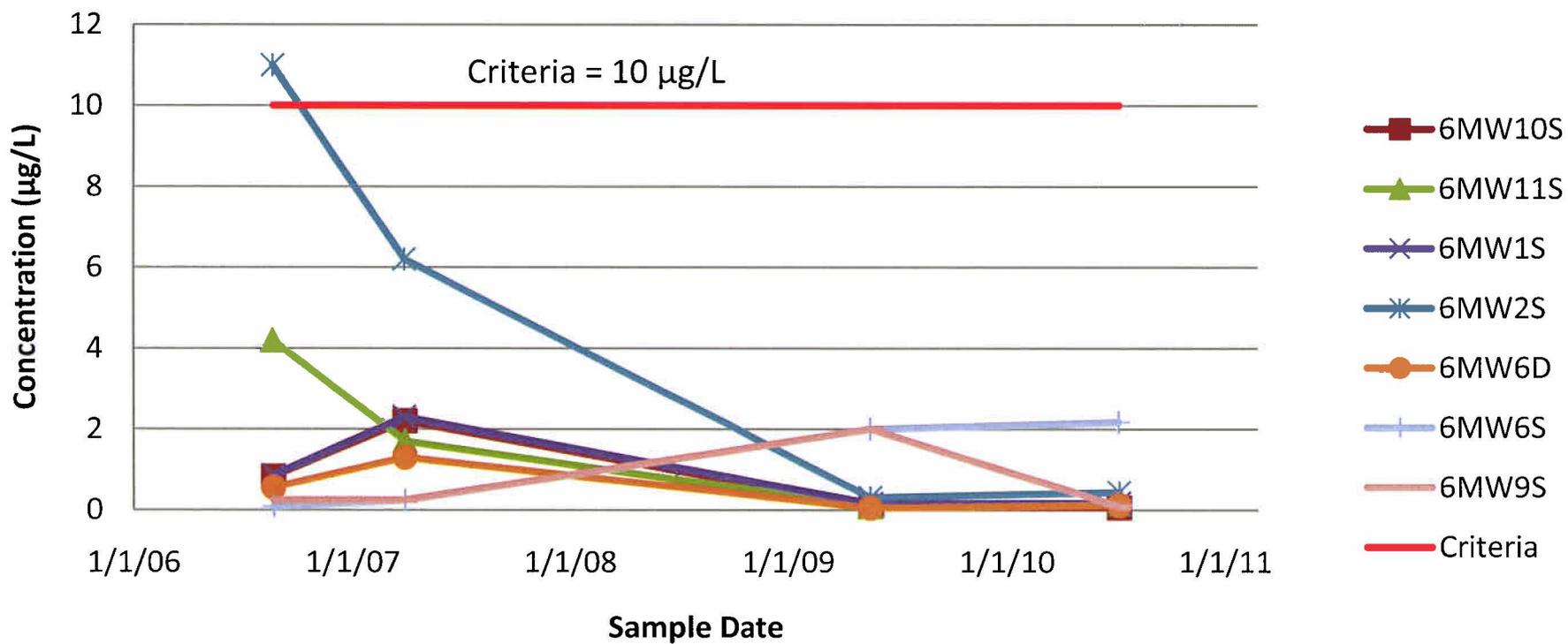


Figure 4-10  
Site 6 - Former DRMO  
Total Barium in Groundwater, 2006 Through 2010  
Third Five-Year Review Report  
NSB-NLON, Groton, Connecticut

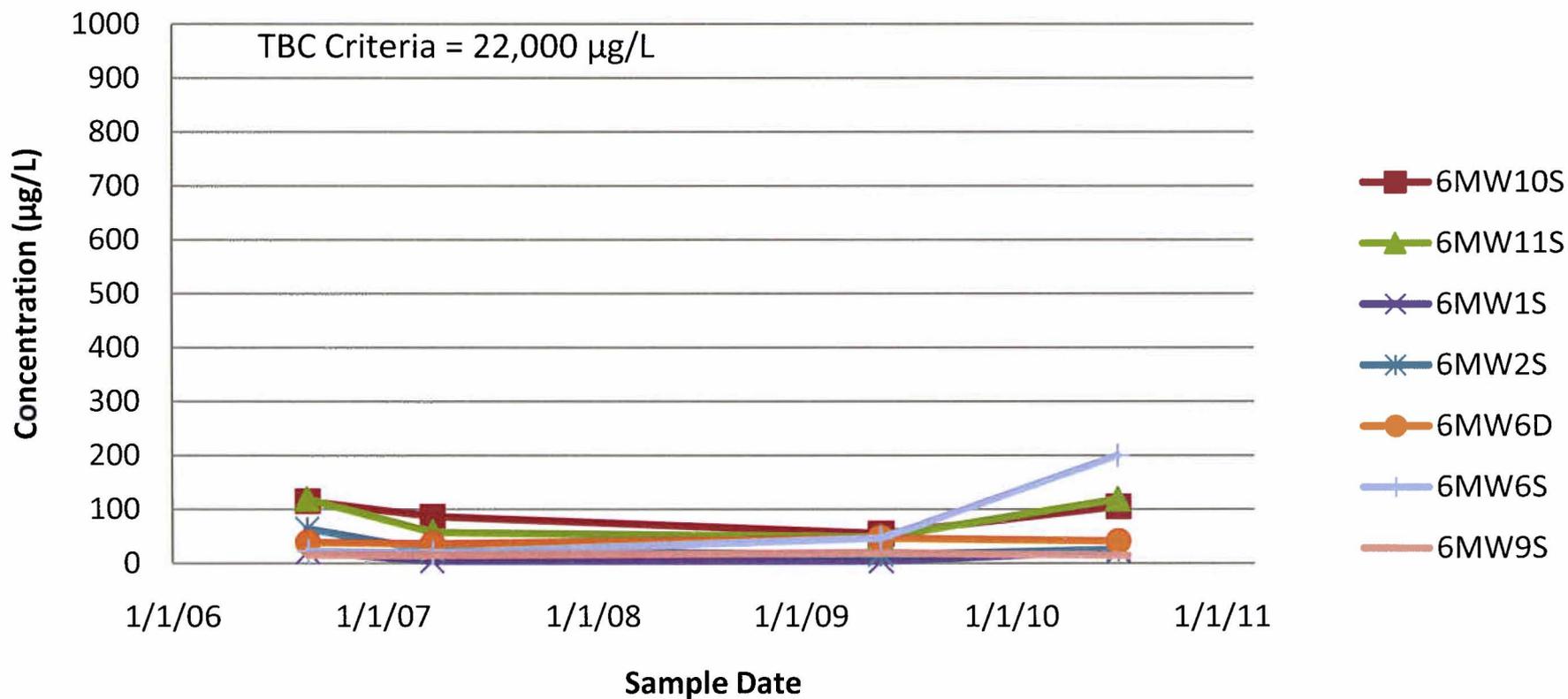
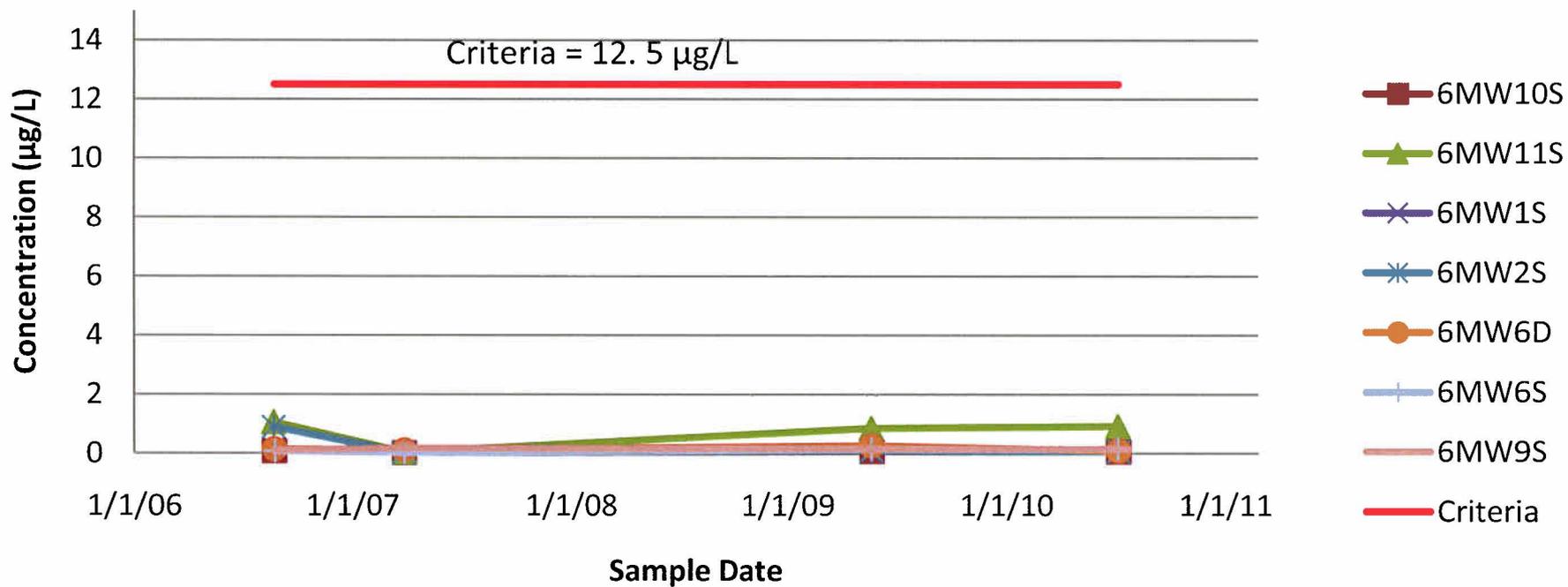
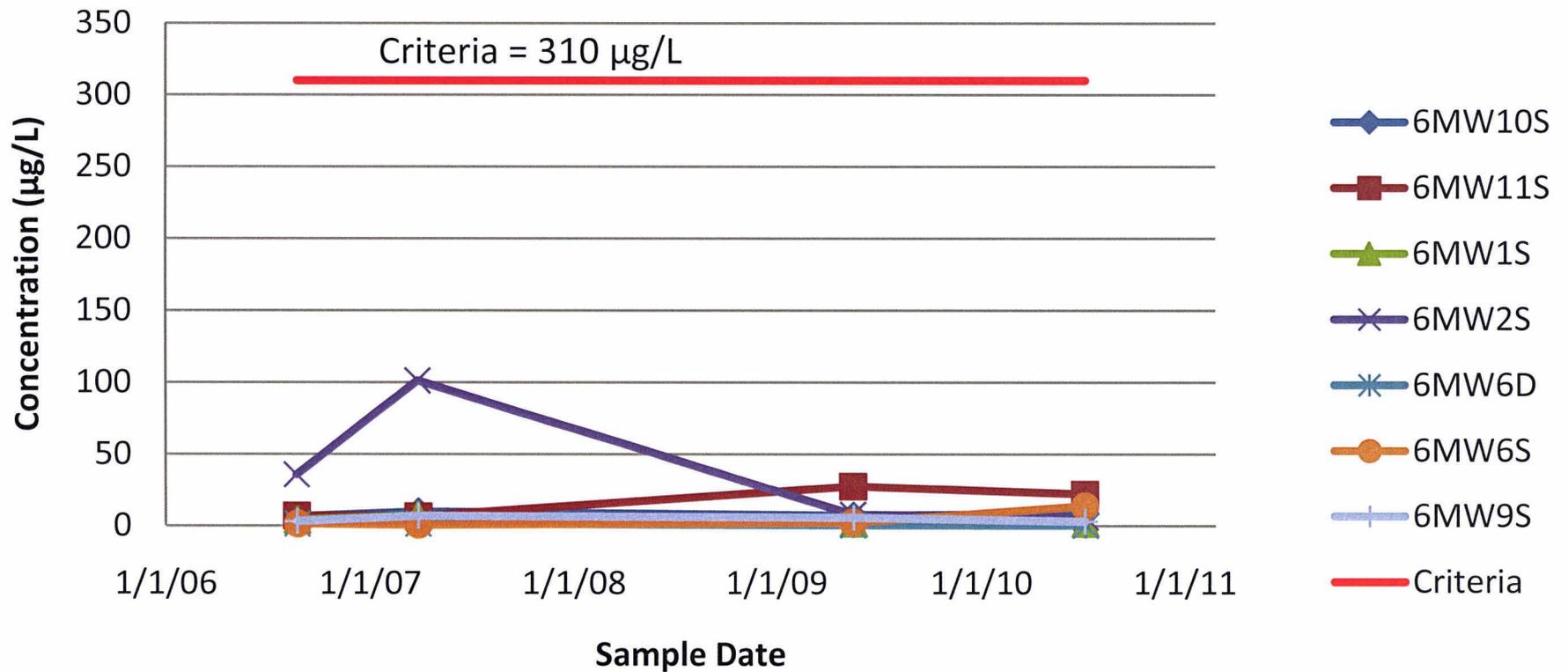


Figure 4-11  
Site 6 - Former DRMO  
Total Cadmium in Groundwater, 2006 Through 2010  
Third Five-Year Review Report  
NSB-NLON, Groton, Connecticut





**Figure 4-13**  
**Site 6 - Former DRMO**  
**Total Copper in Groundwater, 2006 Through 2010**  
**Third Five-Year Review Report**  
**NSB-NLON, Groton, Connecticut**



**Figure 4-14**  
**Site 6 - Former DRMO**  
**Total Lead in Groundwater, 2006 Through 2010**  
**Third Five-Year Review Report**  
**NSB-NLON, Groton, Connecticut**

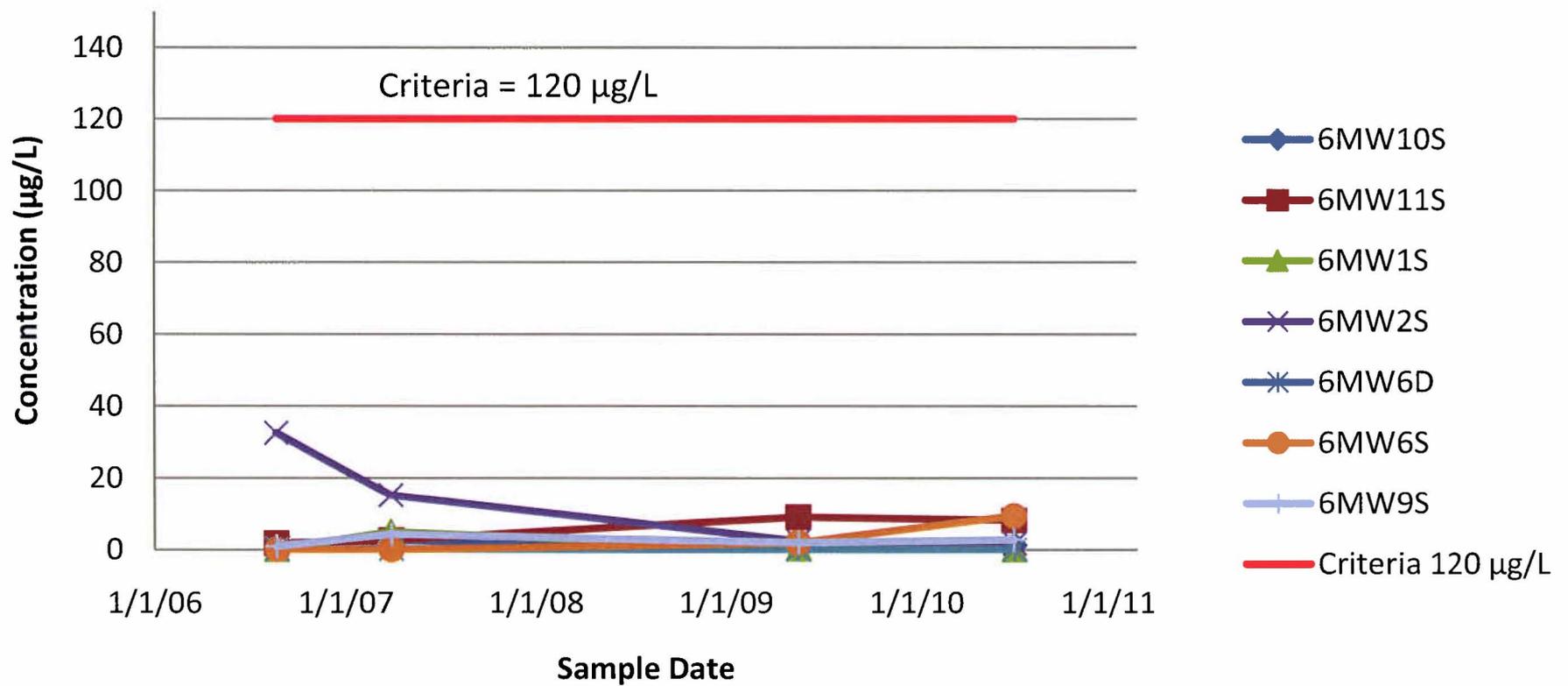


Figure 4-15  
Site 6 - Former DRMO  
Total Silver in Groundwater, 2006 Through 2010  
Third Five-Year Review Report  
NSB-NLON, Groton, Connecticut

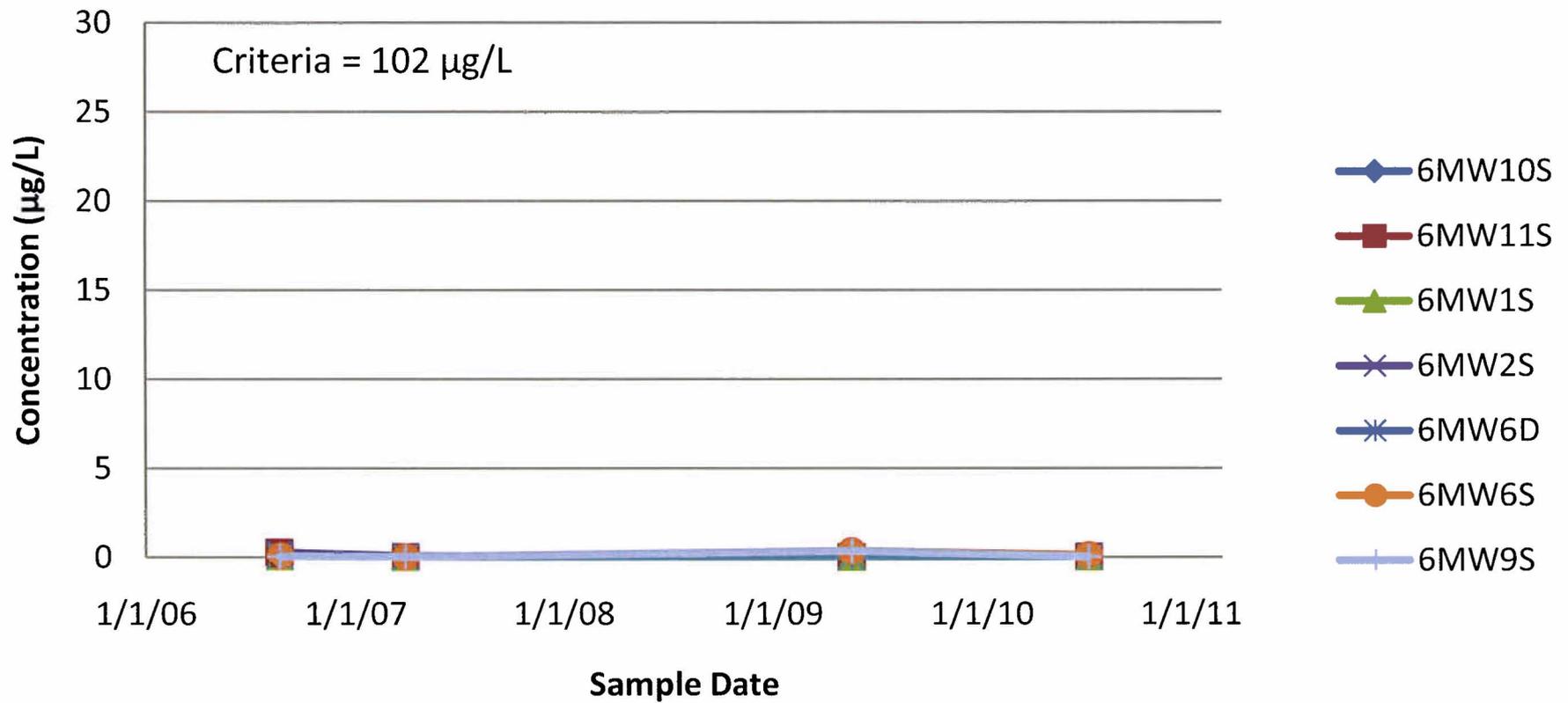
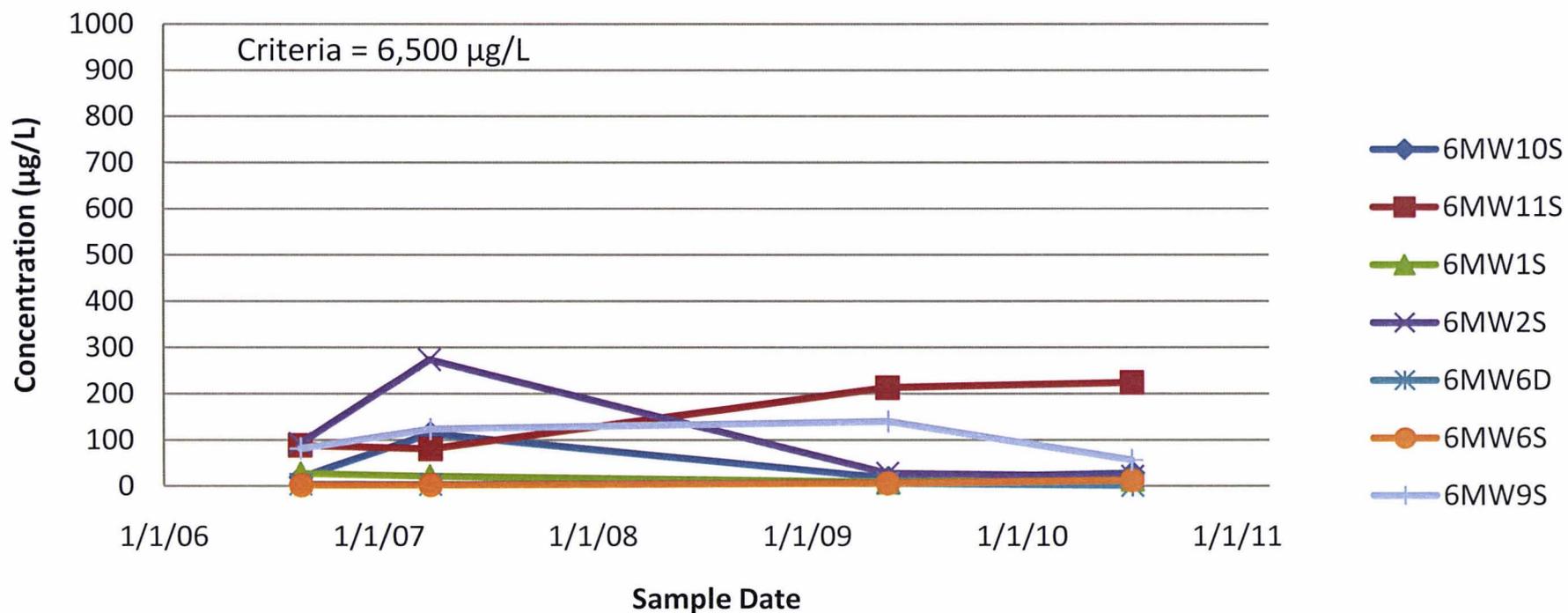


Figure 4-16  
Site 6 - Former DRMO  
Total Zinc in Groundwater, 2006 Through 2010  
Third Five-Year Review Report  
NSB-NLON, Groton, Connecticut



## **5.0 SITE 7 – TORPEDO SHOPS (OU8 AND OU9)**

Site 7 under the Navy's IRP includes the Torpedo Shops. This five-year review of Site 7 is required by statute because, at the time of the Second Five-Year Review, hazardous substances, pollutants, or contaminants remained in the groundwater at concentrations that did not allow for unlimited use or unrestricted exposure. The selected remedial action for the soil OU (OU8) was excavation and off-site disposal. The remedial action for the soil was completed in May 2006 (Tetra Tech EC, 2006a). The selected interim remedy for groundwater (addressed as a part of OU9), Institutional Controls and Monitoring, was selected as the final remedy in the Final ROD (Navy, 2008b). The Round 9 Groundwater Monitoring Report (Tetra Tech, 2008h), which was approved by the USEPA and CTDEP, recommended that groundwater monitoring be discontinued at Site 7. In the OU9 RACR (Tetra Tech, 2010f), the selected remedial goal was deemed to have been achieved at Site 7 and further groundwater monitoring and LUCs were no longer necessary.

### **5.1 HISTORY AND SITE CHRONOLOGY**

A list of important Site 7 historical events and relevant dates in the site chronology is shown below. The identified events are illustrative, not comprehensive.

<b>Event</b>	<b>Date</b>
Building 325 – torpedo overhaul facility built.	1955
Building 450 – torpedo overhaul/assembly facility built.	1974
Building 325 leach field abandoned.	1975
New leach field used until sanitary sewers installed.	1983
Hazardous waste sump decommissioned.	1987
Visual inspection of Building 325 observed solvents.	1989
Phase I RI completed.	August 1992
Underground No. 2 fuel oil tank closed (one of two) and above-ground tank removed under RCRA.	1995
Investigation of two fuel oil tanks and removal action of TPH-contaminated soil completed under RCRA.	1996
Phase II RI completed.	March 1997
First Five-Year Review completed.	December 2001
BGOURI completed.	January 2002
BGOURI Update/FS completed.	July 2004
Proposed Plan for Site 7 Torpedo Shops and Site 14 OBDANE Soil (OU8) completed.	July 2004
ROD for Site 7 - Torpedo Shops and Site 14 – OBDANE Soil (OU8) signed.	September 2004
Proposed Plan for Sites 3, 7, 14, 15, 18, and 20 Groundwater (OU9) completed.	September 2004
Interim ROD for Sites 3, 7, 14, 15, 18, and 20 Groundwater signed.	December 2004

Event	Date
LUC RD for Sites 3 and 7 Groundwater completed.	June 2005
Final O&M Manual - Volumes I, II, III, IV and V	January 2006
Remedial Action Work Plan/Design for Site 7 soil (OU8) completed.	February 2006
Work Plan for Remedial Action at Sites 3 and 7 (Groundwater) completed.	March 2006
Remedial Action for Site 7 soil completed.	May 2006
Round 1 of groundwater monitoring at Sites 3 and 7 completed.	May 2006
SOPA (ADMIN) New London Instruction 5090.18C issued.	December 2006
Final Completion Report for Soil Excavation at Torpedo Shops, OU 8 – Site 7	December 2006
Second Five-Year Review Completed	December 2006
Year 1 GMR for Sites 3 and 7	September 2007
Monitoring Well Inventory Report and Abandonment Plan	September 2007
Proposed Plan for Basewide Groundwater OU9	June 2008
Year 2 GMR for Sites 3 and 7	July 2008
Record of Decision of Operable Unit 9 Basewide Groundwater signed	September 2008
SOPA (ADMIN) New London Instruction 5090.18D issued	September 2008
O&M Manual - Volumes I, II, III, IV, and V (Revision 2 Draft) completed	November 2008
Round 9 GMR for Sites 3 and 7	November 2008
SOPA (ADMIN) New London Instruction 5090.25 issued	June 2009
Remedial Design for Land Use Controls on Basewide Groundwater OU9	November 2009
Remedial Action Completion Report for OU9 Basewide Groundwater	June 2010

## **5.2 BACKGROUND**

The Torpedo Shops (Site 7) are located in the northern portion of NSB-NLON on the northern side of Triton Road. Figure 5-1 shows the general site arrangement. The site location with respect to other IR sites at NSB-NLON is shown on Figure 1-2. The site covers approximately 7 acres and is bordered on the east and north by 60-foot-high bedrock cliffs. The remainder of the site slopes to the southwest toward the Area A Downstream Watercourses (Site 3). An earthen berm extends along the base of the eastern portion of the exposed rock face. Three buildings (325, 450, and 477) exist at the site.

Building 325 is a torpedo overhaul facility. It was built in 1955 and had an on-site sanitary septic system until 1983, when all the building's plumbing facilities were connected to sanitary sewers. The original septic leach field for Building 325 was located southwest of the building, adjacent to Triton Road. This leach field became clogged in 1975 and was abandoned. A new leach field (south leach field) was constructed next to the original leach field and was used until sanitary sewers were installed in 1983.

A visual inspection of Building 325 was performed March 20, 1989. According to interviews with on-site personnel, a variety of fuels, solvents, and petroleum products have been used in the building. Otto Fuel II [which is comprised of propylene glycol dinitrate (76 percent), 2-nitrodiphenylamine (1.5 percent), and

di-n-butyl sebacate (22.5 percent) and produces hydrogen cyanide when burned], high-octane alcohol (190-proof grain alcohol), and TH-Dimer (jet rocket fuel) were observed in maintenance areas. Solvents including mineral spirits, alcohol, and 1,1,1-trichloroethane, as well as petroleum products such as motor oil and grease, were used in this building. A sink in one area was previously used for film development, and another sink was used for overhaul of alkaline batteries. These sinks drained into the on-site septic system until 1983. A maintenance area has a shallow sump covered with a flush-mounted steel grating. The area surrounding this sump was previously a washdown/blowdown area for weapons. This sump drains to the storm sewer system on the western side of Building 325. Two underground No. 2 fuel oil tanks were located on the southern side of this building. One of the tanks was closed in 1995. A third tank, which was located above ground adjacent to the building, was used for temporary storage of No. 2 fuel oil but, based on field reconnaissance, had been removed as of March 15, 1995.

A smaller building attached to the eastern side of Building 325 was previously used as an assembly shop for torpedoes and as a paint shop. During a previous inspection at the building, a storage closet in this building included containers of 1,1,1-trichloroethane and methyl ethyl ketone (2-butanone). Drums and cylinders stored outside on the eastern side of this building were labeled as containing propane, isobutane, 2-butanone, xylot, methylene chloride, propellant, and zinc chromate. An addition on the northern side of Building 325 is also used as a torpedo shop.

Building 450 is the primary MK-48 torpedo overhaul/assembly facility. It was built in 1974 and was served by its own septic system until 1983, when it was connected to sanitary sewers. Only domestic wastewater from toilets, lavatories, and showers in Building 450 had been directed to the septic field (north leach field). Torpedo overhaul/assembly operations at Building 450 generate fuels, solvents, and petroleum products as wastes. An Otto Fuel and seawater mixture is drained from the torpedoes, which are then replenished with fresh fuel. The IAS report indicated that Building 450 generates approximately 3,000 gallons of Otto Fuel wastewater per month. This building was constructed with a waste collection system that collected waste products from floor drains and discharged to an underground waste tank/sump with a capacity of approximately 1,500 gallons. The waste tank was pumped periodically, and the contents were disposed off site. Otto Fuel product was previously stored in a 4,000-gallon underground tank south of Building 450.

The former septic leach field is located southwest of Building 450 in a flat, elevated area. In the past, only domestic wastewater from toilets, lavatories, and showers in Building 450 was directed to the septic field. The hazardous waste sump was no longer in use and reportedly, was decommissioned in 1987. It was replaced with three 1,000-gallon above-ground tanks located south of the building. The floor drains were sealed and replaced with a new system for pumping waste products to the new tanks. A 4,000-gallon

above-ground Otto Fuel storage tank replaced the previous tank and is located south of the building. No construction is planned for the immediate future at Building 450.

Building 477, approximately 65 feet east of Building 450, was formerly used to store Otto fuel in drums. On-site personnel report that solvents including 1,1,1-trichloroethane, TCE, toluene, mineral spirits, alcohol, and bulk freon have been used at this facility. Petroleum products including TL-250 motor oil and hydraulic fluid have also been used in this building for torpedo maintenance.

The Phase I RI for Site 7 focused primarily on subsurface soils because the source being investigated at that time was the subsurface leach fields. The investigation began with a soil gas survey of the area surrounding Buildings 450 and 325. These results were used to guide the installation of monitoring wells and the collection of soil samples from the well and test borings. The Phase I RI concluded that there were negligible health risks associated with the Torpedo Shops and that this site should proceed to Step II of the IRP.

During the Phase II RI (B&RE, 1997b), several matrices were investigated (i.e., soil, groundwater, surface water, and sediment), and contamination was detected in soil and groundwater at the site that required further characterization; however, relatively low human health and ecological risks were estimated for the site. Minimal exceedances of state criteria were observed for sediment, and no chemicals detected in surface water exceeded state human health AWQC for the consumption of organisms and/or water and organisms.

Phase II RI sampling results included notable detections of contamination in soil and groundwater near the abandoned leach field. An HHRA showed that non-cancer risks were at less than acceptable levels except for the construction worker and future resident, and cancer risks were at less than acceptable levels except for a hypothetical future resident. The Phase II RI recommended that further characterization of the Torpedo Shops be completed before determining whether or not the site should proceed to the FS stage.

A removal action was completed within Site 7 along the southern side of Building 325 in December 1995. This action was completed under the CTDEP RCRA UST Program. The focus of the effort was to remove soil contaminated with TPH in excess of the direct exposure remediation standard for residential use. Approximately 12 cubic yards of soil were removed from the site and disposed at an approved landfill (B&RE, 1996a).

The BGOURI (Tetra Tech, 2002a) was completed based on the recommendation of the Phase II RI. The objectives of the BGOURI at Site 7 were to further characterize the nature and extent of soil and

groundwater contamination in the vicinity of the abandoned septic system and to quantify the risks to human receptors from the soil and groundwater. Organic contaminant detections in soils were scattered and were primarily PAHs. Metals detections were scattered and were generally only slightly greater than background concentrations. Groundwater sampling results from the BGOURI indicated only sporadic, low concentrations of contaminants in groundwater. A small plume of chlorobenzenes was detected west of Building 325, but there were no other discernable contaminant plumes of any size, indicating that there are no significant sources leaching contamination to groundwater at Site 7. Chemical concentrations [bis(2-ethylhexyl)phthalate and TCE] in several wells located within the western portion of Site 7 exceeded MCLs; however, the exceedances varied from well to well. The HHRA showed that the risks posed by exposure to contaminated soil at Site 7 were generally low; however, the risks posed by two chemicals exceeded CTDEP's target level for individual chemicals, and there were several chemicals detected at concentrations greater than CTDEP's direct exposure criteria. The risk assessment also determined that risks to current receptors from exposure to groundwater at Site 7 are within acceptable levels, but future residential groundwater usage could result in unacceptable risks.

An FS (Tetra Tech, 2004) was completed to identify and evaluate appropriate remedial alternatives for soil and groundwater at Site 7. Separate Proposed Plans and RODs were prepared to document the selected remedies for soil and groundwater. The remedy selected for soil was excavation and off-site disposal. A Remedial Action Work Plan (Tetra Tech EC, 2006b) was prepared for Site 7 soil in 2006 and the remedial action for the soil was completed in May 2006. The general tasks completed during the remedial action included the following:

- Excavating soil and stockpiling on site.
- Performing confirmation sampling of the excavations.
- Dewatering excavations as necessary.
- Sampling stockpiled soil for waste characterization purposes.
- Backfilling excavated areas.
- Transporting and disposing of excavated soil.

The remedy selected for groundwater was institutional controls with monitoring. A Remedial Design for Land Use Controls was subsequently completed for Site 7 groundwater in June 2005. The Navy began implementation of the groundwater monitoring program as described in the Remedial Action Work Plan (Tetra Tech, 2006b) and Site 7 GMP (Tetra Tech, 2006a) in May 2006. The monitoring results presented in the Round 9 Groundwater Monitoring Report (Tetra Tech, 2008h) indicated that the selected remedial action for Site 7 groundwater successfully reduced COC concentrations to levels below RGs. This data supported the discontinuation of LUCs at Site 7. Volume II (Groundwater Monitoring Plan) of the O&M

Manual was revised in 2008 to remove Site 7 from the groundwater monitoring program (Tetra Tech, 2008g).

A well inventory was conducted at NSB-NLON in 2007. This inventory included 22 Site 7 IR program wells and one non-IR program well (Tetra Tech, 2007c). Three of the wells listed in the inventory were not located, but are considered to have been abandoned or removed during remedial actions. As a result of the inventory, 11 Site 7 wells that were not part of an active monitoring program were subsequently abandoned (ECC, 2007b).

The RD for LUCs on Basewide Groundwater OU9 documented NFA for Site 7 (Tetra Tech, 2009e) and the RACR for OU9 acknowledged that the RA was complete and that monitoring and LUCs have been discontinued (Tetra Tech, 2009b). By meeting the RGs, five-year reviews will no longer be required for Site 7 groundwater.

### **5.3 REMEDIAL ACTIONS**

#### **5.3.1 Remedy Selection**

An FS was prepared to address Site 7 soil contaminated with PAHs, soil potentially contaminated with chlorobenzene (CB), dichlorobenzene (DCB), and benzene, and groundwater known to be contaminated with CB, DCB, and benzene. Chemicals such as TCE and hexachlorobenzene (HCB) found in Site 7 groundwater are of regional concern and were addressed with Site 3 groundwater.

The excavation and off-site disposal alternative for Site 7 soil was presented in the Proposed Plan in July 2004 and was formally selected in the ROD, signed in September 2004 (Navy, 2004c). The institutional controls and monitoring alternative for Site 7 groundwater was presented in the Proposed Plan in September 2004 and was formally selected in the Interim ROD signed in December 2004 (Navy, 2004e).

##### **5.3.1.1 Soil**

Based on the results of the HHRA completed for the BGOURI, the evaluation of the HHRA results in the BGOURI Update, and the ERA completed during the Phase II RI, the following RAOs were developed for Site 7 soil:

- Protect current receptors (construction worker and full-time employee) from incidental exposure to soil contaminated with PAHs and potentially contaminated with benzene, CB, and DCB at concentrations greater than the PRGs. The HHRA identified potential risks to full-time employees from exposure to benzo(a)pyrene in surface soil. In addition, benzo(a)pyrene was detected in

subsurface soil at concentrations that exceed the Connecticut Industrial/Commercial RSR for direct exposure. The concentrations of benzene, CB, and DCB in soil would not be known until additional sampling could be conducted near the septic tank.

- Protect existing groundwater quality by preventing the leaching of PAHs, benzene, CB, and DCB in soil at concentrations greater than PRGs. Available site data indicated that soil to groundwater migration of PAHs would not be significant, but soil to groundwater migration of benzene, CB, and DCB might be significant.
- Protect aquatic ecological receptors by preventing the erosion of soil containing COCs at concentrations greater than PRGs. Potential risks to aquatic ecological receptors were not identified and PRGs were not selected.
- Protect potential future receptors (residential use) from incidental exposure to soil contaminated with PAHs and potentially with benzene, CB, and DCB at concentrations greater than PRGs. The HHRA identified potential risks to a hypothetical future child resident from exposure to benzo(a)pyrene in soil. In addition, maximum concentrations of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene in soil exceed the Connecticut Residential RSRs for direct exposure. The concentrations of benzene, CB, and DCB in soil would not be known until additional sampling could be conducted near the septic tank.

The remedial goals identified to address the RAOs associated with Site 7 soil contaminants are presented in Table 5-1 and are based on risk assessment results and the CTDEP RSRs including direct contact and groundwater protection considerations.

The selected remedy for Site 7 soil was excavation and off-site disposal for two areas adjacent to Building 325. The PAH excavation area was located near the southeastern corner of Building 325, and the benzene, CB, and DCB excavation area was located at the septic tank along the western side of Building 325. The cost of implementing the alternative was estimated at \$440,200 in the ROD. The selected remedy for Site 7 consisted of the following components:

- Finalize Delineation - To determine the final horizontal and vertical extent of soil contamination at Site 7, approximately 10 soil borings would be advanced in the area of PAH-contaminated soils and approximately five soil borings would be advanced in the area of suspected benzene-, CB-, and DCB-contaminated soil. It was expected that two soil samples would be collected from each boring for a total of approximately 30 soil samples. These soil samples would be sent to a laboratory for analysis. The samples collected from the PAH area would be analyzed for PAHs; the remaining samples would

be analyzed for VOCs. It was also expected that a sample of the contents of the septic tank would be collected and analyzed. A sampling plan would be developed to provide the details of the PDI sampling program.

- Excavation - Following final delineation, excavation equipment would be used to excavate the contaminated soil from Site 7 (approximately 1,600 cubic yards of PAH-contaminated soil and 90 cubic yards of benzene-, CB-, and DCB-contaminated soil and the septic tank). The excavated soil would be characterized to determine the appropriate disposal facility. Due to the depth of excavation (5 to 8 feet), it was anticipated that the excavation side walls would have to be laid back to provide for safe working conditions. Therefore, it was anticipated that approximately 200 cubic yards of additional soil outside the extent of contamination would need to be excavated to provide a safe operation. The additional soil would be disposed off site along with the contaminated soil. The total volume of soil to be excavated and disposed off site was estimated to be approximately 1,900 cubic yards. It was also anticipated that groundwater might also be encountered during excavation of contaminated soil. It was anticipated that if encountered, the water might need to be removed from the excavation, pre-treated, and discharged to the publicly-owned treatment works (POTW).
- Transportation - Upon determination of the appropriate disposal facility, the contaminated soil would be loaded into trucks for transportation to the off-site disposal or recycling center.
- Verification Sampling - After the excavation of contaminated soil, soil samples would be collected from the bottom and sidewalls of each excavation area. The soil samples would be analyzed for their respective sets of COCs to verify the removal of the COCs or to verify that the remaining COC concentrations were less than remedial goals. Table 5-1 provides the COCs for each excavation area and the remedial goals for each COC. Due to the size of each excavation, it was anticipated that 10 verification samples would be collected from each excavation area. In the event that COCs remained at concentrations greater than the remediation goals, additional soil would be excavated where appropriate, and additional verification samples collected. The final details of the verification sampling program were to be provided as part of the remedial design documentation.
- Restoration - After verification that the COCs were removed from Site 7 or that COC concentrations remaining in Site 7 soil were less than remedial goals, clean soil would be brought to the site to backfill the excavations. Following backfilling of the excavations, the surface would be returned to pre-excavation conditions (e.g., grassed, paved, or gravel).

### 5.3.1.2 Groundwater

Based on the results of the HHRA completed for the BGOURI and the evaluation of the HHRA results in the BGOURI Update, the following RAOs were developed in the FS to address the COCs detected in groundwater at Sites 3 and 7:

- Protect current receptors (construction workers) from incidental exposure to groundwater contaminated with petroleum and chlorinated hydrocarbons at concentrations greater than PRGs. The HHRA did not identify excessive risk to construction workers associated with exposure to groundwater.
- Protect potential future receptors (potable water supply) from regular ingestion of groundwater contaminated with chlorinated hydrocarbons at concentrations greater than PRGs.
- Protect aquatic ecological receptors by preventing the migration of groundwater contaminated with petroleum hydrocarbons at concentrations greater than PRGs to surface water.

The following RAOs were developed to address the COCs detected exclusively at Site 7 (i.e., 1,4-DCB, benzene, and CB):

- Protect current receptors (construction workers) from incidental exposure to groundwater contaminated with organics at concentrations greater than PRGs. The HHRA did not identify excessive risk to construction workers associated with exposure to groundwater, and PRGs were not selected.
- Protect potential future receptors (potable water supply) from regular ingestion of groundwater contaminated with benzene and chlorinated hydrocarbons at concentrations greater than PRGs.
- Protect aquatic ecological receptors by preventing the migration of groundwater contaminated with COCs at concentrations greater than PRGs to surface water. Potential risks to aquatic ecological receptors were not identified, and PRGs were not selected.

The COCs identified in Site 7 groundwater that precipitated the need for groundwater LUCs are 1,4-dichlorobenzene, benzene, chlorobenzene, TCE, and hexachlorobenzene. The RGs for these COCs were identified in the Interim ROD (Navy, 2004e) and revised in the Final OU9 ROD (Navy, 2008b) to include CTDEP volatilization criteria. The remedial goals identified to address the RAOs associated with

Site 7 groundwater contaminants are presented in Table 5-2 and were based on risk assessment results and CTDEP RSRs.

Site 7 groundwater was not identified to represent a significant risk to current receptors or ecological receptors in adjacent water bodies. However, CB, DCB, benzene, TCE, and HCB were found to be present in groundwater at concentrations that could represent a risk to potential future receptors through regular consumption of groundwater. The selected interim remedy, Institutional Controls and Monitoring, was selected as a final remedy in the Final ROD for OU9 (Navy, 2008b). The selected remedy complies with regulatory requirements and includes the following major components:

- Implementation of institutional controls that identify the location and magnitude of groundwater contamination and restrict extraction and use of the groundwater. The details of the administration of the institutional controls were to be provided in the Remedial Design documentation. In the event of property transfer and with confirmation that contaminated groundwater remained at the sites, a deed restriction would be used to prohibit the use of groundwater.
- Monitoring the degradation and potential migration of groundwater contaminants until concentrations decrease to the remedial goals in Table 5-2 by natural processes, and the resulting concentrations are shown to be protective of human health and the environment. Additional details regarding the scope and duration of the monitoring program were to be provided in the groundwater monitoring plan.

The estimated cost of the selected remedy for Site 7 groundwater in the ROD was \$303,800, which included capital, monitoring, and O&M costs. A LUC RD was subsequently completed for Site 7 groundwater in June 2005 (Tetra Tech, 2005). To meet the LUC requirements in the ROD, the Navy implemented an updated instruction [SOPA (ADMIN) New London Instruction 5090.18D] (Navy, 2008c). The instruction defined the Navy's policy regarding ground surface disturbance of soils/sediments, subsurface disturbance of soils/sediments and/or groundwater extraction, and disturbance of any remedial infrastructure at IR sites.

A remedy was selected for groundwater at Sites 3 and 7 in an Interim ROD (Navy, 2004e) to address the potential risks to future receptors from exposure to groundwater. The groundwater at these two sites also makes up a portion of the Basewide Groundwater OU9. The selected interim remedy, Institutional Controls and Monitoring, was selected as a final remedy in the Final ROD for OU9 (Navy, 2008b).

### 5.3.2 Remedy Implementation

#### Soil

A Remedial Action Work Plan [Tetra Tech EC, Inc. (Tetra Tech EC), 2006b] was prepared for Site 7 soil in 2006, and the RA for the soil was completed in May 2006 (Tetra Tech EC, 2006a). Approximately 1,150 tons of soil and 125 tons of asphalt were removed during the RA.

#### Groundwater

The remedy selected for groundwater was institutional controls and monitoring. A LUC RD was completed for Site 7 groundwater in June 2005 (Tetra Tech, 2005), and the Navy began implementation of the groundwater monitoring program, as described in the Remedial Action Work Plan and Site 7 Groundwater Monitoring Plan (Tetra Tech, 2006a) in May 2006. The Navy incorporated the information from the Remedial Design into the New London Instruction 5090.18C (Navy, 2006b).

The COCs identified in Site 7 groundwater that precipitated the need for groundwater LUCs are 1,4-dichlorobenzene, benzene, chlorobenzene, TCE, and hexachlorobenzene. The RGs for these COCs were identified in the Interim ROD (Navy, 2004e) and revised the Final OU9 ROD (Navy, 2008b) to include CTDEP volatilization criteria. The results of the 2008 vapor intrusion evaluation indicated that NFA is required for vapor intrusion issues at Site 7 (Navy, 2008b). The objective of the Site 7 groundwater monitoring program was to conduct long-term monitoring of the degradation and potential migration of COCs until the concentrations decrease to the remedial goals by natural processes and the resulting concentrations are shown to be protective of human health and the environment. The monitoring program was to continue until compliance with the remedial goals within the site boundaries was shown and it was confirmed that contamination was not migrating from the site at concentrations in excess of remedial goals. The Navy began implementation of the groundwater monitoring program as described in the Remedial Action Work Plan (Tetra Tech, 2006b) and Site 7 Groundwater Monitoring Plan (Tetra Tech, 2006a) in May 2006. Four new monitoring wells were installed at Site 7 to complete the monitoring well network. A total of eight monitoring wells (four existing and four new) were then sampled and analyzed for VOCs under the program. Monitoring was conducted quarterly at eight Site 7 wells for nine rounds. The results of nine quarterly rounds of groundwater monitoring demonstrated that the selected RA for Site 7 groundwater successfully reduced COC concentrations to levels less than RGs. Those data supported the discontinuation of groundwater monitoring and LUCs at Site 7. The OU-9 RACR (Tetra Tech, 2010f) documents the conclusion that the RGs for Site 7 have been met, so the RA is complete. Volume II (Groundwater Monitoring Plan) of the O&M Manual was revised in 2008 to remove Site 7 from the groundwater monitoring program (Tetra Tech, 2008g).

A well inventory was conducted at NSB-NLON in 2007. This inventory included 22 Site 7 IR program wells and one non-IR program well (Tetra Tech, 2007c). Three of the wells listed in the inventory were not located but are considered to have been abandoned or removed during remedial actions. As a result of the inventory, 11 Site 7 wells that were not part of an active monitoring program were abandoned (ECC, 2007b).

The RD for LUCs on Basewide Groundwater OU9 documented NFA for Site 7 (Tetra Tech, 2009e) and the RACR for OU9 acknowledged that the RA is complete and that it was acceptable to discontinue monitoring, LUCs, and five-year reviews of the site (Tetra Tech, 2009b).

The results of the 2008 vapor intrusion evaluation indicated that NFA is required for vapor intrusion issues at Site 7 (Navy, 2008b).

### **5.3.3 System Operations/Operation and Maintenance**

#### **5.3.3.1 Operation and Maintenance**

O&M will not be required for Site 7 soil because the remedial action removed all soil with COC concentrations greater than the RGs that allow for unrestricted use.

The estimated present worth cost of groundwater monitoring activities at Site 7 for the first 5 years was \$98,600. This cost estimate was presented in the BGOURI Update/FS and assumed quarterly sampling the first year, annual monitoring the next 4 years, and minimal maintenance of the monitoring wells. Actual monitoring to meet the RGs was quarterly for nine quarters. Actual costs were \$158,500 during Year 1, \$88,000 during Year 2, and \$22,100 during Year 3, for a total monitoring cost of \$269,100. The remedy is complete. Eight Site 7 monitoring wells are no longer needed, but have not yet been abandoned.

## **5.4 PROGRESS SINCE LAST REVIEW**

This is the third five-year review of Site 7. The recommendations from the Second Five-Year Review Report (Tetra Tech, 2006c) are provided below along with the actions that were taken to address the recommendations.

### **Prepare and issue the completion report for the soil remedial action.**

- The Final Completion Report for Soil Excavation at Torpedo Shops, OU 8 – Site 7 was completed (Tetra Tech EC, 2006a).

Continue implementation of the Groundwater Monitoring Plan.

- Groundwater was monitored for nine rounds, and then was discontinued because RGs were met.

Continue enforcement of the New London Instruction 5090.18C.

- LUCs were continued until it was determined they were no longer necessary because groundwater RGs had been met. LUCs for Site 7 are not included in the current New London Instruction 5090.25 (Navy, 2009b) or the OU9 LUC RD.

Maintain the existing monitoring well network and/or properly abandon unnecessary monitoring wells.

- Eleven Site 7 wells that were not part of the Site 7 monitoring program were abandoned in 2007 (ECC, 2007b). Wells monitored at Site 7 were maintained until monitoring ceased. The eight wells in the Site 7 monitoring program (7MW1D, 7MW3I, 7MW3S, 7MW5D, 7MW9S, 7MW12I, 7MW12S, and 7MW13S) are no longer necessary but have not yet been abandoned.

Perform at least yearly monitoring of Institutional Control compliance, with the monitoring reports incorporated into future five-year reviews.

- The interim LUC RD for Site 7 groundwater included groundwater monitoring. However, as discussed in the OU-9 RACR (Tetra Tech, 2010f), the results of nine quarterly rounds of groundwater monitoring demonstrated that the selected RA for Site 7 groundwater successfully reduced COC concentrations to levels less than RGs. The RACR documents the decision that on the basis of the data, requirements for groundwater monitoring, LUCs, and five-year reviews were discontinued at Site 7. The RGs for Site 7 have been met, so the RA is complete. Site 7 is closed without any further action required, as agreed to in the OU-9 RACR.

## **5.5 FIVE-YEAR REVIEW PROCESS**

This section provides a summary of the five-year review process and the actions taken to complete this review.

### **5.5.1 Document Review**

The documents reviewed for the third five-year review are listed below, and key information obtained from the documents is summarized in the following sections.

Final Completion Report for Soil Excavation at Torpedo Shops, OU 8 – Site 7	December 2006
Second Five-Year Review Completed	December 2006
Year 1 GMR for Sites 3 and 7	September 2007
Monitoring Well Inventory Report and Abandonment Plan	September 2007
Proposed Plan for Basewide Groundwater OU9	June 2008
Year 2 GMR for Sites 3 and 7	July 2008
Record of Decision of Operable Unit 9 Basewide Groundwater signed	September 2008
SOPA (ADMIN) New London Instruction 5090.18D issued	September 2008
O&M Manual - Volumes I, II, III, IV, and V (Revision 2 Draft) completed	November 2008
Round 9 GMR for Sites 3 and 7	November 2008
Remedial Design for Land Use Controls on Basewide Groundwater OU9	November 2009
Remedial Action Completion Report for OU9 Basewide Groundwater	June 2010

### **5.5.2 Data Review**

During the past five-year period, monitoring was conducted quarterly at eight Site 7 wells for nine rounds. During the monitoring period, four wells had no detections of any COC, and the other four wells had all detections less than RGs and did not show increasing trends.

### **5.5.3 ARAR and Site-Specific Action Level Changes**

#### **5.5.3.1 Soil**

The remedial action implemented for soil at Site 7 was excavation and off-site disposal. ARARs and TBCs were reviewed to determine whether there have been changes since the ROD was signed. Listings of chemical-specific and action-specific ARARs, advisories, and guidance (TBCs) considered in the ROD are listed in Tables 5-3 and 5-4, respectively. The ARARs were either addressed during selection or implementation of the remedy and are no longer applicable or have not been amended since the ROD.

#### **5.5.3.2 Groundwater**

The remedial action implemented for groundwater at Site 7 was institutional controls and monitoring. ARARs and TBCs were reviewed to determine whether there have been changes since the ROD and Groundwater Monitoring Plan were issued. Listings of chemical-, location-, and action-specific ARARs, advisories, and guidances (TBCs) considered in the OU9 ROD are listed in Tables 5-5, 5-6, and 5-7, respectively. The ARARs were addressed during the implementation of the remedy and are no longer necessary because the groundwater remedial goals were met in 2009. There were no changes in ARARs or TBCs that would have affected the RGs for groundwater.

Title 40 CFR 6, Appendix A (Statement of Procedures on Floodplain Management and Wetlands Protection) which is a regulatory citation associated with E.O. 11988 (Floodplain Management) and E.O. 11990 (Protection of Wetlands) has been deleted. However, Executive Orders, E.O. 11988 (Floodplain Management) and E.O. 11990 (Protection of Wetlands) remain in effect.

#### 5.5.4 Site Inspection

Because the soil excavation has been completed and groundwater RGs have been met, no site inspection was performed.

#### 5.5.5 Site Interviews

No formal interviews were conducted for this site as part of the third five-year review because there were no active site issues to discuss.

### 5.6 ASSESSMENT

The following conclusions support the determination that the remedies for the Site 7 soil OU (OU8) and Site 7 groundwater are protective of human health and the environment.

#### ***Question 1. Is the remedy functioning as intended by the decision documents?***

- ***Remedial Action Performance:*** All contaminated soil in excess of RGs (Table 5-1) were excavated and disposed off site, as documented in the completion report. As documented in the OU-9 RACR (Tetra Tech, 2010f), groundwater monitoring was implemented and continued for nine quarters until monitoring showed that natural attenuation of contaminants reduced concentrations below the selected RGs (Table 5-2).
- ***System Operations/O&M:*** For the groundwater OU, four monitoring wells were installed to complete the monitoring well network, and four existing wells were redeveloped as part of the groundwater monitoring program. Costs for groundwater monitoring at Site 7 over the first 5 years of the program were expected to range from \$48,300 (Year 1) to \$13,441 (Years 2 through 5). These cost estimates were presented in the FS. Actual costs were \$158,500 during Year 1, \$88,000 during Year 2, and \$22,100 during Year 3, for a total monitoring cost of \$269,100.
- ***Opportunities for Optimization:*** Because the soil and groundwater remedies are complete, the remaining Site 7 monitoring wells should be abandoned.

- **Early Indicators of Potential Remedy Failure:** Contaminated soil at Site 7 was excavated and groundwater monitoring showed that the RGs were achieved; therefore, the remedy was completed and did not fail.
- **Implementation of Institutional Controls and Other Measures:** Institutional controls associated with Site 7 are discussed in the New London Instruction 5090.18C. LUCs were continued until it was determined they were no longer necessary because groundwater RGs had been met. The site is within the designated ESQD of the Area A Weapons Center; therefore, further development is not planned for the area.

**Question 2. Are the exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the remedy selection still valid?**

- **Changes in Standards and TBCs:** ARARs and TBCs considered during preparation of the soil and groundwater RODs were reviewed to determine if there were any changes. As presented in Section 5.5.3, there have been no changes to ARARs. Groundwater remedial goals have been met, so sampling is no longer required.
- **Changes in Exposure Pathways:** Because all soil with contaminant concentrations greater than remedial goals was excavated and disposed off site, the direct exposure pathway for human receptors to soil was eliminated. Groundwater at Site 7 is not currently used as a drinking water source, and municipal potable water is available at the site, but based on the GB groundwater classification, the groundwater is presumed not suitable for human consumption without treatment. However, because groundwater achieved RGs, groundwater use is unrestricted.
- **Changes in Toxicity and Other Contaminant Characteristics:** There have been no changes in the human health toxicity criteria that would impact soil or groundwater remedial goals.
- **Changes in Risk Assessment Methods:** As discussed in Section 1.4, there have been no major changes in HHRA methodology since the signing of the RODs that would impact the protectiveness of the remedies.
- **Expected Progress Towards Meeting RAOs:** The RAOs for Site 7 soil (OU8) were met by excavating the soil with contaminant concentrations greater than the remedial goals and disposing of it at an approved off site disposal facility. The groundwater RAOs were met by conducting nine rounds of groundwater monitoring that showed that the RGs for Site 7 were met.

**Question 3. Has any other information come to light that could call into question the protectiveness of the remedy?**

No additional information has been identified that would call into question the protectiveness of the soil or groundwater remedies.

**5.7 ISSUES**

No deficiencies or other issues were identified for Site 7.

**5.8 RECOMMENDATIONS AND FOLLOW-UP ACTIONS**

Site 7 is closed without any further action required, as agreed to in the OU-9 RACR. It is recommended that no additional five-year reviews of Site 7 be conducted because the remedies implemented at the site resulted in no hazardous substances, pollutants, or contaminants remaining on site in excess of action levels that allow for unlimited use and unrestricted exposure. The following Site 7 groundwater monitoring wells are no longer needed and should be properly abandoned: 7MW1D, 7MW3I, 7MW3S, 7MW5D, 7MW9S, 7MW12I, 7MW12S, and 7MW13S.

**5.9 PROTECTIVENESS STATEMENT**

The soil and groundwater remedies at Site 7 are currently protective of human health and the environment. Excavation and off-site disposal of soil eliminated direct contact by human and ecological receptors and prevented soil to groundwater migration issues. Groundwater concentrations are less than RGs; therefore, monitoring and LUCs are no longer needed (Tetra Tech, 2010f).

TABLE 5-1

SUMMARY OF REMEDIAL GOALS FOR SITE 7 SOIL  
SITE 7 - TORPEDO SHOPS  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT

Area of Concern	Chemical of Concern	Remedial Goal (mg/kg)
West of Building 325	Benzene	0.02
	Chlorobenzene	2.0
	1,4-Dichlorobenzene	1.5
South of Building 325	Benzo(a)anthracene	1.0
	Benzo(a)pyrene	1.0
	Benzo(b)fluoranthene	1.0
	Indeno(1,2,3-cd)pyrene	1.0

TABLE 5-2

SUMMARY OF REMEDIAL GOALS FOR SITE 7 GROUNDWATER  
 SITE 7 – TORPEDO SHOPS  
 NAVAL SUBMARINE BASE NEW LONDON  
 GROTON, CONNECTICUT

Contaminant of Concern	Remedial Goal for Protection of Future Potential Receptors <sup>(1)</sup>
<b>Volatile Organic Compounds</b>	
1,4-Dichlorobenzene	75 µg/L
Benzene	1 µg/L <sup>(2)</sup>
Chlorobenzene	100 µg/L
Trichloroethene	5 µg/L
<b>Semivolatile Organic Compounds</b>	
Hexachlorobenzene	1 µg/L

- 1 Future potential receptors consist of residents living at the site who may use groundwater as a source of potable water. Human health RGs are based on federal and State of Connecticut drinking water/groundwater quality standards, except as noted.
- 2 Human health RG is Connecticut Remediation Standard Regulation.

TABLE 5-3

**CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE FOR SOIL  
SITE 7 – TORPEDO SHOPS  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT**

<b>Requirement</b>	<b>Citation</b>	<b>Status</b>	<b>Synopsis of Requirement</b>	<b>Current Status/Applicability</b>
<b>Federal</b>				
Cancer Slope Factors (CSFs)	Not applicable	TBC	These are guidance values used in risk assessment to evaluate the potential carcinogenic or non-carcinogenic hazard caused by exposure to contaminants.	Contaminated soils were excavated and properly managed off site. The remedial action eliminated soil contamination that could adversely impact human health; therefore, this requirement is no longer necessary.
Reference Doses (RfD)	Not applicable	TBC	These are guidance values used in risk assessment to evaluate the potential non-carcinogenic hazard caused by exposure to contaminants.	Contaminated soils were excavated and properly managed off site. The remedial action eliminated soil contamination that could adversely impact human health; therefore, this requirement is no longer necessary.
<b>Connecticut</b>				
Remediation Standard Regulations	General Statutes of Connecticut (CGS) 22a-133k; Regulations of Connecticut State Agencies (RCSA) 22a-133k - 1 thru 3	Applicable	These regulations provide specific numerical cleanup criteria for contaminants in soil. Requirements are based on groundwater in the area being classified by the State as GB.	Contaminated soils were excavated and properly managed off site. The remedial action eliminated soil contamination that could adversely impact human health; therefore, this requirement is no longer necessary.

TABLE 5-4

**ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE FOR SOIL  
SITE 7 – TORPEDO SHOPS  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT  
PAGE 1 OF 3**

Requirement	Citation	Status	Synopsis of Requirement	Evaluation/Action to be Taken
<b>Federal</b>				
Resource Conservation and Recovery Act (RCRA) Subtitle C - Hazardous Waste Identification and Listing Regulations	40 Code of Federal Regulations (CFR) Parts 260-262 and 264	Relevant and Appropriate	These rules are used to identify, manage, and dispose of hazardous waste.	Excavated soils were tested for hazardous waste characteristics (i.e., Toxicity Characteristic Leaching Procedure criteria). Any soils that exceeded applicable limits were managed in accordance with Subtitle C regulations. Because the remedial action has been completed, this regulation is no longer necessary.
RCRA Subtitle D	40 United States Code (USC) 6901	Relevant and Appropriate	These are regulations that govern the disposal of non-hazardous wastes.	Excavated soils that were determined to be nonhazardous were managed in accordance with Subtitle D regulations. Because the remedial action has been completed, this regulation is no longer necessary.
Clean Water Act, Section 402, National Pollution Discharge Elimination System (NPDES)	40 CFR 122 through 125, 131	Applicable	NPDES permits are required for any discharges to navigable waters. If remedial activities include such a discharge, the NPDES standards would be applicable. Standards would be enforced through the State program.	Water management was required during soil excavation; however, the water was not discharged directly to a surface water body. Therefore, treatment in accordance with these regulations was not required. Because the remedial action has been completed, this regulation is no longer necessary.

TABLE 5-4

**ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE FOR SOIL  
SITE 7 – TORPEDO SHOPS  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT  
PAGE 2 OF 3**

<b>Requirement</b>	<b>Citation</b>	<b>Status</b>	<b>Synopsis of Requirement</b>	<b>Evaluation/Action to be Taken</b>
Clean Water Act, Section 403, Pretreatment Regulations	Section 403	Applicable	General pretreatment requirements for discharge to a publicly-owned treatment works (POTW). If remedial activities include such a discharge to the local sanitary sewer, pre-treatment standards would be applicable. Standards would be enforced through the State program.	Water management was required during soil excavation and the water was discharged to the sanitary sewer system. Testing was done that verified treatment in accordance with these regulations was not required prior to discharge to the POTW. Because the remedial action has been completed, this regulation is no longer necessary.

**Connecticut**

Hazardous Waste Management: Generator and Handler Requirements	Regulations of Connecticut State Agencies (RCSA) § 22a-449(c) 100-102 and 104	Applicable	These sections establish standards for listing, identification, and management of hazardous waste. The standards of 40 CFR 260 to 262 and 264 are incorporated by reference.	Excavated soils were tested for hazardous waste characteristics (i.e., Toxicity Characteristic Leaching Procedure criteria). Any soils that exceeded applicable limits were managed in accordance with these regulations. Because the remedial action has been completed, this regulation is no longer necessary.
Solid Waste Management Regulations	RCSA § 22a-209-1 to 15	Applicable	These sections establish standards for management of non-hazardous waste.	Excavated soils that were determined to be nonhazardous were managed in accordance with these regulations. Because the remedial action has been completed, this regulation is no longer necessary.

TABLE 5-4

**ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE FOR SOIL  
SITE 7 – TORPEDO SHOPS  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT  
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Requirement	Citation	Status	Synopsis of Requirement	Evaluation/Action to be Taken
<b>Connecticut (Continued)</b>				
Connecticut Water Pollution Control Act	RCSA § 22a - 416 to 599	Applicable	These regulations govern the treatment and discharge of water into surface water bodies in the State.	Water management was required during soil excavation and the water was discharged to the sanitary sewer system. Testing was done that verified treatment in accordance with these regulations was not required prior to discharge to the POTW. Because the remedial action has been completed, this regulation is no longer necessary.

TABLE 5-5

**CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE FOR GROUNDWATER  
SITE 7 – TORPEDO SHOPS  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT  
PAGE 1 OF 2**

<b>Requirement</b>	<b>Citation</b>	<b>Status</b>	<b>Synopsis of Requirement</b>	<b>Evaluation/Action to be Taken</b>
<b>Federal</b>				
Cancer Slope Factors	Not Applicable	To Be Considered (TBC)	These are guidance values used in risk assessment to evaluate the potential carcinogenic hazard caused by exposure to contaminants.	The selected remedy prevented exposure to contaminated groundwater and monitored the migration and degradation of contaminants until concentrations achieved acceptable levels that met human health concerns.
Reference Doses	Not Applicable	TBC	These are guidance values used in risk assessment to evaluate the potential non-carcinogenic hazard caused by exposure to contaminants.	The selected remedy prevented exposure to contaminated groundwater and monitored the migration and degradation of contaminants until concentrations achieved acceptable levels that met human health concerns.
Guidelines for Carcinogen Risk Assessment	EPA/630/P-03/001F (March 2005)	TBC	Guidance for assessing cancer risk from exposures to pollutants and other agents in the environment. As part of the characterization process, explicit evaluations are made of the hazard and risk potential for susceptible lifestages, including children.	The selected remedy met this standard because potential carcinogenic risks caused by exposure to contaminants were addressed.
Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens	EPA/630/R-03/003F (March 2005)	TBC	Guidance for assessing cancer risks to children. Addresses a number of issues pertaining to cancer risks associated with early-life exposures and also provides specific guidance on potency adjustments for carcinogens acting through the mutagenic mode of action.	The selected remedy met this standard because potential carcinogenic risks caused by exposure to contaminants were addressed.

TABLE 5-5

CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE FOR GROUNDWATER  
 SITE 7 – TORPEDO SHOPS  
 NAVAL SUBMARINE BASE NEW LONDON  
 GROTON, CONNECTICUT  
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Requirement	Citation	Status	Synopsis of Requirement	Evaluation/Action to be Taken
<b>Connecticut</b>				
Remediation Standard Regulations	General Statutes of Connecticut (CGS) 22a-133k; Regulations of Connecticut State Agencies (RCSA) 22a-133k - 1 through 3	Applicable	This regulation provides specific numerical cleanup criteria for contaminants in groundwater. Requirements are based on groundwater in the area being classified by the state as GB.	<p>The selected remedy met these standards by restricting access to contaminated GB groundwater through institutional controls (NSB-NLON Site Use Restrictions document).</p> <p>Groundwater monitoring tracked the location, migration, and degradation of contaminants until concentrations achieved acceptable levels.</p>

TABLE 5-6

LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE FOR GROUNDWATER  
 SITE 7 – TORPEDO SHOPS  
 NAVAL SUBMARINE BASE NEW LONDON  
 GROTON, CONNECTICUT  
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Requirement	Citation	Status	Synopsis of Requirement	Evaluation/Action to be Taken
<b>Federal</b>				
Coastal Zone Management Act	16 United States Code (USC) Parts 1451 et. seq.	Applicable	Requires that any actions must be conducted in a manner consistent with state-approved management programs.	The actions associated with the selected remedy complied with the substantive requirements of this act.
Floodplain Management	40 Code of Federal Regulations (CFR) §6.302(b); Appendix A	Applicable	This regulation codifies standards established under Executive Order (E.O.) 11988 and requires action to avoid long- and short-term impacts associated with occupancy and modifications related to floodplain development, wherever there is a practicable alternative. Promotes the preservation and restoration of floodplains so that their natural and beneficial value can be realized.	No groundwater monitoring activities were performed within the 100-year floodplain. 40 CFR §6.302(b), Appendix A has been deleted, but E.O. 11988 remains in effect.
Protection of Wetlands	40 CFR §6.302(a); Appendix A	Applicable	This regulation codifies standards established under Executive Order 11990. Under this requirement, no activity that adversely affects a wetland shall be permitted if a practicable alternative with lesser effects is available. If activity takes place, impacts must be minimized to the maximum extent.	There were no impacts on wetlands during groundwater monitoring activities. 40 CFR §6.302(a), Appendix A has been deleted, but E.O. 11990 remains in effect.

TABLE 5-6

LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE FOR GROUNDWATER  
 SITE 7 – TORPEDO SHOPS  
 NAVAL SUBMARINE BASE NEW LONDON  
 GROTON, CONNECTICUT  
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Requirement	Citation	Status	Synopsis of Requirement	Evaluation/Action to be Taken
<b>Federal (Continued)</b>				
Clean Water Act  Guidelines for Specification of Disposal Sites for Dredged or Fill Material	33 USC §1344; Section 404(b)(1)  40 CFR Parts 230 and 231 and 33 C.F.R. Parts 320 through 323	Applicable	Under this requirement, no activity that adversely affects a wetland shall be permitted if a practicable alternative with lesser effects is available. If activity takes place, impacts must be minimized to the maximum extent. This act controls discharges of dredged or fill material to protect aquatic ecosystems.	Installation, maintenance and operation of monitoring wells in or near wetlands were conducted in accordance with these standards. There were no impacts on wetlands during groundwater monitoring activities.
<b>Connecticut</b>				
Connecticut Coastal Management Act	General Statutes of Connecticut (CGS) §22a-444	Applicable	The sites are in a coastal zone management area; therefore, requirements for site planning must include approval of activities within the coastal zone to minimize project impacts to this area.	Groundwater monitoring activities complied with the substantive requirements of this act.
Inland Wetland and Watercourses Act and Regulations	GSC 22a-36 through 45; Regulations of Connecticut State Agencies (RCSA) 22a-39-1 through 15	Applicable	These standards regulate any operation in or affecting an inland wetland or watercourse, involving removal or deposition of material or any obstruction, alteration, or pollution of such wetlands. The standards incorporate local wetland regulations, which include additional substantive requirements and a wetland and watercourse boundary map for the Town of Groton.	There were no impacts on wetlands during groundwater monitoring activities.

TABLE 5-7

**ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE FOR GROUNDWATER  
SITE 7 – TORPEDO SHOPS  
NAVAL SUBMARINE BASE NEW LONDON  
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Requirement	Citation	Status	Synopsis of Requirement	Evaluation/Action to be Taken
<b>Federal</b>				
Clean Water Act, Section 403, Pretreatment Regulations	Section 403	Potentially Applicable	General pretreatment requirements for discharge to a publicly owned treatment works (POTW).	Groundwater extracted during groundwater monitoring activities was tested prior to discharge, according to the requirements of the POTW.
<b>Connecticut</b>				
Hazardous Waste Management: Generator and Handler Requirements	Regulations of Connecticut State Agencies (RCSA) § 22a-449(c) 100-101	Applicable	Connecticut is delegated to administer the federal Resource Conservation and Recovery Act statute through its state regulations. These sections establish standards for listing and identification of hazardous waste. The standards of 40 Code of Federal Regulations (CFR) 260-261 are incorporated by reference.	Waste generated during the installation of monitoring wells and monitoring activities under these alternatives was properly characterized for disposal. This requirement is carried forward during well abandonment and operation and maintenance (O&M) of the remedy.
Hazardous Waste Management: Treatment, Storage, or Disposal Facility Standards	RCSA § 22a-449(c) 104	Applicable	These sections establish standards for treatment, storage, and disposal facilities. The standards of 40 CFR 264 are incorporated by reference.	Any hazardous waste generated during the installation of monitoring wells and monitoring activities and temporarily stored on site is managed in accordance with these regulations. This requirement is carried forward during well abandonment and O&M of the remedy.

TABLE 5-7

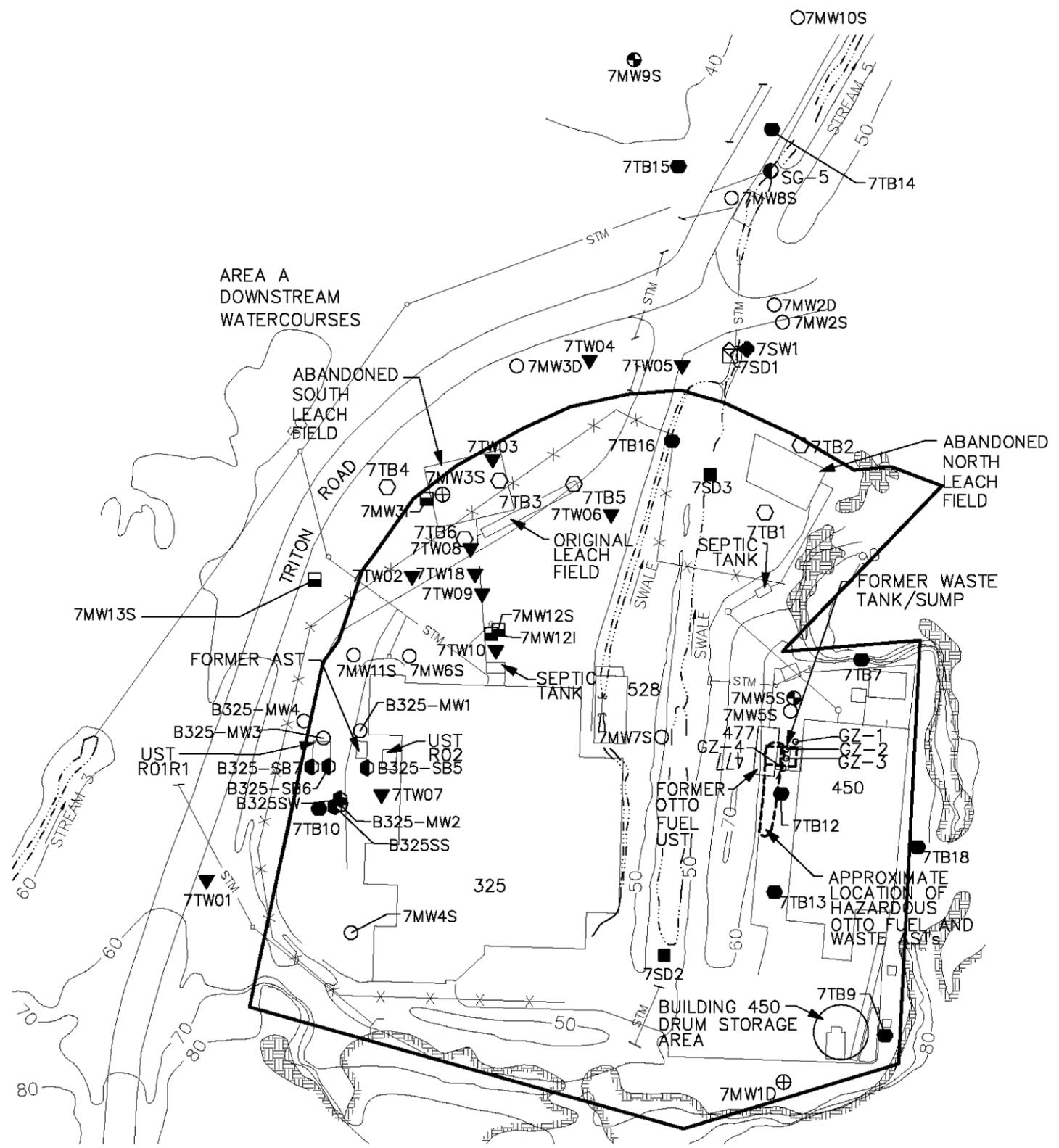
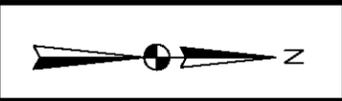
**ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE FOR GROUNDWATER  
SITE 7 – TORPEDO SHOPS  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT  
PAGE 2 OF 3**

Requirement	Citation	Status	Synopsis of Requirement	Evaluation/Action to be Taken
<b>Connecticut (continued)</b>				
Standards of Water Quality/Water Quality Standards (WQSs) IV	General Statutes of Connecticut (CGS) 22a-426 and promulgated standards	Applicable	Standards have been promulgated in accordance with GSC 22a-426 to preserve and enhance the quality of state groundwater and surface water. Groundwater at the sites is classified as GB.	These standards for groundwater will be met through monitoring of natural degradation processes. Institutional controls prevent the aquifer from being used as a water supply until these standards are attained.
Connecticut Regulations for the Well Drilling Industry	RSCA 25-128-33 through 64	Applicable	These rules apply mainly to any new water supply or withdrawal wells. The rules specify that non-water supply wells must be constructed so that they are not a source or cause of groundwater contamination. Procedures for abandonment of wells apply to both water wells and other types of wells.	These regulations were followed during the installation of new monitoring wells. This requirement is carried forward during well abandonment.
Connecticut Water Pollution Control Act - Permitting Regulations	RSCA 22a-430 1-8	Relevant and Appropriate	Establishes permitting requirements for discharges to surface water, groundwater, and POTWs.	There were no direct discharges as part of the selected remedy.
Connecticut Environmental Land Use Restriction Regulations	RCSA 22A-133q-1	Applicable	Requirements to prevent disturbance of contaminated soil and to ensure that contaminated groundwater is not used for human consumption.	Implementation of environmental land use restrictions were included in the New London Instruction 5090.25.

TABLE 5-7

ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE FOR GROUNDWATER  
 SITE 7 – TORPEDO SHOPS  
 NAVAL SUBMARINE BASE NEW LONDON  
 GROTON, CONNECTICUT  
 PAGE 3 OF 3

Requirement	Citation	Status	Synopsis of Requirement	Evaluation/Action to be Taken
<b>Connecticut (continued)</b>				
Connecticut Soil Vapor Remediation Standards Regulations	RCSA 22a-133k-3(c)	Applicable	These standards establish volatilization criteria to address volatile organic substances in groundwater and soil vapor.	These standards are included in the development of the Remedial Goals. However, there were no activities necessitating the implementation of vapor intrusion controls.

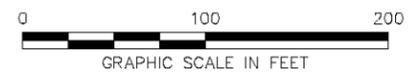


**LEGEND:**

- 7MW3I POST-ROD MONITORING WELL
- ⊕ 7MW2S PHASE I RI MONITORING WELL
- 7MW2S ABANDONED MONITORING WELL
- 7MW7S PHASE II RI MONITORING WELL
- B325-MW1 SITE CHARACTERIZATION MONITORING WELL
- 7TB1 PHASE I RI TEST BORING
- 7TB12 PHASE II RI TEST BORING
- ⊕ B325-SB6 SITE CHARACTERIZATION SOIL BORING
- ◆ 7SW1 PHASE I RI SURFACE WATER SAMPLE
- ◇ 7SW1 PHASE II RI SURFACE WATER SAMPLE
- 7SD1 PHASE I RI SEDIMENT SAMPLE
- 7SD3 PHASE II RI SEDIMENT SAMPLE
- ⊕ SG-5 PHASE II RI STAFF GAUGE
- ▼ 7TB17 BGOURI TEST BORING LOCATION
- ▼ 7TW02 BGOURI TEMPORARY WELL
- 10— TOPOGRAPHIC CONTOUR
- 123 BUILDING No.
- WATERCOURSE
- STM — STORM SEWER AND CATCH BASIN
- EXPOSED BEDROCK
- \* \* FENCE
- SITE 7 BOUNDARY

**NOTES:**

UNDERGROUND UTILITY LOCATIONS ARE APPROXIMATE.



BASE MAP SOURCE: PREPARED BY THE NAVAL SUBMARINE BASE PUBLIC WORKS DEPT., ENGINEERING DIVISION. MARCH 2006, DRAWING NO. A-867.

DRAWN BY	DATE
BH	11/26/08
CHECKED BY	DATE
NJB	8/2/11
REVISED BY	DATE
SCALE	AS NOTED



SITE MAP  
SITE 7 - TORPEDO SHOPS  
NSB-NLON  
GROTON, CONNECTICUT

CONTRACT NO. WE33	
OWNER NO. 3386	
APPROVED BY	DATE
CAR	8/2/11
DRAWING NO.	REV.
FIGURE 5-1	1

## 6.0 SITE 8 – GOSS COVE LANDFILL (OU5)

This five-year review of the Site 8 – Goss Cove Landfill is required by statute because hazardous substances, pollutants, or contaminants remain on site that do not allow for unlimited use or unrestricted exposure. A remedial action for the Site 8 soil OU (i.e., installation of an engineered cap system) was completed in June 2001. OU5 includes the soil, sediment, groundwater, and surface water at Site 8. The groundwater at the site has been monitored since the remedial action was completed to assess its effectiveness. As of this third five-year review, groundwater has been monitored for 10 years, and the landfill cap has been inspected annually for 8 years. Data collected during the monitoring and inspection programs are evaluated within this section.

### 6.1 HISTORY AND SITE CHRONOLOGY

A list of important Site 8 historical events and relevant dates in the site chronology is shown below. The identified events are illustrative, not comprehensive.

Event	Date
Landfill operations.	1946 to 1957
Final IAS completed.	March 1983
Phase I RI completed.	August 1992
Phase II RI finalized.	March 1997
Proposed Plan for soil and sediment issued.	June 1999
Public Meeting conducted.	June 1999
FS for soil and sediment issued.	September 1999
ROD for soil and sediment signed.	September 1999
Remedial Action for soil began.	September 2000
Remedial Design for soil completed.	November 2000
Final GMP for Goss Cove issued.	March 2001
Remedial Action for soil completed.	June 2001
First Five-Year Review Report completed.	December 2001
BGOURI completed.	January 2002
Groundwater Monitoring Program initiated	January 2002
Final RA Report issued.	September 2002
Draft Final O&M Manual - Volumes I, III, IV, and V completed.	September 2002
SOPA (ADMIN) New London Instruction 5090.18B issued.	February 2003
Draft O&M Manual - Volume II completed.	March 2003
Year 1 GMR issued.	August 2003
2003 Annual LIR issued.	November 2004
Year 2 GMR issued.	December 2004
Year 3 GMR issued.	August 2005

<b>Event</b>	<b>Date</b>
2004 Annual LIR issued.	September 2005
2005 Annual LIR issued.	October 2005
2005 Stormwater Culvert Video Inspection	November 2005
Final O&M Manual - Volumes I, II, III, IV and V completed.	January 2006
Year 4 Annual GMR (Draft Final)	June 2006
Second Five-Year Review completed	December 2006
SOPA (ADMIN) New London Instruction 5090-18C issued.	December 2006
Monitoring Well Inventory Report and Abandonment Plan	September 2007
2007 Video Culvert Inspection, Box Culvert, CB-2, CB-4, CB-8, CB-9	November 2007
Year 5 Annual GMR	June 2008
2006 Annual LIR issued	June 2008
2007 Annual LIR issued	August 2008
2008 Video Landfill Inspection	August 2008
SOPA (ADMIN) New London Instruction 5090-18D issued.	September 2008
Year 6 Annual GMR issued	October 2008
O&M Manual - Volumes I, II, III, IV, and V (Revision 2 Draft) completed	November 2008
Year 7 Annual GMR	May 2009
2008 Annual LIR issued	May 2009
SOPA (ADMIN) New London Instruction 5090.25 issued.	June 2009
2009 Annual Box Culvert and Catch Basin Inlet Inspection	September 2009
Letter to Town of Ledyard, Land and Groundwater Use Restrictions	September 2009
Letter to Town of Groton, Land and Groundwater Use Restrictions	September 2009
2009 Annual Inspection Report for Site 2A, Site 6, Site 8 and Site 3	December 2009
2009 Annual GMR for Sites 2, 3, and 8	August 2010
O&M Manual - Volumes I, II, III, IV, and V (Rev 2 Draft Final) completed	November 2010
2010 Annual GMR for Sites 2A, 3, 6, and 8	March 2011
2010 Annual Inspection Report for Sites 2A, Site 6, Site 8 and Site 3	January 2011

## **6.2 BACKGROUND**

The Goss Cove Landfill (Site 8) is located in the southwestern corner of NSB-NLON, adjacent to the Thames River. It is west of Shark Boulevard and the intersection of Crystal Lake Road and Military Highway, east of the Thames River, and north of Goss Cove. Figure 6-1 displays the general site arrangement. The landfill encompasses approximately 3.5 acres. The Nautilus Museum and a paved parking lot are constructed directly over the site of the former landfill. The Nautilus Museum is a submarine museum operated by the Navy and is open to the public.

The IAS Report (NEESA, 1983) indicated that the Goss Cove Landfill was operated from 1946 through 1957. Incinerator ash and inert rubble were disposed at the site in what was then the northern portion of Goss Cove. It is not known if any other materials were disposed in the former landfill. It has been

reported that several large compressed gas cylinders were uncovered during the excavation of a utility trench in the parking area north of the Nautilus Museum building. One of the cylinders was leaking propane, one was filled with ammonia, and the others were empty.

In a 1934 aerial photograph, Goss Cove appeared to be open water with no evidence of fill. Railroad tracks are shown in the photograph at the same location as they are currently, between the cove and the Thames River. In 1951 aerial photographs, the fill extended from the northern boundary south to approximately the location of an access driveway to the museum. The 1965 aerial photographs show the landfill extending to the present limit of encroachment on Goss Cove. Aerial photographs from 1965, 1970, 1975, and 1980 show cars parked on the landfill surface. In 1986 photographs, the Nautilus Museum is present on the southern limits of the landfill, and a paved parking area extends over the remaining limit of the landfill to the north. Construction of the Nautilus Museum was completed in 1985, and construction of an addition to the Nautilus Museum was completed in 2000.

The boring logs generated during construction of the Nautilus Museum indicated the presence of fill material consisting of cinders, metal, brick, glass, and sand and gravel to a depth of 15 feet. Beneath the fill is a layer of organic silt approximately 10 to 15 feet thick. This material is presumably the sediment bottom of the former cove. The silt is underlain by fine sand to depths ranging from 25 to 100 feet below the surface. The thickness of overburden increases from east to west, toward the Thames River.

A two-phase RI was conducted to determine the nature and extent of contamination at the Goss Cove Landfill. The Phase I RI, conducted from 1990 to 1992 (Atlantic, 1992), consisted of a soil gas survey, test borings, monitoring well installation, and soil, surface water, and groundwater sampling. Overburden monitoring wells were installed within the former landfill, and groundwater samples were collected. One surface water sample was collected in the Thames River downstream of the landfill. The RI recommended that the site proceed to Step I of the IRP and additional investigations be conducted at the site.

The Phase II RI was conducted from 1993 to 1995 (B&RE, 1997b). This investigation included the collection of surface and subsurface soil samples from well borings. Surface and subsurface soil samples were also collected from test borings. Shallow and deep monitoring wells were installed. Groundwater samples were collected from Phase I and Phase II monitoring wells during each of two rounds of sampling. Surface water and sediment samples were also collected during the Phase II RI from the perimeter of Goss Cove. Additional sediment sampling was conducted in Goss Cove to perform a supplemental toxicity identification evaluation (TIE). Three rounds of air sampling were performed, with air samples collected from within and around the Nautilus Museum.

Full-time employees, older child trespassers, construction workers, and future residents were evaluated as potential human receptors in the site-specific HHRA completed during the Phase II RI. The results of the risk assessment showed that no unacceptable human health risks are associated with exposure to various media based on exposure to average contaminant concentrations. All estimated Hazard Indices (HIs) for incidental ingestion, inhalation, and dermal contact with contaminated media were less than 1.0. All estimated incremental lifetime cancer risks (ILCRs) for these exposure routes were within the USEPA target risk range and less than the cumulative CTDEP target risk of 1.0E-05. Human health risks were also calculated under conditions involving exposure to maximum contaminant concentrations [i.e., the reasonable maximum exposure (RME) scenario] for all potential human receptors. Estimated HIs for the construction worker, older child trespasser, and future resident exceeded 1.0. Elevated risks for the construction worker were primarily attributable to tetrachloroethene (PCE) in groundwater, and risks for the future resident were primarily attributable to PCBs, arsenic, and antimony in soil. Estimated ILCRs for the full-time employee, older child trespasser, construction worker, and future resident all exceeded Connecticut's cumulative target cancer risk of 1.0E-05. Except for the construction worker, elevated risks were associated with soil ingestion resulting from exposure to PAHs and arsenic. An additional exposure route of concern was dermal contact with groundwater for the construction worker. PCE was the main contributor to the carcinogenic risks for dermal contact with groundwater. Quantitative risks associated with exposure to ambient air at the Nautilus Museum were calculated for a full-time employee under RME conditions only. The estimated HI (0.28) was significantly less than unity for a full-time employee. The cumulative ILCR (1.0E-05) was within the USEPA acceptable risk range and was equal to the CTDEP target risk value.

Results of the Phase II RI ERA, conducted on samples of surface water and sediments collected in the cove, indicated that several inorganic and organic compounds (i.e., pesticides) were found at concentrations in excess of benchmark values protective of aquatic biota, suggesting that aquatic biota inhabiting the cove could be adversely impacted. In response to the results of the studies conducted during Round I of the Phase II RI, additional sampling was conducted in Goss Cove during the supplemental ecological sampling round. The results indicated that four COCs (aluminum, copper, nickel, and heptachlor) were present in surface water at concentrations that represent a potential risk to aquatic biota. A number of chemicals also had Hazard Quotients (HQs) greater than 1.0, suggesting that benthic macroinvertebrates were potentially at risk. The results of toxicity tests confirmed that chemicals were biologically available in concentrations that could adversely impact aquatic biota. Results of the simultaneously extracted metals/acid volatile sulfide (SEM/AVS) analyses conducted to determine the biological availability of copper, cadmium, nickel, lead, and zinc, demonstrated that these five metals are not biologically available.

A DGI was conducted in January 1997 (B&RE, 1997e) to determine the source of PCE contamination detected in groundwater samples collected during the Phase II RI. The DGI concluded that the source of PCE contamination detected in groundwater is off site and upgradient of the site and is likely a neighboring dry cleaning establishment. The CTDEP conducted a Phase I/II Environmental Site Assessment of the dry cleaners in 1998 (CTDEP, 1999b). The assessment involved interviewing the operator of the dry cleaners and collecting medium-specific samples. The results of the investigation conclusively showed that the dry cleaners released PCE to the environment. This information indicates that the dry cleaner is the source of the PCE detected in downgradient groundwater at the Goss Cove Landfill.

An FS for the soil/waste and sediment at Site 8 (Tetra Tech, 1999d) was prepared in 1999. Additional investigations conducted as part of the FS are as follows:

- A desktop modeling effort was performed to evaluate the potential for migration of COCs from the former Goss Cove Landfill into Goss Cove. Results of this modeling effort showed that migration of COCs is unlikely to occur in the future.
- A Wetlands Functions and Values Assessment was completed to evaluate if the ecological stress in the Goss Cove water body was a result of natural conditions or due to migration of contaminants from NSB-NLON sites. This study evaluated the marginal cove vegetation in terms of its ecological functions and values and identified the wetland species associated with the fringing belt. The results of the assessment were that the contrast between the Thames River and cove was dramatic due to the lack of tidal flushing. Although some tidal action occurs within the cove, it does not appear adequate to aid in supporting a rich, viable, intertidal algal population and invertebrate biota. This may be related to water quality because it appears that estuarine organisms can and have become established in the cove in the past but have failed to thrive.
- Because the Phase II RI ERA showed potential risks to ecological receptors from Goss Cove sediment, further investigation and evaluation of the sediment was completed. An Evaluation of Chemical and Toxicological Data study was conducted in 1998 (SAIC, 1998) to evaluate chemical and toxicological relationships for sediments in Goss Cove. The objectives of the study were to establish toxicological response relationships for contaminants in Goss Cove sediments, describe the extent of ecological risks associated with chemical contaminants in Goss Cove sediments, and identify risks for biological effects. Based on data needs, sediment samples from 10 stations were collected and chemical, toxicological, and TIE tests were performed on the samples. The study supported the conclusion that a complete pathway did not exist between contaminants and observed ecological effects. It may be possible to improve benthic habitat quality by reducing the hypoxic

conditions in the cove, thereby reducing the ammonia concentrations that appear to cause the depauperate aquatic community.

The investigations showed that the contaminant levels detected in sediment and surface water in Goss Cove did not pose potential adverse risks to human health or the environment. Based on these findings, NFA was recommended for these media. The two remedial alternatives evaluated for the soil/waste in the FS were no action and installation of an engineered control cap (presumptive remedy) with institutional controls and monitoring. The capping alternative was selected for Site 8, and the ROD for this site was signed by the Navy and regulators in September 1999.

The Remedial Design for Site 8 soil began in October 1999. Additional field work (i.e., field survey, geotechnical field investigation, and geotechnical laboratory testing program) was conducted to collect the necessary data to complete the design. The Remedial Design was finalized in November 2000 (Tetra Tech, 2000b), and construction of the engineered cap system was completed in June 2001.

The BGOURI was completed (Tetra Tech, 2002a) to further evaluate the potential risks identified in the Phase II RI associated with exposure to groundwater by human receptors. The field work for the BGOURI was completed prior to construction of the engineered cap system. Groundwater samples were collected from existing permanent monitoring wells to further characterize the site. The analytical data from the BGOURI indicate that sources of VOCs, SVOCs, and metals within the fill material are continuing to impact the shallow groundwater at the site. It is likely that these chemicals are mobile and being transported in the groundwater to the Thames River. However, the results of the HHRA showed that all risks for construction workers exposed to groundwater at Site 8 were less than or within target risk ranges. The BGOURI recommended that the Navy complete the Remedial Action for the soil, implement land use controls, and begin groundwater monitoring, in accordance with the Groundwater Monitoring Plan (Tetra Tech, 2001a), as soon as the action is finalized. It was recommended that the decision for preparation of an FS for groundwater at Site 8 be postponed until site conditions stabilize and trends in groundwater contaminant concentrations are determined, based on results of the groundwater monitoring program. However, it was subsequently determined that groundwater monitoring, as detailed in the ROD, was sufficient and that a separate groundwater ROD was not required.

O&M of the cap system at Site 8 is being performed in accordance with the O&M Manual for IR Program Sites. The groundwater monitoring program for Site 8 began in 2001 (Tetra Tech, 2001b) and is ongoing (Tetra Tech, 2006a). The results of the program are being used to verify the effectiveness of the cap in reducing infiltration and leaching of contaminants and to confirm that contamination is not migrating from soil to groundwater and eventually to the Thames River.

### 6.3 REMEDIAL ACTIONS

As discussed previously, OU5 includes the soil, sediment, groundwater, and surface water at Site 8.

A ROD (Navy, 1999b) was signed for the soil and sediment at Site 8. Based on the ROD, a remedial action was required for soil, but no further action was required for sediment. The following sections describe the remedial action for soil at Site 8. Groundwater is being monitored at Site 8 as part of the soil OU remedy. The results of the RI and FS concluded that surface water associated with Site 8 did not pose any unacceptable risks to potential human or ecological receptors and no further action was required.

#### 6.3.1 Remedy Selection

Based on ARARs and risk assessment results, the following RAOs were selected for soil at Goss Cove Landfill:

- Protect potential receptors (i.e., full-time employees, construction workers, older child trespassers, and future residents) from exposure to contaminated soil.
- Prevent unacceptable risk to ecological receptors in the Thames River and Goss Cove from potential migration of contaminants.

To meet the RAOs, the presumptive remedy of containment was selected for soil. The basis for use of the presumptive remedy was the guidance document entitled Application of the CERCLA Municipal Landfill Presumptive Remedy to Military Landfills (Interim Guidance) (USEPA, 1996d). The key decision points are as follows:

- Based on the available information for Goss Cove Landfill, the waste/fill is heterogeneous, consisting of ashes, cinders, and inert debris such as glass, brick, wood, etc. The wastes are mainly non-hazardous debris, which can be considered municipal wastes. The contamination mainly consists of PAHs and inorganics that can be attributed to incomplete combustion of fossil fuel and to incinerator ash. The effectiveness of either above-ground treatment for physical separation of the wastes from the fill or in-situ treatment for removal of contaminants is limited because many different treatment processes would be required to address various heterogeneous constituents in the landfill. In addition, due to the large volume of fill material (107,000 cubic yards), such treatment would not be cost effective. As indicated by fate and transport modeling results, the contaminants from the landfill are not currently migrating via the groundwater pathway, and because a majority of the surface of the existing landfill is paved, none of the contaminants are likely to migrate via surface soil erosion.

- The landfill site is currently serving as a museum and a parking lot. The land use in the foreseeable future is expected to remain the same.
- The available historical information suggests that no military munitions were disposed at this landfill.
- The estimated volume of waste/fill, 107,000 cubic yards, exceeds 100,000 cubic yards, which is typically considered to be the limit for an excavation remedy to be suitable.

The selected remedy for the soil and waste/fill material within the Goss Cove Landfill consisted of containment using an engineered control cap, institutional controls, groundwater monitoring, O&M, and five-year reviews. The remedy also included the replacement of a storm sewer system that consisted of three 42-inch-diameter corrugated metal pipes (CMPs) that served the southern portion of NSB-NLON and the Goss Cove Landfill parking lot and surrounding area. The existing storm sewer pipes were under-sized and in a deteriorated condition. A 4-foot by 10-foot reinforced concrete box culvert was selected for the new storm sewer system.

Under the selected remedy, the grass-covered areas around the Nautilus Museum were to be excavated and handled in accordance with all applicable environmental laws and regulations. If visual evidence or instrument readings indicated that hazardous constituents may be present, the soil was to be tested for hazardous characteristics. The excavated soil was to be spread over the landfill and compacted. The excavated area was to be backfilled and capped by the placement of a soil-type multi-layered cap consisting of the following components in ascending order: (1) a geonet gas collection layer, (2) a synthetic membrane with a maximum permeability of  $10^{-6}$  centimeters/second (cm/sec), (3) coarse sand for drainage, (4) a geotextile layer for separation, (5) a layer of fill as a root-penetration zone, and (6) a layer of top soil cover with vegetation. The grass islands in the parking lot were also to be capped with a similar multi-layered soil-type cap overlying the compacted layer of waste.

An asphalt-type multi-layered cap was to be placed over compacted waste in paved areas. The cap was to consist of the following components in ascending order: (1) a geonet gas collection layer, (2) a synthetic membrane having a maximum permeability of  $10^{-6}$  cm/sec, (3) a layer of coarse sand for drainage, (4) a geotextile layer for separation, (5) a layer of gravel sub-base, and (6) a layer of asphalt paving material. The geonet gas layer, geomembrane layer, drainage layer, and the bottom geotextile layer were to be common throughout the parking lot, including in the grass islands.

Institutional controls were to be recorded in the Base IR Instruction to restrict or control future activities at the site so that potential receptors are not adversely affected. If the Navy leases or transfers title to the property, thereby creating a lease or deed, restrictions will be included in the transfer document to notify

future owners of the risk of potential exposure to the contaminants under the cap and the prohibitions on residential development or disruption of the cap. In addition, Environmental Land Use Restrictions (ELURs) would be recorded on the property, according to applicable state and local requirements.

Periodic maintenance of the cap was to be performed under the selected remedy. Appropriate material components were to be included in the design of the asphalt layers to reduce the extent of reflective cracking and to minimize maintenance of the asphalt-type cap. Maintenance of the soil-type cap was to include care for the vegetation on the soil cover. Periodic grading and drainage maintenance were to be completed for both types of caps.

Finally, long-term monitoring of groundwater was to be conducted as part of the selected remedy to ensure that contaminant migration is not occurring. Five-year site reviews of the remedy were also to be completed because wastes will remain on site.

### 6.3.2 Remedy Implementation

The Remedial Design for soil at Goss Cove Landfill began in October 1999. Additional field work (i.e., field survey, geotechnical field investigation, and geotechnical laboratory testing program) was conducted to collect the necessary data to complete the design. The remedial design was completed in phases (e.g., 30 percent, 100 percent, and bidding document). The Remedial Design for the Goss Cove Landfill was finalized in November 2000 (Tetra Tech, 2000b). Based on comments received from the USEPA and normal refinement of details during the design, the cap components included in the final design were slightly different than the components presented in the ROD. A comparison of the components is provided below.

#### Grass-Covered Areas

##### Cap Components in ROD

- Geonet gas collection layer
- Synthetic membrane (maximum permeability of  $10^{-6}$  cm/sec)
- Coarse sand drainage layer
- Geotextile layer
- Layer of fill as a root-penetration zone
- Layer of topsoil cover with vegetation

##### Cap Components in Final Design

- Gas management layer (6-inch-thick select waste/fill and 24-ounce/square yard non-woven geotextile)
- 60-mil smooth linear low-density polyethylene (LLDPE) geomembrane
- Geosynthetic drainage layer (geonet with non-woven geotextile on either side)
- 12-inch-thick sub-base layer
- Non-woven geotextile
- 6-inch-thick base course layer
- Non-woven geotextile
- 6-inch-thick select fill material layer
- 6-inch-thick vegetative cover layer

## Asphalt-Covered Areas

### Cap Components in ROD

- Geonet gas collection layer
- Synthetic membrane (maximum permeability of  $10^{-6}$  cm/sec)
- Coarse sand drainage layer
- Geotextile layer
- Gravel sub-base layer
- Asphalt paving material layer

### Cap Components in Final Design

- Gas management layer
- 60-mil smooth LLDPE geomembrane
- Geosynthetic drainage layer
- 12-inch-thick sub-base layer
- Woven geotextile
- 6-inch-thick base course layer
- 3-inch-bituminous concrete surface layer

The Navy's RAC began preliminary construction activities at the site in September 2000. The RAC completed installation of the new storm sewer system and the engineered cap system in June 2001. The final report for the remedial action at Goss Cove Landfill was completed in 2002 (FWEC, 2002) and includes construction details and QA/QC procedures. Some of the changes that occurred during installation of the cap and storm sewer system included changes to the supports (piles) for the box culvert, modifications to the limits of the cap system, and changes to the landscaping (sprinkler system).

To ensure the quality of the remedial action, QC testing and inspection were completed during the remedial action in accordance with the CQC Plan. One non-conformance was noted during the QC testing and inspection (i.e., the compressive strength of grout used in four pipe piles for the box culvert did not meet the required 5,000 pounds per square inch strength). Further analysis indicated that the compressive strength of the installed grout was sufficient to support the box culvert.

The Navy's cost estimate for implementation of the remedial design was approximately \$3,300,000. The approximate total cost of the remedial action was \$5,450,000. The differences in cost were associated with modifications to the storm sewer system, accelerated work schedules, and landscaping.

Other components of the remedial action, including long-term monitoring and O&M, are discussed in Section 6.3.3.

To meet the land use control requirements in the ROD, the Navy prepared and implemented an instruction to restrict use at IR sites at NSB-NLON. The instruction defines the Navy's policy regarding ground surface disturbance of soils/sediments, subsurface disturbance of soils/sediments and/or groundwater extraction, and disturbance of any remedial infrastructure at IR sites. The instruction was updated to include the Goss Cove Landfill and was reissued in 2003 [SOPA (ADMIN) New London Instruction 5090.18B, (Navy, 2003)]. The instruction was also updated in 2006 (Instruction 5090.18C) to include Sites 3 and 7 and additional information for Site 2 - Area A Landfill. In 2009, the Navy

implemented a newly updated instruction [SOPA (ADMIN) New London Instruction 5090.25] to restrict the use of IR sites at NSB-NLON (Navy, 2009b). SOPA (ADMIN) 5090.25 includes current mapping of existing and abandoned wells. In 2009, a table and map were filed in the land record offices of the Towns of Groton and Ledyard, Connecticut to show the location of monitoring wells, note the remedy in place, and list contaminants of concern and LUCs that have been imposed at Site 8 (Navy, 2009c; 2009d).

