

**Annual Landfill Inspection Report
Defense Reutilization and Marketing Office
(DRMO)**

**Naval Submarine Base
New London
Groton, Connecticut**



**Engineering Field Activity, Northeast
Naval Facilities Engineering Command**

Contract Number N62472-02-D-0810

Contract Task Order 0002

OCTOBER 2005

**ANNUAL LANDFILL INSPECTION REPORT
DEFENSE REUTILIZATION AND MARKETING OFFICE (DRMO)**

**NAVAL SUBMARINE BASE – NEW LONDON
GROTON CONNECTICUT**

**ENVIRONMENTAL OPERATION AND
MAINTENANCE CONTRACT**

**Submitted to:
Engineering Field Activity, Northeast
Environmental Branch, Code 18
Naval Facilities Engineering Command
10 Industrial Highway, Mail Stop No. 82
Lester, Pennsylvania 19113-2090**

**Submitted by:
Environmental Chemical Corporation
50 D'Angelo Drive
Marlborough, MA 01752**

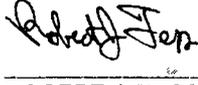
OCTOBER 2005

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PURPOSE

The purpose of the annual landfill inspection is to evaluate the cap system and ensure that it and the associated features are functioning as designed; that is, to minimize the risk for human or environmental impacts associated with the landfilled materials beneath the cap. Features integral to the effectiveness of the DRMO Landfill cap system include institutional controls, cap areas, stormwater controls, and groundwater monitoring wells. This report presents the findings and observations from annual inspection activities, identifies deficiencies of potential impact to the functional effectiveness of the cap system features/controls and provides recommendations of corrective measures to address the deficient items.

BACKGROUND

From 1950 to 1969, the 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. Based on the review of archived aerial photographs of the DRMO area, fill was observed in the southern portion of the site in 1934. The fill for bulkheads and docks south of the DRMO did not exist at that time. Aerial photographs from 1951 showed the land in its present configuration, except for the northwestern portion, which was not filled at that time. (TtNUS, 2002)

From 1982 to 1994, assessment activities were conducted at the site in order to characterize the site and determine appropriate remedial actions. The results were used to complete a Time Critical Removal Action (TCRA) at the DRMO in January 1995. The TCRA at the DRMO consisted of the excavation and off-site disposal of contaminated soil hot spots and the in-ground spent acid tank, followed by the placement of an impervious cap throughout all unpaved areas of the site. The cap consists of woven geotextile, a geosynthetic clay liner (GCL), and nonwoven geotextile. Approximately 12 inches of crushed stone and 3 inches of asphalt were placed over the GCL cap. A bituminous concrete surface course was added per the Navy's directive. An interim

record of decision (ROD) for institutional controls and maintenance was signed for the DRMO in March 1998. The interim ROD consisted of the following components:

- Institutional controls that include maintenance of the existing cap, limitations on site access and restrictions on land use. Maintenance of the existing asphalt and GCL cap was to consist of regular inspections to assess the integrity and periodic repair and replacement of the asphalt layer as needed. Limitations on site access were to consist of maintaining the existing chain-link fence that surrounds the DRMO and posting signs to warn potential trespassers that a health hazard is present. Land use restrictions for the DRMO were put in place to limit activities (including, but not limited to, excavation or drilling), to prohibit residential use of property, and to restrict excessive vehicular use or any other activity that could compromise the integrity of the existing cap system;
- Groundwater monitoring to be performed in accordance with the GMP for the DRMO site. Groundwater samples were to be analyzed to evaluate whether contamination from the DRMO is migrating to the Thames River and causing an adverse ecological effect. After baseline conditions were established, the monitoring program might be revised based on the analytical data collected from the previous sampling events. After sufficient monitoring data were collected, such data would be evaluated to determine the need for additional remedial action at the site or the need to modify additional monitoring; and
- A site review was to be conducted every 5 years for 30 years to evaluate the site status and determine whether further action is necessary. (B&RE, 1998)

A site inspection was conducted at DRMO on 10 April 2001, in conjunction with the first five-year review of the site. It was found during the site inspection that the land use for the site had remained unchanged since the TCRA was completed and groundwater monitoring had been initiated. In general, the cap system is working as intended and access restrictions were in place. Deficiencies identified during the five-year review included an area of possible settlement and poor maintenance of monitoring wells and dedicated sampling equipment. (TtNUS 2002).

