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FINAL FIVE YEAR REVIEW REPORT FOR NS NEWPORT RI (PUBLIC DOCUMENT)
11/24/2014
RESOLUTION CONSULTANTS

FIVE-YEAR REVIEW REPORT FOR NAVSTA NEWPORT
Newport, RI

FINAL
Version: 1

Prepared for:

Naval Facilities Engineering Command
ATLANTIC DIVISION

Department of the Navy
Naval Facilities Engineering Command, Mid-Atlantic
9742 Maryland Ave.
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Comprehensive Long-Term Environmental Action Navy
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LIST OF ACRONYMS AND ABBREVIATIONS

AALs	ambient air levels
ACM	asbestos-containing materials
AFFF	Aqueous Fire Fighting Foams
AOC	area of concern
ARAR	Applicable or Relevant and Appropriate Requirement
AWQC	Ambient Water Quality Criteria
BERA	Baseline Ecological Risk Assessment
bgs	below ground surface
CCRF	Coddington Cove Rubble Fill Area
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	Contaminant of Concern or Chemical of Concern
CS	Confirmation Study
CSGWPP	Comprehensive State Groundwater Protection Program
DEC	Direct Exposure Criterion
DESC	Defense Energy Support Center
DFSP	Defense Fuel Support Point
EPA	Environmental Protection Agency
ERA	ecological risk assessment
ESD	Explanation of Significant Differences
FFA	Federal Interagency Facilities Agreement
HAP	Hazardous Air Pollutant
HHRA	Human Health Risk Assessment
IAS	Initial Assessment Study
ICDEC	Industrial/Commercial Direct Exposure Criteria

ICOC	Indicator Contaminant of Concern
IR	Installation Restoration
LTM	Long-Term Monitoring
LTMP	Long-Term Monitoring Program
LUC	land use control
MC	munitions constituents
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
MEC	Munitions and Explosives of Concern
mg/kg	milligrams per kilogram
MLW	mean low water
MNA	monitored natural attenuation
MRP	Munitions Response Program
MSG	Monitoring Station Group
MSL	mean sea level
MW	monitoring well
NAVSTA	Naval Station
ND	non detect
NESHAP	National Emission Standards for Hazardous Air Pollutants
NETC	Naval Education and Training Center
NFA	No Further Action
NMOC	Non-Methane Organic Compound
NPL	National Priorities List
NTCRA	Non-Time-Critical Removal Action
NUSC	Naval Undersea Systems Center
NUWC	Naval Undersea Warfare Center

OFFTA	Old Fire Fighting Training Area
O&M	Operations and Maintenance
OSHA	Occupational Safety and Health Administration
OSWER	Office of Solid Waste and Emergency Response
OU	Operable Unit
PAHs	polycyclic aromatic hydrocarbons
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
PELs	permissible exposure limits
PFCs	perfluorinated chemicals
PFOA	perfluorooctanoic acid
PFOS	perfluorooctane sulfonate
ppb	parts per billion
ppbv	parts per billion by volume
ppm	parts per million
ppmv	parts per million by volume
POTW	publicly-owned treatment works
PRGs	preliminary remediation goals
QA/QC	Quality Assurance/Quality Control
RAB	Restoration Advisory Board
RAO	Remedial Action Objective
RCRA	Resource Conservation and Recovery Act
RDEC	Residential Direct Exposure Criteria
RD/RA	Remedial Design/Remedial Action
RGs	Remediation Goals
RIDEM	Rhode Island Department of Environmental Management

RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
SASE	Study Area Screening Evaluation
SDWA	Safe Drinking Water Act
SED	sediment
SI	Site Investigation
SPLP	Synthetic Precipitation Leaching Procedure
SRI	supplemental remedial investigation
SVOC	Semi-volatile organic compound
SWOS	Surface Warfare Officers School
SW	surface water
TBC	To be Considered
TCE	trichloroethene
TCL	Target Compound List
TCRA	time-critical removal action
TPH	total petroleum hydrocarbon
TSCA	Toxic Substances Control Act
TtFW	Tetra Tech FW, Inc.
TtNUS	Tetra Tech NUS, Inc.
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
UST	underground storage tank
µg/L	micrograms per liter
VOC	Volatile organic compound
WAMS	Water Area Munitions Study