### **6.3.3 System Operations/Operation and Maintenance**

#### **6.3.3.1 Monitoring Program**

The results of the groundwater monitoring program are being used to assess the effectiveness of the remedial action. Sampling was completed at the site in accordance with the final Groundwater Monitoring Plan for Goss Cove Landfill (Tetra Tech, 2001a) from the initiation of the program in January 2002 through 2005. From 2006 through 2010, sampling activities were conducted in accordance with Volume II – Groundwater Monitoring Plan of the O&M Manual (Tetra Tech, 2006a). Volume II (Groundwater Monitoring Plan) of the O&M Manual was revised in 2008 (REV 2 Draft) and 2010 (REV 2 Draft Final) to address USEPA comments on the 2006 O&M Manual and update site information for Site 8 (Tetra Tech, 2008g; 2010f). In 2011, sampling activities were conducted in accordance with the 2010 Groundwater Monitoring Plan (REV 2 Draft Final) (Tetra Tech, 2010f). The Final O&M Manual (REV 2) is expected to be completed in 2011.

Monitoring at the Goss Cove Landfill was conducted quarterly for the first 4 years (2002 through 2005), semi-annually in 2006, and annually since 2007. Groundwater samples were collected at low tide to ensure that groundwater is discharging to the Thames River. A tidal study was performed to determine optimum sampling times. During 2002 through 2005, samples were analyzed for Target Compound List (TCL) VOCs, SVOCs, and pesticides/PCBs, PAHs, total and dissolved TAL metals, anions (sulfate and nitrate), and hardness. Field measurements of temperature, pH, specific conductance, dissolved oxygen, ORP, turbidity, and ferrous iron were also taken during each monitoring round. Since 2006, samples have been analyzed for the same suite of parameters with the exception of ferrous iron, which was eliminated from the program, and pesticides/PCBs, which were eliminated in 2008.

To date, groundwater has been monitored for 10 years, and annual reports issued that summarize the results of the monitoring program (Tetra Tech, 2003c; ECC, 2004d; 2005b; 2006c; 2008a; 2008m; 2009a; H&S, 2010; 2011b). The annual reports include a thorough evaluation of each year of data collected under the program. All of the monitoring reports have been submitted to the USEPA and CTDEP for review and comment. The results of the monitoring program during this five-year review period are discussed in Section 6.5.2.1.

### **6.3.3.2 Operation and Maintenance**

The Navy issued a draft O&M Manual for the IRP Sites at NSB-NLON, which included Goss Cove Landfill, in September 2002 (Tetra Tech, 2002c). Volume V of the five-volume manual included site-specific instructions for O&M activities and an inspection checklist for the Goss Cove Landfill. The O&M Manual was finalized in 2006 (Tetra Tech, 2006a). Volume V (Site 8 O&M) of the O&M Manual was revised in 2008 and 2010 to address USEPA comments on the 2006 O&M Manual and update site information for Site 8 (Tetra Tech, 2008g; 2010f). The Final O&M Manual (REV 2) is expected to be completed in 2011.

Site 8 has been inspected annually since 2003. The findings of the inspections are documented in the field on inspection checklists and summarized in Annual LIRs (ECC, 2004c; 2005g; 2005j; 2008f; 2008j; 2009d; 2009i; H&S, 2011). In addition, culverts were inspected by video in 2004, 2005, 2007, 2008, 2009, and 2011 (ECC, 2005a; 2006b; 2007a; 2008l; 2009g). O&M of the cap system at Site 8 has been performed in accordance with the O&M Manual for IR Program Sites (Tetra Tech, 2006a).

The O&M process for the site includes annual inspections, reporting of results, and correcting any identified problems. The findings of the inspections are documented in the field on inspection checklists and then summarized in Annual LIRs (ECC, 2004c; 2005g; 2005j; 2008f; 2008j; 2009d; 2009i; H&S, 2011). The inspections of the landfill focus on institutional controls, landscaping features, cap areas, stormwater features, and maintenance. Deficiencies noted during the inspections are addressed through the preparation of a Plan of Action and then executing the Plan of Action. As presented in the 2011 O&M Manual, inspections are currently conducted in the spring, corrective actions are completed during the early summer, and the final inspection report is completed by the end of the calendar year. The results of the five inspections conducted during this five-year review period are discussed in Section 6.5.2.2.

## **6.4 PROGRESS SINCE LAST REVIEW**

This is the third five-year review of the Goss Cove Landfill. The recommendations from the Second Five-Year Review Report (Tetra Tech 2006c) are provided below, along with the actions taken to address the recommendations. In general, the site inspection found that the cap system was working as intended, and that overall, the site is in very good condition. Minor items were identified during the site inspection to be addressed so that they would not affect the long-term performance of the cap system. Based on the results of the 2006 site inspection and review, the following recommendations were made for Site 8.

Continue O&M of the site and address the O&M deficiencies noted (e.g., repair damaged road boxes found at wells 8MW1 and 8MW4 and extend well 8MW10S to the ground surface or install a replacement well).

- O&M has been continued. As recommended, Well 8MW10S has been brought to grade, the road box for 8MW1 has been repaired, and well 8MW4 has been abandoned. In addition, 8MW8S was abandoned. Well 8MW9S is no longer being monitored but was not abandoned because it is in an intersection and abandonment would require a traffic plan.

Install screens on every gas vent and add a lock on the gates at Gas Vents L and M.

- Screens were installed on the gas vents and locks were installed on the gates to Gas Vents L and M.

Continue the groundwater monitoring program, but reduce the sampling frequency to annually and optimize the analytical parameter list, as appropriate. Develop and implement a well abandonment program to eliminate wells that are no longer required for the monitoring program (e.g., 8MW4, 8MW8S, and 8MW9S).

- Sampling frequency was reduced from twice per year in 2006 to once per year in 2007. A well inventory was conducted at NSB-NLON in 2007. The inventory included 13 Site 8 wells (Tetra Tech, 2007b). As a result of the inventory, two Site 8 wells that were not part of an active monitoring program were abandoned (ECC, 2007b).

Conduct an inspection of the drains leading into the box culvert (video or by other means).

- Video inspections were performed on drains leading to the box culvert in November 2007 and August 2009.

Select an appropriate remedial action for the groundwater OU and document the remedy in a Proposed Plan and ROD

- The recommendation to select an appropriate remedial action for the groundwater OU and document the remedy in a Proposed Plan and ROD is no longer applicable, as it was recently determined that groundwater monitoring, as detailed in the ROD, is sufficient and that a separate groundwater ROD is not required.

Continue enforcement of New London Instruction 5090.18C and add signs to the entrance gate that warn about the cap and the restrictions on digging at the site. It was further recommended that there be at least yearly monitoring of Institutional Control compliance, with the monitoring reports incorporated into future five-year reviews.

- Confirmation of an active institutional control document, such as New London Instruction 5090.25 (or a more current Instruction) has been added to the inspection checklist and will be confirmed annually. In April 2007 ECC placed a sign on the front gate of the Goss Cove Landfill that states that excavation is not permitted. After discovering an unauthorized AST had been installed at Site 8, the Navy is revising internal instructions to improve oversight of LUCs. Several elements of these instructions have been implemented, e. g., the LUC tracker module of NIRIS, information exchange between Navy planning programs, and personnel training on these programs. The Navy is also reviewing ways to improve internal inspection programs. In a letter from the Navy Environmental Division to CTDEEP and USEPA on May 10, 2011, the NSB-NLON Public Works Department (PWD) committed to providing additional awareness training to PWD employees to reinforce NEPA, IR, and dig permitting requirements at NSB-NLON.

Amend O&M Manual to remove federal AWQC.

- The GMP in Volume II has been amended to remove federal AWQCs as Goss Cove groundwater monitoring criteria.

## **6.5 FIVE-YEAR REVIEW PROCESS**

This section provides a summary of the five-year review process and the actions taken to complete this review.

### **6.5.1 Document Review**

The documents reviewed for the third five-year review are listed below, and key information obtained from the documents is summarized in the following sections.

Second Five-Year Review completed	December 2006
Monitoring Well Inventory Report and Abandonment Plan	September 2007
2007 Video Culvert Inspection, Box Culvert, CB-2, CB-4, CB-8, CB-9	November 2007
Year 5 Annual GMR	June 2008
2006 Annual LIR issued	June 2008
2007 Annual LIR issued	August 2008
2008 Video Landfill Inspection	August 2008

SOPA (ADMIN) New London Instruction 5090-18D issued.	September 2008
Year 6 Annual GMR issued	October 2008
O&M Manual - Volumes I, II, III, IV, and V (Revision 2 Draft) completed	November 2008
Year 7 Annual GMR	May 2009
2008 Annual LIR issued	May 2009
SOPA (ADMIN) New London Instruction 5090.25 issued.	June 2009
2009 Annual Box Culvert and Catch Basin Inlet Inspection	September 2009
Letter to Town of Ledyard, Land and Groundwater Use Restrictions	September 2009
Letter to Town of Groton, Land and Groundwater Use Restrictions	September 2009
2009 Annual Inspection Report for Site 2A, Site 6, Site 8 and Site 3	December 2009
2009 Annual GMR for Sites 2, 3, and 8	August 2010
O&M Manual - Volumes I, II, III, IV, and V (Rev 2 Draft Final) completed	November 2010
2010 Annual GMR for Sites 2A, 3, 6, and 8	March 2011
2010 Annual Inspection Report for Sites 2A, Site 6, Site 8 and Site 3	January 2011

## 6.5.2 Data Review

### 6.5.2.1 **Monitoring Data Review**

Groundwater monitoring is being conducted as part of post-closure activities associated with Site 8 to evaluate the effectiveness of the remedial action. The monitoring program was designed to determine the following:

- The effectiveness of the remedial action in preventing the migration of COPCs at concentrations greater than monitoring criteria to underlying groundwater and surface water in the nearby cove and Thames River.
- The effectiveness of the remedial action in eliminating health risks.
- Whether the criteria used for evaluating the data have been met.
- Whether a groundwater plume exists and/or interferes with any existing use of groundwater.

The ultimate goal of the monitoring program is to show compliance with the selected monitoring criteria for those COPCs migrating or having the potential to migrate from the site. The criteria used to screen the data are a combination of site-specific SWPC (based on Connecticut WQs), CTDEP SWPC, CTDEP volatilization criteria, and background concentrations.

Tables and trend graphs for 2006 through 2010 monitoring data are presented and evaluated in this Third Five-Year Review Report. Although the 2006 O&M Manual specifies that dissolved inorganic concentrations should be compared to criteria, the 2011 O&M Manual specifies, based on CTDEP input, that total inorganic concentrations should be compared to criteria; therefore, total inorganics were plotted

on the trend graphs. Similarly, 2011 O&M Manual criteria are presented for comparison on the trend graphs. On the trend graphs, the average is shown for duplicate samples. Non-detected samples are shown at one-half the detection limit; therefore, in some cases non-detected results appear to exceed criteria on the trend graphs. Tables do not identify when results exceed secondary criteria, as it was determined by the USEPA that secondary criteria will no longer be used starting in 2011.

Figure 6-2 identifies wells in the active monitoring program and Table 6-1 presents a summary of wells and sampling frequency during the third five-year review period. Wells were sampled semi-annually in 2006 and annually since 2007. Sampled wells include deep and shallow upgradient and downgradient wells. The upgradient wells include one Site 23 well (HNUS-23), one Site 8 shallow well (8MW10S), and one Site 8 deep well (8MW8D). Downgradient wells are all within the boundary of Site 8. Downgradient shallow wells include 8MW1, 8MW2S, 8MW3, 8MW5S, 8MW6S, and 8MW7S, and downgradient deep wells include 8MW2D and 8MW6D. Figure 6-2 highlights those monitoring wells for which sampling results exceeded primary criteria during the period 2006 through 2010.

Table 6-2 presents a summary of analytes and upgradient well results during 2006 through 2011. Groundwater samples were analyzed for select VOCs, SVOCs, and PAHs, and total and dissolved inorganics during each round. Samples were also analyzed for pesticides/PCBs during 2006 and 2007, but those analytes were discontinued after 2007, based on a consistent lack of detection. As shown on Table 6-2, of the VOCs, methylene chloride and xylenes were generally not detected, but tetrachloroethene (PCE) consistently exceeded criteria. As shown on Figure 6-3, PCE concentrations exceeding criteria occurred in upgradient wells 8MW8D and 8MW10S. Figure 6-3 indicates that PCE concentrations are decreasing in 8MW8D but increasing in 8MW10S. As discussed in Subsection 6.2, PCE was released from the former dry cleaning establishment located off Navy property and upgradient of Site 8.

A comparison of both total and dissolved inorganic concentrations to criteria is presented on Table 6-2, which shows that none of the Site 8 upgradient groundwater samples exceeded criteria for total or dissolved inorganics.

A summary of downgradient shallow and deep results are presented on Tables 6-3 and 6-4. These tables indicate that for VOCs in downgradient wells, methylene chloride has not been detected in the past 5 years, and PCE and xylenes were detected, but at concentrations less than criteria. All monitored SVOCs and PAHs, except dibenzo(a,h)anthracene, have been detected in the past 5 years, but no SVOCs and PAHs exceeded criteria. In downgradient shallow wells, all monitored inorganic COPCs except dissolved cadmium were detected in the past 5 years, and total and dissolved arsenic consistently exceeded criteria in at least one well. In downgradient deep wells, all monitored inorganic COPCs were

detected in the past 5 years, and total and dissolved arsenic exceeded criteria in at least one well during 2006 through 2008, but did not exceed criteria in 2009 and 2010.

Trend graphs for Site 8 inorganics are shown on Figures 6-4 through 6-13. Trend graphs show that results exceed criteria for several wells for total arsenic, but are well below primary criteria for total antimony, cadmium, copper, lead, mercury, nickel, and vanadium. Beryllium concentrations exceeded the criterion in two wells in 2008, and zinc exceeded the criterion in one well in 2008, but all beryllium and zinc results were below criteria in 2009 and 2010. Total arsenic concentrations exceeded the criterion in 2008 but were below criterion in 2009 and 2010. None of the graphs depict significantly increasing or decreasing trends for inorganics.

#### 6.5.2.2 O&M Data Review

Inspections are being conducted as part of post-closure O&M activities associated with Site 8. The goal of the inspections is to determine if appropriate O&M is being performed to maintain the effectiveness of the remedial action. As shown in the table below, five inspections have been performed at Site 8 since the Second Five Year Review and within the period being evaluated in this Third Five Year Review.

Year	Initial Date of Inspection	Final Report Date
2006	October 25, 2006	June 2008
2007	November 7, 2007	August 2008
2008	August 26, 2008	May 2009
2009	August 18, 2009	December 2009
2010	August 18, 2010	January 2011

Copies of the completed Inspection Checklists for Site 8 for 2006 through 2010 are provided in Appendix A. The overall conclusions of the inspections for each year were that the land use for the site had remained unchanged and in general, the landfill and its associated features appeared to be functioning as designed, were in overall good condition, and were meeting the long-term remedial objectives. The reports all described Site 8 as being in very good condition. However, the reports for each year identified some maintenance-related deficiencies that, if left unaddressed, could eventually affect the integrity of the cap system. The types of deficiencies were relatively consistent over the 5-year period, although they were not necessarily all observed each year and typically were not in the same locations. Common deficiencies were related to cracks in the asphalt surface; sediment and vegetation in catch basins; sediment and leaks in drain lines; missing or unsecured bolts for some monitoring well caps; and the need for maintenance of fencing. The 2006 inspection identified damage to the irrigation system, but it was repaired prior to the 2007 inspection and no deficiencies were reported in subsequent years. Fence damage, apparently resulting from snow removal activities, was reported in 2007 through 2010. The

fence damages were never described as severe and were consistently repaired prior to subsequent inspections, but the problem appears to have been persistent. The Inspection Reports for 2006 through 2009 included discussions of video camera inspections of box culverts and drain lines. The reports included video inspection logs as appendices. Each Inspection Report indicated that deficiencies identified during the prior-year inspection had been repaired, and the reports often noted that they were repaired before the final inspection report was issued. The deficiency logs for years 2006 and 2008 through 2010 are included in Appendix A.

### **6.5.3 ARAR and Site-Specific Action Level Changes**

The remedial action implemented for soil at the Goss Cove Landfill includes an engineered cap system, land use controls, groundwater monitoring, and O&M. ARARs and TBCs were reviewed to determine whether there have been changes since the Remedial Design Report and 2011 Groundwater Monitoring Plan were issued. Listings of chemical-, location-, and action-specific ARARs, advisories and guidance (TBCs) considered in the ROD are listed in Tables 6-5, 6-6, and 6-7, respectively. With the exception of monitoring criteria, the ARARs have not been amended since the remedial design and 2011 Groundwater Monitoring Plan. Changes associated with monitoring criteria are addressed in the response to Question 2 of Section 6.6.

Investigations/assessments showed that contaminant levels detected in sediment and surface water in Goss Cove did not pose potential adverse risks to ecological receptors. Site soils were capped, which eliminated the exposure pathway to ecological receptors. Therefore, any changes in the ecological soil screening values would not impact the effectiveness of the remedial action.

### **6.5.4 Site Inspection**

The Goss Cove Landfill was inspected April 6, 2011. The focus of the inspection was on the engineered cap system installed over the Goss Cove Landfill. Weather conditions during the inspection were cool (mid-50s), sunny, and windy. Representatives from the Navy, USEPA, Tetra Tech, and Sovereign participated in the inspection. Photographs taken of site features during the inspection are provided in Appendix B. The site inspection checklist completed during the inspection is provided in Appendix C.

The site inspection included visual observations of the current condition of the engineered landfill cap system at Site 8. During the inspection, the team found that land use for the site has remained unchanged since the remedial action. The Navy has continued to use the area for public vehicle parking. Signs were noticed during the inspection at the entrances to the site, warning that access is only for authorized users and personnel should not dig at the site.

During monitoring well sampling activities at Site 8 conducted on April 6, 2011, Sovereign observed what appeared to be an inconsistency in the depths of a shallow/deep well pair, 8MW2S and 8MW2D. It was determined that there was an obstruction in 8MW2D that may have resulted from past damage to the well, speculated to be a crack in the well casing. After further investigation, it was concluded that the dedicated sampling tubing currently installed in the well is set at the desired sampling depth of approximately 58 feet, a depth below the obstruction. Based on the information gained from the investigation, Sovereign and the Navy concluded that samples collected from 8MW2S and 8MW2D should be considered to be valid.

With the exception of one deficiency, the issues identified during the inspection were not major and overall the site is in very good condition. In April 2011, the Navy's IRP Manager became aware that a portion of the Site 8 cap had been excavated and that an AST, its foundation (concrete pad), and associated piping were installed on the cap system without authorization from or coordination with the IRP Manager, as required by the NSB-NLON Land Use Restriction Instruction. An investigation, including four hand-excavated test pits, was performed on October 17 and 18, 2011. In addition, engineering estimates of the impact of the AST on the drainage capabilities of the geosynthetic drainage layer and potential for cap settlement were made. The investigation and engineering estimates determined no adverse impact to the cap system from the AST. Neither the AST construction nor test pits penetrated the geosynthetic drainage layer or geomembrane. However, institutional controls were not effectively implemented and the AST installation was a non-conformance of the remedy's action-specific ARARs. Minor items were also identified during the site inspection that should be addressed but should not affect the long-term performance of the cap system. The Navy has implemented an O&M program for Site 8 and corrective actions have been taken to correct the problems identified. The deficiency and the O&M issues identified during the inspection are noted in the site inspection checklist provided in Appendix C and shown on Figure 6-1. The issues and their potential long-term impacts on the cap system are summarized as follows:

### **Deficiencies**

- An AST, its foundation (concrete pad), and associated piping were installed on the cap without authorization from or coordination with the IRP Manager. Lack of effective LUCs implementation could result in damage to the landfill cap.

### **O&M Issues**

- Trees and shrubs have been planted on the cap area. Any plant with woody roots and a root depth greater than the cap thickness could puncture the geomembrane. There has not been an evaluation of whether the roots of these plants might penetrate deep enough to cause damage.

- There has been some apparent settling of the pavers beneath the gun and missile hatch displays. The displays should be monitored to detect and additional settling that potentially could lead to future cap damage.
- The liquid petroleum gas (LPG) tank in the snack/picnic area is beginning to sink into the ground. A 2 foot by 2 foot concrete pad should be installed beneath this tank to prevent potential impacts to the landfill cap
- The sprinkler head near Gas Vent M, adjacent to the damaged curb, is damaged, a condition that could lead to pooling of surface water. A follow-up inspection of the area by Sovereign noted that the head was bent at an angle and missing part of its cap, and recommended that the sprinkler head be replaced and the angle adjusted to provide proper irrigation of the area.
- The man gate on the north end of the landfill cap was not locked during the site inspection. This gate should be locked to prevent unauthorized access to the landfill cap.
- Minor settling of the asphalt around Light Pole 11 was observed during the inspection. The asphalt at this location should be repaired to prevent water from penetrating the asphalt and entering the cap drainage layer.
- Minor longitudinal cracks in the asphalt were observed during the inspection. These cracks need to be repaired to prevent water from penetrating the asphalt and entering the cap drainage layer.
- Gas Vent N is not secured. This vent should be secured to prevent tampering.
- The road box covers for wells 8MW6D, 8MW2S, and 8MW2D have missing or damaged bolts. The bolts should be replaced so the wells can be secured.
- The bladder pump in well 8MW2D may not be functioning properly. At the time of the inspection, Sovereign personnel were sampling the well and indicated that was a possible problem with the pump.
- There is a possible obstruction in well 8MW2D, which needs to be evaluated, and actions identified.

- Well 8MW9S is no longer sampled and has not been properly abandoned. Subsequent to the inspection, it was observed that the well location had been paved over.
- A sign had incorrect contact information. Investigate warning signs and update as needed.

#### 6.5.5 Site Interviews

No official interviews were conducted as part of the second five-year review. Relevant discussions with the inspection team regarding the site are documented on the site inspection checklist.

### 6.6 ASSESSMENT

The following conclusions support the determination that the remedy for the Goss Cove Landfill is currently protective of human health and the environment.

#### ***Question 1. Is the remedy functioning as intended by the decision documents?***

- ***Remedial Action Performance:*** An engineered landfill cap system was installed at the Goss Cove Landfill and is currently effective in limiting direct exposure to contaminated soil and minimizing contaminant migration from the site. An investigation determined that the AST pad installed on the cap did not damage the cap system; however, the implementation of LUCs was not effective in achieving coordination with the Environmental Manager prior to installation. A groundwater monitoring program is being conducted to evaluate the cap's performance regarding minimizing contaminant migration. The data do not indicate any significant contaminant migration concerns related to the landfill. Significant contamination (PCE) appears to be migrating on site from the former Fusconi Cleaners, an upgradient, off-base source. The owner, Mr. Remo Fusconi, with a temporary authorization from CTDEP, hired a contractor to inject an in-situ chemical oxidation agent (permanganate) into the PCE source area during the second five-year review period. The CTDEP completed limited post-injection monitoring of soil and groundwater concentrations at the site. The CTDEP is in discussions with the Town of Groton and Mr. Fusconi to determine appropriate additional actions. Over the past 5 years, PCE concentrations at Site 8 dropped significantly in the deep upgradient well but increased in the shallow upgradient well. PCE concentrations remain well below criteria in downgradient wells, indicating that the cap is functioning and is protective. A comparison of total inorganic concentrations to 2011 criteria shows that, with the exception of beryllium and arsenic, all monitored inorganics have been below criteria over the past 5 years. Beryllium concentrations were unusually high in 2008, with concentrations in two wells exceeding criterion, but were otherwise below criterion over the past 5 years. Arsenic concentrations were also unusually high in 2008, but concentrations were generally below criterion in 2009 and 2010. O&M of the cap system has been

performed annually over the past 5 years to maintain proper long-term performance of the cap system.

- **System Operations/O&M:** The cap was inspected annually over the past 5 years, with maintenance identified and performed as needed. The cap system is still functioning as intended, and O&M of the cap system is being performed annually at the site. The items noted in Section 6.5.4 should be addressed to improve the O&M of the site.

Actual costs for the monitoring program since 2006 have ranged from approximately \$15,300 per year to \$293,500 per year (see table below). These costs include the costs associated with sampling, analysis, validation, and reporting. Costs associated with preparing and updating the monitoring plan and maintaining the groundwater monitoring wells are not included in the costs.

Source	Cost of Monitoring
Projected Annual Cost in ROD	\$20,000
Actual Year 5 Cost (2006)	\$293,500
Actual Year 6 Cost (2007)	\$168,600
Actual Year 7 Cost (2008)	\$174,100
Actual Year 8 Cost (2009)	\$38,300
Actual Year 9 Cost (2010)	\$40,600
Actual Year 10 Cost (2011)	\$15,300

Over the past 5 years O&M costs have ranged from approximately \$12,700 to \$51,400 per year (see table below). Costs have fluctuated due to the amount of maintenance required and the amount of funding available. The annual O&M costs include the costs for landfill inspections, reporting, and maintenance.

Source	Cost of O&M
Projected Annual Cost in ROD	\$7,400 per year plus \$21,500 every 5 years for five-year reviews
Actual Year 4 Cost (2006)	\$12,700
Actual Year 5 Cost (2007)	\$13,100
Actual Year 6 Cost (2008)	\$13,400
Actual Year 7 Cost (2009)	\$51,400
Actual Year 8 Cost (2010)	\$20,700
Actual Year 9 Cost (2011)	\$9,100

- **Opportunities for Optimization:** The sampling frequency of the monitoring program has been annual for the last 5 years. The frequency will not be reduced but monitoring wells no longer sampled

should be abandoned. Although all total inorganics have been detected over the past 5 years, trend graphs indicate that many are well below criteria and concentrations are not increasing. Therefore, monitoring of inorganics other than arsenic could be discontinued.

- **Early Indicators of Potential Remedy Failure:** LUCs were not effectively implemented to prevent unauthorized excavation in the landfill cap to install an AST, foundation, and piping. A visual investigation completed in October 2011 determined that the landfill cap drainage layer and geomembrane were not compromised (Appendix F), but further unauthorized excavation within the perimeter of the landfill cap could potentially result in remedy failure.
- **Implementation of Institutional Controls and Other Measures:** Institutional controls associated with the Goss Cove Landfill are not being implemented in accordance with New London Instruction 5090.25. The IRP Manager was not contacted prior to installation of the AST. Fencing is in place around the site and meets the intent of the Access Restriction RAO. However, signs posted at the entrance of Site 8 that warn a cap is in place and no digging is allowed do not have the correct contact information. In addition, the Navy has implemented corrective actions to improve LUC compliance, as detailed in Section 18.

**Question 2. Are the exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the remedy selection still valid?**

- **Changes in Standards and TBCs:** ARARs and TBCs considered during preparation of the ROD were reviewed to determine changes since the remedial design and Final Groundwater Monitoring Plan were issued. As presented in Section 6.5.3, there have been no changes to currently relevant ARARs with the exception of monitoring criteria.

The primary monitoring criteria for the Goss Cove Landfill are site-specific SWPC, CTDEP SWPC, and CTDEP Groundwater Volatilization Criteria. As discussed in Section 1.4, the CTDEP SWPC were updated in April 1999 and the SWPC for the COCs at the Goss Cove Landfill were updated in 2006 (Table 6-8). The site-specific SWPC are calculated based on Connecticut WQSs. The Connecticut WQSs were updated in February 2011; therefore, the site-specific SWPC and primary criteria were updated in 2011. As determined by USEPA during the resolution of O&M Manual comments in 2011, secondary criteria will no longer be used at Site 8. A comparison of the original and new primary criteria is presented in Table 6-8. The changes in the WQSs do not impact the protectiveness of the remedy.

Pesticides and PCBs were removed from the monitoring program during this five-year review period so their criteria have been removed from Table 6-8.

- **Changes in Exposure Pathways:** There have been no changes at the site that would have resulted in new exposure pathways to human or ecological receptors.
- **Changes in Toxicity and Other Contaminant Characteristics:** There have been no changes in human health toxicity criteria that would impact the primary monitoring criteria.
- **Changes in Risk Assessment Methods:** As discussed in Section 1.4, there have been no major changes in HHRA methodology since the signing of the ROD that would impact the protectiveness of the remedy.
- **Expected Progress Towards Meeting RAOs:** The RAOs for the soil at Goss Cove Landfill were met by installing and maintaining the engineered cap and conducting groundwater monitoring.

**Question 3. Has any other information come to light that could call into question the protectiveness of the remedy?**

No additional information has been identified that would call into question the protectiveness of the remedy.

## 6.7 ISSUES

One deficiency and several O&M issues were noted during the five-year review site inspection that should be resolved. The issues are presented in Section 6.5.4 and summarized in Table 6-9.

## 6.8 RECOMMENDATIONS AND FOLLOW-UP ACTIONS

Based on the results of the site inspection and review, the following recommendations are made for Site 8:

### Deficiencies

- Investigate potential cap damage caused by installation of AST pad and piping and whether this pad can be enlarged. If the investigation determines that the cap was damaged, remediate the damage to restore remedy functionality.
- Place reference document at gate with Nautilus Command Suite and Pier Watch.

- Improve internal communication within the Navy by conducting a meeting with Nautilus personnel to communicate IRP requirements.
- Implement corrective actions for LUC compliance by doing the following:
  - Environmental Office to perform quarterly LUC inspections.
  - Dig permits to require concurrence of Environmental Office.
  - Environmental Office to use GIS and NIRIS to identify LUC areas and wells for planners.
  - Revise MIDLANT Regional Instruction.

The visual AST investigation, which determined that the liner system was not compromised, was completed in October 2011, the reference document was placed at the gate in May 2011, and a meeting was held with Nautilus personnel on May 2011. Quarterly LUC inspections, concurrence of the Environmental Office for dig permits, and use for GIS and NIRIS to identify LUC areas has now been instituted at NSB-NLON and are ongoing.

#### **O&M Issues**

- Continue O&M (annual inspection and monitoring) and address deficiencies noted in Section 6.5.4 and Table 6-9.

#### **Other Recommendations**

- Investigate warning signs and update if needed.
- Complete and implement Revision 2 of the O&M Manual.
- Complete a RACR to document completion of the remedial action.

Follow-up actions have been completed by the Navy in a timely manner to address the recommendations.

### **6.9 PROTECTIVENESS STATEMENT**

The Navy performed an investigation and determined that installation of an AST (foundation and piping) had no adverse impact on the engineered cap system; therefore the remedy at the Goss Cove Landfill is currently protective of human health and the environment and the source of contamination is contained. An evaluation is currently being performed to determine if the AST and pad can be expanded to meet Navy needs but not impact the cap system. The results of the evaluation will be provided for regulator review and approval prior to implementation. Corrective actions have been implemented by the Navy for LUC compliance. A groundwater monitoring program is being implemented to verify that the cap is performing as designed and early results suggest the cap is performing as planned. Continued

implementation of land use controls and O&M will maintain the effectiveness of the remedy into the future.

TABLE 6-1

SUMMARY OF SITE 8 GROUNDWATER SAMPLING 2006 THROUGH 2011  
 THIRD FIVE-YEAR REVIEW REPORT  
 NSB-NLON, GROTON, CONNECTICUT

Well ID	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	Rounds 17-18	Round 19	Round 20	Round 21	Round 22	Round 23
	2006	2007	2008	2009	2010	2011
<b>Monitoring Wells - Upgradient</b>						
<b>Tank Farm Well</b>						
HNUS-23	x	x	x	x	x	x
<b>Shallow</b>						
8MW10S	x	x	x	x	x	x
<b>Deep</b>						
8MW8D	x	x	x	x	x	x
<b>Monitoring Wells - Downgradient</b>						
<b>Shallow</b>						
8MW1	x	x	x	x	x	x
8MW2S	x	x	x	x	x	x
8MW3	x	x	x	x	x	x
8MW5S	x	x	x	x	x	x
8MW6S	x	x	x	x	x	x
8MW7S	x	x	x	x	x	x
<b>Deep</b>						
8MW2D	x	x	x	x	x	x
8MW6D	x	x	x	x	x	x

x - Well Sampled.

TABLE 6-2

**SUMMARY OF SITE 8 UPGRADIENT GROUNDWATER RESULTS<sup>(1)</sup> 2006 THROUGH 2011**  
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COCs	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	Rounds 17-18	Round 19	Round 20	Round 21	Round 22	Round 23
	2006	2007	2008	2009	2010	2011
<b>VOCs</b>						
Methylene Chloride	ND	ND	ND	ND	ND	TBD
Tetrachloroethene	P	P	P	P	P	TBD
Xylenes	x	ND	ND	ND	ND	TBD
<b>SVOCs and PAHs</b>						
Benzo(a)anthracene	ND	ND	ND	ND	ND	TBD
Benzo(a)pyrene	ND	ND	ND	ND	ND	TBD
Benzo(b)fluoranthene	ND	ND	ND	ND	ND	TBD
Benzo(g,h,i)perylene	ND	ND	ND	ND	ND	TBD
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	TBD
Bis(2-ethylhexyl)phthalate	ND	ND	ND	ND	x	TBD
Carbazole	ND	ND	ND	ND	ND	TBD
Chrysene	ND	ND	ND	ND	ND	TBD
Dibenzo(a,h)anthracene	ND	ND	ND	ND	ND	TBD
Fluoranthene	ND	ND	x	ND	ND	TBD
Indeno(1,2,3-CD)pyrene	ND	ND	ND	ND	ND	TBD
Phenanthrene	ND	ND	ND	ND	ND	TBD
Pyrene	ND	ND	x	ND	ND	TBD
<b>Pesticides</b>						
4,4'-DDD	ND	ND	NA	NA	NA	NA
4,4'-DDE	ND	ND	NA	NA	NA	NA
4,4'-DDT	ND	ND	NA	NA	NA	NA
Aldrin	ND	ND	NA	NA	NA	NA
Dieldrin	ND	ND	NA	NA	NA	NA
Heptachlor	ND	ND	NA	NA	NA	NA
<b>PCBs</b>						
Aroclor 1248	ND	ND	NA	NA	NA	NA
Aroclor 1254	ND	ND	NA	NA	NA	NA
Aroclor 1260	ND	ND	NA	NA	NA	NA

TABLE 6-2

SUMMARY OF SITE 8 UPGRADIENT GROUNDWATER RESULTS<sup>(1)</sup> 2006 THROUGH 2011  
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COCs	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	Rounds 17-18	Round 19	Round 20	Round 21	Round 22	Round 23
	2006	2007	2008	2009	2010	2011
<b>Inorganics - Total</b>						
Antimony	x	x	ND	ND	ND	TBD
Arsenic	x	x	ND	ND	ND <sup>(2)</sup>	TBD
Beryllium	ND	ND	ND	ND	x	TBD
Cadmium	ND	x	ND	x	ND	TBD
Copper	x	x	ND	x	x	TBD
Lead	x	x	ND	ND	ND	TBD
Mercury	ND	ND	ND	ND	ND	TBD
Nickel	x	x	ND	x	x	TBD
Vanadium	x	x	ND	ND	x	TBD
Zinc	x	x	x	x	x	TBD
<b>Inorganics - Dissolved</b>						
Antimony	x	x	ND	ND	ND	NC
Arsenic	x	x	ND	ND	ND <sup>(2)</sup>	NC
Beryllium	x	ND	ND	ND	ND	NC
Cadmium	x	x	ND	x	ND	NC
Copper	x	x	ND	x	x	NC
Lead	x	x	ND	ND	ND	NC
Mercury	ND	ND	ND	ND	ND	NC
Nickel	x	x	ND	x	x	NC
Vanadium	x	x	ND	ND	ND	NC
Zinc	x	x	x	x	x	NC

1 Results from monitoring wells HNUS-23, 8MW10S, and 8MW8D.

2 The reporting limit from the laboratory was greater than the 2011 primary monitoring criterion.

ND - Not detected in any upgradient wells at the site.

NA - Not analyzed.

NC - No applicable criteria.

P - At least one result from at least one well exceeded 2011 primary criteria.

x - Parameter detected in at least one sample from at least one well but did not exceed primary criteria.

TABLE 6-3

**SUMMARY OF SITE 8 DOWNGRADIENT SHALLOW GROUNDWATER RESULTS<sup>(1)</sup> 2006 THROUGH 2011**  
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COCs	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	Rounds 17-18	Round 19	Round 20	Round 21	Round 22	Round 23
	2006	2007	2008	2009	2010	2011
<b>VOCs</b>						
Methylene Chloride	ND	ND	ND	ND	ND	TBD
Tetrachloroethene	x	x	ND	ND	x	TBD
Xylenes	x	x	x	x	x	TBD
<b>SVOCs and PAHs</b>						
Benzo(a)anthracene	x	ND	x	x	x	TBD
Benzo(a)pyrene	x	ND	ND	ND	x	TBD
Benzo(b)fluoranthene	x	ND	x	x	ND	TBD
Benzo(g,h,i)perylene	ND	ND	x	ND	ND	TBD
Benzo(k)fluoranthene	x	ND	x	ND	ND	TBD
Bis(2-ethylhexyl)phthalate	ND	ND	x	x	x	TBD
Carbazole	x	x	x	x	x	TBD
Chrysene	x	ND	x	x	x	TBD
Dibenzo(a,h)anthracene	ND	ND	ND	ND	ND	TBD
Fluoranthene	x	x	x	x	x	TBD
Indeno(1,2,3-CD)pyrene	ND	ND	x	ND	x	TBD
Phenanthrene	x	x	x	x	x	TBD
Pyrene	x	x	x	x	x	TBD
<b>Pesticides</b>						
4,4'-DDD	ND	ND	NA	NA	NA	NA
4,4'-DDE	ND	ND	NA	NA	NA	NA
4,4'-DDT	ND	ND	NA	NA	NA	NA
Aldrin	ND	ND	NA	NA	NA	NA
Dieldrin	ND	ND	NA	NA	NA	NA
Heptachlor	ND	ND	NA	NA	NA	NA
<b>PCBs</b>						
Aroclor 1248	ND	ND	NA	NA	NA	NA
Aroclor 1254	ND	ND	NA	NA	NA	NA
Aroclor 1260	ND	ND	NA	NA	NA	NA

TABLE 6-3

**SUMMARY OF SITE 8 DOWNGRAIDENT SHALLOW GROUNDWATER RESULTS<sup>(1)</sup> 2006 THROUGH 2011  
THIRD FIVE-YEAR REVIEW REPORT  
NSB-NLON, GROTON, CONNECTICUT  
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COCs	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	Rounds 17-18	Round 19	Round 20	Round 21	Round 22	Round 23
	2006	2007	2008	2009	2010	2011
<b>Inorganics - Total</b>						
Antimony	x	x	ND	x	ND	TBD
Arsenic	x	x	P	x	x	TBD
Beryllium	ND	ND	x	x	ND	TBD
Cadmium	x	ND	ND	x	x	TBD
Copper	x	x	ND	x	x	TBD
Lead	x	x	x	x	x	TBD
Mercury	x	x	ND	x	x	TBD
Nickel	x	x	ND	x	x	TBD
Vanadium	x	x	ND	x	x	TBD
Zinc	x	x	x	x	x	TBD
<b>Inorganics - Dissolved</b>						
Antimony	x	x	ND	ND	x	NC
Arsenic	x	x	P	x	P	NC
Beryllium	ND	ND	x	ND	ND	NC
Cadmium	ND	ND	ND	ND	ND	NC
Copper	x	x	ND	x	x	NC
Lead	x	x	x	ND	ND	NC
Mercury	ND	ND	ND	x	ND	NC
Nickel	x	x	ND	x	x	NC
Vanadium	x	x	ND	x	x	NC
Zinc	x	x	x	x	x	NC

1 Results from monitoring wells 8MW1, 8MW2S, 8MW3, 8MW5S, 8MW6S, and 8MW7S.

ND - Not detected in any downgradient shallow wells at the site.

NA - Not analyzed.

NC - No applicable criteria.

P - At least one result from at least one well exceeded 2011 primary criteria.

x - Parameter detected in at least one sample from at least one well but did not exceed the 2011 primary criteria.

TABLE 6-4

**SUMMARY OF SITE 8 DOWNGRADE DEEP GROUNDWATER RESULTS<sup>(1)</sup> 2006 THROUGH 2011**  
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COCs	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	Rounds 17-18	Round 19	Round 20	Round 21	Round 22	Round 23
	2006	2007	2008	2009	2010	2011
<b>VOCs</b>						
Methylene Chloride	ND	ND	ND	ND	ND	TBD
Tetrachloroethene	x	x	ND	ND	ND	TBD
Xylenes	x	x	x	ND	x	TBD
<b>SVOCs and PAHs</b>						
Benzo(a)anthracene	x	x	x	ND	ND	TBD
Benzo(a)pyrene	ND	ND	x	ND	ND	TBD
Benzo(b)fluoranthene	ND	ND	x	ND	ND	TBD
Benzo(g,h,i)perylene	ND	ND	x	ND	ND	TBD
Benzo(k)fluoranthene	x	ND	x	ND	ND	TBD
Bis(2-ethylhexyl)phthalate	ND	ND	ND	ND	ND	TBD
Carbazole	x	x	x	ND	ND	TBD
Chrysene	x	x	x	ND	ND	TBD
Dibenzo(a,h)anthracene	ND	ND	ND	ND	ND	TBD
Fluoranthene	x	x	x	ND	x	TBD
Indeno(1,2,3-CD)pyrene	ND	ND	x	ND	x	TBD
Phenanthrene	x	x	x	ND	x	TBD
Pyrene	x	x	x	ND	x	TBD
<b>Pesticides</b>						
4,4'-DDD	ND	ND	NA	NA	NA	NA
4,4'-DDE	ND	ND	NA	NA	NA	NA
4,4'-DDT	ND	ND	NA	NA	NA	NA
Aldrin	ND	ND	NA	NA	NA	NA
Dieldrin	ND	ND	NA	NA	NA	NA
Heptachlor	ND	ND	NA	NA	NA	NA
<b>PCBs</b>						
Aroclor 1248	ND	ND	NA	NA	NA	NA
Aroclor 1254	ND	ND	NA	NA	NA	NA
Aroclor 1260	ND	ND	NA	NA	NA	NA

TABLE 6-4

SUMMARY OF SITE 8 DOWNGRAIDENT DEEP GROUNDWATER RESULTS<sup>(1)</sup> 2006 THROUGH 2011  
 THIRD FIVE-YEAR REVIEW REPORT  
 NSB-NLON, GROTON, CONNECTICUT  
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COCs	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	Rounds 17-18	Round 19	Round 20	Round 21	Round 22	Round 23
	2006	2007	2008	2009	2010	2011
<b>Inorganics - Total</b>						
Antimony	x	x	ND	ND	x	TBD
Arsenic	P	P	P	x	x	TBD
Beryllium	ND	ND	P	ND	ND	TBD
Cadmium	ND	ND	ND	x	x	TBD
Copper	x	x	x	x	x	TBD
Lead	x	x	x	x	x	TBD
Mercury	ND	ND	ND	ND	x	TBD
Nickel	x	x	ND	x	x	TBD
Vanadium	x	x	ND	x	x	TBD
Zinc	x	x	x	x	x	TBD

1 Results from monitoring wells 8MW2D and 8MW6D.

ND - Not detected in any downgradient deep wells at the site.

NA - Not analyzed.

NC - No applicable criteria.

P - At least one result from at least one well exceeded 2011 Primary criteria.

x - Parameter detected in at least one sample from at least one well but did not exceed the 2011 Primary criteria.

TABLE 6-5

**CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE  
SITE 8 - GOSS COVE LANDFILL  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT**

<b>Requirement</b>	<b>Citation</b>	<b>Status</b>	<b>Requirement Synopsis</b>	<b>Current Status / Applicability</b>
<b>Federal</b>				
Cancer Slope Factors (CSFs)	Not applicable (NA)	To be Considered (TBC)	CSFs are guidance values used to evaluate the potential carcinogenic hazard caused by exposure to contaminants.	The selected remedy prevents exposure to contaminated media and thereby minimizes human health concerns, although any changes to the cap in the future could allow exposure.
Reference Dose (RfDs)	NA	TBC	RfDs are guidance values use to evaluate the potential noncarcinogenic hazard caused by exposure to contaminants.	The selected remedy prevents exposure to contaminated media and thereby minimizes human health concerns, although any changes to the cap in the future could allow exposure.
<b>Connecticut</b>				
Remediation Standard Regulations	Regulations of Connecticut State Agencies (RCSA) Section 22a-133k-1 through 3  (Established pursuant to General Statutes of Connecticut (CGS) Section 22a-133k)	Applicable	These regulations provide specific numeric cleanup criteria for a wide variety of contaminants in soil, groundwater, and soil vapor. The regulations include a procedure for establishing criteria where none exist for a particular contaminant and for establishing criteria where those specified in the regulation are not appropriate.	The selected remedy complies with these standards because of employment of the engineered control. Updates to the monitoring criteria based on Connecticut Remediation Standard Regulations are discussed in Section 6.6.

TABLE 6-6

LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE  
 SITE 8 - GOSS COVE LANDFILL  
 NAVAL SUBMARINE BASE NEW LONDON  
 GROTON, CONNECTICUT  
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Requirement	Citation	Status	Requirement Synopsis	Current Status / Applicability
<b>Federal</b>				
Executive Order 11988 RE: Floodplain Management	Executive Order 11988	Applicable	Requires federal agencies, wherever possible, to avoid or minimize adverse impacts to floodplains. Requires reduction of risk of flood loss, minimization of the impact of floods on human safety, health and welfare, and restoration and preservation of natural and beneficial values of floodplains.	Measures were taken to minimize impacts to Thames River floodplain during remedial activities. Remedial activities did not take place during periods of flooding. Now that cap construction has been completed, these requirements are carried forward to future operation and maintenance of the remedy.
Fish and Wildlife Conservation Act	16 United States Code (USC) Part 661 <i>et seq.</i> ; 40 Code of Federal Regulations (CFR) Section 6.302	Potentially Applicable	Requires action to be taken to protect fish and wildlife from projects affecting streams or rivers.	This regulation was addressed during construction. Now that cap construction has been completed, these requirements are carried forward to future operation and maintenance of the remedy.
Coastal Zone Management Act	16 USC Parts 1451 <i>et seq.</i>	Applicable	This act requires that any actions must be conducted in a manner consistent with State-Approved management programs.	This regulation was addressed during construction. Now that cap construction has been completed, these requirements are carried forward to future operation and maintenance of the remedy.

TABLE 6-6

LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE  
 SITE 8 - GOSS COVE LANDFILL  
 NAVAL SUBMARINE BASE NEW LONDON  
 GROTON, CONNECTICUT  
 PAGE 2 OF 2

Requirement	Citation	Status	Requirement Synopsis	Current Status / Applicability
<b>Connecticut</b>				
Coastal Management Act	General Statutes of Connecticut (CGS) 22a-90 to 112	Relevant and Appropriate	Requires facilities conducting activities within the coastal zone to submit a coastal site plan to the municipality. The municipality uses the coastal site plan to determine whether the proposed activity poses unacceptable impact on coastal resources and future water-dependent activities. The municipality may require that all reasonable measures be taken to mitigate such adverse impacts.	Extraction/capping was conducted using approved management programs to minimize impacts to the Thames River. Now that cap construction has been completed, these requirements are carried forward to future operation and maintenance of the remedy.
Connecticut Endangered Species Act	CGS 26-303 to 314	Relevant and Appropriate	Regulates activities affecting State-listed endangered or threatened species or their critical habitat.	The State-threatened Atlantic Sturgeon inhabits the Thames River. Excavation/capping activities were conducted with minimal impact on the Thames River and any potential habitats. Now that cap construction has been completed, these requirements are carried forward to future operation and maintenance of the remedy.

TABLE 6-7

**ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE  
SITE 8 - GOSS COVE LANDFILL  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT  
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Requirement	Citation	Status	Requirement Synopsis	Current Status / Applicability
<b>Federal</b>				
Clean Water Act, Section 402, National Pollution Discharge Elimination System (NPDES)	40 Code of Federal Regulations (CFR) 122 through 125, 131	Applicable	NPDES permits are required for any discharges to navigable waters. If remedial activities include such a discharge, the NPDES standards would be applicable.	This regulation was addressed during construction. Now that cap construction has been completed, these requirements are carried forward to future operation and maintenance of the remedy.
<b>Connecticut</b>				
Hazardous Waste Management: Generator and Handler Requirements	Regulations of Connecticut State Agencies (RCSA) § 22a-449(c) 100-101	Relevant and Appropriate	These sections establish standards for listing and identification of hazardous waste. The standards of 40 CFR 260-261 are incorporated by reference.	This regulation was addressed during construction. Now that cap construction has been completed, these requirements are carried forward to future operation and maintenance of the remedy.
Hazardous Waste Management: Generator Standards	RCSA § 22a-449(c)-102	Applicable	This section establishes standards for various classes of generators. The standards of 40 CFR 262 are incorporated by reference. Storage requirements given at 40 CFR 265.15 are also included.	This regulation was addressed during construction. Now that cap construction has been completed, these requirements are carried forward to future operation and maintenance of the remedy.
Closing of Solid Waste Facilities	RCSA § 22a-209-13	Relevant and Appropriate	This section establishes standards for closure of solid waste facilities.	This regulation was addressed during construction. These regulations have not been amended since 1996; therefore compliance is current.

TABLE 6-7

**ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE  
SITE 8 - GOSS COVE LANDFILL  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT  
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Requirement	Citation	Status	Requirement Synopsis	Current Status / Applicability
<b>Connecticut (Continued)</b>				
Air Pollution Control	RCSA § 22a-174-1 through 29	Applicable	These regulations require permits to construct and to operate specified types of emission sources and contain emission standards that must be met prior to issuance of a permit. Pollutant abatement controls may be required. Specific standards pertain to fugitive dust (18b) and control of odors (23).	This regulation was addressed during construction. Now that cap construction has been completed, these requirements are carried forward to future operation and maintenance of the remedy.
Guidelines for Soil Erosion and Sediment Control	The Connecticut Council on Soil and Water Conservation	TBC	The guidelines provide technical and administrative guidance for the development, adoption, and implementation of erosion and sediment control program.	This regulation was addressed during construction. Now that cap construction has been completed, these requirements are carried forward to future operation and maintenance of the remedy.
Water Pollution Control	RCSA § 22a-430-1 through 8	Applicable	These rules establish permitting requirements and criteria for water discharge to surface water.	This regulation was addressed during construction. Now that cap construction has been completed, these requirements are carried forward to future operation and maintenance of the remedy.
Water Quality Standards (WQSs)	General Statutes of Connecticut (CGS) 22a-426	Applicable	Connecticut's WQSs establish specific numeric criteria, designated uses, and anti-degradation policies for groundwater and surface water.	Remedial activities, including the disposal of groundwater from excavations, were undertaken in a manner that was consistent with the anti-degradation policy in the WQSs and are currently being used to evaluate monitoring results to determine if further remedial action is required to protect resources. Updates to the Connecticut WQSs are discussed in Section 6.6.

TABLE 6-8

COMPARISON OF PRIMARY MONITORING CRITERIA  
 SITE 8 - GOSS COVE LANDFILL  
 NAVAL SUBMARINE BASE NEW LONDON  
 GROTON, CONNECTICUT  
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Chemical	Monitoring Criteria									Selected Criteria		
	Site-Specific SWPC <sup>(1,2)</sup>			CTDEP SWPC <sup>(3)</sup>			CTDEP Volatilization <sup>(4)</sup>			2001 <sup>(8)</sup>	2006	2011
	2001 <sup>(1)</sup>	2006 <sup>(2)</sup>	2011 <sup>(5)</sup>	2001 <sup>(1)</sup>	2006 <sup>(2)</sup>	2011 <sup>(6)</sup>	2001 <sup>(1)</sup>	2006 <sup>(2)</sup>	2011 <sup>(7)</sup>			
<b>VOCs (µg/L)</b>												
Methylene Chloride	NA	108,100	2,200	48,000	48,000	48,000	50,000	2,200	2,200	48,000	2,200	2,200
Tetrachloroethene	88	2,040	330	88	88	88	3,820	810	8,100	88	810	330
Xylenes	NA	NA	48,000	NA	NA	NA	50,000	48,000	48,000	50,000	48,000	48,000
<b>SVOCs (µg/L)</b>												
Benzo(a)anthracene	0.3	113	1.8	0.3	0.3	0.3	NA	NA	NA	0.3	113	1.8
Benzo(a)pyrene	0.3	11.3	1.8	0.3	0.3	0.3	NA	NA	NA	0.3	11.3	1.8
Benzo(b)fluoranthene	0.3	113	1.8	0.3	0.3	0.3	NA	NA	NA	0.3	113	1.8
Benzo(g,h,i)perylene	0.3	1,130	492	NA	NA	NA	NA	NA	NA	0.3	1,130	492
Benzo(k)fluoranthene	0.3	113	1.8	0.3	0.3	0.3	NA	NA	NA	0.3	113	1.8
Bis(2-ethylhexyl)phthalate	59	1,360	220	59	59	59	NA	NA	NA	59	1,360	220
Carbazole	29	NA	300 <sup>(9)</sup>	NA	NA	NA	NA	NA	NA	29	NA	300 <sup>(9)</sup>
Chrysene	0.3	1130	1.8	NA	NA	NA	NA	NA	NA	0.3	1,130	1.8
Dibenzo(a,h)anthracene	NA	2.3	1	NA	NA	NA	NA	NA	NA	NA	2.3	1
Fluoranthene	3,700	294	3,700	3,700	3700	3700	NA	NA	NA	3,700	294	3,700
Indeno(1,2,3-cd)pyrene	0.3	113	1.8	NA	NA	NA	NA	NA	NA	0.3	113	1.8
Phenanthrene	0.3	11,300	4,917	0.077	0.3	0.3	NA	NA	NA	0.077	11,300	4,917
Pyrene	110,000	11,300	110,000	110,000	110,000	110,000	NA	NA	NA	110,000	11,300	110,000
<b>Pesticides/PCBs (µg/L)</b>												
4,4'-DDD	NA	0.193	---	NA	NA	---	NA	NA	---	NA	NA	---
4,4'-DDE	NA	0.136	---	NA	NA	---	NA	NA	---	NA	NA	---
4,4'-DDT	NA	0.136	---	NA	NA	---	NA	NA	---	NA	NA	---
Aldrin	NA	0.0322	---	NA	NA	---	NA	NA	---	NA	NA	---
Aroclor-1248	NA	0.0391	---	0.5	0.5	---	NA	NA	---	0.5	NA	---
Aroclor-1254	NA	0.0391	---	0.5	0.5	---	NA	NA	---	0.5	NA	---
Aroclor-1260	NA	0.0391	---	0.5	0.5	---	NA	NA	---	0.5	NA	---
Dieldrin	NA	0.0322	---	0.1	0.1	---	NA	NA	---	0.1	NA	---
Heptachlor	NA	0.0483	---	0.05	0.05	---	NA	NA	---	0.05	NA	---
<b>Inorganics (µg/L)<sup>(10)</sup></b>												
Antimony	86,000	989,000	86,000	86,000	86,000	86,000	NA	NA	NA	86,000	989,000	86,000
Arsenic	4	4.8	10	4	4	4	NA	NA	NA	4	4.8	10
Beryllium	NA	29.9	13	4	4	4	NA	NA	NA	4	29.9	13
Cadmium	6	2,140	12.5	6	6	6	NA	NA	NA	6	2,140	12.5
Copper	48	713	310	48	48	48	NA	NA	NA	48	713	310
Lead	13	1,860	120	13	13	13	NA	NA	NA	13	1,860	120
Mercury	NA	216	5.1	0.4	0.4	0.4	NA	NA	NA	0.4	216	5.1
Nickel	880	1,890	880	880	880	880	NA	NA	NA	880	1,890	880
Vanadium	NA	NA	4,440 <sup>(9)</sup>	NA	NA	NA	NA	NA	NA	NA	NA	4,440 <sup>(9)</sup>
Zinc	123	18,600	6,500	123	123	123	NA	NA	NA	123	18,600	6,500

**TABLE 6-8**

**COMPARISON OF PRIMARY MONITORING CRITERIA  
SITE 8 - GOSS COVE LANDFILL  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT  
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Notes:

NA - Not available.

SWPC - Surface water protection criteria.

CTDEP - Connecticut Department of Environmental Protection.

1 - Groundwater Monitoring Plan for Goss Cove Landfill (Tetra Tech, March 2001).

2 - Operation and Maintenance Manual for Installation Restoration Program Sites (Tetra Tech, January 2006).

3 - SWPC for substances in groundwater (CTDEP, 1996).

4 - Industrial/commercial volatilization criteria for groundwater (CTDEP, 1996, 2003).

5 - From Table 1B in Appendix G of Volume II of the O&M Manual for IRP Sites at NSB-NLON (Tetra Tech, 2011).

6 - Appendix D of Connecticut Remediation Standards Regulations.

7 - Operation and Maintenance Manual for Installation Restoration Program Sites (Tetra Tech, 2011).

8 - A Selected Criteria was not identified. The lowest value is shown.

9 - No criteria. 2009 proposed WQs with 100x dilution factor are to be considered (TBC) per 2011 O&M Manual (Tetra Tech, 2011).

10 - Dissolved concentrations were used for 2006 and total concentrations were used for 2011.

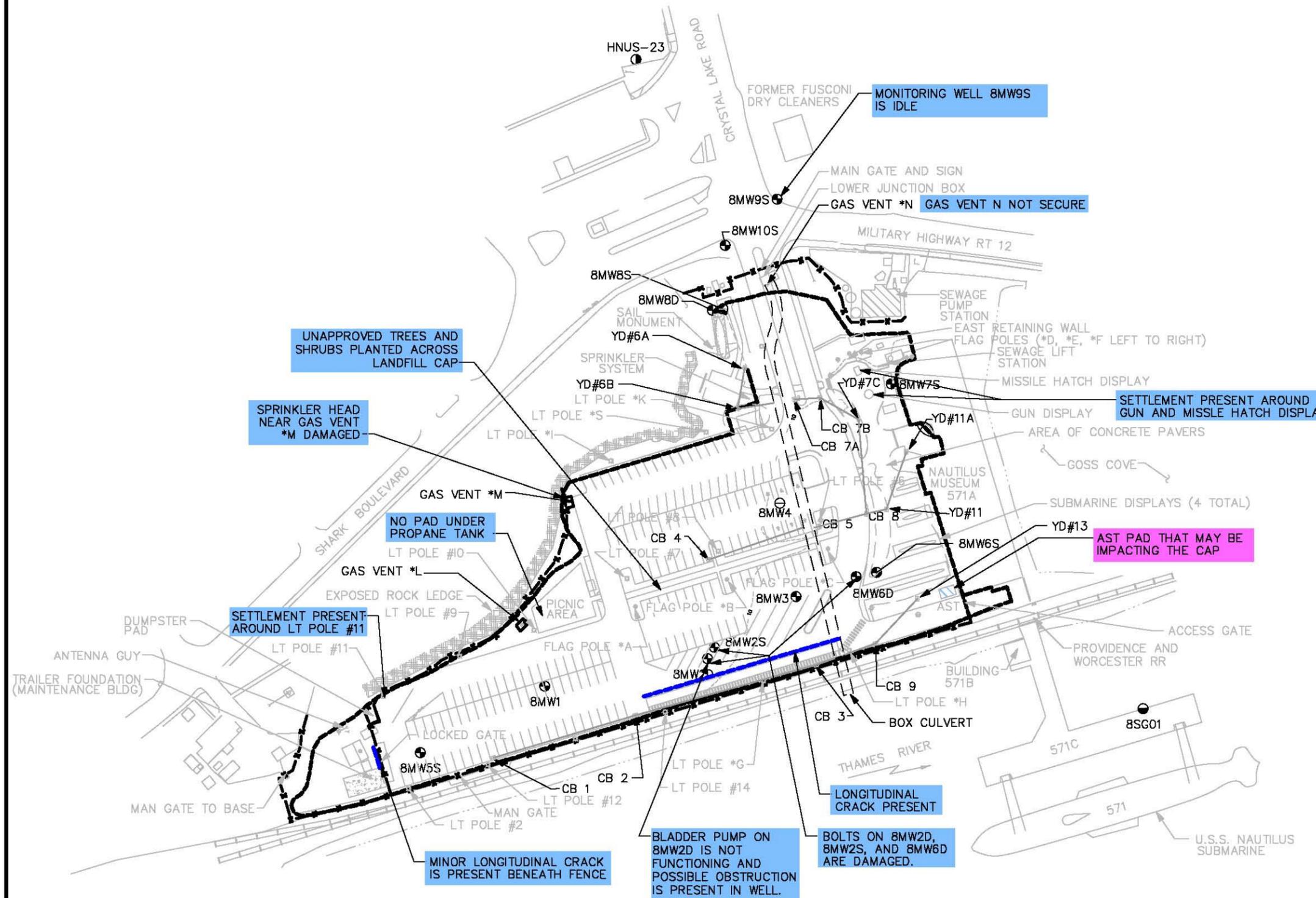
--- - Contaminant is no longer part of the monitoring program.

Shading indicates that the criteria has changed from previous five-year review.

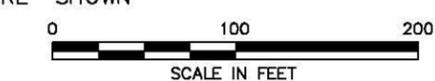
TABLE 6-9

**ISSUES IDENTIFIED FOR  
SITE 8 - GOSS COVE LANDFILL  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT**

ISSUE	Effects Protectiveness?	
	Current	Future Potential
<b>Deficiencies</b>		
LUCs were not effectively implemented to prevent unauthorized excavation in the landfill cap to install an AST, foundation, and piping.	N	Y
<b>O&amp;M Issues</b>		
Trees and shrubs have been planted on the cap. Their roots may penetrate deep enough to damage the geomembrane.	N	Y
There is apparent settling of pavers beneath gun and missile hatch displays.	N	Y
LPG tank in the snack/picnic area is beginning to sink into ground	N	Y
Sprinkler head near Gas Vent M is damaged.	N	Y
The man gate at the north end of the cap was unlocked during the inspection.	N	N
Minor settling of asphalt around Light Pole 11.	N	Y
Minor longitudinal cracks are present in the asphalt.	N	Y
Gas Vent N is not secured.	N	N
Cover bolts are missing for wells 8MW6D, 8MW2S, and 8MW2D.	N	N
The well 8MW2D bladder pump may be malfunctioning.	N	N
There is an apparent obstruction in well 8MW2D.	N	N
Well 8MW9S is no longer sampled but has not been properly abandoned. Subsequent to the inspection, this well was paved over.	N	N
Investigate warning signs and update as needed.	N	Y



- LEGEND:**
- O&M ISSUE IDENTIFIED DURING FIVE-YEAR REVIEW INSPECTION IN APRIL 2011
  - DEFICIENCY IDENTIFIED DURING FIVE-YEAR REVIEW INSPECTION IN APRIL 2011
  - MONITORING WELL
  - ABANDONED MONITORING WELL
  - TANK FARM MONITORING WELL
  - HISTORICAL STAFF GAUGE
  - STORM DRAIN LINES
  - - - EXISTING SHORELINE
  - ASPHALT PAVEMENT AREA CAP
  - SYSTEM BOUNDARY
  - 10 TOPOGRAPHIC ELEVATION
  - - - CONTOUR (NAVD 88)
  - CHAIN LINK FENCE
  - [ ] BOX CULVERT
  - LT LIGHT
  - CB CATCH BASIN
  - YD YARD DRAIN
  - APPROXIMATE LOCATION OF LONGITUDINAL CRACKS FOUND DURING THE APRIL 2011 SITE INSPECTION
- NOTES:**
- IDENTIFICATION NUMBER/LETTER WITH AN ASTERISK INDICATES AN ARBITRARY DESIGNATION BECAUSE NONE WAS PROVIDED IN THE DESIGN OR AS-BUILT DOCUMENTATION.
  - ALL MONITORING WELLS TO BE INSPECTED ARE SHOWN



REF: BOX CULVERT LOCATION TAKEN FROM BIDDING DOCUMENT DRAWING TITLED "GOSS COVE LANDFILL (SITE 8) CAP, STORM SEWER PLAN AND PROFILE", NAVFAC DRAWING NO. 2204124, DIS. SH. NO. C-10, SEPTEMBER 4, 2001 REVISION.

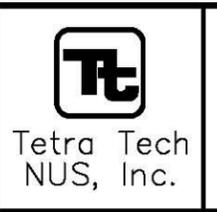
REVISIONS			
NO.	DATE	INL	REMARKS
1	12-16-08	BH	UPDATED TO SHOW ABANDONED WELLS, LOCATION OF LOWER JUNCTION BOX, BOX CULVERT AND CURRENT GUN DISPLAY.
2	10-19-10	ND	MAN GATE NEAR LIGHT POLE REMOVED, TWO GATES ADDED, COLOR CODING ADDED, DELETED STAFF GAUGE.
2	3-29-11	ND	CORRECTED LOCATION OF BOX CULVERT, ADDED STORM DRAIN LINES.

DRAWN BY  
BH 12/16/08

CHECKED BY  
BC 5/16/11

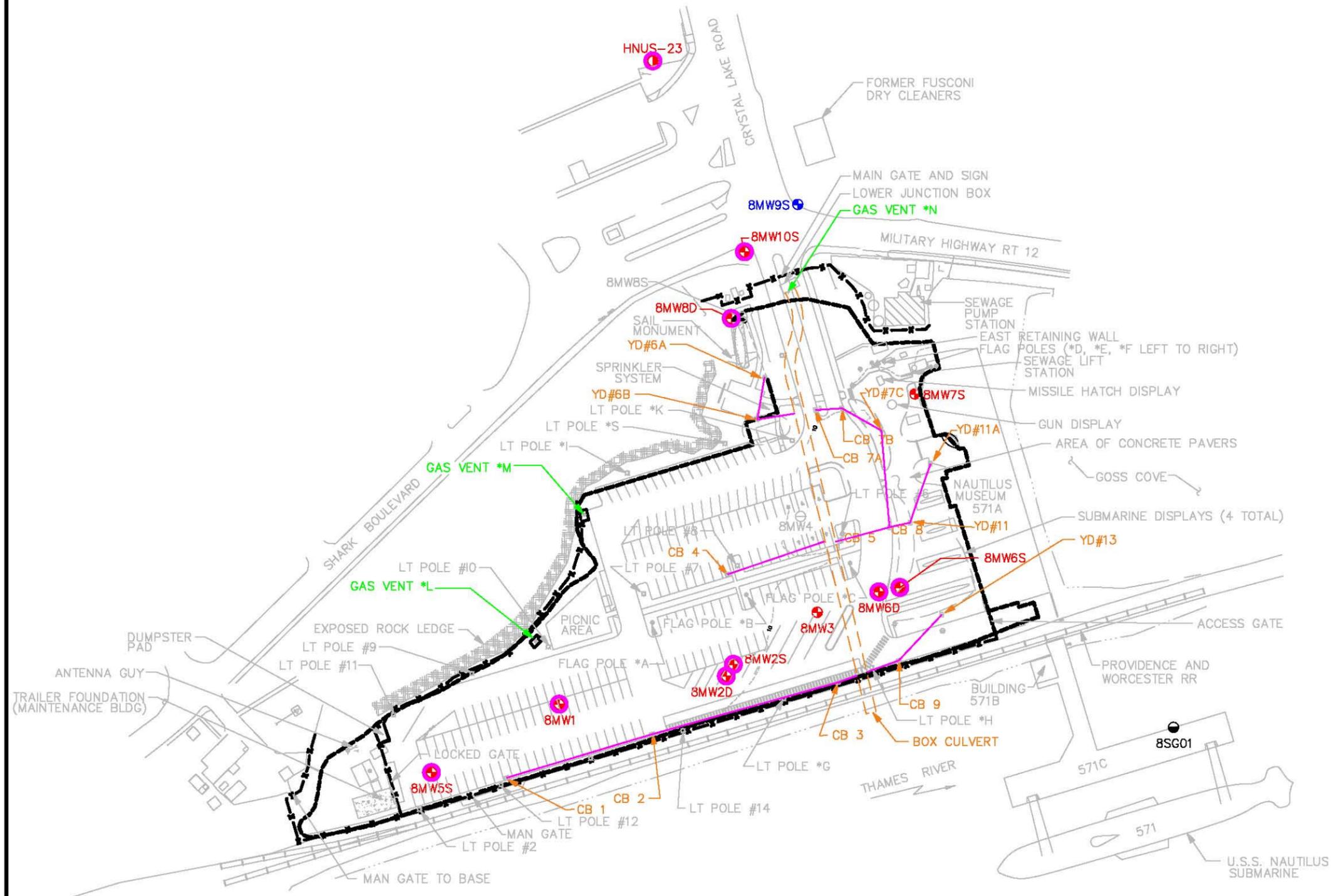
REVISED BY  
DATE

SCALE  
AS NOTED



SITE PLAN FOR  
SITE 8 - GOSS COVE LANDFILL  
NSB-NLON  
GROTON, CONNECTICUT

CONTRACT NO. WE33	
OWNER NO. 3386	
APPROVED BY CAR	DATE 5/23/11
DRAWING NO. FIGURE 6-1	REV. 2



**LEGEND:**

- ⊕ IDLE MONITORING WELL
- ⊕ ACTIVE MONITORING WELL
- ⊙ ABANDONED MONITORING WELL
- ⊙ TANK FARM MONITORING WELL
- HISTORICAL STAFF GAUGE
- GROUNDWATER CONCENTRATIONS EXCEEDED PRIMARY CRITERIA DURING 2006 TO 2010
- STORM DRAIN LINES
- EXISTING SHORELINE
- ASPHALT PAVEMENT AREA CAP SYSTEM BOUNDARY
- 10 TOPOGRAPHIC ELEVATION
- CONTOUR (NAVD 88)
- CHAIN LINK FENCE
- BOX CULVERT
- LT LIGHT
- CB CATCH BASIN
- YD YARD DRAIN

**NOTES:**

- IDENTIFICATION NUMBER/LETTER WITH AN ASTERISK INDICATES AN ARBITRARY DESIGNATION BECAUSE NONE WAS PROVIDED IN THE DESIGN OR AS-BUILT DOCUMENTATION.
- ALL MONITORING WELLS TO BE INSPECTED ARE SHOWN

0 100 200  
SCALE IN FEET

REF: BOX CULVERT LOCATION TAKEN FROM BIDDING DOCUMENT DRAWING TITLED "GOSS COVE LANDFILL (SITE 8) CAP, STORM SEWER PLAN AND PROFILE", NAVFAC DRAWING NO. 2204124, DIS. SH. NO. C-10, SEPTEMBER 4, 2001 REVISION.

REVISIONS			
NO.	DATE	INL	REMARKS
1	12-16-08	BH	UPDATED TO SHOW ABANDONED WELLS, LOCATION OF LOWER JUNCTION BOX, BOX CULVERT AND CURRENT GUN DISPLAY.
2	10-19-10	ND	MAN GATE NEAR LIGHT POLE REMOVED, TWO GATES ADDED, COLOR CODING ADDED, DELETED STAFF GAUGE.
2	3-29-11	ND	CORRECTED LOCATION OF BOX CULVERT, ADDED STORM DRAIN LINES.

DRAWN BY	DATE
BH	12/16/08
CHECKED BY	DATE
NJB	8/2/11
REVISED BY	DATE
SCALE	
AS NOTED	

Tetra Tech  
NUS, Inc.

SITE 8 - GOSS COVE LANDFILL  
LOCATIONS OF GROUNDWATER  
CRITERIA EXCEEDANCES  
NSB-NLON  
GROTON, CONNECTICUT

CONTRACT NO. WE33	
OWNER NO. 3386	
APPROVED BY CAR	DATE 8/2/11
DRAWING NO. FIGURE 6-2	REV. 2







Figure 6-6  
 Site 8 - Goss Cove Landfill  
 Total Beryllium in Groundwater, 2006 Through 2010  
 Third Five-Year Review Report  
 NSB-NLON, Groton, Connecticut

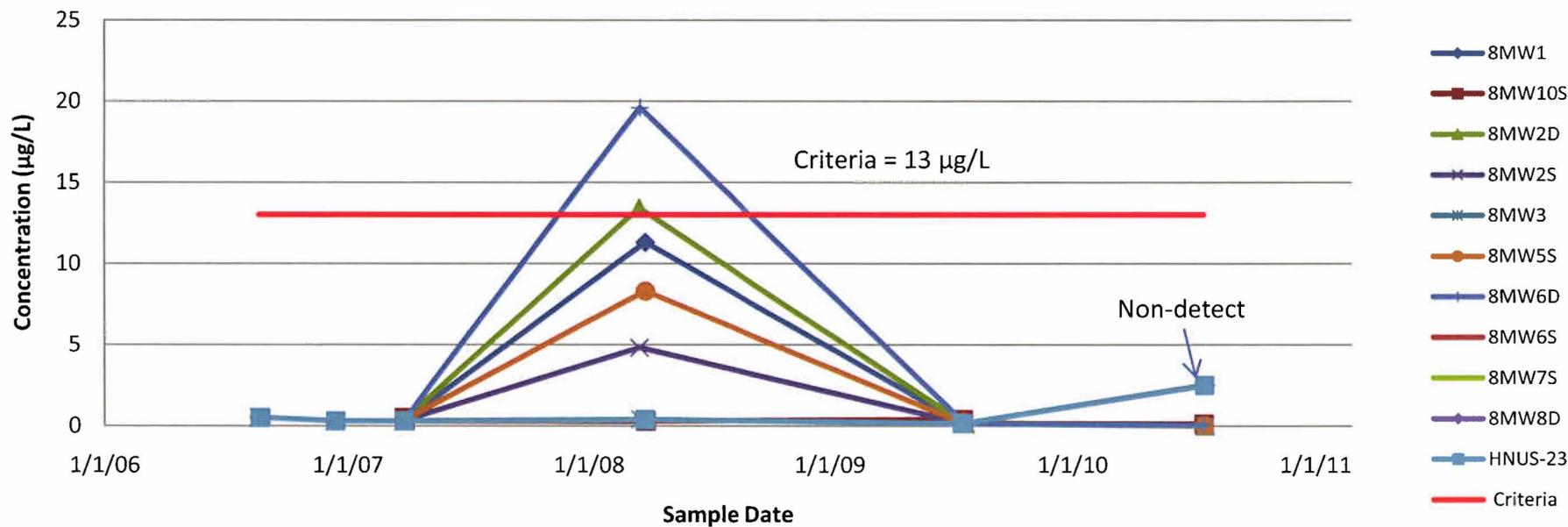


Figure 6-7  
Site 8 - Goss Cove Landfill  
Total Cadmium in Groundwater, 2006 Through 2010  
Third Five-Year Review Report  
NSB-NLON, Groton, Connecticut

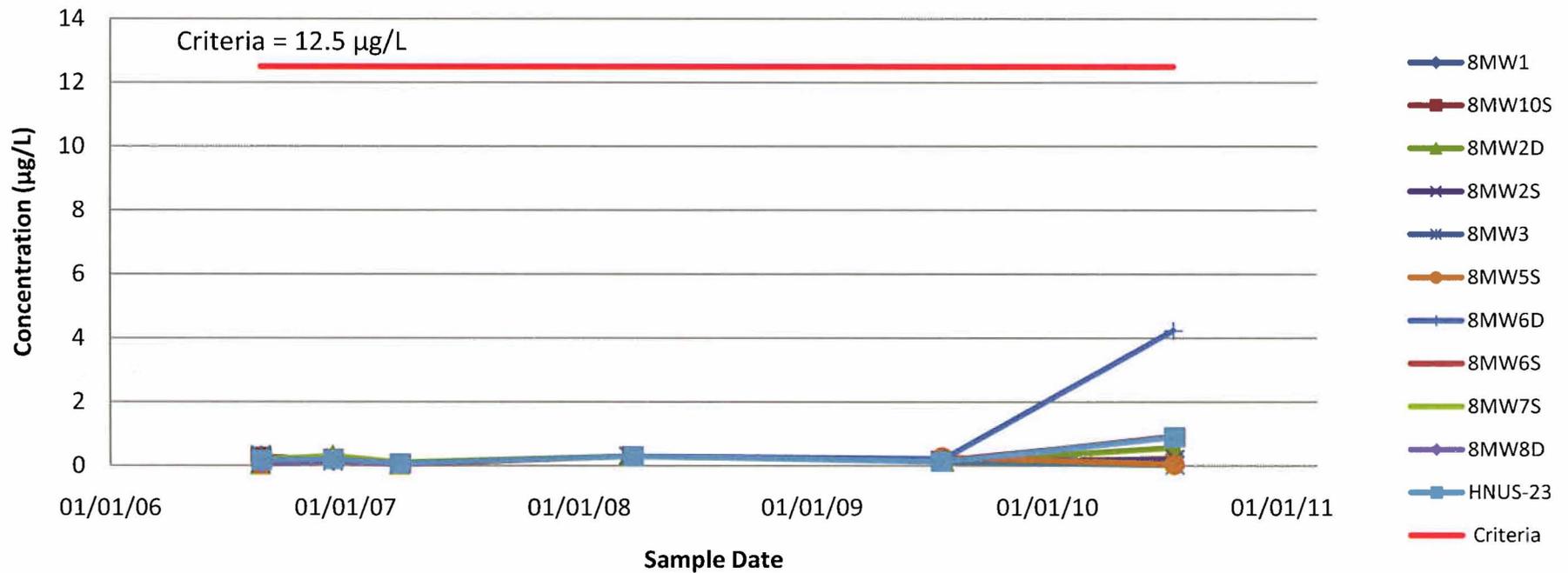
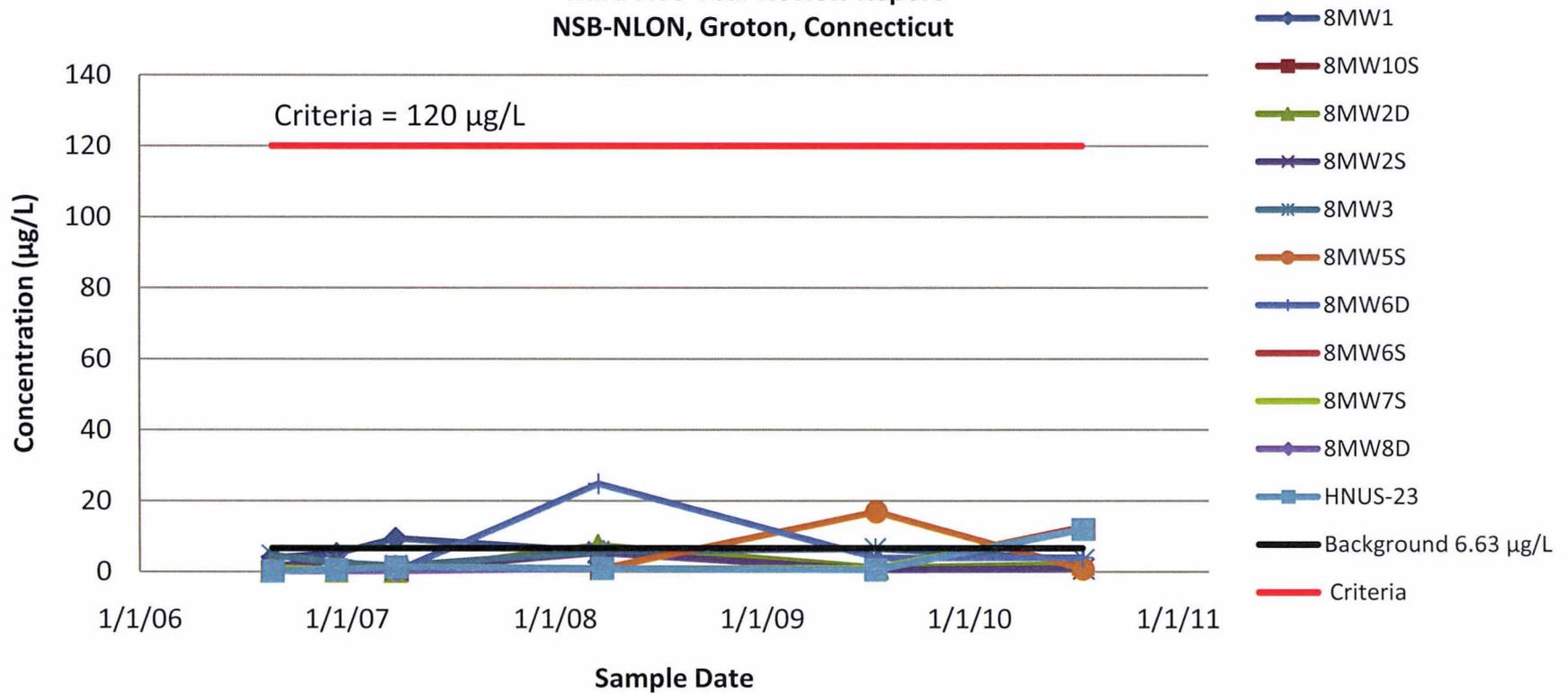




Figure 6-9  
 Site 8 - Goss Cove Landfill  
 Total Lead in Groundwater, 2006 Through 2010  
 Third Five-Year Review Report  
 NSB-NLON, Groton, Connecticut











## 7.0 SITE 9 – FORMER OT-5

This five-year review is being conducted for Site 9 because of CERCLA statutory requirements. Remedial actions were conducted at IRP sites at NSB-NLON that allowed hazardous substances, pollutants, or contaminants to remain on site in excess of levels that allow for unlimited use and unrestricted exposure.

A removal action was conducted for the soil OU at Site 9, Former Waste OT-5, under RCRA. The soil at Site 9 was investigated and remediated under the CTDEP RCRA UST Program; therefore, no CERCLA decision documents were required or prepared for the soil OU. However, Navy plans to develop and implement a SASE for the soil to determine if there are any remaining CERCLA issues. Site 9 groundwater is a portion of OU9, the Basewide Groundwater. As determined in the OU9 ROD, the remedy for groundwater at Site 9 is Institutional Controls (Navy, 2008b).

### 7.1 HISTORY AND SITE CHRONOLOGY

A list of important Site 9 historical events and relevant dates in the site chronology is shown below. The identified events are illustrative, not comprehensive.

Event	Date
Crystal Lake drained and dredged to allow for construction of nine concrete USTs. OT-5 used to store fuel oil.	1940s
OT-5 converted to storage tank for bilge water and other waste solutions.	1970s
Water and waste oil pumped to tank trucks but waste oil sludge left at the bottom of OT-5.	Approximately 1990
Floating product and some tank sludge were removed and disposed as Toxic Substance Control Act (TSCA) waste. Oily sludge from the bottom of OT-5 was stored in frac tanks and roll-off boxes.	1993
The tank integrity was compromised, so the tank filled with water.	1994
Samples collected from above, below, and inside the tank.	February/March 1994
Waste materials stored in the frac tanks and roll-off boxes were properly disposed.	July /August 1994
OT-5 was cleaned, partially demolished, and closed.	1995
First Five-Year Review performed.	December 2001
BGOURI completed.	January 2002
SOPA (ADMIN) New London Instruction 5090.18C updated.	December 2006
Second Five-Year Review Completed	December 2006
Monitoring Well Inventory Report and Abandonment Plan	September 2007
Proposed Plan for Basewide Groundwater OU9	June 2008

Event	Date
Record of Decision of Operable Unit 9 Basewide Groundwater signed	September 2008
SOPA (ADMIN) New London Instruction 5090.18D issued	September 2008
SOPA (ADMIN) New London Instruction 5090.25 issued	June 2009
Letter to Town of Ledyard, Land and Groundwater Use Restrictions	September 2009
Letter to Town of Groton, Land and Groundwater Use Restrictions	September 2009
Remedial Design for Land Use Controls on Basewide Groundwater OU9	November 2009
Site 9 documented in LUC Tracker	February 2010
Remedial Action Completion Report for OU9 Basewide Groundwater	June 2010

## **7.2 BACKGROUND**

Site 9, Former Waste OT-5, was an underground, concrete storage tank located between Sculpin Avenue and Tang Avenue in the southern portion of NSB-NLON. The investigations at Site 9 were conducted under the CTDEP RCRA UST Program. The site map is included as Figure 7-1. The site's location relative to other IR sites is shown on Figure 1-2. The tank had a diameter of approximately 112 feet and was 11 feet deep. The top of the tank was approximately 5 feet below the ground surface and the tank had a capacity of approximately 750,000 gallons.

The tank was constructed in the 1940s and was used to store fuel oil. In the late 1970s, the tank was converted to a storage tank for bilge water and other waste solutions.

Use of OT-5 was stopped in approximately 1990, and floating product and most of the settled sludge were removed (Navy, 1991). The floating product and some tank sludge were disposed as TSCA waste (B&RE, 1997i). A residual sludge layer of approximately 2 to 3 inches was left in the tank during purging. A site characterization was performed that included limited subsurface investigation around OT-5 and sampling and analysis of the sludge in OT-5 (GZA, 1991). Two areas of contamination were identified in the soil surrounding OT-5, one below groundwater indicating UST leakage; the other above groundwater indicating surficial spills. Tank contents were identified as floating oil, water, and sludge/sediments. This sludge contained PCBs at concentrations exceeding 500 mg/kg (HNUS, 1994). In 1994, four borings were drilled through the tank. Four soil samples above the tank were collected and analyzed for VOCs, SVOCS, pesticides, and inorganics; arsenic and beryllium exceeded EPA 1993 SSLs for ingestion/inhalation. Ten soil samples below the tank were collected and analyzed for VOCs, SVOCS, and inorganics; total chromium exceeded the 1993 EPA groundwater pathway SSL for hexavalent chromium. Each boring was converted to a temporary well and four groundwater samples were collected and analyzed for VOCs, SVOCS, and inorganics. Tetrachloroethene exceeded the federal MCL in one sample (HNUS, 1994).

Residual materials contained in OT-5 were later removed in 1994 and stored on site as follows:

<u>Storage Vessel</u>	<u>Contents</u>
Frac Trailer No. 1	6,000 gallons of waste decontamination fluid
Frac Trailer No. 2	19,000 gallons of OT-5 bottom sludge
Roll-Off Container No. 1	20,000 pounds of bottom sludge, waste wipe cloths, and discarded personal protective equipment (PPE)
Roll-Off Container No. 2	20,000 pounds of bottom sludge, waste wipe cloths, and discarded PPE

The primary waste contaminants were PCBs at concentrations in excess of 500 mg/kg.

In April 1994, B&RE completed a removal action of these materials and then performed post-removal action sampling that confirmed that residual waste materials had been properly shipped and disposed and that the waste storage vessels had been properly decontaminated (HNUS, 1995e).

After the contents of Former OT-5 were removed, the tank was cleaned, and the top of the tank was crushed. The tank was closed in place by filling it with inert material in 1995 (OHM, 1996).

Two additional wells were installed in 1995. Three soil samples, collected during the installation of the wells, were analyzed for TCL VOCs, TCL SVOCs, TCL pesticides/PCBs, TAL metals, cyanide, and TPH. Soil was evaluated for Industrial/commercial site use based on pollutant mobility criteria, CTDEP direct exposure criteria, and a cumulative risk of 10<sup>-5</sup> for carcinogenic chemicals or a Hazard Index of 1 for non-carcinogenic chemicals with the same target organ. Soil was determined to have no contaminants with concentrations greater than the screening levels. Groundwater samples were collected from two wells and analyzed for TCL VOCs, TCL SVOCs, TCL pesticides/PCBs, TAL metals, cyanide, and TPH. Groundwater was evaluated as GB groundwater and compared to CTDEP SWPC and Volatilization Criteria. Groundwater was determined to have no contaminants with concentrations greater than the screening levels (B&RE, 1997i).

A well inventory was conducted at NSB-NLON in 2007. This inventory included four Site 9 wells (Tetra Tech, 2007c). None of these wells could be located. Because these wells were shallow and not part of an active monitoring program, no further action was recommended.

Site 9 is located within the Former Fuel Farm (Site 23). Groundwater at Site 23 was investigated under CERCLA during the BGOURI (Tetra Tech, 2002a) and during a one-year monitoring program (Tetra Tech, 2008d.) Further discussion of the investigation of the groundwater OU at Site 23 (OU9) under the CERCLA IRP is provided in Section 15.

### 7.3 REMEDIAL ACTIONS

#### 7.3.1 Remedy Selection

No RODs were signed for Former OT-5 soil. Site 9 petroleum-contaminated soil was addressed under applicable CTDEP UST regulations. The Navy is currently evaluating the need for further action for the soil under CERCLA.

RAOs for groundwater at Sites 9 and 23, as described in the OU9 ROD, are to protect potential future receptors from exposure to contaminated groundwater via ingestion (potable water supply) and protect aquatic ecological receptors. The Selected Remedy for Sites 9 and 23 groundwater, as described in the OU9 ROD, is Institutional Controls. The Selected Remedy meets all of the RAOs by restricting access to and use of contaminated groundwater and consists of two major components: (1) implementation of LUCs at the sites and (2) completion of five-year reviews.

#### 7.3.2 Remedy Implementation

In 1989, a contract was awarded to a construction company to abandon OT-5 in place. Water and waste oil was pumped to tank trucks and hauled off site for disposal. Abandonment was terminated when PCBs greater than 10 ppm were discovered in the waste oil sludge at the bottom of the tank. CTDEP was notified in 1991 that the action was terminated due to the discovery of PCBs (Navy, 1991). The floating product and some tank sludge were disposed as TSCA waste (B&RE, 1997i). The remaining contents, mostly oily sludge from the bottom of OT-5, were stored in frac tanks and roll-off boxes.

In 1994, HNUS completed the removal and disposal of PCB-contaminated material that was stored in two frac trailers and two roll-off containers at OT-5. Waste materials that had been stored in the frac tanks and roll-off boxes were disposed in July/August 1994, and frac tanks and roll-offs were decontaminated in August/September 1994 (HNUS, 1995e). The waste was removed in accordance with the procedure described in the Removal Action Report (HNUS, 1995e).

The liquid portion of the waste was aspirated from the frac trailers and roll-off containers into a PCB-dedicated vacuum trailer also used to ship waste for off-site incineration and disposal at the Aptus facility located in Aragonite, Utah. A total of seven vacuum trailer loads were removed from the frac trailers and roll-off containers and shipped to Aptus.

The solid portion of the waste was consolidated into one of the two roll-off containers and shipped in that container for off-site incineration and disposal to the Aptus facility. The empty roll-off container was then returned to the site for decontamination.

Each waste load was weighed on site prior to departure and again upon arrival at the Aptus facility. A Uniform Hazardous Waste Manifest and Notification of Waste Subject to Land Disposal Restriction were prepared for each waste shipment.

Following waste removal, the inside surfaces of the frac trailers and roll-off containers were decontaminated, and wipe samples were collected for verification purposes from inside surfaces. The trailers and containers were decontaminated repeatedly until PCB concentrations from the wipe samples were less than the required  $10 \mu\text{g}/100 \text{ cm}^2$ . The Post Removal Action Report (HNUS, 1994b) presents the results of the verification sampling and analysis procedures performed by HNUS to verify that decontamination of the containers used for temporary on-site storage of the PCB-contaminated sludge removed from Former OT-5 met cleanup standards.

When abandonment of OT-5 was terminated around 1990, one to two inches of sludge remained on the floor of the tank. The sludge and small amount of rubble debris could not be removed because of the rapidly rising water level in the tank (HNUS, 1995e). Groundwater infiltrated through cracks in the concrete surface, and the tank filled with water by May 1994, possibly earlier.

To accomplish tank closure, 12 dewatering wells were installed in the immediate perimeter of OT-5 and a water treatment system was installed. Approximately 800,000 gallons of water were pumped from inside OT-5 and treated the pumped water prior to discharge under a CTDEP Emergency Discharge to Surface Water Permit. Remaining PCB sludge and contaminated debris from inside the tank was removed and properly disposed. Following removal of the tank contents, the tank interior was decontaminated to  $10 \mu\text{g}/100 \text{ cm}^2$ , as confirmed by PCB wipe sampling. A portion of the tank roof was demolished, and cover soil with less than 500 mg/kg TPH, 2-inch stone, and stockpiled soil stored at NSB-NLON (all approved sources) were used to backfill the tank. After OT-5 was backfilled, the site was regraded and reseeded in 1995 (OHM, 1996).

Based on the Final ROD for OU9, an RD for LUCs on Basewide Groundwater OU9 was prepared. LUCs at Site 9 are to prevent the withdrawal and/or use of groundwater for potable water purposes until concentrations in groundwater meet criteria acceptable for unrestricted use and unlimited exposure and ensure that groundwater extracted during construction dewatering activities is properly handled, stored, and disposed (Tetra Tech, 2009e). The RACR for OU9 was prepared to document the completion of site remedies and LUCs at OU9, including Site 9 (Tetra Tech, 2009b). In 2009, a table and map were filed in the land record offices of the towns of Groton and Ledyard, Connecticut to show the location of monitoring wells, note the remedy in place, and list COCs and LUCs been imposed at Site 23 (including Site 9) (Navy, 2009c; 2009d).

## 7.4 PROGRESS SINCE LAST REVIEW

This is the third five-year review of Site 9. The recommendations from the Second 5-Year Review report are provided below, along with the actions taken to address the recommendations.

It is recommended that an NFA Proposed Plan and ROD be completed for the Site 9 soil OU.

No documents were prepared for Site 9 soil under CERCLA because the petroleum-contaminated soil was addressed under applicable CTDEP UST regulations. Existing information from the site will be used to perform a SASE. Depending on the results of the SASE, either Site 9 soil will drop out of the CERCLA process and an NFA ROD will not be necessary, or further evaluation under CERCLA (i.e., RI/FS, Proposed Plan, and ROD) will be required for Site 9 soil.

It is recommended that the decision for the groundwater OU (OU9) be addressed under Site 23 (Former Fuel Farm).

- The ROD for OU9 Basewide Groundwater, including Sites 9 and 23, was signed in September 2008.

Also, it is recommended that there be continued enforcement of the IR New London Instruction.

- The IR New London Instruction was updated in September 2008 and again in June 2009. The current version is SOPA (ADMIN) New London Instruction 5090.25. An IR Groundwater Inspection Checklist for Sites 9 and 23 was included in the November 2009 OU9 LUC RD. This checklist includes a line item to check availability of the current New London Instruction and other LUC items. In addition, letters with maps and tables of site use restrictions were provided to the towns of Ledyard and Groton, Connecticut in September 2009.

## 7.5 FIVE-YEAR REVIEW PROCESS

This section provides a summary of the five-year review process and the actions taken to complete this review.

### 7.5.1 Document and Analytical Data Review

The documents reviewed for the third five-year review are listed below, and key information obtained from the documents is summarized in the following sections.

Second Five-Year Review Completed	December 2006
Monitoring Well Inventory Report and Abandonment Plan	September 2007
Proposed Plan for Basewide Groundwater OU9	June 2008
Year 1 Monitoring Report for Site 23 Underdrain Metering Pit Sampling	September 2008
Record of Decision of Operable Unit 9 Basewide Groundwater signed	September 2008
SOPA (ADMIN) New London Instruction 5090.18D issued	September 2008
SOPA (ADMIN) New London Instruction 5090.25 issued	June 2009
Letter to Town of Ledyard, Land and Groundwater Use Restrictions	September 2009
Letter to Town of Groton, Land and Groundwater Use Restrictions	September 2009
Remedial Design for Land Use Controls on Basewide Groundwater OU9	November 2009
Remedial Action Completion Report for OU9 Basewide Groundwater	June 2010

In the past 5 years, the groundwater ROD has been completed and LUC requirements have been established and implemented for Site 9. Further discussion of the groundwater results for Site 23 is provided in Section 15.

#### **7.5.2 ARAR and Site-Specific Action Level Changes**

A CERCLA remedy has not yet been determined to be necessary for Site 9 soil, and therefore, no ARARs have been selected. If a CERCLA remedy is selected in the future, ARAR changes will be evaluated in a subsequent Five-Year Review. The groundwater at this site has been incorporated into Site 23, Former Fuel Farm; therefore, there are no Site 9-specific ARARs for groundwater.

#### **7.5.3 Site Inspection**

A site inspection conducted April 6, 2011, included visual observations of the Site 23/Site 9 area. Weather conditions during the inspection were cool (mid-50s), sunny, and breezy. Representatives from the Navy, CTDEP, and Tetra Tech participated in the inspection. Appendix A contains photographs taken of the Site 23/Site 9 (Former OT-5) area. There were no deficiencies observed during the inspection and the site is in good condition.

Site 9 is contained within Site 23, which is within a partially fenced area currently used for recreation. Land use has not changed since the remedy was implemented, although during the site inspection, boring for the future installation of light poles was observed at Site 23. The current configuration of the recreational fields will change over the next 6 months; however, land use will remain the same. In accordance with the land use restriction, groundwater at the Former Fuel Farm is not used for human consumption. There are no short-term or long-term plans to convert this area to any other use.

#### 7.5.4 Site Interviews

No formal interviews were conducted for this site as part of the third five-year review.

#### 7.6 ASSESSMENT

The following conclusions support the determination that the remedy at Site 9 is protective of human health and the environment.

##### ***Question 1. Is the remedy functioning as intended by the decision documents?***

- ***Remedial Action Performance:*** All contaminated wastes were removed from Former OT-5 (Site 9), and the tank has been properly closed in place. A final remedy has not been selected for the soil at Site 9; therefore, an evaluation of the functionality of the remedy cannot be made at this time. Groundwater at Site 9 is being evaluated under Site 23.
- ***System Operations/O&M:*** Not applicable.
- ***Opportunities for Optimization:*** Not applicable.
- ***Early Indicators of Potential Issues:*** No early indicators of potential remedy issues were noted during the review.
- ***Implementation of Institutional Controls and Other Measures:*** The Navy current IR Site Use Restriction Instruction in place at NSB-NLON [SOPA (ADMIN) NLONINST 5090.25] restricts ground surface disturbance of soils and any subsurface disturbance of soils and/or groundwater at IR sites. In addition, a LUC RD (Tetra Tech, 2009e) was developed to implement Institutional Controls for Basewide Groundwater (OU-9), which includes Site 9. The LUC RD was completed in November 2009 and LUCs compliance inspections were initiated concurrently with the on-site inspection phase of this five-year review.

##### ***Question 2. Are the exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the remedy selection still valid?***

- ***Changes in Standards and TBCs:*** The removal action conducted at Site 9 was completed in accordance with RCRA UST regulations. Decontamination was completed to the specifications included in 40 CFR 761.125. A final remedy has not been selected for the soil at Site 9; therefore, an

evaluation of the remedy cannot be made at this time. The groundwater at this site has been incorporated into Site 23, Former Fuel Farm, so there are no Site 9-specific ARARs for groundwater.

- **Changes in Exposure Pathways:** There have been no changes in exposure pathways.
- **Changes in Toxicity and Other Contaminant Characteristics:** There have been no changes in toxicity that would call into question the protectiveness of the remedy.
- **Changes in Risk Assessment Methods:** A risk assessment was not conducted for Site 9 soil. A risk assessment of Site 23 groundwater, which includes Site 9, was completed, but no changes have occurred that would impact the results.
- **Expected Progress Towards Meeting RAOs:** The RAOs for the groundwater at Site 9 were met by the Institutional Controls.

**Question 3. Has any other information come to light that could call into question the protectiveness of the remedy?**

No additional information has been identified that would call into question the protectiveness of the remedy.

## 7.7 ISSUES

No deficiencies or O&M issues were identified for Site 9 during the inspection. However, implementation of LUCs at Site 9 has not yet been established.

## 7.8 RECOMMENDATIONS AND FOLLOW-UP ACTIONS

Based on the results of the site inspection and review, the following recommendations are made for Site 9:

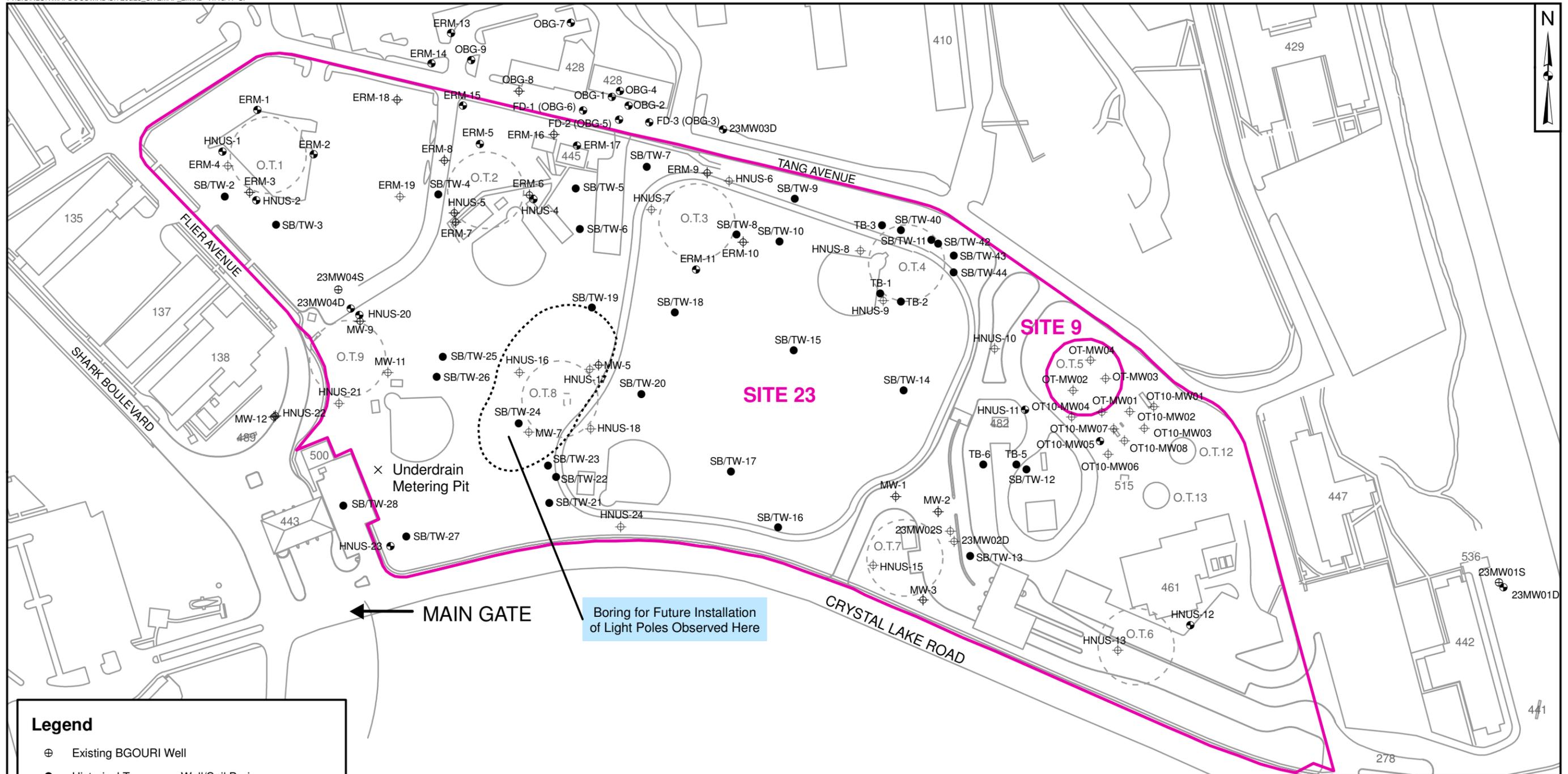
- Continue enforcement of the OU9 LUC RD for groundwater at the site.
- Develop and implement a SASE for the soil to determine if there are any remaining CERCLA issues.
- Continue to manage soil at the site under New London Instruction 5090.25 until it is determined if a soil LUC RD is necessary and prepared.

- Initiate annual compliance inspections for groundwater LUCs and incorporate inspection reports into future five-year reviews.

## **7.9 PROTECTIVENESS STATEMENT**

The groundwater remedy for Site 9 is protective of human health and the environment. Current LUCs should minimize exposure to groundwater at Site 9, and continued implementation of LUCs will maintain the effectiveness of the remedy into the future.

Previous actions completed under RCRA have addressed the soil OU at Site 9; however, the Navy plans to conduct a SASE to document full closure of soil at Site 9. Navy personnel exposure to Site 9 is limited; public exposure is controlled by Base security. Land use and resulting Navy personnel exposure to soil is controlled by SOPA (ADMIN) New London Instruction 5090.25, which establishes management policies for sites still being investigated under CERCLA and do not have LUC RDs. Instruction 5090.25 limits exposure by prohibiting soil excavation in CERCLA sites unless coordinated with the Public Works Environmental Division. Also, Site 9 is included in the Navy's LUC tracker system as a controlled area and it is inspected annually.