INSPECTION ACTIVITIES

Site history and cap design was reviewed by the inspection contractor prior to inspection activities. The Operation and Maintenance (O&M) Manual for Installation Restoration Program Sites at Naval Submarine Base, New London – Volume IV DRMO (TtNUS, 2002) was used as reference to provide background for conducting the inspection at this facility.

The annual inspection was completed on 11 October 2005. Personnel conducting the inspection included Mr. Fred Santos (ECC), Mr. Courtney Moore, Jr. (Nobis Engineering, Inc.), and Mr. Greg Kemp (Gannet Flemming) who was representing the United States Environmental Protection Agency (USEPA). Inspection activities were performed to gather documentation of landfill condition and assess necessary corrective actions required at each site.

The inspection activities concluded that that the land use for the site had remained unchanged and in general, the cap system and the associated features appear to be functioning as designed. In general, it appears that some routine maintenance is required, which if left uncorrected, may eventually affect the integrity of the cap system. These corrective actions are not time critical and can be addressed along with operation and maintenance activities during 2006. A detailed discussion of landfill inspection findings are presented in the following sections. Attachments to this report include landfill inspection checklists contained in the Landfill O&M Manual (TtNUS 2002) completed on 11 October 2005, a deficiencies log with corrective actions (Table 1-1) completed October 2005, an annotated site map (Figure 1-1) and photographs of the deficiencies taken 11 October 2005.

INSTITUTIONAL CONTROLS

Institutional controls are means by which access to the site and the landfilled materials is restricted to reduce the associated risks of contact. Examples of institutional controls include land-use restrictions, physical barriers, and posted signage. Security fencing and gates are the primary institutional controls at the DRMO Landfill.

Security Fencing & Gates

Security fencing extends along the eastern and southern perimeters of the site. A sliding vehicle gate located at the southern perimeter is used to control entry to the site. Inspected fencing components included vertical support posts, screen, upper tension wire, bottom rails, screen ties, tension bars, and corner post hardware. Gate components included hinge posts, hinges, and locking hardware.

In general, the chain-link fencing and gates were found to be in good condition and working order; no evidence of trespassing or vandalism was evident. The vehicle gate was not secure during the day-time inspections, however, according to facility personnel the gate is secured daily at end-of-shift.

During the inspection it appears vegetation along the fence line has been adequately controlled. These practices should continue to be maintained. If left uncontrolled, the vegetation would likely damage the fencing.

Signage

Signage was posted on the southern entry gate in accordance with the interim ROD requirements. Additional signage was observed on the gate and inside the landfill perimeter that identify the site as a capped landfill to prevent potential damage to the cap system by intrusive activities.

CAP AREAS

In general, the landfill cap is designed to, 1) act as a physical barrier to intrusion and minimize contact; and, 2) to minimize the infiltration of precipitation into the landfilled materials and the generation of leachate containing potentially hazardous concentrations of chemical compounds that could migrate off site.

The primary cap component at the DRMO Landfill is a GCL placed over a prepared subgrade. Secondary cap components include asphalt pavement and shore-line protection (rip-rap) along the Thames River.

Asphalt Pavement

Inspection of the pavement evaluated the following items: general condition of the pavement; grade/drainage features; cracks or spauling; settled areas; heaved areas; condition of adjacent sloped areas (i.e., grass slopes, shore-line protection); groundwater monitoring well penetrations; and, exposed cap components.