NAVY FIVE-YEAR REVIEW KEY INFORMATION

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site Name: Naval Station Newport (formerly Newport Naval Education and Training Center)		
EPA ID: RI6170085470		
Region: 1	**State:** RI	**City/County:** Newport, Middletown, Portsmouth, Jamestown/Newport County
SITE STATUS		
NPL Status: Final		
Multiple OUs? Yes	**Has the site achieved construction completion?** No	
REVIEW STATUS		
Lead agency: Other Federal Agency **If "Other Federal Agency" was selected above, enter Agency name:** U.S. Department of the Navy		
Author name (Federal or State Project Manager): Mr. James Gravette		
Author affiliation: U.S. Navy, Naval Facilities Engineering Command, Mid-Atlantic		
Review period: 12/23/2009 – 12/22/2014		
Date of site inspection: 2/27/2014		
Type of review: Statutory		
Review number: 4		
Triggering action date: 12/22/2009 (Signature of prior five-year review)		
Due date *(five years after triggering action date)*: 12/22/2014		

Five-Year Review Summary Form (continued)

Issues/Recommendations

OU(s) without Issues/Recommendations Identified in the Five-Year Review:
OU1 and OU4 (Site 1), OU7 (Site 8), OU3 (Site 9), and OU2 (Tanks 53 and 56 at Site 13)

Protectiveness Statement(s)

Operable Unit:	*Protectiveness Determination:*	*Addendum Due Date (if applicable):*
OU1 (Site 1)	Protective	Click here to enter date.

Protectiveness Statement:
The remedy for OU1 at McAllister Point Landfill (Site 1) is protective of human health and the environment, and exposure pathways that could result in unacceptable risks are being controlled. The source control remedy (OU1) is complete and functioning as intended. The landfill cap, stone revetment, and surface control are in place and being well maintained to prevent exposure to the landfill area and limit infiltration of precipitation within the cap. Groundwater, vent gas, and ambient air monitoring are on-going to confirm emissions are within acceptable parameters. The most recent annual groundwater monitoring results show few detections of VOCs and SVOCs and mainly infrequent exceedances of the MCLs by these chemicals and by metals, with the few exceedances observed only within the footprint of the landfill. More frequent exceedances of MCLs do occur for arsenic in areas of the landfill cap, including near the downgradient/shoreline edge of the landfill, but still within the footprint of the landfill. The groundwater and vent gas monitoring have shown generally consistent results with no indications of any issues with the protectiveness of the remedy. Groundwater migration does not appear to be providing contaminants above RGs to the bay. Continued monitoring at wells within the landfill and on the western edge will be used to confirm protectiveness by comparing contaminant concentrations measured in the sampled media to RGs and ensure that there is no increased risk to human health or the environment. Fencing remains in place to restrict access and land use controls are in place and are enforced to prevent unauthorized use of the site.

Operable Unit:	*Protectiveness Determination:*	*Addendum Due Date (if applicable):*
OU4 (Site 1)	Protective	Click here to enter date.

Protectiveness Statement:
The remedy for OU4 at McAllister Point is protective of human health and the environment, and exposure pathways that could result in unacceptable risks are controlled. The dredging and backfilling activities for the near shore and elevated risk off-shore marine sediment remedial action (OU4) are complete. Long-term monitoring of the off-shore areas with low risk is ongoing. Monitoring of the near shore and elevated risk off-shore areas is continuing. The

sediment and porewater monitoring results, prior to the most recent monitoring round, showed Indicator Constituents of Concern below remediation goals (RGs) for sediment and porewater, and most were below baseline Preliminary Remediation Goals (PRGs). Additionally, earlier toxicity testing overall did not demonstrate elevated risks to the environment. However, the most recent sediment and porewater monitoring results were not consistent with historical results. Numerous exceedances of the RGs were detected in the most recent monitoring event and toxicity was indicated in one of three toxicity tests when compared to the reference station data. Since similar results were observed in the reference station data, the cause of the RG exceedances and the toxicity is uncertain and may be because of impacts generally prevalent in the environs of the Site and not necessarily related to the Site. There is no evidence that the recent porewater and sediment monitoring results were caused by changes to the integrity of the landfill cap or other components of the source control remedy (OU 1). Monitoring of the near-shore and elevated risk off-shore areas and off-shore areas with low risk will be continued to confirm the protectiveness of the remedy.