**Legend**

- ⊕ Existing BGOURI Well
- Historical Temporary Well/Soil Boring
- ⊕ Destroyed, Missing, or Abandoned Monitoring Well
- ⊕ Existing Monitoring Well
- ▭ Site Boundary
- ⋯ Approximate Location of Boring Activity Observed During April 2011 Site Inspection
- Former Tank

**NOTES:**  
 1.) Air sparging and soil vapor extraction wells and testing points not shown.  
 2.) Base Map Source: Prepared by the Naval Submarine Base Public Works Dept., Engineering Division. March 28, 2006. Drawing No. A-667.  
 3.) Site 23 Boundary Surveyed by CME Associates Inc. on March 30, 2010.

DRAWN BY	DATE
K. MOORE	05/11/07
CHECKED BY	DATE
B. COLLINS	11/16/11
REVISED BY	DATE
S. PAXTON	11/16/11
SCALE AS NOTED	

**TETRA TECH**

**SITE MAP**  
**SITE 9 FORMER OT-5 AND SITE 23 FORMER FUEL FARM**  
**NSB-NLON**  
**GROTON, CONNECTICUT**

CONTRACT NUMBER	CTO NUMBER
3386	WE54
APPROVED BY	DATE
C. RICH	05/24/11
APPROVED BY	DATE
—	—
FIGURE NO.	REV
7-1	0



## 8.0 SITE 10 – LOWER SUBASE - FUEL STORAGE TANKS AND FORMER TANK 54-H (OU 4)

This five-year review for NSB-NLON is being conducted because of CERCLA statutory requirements. Remedial actions were conducted at some IRP sites that allowed hazardous substances, pollutants, or contaminants to remain on site in excess of levels that allow for unlimited use and unrestricted exposure. Inclusion of Site 10 in the Third Five-Year Review Report is not required because a final remedy has not been selected nor implemented. Site 10 is addressed here as a courtesy, for information purposes, and to present a comprehensive description of active and potential IRP actions at NSB-NLON. It is not possible to make a protectiveness assessment at this time.

The draft Lower Subase FS was issued in January 2010 (Tetra Tech, 2010a). The final FS for OU 4, Lower Subase (Tetra Tech, 2010i), which includes Site 10, was issued in December 2010, with the understanding that additional data that might impact the findings of the FS would be collected as part of the Soil and Groundwater PDIs. The draft Lower Subase Soil and Groundwater PDI Completion Report and FS Addendum (Tetra Tech, 2011b) incorporating that data was issued in March 2011. Decision documents will be prepared upon approval of the FS Addendum.

### 8.1 HISTORY AND SITE CHRONOLOGY

A list of important Site 10 historical events and relevant dates in the site chronology is shown below. The identified events are illustrative, not comprehensive.

Event	Date
Five USTs put into service southwest of Building 107.	WW II
Tanks E, F, and G used to store diesel.	1942 – 1987
Tank K and L used to store lubrication and hydraulic oil.	1954-1989
Tank 54-H used as a reclamation tank for other five tanks.	NA
Steel tanks installed in locations of K and L.	After 1989
Phase I RI report completed.	1992
Phase II RI report completed.	1997
Final Lower Subase RI Report completed.	1999
First Five-Year Review Report completed.	December 2001
SOPA (ADMIN) New London Instruction 5090.18B updated.	December 2006
SOPA (ADMIN) New London Instruction 5090.18D issued	September 2008
SOPA (ADMIN) New London Instruction 5090.25 issued	June 2009
Final Lower Subase FS submitted	December 2010
Draft Lower Subase Soil and Groundwater PDI Completion Report and FS Addendum submitted	March 2011

## 8.2 BACKGROUND

Six former USTs, including Former Tank 54-H, were located at the Lower Subbase at the corner of Corvina and Amber Jack Roads. The site map is included as Figure 8-1. The location of Site 10 in relation to the other IR sites is shown on Figure 1-2.

Concrete USTs E, F, and G each had 125,000-gallon capacities and were used to store diesel fuel from 1942 to 1987. Concrete USTs K and L each had 25,000-gallon capacities and were used to store lubrication and hydraulic oil from 1954 to 1989. Former Tank 54-H had a 30,000-gallon capacity and was used as a reclamation tank for the other five tanks. Tanks E, F, and G have been decommissioned and steel tanks were installed within the concrete shells of Tanks K and L (USEPA, 1995a). Former Tank 54-H was also decommissioned. The IAS concluded that there was some measurable leakage from the tanks at Site 10 and recommended monitoring of the tank levels to evaluate the leakage (Envirodyne, 1982).

In 1989, Fuss & O'Neill (Fuss & O'Neill Engineers, 1989) conducted a hydrogeologic investigation of two UST areas at NSB-NLON, one at the Former Tank Farm located southeast of the Lower Subbase and the other in the Lower Subbase (i.e., Site 10). The study was initiated as a result of subsurface soil contamination encountered during construction activities in the two areas. At Site 10, four monitoring wells (FOMW-13 through 16) were installed around Former Tank 54-H. Soil samples were collected from each well and field screened with an organic vapor analyzer (OVA). Groundwater samples from each of the monitoring wells were analyzed by a fixed-base laboratory for volatile aromatic hydrocarbons and scanned for petroleum products.

No. 2 fuel oil was detected in monitoring wells at Former Tank 54-H at concentrations ranging from 21 to 1,100 mg/L. In addition, low concentrations (less than 15 µg/L) of benzene and xylenes were detected in FOMW13. Fuss & O'Neill concluded that petroleum contamination had impacted groundwater in the area (Fuss & O'Neill Engineers, 1989).

Site 10 was included in the Phase II RI (B&RE, 1997b) and Lower Subbase RI (B&RE, 1997f; Tetra Tech, 1999b). Sites 10 and 11 were evaluated collectively as Zone 1 in the Phase II RI and Lower Subbase RI. Because of this approach, the results of those studies are discussed in terms of Zone 1.

The Lower Subbase RI Report (Tetra Tech, 1999b) recommended that Zone 1 proceed to an FS for evaluation of appropriate remedial alternatives for soil and limited actions for groundwater. The RI recommended specific lines of investigations. Those recommendations were based on the understanding that the nature and extent of organic and inorganic contamination in soil were well defined to the extent

practical, considering infrastructure limitations, and that the baseline HHRA indicated potential unacceptable risks.

The Navy cleaned the Lower Subbase storm sewer catch basins in August 2000. Two Zone 1 catch basins were cleaned by Fleet Environmental using a vacuum truck. The material removed from the catch basins was containerized, tested, and properly disposed off site. The storm sewer lines were not surveyed or repaired during the effort.

The final FS for the Lower Subbase (Tetra Tech, 2010i), which includes Site 10 as a part of Zone 1, was submitted in December 2010. An HHRA was prepared for Zone 1 as part of the Lower Subbase RI (Tetra Tech, 1999b). After that HHRA was prepared, but prior to the completion of the FS, the USEPA released new or revised guidance documents for preparing HHRAs, EPA Region 1 revised its protocols for conducting HHRAs, and the CTDEP made revisions to its RSRs. To comply with the revisions, an updated HHRA was prepared for the FS that recalculated risks for potential receptors for Sites 10 and 11 in Zone 1.

During completion of the FS, data gaps were identified for Zone 1 and it was recognized that additional data might impact the findings of the FS. The FS was issued with the understanding that additional data would be collected as part of Soil and Groundwater PDIs, and the New London IRP Team (Navy, USEPA, and CTDEP) agreed that the results of the Soil and Groundwater PDIs would be incorporated into an FS Addendum. Tetra Tech prepared sampling plans in support of the Soil and Groundwater PDIs (Tetra Tech, 2010d; and 2010g). The draft PDI Completion Report and FS Addendum (Tetra Tech, 2011b) was issued in March 2011. Using the combined data set from the FS and the FS Addendum, an updated HHRA was prepared.

The entire Lower Subbase, including Site 10, is used exclusively for industrial purposes and future residential development is not anticipated; however, a future residential scenario was evaluated for decision-making purposes. Groundwater beneath the Lower Subbase is brackish and has been classified as not suitable for human consumption without treatment, and public water supply service is available; thus, only direct contact (not human consumption) was considered when evaluating human health risk for contaminants in groundwater. Potential receptors under current land use are construction workers and full-time employees; potential receptors under future land use are construction workers, full-time employees, and hypothetical residents (adults and children).

There are unacceptable human health risks for soil in Zone 1, which includes Site 10, for the residential scenario only; risks for the industrial/commercial scenario are acceptable. Risks for direct groundwater exposure in Zone 1 are acceptable for both the residential and industrial/commercial receptors. For

exposure to surface/subsurface soil, the HIs for the industrial/commercial workers and hypothetical adult residents were less than or equal to unity (1), indicating that adverse noncarcinogenic effects are not anticipated for these receptors under the defined exposure conditions. The calculated HI of 4 for hypothetical child residents exposed to surface/subsurface soil exceeded the acceptable level of 1. Mercury (HQ = 4) was the major contributor to the elevated HI for hypothetical child residents. The groundwater at Zone 1 is not currently or anticipated to be used in the future as a potable water source because it is brackish; therefore, there is no imminent threat to human health.

ILCRs for the exposure to soil by both current and potential future industrial/commercial receptors were less than the USEPA's target risk range of  $10^{-4}$  to  $10^{-6}$ . The ILCR for hypothetical adult residents ( $1 \times 10^{-4}$ ) was equal to the upper bound of the USEPA's target range, and the ILCRs for hypothetical child residents ( $7 \times 10^{-4}$ ) and hypothetical lifelong residents ( $8 \times 10^{-4}$ ) exceeded the USEPA's target range. Carcinogenic PAHs and arsenic were the major contributors to the unacceptable ILCRs for the hypothetical child, adult, and lifelong residents.

TPH is present in subsurface soil in Zone 1 at concentrations that exceed CTDEP RSRs. In addition, TPH is potentially present in groundwater at concentrations above CTDEP RSRs and a thin layer of Light Non-aqueous phase liquid (LNAPL) was observed in one monitoring well (13MW18). However, TPH and LNAPL are not CERCLA contaminants and will not be further discussed as part of the third five-year review. TPH and LNAPL will be addressed independently by the Navy under CTDEP regulations.

It is anticipated that the ROD for the Lower Subbase, which encompasses Site 10 and the remainder of Zone 1, will be completed in 2012.

### **8.3 REMEDIAL ACTIONS**

#### **8.3.1 Remedy Selection**

A final remedy has not been selected or implemented for Site 10. It is anticipated that a ROD for the Lower Subbase, which encompasses Site 10 and the remainder of Zone 1, will be finalized in 2012.

#### **8.3.2 Remedy Implementation**

A final remedy has not yet been chosen for Site 10 (Zone 1). A schedule for implementation of the selected remedy will be developed after the ROD is signed.

## 8.4 PROGRESS SINCE LAST REVIEW

This is the third five-year review of Site 10. The recommendations from the Second 5-Year Review Report are provided below along with the actions taken to address the recommendations.

It was recommended that the FS be completed to determine the appropriate remedial action for Zone 1 that is protective of human health and the environment. It was further recommended that an appropriate decision document should be prepared after the FS is completed to document the selected remedial alternative.

- The FS for the Lower Subbase, which includes Site 10, was issued in December 2010. The draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum was issued in March 2011. It is anticipated that the Lower Subbase (OU4) ROD, which includes Site 10, will be completed in 2012.

It was also recommended that there be enforcement of the IR New London Instruction.

- The instruction was updated and reissued in 2009, as SOPA (ADMIN) NLONINST 5090.25. The instruction details the restrictions on disturbance of soils and/or groundwater at IR sites at NSB-NLON. The instruction has been enforced as appropriate at Site 10.

## 8.5 FIVE-YEAR REVIEW PROCESS

This section provides a summary of the five-year review process and the actions taken to complete this review.

### 8.5.1 Document Review

The Lower Subbase FS, the draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum, and the New London Instruction 5090.25 were reviewed for the third five-year review of Site 10. The FS and FS Addendum are discussed in Section 8.2 of this report. Within the past 5 years, no other documents related to Site 10 have been completed.

### 8.5.2 Data Review

New data was collected from the site over the past 5 years during the Soil and Groundwater PDIs and reported in the draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum. No routine monitoring or O&M activities have been initiated at the site because a final remedy has not been selected.

### **8.5.3 ARAR and Site-Specific Action Level Changes**

A remedy has not been selected and a ROD has not been signed for Site 10 (Zone 1); therefore, ARARs and site-specific action levels have not been identified.

### **8.5.4 Site Inspection**

The Lower Subbase was visually inspected April 6, 2011, as the inspection team drove through the area. Zone 1 (including Site 10) is covered with pavement or buildings and is located near the Thames River and a set of railroad tracks. The Lower Subbase is a high-security area at NSB-NLON and to avoid security issues, the team conducted a drive through inspection, led by the Navy. Weather conditions during the inspection were cold (mid-40s), overcast, and windy. Representatives from the Navy, CTDEP, and Tetra Tech participated in the inspection. No issues were identified and no photos of the zone were taken during the inspection because of security reasons. The Navy has no plans to change the current use of the site.

### **8.5.5 Site Interviews**

No official interviews were conducted as part of the third five-year review.

## **8.6 ASSESSMENT**

Because a final remedy has not been selected or implemented for Site 10 (Zone 1), it is not possible to make a determination of whether a remedy is protective of human health and the environment. The results of the Lower Subbase RI, FS, and FS Addendum do not indicate any imminent threats to human health or the environment from CERCLA contaminants.

The Navy has an IR Site Use Restriction instruction in place at NSB-NLON [SOPA (ADMIN) NLONINST 5090.25]. The policy restricts ground surface disturbance of soils and any subsurface disturbance of soils and/or groundwater at IR sites.

## **8.7 ISSUES**

A final remedy has not been selected for Site 10 (Zone 1); therefore, deficiencies cannot be determined at this time.

## **8.8 RECOMMENDATIONS AND FOLLOW-UP ACTIONS**

It is recommended that the Lower Subbase ROD be completed to select the remedial action for Site 10 (Zone 1) that is protective of human health and the environment. It is also recommended that there be continued enforcement of New London Instruction 5090.25 until a final remedy is selected and implemented.

## **8.9 PROTECTIVENESS STATEMENT**

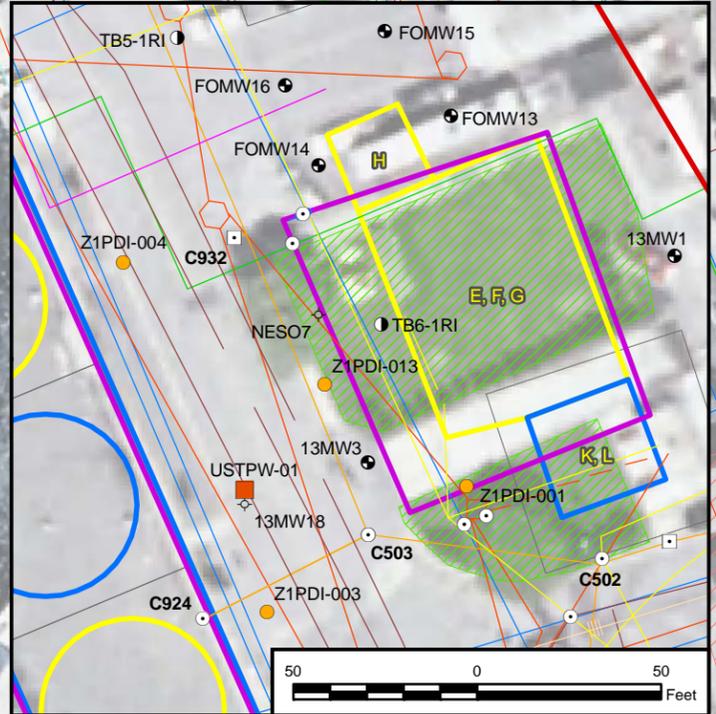
A protectiveness determination for Site 10, cannot be made at this time because a remedy has not yet been selected. The results of the Lower Subbase RI, FS, and FS Addendum do not indicate that contaminants regulated under CERCLA present any imminent threats to human health or the environment under the current land use scenario. However, TPH concentrations in excess of CTDEP direct exposure criteria for an industrial/commercial scenario (Tetra Tech, 2010i) are present in the soil at Site 10. In addition, a thin layer of LNAPL was detected in one of the Zone 1 wells (13MW18) during the Lower Subbase RI (Tetra Tech, 1999b), which is also of concern to CTDEP. Because petroleum products are not CERCLA contaminants, they were not addressed in detail in the FS Addendum but are to be addressed under a CTDEP program. The Navy has instituted an instruction that provides land use controls and restricts site activities. The instruction should minimize unauthorized and unplanned exposure to contaminated media at Site 10 until a remedy is selected and implemented. It is anticipated that the ROD for the Lower Subbase, which encompasses Site 10 and the remainder of Zone 1, will be completed in 2012.

Aerial photograph taken in 2008, and supplied by the NAVFAC Mid-Atlantic Georeadiness Center.



**Legend**

- PDI Sample Location
- UST Well
- ⊕ Monitoring Well
- ⊕ Monitoring Well Installed and Sampled During GW PDI
- ⊕ Abandoned, Destroyed or Missing Monitoring Well
- Test Boring / Direct Push Location
- ⊕ Lower Subbase RI Test Boring Location
- Catch Basin
- Manhole
- Sanitary / Sewer Junction
- Site Boundary
- Current UST Boundary
- Former UST Boundary
- Compressed Air Line
- Electric Line
- Former Diesel Oil Line
- Natural Gas Line
- Sanitary Sewer Line
- Steam Line
- Storm Sewer Line
- Telephone Line
- Water Line
- 78 Building Number
- ▨ Former Building
- ▨ Grass/Gravel Area



DRAWN BY J. ENGLISH	DATE 05/20/11
CHECKED BY N. BALSAMO	DATE 05/25/11
COST/SCHEDULE-AREA	
SCALE AS NOTED	

**Tetra Tech NUS, Inc.**

**SITE MAP**  
 SITE 10 - FUEL STORAGE TANKS AND TANK 54-H  
 AND SITE 11 - POWER PLANT OIL TANKS  
 NSB-NLON, GROTON, CONNECTICUT

CONTRACT NUMBER WE33	OWNER NUMBER 3386
APPROVED BY CAR	DATE 05/23/11
APPROVED BY	DATE
DRAWING NO. FIGURE 8-1	REV 0

## **9.0 SITE 11 – LOWER SUBBASE – POWER PLANT OIL TANKS (OU4)**

This five-year review for NSB-NLON is being conducted because of CERCLA statutory requirements. Remedial actions were conducted at some IRP sites that allowed hazardous substances, pollutants, or contaminants to remain on site in excess of levels that allow for unlimited use and unrestricted exposure. Inclusion of Site 11 in the Third Five-Year Review Report is not required because a final remedy has not been selected nor implemented. Site 11 is addressed here as a courtesy, for information purposes, and to present a comprehensive description of active and potential IRP actions at NSB-NLON. It is not possible to make a protectiveness assessment at this time.

The final FS for OU4, Lower Subbase (Tetra Tech, 2010i), which includes Site 11, was issued in December 2010, with the understanding that additional data that might impact the findings of the FS would be collected as part of a Soil and Groundwater PDIs. The draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum (Tetra Tech, 2011b) incorporating that data was issued in March 2011. Decision documents will be prepared upon approval of the FS Addendum.

### **9.1 HISTORY AND SITE CHRONOLOGY**

A list of important Site 11 historical events and relevant dates in the site chronology is shown below. The identified events are illustrative, not comprehensive.

<b>Event</b>	<b>Date</b>
Four USTs in place.	WW II
IAS detected leakage from tanks and recommended replacement of the tanks.	1982
Tanks A and B used to store No. 6 fuel oil.	WW II – 1980s
Tank C used to store diesel oil.	WW II – mid-1980s
Tank D used to store waste oil.	WW II – mid-1980s
Three USTs installed.	mid-1980s
Final Site Investigation recommended further review of the operation and distribution of oil in Building 29.	1987
Phase I RI Report completed.	1992
Phase II RI Report completed.	1997
Final Lower Subbase RI Report completed.	1999
First Five-Year Review performed	December 2001
SOPA (ADMIN) New London Instruction 5090.18C updated.	December 2006
SOPA (ADMIN) New London Instruction 5090.18D issued	September 2008
SOPA (ADMIN) New London Instruction 5090.25 issued	June 2009

Event	Date
Final Lower Subbase FS submitted	December 2010
Two of three USTs decommissioned and the other reburished	2010 - 2011
Draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum submitted	March 2011

## **9.2 BACKGROUND**

Site 11 consists of four former USTs (A, B, C, and D) located immediately east of Building 29. The site map is included as Figure 8-1. The location of Site 11 in relation to the other IR sites is shown on Figure 1-2. Concrete tanks A and B each had a capacity of 170,000 gallons and were used to store No. 6 grade fuel oil that was pumped from the Former Tank Farm located at the southern end of NSB-NLON. Concrete tanks C and D each had a capacity of 170,000 gallons. Tank C was used to store diesel oil, and Tank D was used to store waste oil generated by the bilge water oil recovery system at the power plant. The tanks were installed during World War II and were decommissioned in the mid-1980s. The old concrete tanks were repaired and were used as containment structures for three, 150,000-gallon steel tanks. Two of the three steel tanks were decommissioned and the other was refurbished between 2010 and 2011.

According to the IAS, there was leakage from the tanks, and petroleum had migrated to groundwater, the steam and fuel pipeline tunnels, and the underground vaults. The IAS recommended replacing the tanks at Site 11 and implementing oil recovery (Envirodyne, 1982).

In 1987, Wehran Engineering Corporation completed a Final Site Investigation for subsurface oil contamination and identified an area within Site 11 that was contaminated with heavy oil. This area, comprising electrical conduits and manholes along Corvina Road, contained a mixture of No. 5 and No. 6 fuel oils. Wehran recommended that further review of the operation and distribution of oil in Building 29 be conducted (Wehran, 1987).

This site was included in the Phase II RI (B&RE, 1997a) and Lower Subbase RI (Tetra Tech, 1999b). Sites 10 and 11 were evaluated collectively as Zone 1 in the Phase II RI and Lower Subbase RI. Because of this approach, the results of those studies are discussed in terms of Zone 1.

The Lower Subbase RI recommended an FS for the evaluation of appropriate remedial alternatives for soil and limited actions for groundwater for Zone 1. The RI recommended specific lines of investigations. Those recommendations were based on the understanding that the nature and extent of organic and inorganic contamination in soil were well defined to the extent practical, considering infrastructure limitations, and that the baseline HHRA indicated potential unacceptable risks.

The Navy cleaned the Lower Subbase storm sewer catch basins in August 2000. Two Zone 1 catch basins were cleaned by Fleet Environmental using a vacuum truck. The material removed from the catch basins was containerized, tested (TCLP/TPH), and properly disposed offsite. The storm sewer lines were not surveyed or repaired during the effort.

The final FS for the Lower Subbase (Tetra Tech, 2010i), which includes Site 11 as a part of Zone 1, was submitted in December 2010. An HHRA was prepared for Zone 1 as part of the Lower Subbase RI (Tetra Tech, 1999b). After the HHRA was prepared, but prior to the completion of the FS, the USEPA released new or revised guidance documents for preparing HHRAs, EPA Region 1 revised its protocols for conducting HHRAs, and CTDEP made revisions to its RSRs. To comply with the revisions, an updated HHRA was prepared for the FS that recalculated risks for potential receptors for Sites 10 and 11 in Zone 1.

During completion of the FS, data gaps were identified for Zone 1 and it was recognized that additional data might impact the findings of the FS. The FS was issued with the understanding that additional data would be collected as part of Soil and Groundwater PDIs, and the New London IRP Team (Navy, USEPA, and CTDEP) agreed that the results of the Soil and Groundwater PDIs would be incorporated into an FS Addendum. The draft PDI Completion Report and FS Addendum (Tetra Tech, 2011b) was issued in March 2011. Using the combined data set from the FS and the FS Addendum, an updated HHRA was prepared.

The entire Lower Subbase, including Site 11, is used exclusively for industrial purposes and future residential development is not anticipated; however, a future residential scenario was evaluated for decision-making purposes. Groundwater beneath the Lower Subbase is brackish and has been classified as not suitable for human consumption without treatment, and public water supply service is available; thus, only direct contact (not human consumption) was considered when evaluating human health risk for contaminants in groundwater. Potential receptors under current land use are construction workers and full-time employees; potential receptors under future land use are construction workers, full-time employees, and hypothetical residents (adults and children).

There are unacceptable human health risks for soil in Zone 1, which includes Site 11, for the residential scenario only; risks for the industrial/commercial scenario are acceptable. Risks for direct groundwater exposure in Zone 1 are acceptable for both the residential and industrial/commercial receptors. For exposure to surface/subsurface soil, the HIs for the industrial/commercial workers and hypothetical adult residents were less than or equal to unity (1), indicating that adverse noncarcinogenic effects are not anticipated for these receptors under the defined exposure conditions. The calculated HI of 4 for

hypothetical child residents exposed to surface/subsurface soil exceeded the acceptable level of 1. Mercury (HQ = 4) was the major contributor to the elevated HI for hypothetical child residents.

ILCRs for the exposure to soil by both current and potential future industrial/commercial receptors were less than the USEPA's target risk range of  $10^{-4}$  to  $10^{-6}$ . The ILCR for hypothetical adult residents ( $1 \times 10^{-4}$ ) was equal to the upper bound of the USEPA's target range, and the ILCRs for hypothetical child residents ( $7 \times 10^{-4}$ ) and hypothetical lifelong residents ( $8 \times 10^{-4}$ ) exceeded the USEPA's target range. Carcinogenic PAHs and arsenic were the major contributors to the unacceptable ILCRs for the hypothetical child, adult, and lifelong residents.

TPH is present in subsurface soil in Zone 1 at concentrations that exceed CTDEP RSRs. In addition, TPH is potentially present in groundwater at concentrations above CTDEP RSRs and a thin layer of LNAPL was observed in one monitoring well (13MW18). However, TPH and LNAPL are not CERCLA contaminants and will not be further discussed as a part of the third five-year review. TPH and LNAPL will be addressed independently by the Navy under CTDEP regulations.

It is anticipated that the ROD for the Lower Subbase, which encompasses Site 11 and the remainder of Zone 1, will be completed in 2012.

### **9.3 REMEDIAL ACTIONS**

#### **9.3.1 Remedy Selection**

A final remedy has not been selected or implemented for Zone 1, which includes Site 11. It is anticipated that a ROD for the Lower Subbase, which encompasses Site 11 and the remainder of Zone 1, will be finalized in 2012.

#### **9.3.2 Remedy Implementation**

A final remedy has not yet been chosen for Zone 1. A schedule for the implementation of the selected remedy will be developed after the ROD is signed.

### **9.4 PROGRESS SINCE LAST REVIEW**

This is the third five-year review of the Site 11. The recommendations from the Second Five-Year Review Report are provided below along with the actions that were taken to address the recommendations.

It was recommended that the FS be completed to determine the appropriate remedial action for Zone 1 that is protective of human health and the environment. It was further recommended that an appropriate decision document should be prepared after the FS is completed to document the selected remedial alternative.

- The FS for the Lower Subbase, which includes Site 11, was issued in December 2010. The draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum was issued in March 2011. It is anticipated that the Lower Subbase (OU4) ROD, which includes Site 11 in 2012.

In addition, it was recommended that there be enforcement of the IR Site Use Restriction Instruction.

- The instruction was updated and reissued in 2009 as, SOPA (ADMIN) NLONINST 5090.25. The instruction has been enforced as appropriate at Site 11.

## **9.5 FIVE-YEAR REVIEW PROCESS**

This section provides a summary of the five-year review process and the actions taken to complete this review.

### **9.5.1 Document Review**

The Lower Subbase FS, the draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum, and the New London Instruction 5090.25 were the only documents reviewed for the third five-year review of Site 11. The FS and FS Addendum are discussed in Section 9.2 of this report. Within the past 5 years, no other documents related to Site 11 have been completed.

### **9.5.2 Data Review**

New data was collected from Site 11 over the past 5 years during the Soil and Groundwater PDIs, and reported in the draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum. No routine monitoring or O&M activities have been initiated at the site because a final remedy has not been selected.

### **9.5.3 ARAR and Site-Specific Action Level Changes**

A remedy has not been selected and a ROD has not been signed for Site 11; therefore, ARARs and site-specific action levels have not been identified.

#### **9.5.4 Site Inspection**

The Lower Subbase was visually inspected April 6, 2011, as the inspection team drove through the area. Zone 1 (including Site 11) is covered with pavement or buildings and is located near the Thames River and a set of railroad tracks. The Lower Subbase is a high-security area at NSB-NLON, and to avoid security issues, the team conducted a drive-through inspection, led by the Navy. Representatives from the Navy, CTDEP, and Tetra Tech participated in the inspection. No issues were identified and no photos of the zone were taken during the inspection because of security considerations. The Navy has no plans to change the current use of the site.

#### **9.5.5 Site Interviews**

No official interviews were conducted as part of the third five-year review.

### **9.6 ASSESSMENT**

Because a final remedy has not been selected or implemented for Site 11 (Zone 1), it is not possible to make a determination of whether a remedy is protective of human health and the environment. The results of the Lower Subbase RI, FS, and FS Addendum do not indicate any imminent threats to human health and the environment from CERCLA contaminants.

The Navy has an IR Site Use Restriction Instruction in place at NSB-NLON [SOPA (ADMIN) NLONINST 5090.25]. The policy restricts ground surface disturbance of soils or any subsurface disturbance of soils and/or groundwater at IR sites.

### **9.7 ISSUES**

A final remedy has not been selected for Site 11; therefore, deficiencies cannot be determined at this time.

### **9.8 RECOMMENDATIONS AND FOLLOW-UP ACTIONS**

It is recommended that the Lower Subbase ROD be completed to select the remedial action for Site 11 (Zone 1) that is protective of human health and the environment. It is also recommended that there be continued enforcement of New London Instruction 5090.25 until a final remedy is selected and implemented.

## **9.9 PROTECTIVENESS STATEMENT**

A protectiveness determination for Site 11 cannot be made at this time because a remedy has not yet been selected. The results of the Lower Subbase RI, FS, and FS Addendum do not indicate that contaminants regulated under CERCLA present any imminent threats to human health or the environment under the current land use scenario. However, TPH concentrations in excess of CTDEP direct exposure criteria for an industrial/commercial scenario (Tetra Tech, 2010i) are present in the soil at Site 11. In addition, a thin layer of LNAPL was detected in one of the Zone 1 wells (13MW18) during the Lower Subbase RI (Tetra Tech, 1999b), which is also of concern to CTDEP. Because petroleum products are not CERCLA contaminants, they were not addressed in detail in the FS Addendum but are to be addressed under a CTDEP program. The Navy has instituted an instruction that provides land use controls and restricts excavation activities. The instruction should minimize unauthorized and unplanned exposure to contaminated media at Site 11 until a remedy is selected and implemented. The Lower Subbase ROD will be prepared following the finalization of the Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum.

## 10.0 SITE 13 – LOWER SUBBASE – BUILDING 79 FORMER WASTE OIL PIT (OU4) AND PIER 1

This five-year review for NSB-NLON is being conducted because of CERCLA statutory requirements. Remedial actions were conducted at some IRP sites that allowed hazardous substances, pollutants, or contaminants to remain on site in excess of levels that allow for unlimited use and unrestricted exposure. Inclusion of Site 13 and Pier 1 in the Third Five-Year Review Report is not required because final remedies have not been selected nor implemented. Site 13 and Pier 1 are addressed here as a courtesy, for information purposes, and to present a comprehensive description of active and potential IRP actions at NSB-NLON. It is not possible to make protectiveness assessments at this time.

The final FS for OU4, Lower Subbase (Tetra Tech, 2010i), which includes Site 13 and Pier 1, was issued in December 2010, with the understanding that additional data that might impact the findings of the FS would be collected as part of Soil and Groundwater PDIs. The draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum (Tetra Tech, 2011b), that incorporates that data, was issued in March 2011. Decision documents will be prepared upon approval of the FS addendum.

### 10.1 HISTORY AND SITE CHRONOLOGY

A list of important Site 13 historical events and relevant dates in the site chronology is shown below. The identified events are illustrative, not comprehensive.

Event	Date
Oil detected in soil samples from waste oil pit location.	1979
Waste oil pit filled and a recovery well system installed and operated for several months.	1985
Phase I RI completed.	1992
Quay Wall removal action completed.	1994
Phase II RI completed.	1997
Final Lower Subbase RI completed.	1999
First Five-Year Review performed.	December 2001
SOPA (ADMIN) New London Instruction 5090.18C updated.	December 2006
Final Thames River Validation Study Report issued.	March 2008
SOPA (ADMIN) New London Instruction 5090.18D issued.	September 2008
SOPA (ADMIN) New London Instruction 5090.25 issued.	June 2009
Final Lower Subbase FS submitted.	December 2010
Draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum submitted.	March 2011

A list of important Pier 1 historical events and relevant dates in the site chronology is shown below. The identified events are illustrative, not comprehensive.

<b>Event</b>	<b>Date</b>
Former Marine Railway at Pier 1 identified during construction of the Controlled Industrial Facility.	1998
Pier 1 Marine Railway Investigation identified elevated concentrations of metals, PAHs, and PCBs.	October 1999
Rapid Sediment Characterization Pilot Study conducted to evaluate potential unacceptable ecological risk.	June 2003
Screening-level ecological risk assessment issued.	October 2004
Draft EE/CA for Inner and Outer Pier 1 issued.	March 2008
Final Thames River Validation Study Report issued.	March 2008
EE/CA for Inner and Outer Pier 1 issued.	October 2009
Summary of Field Work and Results of Thames River Pre-Design Sediment Sampling at Inner Pier 1 issued.	October 2009
Final Non-Time Critical Removal Action Work Plan for Sediment Removal at Pier 1 Inner and Outer Areas	October 2009
Action Memorandum for Inner and Outer Pier 1 issued.	November 2009
Draft Non-Time Critical Removal Action Completion Report for Sediment Removal at Pier 1 Inner and Outer Areas	May 2010
Final Lower Subase FS submitted.	December 2010
Final Removal Action Design for Pier 1 Inner Area issued.	April 2011

## **10.2 BACKGROUND**

Site 13 consists of the former waste oil pit located in the northwestern corner of Building 79 on the Lower Subase. The site map is included as Figure 10-1. Figure 1-2 shows the location of the site related to the other IR sites at NSB-NLON. The pit was formerly used as a collection area for waste oil and solvents generated during the cleaning and servicing of diesel train engines. The pit has been filled with concrete (Wehran, 1987), and a recovery well system was installed in approximately 1985. The system operated for a period of several months but was determined to be ineffective and was later abandoned.

Analytical results from soil samples collected from borings in the area of the former waste oil pit indicated that subsurface contamination was primarily lubricating/motor oil (NESO, 1979). The oil was detected at a sample interval of 6 to 9 feet below ground surface. It was estimated that the saturated volume of contamination would be approximately 50 feet by 50 feet by 4 feet deep.

In 1987, Wehran Engineering Corporation completed an investigation to identify and delineate the sources of heavy oils in the subsurface of the Lower Subase (Sites 10, 11, and 13). Manholes and the area underneath the supporting platform in the vicinity of Building 79 (Site 13) contained No. 6 fuel oil

older than 1 year and trace levels of waste oils. Wehran recommended removal of the oil from the manholes near Building 79 using absorption pads and/or excavation of oil-laden soil and inspection of fuel lines within the trench and subsequent cleaning of the trench.

During the Phase I RI, a brown, milky oil was identified west of Building 79. The report indicated that this oil potentially originated from the former waste pit in Building 79. An old drawing showed the outlet from the former waste oil pit 29 feet south of the northern side of Building 79 (Atlantic, 1992).

The Quay Wall Study Area runs from approximately Pier 2 to Pier 6 (see Figure 10-1). An investigation and a removal action were completed in this area to address petroleum contamination. The area was man-made and consists of a wooden platform and quay wall constructed in 1940. The wooden platform is 4 inches thick and is supported by 10- to 12-inch-square wooden joists and 8-inch timber pilings. A steel bulkhead along the Thames River was erected in 1952; it was constructed of steel sheet piling and supports. During construction of the bulkhead, the quay wall and wooden platform were covered with approximately 6 to 7 feet of sand and gravel fill, and the area was paved for vehicular access along Albacore Road. The quay wall is located approximately 4 feet east of the steel bulkhead, immediately beneath the paved surface. Fill soil below the wooden platform and quay wall periodically washes out, leaving void spaces of 3 to 8 feet beneath the wooden platform. Sand and gravel fill is present between the locations where the void spaces are formed. When identified, void spaces are filled with sand poured into a series of manholes along the length of Albacore Road. Natural river deposits of silt and sand underlie the void spaces and sand fill.

Zones of visible petroleum contamination were present in the soil immediately above the wooden platform and in the fill below the wooden platform. Petroleum was found in the area around the storm sewer manhole northeast of Pier 4. Globules of floating product were also present in standing water in the void spaces below the wooden platform. Releases of petroleum products and oily substances were observed in the Thames River in the vicinity of the storm sewer outfall just north of Pier 4 in November 1994. It was determined that the probable source of the releases was the storm sewer manhole near Pier 4 and Building 79. An expandable rubber plug was placed in the storm sewer outfall in November 1994, and the storm sewer pipe leading to the outfall was filled with sand in late December 1994. That measure appears to have eliminated migration of petroleum product from this outlet because no visible release of petroleum product has subsequently been observed in the Thames River near the outlet.

HNUS prepared a Removal Site Evaluation (HNUS, 1995d) for the quay wall to summarize the removal actions performed in November and December 1994 to address petroleum product releases that occurred along the quay wall of the Lower Subbase. A summary of the actions completed is as follows:

- From November 4 to 6, 1994, a spill response and cleanup contractor retained by the Navy completed cleanup activities.
- Approximately 2,300 gallons of oily waste water and thirty-nine 55-gallon drums, two 30-gallon drums, and one 18-gallon drum of absorbent pads contaminated with product were generated during cleanup activities.
- Five product recovery wells (QW-1 through QW-5) were subsequently installed. Oil/water was pumped from the recovery wells four times between December 5 and 21, 1994. A total of approximately 16,000 gallons of oil/water was pumped and containerized. A small percentage of the liquid pumped (less than 5 percent) was petroleum product.

One subsurface soil sample was collected from five of the six borings. Four of the soil samples (QW-2, QW-3, QW-4, and QW-5) were analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) and TPH. The fifth soil sample (QW-1) was analyzed for TCL organics, TAL inorganics plus boron, TPH, and TCLP metals. Lead was identified as the only COC. Based on current and anticipated land use of the area, direct exposures to lead were not considered likely except during construction activities. Therefore, the Removal Site Evaluation recommended that no further removal action be performed at that time but that further site investigations focus on lead concentrations. It was estimated that no more than 800 gallons of petroleum were pumped from the void spaces.

A majority of the site is paved or covered with buildings. This site was included in Zone 4 of the Phase II RI and the Lower Subbase RI. Because of this approach, the remainder of this section discusses contaminant information in terms of Zone 4.

The Lower Subbase RI recommended that Zone 4, which includes Site 13 - Building 79 Former Waste Oil Pit, Site 19 – Former Solvent Storage Area (Building 316), the Quay Wall Study Area, and the fuel distribution pipeline, proceed to an FS to evaluate appropriate remedial alternatives. The RI recommended specific lines of investigations. Those recommendations were based on the understanding that the nature and extent of organic and inorganic contamination in soil were well defined to the extent practical, considering infrastructure limitations, and that the baseline HHRA indicated potential unacceptable risks.

The Navy cleaned the Lower Subbase storm sewer catch basins in August 2000. Seven Zone 4 catch basins were cleaned by Fleet Environmental using a vacuum truck. The material removed from the catch basins was containerized, tested (TCLP/TPH), and properly disposed off site. The storm sewer lines were not surveyed or repaired during the effort.

Pier 1 is located in the southwestern portion of NSB-NLON, along the eastern shore of the Thames River. Pier 1 was the location of the former Marine Railway that operated from approximately 1930 to 1960. The railway was used to pull ships and submarines out of the water for sandblasting, paint scraping, and maintenance. Pier 1 was divided into Inner and Outer areas based on chemical concentrations, as shown on Figure 10-2. Figure 1-2 shows the location of Pier 1 in relation to the IR sites at NSB-NLON.

Evidence of marine-vessel overhaul activities was discovered in the Pier 1 area during the construction of a controlled industrial facility (CIF) in 1998. In 1999, seven surface sediment samples were collected to evaluate whether chemicals from the former Marine Railway had been released and transported to sediment in the Thames River at Pier 1. Results of this investigation indicated that concentrations of metals, PAHs, and PCBs in sediment posed a concern (SAIC, 2000). A Rapid Sediment Characterization Pilot Study was conducted in June 2003 (Battelle 2003) and used to develop a screening-level ecological risk assessment (SLERA) (Battelle and Neptune, 2004). A Baseline Ecological Risk Assessment (BERA) was completed as part of the Thames River Validation Study to further evaluate ecological risks in three areas of the Thames River, including Pier 1 (Battelle, 2008b).

Based on the SLERA, it was determined that Inner Pier 1 should proceed directly to an EE/CA to develop and evaluate potential removal action alternatives for a non-time-critical removal action to address sediment contamination that posed ecological risks. A draft version of the EE/CA was issued in 2008 (Battelle, 2008a) but, based on the results of the Thames River Validation Study (Battelle, 2008b), it was later updated to include removal action alternatives for both Inner Pier 1 and the majority of Outer Pier 1 (Tetra Tech, 2009c).

Based on the EE/CA, a two-phase non-time-critical removal action was selected to address most of the sediment contamination in Inner and Outer Pier 1 (Tetra Tech, 2009d). Phase 1 of this two-phased non-time critical removal action was conducted from December 2009 to March 2010 and removed a majority of the contaminated sediment from Inner Pier 1 and Outer Pier 1. Phase 1 removed all contamination from Outer Pier 1 except for a small area of contaminated sediment that will be addressed in the Lower Subbase FS (Figure 10-2, shown in purple). Phase 1 did not remove all contaminated sediment from Inner Pier 1, but phase 2, which is planned for spring 2012, is expected to remove the remaining sediment contamination from Inner Pier 1. Design of the phase 2 removal action at Inner Pier 1 area is provided in the Final Removal Action Design for Inner Pier 1 Area (Tetra Tech, 2011f).

The final FS for the Lower Subbase (Tetra Tech, 2010i), which includes Site 13 as a part of Zone 4 and Pier 1 as part of the Thames River, was submitted in December 2010. An HHRA was prepared for Zone 4 as part of the Lower Subbase RI (Tetra Tech, 1999b). Sediment in the Thames River, including the Pier 1 area, does not pose human health risks because no indirect or direct exposure pathways are present

(Tetra Tech, 2009c). After the HHRA was prepared, but prior to the completion of the FS, the USEPA released new or revised guidance documents for preparing HHRAs, EPA Region 1 revised its protocols for conducting HHRAs, and CTDEP made revisions to its RSRs. To comply with the revisions, an updated HHRA was prepared for the FS that recalculated risks for potential receptors for Zone 4.

During completion of the FS, data gaps were identified for Zone 4 and it was recognized that additional data might impact the findings of the FS. The FS was issued with the understanding that additional data would be collected as part of Soil and Groundwater PDIs, and the New London IRP Team (Navy, USEPA, and CTDEP) agreed that the results of the Soil and Groundwater PDI would be incorporated into an FS Addendum. The draft PDI Completion Report and FS Addendum (Tetra Tech, 2011b) was issued in March 2011. Using the combined data set from the FS and the FS Addendum, an updated HHRA was prepared.

The entire Lower Subbase, including Site 13, is used exclusively for industrial purposes and future residential development is not anticipated; however, a future residential scenario was evaluated for decision-making purposes. Groundwater beneath the Lower Subbase is brackish and has been classified as not suitable for human consumption without treatment, and public water supply service is available; thus, only direct contact (not human consumption) was considered when evaluating human health risk for contaminants in groundwater. Potential receptors under current land use are construction workers and full-time employees; potential receptors under future land use are construction workers, full-time employees, and hypothetical residents (adults and children).

The HHRA did not identify any unacceptable human health risks for soil in Zone 4 with the exception of hypothetical future residents. HIs for all receptors on a target organ basis were less than or equal to unity (1), indicating that adverse non-carcinogenic effects are not anticipated for these receptors under the defined exposure conditions. ILCRs for all receptor scenarios except the hypothetical child and lifetime residents were less than or within the USEPA's target risk range. The ILCRs for the hypothetical child resident ( $3 \times 10^{-4}$ ) and hypothetical lifetime resident ( $3 \times 10^{-4}$ ) exceeded USEPA's target range. Carcinogenic PAHs and arsenic were the major contributors to the ILCRs.

Lead was identified as a COPC in surface and subsurface soil at Zone 4. Hypothetical exposures to lead by current and future employees and construction workers and future residents were evaluated using a lead model, separate from the risk assessment, which predicts the average blood-lead concentration in both adult and child receptors. The modeling predicted that 55 percent of future on-site child residents would have a blood lead level greater than 10 µg/dL and that the resulting geometric mean blood lead level would be 10.6 µg/dL. This value exceeds the USEPA goal of no more than 5 percent of children with blood lead levels exceeding 10 µg/dL.

For full-time employees exposed to surface soil, the modeling predicted that 2.9 percent of the receptors (fetuses) would have a blood lead level greater than 10.0 µg/dL and that the geometric mean blood lead level would be 3.6 µg/dL. For construction workers exposed to surface/subsurface soil, the model predicted that 3.0 percent of the receptors (fetuses) would have a blood lead level greater than 10 µg/dL and that the geometric mean blood lead level would be 3.7 µg/dL. For full-time employees exposed to surface/subsurface soil, the model predicts that 1.0 percent of the receptors (fetuses) would have a blood lead level greater than 10.0 µg/dL and that the geometric mean blood lead level would be 2.8 µg/dL. These results do not exceed the USEPA goal of no more than 5 percent of children (fetuses of exposed women) having a blood lead level exceeding 10 µg/dL.

In addition, concentrations of lead in several samples exceeded the OSWER screening level by an order of magnitude or more, concentrations of lead in six surface soil samples and five subsurface soil samples exceeded the CTDEP residential RSR of 400 mg/kg, and concentrations of lead in three surface soil samples and five subsurface soil samples exceeded the CTDEP I/C RSR of 1,000 mg/kg. Therefore, lead was retained as a COC at Zone 4.

The ERA conducted as part of the Phase II RI (B&RE, 1997b) for the Thames River adjacent to Zone 4 showed that the risks to ecological receptors in this area are relatively low to moderate. As part of the Lower Subbase RI (Tetra Tech, 1999b), ecological risk assessments were performed for Thames River sediments adjacent to the seven zones at the Lower Subbase, including Zone 4. Weight-of-evidence analyses indicated that low to moderate potential risks to receptors were present in Zone 4. Data collected during the Lower Subbase RI and additional data collected during the subsequent Pier 1 Marine Railway Investigation and Rapid Sediment Characterization Pilot Study (Battelle, 2003) were evaluated in a SLERA. The assessment indicated that sediments in Zone 4 and Outer Pier 1 contained elevated levels of metals, PAHs, pesticides, and PCBs that posed potential risks to benthic organisms. Several metals (chromium, lead, and zinc) were also identified at concentrations posing potential risks to piscivorous birds in Zone 4.

The Thames River Validation Study (Battelle, 2008b) was subsequently conducted to verify the results of the SLERA and to develop ecological cleanup goals for Zone 4 and Outer Pier 1. During the 2007 phase of the Thames River Validation Study, additional surface sediment samples were collected and analyzed for the 10 metals, PAHs, PCB congeners, and pesticides that were previously identified as sediment COPCs, as well as grain size, total organic carbon (TOC), and AVS/SEM.

The BERA evaluated risks posed by three areas of Thames River sediment, including Zone 4 and Outer Pier 1 sediment, to ecological receptors including benthic invertebrates and upper-trophic-level

piscivorous birds (represented by the double-crested cormorant). To assess potential risk to benthic invertebrates, 28-day laboratory bioassays were conducted using zone-specific surface sediment samples and the amphipod *Leptocheirus plumulosus* as a surrogate for all benthic invertebrates. The 2007 bioassay results and corresponding sediment data were evaluated to determine impacts on survival, growth, and reproduction of the amphipods. Concentrations of COPCs in whole-body forage fish tissue collected in 2004 from Pier 1 and the upstream Reference Area were paired with available sediment chemistry to estimate a range of site-specific BAFs for Zone 4 and Outer Pier 1 to calculate dose inputs to the cormorant food-chain model.

Dose modeling to piscivorous birds showed potential low-level risk from lead and zinc in Zone 4 and mercury in Outer Pier 1 because HQs were greater than the no-observed-adverse-effect level (NOAEL) toxicity reference values (TRVs), although it was ultimately determined that only zinc in Zone 4 posed potential unacceptable risk to piscivorous birds from sediment. No concentrations of zinc were greater than the mean LOAEL PRG of 5,040 mg/kg.

Bioassay results for all three lines of evidence were compared to chemistry results including individual metals and pesticides, total high-molecular-weight PAHs and total low-molecular-weight PAHs, total PCB congeners, and three COPC indices [Total Effects Range Median-Quotient (ERM-Q), Organic ERM-Q, and Metals ERM-Q] to account for different toxicological modes of action that may result in different expressions of toxicological effects. Subsequently, the New London Partnering Team reached a consensus that the total ERM-Q of 1.17 was the dominant sediment PRG and that the PCB congener PRG should be adjusted from 208 to 1,000 µg/kg which is the typical criterion that has been used for other sediment remediation project in Connecticut and other parts of the United States and meets risk-based standards under TSCA.

TPH was identified as a contaminant with potential migration concerns. TPH was detected in soil at concentrations that pose potential soil-to-groundwater migration concerns based on comparison to CTDEEP RSRs (i.e., GB PMC = 2,500 mg/kg). TPH is not a CERCLA contaminant, but it is commingled with soil contaminated with lead in a limited area of Zone 4, and the commingled material is being addressed through CERCLA actions. Non-commingled TPH-contaminated soil in other areas of Zone 4 will be addressed independently by the Navy under CTDEP regulations and will not be further discussed as a part of the third five-year review.

Following finalization of the FS Addendum, the Lower Subbase ROD will be prepared. The ROD will document the selection of the remedial action to be taken to address Outer Pier 1 and Zone 4, including Site 13. It is anticipated that the ROD will be finalized in 2012.

### 10.3 REMEDIAL ACTIONS

#### 10.3.1 Remedy Selection

A final remedy has not been selected or implemented for Site 13 or Outer Pier 1. It is anticipated that the ROD for the Lower Subbase, which encompasses Pier 1, Site 13, and the remainder of Zone 4, will be finalized in 2012.

#### 10.3.2 Remedy Implementation

A final remedy has not yet been chosen for Site 13 or Outer Pier 1 (Zone 4). A schedule for implementation of the selected remedy will be developed after the ROD is signed.

### 10.4 PROGRESS SINCE LAST REVIEW

This is the third five-year review of Site 13 and the first five-year review to include Pier 1. The recommendations from the Second Five-Year Review Report are provided below along with the actions taken to address the recommendations.

It was recommended that the FS be completed to determine the appropriate remedial action for Zone 4 that is protective of human health and the environment. It was further recommended that an appropriate decision document should be prepared after the FS is completed to document the selected remedial alternative.

- The FS for the Lower Subbase was issued in December 2010. The draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum was issued in March 2011. It is anticipated that the Lower Subbase (OU4) ROD, which includes Site 13, will be completed in 2012.

In addition, it was recommended that there be enforcement of the IR Site Use Restriction Instruction.

- The instruction was updated and reissued in 2009 as, SOPA (ADMIN) NLONINST 5090.25. The instruction details the restrictions on disturbance of soils and/or groundwater at IR sites at NSB-NLON. The instruction has been enforced as appropriate at Site 13.

### 10.5 FIVE-YEAR REVIEW PROCESS

This section provides a summary of the five-year review process and the actions taken to complete this review.

#### **10.5.1 Document Review**

The Lower Subbase FS, the draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum, and the New London Instruction 5090.25 were reviewed for the third five-year review of Site 13 and the EE/CA for Inner and Outer Pier 1, Action Memorandum for Inner and Outer Pier 1, and Final Removal Action Design for Pier 1 Inner Area were reviewed for the third five-year review of Pier 1. The FS and FS Addendum are discussed in Section 10.2 of this report. Within the past 5 years, no other documents related to Site 13 or Outer Pier 1 have been completed.

#### **10.5.2 Data Review**

New data was collected from Site 13 over the past 5 years during the Thames River Validation Study (reported in the Lower Subbase FS) and the Soil and Groundwater PDIs (reported in the draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum). Data were collected from Outer Pier 1 during the Thames River Validation Study and reported in the Lower Subbase FS, from Inner Pier 1 during Thames River Pre-Design Sediment Sampling at Inner Pier 1 and reported in the Summary of Field Work and Results of Thames River Pre-Design Sediment Sampling at Inner Pier 1, and from both Inner and Outer Pier 1 after the non-time critical removal action was completed and reported in the Non-Time Critical Removal Action Completion Report for Sediment Removal at Pier 1 Inner and Outer Areas. No routine monitoring or O&M activities have been initiated at Site or Pier 1 because final remedies have not been selected.

#### **10.5.3 ARAR and Site-Specific Action Level Changes**

A remedy has not been selected and a ROD has not been signed for Site 13 or Outer Pier 1 (Zone 4); therefore, ARARs and site-specific action levels have not been identified.

#### **10.5.4 Site Inspection**

The Lower Subbase, including Site 13 and Pier 1, was visually inspected April 6, 2011, as the inspection team drove through the area. Zone 4 (including Site 13) is covered with pavement or buildings and is located near the Thames River and a set of railroad tracks. The Lower Subbase is a high-security area at NSB-NLON, and to avoid security issues, the team conducted a drive-through inspection, led by the Navy. Representatives from the Navy, CTDEP, and Tetra Tech participated in the inspection. No issues were identified and no photos of the zone were taken during the inspection because of security issues. The Navy has no plans to change the use of Site 13 or Pier 1.

#### **10.5.5 Site Interviews**

No official interviews were conducted as part of the third five-year review.

#### **10.6 ASSESSMENT**

Because a final remedy has not been selected or implemented for Site 13 or Outer Pier 1 (Zone 4), it is not possible to make a determination of whether a remedy is protective of human health and the environment. The results of the Lower Subbase RI, FS, and FS Addendum do not indicate any imminent threats to human health or the environment.

The Navy has an IR Site Use Restriction Instruction in place at NSB-NLON [SOPA (ADMIN) NLONINST 5090.25]. The policy restricts ground surface disturbance of soils or any subsurface disturbance of soils and/or groundwater at IR sites.

#### **10.7 ISSUES**

A final remedy has not yet been implemented for Site 13 or Outer Pier 1 (Zone 4); therefore, deficiencies cannot be determined at this time.

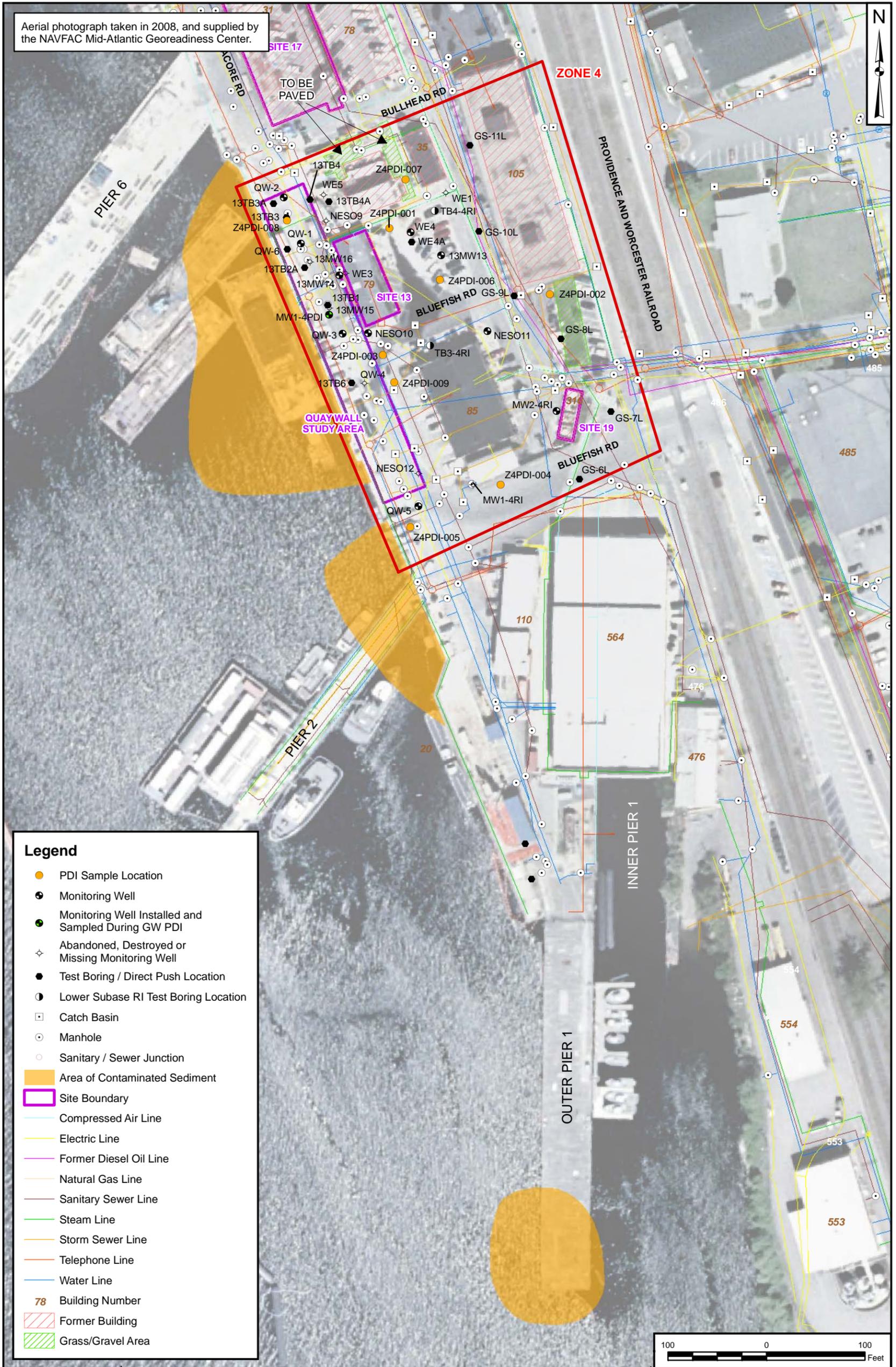
#### **10.8 RECOMMENDATIONS AND FOLLOW-UP ACTIONS**

It is recommended that the Lower Subbase ROD be completed to select the appropriate remedial actions for Site 13 and Outer Pier 1 (Zone 4) that are protective of human health and the environment. It is also recommended that there be continued enforcement of New London Instruction 5090.25 until a final remedy is selected and implemented.

#### **10.9 PROTECTIVENESS STATEMENT**

A protectiveness determination for Site 13 and Outer Pier 1 cannot be made at this time because remedies have not yet been selected. The results of the Lower Subbase RI, FS, and FS Addendum do not indicate any imminent threats to human health or the environment under the current land use scenario. The Navy has instituted an instruction that provides land use controls and restricts excavation activities. The instruction should minimize unauthorized and unplanned exposure to contaminated media at Zone 4 until a remedy is selected and implemented. The Lower Subbase ROD will be prepared following the finalization of the Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum.

Aerial photograph taken in 2008, and supplied by the NAVFAC Mid-Atlantic Georeadiness Center.



- Legend**
- PDI Sample Location
  - Monitoring Well
  - Monitoring Well Installed and Sampled During GW PDI
  - ◇ Abandoned, Destroyed or Missing Monitoring Well
  - Test Boring / Direct Push Location
  - Lower Subbase RI Test Boring Location
  - Catch Basin
  - Manhole
  - Sanitary / Sewer Junction
  - Area of Contaminated Sediment
  - Site Boundary
  - Compressed Air Line
  - Electric Line
  - Former Diesel Oil Line
  - Natural Gas Line
  - Sanitary Sewer Line
  - Steam Line
  - Storm Sewer Line
  - Telephone Line
  - Water Line
  - 78 Building Number
  - ▨ Former Building
  - ▨ Grass/Gravel Area

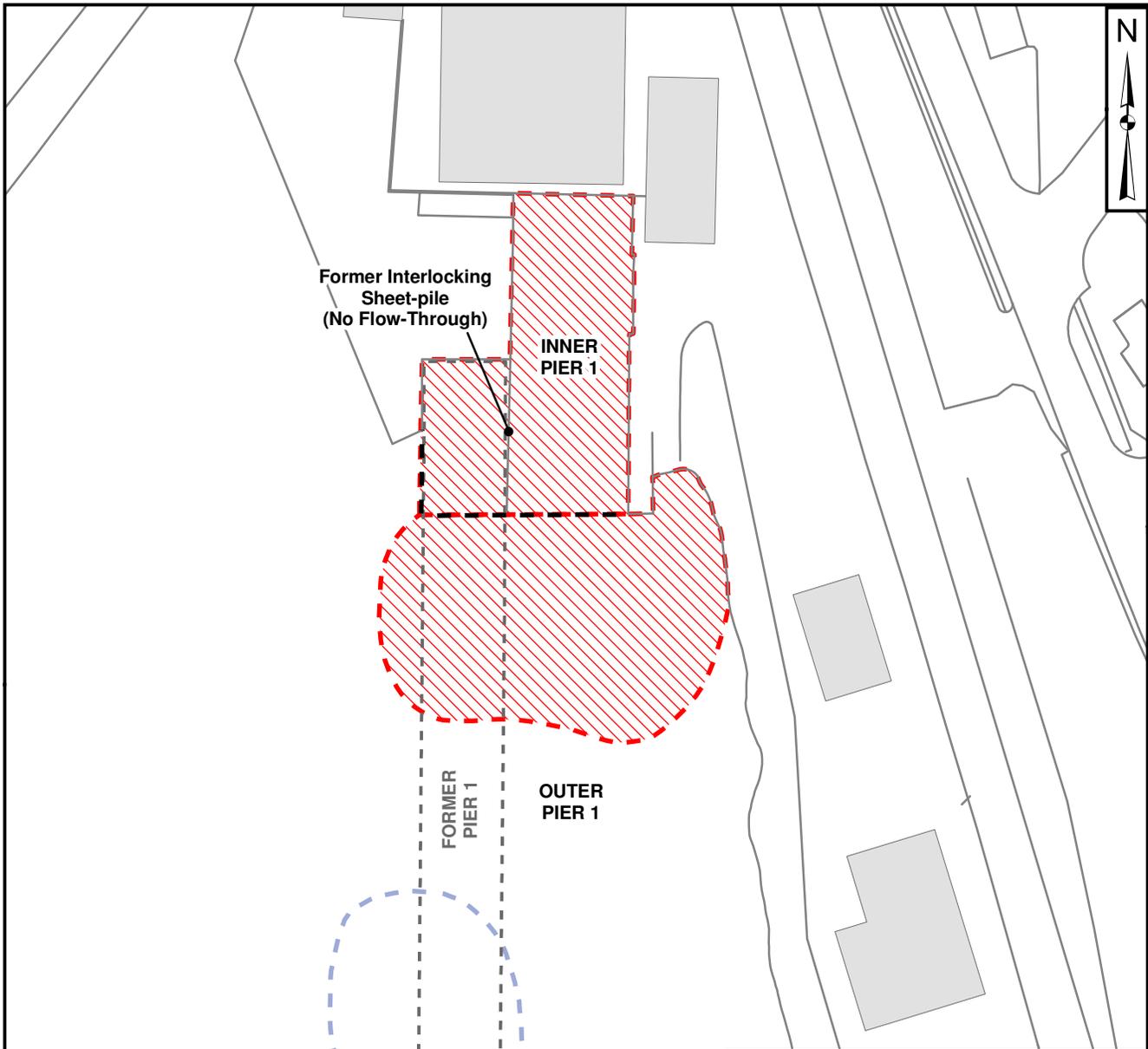


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CHECKED BY N. BALSAMO	DATE 05/23/11
COST/SCHEDULE-AREA	
SCALE AS NOTED	

**Tetra Tech NUS, Inc.**

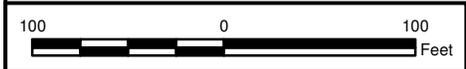
**SITE MAP**  
 SITE 13 - BUILDING 79 FORMER WASTE OIL PIT, AND  
 SITE 19 - FORMER SOLVENT STORAGE AREA (FORMER BUILDING 316), AND PIER 1  
 NSB-NLON, GROTON, CONNECTICUT

CONTRACT NUMBER WE33	OWNER NUMBER 3386
APPROVED BY CAR	DATE 05/23/11
APPROVED BY	DATE
DRAWING NO. FIGURE 10-1	REV 0



**Legend**

- - Inner Pier 1 / Outer Pier 1 Divider Line
- - - Remaining Contamination (4-6 ft Depth) Addressed in Lower Subbase Feasibility Study
- [Red Hatched Box] Inner and Outer Pier 1 Removal Action Boundary
- [Grey Box] Building



DRAWN BY	DATE
S. STROZ	07/21/11
CHECKED BY	DATE
B. COLLINS	07/21/11
REVISED BY	DATE
SCALE	AS NOTED

  
**PIER 1**  
**NAVAL SUBMARINE BASE NEW LONDON**  
**GROTON, CONNECTICUT**

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10-2	0

## 11.0 SITE 17 – LOWER SUBBASE – FORMER HAZARDOUS MATERIALS/SOLVENT STORAGE AREA – FORMER BUILDING 31 (OU4)

This five-year review for NSB-NLON is being conducted because of CERCLA statutory requirements. Remedial actions were conducted at some IRP sites that allowed hazardous substances, pollutants, or contaminants to remain on site in excess of levels that allow for unlimited use and unrestricted exposure. Inclusion of Site 17 in the Third Five-Year Review Report is not required because a final remedy has not been selected nor implemented. Site 17 is addressed here as a courtesy, for information purposes, and to present a comprehensive description of active and potential IRP actions at NSB-NLON. It is not possible to make a protectiveness assessment at this time.

A TCRA was completed at Site 17 in 1995, but not all contaminated soil was removed during the TCRA that would allow for unlimited use and unrestricted exposure. The final FS for OU4, Lower Subbase (Tetra Tech, 2010i), which includes Site 17, was issued in December 2010, with the understanding that additional data that might impact the findings of the FS would be collected as part of a Soil and Groundwater PDI. The draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum (Tetra Tech, 2011b) incorporating that data was issued in March 2011. Decision documents will be prepared upon approval of the FS addendum.

### 11.1 HISTORY AND SITE CHRONOLOGY

A list of important Site 17 historical events and relevant dates in the site chronology is shown below. The identified events are illustrative, not comprehensive.

Event	Date
Building 31 constructed near Pier 6 on Albacore Road.	1917
Building 31 used as a battery shop.	1950s
Building 31 used as the main hazardous/flammable materials warehouse.	1970s
Final Site Investigation Subsurface Soil Contamination report completed.	1987
Yellow discoloration discovered in soil beneath the floor slab, and elevated levels of lead detected. Phase I RI completed.	1992
Action Memorandum for Building 31 completed.	1993
TCRA for lead-contaminated soil at Building 31 completed.	1995
Post-Removal Action Report completed.	1995
Leak testing investigation for fuel oil distribution system completed.	1996
Existing Data Summary Report for Lower Subbase RI completed.	1997
Phase II RI Report completed.	1997
Final Lower Subbase RI Report completed.	1999

Event	Date
First Five-Year Review performed.	December 2001
Above-ground portion of Building 31 demolished.	2001-2002
Draft Final FS for Soil and Groundwater at the Lower Subase completed.	July 2002
SOPA (ADMIN) New London Instruction 5090.18C updated.	December 2006
SOPA (ADMIN) New London Instruction 5090.18D issued.	September 2008
SOPA (ADMIN) New London Instruction 5090.25 issued.	June 2009
Final Lower Subase FS submitted.	December 2010
Draft Lower Subase Soil and Groundwater PDI Completion Report and FS Addendum submitted.	March 2011

## **11.2 BACKGROUND**

Former Building 31 was constructed in 1917 and was originally used as a battery shop until the mid-1950s. Battery overhaul was one of the largest operations conducted at the Subase prior to nuclear power. Old diesel submarines, containing approximately 100 batteries, were routinely serviced in the Battery Overhaul Shop at Former Building 31. Services ranged from charging batteries to complete battery overhaul. Spent acid from the overhauled batteries was disposed in a spent acid tank located at the SASDA - Site 15 (Envirodyne, 1983).

Former Building 31 was used as the main hazardous/flammable materials warehouse starting in the 1970s. Items such as sulfuric acid, methyl isobutyl ketone, potassium hydroxide, potassium tetraborate, hydrofluoric acid, and nitric acid were stored in containers of up to 55-gallon capacity. In 1992, while the concrete floor of the building was being replaced to comply with RCRA regulations, a yellow discoloration was discovered in soil beneath the floor slab. Analysis of soil samples revealed elevated levels of lead. As a result, an Action Memorandum was prepared (HNUS, 1993) to document the need to remediate lead-contaminated soil to a depth of 1 foot below the water table. The TCRA was completed in 1995 (HNUS, 1995a). Lead-contaminated soil to 1 foot below the water table was remediated to concentrations less than 500 mg/kg and TCLP lead results less than 5.0 mg/L during the TCRA. Some contaminated soil was left in place in the areas between Former Building 31 and the Thames River front because its removal would have interfered with Subase traffic. The location of Site 17 relative to other IR sites is shown on Figure 1-2.

During subsequent investigations, Site 17 – Former Hazardous Materials/Solvent Storage Area (Former Building 31) has been included in Zone 3 of the Lower Subase, which extends from Capelin Road along the southern end of Zone 2 to the southern side of Bullhead Road. Zone 3 includes Site 17, fuel oil distribution lines, and steam, condensate, and electrical ducts. The Providence and Worcester Railroad borders the eastern edge of Zone 3, and the Thames River lies to the west of it. Figure 11-1 illustrates the Zone 3 and Site 17 boundaries, fuel oil distribution lines, steam and condensate lines, and sewer lines

within this zone. Because of this approach, the remainder of this section discusses information in terms of Zone 3.

Fuel oil distribution lines and utility ducts and trenches run through Zone 3. The locations of the distribution lines and utility ducts are shown on Figure 11-1. In 1996, pressure leak testing was performed on the lines and valves in the fuel distribution system within Zone 3. All sections of the line and various valves tested in the portion of the distribution system within Zone 3 passed the pressure testing procedures.

The Lower Subbase RI (Tetra Tech, 1999b) recommended an FS be conducted for Zone 3 with specific lines of investigations. Those recommendations were based on the understanding that the nature and extent of organic and inorganic contamination in soil were well defined to the extent practical, considering infrastructure limitations, and that the baseline HHRA indicated that risks would be within the USEPA range of acceptable risks.

The Navy cleaned the Lower Subbase storm sewer catch basins in August 2000. Two catch basins in Zone 3 were cleaned by Fleet Environmental using a vacuum truck. The material removed from the catch basins was containerized, tested (TCLP/TPH), and properly disposed off site. The storm sewer lines were not surveyed or repaired during the effort.

Former Building 31 was demolished in 2001. The building's foundation and floor slab were not disturbed during the demolition. Building 78, which was located adjacent to Former Building 31, was demolished in 2005, and a parking lot was constructed in the area formerly occupied by Buildings 31 and 78. Three inches of asphalt were placed over the floor slab of Former Building 31, which covered the solidified waste material and contaminated soil remaining at Site 17, to make the parking lot.

The final FS for the Lower Subbase (Tetra Tech, 2010i), which includes Site 17 as a part of Zone 3, was submitted in December 2010. An HHRA was prepared for Zone 3 as part of the Lower Subbase RI (Tetra Tech, 1999b). After the HHRA was prepared, but prior to the completion of the FS, the USEPA released new or revised guidance documents for preparing HHRAs, EPA Region 1 revised its protocols for conducting HHRAs, and CTDEP made revisions to its RSRs. To comply with the revisions, an updated HHRA was prepared for the FS that recalculated risks for potential receptors for Site 17 in Zone 3.

During completion of the FS, data gaps were identified for Zone 3 and it was recognized that additional data might impact the findings of the FS. The FS was issued with the understanding that additional data would be collected as part of Soil and Groundwater PDI, and the New London IRP Team (Navy, USEPA, and CTDEP) agreed that the results of the Soil and Groundwater PDIs would be incorporated into an FS

Addendum. The draft PDI Completion Report and FS Addendum (Tetra Tech, 2011b) was issued in March 2011. Using the combined data set from the FS and the FS Addendum, an updated HHRA was prepared. Lead exposure was evaluated using a lead model, separate from the risk assessment, which predicts the average blood-lead concentration in adult and child receptors.

The entire Lower Subbase, including Site 17, is used exclusively for industrial purposes and future residential development is not anticipated; however, a future residential scenario was evaluated for decision-making purposes. Groundwater beneath the Lower Subbase is brackish and has been classified as not suitable for human consumption without treatment, and public water supply service is available; thus, only direct contact (not human consumption) was considered when evaluating human health risk for contaminants in groundwater. Potential receptors under current land use are construction workers and full-time employees; potential receptors under future land use are construction workers, full-time employees, and hypothetical residents (adults and children).

The HHRA did not identify any unacceptable human health risks to any receptors from media in Zone 3, which includes Site 11. HIs for all receptors on a target organ basis were less than or equal to unity (1), indicating that adverse non-carcinogenic effects are not anticipated for these receptors under the defined exposure conditions. ILCRs for all receptor scenarios were less than or within the USEPA's target risk range.

Lead was identified as a COPC in surface and subsurface soil at Zone 3. Hypothetical exposures to lead by current and future employees, construction workers, and future residents were evaluated using lead models which predict the average blood-lead concentration in both adult and child receptors. The modeling predicted that 0.96 percent of future on-site child residents would have a blood lead level greater than 10 µg/dL and that the geometric mean blood lead level would be 3.3 µg/dL. This value is less than the USEPA goal of no more than 5 percent of children exceeding a 10 µg/dL blood lead level.

For full-time employees exposed to surface soil, the modeling predicted that 0.03 percent of the receptors (fetuses) would have a blood lead level greater than 10.0 µg/dL and that the geometric mean blood lead level would be 1.4 µg/dL. For construction workers exposed to surface/subsurface soil, the modeling predicts that 0.04 percent of the receptors (fetuses) would have a blood lead level greater than 10 µg/dL and that the geometric mean blood lead level would be 1.6 µg/dL. For full-time employees exposed to surface/subsurface soil, the model predicts that 0.02 percent of the receptors (fetuses) would have a blood lead level greater than 10.0 µg/dL and that the geometric mean blood lead level would be 1.4 µg/dL. These results do not exceed the USEPA goal of no more than 5 percent of children (fetuses of exposed women) exceeding a 10 µg/dL blood lead level.

Although the predicted blood lead levels for all receptors were within USEPA acceptable levels, concentrations of lead in several samples exceeded the OSWER screening level by an order of magnitude or more. Also, concentrations of lead in six surface soil samples and nine subsurface soil samples exceeded the CTDEP residential RSR of 400 mg/kg, and concentrations of lead in two surface soil samples and five subsurface soil samples exceeded the CTDEP industrial/commercial RSR of 1,000 mg/kg. Sensitive receptors (i.e., children and fetuses of pregnant women) are only at risk from exposure to lead in Zone 3 under a future hypothetical scenario, which assumes that soils currently covered by pavement or buildings are available for exposure. Because the lead concentrations may pose potential acute risks, lead was retained as a COC for Zone 3.

TPH was detected in soil in Zone 3 at concentrations that exceed CTDEP RSRs, which indicates a potential for migration to groundwater. However, TPH is not a CERCLA contaminant and will not be further discussed as a part of the third five-year review. TPH will be addressed independently by the Navy under CTDEP regulations.

Following finalization of the FS Addendum, a ROD will be prepared to document the selection of the remedial action to be taken to address Zone 3, which includes Site 17. It is anticipated that the ROD will be finalized in 2012.

### **11.3 REMEDIAL ACTIONS**

#### **11.3.1 Remedy Selection**

A TCRA was completed to address lead-contaminated soil underneath and adjacent to the building. Based on the Action Memorandum, the TCRA included excavation and on-site solidification of soil with total lead concentrations greater than 500 mg/kg or TCLP leachate lead concentrations greater than 5 mg/L, on-site backfilling, and off-site disposal of contaminated debris. Design documents were prepared for the TCRA, and the TCRA was completed in 1995 (HNUS, 1995a).

A final remedy has not been selected or implemented for Zone 3, which includes Site 17. It is anticipated that the ROD for the Lower Subbase, which encompasses Zone 3, will be finalized in 2012.

#### **11.3.2 Remedy Implementation**

A final remedy has not yet been chosen for Site 17. A schedule for the implementation of the selected remedy will be developed after the ROD is signed.

#### 11.4 PROGRESS SINCE LAST REVIEW

This is the third five-year review of Site 17. The recommendations from the Second Five-Year Review Report are provided below, along with the actions taken to address the recommendations.

It was recommended that the FS be completed to determine the appropriate remedial action for Zone 3 that is protective of human health and the environment. It was further recommended that an appropriate decision document should be prepared after the FS is completed to document the selected remedial alternative.

- The FS for the Lower Subbase was issued in December 2010. The draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum was issued in March 2011. It is anticipated that the ROD for the Lower Subbase, which encompasses Site 17 and the remainder of Zone 3, will be completed in 2012.

In addition, it was recommended that there be enforcement of the IR Site Use Restriction Instruction.

- The instruction was updated and reissued in 2009 as, SOPA (ADMIN) NLONINST 5090.25. The instruction details the restrictions on disturbance of soils and/or groundwater at IR sites at NSB-NLON. The instruction has been enforced as appropriate at Site 17.

#### 11.5 FIVE-YEAR REVIEW PROCESS

This section provides a summary of the 5-year review process and the actions taken to complete this review.

##### 11.5.1 Document Review

The Lower Subbase FS, the draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum, and the New London Instruction 5090.25 were reviewed for the third five-year review of Site 17. The FS and FS Addendum are discussed in Section 11.2. Within the past 5 years, no other documents related to Site 17 have been completed.

##### 11.5.2 Data Review

New data was collected from the site over the past 5 years during the Soil and Groundwater PDIs and reported in the draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum. No routine monitoring or O&M activities have been initiated at the site because a final remedy has not been selected.

### **11.5.3 ARAR and Site-Specific Action Level Changes**

A remedy has not been selected and a ROD has not been signed for Zone 3 (Site 17); therefore, ARARs and site-specific action levels have not been identified.

### **11.5.4 Site Inspection**

The Lower Subbase was visually inspected April 6, 2011, as the inspection team drove through the area. Zone 3, including Site 17, is covered with pavement or buildings and is located near the Thames River and a set of railroad tracks. The Lower Subbase is a high-security area at NSB-NLON, and to avoid security issues, the team conducted a drive-through inspection, led by the Navy. Representatives from the Navy, CTDEP, and Tetra Tech participated in the inspection. No issues were identified, and no photos of the zone were taken during the inspection because of security issues. The Navy has no plans to change the use of Site 17.

### **11.5.5 Site Interviews**

No official interviews were conducted as part of the third five-year review.

## **11.6 ASSESSMENT**

Because a final remedy has not been selected or implemented for Site 17 (Zone 3), it is not possible to make a determination of whether a remedy is protective of human health and the environment. The results of the Lower Subbase RI, FS, and FS Addendum do not indicate any imminent threats to human health or the environment under the current land use scenario.

The Navy has an IR Site Use Restriction Instruction in place at NSB-NLON [SOPA (ADMIN) NLONINST 5090.25]. The policy restricts ground surface disturbance of soils and any subsurface disturbance of soils and/or groundwater at IR sites.

## **11.7 ISSUES**

A final remedy has not been selected for Site 17 (Zone 3); therefore, deficiencies cannot be determined at this time.

## **11.8 RECOMMENDATIONS AND FOLLOW-UP ACTIONS**

It is recommended that the Lower Subbase ROD be completed to select the appropriate remedial action for Site 17 (Zone 3) that is protective of human health and the environment. It is also recommended that there be continued enforcement of New London Instruction 5090.25 until a final remedy is selected and implemented.

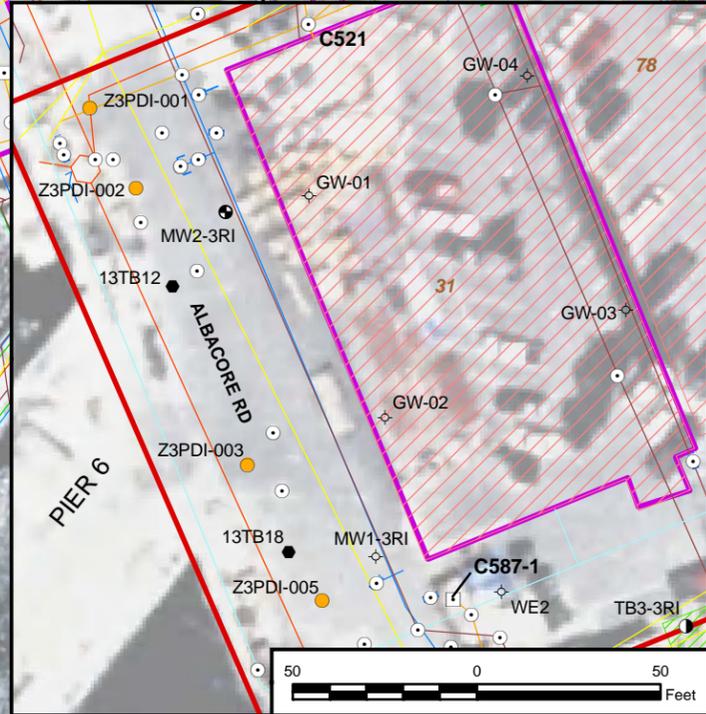
## **11.9 PROTECTIVENESS STATEMENT**

A protectiveness determination for Zone 3, which includes Site 17, cannot be made at this time because a remedy has not yet been selected. The results of the Lower Subbase RI, FS, and FS Addendum do not indicate any imminent threats to human health or the environment under the current land use scenario. The Navy has instituted instruction that provides land use controls and restricts excavation activities. The instruction should minimize unauthorized and unplanned exposure to contaminated media at Zone 3 until a remedy is selected and implemented. The Lower Subbase ROD will be prepared following the finalization of the Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum.

Aerial photograph taken in 2008, and supplied by the NAVFAC Mid-Atlantic Georeadiness Center.



Legend	
●	PDI Sample Location
⊕	Monitoring Well
⊕	Abandoned, Destroyed or Missing Monitoring Well
●	Test Boring / Direct Push Location
⊕	Lower Subbase RI Test Boring Location
⊠	Catch Basin
○	Manhole
○	Sanitary / Sewer Junction
▭	Site Boundary
—	Compressed Air Line
—	Electric Line
—	Former Diesel Oil Line
—	Natural Gas Line
—	Sanitary Sewer Line
—	Steam Line
—	Storm Sewer Line
—	Telephone Line
—	Water Line
78	Building Number
▨	Former Building
▨	Grass/Gravel Area



DRAWN BY J. ENGLISH	DATE 04/14/11
CHECKED BY N. BALSAMO	DATE 04/20/11
COST/SCHEDULE-AREA	
SCALE AS NOTED	

**Tetra Tech NUS, Inc.**

**SITE MAP**  
 SITE 17 - FORMER HAZARDOUS MATERIALS /  
 SOLVENT STORAGE AREA (FORMER BUILDING 31)  
 NSB-NLON, GROTON, CONNECTICUT

CONTRACT NUMBER WE33	OWNER NUMBER 3386
APPROVED BY CAR	DATE 05/23/11
APPROVED BY	DATE
DRAWING NO. FIGURE 11-1	REV 0

## 12.0 SITE 19 – LOWER SUBBASE – FORMER SOLVENT STORAGE AREA – FORMER BUILDING 316 (OU4)

This five-year review for NSB-NLON is being conducted because of CERCLA statutory requirements. Remedial actions were conducted at some IRP sites that allowed hazardous substances, pollutants, or contaminants to remain on site in excess of levels that allow for unlimited use and unrestricted exposure. Inclusion of Site 19 in the Third Five-Year Review Report is not required because a final remedy has not been selected nor implemented. Site 19 is addressed here as a courtesy, for information purposes, and to present a comprehensive description of active and potential IRP actions at NSB-NLON. It is not possible to make a protectiveness assessment at this time.

The final FS for OU4, Lower Subbase (Tetra Tech, 2010i), which includes Site 19, was issued in December 2010, with the understanding that additional data that might impact the findings of the FS would be collected as part of Soil and Groundwater PDIs. The draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum (Tetra Tech, 2011b), that incorporates that data, was issued in March 2011. Decision documents will be prepared upon approval of the FS addendum.

### 12.1 HISTORY AND SITE CHRONOLOGY

A list of important Site 19 historical events and relevant dates in the site chronology is shown below. The identified events are illustrative, not comprehensive.

Event	Date
Solvents stored in Building 316.	NA
Existing Data Summary Report for Lower Subbase RI completed.	1997
Final Lower Subbase RI completed.	1999
First Five-Year Review performed.	December 2001
SOPA (ADMIN) New London Instruction 5090.18C updated.	December 2006
Final Thames River Validation Study Report issued.	March 2008
SOPA (ADMIN) New London Instruction 5090.18D issued	September 2008
SOPA (ADMIN) New London Instruction 5090.25 issued	June 2009
Final Lower Subbase FS submitted	December 2010
Draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum submitted	March 2011

## 12.2 BACKGROUND

Site 19 – Former Solvent Storage Area, Former Building 316, is located in the Lower Subbase, west of Pier 2. The site map is included as Figure 10-1. Figure 1-2 shows the location of the site in relationship to the other IR sites at NSB-NLON. Several 5-gallon cans containing methyl ethyl ketone were stored in Former Building 316 (USEPA, 1995a). Solvents are no longer stored in this facility.

Soil and groundwater sampling and analysis were conducted at this site, along with Site 13, and included as Zone 4 during the Lower Subbase RI (Tetra Tech, 1999b). Investigations of Zone 4 are presented in the Site 13 discussion in Section 10. Contamination associated with Site 13 was identified in Zone 4, but no major contamination was found at Site 19.

An ERA for the Thames River adjacent to Zone 4 was completed and the results were presented in Section 10.2. The risks to ecological receptors identified in the ERA are associated with contamination released from Site 13, not Site 19. Therefore, the ERA results are not repeated in this section.

Following finalization of the FS Addendum, a ROD will be prepared to document the selection of the remedial action to be taken to address Zone 4 (Sites 13 and 19). It is anticipated that the ROD will be finalized in 2012.

## 12.3 REMEDIAL ACTIONS

### 12.3.1 Remedy Selection

A final remedy has not been selected or implemented at Zone 4, which includes Site 19. It is anticipated that the ROD for the Lower Subbase, which encompasses Zone 4, will be finalized in 2012.

### 12.3.2 Remedy Implementation

A final remedy has not yet been chosen for Site 19 (Zone 4). A schedule for implementation of the selected remedy will be developed after the ROD is signed.

## 12.4 PROGRESS SINCE LAST REVIEW

This is the third five-year review of Site 19. The recommendations from the Second Five-Year Review Report are provided below along with the actions taken to address the recommendations.

It was recommended that the FS be completed to determine the appropriate remedial action for Zone 4 that is protective of human health and the environment. It was further recommended that an appropriate decision document should be prepared after the FS is completed to document the selected remedial alternative.

- The FS for the Lower Subbase was issued in December 2010. The draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum was issued in March 2011. It is anticipated that the Lower Subbase (OU4) ROD, which includes Site 19, will be completed in 2012.

In addition, it is recommended that there be enforcement of the IR Site Use Restriction instruction.

- The instruction was updated and reissued in 2009 as SOPA (ADMIN) NLONINST 5090.25. The instruction details the restrictions on disturbance of soil and/or groundwater at IR sites at NSB-NLON. The instruction has been enforced as appropriate at Site 19.

## **12.5 FIVE-YEAR REVIEW PROCESS**

This section provides a summary of the five-year review process and the actions taken to complete this review.

### **12.5.1 Document Review**

The Lower Subbase FS, the draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum, and the New London Instruction 5090.25 were reviewed for the third five-year review of Site 19. The findings of the FS and FS Addendum for Zone 4 are discussed in Section 10.2 of this report. Within the past 5 years, no other documents related to Site 19 have been completed.

### **12.5.2 Data Review**

New data was collected near Site 19 within the past 5 years during the Soil and Groundwater PDIs and reported in the draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum. No routine monitoring or O&M activities have been initiated at the site because a final remedy has not been selected.

### **12.5.3 ARAR and Site-Specific Action Level Changes**

A remedy has not been selected and a ROD has not been signed for Site 19 (Zone 4); therefore, ARARs and site-specific action levels have not been identified for Site 19.

#### **12.5.4 Site Inspection**

The Lower Subbase was visually inspected April 6, 2011, as the inspection team drove through the area. Zone 4, including Site 19, is covered with pavement or buildings and is located near the Thames River and a set of railroad tracks. The Lower Subbase is a high-security area at NSB-NLON, and to avoid security issues, the team conducted a drive-through inspection, led by the Navy. Representatives from the Navy, CTDEP, and Tetra Tech participated in the inspection. No issues were identified and no photos of the zone were taken during the inspection because of security issues. The Navy has no plans to change the use of Site 19.

#### **12.5.5 Site Interviews**

No official interviews were conducted as part of the third five-year review.

### **12.6 ASSESSMENT**

Because a final remedy has not been selected or implemented for Site 19 (Zone 4), it is not possible to make a determination of whether a remedy is protective of human health and the environment. However, no significant contamination has been found to be associated with Site 19 in Zone 4. The results of the Lower Subbase RI, FS, and FS Addendum do not indicate any imminent threats to human health or the environment under the current land use scenario.

The Navy has an IR Site Use Restriction Instruction in place at NSB-NLON [SOPA (ADMIN) NLONINST 5090.25]. The policy restricts ground surface disturbance of soils and any subsurface disturbance of soils and/or groundwater at IR Sites.

### **12.7 ISSUES**

A final remedy has not been implemented at Site 19 (Zone 4); therefore, deficiencies cannot be determined at this time.

### **12.8 RECOMMENDATIONS AND FOLLOW-UP ACTIONS**

It is recommended that the Lower Subbase ROD be completed to select the appropriate remedial action for Site 19 (Zone 4) that is protective of human health and the environment. It is also recommended that there be continued enforcement of New London Instruction 5090.25 until a final remedy is selected and implemented.

**12.9 PROTECTIVENESS STATEMENT**

A protectiveness determination for Site 19, cannot be made at this time because a remedy has not yet been selected. The results of the Lower Subbase RI, FS, and FS Addendum do not indicate any imminent threats to human health or the environment under the current land use scenario. The Navy has instituted instruction that provides land use controls and restricts excavation activities. The instruction should minimize unauthorized and unplanned exposure to contaminated media at Site 19 until a remedy is selected and implemented. The Lower Subbase ROD will be prepared following the finalization of the Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum.

### **13.0 SITE 21 – LOWER SUBBASE – BERTH 16 (OU4)**

This five-year review for NSB-NLON is being conducted because of CERCLA statutory requirements. Remedial actions were conducted at some IRP sites that allowed hazardous substances, pollutants, or contaminants to remain on site in excess of levels that allow for unlimited use and unrestricted exposure. Inclusion of Site 21 in the Third Five-Year Review Report is not required because a final remedy has not been selected nor implemented. Site 21 is addressed here as a courtesy, for information purposes, and to present a comprehensive description of active and potential IRP actions at NSB-NLON. It is not possible to make a protectiveness assessment at this time.

The final FS for OU4, Lower Subbase (Tetra Tech, 2010i), which includes Site 21, was issued in December 2010, with the understanding that additional data that might impact the findings of the FS would be collected as part of the Soil and Groundwater PDIs. The draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum (Tetra Tech, 2011b) incorporating that data was issued in March 2011. Decision documents will be prepared upon approval of the FS Addendum.

#### **13.1 HISTORY AND SITE CHRONOLOGY**

A list of important Site 21 historical events and relevant dates in the site chronology is shown below. The identified events are illustrative, not comprehensive.

<b>Event</b>	<b>Date</b>
Construction of Buildings 103, 173, 106, and 156.	1918 – 1944
Construction of Buildings 456 and 478.	After 1979
Final Site Inspection Report for Berth 16 completed.	1995
Final Lower Subbase RI completed.	1999
First Five-Year Review completed.	December 2001
SOPA (ADMIN) New London Instruction 5090.18C updated.	December 2006
Monitoring Well Inventory Report and Abandonment Plan issued.	September 2007
SOPA (ADMIN) New London Instruction 5090.18D issued.	September 2008
SOPA (ADMIN) New London Instruction 5090.25 issued.	June 2009
Final Lower Subbase FS submitted.	December 2010
Draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum submitted.	March 2011

## 13.2 BACKGROUND

Site 21 is Berth 16, which is located at the Lower Subbase along the Thames River at the intersection of Amberjack and Albacore Roads. The site map is included as Figure 13-1. Figure 1-2 shows the location of the site relative to the other IR sites at NSB-NLON.

Berth 16 formerly included a refuse/classified materials incinerator; an underground, 250-gallon, diesel fuel storage tank; and an underground, diesel-fuel transfer line (Atlantic, 1995a). The incinerator, which was located at the current site of Building 478, was separated from Site 21 and is now Site 25. The UST was located adjacent to the northern wall of Building 157, and the underground fuel line extended along Pier 51, east of Building 173. All these items have been decommissioned (Atlantic, 1995a). Sites 21 and 25 were evaluated collectively as Zone 7 during the Lower Subbase RI. Because of this approach, the results of those studies are discussed in terms of Zone 7.

Soil, groundwater, and sediment sampling (in the adjacent Thames River) and analysis were conducted at the site in conjunction with the Lower Subbase RI (Tetra Tech, 1999b). The RI recommended specific lines of investigations. Those recommendations were based on the understanding that the nature and extent of organic and inorganic contamination in soil were well defined to the extent practical, considering that sampling was limited because of infrastructure limitations, and because the baseline HHRA indicated minimal risk to human receptors.

The Navy cleaned the Lower Subbase storm sewer catch basins in August 2000. Five catch basins in Zone 7 were cleaned by Fleet Environmental using a vacuum truck. The material removed from the catch basins was containerized, tested (TCLP/TPH), and properly disposed off site. The storm sewer lines were not surveyed or repaired during the effort.

The final FS for the Lower Subbase (Tetra Tech, 2010i), which includes Site 21 as a part of Zone 7, was submitted in December 2010. An HHRA was prepared for Zone 7 as part of the Lower Subbase RI (Tetra Tech, 1999b). After the HHRA was prepared, but prior to the completion of the FS, the USEPA released new or revised guidance documents for preparing HHRAs, EPA Region 1 revised its protocols for conducting HHRAs, and CTDEP made revisions to its RSRs. To comply with the revisions, an updated HHRA was prepared for the FS that recalculated risks for potential receptors for Site 21 in Zone 7.

During completion of the FS, data gaps were identified for Zone 7 and it was recognized that additional data might impact the findings of the FS. The FS was issued with the understanding that additional data would be collected as part of Soil and Groundwater PDIs, and the New London IRP Team (Navy, USEPA, and CTDEP) agreed that the results of the Soil and Groundwater PDIs would be incorporated into an FS Addendum. The draft PDI Completion Report and FS Addendum (Tetra Tech, 2011b) was issued in

March 2011. Using the combined data set from the FS and the FS Addendum, an updated HHRA was prepared.

The entire Lower Subbase, including Site 21, is used exclusively for industrial purposes and future residential development is not anticipated; however, a future residential scenario was evaluated for decision-making purposes. Groundwater beneath the Lower Subbase is brackish and has been classified as not suitable for human consumption without treatment, and public water supply service is available; thus, only direct contact (not human consumption) was considered when evaluating human health risk for contaminants in groundwater. Potential receptors under current land use are construction workers and full-time employees; potential receptors under future land use are construction workers, full-time employees, and hypothetical residents (adults and children).

HIs for construction workers exposed to groundwater and full-time employees exposed to surface soil were less than or equal to unity (1), indicating that adverse non-carcinogenic effects are not anticipated for these receptors under the defined exposure conditions. HIs for exposure to surface/subsurface soil by full-time employees (2) and hypothetical adult residents (2) were greater than the acceptable HI of 1; however, HIs for individual target organs were all less than or equal to 1. HIs for exposure to surface/subsurface soil by construction workers (HI = 2) and hypothetical child residents (HI = 14) exceeded the acceptable level of 1. Antimony was the major contributor to the HI for all receptors. ILCRs for all receptors with the exception of the hypothetical child and lifetime residents were within the USEPA's target risk range of  $10^{-4}$  to  $10^{-6}$ . ILCRs for hypothetical child residents ( $2 \times 10^{-4}$ ) and hypothetical lifelong residents ( $3 \times 10^{-4}$ ) exceeded the USEPA's target range. Carcinogenic PAHs and arsenic were the major contributors to the ILCRs.

Lead was identified as a COPC in surface soil and subsurface soil at Zone 7. Hypothetical exposures to lead by current and future employees and construction workers, and future residents were evaluated using lead models that predict the average blood-lead concentration in both adult and child receptors. The modeling predicted that 99 percent of future on-site child residents would have a blood lead level greater than 10 µg/dL and that the resulting geometric mean blood lead level would be 27.8 µg/dL. This result exceeds the USEPA goal of no more than 5 percent of children with blood lead levels exceeding 10 µg/dL.

For full-time employees, the modeling predicted that exposure to surface soil would result in 6.3 percent of the receptors (fetuses) having a blood lead level greater than 10.0 µg/dL and a geometric mean blood lead level of 4.5 µg/dL. For construction workers, the model predicted that exposure to surface/subsurface soil would result in 58 percent of the receptors (fetuses) having a blood lead level greater than 10 µg/dL and a geometric mean blood lead level of 12.5 µg/dL. For full-time employees

exposed to surface/subsurface soil, the model predicted that 34 percent of the receptors (fetuses) having a blood lead level greater than 10.0 µg/dL and a geometric mean blood lead level of 8.7 µg/dL. All of these results exceed the USEPA goal of no more than 5 percent of children (fetuses of exposed women) with blood lead levels exceeding 10 µg/dL.

Following finalization of the FS Addendum, a ROD will be prepared for the selection of the remedial actions to be taken to address the Lower Subbase, including Zone 7. It is anticipated that the Lower Subbase ROD will be finalized in 2012.

### **13.3 REMEDIAL ACTIONS**

#### **13.3.1 Remedy Selection**

A final remedy has not been selected or implemented for Site 21. It is anticipated that the ROD for the Lower Subbase, which encompasses Site 21 and the remainder of Zone 7, will be completed in 2012.

#### **13.3.2 Remedy Implementation**

A final remedy has not yet been chosen for Site 21 (Zone 7). A schedule for the implementation of the selected remedy at Zone 7 will be developed after the ROD is signed.

### **13.4 PROGRESS SINCE LAST REVIEW**

This is the third five-year review of Site 21. The recommendations from the Second Five-Year Review Report are provided below along with the actions that were taken to address the recommendations.

It was recommended that the FS be completed to determine the appropriate remedial action for Zone 7 that is protective of human health and the environment. It was further recommended that appropriate decision document should be prepared after the FS is completed to document the selected remedial alternative.

- The FS for the Lower Subbase, which includes Site 21, was issued in December 2010. The draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum was issued in March 2011. It is anticipated that the Lower Subbase (OU4) ROD for the, which includes Site 21 will be completed in 2012.

It was recommended that rehabilitation or abandonment of site groundwater monitoring wells be conducted.

- Well inventories were conducted at the Lower Subbase in 2007 (Tetra Tech, 2007c) and in 2010 during the Groundwater PDI. Of the eight Site 21 wells inventoried in 2010, six were identified as not deficient and two were not found. Maintenance needs for the inventoried wells were identified in the document.

In addition, it was recommended that there be enforcement of the IR Site Use Restriction instruction.

- The instruction was updated and reissued in 2009 as SOPA (ADMIN) NLONINST 5090.25. The instruction details the restrictions on disturbance of soils and/or groundwater at IR sites at NSB-NLON. During the inspection, it was noted that stockpiled soils from an excavation near Site 21 and within Zone 7 were not being managed in accordance with best management practices for control of erosion and the spread of contamination. On the basis of that observation, it was concluded that the instruction has not been appropriately enforced within Zone 7.

### **13.5 FIVE-YEAR REVIEW PROCESS**

This section provides a summary of the 5-year review process and the actions taken to complete this review.

#### **13.5.1 Document Review**

The 2007 Monitoring Well Inventory Report, Lower Subbase FS, the draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum, and the New London Instruction 5090.25 were reviewed for the third five-year review of Site 21. The FS and FS Addendum are discussed in Section 13.2 of this report. Within the past 5 years, no other documents have been completed regarding Site 21.

#### **13.5.2 Data Review**

New data was collected from Site 21 over the past 5 years, during the Soil and Groundwater PDIs and reported in the draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum. No routine monitoring or O&M activities have been initiated at the site because a final remedy has not been selected

### **13.5.3 ARAR and Site-Specific Action Level Changes**

A remedy has not been selected and a ROD has not been signed for Site 21 (Zone 7); therefore, ARARs and site-specific action levels have not been identified.

### **13.5.4 Site Inspection**

The Lower Subbase was visually inspected April 6, 2011, as the inspection team drove through the area. Zone 7, including Site 21, is covered with pavement or buildings and is located near the Thames River and a set of railroad tracks. The Lower Subbase is a high-security area at NSB-NLON, and to avoid security issues, the team conducted a drive-through inspection, led by the Navy, although the team did leave the vehicle to inspect an excavation. Representatives from the Navy, CTDEP, and Tetra Tech participated in the inspection. During the inspection, it was noted that there was an excavation inside the Zone 7 boundaries near Site 21. The excavation was located near the southeastern corner of Building 106. The stockpiled soil from the excavation had not been placed on a plastic liner and was not protected from weather by a cover. New London Instruction 5090.25 requires that for excavations in an IR site, soil must be stockpiled in accordance with best management practices for erosion control and stormwater protection. The protection of the soil stockpile was not in conformance with best management practices and so was not compliant with the instruction.

The Navy has no plans to change the current use of Site 21.

### **13.5.5 Site Interviews**

No official interviews were conducted as part of the third five-year review.

## **13.6 ASSESSMENT**

Because a final remedy has not been selected or implemented for Site 21 (Zone 7), it is not possible to make a determination of whether a remedy is protective of human health and the environment. The results of the Lower Subbase RI, FS, and FS Addendum do not indicate any imminent threats to human health or the environment as long as site conditions remain the same.

The Navy has an IR Site Use Restriction Instruction in place at NSB-NLON [SOPA (ADMIN) NLONINST 5090.25]. The policy restricts ground surface disturbance of soils and subsurface disturbance of soils and/or groundwater at IR sites. However, observations during the inspection within Zone 7 indicated that the compliance with the instruction is not consistent.

### 13.7 ISSUES

A final remedy has not been implemented at Site 21 (Zone 7); therefore, deficiencies in the remedial action cannot be determined at this time. However, during the third five-year review site inspection, it was noted that stockpiled soil from an excavation near Site 21 was not being managed in accordance with IR Site Use Restriction Instruction [SOPA (ADMIN) NLONINST 5090.25]. This issue is noted in Table 3-1.

### 13.8 RECOMMENDATIONS AND FOLLOW-UP ACTIONS

Two recommendations or needs for follow-up actions were identified for Site 21:

- It is recommended that the Lower Subbase ROD be completed to select the appropriate remedial action for Site 21 (Zone 7) that is protective of human health and the environment.
- It is recommended that enforcement of New London Instruction 5090.25 be strengthened within Zone 7 and its implementation closely monitored until a final remedy is selected and implemented. As detailed in Section 18, Naval Subbase (NAVSUBBASE) New London Request for Permit to Excavate Procedure (June 2008) now requires environmental office concurrence before issuance of dig permits, and NSB-NLON's Environmental Office (PWD EV) will now perform quarterly LUC inspections.

### 13.9 PROTECTIVENESS STATEMENT

A protectiveness determination for Site 21 cannot be made at this time because a remedy has not yet been selected. The results of the Lower Subbase RI, FS, and FS Addendum do not indicate any imminent threats to human health or the environment under the current land use scenario. The Navy has instituted an instruction that provides land use controls and restricts excavation activities. The instruction is designed to minimize unauthorized and unplanned exposure to contaminated media at the zone until a remedy is selected and implemented. However, as discussed in Sections 13.5.4 and 13.7, stockpiled soil from an excavation near Site 21 was not being managed in accordance with the instruction, which indicates that the instruction is not being effectively managed in Zone 7. It is anticipated that the ROD for the Lower Subbase, which encompasses Site 21 and the remainder of Zone 7, will be completed in 2012.