The asphalt grade appeared to be relatively level and consistent. Surface runoff was observed to flow westerly toward the River. Standing water was observed along the western portion of the site, parallel to the jersey barriers during the inspection.

The asphalt pavement within the cap limit was found to be in generally good condition. Some surficial scaring and cracking of asphalt has occurred but no holes penetrating the asphalt were observed during the inspection. Depressions in the pavement were observed in the vicinity of many jersey barriers. A piece of concrete was observed imbedded in the asphalt pavement proximal to 6MW10D. It is unknown at this time how the concrete became embedded in the asphalt. No exposed cap components were observed during the inspection.

Recommended corrective measures for the cap system include improvement of drainage through west perimeter jersey barriers to prevent sediment and water buildup and continued monitoring of the depressions around the jersey barriers. Cracks should

also be sealed as part of a routine maintenance plan. It was assessed during inspection activities that these corrective actions were not time critical and could be addressed along with operation and maintenance activities during 2006.

STORM WATER FEATURES

The stone lined drainage swale located at the eastern perimeter of the site was inspected and found to be in generally good condition. No accumulated sediment was observed in the swale. During the inspection, the catch basin was observed to have buildup up of sediment approximately 8 inches thick in the bottom. This sediment should be removed to maintain proper drainage and could be addressed with operation and maintenance activities in 2006.

The shore-line rip-rap protection along the Thames River was in good condition and no indications of erosion were evident at culvert outfall area. Vegetation including fragmites was observed growing in the rip-rap.

GROUNDWATER MONITORING WELLS

During the 26 April 2005 supplemental inspection, monitoring well inspections identified repairs needed at monitoring well 6MW7S. The well is depressed into the asphalt surface causing water to pond on top of the road box and flush mounted cover. Sediment build up was observed on the flush mounted cover monitoring well 6MW8S. This well was also observed to be under a pallet. This sediment should be removed and the storage around the well should be adjusted to allow unobstructed access. The concrete surface around 6MW10D is cracked and in need of repair. Also based on the labeling for 6MW10D and 6MW10S, the site map (Figure 1-1) was corrected.

Monitoring wells 6MW4S, 6MW5S, and 6MW5D were not inspected. An attempt was made to locate 6MW4S during the inspection. However, it was not located. This well reportedly has not been sampled in previous groundwater sampling events. It is suggested that the original documents identifying this well's location be reviewed to verify its location. If this well was installed as noted, then a decision should be made as

to attempt to find it or consider it closed/lost. Access was not granted to monitoring wells 6MW5S and 6MW5D due to security restrictions. These wells have reportedly not been sampled for some time. It is suggested that a decision be made to close these monitoring wells if security access issues continue and sampling importance no longer exists. Inspections will continue in upcoming sampling events and landfill inspections.

HOUSEKEEPING AND MAINTENANCE

The DRMO site is presently being used as a recycled materials depot and is operated by a private contractor. In general, the area was organized and neat and no housekeeping corrective actions are proposed as of this date with the exception of keeping pallets off of 6MW8S.

INSPECTION SUMMARY

In general, the DRMO Landfill is in good condition; the cap systems appear to be functioning as designed and is meeting the long-term remedial/closure objectives for the site. A few deficiencies have been noted that relate directly to maintenance issues and if left unaddressed, degradation of the cap components resulting in increased landfill operation costs is likely. The most significant defect noted were the depressions and ponding water located in the vicinity of the jersey barriers along the western portion of the site. If the depressions appear to be a continuing problem, the subsurface condition that is causing the depressions should be investigated and the appropriate corrective measures should be implemented. Sediment from in between the jersey barriers should be cleaned out to help maintain adequate drainage in this portion of the site.