Operable Unit:	*Protectiveness Determination:*	*Addendum Due Date (if applicable):*
OU7 (Site 8)	Will be Protective	Click here to enter date.

Protectiveness Statement:
The remedy at Site 8 (OU 7) will be protective of human health and the environment upon completion. In the interim, remedial activities completed to date have adequately addressed all exposure pathways that could result in unacceptable risks in these areas. Although asbestos was not identified as a contaminant of concern (COC) in the Site 8 ROD, the remedy for the site as outlined in the ROD, including the asphalt/soil cover system and LUCs, will also be protective of human health and the environment with respect to asbestos. The discovery of asbestos-containing materials in site soils does not impact current protectiveness, since the excavations where asbestos-containing materials were uncovered were immediately backfilled and the Remedial Action Work Plan was amended to include provisions to protect construction workers from potential exposures while the remedial construction is completed and ensure proper handling and disposal of excavated soil and debris.

Operable Unit:	*Protectiveness Determination:*	*Addendum Due Date (if applicable):*
OU3 (Site 9)	Protective	Click here to enter date.

Protectiveness Statement:
The remedy at Site 9 (OU 3) is protective of human health and exposure pathways that could result in unacceptable risks are being controlled. The asphalt/soil cover system and replacement stone revetment are in place and preventing exposure to contaminated soils. Land use controls are in place and enforced to prevent unauthorized use of the site. The Navy developed a Long-Term Management Plan to monitor near-shore sediment to evaluate whether contamination from soil and groundwater is migrating and adversely impacting sediment. An evaluation will be conducted prior to the next five-year review to determine whether Aqueous Fire Fighting Foams (AFFF) was used at the site and whether there was a potential release of perfluorooctanoic acid (PFOA) or perfluorooctane sulfonate (PFOS), which are emerging contaminants, and then sampling will be conducted, if required, to ensure protectiveness.

Operable Unit: OU2 (Tanks 53 and 56 at Site 13)	*Protectiveness Determination:* Protective	*Addendum Due Date (if applicable):* Click here to enter date.
Protectiveness Statement: The interim remedy for Tanks 53 and 56 at Site 13 (OU 3) is protective of human health and the environment. The source of contamination has been removed, and the groundwater treatment system has been demolished and the monitoring wells abandoned due to attainment of RAOs. The most recent fifth groundwater sampling round met RIDEM standards and federal MCLs. A final decision document will be prepared to document No Further Action as the final remedy for Tanks 53 and 56.		

AUTHORIZING SIGNATURES

By my signature below, I approve the issuance of this Five Year Review for Naval Station Newport in Newport, Rhode Island.

Captain D. R. D. Boyer
Commanding Officer, NAVSTA Newport

1 Dec 2014
Date

1.0 INTRODUCTION

The Department of the Navy (Navy), in conjunction with the United States Environmental Protection Agency (USEPA) Region 1 and the Rhode Island Department of Environmental Management (RIDEM) has conducted the fourth five-year review of the remedial actions implemented at the Naval Station (NAVSTA) Newport, formerly the Naval Education and Training Center (NETC), Superfund Site in Newport, Rhode Island. The Navy is the lead agency with regulatory oversight provided by USEPA and RIDEM. This review has been prepared by Resolution Consultants on behalf of the Naval Facilities Engineering Command Mid-Atlantic (NAVFAC MIDLANT). The review was initiated in October 2013 and was completed in September 2014. This five-year review addresses the operable units (OUs) at the four NAVSTA Newport sites where Records of Decision (RODs) have been signed documenting the selected remedies and remedial actions have been initiated and site-related contaminants remain at levels above those that would allow for unlimited use and unrestricted exposure:

- Site 1 - McAllister Point Landfill, Source Control (OU 1) and Management of Migration (OU 4);
- Site 8 – Naval Undersea Systems Center (NUSC) Disposal Area (OU 7);
- Site 9 – Old Fire Fighting Training Area (OFFTA) (OU 3);
- Tanks 53 and 56 at Site 13 – Tank Farm 5 (OU2).

The following table summarizes all sites and OUs at NAVSTA Newport and their current regulatory phase. The locations of the sites listed below are shown on Figure 1 in Appendix B.1.