TABLE 13-1

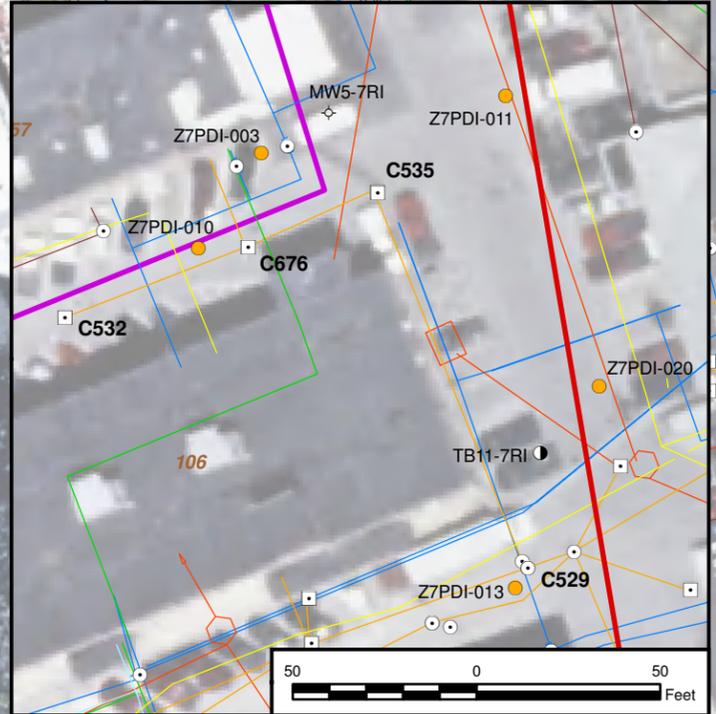
ISSUES IDENTIFIED FOR  
SITE 21 – LOWER SUBBASE – BERTH 16  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT

O&M Issues	Effects Protectiveness?	
	Current	Future Potential
Stockpiled soil from an excavation in Zone 4, near Site 21, was not being managed in accordance with NSB-NLON Instruction 5090.25.	N	Y

Aerial photograph taken in 2008, and supplied by the NAVFAC Mid-Atlantic Georeadiness Center.



- Legend**
- PDI Sample Location
  - Monitoring Well
  - Monitoring Well Installed and Sampled During GW PDI
  - ◇ Abandoned, Destroyed or Missing Monitoring Well
  - Test Boring / Direct Push Location
  - Lower Subbase RI Test Boring Location
  - Catch Basin
  - Manhole
  - Sanitary / Sewer Junction
  - ▭ Site Boundary
  - Compressed Air Line
  - Electric Line
  - Former Diesel Oil Line
  - Natural Gas Line
  - Sanitary Sewer Line
  - Steam Line
  - Storm Sewer Line
  - Telephone Line
  - Water Line
  - 78 Building Number
  - ▨ Former Building
  - ▨ Grass/Gravel Area



DRAWN BY J. ENGLISH	DATE 05/20/11	<b>Tetra Tech NUS, Inc.</b>	CONTRACT NUMBER WE33	OWNER NUMBER 3386
CHECKED BY N. BALSAMO	DATE 08/08/11		APPROVED BY CAR	DATE 05/23/11
COST/SCHEDULE-AREA		<b>SITE MAP</b> SITE 21 - BERTH 16 AND SITE 25 - FORMER CLASSIFIED MATERIALS INCINERATOR NSB-NLON, GROTON, CONNECTICUT	APPROVED BY	DATE
SCALE AS NOTED			DRAWING NO.	FIGURE 13-1

## **14.0 SITE 22 – LOWER SUBBASE – PIER 33 (OU4)**

This five-year review for NSB-NLON is being conducted because of CERCLA statutory requirements. Remedial actions were conducted at some IRP sites that allowed hazardous substances, pollutants, or contaminants to remain on site in excess of levels that allow for unlimited use and unrestricted exposure. Inclusion of Site 22 in the Third Five-Year Review Report is not required because a final remedy has not been selected nor implemented. Site 22 is addressed here as a courtesy, for information purposes, and to present a comprehensive description of active and potential IRP actions at NSB-NLON. It is not possible to make a protectiveness assessment at this time.

The final FS for OU4, Lower Subbase (Tetra Tech, 2010i), which includes Site 22, was issued in December 2010, with the understanding that additional data that might impact the findings of the FS would be collected as part of the Soil and Groundwater PDIs. The draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum (Tetra Tech, 2011b) incorporating that data was issued in March 2011. Decision documents will be prepared upon approval of the FS Addendum.

### **14.1 HISTORY AND SITE CHRONOLOGY**

A list of important Site 22 historical events and relevant dates in the site chronology is shown below. The identified events are illustrative, not comprehensive.

<b>Event</b>	<b>Date</b>
Final Site Inspection Report, Pier 33 and Berth 16 completed.	1995
Final Lower Subbase RI Report completed.	1999
First Five-Year Review completed.	December 2001
SOPA (ADMIN) New London Instruction 5090.18C updated.	December 2006
SOPA (ADMIN) New London Instruction 5090.18D issued.	September 2008
SOPA (ADMIN) New London Instruction 5090.25 issued.	June 2009
Final Lower Subbase FS submitted.	December 2010
Draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum submitted.	March 2011

### **14.2 BACKGROUND**

Site 22 is located at the Lower Subbase along the Thames River and includes Pier 33, Building 175, and approximately 800 lineal feet of property along the area of Pier 33, Building 175, and Amberjack Road. The site map is included as Figure 14-1. The site's location relative to other IR sites is shown on Figure 1-2.

Building 175 was originally used to house several above-ground battery acid storage tanks, which completely filled the building. Transfer lines from the battery acid storage tanks extended along Amberjack Road in trenches to the piers (Atlantic, 1995a). These storage tanks and the associated transfer piping have been removed. There have been no known or reported spills from the storage tanks or transfer system. Building 175 is currently used for miscellaneous storage and administrative purposes. No underground steam or fuel-oil utilities service Building 175.

A 1,000-gallon, underground fuel storage tank was located adjacent to the southern side of Building 175. The age and type of the tank are unknown. Based on a tank test performed May 22, 1990, no leakage was identified. Stained soil was observed around the fill pipe of the UST, and concentrations of TPH detected in shallow and deep soil samples collected in the vicinity of the UST exceeded state and federal criteria (Atlantic, 1995a). This information indicated that the UST was the source of the TPH contamination. The tank was subsequently excavated, removed, and replaced by a new 1,000-gallon UST. A 250-gallon, underground diesel fuel storage tank is located adjacent to the northern side of Building 175 and this tank services an emergency generator for the sewage lift station. The age and type of the tank are unknown.

Zone 5, which includes Site 22, was investigated during the Pier 33 and Berth 16/Former Incinerator Site Investigation (Atlantic, 1995a) and the Lower Subbase RI (Tetra Tech, 1999b). No. 2 fuel oil was detected in subsurface soils in front of Building 175 during the 1995 Site Investigation. Additional investigation of site operations and sediment analysis of the storm sewer system were recommended to determine the extent and source of sediment contamination. Removal and disposal of contaminated sediment and modification of any site operations identified as a contributor to the contaminated sediment were also recommended. For investigation purposes, Site 22 and the surrounding area were identified as Zone 5. Because of this approach, the results of those studies are discussed in terms of Zone 5.

Additional soil, groundwater, and sediment sampling (in the adjacent Thames River) were conducted at this zone in conjunction with the Lower Subbase RI. The Lower Subbase RI Report (Tetra Tech, 1999b) recommended that Zone 5 proceed to an FS to evaluate appropriate remedial alternatives. The RI recommended specific lines of investigations. Those recommendations were based on the understanding that the nature and extent of organic and inorganic contamination in soil were well defined to the extent practical, considering that sampling was limited because of infrastructure limitations, and because the baseline HHRA indicated minimal risk to human receptors.

The Navy cleaned the Lower Subbase storm sewer catch basins in August 2000. Two catch basins in Zone 5 were cleaned by Fleet Environmental using a vacuum truck. The material removed from the catch

basins was containerized, tested (TCLP/TPH), and properly disposed off site. The storm sewer lines were not surveyed or repaired during the effort.

The final FS for the Lower Subbase (Tetra Tech, 2010i), which includes Site 22 as Zone 5, was submitted in December 2010. An HHRA was prepared for Zone 5 as part of the Lower Subbase RI (Tetra Tech, 1999b). After the HHRA was prepared, but prior to the completion of the FS, the USEPA released new or revised guidance documents for preparing HHRAs, EPA Region 1 revised its protocols for conducting HHRAs, and CTDEP made revisions to its RSRs. To comply with the revisions, an updated HHRA was prepared for the FS that recalculated risks for potential receptors for Site 22 in Zone 5.

During completion of the FS, data gaps were identified for Zone 5 and it was recognized that additional data might impact the findings of the FS. The FS was issued with the understanding that additional data would be collected as part of Soil and Groundwater PDIs, and the New London IRP Team (Navy, USEPA, and CTDEP) agreed that the results of the Soil and Groundwater PDIs would be incorporated into an FS Addendum. The draft PDI Completion Report and FS Addendum (Tetra Tech, 2011b) was issued in March 2011. Using the combined data set from the FS and the FS Addendum, an updated HHRA was prepared.

The entire Lower Subbase, including Site 22, is used exclusively for industrial purposes and future residential development is not anticipated; however, a future residential scenario was evaluated for decision-making purposes. Groundwater beneath the Lower Subbase is brackish and has been classified as not suitable for human consumption without treatment, and public water supply service is available; thus, only direct contact (not human consumption) was considered when evaluating human health risk for contaminants in groundwater. Potential receptors under current land use are construction workers and full-time employees; potential receptors under future land use are construction workers, full-time employees, and hypothetical residents (adults and children).

There are no unacceptable human health risks to any receptors from any media in Zone 5 (Site 22). HIs for all receptors on a target organ basis were less than or equal to unity (1), indicating that adverse non-carcinogenic effects are not anticipated for these receptors under the defined exposure conditions. ILCRs for all receptor scenarios were less than or within the USEPA's target risk range.

TPH was detected in subsurface soil in Zone 5 at concentrations that might present a potential risk through direct contact with the soil or groundwater and migration from soil to groundwater. However, TPH is not a CERCLA contaminant and will not be further addressed as a part of the third five-year review. TPH will be addressed independently by the Navy under CTDEP regulations.

Following finalization of the FS Addendum, a ROD will be prepared for the selection of the remedial actions to be taken to address the Lower Subbase, including Site 22 (Zone 5). It is anticipated that the Lower Subbase ROD will be finalized in 2012.

### **14.3 REMEDIAL ACTIONS**

#### **14.3.1 Remedy Selection**

A final remedy has not been selected or implemented for Site 22. It is anticipated that the ROD for the Lower Subbase, which encompasses Site 22 and the remainder of Zone 5, will be completed in 2012.

#### **14.3.2 Remedy Implementation**

A final remedy has not yet been chosen for Site 22. A schedule for the implementation of the selected remedy at Zone 5 will be developed after the ROD is signed.

### **14.4 PROGRESS SINCE LAST REVIEW**

This is the third five-year review of Site 22. The recommendations from the Second Five-Year Review Report are provided below, along with the actions that were taken to address the recommendations.

It was recommended that the FS be completed to determine the appropriate remedial action for Zone 5 that is protective of human health and the environment. It was further recommended that an appropriate decision document should be prepared after the FS is completed to document the selected remedial alternative.

- The FS for the Lower Subbase, which includes Site 22, was issued in December 2010. The draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum was issued in March 2011. It is anticipated that the Lower Subbase (OU4) ROD, which includes Site 22, will be completed in 2012.

In addition, it was recommended that there be continued enforcement of the IR Site Use Restriction Instruction.

- The instruction was updated and reissued in 2009 as SOPA (ADMIN) NLONINST 5090.25. The instruction details the restrictions on disturbance of soils and/or groundwater at IR sites at NSB-NLON. The instruction has been enforced as appropriate at Site 22.

## **14.5 FIVE-YEAR REVIEW PROCESS**

This section provides a summary of the five-year review process and the actions taken to complete this review.

### **14.5.1 Document Review**

The Lower Subbase FS, the draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum, and the New London Instruction 5090.25 were reviewed for the third five-year review of Site 22. The FS and FS Addendum are discussed in Section 14.2. Within the past 5 years, no other documents have been completed regarding Site 22.

### **14.5.2 Data Review**

New data was collected from Site 22 over the past 5 years during the Soil and Groundwater PDIs and reported in the draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum (Tetra Tech, 2011b). No routine monitoring or O&M activities have been initiated at the site because a final remedy has not been selected.

### **14.5.3 ARAR and Site-Specific Action Level Changes**

A remedy has not been selected and a ROD has not been signed for Site 22 (Zone 5); therefore, ARARs and site-specific action levels have not been identified.

### **14.5.4 Site Inspection**

The Lower Subbase was visually inspected April 6, 2011, as the inspection team drove through the area. Zone 5 consists of Pier 33, Building 175, and approximately 400 linear feet of additional river front property adjacent to these two structures. The area is covered with pavement or buildings and is adjacent to the Thames River and railroad. The Lower Subbase is a high-security area at NSB-NLON and to avoid security issues, the team conducted a drive-through inspection, led by the Navy. Representatives from the Navy, CTDEP, and Tetra Tech participated in the inspection. No issues were identified during the inspection, and no photos of the zone were taken during the inspection because of security considerations. The Navy has no plans to change the use of Site 22.

### **14.5.5 Site Interviews**

No official interviews were conducted as part of the third five-year review.

#### **14.6 ASSESSMENT**

Because a final remedy has not been selected or implemented for Site 22 (Zone 5), it is not possible to make a determination of whether a remedy is protective of human health and the environment. The results of the Lower Subbase RI, FS, and FS Addendum do not indicate any imminent threats to human health or the environment under the current land use scenario.

The Navy has an IR Site Use Restriction Instruction in place at NSB-NLON [SOPA (ADMIN) NLONINST 5090.25]. This policy restricts ground surface disturbance of soils and any subsurface disturbance of soils and/or groundwater at IR sites.

#### **14.7 ISSUES**

A final remedy has not been selected for Site 22 (Zone 5); therefore, deficiencies cannot be determined at this time.

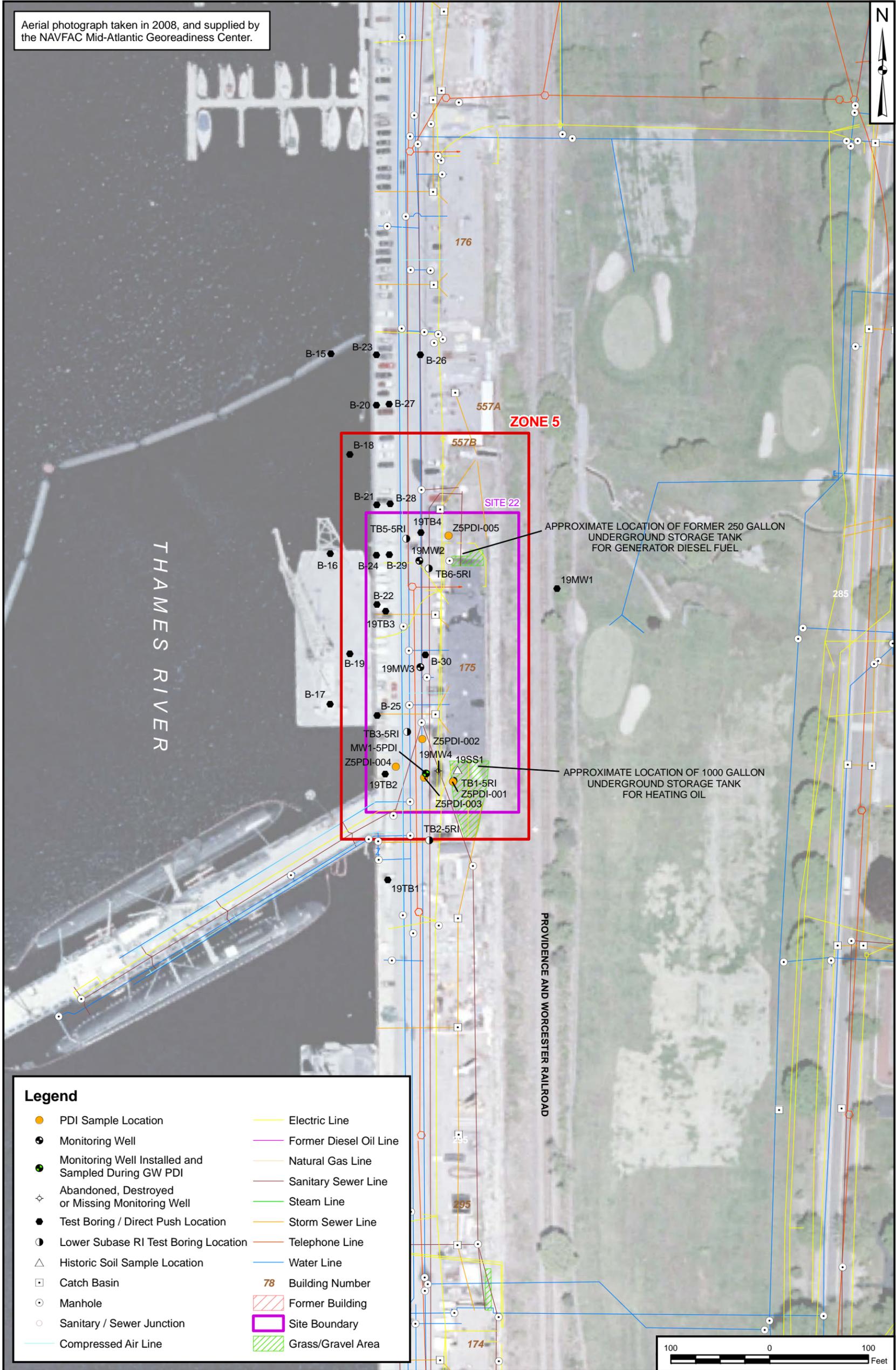
#### **14.8 RECOMMENDATIONS AND FOLLOW-UP ACTIONS**

It is recommended that the Lower Subbase ROD be completed to select the appropriate remedial action for Site 22 (Zone 5) that is protective of human health and the environment. It is also recommended that there be continued enforcement of New London Instruction 5090.25 until a final remedy is selected and implemented.

#### **14.9 PROTECTIVENESS STATEMENT**

A protectiveness determination for Site 22 cannot be made at this time because a remedy has not yet been selected for the zone. The results of the Lower Subbase RI, FS, and FS Addendum do not indicate any imminent threats to human health or the environment under the current land use scenario. The Navy has instituted an instruction that provides land use controls and restricts excavation activities. The instruction should minimize unauthorized and unplanned exposure to contaminated media at Site 22 until a remedy is selected and implemented. It is anticipated that the ROD for the Lower Subbase, which encompasses Site 22 and the remainder of Zone 5, will be completed in 2012.

Aerial photograph taken in 2008, and supplied by the NAVFAC Mid-Atlantic Georeadiness Center.



**Legend**

- PDI Sample Location
- Monitoring Well
- Monitoring Well Installed and Sampled During GW PDI
- ◇ Abandoned, Destroyed or Missing Monitoring Well
- Test Boring / Direct Push Location
- Lower Subbase RI Test Boring Location
- △ Historic Soil Sample Location
- Catch Basin
- Manhole
- Sanitary / Sewer Junction
- Compressed Air Line
- Electric Line
- Former Diesel Oil Line
- Natural Gas Line
- Sanitary Sewer Line
- Steam Line
- Storm Sewer Line
- Telephone Line
- Water Line
- 78 Building Number
- Former Building
- Site Boundary
- Grass/Gravel Area



DRAWN BY J. ENGLISH	DATE 05/20/11	<b>Tetra Tech NUS, Inc.</b>	CONTRACT NUMBER WE33	OWNER NUMBER 3386
CHECKED BY N. BALSAMO	DATE 05/23/11	SITE MAP SITE 22 - PIER 33 NSB-NLON, GROTON, CONNECTICUT	APPROVED BY CAR	DATE 05/23/11
COST/SCHEDULE-AREA			APPROVED BY	DATE
SCALE AS NOTED			DRAWING NO. FIGURE 14-1	REV 0

## 15.0 SITE 23 –FORMER FUEL FARM (OU9)

This five-year review is being conducted for Site 23 because of CERCLA statutory requirements. Remedial actions were conducted at IRP sites at NSB-NLON that allowed hazardous substances, pollutants, or contaminants to remain on site in excess of levels that allow for unlimited use and unrestricted exposure. The soil at Site 23 was investigated and remediated under the CTDEP RCRA UST Program. As such, no CERCLA decision documents were prepared for the soil OU. However, Navy plans to develop and implement a SASE for the soil to determine if there are any remaining CERCLA issues. Site 23 groundwater is a portion of OU9, the Basewide Groundwater. As determined in the OU9 ROD, the remedy for groundwater at Site 23 is Institutional Controls (Navy, 2008b).

### 15.1 HISTORY AND SITE CHRONOLOGY

A list of important Site 23 historical events and relevant dates in the site chronology is shown below. The identified events are illustrative, not comprehensive.

Event	Date
Crystal Lake drained and dredged to allow for construction of nine concrete USTs.	1940s
Decommissioning and demolition of Tank OT-6.	1970s
Diesel Tank Investigation of OT-4, OT-7, OT-8 and OT-9.	1989
Eight petroleum spills were documented by the Navy in the vicinity of the Tank Farm.	1989-1990
Tanks OT-4, OT-7, OT-8, and OT-9 decommissioned.	1990
New Tank OT-10 installed and Tanks OT-4 and OT-5 decommissioned.	1990
No. 6 Fuel Oil UST Tank Investigation of OT-1, OT-2, and OT-3.	1991
Tanks OT-1, OT-2, and OT-3 removed from service.	1991
The 30,000 gallon tank and oil/water separator at OT-10 were pumped out and the debris clogging the pumps was removed. The tanks were then steam cleaned.	1993
Waste Oil Tank OT-5 investigated for demolition and closure.	1994
OT-5 was cleaned, partially demolished, and closed.	1995
Site Investigation of Tank Farm completed to define extent of soil and groundwater contamination in the UST farm.	1997
Free-product removal and soil excavation completed at OT-8.	February 1998
Hydrogeologic study at the Tank Farm conducted to provide information to complete the design of a replacement storm sewer system.	1998
Tank Farm in the vicinity of OT-2 and OT-3 further investigated because weathered diesel fuel was detected in the storm sewers.	1999
Free-product removed and 1,070 cubic yards of contaminated soil excavated in the vicinity of OT-3 and Tang Avenue .	2000

<b>Event</b>	<b>Date</b>
The storm sewer was rehabilitated.	2000
Final Closeout Report for Storm Sewer Rehabilitation	May 2001
First Five-Year Review completed.	December 2001
BGOURI completed.	January 2002
SOPA (ADMIN) New London Instruction 5090.18C updated.	December 2006
Second Five-Year Review Completed	December 2006
Work Plan for Site 23 Underdrain Metering Pit Sampling	April 2007
Monitoring Well Inventory Report and Abandonment Plan	September 2007
Proposed Plan for Basewide Groundwater OU9	June 2008
Year 1 Monitoring Report for Site 23 Underdrain Metering Pit Sampling	September 2008
Record of Decision of Operable Unit 9 Basewide Groundwater signed	September 2008
SOPA (ADMIN) New London Instruction 5090.18D issued	September 2008
SOPA (ADMIN) New London Instruction 5090.25 issued	June 2009
Letter to Town of Ledyard, Land and Groundwater Use Restrictions	September 2009
Letter to Town of Groton, Land and Groundwater Use Restrictions	September 2009
Remedial Design for Land Use Controls on Basewide Groundwater OU9	November 2009
Year 2 Monitoring Report for Site 23 Underdrain Metering Pit Sampling	October 2009
Remedial Action Completion Report for OU9 Basewide Groundwater	June 2010
Site 23 documented in LUC Tracker	2010

## **15.2 BACKGROUND**

In the early 1940s, Crystal Lake was drained and dredged to allow for construction of nine concrete USTs (see Figure 7-1). When construction was complete, the former lake bed was reportedly filled with soils excavated from a small hill west of the Fuel Farm (Site 23) and graded to create a level surface for development at NSB-NLON. The location of Site 23 relative to the other IR sites is shown on Figure 1-2.

Each of the nine USTs had a holding capacity of 750,000 gallons. No. 6 fuel oil was stored in former tanks OT-1 through OT-3 from the date of construction until they were removed from service in the summer of 1991. Tank OT-4 was used to store tank bottom wastes from OT-1, tank OT-5 was used to store fuel oil, and former tanks OT-6 through OT-9 were used for storage of diesel oil.

A reduced demand for diesel fuel at NSB-NLON in the mid-1970s led to the decommissioning and demolition of former tank OT-6. The reduced demand led to the modification of tank OT-5 for storage of bilge water and other waste solutions. Tank OT-5 was used as part of an oil/water separator system. Former tanks OT-4 and OT-5 were reportedly decommissioned after installation of a new 30,000-gallon waste oil underground tank (OT-10) in 1990. For further information regarding OT-5, see Section 7.0. Former tanks OT-7 through OT-9 were decommissioned in the summer of 1990. Former tanks OT-1 through OT-9 have been demolished and closed in place. Tank closure was accomplished following

RCRA closure requirements by cleaning the tanks, demolishing the tank roof supports, and allowing the roof to collapse into the tank. The void was then filled with gravel, and the site was restored using soil and topsoil.

A number of petroleum releases were documented by the Navy in the vicinity of the Fuel Farm at NSB-NLON. Investigations of the Fuel Farm conducted from 1989 through 1999 detected evidence of releases of petroleum products from these tanks and their associated piping and, possibly, from other nearby sources. Both soil contamination and free-product were identified at Site 23 during the investigations. Petroleum hydrocarbons have been detected periodically at the outfall of the Fuel Farm storm sewer system.

The Fuel Farm features are shown on Figure 7-1 and include the following:

- Nine former 110-foot-diameter, 11-foot-high USTs (former OT-1 to OT-9)
- A 30,000-gallon, double-walled UST (OT-10)
- An oil/water separator (at OT-10)
- A 10,000-gallon waste oil tank (at OT-10)
- A fuel oil loading area adjacent to Building 482
- Tanker truck dumping pad and trough (at OT-10)
- Associated UST piping systems
- The Morale, Welfare, and Recreation (MWR) Recreation Center (Building 461)
- Six baseball/softball fields
- A restroom facility (Building 445)
- An partially abandoned air sparging (AS)/soil vapor extraction (SVE) facility for the Naval Exchange (NEX) service station
- Two 150,000-gallon diesel ASTs (OT-12 and OT-13)

Recreational fields and a number of parking areas are located on top of the Fuel Farm

### **Product Transfer Lines**

Product (No. 6 fuel oil or diesel fuel) was historically delivered via barge to a pier, where it was pumped via pipelines to the Fuel Farm USTs through the Building 332 valve house. Product was transferred via pipeline from the USTs to the power plant or the submarines at the Lower Subbase on an as-needed basis.

The No. 6 fuel oil transfer lines were situated within concrete-lined trenches but were removed because No. 6 fuel oil is no longer used at NSB-NLON. The diesel transfer lines have no trenches. Portions of the diesel fuel lines on the Lower Base were recently replaced. The lines located on the Upper Base are cathodically protected.

Petroleum contamination related to the former USTs and their associated piping was identified during previous investigations at Site 23. The Navy conducted three removal actions to address the identified contamination. Soil and free product were removed in the vicinity of former OT-8 and former OT-3 during the removal actions. Contaminated soil was also removed along Tang Avenue. In addition, BTEX compounds were historically detected in groundwater at the Fuel Farm, and it was determined that the contamination was related to leaking USTs from an adjacent site (i.e., NEX Gas Station). The leaking USTs have been repaired, and an AS/SVE system was installed to address the associated BTEX plumes.

### **Storm Drainage System**

The Fuel Farm originally contained an extensive drainage system consisting of numerous catch basins, corrugated metal pipe, perforated corrugated metal pipe, vitrified clay pipe, and reinforced concrete pipe. According to NSB-NLON personnel, the drainage system served approximately one-third of NSB-NLON. Portions of the drainage system were installed with perforated corrugated metal pipe to depress the water table in the Fuel Farm. The surface water and groundwater collected by the storm sewer system ultimately discharge to a boomed area of the Thames River, adjacent to the Goss Cove Landfill. Based on known elevations of storm sewer catch basins, the elevation of the drainage system is below the process piping.

The Fuel Farm drainage system was rehabilitated in 2000. The original combined groundwater and stormwater system was separated into a deep groundwater and a new shallow stormwater system. The old deteriorated pipes in the groundwater collection system were slip-lined to improve their integrity and conductance. The old tank ring-drains (french drains) were not rehabilitated, but their connection with the groundwater collection system was maintained.

As part of the drainage system rehabilitation project, contaminated soil and free product were also remediated. Free product and 1,070 cubic yards of contaminated soil, which were previously identified during the Fuel Farm Site Investigation Addendum in the vicinity of the former UST OT-3, were removed and disposed off site.

### **Tank Underdrain System**

The nine former USTs (OT-1 to OT-9) at the Fuel Farm had a holding capacity of 750,000 gallons. Each tank was approximately 110 feet in diameter and 11 feet in depth. Depending on the season, the depth to groundwater in some areas of the site may be as little as 2 feet below grade. Shallow groundwater would exert hydrostatic pressure, and the floor of the tank would rise, with or without its walls.

Tank stability was obtained using a combination of a site-wide drainage system, a series of columns inside the tanks, and an underdrain system. A site-wide stormwater drainage/dewatering system was installed, and french drains were installed around OT-1, OT-2, OT-3, OT-4, and OT-5. A series of 37 columns transmitted the weight of the tank roof and overlying fill to the floor of the tank.

The Fuel Farm originally contained an extensive drainage system consisting of numerous catch basins, corrugated metal pipe, perforated corrugated metal pipe, vitrified clay pipe, and reinforced concrete pipe. According to NSB-NLON personnel, the drainage system served approximately one-third of the entire NSB-NLON facility. Portions of the drainage system were installed with perforated corrugated metal pipe to depress the water table in the Fuel Farm. The surface water and groundwater collected by the storm sewer system ultimately discharge to a boomed area of the Thames River, adjacent to the Goss Cove Landfill. Based on known elevations of storm sewer catch basins, the elevation of the drainage system was below the process piping.

### **Site Investigations**

In 1995, a study was performed to characterize soil and groundwater near OT-10. The need for soil remediation was evaluated based on CTDEP industrial direct exposure criteria, residential direct exposure criteria, and pollutant mobility criteria, and groundwater was evaluated based on GAA or GA groundwater protection criteria, surface water protection criteria, and volatilization criteria. TPH did not exceed CTDEP Industrial criteria. Unacceptable contamination was not detected near OT-10 but continued monitoring of groundwater was suggested (B&RE, 1996a).

In the 1995 Tank Farm Investigation, soil and groundwater samples from OT-4, OT-5, and from locations not in the immediate vicinity of the tanks ("Site-wide") and groundwater at the loading area were analyzed for TCL VOCs, TCL SVOCs, TCL pesticides/PCBs, TAL metals, cyanide, and TPH; soil and groundwater samples at other locations were analyzed only for UST-program parameters. The presence of inorganics was thought to be a result of the type of fill material used to construct the tank farm as well as high background levels throughout NSB-NLON. Therefore, it was determined that there was no cost-effective means for reducing concentrations of inorganic contamination within the tank farm. OT-8 was found to have free product in one of the associated wells and TPH contamination in the soil and

groundwater. Replacement of the existing storm sewer was expected to address groundwater concerns. NFA was recommended at OT-1, OT-2, OT-3, OT-4, OT-5, OT-6, OT-7, OT-9 and the loading area (B&RE, 1997i).

A study was performed to evaluate the impact of replacing the existing storm sewer system and drainage system on the local groundwater table. The study recommended that a new, shallow storm sewer system be constructed to separate surface water flow from groundwater flow, but maintain the existing drainage system to help dewater the area (Tetra Tech, 1999c).

The tank farm was further investigated in the vicinity of OT-2 and OT-3. Soil was analyzed for BTEX, SVOCs, and TPH. Soil was compared to Industrial CTDEP direct exposure criteria and GB pollutant mobility criteria. 2-methylnaphthalene and TPH exceeded screening criteria in soil near OT-3. The volume of contaminated soil was estimated to be approximately 1,070 cubic yards. Groundwater was analyzed for BTEX and SVOCs. Groundwater was evaluated as GB groundwater and compared to CTDEP SWPC and Volatilization Criteria. Acenaphthylene and phenanthrene exceeded screening criteria in groundwater near OT-2 and OT-3. The report concluded that the existing AS/SVE system should be continue to be assessed to address 2-methylnaphthalene in soil and TPH in groundwater, to complete the storm sewer replacement project, and to remove free product during excavation of contaminated soil in the vicinity of OT-2 and OT-3. (Tetra Tech, 1999e).

Site 23 was further characterized during the BGOURI in 2000 (Tetra Tech, 2002a). Groundwater samples were collected from monitoring wells completed in the overburden and bedrock aquifers. Soil samples were collected to characterize the hydrogeologic properties of the overburden aquifer. VOCs and SVOCs were detected infrequently in groundwater samples collected during the BGOURI. Metals were detected frequently in groundwater samples, but the detections are likely related to the fill material used to construct the Fuel Farm. The human health risk assessment did not identify any significant risks to receptors from exposure to groundwater. The RI recommended postponing any decisions on the groundwater at Site 23 until a sufficient amount of data was available from the groundwater collection system monitoring program to properly characterize the groundwater. A work plan for quarterly sampling of groundwater from the metering pit at Site 23 was implemented in 2007 (Tetra Tech 2007a). The Site 23 underdrain metering pit was sampled after construction and quarterly for a period of 1 year starting in June 2007 (Tetra Tech, 2008d). Samples were collected from the metering pit that collects groundwater from the Site 23 area underdrains from four former tanks. All relevant concentrations were less than established Connecticut criteria (with the exception of some anomalous results). Based on results less than criteria, Site 23 groundwater (including Site 9 groundwater) being collected and conveyed in the storm sewer system does not pose a significant threat to human health or the environment under the current land use scenario; however, risks would be unacceptable if groundwater at the site was used as a

drinking water supply (Navy, 2008b). In the four rounds of Year 2 monitoring, no contaminants were detected at concentrations greater than any established Connecticut criteria (surface water protection, residential volatilization, or stormwater discharge permit criteria). The Year 2 monitoring report recommended no additional monitoring at Site 23 (ECC, 2009h).

Concentrations of chloroform and TCE exceeded the USEPA screening criterion at Sites 23. Chloroform and TCE were further evaluated using the Johnson and Ettinger Vapor Intrusion Model. Modeling results showed that cancer risks for chloroform under a residential scenario were within USEPA acceptable levels but exceeded CTDEP acceptable levels. Cancer risks for TCE based upon California USEPA toxicity criteria were within USEPA and CTDEP acceptable levels for residential and industrial scenarios but cancer risks for a residential scenario based upon draft USEPA toxicity criteria exceeded CTDEP acceptable levels. Further valuation against ARARs showed that vapor intrusion is not an issue at Site 23. NFA is required for vapor intrusion issues (Navy, 2008b).

A well inventory was conducted at NSB-NLON in 2007. This inventory included 52 Site 23 IR program wells and 16 Site 23 UST wells (Tetra Tech, 2007c). As a result of the inventory, two Site 23 IR program wells were properly abandoned because they were not functional (ECC, 2007b). The conditions of 25 wells were identified as not deficient and conditions of four wells could not be determined. Although not part of an active monitoring program, it was recommended that the remaining functional Site 23 wells be maintained until a decision is reached on the selection of a remedial action at this site (Tetra Tech, 2007c).

## **15.3 REMEDIAL ACTIONS**

### **15.3.1 Remedy Selection**

The soil at Site 23 was investigated and remediated under the CTDEP RCRA UST Program. The Navy conducted three removal actions to address the contamination identified in the soil. Soil and free product were removed in the vicinity of OT-8 to address the 1995 investigation findings and OT-3 to address the 1999 investigation findings. Contaminated soil was also removed along Tang Avenue. The remedial goal for the removal actions at OT-8 and Tang Avenue was 2,500 mg/kg for TPH. In addition, BTEX compounds were historically detected in groundwater in the Fuel Farm, and it was determined that the contamination was related to leaking USTs from an adjacent site (NEX Gas Station). The leaking USTs were repaired, and an AS/SVE system was installed and operated to address the associated BTEX plumes. No RODs have been signed for Site 23 soil. The Navy is currently evaluating the need for further action for the soil under CERCLA.

RAOs for groundwater at Sites 9 and 23, as described in the OU9 ROD, are to protect potential future receptors from exposure to contaminated groundwater via ingestion (potable water supply) and protect aquatic ecological receptors. The Selected Remedy for Sites 9 and 23 groundwater is Institutional Controls. The Selected Remedy meets all of the RAOs by restricting access to and use of contaminated groundwater and consists of two major components: (1) implementation of LUCs at the sites and (2) completion of five-year reviews.

### **15.3.2 Remedy Implementation**

RAs were conducted to address free product and soil contamination at Site 23 in 1997. The soil at Site 23 was investigated and remediated under the CTDEP RCRA UST Program. The actions were conducted in accordance with the Corrective Action Plan contained in the Site Investigation Report (B&RE, 1997i). Approximately 783 tons of petroleum-impacted soil were removed from Site 23 near OT-8 and Tang Avenue during the removal actions. As part of the drainage system rehabilitation project, free product and 1,070 cubic yards of contaminated soil the vicinity of the former UST OT-3, which were previously identified during the Fuel Farm Site Investigation Addendum, were removed and disposed of off site (FWEC, 2001a).

Based on the Final ROD for OU9, an RD for LUCs on Basewide Groundwater OU9 was prepared. LUCs at Site 23 are to prevent the withdrawal and/or use of groundwater for potable water purposes until concentrations in groundwater meet criteria acceptable for unrestricted use and unlimited exposure and ensure that groundwater extracted during construction dewatering activities is properly handled, stored, and disposed (Tetra Tech, 2009e). The RACR for OU9 was prepared to document completion of site remedies and LUCs at OU9, including Site 23 (Tetra Tech, 2009b). In 2009, a table and map were filed in the land record offices of the Towns of Groton and Ledyard, Connecticut to show the location of monitoring wells, note remedy in place, and list contaminants of concern and LUCs that have been imposed at Site 23 (Navy, 2009c; Navy 2009d). The Site 23 boundary was surveyed in March 2010 and a revised map with a corrected Site 23 boundary was submitted to the Towns of Ledyard and Groton in May 2010.

### **15.4 PROGRESS SINCE LAST REVIEW**

This is the third five-year review of the Site 23. The recommendations from the Second Five-Year Review Report are provided below along with the actions that were taken to address the recommendations.

It is recommended that the results of the monitoring program be evaluated and a decision for preparation of an FS for the groundwater at the Fuel Farm be made in 2007. If the results of the monitoring program

and evaluation support that there are no unacceptable risks to human health or the environment, an FS should not be prepared and an NFA ROD for the groundwater OU should be prepared.

- A work plan for quarterly sampling of groundwater from the metering pit at Site 23 was implemented in 2007. The Site 23 underdrain metering pit was sampled after construction and quarterly for a period of 2 year starting in June 2007 (Tetra Tech, 2008d). The Year 2 monitoring report recommended no additional monitoring at Site 23 (ECC, 2009h). Based on results less than criteria, Site 23 groundwater being collected and conveyed in the storm sewer system does not pose a significant threat to human health or the environment under the current land use scenario; however, risks would be unacceptable if groundwater at the site was used as a drinking water supply (Navy, 2008b). An FS was not considered necessary. Site 23 groundwater was included in the OU9 ROD.

It is also recommended that there be enforcement of the IR Site Use Restriction Instruction.

- The IR New London Instruction was updated in September 2008 and again in June 2009. The current version is SOPA (ADMIN) New London Instruction 5090.25. An IR Groundwater Inspection Checklist for Sites 9 and 23 was included in the November 2009 OU9 LUC RD. This checklist includes a line item to check availability of the current New London Instruction and other LUC items. In addition, letters with maps and tables of site use restrictions were provided to the Towns of Ledyard and Groton, Connecticut in September 2009, and a survey of Site 23 was performed to establish the LUC boundary.

## 15.5 FIVE-YEAR REVIEW PROCESS

This section provides a summary of the five-year review process and the actions taken to complete this review.

### 15.5.1 Document Review

The documents reviewed for the third five-year review are listed below, and key information obtained from the documents is summarized in the following sections.

Second Five-Year Review Completed	December 2006
Work Plan for Site 23 Underdrain Metering Pit Sampling	April 2007
Monitoring Well Inventory Report and Abandonment Plan	September 2007
Proposed Plan for Basewide Groundwater OU9	June 2008
Year 1 Monitoring Report for Site 23 Underdrain Metering Pit Sampling	September 2008
Record of Decision of Operable Unit 9 Basewide Groundwater signed	September 2008

SOPA (ADMIN) New London Instruction 5090.18D issued	September 2008
SOPA (ADMIN) New London Instruction 5090.25 issued	June 2009
Letter to Town of Ledyard, Land and Groundwater Use Restrictions	September 2009
Letter to Town of Groton, Land and Groundwater Use Restrictions	September 2009
Remedial Design for Land Use Controls on Basewide Groundwater OU9	November 2009
Year 2 Monitoring Report for Site 23 Underdrain Metering Pit Sampling	October 2009
Remedial Action Completion Report for OU9 Basewide Groundwater	June 2010

**15.5.2 Data Review**

Based on 2 years of monitoring results less than criteria, Site 23 groundwater being collected and conveyed in the storm sewer system does not pose a significant threat to human health or the environment under the current land use scenario; however, risks would be unacceptable if groundwater at the site was used as a drinking water supply (Navy, 2008b).

**15.5.3 ARAR and Site-Specific Action Level Changes**

A CERCLA remedy has not yet been determined to be necessary for Site 23 soil, and therefore, no ARARs have been selected. If a CERCLA remedy is selected in the future, ARAR changes will be evaluated in a subsequent Five-Year Review.

The selected remedy for Site 23 groundwater was Institutional Controls and is described in the OU 9 ROD (Navy, 2008b). ARARs and TBCs were reviewed to determine whether there have been changes since the implementation of the ROD. Listings of chemical-specific, location-specific, and action-specific ARARs and TBCs that were considered in the ROD are listed in Tables 15-1, 15-2, and 15-3, respectively. Since the ROD was implemented, the only other change related to ARARs is that 40 CFR 6, Appendix A (Statement of Procedures on Floodplain Management and Wetlands Protection) which is a regulatory citation associated with E.O. 11988 (Floodplain Management) and E.O. 11990 (Protection of Wetlands) has been deleted. However, Executive Orders E.O. 11988 (Floodplain Management) and E.O. 11990 (Protection of Wetlands) remain in effect. Because there is no monitoring component to the remedy, criteria or remedial goals do not need to be evaluated.

**15.5.4 Site Inspection**

A site inspection conducted on April 6, 2011 included visual observations of the Site 23/Site 9 area. Weather conditions during the inspection were cool (mid-50s), sunny, and breezy. Representatives from the Navy, CTDEP, and Tetra Tech participated in the inspection. Appendix A contains photographs taken of the Site 23/Site 9 (OT-5) area. There were no deficiencies or O&M issues identified during the inspection and the site is in good condition.

Site 23 is within a partially fenced area that is currently used for recreation. Land use has not changed since the remedy was implemented, although during the site inspection, boring for the future installation of light poles was observed at Site 23. The current configuration of the recreational fields will change over the next six months; however, land use will remain the same. In accordance with the land use restriction, groundwater at the Fuel Farm is not used for human consumption. There is no short-term or long-term plan to convert this area to any other use.

#### 15.5.5 Site Interviews

No formal interviews were conducted for this site as part of the third five-year review. .

#### 15.6 ASSESSMENT

The following conclusions support the determination that the remedy at Site 23 is protective of human health and the environment.

##### ***Question 1. Is the remedy functioning as intended by the decision documents?***

- ***Remedial Action Performance:*** All contaminated wastes and product were removed from the former tanks (Site 23), and the tanks were properly closed in place. A final remedy has not been selected for the soil at Site 23; therefore, an evaluation of the functionality of the remedy cannot be made at this time. LUCs have successfully prevented use of Site 23 groundwater as a drinking water supply.
  
- ***System Operations/O&M:*** The present worth cost analysis for the Selected Remedy is presented in OU9 ROD and summarized as follows:
  - Estimated Time for Design and Construction: 6 months
  - Estimated Time for Operation: 30 years
  - Estimated Capital Cost: \$10,295
  - Estimated O&M Costs (Present Worth): \$108,705
  - Estimated Total Present Worth: \$119,000
  
- ***Opportunities for Optimization:*** Not applicable.
  
- ***Early Indicators of Potential Issues:*** No early indicators of potential remedy issues were noted during the review.

- **Implementation of Institutional Controls and Other Measures:** The Navy current IR Site Use Restriction Instruction in place at NSB-NLON [SOPA (ADMIN) NLONINST 5090.25] restricts ground surface disturbance of soils and any subsurface disturbance of soils and/or groundwater at IR sites. In addition, a LUC RD (Tetra Tech, 2009e) was developed to implement Institutional Controls for Basewide Groundwater (OU-9), which includes Site 23. The LUC RD was completed in November 2009 and LUCs compliance inspections were initiated concurrently with the on-site inspection phase of this five-year review.

**Question 2. Are the exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the remedy selection still valid?**

- **Changes in Standards and TBCs:** The removal actions conducted at Site 23 were completed in accordance with RCRA UST regulations. A final remedy has not been selected for the soil at Site 23; therefore, an evaluation of the remedy cannot be made at this time. ARARs and TBCs considered during preparation of the groundwater ROD were reviewed to determine if there were any changes. As presented in Section 15.5.3, there have been no changes to ARARs or TBCs.
- **Changes in Exposure Pathways:** There have been no changes in exposure pathways.
- **Changes in Toxicity and Other Contaminant Characteristics:** There have been no changes in toxicity that would call into question the protectiveness of the remedy.
- **Changes in Risk Assessment Methods:** A risk assessment was conducted for Site 23 groundwater, but no changes have occurred that would impact the results. A risk assessment for Site 23 soil was not completed.
- **Expected Progress Towards Meeting RAOs:** The RAOs for the groundwater at Site 23 were met by the Institutional Controls.

**Question 3. Has any other information come to light that could call into question the protectiveness of the remedy?**

No additional information has been identified that would call into question the protectiveness of the remedy.

## 15.7 ISSUES

No deficiencies or O&M issues were identified for Site 23 during the inspection. However, implementation of LUCs at Site 23 has not yet been established.

## 15.8 RECOMMENDATIONS AND FOLLOW-UP ACTIONS

Based on the results of the site inspection and review, the following recommendations are made for Site 23:

- Continue enforcement of the OU9 LUC RD for groundwater at the site.
- Develop and implement an SASE for the soil to determine if there are any remaining CERCLA issues.
- Continue to manage soil at the site under New London Instruction 5090.25 until it is determined if a soil LUC RD is necessary and prepared.
- Initiate annual compliance inspections for groundwater LUCs and incorporate inspection reports into future five-year reviews.
- Ensure that current rework of the athletic fields at Site 23 does not change land use in any way that is inconsistent with the OU9 LUC RD or New London Instruction 5090.25.

## 15.9 PROTECTIVENESS STATEMENT

The groundwater remedy for Site 23 is protective of human health and the environment. The results of the BGOURI and 2 years of groundwater monitoring did not indicate any imminent threats to human health or the environment from groundwater under the current land use scenario. The Navy has instituted an instruction that provides LUCs and restricts use of site groundwater as a drinking water supply. Current LUCs should minimize exposure to groundwater at Site 23, and continued implementation of LUCs will maintain the effectiveness of the remedy into the future.

Previous actions completed under RCRA have addressed the soil at Site 23; however, the Navy plans to conduct a SASE to document full closure of soil at Site 23. Navy personnel exposure to Site 23 is limited; public exposure is controlled by Base security. Land use and resulting Navy personnel exposure to soil is controlled by SOPA (ADMIN) New London Instruction 5090.25, which establishes management policies for sites still being investigated under CERCLA and do not have LUC RDs. Instruction 5090.25 limits exposure by prohibiting soil excavation in CERCLA sites unless coordinated with the Public Works

Environmental Division. Also, Site 23 is included in the Navy's LUC tracker system as a controlled area and it is inspected annually.

TABLE 15-1

**CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE  
SITE 23 – TANK FARM  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT  
PAGE 1 OF 2**

<b>Requirement</b>	<b>Citation</b>	<b>Status</b>	<b>Synopsis of Requirement</b>	<b>Evaluation/Action to be Taken</b>
<b>Federal</b>				
Cancer Slope Factors	Not Applicable	To Be Considered (TBC)	These are guidance values used in risk assessment to evaluate the potential carcinogenic hazard caused by exposure to contaminants.	The selected remedy prevents exposure to contaminated groundwater until concentrations achieve acceptable levels that meet human health concerns.
Reference Doses	Not Applicable	TBC	These are guidance values used in risk assessment to evaluate the potential non-carcinogenic hazard caused by exposure to contaminants.	The selected remedy prevents exposure to contaminated groundwater until concentrations achieve acceptable levels that meet human health concerns.
Guidelines for Carcinogen Risk Assessment	EPA/630/P-03/001F (March 2005)	TBC	Guidance for assessing cancer risk from exposures to pollutants and other agents in the environment. As part of the characterization process, explicit evaluations are made of the hazard and risk potential for susceptible lifestages, including children.	The selected remedy meets this standard because potential carcinogenic risks caused by exposure to contaminants are addressed.
Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens	EPA/630/R-03/003F (March 2005)	TBC	Guidance for assessing cancer risks to children. Addresses a number of issues pertaining to cancer risks associated with early-life exposures and also provides specific guidance on potency adjustments for carcinogens acting through the mutagenic mode of action.	The selected remedy meets this standard because potential carcinogenic risks caused by exposure to contaminants are addressed.

TABLE 15-1

CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE  
 SITE 23 – TANK FARM  
 NAVAL SUBMARINE BASE NEW LONDON  
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Requirement	Citation	Status	Synopsis of Requirement	Evaluation/Action to be Taken
<b>Connecticut</b>				
Remediation Standard Regulations	General Statutes of Connecticut (CGS) 22a-133k; Regulations of Connecticut State Agencies (RCSA) 22a-133k - 1 through 3	Applicable	This regulation provides specific numerical cleanup criteria for contaminants in groundwater. Requirements are based on groundwater in the area being classified by the state as GB.	The selected remedy meets these standards by restricting access to contaminated GB groundwater through institutional controls (NSB-NLON Site Use Restrictions document for as long as the Navy owns the property) or environmental land use restrictions (if the Navy transfers ownership of the property).

TABLE 15-2

LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE  
 SITE 23 – TANK FARM  
 NAVAL SUBMARINE BASE NEW LONDON  
 GROTON, CONNECTICUT  
 PAGE 1 OF 2

Requirement	Citation	Status	Synopsis of Requirement	Evaluation/Action to be Taken
<b>Federal</b>				
Coastal Zone Management Act	16 United States Code (USC) Parts 1451 et. seq.	Applicable	Requires that any actions must be conducted in a manner consistent with state-approved management programs.	The actions associated with the selected remedy comply with the substantive requirements of this act.
Floodplain Management	40 Code of Federal Regulations (CFR) §6.302(b); Appendix A	Applicable	This regulation codifies standards established under Executive Order (E.O.) 11988 and requires action to avoid long- and short-term impacts associated with occupancy and modifications related to floodplain development, wherever there is a practicable alternative. Promotes the preservation and restoration of floodplains so that their natural and beneficial value can be realized.	The selected remedy does not include any activities that would affect the floodplain. 40 CFR §6.302(b), Appendix A has been deleted, but E.O. 11988 remains in effect.
Protection of Wetlands	40 CFR §6.302(a); Appendix A	Applicable	This regulation codifies standards established under Executive Order 11990. Under this requirement, no activity that adversely affects a wetland shall be permitted if a practicable alternative with lesser effects is available. If activity takes place, impacts must be minimized to the maximum extent.	The selected remedy does not include any activities that would impact wetlands. The requirement is to be carried forward when wells are abandoned. 40 CFR §6.302(a), Appendix A has been deleted, but E.O. 11990 remains in effect.

TABLE 15-2

LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE  
 SITE 23 – TANK FARM  
 NAVAL SUBMARINE BASE NEW LONDON  
 GROTON, CONNECTICUT  
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Requirement	Citation	Status	Synopsis of Requirement	Evaluation/Action to be Taken
<b>Federal (Continued)</b>				
Clean Water Act  Guidelines for Specification of Disposal Sites for Dredged or Fill Material	33 USC §1344; Section 404(b)(1)  40 CFR Parts 230 and 231 and 33 CFR Parts 320 through 323	Applicable	Under this requirement, no activity that adversely affects a wetland shall be permitted if a practicable alternative with lesser effects is available. If activity takes place, impacts must be minimized to the maximum extent. This act controls discharges of dredged or fill material to protect aquatic ecosystems.	The selected remedy does not include any activities that would impact wetlands. The requirement is to be carried forward when wells are abandoned.
<b>Connecticut</b>				
Connecticut Coastal Management Act	General Statutes of Connecticut (CGS) §22a-444	Applicable	The sites are in a coastal zone management area; therefore, requirements for site planning must include approval of activities within the coastal zone to minimize project impacts to this area.	The selected remedy does not include any activities that would impact the coastal zone.
Inland Wetland and Watercourses Act and Regulations	CGS 22a-36 through 45; Regulations of Connecticut State Agencies (RCSA) 22a-39-1 through 15	Applicable	These standards regulate any operation in or affecting an inland wetland or watercourse, involving removal or deposition of material or any obstruction, alteration, or pollution of such wetlands. The standards incorporate local wetland regulations, which include additional substantive requirements and a wetland and watercourse boundary map for the Town of Groton.	The selected remedy does not include any activities that would impact wetlands. The requirement is to be carried forward when wells are abandoned.

TABLE 15-3

**ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE  
SITE 23 – TANK FARM  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT  
PAGE 1 OF 2**

Requirement	Citation	Status	Synopsis of Requirement	Evaluation/Action to be Taken
<b>Connecticut</b>				
Standards of Water Quality/Water Quality Standards (WQSs) IV	General Statutes of Connecticut (CGS) 22a-426 and promulgated standards	Applicable	Standards have been promulgated in accordance with CGS 22a-426 to preserve and enhance the quality of state groundwater and surface water. Groundwater at the sites is classified as GB.	These standards for groundwater will be met through monitoring of natural degradation processes. Institutional controls prevent the aquifer from being used as a water supply until these standards are attained.
Connecticut Regulations for the Well Drilling Industry	Regulations of Connecticut State Agencies (RSCA) 25-128-33 through 64	Applicable	These rules apply mainly to any new water supply or withdrawal wells. The rules specify that non-water supply wells must be constructed so that they are not a source or cause of groundwater contamination. Procedures for abandonment of wells apply to both water wells and other types of wells.	No new wells are required by the selected remedy. This requirement is carried forward during well abandonment.
Connecticut Water Pollution Control Act - Permitting Regulations	RSCA 22a-430 1-8	Relevant and Appropriate	Establishes permitting requirements for discharges to surface water, groundwater, and publicly-owned treatment works (POTWs).	There were no direct discharges as part of the selected remedy.

TABLE 15-3

**ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND GUIDANCE  
SITE 23 – TANK FARM  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT  
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Requirement	Citation	Status	Synopsis of Requirement	Evaluation/Action to be Taken
<b>Connecticut (continued)</b>				
Connecticut Environmental Land Use Restriction Regulations	RCSA 22A-133q-1	Applicable	Requirements to prevent disturbance of contaminated soil and to ensure that contaminated groundwater is not used for human consumption.	Implementation of environmental land use restrictions were included in the New London Instruction 5090.25.
Connecticut Soil Vapor Remediation Standards Regulations	RCSA 22a-133k-3(c)	Applicable	These standards establish volatilization criteria to address volatile organic substances in groundwater and soil vapor.	For areas where data show the potential for an unacceptable indoor inhalation risk, remedial actions (e.g., sub-slab depressurization systems) will be applied, as needed, to comply with the substantive provisions of these regulations. However, there have been no activities necessitating the implementation of vapor intrusion controls.

## 16.0 SITE 24 – LOWER SUBBASE – CENTRAL PAINT ACCUMULATION AREA (OU4)

This five-year review for NSB-NLON is being conducted because of CERCLA statutory requirements. Remedial actions were conducted at some IRP sites that allowed hazardous substances, pollutants, or contaminants to remain on site in excess of levels that allow for unlimited use and unrestricted exposure. Inclusion of Site 24 in the Third Five-Year Review Report is not required because a final remedy has not been selected nor implemented. Site 24 is addressed here as a courtesy, for information purposes, and to present a comprehensive description of active and potential IRP actions at NSB-NLON. It is not possible to make a protectiveness assessment at this time.

The final FS for OU4, Lower Subbase (Tetra Tech, 2010i), which includes Site 24, was issued in December 2010, with the understanding that additional data that might impact the findings of the FS would be collected as part of the Soil and Groundwater PDIs. The draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum (Tetra Tech, 2011b) that incorporated the data was issued in March 2011. Decision documents will be prepared upon approval of the FS Addendum.

### 16.1 HISTORY AND SITE CHRONOLOGY

A list of important Site 24 historical events and relevant dates in the site chronology is shown below. The identified events are illustrative, not comprehensive.

Event	<i>Date</i>
Building 174 was refitted to contain boat anchor sandblasting and painting activities.	1982
Building 174 used as the primary paint storage facility for all paints used for boat maintenance activities.	Late 1980s
Final Lower Subbase RI Report completed.	1999
First Five-Year Review completed.	December 2001
SOPA (ADMIN) New London Instruction 5090.18C updated.	December 2006
SOPA (ADMIN) New London Instruction 5090.18D issued.	September 2008
SOPA (ADMIN) New London Instruction 5090.25 issued.	June 2009
Final Lower subbase FS submitted.	December 2010
Draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum submitted.	March 2011

## 16.2 BACKGROUND

Site 24 - Central Paint Accumulation Area (Building 174) is located in the northern section of the Lower Subbase along the Thames River, immediately east of Pier 32. The site map is included as Figure 16-1. The location of Site 24 relative to other IR sites is shown on Figure 1-2.

In 1982, Building 174 was refitted to contain boat anchor sandblasting and painting activities (USEPA, 1995a). Also, in the late 1980s, the building was used as the primary paint storage facility for all paints used for boat maintenance activities (USEPA, 1995a).

No investigations of soil or groundwater were conducted at this site prior to the Lower Subbase RI. Soil, groundwater, and sediment sampling in the adjacent Thames River were conducted at this site in conjunction with the Lower Subbase RI (Tetra Tech, 1999b). For investigation purposes, Site 24 and the surrounding area were identified as Zone 6. Because of this approach, the results of those studies are discussed in terms of Zone 6.

The Lower Subbase RI Report (Tetra Tech, 1999b) recommended that Zone 6 proceed to an FS to evaluate appropriate remedial alternatives. The RI recommended specific lines of investigations. Those recommendations were based on the understanding that the nature and extent of organic and inorganic contamination in soil were well defined to the extent practical, considering that there were a number of infrastructure limitations, and that the baseline HHRA indicated minimal risk to human receptors.

The Navy cleaned the Lower Subbase storm sewer catch basins in August 2000. Two catch basins in Zone 6 were cleaned by Fleet Environmental using a vacuum truck. The material removed from the catch basins was containerized, tested (TCLP/TPH), and properly disposed off site. The storm sewer lines were not surveyed or repaired during the effort.

The final FS for the Lower Subbase (Tetra Tech, 2010i), which includes Site 24 as a part of Zone 6, was submitted in December 2010. A Human Health Risk Assessment (HHRA) was prepared for Zone 5 as part of the Lower Subbase RI (Tetra Tech, 1999b). After that HHRA was prepared, but prior to the completion of the FS, EPA released new or revised guidance documents for preparing HHRAs, EPA Region 1 revised its protocols for conducting HHRAs, and CTDEP made revisions to its Remediation Standard Regulations (RSRs). To comply with the revisions, an updated HHRA was prepared for the FS that recalculated risks for potential receptors for Site 24.

During completion of the FS, data gaps were identified for Zone 6 and it was recognized that additional data might impact the findings of the FS. The FS was issued with the understanding that additional data would be collected as part of Soil and Groundwater PDIs, and the New London IRP Team (Navy, USEPA,

and CTDEP) agreed that the results of the Soil and Groundwater PDIs would be incorporated into an FS Addendum. The draft PDI Completion Report and FS Addendum (Tetra Tech, 2011b) was issued in March 2011. Using the combined data set from the FS and the FS Addendum, an updated HHRA was prepared.

The entire Lower Subbase, including Site 24, is used exclusively for industrial purposes and future residential development is not anticipated; however, a future residential scenario was evaluated for decision-making purposes. Groundwater beneath the Lower Subbase is brackish and has been classified as not suitable for human consumption without treatment, and a public water supply service is available; thus, only direct contact (not human consumption) was considered when evaluating human health risk for contaminants in groundwater. Potential receptors under current land use are construction workers and full-time employees and potential receptors under future land use are construction workers, full-time employees, and hypothetical residents (adults and children).

There are no unacceptable human health risks to any receptors from media in Zone 6, which includes Site 24. HIs for all receptors on a target organ basis were less than or equal to unity (1), indicating that adverse non-carcinogenic effects are not anticipated for these receptors under the defined exposure conditions. ILCRs for all receptors scenario were less than or within USEPA's target risk range.

TPH was detected in subsurface soil in Zone 6 at concentrations that might present a potential risk through direct contact with the soil or groundwater and migration from soil to groundwater. However, TPH is not a CERCLA contaminant and therefore will not be further addressed as a part of the third five-year review. TPH will be addressed independently by the Navy under CTDEP regulations.

Following finalization of the FS Addendum, a ROD will be prepared for the selection of the remedial actions to be taken to address the Lower Subbase, including Site 24 (Zone 6). It is anticipated that the Lower Subbase ROD will be finalized in 2012.

## **16.3 REMEDIAL ACTIONS**

### **16.3.1 Remedy Selection**

A final remedy has not been selected or implemented for Site 24. It is anticipated that the ROD for the Lower Subbase, which encompasses Site 24 (Zone 6), will be completed in 2012.

### 16.3.2 Remedy Implementation

A final remedy has not been chosen for Site 24 (Zone 6). A schedule for implementation of the selected remedy at Zone 6 will be developed after the ROD is signed.

### 16.4 **PROGRESS SINCE LAST REVIEW**

This is the third five-year review of the Site 24. The recommendations from the Second Five-Year Review Report are provided below along with the actions that were taken to address the recommendations.

It was recommended that the FS be completed to determine the appropriate remedial action for Zone 6 that is protective of human health and the environment. It was further recommended that an appropriate decision document should be prepared after the FS is completed to document the selected remedial alternative.

- The FS for the Lower Subbase, which includes Site 24, was issued in December 2010. The draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum was issued in March 2011. It is anticipated that the Lower Subbase (OU4) ROD, which includes Site 24, will be completed in 2012.

In addition, it was recommended that there be continued enforcement of the IR Site Use Restriction instruction.

- The instruction was updated and reissued in 2009 as SOPA (ADMIN) NLONINST 5090.25. The instruction details the restrictions on disturbance of soils and/or groundwater at IR sites at NSB-NLON. The instruction has been enforced as appropriate at Site 24.

### 16.5 **FIVE-YEAR REVIEW PROCESS**

This section provides a summary of the five-year review process and the actions taken to complete this review.

#### 16.5.1 Document Review

The Lower Subbase FS, the draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum, and the New London Instruction 5090.25 were reviewed for the third five-year review of Site 24. The FS and FS Addendum are discussed in Section 16.2. Within the past 5 years, no other documents have been completed regarding this site.

### **16.5.2 Data Review**

New data was collected from Site 24 over the past 5 years during the Soil and Groundwater PDIs and reported in the draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum (Tetra Tech, 2011b). No routine monitoring or O&M activities have been initiated at the site because a final remedy has not been selected.

### **16.5.3 ARAR and Site-Specific Action Level Changes**

A remedy has not been selected and a ROD has not been signed for Site 24 (Zone 6); therefore, ARARs and site-specific action levels have not been identified.

### **16.5.4 Site Inspection**

The Lower Subbase was visually inspected on April 6, 2011 as the inspection team drove through the area. Zone 6 is covered with pavement or buildings and is adjacent to the Thames River and railroad. The Lower Subbase is a high-security area at NSB-NLON, and to avoid security issues, the team conducted a drive-through inspection lead by the Navy. Weather conditions during the inspection were cold (mid-40s), overcast, and windy. Representatives from the Navy, CTDEP, and Tetra Tech participated in the inspection. No issues were identified during the inspection and no photos of the zone were taken during the inspection because of security considerations. The Navy has no plans to change the current use of Site 24.

### **16.5.5 Site Interviews**

No official interviews were conducted as part of the third five-year review.

## **16.6 ASSESSMENT**

Because a final remedy has not been selected or implemented for Site 24 (Zone 6), it is not possible to make a determination of whether a remedy is protective of human health and the environment. The results of the Lower Subbase RI, FS, and FS Addendum do not indicate any imminent threats to human health or the environment under the current land use scenario.

The Navy has an IR Site Use Restriction Instruction in place at NSB-NLON [SOPA (ADMIN) NLONINST 5090.25]. The policy restricts ground surface disturbance of soils and any subsurface disturbance of soils and/or groundwater at IR sites.

## **16.7 ISSUES**

A final remedy has not yet been selected for Site 24 (Zone 6); therefore, deficiencies cannot be determined at this time.

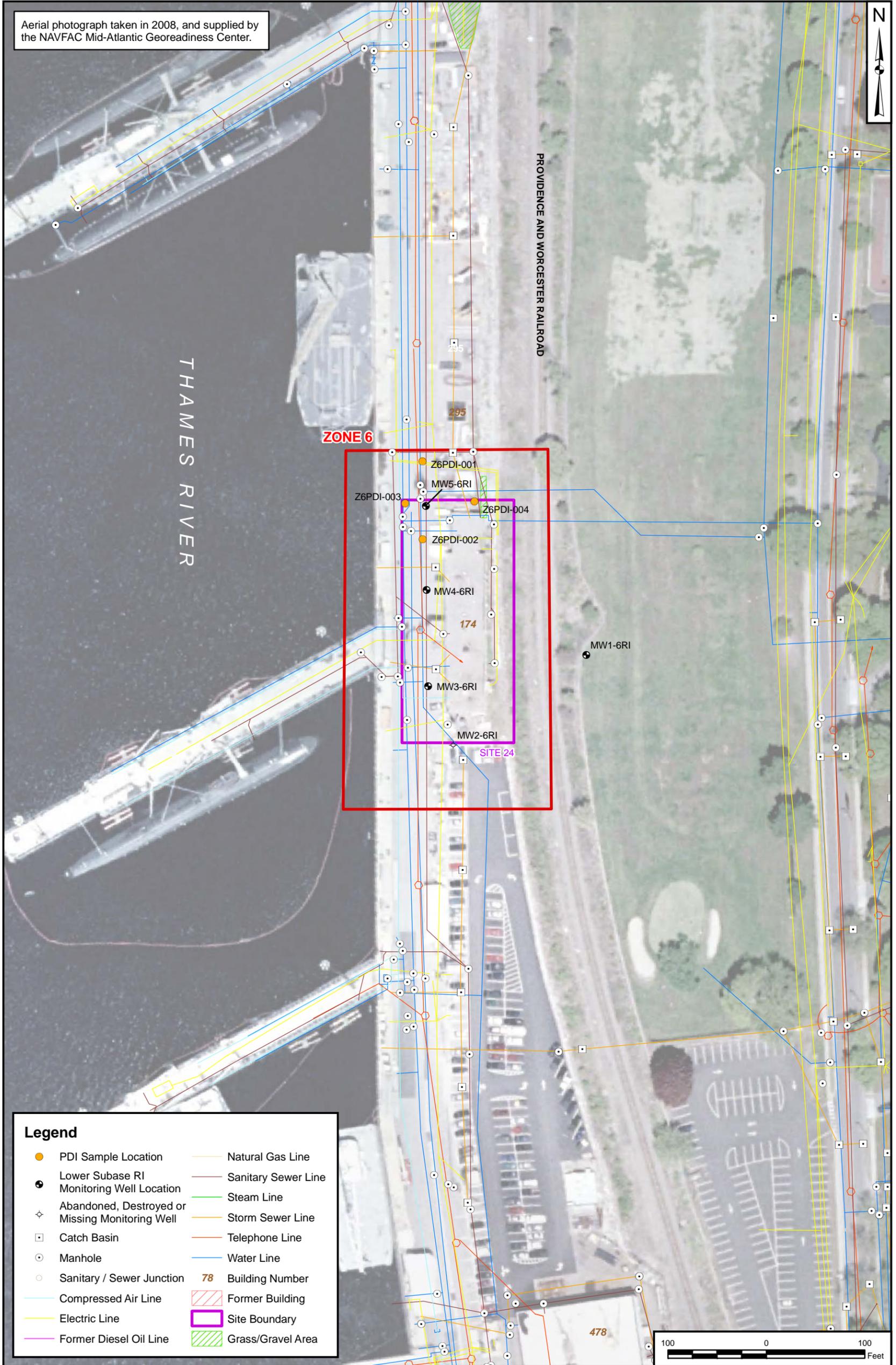
## **16.8 RECOMMENDATIONS AND FOLLOW-UP ACTIONS**

It is recommended that the Lower Subbase ROD be completed to select the appropriate remedial action for Site 24 (Zone 6) that is protective of human health and the environment. It is also recommended that there be continued enforcement of New London Instruction 5090.25 until a final remedy is selected and implemented.

## **16.9 PROTECTIVENESS STATEMENT**

A protectiveness determination for Site 24 cannot be made at this time because a remedy has not yet been selected. The results of the Lower Subbase RI, FS, and FS Addendum do not indicate any imminent threats to human health or the environment under the current land use scenario. The Navy has instituted an instruction that provides land use controls and restricts excavation activities. The instruction should minimize unauthorized and unplanned exposure to contaminated media at Site 24 until a remedy is selected and implemented. It is anticipated that the ROD for the Lower Subbase, which encompasses Site 24 (Zone 6), will be completed in 2012.

Aerial photograph taken in 2008, and supplied by the NAVFAC Mid-Atlantic Georeadiness Center.



Legend	
● PDI Sample Location	— Natural Gas Line
● Lower Subbase RI Monitoring Well Location	— Sanitary Sewer Line
⊕ Abandoned, Destroyed or Missing Monitoring Well	— Steam Line
⊠ Catch Basin	— Storm Sewer Line
○ Manhole	— Telephone Line
○ Sanitary / Sewer Junction	— Water Line
— Compressed Air Line	78 Building Number
— Electric Line	▨ Former Building
— Former Diesel Oil Line	▭ Site Boundary
	▨ Grass/Gravel Area



DRAWN BY J. ENGLISH		DATE 05/20/11				CONTRACT NUMBER WE33		OWNER NUMBER 3386	
CHECKED BY N. BALSAMO		DATE 05/23/11				APPROVED BY CAR		DATE 05/23/11	
COST/SCHEDULE-AREA				<b>SITE MAP</b> SITE 24 - CENTRAL PAINT ACCUMULATION (BUILDING 174) NSB-NLON, GROTON, CONNECTICUT		APPROVED BY		DATE	
SCALE AS NOTED						DRAWING NO.		FIGURE 16-1	

## **17.0 SITE 25 – LOWER SUBBASE – FORMER CLASSIFIED MATERIALS INCINERATOR (OU4)**

This five-year review for NSB-NLON is being conducted because of CERCLA statutory requirements. Remedial actions were conducted at some IRP sites that allowed hazardous substances, pollutants, or contaminants to remain on site in excess of levels that allow for unlimited use and unrestricted exposure. Inclusion of Site 25 in the Third Five-Year Review Report is not required because a final remedy has not been selected nor implemented. Site 25 is addressed here as a courtesy, for information purposes, and to present a comprehensive description of active and potential IRP actions at NSB-NLON. It is not possible to make a protectiveness assessment at this time.

The final FS for OU4, Lower Subbase (Tetra Tech, 2010i), which includes Site 25, was issued in December 2010, with the understanding that additional data that might impact the findings of the FS would be collected as part of the Soil and Groundwater PDIs. The draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum (Tetra Tech, 2011b) incorporating that data was issued in March 2011. Decision documents will be prepared upon approval of the FS Addendum.

### **17.1 HISTORY AND SITE CHRONOLOGY**

A list of important Site 25 historical events and relevant dates in the site chronology is shown below. The identified events are illustrative, not comprehensive.

<b>Event</b>	<b>Date</b>
Classified materials and solid wastes were burned in the incinerator.	1944-1963
Incinerator demolished.	1979
Final Site Inspection Report for Pier 33 and Berth 16 completed.	1995
Final Lower Subbase RI Report completed.	1999
First Five-Year Review completed.	December 2001
SOPA (ADMIN) New London Instruction 5090.18C updated.	December 2006
SOPA (ADMIN) New London Instruction 5090.18D issued	September 2008
SOPA (ADMIN) New London Instruction 5090.25 issued	June 2009
Final Lower Subbase FS submitted	December 2010
Draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum submitted	March 2011

## 17.2 BACKGROUND

Site 25 consists of the former classified materials incinerator located on the Lower Subbase, approximately 300 feet east of Pier 17. The site map is provided on Figure 13-1. The site's location relative to other IR sites is shown on Figure 1-2.

It has been reported that, between 1944 and 1963, facilities within former Building 97 (current Building 478) were used to burn classified materials and other solid wastes generated at NSB-NLON (USEPA, 1995a). All materials generated by base operations that were not salvageable were incinerated at Site 25. Residual ash, produced by burning waste material, was disposed in the Goss Cove Landfill (USEPA, 1995a). Adjacent to the former incinerator was a dumpster-cleaning operation. The incinerator became inoperable in 1963 and operations ceased. The incinerator was demolished in 1979, and Buildings 456 and 478 were constructed.

A Site Inspection completed for the site included soil gas surveys, a utility inspection, drilling soil borings, installing monitoring wells, and soil, groundwater, and sediment sampling (Atlantic, 1995a). Petroleum and metals contamination were identified during the Site Inspection.

Soil, groundwater, and sediment sampling in the adjacent Thames River and analysis were completed for this site in conjunction with the Lower Subbase RI (Tetra Tech, 1999b). This site was evaluated collectively with Site 21 as Zone 7 during the RI. Because of this approach, the results of those studies are discussed in terms of Zone 7.

The Lower Subbase RI Report (Tetra Tech, 1999b) recommended that Zone 7, which includes Site 21 - Berth 16, Site 25 – Former Classified Materials Incinerator, and Transformers at Building 157, Vault 31, proceed to an FS for evaluation of appropriate remedial alternatives for soil. The RI recommended specific lines of investigations. Those recommendations were based on the understanding that the nature and extent of organic and inorganic contamination in soil were well defined to the extent practical, considering that sampling was limited because of infrastructure limitations, and because the baseline HHRA indicated minimal risk to human receptors.

The Navy cleaned the Lower Subbase storm sewer catch basins in August 2000. Five catch basins in Zone 7 were cleaned by Fleet Environmental using a vacuum truck. The material removed from the catch basins was containerized, tested (TCLP/TPH), and properly disposed off site. The storm sewer lines were not surveyed or repaired during the effort.

The final FS for the Lower Subbase (Tetra Tech, 2010i), which includes Site 25 as a part of Zone 7, was submitted in December 2010. An HHRA was prepared for Zone 7 as part of the Lower Subbase RI (Tetra

Tech, 1999b). After the HHRA was prepared, but prior to the completion of the FS, the USEPA released new or revised guidance documents for preparing HHRAs, EPA Region 1 revised its protocols for conducting HHRAs, and CTDEP made revisions to its RSRs. To comply with the revisions, an updated HHRA was prepared for the FS that recalculated risks for potential receptors for Site 25 in Zone 7.

During completion of the FS, data gaps were identified for Zone 7 and it was recognized that additional data might impact the findings of the FS. The FS was issued with the understanding that additional data would be collected as part of Soil and Groundwater PDIs, and the New London IRP Team (Navy, USEPA, and CTDEP) agreed that the results of the Soil and Groundwater PDIs would be incorporated into an FS Addendum. The draft PDI Completion Report and FS Addendum (Tetra Tech, 2011b) was issued in March 2011. Using the combined data set from the FS and the FS Addendum, an updated HHRA was prepared.

The entire Lower Subbase, including Site 25, is used exclusively for industrial purposes and future residential development is not anticipated; however, a future residential scenario was evaluated for decision-making purposes. Groundwater beneath the Lower Subbase is brackish and has been classified as not suitable for human consumption without treatment, and public water supply service is available; thus, only direct contact (not human consumption) was considered when evaluating human health risk for contaminants in groundwater. Potential receptors under current land use are construction workers and full-time employees; potential receptors under future land use are construction workers, full-time employees, and hypothetical residents (adults and children).

HIs for construction workers exposed to groundwater and full-time employees exposed to surface soil were less than or equal to unity (1), indicating that adverse non-carcinogenic effects are not anticipated for these receptors under the defined exposure conditions. HIs for exposures to surface/subsurface soil by full-time employees (2) and hypothetical adult residents (2) were greater than the acceptable HI of 1; however, HIs for individual target organs were all less than or equal to 1. HIs for exposure to surface/subsurface soil by construction workers (HI = 2) and hypothetical child residents (HI = 14) exceeded the acceptable level of 1. Antimony was the major contributor to the HI for all receptors. ILCRs for all receptors with the exception of the hypothetical child and lifetime residents were within the USEPA's target risk range of  $10^{-4}$  to  $10^{-6}$ . ILCRs for hypothetical child residents ( $2 \times 10^{-4}$ ) and hypothetical lifelong residents ( $3 \times 10^{-4}$ ) exceeded the USEPA's target range. Carcinogenic PAHs and arsenic were the major contributors to the ILCRs.

Lead was identified as a COPC in surface soil and subsurface soil at Zone 7. Hypothetical exposures to lead by current and future employees and construction workers, and future residents were evaluated using lead models that predict the average blood-lead concentration in both adult and child receptors.

The modeling predicted that 99 percent of future on-site child residents would have a blood lead level greater than 10 µg/dL and that the resulting geometric mean blood lead level would be 27.8 µg/dL. This result exceeds the USEPA goal of no more than 5 percent of children with blood lead levels exceeding 10 µg/dL.

For full-time employees, the modeling predicted that exposure to surface soil would result in 6.3 percent of the receptors (fetuses) having a blood lead level greater than 10.0 µg/dL and a geometric mean blood lead level of 4.5 µg/dL. For construction workers, the model predicted that exposure to surface/subsurface soil would result in 58 percent of the receptors (fetuses) having a blood lead level greater than 10 µg/dL and a geometric mean blood lead level of 12.5 µg/dL. For full-time employees exposed to surface/subsurface soil, the model predicted that 34 percent of the receptors (fetuses) having a blood lead level greater than 10.0 µg/dL and a geometric mean blood lead level of 8.7 µg/dL. All of these results exceed the USEPA goal of no more than 5 percent of children (fetuses of exposed women) with blood lead levels exceeding 10 µg/dL.

Following finalization of the FS Addendum, a ROD will be prepared for the selection of the remedial actions to be taken to address the Lower Subbase, including Zone 7. It is anticipated that the Lower Subbase ROD will be finalized in 2012.

## **17.3 REMEDIAL ACTIONS**

### **17.3.1 Remedy Selection**

A final remedy has not been selected or implemented for Site 25. It is anticipated that the ROD for the Lower Subbase, which encompasses Zone 7, will be completed in 2012.

### **17.3.2 Remedy Implementation**

A final remedy has not yet been chosen for Site 21. A schedule for the implementation of the selected remedy at Zone 7 will be developed after the ROD is signed.

## **17.4 PROGRESS SINCE LAST REVIEW**

This is the third five-year review of the Site 25. The recommendations from the Second First Five-Year Review Report are provided below along with the actions that were taken to address the recommendations.

It was recommended that the FS be completed to determine the appropriate remedial action for Zone 7 that is protective of human health and the environment. It was further recommended that an appropriate decision document should be prepared after the FS is completed to document the selected remedial alternative.

- The FS for the Lower Subbase, which includes Site 25, was issued in December 2010. The draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum was issued in March 2011. It is anticipated that the Lower Subbase (OU4) ROD for the, which includes Site 25 will be completed in 2012.

In addition, it was recommended that there be continued enforcement of the IR Site Use Restriction instruction.

- The instruction was updated and reissued in 2009 as, SOPA (ADMIN) NLONINST 5090.25. The instruction details the restrictions on disturbance of soils and/or groundwater at IR sites at NSB-NLON. No issues directly related to Site 25 were identified during the inspection, but as discussed in Section 13.5.4 of this report, it was observed that soil from an excavation within Zone 7, near Site 21 was not being maintained in conformance with best management practices. That may be interpreted as an indication that the instruction is not being consistently implemented within Zone 7.

## **17.5 FIVE-YEAR REVIEW PROCESS**

This section provides a summary of the five-year review process and the actions taken to complete this review.

### **17.5.1 Document Review**

The Lower Subbase FS, the draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum, and the New London Instruction 5090.25 were reviewed for the third five-year review of Site 25. The FS and FS Addendum are discussed in Section 17.2 of this report. Within the past five years, no other documents have been completed regarding Site 25.

### **17.5.2 Data Review**

New data was collected from Site 25 over the past 5 years, during the Soil and Groundwater PDIs and reported in the draft Lower Subbase Soil and Groundwater PDI Completion Report and FS Addendum (Tetra Tech, 2011b). No routine monitoring or O&M activities have been initiated at the site because a final remedy has not been selected.

### **17.5.3 ARAR and Site-Specific Action Level Changes**

A remedy has not been selected and a ROD has not been signed for Site 25 (Zone 7); therefore, ARARs and site-specific action levels have not been identified.

### **17.5.4 Site Inspection**

The Lower Subbase was visually inspected April 6, 2011, as the inspection team drove through the area. Zone 7, including Site 25, is covered with pavement or buildings and is located near the Thames River and a set of railroad tracks. The Lower Subbase is a high-security area at NSB-NLON, and to avoid security issues, the team conducted a drive-through inspection, led by the Navy. Representatives from the Navy, CTDEP, and Tetra Tech participated in the inspection. No issues associated with Site 25 were identified during the inspection. However, the inspection did observe an excavation within Zone 7, near Site 21, where stockpiled soil was not being managed in accordance with best practices. That observation is discussed in Section 13.5.4. The Navy has no plans to change the use of Site 25.

### **17.5.5 Site Interviews**

No official interviews were conducted as part of the third five-year review.

## **17.6 ASSESSMENT**

Because a final remedy has not been selected or implemented for Site 25 (Zone 7), it is not possible to make a determination of whether a remedy is protective of human health and the environment. The results of the Lower Subbase RI, FS, and FS Addendum do not indicate any imminent threats to human health or the environment as long as site conditions remain the same.

The Navy has an IR Site Use Restriction Instruction in place at NSB-NLON [SOPA (ADMIN) NLONINST 5090.25]. The policy restricts ground surface disturbance of soils and any subsurface disturbance of soils and/or groundwater at IR Sites.

## **17.7 ISSUES**

A final remedy has not yet been implemented for Site 25 (Zone 7); therefore, deficiencies in the remedial action cannot be determined at this time.

## 17.8 RECOMMENDATIONS AND FOLLOW-UP ACTIONS

Two recommendations or needs for follow-up actions were identified for Site 25:

- It is recommended that the Lower Subbase ROD be completed to select the appropriate remedial action for Site 25 (Zone 7) that is protective of human health and the environment.
- It is recommended that there be strengthened enforcement of New London Instruction 5090.25 within Zone 7 and its implementation closely monitored until a final remedy is selected and implemented.

## 17.9 PROTECTIVENESS STATEMENT

A protectiveness determination for Site 25 cannot be made at this time because a remedy has not yet been selected. The results of the Lower Subbase RI, FS, and FS Addendum do not indicate any imminent threats to human health or the environment under the current land use scenario. The Navy has instituted an instruction that provides land use controls and restricts excavation activities. The instruction is designed to minimize unauthorized and unplanned exposure to contaminated media at the zone until a remedy is selected and implemented. However, as discussed in Sections 13.5.4 and 13.7, stockpiled soil from an excavation near Site 21 was not being managed in accordance with the instruction, which indicates that the instruction is not being effectively managed in Zone 7. It is anticipated that the ROD for the Lower Subbase, which encompasses Site 25 and the remainder of Zone 7, will be completed in 2012.

## 18.0 CONCLUSIONS AND RECOMMENDATIONS

The conclusions and recommendations of the third five-year review are presented below. They are provided in the form of a basewide protectiveness statement and a summary of the requirements for the next five-year review.

### 18.1 PROTECTIVENESS STATEMENT

The remedial actions that have been completed for the sites at NSB-NLON are protective of human health and the environment. Remedial actions to address immediate or potential future threats from exposure to soil and sediment have been implemented at Sites 1, 2A (Area A Landfill), 3, 4, 6, 7, 8, 9, and 23. Interim removal actions have been completed at Sites 13 (including Pier 1 sediments) and 17, but final remedies have not been selected for Site 13 (including Pier 1 and Zone 4 sediments) or Site 17. Groundwater monitoring programs are ongoing at Sites 2A (Area A Landfill), 3, 6, and 8 to monitor contaminant trends and confirm the protectiveness of the soil remedial actions completed at the sites. Monitoring of Site 7 groundwater showed that contaminant concentrations were below remedial goals and no further actions were required. The Navy is continuing investigations and development of appropriate remedial actions under CERCLA for the remaining IR sites.

Additionally, the Navy is revising internal instructions to improve Navy oversight of an IR site use restriction Instruction that restricts ground surface disturbance of soils and any subsurface disturbance of soils and/or groundwater at IR sites. The Navy currently uses a combination of LUC RDs and SOPA Instruction 5090.25, as well as LUC Tracker (NIRIS) and other Navy procedures (e.g., dig permits), to manage land use controls at CERCLA sites at New London. The Navy is transitioning to use of LUC RDs as the primary enforcement tool to manage land use controls and will be phasing out use of the SOPA Instruction 5090.25 in the future. The SOPA Instruction will continue to be used at sites without LUC RDs until the remaining site-specific LUC RDs are completed. LUC RDs have been and will continue to be written to be preventative, but also include inspections to confirm enforcement of LUCs. For LUC implementation, the NSB-NLON chain of command for LUCs is as follows:

- Michael Brown  
Environmental Director  
NAVFAC MIDLANT PWD New London  
Environmental Division, Box 400  
439 Tautog Avenue, Room 104  
Groton, CT 06349  
Telephone: (860) 694-3976

- Tracey P. McKenzie  
Natural Resource Manager  
NAVFAC MIDLANT PWD New London  
Environmental Division, Box 400  
439 Tautog Avenue, Room 104  
Groton, CT 06349  
Telephone: (860) 694-5649, (860) 694-5320

The status of the sites is summarized in Table 18-1.

This five-year review shows that the Navy is generally meeting the requirements of the RODs for the sites at NSB-NLON.

There are two categories of problems identified in the report: deficiencies and O&M issues. The deficiencies identified during the review and the approaches and milestone dates to address them are provided in Table 18-2. All of the following deficiencies have now been addressed:

- The Site 8 AST investigation confirmed the cap was not compromised by the AST, pad and piping.
- Long-term, systematic corrective actions are being implemented to improve LUC compliance (see below).
- Blocking has been placed underneath the supports used to store the boats at Site 6.

The following deficiency is now being addressed:

- The equipment and materials stored within the no-load zone of the Site 2A landfill cap are being addressed.

O&M issues, summarized in Tables 2-10, 3-11, 4-7, 6-9 and 13-1, include long-term storage of equipment within no-load zones, cracks and minor settling/depressions in pavement on caps, signage obscured by vegetation, damaged fencing/gates, and improved maintenance of monitoring wells. NSB-NLON has consolidated these O&M issues to create an action list. Review of this list can be added as a regular agenda item during monthly production calls with USEPA and CTDEEP. Please note that funding and contracts are needed to correct a number of these issues. Navy plans to include these with renewal of

the Remedial Action Operations Multiple Award Contract (RAOMAC) O&M/Long-Term Monitoring (LTM) contract award early in 2012.

Long term, systematic corrective actions have been effectively implemented to improve LUC compliance, as follows:

- NSB-NLON's Environmental Office (PWD EV) will now perform quarterly LUC inspections. These inspections are intended to supplement the annual LUC compliance inspections defined in the LUC RD. If information from inspections of any other source provide for discovery of any activity that is inconsistent with the LUC objectives, the Navy will make required regulatory notifications and take action to address the inconsistent activities following the requirements of the LUC RD.
- NAVSUBASE New London Request for Permit to Excavate Procedure (June 2008) requires environmental office concurrence before issuance of dig permits. PWD EV uses the NIRIS LUC maps and LUC Tracker Tools whenever making this authorization and, if needed, prescribes controls and restrictions for the dig permit.
- GeoReadiness is the Navy's GIS program for facilities, infrastructure and environment. PWD EV uses GIS to review impacts from construction and maintenance projects. GIS incorporates the files in NIRIS and thereby identifies to planners and engineers what LUCs apply to the work being planned. Areas under investigation, such as OU4, are also included in GIS. Monitoring wells are shown to avoid damage during excavations.
- A regional instruction for all Command Navy MIDLANT Installations is in draft which will standardize roles and responsibilities regarding the use of GIS. Once final, a courtesy copy will be provided to EPA and CTDEEP.

## 18.2 NEXT REVIEW

Five-year reviews are required by statute under CERCLA for NSB-NLON. Remedial actions were conducted at IRP sites at NSB-NLON that allowed hazardous substances, pollutants, or contaminants to remain on site in excess of levels that allow for unlimited use and unrestricted exposure. The status of the sites and the need for continued five-year review are summarized in Table 18-1. This report represents the Third Five-Year Review conducted at NSB-NLON. The next five-year review will be required by December 2016 (i.e., within 5 years of the signature date of this third five-year review). The anticipated requirements for the next five-year review are as follows:

- An evaluation of the groundwater monitoring activities at Sites 2A (Area A Landfill), 3, 6, and 8.
- A review of the O&M activities at Sites 2A (Area A Landfill), 3, 6, and 8 along with the costs for the activities. The O&M Manual should be updated as required over the next five years.
- Verify that New London Instruction 5090.25 for institutional controls has been properly implemented and/or that LUC RDs have been completed and are being effectively implemented. Also, verify that at least yearly monitoring of Institutional Control compliance has been conducted and that the Navy has completed the supplemental quarterly LUC inspections.
- Review and evaluation of the remedial alternative for sediment implemented at Site 2B.
- Review the SASEs and need for Decision Documents for Site 9 and Site 23 soil.
- Review and evaluation of the remedial alternatives implemented for the CERCLA media at Sites 10, 11, 13 (including Pier 1 and Zone 4 sediments), 17, 19, 21, 22, 24, and 25 in the Lower Subase.

#### **18.2.1 Continued Reviews**

Sites 2A (Area A Landfill), 2B (Area A Wetland), 3, 6, 8, and 9/23 will require evaluation during the next five-year review for NSB-NLON. Five-year reviews will continue at these sites because hazardous substances, pollutants, and contaminants remain at the sites that will not allow for the unlimited use or unrestricted exposure. Reviews will also likely be required for Sites 10, 11, 13, 17, 19, 21, 22, 24, and 25 because CERCLA activities are ongoing at these sites. The FS and the FS addendum have been completed for these sites. It is anticipated that Lower Subase ROD, which will address these sites, will be completed in 2012 and the selected remedial actions will be completed or in progress at the time of the next review. The next review will update the appropriate sections to discuss the remedial actions that were selected and the status of their implementation.

#### **18.2.2 Discontinue Reviews**

Site 7 will no longer require review. A remedy of excavation and off-site disposal for Site 7 soil, as recommended in the OU8 ROD, was completed in 2006. Institutional Controls and Monitoring was selected as the final remedy for Site 7 groundwater in the OU9 ROD (Navy, 2008b). In the OU9 RACR, the selected remedial goal was deemed to have been achieved at Site 7 and further groundwater monitoring and LUCs were no longer necessary. As documented in the Second Five-Year Review, five-year reviews are not required for Sites 1, 4, 14, 15, 16, 18, and 20 because NFA decision documents have been signed for these sites and there are no hazardous substances, pollutants, and contaminants

remaining at the sites. Therefore, the use of these sites is unlimited and there are no exposure restrictions.

TABLE 18-1

SUMMARY OF IR SITE STATUS  
 THIRD FIVE-YEAR REVIEW  
 NSB-NLON, GROTON, CONNECTICUT

Site	Five-Year Review Required?	Included in Third Five Year Review?	Discontinue Five-Year Reviews?	Site IR Status	Continued Monitoring?	Comments
Site 1 – Former CBU Drum Storage Area	No	No	Yes	NFA Decision	No	
Site 2A – Area A Landfill	Yes	Yes	No	Remedy Impelmented	Yes	
Site 2B - Area A Wetland	Yes	Yes	No	ROD Signed	NA	Remedy not implemented
Site 3 – Area A Downstream Watercourses and OBDA	Yes	Yes	No	Remedy Impelmented	Yes	
Site 4 – Former Rubble Fill - Bunker A-86	No	No	Yes	NFA Decision	No	
Site 6 – Former DRMO	Yes	Yes	No	Remedy Completed	Yes	
Site 7 – Torpedo Shops	Yes	Yes	Yes	RA Completed	No	Groundwater meets RGs
Site 8 – Goss Cove Landfill	Yes	Yes	No	Remedy Completed	Yes	
Site 9 – Former Oily Wastewater Tank OT-5	Yes	Yes	No	NA	Yes	
Site 10 – Fuel Storage Tanks and Former Tank 54-H	No	Yes	No	FS/FS Addendum	NA	Lower Subbase
Site 11 – Power Plant Oil Tanks	No	Yes	No	FS/FS Addendum	NA	Lower Subbase
Site 13 – Building 79 Former Waste Oil Pit	No	Yes	No	FS/FS Addendum	NA	Lower Subbase
Site 14 – Former Overbank Disposal Area Northeast	No	No	Yes	NFA Decision	No	
Site 15 – Former Spent Acid Storage and Disposal Area	No	No	Yes	NFA Decision	No	
Site 16 – Former Hospital Incinerators	No	No	Yes	NFA Decision	No	
Site 17 – Former Hazardous Materials & Solvent Storage Area	No	Yes	No	FS/FS Addendum	NA	Lower Subbase
Site 18 – Solvent Storage Area	No	No	Yes	NFA Decision	No	
Site 19 – Former Solvent Storage Area	No	Yes	No	FS/FS Addendum	NA	Lower Subbase
Site 20 – Area A Weapons Center	No	No	Yes	NFA Decision	No	
Site 21 – Berth 16	No	Yes	No	FS/FS Addendum	NA	Lower Subbase
Site 22 – Pier 33	No	Yes	No	FS/FS Addendum	NA	Lower Subbase
Site 23 – Former Fuel Farm	Yes	Yes	No	Remedy Implemented	Yes	
Site 24 – Central Paint Accumulation Area	No	Yes	No	FS/FS Addendum	NA	Lower Subbase
Site 25 – Former Classified Materials Incinerator	No	Yes	No	FS/FS Addendum	NA	Lower Subbase

TABLE 18-2

DEFICIENCIES IDENTIFIED DURING THE THIRD FIVE-YEAR REVIEW  
 NAVAL SUBMARINE BASE NEW LONDON  
 GROTON, CONNECTICUT  
 PAGE 1 OF 3

Issue	Effects Protectiveness		Recommendation to Address Issue	Milestone Date
	Current	Future		
<b>Site 2A – Area A Landfill</b>				
Equipment and materials continue to be improperly stored within the no-load zone.	N	Y	Implement corrective actions for LUC compliance by doing the following:	
			<ul style="list-style-type: none"> <li>• Environmental Office to perform quarterly LUC inspections.</li> </ul>	Completed 30 Nov 2011
			<ul style="list-style-type: none"> <li>• Dig permits to require concurrence of Environmental Office.</li> </ul>	Completed 30 Nov 2011
			<ul style="list-style-type: none"> <li>• Environmental Office to use GIS and NIRIS to identify LUC areas and wells for planners.</li> </ul>	Completed 30 Nov 2011
			<ul style="list-style-type: none"> <li>• Revise MIDLANT Regional Instruction.</li> </ul>	Spring 2012
			Enforce the “no load” zones for the capped area.	31 Jan 2011
			Mark the “no load” zones for the capped area.	Spring 2012

TABLE 18-2

DEFICIENCIES IDENTIFIED DURING THE THIRD FIVE-YEAR REVIEW  
 NAVAL SUBMARINE BASE NEW LONDON  
 GROTON, CONNECTICUT  
 PAGE 2 OF 3

Issue	Effects Protectiveness		Recommendation to Address Issue	Milestone Date
	Current	Future		
<b>Site 6 – Former DRMO</b>				
Storage of boats on the cap without blocking.	N	Y	Place blocking underneath the supports used to store the boats.	Completed 2 Nov 2011
			Implement corrective actions for LUC compliance by doing the following:	
			<ul style="list-style-type: none"> <li>• Environmental Office to perform quarterly LUC inspections.</li> </ul>	Completed 30 Nov 2011
			<ul style="list-style-type: none"> <li>• Dig permits to require concurrence of Environmental Office.</li> </ul>	Completed 30 Nov 2011
			<ul style="list-style-type: none"> <li>• Environmental Office to use GIS and NIRIS to identify LUC areas and wells for planners.</li> </ul>	Completed 30 Nov 2011
			<ul style="list-style-type: none"> <li>• Revise MIDLANT Regional Instruction.</li> </ul>	Spring 2012

TABLE 18-2

DEFICIENCIES IDENTIFIED DURING THE THIRD FIVE-YEAR REVIEW  
 NAVAL SUBMARINE BASE NEW LONDON  
 GROTON, CONNECTICUT  
 PAGE 3 OF 3

Issue	Effects Protectiveness		Recommendation to Address Issue	Milestone Date
	Current	Future		
<b>Site 8 – Goss Cove Landfill</b>				
An AST, its concrete foundation, and associated piping were installed on the cap without prior knowledge or permission from the IRP Manager.	Y	Y	Place reference document at gate with Nautilus Command Suite and Pier Watch.	Completed May 2011
			Improve internal communication within the Navy by conducting a meeting with Nautilus personnel to communicate IRP requirements.	Completed June 2011
			Perform visual investigation of potential cap damage caused by installation of AST pad and piping.	Completed 18 Oct 2011
			Implement corrective actions for LUC compliance by doing the following:	
			<ul style="list-style-type: none"> <li>Environmental Office to perform quarterly LUC inspections.</li> </ul>	Completed 30 Nov 2011
			<ul style="list-style-type: none"> <li>Dig permits to require concurrence of Environmental Office.</li> </ul>	Completed 30 Nov 2011
			<ul style="list-style-type: none"> <li>Environmental Office to use GIS and NIRIS to identify LUC areas and wells for planners.</li> </ul>	Completed 30 Nov 2011
<ul style="list-style-type: none"> <li>Revise MIDLANT Regional Instruction.</li> </ul>	Spring 2012			
		Perform calculations to evaluate effect of loading of AST and AST foundation on liner system.	19 Dec 2011	
		Determine if AST pad can be enlarged without impacting the cap because the current tank is too small to meet Navy needs.	31 Jan 2012	

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## **APPENDIX A**

### **LANDFILL INSPECTION REPORT CHECKLISTS AND DEFICIENCY LOGS**

- A.1 AREA A LANDFILL (SITE 2A)**
- A.2 CONCRETE ENCAPSULATED SOIL IN STREAM 4 (SITE 3)**
- A.3 DRMO (SITE 6)**
- A.4 GOSS COVE LANDFILL (SITE 8)**

**A.1 AREA A LANDFILL (SITE 2A)**

**INSPECTION CHECKLIST**  
**SITE 2 - Area A Landfill**  
Page 1 of 15

SITE NAME: Site 2 - Area A Landfill (OU1)  
EPA ID: CTD980906515  
SITE LOCATION: New London County, CT  
EPA REGION: Region 1  
REMEDY AT SITE: Landfill Cover, Institutional Control, Monitoring  
REVISION: 00

Date: October 24, 2006 Courtney D. Moore, Jr., P.E./ Nobis Engineering, Inc  
INSPECTOR/COMPANY

WEATHER CONDITIONS: Temperature: ~50-60°F  
Weather: Overcast, windy  
Other: \_\_\_\_\_

TYPE OF INSPECTION:  Annual Inspection  
 Post-Major Weather Event Inspection  
 Re-Inspection of Deficient Items  
 Other \_\_\_\_\_

AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>INSTITUTIONAL CONTROLS</b>					
<b>1) Security Fencing</b>					
a) Fencing Around Deployed Parking Area	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Entrance gate to Deployed Parking Area	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Fence Foundations in Deployed Parking Area	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Tree limbs in fencing recently cut near channel B.
d) Entrance Gate at Thresher Road	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
e) Entrance Gate at Wahoo Avenue	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
f) No Trespassing and Security Signs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
g) Indications of Vandalism or Trespassing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>CAP AREAS</b>					
<b>2) Plateau Asphalt Cap Area</b>					
a) General Condition of Asphalt Pavement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Level or Designed Slope Within Pavement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Some apparent uneven areas driving across. Seems bumpy, not overly obvious.
c) Cracks in Pavement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Cracks on slope behind barriers and in deployed parking area. Vegetation growing in the cracks.
d) Erosion on Pavement or Adjacent Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
e) Holes/Penetrations in Asphalt Surface	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
f) Bulges in Asphalt Surface	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Some bulges noted in deployed area.
g) Standing Water - other than above (b)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
h) Stability of Slopes and Adjacent Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
i) Groundwater Monitoring Penetrations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
j) Damage to Pavement Caused by Use	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Damage from uses exists based on gouges in pavement from stored equipment.
K) Exposed Cap Components	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Obvious signs of damage to asphalt surface.

**INSPECTION CHECKLIST**  
**SITE 2 - Area A Landfill**  
Page 2 of 15

AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>3) Side Slope Riprap Cap Area</b>					
a) General Condition of Northern Catch Basin	■	□	□	■	Overgrown with vegetation.
b) General Condition of Gabion Protection	■	□	□	■	Continued maintenance required to remove vegetation in rip rap.
c) Localized Depressions in Riprap	■	□	■	□	Localized depression and drainage area with built up sediment ~4-6 inches near 2LMW9D.
d) Erosion in Riprap or Adjacent Areas	■	□	■	□	None.
e) Standing Water - other than above (c)	■	□	■	□	None.
f) Stability of Slopes and Adjacent Areas	■	□	■	□	None.
g) Groundwater Monitoring Well Penetrations	■	□	■	□	None.
h) Exposed Cap Components	■	□	■	□	None.
i) Presence of Leachate Seeps at Toe of Slope	■	□	■	□	None.
<b>4) Crane Test Pad</b>					
a) General Condition of Concrete Pad	■	□	□	■	Significant crack around pad with vegetation growing in it.
b) Standing Water - other than above (a)	■	□	■	□	None.
<b>STORM WATER FEATURES</b>					
<b>5) Drainage Channel A</b>					
a) General Condition of Drainage Swale	■	□	□	■	Siltation noted. Functioning/ flow visible
b) Condition of Asphalt Channel Lining	■	□	□	■	Cracked.
c) Siltation within Swale	■	□	□	■	Siltation noted, needs to be addressed.
d) Invasive Vegetation within Swale	■	□	□	■	Signs of invasive vegetation noted and needs to be addressed.
e) Localized Depressions or Heaving	■	□	■	□	None.
f) Condition of Culvert 1 Headwall	■	□	■	□	None.
g) Condition of Culvert 1 (Elliptical Pipe)	■	□	■	□	None.
h) Condition of Culvert 1 Endwall	■	□	□	■	Some vegetation and silt buildup around pipe. Settling at top of end wall 2" silted in.
i) Condition of Culvert 2 Headwall	■	□	■	□	Sediment build up needs regular maintenance.
j) Condition of Culvert 2 (Elliptical Pipe)	■	□	□	■	Some vegetation and silt buildup in front of pipe.
k) Condition of Culvert 2 Endwall	■	□	□	■	Sediment build up remains
<b>6) Drainage Channel B</b>					
a) General Condition of Drainage Swale	■	□	■	□	Some trees recently trimmed around fencing
b) Condition of Asphalt Channel Lining	■	□	□	■	Invasive vegetation noted.
c) Siltation within Swale	■	□	■	□	Siltation noted in swale.
d) Invasive Vegetation within Swale	■	□	□	■	Vegetation noted growing through pavement.
e) Localized Depressions or Heaving	■	□	■	□	None.
f) Condition of ADS Culvert (Parking Entrance)	■	□	□	■	Overgrown with vegetation but open to flow.