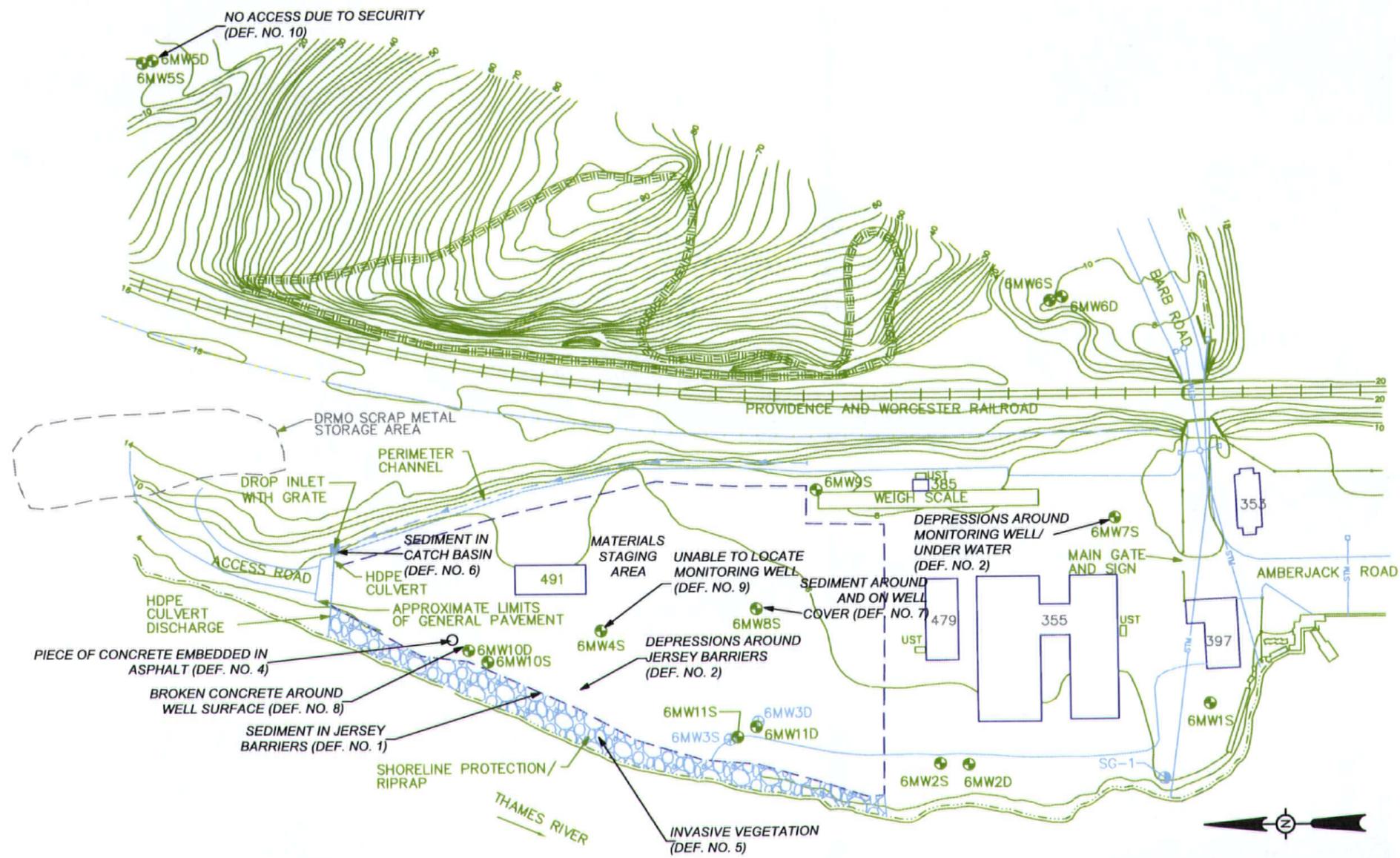
Implementation of a routine maintenance program is recommended to ensure that preventable repairs are minimized and that the landfill cap system functions as designed. Table 1-1 (attached) presents a summary of the deficiencies and the recommended corrective measures.