Table 1-1
Inventory of Sites and Operable Units
NAVSTA Newport, Rhode Island

FFA Site No.	Site Name	Operable Unit No.	Regulatory Phase
Site 1	McAllister Point Landfill	OU 1 and OU 4	O&M/LTM
Site 4	CCRF	No designation	SASE
Site 7	Tank Farm 1	OU 13	RI/FS
Site 8	NUSC Disposal Area	OU 7	RD/RA
Site 9 (includes former Site 20)	OFFTA	OU 3	O&M
Site 10	Tank Farm 2	OU 14	RI

FFA Site No.	Site Name	Operable Unit No.	Regulatory Phase
Site 11	Tank Farm 3	OU 15	RI
Site 12	Tank Farm 4 (includes Decision Unit 4-1)	OU 11	RD for Decision Unit 4-1
Site 13	Tank Farm 5 (includes Decision Unit 5-1 and Tanks 53 and 56)	OU 2	RD for Decision Unit 5-1; NFA Decision Document planned for Interim RA for Tanks 53 and 56
Site 17	Gould Island	OU 6	RD
Site 19	Derecktor Shipyard - Off-shore	OU 5	RD
	Derecktor Shipyard - On-shore	OU 12	RD
Site 22	Carr Point Storage Area	OU 10	RI
MRP Site 1	Carr Point Shooting Range	OU 9	RI
Site 23	Coddington Point Buried Debris Areas	No designation	RI

Although not subject to five-year review, the remaining sites and OUs listed above are briefly discussed in Section 6.0 of this document along with the progress of the various stages of the CERCLA process. Note that for some of these sites with recently completed RODs, the Navy has either already established land use controls (LUCs) or has implemented interim measures to address short-term risks while the RDs (including LUC RDs) are being completed and until the remedies are fully implemented. For Site 19 – Derecktor Shipyard On-Shore (OU 12), as described in the OU 12 ROD, "short-term LUCs, in the form of a Base Instruction, have been implemented to restrict exposure to the site soils that may have been impacted from the excavation/demolition and stockpiling of these soils/debris and sediments until the results of the PRD [pre-remedial design] soil sampling determines if remedial action of these soils is necessary. These controls include maintenance of the existing fencing to prevent uncontrolled access and restriction of unauthorized excavation of the soils in the Northern Area." For Decision Unit 4-1 at Site 12 – Tank Farm 4 (OU 11) and Decision Unit 5-1 at Site 13 – Tank Farm 5 (OU 2), LUC RDs have been completed and the LUCs are in place and being enforced to prevent unauthorized use of these sites. For Site 17 – Gould Island (OU 6) and Site 19 – Derecktor Shipyard Off-shore (OU 5), the LUC RDs are being prepared with the agencies for both of those sites, and interim measures, such as the installation of signs, are planned for manufacture and construction in late 2014.

This is the fourth five-year review of sites at NAVSTA Newport. The first five-year review was completed in December 1999, the second was completed in December 2004, and the third was completed in December 2009. The triggering action for the initial statutory review was initiation of the remedial action at McAllister Point Landfill. The triggering action for the subsequent five-year reviews was the signature date of the previous five-year review. This statutory five-year review is required since hazardous substances remain at McAllister Point Landfill, NUSC Disposal Area, OFFTA, and Tanks 53 and 56 at Tank Farm 5 above levels that allow for unlimited use and unrestricted exposure.

Two sites were evaluated as part of the first, second, and third five-year reviews for NAVSTA Newport and are also evaluated in this five-year review: McAllister Point Landfill and Tanks 53 and 56 within Tank Farm 5.

1.1 Purpose

The purpose of this five-year review is to determine if the remedies selected and implemented or initiated at select operable units at Site 1, Site 8, Site 9, and Tanks 53 and 56 within Site 13, are protective of human health and the environment. The methods, findings, and conclusions of the reviews are documented in this five-year review report. In addition, this five-year review report identifies issues found during the review, if any, and identifies recommendations to address them. This five-year review was prepared according to the Comprehensive Five-Year Review Guidance (USEPA, 2001) and the memorandum clarifying the use of protectiveness determinations (USEPA, 2012a).

The Navy must implement five-year reviews consistent with the Comprehensive Environmental Response Compensation, and Liability Act (CERCLA) §121 and the National Contingency Plan. CERCLA §121 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. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews."*

The National Contingency Plan 40 CFR §300.430(f)(4)(ii) 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."