**INSPECTION CHECKLIST**  
**SITE 2 - Area A Landfill**  
Page 3 of 15

AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>7) Drainage Channel C</b>					
a) General Condition of Drainage Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Siltation needs to be removed.
b) Condition of Asphalt Channel Lining	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Covered in silt ponding.
c) Siltation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Siltation in swale is causing ponding, needs to be removed.
d) Invasive Vegetation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Needs to be cut back. Removal of sediment in channel at end of head wall 2 may aid in flushing out sediment channel C.
e) Localized Depressions or Heaving	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>8) Drainage Channel D</b>					
a) General Condition of Drainage Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Over grown with vegetation
b) Condition of Asphalt Channel Lining	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Siltation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Invasive Vegetation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Invasive vegetation noted.
e) Localized Depressions or Heaving	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>9) Drainage Channel E</b>					
a) General Condition of Drainage Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of Asphalt Channel Lining	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Siltation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Reddish color to drainage flow.
d) Invasive Vegetation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Some.
<b>GAS VENTS</b>					
<b>10) GVR-1</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No screen.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Scrapes on elbow.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Only 2.
<b>11) GVR-2</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Wood ladder resting on barrier.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No screen.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Only 2.
<b>12) GVR-3</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No screen.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>13) GVR-4</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No screen.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>14) GVR-5</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No screen.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Only 2.
<b>15) GVR-6</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sand bag process nearby and around
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No screen.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	One appears to have been moved. Sand bags around barriers.
<b>16) GVR-7</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No screen.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>17) GVR-8</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No screen.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Appears to have been moved based on mark in asphalt. Still not moved back.
<b>18) GVR-9</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No screen.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Vegetation growing around and under barriers.
<b>19) GVR-10</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Asphalt damage at base. Appears to be leaning
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No screen.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Still needs one more barrier.

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<b>20) GVR-11</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No screen.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Only two sides protected, should protect parking side.
<b>21) GVR-12</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Small tree growing near vent.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No screen.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>22) GVR-13</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No screen.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	STET. Crack sealed.
<b>23) GVR-14</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No screen.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Still many cracks in asphalt with vegetation growing through.
<b>24) GVR-15</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Old tree limb fell into vent.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No screen.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>25) GVR-16</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No screen.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Guano on plastic barrel - not built up. 2 barriers.
<b>26) GVR-17</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No screen.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Bags/tarp within barriers.

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>27) GVR-18</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No screen.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2 barriers only.
<b>28) GVR-19</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Crack in pavement toward wetland.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No screen.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>29) GVR-20</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Riser apparently broken near pavement.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Metal screen seen in sand.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Damaged
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Moved. Chipped on corner of south barrier.
<b>30) GVR-21</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No screen.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>31) GVR-22</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No screen.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Vegetation growing, asphalt burn is broken. Tree taller. Thorn bush also present.
<b>32) GVR-23</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No screen.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ladder resting on barrier.
<b>33) GVR-24</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No screen.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Car covers in barrier area.

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<b>34) GVR-25</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No screen.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>35) GVR-26</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No screen.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Car battery on barrier.
<b>36) GVR-27</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Tree growing adjacent to vent.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No screen.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>MONITORING WELLS</b>					
<b>37) 1MW2S</b>					
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Not inspected, possibly buried under barrier.
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>38) 2LMW7S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Vegetative growth and seed on portion of well cover.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Missing bolt.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>39) 2LMW7D</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Steel cover pulled up.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>40) 2LMW8S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Area around well is damaged. Note - it was unknown at the time of the inspection if this was in fact 2LMW8D.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Well is damaged, needs to be abandoned.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.

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<b>41) 2LMW8D</b>					
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Not inspected due to jersey barriers covering the well. Note - it was unknown at the time of the inspection if this was in fact 2LMW8S.
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>42) 2LMW9S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>42a) 2LMW9D</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Under wood timbers.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Loose bolt. Vegetation growing around concrete.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>43) 2LMW13S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Little sediment building up on top.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Little sediment building up on top.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>44) 2LMW13D</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Vegetative growth at interface with pavement.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Missing bolt, coming up ajar.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>45) 2LMW14D</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Leaves covering.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Vegetative growth in cracks between concrete and asphalt.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>46) 2LMW17S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Vegetation around concrete pad.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>47) 2LMW17D</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concrete is broken.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Vegetation growing around well concrete pad.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>48) 2LMW18S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Covered with sediment, concrete is cracked.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Covered with sediment.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>49) 2LMW18D</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Water puddle on concrete.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Steel plate missing, cover loose, exposed to weather.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>50) 2LMW19S</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Paint speckled with rust.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Cover jammed on with rope underneath.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	None noted, rope trailing out of casing.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>51) 2LMW19D</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rust patches noted.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock is rusty.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>52) 2LMW20S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Replaced in depression. Siltation on concrete.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Currently not longer covered in water.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>53) 2LMW20D</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Area around well is damaged.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No cover present, well is exposed to weather and full of water.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>54) 3MW12D (Abandoned/Replaced)</b>					
a) Condition of Protective Casing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Well is abandoned.
b) Condition of Well Cover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>55) 2WMW21S</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
d) Condition of Well Protection - Bollards	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.

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<b>56) 2WMW21D</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Reportedly not sampled/ gauged in four years.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Well cover is loose.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Well lock is broken.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>57) 2WMW3S</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Not inspected, unable to locate, possibly buried under growth.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Covered under leaves and branches
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>58) 2WMW3D</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Not inspected.
<b>59) 2LOWIS</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>60) 2LOWID</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Some siltation noted on concrete.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Not seen.
<b>61) 2LOW2S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>62) 2LOW3S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Under metal box. Unable to inspect.
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>63) 2LOW4S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Buried under sand.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Covered by sand.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>64) 2LPWIS</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>65) 2LMW28DS</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sediment on well cover (in rip rap area)
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Partially covered by sediment.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>66) 2LMW28F</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Well is buried sediment, vegetative growth covering area around and on well cover.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Under sediment. Dug out to see.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>67) 2LMW29A</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Small puddle noted on the concrete.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>68) 2LMW29F</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>69) 2LMW30DS</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Located beside garbage dumpsters.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>70) 2LMW30F</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Well is partially covered by garbage dumpster.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>71) 2LMW31DS</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Covered with sediment.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>72) 2LMW32DS</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Vegetative growth around concrete edge.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>73) 2LMW32F</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Vegetative growth around well cover.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>74) 2LMW32B</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Vegetative growth around well cover. Under car, not seen.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>76) 2LMW39F</b>					
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Not inspected.
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>77) 2LMW34DS</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	In depressed area.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>78) 2WMW38DS</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty. Staff guage ok.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock is in good condition.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>79) 2WMW39DS</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty. Staff guage ok (low)
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock is in good condition.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>80) 2WMW40DS</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty. Staff guage ok.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock in good condition.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>81) 2WMW41DS</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty. Staff guage ok.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock in good condition.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>82) 2WMW42DS</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty. Staff guage ok.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock in good condition.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>83) 2WMW43DS</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Minor rust noted. Staff guage ok.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock in good condition.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>84) 2WMW44DS</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty. Staff guage ok.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock in good condition.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>85) 2WMW45DS</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty. Staff guage ok.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock in good condition.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>86) 2WMW46DS</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty. Staff guage ok.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No hasp.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock in good condition. No hasp on cover
d) Condition of Well Protection - Bollards	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.

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<b>Adequacy of O&amp;M at Site:</b> Overall, O&M practices at the site are sufficient. Current practices should be sufficient to maintain the effectiveness of the remedy.	
<b>Notes:</b> As described in checklist above. 2L MW33DS- ok 2L MW33F- ok (near GVR-25) 3 MW12S- appears ok. Rusted. Locked. Note: No erosion visible/present of slope to "site 3" or "downstream" of area A landfill or large wetland. Unknown well identified between 2LMW9D and 2LMW13D.	
<b>Deficiencies/Items Requiring Corrections:</b> Cracks in the asphalt cap should be filled and sealed on an annual basis. Vegetation and sediment should be removed from the swale and culvert areas to maintain proper drainage throughout the site. There were no screens noted on any gas vents. Screens should be added to prevent animals from inhabiting the vents as shelters. Flush mount monitoring wells reportedly do not have locks. Equipment should be stored in a manner that utilizes protective surfaces to prevent damage to the asphalt surface. Repair impacted/ demaged gas vents promptly. Regularly maintain channels to remove vegetative growth and sediment. regularly maintain sediment removal from well covers and runoff near 2LMW9D. Herbicide should be used to maintain vegetative growth.	
_____ Courtney D. Moore, Jr., P.E. Printed Name of Inspector	
_____ Signature of Inspector / Date	
<b>Certification Statement:</b> I hereby certify that a complete and thorough inspection and evaluation of the site and implemented remedy has been performed, and that the items noted on this inspection form have been assessed with respect to the intent of the implemented remedy and the remedial action objectives established for the site.	
_____ Fred Santos Printed Name of O&M Engineer	_____ Richard D. Conant Jr. Printed Name of NSB-NLON IRP Manager
 2008.06.12 11:38:00 -04'00'	 6/13/08
_____ Signature of O&M Engineer / Date	_____ Signature of NSB-NLON IRP Manager / Date

INSPECTION CHECKLIST  
SITE 2 - Area A Landfill  
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Provide additional notes or sketch as needed:

See attached Site Plan

**Naval Submarine Base - New London, Groton, CT  
Area A Landfill Annual Inspection - Deficiency Log  
October 2006**

No.	Item	Deficiency	Recommended Action October 2006
1	Asphalt Cap System	Cracking / separation in asphalt cap.	Continue to monitor cracks and seal them as specified in the inspection checklist.
2	Asphalt Cap System	Bulges in asphalt surface and invasive vegetation in Deployed Parking Area.	Monitor bulges for cracks and exposed cap components. Most likely the result of frost expansion and contractions. Tree saplings and other vegetation growing through cracks in asphalt. (Note: Subsequently the trees/saplings have been cut down. The stumps have been treated with stump remover instead of being yanked out.)
3	Drainage Channels A and C.	Accumulated sediment and invasive vegetation.	Remove sediment and debris. Implement routine (quarterly), periodic maintenance to identify potential obstructions and remove them.
4	Drainage Channels B and D.	Phragmites and vegetative intrusion.	Remove vegetation manually or with herbicide treatments on an as needed basis.
5	Housekeeping and Maintenance	Improper protection for the asphalt in the staging of equipment and materials.	Minimize equipment and materials staging. Stage in a systematic, orderly manner and use protective surfaces (e.g., concrete blocks, steel plates, pallets, etc.) to prevent damage to the asphalt cap and subsurface cap system components such as the gas collection and venting system and monitoring wells.
6	Monitoring Wells	Sediment build up and vegetation growing on some wells. Some wells are missing covers and locks exposing them to the elements.	Remove sediment and vegetation build up and perform inspection during quarterly groundwater sampling rounds. Replace or repair covers and locks. Decommission monitoring wells that are damaged and no longer sampled. See inspection checklist for details.
7	Gas vents	No screens noted on any gas vent at the site. Vegetation build up around several vents.	Install screens to restrict animal habitation. Remove vegetation build up as needed.
8	Gas vents	Damaged/ Impacted gas vents	GVR- 20- Damaged. Needs to be repaired/ replaced <ul style="list-style-type: none"> <li>- 22- Asphalt berm impacted by jersey barrier. Move barrier and repair asphalt berm.</li> <li>- 15- Impacted by falling tree. Remove debris and verify not significantly damaged</li> </ul>
9	Rip Rap	Depression and localized drainage area	Regular maintenance to area to remove built up sediment. Watch area for increased depression for future repair.

**INSPECTION CHECKLIST**  
**SITE 2 - Area A Landfill**  
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SITE NAME: Site 2 - Area A Landfill (OU1)  
EPA ID: CTD980906515  
SITE LOCATION: New London County, CT  
EPA REGION: Region 1  
REMEDY AT SITE: Landfill Cover, Institutional Control, Monitoring  
REVISION: 00

Date: November 8, 2007 Courtney D. Moore, Jr., P.E./ Nobis Engineering, Inc.  
INSPECTOR/COMPANY

WEATHER CONDITIONS: Temperature: ~40°F  
Weather: Clear sky  
Other: \_\_\_\_\_

TYPE OF INSPECTION:  Annual Inspection  
 Post-Major Weather Event Inspection  
 Re-Inspection of Deficient Items  
 Other \_\_\_\_\_

AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>INSTITUTIONAL CONTROLS</b>					
<b>1) Security Fencing</b>					
a) Fencing Around Deployed Parking Area	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Entrance gate to Deployed Parking Area	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Fence Foundations in Deployed Parking Area	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Maintain vegetation routinely.
d) Entrance Gate at Thresher Road	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Main entrance. Guard on duty.
e) Entrance Gate at Wahoo Avenue	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
f) No Trespassing and Security Signs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
g) Indications of Vandalism or Trespassing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>CAP AREAS</b>					
<b>2) Plateau Asphalt Cap Area</b>					
a) General Condition of Asphalt Pavement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Level or Designed Slope Within Pavement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
c) Cracks in Pavement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cracks on slope behind barriers and in deployed parking area have been sealed.
d) Erosion on Pavement or Adjacent Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
e) Holes/Penetrations in Asphalt Surface	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
f) Bulges in Asphalt Surface	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Bulges noted in deployed area have been sealed.
g) Standing Water - other than above (b)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
h) Stability of Slopes and Adjacent Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
i) Groundwater Monitoring Penetrations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
j) Damage to Pavement Caused by Use	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Gouges in pavement from stored equipment have been repaired and communication on base discourages no blocks on tractor trailer supports.
k) Exposed Cap Components	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Repairs have been made to asphalt surface.

**INSPECTION CHECKLIST**  
**SITE 2 - Area A Landfill**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>3) Side Slope Riprap Cap Area</b>					
a) General Condition of Northern Catch Basin	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Routine maintenance abated.
b) General Condition of Gabion Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Continued maintenance required to remove vegetation in rip rap.
c) Localized Depressions in Riprap	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Localized depression and drainage area with built up sediment ~4-6 inches near 2LMW9D. Surveyed quarterly to monitor settlement.
d) Erosion in Riprap or Adjacent Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
e) Standing Water - other than above (c)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
f) Stability of Slopes and Adjacent Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
g) Groundwater Monitoring Well Penetrations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
h) Exposed Cap Components	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
i) Presence of Leachate Seeps at Toe of Slope	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>4) Crane Test Pad</b>					
a) General Condition of Concrete Pad	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Crack around pad has been filled. Regular maintenance and additional applications of sealant.
b) Standing Water - other than above (a)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>STORM WATER FEATURES</b>					
<b>5) Drainage Channel A</b>					
a) General Condition of Drainage Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Siltation noted. Functioning/ flow evident.
b) Condition of Asphalt Channel Lining	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cracked.
c) Siltation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Siltation noted, needs to be addressed.
d) Invasive Vegetation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Signs of invasive vegetation noted and needs to be addressed.
e) Localized Depressions or Heaving	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
f) Condition of Culvert 1 Headwall	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Cracks beginning on left side wall. Seal (hydrocymment).
g) Condition of Culvert 1 (Elliptical Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
h) Condition of Culvert 1 Endwall	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Some vegetation and silt buildup around pipe. Settling at top of end wall 2" silted in.
i) Condition of Culvert 2 Headwall	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sediment has been removed. Needs regular maintenance for vegetation control.
j) Condition of Culvert 2 (Elliptical Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Some vegetation and silt buildup in front of pipe.
k) Condition of Culvert 2 Endwall	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>6) Drainage Channel B</b>					
a) General Condition of Drainage Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Very minor amount of vegetation left along fence line.
b) Condition of Asphalt Channel Lining	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Invasive vegetation has been removed. Significant O&M has occurred.
c) Siltation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Siltation in swale has been removed.
d) Invasive Vegetation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Vegetation growing through pavement has been maintained.
e) Localized Depressions or Heaving	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
f) Condition of ADS Culvert (Parking Entrance)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Open to flow.

**INSPECTION CHECKLIST**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>7) Drainage Channel C</b>					
a) General Condition of Drainage Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Siltation has been removed.
b) Condition of Asphalt Channel Lining	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No ponding.
c) Siltation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Siltation in swale has been removed.
d) Invasive Vegetation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Regular maintenance is keeping vegetation under control.
e) Localized Depressions or Heaving	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>8) Drainage Channel D</b>					
a) General Condition of Drainage Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Keep up annual maintenance for sediment and invasive vegetation.
b) Condition of Asphalt Channel Lining	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Crack in slope to Deployed Parking Lot.
c) Siltation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Invasive Vegetation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Invasive vegetation noted. Cut annually.
e) Localized Depressions or Heaving	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>9) Drainage Channel E</b>					
a) General Condition of Drainage Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of Asphalt Channel Lining	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Siltation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Reddish colored staining on asphalt.
d) Invasive Vegetation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Some.
<b>GAS VENTS</b>					
<b>10) GVR-1</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Scrapes on elbow.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
<b>11) GVR-2</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
<b>12) GVR-3</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.

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**SITE 2 - Area A Landfill**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>13) GVR-4</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>14) GVR-5</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
<b>15) GVR-6</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sand bag process nearby and around
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	One appears to have been moved.
<b>16) GVR-7</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>17) GVR-8</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Appears to have been moved based on mark in asphalt. Still not moved back.
					Electrical man hole nearby.
<b>18) GVR-9</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Vegetation growing around and under barriers has been removed.
<b>19) GVR-10</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Asphalt damage at base. Appears to be leaning
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.

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**SITE 2 - Area A Landfill**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>20) GVR-11</b>					
a) Condition of Gas Vent Riser	■	□	■	□	Good.
b) Condition of End Section - 90 Degree Elbows	■	□	■	□	None.
c) Condition of Riser Protection ( HDPE Pipe)	■	□	■	□	Ok.
d) Condition of Concrete Barriers Around Riser	■	□	□	■	Only two sides protected, should protect parking side.
<b>21) GVR-12</b>					
a) Condition of Gas Vent Riser	■	□	□	■	Transverse crack splits asphalt collar. Control with routine maintenance (seal and monitor).
b) Condition of End Section - 90 Degree Elbows	■	□	■	□	None.
c) Condition of Riser Protection ( HDPE Pipe)	■	□	■	□	None.
d) Condition of Concrete Barriers Around Riser	■	□	■	□	None.
<b>22) GVR-13</b>					
a) Condition of Gas Vent Riser	■	□	■	□	Good.
b) Condition of End Section - 90 Degree Elbows	■	□	■	□	None.
c) Condition of Riser Protection ( HDPE Pipe)	■	□	■	□	Ok.
d) Condition of Concrete Barriers Around Riser	■	□	■	□	Crack sealed. Approximately 1.5 in. wide, transversed LF to GVR-12.
<b>23) GVR-14</b>					
a) Condition of Gas Vent Riser	■	□	■	□	Good.
b) Condition of End Section - 90 Degree Elbows	■	□	■	□	None.
c) Condition of Riser Protection ( HDPE Pipe)	■	□	■	□	Ok.
d) Condition of Concrete Barriers Around Riser	■	□	□	■	Still many cracks in asphalt with vegetation growing through.
<b>24) GVR-15</b>					
a) Condition of Gas Vent Riser	■	□	■	□	Vent damaged by tree limb has been repaired.
b) Condition of End Section - 90 Degree Elbows	■	□	■	□	None.
c) Condition of Riser Protection ( HDPE Pipe)	■	□	■	□	None.
d) Condition of Concrete Barriers Around Riser	■	□	■	□	None.
<b>25) GVR-16</b>					
a) Condition of Gas Vent Riser	■	□	■	□	Good.
b) Condition of End Section - 90 Degree Elbows	■	□	■	□	None.
c) Condition of Riser Protection ( HDPE Pipe)	■	□	■	□	None.
d) Condition of Concrete Barriers Around Riser	■	□	■	□	Guano on plastic barrel - not built up. 2 barriers.
<b>26) GVR-17</b>					
a) Condition of Gas Vent Riser	■	□	■	□	Good.
b) Condition of End Section - 90 Degree Elbows	■	□	■	□	None.
c) Condition of Riser Protection ( HDPE Pipe)	■	□	■	□	Ok.
d) Condition of Concrete Barriers Around Riser	■	□	■	□	Bags/tarp within barriers.

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>27) GVR-18</b>					
a) Condition of Gas Vent Riser	■	□	■	□	Good.
b) Condition of End Section - 90 Degree Elbows	■	□	■	□	None.
c) Condition of Riser Protection ( HDPE Pipe)	■	□	■	□	Ok.
d) Condition of Concrete Barriers Around Riser	■	□	■	□	2 barriers only. Appears to be ok based on orientation.
<b>28) GVR-19</b>					
a) Condition of Gas Vent Riser	■	□	■	□	Crack in pavement toward wetland has been sealed
b) Condition of End Section - 90 Degree Elbows	■	□	■	□	None.
c) Condition of Riser Protection ( HDPE Pipe)	■	□	■	□	None.
d) Condition of Concrete Barriers Around Riser	■	□	■	□	None.
<b>29) GVR-20</b>					
a) Condition of Gas Vent Riser	■	□	■	□	Broken riser has been repaired.
b) Condition of End Section - 90 Degree Elbows	■	□	■	□	None.
c) Condition of Riser Protection ( HDPE Pipe)	■	□	■	□	Damaged
d) Condition of Concrete Barriers Around Riser	■	□	■	□	None.
<b>30) GVR-21</b>					
a) Condition of Gas Vent Riser	■	□	■	□	None.
b) Condition of End Section - 90 Degree Elbows	■	□	■	□	None.
c) Condition of Riser Protection ( HDPE Pipe)	■	□	■	□	None.
d) Condition of Concrete Barriers Around Riser	■	□	■	□	None.
<b>31) GVR-22</b>					
a) Condition of Gas Vent Riser	■	□	■	□	None.
b) Condition of End Section - 90 Degree Elbows	■	□	■	□	None.
c) Condition of Riser Protection ( HDPE Pipe)	■	□	■	□	None.
d) Condition of Concrete Barriers Around Riser	■	□	■	□	Asphalt burn is still broken, but Ok. Tree and Thorn bush have been removed.
<b>32) GVR-23</b>					
a) Condition of Gas Vent Riser	■	□	■	□	None.
b) Condition of End Section - 90 Degree Elbows	■	□	■	□	No screen.
c) Condition of Riser Protection ( HDPE Pipe)	■	□	■	□	None.
d) Condition of Concrete Barriers Around Riser	■	□	■	□	Ladder resting on barrier has been removed.
<b>33) GVR-24</b>					
a) Condition of Gas Vent Riser	■	□	■	□	None.
b) Condition of End Section - 90 Degree Elbows	■	□	■	□	None.
c) Condition of Riser Protection ( HDPE Pipe)	■	□	■	□	None.
d) Condition of Concrete Barriers Around Riser	■	□	■	□	Car covers in barrier area.

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIR/MAINTENANCE NOT RECOMMENDED	REPAIR/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>34) GVR-25</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>35) GVR-26</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Car battery on barrier.
<b>36) GVR-27</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Tree growing adjacent to vent has been removed.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No screen.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>MONITORING WELLS</b>					
<b>37) 1MW2S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Surrounded by barriers. In good condition.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>38) 2LMW7S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Vegetative growth and seed on portion of well cover. To be abandoned? Not sampled.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Missing bolt.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>39) 2LMW7D</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok. To be abandoned? Not sampled.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Steel cover pulled up.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>40) 2LMW8S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	To be abandoned. Area around well is damaged. Note - it was unknown at the time of the inspection if this was in fact 2LMW8D.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Well is damaged, needs to be abandoned.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>41) 2LMW8D</b>					
a) Condition of Surface Surrounding Well Cover	■	□	■	□	To be abandoned. Not inspected due to jersey barriers covering the well. Note - it was unknown at the time of the inspection if this was in fact 2LMW8S.
b) Condition of Flush Mount Well Cover	■	□	■	□	
c) Condition of Well Lock	■	□	■	□	
<b>42) 2LMW9S</b>					
a) Condition of Surface Surrounding Well Cover	■	□	■	□	Ok. To be abandoned. Check figure, noted as already abandoned.
b) Condition of Flush Mount Well Cover	■	□	■	□	None.
c) Condition of Well Lock	□	■	□	□	None.
<b>42a) 2LMW9D</b>					
a) Condition of Surface Surrounding Well Cover	■	□	■	□	None.
b) Condition of Flush Mount Well Cover	■	□	■	□	Loose bolt. Vegetation growing around concrete.
c) Condition of Well Lock	□	■	□	□	None.
<b>43) 2LMW13S</b>					
a) Condition of Surface Surrounding Well Cover	■	□	■	□	To be abandoned.
b) Condition of Flush Mount Well Cover	■	□	■	□	None.
c) Condition of Well Lock	□	■	□	□	None.
<b>44) 2LMW13D</b>					
a) Condition of Surface Surrounding Well Cover	■	□	■	□	To be abandoned. Removed jersey barrier on top.
b) Condition of Flush Mount Well Cover	■	□	□	■	Missing bolt, coming up ajar.
c) Condition of Well Lock	□	■	□	□	None.
<b>45) 2LMW14D</b>					
a) Condition of Surface Surrounding Well Cover	■	□	■	□	To be abandoned.
b) Condition of Flush Mount Well Cover	■	□	□	■	Vegetative growth in cracks between concrete and asphalt. Seal cracks.
c) Condition of Well Lock	□	■	□	□	None.
<b>46) 2LMW17S</b>					
a) Condition of Surface Surrounding Well Cover	■	□	■	□	None.
b) Condition of Flush Mount Well Cover	■	□	■	□	Vegetation around concrete pad. Regular maintenance to seal.
c) Condition of Well Lock	□	■	□	□	None.
<b>47) 2LMW17D</b>					
a) Condition of Surface Surrounding Well Cover	■	□	□	■	To be abandoned. Concrete broken. Rust colored stain on asphalt.
b) Condition of Flush Mount Well Cover	■	□	□	■	Vegetation growing around well concrete pad. Regular maintenance to seal.
c) Condition of Well Lock	□	■	□	□	None.
<b>48) 2LMW18S</b>					
a) Condition of Surface Surrounding Well Cover	■	□	□	■	To be abandoned. Covered with sediment, concrete is cracked.
b) Condition of Flush Mount Well Cover	■	□	□	■	Covered with sediment.
c) Condition of Well Lock	□	■	□	□	None.

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>49) 2LMW18D</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	To be abandoned. Low point, no water.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Steel plate missing, cover loose, exposed to weather.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>50) 2LMW19S</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	To be abandoned. Paint speckled with rust.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	New lock.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>51) 2LMW19D</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	To be abandoned. Rust patches noted.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	New lock.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>52) 2LMW20S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Replaced in depression. Siltation on concrete. Fractured concrete and asphalt depressed area to be repaired. Approximately 5'x5'.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Currently no longer covered in water.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>53) 2LMW20D</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	To be abandoned. Area around well is damaged.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No cover present, well is exposed to weather and full of water.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>54) 3MW12D (Abandoned/Replaced)</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>55) 2WMW21S</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok. Vegetation cut back.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None. Jersey barriers nearby.

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>56) 2WMW21D</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Reportedly not sampled/ gauged. To be abandoned?
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Well cover is loose.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Well lock is broken.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None. Jersey barriers nearby.
<b>57) 2WMW3S</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Covered under leaves and branches
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>58) 2WMW3D</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>59) 2LOW1S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>60) 2LOW1D</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None. Sampled routinely.
<b>61) 2LOW2S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	To be abandoned.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>62) 2LOW3S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>63) 2LOW4S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	To be abandoned. Buried under sand.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Covered by sand.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>64) 2LPW1S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Circular well cover.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good condition.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>65) 2LMW28DS</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	To be abandoned. Sediment on well cover (in rip rap area)
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Partially covered by sediment.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>66) 2LMW28F</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	To be abandoned. Well is buried sediment, vegetative growth covering area around and on well cover.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Under sediment. Dug out to see.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>67) 2LMW29A</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No standing water.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>68) 2LMW29F</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>69) 2LMW30DS</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Located beside garbage dumpsters.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>70) 2LMW30F</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Open to inspection.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>71) 2LMW31DS</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	To be abandoned.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Covered with sediment.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.

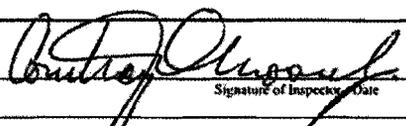
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72) 2LMW32DS					
a) Condition of Surface Surrounding Well Cover	■	□	□	■	Vegetative growth around concrete edge.
b) Condition of Flush Mount Well Cover	■	□	■	□	None.
c) Condition of Well Lock	■	■	□	□	None.
73) 2LMW32F					
a) Condition of Surface Surrounding Well Cover	■	□	□	■	Vegetative growth around well cover.
b) Condition of Flush Mount Well Cover	■	□	■	□	None.
c) Condition of Well Lock	■	■	□	□	None.
74) 2LMW32B					
a) Condition of Surface Surrounding Well Cover	■	□	□	■	Vegetative growth around well cover. Under car, not seen.
b) Condition of Flush Mount Well Cover	■	□	■	□	None.
c) Condition of Well Lock	■	■	□	□	None.
76) 2LMW39F					
a) Condition of Surface Surrounding Well Cover	□	□	□	□	Not inspected.
b) Condition of Flush Mount Well Cover	□	□	□	□	
c) Condition of Well Lock	□	□	□	□	
77) 2LMW34DS					
a) Condition of Surface Surrounding Well Cover	■	□	■	□	To be abandoned. In depressed area.
b) Condition of Flush Mount Well Cover	■	□	■	□	None.
c) Condition of Well Lock	□	■	□	□	None.
78) 2WMW38DS					
a) Condition of Protective Casing	■	□	■	□	Rusty. Staff guage ok.
b) Condition of Well Cover	■	□	■	□	Good.
c) Condition of Well Lock	■	□	■	□	Lock is in good condition.
d) Condition of Well Protection - Bollards	□	■	□	□	None.
79) 2WMW39DS					
a) Condition of Protective Casing	■	□	■	□	Rusty. Staff guage ok.
b) Condition of Well Cover	■	□	■	□	None.
c) Condition of Well Lock	■	□	■	□	Lock is in good condition.
d) Condition of Well Protection - Bollards	□	■	□	□	None.

**INSPECTION CHECKLIST**  
**SITE 2 - Area A Landfill**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIR/MAINTENANCE NOT RECOMMENDED	REPAIR/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>80) 2WMW40DS</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty. Staff guage ok.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock in good condition.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>81) 2WMW41DS</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty. Staff guage ok.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock in good condition.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>82) 2WMW42DS</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty. Staff guage ok.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock in good condition.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>83) 2WMW43DS</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Minor rust noted. Staff guage ok.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock in good condition.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>84) 2WMW44DS</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty. Staff guage ok.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock in good condition.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>85) 2WMW45DS</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty. Staff guage ok.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock in good condition.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>86) 2WMW46DS</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty. Staff guage ok.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Hasp repaired.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock in good condition.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIR/MAINTENANCE NOT RECOMMENDED	REPAIR/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>87) 2WMW47DS</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Clear access. Associated still gauge damaged.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusted.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>88) 3MTW37S</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock in good condition.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>89) 4MW1S</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Paint is chipping.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock is in good condition.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None. Conc on top of well.
<b>Adequacy of O&amp;M at Site:</b>					
Overall, O&M practices at the site are sufficient. Current practices should be sufficient to maintain the effectiveness of the remedy.					
<b>Notes:</b>					
No erosion visible/present on slope to "site 3" or "downstream" of area A landfill or large wetland. Unknown manhole nearby GVR-8. 2LMW33DS - Ok. Near GVR-25 (not on checklist). 2LMW33F - Ok. Near GVR-25 (not on checklist). New - No loading area with white lined zone. Measured cracks in deployed parking area: ~1" deep and 1" wide to 3 1/2" deep & 2" wide. Unknown well cover between GVR-3 and GVR-4.					
<b>Deficiencies/Items Requiring Corrections:</b>					
Cracks around gas vents GVR-12 and GVR-14 need to be sealed. Sealed cracks need ongoing routine application of sealant. Vegetation and sediment removal from the drainage channels and culvert areas should be ongoing to maintain proper drainage throughout the site. Hydro-seal cracks in Drainage Headwall 1 in Channel A. Herbicide should be used to control invasive vegetation and vegetative growth. Equipment should be stored in a manner that utilizes protective surfaces to prevent damage to the asphalt surface. Still occurs but less frequently. Communication is ongoing. Regular maintenance of channels to remove vegetative growth and sediment should be ongoing. 2WMW21D has a loose cover and broken well lock. Only well not abandoned that has a repair/ maintenance recommended action. Monitor cracks by measuring them and identify measuring point in the field. 2LMW20S in depression, repair with heavy equipment traffic in mind.					
_____ Courtney D. Moore, Jr., P.E. Printed Name of Inspector			 Signature of Inspector / Date 1/22/08		
<b>Certification Statement:</b> I hereby certify that a complete and thorough inspection and evaluation of the site and implemented remedy has been performed, and that the items noted on this inspection form have been assessed with respect to the intent of the implemented remedy and the remedial action objectives established for the site.					
_____ Printed Name of O&M Engineer			Richard D. Conant Printed Name of NSB-NLON IRP Manager		
_____ Signature of O&M Engineer / Date			 Signature of NSB-NLON IRP Manager / Date 2/26/08		

**INSPECTION CHECKLIST**  
**SITE 2 - Area A Landfill**  
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Provide additional notes or sketch as needed:

See attached Site Plan

**Naval Submarine Base - New London, Groton, CT  
Area A Landfill Annual Inspection - Deficiency Log  
February 2008**

No.	Item	Deficiency	Recommended Action November 2007
1	Asphalt Cap System	Cracking/separation in asphalt cap. Bulges and cracking in asphalt surface in Deployed Parking Area.	Establish measuring points for 10 larger cracks including the two perimeter cracks in the Deployed Parking Area, the crack from Drainage Channel D to Deployed Parking Area, and the crack from GVR-12 to GVR-13. Apply sealant annually and on a scheduled basis in the Deployed Parking Area due to access restrictions from parked vehicles.
2	Drainage Channel A	Accumulated sediment and vegetation. Presence of Invasive Vegetation. Cracks in Culvert 1 Headwall.	Remove vegetative growth, sediment, and debris. Use herbicide to control Invasive vegetation. Seal cracks in headwall using hydro-cement or equivalent. Maintain on a regular basis.
3	Drainage Channel D	Presence of invasive vegetation.	Remove vegetative growth. Use herbicide to control invasive vegetation. Maintain on a regular basis.
4	Housekeeping and Maintenance	Improper protection for the asphalt in the staging of equipment and materials.	Better control equipment and materials staging. Stage in a systematic, orderly manner and use protective surfaces (e.g., concrete blocks, steel plates, pallets, etc.) to prevent damage to the asphalt cap and subsurface cap system components such as the gas collection and venting system and monitoring wells.
5	Monitoring Wells	2WMW21D has a loose cover and the well lock is broken. 2LMW20S is in a depressed area and damaged concrete around well cover.	Replace well lock during routine maintenance or sampling events. Repair 2LMW20S during routine maintenance with heavy equipment traffic considerations applied to the repair construction.
6	Gas vents	Cracks in asphalt curb at GVR-12. Cracks and minor vegetation growth around GVR-14.	Seal cracks at GVR-12 and GVR-14 and re-apply sealant on an annual basis. Remove vegetation build up as needed.
7	Rip Rap	Depression and localized drainage area.	Continue regular maintenance to area to remove built up sediment. Continue quarterly monitoring of area and provide findings and any conclusions at next annual inspection to assess the need for future repair.

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**SITE 2 - Area A Landfill**  
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**SITE NAME:** Site 2 - Area A Landfill (OU1)  
**EPA ID:** CTD980906515  
**SITE LOCATION:** New London County, CT  
**EPA REGION:** Region 1  
**REMEDY AT SITE:** Landfill Cover, Institutional Control, Monitoring  
**REVISION:** 00

**Date:** August 27, 2008 **Inspector:** Brian P. Waehler, P.E./ Nobis Engineering, Inc.  
**INSPECTOR/COMPANY**

**WEATHER CONDITIONS:** Temperature: ~65°F  
Weather: Clear sky  
Other: \_\_\_\_\_

**TYPE OF INSPECTION:**

Annual Inspection  
 Post-Major Weather Event Inspection  
 Re-Inspection of Deficient Items  
 Other \_\_\_\_\_

AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>INSTITUTIONAL CONTROLS</b>					
<b>1) Security Fencing</b>					
a) Fencing Around Deployed Parking Area	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Fence loose at bottom in some locations.
b) Entrance gate to Deployed Parking Area	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Fence Foundations in Deployed Parking Area	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Maintain vegetation routinely.
d) Entrance Gate at Thresher Road	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Main entrance. Guard on duty.
e) Entrance Gate at Wahoo Avenue	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Gate present. Open at time of inspection (users required to sign in at Thresher Avenue checkpoint - gate then opened by security personnel). Fence bent by tree near Wahoo Ave gate.
f) No Trespassing and Security Signs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
g) Indications of Vandalism or Trespassing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>CAP AREAS</b>					
<b>2) Plateau Asphalt Cap Area</b>					
a) General Condition of Asphalt Pavement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Major cracks sealed, minor cracks remain, caused by equipment on cap.
b) Level or Designed Slope Within Pavement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
c) Cracks in Pavement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Minor cracks in central cap area, cracks in deployed parking area sealed but some cracks remain. Crack found outside eastern fence of deployed parking area- runs entire length of the slope. All cracks are believed to be caused by normal landfill settling, but should be monitored and sealed as needed.
d) Erosion on Pavement or Adjacent Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
e) Holes/Penetrations in Asphalt Surface	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
f) Bulges in Asphalt Surface	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Bulges present in asphalt of Deployed Parking Area.
g) Standing Water - other than above (b)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
h) Stability of Slopes and Adjacent Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
i) Groundwater Monitoring Penetrations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
j) Damage to Pavement Caused by Use	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No damage caused by cap use. Crack present in asphalt are part of normal landfill settling and not caused by use.
k) Exposed Cap Components	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>3) Side Slope Riprap Cap Area</b>					
a) General Condition of Northern Catch Basin	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Not applicable. Recommend removing from checklist.
b) General Condition of Gabion Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Continued maintenance required to remove vegetation in rip rap.
c) Localized Depressions in Riprap	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Erosion in Riprap or Adjacent Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
e) Standing Water - other than above (c)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
f) Stability of Slopes and Adjacent Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
g) Groundwater Monitoring Well Penetrations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
h) Exposed Cap Components	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
i) Presence of Leachate Seeps at Toe of Slope	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>4) Crane Test Pad</b>					
a) General Condition of Concrete Pad	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Crack around pad has been filled. Regular maintenance and additional applications of sealant.
b) Standing Water - other than above (a)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>STORM WATER FEATURES</b>					
<b>5) Drainage Channel A</b>					
a) General Condition of Drainage Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Siltation noted. Functioning/ flow evident.
b) Condition of Asphalt Channel Lining	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cracked with vegetation growing through.
c) Siltation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Siltation noted, needs to be addressed.
d) Invasive Vegetation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Vegetation removal is ongoing.
e) Localized Depressions or Heaving	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
f) Condition of Culvert 1 Headwall	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	previously observed cracks sealed.
g) Condition of Culvert 1 (Elliptical Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
h) Condition of Culvert 1 Endwall	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Vegetation removal is ongoing and appears to be successful.
i) Condition of Culvert 2 Headwall	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Vegetation removal is ongoing and appears to be successful.
j) Condition of Culvert 2 (Elliptical Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Vegetation removal is ongoing and appears to be successful.
k) Condition of Culvert 2 Endwall	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>6) Drainage Channel B</b>					
a) General Condition of Drainage Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Very minor amount of vegetation left along fence line. Vegetation at culvert opening (under deployed parking entrance).
b) Condition of Asphalt Channel Lining	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Siltation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Invasive Vegetation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
e) Localized Depressions or Heaving	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
f) Condition of ADS Culvert (Parking Entrance)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Open to flow. Vegetation at culvert entrance needs to be removed.

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>7) Drainage Channel C</b>					
a) General Condition of Drainage Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of Asphalt Channel Lining	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No ponding.
c) Siltation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Invasive Vegetation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Vegetation spraying is ongoing and appears to be successful.
e) Localized Depressions or Heaving	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>8) Drainage Channel D</b>					
a) General Condition of Drainage Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Keep up annual maintenance for sediment and invasive vegetation.
b) Condition of Asphalt Channel Lining	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Crack runs along eastern side of deployed parking lot just outside fence.
c) Siltation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Invasive Vegetation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Invasive vegetation noted. Cut annually.
e) Localized Depressions or Heaving	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>9) Drainage Channel E</b>					
a) General Condition of Drainage Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of Asphalt Channel Lining	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Crack along bottom of channel.
c) Siltation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Reddish colored staining on asphalt.
d) Invasive Vegetation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Vegetation growing in crack. Spraying appears successful.
<b>GAS VENTS</b>					
<b>10) GVR-1</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Scrapes on elbow.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
<b>11) GVR-2</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
<b>12) GVR-3</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>13) GVR-4</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>14) GVR-5</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
<b>15) GVR-6</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sand bag process nearby and around
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
<b>16) GVR-7</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>17) GVR-8</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Appears to have been moved based on mark in asphalt. Still not moved back. Electrical man hole nearby.
<b>18) GVR-9</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Vegetation is growing around and under barriers.
<b>19) GVR-10</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Asphalt damage at base. Appears to be leaning
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>20) GVR-11</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
<b>21) GVR-12</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Transverse crack splits asphalt collar. Control with routine maintenance (seal and monitor).
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>22) GVR-13</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Previously sealed crack from GV-13 to GV-12 may be re-opening.
<b>23) GVR-14</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Still many cracks in asphalt with vegetation growing through.
<b>24) GVR-15</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>25) GVR-16</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>26) GVR-17</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>27) GVR-18</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2 barriers only. Appears to be ok based on orientation.
<b>28) GVR-19</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Crack in pavement toward wetland has been sealed but may be splitting open.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>29) GVR-20</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>30) GVR-21</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>31) GVR-22</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Asphalt berm is still broken, but Ok. Previously removed vegetation has grown back.
<b>32) GVR-23</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Only two barriers. Vent not vulnerable because unprotected side faces wetlands.
<b>33) GVR-24</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Car covers in barrier area.

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>34) GVR-25</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>35) GVR-26</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>36) GVR-27</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>MONITORING WELLS</b>					
<b>37) 1MW2S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Abandoned.
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>38) 2LMW7S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Abandoned.
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>39) 2LMW7D</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Abandoned.
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>40) 2LMW8S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Abandoned.
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>41) 2LMW8D</b>					Abandoned.
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>42) 2LMW9S</b>					Abandoned.
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>42a) 2LMW9D</b>					Abandoned.
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>43) 2LMW13S</b>					Abandoned.
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>44) 2LMW13D</b>					Abandoned.
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>45) 2LMW14D</b>					Abandoned.
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>46) 2LMW17S</b>					Abandoned.
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>47) 2LMW17D</b>					Abandoned.
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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48) 2LMW18S a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Abandoned.
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
49) 2LMW18D a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Abandoned.
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
50) 2LMW19S a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Abandoned.
b) Condition of Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
51) 2LMW19D a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Abandoned.
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
52) 2LMW20S a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Surrounding asphalt repaired
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
53) 2LMW20D a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Abandoned.
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
54) 3MW12D (Abandoned/Replaced) a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
55) 2WMW21S a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok. Vegetation cut back.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None. Jersey barriers nearby.

**INSPECTION CHECKLIST**  
**SITE 2 - Area A Landfill**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>56) 2WMW21D</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	None.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None. Jersey barriers nearby.
<b>57) 2WMW3S</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Covered under leaves and branches
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>58) 2WMW3D</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>59) 2LOW1S</b>					Abandoned.
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>60) 2LOW1D</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None. Sampled routinely.
<b>61) 2LOW2S</b>					Abandoned.
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>62) 2LOW3S</b>					Abandoned.
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>63) 2LOW4S</b>					Abandoned.
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**INSPECTION CHECKLIST**  
**SITE 2 - Area A Landfill**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>64) 2LPW1S</b>					Abandoned.
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>65) 2LMW28DS</b>					Abandoned.
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>66) 2LMW28F</b>					Abandoned.
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>67) 2LMW29A</b>					Abandoned.
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>68) 2LMW29F</b>					Abandoned.
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>69) 2LMW30DS</b>					Abandoned.
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>70) 2LMW30F</b>					Open to inspection.
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>71) 2LMW31DS</b>					Abandoned.
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

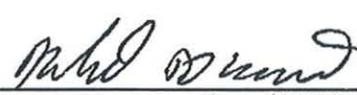
**INSPECTION CHECKLIST**  
**SITE 2 - Area A Landfill**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
72) 2LMW32DS					Abandoned
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
73) 2LMW32F					Abandoned
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
74) 2LMW32B					Abandoned.
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
76) 2LMW39F					
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	This well has not been located for some time, and therefore, not inspected.
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
77) 2LMW34DS					Abandoned.
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
78) 2WMW38DS					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty. Staff guage ok.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock is in good condition.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
79) 2WMW39DS					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty. Staff guage ok.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock is in good condition.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.

**INSPECTION CHECKLIST**  
**SITE 2 - Area A Landfill**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>80) 2WMW40DS</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty. Staff guage ok.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock in good condition.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>81) 2WMW41DS</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty. Staff guage ok.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock in good condition.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>82) 2WMW42DS</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty. Staff guage ok.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock in good condition.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>83) 2WMW43DS</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Could not locate.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>84) 2WMW44DS</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty. Staff guage ok.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock in good condition.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>85) 2WMW45DS</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty. Staff guage ok.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock in good condition.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>86) 2WMW46DS</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty. Staff guage ok.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Hasp repaired.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock in good condition.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.

**INSPECTION CHECKLIST**  
**SITE 2 - Area A Landfill**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIR/MAINTENANCE NOT RECOMMENDED	REPAIR/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>87) 2WNW47DS</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Clear access.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Roated.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>88) 3NW37S</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock in good condition.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>89) 4NW1S</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Paint is chipping.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock is in good condition.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None. Cone on top of well.
<b>Adequacy of O&amp;M at Site:</b> Overall, O&M practices at the site are sufficient. Current practices should be sufficient to maintain the effectiveness of the remedy.					
<b>Notes:</b> No erosion visible/present on slope to "site 3" or "downstream" of area A landfill or large welland. Unknown manhole nearby GVR-R. 2LMW33DS - Ok. Near GVR-25 (not on checklist). 2LMW33F - Ok. Near GVR-25 (not on checklist). Unknown well cover between GVR-3 and GVR-4.					
<b>Deficiencies/Items Requiring Corrections:</b> 1. Cracking and separation throughout asphalt cap area. Bulges and cracking in Deployed Parking area. Deployed Parking Area cracks have been sealed but because of the deepness of cracks need to be resealed. All sealed cracks should be monitored on a regular basis and resealed as needed. Crack from GVR-12 to GVR-13, and a crack from GVR-19 to wetlands should be resealed. 2. Accumulated sediment should be removed from Drainage Channel A. Continue to apply herbicide to vegetation in Drainage Channels A, C, D. 3. Cracks in asphalt curb at GVR-12 and -14 should be sealed and maintained on a regular basis. Vegetation growth at GVR-14, -19, and -22 should be removed. 4. Bottom of fence loose at Deployed Parking Area. Also, repair fence damage near Wahoo Avenue gate.					
Brian P. Wachler, P.E. Printed Name of Inspector			 5/20/09 Signature of Inspector / Date		
<b>Certification Statement:</b> I hereby certify that a complete and thorough inspection and evaluation of the site and implemented remedy has been performed, and that the items noted on this inspection form have been assessed with respect to the intent of the implemented remedy and the remedial action objectives established for the site.					
Fred Santos Printed Name of O&M Engineer			Richard D. Conant Jr. Printed Name of NSB-NLON IRP Manager		
 5/20/09 Signature of O&M Engineer / Date			 5/20/09 Signature of NSB-NLON IRP Manager / Date		

Provide additional notes or sketch as needed:

See attached Site Plan

**Naval Submarine Base - New London, Groton, CT  
Area A Landfill Annual Inspection - Deficiency Log  
August 2008**

No.	Item	Deficiency	Recommended Action
1	Asphalt Cap System	Cracking/separation in asphalt cap. Bulges and cracking in asphalt surface in Deployed Parking Area.	Although all cracks are sealed throughout Area A Landfill and Deployed Parking Area, the deeper cracks should be monitored and resealed as needed. Continue to monitor the crack that runs along the wetland edge of the asphalt parallel to the gabion baskets at Area A and the bulges in the asphalt surface of the Deployed Parking Area.
2	Drainage Channels A, C, & D	Accumulated sediment in Channel A. Presence of invasive vegetation in A, C, and D.	Remove accumulated sediment. Continue to use herbicide to control invasive vegetation. Maintain on a regular basis.
3	Gas vents	Cracks in asphalt curb at GVR-12. Cracks and minor vegetation growth around GVR-14. Minor vegetation growth around GVR-9 and -22.	Seal cracks at GVR-12 and GVR-14 and re-apply sealant on an annual basis. Remove vegetation build up as needed for all gas vents.
4	Fence	Loose fence at bottom around Deployed Parking Area. Damaged fence near Wahoo Avenue gate.	Repair fence in indicated locations and monitor fence condition on a regular basis.

**INSPECTION CHECKLIST**  
**SITE 2 - Area A Landfill**  
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SITE NAME: Site 2 - Area A Landfill (OU1)  
EPA ID: CTD980906515  
SITE LOCATION: New London County, CT  
EPA REGION: Region 1  
REMEDY AT SITE: Landfill Cover, Institutional Control, Monitoring

Inspection Date: August 19, 2009

INSPECTOR/COMPANY: Willard A. Murray / ECC

WEATHER CONDITIONS: Temperature: 85° F  
Weather: Clear and hot  
Other: \_\_\_\_\_

TYPE OF INSPECTION:  
 Annual Inspection  
 Post-Major Weather Event Inspection  
 Re-Inspection of Deficient Items  
 Other \_\_\_\_\_

AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>INSTITUTIONAL CONTROLS</b>					
<b>1) Security Fencing</b>					
a) Fencing Around Deployed Parking Area	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Fence loose at bottom in some locations, but no loss of integrity
b) Entrance gate to Deployed Parking Area	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Locked and in good condition, ECC was given entrance by guard who waited for us to leave to re-lock
c) Fence Foundations in Deployed Parking Area	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good condition
d) Entrance Gate at Thresher Road	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Main entrance, guard on duty
e) Entrance Gate at Wahoo Avenue	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Gate locked, fence bent by tree near gate but no loss of integrity
f) No Trespassing and Security Signs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No IRP sign located at the Salt Storage Building gate. Recommend installing a sign.
g) Indications of Vandalism or Trespassing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>CAP AREAS</b>					
<b>2) Plateau Asphalt Cap Area</b>					
a) General Condition of Asphalt Pavement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cracks sealed, extensive recent sealing of new cracks and resealing of previously sealed cracks. Vegetation has been treated and is mostly dead throughout the site.
b) Level or Designed Slope Within Pavement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Cracks in Pavement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	New cracks in several locations from central portion to northern end of cap, these cracks should be monitored and sealed as needed. Previous crack along entire length of eastern fence of deployed parking area has been sealed, however several cracks need sealing inside deployed parking area, however they are generally located beneath parked vehicles and therefore cannot be currently accessed.
d) Erosion on Pavement or Adjacent Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
e) Holes/Penetrations in Asphalt Surface	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
f) Bulges in Asphalt Surface	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
g) Standing Water - other than above (b)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
h) Stability of Slopes and Adjacent Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
i) Groundwater Monitoring Penetrations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
j) Damage to Pavement Caused by Use	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None, cracks in pavement believed due to settlement, not use. Painted white line to indicate no parking area should be continued in areas where missing.
K) Exposed Cap Components	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None

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<b>3) Side Slope Riprap Cap Area</b>					
a) General Condition of Northern Catch Basin	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Not applicable, recommend removing from checklist.
b) General Condition of Gabion Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally very good
c) Localized Depressions in Riprap	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
d) Erosion in Riprap or Adjacent Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
e) Standing Water - other than above (c)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
f) Stability of Slopes and Adjacent Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
g) Groundwater Monitoring Well Penetrations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
h) Exposed Cap Components	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
i) Presence of Leachate Seeps at Toe of Slope	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>4) Crane Test Pad</b>					
a) General Condition of Concrete Pad	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good condition, crack around pad has been sealed, watch for new cracks and seal as needed.
b) Standing Water - other than above (a)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>STORM WATER FEATURES</b>					
<b>5) Drainage Channel A</b>					
a) General Condition of Drainage Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Swale bottom has minor erosion near and north of GVR-16 and south of culvert 1, watch for serious erosion and repair as needed. Accumulated sediment in swale bottom at north end, but not compromise swale function for carrying runoff.
b) Condition of Asphalt Channel Lining	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally good, with minor vegetation growth, watch for excessive vegetation and remove as needed.
c) Siltation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Some minor amounts of siltation, watch for increased siltation and remove as needed.
d) Invasive Vegetation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Previous invasive vegetation has been removed and/or treated.
e) Localized Depressions or Heaving	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
f) Condition of Culvert 1 Headwall	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Previous sealed cracks have extended a minor amount, watch and seal as needed.
g) Condition of Culvert 1 (Elliptical Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	An inch or two of accumulated sediment, watch and remove if becomes obstructive.
h) Condition of Culvert 1 Endwall	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Walls in good condition, vegetation is controlled with only a few small weeds.
i) Condition of Culvert 2 Headwall	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Previous sealed cracks have extended a minor amount, watch and seal as needed.
j) Condition of Culvert 2 (Elliptical Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	An inch or two of accumulated sediment, watch and remove if becomes obstructive.
k) Condition of Culvert 2 Endwall	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Walls in good condition, vegetation is controlled with only a few small weeds.
<b>6) Drainage Channel B</b>					
a) General Condition of Drainage Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Nothing to interfere with flow, asphalt not compromised by minor sediment and weed growth
b) Condition of Asphalt Channel Lining	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Siltation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Very minor amounts, except 2 animal borrow holes along fence line have resulted in small piles of sediment on the edge of the swale.
d) Invasive Vegetation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
e) Localized Depressions or Heaving	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
f) Condition of ADS Culvert (Parking Entrance)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good condition

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<b>7) Drainage Channel C</b>					
a) General Condition of Drainage Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, almost completely clear of vegetation
b) Condition of Asphalt Channel Lining	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Very good
c) Siltation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
d) Invasive Vegetation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Clear of vegetation
e) Localized Depressions or Heaving	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
f) Condition of culvert Under Parking Entrance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good condition, free from obstructions
<b>8) Drainage Channel D</b>					
a) General Condition of Drainage Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Erosion hole at and under the asphalt/gabions at downstream end of asphalt paving in Channel D where the gabions begin. Hole should be filled with pea-stone and protected with rip rap. Generally good, lots of vegetation growth just off the paved slope, rain water runs off into this vegetation, but there is no erosion problem.
b) Condition of Asphalt Channel Lining	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Previous noted crack is actually just the asphalt pavement edge on top of other asphalt paving
c) Siltation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Dead vegetation and silt accumulated at one spot about half way down swale, should be removed
d) Invasive Vegetation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None, vegetation is outside paved swale, but hangs over the swale
e) Localized Depressions or Heaving	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>9) Drainage Channel E</b>					
a) General Condition of Drainage Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally good condition
b) Condition of Asphalt Channel Lining	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good condition, previous reported crack not observed, may be asphalt edge and not a crack
c) Siltation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Reddish stain and minor siltation covers bottom, but not interfere with swale function to transport water
d) Invasive Vegetation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Minor amounts of vegetation growing in a short length of crack, spraying to kill weeds has been successful
<b>GAS VENTS</b>					
<b>10) GVR-1</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<b>11) GVR-2</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<b>12) GVR-3</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good

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<b>13) GVR-4</b>					
a) Condition of Gas Vent Riser	■	□	■	□	Good
b) Condition of End Section - 90 Degree Elbows	■	□	■	□	Good
c) Condition of Riser Protection ( HDPE Pipe)	■	□	■	□	Good
d) Condition of Concrete Barriers Around Riser	■	□	■	□	Good
<b>14) GVR-5</b>					
a) Condition of Gas Vent Riser	■	□	■	□	Good
b) Condition of End Section - 90 Degree Elbows	■	□	■	□	Good
c) Condition of Riser Protection ( HDPE Pipe)	■	□	■	□	Good
d) Condition of Concrete Barriers Around Riser	■	□	■	□	Good
<b>15) GVR-6</b>					
a) Condition of Gas Vent Riser	■	□	■	□	Good
b) Condition of End Section - 90 Degree Elbows	■	□	■	□	Good
c) Condition of Riser Protection ( HDPE Pipe)	■	□	■	□	Good
d) Condition of Concrete Barriers Around Riser	■	□	■	□	Good
<b>16) GVR-7</b>					
a) Condition of Gas Vent Riser	■	□	■	□	Good
b) Condition of End Section - 90 Degree Elbows	■	□	■	□	Good
c) Condition of Riser Protection ( HDPE Pipe)	■	□	■	□	Good
d) Condition of Concrete Barriers Around Riser	■	□	■	□	Good
<b>17) GVR-8</b>					
a) Condition of Gas Vent Riser	■	□	■	□	Good
b) Condition of End Section - 90 Degree Elbows	■	□	■	□	Good
c) Condition of Riser Protection ( HDPE Pipe)	■	□	■	□	Good
d) Condition of Concrete Barriers Around Riser	■	□	■	□	Good
<b>18) GVR-9</b>					
a) Condition of Gas Vent Riser	■	□	■	□	Good
b) Condition of End Section - 90 Degree Elbows	■	□	■	□	Good
c) Condition of Riser Protection ( HDPE Pipe)	■	□	■	□	Good
d) Condition of Concrete Barriers Around Riser	■	□	■	□	Good, previous reported vegetation has been treated and is now dead.
<b>19) GVR-10</b>					
a) Condition of Gas Vent Riser	■	□	■	□	Asphalt damage at base and riser is leaning very slightly.
b) Condition of End Section - 90 Degree Elbows	■	□	■	□	Good
c) Condition of Riser Protection ( HDPE Pipe)	■	□	■	□	Good
d) Condition of Concrete Barriers Around Riser	■	□	■	□	Good

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<b>20) GVR-11</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<b>21) GVR-12</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, previous reported crack has been sealed.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<b>22) GVR-13</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, previous reported concern of crack reopening has not materialized.
<b>23) GVR-14</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, previous reported cracks have all been sealed.
<b>24) GVR-15</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<b>25) GVR-16</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<b>26) GVR-17</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good

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<b>27) GVR-18</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<b>28) GVR-19</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<b>29) GVR-20</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<b>30) GVR-21</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<b>31) GVR-22</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, previously noted broken asphalt still OK, no vegetative growth.
<b>32) GVR-23</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<b>33) GVR-24</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good

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<b>34) GVR-25</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<b>35) GVR-26</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<b>36) GVR-27</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<b>MONITORING WELLS</b>					
<b>37) 1MW2S</b>					
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Abandoned
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>38) 2LMW7S</b>					
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Abandoned
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>39) 2LMW7D</b>					
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Abandoned
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>40) 2LMW8S</b>					
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Abandoned
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>41) 2LMW8D</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>42) 2LMW9D</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>43) 2LMW13S</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>44) 2LMW13D</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>45) 2LMW14D</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>46) 2LMW14D</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>47) 2LMW17D</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>48) 2LMW18S</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>49) 2LMW18D</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>50) 2LMW19S</b>					Abandoned
a) Condition of Protective Casing	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>51) 2LMW19D</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>52) 2LMW20S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	New concrete pad
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None
<b>53) 2LMW20D</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	New asphalt patch
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>54) 3MW12D (Abandoned/Replaced)</b>					ECC inspected in July, 2009
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None
<b>55) 2WMM21S</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Gooid
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None. Jersey barriers nearby.

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>56) 2WMW21D</b>					
a) Condition of Protective Casing	■	□	■	□	OK
b) Condition of Well Cover	■	□	■	□	New aluminum cap
c) Condition of Well Lock	■	□	■	□	New lock.
d) Condition of Well Protection - Bollards	□	■	■	□	None. Jersey barriers nearby.
<b>57) 2WMW3S</b>					Well under thick growth of bushes
a) Condition of Protective Casing	■	□	■	□	OK
b) Condition of Well Cover	■	□	■	□	OK
c) Condition of Well Lock	□	■	□	□	None
d) Condition of Well Protection - Bollards	□	■	□	□	None
<b>58) 2WMW3D</b>					Well under thick growth of bushes
a) Condition of Protective Casing	■	□	■	□	OK
b) Condition of Well Cover	■	□	■	□	OK
c) Condition of Well Lock	□	■	□	□	OK
	□	■	□		
<b>59) 2LOW1S</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	■	□	■	□	
b) Condition of Flush Mount Well Cover	□	■	□	□	
c) Condition of Well Lock	□	■	□	□	
<b>60) 2LOW1D</b>					
a) Condition of Surface Surrounding Well Cover	■	□	■	□	OK
b) Condition of Flush Mount Well Cover	■	□	■	□	OK
c) Condition of Well Lock	■	□	■	□	None
<b>61) 2LOW2S</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	□	■	□	□	
b) Condition of Flush Mount Well Cover	□	■	□	□	
c) Condition of Well Lock	□	■	□	□	
<b>62) 2LOW3S</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	□	■	□	□	
b) Condition of Flush Mount Well Cover	□	■	□	□	
c) Condition of Well Lock	□	■	□	□	
<b>63) 2LOW4S</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	□	■	□	□	
b) Condition of Flush Mount Well Cover	□	■	□	□	
c) Condition of Well Lock	□	■	□	□	

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>64) 2LPW1S</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>65) 2LMW28DS</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>66) 2LMW28F</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>67) 2LMW29A</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>68) 2LMW29F</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>69) 2LMW30DS</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>70) 2LMW30F</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>71) 2LMW31DS</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
72) 2LMW32DS					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
73) 2LMW32F					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
74) 2LMW32B					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
76) 2LMW39F					This well is thought to NOT exist, it is not on any checklist dating back to year 2003 reports
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
77) 2LMW34DS					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
78) 2WMW38DS					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty, staff gage OK
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good condition
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None
79) 2WMW39DS					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty, staff gage OK
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good condition
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>80) 2WMW40DS</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty, staff gage in good condition
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None
<b>81) 2WMW41DS</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty, staff gage in good condition
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK, lock found open, locked on 8/19/09.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None
<b>82) 2WMW42DS</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty, staff gage in good condition
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None
<b>83) 2WMW43DS</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty, staff gage in good condition
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None
<b>84) 2WMW44DS</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty, staff gage in good condition
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None
<b>85) 2WMW45DS</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty, staff gage in good condition
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None
<b>86) 2WMW46DS</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty, staff gage in good condition
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	New cover
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	New lock
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None

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**SITE 2 - Area A Landfill**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>87) 2WMW47DS</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None
<b>88) 3MW37S</b>					Observed by ECC in July, 2009
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None
<b>89) 4MWIS</b>					Area filled in, only 1 ft stickup currently, previously had 2.5 ft stickup
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Painted bright orange, cone beside well
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	New lock
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None

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<b>Adequacy of O&amp;M at Site:</b> Overall, O&M practices at site are adequate. Current practices should be sufficient to maintain the effectiveness of the remedy.	
<b>Notes:</b> Erosion hole at and under the asphalt/gabions at downstream end of asphalt paving in Channel D where the gabions begin. Hole should be filled with pea stone and protected with rip rap. 2LMW33DS - OK, near GVR-25 not on checklist, but is abandoned. 2LMW33F - OK, near GVR-25 not on checklist, but is abandoned.	
<b>Deficiencies/Items Requiring Corrections:</b> Pavement cracks should be sealed and rescaled as noted above. Accumulated sediment/debris in Channel D as noted above should be removed. Minor erosion of Channel A bottom as noted above should be watched and repaired as necessary. Erosion hole at and under the asphalt/gabions at downstream end of asphalt paving in Channel D where the gabions begin. Hole should be filled with pea stone and protected with rip rap. No IRP sign located at the Salt Storage Building gate. Recommend installing a sign.	
Willard A. Murray Printed Name of Inspector	 12-Aug-09 Signature of Inspector / Date
<b>Certification Statement:</b> I hereby certify that a complete and thorough inspection and evaluation of the site and implemented remedy has been performed, and that the items noted on this inspection form have been assessed with respect to the intent of the implemented remedy and the remedial action objectives established for the site.	
Fred Santos Printed Name of O&M Engineer	Richard D. Conant Printed Name of NSB-NLON IRP Manager
Fred Santos 2009.12.02 15:07:12 -05'00' Signature of O&M Engineer / Date	 12/2/09 Signature of NSB-NLON IRP Manager / Date

Provide additional notes or sketch as needed:

See attached Site Plan

**Naval Submarine Base - New London, Groton, CT  
Area A Landfill Annual Inspection - Deficiency Log  
August 2009**

The following items were inspected at the Area A Landfill during the annual landfill inspection in August 2009: Fence, gates, signs, asphalt cap surface, rip rap, crane test pad, drainage channels and culverts, gas vents, monitoring wells, vegetation overgrowth. Inspection of these items resulted in the following deficiencies and recommended corrective actions as stated in the table below.

No.	Item	Deficiency	Recommended Corrective Action
1	Asphalt Cap System	Cracking/separation in asphalt cap. Bulges and cracking in asphalt surface in Deployed Parking Area.	<p>Cracks in several locations throughout the asphalt cap should be monitored and sealed/re-sealed as needed. Several cracks need sealing inside Deployed Parking Area, however they are generally located beneath parked vehicles and therefore cannot be currently accessed. Vehicles are occasionally moved from their parking locations as sailors returning from deployment pickup their vehicles.</p> <p>Crack sealing will occur during the Summer 2010. Crack sealing activity duration is approximately two days.</p>
2	Drainage Channels A & D	Minor erosion in Channel A bottom; accumulated sediment and debris in Channel D	<p>Monitor Channel A erosion south of Culvert 1 and repair as necessary; remove accumulated sediment/debris in Channel D located about half way down the channel.</p> <p>Accumulated sediment/debris will be removed from Channel D in the Summer 2010. Duration for this activity is approximately a half day.</p>
3	Channel D/ Gabion Baskets	Erosion hole at end of Channel D and beginning of gabion baskets	<p>Erosion hole should be filled with pea stone and protected on top with rip rap to prevent erosion.</p> <p>Erosion hole will be repaired in the Summer 2010. Duration for this activity is approximately a half day.</p>
4	Institutional Controls/Signage	There is no IRP sign installed at the access gate located near the Salt Storage Building.	<p>The Navy intends to install a fourth IRP sign at the Salt Storage Building gate by the Summer 2010.</p> <p>Duration for this activity is approximately two hours.</p>

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SITE NAME: Site 2 - Area A Landfill (OU1)  
EPA ID: CTD980906515  
SITE LOCATION: New London County, CT  
EPA REGION: Region 1  
REMEDY AT SITE: Landfill Cover, Institutional Control, Monitoring

Inspection Date: August 19, 2010

INSPECTOR/COMPANY: Ryan Hipp, EIT, H&S

WEATHER CONDITIONS: Temperature: 90° F  
Weather: Clear and hot  
Other: \_\_\_\_\_

TYPE OF INSPECTION:  
 Annual Inspection  
 Post-Major Weather Event Inspection  
 Re-Inspection of Deficient Items  
 Other \_\_\_\_\_

AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>INSTITUTIONAL CONTROLS</b>					
<b>1) Security Fencing</b>					
a) Fencing Around Deployed Parking Area	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Fence loose at bottom in some locations and few bent sections, but no loss of integrity
b) Entrance gate to Deployed Parking Area	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Locked and in good condition, H&S was given entry by security office
c) Fence Foundations in Deployed Parking Area	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good condition. Minor vegetation at interface with asphalt
d) Entrance Gate at Thresher Road	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Main entrance, guard on duty
e) Entrance Gate at Wahoo Avenue	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Gate locked, fence bent by tree near gate but no loss of integrity
f) No Trespassing and Security Signs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
g) Indications of Vandalism or Trespassing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>CAP AREAS</b>					
<b>2) Plateau Asphalt Cap Area</b>					
a) General Condition of Asphalt Pavement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cracks sealed, extensive recent sealing of new cracks
b) Level or Designed Slope Within Pavement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Cracks in Pavement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	New cracks in several locations throughout cap mostly older cracks needing resealing, these cracks should be monitored and sealed as needed. Several cracks are deep into asphalt. Most crack sealing occurred at northern-central end of cap leaving southern end with more sections to be sealed.
d) Erosion on Pavement or Adjacent Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
e) Holes/Penetrations in Asphalt Surface	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
f) Bulges in Asphalt Surface	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
g) Standing Water - other than above (b)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
h) Stability of Slopes and Adjacent Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
i) Groundwater Monitoring Penetrations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
j) Damage to Pavement Caused by DRMO Use	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None, cracks in pavement believed due to settlement, not use.
k) Exposed Cap Components	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>3) Side Slope Riprap Cap Area</b>					
a) General Condition of Northern Catch Basin	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Not applicable, recommend removing from checklist.
b) General Condition of Gabion Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally very good
c) Localized Depressions in Riprap	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
d) Erosion in Riprap or Adjacent Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
e) Standing Water - other than above (c)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
f) Stability of Slopes and Adjacent Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
g) Groundwater Monitoring Well Penetrations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
h) Exposed Cap Components	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
i) Presence of Leachate Seeps at Toe of Slope	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>4) Crane Test Pad</b>					
a) General Condition of Concrete Pad	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good condition, crack around pad may need resealing, watch for new cracks and seal as needed.
b) Standing Water - other than above (a)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Yes, minor amount in center of concrete pad.
<b>STORM WATER FEATURES</b>					
<b>5) Drainage Channel A</b>					
a) General Condition of Drainage Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Previously reported erosion repaired. Generally in good condition
b) Condition of Asphalt Channel Lining	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Generally good, with minor vegetation growth some heavier growth spots which might need removal
c) Siltation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Some minor amounts of siltation, watch for increased siltation and remove as needed.
d) Invasive Vegetation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
e) Localized Depressions or Heaving	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
f) Condition of Culvert 1 Headwall	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Previous sealed cracks have extended a minor amount, watch and seal as needed.
g) Condition of Culvert 1 (Elliptical Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Minimal amounts of accumulated sediment, watch and remove if becomes obstructive.
h) Condition of Culvert 1 Endwall	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Walls in good condition, vegetation is controlled with minimal amounts.
i) Condition of Culvert 2 Headwall	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Previous sealed cracks have extended a small amount, watch and seal as needed.
j) Condition of Culvert 2 (Elliptical Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Minimal amounts of accumulated sediment, watch and remove if becomes obstructive.
k) Condition of Culvert 2 Endwall	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Walls in good condition, vegetation is controlled with only a few small weeds.
<b>6) Drainage Channel B</b>					
a) General Condition of Drainage Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Hole near south end of channel in need of repair. Accumulated sediment and weed growth, may need to be removed in small section. Some minor cracks could be sealed during next event.
b) Condition of Asphalt Channel Lining	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Siltation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Sediment and vegetation growth at northwest end of channel. Removal would help with drainage flow.
d) Invasive Vegetation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
e) Localized Depressions or Heaving	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
f) Condition of ADS Culvert (Parking Entrance)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good condition

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>7) Drainage Channel C</b>					
a) General Condition of Drainage Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Good condition. Vegetation growth increasing in swale. Recommend removing before it becomes more of a problem
b) Condition of Asphalt Channel Lining	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Very good
c) Siltation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Due to vegetation within swale, the amount of siltation was unable to be determined.
d) Invasive Vegetation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Clear of vegetation
e) Localized Depressions or Heaving	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
f) Condition of culvert Under Parking Entrance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good condition, free from obstructions
<b>8) Drainage Channel D</b>					
a) General Condition of Drainage Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition, lots of vegetation growth just off the paved slope, rain water runs off into this vegetation, but there is no erosion problem.
b) Condition of Asphalt Channel Lining	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Previous noted crack is actually just the asphalt pavement edge on top of other asphalt paving
c) Siltation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
d) Invasive Vegetation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None, vegetation is outside paved swale, but hangs over the swale
e) Localized Depressions or Heaving	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Minor depression in one area due to natural settling of landfill
<b>9) Drainage Channel E</b>					
a) General Condition of Drainage Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally good condition
b) Condition of Asphalt Channel Lining	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good condition
c) Siltation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Minor amounts of sediment, but does not interfere swale function to transport water
d) Invasive Vegetation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Previous report of minor growth of vegetation growing in a short length of crack still present but does not inhibit function of swale, watch for repair as needed
<b>GAS VENTS</b>					
<b>10) GVR-1</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<b>11) GVR-2</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<b>12) GVR-3</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good. Minor vegetation growth
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>13) GVR-4</b>					
a) Condition of Gas Vent Riser	■	□	■	□	Good
b) Condition of End Section - 90 Degree Elbows	■	□	■	□	Good
c) Condition of Riser Protection ( HDPE Pipe)	■	□	■	□	Good
d) Condition of Concrete Barriers Around Riser	■	□	■	□	Good
<b>14) GVR-5</b>					
a) Condition of Gas Vent Riser	■	□	■	□	Good
b) Condition of End Section - 90 Degree Elbows	■	□	■	□	Good
c) Condition of Riser Protection ( HDPE Pipe)	■	□	■	□	Good
d) Condition of Concrete Barriers Around Riser	■	□	■	□	Good
<b>15) GVR-6</b>					
a) Condition of Gas Vent Riser	■	□	■	□	Good
b) Condition of End Section - 90 Degree Elbows	■	□	■	□	Good
c) Condition of Riser Protection ( HDPE Pipe)	■	□	■	□	Good
d) Condition of Concrete Barriers Around Riser	■	□	■	□	Good
<b>16) GVR-7</b>					
a) Condition of Gas Vent Riser	■	□	■	□	Good
b) Condition of End Section - 90 Degree Elbows	■	□	■	□	Good
c) Condition of Riser Protection ( HDPE Pipe)	■	□	■	□	Good
d) Condition of Concrete Barriers Around Riser	■	□	■	□	Good
<b>17) GVR-8</b>					
a) Condition of Gas Vent Riser	■	□	■	□	Good
b) Condition of End Section - 90 Degree Elbows	■	□	■	□	Good
c) Condition of Riser Protection ( HDPE Pipe)	■	□	■	□	Good
d) Condition of Concrete Barriers Around Riser	■	□	■	□	Good
<b>18) GVR-9</b>					
a) Condition of Gas Vent Riser	■	□	■	□	Good
b) Condition of End Section - 90 Degree Elbows	■	□	■	□	Good
c) Condition of Riser Protection ( HDPE Pipe)	■	□	■	□	Good
d) Condition of Concrete Barriers Around Riser	■	□	■	□	Good.
<b>19) GVR-10</b>					
a) Condition of Gas Vent Riser	■	□	■	□	In gated area, but looks to be in good condition through fencing
b) Condition of End Section - 90 Degree Elbows	■	□	■	□	Good
c) Condition of Riser Protection ( HDPE Pipe)	■	□	■	□	Good
d) Condition of Concrete Barriers Around Riser	■	□	■	□	Good

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>20) GVR-11</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<b>21) GVR-12</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<b>22) GVR-13</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<b>23) GVR-14</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<b>24) GVR-15</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<b>25) GVR-16</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<b>26) GVR-17</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>27) GVR-18</b>					
a) Condition of Gas Vent Riser	■	□	■	□	Good
b) Condition of End Section - 90 Degree Elbows	■	□	■	□	Good
c) Condition of Riser Protection ( HDPE Pipe)	■	□	■	□	Good
d) Condition of Concrete Barriers Around Riser	■	□	■	□	Good
<b>28) GVR-19</b>					
a) Condition of Gas Vent Riser	■	□	■	□	Good
b) Condition of End Section - 90 Degree Elbows	■	□	■	□	Good
c) Condition of Riser Protection ( HDPE Pipe)	■	□	■	□	Good
d) Condition of Concrete Barriers Around Riser	■	□	■	□	Good
<b>29) GVR-20</b>					
a) Condition of Gas Vent Riser	■	□	■	□	Good, Minor vegetative growth.
b) Condition of End Section - 90 Degree Elbows	■	□	■	□	Good
c) Condition of Riser Protection ( HDPE Pipe)	■	□	■	□	Good
d) Condition of Concrete Barriers Around Riser	■	□	■	□	Good
<b>30) GVR-21</b>					
a) Condition of Gas Vent Riser	■	□	■	□	Good
b) Condition of End Section - 90 Degree Elbows	■	□	■	□	Good
c) Condition of Riser Protection ( HDPE Pipe)	■	□	■	□	Good
d) Condition of Concrete Barriers Around Riser	■	□	■	□	Good
<b>31) GVR-22</b>					
a) Condition of Gas Vent Riser	■	□	■	□	Good
b) Condition of End Section - 90 Degree Elbows	■	□	■	□	Good
c) Condition of Riser Protection ( HDPE Pipe)	■	□	■	□	Good
d) Condition of Concrete Barriers Around Riser	■	□	■	□	Good, previously noted broken asphalt still OK, no vegetative growth.
<b>32) GVR-23</b>					
a) Condition of Gas Vent Riser	■	□	■	□	Good
b) Condition of End Section - 90 Degree Elbows	■	□	■	□	Good
c) Condition of Riser Protection ( HDPE Pipe)	■	□	■	□	Good
d) Condition of Concrete Barriers Around Riser	■	□	■	□	Good
<b>33) GVR-24</b>					
a) Condition of Gas Vent Riser	■	□	■	□	Good, Minor amounts of trash debris surrounding GV.
b) Condition of End Section - 90 Degree Elbows	■	□	■	□	Good
c) Condition of Riser Protection ( HDPE Pipe)	■	□	■	□	Good
d) Condition of Concrete Barriers Around Riser	■	□	■	□	Good

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>34) GVR-25</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<b>35) GVR-26</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good. Minor vegetative growth.
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<b>36) GVR-27</b>					
a) Condition of Gas Vent Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of End Section - 90 Degree Elbows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Riser Protection ( HDPE Pipe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Concrete Barriers Around Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<b>MONITORING WELLS</b>					
<b>37) 1MW2S</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>38) 2LMW7S</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>39) 2LMW7D</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>40) 2LMW8S</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
41) 2LMW8D					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
42) 2LMW9D					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
43) 2LMW13S					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
44) 2LMW13D					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
45) 2LMW14D					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
46) 2LMW14D					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
47) 2LMW17D					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
48) 2LMW18S					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
49) 2LMW18D					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
50) 2LMW19S					Abandoned
a) Condition of Protective Casing	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
51) 2LMW19D					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
52) 2LMW20S					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None
53) 2LMW20D					Abandoned
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
54) 3MW12D (Abandoned/Replaced)					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None
55) 2WMW21S					Recommended for abandonment.
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None. Jersey barriers nearby.

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>56) 2WMW21D</b>					Recommended for abandonment.
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	New aluminum cap
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No Lock
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None. Jersey barriers nearby.
<b>57) 2WMW3S</b>					Well under thick growth of bushes. Recommended for abandonment.
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None
<b>58) 2WMW3D</b>					Well under thick growth of bushes. Recommended for abandonment.
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OK
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
<b>59) 2LOW1S</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>60) 2LOW1D</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>61) 2LOW2S</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>62) 2LOW3S</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>63) 2LOW4S</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>64) 2LPW1S</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>65) 2LMW28DS</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>66) 2LMW28F</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>67) 2LMW29A</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>68) 2LMW29F</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>69) 2LMW30DS</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>70) 2LMW30F</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>71) 2LMW31DS</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>72) 2LMW32DS</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>73) 2LMW32F</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>74) 2LMW32B</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>76) 2LMW39F</b>					This well is thought to not exist, it is not on any checklist dating back to year 2003 reports. Could not be located in 2010.
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>77) 2LMW34DS</b>					Abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>78) 2WMW38DS</b>					Recommended for abandonment.
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty, staff gage OK
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good condition
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None
<b>79) 2WMW39DS</b>					Recommended for abandonment.
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty. Unable to locate staff gauge.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good condition
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None

**INSPECTION CHECKLIST**  
**SITE 2 - Area A Landfill**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>80) 2WMW40DS</b>					Recommended for abandonment.
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty, staff gauge in good condition
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Wood rotted out around gravel.
<b>81) 2WMW41DS</b>					Recommended for abandonment.
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty, unable to locate staff gauge
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None
<b>82) 2WMW42DS</b>					Recommended for abandonment.
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty, staff gauge in good condition
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None
<b>83) 2WMW43DS</b>					Recommended for abandonment.
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Well bent over, possibly destroyed, but no longer used during annual sampling. Not open to wetland or atmosphere. Unable to locate staff gauge
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None
<b>84) 2WMW44DS</b>					Recommended for abandonment.
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty, staff gauge in good condition
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None
<b>85) 2WMW45DS</b>					Recommended for abandonment.
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty, staff gauge bent over.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None
<b>86) 2WMW46DS</b>					Recommended for abandonment.
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty, unable to locate staff gauge
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	New cover
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	New lock
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None

**INSPECTION CHECKLIST**  
**SITE 2 - Area A Landfill**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
87) 2WMW47DS					Recommended for abandonment.
a) Condition of Protective Casing	■	□	■	□	Unable to locate, well not used for annual sampling
b) Condition of Well Cover	■	□	■	□	N/A
c) Condition of Well Lock	■	□	■	□	N/A
d) Condition of Well Protection - Bollards	□	■	□	□	N/A
88) 3MW37S					
a) Condition of Surface Surrounding Well Cover	■	□	■	□	Rusty
b) Condition of Flush Mount Well Cover	■	□	■	□	Good
c) Condition of Well Lock	■	□	■	□	Good
d) Condition of Well Protection - Bollards	□	□	□	■	Wood rotted out around gravel base
89) 4MW1S					
a) Condition of Protective Casing	■	□	■	□	Good
b) Condition of Well Cover	■	□	■	□	OK
c) Condition of Well Lock	■	□	■	□	New lock
d) Condition of Well Protection - Bollards	□	■	□	□	None

**INSPECTION CHECKLIST**  
**SITE 2 - Area A Landfill**  
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**Adequacy of O&M at Site:**  
 Overall, O&M practices at site are adequate. Current practices should be sufficient to maintain the effectiveness of the remedy.

**Notes:**  
 Previous activities, conducted by others, to the wetland area (including trimming of invasive vegetation) seems to have resulted in the destruction of several staff gauges and one monitoring well located at the edge of the gabion/wetland boundary. Inactive monitoring wells and staff gauges will be abandoned in Summer 2011.

**Deficiencies/Items Requiring Corrections:**  
 Pavement cracks should be sealed as noted above (Summer 2011). Also vegetation should be removed as noted in all Channels and the Deployed Parking Area (October 2010).  
 Accumulated sediment in channels as noted above should be removed (October 2010).  
 Erosion of channel bottom (Channels A and C) as noted above should be repaired as necessary (October 2010).  
 Wood casing around monitoring wells 3MW37S and 2WMW40DS should be repaired/replaced as needed (October 2010).  
 Hole in asphalt in Channel B should be repaired (October 2010).  
 Equipment and vehicles should be moved from "No Load Zone" as noted (March 2011).

Ryan Hipp, EIT		8/19/2010
Printed Name of Inspector	Signature of Inspector / Date	

Jill Ann Parrett, PG		10/29/2010
Printed Name of Supervisor	Signature of Supervisor / Date	

**Certification Statement:**  
 I hereby certify that a complete and thorough inspection and evaluation of the site and implemented remedy has been performed, and that the items noted on this inspection form have been assessed with respect to the intent of the implemented remedy and the remedial action objectives established for the site.

Patrick Schauble, PE	Richard Conant
Printed Name of O&M Engineer	Printed Name of NSBNL IRP Manager

	
10/29/2010	
Signature of O&M Engineer / Date	Signature of NSBNL IRP Manager / Date

Signature of O&M Engineer / Date	Signature of NSBNL IRP Manager / Date

Provide additional notes or sketch as needed:

See attached Site Plan

**Naval Submarine Base - New London, Groton, CT  
Area A Landfill Annual Inspection - Deficiency Log  
August 2010**

The following items were inspected at the Area A Landfill during the annual landfill inspection in August 2010: Fence, gates, signs, asphalt cap surface, rip rap, crane test pad, drainage channels and culverts, gas vents, monitoring wells, vegetation overgrowth. Inspection of these items resulted in the following deficiencies and recommended corrective actions as stated in the table below.

No.	Item	Deficiency	Recommended Corrective Action	Actions Taken or Planned
1	Asphalt Cap System	Cracking/separation in asphalt cap. Cracking in asphalt cap including Deployed Parking Area.	Cracks in several locations throughout the asphalt cap should be sealed, including within the Deployed Parking Area located beneath parked vehicles and therefore cannot be currently accessed. Vehicles are occasionally moved from their parking locations as sailors returning from deployment and pickup their vehicles.	Crack sealing will occur in summer 2011.
2	Drainage Channels A & C	Minor erosion in Channel A bottom and vegetative growth; vegetation growth and siltation in Channel C	Repair Channel A erosion south of Culvert 1; remove vegetation growth and siltation in Channel A and C as needed.	Vegetation and siltation was removed and erosion repaired during maintenance activities conducted in October 2010.
3	Drainage Channel B	Hole in asphalt; accumulated sediment and vegetation	Repair hole as needed to prevent further erosion. Remove sediment and vegetation as needed at northwestern end of drainage channel.	The hole within Channel B was repaired and sediment/vegetation accumulation was removed during maintenance activities conducted in October 2010.
4	Drainage Channel D	Dead branches and vegetation	Remove dead vegetation within channel to prevent impeding flow.	Material within the channel was removed during maintenance activities conducted in October 2010.

**Naval Submarine Base - New London, Groton, CT  
Area A Landfill Annual Inspection - Deficiency Log  
August 2010**

5	Deployed Parking Area	Vegetation growth	Remove vegetation growth at rip rap-asphalt transition and in various locations in and surrounding deployed parking area	Vegetation was removed during maintenance activities conducted in October 2010.
6	Monitoring Wells	Rotted wood around gravel base at 2WMW40DS and 3MW37S; missing lock on 2WMW21D	Repair wood support holding gravel around monitoring wells 3MW37S and 2WMW40DS. Monitoring well 2WMW40DS is no longer included in the LTM program and will be properly abandoned. Replace lock on 2WMW21D. Monitoring well 2WMW21D is no longer included in the LTM program and will be properly abandoned.	The wood surrounding 3MW37S and 2WMW40DS have been replaced and the gravel surrounding the wells refilled during maintenance activities conducted in October 2010. The lock on 2WMW21D was replaced in October 2010.
7	Monitoring Wells/Staff Gauges	Fifteen wells and seven staff gauges at the site are no longer included in the monitoring program	Abandon the dredge spoil wells (2WMW38DS through 2WMW47DS) and other inactive wells (2WMW21S, 2WMW21D, 2WMW3S, 2WMW3D, and 4MW4D) and remove the staff gauges.	Monitoring wells will be abandoned and staff gauges removed during summer of 2011. The site inspection checklist will be updated to eliminate these wells and gauges.
8	Equipment Staging	Equipment was observed within "No Load Zone"	Equipment and vehicles should be moved from "No Load Zone."	A work request has been submitted for base personnel to move this equipment, and the work will be completed during March 2011.

## **A.2 CONCRETE ENCAPSULATED SOIL IN STREAM 4 (SITE 3)**

**IR Inspection Checklist**

**Site 3-Concrete Encapsulated Contaminated Soil in Stream 4 (CECSS4)  
Naval Submarine Base New London (NSB-NLON) - Groton, Connecticut**

**Site Description:**

Site 3-CECSS4 covers approximately half an acre and consists of a short 100-ft reach of Stream 4 and the bank area of width approximately 10 ft on either side of the stream. The site is located on a steep embankment immediately downstream and to the north of the Area A Wetland beginning below the culvert that discharges water from the wetland into Stream 4.

**Inspection Questionnaire:**

**General**

1. Is the area free of any indication of recent and/or current intrusive activities (digging, trenching, jack-hammering etc.) within the site boundaries or in the immediate vicinity of the site? If no, indicate location of intrusive activities on site map and note extent and purpose.
2. Is the area free of identifiable concerns, such as, signs of dumping of chemicals or debris, with regards to this site? If no, annotate these concerns in the comments section below, indicate location of concern on site map, and notify activity coordinator.
3. Is the area free of storage of any investigative derived waste (IDW) on site? If no, mark location of IDW on site map, note its condition in the comment section below, and notify activity coordinator. Indicate if IDW is properly labelled, per example below.

Investigative Derived Waste  
Site 3  
Date  
Media  
Do not handle, analysis pending  
Mr. Richard Conant/Tel: (860) 694-5649

Yes	No
X	
X	
X	

**Site Specific**

4. Is there human consumption of groundwater on site? If yes, describe specific of groundwater consumption and indicate its location on site map.
5. Is groundwater extracted on site and used for any purpose other than monitoring? If yes, indicate location of groundwater extraction on site map and describe use of extracted groundwater.
6. Are site monitoring wells, as depicted on the figure, in good condition and appear to be locked? (i.e. damaged protective posts and/or well head/casing) If no, indicate location of deficient monitoring wells on site map and describe their condition.  
*There are no monitoring wells on Site 3-CECSS4.*
7. Could any of the observed site activities significantly affect the integrity of any existing or future LUCs? If yes, describe the nature of activities and indicate their location on site map.

Yes	No
	x
	x
NA	
	x

**Comments:**

Site 3-CECSS4 is located downgradient of 4 large (approx. 24-in diam.) drain pipes through the roadway embankment at north end of the Area A wetland, and consists of the channel extending from the culverts down the steep bank and ending at the bottom of the embankment. The upstream side of the embankment supports a hydraulic weir structure with removable boards that control the water level in the wetland. On August 19, 2009, only one culvert had flow, estimated at approximately 25 gpm. The downstream embankment has been covered with shotcrete or gunite to provide a cap that is non-erodible. The center of the downstream channel has an apparent erosion groove a few inches wide that runs down the middle of a portion the channel. This groove was probably created before the shotcrete or gunite was completely hardened. This cap over the steep portion of the channel downgradient of the culverts is currently stable and prevents erosion.

**Recommendations:**

Continued inspection annually is recommended.

Willard A. Murray  
Inspection performed by: (Print and sign)



19-Aug-09  
Date

**Naval Submarine Base - New London, Groton, CT**  
**Site 3 CECS Annual Inspection - Deficiency Log**  
**August 2009**

The following items were inspected at Site 3 CECS during the annual landfill inspection in August 2009: Sign, integrity of concrete cap surface, vegetation overgrowth, ensure no surface or subsurface activities occur in or around the concrete cap surface. Inspection of these items resulted in no deficiencies or recommended corrective actions as stated in the table below.

<b>No.</b>	<b>Item</b>	<b>Deficiency</b>	<b>Recommended Corrective Action</b>
-	-	No deficiencies identified	No deficiencies identified

**IR Inspection Checklist**  
**Site 3-Concrete Encapsulated Contaminated Soil in Stream 4 (CECSS4)**  
**Naval Submarine Base New London (NSBNL) - Groton, Connecticut**

**Site Description:**

Site 3-CECSS4 covers approximately half an acre and consists of a short 100-ft reach of Stream 4 and the bank area of width approximately 10 ft on either side of the stream. The site is located on a steep embankment immediately downstream and to the north of the Area A Wetland beginning below the culvert that discharges water from the wetland into Stream 4.

**Inspection Questionnaire:**

**General**

1. Is the area free of any indication of recent and/or current intrusive activities (digging, trenching, jack-hammering etc.) within the site boundaries or in the immediate vicinity of the site? If no, indicate location of intrusive activities on site map and note extent and purpose.
2. Is the area free of identifiable concerns, such as, signs of dumping of chemicals or debris, with regards to this site? If no, annotate these concerns in the comments section below, indicate location of concern on site map, and notify activity coordinator.
3. Is the area free of storage of any investigative derived waste (IDW) on site? If no, mark location of IDW on site map, note its condition in the comment section below, and notify activity coordinator. Indicate if IDW is properly labelled, per example below.

Yes	No
X	
X	
X	

Investigative Derived Waste  
 Site 3  
 Date  
 Media  
 Do not handle, analysis pending  
 Mr. Richard Conant/Tel: (860) 694-3976

**Site Specific**

4. Is there human consumption of groundwater on site? If yes, describe specific of groundwater consumption and indicate its location on site map.
5. Is groundwater extracted on site and used for any purpose other than monitoring? If yes, indicate location of groundwater extraction on site map and describe use of extracted groundwater.
6. Are site monitoring wells, as depicted on the figure, in good condition and appear to be locked? (i.e. damaged protective posts and/or well head/casing) If no, indicate location of deficient monitoring wells or site map and describe their condition.  
*There are no monitoring wells on Site 3-CECSS4.*
7. Could any of the observed site activities significantly affect the integrity of any existing or future LUCs? If yes, describe the nature of activities and indicate their location on site map.

Yes	No
	X
	X
NA	
	X

**Comments:**

Site 3-CECSS4 is located downgradient of 4 large (approx. 24-in diam.) drain pipes through the roadway embankment at north end of the Area A wetland, and consists of the channel extending from the culverts down the steep bank and ending at the bottom of the embankment. The upstream side of the embankment supports a hydraulic weir structure with removable boards that control the water level in the wetland. On August 19, 2010, two culverts had flow, the two center drains with most of the flow from the center-west estimated at approximately 10 gpm. The downstream embankment has been covered with shotcrete or gunite to provide a cap that is non-erodable. The center of the downstream channel has an apparent erosion groove a few inches wide that runs down the middle of a portion the channel. This groove was probably created before the shotcrete or gunite was completely hardened. This cap over the steep portion of the channel downgradient of the culverts is currently stable and prevents erosion. A rust colored hue blankets the shorcrete (appears to be from the running water from culvert) but does not seem to have an effect on the function of the cap. There is a half fallen tree directly above the drainage pipes that might prove to be an issue in the future. Continued monitoring is recommended. In future inspection events, active monitoring wells at Site 3 will be included.

**Recommendations:**

Continued inspection annually is recommended.

Ryan Hipp, EIT  
 Inspection performed by: (Print and sign)



19-Aug-10  
 Date

**Naval Submarine Base - New London, Groton, CT  
Site 3 CECS Annual Inspection - Deficiency Log  
August 2010**

The following items were inspected at Site 3 CECS during the annual landfill inspection in August 2010: Sign, integrity of concrete cap surface, vegetation overgrowth, ensure no surface or subsurface activities occur in or around the concrete cap surface. Inspection of these items resulted in no deficiencies or recommended corrective actions as stated in the table below.

<b>No.</b>	<b>Item</b>	<b>Deficiency</b>	<b>Recommended Corrective Action</b>	<b>Actions Taken or Planned</b>
1	Monitoring Wells	There are four wells that are no longer in the LTM Program.	It is recommended that the four inactive wells (2DMW25S, 2DMW28D, 3MW15S, and 3MW15I) be abandoned.	Well abandonment is planned to take place in summer 2011. The site inspection checklist will be updated to include the five active monitoring wells (2DMW16S, 2DMW,16D, 2DMW29S, 3MW16S, and 3MW16D).

### **A.3 DRMO (SITE 6)**

**INSPECTION CHECKLIST**  
**SITE 6 - DRMO**  
 Page 1 of 6

SITE NAME: Site 6 - DRMO (OU2)  
 EPA ID: CTD980906515  
 SITE LOCATION: New London County, CT  
 EPA REGION: Region 1  
 REMEDY AT SITE: Landfill Cover, Institutional Control, Monitoring  
 REVISION: 00

Date: October 24 & 25, 2006 \* 10/24/06 ~1600 (only saw three wells) 10/25/06 ~0750  
 INSPECTOR/COMPANY Courtney D. Moore, Jr., P.E. / Nobis Engineering, Inc.

WEATHER CONDITIONS: Temperature: ~50-60 °F  
 Weather: Cloudy  
 Other: NA

TYPE OF INSPECTION:  Annual Inspection  
 Post-Major Weather Event Inspection  
 Re-Inspection of Deficient Items  
 Other \_\_\_\_\_

AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE		NOTES AND COMMENTS
			NOT RECOMMENDED	RECOMMENDED	
<b>INSTITUTIONAL CONTROLS</b>					
<b>1) Security Fencing</b>					
a) East Perimeter Fence along Rail Road Tracks	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
b) South Perimeter Fence along Storm Discharge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Locked Entrance or Secure Access	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) No Trespassing and Security Signs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Signs only read "Warning Authorized Personnel Only".
e) Indications of Vandalism or Trespassing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>CAP AREAS</b>					
<b>2) Asphalt Cap Area</b>					
a) General Condition of Asphalt Pavement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Minor cracks observed in cap area.
b) Level or Designed Slope Within Pavement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Many minor depressions in pavement. No ponding was observed along jersey barriers.
c) Cracks in Pavement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Minor cracks observed in cap area.
d) Erosion on Pavement or Adjacent Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Two new depressions behind buildings
e) Holes/Penetrations in Asphalt Surface	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
f) Bulges in Asphalt Surface	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concrete in asphalt near MW 10D.
g) Standing Water - other than above (b)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	None. However, historical ponding occurs in area along jersey barriers.
h) Stability of Slopes and Adjacent Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
i) Groundwater Monitoring Penetrations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
j) Damage to Pavement Caused by DRMO Use	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Yes, roll-offs are causing gouging of pavement. Scars remain, no roll offs now.
k) Exposed Cap Components	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>STORM WATER FEATURES</b>					
<b>3) Drainage Swale</b>					
a) General Conditions of Eastern Drainage Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Drainage swale is in good condition.
b) Condition of 2-inch Gravel Lining	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lining is in good condition.
c) Amount of Siltation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None noted. Some leaves

**INSPECTION CHECKLIST**  
**SITE 6 - DRMO**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>4) Concrete Catch Basin</b>					
<i>a) General Condition of Northern Catch Basin</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition. Water noted, reportedly due to high tide.
<i>b) Condition of Grate Assembly</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Amount of Siltation within Catch Basin</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Approximately 8 inches of sediment. Oil boom in basin- reported sheen due to Thames River coming in.
<b>5) Culvert Outfall</b>					
<i>a) General Condition of Discharge Pipe</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No access due to new fence (installed 3 months ago)
<i>b) Amount of Siltation within Pipe</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Condition of Outlet Flare and Riprap Outfall</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>6) Thames River Riprap</b>					
<i>a) General Condition of Riprap Protection</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Phragmites still growing along gravel river side of jersey barriers.
<b>MONITORING WELLS</b>					
<b>7) 6MW1S</b>					
<i>a) Condition of Protective Casing/Riser</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty.
<i>b) Condition of Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty.
<i>c) Condition of Well Lock</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock is in good condition.
<i>d) Condition of Well Concrete Pad</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cracking partially covered by vegetation
<b>8) 6MW2S</b>					
<i>a) Condition of Protective Casing/Riser</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty.
<i>b) Condition of Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Rusty.
<i>c) Condition of Well Lock</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock is in good condition. Unlocked, not closed due to rust.
<i>d) Condition of Well Concrete Pad</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Still covered by vegetative growth.
<b>9) 6MW2D</b>					
<i>a) Condition of Protective Casing/Riser</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Slightly bent but does not interfere with sampling activities. Possibly hit by orange dumpsters. Appears to have been hit again.
<i>b) Condition of Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Condition of Well Lock</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>d) Condition of Well Concrete Pad</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Still covered by gravel and vegetation.
<b>10) 6MW3S (Abandoned near 6MW11S)</b>					
<i>a) Condition of Surface Surrounding Location</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition.
<b>11) 6MW3D (Abandoned near 6MW11D)</b>					
<i>a) Condition of Surface Surrounding Location</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition.

**INSPECTION CHECKLIST**  
**SITE 6 - DRMO**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>12) 6MW4S</b>					
<i>a) Condition of Protective Casing/Riser</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Unable to locate. Access was denied due to security reasons.
<i>b) Condition of Well Cover</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>c) Condition of Well Lock</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>d) Condition of Well Concrete Pad</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>13) 6MW5S</b>					
<i>a) Condition of Protective Casing/Riser</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Unable to locate. Access was denied due to security reasons.
<i>b) Condition of Well Cover</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>c) Condition of Well Lock</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>d) Condition of Well Concrete Pad</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>14) 6MW5D</b>					
<i>a) Condition of Protective Casing/Riser</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Unable to locate. Access was denied due to security reasons.
<i>b) Condition of Well Cover</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>c) Condition of Well Lock</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>d) Condition of Well Concrete Pad</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>15) 6MW6S</b>					
<i>a) Condition of Protective Casing/Riser</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Paint chipping, starting to rust underneath.
<i>b) Condition of Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Condition of Well Lock</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Some rust showing.
<i>d) Condition of Well Concrete Pad</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<b>16) 6MW6D</b>					
<i>a) Condition of Protective Casing/Riser</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Same as 6MW6S
<i>b) Condition of Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Condition of Well Lock</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Some rust showing.
<i>d) Condition of Well Concrete Pad</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<b>17) 6MW7S</b>					
<i>a) Condition of Surface Surrounding Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Area is depressed into asphalt. Covered by silt/ sediment
<i>b) Condition of Flush Mount Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Condition of Well Lock</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Reportedly has no lock.
<i>d) Condition of Well Concrete Pad</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.

**INSPECTION CHECKLIST**  
**SITE 6 - DRMO**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>18) 6MW8S</b>					
<i>a) Condition of Surface Surrounding Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Grass growing in cracks. Sediment build up noted on surface that should be cleaned off.
<i>b) Condition of Flush Mount Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Condition of Well Lock</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Reportedly has no lock.
<b>19) 6MW9S</b>					
<i>a) Condition of Surface Surrounding Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>b) Condition of Flush Mount Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Obscured by dirt, leaves, vegetation.
<i>c) Condition of Well Lock</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Reportedly has no lock.
<b>20) 6MW10S</b>					
<i>a) Condition of Surface Surrounding Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Condition of Flush Mount Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Scoured concrete/ plow?
<i>c) Condition of Well Lock</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Reportedly no lock.
<b>21) 6MW10D</b>					
<i>a) Condition of Surface Surrounding Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Still damaged concrete.
<i>b) Condition of Flush Mount Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Condition of Well Lock</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Reportedly has no lock.
<b>22) 6MW11S</b>					
<i>a) Condition of Surface Surrounding Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Condition of Flush Mount Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Vegetation growing in cracks between pavement and asphalt.
<i>c) Condition of Well Lock</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Reportedly has no lock.
<b>23) 6MW11D</b>					
<i>a) Condition of Surface Surrounding Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	In depressed area.
<i>b) Condition of Flush Mount Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Condition of Well Lock</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.

**INSPECTION CHECKLIST  
SITE 6 - DRMO  
Page 5 of 6**

**Adequacy of O&M at Site:**  
Increase filling of depressions.

**Notes:**  
Phragmites growing through pavement behind warehouses next to depressions.  
Fence connected to Jersey barriers  
Ponding/ sink holes/ depressions between Jersey barriers & sheds  
Reportedly No Further Action on ROD for site per EPA Oversight Contractor.  
Scratches in pavement still there  
Sediment build-up in front of Jersey barriers  
New fence- rip rap inaccessible. Still vegetation growing in spots.

**Deficiencies/Items Requiring Corrections:**  
Sedimentation around jersey barriers at western perimeter is restricting surface drainage and should be removed.  
Depressions around jersey barriers at western perimeter and 6MW7S should be repaired.  
The minor cracks observed throughout capped area should be sealed.  
Piece of concrete embedded in cap near 6MW10D should be removed and asphalt surface repaired.  
Vegetation growing in rip-rap protection should be removed.  
Approximately 8 inches of sediment on bottom of catch basin should be removed.  
Concrete is damaged around 6MW10D, should be replaced.  
Unable to locate monitoring well 6MW4S, locate well or consider it lost/abandoned.  
Unable to access wells 6MW5S and 6MW5D due to security restrictions.  
6MW7S is still in a depressed area that should be repaired.

<p>Courtney D. Moore, Jr., P.E. Printed Name of Inspector</p>	<p>_____ Signature of Inspector / Date</p>
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**Certification Statement:**  
I hereby certify that a complete and thorough inspection and evaluation of the site and implemented remedy has been performed, and that the items noted on this inspection form have been assessed with respect to the intent of the implemented remedy and the remedial action objectives established for the site.

<p>Fred Santos Printed Name of O&amp;M Engineer</p>	<p>Richard D. Conant Jr. Printed Name of NSB-NLON IRP Manager</p>
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<p> 2008.06.12 11:30:47 -04'00' Signature of O&amp;M Engineer / Date</p>	<p> 6/13/08 Signature of NSB-NLON IRP Manager / Date</p>
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INSPECTION CHECKLIST  
SITE 6 - DRMO  
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Provide additional notes or sketch as needed:  
See attached figure.