REFERENCES

B&RE, 1998 (March). Interim Record of Decision for Defense Reutilization and Marketing Office, Naval Submarine Base - New London, Groton, Connecticut. King of Prussia, Pennsylvania,.

OHM (OHM Remediation Services Corporation), 1995 (September). Final Report for Interim Remedial Action, Site 6, Naval Submarine Base, New London, Groton, Connecticut. Hopkinton, Massachusetts.

TtNUS. 2002 (November). Operation and Maintenance Manual for Installation Restoration Program Sites at Naval Submarine Base - New London, Groton, Connecticut. King of Prussia, Pennsylvania.



NOTES:
 1. ANNOTATIONS FROM ANNUAL INSPECTION COMPLETED ON 11 OCTOBER 2005..
 2. UNDERGROUND UTILITY LOCATIONS ARE APPROXIMATE.

DRAWING REFERENCE:
 GENERAL SITE LAYOUT, SITE 6, NSB-NLON BY TETRA TECH-NUS (09-20-2002).

- LEGEND:**
- ⊕ MONITORING WELL
 - ⊕ ABANDONED MONITORING WELL
 - ⊕ STAFF GAUGE
 - APPROXIMATE LIMIT OF CAP

 ENVIRONMENTAL CHEMICAL CORPORATION 50 D'ANGELO DRIVE MARLBOROUGH, MA 01752 (508) 229-2270 F: (508) 229-7737	NAVAL SUBMARINE BASE - NEW LONDON, GROTON, CT			
	SITE NO. 6, DRMO LANDFILL ANNUAL INSPECTION ANNOTATED SITE MAP			
SIZE B	FSCM NO. NA	DWG NO. FIGURE 1-1	REV 0	
SCALE NONE	20 October 2005	SHEET 1 of 1		

APPENDIX A
LANDFILL INSPECTION CHECKLIST

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

Date: October 11, 2005
 INSPECTOR/COMPANY: Courtney D. Moore, Jr., P.E. / Nobis Engineering, Inc.

WEATHER CONDITIONS: Temperature 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
INSTITUTIONAL CONTROLS					
1) Security Fencing					
a) East Perimeter Fence along Rail Road Tracks	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
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
CAP AREAS					
2) Asphalt Cap Area					
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 checked="" type="checkbox"/>	<input type="checkbox"/>	Many depressions in pavement near 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 recently filled areas
e) Holes/Penetrations in Asphalt Surface	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
f) Bubbles in Asphalt Surface	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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"/>	Puddle over repaired crack in pavement and along length of concrete barrier Puddle 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
k) Exposed Cap Components	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
STORM WATER FEATURES					
3) Drainage Swale					
a) General Conditions of Western 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

AREA OF INSPECTION	INSPECTED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
4) Concrete Catch Basin					
a) General Condition of Northern Catch Basin	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition
b) Condition of Grate Assembly	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
c) Amount of Siltation within Catch Basin	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Approximately 8 inches of sediment

INSPECTION CHECKLIST
SITE 6 - DRMO
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5) Culvert Outfall					
a) General Condition of Discharge Pipe	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition
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
6) Thames River Riprap					
a) General Condition of Riprap Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Fragmites growing along gravel river side of jersey barriers
MONITORING WELLS					
7) 6MW1S					
a) Condition of Protective Casing/Riser	<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"/>	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"/>	Cracking partially covered
8) 6MW2S					
a) Condition of Protective Casing/Riser	<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"/>	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 type="checkbox"/>	<input checked="" type="checkbox"/>	Covered by vegetative growth
9) 6MW2D					
a) Condition of Protective Casing/Riser	<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
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"/>	None
d) Condition of Well Concrete Pad	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Covered by gravel and vegetative
10) 6MW3S (Abandoned near 6MW11S)					
a) Condition of Surface Surrounding Location	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition
11) 6MW3D (Abandoned near 6MW11D)					
a) Condition of Surface Surrounding Location	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Generally in good condition