1.2 Overview of Naval Station Newport

The NAVSTA Newport (the Base) facility encompasses 1,063 acres on the west shore of Aquidneck Island facing the east passage of Narragansett Bay, and is located in the towns of Portsmouth, Middletown, and Newport, Rhode Island (Figure 1 of Appendix B.1). NAVSTA Newport also encompasses the northern third of Gould Island, which is part of the Town of Jamestown, Rhode Island. The facility contains several ERP sites. The Navy is the lead agency for site investigation and cleanup of these ERP sites, with regulatory oversight provided by USEPA and RIDEM.

1.2.1 Land Use and Physical Characteristics

NAVSTA Newport is an active military training facility and is expected to remain active for the foreseeable future. Forty-two Naval and defense commands currently operate at NAVSTA Newport, which is one of the Navy's primary sites for training and educating officers, officer candidates, senior enlisted personnel, and midshipman candidates, and which is also used for conducting advanced undersea warfare and development systems activities. Tenant commands include the Naval Undersea Warfare Center (NUWC), Naval Warfare College, Surface Warfare Officers School (SWOS), Navy Warfare Development Command, Officer Training Command, Center for Service Support, Naval Academy Preparatory School, and Senior Enlisted Academy.

The NAVSTA Newport area has been used by the U.S. Navy since the Civil War era. Activities have increased during war times and later decreased as Naval forces were reorganized. Between 1900, and the mid-1970s, the facility has been used as a refueling depot. The Shore Establishment Realignment Program reorganization in April 1973 resulted in reductions in personnel and the Navy excessed a large portion of the acreage of the original facility. The NETC was subsequently established at NAVSTA Newport in the 1970s. In the mid-1990's several new laboratories were constructed at the NUWC (formerly Naval Undersea Systems Center or NUSC) to provide research, development, testing, evaluation, engineering and fleet support for submarines and underwater systems. In October 1998, NAVSTA Newport was established as the primary host command, taking over base operating support responsibilities from NETC.

Due to the coastal location of NAVSTA Newport, areas at low elevations are susceptible to flooding during storm surges. NAVSTA Newport is located at the southeastern end of the Narragansett Basin, which consists of non-marine sedimentary rock of the Pennsylvanian age. The bedrock is primarily of the Rhode Island Formation. Glacially-derived unconsolidated deposits overlie the bedrock. These surficial deposits consist of till, sand, gravel, and silt and range in thickness from 1 to 150 feet (TtNUS, 1999a). Till, which overlies bedrock, is the most extensive glacial deposit found in Rhode Island. NAVSTA Newport is located on the Narragansett till plain. Stratified drift, or outwash deposits, overlie the till and are composed of sorted sand, silt, and gravel.

Groundwater supply wells are located throughout Aquidneck Island. The wells are used primarily for domestic supply; small industries and businesses also make use of groundwater. No wells have been identified on NAVSTA Newport except on Gould Island. The average depth of groundwater is 14 feet below ground surface (bgs) on Aquidneck Island. Over-pumping of groundwater wells located near the shoreline has resulted in salt water intrusion in some wells. The groundwater is less than 10 feet bgs in most portions of NAVSTA Newport. Groundwater flows east to west across NAVSTA Newport toward Narragansett Bay. RIDEM has established a state groundwater classification system to protect its groundwater resources, and under this system, McAllister Point Landfill, Gould Island, Tank Farm 3, Tank Farm 4, Tank Farm 5, Carr Point Storage Area, Carr Point Shooting Range, and a portion of NUSC Disposal Area are within RIDEM's GA groundwater classification area, which designates the groundwater as presumed suitable for public or private drinking water use without treatment. However, per EPA groundwater remediation guidance, in states without an EPA-approved Comprehensive State Groundwater Protection Program (CSGWPP) such as Rhode Island, CERCLA groundwater remediation must meet federal drinking water standards (i.e., MCLs and non-zero Maximum Contaminant Level Goals [MCLGs] and risk-based standards, or more stringent state groundwater standards, unless the water is non-potable.