**Naval Submarine Base - New London, Groton, CT**  
**DRMO Landfill Annual Inspection**  
**Deficiency Log Revision 01**  
**October 2006**

<b>No.</b>	<b>Item</b>	<b>Deficiency</b>	<b>Recommended Action October 2006</b>
1	Asphalt Cap	Sedimentation around jersey barriers at western perimeter restricting surface drainage.	Remove sediment.
2	Asphalt Cap	Depressions around jersey barriers at western perimeter.	Investigate cause of depressions and repair.
3	Asphalt Cap	Minor cracks observed throughout capped area.	Seal cracks.
4	Asphalt Cap	Piece of concrete embedded in cap near 6MW10D.	Remove piece of concrete, repair asphalt cap.
5	Shore-Line Protection	Vegetation growing in rip-rap protection.	Control / remove vegetation.
6	Catch-Basin	Approximately 8 inches of sediment on bottom of catch basin.	Remove sediment.
7	6MW10D-Surface Surrounding Well Cover.	Concrete is damaged.	Repair concrete.
8	6MW4S	Unable to locate monitoring well.	Identify location or deem the well closed/lost.
9	6MW5S and 6MW5D	Unable to access wells.	Identify if wells are still needed and either make more accessible or close the wells.
10	6MW7S	Still in a depressed area and covered by silt/sediment	Remove sediment, repair depression.
11	Asphalt area near cap	Depression behind storage building.	Depression needs repair. Reportedly, drain near SG-1 may be broken and causing storm water to run off to undermine area over history of site. This needs to be investigated to abate future depression development.

**INSPECTION CHECKLIST**  
**SITE 6 - DRMO**  
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SITE NAME: Site 6 - DRMO (OU2)  
EPA ID: CTD980906515  
SITE LOCATION: New London County, CT  
EPA REGION: Region 1  
REMEDY AT SITE: Landfill Cover, Institutional Control, Monitoring  
REVISION: 00

Date: November 7, 2007  
INSPECTOR/COMPANY

Courtney D. Moore, Jr., P.E. / Nobis Engineering, Inc.

WEATHER CONDITIONS:

Temperature: ~50 °F  
Weather: Clear  
Other: NA

TYPE OF INSPECTION:

- Annual Inspection  
 Post-Major Weather Event Inspection  
 Re-Inspection of Deficient Items  
 Other \_\_\_\_\_

AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>INSTITUTIONAL CONTROLS</b>					
<b>1) Security Fencing</b>					
a) East Perimeter Fence along Rail Road Tracks	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
b) South Perimeter Fence along Storm Discharge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Locked Entrance or Secure Access	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) No Trespassing and Security Signs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Signs read "Warning Authorized Personnel Only".
e) Indications of Vandalism or Trespassing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>CAP AREAS</b>					
<b>2) Asphalt Cap Area</b>					
a) General Condition of Asphalt Pavement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cracks sealed.
b) Level or Designed Slope Within Pavement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Depressions filled near MW-11D
c) Cracks in Pavement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cracks sealed.
d) Erosion on Pavement or Adjacent Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Two depressions behind buildings are outside of the landfill cap boundary.
e) Holes/Penetrations in Asphalt Surface	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
f) Bulges in Asphalt Surface	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concrete in asphalt near MW 10D sealed. Reportedly an abandoned well.
g) Standing Water - other than above (b)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None. Rained 11/6/07
h) Stability of Slopes and Adjacent Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
i) Groundwater Monitoring Penetrations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
j) Damage to Pavement Caused by DRMO Use	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Yes, roll-offs caused gouging of pavement. Scars remain, no roll offs are currently on the landfill cap.
k) Exposed Cap Components	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>STORM WATER FEATURES</b>					
<b>3) Drainage Swale</b>					
a) General Conditions of Eastern Drainage Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Drainage swale is in good condition.
b) Condition of 2-inch Gravel Lining	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lining is in good condition.
c) Amount of Siltation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None noted. Some leaves

**INSPECTION CHECKLIST**  
**SITE 6 - DRMO**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>4) Concrete Catch Basin</b>					
<i>a) General Condition of Northern Catch Basin</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition. Water noted, reportedly due to high tide.
<i>b) Condition of Grate Assembly</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Amount of Siltation within Catch Basin</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
					Oil boom in basin- reported sheen due to Thames River coming in.
<b>5) Culvert Outfall</b>					
<i>a) General Condition of Discharge Pipe</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No access due to fence. Viewed through fence. Took photo. Observed minor tree limbs.
<i>b) Amount of Siltation within Pipe</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Condition of Outlet Flare and Riprap Outfall</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>6) Thames River Riprap</b>					
<i>a) General Condition of Riprap Protection</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Phragmites has been cleared out.
<b>MONITORING WELLS</b>					
<b>7) 6MW1S</b>					
<i>a) Condition of Protective Casing/Riser</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty.
<i>b) Condition of Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty.
<i>c) Condition of Well Lock</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock is in good condition.
<i>d) Condition of Well Concrete Pad</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Covered by vegetation.
<b>8) 6MW2S</b>					
<i>a) Condition of Protective Casing/Riser</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty.
<i>b) Condition of Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty.
<i>c) Condition of Well Lock</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock is in good condition.
<i>d) Condition of Well Concrete Pad</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Covered by vegetative growth.
<b>9) 6MW2D</b>					
<i>a) Condition of Protective Casing/Riser</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Abandoned in December 2007.
<i>b) Condition of Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<i>c) Condition of Well Lock</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<i>d) Condition of Well Concrete Pad</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>10) 6MW3S (Abandoned near 6MW11S)</b>					
<i>a) Condition of Surface Surrounding Location</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition.
<b>11) 6MW3D (Abandoned near 6MW11D)</b>					
<i>a) Condition of Surface Surrounding Location</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition.

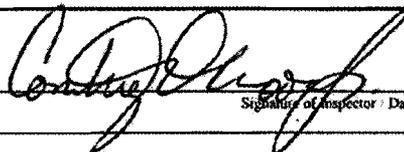
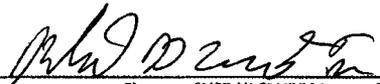
**INSPECTION CHECKLIST**  
**SITE 6 - DRMO**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>12) 6MW4S</b>					
a) Condition of Protective Casing/Riser	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Previously abandoned.
b) Condition of Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) Condition of Well Concrete Pad	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>13) 6MW5S</b>					
a) Condition of Protective Casing/Riser	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Abandoned in December 2007.
b) Condition of Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) Condition of Well Concrete Pad	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>14) 6MW5D</b>					
a) Condition of Protective Casing/Riser	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Abandoned in December 2007.
b) Condition of Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) Condition of Well Concrete Pad	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>15) 6MW6S</b>					
a) Condition of Protective Casing/Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Paint chipping, starting to rust underneath.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Some rust showing.
d) Condition of Well Concrete Pad	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<b>16) 6MW6D</b>					
a) Condition of Protective Casing/Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Same as 6MW6S
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Some rust showing.
d) Condition of Well Concrete Pad	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<b>17) 6MW7S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Abandoned in December 2007.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
d) Condition of Well Concrete Pad	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

**INSPECTION CHECKLIST**  
**SITE 6 - DRMO**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>18) 6MW8S</b>					Abandoned in December 2007.
<i>a) Condition of Surface Surrounding Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<i>b) Condition of Flush Mount Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<i>c) Condition of Well Lock</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>19) 6MW9S</b>					
<i>a) Condition of Surface Surrounding Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>b) Condition of Flush Mount Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Missing bolt. Repaired bolt in December 2007.
<i>c) Condition of Well Lock</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Reportedly has no lock.
<b>20) 6MW10S</b>					
<i>a) Condition of Surface Surrounding Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Condition of Flush Mount Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cracks sealed.
<i>c) Condition of Well Lock</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Reportedly no lock.
<b>21) 6MW10D</b>					Abandoned in December 2007.
<i>a) Condition of Surface Surrounding Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<i>b) Condition of Flush Mount Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<i>c) Condition of Well Lock</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>22) 6MW11S</b>					
<i>a) Condition of Surface Surrounding Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Condition of Flush Mount Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cracks sealed.
<i>c) Condition of Well Lock</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Reportedly has no lock.
<b>23) 6MW11D</b>					Abandoned in December 2007.
<i>a) Condition of Surface Surrounding Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<i>b) Condition of Flush Mount Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<i>c) Condition of Well Lock</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

INSPECTION CHECKLIST  
SITE 6 - DRMO  
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<b>Adequacy of O&amp;M at Site:</b> Overall, O&M practices at the site are sufficient. Current practices should be sufficient to maintain the effectiveness of the remedy. Increase filling of depressions. Continue to communicate proper storage of equipment in order to maintain asphalt cover.	
<b>Notes:</b> Phragmites growing through pavement behind warehouses next to depressions. Monitor depressions annually to ensure they do not impact LF components. No standing water. Rained all day 11/6/07. Ponding sink holes: depressions between Jersey barriers & sheds. Reportedly No Further Action on ROD for site per EPA Oversight Contractor. Scratches in pavement still there. No sediment build-up in front of Jersey barriers. Vegetation and sediment build-up removed.	
<b>Deficiencies/Items Requiring Corrections:</b> Replace bolts on 6MW9S and 6MW 11D.	
Courtney D. Moore, Jr., P.E. Printed Name of Inspector	 1/22/08 Signature of Inspector / Date
<b>Certification Statement:</b> I hereby certify that a complete and thorough inspection and evaluation of the site and implemented remedy has been performed, and that the items noted on this inspection form have been assessed with respect to the intent of the implemented remedy and the remedial action objectives established for the site.	
Printed Name of O&M Engineer	Richard D. Conant Printed Name of NSB-NLON IRP Manager
Signature of O&M Engineer / Date	 2/26/08 Signature of NSB-NLON IRP Manager / Date

INSPECTION CHECKLIST  
SITE 6 - DRMO  
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Provide additional notes or sketch as needed:  
See attached figure.

**INSPECTION CHECKLIST**  
**SITE 6 - DRMO**  
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**SITE NAME:** Site 6 - DRMO (OU2)  
**EPA ID:** CTD980906515  
**SITE LOCATION:** New London County, CT  
**EPA REGION:** Region 1  
**REMEDY AT SITE:** Landfill Cover, Institutional Control, Monitoring  
**REVISION:** 00

**Date:** August 26, 2008  
**INSPECTOR/COMPANY:** Brian P. Wachler, P.E. / Nobis Engineering, Inc.

**WEATHER CONDITIONS:** Temperature: 65 °F  
Weather: Clear  
Other: NA

**TYPE OF INSPECTION:**

Annual Inspection  
 Post-Major Weather Event Inspection  
 Re-Inspection of Deficient Items  
 Other \_\_\_\_\_

AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>INSTITUTIONAL CONTROLS</b>					
<b>1) Security Fencing</b>					
a) East Perimeter Fence along Rail Road Tracks	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
b) South Perimeter Fence along Storm Discharge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Locked Entrance or Secure Access	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) No Trespassing and Security Signs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Signs only read "Warning Authorized Personnel Only".
e) Indications of Vandalism or Trespassing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>CAP AREAS</b>					
<b>2) Asphalt Cap Area</b>					
a) General Condition of Asphalt Pavement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Cracks in central area that should be sealed.
b) Level or Designed Slope Within Pavement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Low spot with standing water near 6MW11S (heavy rain the night before).
c) Cracks in Pavement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Cracks in central area, believed to be caused by normal landfill settling.
d) Erosion on Pavement or Adjacent Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Two depressions behind buildings not in LF area.
e) Holes/Penetrations in Asphalt Surface	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
f) Bulges in Asphalt Surface	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
g) Standing Water - other than above (b)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
h) Stability of Slopes and Adjacent Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
i) Groundwater Monitoring Penetrations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
j) Damage to Pavement Caused by DRMO Use	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	None. Equipment should continue to be stored in a manner that prevents damage, but no existing cracks are caused by equipment storage.
k) Exposed Cap Components	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>STORM WATER FEATURES</b>					
<b>3) Drainage Swale</b>					
a) General Conditions of Eastern Drainage Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Drainage swale is in good condition. Steel plates in swale removed 8/27/08.
b) Condition of 2-inch Gravel Lining	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lining is in good condition.
c) Amount of Siltation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None noted. Some leaves

**INSPECTION CHECKLIST**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>4) Concrete Catch Basin</b>					
<i>a) General Condition of Northern Catch Basin</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition. Water noted.
<i>b) Condition of Grate Assembly</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Amount of Siltation within Catch Basin</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>5) Culvert Outfall</b>					
<i>a) General Condition of Discharge Pipe</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No access due to fence. Viewed through fence. Took photo. Observed minor tree limbs.
<i>b) Amount of Siltation within Pipe</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Condition of Outlet Flare and Riprap Outfall</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>6) Thames River Riprap</b>					
<i>a) General Condition of Riprap Protection</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Phragmites and other vegetative growth present.
<b>MONITORING WELLS</b>					
<b>7) 6MW1S</b>					
<i>a) Condition of Protective Casing/Riser</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty.
<i>b) Condition of Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty.
<i>c) Condition of Well Lock</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock is in good condition.
<i>d) Condition of Well Concrete Pad</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<b>8) 6MW2S</b>					
<i>a) Condition of Protective Casing/Riser</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty.
<i>b) Condition of Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rusty.
<i>c) Condition of Well Lock</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock is in good condition.
<i>d) Condition of Well Concrete Pad</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Covered by vegetation.
<b>9) 6MW2D</b>					
<i>a) Condition of Protective Casing/Riser</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Abandoned in December 2007.
<i>b) Condition of Well Cover</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<i>c) Condition of Well Lock</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<i>d) Condition of Well Concrete Pad</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>10) 6MW3S (Abandoned near 6MW11S)</b>					
<i>a) Condition of Surface Surrounding Location</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Abandoned-however, concrete pad is cracked and needs to be sealed.
<b>11) 6MW3D (Abandoned near 6MW11D)</b>					
<i>a) Condition of Surface Surrounding Location</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Abandoned-cracks sealed.

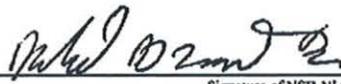
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>12) 6MW4S</b>					
<i>a) Condition of Protective Casing/Riser</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Previously abandoned.
<i>b) Condition of Well Cover</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>c) Condition of Well Lock</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>d) Condition of Well Concrete Pad</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>13) 6MW5S</b>					
<i>a) Condition of Protective Casing/Riser</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Abandoned in December 2007.
<i>b) Condition of Well Cover</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>c) Condition of Well Lock</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>d) Condition of Well Concrete Pad</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>14) 6MW5D</b>					
<i>a) Condition of Protective Casing/Riser</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Abandoned in December 2007.
<i>b) Condition of Well Cover</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>c) Condition of Well Lock</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>d) Condition of Well Concrete Pad</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>15) 6MW6S</b>					
<i>a) Condition of Protective Casing/Riser</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Paint chipping, starting to rust underneath.
<i>b) Condition of Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Condition of Well Lock</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>d) Condition of Well Concrete Pad</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<b>16) 6MW6D</b>					
<i>a) Condition of Protective Casing/Riser</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Same as 6MW6S
<i>b) Condition of Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Condition of Well Lock</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>d) Condition of Well Concrete Pad</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<b>17) 6MW7S</b>					
<i>a) Condition of Surface Surrounding Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Abandoned in December 2007.
<i>b) Condition of Flush Mount Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<i>c) Condition of Well Lock</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<i>d) Condition of Well Concrete Pad</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

**INSPECTION CHECKLIST**  
**SITE 6 - DRMO**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>18) 6MW8S</b>					
<i>a) Condition of Surface Surrounding Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Abandoned in December 2007.
<i>b) Condition of Flush Mount Well Cover</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>c) Condition of Well Lock</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>19) 6MW9S</b>					
<i>a) Condition of Surface Surrounding Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>b) Condition of Flush Mount Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Good.
<i>c) Condition of Well Lock</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Reportedly has no lock.
<b>20) 6MW10S</b>					
<i>a) Condition of Surface Surrounding Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Condition of Flush Mount Well Cover</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Cracks sealed.
<i>c) Condition of Well Lock</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Reportedly no lock.
<b>21) 6MW10D</b>					
<i>a) Condition of Surface Surrounding Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Abandoned in December 2007.
<i>b) Condition of Flush Mount Well Cover</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>c) Condition of Well Lock</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>22) 6MW11S</b>					
<i>a) Condition of Surface Surrounding Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Condition of Flush Mount Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cracks sealed.
<i>c) Condition of Well Lock</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Reportedly has no lock.
<b>23) 6MW11D</b>					
<i>a) Condition of Surface Surrounding Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Abandoned in December 2007.
<i>b) Condition of Flush Mount Well Cover</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>c) Condition of Well Lock</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

INSPECTION CHECKLIST  
SITE 6 - DRMO  
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<b>Adequacy of O&amp;M at Site:</b> Overall, O&M practices at the site are sufficient. Current practices should be sufficient to maintain the effectiveness of the remedy. Increase filling of depressions. Continue to communicate proper storage of equipment in order to maintain asphalt cover.	
<b>Notes:</b> Phragmites previously growing through pavement behind warehouses next to depressions have been removed, but should be monitored for future regrowth.	
<b>Deficiencies/Items Requiring Corrections:</b> 1. Monitoring Well 6MW2S surrounded by tall grass making well location difficult - clear vegetation and maintain on a regular basis. 2. Seal cracks in central asphalt cap area. Boats and other heavy equipment stored in this area should continue to be stored to prevent cracking. However, existing cracks are believed to be caused by normal landfill settlement. 3. Monitor low lying area near Jersey barriers to north of Monitoring Wells 6MW11S and 6MW3S. Standing water in low lying area - however, heavy rainfall occurred the night before.	
<u>Brian P. Wachler, P.E.</u> Printed Name of Inspector	 5/20/09 Signature of Inspector / Date
<b>Certification Statement:</b> I hereby certify that a complete and thorough inspection and evaluation of the site and implemented remedy has been performed, and that the items noted on this inspection form have been assessed with respect to the intent of the implemented remedy and the remedial action objectives established for the site.	
<u>Fred Santos</u> Printed Name of O&M Engineer	<u>Richard O. Conant Jr.</u> Printed Name of NSB-NLON IRP Manager
 5/19/09 Signature of O&M Engineer / Date	 5/20/09 Signature of NSB-NLON IRP Manager / Date

INSPECTION CHECKLIST  
SITE 6 - DRMO  
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Provide additional notes or sketch as needed:  
See attached figure.

**Naval Submarine Base - New London, Groton, CT  
DRMO Landfill Annual Inspection - Deficiency Log  
August 2008**

No.	Item	Deficiency	Recommended Action
1	Monitoring Wells	Vegetation continues to cover monitoring well 6MW2S.	Clear vegetation and maintain on a regular basis.
2	Housekeeping and Maintenance	Improper protection for the asphalt in the storage of boats and other heavy equipment.	Seal existing cracks and monitor on a regular basis. To prevent future cracks and other damage to the asphalt cap and subsurface cap system components such as the monitoring wells, stage in a systematic, orderly manner and use protective surfaces (e.g., concrete blocks, steel plates, pallets, etc.).

**INSPECTION CHECKLIST**  
**SITE 6 - DRMO**  
Page 1 of 6

SITE NAME: Site 6 - DRMO (OU2)  
EPA ID: CTD980906515  
SITE LOCATION: New London County, CT  
EPA REGION: Region 1  
REMEDY AT SITE: Landfill Cover, Institutional Control, Monitoring

Inspection Date: August 18, 2009

INSPECTOR/COMPANY: Willard A. Murray / ECC

WEATHER CONDITIONS: Temperature: 85°F  
Weather: Clear and hot  
Other: \_\_\_\_\_

TYPE OF INSPECTION:  Annual Inspection  
 Post-Major Weather Event Inspection  
 Re-Inspection of Deficient Items  
 Other \_\_\_\_\_

AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>INSTITUTIONAL CONTROLS</b>					
<b>1) Security Fencing</b>					
a) East Perimeter Fence along Rail Road Tracks	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) South Perimeter Fence along Storm Discharge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Locked Entrance or Secure Access	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) No Trespassing and Security Signs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Signs read "Warning Authorized Personnel Only"
e) Indications of Vandalism or Trespassing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>CAP AREAS</b>					
<b>2) Asphalt Cap Area</b>					
a) General Condition of Asphalt Pavement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good condition - all cracks sealed
b) Level or Designed Slope Within Pavement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Cracks in Pavement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cracks in central area all sealed, some old and some new, due to normal landfill settling
d) Erosion on Pavement or Adjacent Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Two depressions in grassed area behind buildings, not in landfill area
e) Holes/Penetrations in Asphalt Surface	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None, abandoned wells plugged and sealed
f) Bulges in Asphalt Surface	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
g) Standing Water - other than above (b)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
h) Stability of Slopes and Adjacent Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
i) Groundwater Monitoring Penetrations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
j) Damage to Pavement Caused by DRMO Use	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
k) Exposed Cap Components	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>STORM WATER FEATURES</b>					
<b>3) Drainage Swale</b>					
a) General Conditions of Western Drainage Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good condition
b) Condition of 2-inch Gravel Lining	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good condition
c) Amount of Siltation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None

**INSPECTION CHECKLIST**  
**SITE 6 - DRMO**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>4) Concrete Catch Basin</b>					
a) General Condition of Northern Catch Basin	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good condition, water noted as normal
b) Condition of Grate Assembly	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Amount of Siltation within Catch Basin	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Very little, maybe half an inch
<b>5) Culvert Outfall</b>					
a) General Condition of Discharge Pipe	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No access due to fence, OK as viewed through fence
b) Amount of Siltation within Pipe	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
c) Condition of Outlet Flare and Riprap Outfall	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>6) Thames River Riprap</b>					
a) General Condition of Riprap Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good condition; flotsam (dead branches, etc.) on top of rocks
<b>MONITORING WELLS</b>					
<b>7) 6MW1S</b>					
a) Condition of Protective Casing/Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, rusty
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, rusty
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock is in good condition
d) Condition of Well Concrete Pad	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<b>8) 6MW2S</b>					
a) Condition of Protective Casing/Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, rusty
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, rusty
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock is in good condition
d) Condition of Well Concrete Pad	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<b>9) 6MW2D</b>					Abandoned
a) Condition of Protective Casing/Riser	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) Condition of Well Concrete Pad	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>10) 6MW3S (Abandoned near 6MW11S)</b>					
a) Condition of Surface Surrounding Location	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Abandoned, cracks sealed
<b>11) 6MW3D (Abandoned near 6MW11D)</b>					
a) Condition of Surface Surrounding Location	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Previously abandoned

**INSPECTION CHECKLIST**  
**SITE 6 - DRMO**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>12) 6MW4S</b>					Previously abandoned
a) Condition of Protective Casing/Riser	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) Condition of Well Concrete Pad	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>13) 6MW5S</b>					Previously abandoned
a) Condition of Protective Casing/Riser	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) Condition of Well Concrete Pad	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>14) 6MW5D</b>					Previously abandoned
a) Condition of Protective Casing/Riser	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) Condition of Well Concrete Pad	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>15) 6MW6S</b>					
a) Condition of Protective Casing/Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, little rust
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Well Concrete Pad	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<b>16) 6MW6D</b>					
a) Condition of Protective Casing/Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, little rust
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Well Concrete Pad	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concrete separated from casing and concrete cracked, needs to be sealed
<b>17) 6MW7S</b>					Previously abandoned
a) Condition of Protective Casing/Riser	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) Condition of Well Concrete Pad	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**INSPECTION CHECKLIST**  
**SITE 6 - DRMO**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>18) 6MW8S</b>					Previously abandoned
<i>a) Condition of Protective Casing/Riser</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>b) Condition of Well Cover</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>c) Condition of Well Lock</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>d) Condition of Well Concrete Pad</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>19) 6MW9S</b>					
<i>a) Condition of Surface Surrounding Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Condition of Flush Mount Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>c) Condition of Well Lock</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock
<b>20) 6MW10S</b>					
<i>a) Condition of Surface Surrounding Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Condition of Flush Mount Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>c) Condition of Well Lock</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock
<b>21) 6MW10D</b>					Previously abandoned
<i>a) Condition of Surface Surrounding Well Cover</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>b) Condition of Flush Mount Well Cover</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>c) Condition of Well Lock</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>22) 6MW11S</b>					
<i>a) Condition of Surface Surrounding Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Condition of Flush Mount Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>c) Condition of Well Lock</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock
<b>23) 6MW11D</b>					Previously abandoned
<i>a) Condition of Surface Surrounding Well Cover</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>b) Condition of Flush Mount Well Cover</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>c) Condition of Well Lock</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

INSPECTION CHECKLIST  
SITE 6 - DRMO  
Page 5 of 6

**Adequacy of O&M at Site:**  
Overall, O&M practices at the site are sufficient at this time.

**Notes:**

**Deficiencies/Items Requiring Corrections:**  
At well 6MW6D the concrete pad is cracked and separated from well casing - needs repair, either seal with tar or install new concrete pad

Willard A. Murray  
Printed Name of Inspector

*Willard A. Murray* 8-Aug-09  
Signature of Inspector / Date

**Certification Statement:**  
I hereby certify that a complete and thorough inspection and evaluation of the site and implemented remedy has been performed, and that the items noted on this inspection form have been assessed with respect to the intent of the implemented remedy and the remedial action objectives established for the site.

Fred Santos  
Printed Name of O&M Engineer

Richard D. Conant  
Printed Name of NSB-NLON IRP Manager

Fred Santos  
2009.12.02 15:09:40 -05'00'  
Signature of O&M Engineer / Date

*Richard D. Conant* 12/2/09  
Signature of NSB-NLON IRP Manager / Date

INSPECTION CHECKLIST  
SITE 6 - DRMO  
Page 6 of 6

Provide additional notes or sketch as needed:

See attached figure

**Naval Submarine Base - New London, Groton, CT  
DRMO Landfill Annual Inspection - Deficiency Log  
August 2009**

The following items were inspected at the DRMO Landfill during the annual landfill inspection in August 2009: Fence, gates, signs, asphalt cap surface, rip rap, drainage swale, culvert outfall, monitoring wells, vegetation overgrowth. Inspection of these items resulted in the following deficiencies and recommended corrective actions as stated in the table below.

<b>No.</b>	<b>Item</b>	<b>Deficiency</b>	<b>Recommended Corrective Action</b>
1	Monitoring Wells	Concrete pad at monitoring well 6MW6D is cracked and separated from the well casing.	Repair the cracked concrete pad at monitoring well 6MW6D by sealing with tar or by replacing the concrete pad.  Monitoring well 6MW6D repair will occur during the Summer 2010. Crack sealing activity duration is approximately a half day.

**INSPECTION CHECKLIST**  
**SITE 6 - DRMO**  
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SITE NAME: Site 6 - DRMO (OU2)  
EPA ID: CTD980906515  
SITE LOCATION: New London County, CT  
EPA REGION: Region 1  
REMEDY AT SITE: Landfill Cover, Institutional Control, Monitoring

Inspection Date: August 18, 2010

INSPECTOR/COMPANY: Ryan Hipp, EIT, H&S

WEATHER CONDITIONS: Temperature: 85°F  
Weather: Cloudy  
Other: \_\_\_\_\_

TYPE OF INSPECTION:  Annual Inspection  
 Post-Major Weather Event Inspection  
 Re-Inspection of Deficient Items  
 Other \_\_\_\_\_

AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>INSTITUTIONAL CONTROLS</b>					
<b>1) Security Fencing</b>					
a) East Perimeter Fence along Rail Road Tracks	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) South Perimeter Fence along Storm Discharge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Locked Entrance or Secure Access	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) No Trespassing and Security Signs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Signs read "Warning Authorized Personnel Only"
e) Indications of Vandalism or Trespassing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>CAP AREAS</b>					
<b>2) Asphalt Cap Area</b>					
a) General Condition of Asphalt Pavement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good condition - most cracks sealed
b) Level or Designed Slope Within Pavement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Cracks in Pavement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cracks in central area all sealed, some old and some new, due to normal landfill settling
d) Erosion on Pavement or Adjacent Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Two depressions in grassed area behind buildings, not in landfill area. Minor erosion at drainage swale interface.
e) Holes/Penetrations in Asphalt Surface	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None, abandoned wells plugged and sealed
f) Bulges in Asphalt Surface	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
g) Standing Water - other than above (b)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None. Evidence of minor previous standing water near jersey barriers.
h) Stability of Slopes and Adjacent Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
i) Groundwater Monitoring Penetrations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
j) Damage to Pavement Caused by DRMO Use	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Few dents in asphalt. Storage racks need blocking underneath to prevent penetration of asphalt
k) Exposed Cap Components	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>STORM WATER FEATURES</b>					
<b>3) Drainage Swale</b>					
a) General Conditions of Western Drainage Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Good condition. Minor vegetative growth in channel.
b) Condition of 2-inch Gravel Lining	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good condition
c) Amount of Siltation within Swale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None

**INSPECTION CHECKLIST**  
**SITE 6 - DRMO**  
Page 2 of 6

AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>4) Concrete Catch Basin</b>					
a) <i>General Condition of Northern Catch Basin</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good condition, water noted as normal. Drain diaper is monitored and maintained under stormwater management program
b) <i>Condition of Grate Assembly</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) <i>Amount of Siltation within Catch Basin</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	About 2-3 inches
<b>5) Culvert Outfall</b>					
a) <i>General Condition of Discharge Pipe</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No access due to fence, OK as viewed through fence
b) <i>Amount of Siltation within Pipe</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
c) <i>Condition of Outlet Flare and Riprap Outfall</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Minor vegetative growth. Does not inhibit flow
<b>6) Thames River Riprap</b>					
a) <i>General Condition of Riprap Protection</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good condition; flotsam (dead branches, etc.) on top of rocks
<b>MONITORING WELLS</b>					
<b>7) 6MW1S</b>					
a) <i>Condition of Protective Casing/Riser</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, rusty
b) <i>Condition of Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, rusty
c) <i>Condition of Well Lock</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock is in good condition
d) <i>Condition of Well Concrete Pad</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<b>8) 6MW2S</b>					
a) <i>Condition of Protective Casing/Riser</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, rusty
b) <i>Condition of Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, rusty
c) <i>Condition of Well Lock</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock is in good condition
d) <i>Condition of Well Concrete Pad</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<b>9) 6MW2D</b>					Abandoned
a) <i>Condition of Protective Casing/Riser</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) <i>Condition of Well Cover</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) <i>Condition of Well Lock</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) <i>Condition of Well Concrete Pad</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>10) 6MW3S (Abandoned near 6MW11S)</b>					
a) <i>Condition of Surface Surrounding Location</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Abandoned, cracks previously sealed
<b>11) 6MW3D (Abandoned near 6MW11D)</b>					
a) <i>Condition of Surface Surrounding Location</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Previously abandoned

**INSPECTION CHECKLIST**  
**SITE 6 - DRMO**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>12) 6MW4S</b>					Previously abandoned
a) Condition of Protective Casing/Riser	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) Condition of Well Concrete Pad	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>13) 6MW5S</b>					Previously abandoned
a) Condition of Protective Casing/Riser	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) Condition of Well Concrete Pad	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>14) 6MW5D</b>					Previously abandoned
a) Condition of Protective Casing/Riser	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) Condition of Well Concrete Pad	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>15) 6MW6S</b>					
a) Condition of Protective Casing/Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, little rust
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Well Concrete Pad	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<b>16) 6MW6D</b>					
a) Condition of Protective Casing/Riser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, little rust
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
d) Condition of Well Concrete Pad	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concrete pad previously repaired
<b>17) 6MW7S</b>					Previously abandoned
a) Condition of Protective Casing/Riser	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) Condition of Well Concrete Pad	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**INSPECTION CHECKLIST**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>18) 6MW8S</b>					Previously abandoned
a) Condition of Protective Casing/Riser	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) Condition of Well Concrete Pad	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>19) 6MW9S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock
<b>20) 6MW10S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock
<b>21) 6MW10D</b>					Previously abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>22) 6MW11S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock
<b>23) 6MW11D</b>					Previously abandoned
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**INSPECTION CHECKLIST**  
**SITE 6 - DRMO**  
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**Adequacy of O&M at Site:**  
Overall, O&M practices at the site are sufficient at this time.

**Notes:**

**Deficiencies/Items Requiring Corrections:**  
1) DRMO operators need to put blocking under storage devices to prevent future asphalt penetration  
2) Removing vegetative growth in drainage swale

\_\_\_\_\_  
Ryan Hipp, EIT  
Printed Name of Inspector



8/18/2010

Signature of Inspector / Date

\_\_\_\_\_  
Jill Ann Parrett, PG  
Printed Name of Supervisor



10/29/2010

Signature of Supervisor / Date

**Certification Statement:**  
I hereby certify that a complete and thorough inspection and evaluation of the site and implemented remedy has been performed, and that the items noted on this inspection form have been assessed with respect to the intent of the implemented remedy and the remedial action objectives established for the site.

\_\_\_\_\_  
Patrick Schauble, PE  
Printed Name of O&M Engineer

\_\_\_\_\_  
Printed Name of NSBNL IRP Manager



10/29/2010

Signature of O&M Engineer / Date

\_\_\_\_\_  
Signature of NSBNL IRP Manager / Date

INSPECTION CHECKLIST  
SITE 6 - DRMO  
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Provide additional notes or sketch as needed:

See attached figure

**Naval Submarine Base - New London, Groton, CT  
DRMO Landfill Annual Inspection - Deficiency Log  
August 2010**

The following items were inspected at the DRMO Landfill during the annual landfill inspection in August 2010: Fence, gates, signs, asphalt cap surface, rip rap, drainage swale, culvert outfall, monitoring wells, vegetation overgrowth. Inspection of these items resulted in the following deficiencies and recommended corrective actions as stated in the table below.

<b>No.</b>	<b>Item</b>	<b>Deficiency</b>	<b>Recommended Corrective Action</b>	<b>Actions Taken or Planned</b>
1	Cap Areas	No blocking under storage racks	Add wood blocking, or similar, underneath storage racks to prevent penetration through asphalt cap.	A work request has been submitted for base personnel to correct this deficiency, and the work will be completed during March 2011.
2	Drainage Swale	Vegetative growth in swale	Remove vegetation growth in drainage swale	This action has been completed during maintenance activities conducted in October 2010.

#### **A.4 GOSS COVE LANDFILL (SITE 8)**

**INSPECTION CHECKLIST**  
**SITE 8 - GOSS COVE LANDFILL**  
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SITE NAME: Site 8 - Goss Cove Landfill (OU5)  
 EPA ID: CTD980906515  
 SITE LOCATION: New London County, CT  
 EPA REGION: Region 1  
 REMEDY AT SITE: Landfill Cover, Institutional Control, Monitoring  
 REVISION: 00

Date: October 25, 2006 Courtney D. Moore, Jr., P.E./Nobis Engineering, Inc.

INSPECTOR/COMPANY

WEATHER CONDITIONS:

Temperature: 50-60°F  
 Weather: Overcast  
 Other: NA

TYPE OF INSPECTION:

- Annual Inspection  
 Post-Major Weather Event Inspection  
 Re-Inspection of Deficient Items  
 Other \_\_\_\_\_

AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>INSTITUTIONAL CONTROLS</b>					
<b>1) Security Fencing, Gates and Signs</b>					
a) Fence at West Limit (P&WRR)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Fence at Northern Limit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Fence at Northeast Limit at Bedrock Outcrop	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Pole in bedrock is still bent but functioning.
d) Fence at East Limit Near Main Entrance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
e) Fence at South Limit at Sewage Pump Station	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
f) Fence at South Gas Vents at Nautilus Access Pier	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
g) Fence at Gas Vents at East Limits	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Tree branch growing into fence near picnic area. Loose at bottom. Needs ties.
h) Locked Entrance or Secure Access	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
i) Man Gate Near Lt. Pole #12	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
j) Man Gate Near Lt. Pole #G	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Removed. No longer there.
k) No Trespassing and Security Signs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Only one sign on rocks with "No trespassing".
l) Indications of Vandalism or Trespassing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>LANDSCAPING FEATURES</b>					
<b>2) Concrete Pavers</b>					
a) General Condition of Pavers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
b) Level or Designed Slope within Paver Surface	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Standing Water - other than above (a)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>3) Concrete Curbing (Traffic Areas)</b>					
a) General Conditions of Curbing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Indication of Cracked Curbing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Indication of Dislodged Curbing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Indication of Heaved Curbing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.

**INSPECTION CHECKLIST**  
**SITE 8 - GOSS COVE LANDFILL**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>4) Granite Curbing (Exhibit and Paver Areas)</b>					
<i>a) General Conditions of Curbing</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK.
<i>b) Indication of Cracked Curbing</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Indication of Dislodged Curbing</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>d) Indication of Heaved Curbing</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>5) Concrete Sidewalks</b>					
<i>a) General Conditions of Sidewalks</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>b) Indication of Cracked Sidewalks</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Indication of Dislodged Sidewalks</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>d) Indication of Heaved Sidewalks</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>6) Submarine Displays (Four Total)</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Chipped concrete on sub near culvert 13. Painting being done during inspection
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>7) Trailer Foundation (Maintenance Bldg)</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>8) Missile Hatch Display</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Undergoing cleaning by dry ice.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>9) Gun Display</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Gun back trip hazard removed.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<i>d) Center Island Flagpoles (Poles A, B, and C)</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<i>e) Retaining Wall on West Side</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>10) Retaining Well on East Side</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.

**INSPECTION CHECKLIST**  
**SITE 8 - GOSS COVE LANDFILL**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>11) Flagpole *A</b>					
<i>a) General Condition of Flagpole</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>b) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>d) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
					None.
<b>12) Flagpole *B</b>					
<i>a) General Condition of Flagpole</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>b) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Broken outlet at base.
<i>d) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>13) Flagpole *C</b>					
<i>a) General Condition of Flagpole</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>b) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>d) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>14) Flagpole *D</b>					
<i>a) General Condition of Flagpole</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok, but bent near base.
<i>b) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>d) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>15) Flagpole *E</b>					
<i>a) General Condition of Flagpole</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>b) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Covered in grass.
<i>c) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
<i>d) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>16) Flagpole *F</b>					
<i>a) General Condition of Flagpole</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Bent near base.
<i>b) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>d) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>17) Picnic Area</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.

**INSPECTION CHECKLIST**  
**SITE 8 - GOSS COVE LANDFILL**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>18) Dumpster Pad</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Minor garbage and leaves under dumpsters.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>19) Light Pole #2</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>20) Light Pole #6</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>21) Light Pole #7</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good. Missing 4 bolt covers
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>22) Light Pole #8</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Covered by landscaping.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>23) Light Pole #9</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good. Bolt cover missing.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>24) Light Pole #10</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>25) Light Pole #11</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Conduit visible.

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>26) Light Pole #12</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>27) Light Pole #14</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good. Missing bolt cover.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>28) Light Pole #G</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>29) Light Pole #H</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>30) Light Pole #I</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Missing 2 bolt covers
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>31) Light Pole #K</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good. Vegetation growing over concrete footing.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>32) Light Pole #S</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>33) Irrigation System</b>					
<i>a) Conditions of Sprinkler Heads</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Many broken sprinkler heads.
<i>b) System Operation</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Hoses are exposed, some separated, whole system is in need of repair.
<i>c) Condition of Pump and Controls</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Unknown.

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>34) Asphalt Surface Cap</b>					
<i>a) General Condition of Asphalt Pavement</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	General condition is good.
<i>b) Level or Designed Slope Within Pavement</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
<i>c) Cracks in Pavement</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>d) Erosion in Pavement or Adjacent Areas</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>e) Holes/Penetrations in Asphalt Surface</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>f) Bulges in Asphalt Surface</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>g) Standing Water - other than above (b)</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>h) Stability of Slopes and Adjacent Areas</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
<i>i) Groundwater Monitoring Well Penetration</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>j) Damage to Pavement Caused by Use</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>k) Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>35) Grass Surface Cap</b>					
<i>a) General Condition of Vegetation</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Level or Designed Slope Within Grass Area</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Erosion in Vegetation or Adjacent Areas</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>d) Standing Water - other than above (b)</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>e) Stability of Slopes and Adjacent Areas</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>f) Groundwater Monitoring Well Penetration</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No settlement around wells in grass.
<i>g) Damage to Pavement Caused by Museum Use</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>h) Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>STORM WATER FEATURES</b>					
<b>36) Box Culvert (Road to River)</b>					* Not inspected. Camera inspection completed on 01/31/07.
<i>a) Condition of Lower Junction Box - Exterior</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<i>b) Condition of Lower Junction Box - Interior</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Condition of Box Culvert - Interior Sections</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<i>d) Condition of Outfall</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	~ 1 ft of water at high tide.
<b>37) Catch Basin 1 (CB 1)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	~ .25 ft sediment.
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>38) Catch Basin 2 (CB 2)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Vegetation growing inside basin.
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>39) Catch Basin 3 (CB 3)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition.
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	~.3 ft sediment
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>40) Catch Basin 4 (CB 4)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition.
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Approximately .9 ft
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>41) Catch Basin 5 (CB 5)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition.
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1.4 ft sediment almost to level of outlet/ invert.
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>42) Catch Basin 7A (CB 7A)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition.
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	~.25 ft
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>43) Catch Basin 7B (CB 7B)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition. Minor amount of leaves collecting in grate.
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	~.4 ft
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>44) Catch Basin 8 (CB 8)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	~.45 ft sediment
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>45) Catch Basin 9 (CB 9)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Clear. Can see bottom.
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	~.5 ft
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>46) Yard Drain 6A (YD #6A)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition.
<i>b) Sediment Within Inlet</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	~.2 ft
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.

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<b>47) Yard Drain 6B (YD #6B)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	20% covered by leaf litter. Landscape material exposed near grate.
<i>b) Sediment Within Inlet</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No sediment.
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>48) Yard Drain 7C (YD #7C)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Vegetative growth and leaves noted around entrance.
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>49) Yard Drain 11 (YD #11)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition. Water still flowing clear and unobstructed.
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	~.05 ft
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>50) Yard Drain 11A (YD #11A)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Trash and leaves over grate.
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>51) Yard Drain 13 (YD #13)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Partially covered by leaves.
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	~.05 ft
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>GAS VENT FEATURES</b>					
<b>52) Gas Vent *L</b>					
<i>a) Condition of Riser and Top Section</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition.
<i>b) Condition of Screen</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No screen noted. Still need a lock for the gate surrounding the vent.
<b>53) Gas Vent *M</b>					
<i>a) Condition of Riser and Top Section</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition.
<i>b) Condition of Screen</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Generally in good condition. Still need a lock for the gate surrounding the vent. Vegetation buildup around gate entrance should be removed.
<b>54) Gas Vent *N</b>					
<i>a) Condition of Riser and Top Section</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition.
<i>b) Condition of Screen</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No screen noted. Need to install a screen.

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<b>MONITORING WELL FEATURES</b>					
<b>55) 8MW1</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Minor sediment and shells on concrete.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Still missing a bolt on the cover.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock noted, rubber cap over tubing. Dedicated sampling equipment.
<b>56) 8MW2S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concrete and road box are in good condition.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock noted, rubber cap over tubing. Dedicated sampling equipment.
<b>57) 8MW2D</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concrete and road box are in good condition.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock noted, rubber cap over tubing. Dedicated sampling equipment.
<b>58) 8MW3</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rim of well still not flush with concrete.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock noted, rubber cap over tubing. Dedicated sampling equipment.
<b>59) 8MW4</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concrete is in acceptable condition.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Cover still needs two bolts.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock noted. No dedicated pump. Water inside over well cap, no sheen noted.
<b>60) 8MW5S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concrete is in acceptable condition.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Cover is missing a bolt, and road box is missing the bolt thread.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock noted, rubber cap over tubing. Dedicated sampling equipment.
<b>61) 8MW6S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Still some under mining of concrete pad at stone blocks.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock noted, rubber cap over tubing. Dedicated sampling equipment.
<b>62) 8MW6D</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concrete and road box are in good condition.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock noted, rubber cap over tubing. Dedicated sampling equipment.

**INSPECTION CHECKLIST**  
**SITE 8 - GOSS COVE LANDFILL**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>63) 8MW7S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concrete is in acceptable condition.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock noted, rubber cap over tubing. Dedicated sampling equipment.
<b>64) 8MW8S</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concrete is in acceptable condition, well reportedly not gauged or sampled. This is a flush mount well, not stick up.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lock present.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None installed.
<b>65) 8MW8D</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good. This is a flush mount well, not stick up.
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock noted, rubber cap over tubing. Dedicated sampling equipment.
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None installed.
<b>66) 8MW9S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	In depression in roadway, reportedly not sampled.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>67) 8MW10S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Well ~1 ft below grade. Should be brought up to grade.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Leaves covering hole.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No lock noted, rubber cap over tubing. Dedicated sampling equipment.
<b>68) HNUS-23 (Tank Farm)</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No concrete around cover.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Missing one bolt, the other bolt is coming up.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock noted, rubber cap over tubing. Dedicated sampling equipment.
					7.06 DTW

**INSPECTION CHECKLIST**  
**SITE 8 - GOSS COVE LANDFILL**  
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**Adequacy of O&M at Site:**

Overall, O&M practices at the site are sufficient. Current practices should be sufficient to maintain the effectiveness of the remedy.

**Notes:**

Notes as listed above in checklist.

Lightpole 13 not on list or on map (numbered). OK. Missing screw for cover.

Guage- 8MW8S (15.80ft total depth) & 8MW8D (59.31ft total depth) to verify which well is which/ Clarify confusion of well numbering. Question of correct well being sampled - Confirmed.

Note: Locks are on well plugs, but wells that are routinely sampled have dedicated tubing and pumps down the well that do not allow locking.

**Deficiencies/Items Requiring Corrections:**

Irrigation system has many exposed pipes that are damaged and/or separated. Broken section and several sprinkler heads are not functional and in need of repair/replacement.

Some sediment build up in CB-4 and CB-5. Leaf litter and grass covering inlets to a few yard drains.

8MW9S is in a depression of the road.

No screens on any gas vent. Invasive vegetation around gas vent M. No locks for gates around gas vents L and M.

Courtney D. Moore, Jr., P.E.

Printed Name of Inspector

Signature of Inspector / Date

**Certification Statement:**

I hereby certify that a complete and thorough inspection and evaluation of the site and implemented remedy has been performed, and that the items noted on this inspection form have been assessed with respect to the intent of the implemented remedy and the remedial action objectives established for the site.

Fred Santos

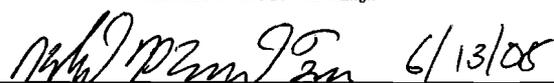
Printed Name of O&M Engineer

 2008.06.12  
11:28:35 -04'00'

Signature of O&M Engineer / Date

Richard D. Conant Jr.

Printed Name of NSB-NLON IRP Manager

 6/13/08

Signature of NSB-NLON IRP Manager / Date

Provide additional notes or sketch as needed:

See attached sketch

**Naval Submarine Base - New London, Groton, CT  
Goss Cove Landfill Annual Inspection - Deficiency Log  
October 2006**

<b>No.</b>	<b>Item</b>	<b>Deficiency</b>	<b>Recommended Action October 2006</b>
1	Irrigation system.	Many exposed pipes that are damaged and/or separated. Broken section and several sprinkler heads are not functional and in need of repair/replacement.	Fixed broken pipes and burry them below ground. Fix or replace damaged sprinkler heads.
2	Catch basins and yard drains.	Some sediment build up in CB-4 and CB-5. Vegetation growing inside CB-2. Leaf litter and grass covering inlets to a few yard drains.	Continued maintenance and removal of sediment and debris on a routine basis (i.e. annually).
3	8MW9S	In depression of road.	Repair or close as appropriate.
4	Gas vents	No screens on any gas vent. Invasive vegetation around gas vent M. No locks for gates around gas vents L and M.	Install screens on gas vents. Remove vegetation from around gas vent M. Install locks on the gates around gas vents L and M.
5	8MW10S	Elevation of well cover below new grade elevation.	Bring well head cover up to new grade elevation.

**INSPECTION CHECKLIST  
SITE 8 - GOSS COVE LANDFILL  
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SITE NAME: Site 8 - Goss Cove Landfill (OU5)  
 EPA ID: CTD980906515  
 SITE LOCATION: New London County, CT  
 EPA REGION: Region 1  
 REMEDY AT SITE: Landfill Cover, Institutional Control, Monitoring  
 REVISION: 00

Date: November 7, 2007 Courtney D. Moore, Jr., P.E./Nobis Engineering, Inc.

INSPECTOR/COMPANY

WEATHER CONDITIONS:

Temperature: 40°F  
 Weather: Clear sky, breeze  
 Other: NA

TYPE OF INSPECTION:

- Annual Inspection
- Post-Major Weather Event Inspection
- Re-Inspection of Deficient Items
- Other \_\_\_\_\_

AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>INSTITUTIONAL CONTROLS</b>					
<b>1) Security Fencing, Gates and Signs</b>					
a) Fence at West Limit (P&WRR)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Fence at Northern Limit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Fence at Northeast Limit at Bedrock Outcrop	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Pole in bedrock is still bent but functioning.
d) Fence at East Limit Near Main Entrance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
e) Fence at South Limit at Sewage Pump Station	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
f) Fence at South Gas Vents at Nautilus Access Pier	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
g) Fence at Gas Vents at East Limits	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Tree branch growing into fence near picnic area.
h) Locked Entrance or Secure Access	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
i) Man Gate Near Lt. Pole #12	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
j) Man Gate Near Lt. Pole #G	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Removed. No longer there.
k) No Trespassing and Security Signs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	One sign on the rock outcrop stating "No Trespassing" and one sign on the main gate stating "No Excavation Permitted Without Authorization".
l) Indications of Vandalism or Trespassing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>LANDSCAPING FEATURES</b>					
<b>2) Concrete Pavers</b>					
a) General Condition of Pavers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
b) Level or Designed Slope within Paver Surface	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Standing Water - other than above (a)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>3) Concrete Curbing (Traffic Areas)</b>					
a) General Conditions of Curbing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Indication of Cracked Curbing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Indication of Dislodged Curbing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Indication of Heaved Curbing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.

**INSPECTION CHECKLIST**  
**SITE 8 - GOSS COVE LANDFILL**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>4) Granite Curbing (Exhibit and Paver Areas)</b>					
<i>a) General Conditions of Curbing</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
<i>b) Indication of Cracked Curbing</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Indication of Dislodged Curbing</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>d) Indication of Heaved Curbing</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>5) Concrete Sidewalks</b>					
<i>a) General Conditions of Sidewalks</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>b) Indication of Cracked Sidewalks</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Indication of Dislodged Sidewalks</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>d) Indication of Heaved Sidewalks</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>6) Submarine Displays (Four Total)</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok. Sign post missing. Regular repair.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>7) Trailer Foundation (Maintenance Bldg)</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>8) Missile Hatch Display</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>9) Gun Display</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>d) Center Island Flagpoles (Poles A, B, and C)</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Nobis suggests deleting this line as it does not apply. See notes to flagpoles A,B,C.
<i>e) Retaining Wall on West Side</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No retaining wall on west side. Suggest deleting this line.
<b>10) Retaining Well on East Side</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.

**INSPECTION CHECKLIST**  
**SITE 8 - GOSS COVE LANDFILL**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>11) Flagpole *A</b>					
<i>a) General Condition of Flagpole</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>b) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>d) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
					None.
<b>12) Flagpole *B</b>					
<i>a) General Condition of Flagpole</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>b) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Broken outlet at base has been fixed.
<i>d) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>13) Flagpole *C</b>					
<i>a) General Condition of Flagpole</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>b) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>d) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>14) Flagpole *D</b>					
<i>a) General Condition of Flagpole</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok, but bent near base.
<i>b) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>d) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>15) Flagpole *E</b>					
<i>a) General Condition of Flagpole</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>b) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Covered in grass.
<i>c) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
<i>d) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>16) Flagpole *F</b>					
<i>a) General Condition of Flagpole</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Bent near base.
<i>b) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>d) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>17) Picnic Area</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.

**INSPECTION CHECKLIST**  
**SITE 8 - GOSS COVE LANDFILL**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>18) Dumpster Pad</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>19) Light Pole #2</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>20) Light Pole #6</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>21) Light Pole #7</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>22) Light Pole #8</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Covered by landscaping.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>23) Light Pole #9</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good. Bolt cover missing.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>24) Light Pole #10</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>25) Light Pole #11</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good. (Impact in fence. See notes.)
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Conduit visible.

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<b>26) Light Pole #12</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>27) Light Pole #14</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>28) Light Pole #G</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>29) Light Pole #H</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>30) Light Pole #I</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>31) Light Pole #K</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good. Vegetation growing over concrete footing.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>32) Light Pole #S</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>33) Irrigation System</b>					
<i>a) Conditions of Sprinkler Heads</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Broken sprinkler heads replaced.
<i>b) System Operation</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Irrigation system fixed in July 2007.
<i>c) Condition of Pump and Controls</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Unknown.

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>34) Asphalt Surface Cap</b>					
<i>a) General Condition of Asphalt Pavement</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	General condition is good. Cracks sealed.
<i>b) Level or Designed Slope Within Pavement</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
<i>c) Cracks in Pavement</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>d) Erosion in Pavement or Adjacent Areas</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>e) Holes/Penetrations in Asphalt Surface</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>f) Bulges in Asphalt Surface</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>g) Standing Water - other than above (b)</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>h) Stability of Slopes and Adjacent Areas</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
<i>i) Groundwater Monitoring Well Penetration</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>j) Damage to Pavement Caused by Use</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>k) Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>35) Grass Surface Cap</b>					
<i>a) General Condition of Vegetation</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Level or Designed Slope Within Grass Area</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Erosion in Vegetation or Adjacent Areas</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>d) Standing Water - other than above (b)</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>e) Stability of Slopes and Adjacent Areas</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>f) Groundwater Monitoring Well Penetration</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No settlement around wells in grass.
<i>g) Damage to Pavement Caused by Museum Use</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>h) Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>STORM WATER FEATURES</b>					
<b>36) Box Culvert (Road to River)</b>					
<i>a) Condition of Lower Junction Box - Exterior</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	* Not inspected by Nobis. Inland Waters completed inspection of box culvert. Video inspection completed on 11/5/07.
<i>b) Condition of Lower Junction Box - Interior</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None. 2 manholes noted but not found (~10' apart) from ground surface.
<i>c) Condition of Box Culvert - Interior Sections</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<i>d) Condition of Outfall</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2" of water in outlet.
<b>37) Catch Basin 1 (CB 1)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2" sediment.
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>38) Catch Basin 2 (CB 2)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	*Inspected with camera on 11/5/07. Good.
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1" sediment.
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.

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<b>39) Catch Basin 3 (CB 3)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition.
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>40) Catch Basin 4 (CB 4)</b>					*Inspected with camera on 11/5/07.
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition.
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>41) Catch Basin 5 (CB 5)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition.
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2" sediment.
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>42) Catch Basin 7A (CB 7A)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition.
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No sediment.
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>43) Catch Basin 7B (CB 7B)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition. Minor amount of leaves collecting in grate.
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No sediment.
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>44) Catch Basin 8 (CB 8)</b>					*Inspected with camera on 11/5/07.
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2" of sediment.
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>45) Catch Basin 9 (CB 9)</b>					*Inspected with camera on 11/5/07.
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Clear. Can see bottom.
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1" sediment.
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>46) Yard Drain 6A (YD #6A)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition.
<i>b) Sediment Within Inlet</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Basin deeper than 6' pole.
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.

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<b>47) Yard Drain 6B (YD #6B)</b>					
a) General Condition of Inlet	■	□	■	□	100% covered by leaf litter. Promptly removed.
b) Sediment Within Inlet	■	□	■	□	Basin deeper than 6' pole.
c) Obstructions at Pipe Inlets or Outlets	■	□	■	□	None.
<b>48) Yard Drain 7C (YD #7C)</b>					
a) General Condition of Inlet	■	□	■	□	Vegetative growth and leaves noted around entrance. Promptly removed.
b) Sediment Within Inlet	■	□	■	□	None.
c) Obstructions at Pipe Inlets or Outlets	■	□	■	□	None.
<b>49) Yard Drain 11 (YD #11)</b>					
a) General Condition of Inlet	■	□	■	□	Generally in good condition. Water flowing clear and unobstructed.
b) Sediment Within Inlet	■	□	■	□	None.
c) Obstructions at Pipe Inlets or Outlets	■	□	■	□	None.
<b>50) Yard Drain 11A (YD #11A)</b>					
a) General Condition of Inlet	■	□	■	□	Trash over grate promptly removed.
b) Sediment Within Inlet	■	□	■	□	None.
c) Obstructions at Pipe Inlets or Outlets	■	□	■	□	None.
<b>51) Yard Drain 13 (YD #13)</b>					
a) General Condition of Inlet	■	□	■	□	None.
b) Sediment Within Inlet	■	□	■	□	None.
c) Obstructions at Pipe Inlets or Outlets	■	□	■	□	None.
<b>GAS VENT FEATURES</b>					
<b>52) Gas Vent *L</b>					
a) Condition of Riser and Top Section	■	□	■	□	Generally in good condition.
b) Condition of Screen	■	□	■	□	Screen present and gate locked.
<b>53) Gas Vent *M</b>					
a) Condition of Riser and Top Section	■	□	■	□	Generally in good condition.
b) Condition of Screen	■	□	■	□	Brush cleared, locked, screen over vent. Significantly needs to be maintained yearly.
<b>54) Gas Vent *N</b>					
a) Condition of Riser and Top Section	■	□	■	□	Generally in good condition.
b) Condition of Screen	■	□	■	□	Screen present.

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<b>MONITORING WELL FEATURES</b>					
<b>55) 8MW1</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Minor sediment and shells on concrete. Cracks sealed.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock noted, rubber cap over tubing. Dedicated sampling equipment.
<b>56) 8MW2S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concrete and road box are in good condition.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Repaired.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock noted, rubber cap over tubing. Dedicated sampling equipment.
<b>57) 8MW2D</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concrete and road box are in good condition. New pad.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock noted, rubber cap over tubing. Dedicated sampling equipment.
<b>58) 8MW3</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock noted, rubber cap over tubing. Dedicated sampling equipment.
<b>59) 8MW4</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Abandoned in December 2007.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>60) 8MW5S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concrete is in acceptable condition.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Bolt has been replaced, and road box has been repaired.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock noted, rubber cap over tubing. Dedicated sampling equipment.
<b>61) 8MW6S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Under mining of concrete pad has been repaired.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock noted, rubber cap over tubing. Dedicated sampling equipment.
<b>62) 8MW6D</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concrete and road box are in good condition.
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock noted, rubber cap over tubing. Dedicated sampling equipment.

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<b>63) 8MW7S</b>					
<i>a) Condition of Surface Surrounding Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concrete is in acceptable condition.
<i>b) Condition of Flush Mount Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>c) Condition of Well Lock</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock noted, rubber cap over tubing. Dedicated sampling equipment. Locks not needed for dedicated wells.
<b>64) 8MW8S</b>					Abandoned in December 2007.
<i>a) Condition of Protective Casing</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<i>b) Condition of Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<i>c) Condition of Well Lock</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<i>d) Condition of Well Protection - Bollards</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>65) 8MW8D</b>					
<i>a) Condition of Protective Casing</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good. This is a flush mount well, not stick up.
<i>b) Condition of Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Condition of Well Lock</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock noted, rubber cap over tubing. Dedicated sampling equipment.
<i>d) Condition of Well Protection - Bollards</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None installed.
<b>66) 8MW9S</b>					
<i>a) Condition of Surface Surrounding Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>b) Condition of Flush Mount Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Condition of Well Lock</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>67) 8MW10S</b>					
<i>a) Condition of Surface Surrounding Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Well brought to grade.
<i>b) Condition of Flush Mount Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Leaves covering hole.
<i>c) Condition of Well Lock</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock noted, rubber cap over tubing. Dedicated sampling equipment.
<b>68) HNUS-23 (Tank Farm)</b>					
<i>a) Condition of Surface Surrounding Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No concrete around cover.
<i>b) Condition of Flush Mount Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Condition of Well Lock</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock noted, rubber cap over tubing. Dedicated sampling equipment.

INSPECTION CHECKLIST  
SITE 8 - GOSS COVE LANDFILL  
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Adequacy of O&M at Site:

Overall, O&M practices at the site are sufficient. Current practices should be sufficient to maintain the effectiveness of the remedy.

Notes:

Impact in fence by Light Pole 11. Likely due to dumpster or other heavy equipment.

Sediment vacuumed out of Catch Basins in May 2007.

Four Catch Basins checked for pipework on 11/5/07. EPA concerned about settlement of Catch Basins.

Note: Locks are on well plugs, but wells that are routinely sampled have dedicated tubing and pumps down the well that do not allow locking.

Deficiencies/Items Requiring Corrections:

Repair top guide and fence ties on fence by Light Pole 11. Can be repaired during next routine O&M activities. This area has typical snow piles during the winter months.

HNUS-23 is missing one bolt and the other is sticking up. Replace.

Vegetation growing inside Yard Drain 7C. Remove during routine maintenance activities.

Courtney D. Moore, Jr., P.E.  
Printed Name of Inspector

 1/22/08  
Signature of Inspector Date

Certification Statement:

I hereby certify that a complete and thorough inspection and evaluation of the site and implemented remedy has been performed, and that the items noted on this inspection form have been assessed with respect to the intent of the implemented remedy and the remedial action objectives established for the site.

Printed Name of O&M Engineer

Richard D. Conant

Printed Name of NSB-NLON IRP Manager

Signature of O&M Engineer / Date

 2/26/08  
Signature of NSB-NLON IRP Manager / Date

Provide additional notes or sketch as needed:

See attached sketch

**INSPECTION CHECKLIST  
SITE 8 - GOSS COVE LANDFILL  
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SITE NAME: Site 8 - Goss Cove Landfill (OU5)  
 EPA ID: CTD980906515  
 SITE LOCATION: New London County, CT  
 EPA REGION: Region 1  
 REMEDY AT SITE: Landfill Cover, Institutional Control, Monitoring  
 REVISION: 00

Date: August 26, 2008 Brian P. Waehler, P.E./ Nobis Engineering, Inc.  
 INSPECTOR/COMPANY

WEATHER CONDITIONS: Temperature: 65°F  
 Weather: Clear sky, breeze  
 Other: NA

TYPE OF INSPECTION:  
 Annual Inspection  
 Post-Major Weather Event Inspection  
 Re-Inspection of Deficient Items  
 Other \_\_\_\_\_

AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>INSTITUTIONAL CONTROLS</b>					
<b>1) Security Fencing, Gates and Signs</b>					
a) Fence at West Limit (P&W RR)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Fence at Northern Limit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Fence at Northeast Limit at Bedrock Outcrop	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Fence bent near Light Pole #9, possibly due to snow load.
d) Fence at East Limit Near Main Entrance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
e) Fence at South Limit at Sewage Pump Station	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
f) Fence at South Gas Vents at Nautilus Access Pier	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
g) Fence at Gas Vents at East Limits	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Tree growing near fence near Gas Vent *L - monitor future growth.
h) Locked Entrance or Secure Access	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Electric fence installed at main entrance.
i) Man Gate Near Lt. Pole #12	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
j) Man Gate Near Lt. Pole #G	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Removed. No longer there.
k) No Trespassing and Security Signs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Main gate: "No Trespassing" sign. Rock outcrop: multiple "No Rock Climbing" signs, one tilted.
l) Indications of Vandalism or Trespassing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>LANDSCAPING FEATURES</b>					
<b>2) Concrete Pavers</b>					
a) General Condition of Pavers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
b) Level or Designed Slope within Paver Surface	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Standing Water - other than above (a)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>3) Concrete Curbing (Traffic Areas)</b>					
a) General Conditions of Curbing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
b) Indication of Cracked Curbing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
c) Indication of Dislodged Curbing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
d) Indication of Heaved Curbing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>4) Granite Curbing (Exhibit and Paver Areas)</b>					
<i>a) General Conditions of Curbing</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
<i>b) Indication of Cracked Curbing</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Indication of Dislodged Curbing</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>d) Indication of Heaved Curbing</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>5) Concrete Sidewalks</b>					
<i>a) General Conditions of Sidewalks</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>b) Indication of Cracked Sidewalks</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Indication of Dislodged Sidewalks</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>d) Indication of Heaved Sidewalks</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>6) Submarine Displays (Four Total)</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>7) Trailer Foundation (Maintenance Bldg)</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>8) Missile Hatch Display</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>9) Gun Display</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>d) Center Island Flagpoles (Poles A, B, and C)</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Nobis suggests deleting this line as it does not apply. See notes to flagpoles A,B,C.
<i>e) Retaining Wall on West Side</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No retaining wall on west side. Suggest deleting this line.
<b>10) Retaining Wall on East Side</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>11) Flagpole *A</b>					
<i>a) General Condition of Flagpole</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>b) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>d) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
					None.
<b>12) Flagpole *B</b>					
<i>a) General Condition of Flagpole</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>b) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK.
<i>d) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>13) Flagpole *C</b>					
<i>a) General Condition of Flagpole</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>b) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>d) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>14) Flagpole *D</b>					
<i>a) General Condition of Flagpole</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok, but bent near base.
<i>b) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>d) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>15) Flagpole *E</b>					
<i>a) General Condition of Flagpole</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>b) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Covered in grass.
<i>c) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ok.
<i>d) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>16) Flagpole *F</b>					
<i>a) General Condition of Flagpole</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Bent near base.
<i>b) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>d) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>17) Picnic Area</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>18) Dumpster Pad</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>19) Light Pole #2</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>20) Light Pole #6</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>21) Light Pole #7</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	All bolt covers missing.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>22) Light Pole #8</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Covered by landscaping.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>23) Light Pole #9</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good. Bolt cover missing.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>24) Light Pole #10</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>25) Light Pole #11</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Conduit visible.

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>26) Light Pole #12</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good. Bolt cover missing.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>27) Light Pole #14</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good. Bolt cover missing.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>28) Light Pole #G</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>29) Light Pole #H</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>30) Light Pole #I</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good. Bolt covers missing.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>31) Light Pole #K</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good. Vegetation growing over concrete footing.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>32) Light Pole #S</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>33) Irrigation System</b>					
<i>a) Conditions of Sprinkler Heads</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
<i>b) System Operation</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
<i>c) Condition of Pump and Controls</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Unknown.

**INSPECTION CHECKLIST  
SITE 8 - GOSS COVE LANDFILL  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>34) Asphalt Surface Cap</b>					
<i>a) General Condition of Asphalt Pavement</i>	■	□	■	□	General condition is good. Cracks sealed.
<i>b) Level or Designed Slope Within Pavement</i>	■	□	■	□	OK.
<i>c) Cracks in Pavement</i>	■	□	■	□	None.
<i>d) Erosion in Pavement or Adjacent Areas</i>	■	□	■	□	None.
<i>e) Holes/Penetrations in Asphalt Surface</i>	■	□	■	□	None.
<i>f) Bulges in Asphalt Surface</i>	■	□	■	□	None.
<i>g) Standing Water - other than above (b)</i>	■	□	■	□	None.
<i>h) Stability of Slopes and Adjacent Areas</i>	■	□	■	□	OK.
<i>i) Groundwater Monitoring Well Penetration</i>	■	□	■	□	None.
<i>j) Damage to Pavement Caused by Use</i>	■	□	■	□	None.
<i>k) Exposed Cap Components</i>	■	□	■	□	None.
<b>35) Grass Surface Cap</b>					
<i>a) General Condition of Vegetation</i>	■	□	■	□	Good.
<i>b) Level or Designed Slope Within Grass Area</i>	■	□	■	□	None.
<i>c) Erosion in Vegetation or Adjacent Areas</i>	■	□	■	□	None.
<i>d) Standing Water - other than above (b)</i>	■	□	■	□	None.
<i>e) Stability of Slopes and Adjacent Areas</i>	■	□	■	□	None.
<i>f) Groundwater Monitoring Well Penetration</i>	■	□	■	□	No settlement around wells in grass.
<i>g) Damage to Pavement Caused by Museum Use</i>	■	□	■	□	None.
<i>h) Exposed Cap Components</i>	■	□	■	□	None.
<b>STORM WATER FEATURES</b>					
<b>36) Box Culvert (Road to River)</b>					* Not inspected by Nobis.
<i>a) Condition of Lower Junction Box - Exterior</i>	■	□	□	□	No access. Inland Waters completed inspection of box culvert. Completed on 11/5/07. Take photo.
<i>b) Condition of Lower Junction Box - Interior</i>	□	□	□	□	None. 2 manholes noted but not found (~10' apart) from ground surface.
<i>c) Condition of Box Culvert - Interior Sections</i>	□	□	□	□	None.
<i>d) Condition of Outfall</i>	■	□	■	□	2" of water in outlet.
<b>37) Catch Basin 1 (CB 1)</b>					
<i>a) General Condition of Inlet</i>	■	□	■	□	Good.
<i>b) Sediment Within Inlet</i>	■	□	■	□	4" sediment.
<i>c) Obstructions at Pipe Inlets or Outlets</i>	■	□	■	□	None.
<b>38) Catch Basin 2 (CB 2)</b>					
<i>a) General Condition of Inlet</i>	■	□	■	□	Good.
<i>b) Sediment Within Inlet</i>	■	□	■	□	4" sediment.
<i>c) Obstructions at Pipe Inlets or Outlets</i>	■	□	■	□	None.

**INSPECTION CHECKLIST**  
**SITE 8 - GOSS COVE LANDFILL**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>39) Catch Basin 3 (CB 3)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition.
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1" sediment.
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>40) Catch Basin 4 (CB 4)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition.
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>41) Catch Basin 5 (CB 5)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition.
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1" sediment.
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>42) Catch Basin 7A (CB 7A)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition.
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1" sediment.
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sediment in pipe.
<b>43) Catch Basin 7B (CB 7B)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition.
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1" sediment.
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sediment in pipe.
<b>44) Catch Basin 8 (CB 8)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition.
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5" of sediment.
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>45) Catch Basin 9 (CB 9)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition.
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1" sediment.
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>46) Yard Drain 6A (YD #6A)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition.
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No sediment.
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.

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SITE 8 - GOSS COVE LANDFILL  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>47) Yard Drain 6B (YD #6B)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition.
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No sediment.
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>48) Yard Drain 7C (YD #7C)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition.
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>49) Yard Drain 11 (YD #11)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition.
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>50) Yard Drain 11A (YD #11A)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition.
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>51) Yard Drain 13 (YD #13)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<b>GAS VENT FEATURES</b>					
<b>52) Gas Vent *L</b>					
<i>a) Condition of Riser and Top Section</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition.
<i>b) Condition of Screen</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Screen present and gate locked.
<b>53) Gas Vent *M</b>					
<i>a) Condition of Riser and Top Section</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition.
<i>b) Condition of Screen</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Small amounts of vegetation present around vent - O&M ongoing. Gate locked.
<b>54) Gas Vent *N</b>					
<i>a) Condition of Riser and Top Section</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition.
<i>b) Condition of Screen</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Screen present.

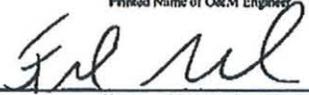
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>MONITORING WELL FEATURES</b>					
<b>55) 8MW1</b>					
a) Condition of Surface Surrounding Well Cover	■	□	■	□	Previously-sealed cracks are still sealed. Otherwise good condition.
b) Condition of Flush Mount Well Cover	■	□	■	□	None.
c) Condition of Well Lock	□	■	□	□	No lock noted, rubber cap over tubing. Dedicated sampling equipment.
<b>56) 8MW2S</b>					
a) Condition of Surface Surrounding Well Cover	■	□	■	□	Concrete and road box are in good condition.
b) Condition of Flush Mount Well Cover	■	□	■	□	None.
c) Condition of Well Lock	□	■	□	□	No lock noted, rubber cap over tubing. Dedicated sampling equipment.
<b>57) 8MW2D</b>					
a) Condition of Surface Surrounding Well Cover	■	□	■	□	Concrete and road box are in good condition.
b) Condition of Flush Mount Well Cover	■	□	■	□	None.
c) Condition of Well Lock	□	■	□	□	No lock noted, rubber cap over tubing. Dedicated sampling equipment.
<b>58) 8MW3</b>					
a) Condition of Surface Surrounding Well Cover	■	□	■	□	Previously-sealed cracks are still sealed. Otherwise good condition.
b) Condition of Flush Mount Well Cover	■	□	■	□	None.
c) Condition of Well Lock	□	■	□	□	No lock noted, rubber cap over tubing. Dedicated sampling equipment.
<b>59) 8MW4</b>					
a) Condition of Surface Surrounding Well Cover	■	□	■	□	Abandoned in December 2007.
b) Condition of Flush Mount Well Cover	■	□	■	□	
c) Condition of Well Lock	□	■	□	□	
<b>60) 8MW5S</b>					
a) Condition of Surface Surrounding Well Cover	■	□	■	□	Concrete and road box are in good condition.
b) Condition of Flush Mount Well Cover	■	□	■	□	None.
c) Condition of Well Lock	□	■	□	□	No lock noted, rubber cap over tubing. Dedicated sampling equipment.
<b>61) 8MW6S</b>					
a) Condition of Surface Surrounding Well Cover	■	□	■	□	Good condition.
b) Condition of Flush Mount Well Cover	■	□	■	□	Good.
c) Condition of Well Lock	□	■	□	□	No lock noted, rubber cap over tubing. Dedicated sampling equipment.
<b>62) 8MW6D</b>					
a) Condition of Surface Surrounding Well Cover	■	□	■	□	Concrete and road box are in good condition.
b) Condition of Flush Mount Well Cover	■	□	■	□	Good.
c) Condition of Well Lock	□	■	□	□	No lock noted, rubber cap over tubing. Dedicated sampling equipment.

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>63) 8MW7S</b>					
<i>a) Condition of Surface Surrounding Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concrete is in acceptable condition.
<i>b) Condition of Flush Mount Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>c) Condition of Well Lock</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No lock noted, rubber cap over tubing. Dedicated sampling equipment. Locks not needed for dedicated wells.
<b>64) 8MW8S</b>					Abandoned in December 2007.
<i>a) Condition of Protective Casing</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<i>b) Condition of Well Cover</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>c) Condition of Well Lock</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>d) Condition of Well Protection - Bollards</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>65) 8MW8D</b>					
<i>a) Condition of Protective Casing</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good. This is a flush mount well, not stick up.
<i>b) Condition of Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Condition of Well Lock</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No lock noted, rubber cap over tubing. Dedicated sampling equipment.
<i>d) Condition of Well Protection - Bollards</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None installed.
<b>66) 8MW9S</b>					
<i>a) Condition of Surface Surrounding Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Condition unknown, unable to locate..
<i>b) Condition of Flush Mount Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Condition of Well Lock</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None.
<b>67) 8MW10S</b>					
<i>a) Condition of Surface Surrounding Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concrete in acceptable condition.
<i>b) Condition of Flush Mount Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None.
<i>c) Condition of Well Lock</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No lock noted, rubber cap over tubing. Dedicated sampling equipment.
<b>68) HNUS-23 (Tank Farm)</b>					
<i>a) Condition of Surface Surrounding Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No concrete around cover.
<i>b) Condition of Flush Mount Well Cover</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good.
<i>c) Condition of Well Lock</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No lock noted, rubber cap over tubing. Dedicated sampling equipment.

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<b>Adequacy of O&amp;M at Site:</b> Overall, O&M practices at the site are sufficient. Current practices should be sufficient to maintain the effectiveness of the remedy.	
<b>Notes:</b> Fence bent by Light Pole #9, possibly due to snow load. Note: Locks are on well plugs, but wells that are routinely sampled have dedicated tubing and pumps down the well that do not allow locking.	
<b>Deficiencies/Items Requiring Corrections:</b> Repair fence by Light Pole #9. This area should be checked annually after spring snow melt.	
<u>Brian P. Waehler, P.E.</u> Printed Name of Inspector	 5/20/09 Signature of Inspector / Date
<b>Certification Statement:</b> I hereby certify that a complete and thorough inspection and evaluation of the site and implemented remedy has been performed, and that the items noted on this inspection form have been assessed with respect to the intent of the implemented remedy and the remedial action objectives established for the site.	
<u>Fred Santos</u> Printed Name of O&M Engineer	<u>Richard O. Conant Jr</u> Printed Name of NSB-NLON IRP Manager
 5/20/09 Signature of O&M Engineer / Date	 5/20/09 Signature of NSB-NLON IRP Manager / Date

Provide additional notes or sketch as needed:

See attached sketch

**Naval Submarine Base - New London, Groton, CT  
Goss Cove Landfill Annual Inspection - Deficiency Log  
August 2008**

No.	Item	Deficiency	Recommended Action
1	Fence	Bent fence near Light Pole No. 9, possibly due to snow load.	Repair fence and inspect for damage every spring after snow melt, and repair as needed.
2	Drainage Line	Sediment accumulation in drainage line between CB-7A and CB-7B	<p>Sediment should be removed and line should be flushed as needed to prevent future accumulation.</p> <p>The Navy agrees to remove accumulated sediment between CB-07A and CB-07B before the next video inspection.</p>
3	Drainage Line	Cracks in drainage line between CB-1 and CB-2	<p>Drainage line should be inspected annually to monitor the condition of the cracks.</p> <p>The Navy will also perform an additional inspection of the drainage line cracks between CB-1 and CB-2. Based on the results of the next video inspection, a periodic inspection schedule will be established.</p>

**INSPECTION CHECKLIST**  
**SITE 8 - GOSS COVE LANDFILL**  
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**SITE NAME:** Site 8 - Goss Cove Landfill (OU5)  
**EPA ID:** CTD980906515  
**SITE LOCATION:** New London County, CT  
**EPA REGION:** Region 1  
**REMEDY AT SITE:** Landfill Cover, Institutional Control, Monitoring

**Inspection Date:** August 18, 2009

**INSPECTOR/COMPANY:** Willard A. Murray / ECC

Temperature: 85°F  
 Weather: Clear and hot  
 Other: \_\_\_\_\_

**WEATHER CONDITIONS:**

**TYPE OF INSPECTION:**

- Annual Inspection
- Post-Major Weather Event Inspection
- Re-Inspection of Deficient Items
- Other \_\_\_\_\_

AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>INSTITUTIONAL CONTROLS</b>					
<b>1) Security Fencing, Gates and Signs</b>					
a) Fence at West Limit (P&W RR)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
b) Fence at Northern Limit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
c) Fence at Northeast Limit at Bedrock Outcrop	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	The slightly bent fence near Light Pole #9 is fully functional and does not need repair.
d) Fence at East Limit Near Main Entrance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
e) Fence at South Limit at Sewage Dump Station	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
f) Fence at South Gas Vents at Nautilus Access Pier	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
g) Fence at Gas Vents at East Limits	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Continue monitoring tree growing near fence
h) Locked Entrance or Secure Access	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
i) Man Gate Near Lt. Pole #12	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
j) Man Gate Near Lt. Pole #G	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Gate removed, no longer there
k) No Trespassing and Security Signs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
l) Indications of Vandalism or Trespassing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>LANDSCAPING FEATURES</b>					
<b>2) Concrete Pavers</b>					
a) General Condition of Pavers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Level or Designed Slope within Paver Surface	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
c) Standing Water - other than above (a)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>3) Concrete Curbing (Traffic Areas)</b>					
a) General Conditions of Curbing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	A few short curbing sections are badly spalled
b) Indication of Cracked Curbing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
c) Indication of Dislodged Curbing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
d) Indication of Heaved Curbing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>4) Granite Curbing (Exhibit and Paver Areas)</b>					
a) <i>General Conditions of Curbing</i>	■	□	■	□	Good
b) <i>Indication of Cracked Curbing</i>	■	□	■	□	None
c) <i>Indication of Dislodged Curbing</i>	■	□	■	□	None
d) <i>Indication of Heaved Curbing</i>	■	□	■	□	None
<b>5) Concrete Sidewalks</b>					
a) <i>General Conditions of Sidewalks</i>	■	□	■	□	Good
b) <i>Indication of Cracked Sidewalks</i>	■	□	■	□	None
c) <i>Indication of Dislodged Sidewalks</i>	■	□	■	□	None
d) <i>Indication of Heaved Sidewalks</i>	■	□	■	□	None
<b>6) Submarine Displays (Four Total)</b>					
a) <i>Conditions of Foundation Support</i>	■	□	■	□	Good
b) <i>Interface at Ground Surface and Foundations</i>	■	□	■	□	None
c) <i>Observation of Exposed Cap Components</i>	■	□	■	□	None
<b>7) Trailer Foundation (Maintenance Bldg)</b>					
a) <i>Conditions of Foundation Support</i>	■	□	■	□	Good
b) <i>Interface at Ground Surface and Foundations</i>	■	□	■	□	Good
c) <i>Observation of Exposed Cap Components</i>	■	□	■	□	None
<b>8) Missile Hatch Display</b>					
a) <i>Conditions of Foundation Support</i>	■	□	■	□	Good
b) <i>Interface at Ground Surface and Foundations</i>	■	□	■	□	Good
c) <i>Observation of Exposed Cap Components</i>	■	□	■	□	None
<b>9) Gun Display</b>					
a) <i>Conditions of Foundation Support</i>	■	□	■	□	Good
b) <i>Interface at Ground Surface and Foundations</i>	■	□	■	□	Good
c) <i>Observation of Exposed Cap Components</i>	■	□	■	□	None
d) <i>Center Island Flagpoles (Poles A, B, and C)</i>	■	□	■	□	Line is Not Applicable as flag poles have separate sections herein, suggest delete this line
e) <i>Retaining Wall on West Side</i>	■	□	■	□	No retaining wall observed
<b>10) Retaining Well on East Side</b>					
a) <i>Conditions of Foundation Support</i>	■	□	■	□	Good
b) <i>Interface at Ground Surface and Foundations</i>	■	□	■	□	Good
c) <i>Observation of Exposed Cap Components</i>	■	□	■	□	None

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>11) Flagpole *A</b>					
<i>a) General Condition of Flagpole</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>c) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
<i>d) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>12) Flagpole *B</b>					
<i>a) General Condition of Flagpole</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>c) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
<i>d) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>13) Flagpole *C</b>					
<i>a) General Condition of Flagpole</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>c) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
<i>d) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>14) Flagpole *D</b>					
<i>a) General Condition of Flagpole</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, small dent near base
<i>b) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>c) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK, flagpole on concrete retaining wall
<i>d) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>15) Flagpole *E</b>					
<i>a) General Condition of Flagpole</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>c) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK, flagpole on concrete retaining wall
<i>d) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>16) Flagpole *F</b>					
<i>a) General Condition of Flagpole</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, small dent near base
<i>b) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>c) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK, flagpole on concrete retaining wall
<i>d) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>17) Picnic Area</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>18) Dumpster Pad</b>					
a) Conditions of Foundation Support	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Interface at Ground Surface and Foundations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Observation of Exposed Cap Components	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>19) Light Pole #2</b>					
a) Conditions of Foundation Support	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, no bolt covers but designed that way
b) Interface at Ground Surface and Foundations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Observation of Exposed Cap Components	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>20) Light Pole #6</b>					
a) Conditions of Foundation Support	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Interface at Ground Surface and Foundations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Observation of Exposed Cap Components	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>21) Light Pole #7</b>					
a) Conditions of Foundation Support	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, all 4 bolt covers missing
b) Interface at Ground Surface and Foundations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Observation of Exposed Cap Components	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>22) Light Pole #8</b>					
a) Conditions of Foundation Support	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Interface at Ground Surface and Foundations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Observation of Exposed Cap Components	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>23) Light Pole #9</b>					
a) Conditions of Foundation Support	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, one bolt cover missing
b) Interface at Ground Surface and Foundations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Observation of Exposed Cap Components	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>24) Light Pole #10</b>					
a) Conditions of Foundation Support	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Interface at Ground Surface and Foundations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Observation of Exposed Cap Components	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>25) Light Pole #11</b>					
a) Conditions of Foundation Support	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Interface at Ground Surface and Foundations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Observation of Exposed Cap Components	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Conduit visible

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>26) Light Pole #12</b>					
a) Conditions of Foundation Support	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, all bolt covers in place
b) Interface at Ground Surface and Foundations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Observation of Exposed Cap Components	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>27) Light Pole #14</b>					
a) Conditions of Foundation Support	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, all bolt covers in place
b) Interface at Ground Surface and Foundations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Observation of Exposed Cap Components	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>28) Light Pole #G</b>					
a) Conditions of Foundation Support	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Interface at Ground Surface and Foundations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Observation of Exposed Cap Components	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>29) Light Pole #H</b>					
a) Conditions of Foundation Support	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Interface at Ground Surface and Foundations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Observation of Exposed Cap Components	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>30) Light Pole #I</b>					
a) Conditions of Foundation Support	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, 2 of 4 bolt covers missing
b) Interface at Ground Surface and Foundations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Observation of Exposed Cap Components	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>31) Light Pole #K</b>					
a) Conditions of Foundation Support	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, all 4 bolt covers missing
b) Interface at Ground Surface and Foundations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Observation of Exposed Cap Components	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>32) Light Pole #S</b>					
a) Conditions of Foundation Support	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Interface at Ground Surface and Foundations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Observation of Exposed Cap Components	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>33) Irrigation System</b>					ECC observed sprinklers operating in July 2009.
a) Conditions of Sprinkler Heads	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Appear OK
b) System Operation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Appears OK
c) Condition of Pump and Controls	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Appear OK

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>34) Asphalt Surface Cap</b>					
a) General Condition of Asphalt Pavement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Generally good, minor cracks developing-north end, cracks extending beyond old patch in places
b) Level or Designed Slope Within Pavement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Cracks in Pavement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See a) above
d) Erosion in Pavement or Adjacent Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
e) Holes/Penetrations in Asphalt Surface	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
f) Bulges in Asphalt Surface	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
g) Standing Water - other than above (b)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
h) Stability of Slopes and Adjacent Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
i) Groundwater Monitoring Well Penetration	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
j) Damage to Pavement Caused by Use	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
k) Exposed Cap Components	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>35) Grass Surface Cap</b>					
a) General Condition of Vegetation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Level or Designed Slope Within Grass Area	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
c) Erosion in Vegetation or Adjacent Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
d) Standing Water - other than above (b)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
e) Stability of Slopes and Adjacent Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
f) Groundwater Monitoring Well Penetration	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
g) Damage to Pavement Caused by Museum Use	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
h) Exposed Cap Components	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>STORM WATER FEATURES</b>					
<b>36) Box Culvert (Road to River)</b>					
a) Condition of Lower Junction Box - Exterior	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See video inspection report
b) Condition of Lower Junction Box - Interior	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Not inspected - no access. Inland Waters completed video inspection 8/25/09
c) Condition of Box Culvert - Interior Sections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Not inspected - no access. Inland Waters completed video inspection 8/25/09
d) Condition of Outfall	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK - also see Inland Waters video inspection 8/25/09
<b>37) Catch Basin 1 (CB 1)</b>					
a) General Condition of Inlet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Sediment Within Inlet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6" sediment
c) Obstructions at Pipe Inlets or Outlets	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>38) Catch Basin 2 (CB 2)</b>					
a) General Condition of Inlet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Sediment Within Inlet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4" sediment
c) Obstructions at Pipe Inlets or Outlets	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None

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<b>39) Catch Basin 3 (CB 3)</b>					
a) <i>General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) <i>Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2" sediment
c) <i>Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>40) Catch Basin 4 (CB 4)</b>					
a) <i>General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) <i>Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1" sediment
c) <i>Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>41) Catch Basin 5 (CB 5)</b>					
a) <i>General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) <i>Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2" sediment
c) <i>Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>42) Catch Basin 7A (CB 7A)</b>					
a) <i>General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) <i>Sediment Within Inlet</i>	<input checked="" type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1" sediment
c) <i>Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>43) Catch Basin 7B (CB 7B)</b>					
a) <i>General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) <i>Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4" sediment
c) <i>Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>44) Catch Basin 8 (CB 8)</b>					
a) <i>General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) <i>Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4" sediment
c) <i>Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>45) Catch Basin 9 (CB 9)</b>					
a) <i>General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) <i>Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2" sediment
c) <i>Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>46) Yard Drain 6A (YD #6A)</b>					
a) <i>General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) <i>Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No sediment
c) <i>Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None

**INSPECTION CHECKLIST**  
**SITE 8 - GOSS COVE LANDFILL**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>47) Yard Drain 6B (YD #6B)</b>					
a) General Condition of Inlet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Sediment Within Inlet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No sediment
c) Obstructions at Pipe Inlets or Outlets	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>48) Yard Drain 7C (YD #7C)</b>					
a) General Condition of Inlet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Sediment Within Inlet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No sediment
c) Obstructions at Pipe Inlets or Outlets	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>49) Yard Drain 11 (YD #11)</b>					
a) General Condition of Inlet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Sediment Within Inlet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No sediment
c) Obstructions at Pipe Inlets or Outlets	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>50) Yard Drain 11A (YD #11A)</b>					
a) General Condition of Inlet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Sediment Within Inlet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No sediment
c) Obstructions at Pipe Inlets or Outlets	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>51) Yard Drain 13 (YD #13)</b>					
a) General Condition of Inlet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Sediment Within Inlet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	½" sediment
c) Obstructions at Pipe Inlets or Outlets	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>GAS VENTS</b>					
<b>52) Gas Vent *L</b>					
a) Condition of Riser and Top Section	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Fenced and locked Good
b) Condition of Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<b>53) Gas Vent *M</b>					
a) Condition of Riser and Top Section	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Fenced and locked Good
b) Condition of Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<b>54) Gas Vent *N</b>					
a) Condition of Riser and Top Section	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Not fenced Good
b) Condition of Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good

**INSPECTION CHECKLIST**  
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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>MONITORING WELLS</b>					
<b>55) 8MW1</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock, dedicated sampling equipment
<b>56) 8MW2S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock, dedicated sampling equipment
<b>57) 8MW2D</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock, dedicated sampling equipment
<b>58) 8MW3</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock, dedicated sampling equipment
<b>59) 8MW4</b>					
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Abandoned in 2007
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>60) 8MW5S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock, dedicated sampling equipment
<b>61) 8MW6S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock, dedicated sampling equipment
<b>62) 8MW6D</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock, dedicated sampling equipment

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>63) 8MW7S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock, dedicated sampling equipment
<b>64) 8MW8S</b>					Abandoned in 2007
a) Condition of Protective Casing	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>65) 8MW8D</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, this is a flush mount well - no stick-up
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock, dedicated sampling equipment
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No bollards exist
<b>66) 8MW9S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>67) 8MW10S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>68) HNUS-23 (Tank Farm)</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, well vault on right field foul line near outfield fence
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Good, bolts loose - need re-tapping
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock, dedicated sampling equipment

INSPECTION CHECKLIST  
SITE 8 - GOSS COVE LANDFILL  
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**Adequacy of O&M at Site:**

Overall, O&M practices at the site are sufficient.

**Notes:**

Minor cracks developing in pavement at north end need to be watched for resealing as needed.

**Deficiencies/Items Requiring Corrections:**

1. Bolt holes in well cover at HNUS-23 need to be re-tapped.
2. Crack extending beyond old seal patch needs to be sealed (see photos)

Willard A. Murray  
Printed Name of Inspector



18-Aug-09

Signature of Inspector / Date

**Certification Statement:**

I hereby certify that a complete and thorough inspection and evaluation of the site and implemented remedy has been performed, and that the items noted on this inspection form have been assessed with respect to the intent of the implemented remedy and the remedial action objectives established for the site.

Fred Santos  
Printed Name of O&M Engineer

Fred Santos  
2009.12.02 15:11:36 -05'00'

Signature of O&M Engineer / Date

Richard D. Conant  
Printed Name of NSB-NLON IRP Manager



12/2/09

Signature of NSB-NLON IRP Manager / Date

Provide additional notes or sketch as needed:

See attached figure.

**Naval Submarine Base - New London, Groton, CT  
Goss Cove Landfill Annual Inspection - Deficiency Log  
August 2009**

The following items were inspected at the Goss Cove Landfill during the annual landfill inspection in August 2009: Fence, gates, signs, asphalt cap and grass surfaces, box culvert, catch basins, yard drains, gas vents, monitoring wells, vegetation overgrowth, landscaping features, light and flag poles, outdoor submarine museum displays, dumpster pad and irrigation system. Inspection of these items resulted in the following deficiencies and recommended corrective actions as stated in the table below.

<b>No.</b>	<b>Item</b>	<b>Deficiency</b>	<b>Recommended Corrective Action</b>
1	Asphalt Cap System	Crack east of 8MW4 is extending from previously sealed portion.	Crack located east of 8MW4 should be sealed when parked cars are not covering the crack.  Crack sealing will occur during the Summer 2010. Crack sealing activity duration is approximately a half day.
2	Monitoring Wells	Bolts not secure at well cover for HNUS-23.	Bolt holes should be re-tapped in the well cover at monitoring well HNUS-23.  HNUS-23 well repair will occur in the Summer 2010. Duration for this activity is approximately a half day.

**INSPECTION CHECKLIST  
SITE 8 - GOSS COVE LANDFILL  
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SITE NAME: Site 8 - Goss Cove Landfill (OU5)  
 EPA ID: CTD980906515  
 SITE LOCATION: New London County, CT  
 EPA REGION: Region 1  
 REMEDY AT SITE: Landfill Cover, Institutional Control, Monitoring

Inspection Date: August 18, 2010

INSPECTOR/COMPANY: Ryan Hipp, H&S

WEATHER CONDITIONS:

Temperature: 85°F  
 Weather: Cloudy  
 Other: \_\_\_\_\_

TYPE OF INSPECTION:

- Annual Inspection  
 Post-Major Weather Event Inspection  
 Re-Inspection of Deficient Items  
 Other \_\_\_\_\_

AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>INSTITUTIONAL CONTROLS</b>					
<b>1) Security Fencing, Gates and Signs</b>					
a) Fence at West Limit (P&W RR)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
b) Fence at Northern Limit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
c) Fence at Northeast Limit at Bedrock Outcrop	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	The slightly bent fence near Light Pole #9 is fully functional and does not need repair.
d) Fence at East Limit Near Main Entrance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
e) Fence at South Limit at Sewage Dump Station	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
f) Fence at South Gas Vents at Nautilus Access Pier	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
g) Fence at Gas Vents at East Limits	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Continue monitoring tree growing near fence
h) Locked Entrance or Secure Access	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
i) Man Gate Near Lt. Pole #12	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
j) Man Gate Near Lt. Pole #G	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Gate removed, no longer there
k) No Trespassing and Security Signs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
l) Indications of Vandalism or Trespassing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>LANDSCAPING FEATURES</b>					
<b>2) Concrete Pavers</b>					
a) General Condition of Pavers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Level or Designed Slope within Paver Surface	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
c) Standing Water - other than above (a)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>3) Concrete Curbing (Traffic Areas)</b>					
a) General Conditions of Curbing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	A few curbing sections are badly spalled but does not have effect on cap function
b) Indication of Cracked Curbing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
c) Indication of Dislodged Curbing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
d) Indication of Heaved Curbing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>4) Granite Curbing (Exhibit and Paver Areas)</b>					
<i>a) General Conditions of Curbing</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Indication of Cracked Curbing</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<i>c) Indication of Dislodged Curbing</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<i>d) Indication of Heaved Curbing</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>5) Concrete Sidewalks</b>					
<i>a) General Conditions of Sidewalks</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Indication of Cracked Sidewalks</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<i>c) Indication of Dislodged Sidewalks</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<i>d) Indication of Heaved Sidewalks</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>6) Submarine Displays (Four Total)</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>7) Trailer Foundation (Maintenance Bldg)</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>8) Missile Hatch Display</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>9) Gun Display</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good. Some small pieces of pavers loose around edge.
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<i>d) Center Island Flagpoles (Poles A, B, and C)</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Line is Not Applicable as flag poles have separate sections herein, suggest delete this line
<i>e) Retaining Wall on West Side</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No retaining wall observed
<b>10) Retaining Well on East Side</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>c) Observsation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>11) Flagpole *A</b>					
<i>a) General Condition of Flagpole</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>c) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
<i>d) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>12) Flagpole *B</b>					
<i>a) General Condition of Flagpole</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>c) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
<i>d) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>13) Flagpole *C</b>					
<i>a) General Condition of Flagpole</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>c) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
<i>d) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>14) Flagpole *D</b>					
<i>a) General Condition of Flagpole</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, several dents extending about 4 feet up pole.
<i>b) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>c) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK, flagpole on concrete retaining wall
<i>d) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>15) Flagpole *E</b>					
<i>a) General Condition of Flagpole</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>c) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK, flagpole on concrete retaining wall
<i>d) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>16) Flagpole *F</b>					
<i>a) General Condition of Flagpole</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, several dents extending about 4 feet up pole
<i>b) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>c) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK, flagpole on concrete retaining wall
<i>d) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>17) Picnic Area</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>18) Dumpster Pad</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>19) Light Pole #2</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, no bolt covers but designed that way
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>20) Light Pole #6</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>21) Light Pole #7</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, all 4 bolt covers missing
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>22) Light Pole #8</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>23) Light Pole #9</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, one bolt cover missing
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>24) Light Pole #10</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>25) Light Pole #11</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Conduit visible

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>26) Light Pole #12</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, all bolt covers in place
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>27) Light Pole #14</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, all bolt covers in place
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>28) Light Pole #G</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>29) Light Pole #H</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>30) Light Pole #I</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, 2 of 4 bolt covers missing
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>31) Light Pole #K</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, all 4 bolt covers missing
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>32) Light Pole #S</b>					
<i>a) Conditions of Foundation Support</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Interface at Ground Surface and Foundations</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>c) Observation of Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>33) Irrigation System</b>					
<i>a) Conditions of Sprinkler Heads</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Irrigation system operation not observed during inspection
<i>b) System Operation</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Appears OK
<i>c) Condition of Pump and Controls</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Appears OK

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AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>34) Asphalt Surface Cap</b>					
<i>a) General Condition of Asphalt Pavement</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally good, minor cracks developing, cracks extending beyond old patch in places. Previous repairs seem to be holding.
<i>b) Level or Designed Slope Within Pavement</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
<i>c) Cracks in Pavement</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See a) above
<i>d) Erosion in Pavement or Adjacent Areas</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<i>e) Holes/Penetrations in Asphalt Surface</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<i>f) Bulges in Asphalt Surface</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<i>g) Standing Water - other than above (b)</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<i>h) Stability of Slopes and Adjacent Areas</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
<i>i) Groundwater Monitoring Well Penetration</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<i>j) Damage to Pavement Caused by Use</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<i>k) Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>35) Grass Surface Cap</b>					
<i>a) General Condition of Vegetation</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Level or Designed Slope Within Grass Area</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK
<i>c) Erosion in Vegetation or Adjacent Areas</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<i>d) Standing Water - other than above (b)</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<i>e) Stability of Slopes and Adjacent Areas</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<i>f) Groundwater Monitoring Well Penetration</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<i>g) Damage to Pavement Caused by Museum Use</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<i>h) Exposed Cap Components</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>STORM WATER FEATURES</b>					
<b>36) Box Culvert (Road to River)</b>					
<i>a) Condition of Lower Junction Box - Exterior</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Not inspected - no access.
<i>b) Condition of Lower Junction Box - Interior</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Not inspected - no access.
<i>c) Condition of Box Culvert - Interior Sections</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Not inspected - no access.
<i>d) Condition of Outfall</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Viewed from pier and looked ok.
<b>37) Catch Basin 1 (CB 1)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4" sediment
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>38) Catch Basin 2 (CB 2)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4" sediment
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None

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<b>39) Catch Basin 3 (CB 3)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3" sediment
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>40) Catch Basin 4 (CB 4)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1" sediment
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>41) Catch Basin 5 (CB 5)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4" sediment
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>42) Catch Basin 7A (CB 7A)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1" sediment
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>43) Catch Basin 7B (CB 7B)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1/2" sediment
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>44) Catch Basin 8 (CB 8)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5" sediment
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>45) Catch Basin 9 (CB 9)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4" sediment
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>46) Yard Drain 6A (YD #6A)</b>					
<i>a) General Condition of Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<i>b) Sediment Within Inlet</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1/2" sediment
<i>c) Obstructions at Pipe Inlets or Outlets</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None

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<b>47) Yard Drain 6B (YD #6B)</b>					
a) General Condition of Inlet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Sediment Within Inlet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No sediment
c) Obstructions at Pipe Inlets or Outlets	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>48) Yard Drain 7C (YD #7C)</b>					
a) General Condition of Inlet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Sediment Within Inlet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No sediment
c) Obstructions at Pipe Inlets or Outlets	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>49) Yard Drain 11 (YD #11)</b>					
a) General Condition of Inlet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Sediment Within Inlet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No sediment
c) Obstructions at Pipe Inlets or Outlets	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>50) Yard Drain 11A (YD #11A)</b>					
a) General Condition of Inlet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Sediment Within Inlet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1/2" sediment
c) Obstructions at Pipe Inlets or Outlets	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>51) Yard Drain 13 (YD #13)</b>					
a) General Condition of Inlet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Sediment Within Inlet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Grate stuck, unable to measure. Sediment not visible.
c) Obstructions at Pipe Inlets or Outlets	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>GAS VENTS</b>					
<b>52) Gas Vent *L</b>					
a) Condition of Riser and Top Section	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Fenced and locked Good
b) Condition of Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<b>53) Gas Vent *M</b>					
a) Condition of Riser and Top Section	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Fenced and locked Good
b) Condition of Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
<b>54) Gas Vent *N</b>					
a) Condition of Riser and Top Section	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Not fenced Good
b) Condition of Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good

**INSPECTION CHECKLIST  
SITE 8 - GOSS COVE LANDFILL  
Page 9 of 12**

AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>MONITORING WELLS</b>					
<b>55) 8MW1</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Bolt missing
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock, dedicated sampling equipment
<b>56) 8MW2S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Bolts missing
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock, dedicated sampling equipment
<b>57) 8MW2D</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	One bolt missing
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock, dedicated sampling equipment
<b>58) 8MW3</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock, dedicated sampling equipment
<b>59) 8MW4</b>					
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Abandoned in 2007
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>60) 8MW5S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Bent bolt in cap
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock, dedicated sampling equipment
<b>61) 8MW6S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock, dedicated sampling equipment
<b>62) 8MW6D</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No bolts
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock, dedicated sampling equipment

**INSPECTION CHECKLIST**  
**SITE 8 - GOSS COVE LANDFILL**  
Page 10 of 12

AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
<b>63) 8MW7S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock, dedicated sampling equipment
<b>64) 8MW8S</b>					Abandoned in 2007
a) Condition of Protective Casing	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Well Cover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>65) 8MW8D</b>					
a) Condition of Protective Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, this is a flush mount well - no stick-up
b) Condition of Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock, dedicated sampling equipment
d) Condition of Well Protection - Bollards	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No bollards exist
<b>66) 8MW9S</b>					No longer in monitoring program - not reviewed
a) Condition of Surface Surrounding Well Cover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Condition of Flush Mount Well Cover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Condition of Well Lock	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>67) 8MW10S</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
<b>68) HNUS-23 (Tank Farm)</b>					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Good, well vault on right field foul line near outfield fence
b) Condition of Flush Mount Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Good, bolts don't screw all of the way down. Cap secure.
c) Condition of Well Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No lock, dedicated sampling equipment

INSPECTION CHECKLIST  
SITE 8 - GOSS COVE LANDFILL  
Page 11 of 12

**Adequacy of O&M at Site:**

Overall, O&M practices at the site are sufficient.

**Notes:**

Lightpole #13 observed in parking lot but not included on list. Suggest adding.

**Deficiencies/Items Requiring Corrections:**

- 1) Bolt holes in well cover at HNUS-23 need to be looked at
- 2) Bolts missing at wells 8MW1, 8MW2S, 8MW2D, and 8MW6D

Ryan Hipp, EIT

Printed Name of Inspector

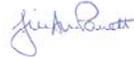


Signature of Inspector / Date

8/18/2010

Jill Ann Parrett, PG

Printed Name of Supervisor



Signature of Supervisor / Date

10/29/2010

**Certification Statement:**

I hereby certify that a complete and thorough inspection and evaluation of the site and implemented remedy has been performed, and that the items noted on this inspection form have been assessed with respect to the intent of the implemented remedy and the remedial action objectives established for the site.

Patrick Schauble, PE

Printed Name of O&M Engineer

Printed Name of NSBNL IRP Manager



10/29/2010

Signature of O&M Engineer / Date

Signature of NSBNL IRP Manager / Date

Provide additional notes or sketch as needed:

See attached figure.

**Naval Submarine Base - New London, Groton, CT  
Goss Cove Landfill Annual Inspection - Deficiency Log  
August 2010**

The following items were inspected at the Goss Cove Landfill during the annual landfill inspection in August 2010: Fence, gates, signs, asphalt cap and grass surfaces, box culvert, catch basins, yard drains, gas vents, monitoring wells, vegetation overgrowth, landscaping features, light and flag poles, outdoor submarine museum displays, dumpster pad and irrigation system. Inspection of these items resulted in the following deficiencies and recommended corrective actions as stated in the table below.

<b>No.</b>	<b>Item</b>	<b>Deficiency</b>	<b>Recommended Corrective Action</b>	<b>Actions Planned or Taken</b>
1	Monitoring Wells	Bolts not secure at well cover for HNUS-23.	Bolt holes should be cleaned out in the well cover at monitoring well HNUS-23.	The well has been repaired during maintenance activities occurring in October 2010.
2	Monitoring Wells	One or two bolts are missing from monitoring wells 8MW1, 8MW2S, 8MW2D, and 8MW6D	Bolts should be replaced.	Bolts were replaced during maintenance activities occurring in October 2010.