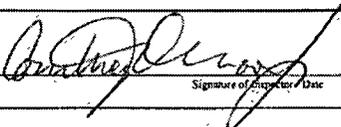
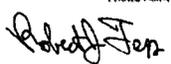
INSPECTION CHECKLIST
SITE 6 - DRMO
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AREA OF INSPECTION	EXCLUDED	DOES NOT APPLY	REPAIRS/MAINTENANCE NOT RECOMMENDED	REPAIRS/MAINTENANCE RECOMMENDED	NOTES AND COMMENTS
12) 6MW4S					
a) Condition of Protective Casing/Riser	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Unable to locate
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 Concrete Pad	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13) 6MW5S					
a) Condition of Protective Casing/Riser	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Unable to locate
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 Concrete Pad	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14) 6MW5D					
a) Condition of Protective Casing/Riser	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Unable to locate
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 Concrete Pad	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15) 6MW6S					
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"/>	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 Concrete Pad	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
16) 6MW6D					
a) Condition of Protective Casing/Riser	<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 Concrete Pad	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
17) 6MW7S					
a) Condition of Surface Surrounding Well Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Covered by puddle, area is depressed into asphalt
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"/>	Reportedly has no lock

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
18) 6MW8S					
a) Condition of Surface Surrounding Well Cover	■	□	□	■	Well was located under stored equipment. Sediment build up noted on surface that should be cleaned off.
b) Condition of Flush Mount Well Cover	■	□	■	□	None
c) Condition of Well Lock	■	□	■	□	Reportedly has no lock
19) 6MW9S					
a) Condition of Surface Surrounding Well Cover	■	□	■	□	None
b) Condition of Flush Mount Well Cover	■	□	■	□	None
c) Condition of Well Lock	■	□	■	□	Reportedly has no lock
20) 6MW10S					
a) Condition of Surface Surrounding Well Cover	■	□	■	□	None
b) Condition of Flush Mount Well Cover	■	□	■	□	None
c) Condition of Well Lock	■	□	■	□	Reportedly no lock
21) 6MW10D					
a) Condition of Surface Surrounding Well Cover	■	□	□	■	Damaged concrete
b) Condition of Flush Mount Well Cover	■	□	■	□	None
c) Condition of Well Lock	■	□	■	□	Reportedly has no lock
22) 6MW11S					
a) Condition of Surface Surrounding Well Cover	■	□	■	□	Well has been recently repaired, under puddle of standing water at time of inspection
b) Condition of Flush Mount Well Cover	■	□	■	□	None
c) Condition of Well Lock	■	□	■	□	Reportedly has no lock
23) 6MW11D					
a) Condition of Surface Surrounding Well Cover	■	□	■	□	Repaired well under puddle
b) Condition of Flush Mount Well Cover	■	□	■	□	Under puddle
c) Condition of Well Lock	■	□	■	□	None

INSPECTION CHECKLIST
SITE 6 - DRMO
 Page 5 of 6

<p>Adequacy of O&M at Site: Over all O&M practices at the site are sufficient at this time.</p>	
<p>Notes: Two new asphalt patches near 6MW11D recently filled previous depressions.</p>	
<p>Deficiencies/Items Requiring Correction: Sedimentation around Jersey barriers at western perimeter is retaining 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. Sediment build up on 6MW8S should be removed and keep patios off top of well cover. Concrete is damaged around 6MW10D, should be repaired. Unable to locate monitoring well 6MW4S, locate well or consider it lost/drainaged. Unable to access wells 6MW3S and 6MW3D due to security restrictions. 6MW7S is under water in a depressed area that should be repaired.</p>	
<p>Courtesy D. Moore, Jr., P.E. Printed Name of Inspector</p>	<p> Signature of Inspector / Date 12/5/05</p>
<p>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>	
<p>Robert J. Tess, PE Printed Name of O&M Engineer</p>	<p>Richard D. Conant Jr. Printed Name of NSB-NLON IRP Manager</p>
<p> Digitally signed by Robert J. Tess, PE Date 2005.12.06 12:07:07 -07'00'</p>	<p> Signature of NSB-NLON IRP Manager / Date 2 Dec 05</p>
<p>Signature of O&M Engineer / Date</p>	<p>Signature of NSB-NLON IRP Manager / Date</p>