**APPENDIX B**

**FIVE-YEAR REVIEW SITE PHOTOGRAPHS**

SITE 2A – AREA A LANDFILL  
SIGN MISSING PUBLIC WORKS CONTACT INFORMATION  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITE 2A – AREA A LANDFILL  
SIGN AT SALT STORAGE AREA COVERED BY TREE  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITE 2A – AREA A LANDFILL  
BROKEN GATE AT THE SALT STORAGE AREA  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITE 2A – AREA A LANDFILL  
STORAGE OF EQUIPMENT AND MATERIALS IN NO LOADING ZONE; LOOKING NORTH  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITE 2A – AREA A LANDFILL  
TRASH ON NORTHERN EDGE OF CAP; LOOKING NORTHEAST  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITE 2A – AREA A LANDFILL  
DEBRIS PILE IN ADS CULVERT; LOOKING SOUTHEAST  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITE 2A – AREA A LANDFILL  
DEBRIS AND VEGETATION CLOGGING CHANNEL E; LOOKING SOUTH  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITE 2A – AREA A LANDFILL  
DEBRIS CLOGGING CHANNEL A; LOOKING WEST  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITE 2A – AREA A LANDFILL  
DEPRESSION IN ASPHALT ABOVE CULVERT 1  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITE 2A – AREA A LANDFILL  
LONGITUDINAL CRACK IN THE DEPLOYED PARKING AREA; LOOKING EAST  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITE 2A – AREA A LANDFILL  
TRASH AROUND GAS VENT 24; LOOKING EAST  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITE 2A – AREA A LANDFILL  
EQUIPMENT TOO CLOSE TO GAS VENT 14; LOOKING EAST  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITE 2A – AREA A LANDFILL  
SETTLING OF CONCRETE AROUND MONITORING WELL 2LMW18D  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITE 2A – AREA A LANDFILL  
DAMAGED MONITORING WELL 4MW1S  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITE 2B – AREA A WETLAND  
SUCCESSFUL REMOVAL OF PHRAGMITES; LOOKING NORTH  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITE 2B – AREA A WETLAND  
REMAINING PHRAGMITES TO BE CLEARED; LOOKING EAST  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33





SITE 3 – AREA A DOWNSTREAM WATERCOURSES/OBDA  
CONCRETE COVER OVER CONTAMINATED SOIL  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITE 6 – DRMO  
SIGN MISSING PUBLIC WORKS DEPARTMENT PHONE NUMBER  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITE 6 – DRMO  
IMPROPER BOAT STORAGE ON CAP  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITE 6 – DRMO  
LEAF LITTER ACCUMULATION IN DROP INLET  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITE 6 – DRMO  
DEBRIS IN PERIMETER CHANNEL ALONG EASTERN SIDE OF CAPPED AREA  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITE 6 – DRMO  
VIEW ALONG FENCELINE ON WESTERN SIDE OF CAP LOOKING NORTH  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITE 8 – GOSS COVE  
INCORRECT CONTACT INFORMATION ON SIGN  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITE 8 – GOSS COVE LANDFILL  
AST FOUNDATION THAT MAY HAVE DAMAGED CAP  
LOOKING NORTHWEST  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITE 8 – GOSS COVE LANDFILL  
PROXIMITY OF AST FOUNDATION TO MUSEUM, LOOKING SOUTH  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITE 8 – GOSS COVE LANDFILL  
MINOR LONGITUDINAL CRACK IN ASPHALT, LOOKING SOUTH  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITE 8 – GOSS COVE LANDFILL  
UNLOCKED GATE ON THE NORTHERN END OF CAP, LOOKING NORTH  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITE 8 – GOSS COVE LANDFILL  
MINOR SETTLING OF ASPHALT AROUND LIGHT POLE 11  
LOOKING EAST  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITE 8 – GOSS COVE LANDFILL  
MINOR LONGITUDINAL CRACK BETWEEN LIGHT POLES 11 AND 9, LOOKING SOUTHEAST  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITE 8 – GOSS COVE LANDFILL  
YARD DRAINS ARE IN GOOD CONDITION AND FREE OF DEBRIS  
VIEW OF YARD DRAIN 6B  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITE 8 – GOSS COVE LANDFILL  
SLIGHT SAGGING OF PAVERS AROUND MISSILE HATCH DISPLAY, LOOKING NORTH  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITE 8 – GOSS COVE LANDFILL  
PAVERS SAGGING AROUND GUN DISPLAY, LOOKING SOUTH  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITE 8 – GOSS COVE LANDFILL  
DAMAGED CURB AND SPRINKLER HEAD NEAR GAS VENT M, LOOKING EAST  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITE 8 – GOSS COVE LANDFILL  
DAMAGED CURB NEAR FLAGPOLE B, LOOKING EAST  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITE 8 – GOSS COVE LANDFILL  
GAS VENT M IN GOOD CONDITION (HAS SCREEN AND LOCKED GATE), LOOKING WEST  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITE 8 – GOSS COVE LANDFILL  
ABANDONED MONITORING WELL 8MW4 IN GOOD CONDITION  
APRIL 6, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITES 9/23 – OT-5 AND TANK FARM  
LOOKING NORTHEAST AT LOCATION OF SITE 9 (OT-5)  
APRIL 7, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33



SITES 9/23 – OT-5 AND TANK FARM  
LOOKING SOUTHWEST AT LOCATION OF SITE 23 (TANK FARM)  
APRIL 7, 2011  
NSB-NLON, GROTON, CONNECTICUT. CTO WE33

## **APPENDIX C**

### **FIVE-YEAR REVIEW INSPECTION CHECK LISTS AND INSPECTION ROSTERS**

- C.1 AREA A LANDFILL (SITE 2A)**
- C.2 AREA A WETLAND (SITE 2B)**
- C.3 CONCRETE ENCAPSULATED SOIL IN STREAM 4 (SITE 3)**
- C.4 DRMO (SITE 6)**
- C.5 GOSS COVE LANDFILL (SITE 8)**
- C.6 FORMER OT-5 (SITE 9) AND FORMER FUEL FARM (SITE 23)**

**C.1 AREA A LANDFILL (SITE 2A)**





**III. ON-SITE DOCUMENTS & RECORDS VERIFIED** (Check all that apply)

1.	<b>O&amp;M Documents</b>	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
	<input type="checkbox"/> O&M manual	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
	<input type="checkbox"/> As-built drawings	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
	<input type="checkbox"/> Maintenance logs	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
	Remarks <u>Landfill cap inspections being performed annually. Most recent annual inspection performed on 4/6/2011. The O&amp;M Manual, drawings, and maintenance logs are maintained in the Navy's NIRIS environmental records management system; maintenance activities are captured in the annual O&amp;M reports generated by the Navy and were reviewed as part of preparation of the Third Five-Year Review Report; and on-site inspection of the maintenance logs was not required because of availability of electronic files.</u>			
	_____			
2.	<b>Site-Specific Health and Safety Plan</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	<input type="checkbox"/> Contingency plan/emergency response plan	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	Remarks _____			
	_____			
3.	<b>O&amp;M and OSHA Training Records</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	Remarks _____			
	_____			
4.	<b>Permits and Service Agreements</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	<input type="checkbox"/> Air discharge permit	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	<input type="checkbox"/> Effluent discharge	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	<input type="checkbox"/> Waste disposal, POTW	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	<input type="checkbox"/> Other permits _____	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	Remarks _____			
	_____			
5.	<b>Gas Generation Records</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	Remarks <u>Gas generation monitoring was not required.</u>			
	_____			
	_____			
6.	<b>Settlement Monument Records</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	Remarks <u>A Post-Construction survey was performed by SAI Surveying in 1997. No settlement monuments were installed at the cap.</u>			
	_____			
	_____			
7.	<b>Groundwater Monitoring Records</b>	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
	Remarks <u>Monitoring performed annually. Round 23 groundwater monitoring was conducted in July 2010. Round 23 report final in August 2011. Round 24 sampling was completed in April 2011. The annual groundwater monitoring reports are maintained in the Navy's NIRIS environmental records management system; the groundwater monitoring reports were reviewed as part of preparation of the Third Five-Year Review Report; and on-site inspection of the reports was not required because of the availability of the electronic files.</u>			

8. **Leachate Extraction Records**  Readily available  Up to date  N/A  
 Remarks \_\_\_\_\_

9. **Discharge Compliance Records**  
 Air  Readily available  Up to date  N/A  
 Water (effluent)  Readily available  Up to date  N/A  
 Remarks \_\_\_\_\_

10. **Daily Access/Security Logs**  Readily available  Up to date  N/A  
 Remarks \_\_\_\_\_

**IV. O&M COSTS**

1. **O&M Organization**  
 State in-house  Contractor for State  
 PRP in-house  Contractor for PRP  
 Federal Facility in-house  Contractor for Federal Facility  
 Other  
ECC performed groundwater monitoring, landfill cap inspections, and site maintenance from 2006 through 2008, ECC performed inspections and cap maintenance for 2009, H&S Environmental, Inc. performed groundwater monitoring for 2009 and 2010 and inspections and cap maintenance for 2010, and Sovereign is the O&M contractor for 2011.

2. **O&M Cost Records**  
 Readily available  Up to date  
 Funding mechanism/agreement in place  
 Original O&M cost estimate \$11,100  Breakdown attached

Total annual cost by year for review period if available

From	Date	To	Date	Total cost	<input type="checkbox"/> Breakdown attached
	<u>1/2006</u>		<u>12/2006</u>	<u>\$ 14,200</u>	
From	Date	To	Date	Total cost	<input type="checkbox"/> Breakdown attached
	<u>1/2007</u>		<u>12/2007</u>	<u>\$ 14,600</u>	
From	Date	To	Date	Total cost	<input type="checkbox"/> Breakdown attached
	<u>1/2008</u>		<u>12/2008</u>	<u>\$ 15,000</u>	
From	Date	To	Date	Total cost	<input type="checkbox"/> Breakdown attached
	<u>1/2009</u>		<u>12/2009</u>	<u>\$ 104,500</u>	
From	Date	To	Date	Total cost	<input type="checkbox"/> Breakdown attached
	<u>1/2010</u>		<u>12/2010</u>	<u>\$ 29,800</u>	
From	Date	To	Date	Total cost	<input type="checkbox"/> Breakdown attached
	<u>1/2011</u>		<u>12/2011</u>	<u>\$ 8,800</u>	
	Date		Date	Total cost	

3. **Unanticipated or Unusually High O&M Costs During Review Period**  
 Describe costs and reasons:  
Monitoring costs for Years 7 (2006) through 12 (2011) have ranged from \$10,000 to \$232,000 per year in addition to O&M. These costs include sampling, analysis, data validation, and reporting. Original estimated groundwater monitoring cost was \$125,000 per year.

V. ACCESS AND INSTITUTIONAL CONTROLS  Applicable  N/A

A. Fencing

1. **Fencing damaged**  Location shown on site map  Gates secured  N/A

Remarks

The access gate by the Salt Storage Building is damaged and does not close. Fence around the Deployed Parking Area is bent in some places and missing clips on the bottom reducing the effectiveness of fence security. The Wahoo Avenue gate was not locked during the inspection. The gate with access to former Site 4 (on the southwestern side of Area 2A, east of the Wahoo Avenue Gate) was open but no vehicle access to the cap is possible through this gate.

B. Other Access Restrictions

1. **Signs and other security measures**  Location shown on site map  N/A

Remarks

Proper signs at all 3 gates. Signs at Wahoo Avenue and Thresher Avenue gates have contact information but the sign on the gate at the Salt Storage Building does not have contact information. Recommend checking contact information on the Wahoo and Thresher Avenue gates for accuracy and posting signs with contact telephone number on the gate at the Salt Storage Building. Vegetation covering the sign at the gate at the Salt Storage Building needs to be trimmed.

<b>C. Institutional Controls (ICs)</b>				
1. Implementation and enforcement				
Site conditions imply ICs not properly implemented	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
Site conditions imply ICs not being fully enforced	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
Type of monitoring (e.g., self-reporting, drive by) Drive By				
Frequency <u>Annually</u>				
Responsible party/agency <u>Naval Submarine Base – New London</u>				
Contact <u>Richard Conant</u>	<u>IR Manager</u>	<u>4/6/11</u>	<u>(860) 694-5649</u>	
Name	Title	Date	Phone no.	
Reporting is up-to-date	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
Reports are verified by the lead agency	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
Specific requirements in deed or decision documents have been met	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A	
Violations have been reported	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A	
Other problems or suggestions: <input type="checkbox"/> Report attached				
<u>Per IC Document SOPA (Admin) New London Instruction 5090.25 (July 2009) contractors shall contact the Environmental Division prior to storing or operating heavy equipment/materials on Site 2A. Ground disturbing activities must be approved by the Environmental Division prior to commencement of the activities. Directions in IC document are not being followed.</u>				
<u>Equipment and materials were stored in the no load zone at the edge of the cap.</u>				
<u>Portion of the no load zone not marked (west of GV-13).</u>				
2. Adequacy	<input type="checkbox"/> ICs are adequate	<input checked="" type="checkbox"/> ICs are inadequate	<input type="checkbox"/> N/A	
Remarks <u>Equipment that exceeds the 500 pounds/square foot requirement needs to be moved to protect asphalt from point loads. Equipment and materials stored in the no load zone.</u>				
<b>D. General</b>				
1. <b>Vandalism/trespassing</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> No vandalism evident		
Remarks _____				
2. <b>Land use changes on site</b>	<input checked="" type="checkbox"/> N/A			
Remarks <u>Part of the cap temporarily being used for laydown area for specific project. Temporary fencing being used to mark off area.</u>				
3. <b>Land use changes off site</b>	<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A		
Remarks <u>Building for Indoor Shooting Range being built to the southeast of Site 2A.</u>				

<b>VI. GENERAL SITE CONDITIONS</b>			
<b>A. Roads</b>	<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A	
1. <b>Roads damaged</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Roads adequate	<input type="checkbox"/> N/A
Remarks _____ _____			
<b>B. Other Site Conditions</b>			
Remarks <u>Equipment storage on cap is unorganized. Proper storage techniques not being used. No loading zone not marked in the area of the cap west of GV-13. Trash on northern side of landfill cover needs to be disposed (near GV-13).</u>			
<b>VII. LANDFILL COVERS</b>			
		<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A
<b>A. Landfill Surface</b>			
1. <b>Settlement</b> (Low spots)	<input checked="" type="checkbox"/> Location shown on site map	<input type="checkbox"/> Settlement not evident	
Areal extent <u>1 sq. ft.</u>	Depth <u>4 inches</u>		
Remarks <u>Slight depression in asphalt above Culvert 1.</u>			
2. <b>Cracks</b>	<input checked="" type="checkbox"/> Location shown on site map	<input type="checkbox"/> Cracking not evident	
Lengths <u>2'-20'</u>	Widths <u>¼ - ½ inch</u>	Depths <u>2 inches</u>	
Remarks <u>Minor longitudinal cracks are fairly abundant throughout landfill. Many cracks were sealed but reopened. Long crack in the Deployed Parking Area.</u>			
3. <b>Erosion</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Erosion not evident	
Areal extent _____	Depth _____		
Remarks _____ _____			
4. <b>Holes</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Holes not evident	
Areal extent _____	Depth _____		
Remarks _____ _____			
5. <b>Vegetative Cover</b>	<input type="checkbox"/> Grass	<input type="checkbox"/> Cover properly established	<input type="checkbox"/> No signs of stress
<input type="checkbox"/> Trees/Shrubs (indicate size and locations on a diagram)			
Remarks <u>No vegetative cover.</u>			
6. <b>Alternative Cover (armored rock, concrete, etc.)</b>	<input type="checkbox"/> N/A		
Remarks <u>Gabion baskets and riprap on the north side of landfill cap are in good condition.</u>			

7.	<b>Bulges</b> Areal extent _____ Remarks _____	<input type="checkbox"/> Location shown on site map Height _____	<input checked="" type="checkbox"/> Bulges not evident
8.	<b>Wet Areas/Water Damage</b> <input type="checkbox"/> Wet areas <input type="checkbox"/> Ponding <input type="checkbox"/> Seeps <input type="checkbox"/> Soft subgrade Remarks _____	<input checked="" type="checkbox"/> Wet areas/water damage not evident <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Location shown on site map	Areal extent _____ Areal extent _____ Areal extent _____ Areal extent _____
9.	<b>Slope Instability</b> Areal extent _____ Remarks _____	<input type="checkbox"/> Slides <input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> No evidence of slope instability
<b>B. Benches</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A (Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)			
<b>C. Letdown Channels</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A (Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)			
<b>D. Cover Penetrations</b> <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A			
1.	<b>Gas Vents</b> <input checked="" type="checkbox"/> Properly secured/locked <input type="checkbox"/> Evidence of leakage at penetration <input type="checkbox"/> N/A Remarks <u>The majority of the gas vents are in good condition. Some need maintenance (GV-21 missing screen, GV-18 jersey barrier upturned), need trash removed, or need repairs due to damage (GV-22). Recommend labeling all gas vents for easier identification. Equipment needs to be moved away from all gas vents (especially GV-14).</u>	<input type="checkbox"/> Active <input checked="" type="checkbox"/> Functioning <input checked="" type="checkbox"/> Needs Maintenance	<input checked="" type="checkbox"/> Passive <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition
2.	<b>Gas Monitoring Probes</b> <input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Evidence of leakage at penetration Remarks _____	<input type="checkbox"/> Functioning <input type="checkbox"/> Needs Maintenance	<input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition <input checked="" type="checkbox"/> N/A
3.	<b>Monitoring Wells</b> (within surface area of landfill) <input checked="" type="checkbox"/> Properly secured/locked <input type="checkbox"/> Evidence of leakage at penetration Remarks <u>Abandoned wells still evident at surface. Most appear to be in good shape. There is minor settlement around 2LMW18D that should be repaired.</u>	<input type="checkbox"/> Functioning <input type="checkbox"/> Needs Maintenance	<input checked="" type="checkbox"/> Routinely sampled <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> N/A

4.	<b>Leachate Extraction Wells</b> <input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Evidence of leakage at penetration Remarks _____	<input type="checkbox"/> Functioning	<input type="checkbox"/> Routinely sampled <input type="checkbox"/> Needs Maintenance	<input type="checkbox"/> Good condition <input checked="" type="checkbox"/> N/A
5.	<b>Settlement Monuments</b> Remarks _____	<input type="checkbox"/> Located	<input type="checkbox"/> Routinely surveyed	<input checked="" type="checkbox"/> N/A
<b>E. Gas Collection and Treatment</b>		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A	
<b>F. Cover Drainage Layer</b>		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A	
1.	<b>Outlet Pipes Inspected</b> Remarks <u>Not inspected (not visible).</u>	<input type="checkbox"/> Functioning	<input checked="" type="checkbox"/> N/A	
2.	<b>Outlet Rock Inspected</b> Remarks <u>Not inspected (not visible).</u>	<input type="checkbox"/> Functioning	<input checked="" type="checkbox"/> N/A	
<b>G. Detention/Sedimentation Ponds</b>		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A	
<b>H. Retaining Walls</b>		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A	
<b>I. Perimeter Ditches/Off-Site Discharge</b>		<input checked="" type="checkbox"/> Applicable		<input type="checkbox"/> N/A
1.	<b>Siltation</b> Areal extent _____ Depth _____ Remarks <u>Vegetation and debris needs to be removed from Drainage Channel A, the ADS culvert of Drainage Channel B, and Drainage Channel E. Drainage Channels C and D are clean and free of debris.</u>	<input checked="" type="checkbox"/> Location shown on site map	<input type="checkbox"/> Siltation not evident	
2.	<b>Vegetative Growth</b> <input type="checkbox"/> Vegetation does not impede flow Areal extent _____ Type _____ Remarks <u>Minor vegetation in drainage channels.</u>	<input checked="" type="checkbox"/> Location shown on site map	<input type="checkbox"/> N/A	
3.	<b>Erosion</b> Areal extent _____ Depth _____ Remarks _____	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Erosion not evident	
4.	<b>Discharge Structure</b> Remarks _____	<input type="checkbox"/> Functioning	<input checked="" type="checkbox"/> N/A	

<b>J. Monitoring Wells (off site)</b>			
<input checked="" type="checkbox"/> Properly secured/locked	<input type="checkbox"/> Functioning	<input checked="" type="checkbox"/> Routinely sampled	<input type="checkbox"/> Good condition
<input type="checkbox"/> Evidence of leakage at penetration		<input checked="" type="checkbox"/> Needs Maintenance	<input type="checkbox"/> N/A
Remarks <u>Unused monitoring wells should be abandoned. The cover on well 4MW1S is damaged and the riser is bent. Well needs to be replaced and the new well should be protected to prevent damage (adjacent to a road). Very minor settling of concrete at well 2LMW20S.</u>			
<b>VIII. VERTICAL BARRIER WALLS</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A			
<b>IX. GROUNDWATER/SURFACE WATER REMEDIES</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A			
<b>X. OTHER REMEDIES</b>			
If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.			
<b>XI. OVERALL OBSERVATIONS</b>			
<b>A. Implementation of the Remedy</b>			
Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.). <u>The remedy is successfully reducing infiltration of precipitation through the landfill and protects human and ecological receptors from exposure to contaminated soil.</u>			
_____			
_____			
_____			
_____			
_____			
_____			
_____			
_____			
<b>B. Adequacy of O&amp;M</b>			
Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy. <u>O&amp;M has been completed at the site since the cap was constructed. Cracks in the pavement have been sealed and sediment and vegetation have been removed from the channels, culverts, and rip rap. However, some identified deficiencies have not been corrected by the O&amp;M Program. Some monitoring wells require repair or abandonment. Institutional controls are not fully implemented, as site access and storage control is inadequate (storage of overweight equipment) and signs at the gate by the Salt Storage Building do not list a contact name or phone number. Gas vents need to be numbered and some gas vents need additional barriers and repair. The no load zone needs to be marked in the area west of GV-13.</u>			

**C. Early Indicators of Potential Remedy Problems**

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.

Sealing asphalt cracks and clearing channels should continue as cracking, and debris/vegetation in channels are recurring problems. Also, uncontrolled storage of heavy items results in damage to asphalt and potentially the underlying cap, requiring repair. The asphalt surface should continue to be maintained to allow vehicles and equipment to be moved around without damaging any of the underlying cap components. Phragmites growth in the drainage channels should be managed aggressively since these invasive plants have significant root structures that could damage underlying material and their presence in the channels causes impediments to flow. Overall O&M of the cap system needs to be improved.

**D. Opportunities for Optimization**

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.  
Unnecessary or unused wells should be abandoned.

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**Inspection Team Roster for Site 2A (Area A Landfill)**

Corey Rich of Tetra Tech, Inc.

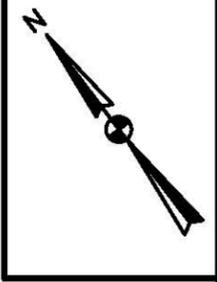
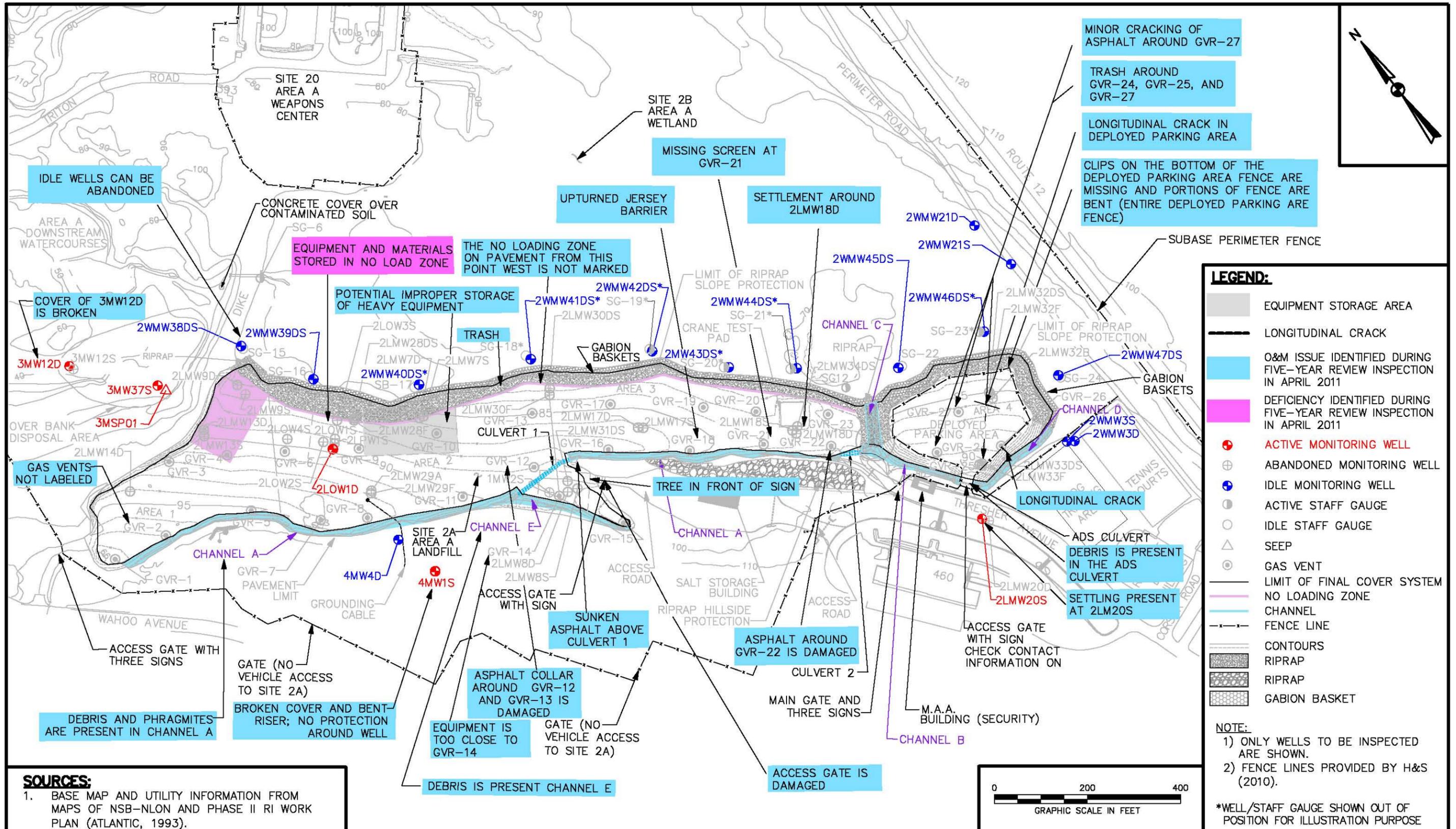
Betsy Collins of Tetra Tech, Inc.

Kymerlee Keckler of USEPA Region I

Mark Lewis of CTDEP

Rachel Leary of Sovereign

Jim Gravette, NAVFAC Mid-Atlantic

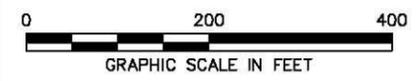


**LEGEND:**

- EQUIPMENT STORAGE AREA
- LONGITUDINAL CRACK
- O&M ISSUE IDENTIFIED DURING FIVE-YEAR REVIEW INSPECTION IN APRIL 2011
- DEFICIENCY IDENTIFIED DURING FIVE-YEAR REVIEW INSPECTION IN APRIL 2011
- ACTIVE MONITORING WELL
- ABANDONED MONITORING WELL
- IDLE MONITORING WELL
- ACTIVE STAFF GAUGE
- IDLE STAFF GAUGE
- SEEP
- GAS VENT
- LIMIT OF FINAL COVER SYSTEM
- NO LOADING ZONE
- CHANNEL
- FENCE LINE
- CONTOURS
- RIPRAP
- RIPRAP
- GABION BASKET

**NOTE:**

- 1) ONLY WELLS TO BE INSPECTED ARE SHOWN.
  - 2) FENCE LINES PROVIDED BY H&S (2010).
- \*WELL/STAFF GAUGE SHOWN OUT OF POSITION FOR ILLUSTRATION PURPOSE



**SOURCES:**

1. BASE MAP AND UTILITY INFORMATION FROM MAPS OF NSB-NLON AND PHASE II RI WORK PLAN (ATLANTIC, 1993).
2. GAS VENT COORDINATE INFORMATION FROM SAI SURVEY CO. FOSTER WHEELER AS-BUILT REPORT 11-1-97.

**NOTE:**

MONITORING WELL 3MW12D REINSTALLED OCTOBER 2002 DURING ROUND 11 MONITORING ACTIVITIES

DRAWN BY CK	DATE 3/10/10
CHECKED BY BC	DATE 5/25/11
REVISED BY CW	DATE 10/20/10
SCALE AS NOTED	



SITE PLAN FOR  
SITE 2A - AREA A LANDFILL  
NSB-NLON  
GROTON, CONNECTICUT

CONTRACT NO. WE33	
OWNER NO. 3386	
APPROVED BY CAR	DATE 5/25/11
DRAWING NO. FIGURE 2-1	REV. 2

## **C.2 AREA A WETLAND (SITE 2B)**

**Third Five-Year Review Site Inspection Checklist  
for  
CERCLA Sites at Naval Submarine Base New London**

I. SITE INFORMATION													
Site name: Site 2B - Area A Wetland	Date of inspection: April 6, 2011												
Location and Region: New London Co., CT	EPA ID: CTD980906515												
Agency, office, or company leading the five-year review: NAVFAC Mid-Atlantic/EPA Region 1	Weather/temperature: Sunny, breezy, 50's												
<p><b>Remedy Includes:</b> (Check all that apply)</p> <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> Landfill cover/containment</td> <td><input type="checkbox"/> Monitored natural attenuation</td> </tr> <tr> <td><input type="checkbox"/> Access controls</td> <td><input type="checkbox"/> Groundwater containment</td> </tr> <tr> <td><input checked="" type="checkbox"/> Institutional controls</td> <td><input type="checkbox"/> Vertical barrier walls</td> </tr> <tr> <td><input type="checkbox"/> Groundwater pump and treatment</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Surface water collection and treatment</td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> Other</td> <td></td> </tr> </table> <p><u>Groundwater monitoring provided by Site 2A - Area A Landfill network. No remedy has been implemented for sediment at Site 2B.</u></p>		<input type="checkbox"/> Landfill cover/containment	<input type="checkbox"/> Monitored natural attenuation	<input type="checkbox"/> Access controls	<input type="checkbox"/> Groundwater containment	<input checked="" type="checkbox"/> Institutional controls	<input type="checkbox"/> Vertical barrier walls	<input type="checkbox"/> Groundwater pump and treatment		<input type="checkbox"/> Surface water collection and treatment		<input checked="" type="checkbox"/> Other	
<input type="checkbox"/> Landfill cover/containment	<input type="checkbox"/> Monitored natural attenuation												
<input type="checkbox"/> Access controls	<input type="checkbox"/> Groundwater containment												
<input checked="" type="checkbox"/> Institutional controls	<input type="checkbox"/> Vertical barrier walls												
<input type="checkbox"/> Groundwater pump and treatment													
<input type="checkbox"/> Surface water collection and treatment													
<input checked="" type="checkbox"/> Other													
<p><b>Attachments:</b>    <input checked="" type="checkbox"/> Inspection team roster attached        <input checked="" type="checkbox"/> Site map attached        See Report</p>													
II. INTERVIEWS (Check all that apply)													
<p>1. <b>O&amp;M site manager</b>    <u>Richard Conant</u>        <u>REC/IR Program Manager</u>        <u>4-6-2011</u>  <div style="display: flex; justify-content: space-around; font-size: small;"> <span>Name</span> <span>Title</span> <span>Date</span> </div> <p>Interviewed <input type="checkbox"/> at site <input checked="" type="checkbox"/> at office <input type="checkbox"/> by phone    Phone no. <u>(860) 694-3976</u>            Problems, suggestions; <input type="checkbox"/> Report attached _  <u>Richard Conant will retire in June 2011. His replacement has not been identified.</u>            _____</p> </p>													
<p>2. <b>O&amp;M staff</b> <u>Rachael Leary (lead engineer), Jim Smith (project manager), Sovereign</u>    <u>4-6-2011</u>  <div style="display: flex; justify-content: space-around; font-size: small;"> <span>Name</span> <span>Title</span> <span>Date</span> </div> <p>Interviewed <input checked="" type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone    Phone no. _____            Problems, suggestions; <input type="checkbox"/> Report attached  <u>No comments during inspection.</u>            _____</p> </p>													

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency USEPA Region 1  
 Contact K. Keckler RPM 4/6/2011 (617) 918-1385  
 Name Title Date Phone no.  
 Problems; suggestions;  Report attached  
 Remaining *Phragmites* should be removed.

Agency CTDEP  
 Contact Mark Lewis PM 4-6-2011 (860) 424-3768  
 Name Title Date Phone no.  
 Problems; suggestions;  Report attached  
 No comments during inspection.

Agency \_\_\_\_\_  
 Contact \_\_\_\_\_  
 Name Title Date Phone no.  
 Problems; suggestions;  Report attached

Agency \_\_\_\_\_  
 Contact \_\_\_\_\_  
 Name Title Date Phone no.  
 Problems; suggestions;  Report attached

4. **Other interviews** (optional)  Report attached.

Jim Gravette from NAVFAC Mid-Atlantic – discussed mowing/spraying of *Phragmites* by State of Connecticut.


<b>III. ON-SITE DOCUMENTS &amp; RECORDS VERIFIED</b> (Check all that apply)			
1.	<b>O&amp;M Documents</b> <input type="checkbox"/> O&M manual <input type="checkbox"/> As-built drawings <input type="checkbox"/> Maintenance logs Remarks _____	<input type="checkbox"/> Readily available <input type="checkbox"/> Readily available <input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A
2.	<b>Site-Specific Health and Safety Plan</b> <input type="checkbox"/> Contingency plan/emergency response plan Remarks _____	<input type="checkbox"/> Readily available <input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A
3.	<b>O&amp;M and OSHA Training Records</b> Remarks _____	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A
4.	<b>Permits and Service Agreements</b> <input type="checkbox"/> Air discharge permit <input type="checkbox"/> Effluent discharge <input type="checkbox"/> Waste disposal, POTW <input type="checkbox"/> Other permits _____ Remarks _____	<input type="checkbox"/> Readily available <input type="checkbox"/> Readily available <input type="checkbox"/> Readily available <input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A
5.	<b>Gas Generation Records</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A
6.	<b>Settlement Monument Records</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A
7.	<b>Groundwater Monitoring Records</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A
8.	<b>Leachate Extraction Records</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A
9.	<b>Discharge Compliance Records</b> <input type="checkbox"/> Air <input type="checkbox"/> Water (effluent)	<input type="checkbox"/> Readily available <input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A
10.	<b>Daily Access/Security Logs</b> Remarks <u>Not maintained by the Navy.</u> _____ _____	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A



**C. Institutional Controls (ICs)**

1. **Implementation and enforcement**  
Site conditions imply ICs not properly implemented  Yes  No  N/A  
Site conditions imply ICs not being fully enforced  Yes  No  N/A

Type of monitoring (e.g., self-reporting, drive by) Self-Reporting  
\_\_\_\_\_

Frequency Annually  
\_\_\_\_\_

Responsible party/agency Naval Submarine Base – New London  
\_\_\_\_\_

Contact	<u>Richard Conant</u>	<u>IR Manager</u>	<u>4-6-2011</u>	<u>(860) 694-5649</u>
	Name	Title	Date	Phone no.

Reporting is up-to-date  Yes  No  N/A  
Reports are verified by the lead agency  Yes  No  N/A

Specific requirements in deed or decision documents have been met  Yes  No  N/A  
Violations have been reported  Yes  No  N/A  
Other problems or suggestions:  Report attached  
Material from Area A Landfill in wetland.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. **Adequacy**  ICs are adequate  ICs are inadequate  N/A  
Remarks \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**D. General**

1. **Vandalism/trespassing**  Location shown on site map  No vandalism evident  
Remarks \_\_\_\_\_  
\_\_\_\_\_

2. **Land use changes on site**  N/A  
Remarks \_\_\_\_\_  
\_\_\_\_\_

3. **Land use changes off site**  N/A  
Remarks \_\_\_\_\_  
\_\_\_\_\_

**VI. GENERAL SITE CONDITIONS**

**A. Roads**  Applicable  N/A

1. **Roads damaged**  Location shown on site map  Roads adequate  N/A  
Remarks \_\_\_\_\_  
\_\_\_\_\_

<b>B. Other Site Conditions</b>		
Remarks <u>Phragmites was cut/treated. Some Phragmites still remains around open water areas. EPA requested those be treated/cut.</u>		
_____		
_____		
_____		
_____		
<b>VII. AREA CONDITIONS</b> <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A		
<b>A. Surface</b>		
1.	<b>Settlement</b> (Low spots) <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Settlement not evident Areal extent _____    Depth _____ Remarks <u>N/A</u>	
2.	<b>Cracks</b> <input checked="" type="checkbox"/> N/A	
3.	<b>Erosion</b> <input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Erosion not evident Areal extent _____    Depth _____ Remarks _____	
4.	<b>Holes</b> <input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Holes not evident Areal extent _____    Depth _____ Remarks _____	
5.	<b>Vegetative Cover</b> <input type="checkbox"/> Grass <input type="checkbox"/> Cover properly established <input type="checkbox"/> No signs of stress <input type="checkbox"/> Trees/Shrubs (indicate size and locations on a diagram) Remarks <u>Most of the Phragmites in the wetland was cut/treated.</u>	
6.	<b>Alternative Cover (armored rock, concrete, etc.)</b> <input checked="" type="checkbox"/> N/A Remarks _____	
7.	<b>Bulges</b> <input checked="" type="checkbox"/> N/A	
8.	<b>Wet Areas/Water Damage</b> <input checked="" type="checkbox"/> N/A	
9.	<b>Slope Instability</b> <input checked="" type="checkbox"/> N/A	
<b>B. Benches</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A		

<b>C. Letdown Channels</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A		
<b>D. Cover Penetrations</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A		
<b>E. Gas Collection and Treatment</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A		
<b>F. Area Drainage</b> <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A		
1.	<b>Outlet Pipes Inspected</b> Remarks _____	<input checked="" type="checkbox"/> Functioning <input type="checkbox"/> N/A
2.	<b>Outlet Rock Inspected</b> Remarks _____	<input type="checkbox"/> Functioning <input checked="" type="checkbox"/> N/A
<b>G. Detention/Sedimentation Ponds</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A		
<b>H. Retaining Walls</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A		
<b>I. Perimeter Ditches/Off-Site Discharge</b> <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A		
1.	<b>Siltation</b> Areal extent _____    Depth _____ Remarks _____	<input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Siltation not evident
2.	<b>Vegetative Growth</b> <input checked="" type="checkbox"/> Vegetation does not impede flow Areal extent _____    Type _____ Remarks _____	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> N/A
3.	<b>Erosion</b> Areal extent _____    Depth _____ Remarks _____	<input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Erosion not evident
4.	<b>Discharge Structure</b> Remarks _____ Deteriorated but functioning.	<input checked="" type="checkbox"/> Functioning <input type="checkbox"/> N/A
<b>VIII. VERTICAL BARRIER WALLS</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A		
<b>IX. GROUNDWATER/SURFACE WATER REMEDIES</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A		
<b>X. OTHER REMEDIES</b>		
If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.		
<b>XI. OVERALL OBSERVATIONS</b>		
<b>A. Implementation of the Remedy</b>		



Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs that suggest that the protectiveness of the remedy may be compromised in the future.

None noted.

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**D. Opportunities for Optimization**

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

Consider after the remedy is implemented.

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**Inspection Team Roster for Site 2B (Area A Wetland)**

Corey Rich of Tetra Tech, Inc.

Betsy Collins of Tetra Tech, Inc.

Kymerlee Keckler of USEPA Region I

Mark Lewis of CTDEP

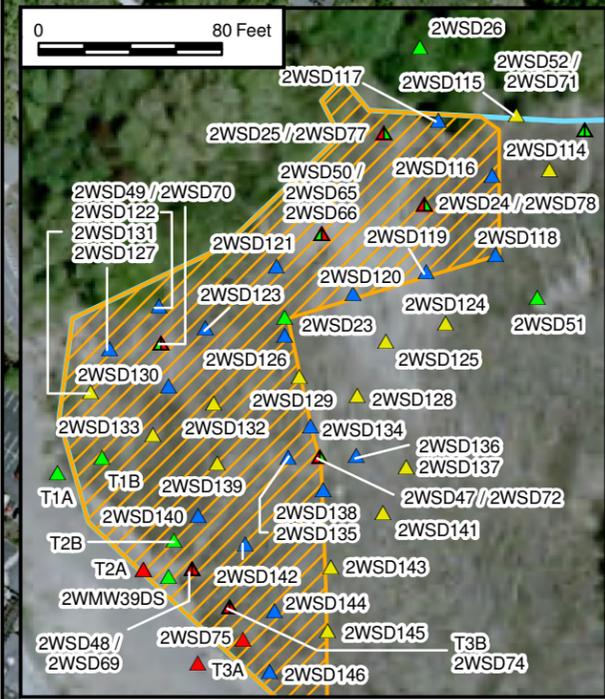
Rachel Leary of Sovereign

Jim Gravette, NAVFAC Mid-Atlantic

Aerial photograph taken in 2008, and supplied by the NAVFAC Mid-Atlantic Georeadiness Center.



2011 Sediment Sample Location (Phase I Analysis)



Phragmites Present in Wetland



Legend	
	Existing Well Location
	2011 Sediment Sample Location (Phase I Analysis)
	2011 Sediment Sample Location (Phase II Analysis)
	2008 Sediment Sampling Location
	Previous Sampling Location
	Sediment Sample Location Does Not Exceed PRGs
	Sediment Sample Location Exceeds PRGs
	O & M Issue Identified During April 2011 Inspection
	Potential Extent of Contaminated Sediment
	Area A Wetland Boundary

DRAWN BY	DATE
J. ENGLISH	04/14/11
CHECKED BY	DATE
B. COLLINS	07/20/11
REVISOR	DATE
SCALE	AS NOTED



**SITE 2B**  
**AREA A WETLAND**  
**NAVAL SUBMARINE BASE NEW LONDON**  
**GROTON, CONNECTICUT**

CONTRACT NUMBER	CTO NUMBER
3386	WE33
APPROVED BY	DATE
CAR	05/24/11
APPROVED BY	DATE
FIGURE NO.	REV
FIGURE 2-2	0

### **C.3 CONCRETE ENCAPSULATED SOIL IN STREAM 4 (SITE 3)**





**III. ON-SITE DOCUMENTS & RECORDS VERIFIED** (Check all that apply)

1.	<b>O&amp;M Documents</b>	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
	<input type="checkbox"/> O&M manual	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
	<input type="checkbox"/> As-built drawings	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
	<input type="checkbox"/> Maintenance logs	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
	Remarks <u>The O&amp;M Manual, drawings, and maintenance logs are maintained in the Navy's NIRIS environmental records management system; maintenance activities are captured in the annual O&amp;M reports generated by the Navy and were reviewed as part of preparation of the Third Five-Year Review Report; and on-site inspection of the maintenance logs was not required because of availability of electronic files.</u>			
<hr/>				
2.	<b>Site-Specific Health and Safety Plan</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	<input type="checkbox"/> Contingency plan/emergency response plan	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	Remarks _____			
<hr/>				
3.	<b>O&amp;M and OSHA Training Records</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	Remarks _____			
<hr/>				
4.	<b>Permits and Service Agreements</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	<input type="checkbox"/> Air discharge permit	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	<input type="checkbox"/> Effluent discharge	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	<input type="checkbox"/> Waste disposal, POTW	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	<input type="checkbox"/> Other permits _____	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	Remarks _____			
<hr/>				
5.	<b>Gas Generation Records</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
<hr/>				
6.	<b>Settlement Monument Records</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
<hr/>				
7.	<b>Groundwater Monitoring Records</b>	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
	Remarks <u>Latest groundwater monitoring report (2010) for Site 3 was issued by H&amp;S in March 2011. The annual groundwater monitoring reports are maintained in the Navy's NIRIS environmental records management system; the groundwater monitoring reports were reviewed as part of preparation of the Third Five-Year Review Report; and on-site inspection of the reports was not required because of the availability of the electronic files.</u>			
<hr/>				
8.	<b>Leachate Extraction Records</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
<hr/>				
9.	<b>Discharge Compliance Records</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	<input type="checkbox"/> Air	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	<input type="checkbox"/> Water (effluent)	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A

10. **Daily Access/Security Logs**  Readily available  Up to date  N/A  
 Remarks \_\_\_\_\_  
 \_\_\_\_\_

**IV. O&M COSTS**

1. **O&M Organization**  
 State in-house  Contractor for State  
 PRP in-house  Contractor for PRP  
 Federal Facility in-house  Contractor for Federal Facility  
 Other  
Tetra Tech initiated groundwater monitoring in 2006. ECC performed groundwater monitoring in 2007 and March of 2008. Tetra Tech performed groundwater monitoring in June 2008. H&S performed groundwater monitoring in 2009 and 2010, and Sovereign will perform the groundwater monitoring in 2011.

2. **O&M Cost Records**  
 Readily available  Up to date  
 Funding mechanism/agreement in place  
 Original O&M cost estimate NA  Breakdown attached

Total annual cost by year for review period if available

From	<u>1/2006</u>	To	<u>12/2006</u>	<u>NA</u>	<input type="checkbox"/> Breakdown attached
	Date		Date	Total cost	
From	<u>1/2007</u>	To	<u>12/2007</u>	<u>NA</u>	<input type="checkbox"/> Breakdown attached
	Date		Date	Total cost	
From	<u>1/2008</u>	To	<u>12/2008</u>	<u>NA</u>	<input type="checkbox"/> Breakdown attached
	Date		Date	Total cost	
From	<u>1/2009</u>	To	<u>12/2009</u>	<u>NA</u>	<input type="checkbox"/> Breakdown attached
	Date		Date	Total cost	
From	<u>1/2010</u>	To	<u>12/2010</u>	<u>\$13,600</u>	<input type="checkbox"/> Breakdown attached
	Date		Date	Total cost	
From	<u>1/2011</u>	To	<u>12/2011</u>	<u>\$2,700</u>	<input type="checkbox"/> Breakdown attached
	Date		Date	Total cost	

3. **Unanticipated or Unusually High O&M Costs During Review Period**  
 Describe costs and reasons:  
Monitoring costs for Years 1 (2006) through 4 (2010) have ranged from \$5,500 to \$158,500 per year in addition to O&M. This cost includes sampling, analysis, data validation, and reporting.  
Original estimated groundwater monitoring cost was \$88,500 per year for quarterly monitoring.

**V. ACCESS AND INSTITUTIONAL CONTROLS**  Applicable  N/A

**A. Fencing**

1. **Fencing damaged**  Location shown on site map  Gates secured  N/A  
 Remarks  
Fencing is in good shape.

<b>B. Other Access Restrictions</b>			
1.	<b>Signs and other security measures</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> N/A
Remarks <u>Access to Site 3 is through fencing by Site 7. There are no signs at the concrete encapsulated area.</u>			
<b>C. Institutional Controls (ICs)</b>			
1.	<b>Implementation and enforcement</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Site conditions imply ICs not properly implemented		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Site conditions imply ICs not being fully enforced		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Type of monitoring (e.g., self-reporting, drive by) <u>Self-reporting</u>			
Frequency <u>Annual</u>			
Responsible party/agency <u>Naval Submarine Base – New London</u>			
Contact	<u>Richard Conant</u>	<u>IR Manager</u>	<u>4/6/11</u> <u>(860) 694-5649</u>
	Name	Title	Date      Phone no.
Reporting is up-to-date		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Reports are verified by the lead agency		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Specific requirements in deed or decision documents have been met		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Violations have been reported		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Other problems or suggestions: <input type="checkbox"/> Report attached			
<u>Per IC Document SOPA (Admin) New London Instruction 5090.25 (July 2009) and LUC RD (2009) construction within 100 feet of well 2DMW29S is restricted because of potential vapor intrusion issues.</u>			
_____			
2.	<b>Adequacy</b>	<input checked="" type="checkbox"/> ICs are adequate	<input type="checkbox"/> ICs are inadequate <input type="checkbox"/> N/A
Remarks _____			
_____			
<b>D. General</b>			
1.	<b>Vandalism/trespassing</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> No vandalism evident
Remarks _____			
_____			
2.	<b>Land use changes on site</b>	<input checked="" type="checkbox"/> N/A	
Remarks _____			
_____			
3.	<b>Land use changes off site</b>	<input checked="" type="checkbox"/> N/A	
Remarks _____			
_____			
<b>VI. GENERAL SITE CONDITIONS</b>			
<b>A. Roads</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A			
1.	<b>Roads damaged</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Roads adequate <input checked="" type="checkbox"/> N/A
Remarks _____			
_____			

<b>B. Other Site Conditions</b>		
Remarks <u>Wetland restoration at Site 3 was successful. The planted vegetation and ponds are in good condition. There are many deer trails and ticks present at the site.</u>		
<b>VII. AREA CONDITIONS/CONCRETE COVER OVER CONTAMINATED SOIL</b>		
<input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A		
<b>A. Surface</b>		
1.	<b>Settlement</b> (Low spots) Areal extent _____ Depth _____ Remarks _____	<input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Settlement not evident
2.	<b>Cracks</b> Lengths _____   Widths _____   Depths _____ Remarks _____	<input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Cracking not evident
3.	<b>Erosion</b> Areal extent _____ Depth _____ Remarks _____	<input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Erosion not evident
4.	<b>Holes</b> Areal extent _____ Depth _____ Remarks _____	<input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Holes not evident
5.	<b>Vegetative Cover</b> <input type="checkbox"/> Grass <input type="checkbox"/> Cover properly established <input type="checkbox"/> No signs of stress <input type="checkbox"/> Trees/Shrubs (indicate size and locations on a diagram) Remarks <u>No vegetation over the concrete cover.</u>	
6.	<b>Alternative Cover (armored rock, concrete, etc.)</b> <input type="checkbox"/> N/A Remarks <u>Concrete is in good condition.</u>	
7.	<b>Bulges</b> Areal extent _____ Height _____ Remarks _____	<input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Bulges not evident
8.	<b>Wet Areas/Water Damage</b> <input type="checkbox"/> Wet areas <input checked="" type="checkbox"/> Wet areas/water damage not evident <input type="checkbox"/> Ponding <input type="checkbox"/> Location shown on site map   Areal extent _____ <input type="checkbox"/> Seeps <input type="checkbox"/> Location shown on site map   Areal extent _____ <input type="checkbox"/> Soft subgrade <input type="checkbox"/> Location shown on site map   Areal extent _____ Remarks _____	

9.	<b>Slope Instability</b>	<input type="checkbox"/> Slides	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> No evidence of slope instability
Areal extent _____				
Remarks _____				
<b>B. Benches</b>				
<input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A				
(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)				
<b>C. Letdown Channels</b>				
<input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A				
(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)				
<b>D. Cover Penetrations</b>				
<input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A				
1.	<b>Gas Vents</b>	<input checked="" type="checkbox"/> N/A		
2.	<b>Gas Monitoring Probes</b>	<input checked="" type="checkbox"/> N/A		
3.	<b>Monitoring Wells</b> (within surface area of landfill)			
	<input checked="" type="checkbox"/> Properly secured/locked	<input checked="" type="checkbox"/> Functioning	<input checked="" type="checkbox"/> Routinely sampled	<input type="checkbox"/> Good condition
	<input type="checkbox"/> Evidence of leakage at penetration	<input type="checkbox"/> Needs Maintenance	<input type="checkbox"/> N/A	
Remarks				
Some wells should be abandoned. _____				
_____				
4.	<b>Leachate Extraction Wells</b>	<input checked="" type="checkbox"/> N/A		
5.	<b>Settlement Monuments</b>	<input type="checkbox"/> Located	<input type="checkbox"/> Routinely surveyed	<input checked="" type="checkbox"/> N/A
<b>E. Gas Collection and Treatment</b>				
<input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A				
<b>F. Area Drainage</b>				
<input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A				
1.	<b>Outlet Pipes Inspected</b>	<input checked="" type="checkbox"/> Functioning	<input type="checkbox"/> N/A	
Remarks _____				
_____				
2.	<b>Outlet Rock Inspected</b>	<input type="checkbox"/> Functioning	<input checked="" type="checkbox"/> N/A	
Remarks _____				
_____				
<b>G. Detention/Sedimentation Ponds</b>				
<input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A				
<b>H. Retaining Walls</b>				
<input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A				
<b>I. Perimeter Ditches/Off-Site Discharge</b>				
<input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A				
1.	<b>Siltation</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Siltation not evident	
Areal extent _____				
Depth _____				
Remarks _____				
_____				

2.	<b>Vegetative Growth</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> N/A
	<input type="checkbox"/> Vegetation does not impede flow		
	Areal extent _____	Type _____	
	Remarks _____		
3.	<b>Erosion</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Erosion not evident
	Areal extent _____	Depth _____	
	Remarks _____		
4.	<b>Discharge Structure</b>	<input type="checkbox"/> Functioning	<input checked="" type="checkbox"/> N/A
	Remarks _____		
<b>VIII. VERTICAL BARRIER WALLS</b>			
		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A
<b>IX. GROUNDWATER/SURFACE WATER REMEDIES</b>			
		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A
<b>X. OTHER REMEDIES</b>			
If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.			
<b>XI. OVERALL OBSERVATIONS</b>			
<b>A.</b>	<b>Implementation of the Remedy</b>		
	Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.). <u>The concrete encapsulated soil at Site 3 and the surrounding area looked good. There are no major issues to document.</u> <u>No changes in landuse have occurred; however, shooting range in site will be closed within 1 to 2 years.</u> <u>Groundwater monitoring has shown low levels of TCE and VC. Concentrations are generally decreasing.</u> <u>Site 7 monitoring program showed no concentrations exceeding remedial goals. No significant contaminant migration from Site 7 to Site 3 should occur in the future.</u>		
<b>B.</b>	<b>Adequacy of O&amp;M</b>		
	Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy. <u>The O&amp;M of Site 3 has been well managed. There is going to be a change in the IR Manager, and a new POC for natural resource issues needs to be identified to manage Site 3 and the surrounding area.</u> <u>Maintenance or abandonment of existing wells should be completed.</u> _____ _____ _____		
<b>C.</b>	<b>Early Indicators of Potential Remedy Problems</b>		

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs that suggest that the protectiveness of the remedy may be compromised in the future.

No problems found during the May 2011 inspection.

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**D. Opportunities for Optimization**

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

LUC inspections should be completed at the same time as groundwater sampling.

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**Inspection Team Roster for Site 3 (Area A Downstream Watercourses/OBDA)**

Corey Rich of Tetra Tech, Inc.

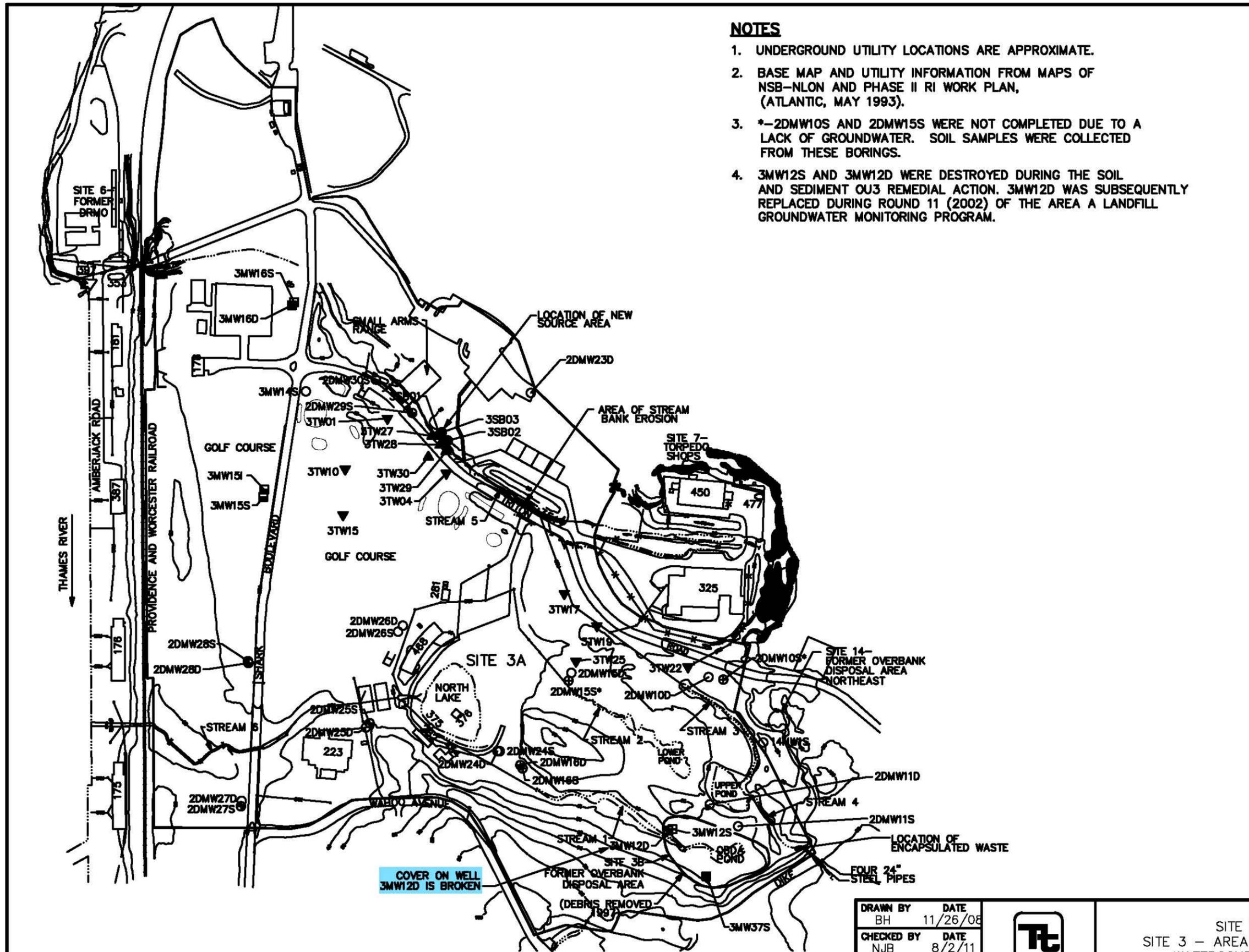
Betsy Collins of Tetra Tech, Inc.

Mark Lewis of CTDEP

Jim Gravette, NAVFAC Mid-Atlantic

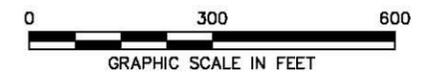
**NOTES**

1. UNDERGROUND UTILITY LOCATIONS ARE APPROXIMATE.
2. BASE MAP AND UTILITY INFORMATION FROM MAPS OF NSB-NLON AND PHASE II RI WORK PLAN, (ATLANTIC, MAY 1993).
3. \*-2DMW10S AND 2DMW15S WERE NOT COMPLETED DUE TO A LACK OF GROUNDWATER. SOIL SAMPLES WERE COLLECTED FROM THESE BORINGS.
4. 3MW12S AND 3MW12D WERE DESTROYED DURING THE SOIL AND SEDIMENT OU3 REMEDIAL ACTION. 3MW12D WAS SUBSEQUENTLY REPLACED DURING ROUND 11 (2002) OF THE AREA A LANDFILL GROUNDWATER MONITORING PROGRAM.



**LEGEND:**

- O&M ISSUE IDENTIFIED DURING FIVE-YEAR REVIEW INSPECTION IN APRIL 2011
- AREA A LANDFILL GROUNDWATER MONITORING PROGRAM MONITORING WELL
- 3MW37S
- 3TW1
- 3TW27
- SOIL BORING
- 3SB01
- REPLACED WELL
- 3MW12D
- ABANDONED WELL
- 3MW12S
- PHASE I MONITORING WELL
- 2DMW25D
- PHASE II MONITORING WELL
- 2DMW26D
- POST-ROD MONITORING WELL
- 3MW16S
- ABANDONED MONITORING WELL
- 2DMW25D
- TOPOGRAPHIC CONTOUR
- BUILDING No.
- WATERCOURSE
- STORM SEWER AND CATCH BASIN
- EXPOSED BEDROCK
- FENCE
- SITE 3 BOUNDARY



BASE MAP SOURCE: PREPARED BY THE NAVAL SUBMARINE BASE PUBLIC WORKS DEPT., ENGINEERING DIVISION, MARCH 2006, DRAWING NO. A-867.

DRAWN BY	DATE
BH	11/26/08
CHECKED BY	DATE
NJB	8/2/11
REVISED BY	DATE
SCALE	AS NOTED



Tetra Tech  
NUS, Inc.

SITE MAP  
SITE 3 - AREA A DOWNSTREAM  
WATERCOURSES/OBDA  
NSB-NLON  
GROTON, CONNECTICUT

CONTRACT NO. WE.33	
OWNER NO. 3386	
APPROVED BY	DATE
CAR	8/2/11
DRAWING NO.	REV.
FIGURE 3-1	1

#### **C.4 DRMO (SITE 6)**





**III. ON-SITE DOCUMENTS & RECORDS VERIFIED** (Check all that apply)

1.	<b>O&amp;M Documents</b>	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
	<input type="checkbox"/> O&M manual	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
	<input type="checkbox"/> As-built drawings	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
	<input type="checkbox"/> Maintenance logs	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
	Remarks <u>The O&amp;M Manual, drawings, and maintenance logs are maintained in the Navy's NIRIS environmental records management system; maintenance activities are captured in the annual O&amp;M reports generated by the Navy and were reviewed as part of preparation of the Third Five-Year Review Report; and on-site inspection of the maintenance logs was not required because of availability of electronic files.</u>			
<hr/>				
2.	<b>Site-Specific Health and Safety Plan</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	<input type="checkbox"/> Contingency plan/emergency response plan	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	Remarks _____			
<hr/>				
3.	<b>O&amp;M and OSHA Training Records</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	Remarks _____			
<hr/>				
4.	<b>Permits and Service Agreements</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	<input type="checkbox"/> Air discharge permit	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	<input type="checkbox"/> Effluent discharge	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	<input type="checkbox"/> Waste disposal, POTW	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	<input type="checkbox"/> Other permits _____	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	Remarks _____			
<hr/>				
5.	<b>Gas Generation Records</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	Remarks _____			
<hr/>				
6.	<b>Settlement Monument Records</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	Remarks _____			
<hr/>				
7.	<b>Groundwater Monitoring Records</b>	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
	Remarks <u>Monitoring is now performed bi-annually. However, Year 12 GMR was issued in March 2011 for sampling on July 2010 and the next round of sampling was completed in April 2011. The annual groundwater monitoring reports are maintained in the Navy's NIRIS environmental records management system; the groundwater monitoring reports were reviewed as part of preparation of the Third Five-Year Review Report; and on-site inspection of the reports was not required because of the availability of the electronic files.</u>			
<hr/>				
8.	<b>Leachate Extraction Records</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	Remarks _____			
<hr/>				

9. **Discharge Compliance Records**  
 Air  Readily available  Up to date  N/A  
 Water (effluent)  Readily available  Up to date  N/A  
 Remarks \_\_\_\_\_

10. **Daily Access/Security Logs**  Readily available  Up to date  N/A  
 Remarks  
Fenced and gated area. Visitors must typically sign in.

**IV. O&M COSTS**

1. **O&M Organization**  
 State in-house  Contractor for State  
 PRP in-house  Contractor for PRP  
 Federal Facility in-house  Contractor for Federal Facility  
 Other  
ECC performed groundwater monitoring, landfill cap inspections, and site maintenance from 2006 through 2008. ECC performed inspections and cap maintenance for 2009. H&S Environmental, Inc. performed groundwater monitoring for 2009 and 2010 and inspections and cap maintenance for 2010, and Sovereign is the O & M contractor for 2011.

2. **O&M Cost Records**  
 Readily available  Up to date  
 Funding mechanism/agreement in place  
 Original O&M cost estimate \$10,186  Breakdown attached

Total annual cost by year for review period if available

From	<u>1/2006</u>	To	<u>12/2006</u>	<u>\$10,300</u>	<input type="checkbox"/> Breakdown attached
	Date		Date	Total cost	
From	<u>1/2007</u>	To	<u>12/2007</u>	<u>\$10,700</u>	<input type="checkbox"/> Breakdown attached
	Date		Date	Total cost	
From	<u>1/2008</u>	To	<u>12/2008</u>	<u>\$10,900</u>	<input type="checkbox"/> Breakdown attached
	Date		Date	Total cost	
From	<u>1/2009</u>	To	<u>12/2009</u>	<u>\$47,700</u>	<input type="checkbox"/> Breakdown attached
	Date		Date	Total cost	
From	<u>1/2010</u>	To	<u>12/2010</u>	<u>\$14,100</u>	<input type="checkbox"/> Breakdown attached
	Date		Date	Total cost	
From	<u>1/2011</u>	To	<u>12/2011</u>	<u>\$8,400</u>	<input type="checkbox"/> Breakdown attached
	Date		Date	Total cost	

3. **Unanticipated or Unusually High O&M Costs During Review Period**  
 Describe costs and reasons:  
Long term monitoring costs over the past 6 years have been \$29,900 to \$45,600 per year in addition to O&M. These costs include sampling and analysis, data validation, and reporting.  
 \_\_\_\_\_  
Original estimated groundwater monitoring cost was \$84,000 per year for the first 3 years for quarterly sampling and analysis.  
 \_\_\_\_\_

<b>V. ACCESS AND INSTITUTIONAL CONTROLS</b> <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A			
<b>A. Fencing</b>			
1.	<b>Fencing damaged</b>	<input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Gates secured <input type="checkbox"/> N/A	Remarks <u>All fencing in good shape. Open during inspection because men are working at the site daily.</u>
<b>B. Other Access Restrictions</b>			
1.	<b>Signs and other security measures</b>	<input checked="" type="checkbox"/> Location shown on site map <input type="checkbox"/> N/A	Remarks <u>Fencing around site shown on map.</u>
<b>C. Institutional Controls (ICs)</b>			
1.	<b>Implementation and enforcement</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Site conditions imply ICs not properly implemented Site conditions imply ICs not being fully enforced  Type of monitoring (e.g., self-reporting, drive by) <u>Self reporting</u>  Frequency <u>Bi-annual</u> Responsible party/agency <u>Naval Submarine Base - New London</u> Contact <u>Richard Conant</u> <u>IR Manager</u> <u>4/6/11</u> <u>(860) 694-5649</u> <div style="display: flex; justify-content: space-around; font-size: small;"> <span>Name</span> <span>Title</span> <span>Date</span> <span>Phone no.</span> </div> Reporting is up-to-date <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Reports are verified by the lead agency <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A  Specific requirements in deed or decision documents have been met <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Violations have been reported <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A Other problems or suggestions: <input type="checkbox"/> Report attached <u>None.</u> <u>Per IC Document SOPA (Admin) New London Instruction 5090.25 (July 2009) contractors shall contact the Environmental Division prior to storing or operating heavy equipment/materials on Site 6. Ground disturbing activities must be approved by the Environmental Division prior to commencement of the activities.</u>
2.	<b>Adequacy</b>	<input checked="" type="checkbox"/> ICs are adequate <input type="checkbox"/> ICs are inadequate <input type="checkbox"/> N/A	Remarks _____ _____ _____

<b>D. General</b>			
1.	<b>Vandalism/trespassing</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> No vandalism evident
Remarks _____ _____			
2.	<b>Land use changes on site</b>	<input checked="" type="checkbox"/> N/A	
Remarks _____ _____			
3.	<b>Land use changes off site</b>	<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A
Remarks: <u>A portion of the site is being used as a parking lot for the NSB-NLON Yacht Club. This land use change has not impacted the landfill cap.</u>			
<b>VI. GENERAL SITE CONDITIONS</b>			
<b>A. Roads</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A			
1.	<b>Roads damaged</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Roads adequate <input type="checkbox"/> N/A
Remarks _____ _____			
<b>B. Other Site Conditions</b>			
Remarks <u>Boats are being stored improperly on the site. Blocks need to be placed under boat supports to protect the cap from point loads.</u>			
_____ _____ _____ _____			
<b>VII. LANDFILL COVERS</b> <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A			
<b>A. Landfill Surface</b>			
1.	<b>Settlement</b> (Low spots)	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Settlement not evident
Areal extent _____		Depth _____	
Remarks _____ _____			
2.	<b>Cracks</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Cracking not evident
Lengths _____		Widths _____    Depths _____	
Remarks <u>A few minor longitudinal cracks evident.</u>			
_____			
3.	<b>Erosion</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Erosion not evident
Areal extent _____		Depth _____	
Remarks _____ _____			

4.	<b>Holes</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Holes not evident
	Areal extent _____	Depth _____	
	Remarks _____		
<hr/>			
5.	<b>Vegetative Cover</b>	<input type="checkbox"/> Grass	<input type="checkbox"/> Cover properly established
			<input type="checkbox"/> No signs of stress
	<input type="checkbox"/> Trees/Shrubs (indicate size and locations on a diagram)		
	Remarks _____		
	Not applicable _____		
<hr/>			
6.	<b>Alternative Cover (armored rock, concrete, etc.)</b>	<input checked="" type="checkbox"/> N/A	
	Remarks _____		
<hr/>			
7.	<b>Bulges</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Bulges not evident
	Areal extent _____	Height _____	
	Remarks _____		
<hr/>			
8.	<b>Wet Areas/Water Damage</b>	<input checked="" type="checkbox"/> Wet areas/water damage not evident	
	<input type="checkbox"/> Wet areas	<input type="checkbox"/> Location shown on site map	Areal extent _____
	<input type="checkbox"/> Ponding	<input type="checkbox"/> Location shown on site map	Areal extent _____
	<input type="checkbox"/> Seeps	<input type="checkbox"/> Location shown on site map	Areal extent _____
	<input type="checkbox"/> Soft subgrade	<input type="checkbox"/> Location shown on site map	Areal extent _____
	Remarks _____		
<hr/>			
9.	<b>Slope Instability</b>	<input type="checkbox"/> Slides	<input type="checkbox"/> Location shown on site map
			<input checked="" type="checkbox"/> No evidence of slope instability
	Areal extent _____		
	Remarks _____		
<hr/>			
<b>B. Benches</b>			
	<input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A		
	(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)		
<hr/>			
<b>C. Letdown Channels</b>			
	<input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A		
	(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)		

<b>D. Cover Penetrations</b> <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A			
1.	<b>Gas Vents</b>	<input type="checkbox"/> Active <input type="checkbox"/> Passive	
	<input type="checkbox"/> Properly secured/locked	<input type="checkbox"/> Functioning	<input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition
	<input type="checkbox"/> Evidence of leakage at penetration		<input type="checkbox"/> Needs Maintenance
	<input checked="" type="checkbox"/> N/A		
	Remarks _____		
<hr/>			
2.	<b>Gas Monitoring Probes</b>		
	<input type="checkbox"/> Properly secured/locked	<input type="checkbox"/> Functioning	<input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition
	<input type="checkbox"/> Evidence of leakage at penetration		<input type="checkbox"/> Needs Maintenance <input checked="" type="checkbox"/> N/A
	Remarks _____		
<hr/>			
3.	<b>Monitoring Wells</b> (within surface area of landfill)		
	<input checked="" type="checkbox"/> Properly secured/locked	<input checked="" type="checkbox"/> Functioning	<input checked="" type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition
	<input type="checkbox"/> Evidence of leakage at penetration	<input type="checkbox"/> Needs Maintenance	<input type="checkbox"/> N/A
	Remarks <u>The well pad of monitoring well 6MW1S needs to be replaced. The damaged bolt at 6MW9S needs to be replaced.</u>		
<hr/>			
4.	<b>Leachate Extraction Wells</b>		
	<input type="checkbox"/> Properly secured/locked	<input type="checkbox"/> Functioning	<input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition
	<input type="checkbox"/> Evidence of leakage at penetration	<input type="checkbox"/> Needs Maintenance	<input checked="" type="checkbox"/> N/A
	Remarks _____		
<hr/>			
5.	<b>Settlement Monuments</b>	<input type="checkbox"/> Located	<input type="checkbox"/> Routinely surveyed <input checked="" type="checkbox"/> N/A
	Remarks _____		
<hr/>			
<b>E. Gas Collection and Treatment</b>		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A
<b>F. Cover Drainage Layer</b>		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A
<b>G. Detention/Sedimentation Ponds</b>		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A
<b>H. Retaining Walls</b>		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A

<b>I. Perimeter Ditches/Off-Site Discharge</b>		<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A
1.	<b>Siltation</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Siltation not evident
	Areal extent _____	Depth _____	
	Remarks _____		
2.	<b>Vegetative Growth</b>	<input checked="" type="checkbox"/> Location shown on site map	<input type="checkbox"/> N/A
	<input checked="" type="checkbox"/> Vegetation does not impede flow		
	Areal extent <u>30 foot long</u>	Type <u>leaf litter and dead trees</u>	
	Remarks _____		
	<u>Leaf litter, dead trees, and other debris needs to be cleared from the channel where indicated and from the area around the drop inlet.</u>		
3.	<b>Erosion</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Erosion not evident
	Areal extent _____	Depth _____	
	Remarks _____		
4.	<b>Discharge Structure</b>	<input checked="" type="checkbox"/> Functioning	<input type="checkbox"/> N/A
	Remarks _____		
	<u>Could not inspect outflow location because of fence (no man gate). Navy is considering installing a man gate to access this outlet structure in the future. Some leaf litter accumulation around the drop inlet that needs to be cleared.</u>		
<b>J. Monitoring Wells (off site)</b>			
	<input checked="" type="checkbox"/> Properly secured/locked	<input checked="" type="checkbox"/> Functioning	<input checked="" type="checkbox"/> Routinely sampled
	<input type="checkbox"/> Evidence of leakage at penetration	<input type="checkbox"/> Needs Maintenance	<input type="checkbox"/> Good condition
	<input type="checkbox"/> N/A		
	Remarks _____		
	<u>Visual inspection from the road of the two off-site monitoring wells (6MW6S and 6MW6D).</u>		
<b>VIII. VERTICAL BARRIER WALLS</b>		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A
<b>IX. GROUNDWATER/SURFACE WATER REMEDIES</b>		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A
<b>X. OTHER REMEDIES</b>			
If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.			

**XI. OVERALL OBSERVATIONS**

**A. Implementation of the Remedy**

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

The remedy is successfully preventing unacceptable risks to human receptors from exposure to contaminated soil and preventing unacceptable risk to ecological receptors in the Thames River from potential migrating contaminants.

\_\_\_\_\_  
\_\_\_\_\_

**B. Adequacy of O&M**

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

The cap, pavement, perimeter channel, and drop inlet are in good condition and are effective in providing current and long-term protectiveness. Blocks need to be placed under the boat supports, debris needs to be cleared from the perimeter channel and from around the drop inlet, some minor longitudinal cracks need to be repaired, a man gate may be installed to facilitate inspection of the culvert discharge, and some minor well maintenance is needed.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**C. Early Indicators of Potential Remedy Problems**

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs that suggest that the protectiveness of the remedy may be compromised in the future.

None.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**D. Opportunities for Optimization**

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

Eliminate monitoring well 6MW1S because it is cross-gradient from the cap and not down gradient. Abandon all unnecessary wells.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

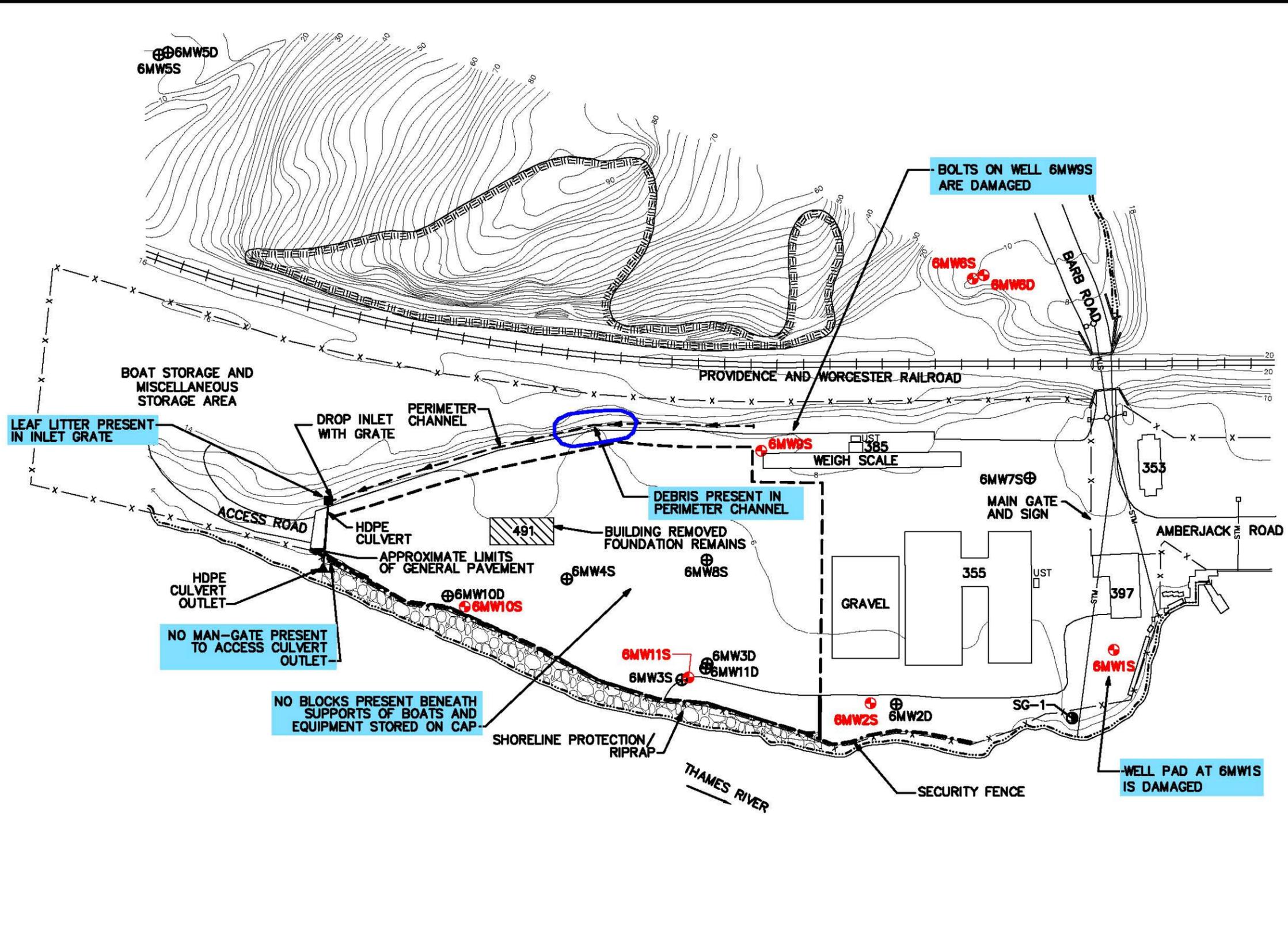
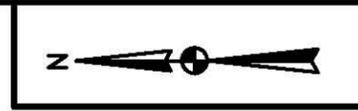
## **Inspection Team Roster for Site 6 (DRMO)**

Corey Rich of Tetra Tech, Inc.

Betsy Collins of Tetra Tech, Inc.

Mark Lewis of CTDEP

Jim Gravette, NAVFAC Mid-Atlantic



**LEGEND:**

- O&M ISSUE IDENTIFIED DURING FIVE-YEAR REVIEW INSPECTION IN APRIL 2011
- BUILDING REMOVED
- + MONITORING WELL IN SITE 6 GROUNDWATER MONITORING PROGRAM
- ⊕ ABANDONED MONITORING WELL
- HISTORICAL STAFF GAUGE
- FENCE
- APPROXIMATE LIMIT OF CAP
- APPROXIMATE LOCATION OF JERSEY BARRIER
- APPROXIMATE LOCATION OF DEBRIS NOTED DURING APRIL 2011 INSPECTION

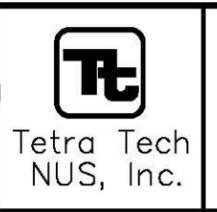
**NOTES:**

1. UNDERGROUND UTILITY LOCATIONS ARE APPROXIMATE.
2. BASE MAP AND UTILITY INFORMATION FROM MAPS OF NSB-NLON AND PHASE II RI WORK PLAN (ATLANTIC, 1993.)
3. APPROXIMATE CAP LIMITS AND OTHER FEATURES COMPILED FROM OHM COMPLETION REPORT AND ATLANTIC DESIGN SHEET C-2.
4. FENCE LINE PROVIDED BY H&S (2010)

0      80      160  
SCALE IN FEET

REVISIONS			
NO.	DATE	INL	REMARKS
1	10-8-08	BH	UPDATED STATUS OF ABANDONED WELLS INSIDE CAPPED AREA
2	10-19-10	ND	CHANGED FENCE LINE REMOVED BUILDING 479
3	4-19-11	ND	UPDATED SECURITY FENCE ALONG RIVER AND BOAT STORAGE AREA.

DRAWN BY: CK      DATE: 11/24/08  
 CHECKED BY: BC      DATE: 5/16/11  
 REVISED BY:      DATE:        
 SCALE: AS NOTED



SITE PLAN FOR  
SITE 6  
NSB-NLON  
GROTON, CONNECTICUT

CONTRACT NO. WE33	
OWNER NO. 3386	
APPROVED BY CAR	DATE 5/16/11
DRAWING NO. FIGURE 4-1	REV. 2

## **C.5 GOSS COVE LANDFILL (SITE 8)**



3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency USEPA Region 1  
 Contact K. Keckler RPM 4/6/11 (617)918-1385  
 Name Title Date Phone no.

Problems; suggestions;  Report attached  
Gas vent #N (near main gate) should be secured.

Agency CTDEP  
 Contact Mark Lewis PM 4/6/11 (860) 424-3768  
 Name Title Date Phone no.

Problems; suggestions;  Report attached  
Not present during inspection.

Agency \_\_\_\_\_  
 Contact \_\_\_\_\_  
 Name Title Date Phone no.

Problems; suggestions;  Report attached \_\_\_\_\_

Agency \_\_\_\_\_  
 Contact \_\_\_\_\_  
 Name Title Date Phone no.

Problems; suggestions;  Report attached \_\_\_\_\_

4. **Other interviews** (optional)  Report attached.

Jim Gravette (NAVFAC Mid-Atlantic): Need to determine if the new AST installed by museum could potentially affect the landfill cap and whether the AST can be enlarged.


**III. ON-SITE DOCUMENTS & RECORDS VERIFIED** (Check all that apply)

1.	<b>O&amp;M Documents</b>	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
	<input type="checkbox"/> O&M manual	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
	<input type="checkbox"/> As-built drawings	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
	<input type="checkbox"/> Maintenance logs	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
	Remarks <u>The O&amp;M Manual, drawings, and maintenance logs are maintained in the Navy's NIRIS environmental records management system; maintenance activities are captured in the annual O&amp;M reports generated by the Navy and were reviewed as part of preparation of the Third Five-Year Review Report; and on-site inspection of the maintenance logs was not required because of availability of electronic files.</u>			
<hr/>				
2.	<b>Site-Specific Health and Safety Plan</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	<input type="checkbox"/> Contingency plan/emergency response plan	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	Remarks _____			
<hr/>				
3.	<b>O&amp;M and OSHA Training Records</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	Remarks _____			
<hr/>				
4.	<b>Permits and Service Agreements</b>			
	<input type="checkbox"/> Air discharge permit	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	<input type="checkbox"/> Effluent discharge	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	<input type="checkbox"/> Waste disposal, POTW	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	<input type="checkbox"/> Other permits _____	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	Remarks _____			
<hr/>				
5.	<b>Gas Generation Records</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	Remarks _____			
<hr/>				
6.	<b>Settlement Monument Records</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	Remarks _____			
<hr/>				
7.	<b>Groundwater Monitoring Records</b>	<input checked="" type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input type="checkbox"/> N/A
	Remarks <u>Monitoring is now performed annually. Round 22 GMR was issued August 2011 for sampling performed July 2010. Round 23 sampling was completed in April 2011. The annual groundwater monitoring reports are maintained in the Navy's NIRIS environmental records management system; the groundwater monitoring reports were reviewed as part of preparation of the Third Five-Year Review Report; and on-site inspection of the reports was not required because of the availability of the electronic files.</u>			
<hr/>				
8.	<b>Leachate Extraction Records</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	Remarks _____			
<hr/>				
9.	<b>Discharge Compliance Records</b>			
	<input type="checkbox"/> Air	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	<input type="checkbox"/> Water (effluent)	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	Remarks _____			
<hr/>				

10. **Daily Access/Security Logs**  Readily available  Up to date  N/A  
 Remarks  
Public Access to site.  
 \_\_\_\_\_  
 \_\_\_\_\_

**IV. O&M COSTS**

1. **O&M Organization**  
 State in-house  Contractor for State  
 PRP in-house  Contractor for PRP  
 Federal Facility in-house  Contractor for Federal Facility  
 Other  
ECC performed groundwater monitoring, landfill cap inspections, and site maintenance from 2006 through 2008. ECC performed inspections and cap maintenance for 2009, H&S Environmental, Inc. performed groundwater monitoring for 2009 and 2010 and inspections and cap maintenance for 2010, and Sovereign is the O & M contractor for 2011.

2. **O&M Cost Records**  
 Readily available  Up to date  
 Funding mechanism/agreement in place  
 Original O&M cost estimate \$7,400 for O&M plus \$21,500 every 5 years for 5-year reviews.  
 Breakdown attached

Total annual cost by year for review period if available

From	Date	To	Date	Total cost	<input type="checkbox"/> Breakdown attached
	1/2006		12/2006	\$12,700	
From	Date	To	Date	Total cost	<input type="checkbox"/> Breakdown attached
	1/2007		12/2007	\$13,100	
From	Date	To	Date	Total cost	<input type="checkbox"/> Breakdown attached
	1/2008		12/2008	\$13,400	
From	Date	To	Date	Total cost	<input type="checkbox"/> Breakdown attached
	1/2009		12/2009	\$51,400	
From	Date	To	Date	Total cost	<input type="checkbox"/> Breakdown attached
	1/2010		12/2010	\$20,700	
From	Date	To	Date	Total cost	<input type="checkbox"/> Breakdown attached
	1/2011		12/2011	\$9,100	
From	Date	To	Date	Total cost	<input type="checkbox"/> Breakdown attached

3. **Unanticipated or Unusually High O&M Costs During Review Period**  
 Describe costs and reasons:  
Long term monitoring costs for Year 5 (2006) to Year 9 (2011) of \$15,300 to \$293,500 per year in addition to O&M sampling, analysis, data validation, and evaluation.  
Original estimated groundwater monitoring cost was \$20,000 per year.

V. ACCESS AND INSTITUTIONAL CONTROLS  Applicable  N/A

A. Fencing

1. **Fencing damaged**  Location shown on site map  Gates secured  N/A

Remarks

Fencing in good condition.

B. Other Access Restrictions

1. **Signs and other security measures**  Location shown on site map  N/A

Remarks

Site is open to the public. Gates closed when museum is closed. The main gate on the north side of the site (near well 8MW5S) was not locked during the inspection. Contact information on the sign on the main gate needs to be updated.

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented

Yes  No  N/A

Site conditions imply ICs not being fully enforced

Yes  No  N/A

Type of monitoring (e.g., self-reporting, drive by) Self-Reporting

Frequency Annually

Responsible party/agency Naval Submarine Base – New London

Contact <u>Richard Conant</u>	<u>IR Manager</u>	<u>4/6/11</u>	<u>(860) 694-5649</u>
Name	Title	Date	Phone no.

Reporting is up-to-date

Yes  No  N/A

Reports are verified by the lead agency

Yes  No  N/A

Specific requirements in deed or decision documents have been met

Yes  No  N/A

Violations have been reported

Yes  No  N/A

Other problems or suggestions:  Report attached

Per IC Document SOPA (Admin) New London Instruction 5090.25 (July 2009) contractors shall contact the Environmental Division prior to storing or operating heavy equipment/materials on Site 8. Ground disturbing activities must be approved by the Environmental Division prior to commencement of the activities. A new AST was installed without knowledge of the IR Program. Apparently SOPA was not followed. There is settlement of the gun display into pavers.

2. **Adequacy**  ICs are adequate  ICs are inadequate  N/A

Remarks

Appears that ICs are not being properly implemented or fully enforced. Better internal communication is necessary with Navy.

<b>D. General</b>			
1.	<b>Vandalism/trespassing</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> No vandalism evident
Remarks _____			
2.	<b>Land use changes on site</b>	<input checked="" type="checkbox"/> N/A	
Remarks _____			
3.	<b>Land use changes off site</b>	<input checked="" type="checkbox"/> N/A	
Remarks _____			
<b>VI. GENERAL SITE CONDITIONS</b>			
<b>A. Roads</b> <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A			
1.	<b>Roads damaged</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Roads adequate <input type="checkbox"/> N/A
Remarks _____			
<b>B. Other Site Conditions</b>			
Remarks Need a map of the sprinkler system and need to interview grounds people about the system. Connections boxes checked during the inspection were generally in good shape. One bad sprinkler head was noted by Gas Vent M.			
<b>VII. LANDFILL COVERS</b> <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A			
<b>A. Landfill Surface</b>			
1.	<b>Settlement</b> (Low spots)	<input checked="" type="checkbox"/> Location shown on site map	<input type="checkbox"/> Settlement not evident
Areal extent <u>1 sq ft</u>		Depth <u>2 inches</u>	
Remarks <u>Minor settlement around light pole #11.</u>			
2.	<b>Cracks</b>	<input checked="" type="checkbox"/> Location shown on site map	<input type="checkbox"/> Cracking not evident
Lengths <u>2'-20'</u>		Widths <u>1/4 to 1/2 inch</u>	Depths <u>1 inch</u>
Remarks _____			
3.	<b>Erosion</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Erosion not evident
Areal extent _____		Depth _____	
Remarks _____			
4.	<b>Holes</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Holes not evident
Areal extent _____		Depth _____	
Remarks _____			

5.	<b>Vegetative Cover</b>	<input checked="" type="checkbox"/> Grass	<input type="checkbox"/> Cover properly established	<input type="checkbox"/> No signs of stress
<input type="checkbox"/> Trees/Shrubs (indicate size and locations on a diagram)				
Remarks <u>Grass is in good condition (mowed lawn)</u>				
6.	<b>Alternative Cover (armored rock, concrete, etc.)</b>	<input checked="" type="checkbox"/> Location shown on site map	<input type="checkbox"/> N/A	
Remarks <u>Concrete curb in two areas is damaged and needs to be repaired. A pad needs to be placed beneath the propane tank near Gas Vent L to protect grass area.</u>				
7.	<b>Bulges</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Bulges not evident	
Areal extent _____		Height _____		
Remarks _____				
8.	<b>Wet Areas/Water Damage</b>	<input checked="" type="checkbox"/> Wet areas/water damage not evident		
<input type="checkbox"/> Wet areas		<input type="checkbox"/> Location shown on site map	Areal extent _____	
<input type="checkbox"/> Ponding		<input type="checkbox"/> Location shown on site map	Areal extent _____	
<input type="checkbox"/> Seeps		<input type="checkbox"/> Location shown on site map	Areal extent _____	
<input type="checkbox"/> Soft subgrade		<input type="checkbox"/> Location shown on site map	Areal extent _____	
Remarks _____				
9.	<b>Slope Instability</b>	<input type="checkbox"/> Slides	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> No evidence of slope instability
Areal extent _____				
Remarks _____				
<b>B. Benches</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A				
(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)				
<b>C. Letdown Channels</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A				
(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)				
<b>D. Cover Penetrations</b> <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A				
1.	<b>Gas Vents</b>	<input type="checkbox"/> Active	<input checked="" type="checkbox"/> Passive	
<input checked="" type="checkbox"/> Not Properly secured/locked		<input checked="" type="checkbox"/> Functioning	<input type="checkbox"/> Routinely sampled	<input checked="" type="checkbox"/> Good condition
<input type="checkbox"/> Evidence of leakage at penetration		<input type="checkbox"/> Needs Maintenance		
<input type="checkbox"/> N/A				
Remarks <u>Two of three vents are in fenced areas with locked gates. Gas Vent # N (near main gate) is not secured.</u>				
2.	<b>Gas Monitoring Probes</b>	<input type="checkbox"/> Properly secured/locked	<input type="checkbox"/> Functioning	<input type="checkbox"/> Routinely sampled
<input type="checkbox"/> Evidence of leakage at penetration		<input type="checkbox"/> Needs Maintenance	<input type="checkbox"/> Good condition	<input checked="" type="checkbox"/> N/A
Remarks _____				

3.	<b>Monitoring Wells</b> (within surface area of landfill)	<input checked="" type="checkbox"/> Properly secured/locked	<input type="checkbox"/> Functioning	<input checked="" type="checkbox"/> Routinely sampled	<input type="checkbox"/> Good condition
		<input type="checkbox"/> Evidence of leakage at penetration		<input checked="" type="checkbox"/> Needs Maintenance	<input type="checkbox"/> N/A
	Remarks: <u>New bladder pump needed in 8MW2D, bolts on wells 8MW6D, 8MW2S and 8MW2D are damaged and should be replaced.</u>				
4.	<b>Leachate Extraction Wells</b>	<input type="checkbox"/> Properly secured/locked	<input type="checkbox"/> Functioning	<input type="checkbox"/> Routinely sampled	<input type="checkbox"/> Good condition
		<input type="checkbox"/> Evidence of leakage at penetration		<input type="checkbox"/> Needs Maintenance	<input checked="" type="checkbox"/> N/A
	Remarks _____				
5.	<b>Settlement Monuments</b>	<input type="checkbox"/> Located	<input type="checkbox"/> Routinely surveyed	<input checked="" type="checkbox"/> N/A	
	Remarks _____				
<b>E. Gas Collection and Treatment</b>		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A		
<b>F. Cover Drainage Layer</b>		<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A		
1.	<b>Outlet Pipes Inspected</b>	<input checked="" type="checkbox"/> Functioning	<input type="checkbox"/> N/A		
	Remarks <u>Assessed through video inspection during the annual inspection.</u>				
2.	<b>Outlet Rock Inspected</b>	<input checked="" type="checkbox"/> Functioning	<input type="checkbox"/> N/A		
	Remarks <u>Assessed through video inspection during the annual inspection.</u>				
<b>G. Detention/Sedimentation Ponds</b>		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A		
<b>H. Retaining Walls</b>		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A		

<b>I. Perimeter Ditches/Off-Site Discharge</b>		<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A
1.	<b>Siltation</b> <input type="checkbox"/> Location shown on site map Areal extent _____              Depth _____ Remarks _____ <u>Video inspection by Sovereign of box culvert and main SS laterals.</u>	<input checked="" type="checkbox"/> Siltation not evident	
2.	<b>Vegetative Growth</b> <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Vegetation does not impede flow Areal extent _____              Type _____ Remarks _____	<input checked="" type="checkbox"/> N/A	
3.	<b>Erosion</b> <input type="checkbox"/> Location shown on site map Areal extent _____              Depth _____ Remarks _____	<input checked="" type="checkbox"/> Erosion not evident	
4.	<b>Discharge Structure</b> <input checked="" type="checkbox"/> Functioning <input type="checkbox"/> N/A Remarks <u>Parking lot yard drains are all clear (very small amount of sediment and debris in bottoms).</u>		
<b>J. Monitoring Wells (off site)</b>			
<input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition <input type="checkbox"/> Evidence of leakage at penetration <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks _____ <u>8MW9S should be abandoned (in Shark Boulevard) because this well is no longer sampled. A visual inspection of this monitoring well was performed and the condition of the well is unknown; however, the monitoring well cover was in good condition.</u>			
<b>VIII. VERTICAL BARRIER WALLS</b>		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A
<b>IX. GROUNDWATER/SURFACE WATER REMEDIES</b>		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A
<b>X. OTHER REMEDIES</b>			
If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.			

**XI. OVERALL OBSERVATIONS**

**A. Implementation of the Remedy**

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).  
The remedy effectively protects humans from exposure to contaminated soil and prevents unacceptable risk to ecological receptors in the Thames River and Goss Cove from potential migration of contaminants. Minor deficiencies with O&M are not affecting the remedy. AST pad design drawings are required to determine whether this may be affecting the remedy and whether the size of the pad can be increased. The Navy will repair potential cap damage caused by the installation of the AST pad. The Navy is working with a contractor to do inspection and repair.

**B. Adequacy of O&M**

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.  
Landfill cap, gas vents, culverts, and drains are in good condition and provide current and long-term protectiveness. Need to obtain sprinkler system information from grounds people and fix one broken sprinkler head. Minor cracks in the asphalt need to be filled and the gun display needs to be moved due to minor settlement. Concrete curb in two areas needs to be replaced. A 2x2 pad should be placed under the propane tank near Gas Vent L. Gas vent N needs to be secured and the contact information on the main gate sign should be updated. Some well maintenance is needed. Overall, the site is in very good condition.

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**C. Early Indicators of Potential Remedy Problems**

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.

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**D. Opportunities for Optimization**

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.  
Abandon wells no longer being used. Reduce the parameter list and frequency of monitoring at the remaining wells.

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**Inspection Team Roster for Site 8 (Goss Cove Landfill)**

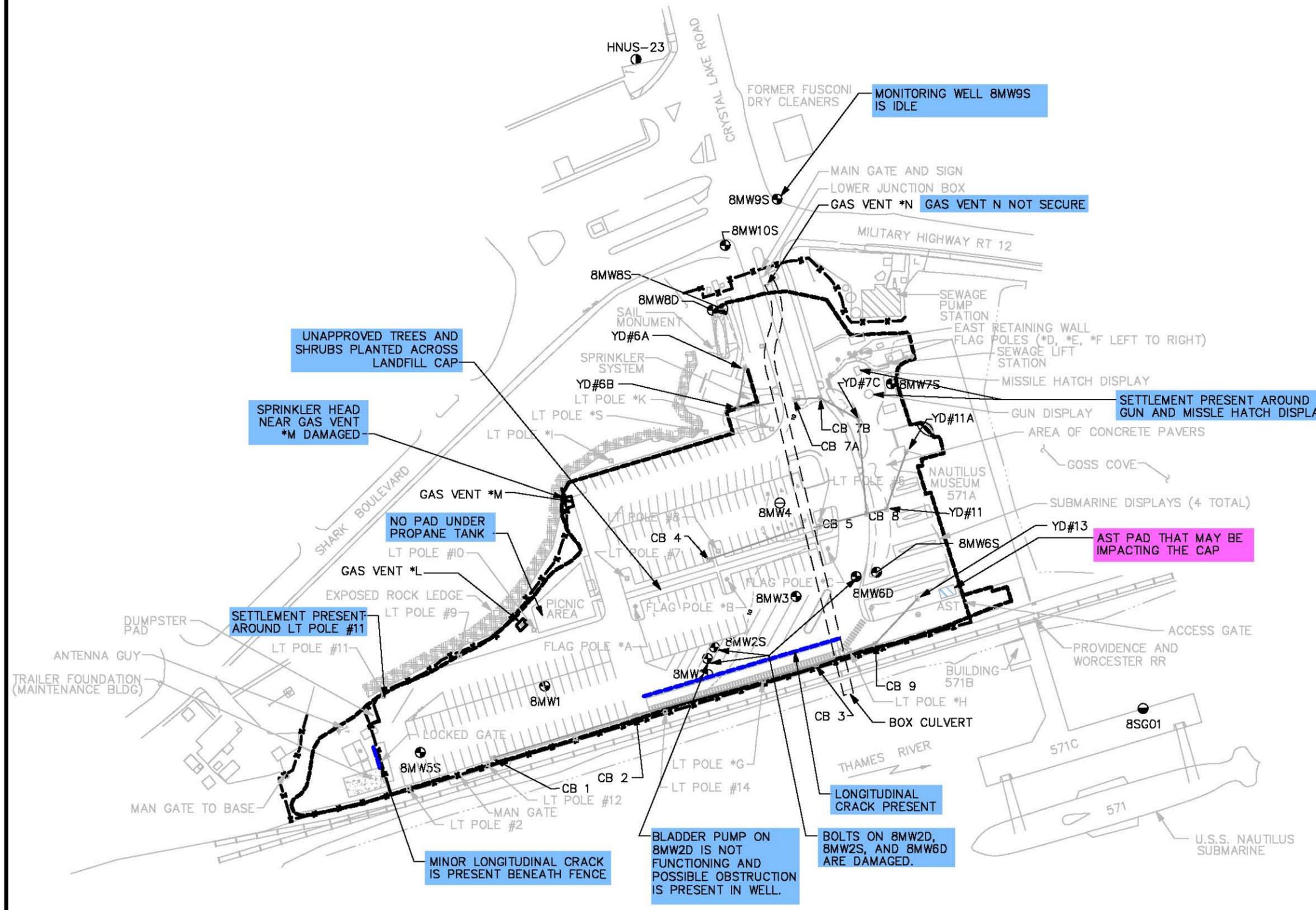
Corey Rich of Tetra Tech, Inc.

Betsy Collins of Tetra Tech, Inc.

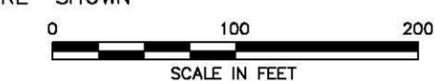
Kymerlee Keckler of USEPA Region I

Rachel Leary of Sovereign

Jim Gravette, NAVFAC Mid-Atlantic



- LEGEND:**
- O&M ISSUE IDENTIFIED DURING FIVE-YEAR REVIEW INSPECTION IN APRIL 2011
  - DEFICIENCY IDENTIFIED DURING FIVE-YEAR REVIEW INSPECTION IN APRIL 2011
  - MONITORING WELL
  - ABANDONED MONITORING WELL
  - TANK FARM MONITORING WELL
  - HISTORICAL STAFF GAUGE
  - STORM DRAIN LINES
  - - - EXISTING SHORELINE
  - ASPHALT PAVEMENT AREA CAP
  - SYSTEM BOUNDARY
  - 10 TOPOGRAPHIC ELEVATION
  - - - CONTOUR (NAVD 88)
  - CHAIN LINK FENCE
  - [ ] BOX CULVERT
  - LT LIGHT
  - CB CATCH BASIN
  - YD YARD DRAIN
  - APPROXIMATE LOCATION OF LONGITUDINAL CRACKS FOUND DURING THE APRIL 2011 SITE INSPECTION
- NOTES:**
- IDENTIFICATION NUMBER/LETTER WITH AN ASTERISK INDICATES AN ARBITRARY DESIGNATION BECAUSE NONE WAS PROVIDED IN THE DESIGN OR AS-BUILT DOCUMENTATION.
  - ALL MONITORING WELLS TO BE INSPECTED ARE SHOWN



REF: BOX CULVERT LOCATION TAKEN FROM BIDDING DOCUMENT DRAWING TITLED "GOSS COVE LANDFILL (SITE 8) CAP, STORM SEWER PLAN AND PROFILE", NAVFAC DRAWING NO. 2204124, DIS. SH. NO. C-10, SEPTEMBER 4, 2001 REVISION.

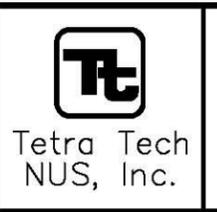
REVISIONS			
NO.	DATE	INL	REMARKS
1	12-16-08	BH	UPDATED TO SHOW ABANDONED WELLS, LOCATION OF LOWER JUNCTION BOX, BOX CULVERT AND CURRENT GUN DISPLAY.
2	10-19-10	ND	MAN GATE NEAR LIGHT POLE REMOVED, TWO GATES ADDED, COLOR CODING ADDED, DELETED STAFF GAUGE.
2	3-29-11	ND	CORRECTED LOCATION OF BOX CULVERT, ADDED STORM DRAIN LINES.

DRAWN BY  
BH 12/16/08

CHECKED BY  
BC 5/16/11

REVISED BY  
DATE

SCALE  
AS NOTED



SITE PLAN FOR  
SITE 8 - GOSS COVE LANDFILL  
NSB-NLON  
GROTON, CONNECTICUT

CONTRACT NO. WE33	
OWNER NO. 3386	
APPROVED BY CAR	DATE 5/23/11
DRAWING NO. FIGURE 6-1	REV. 2

**C.6 FORMER OT-5 (SITE 9) AND FORMER FUEL FARM (SITE 23)**

**IR Groundwater Inspection Checklist**

**Site 9 - Waste OT-5 and Site 23 - Tank Farm**

**Naval Submarine Base New London (NSB-NLON) - Groton, Connecticut**

**Sites Description:**

Site 9 is located within Site 23 and consists of a former 750,000-gallon underground concrete storage tank (OT-5) used to store fuel oil and, later, bilge water and other waste solutions. Site 23 is located in the southern portion of NSB-NLON and includes nine former USTs that were demolished and closed in place, a 30,000-gallon, double-walled UST (OT-10), a 10,000-gallon waste oil tank, a fuel oil loading area, a tanker truck dumping pad and trough, associated UST piping systems, baseball/softball fields, buildings that housed the former air sparging/soil vapor extraction (AS/SVE) facility for the Naval Exchange (NEX) service station, two 150,000-gallon diesel above-ground storage tank (ASTs), and other buildings.

**Documentation Questionnaire:**

**General**

1. Is the complete updated Groundwater LUC RD and SOPA New London Instruction (latest version) available at NSB-NLON? If not, explain below.
2. Have the groundwater monitoring reports for the period of performance been reviewed? If not, elaborate on review status.
3. Are there any other files related to the implementation of the groundwater engineering controls (e.g., monitoring well inspections). If so, specify below.
4. Are there correspondence records (i.e. letters, emails) on file documenting EPA and CTDEP notifications regarding (if so, specify below):
  - 4a. Activities inconsistent with groundwater LUCs?
  - 4b. Corrective actions regarding activities inconsistent with groundwater LUCs?
  - 4c. Changes in procedures affecting groundwater LUCs?
  - 4d. Proposed land use changes?
  - 4e. Proposed transfer or sale of the property?

**Not Applicable**

Yes	No
X	
N/A	N/A
	X

	X
	X
	X
	X
	X

**Inspection Questionnaire:**

**General**

1. Is the site free of any indication of recent and/or current intrusive activities (digging, trenching, jack-hammering etc.)? If no, indicate location of intrusive activities on site map and note extent and purpose.  
See attached map.
2. Is the site free of identifiable concerns, such as, signs of dumping of chemicals or debris, with regards to this site? If no, annotate these concerns in the comments section below and indicate location of concern on site map.
3. Is the site free of storage of any investigative derived waste (IDW) on site? If no, mark location of IDW on site map and note its condition in the comment section below. Indicate if IDW is properly labeled, per example below:
 

Investigative Derived Waste  
 Sites 9 and 23  
 Date  
 Media  
 Do not handle, analysis pending  
 Mr. Richard Conant/Tel: (860) 694-5649
4. Is there any indication of modified land use at the site? If so, indicate land use changes below.
5. As of this inspection, does the Navy have plans to transfer the property within the next 6 months? If yes, have EPA and CTDEP been notified?

Yes	No
	X
X	
X	
	X
	X

**Site Specific**

6. Is there evidence of human consumption of groundwater on site? If yes, describe specifics of groundwater consumption and indicate its location on site map.
7. Is groundwater extracted on site and used/or for any purpose (i.e. residential, agricultural, industrial) other than monitoring? If yes, indicate location of groundwater extraction on site map and describe use of extracted groundwater.
8. Could any of the observed site activities significantly affect the integrity of any existing groundwater LUCs? If yes, describe the nature of activities and indicate their location on site map.
9. Are there new facilities frequented by children under the age of 6 (i.e. daycare, elementary schools, playgrounds, community center, recreation) on site property?
10. Do discharges from the deep groundwater drainage system pose an unacceptable risk to human health? If so, explain and identify appropriate corrective actions.
11. Are perimeter/security gates intact and operating as designed? If not, note any deficiencies in fencing, such as broken or missing sections, on the site map.
12. A) Has the groundwater LUC documentation provided to the Towns of Groton and Ledyard been reviewed and B) does it need to be updated?

Yes	No
	X
	X
	X
	X
	X
X	
a) X	b) X

**Comments:** (Provide related question number for each comment)

1. Intrusive activities were observed during the inspection at Site 23. General Borings (Prospect, CT) was augering on site and stated that they were doing geotech borings for future installation of light poles at the ball field. There are no changes in land use caused by the installation of light poles on site; however, the current configuration of the fields will be redone over the next 6 months.

**Recommendations:** (Enter suggested improvements to this form)

**Navy Annual Certification:**

I hereby certify that a complete and thorough inspection and an evaluation of compliance with groundwater land use controls established for the site in the 2008 Record of Decision have been performed and that the items noted on this inspection form have been assessed with respect to the intent of the implemented remedial action objectives for the site.

Navy Representative \_\_\_\_\_ Title \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

**Onsite Inspection Team Roster**

Corey Rich \_\_\_\_\_ Project Manager / Tetra Tech  
Lead Inspector Title/Affiliation

 \_\_\_\_\_  
Signature Date of Inspection

**Others Present:**

Jim Gravette \_\_\_\_\_ NAVFAC  
Name Affiliation

Betsy Collins \_\_\_\_\_ Tetra Tech  
Name Affiliation

Mark Lewis \_\_\_\_\_ CTDEP  
Name Affiliation

\_\_\_\_\_ Name Affiliation

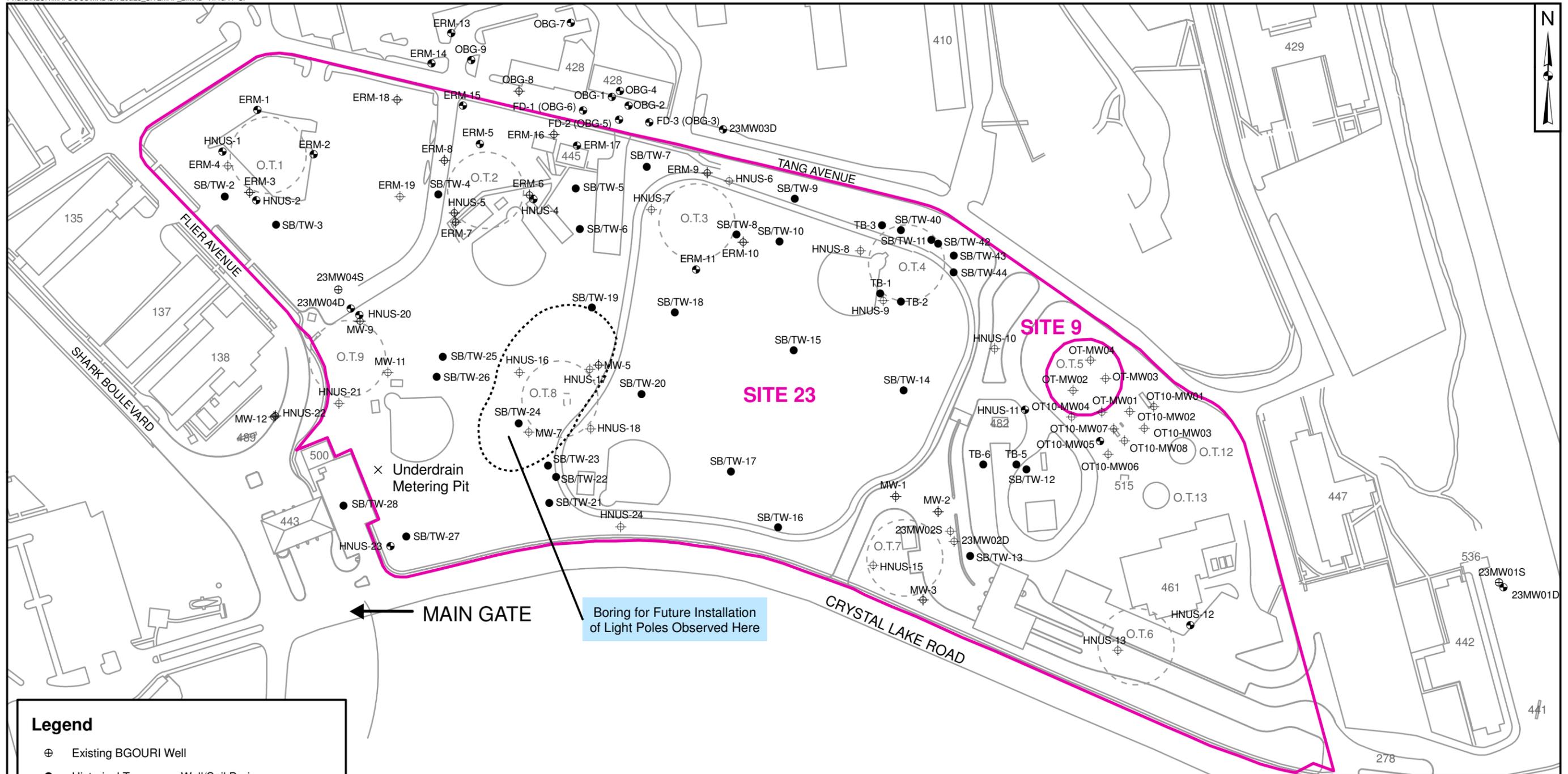
**Inspection Team Roster for Sites 9/23 (Waste OT-5 and Tank Farm)**

Corey Rich of Tetra Tech, Inc.

Betsy Collins of Tetra Tech, Inc.

Mark Lewis of CTDEP

Jim Gravette, NAVFAC Mid-Atlantic



**Legend**

- ⊕ Existing BGOURI Well
- Historical Temporary Well/Soil Boring
- ⊕ Destroyed, Missing, or Abandoned Monitoring Well
- ⊕ Existing Monitoring Well
- ▭ Site Boundary
- ⋯ Approximate Location of Boring Activity Observed During April 2011 Site Inspection
- Former Tank

**NOTES:**  
 1.) Air sparging and soil vapor extraction wells and testing points not shown.  
 2.) Base Map Source: Prepared by the Naval Submarine Base Public Works Dept., Engineering Division. March 28, 2006. Drawing No. A-667.  
 3.) Site 23 Boundary Surveyed by CME Associates Inc. on March 30, 2010.

DRAWN BY	DATE
K. MOORE	05/11/07
CHECKED BY	DATE
B. COLLINS	11/16/11
REVISED BY	DATE
S. PAXTON	11/16/11
SCALE AS NOTED	

**TETRA TECH**

**SITE MAP**  
**SITE 9 FORMER OT-5 AND SITE 23 FORMER FUEL FARM**  
**NSB-NLON**  
**GROTON, CONNECTICUT**

CONTRACT NUMBER	CTO NUMBER
3386	WE54
APPROVED BY	DATE
C. RICH	05/24/11
APPROVED BY	DATE
—	—
FIGURE NO.	REV
7-1	0



**APPENDIX D**

**SOPA (ADMIN) NEW LONDON INSTRUCTION 5090.25**

**INSTALLATION RESTORATION SITE USE RESTRICTIONS  
AT NAVAL SUBMARINE BASE NEW LONDON**



## DEPARTMENT OF THE NAVY

NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT 06349-5000

SOPA (ADMIN) NLONINST 5090.25

4 Jun 09

### SOPA (ADMIN) NEW LONDON INSTRUCTION 5090.25

From: Commanding Officer, Naval Submarine Base New London

Subj: ESTABLISHMENT AND MAINTENANCE OF ENVIRONMENTAL RESTORATION (ER) LAND USE CONTROLS AND RESTRICTIONS AT NAVAL SUBMARINE BASE, NEW LONDON

- Ref:
- (a) Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S. Code § 9601 et seq.
  - (b) Defense Environmental Restoration Program, 10 U.S. Code § 2701 et seq.
  - (c) Federal Facility Agreement (1995)
  - (d) COMNAVREGMIDLANTINST 5090.2 (series)
  - (e) Record of Decision, Source Control Operable Unit, Area A Landfill, Naval Submarine Base New London, Groton, Connecticut (September 1995)
  - (f) Record of Decision for Site 8 - Goss Cove Landfill, Soil and Sediment, Naval Submarine Base New London, Groton, Connecticut (February 1998)
  - (g) Record of Decision for Site 6 - Defense Reutilization and Marketing Office - Operable Unit 2, Naval Submarine Base - New London, Connecticut (December 2006)
  - (h) Record of Decision for Base-wide Groundwater Operable Unit 9, Naval Submarine Base, New London, Groton, Connecticut (September 2008)
  - (i) Area A Landfill Allowable Loading Pressure, Naval Submarine Base New London (November 2006)
  - (j) Operations and Maintenance Manual for Installation Restoration Program Sites at Naval Submarine Base New London, Groton, Connecticut, Volumes I, II, III, IV, and V (January 2006)
  - (k) NAVSUBASE New London Public Works Department Request for Permit to Excavate Procedure (June, 2008)
  - (l) Department of the Navy Environmental Restoration Program Manual (August 2006)

- Encl:
- (1) Defense Reutilization and Marketing Office (DRMO) Installation Restoration Site and Landfill Cap - Site 6
  - (2) Area A Landfill Installation Restoration Site and Landfill Cap - Site 2A
  - (3) Overview Map of NAVSUBASE New London ER Sites
  - (4) Excavated Soil Management Procedures
  - (5) Contaminated Water Dewatering Procedures
  - (6) Goss Cove Landfill Installation Restoration Site and Landfill Cap - Site 8
  - (7) Monitoring Well Inventory Map

1. Purpose. This instruction, implementing relevant Records of Decision and Land Use Controls (LUCs) Remedial Designs for

SUBASENLON, prescribes procedures for maintaining LUCs at sites which have been remediated, and establishes management policies for sites still being investigated under the Navy Environmental Restoration Program (formerly known as the Navy Installation Restoration Program). References (a) through (d) pertain. Among other things, this instruction prohibits excavation in, and ground water extraction from SUBASENLON ER sites, as well as alteration of or damage to remedial infrastructure, e.g., monitoring wells and landfill caps. Additionally, this instruction promulgates notice of LUCs imposed per references (e) through (h).

2. Cancellation. SOPA (ADMIN) NLONINST 5090.18D.

3. Applicability. This instruction applies to all ER sites at SUBASENLON, and to all activity in or affecting such sites, by whomever conducted, that is or may be inconsistent with remedial actions implemented by the Records of Decision, or with land use controls maintenance activity prescribed in LUCs Remedial Designs. Enclosure (3) identifies SUBASENLON ER sites.

4. Discussion. LUCs, that is, engineered controls (e.g., landfill caps) and institutional controls (e.g., groundwater withdrawal prohibitions), when imposed as a remedy (or part of a remedy) selected for an ER site in a Record of Decision, restrict use of, and may also limit access to such sites, for as long as may be necessary to protect human health and the environment. Specialized landfill caps have been installed at Site 6 (DRMO landfill), per reference (g); Site 2A (Area A landfill), per reference (e), on a small part of Area A Downstream; and, at Site 8 (Goss Cove landfill), per reference (f). See enclosures (1), (2), (3), and (6). These caps can be damaged by operation or storage of heavy equipment on the cap surface, or by unauthorized excavation in or other penetration of the cap. References (i) and (j) pertain. Ground water and surface water anywhere at SUBASENLON shall not be extracted or used for any purpose. At Site 3, a localized risk exists for exposure to chemicals that could volatilize from ground water, and thereby migrate through building foundations into indoor air. Construction, renovation, or alteration of structures within this localized Site 3 area must be designed in coordination with the SUBASENLON Naval Facilities Public Works Environmental Division (Environmental Division) to effectively address such vapor intrusion, wherever it may occur. Ground-disturbing activity, e.g., construction activity, within ER sites is permissible, but must be consistent with applicable Records of Decision and LUCs Remedial Designs, and therefore requires proper planning, preparation, coordination, and safety (including occupational safety and worker protection). Enclosures (4) and (5) promulgate necessary procedures and safeguards related to excavating and dewatering within ER sites. References (j) and (k) pertain. Some

4 Jun 09

monitoring wells are located outside the boundaries of ER sites. Enclosure (7) identifies the location of all known active, inactive, and abandoned monitoring wells. These structures must not be damaged or modified in any way without the express, prior permission of the Environmental Division. Periodic inspection and maintenance of remedial infrastructure and LUCs must be accomplished according to applicable Records of Decision and LUCs Remedial Designs. References (j) and (l) pertain.

5. Action. The Environmental Division shall: take all actions reasonably necessary to implement this instruction, including communicating with affected tenant commands regarding operational restraints and land use constraints compelled by land use controls, and including coordination with Navy planning, construction, and safety personnel and cognizant federal and state regulatory agencies; exercise broad oversight over ER sites, to ensure that land use controls are effectively maintained and provide data on ER sites for incorporation into base maps and GIS overlays, and otherwise assist SUBASENLON to comply with reference (d). Acting through the SUBASENLON Public Works Officer, the Environmental Division may require that all activity inconsistent with land use controls (or could otherwise violate a selected remedy) be immediately curtailed. The Environmental Division shall also investigate and report same, as per applicable federal and state law, and Department of Defense and Navy directives. Heavy equipment may not be stored or operated, nor may materials or other items be stockpiled or emplaced, on any landfill cap without the express, prior permission of the Environmental Division (694-5649). If permission for any of these activities is granted, all conditions, e.g., restrictions, associated therewith must be scrupulously observed. Special care must be taken to limit excessive wear and tear, or damage to asphalt wearing surfaces. Damage to same must be reported to the Environmental Division immediately. The Area A Landfill Installation Restoration Site and Landfill Cap - Site 2A (see enclosure (2)) is a restricted access area controlled by the SUBASENLON Chief Master-at-Arms (CMAA). The CMAA shall coordinate and obtain approval from the Environmental Division before granting access requests involving operation or storage of heavy equipment, or stockpiling or emplacing materials or other items at Area A Landfill. Reference (i) pertains. Ground disturbing activity at any ER site, to include subsurface excavation, subsurface penetration of the soil (boring), and dewatering, requires the express, prior permission of the Environmental Division (694-5649), and may not commence until an excavation permit has been issued. Reference (k) pertains. Ground disturbing activity must adhere scrupulously to such permit, which will detail waste management procedures, and establish standards for protecting remedial infrastructure and restoring the project site. Future iterations of this

SOPA (ADMIN) NLONINST 5090.25

4 Jun 09

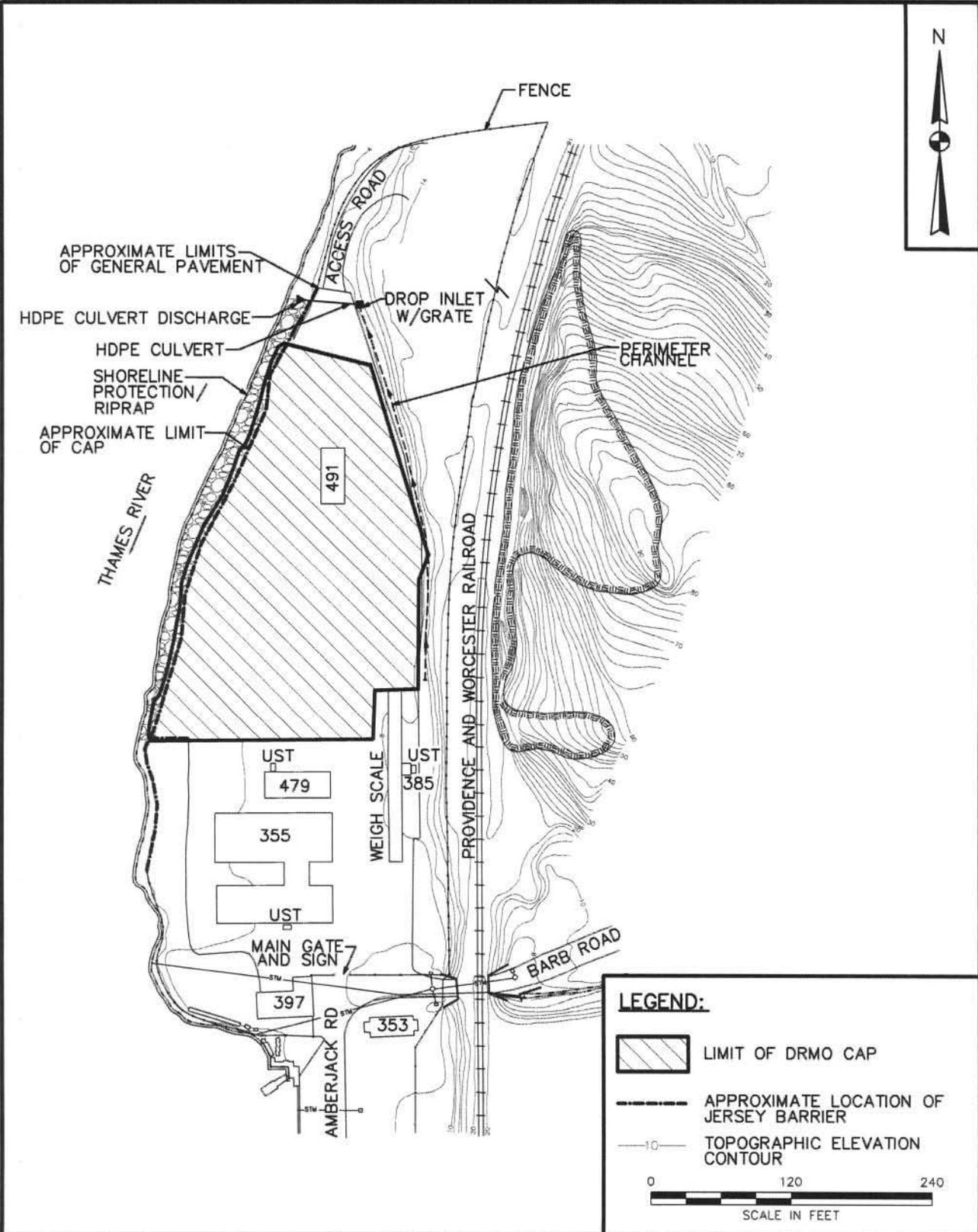
instruction must incorporate all subsequently issued Records of Decision and Land Use Controls Remedial Designs, as well as remain consistent with existing Records of Decision and Land Use Controls Remedial Designs. The United States Environmental Protection Agency, Region 1 and the Connecticut Department of Environmental Protection will be notified of changes to this instruction. In the event of any conflict between the former (this instruction) and the latter (Records of Decision and Land Use Controls Remedial Designs), the latter shall prevail.



D. ROSSLER  
By direction

Distribution: (SUBASENLONINST 5216.8P)  
List D

ACAD: 0083CM35.dwg 12/01/06 MF PIT



**LEGEND:**

- LIMIT OF DRMO CAP
- APPROXIMATE LOCATION OF JERSEY BARRIER
- TOPOGRAPHIC ELEVATION CONTOUR

0 120 240  
SCALE IN FEET

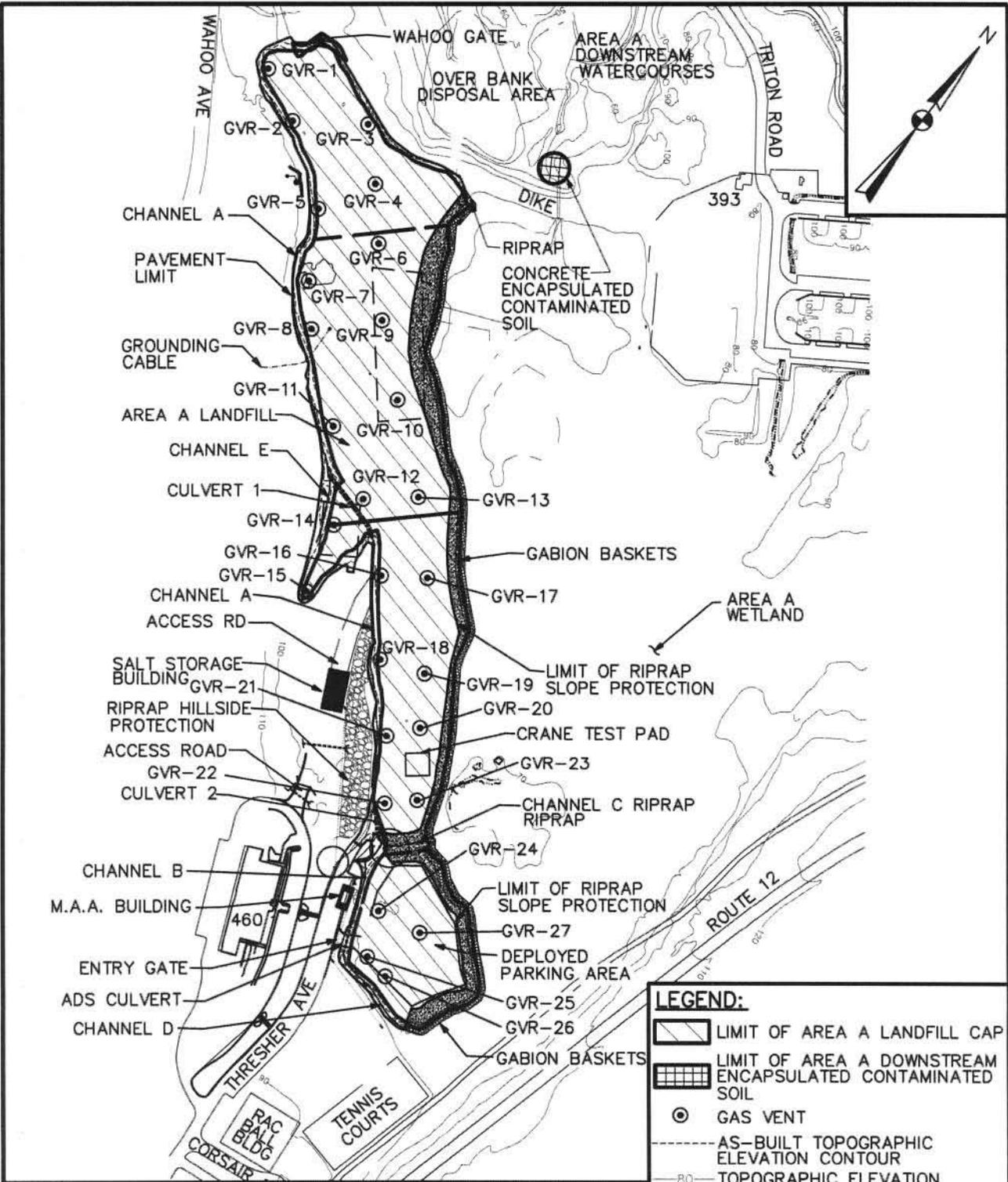
DRAWN BY MF	DATE 10/17/06
CHECKED BY	DATE
REVISED BY	DATE
SCALE AS NOTED	



DEFENSE REUTILIZATION AND MARKETING  
OFFICE (DRMO)  
INSTALLATION RESTORATION SITE AND  
LANDFILL CAP  
NAVAL SUBMARINE BASE - NEW LONDON  
GROTON, CONNECTICUT

CONTRACT NO. 0083	
OWNER NO. 038	
APPROVED BY	DATE
DRAWING NO. <b>ENCLOSURE 1</b>	REV. 0

ACAD: 0083CM36.dwg 12/01/06 MF PIT

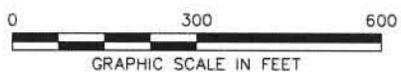


**SOURCES:**

1. BASE MAP AND UTILITY INFORMATION FROM MAPS OF NSB-NLON AND PHASE II RI WORK PLAN (ATLANTIC, 1993).
2. GAS VENT COORDINATE INFORMATION FROM SAI SURVEY CO. FOSTER WHEELER AS-BUILT REPORT 11-1-97.

**LEGEND:**

-  LIMIT OF AREA A LANDFILL CAP
-  LIMIT OF AREA A DOWNSTREAM ENCAPSULATED CONTAMINATED SOIL
-  GAS VENT
-  AS-BUILT TOPOGRAPHIC ELEVATION CONTOUR
-  TOPOGRAPHIC ELEVATION CONTOUR OF EXISTING GROUND



DRAWN BY MF	DATE 10/17/06
CHECKED BY	DATE
REVISED BY	DATE
SCALE AS NOTED	



**AREA A LANDFILL  
INSTALLATION RESTORATION SITE  
AND LANDFILL CAP  
NAVAL SUBMARINE BASE - NEW LONDON  
GROTON, CONNECTICUT**

CONTRACT NO. 0083	
OWNER NO. 038	
APPROVED BY	DATE
DRAWING NO. <b>ENCLOSURE 2</b>	REV. 0



**LEGEND:**

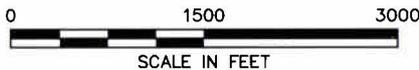
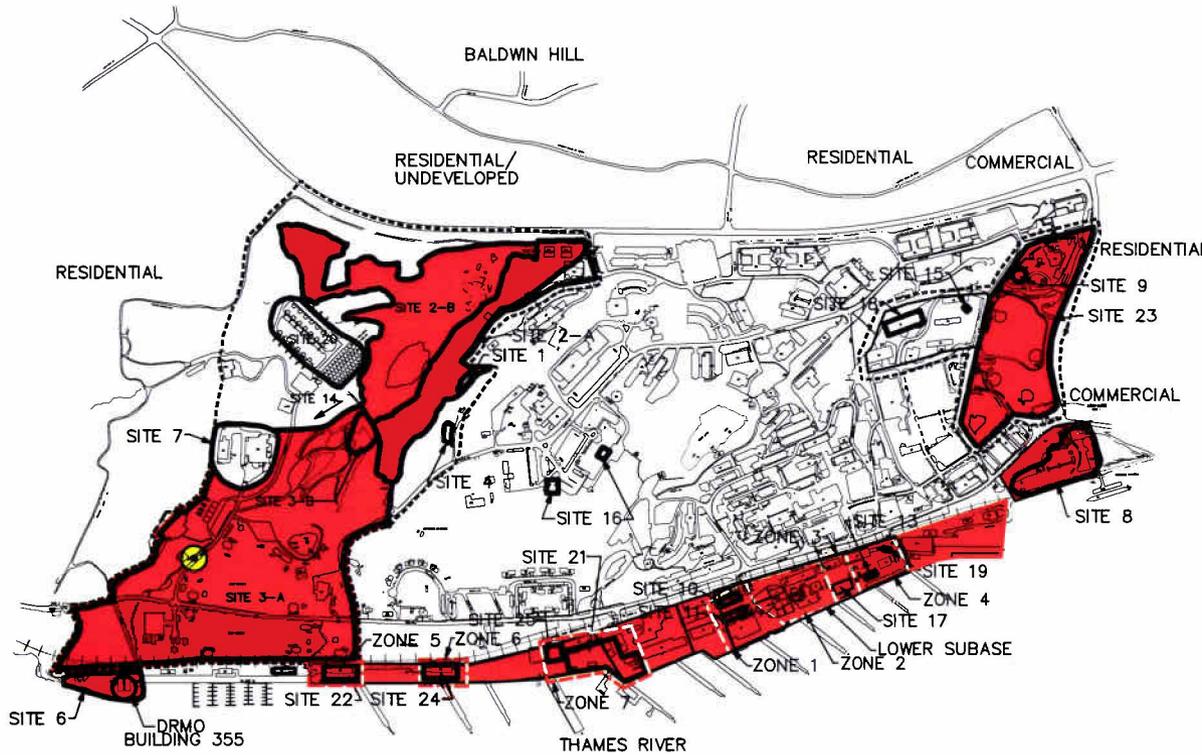
- SITE BOUNDARY
- OUG BOUNDARY
- - - - LOWER SUBBASE REMEDIAL INVESTIGATION ZONE BOUNDARY
- AREA WITH LUCs ON SOIL AND/OR GROUNDWATER
- AREA WITH LUCs ON GROUNDWATER AND CONSTRUCTION. (SEE NOTE 4).
- LUC LAND USE CONTROL

**SITE IDENTIFICATIONS:**

- SITE 1 - CONSTRUCTION BATTALION UNIT (CBU) DRUM STORAGE AREA
- SITE 2 - (A) AREA A LANDFILL AND (B) AREA A WETLAND
- SITE 3 - (A) AREA A DOWNSTREAM WATER COURSES AND (B) OVERBANK DISPOSAL AREA (OBDA)
- SITE 4 - RUBBLE FILL AREA AT BUNKER A-86
- SITE 6 - DEFENSE REUTILIZATION AND MARKETING OFFICE FORMER (DRMO)
- SITE 7 - TORPEDO SHOPS
- SITE 8 - GOSS COVE LANDFILL
- SITE 9 - OILY WASTEWATER TANK (OT-5)
- SITE 10 - LOWER SUBBASE-FUEL STORAGE TANKS AND TANK 54-H
- SITE 11 - LOWER SUBBASE-POWER PLANT OIL TANKS
- SITE 13 - LOWER SUBBASE-BUILDING 79 WASTE OIL PIT
- SITE 14 - OVERBANK DISPOSAL AREA NORTHEAST (OBDANE)
- SITE 15 - SPENT ACID STORAGE AND DISPOSAL AREA (SASDA)
- SITE 16 - HOSPITAL INCINERATORS
- SITE 17 - HAZARDOUS MATERIALS/SOLVENT STORAGE AREA (BUILDING 31)
- SITE 18 - SOLVENT STORAGE AREA (BUILDING 33)
- SITE 19 - SOLVENT STORAGE AREA (BUILDING 36)
- SITE 20 - AREA A WEAPONS CENTER
- SITE 21 - BERTH 16
- SITE 22 - PIER 33
- SITE 23 - FUEL FARM
- SITE 24 - CENTRAL PAINT ACCUMULATION AREA (BUILDING 174)
- SITE 25 - LOWER SUBBASE-CLASSIFIED MATERIALS INCINERATOR

**NOTES:**

1. THIS FIGURE SHOULD BE IN COLOR. IF IT IS NOT, PLEASE CONTACT THE ENVIRONMENTAL DEPARTMENT.
2. SITE BOUNDARIES ARE APPROXIMATE
3. SOPA (ADMIN) NEW LONDON INSTRUCTION 5090.18E (2009) INCLUDES SITE USE RESTRICTIONS FOR AREAS WITH SOIL AND GROUNDWATER LUCs.
4. CONSTRUCTION ACTIVITIES IN THIS AREA REQUIRE COORDINATION WITH THE SUBBASE IR MANAGER.



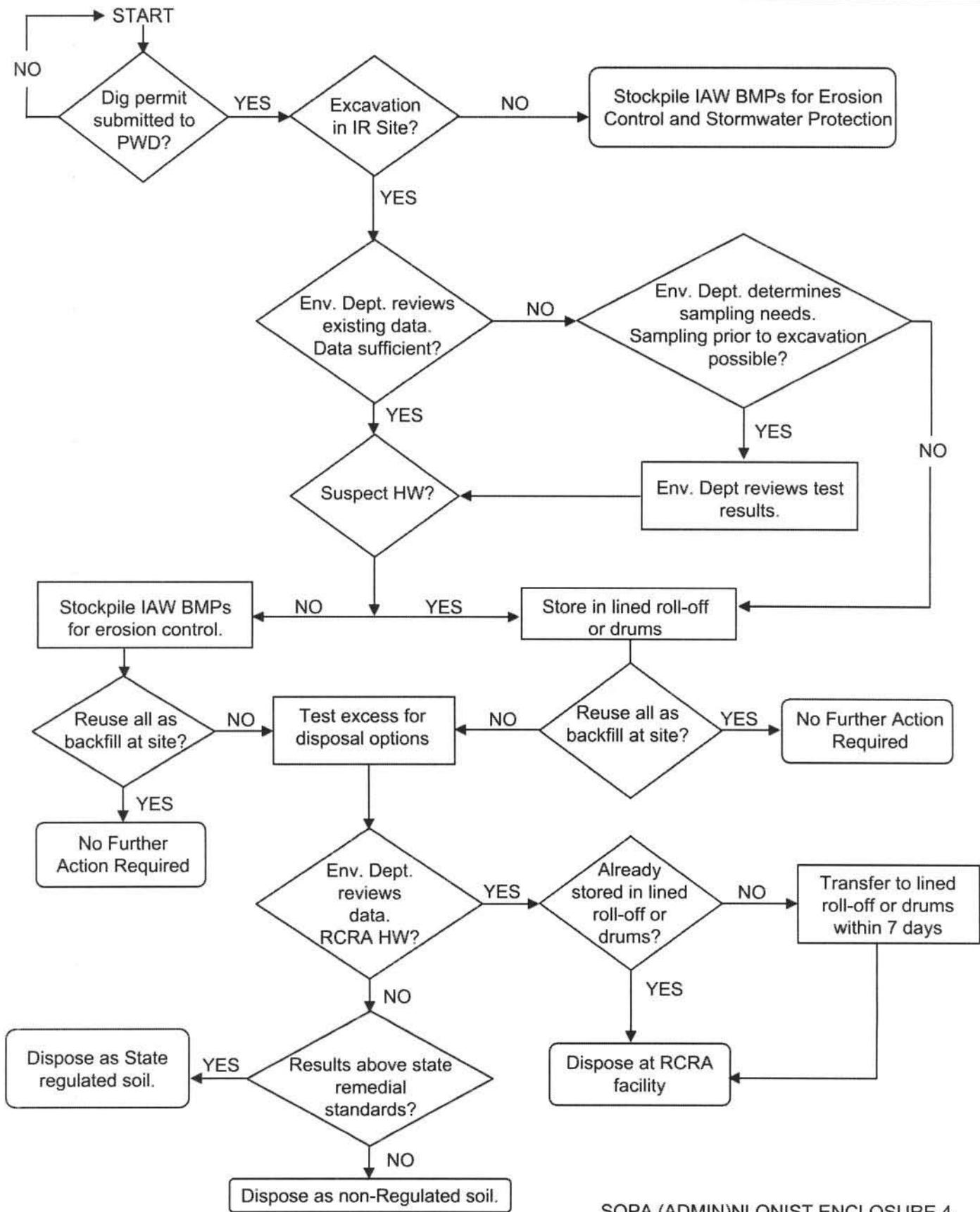
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CHECKED BY <i>CAR</i>	DATE <b>5/29/09</b>
REVISED BY	DATE
SCALE AS NOTED	



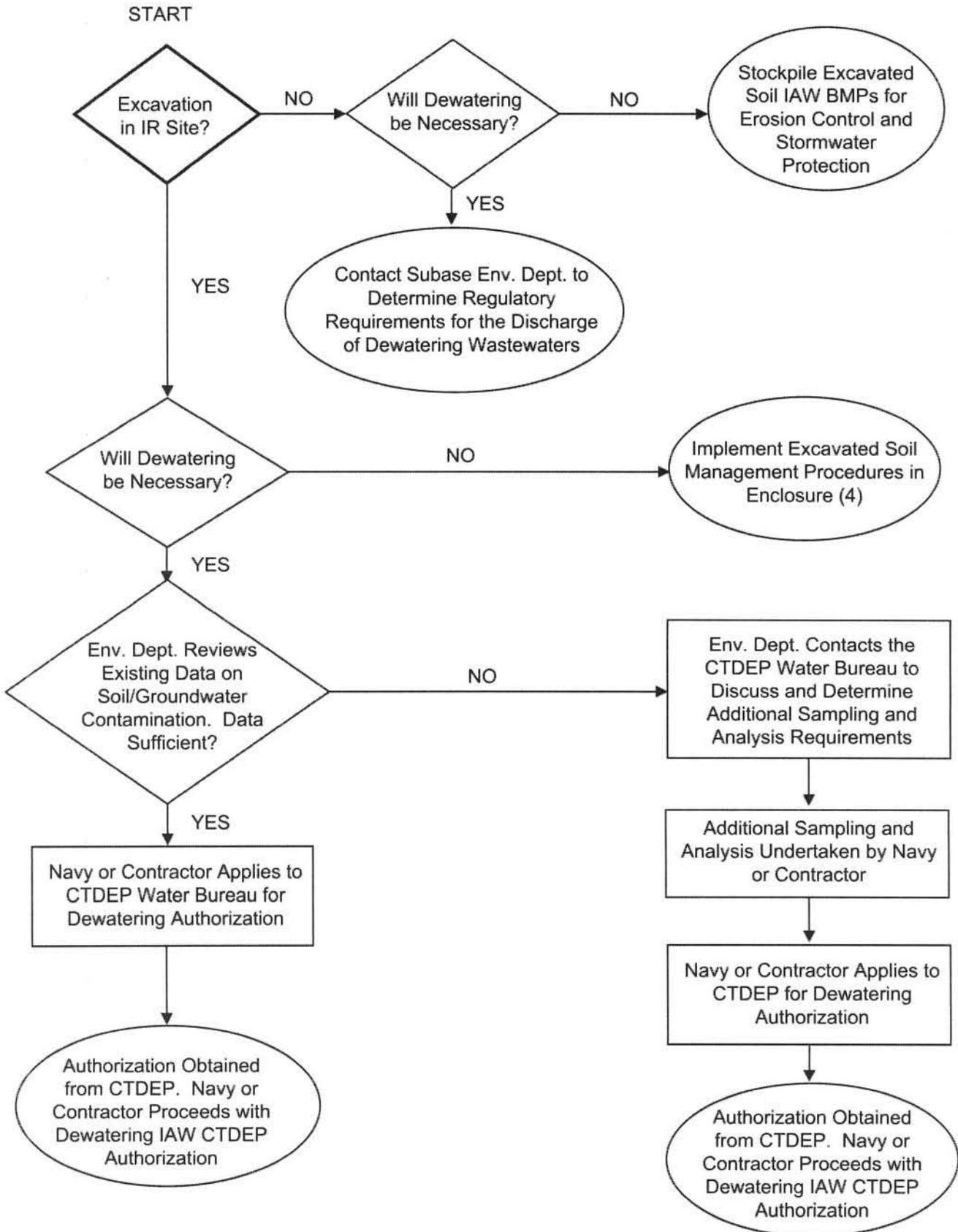
**ACTIVE INSTALLATION RESTORATION SITES  
AND AREAS WITH LAND USE CONTROLS  
NAVAL SUBMARINE BASE - NEW LONDON  
GROTON, CONNECTICUT**

CONTRACT NO. <b>1484</b>	
OWNER NO.	
APPROVED BY <i>CAR</i>	DATE <b>5/29/09</b>
DRAWING NO. <b>ENCLOSURE 3</b>	REV. <b>0</b>

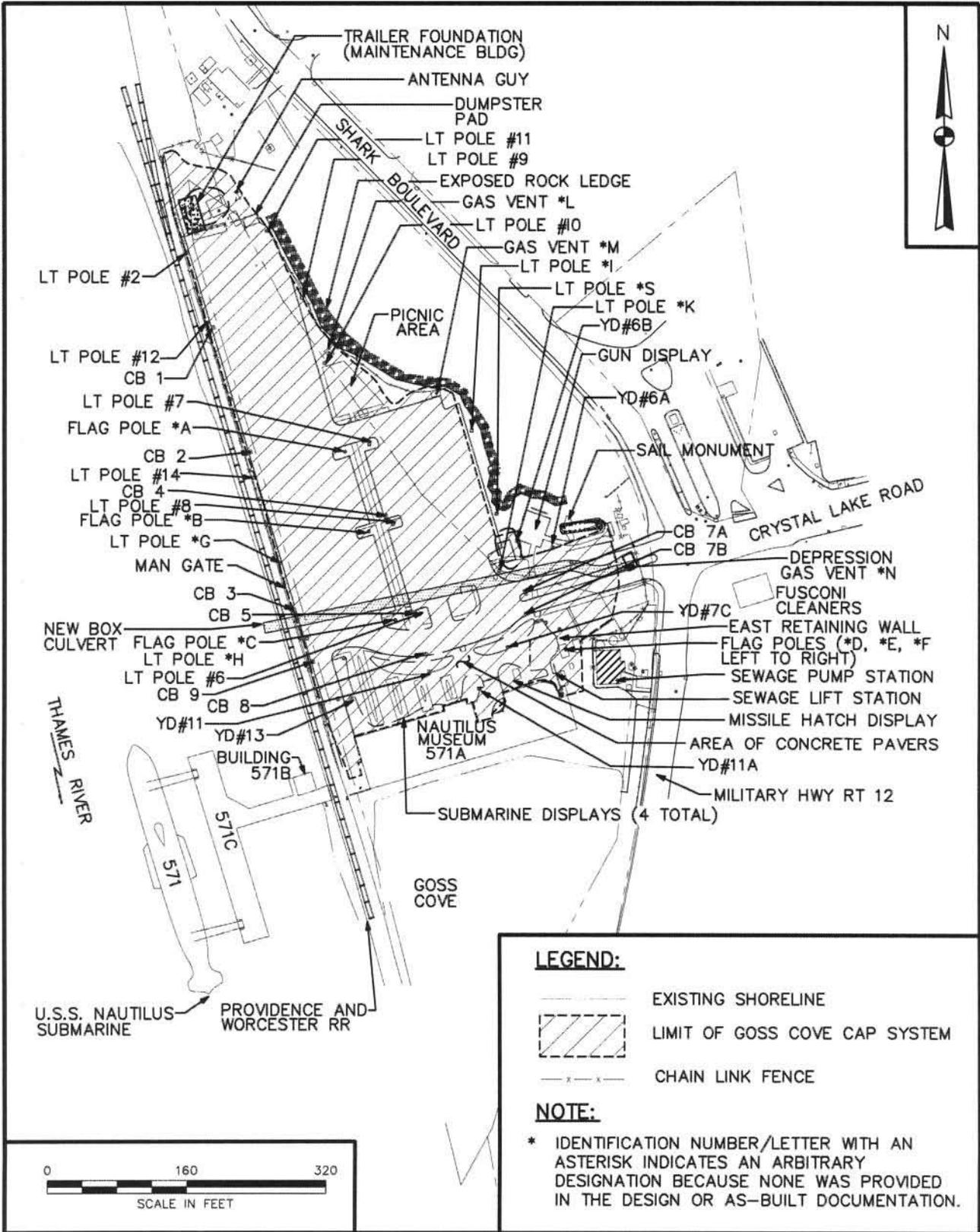
**EXCAVATED SOIL MANAGEMENT FOR INSTALLATION RESTORATION SITES  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT**



**MANAGEMENT OF DEWATERING WASTEWATERS FOR INSTALLATION RESTORATION SITES  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT**



ACAD: 0083CM34.dwg 12/01/06 MF PIT



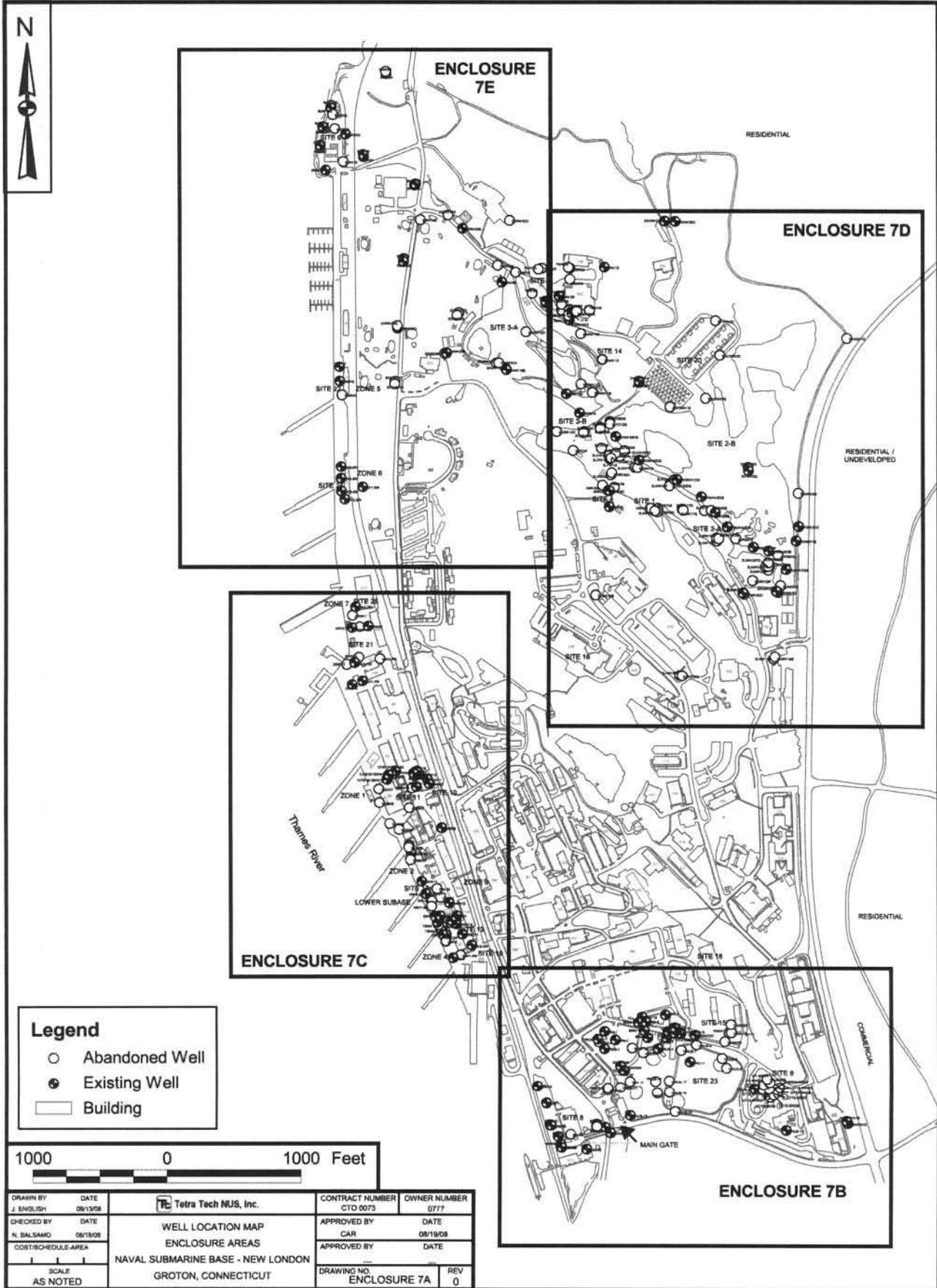
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CHECKED BY	DATE
REVISED BY	DATE
SCALE AS NOTED	

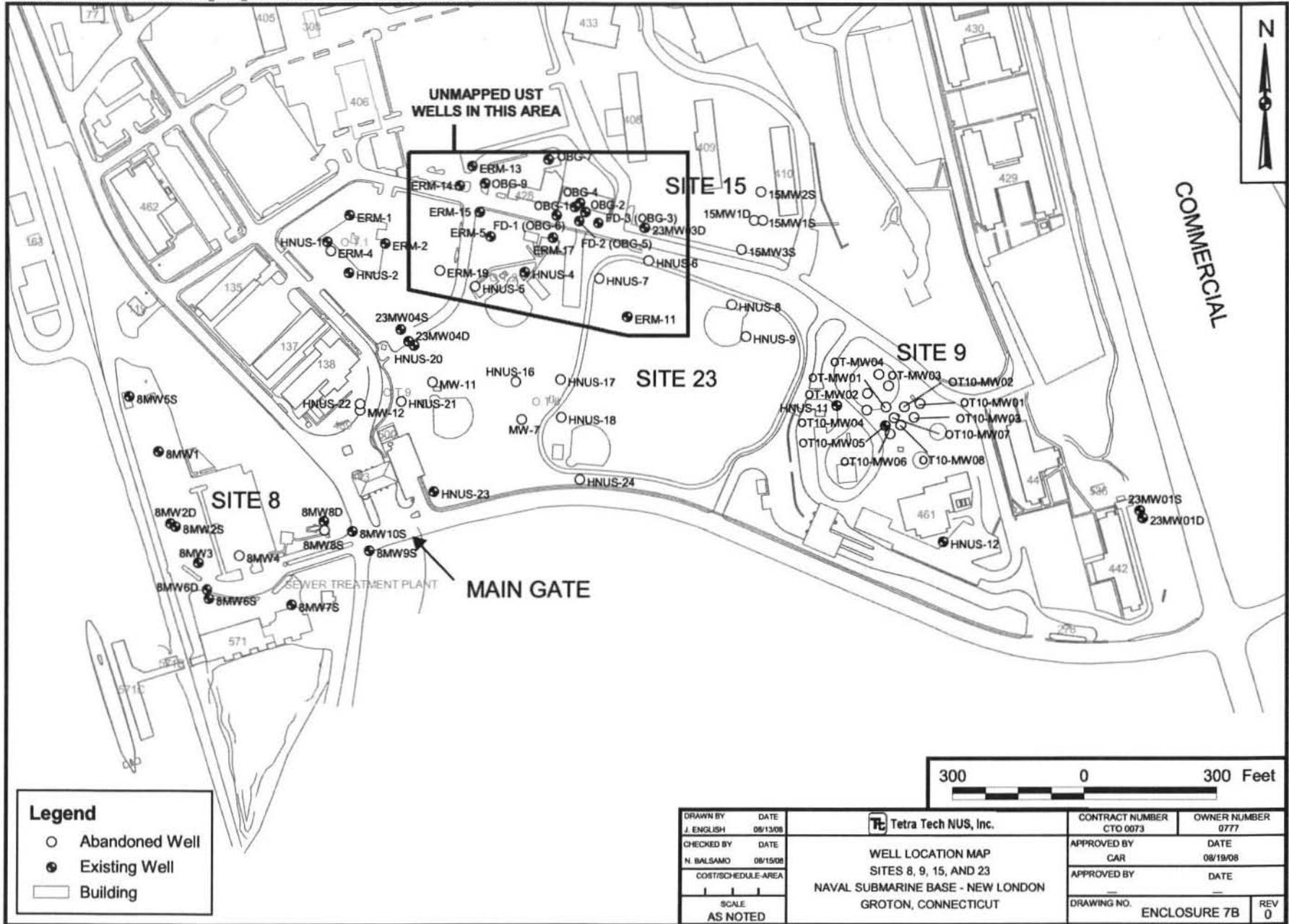


**GOSS COVE LANDFILL  
INSTALLATION RESTORATION SITE  
AND LANDFILL CAP  
NAVAL SUBMARINE BASE - NEW LONDON  
GROTON, CONNECTICUT**

CONTRACT NO. 0083	
OWNER NO. 038	
APPROVED BY	DATE
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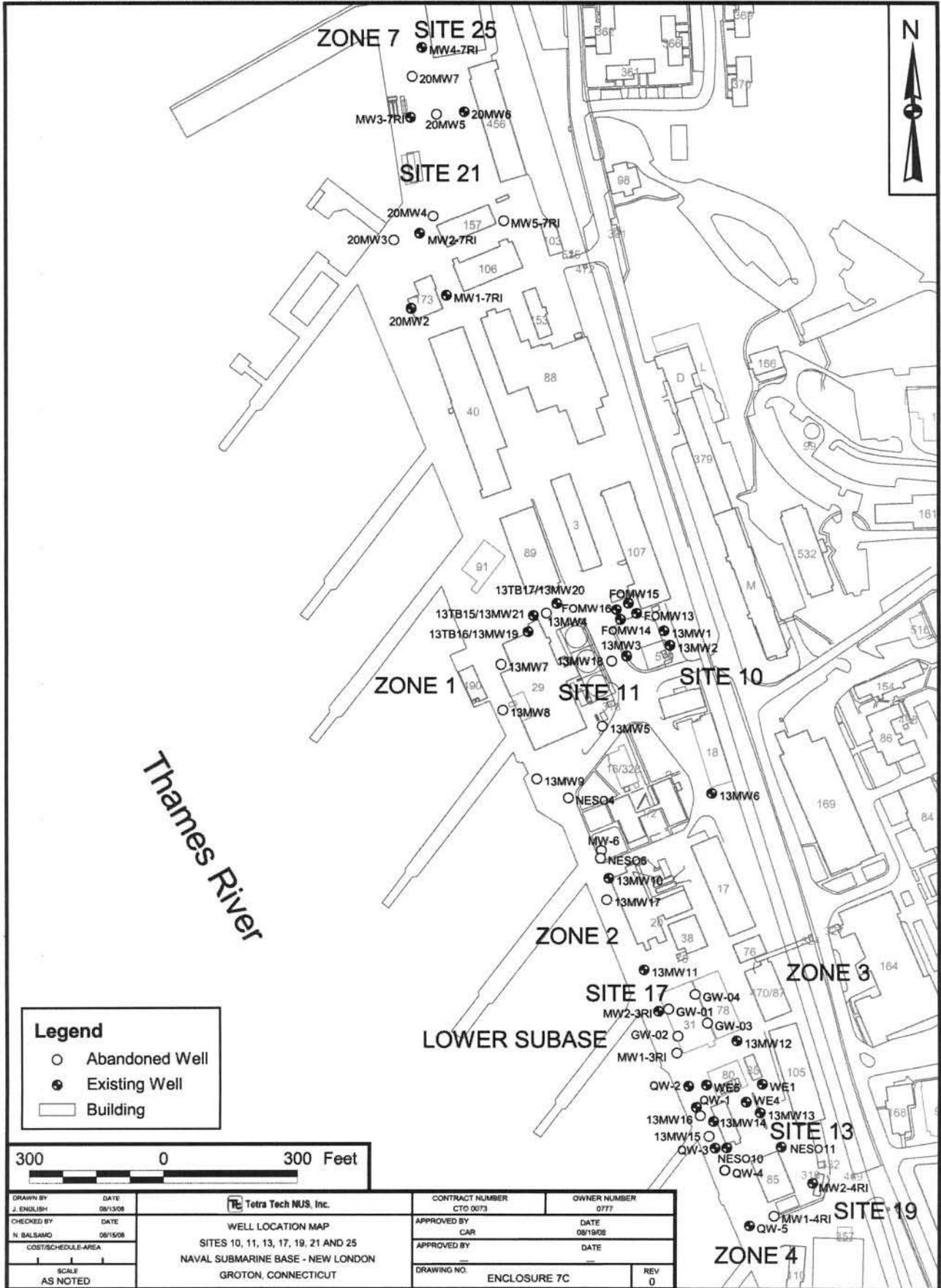
P:\GIS\NLONMAPDOCS\APR\ABANDONED\_WELL\_PLAN\APR WELL LOCATION ENCLOSURES LAYOUT 08/18/08 JEE





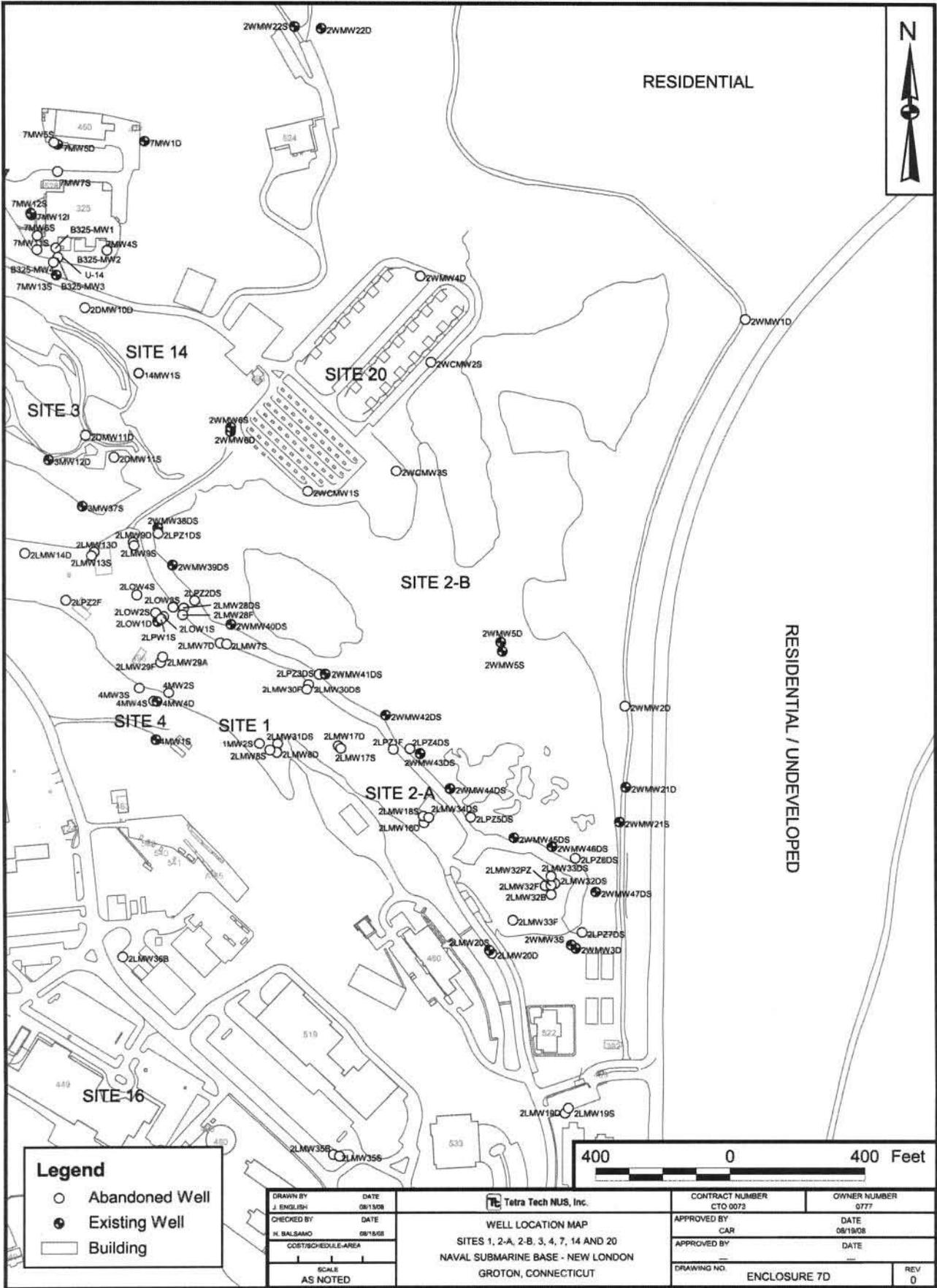
SOPA (ADMIN)\NLON\INST 5090.25  
4 Jun 09

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DRAWN BY J. ENGLISH		DATE 08/13/08		Tetra Tech NUS, Inc.		CONTRACT NUMBER CTO 0073		OWNER NUMBER 0777	
CHECKED BY N. BALSAMO		DATE 08/15/08		WELL LOCATION MAP					
COST/SCHEDULE-AREA				SITES 10, 11, 13, 17, 19, 21 AND 25					
SCALE AS NOTED				NAVAL SUBMARINE BASE - NEW LONDON					
				APPROVED BY CAR		DATE 08/19/08			
				APPROVED BY		DATE			
				DRAWING NO. ENCLOSURE 7C		REV 0			

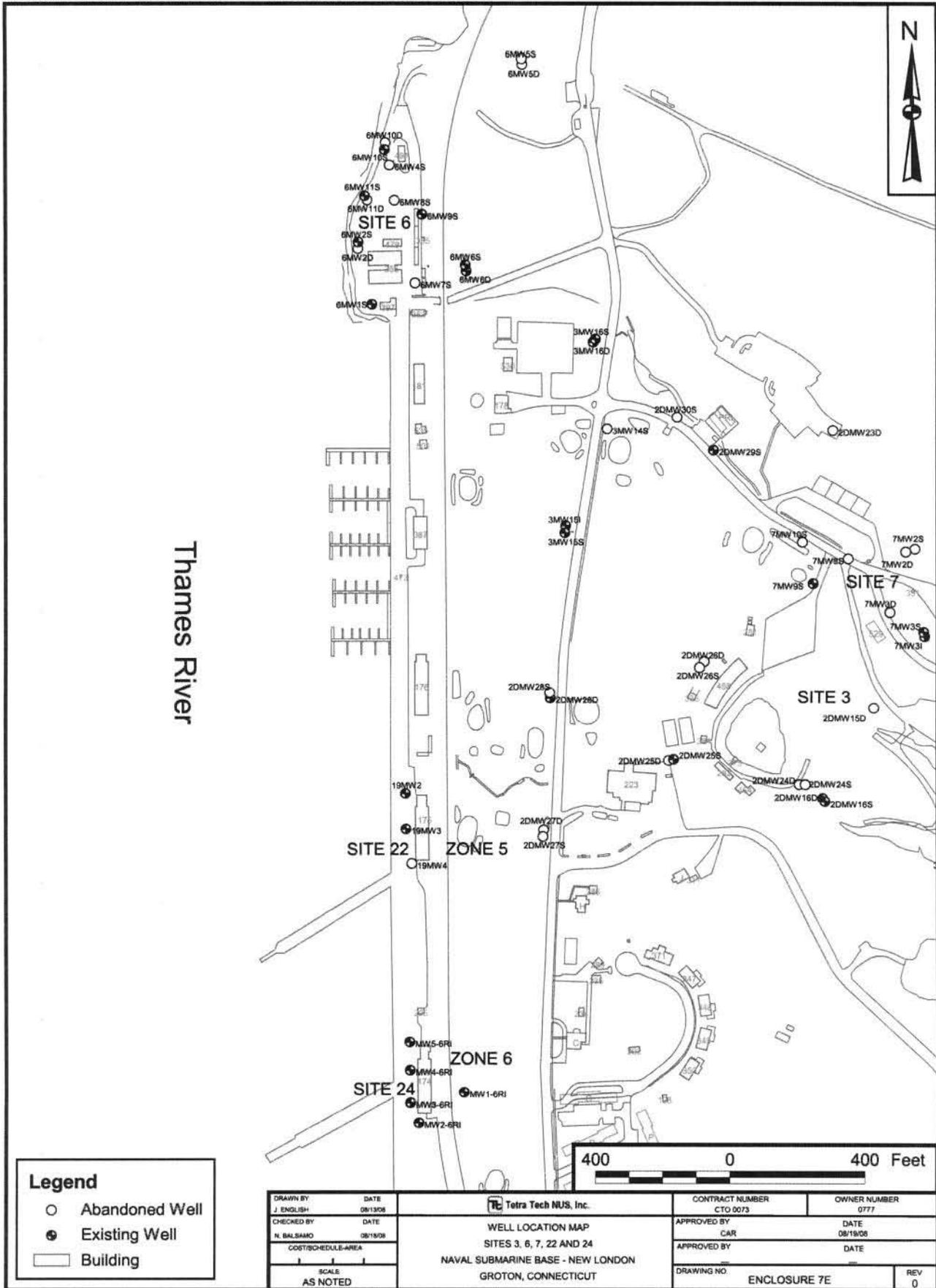
P:\GIS\NLONMAPDOCS\APR\BA\ABANDONED\_WELL\_PLAN\APR WELL LOCATION LAYOUT SITES 1, 2-A, 2-B, 3-B, 4, 7, 16 08/18/08 JEE



Legend	
○	Abandoned Well
●	Existing Well
□	Building

DRAWN BY J. ENGLISH CHECKED BY H. BALSAMO COST/SCHEDULE-AREA SCALE AS NOTED	DATE 08/13/08 DATE 08/19/08 DATE DATE	Tetra Tech NUS, Inc. WELL LOCATION MAP SITES 1, 2-A, 2-B, 3, 4, 7, 14 AND 20 NAVAL SUBMARINE BASE - NEW LONDON GROTON, CONNECTICUT	CONTRACT NUMBER CTO 0073 APPROVED BY CAR APPROVED BY DRAWING NO. ENCLOSURE 7D	OWNER NUMBER 0777 DATE 08/19/08 DATE REV 0
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P:\GIS\NLONMAPDOCS\APR\ABANDONED\_WELL\_PLAN\APR WELL LOCATION LAYOUT SITES 6, 24, 25 08/18/08 JEE



Thames River

Legend	
○	Abandoned Well
●	Existing Well
□	Building

DRAWN BY J. ENGLISH	DATE 08/13/08	Tetra Tech NUS, Inc. WELL LOCATION MAP SITES 3, 6, 7, 22 AND 24 NAVAL SUBMARINE BASE - NEW LONDON GROTON, CONNECTICUT	CONTRACT NUMBER CTO 0073	OWNER NUMBER 0777
CHECKED BY N. BALSAMO	DATE 08/18/08		APPROVED BY CAR	DATE 08/18/08
SCALE AS NOTED			APPROVED BY DATE	
			DRAWING NO ENCLOSURE 7E	REV 0

**APPENDIX E**

**MID-ATLANTIC INSTRUCTION 5090.2, INSTALLATION RESTORATION;  
LAND USE CONTROLS AT NAVY REGION, MID-ATLANTIC INSTALLATIONS;  
ESTABLISHMENT AND MAINTENANCE**



## DEPARTMENT OF THE NAVY

COMMANDER  
NAVY REGION, MID-ATLANTIC  
6506 HAMPTON BLVD.  
NORFOLK, VA 23508-1273

IN REPLY REFER TO:

COMNAVREG MIDLANT  
INST 5090.2  
REG ENG/Code 90

**27 MAY 2003**

### COMNAVREG MIDLANT INSTRUCTION 5090.2

Subj: INSTALLATION RESTORATION; LAND USE CONTROLS AT NAVY REGION, MID-ATLANTIC INSTALLATIONS; ESTABLISHMENT AND MAINTENANCE

Ref: (a) DUSD (ES/CL) memo of 17 Jan 01  
(b) Navy Environmental Policy Memo 99-02  
(c) Navy-Marine Corps Installation Restoration Manual (COMNAVFACECOM Feb 97)  
(d) OPNAVINST 5090.1 Series  
(e) COMNAVREGMIDLANTINST 3120.1  
(f) JAGMAN  
(g) NAVREGS

1. Purpose. This instruction prescribes procedures for establishing and maintaining land use controls at sites remediated under the Navy Installation Restoration Program (IRP) and otherwise, and assigns mission, functions, and tasks necessary to successful management and maintenance of land use controls. References (a) through (d) pertain.

2. Applicability. This instruction applies to installations under the custody, control, and command of Commander, Navy Region, Mid-Atlantic (COMNAVREG MIDLANT). Reference (e) pertains.

### 3. Background

a. Land use controls restrict use of, and may also limit access to, real property at which contamination is allowed to remain in place. Land use controls, which are of two types, engineered controls<sup>1</sup> and institutional controls, are placed on IRP (and other) sites to protect human health and the environment until such time, if ever, as they are no longer needed. Engineered controls include fences, signs, and other physical means of regulating access to and use of real property. Institutional controls are legal and administrative restrictions on land use, such as notations on installation land use plans,

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<sup>1</sup>"Engineering controls" is also used in some texts to refer to engineered controls. For purposes of this instruction these terms are synonymous.

27 MAY 2003

notices recorded in public land records, and periodic site inspections.

b. Land use controls, which may be of indefinite duration, must be reviewed at least every 5 years for effectiveness. They are, or are part of, a clean-up remedy accepted by or approved for COMNAVREG MIDLANT by the Regional Engineer, as set forth, for example, in the Record of Decision<sup>2</sup> for an IRP site. After a Record of Decision or other decision document is finalized, terms and conditions for establishing and maintaining land use controls will be developed and memorialized in a Remedial Design (or other document), in the manner Atlantic Division, Naval Facilities Engineering Command (LANTNAVFACENGCOM) (or other Navy authority) shall recommend. Land use controls may be modified as site conditions change.

c. To be effective, land use controls must be timely imposed, and thereafter maintained for as long as necessary. Long-term maintenance of land use controls requires vigilance, diligence, cooperation, and funding. COMNAVREG MIDLANT, recognizing its role in protecting human health and the environment, has determined that a comprehensive, coordinated approach to land use controls is required for its installations. This approach requires close cooperation between the Regional Engineer, the Regional Program Manager for Facilities and Environmental programs, and LANTNAVFACENGCOM, the IRP program manager.

4. Action. The following action is directed:

a. Regional Engineer

(1) Execute Records of Decision, decision documents, and other land use control related documents on behalf of COMNAVREG MIDLANT.

(a) In so doing, coordinate closely with LANTNAVFACENGCOM, to ensure that operational flexibility, accomplishment of core mission requirements, combat readiness, security, force protection, and cost are taken into consideration in remedy selection.

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<sup>2</sup> Records of Decision are issued under authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Land use controls are also imposed in clean-ups carried out under the Resource Conservation and Recovery Act (RCRA).

27 MAY 2003

(2) Implement institutional controls in the manner and within the time prescribed in Records of Decision and other decision documents.

(a) In so doing, program and budget for the cost of maintaining land use controls the responsibility for which has transferred from LANTNAVFACENGCOM to COMNAVREG MIDLANT.

(3) Integrate land use controls into site approval processes, dig permits, infrastructure plans, installation maps, and geographic information systems, and, in the name of COMNAVREG MIDLANT, deny permission to conduct ground-disturbing activity at, make use of, or develop sites in a manner inconsistent with approved land use controls.

(a) In so doing, implement procedures and safeguards to withhold or deny site approval until it has been verified that no land use controls exist, or that the proposed use or development is consistent with existing land use controls, references (c) and (d), and other legal authorities. The site approval process is a key element of the regional program to protect human health and the environment through maintenance of land use controls.

(4) Establish procedures to conduct and budget for site inspections, other monitoring of land use controls, and 5-year reviews, and to notify and interact with regulators.

(5) Retain Records of Decision and other land use control documents for all sites to which this instruction applies.

(6) Inform Installation Commanders, Program Managers, and tenant activities at least annually, of land use controls at their installations and installations at which they conduct operations. This may be accomplished by inviting these parties' attention to a list of land use controls published on the Regional Engineer's website.

(7) Include information on land use controls and compliance obligations in statements of work prepared for facility support contracts and other contracts involving use of or ground-disturbing activity at IRP sites and other locations where land use controls have been imposed.

27 MAY 2003

(8) Take appropriate steps to preclude ground-disturbing activity by Navy public works personnel (or contractors) that is inconsistent with approved land use controls.

b. Installation Commanders and Regional Program Managers

(1) Observe, adhere to, and publicize to their organizations (and, in the case of installation commanders, tenant activities), land use controls imposed on their installations and installations at which they conduct operations. This is especially important for Navy Family Housing and Morale, Welfare, and Recreation<sup>3</sup> facilities and activities.

(2) Take appropriate steps to preclude land use, site development, and ground-disturbing activity inconsistent with approved land use controls. This includes, but is not limited to, following site approval procedures, adhering to dig permit requirements, and incorporating land use controls into infrastructure plans and host/tenant support agreements.

(a) Commanders of installations not served by Environmental Compliance Departments of the Regional Environmental Group perform the functions assigned to the Regional Engineer in subparagraphs a (1)-(8) of this paragraph.

(3) Include information on land use controls and compliance obligations in statements of work prepared for contracts involving use of or ground-disturbing activity at IRP sites and other locations subject to land use controls.

(4) Report to the Regional Engineer all activity inconsistent with known land use controls and conditions, e.g., failure of an engineered control, which may affect human health or the environment. The Regional Engineer, in turn, will inform the cognizant LANTNAVFACENGCOM Remedial Program Manager.

c. Tenant Activities of COMNAVREG MIDLANT Installations

(1) Observe, adhere to, and publicize to their organizations, land use controls imposed on installations at which they conduct operations.

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<sup>3</sup>The Support Services Program Manager will develop a standard clause for Non-Appropriated Fund Instrumentality contracts that requires contractors to comply with land use controls.

27 MAY 2003

(2) Take appropriate steps to preclude land use, site development, and ground-disturbing activity inconsistent with approved land use controls. This includes, but is not limited to, consulting the Regional Engineer organization during the site approval process and when applying for dig permits.

(3) Include information on land use controls and compliance obligations in statements of work prepared for contracts involving use of or ground disturbing activity at IRP sites and other locations subject to land use controls.

(4) Report to the Regional Engineer all activity inconsistent with known land use controls and conditions, e.g., failure of an engineered control, which may affect human health or the environment. The Regional Engineer, in turn, will inform the cognizant LANTNAVFACENGCOM Remedial Program Manager.

5. Coordination with LANTNAVFACENGCOM

a. Per reference (d), COMNAVFACENGCOM is responsible for the IRP. LANTNAVFACENGCOM is the NAVFAC component that serves the installations to which this instruction applies. In carrying out its program responsibilities LANTNAVFACENGCOM works with Regional Engineer staff to:

(1) Consider operational flexibility, security, force protection, combat readiness, and maintenance costs in selecting land use controls;

(2) Develop land use controls, including but not limited to:

(a) Engineered and institutional controls;

(b) Remedial Designs and other similar land use control documents; and

(c) 5-year reviews and other long-term management;

(3) Report to the Regional Engineer activity, including performance of contracts supervised by Resident Officers in Charge of Construction, inconsistent with known land use controls, or conditions, e.g., failure of an engineered control, that may affect human health or the environment; and

27 MAY 2003

(4) Include appropriate clauses in contracts for work to be performed on or affecting sites to which land use controls apply.

6. Oversight. Land use, site development, and ground-disturbing activity inconsistent with applicable land use controls may result in risk to human health and the environment, and may give rise to civil and criminal liability under Federal law. Thus, incidents of this nature should be reported per reference (d), investigated per reference (f), and when warranted, appropriate action should be taken to address personal accountability. Regional Program Managers, Installation Commanders, Commanding Officers, and Officers in Charge should work closely with the Regional Engineer to cooperate with regulatory agencies per reference (g). The Regional Engineer and the Regional Environmental Coordinator staff should be notified promptly of the commencement of any enforcement action related to breach or neglect of land use controls.



G. E. EICHERT  
Chief of Staff

Distribution: [www.cnrma.navy.mil](http://www.cnrma.navy.mil)

**APPENDIX F**

**FIELD INVESTIGATION OF ABOVE-GROUND STORAGE TANK PAD  
SITE 8 – GOSS COVE LANDFILL**

## Field Notes for Site 8 – Goss Cove Landfill Cap

October 17, 2011 (Monday)

**Objective:** Meet with utility locator company (Acumark) at 9 am and mark area where fuel lines run from AST to Nautilus Museum.

**Personnel:** Chuck Metz (TtNUS), Joe Foley (Acumark), Kevin Braniff (NSB-LON) and Ron Dixon (NSB-LON)

**Weather:** Partly sunny with temperatures starting in 50s and reach mid-60's.

0800 – Arrive at pass and ID office by front gate to obtain vehicle pass and ID to access base. Call Kevin Braniff and he brings over my ID forms. Kevin tells me to come over to Bldg 135 afterwards to obtain my RADCON training.

0850 – Arrive at Bldg 135 and meet with Kevin. I call Acumark contact (Joe Foley) to see if his RADCON training is current. Joe doesn't have a current RADCON card so he comes to Bldg 135 and takes the training with me.

1000 – Joe and I arrive at Nautilus Museum and begin locating utilities along the AST fuel lines. Ron Dixon stops by and asks if we need any assistance. I get him to get the door to the mechanical room open so we can see where utilities come out of the building.

1300 – Joe completed marking all relevant utilities. Utilities located were electrical (power supply to bldg and outdoor lighting), communication lines, and a water line. Joe also marking the fuel lines and the associated power supply to the AST. No other utilities were located.

1345 – Work at the site is complete for the day. Heading to hardware store to get supplies to complete work tomorrow.

October 18, 2011 (Tuesday)

**Objective:** Dig 4 test pits to determine if previous installation of AST and associated fuel lines at Nautilus Museum impacted (punctured) landfill cap (60-mil liner).

**Personnel:**

Tetra Tech: Chuck Metz

TK&K: Ed Kurja

- TK&K excavation subcontractors: Michael (Mike) Raposa and Nicholas (Nick) Lavigne
- New England Liner Systems: Nicholas (Nick) Brutcher and Roberto Rivera (TK&K liner repair subcontractor)

Mabbett: Mike Larimore

**Weather:** Partly sunny with temperatures starting in 50s and reach mid-60's.

0800 – Met TK&K and their subcontractors at the pass and ID gate. Called Kevin Braniff (NSB-LON POC) and he came over to pas and ID office to assist in getting everyone a temporary badge. Everyone had to come on base to obtain RADCON training prior to working at the Nautilus Museum. Everyone obtained access except Roberto Rivera who did not have his naturalization papers with him. Therefore, he could not obtain RADCON training and had to sit in truck at site, which is open to public.

0900 – Everyone except Roberto meets on base at Building 135 for RADCON training. Following training, we conduct quick H&S meeting and sign appropriate forms.

0930 – Leave Bldg 135 and everyone mobilizes to site (Nautilus Museum). Tracy McKenzie (NSB-NLON environmental) was at the site to see the proposed work area. I explained what we were going to be performing and that she would receive an email from Scott Nesbit with pictures once the work was complete.

0945 – Complete H&S forms at site as we conduct quick site walk to explain site and our objective. AST installation company (name?) was onsite and he said the fuel lines were hand dug all the way from the tank pad to the building and a backhoe was only used to excavate the pad footprint. He also stated that the deepest point would be where the fuel and electrical lines came out of a 30-inch sump box that was located in the southeast corner of the concrete AST pad. Ron Dixon (NSB-NLON facilities) was onsite and assisted in getting access to the mechanical room.

0955 – Mike Larimore (Mabbett) arrived to observe for EPA.

1000 – Begin hand digging (shovel) **test pit #1** (see attached drawing) approximately 4 feet out from where fuel and electrical lines entered building. Location of fuel lines entering building was determined by entering the mechanical room and collecting measurements. We could not dig right at building because there was an irrigation box located against the building that housed all the irrigation lines to the landscaping. Test pit #1 was located where the fuel line made a 90 degree turn to around a concrete vent. The concrete vent extruded approximately 4 feet from the building and was connected to the mechanical room (See Figure 5 from work plan). The fuel lines (located inside a blue corrugated pipe in the pictures) and associated electrical lines were located approximately 30 inches below the mulched landscaping. The 60-mil liner was observed where it was battened to the wall in a bathtub style installation. It then extended vertically downward and its actual horizontal depth was not determined. The first geotextile layer was observed at the approximate same depth as the fuel line. Orange snow fence was observed approximately 6 inches above the fuel line. Following visual observation and pictures, the hole was filled back into grade and surface completed with existing mulch. As a note, a piece of geotextile was placed in the pit at the approximate location of geotextile that was observed. See field pics for visual.

1020 – Begin hand digging **test pit # 3** while test pit #1 is being excavated. Test pit #3 was located at the sump box located in the southeast corner of the pad. This should be the deepest point the fuel lines were located at. The bottom of the fuel lines and electrical lines were located at the same depth (approximately 30 inches below the top of concrete pad) as an encountered geotextile that had been cut out of the way. The fuel lines exited the side of the sump box and were run inside a blue corrugated conduit. The electrical lines were steel ¾ or 1-inch conduit. An orange snow fend was encountered approximately 6 inches above the geotextile. The total depth of the sump box was approximately 32 inches below the top of the concrete pad. Following pictures, the excavation pit was backfilled to existing grade with removed soil and mulch was raked back over to match landscape. See field pics for visual. Ken Braniff (NSB-NLON facilities) stopped by to make sure everything was going well. I showed him test pits # 1 and 3 and that no impact to the cap liner (other than to the top geotextile) was observed.

1140 – Begin hand digging **test pit # 4** off the southwest corner of the concrete AST pad where a bollard was located. Test pit showed that the bollard extended 2 feet below the concrete pad and stopped at a geotextile. The bollard was not in concrete below the AST pad. See field pics for visual of screwdriver sticking under bollard with geotextile exposed. Pit was backfilled and mulched to match existing grade.

1225 – Begin hand digging **test pit # 2**. This location was selected as a mid-point of the fuel/electrical lines. This location was located in 1- to 2-ft landscaping grass. The location of test pit #2 was selected based on a location that would disturb the least about of landscaping vegetation. The grass was removed in clumps and placed on a piece of geotextile for replanting. Two ½-inch irrigation lines were dug through (see pics of black pipe with red stripe) in the process but both were fixed using an adapter nipple and hose clamp bought at a local Ace Hardware. The fuel line conduit and electrical line were found to be located approximately 24 inches below grade and lying on top of a cloth geotextile. The excavated hole was backfilled with the removed fill dirt. The repaired irrigation lines and grass clumps were placed back in their original locations. Visually, you couldn't tell we even dug a hole.

1300 – Nick and Roberto (New England Liner Systems) left the site because they were no longer needed as no repairs were going to be required.

1315 – All areas around the test pits were swept clean and inspected to make sure nothing had been damaged. Visually, all areas were clean and appeared undisturbed.

1320 – Mike Larimore leaves site for day.

1330 – TK&K and their subcontractor left the site and I followed them out the site gate.

Summary, based on the test pits dug, the landfill cap did not appear to be impacted by the installation of the AST system. Pictures of each test pit were taken prior to, during, and after completion of digging. Pictures of the site prior to and after the work were also taken. Overall, no negative impacts to the Nautilus Museum or associated landscaping were caused by the digging of the four test pits.

By Charles Metz (Field Operations Leader)



**View of Site 8**

AST is located in evergreens to the right of the black submarine at corner of Nautilus Museum.



**Pipeline View of Site 8**

View looking from test pit #1 (location where fuel/electrical lines enter building) back toward AST.



**Site 8 Pipeline View**

View looking west to east from test pits #3 and #4. Fuel/electrical lines run east from corner of corner pad along the building in the landscaped area.



**Site 8 Pipeline View**

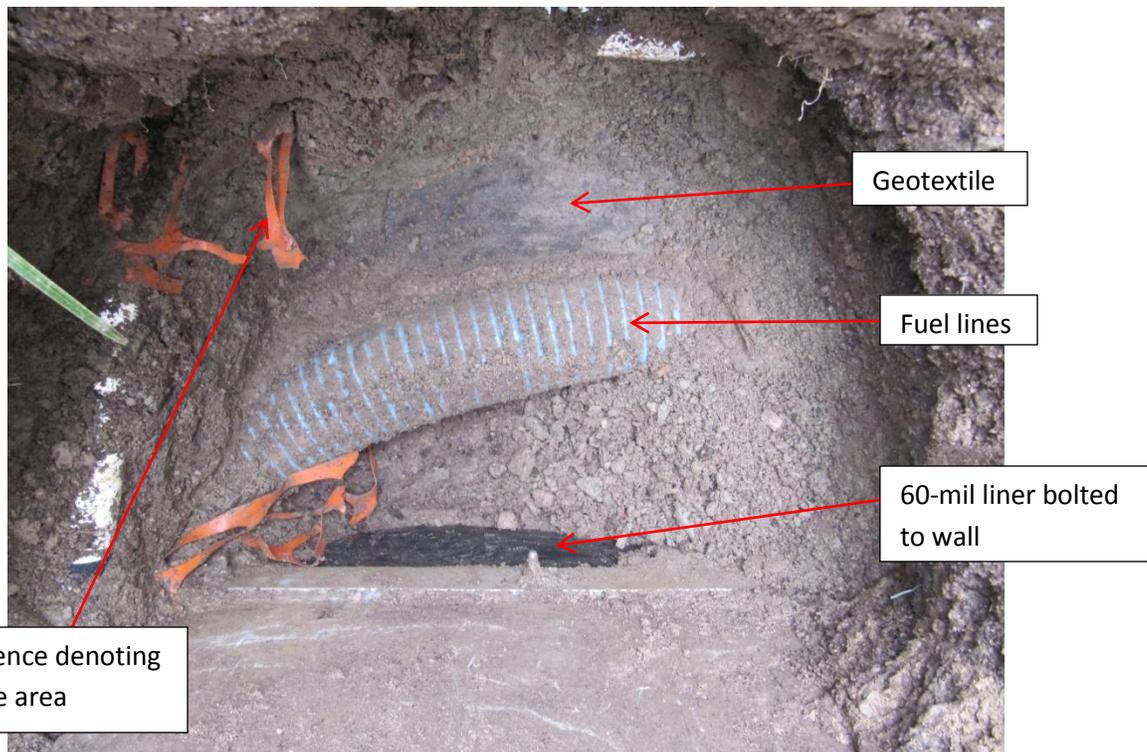
View looking west to east from in front of the AST. Picture show the landscaped area the fuel/electrical lines were hand dug through during installation.



Test Pit #1

**Test Pit #1**

Pre-excavation view looking east to west from where fuel lines enter building back toward AST (behind green evergreen shrubs).



Orange fence denoting landscape area

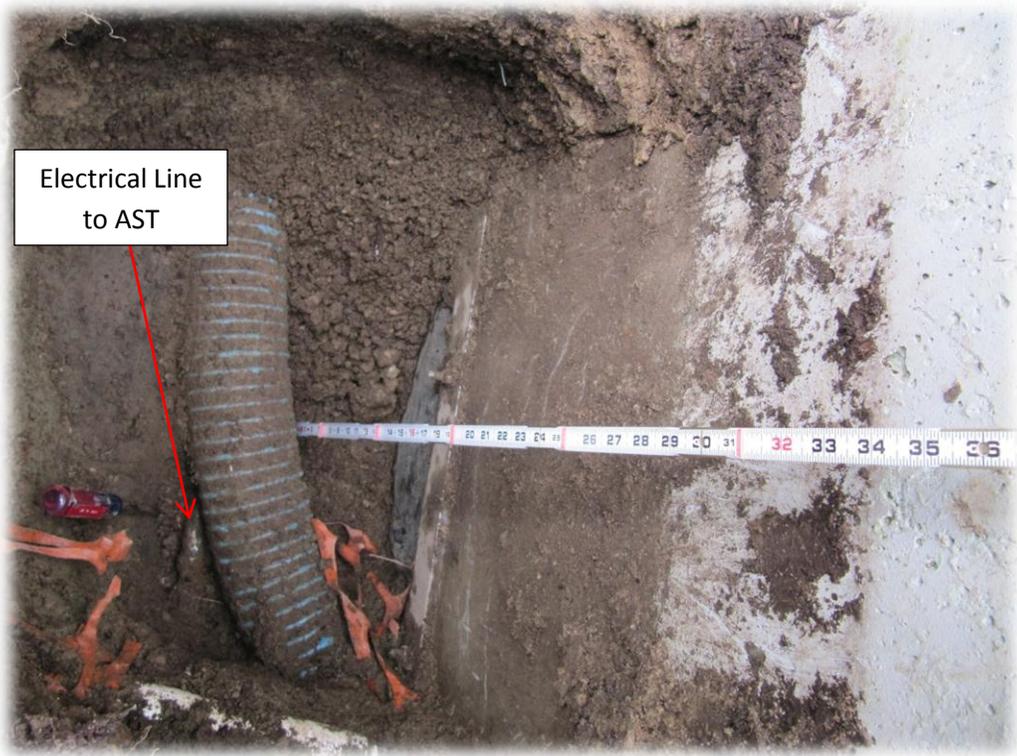
Geotextile

Fuel lines

60-mil liner bolted to wall

**Test Pit #1**

View of buried fuel lines (run inside the blue corrugated piping). Geotextile and orange snow fence are also depicted.



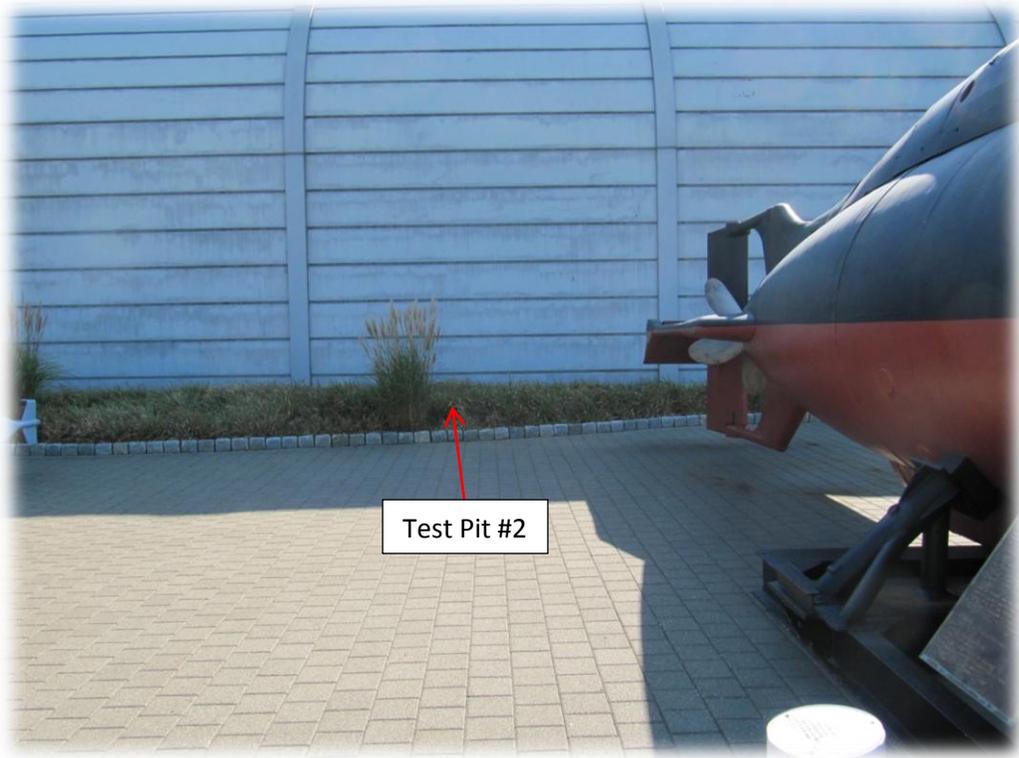
**Test Pit #1**

Electrical line to AST is run in same trench below fuel lines at approximately 30 inches below grade.



**Test Pit #1**

Post-excavation picture following backfill.



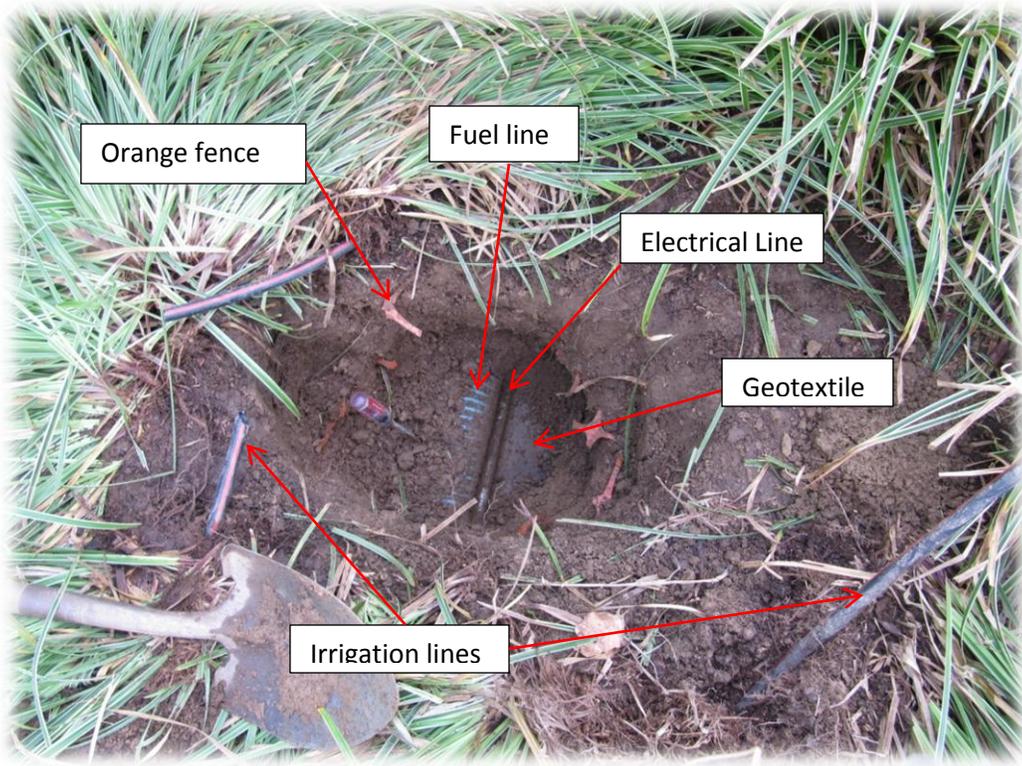
**Test Pit #2**

Pre-excitation view of test pit #2 that was located immediately to the right and back of the tall grass clump.



**Test Pit #2**

View of test pit as it was installed.



**Test Pit #2**

Picture showing fuel/electrical lines immediately on top of geotextile. Orange snow fence also depicted.



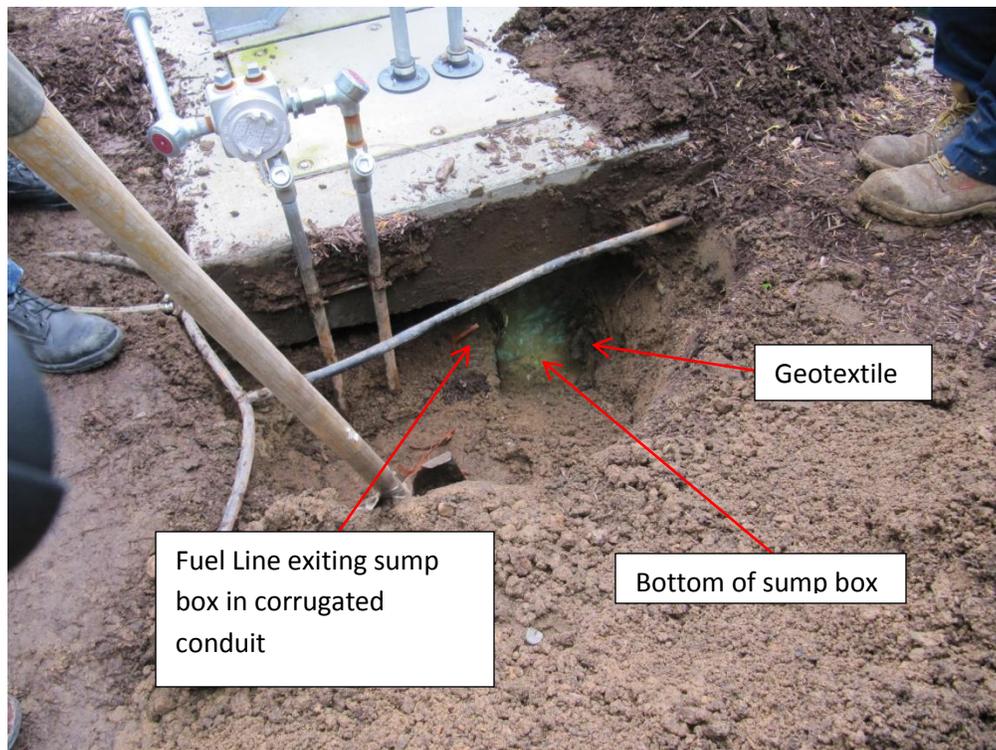
**Test Pit #2**

Post-excavation picture following backfill.



### Test Pit #3

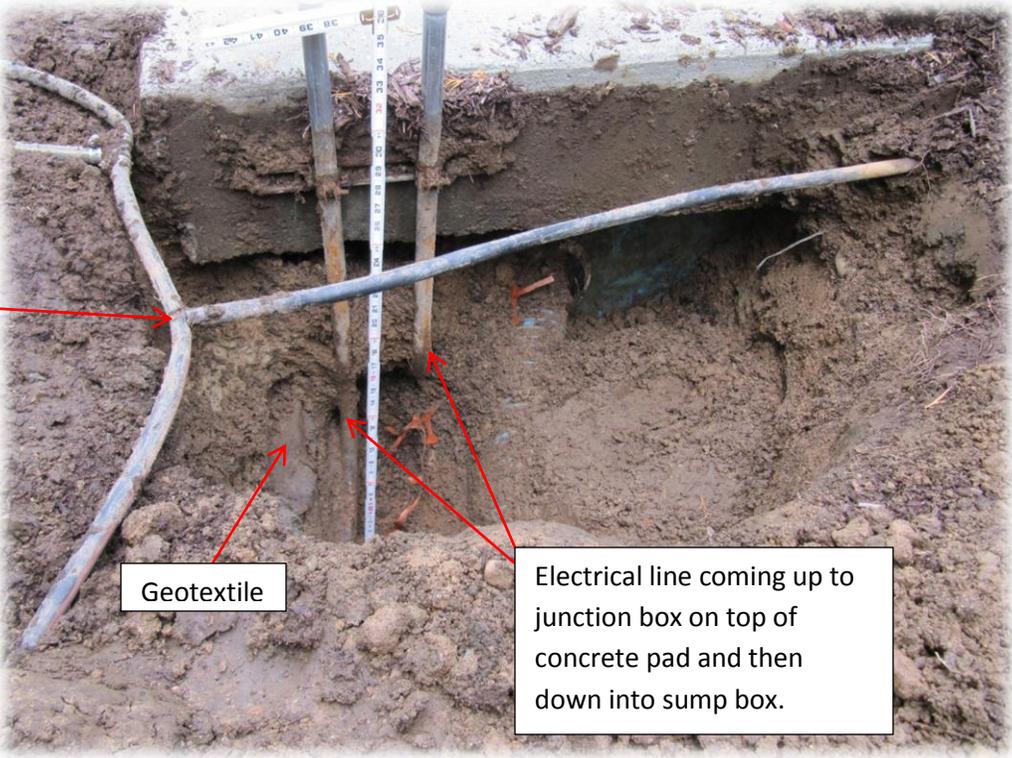
Pre-excitation view of text pit #3 that was collected where fuel/electrical lines connect to sump box in AST concrete pad.



### Test Pit #3

View of exposed fuel line and piece of geotextile. The bottom of the sump box is also shown.

Irrigation  
Lines



Geotextile

Electrical line coming up to  
junction box on top of  
concrete pad and then  
down into sump box.

### Test Pit #3

Picture showing electrical line coming into and out of AST concrete pad at approximately 30 inches below grade.



### Test Pit #3

Post-excavation picture following backfill.



Test pit #3 at bollard

**Test Pit #4**

Pre-excitation view.



Screwdriver sticking underneath bollard

12-inch thick concrete pad

**Test Pit #4**

Picture showing excavation at bollard located on the southwest corner of the concrete AST pad.



Bottom of bollard that stops at geotextile

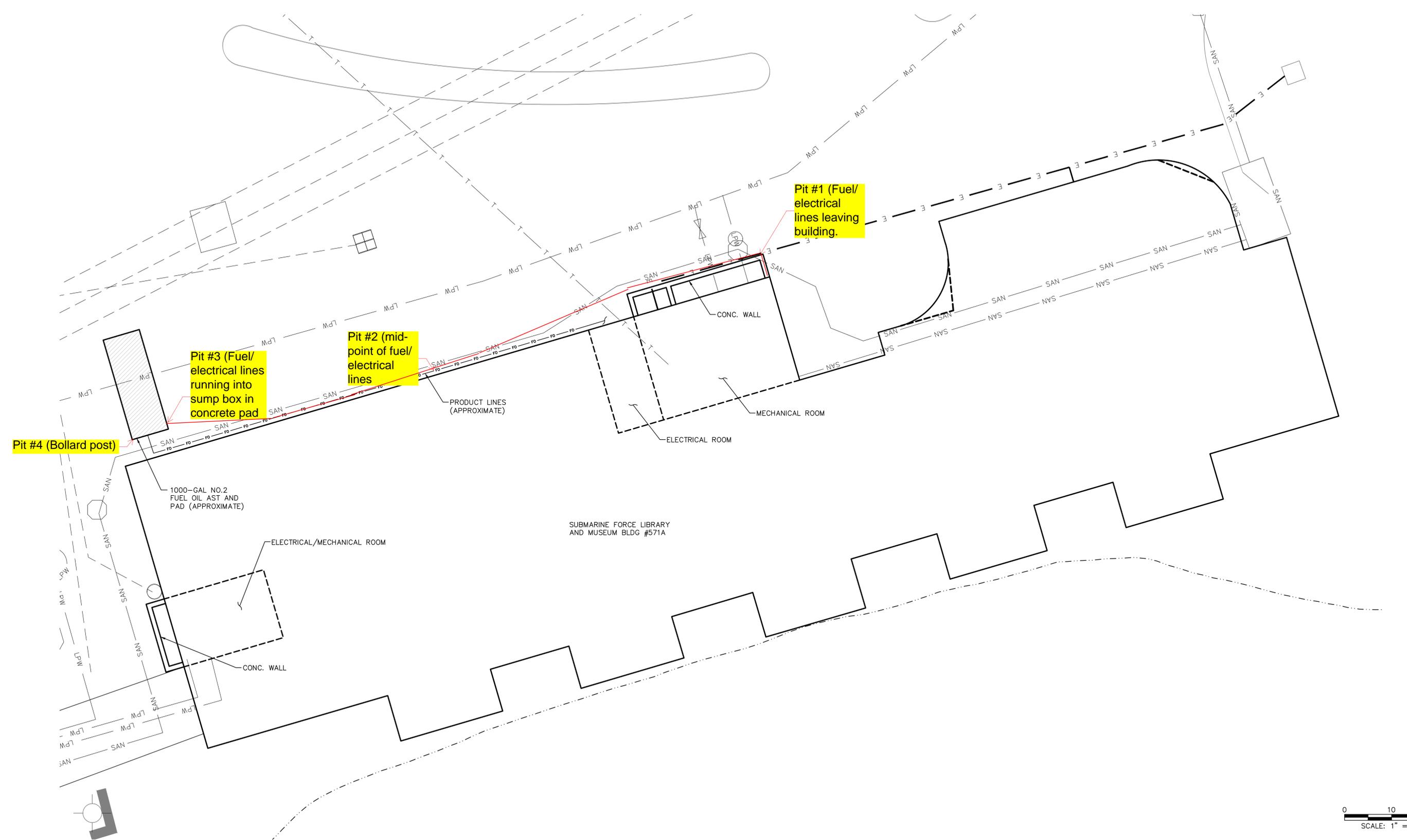
**Test Pit #4**

View of bollard bottom (screwdriver sticking under it). Bollard extended approximately 24 inches below the top of the 12-inch thick concrete pad.

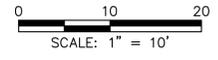


**Test Pit #4**

Post-excavation picture following backfill.



SUBMARINE FORCE LIBRARY AND MUSEUM BLDG #571A



DRAWN BY ZM	DATE 8/5/11
CHECKED BY 8/5/11	DATE RCM
REVISED BY	DATE
SCALE 1" = 10'	



**AST PLAN**  
**SITE 8 – GOSS COVE LANDFILL**  
**NAVAL SUBMARINE BASE – NEW LONDON**  
**GROTON, CONNECTICUT**

CONTRACT NO. ---	
OWNER NO. ---	
APPROVED BY	DATE
DRAWING NO. <b>FIGURE 5</b>	REV. <b>0</b>