INSPECTION CHECKLIST
SITE 6 - DRMO
Page 6 of 6

Provide additional notes or sketch as needed

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APPENDIX B
DEFICIENCY LOG

Naval Submarine Base - New London, Groton, CT
DRMO Landfill Annual Inspection
Deficiency Log
October 2005

No.	Item	Deficiency	Recommended Action 11 October 2005
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 and 6MW7S.	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	6MW8S-Surface Surrounding Well Cover	Sediment build up and pallet on top of and around well cover.	Remove sediment and move pallet off well.
8	6MW10D-Surface Surrounding Well Cover.	Concrete is damaged.	Repair concrete.
9	6MW4S	Unable to locate monitoring well.	Identify location or deem the well closed/lost.
10	6MW5S and 6MW5D	Unable to access wells.	Identify if wells are still needed and either make more accessible or close the wells.

**Naval Submarine Base - New London, Groton, CT
DRMO Landfill Annual Inspection
Deficiency Log
October 2005**

APPENDIX C
INSPECTION PHOTOS

**Naval Submarine Base
New London, CT
Site 6 – DRMO Landfill
October 11, 2005**



A view of the standing water along the jersey barriers.



A view of cracks in the asphalt cap's surface.



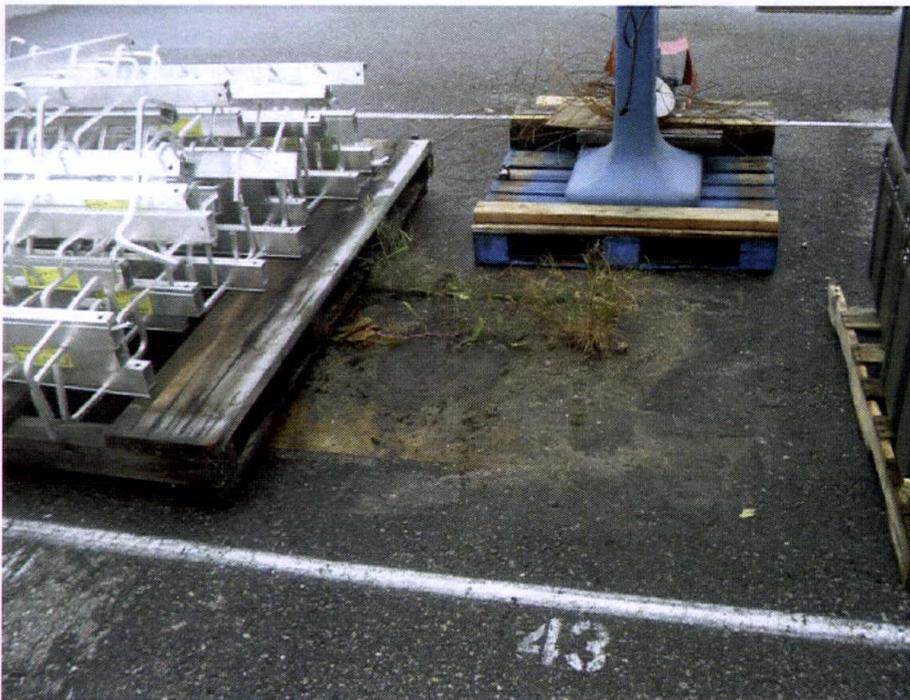
A view of a recently sealed crack in the asphalt surface under standing water.



A view of the piece of concrete embedded in the asphalt cap proximal to 6MW10D with damaged concrete (back ground).



A view of the vegetation growing in the rip-rap.



6MW8S sediment build up on and around monitoring well cover.