NAVSTA Newport is located in the Narragansett Bay drainage basin. All surface water flows toward and empties into Narragansett Bay. Two streams, Gomes Brook (running through the northern portion of Site 13) and Normans Brook (at the southwestern corners of Sites 12 and 22), are located on NAVSTA property and are classified as Class B surface waters by RIDEM. Surface runoff is discharged to Narragansett Bay through storm water collection systems.

Private wells located within 3 miles of the site provide drinking water to an estimated 4,800 people and irrigation water for 220 acres of land. Approximately 10,000 people live within 3 miles of the NAVSTA Newport.

1.2.2 History and Chronology

An Initial Assessment Study (IAS), completed in 1983, identified 18 sites where contamination was suspected to pose a threat to human health and the environment. Six of the 18 sites were investigated further in a Confirmation Study (CS), completed in 1986.

A Phase I Remedial Investigation/Feasibility Study (RI/FS) was completed in 1992. This RI/FS covered: McAllister Point Landfill (Site 1), Melville North Landfill (Site 2), Old Fire Fighting Training Area (Site 9), Tank Farm 4 (Site 12), and Tank Farm 5 (Site 13). The McAllister Point Landfill, Melville North Landfill, and Tank Farm 4 were previously investigated in both the IAS and CS; and Tank Farm 5 in the IAS. OFFTA was not investigated as part of either the IAS or CS.

Investigations at four of the five sites covered under the Phase I RI/FS have continued under the Department of Defense Installation Restoration Program (IRP) following the listing of NAVSTA Newport (then referred to as NETC) on the NPL in 1989. Additional sites being investigated under the IRP include Tank Farm 1, Tank Farm 2, Tank Farm 3, Coddington Cove Rubble Fill Area (CCRF), NUSC Disposal Area, Derecktor Shipyard On-Shore and Off-Shore, Building 32 at Gould Island, MRP Site 1 and IR Site 22 at Carr Point, Melville Water Tower, and Coddington Point Buried Debris Areas. One additional site, the Surface Warfare Officer's School (SWOS), was initially investigated separately, but was later considered to be a portion of OFFTA. These investigations have led to decision documents in the forms of an Interim ROD for Tanks 53 and 56 at Tank Farm 5 and final RODs for the McAllister Point Landfill, OFFTA, DU 4-1 at Tank Farm 4, DU 5-1 at Tank Farm 5, Gould Island, NUSC Disposal Area, Derecktor Shipyard Off-Shore, and Derecktor Shipyard On-Shore.

A chronology of the major base-wide activities at the NAVSTA Newport IRP sites is included below as Table 1-2. Detailed information concerning the McAllister Point Landfill, NUSC Disposal Area, OFFTA, and Tanks 53 and 56 at Tank Farm 5 is included in Sections 2.0, 3.0, 4.0, and 5.0, respectively, of this document. Activities related to other IRP sites are included in Section 6.0 of this document.

Table 1-2
Chronology of Major Base-Wide Events
NAVSTA Newport, Rhode Island

Event	Date
Initial Assessment Study (IAS) completed. IAS identified 18 potentially contaminated sites. (Naval Energy and Environmental Support Activity, 1983)	March 1983
Confirmation Study (CS) completed for: Site 01, Site 02, Site 07, Site 12, Site 14, and Site 17. (Loureiro Engineering Associates and York Wastewater Consultants, 1986)	May 1986
NETC Newport listed on the NPL	November 21, 1989
Draft Phase I RI and Human Health Risk Assessment Report completed for Sites 01, 02, 09, 12, and 13. (TRC, 1992)	January 1992
Federal Interagency Facilities Agreement between EPA, RIDEM and U.S. Navy signed (USEPA Region 1, 1992)	March 23, 1992
Restoration Advisory Board (RAB) established.	1996
First Five-Year Review Report completed (TtNUS, 1999d).	December 1, 1999
Second Five-Year Review Report completed (TtNUS, 2004f).	December 10, 2004
Draft Base Wide Background Study Report completed (TtNUS, 2007b).	October 1, 2007
Third Five-Year Review Report completed (TtNUS, 2009c)	December 17, 2009

1.3 Five-Year Review Process

The fourth five-year review for NAVSTA Newport was led by the NAVFAC Remedial Project Managers. The following team members assisted in the review: Newport IR Program Managers, USEPA Remedial Project Managers, RIDEM Project Manager, Tetra Tech Project Managers, and staff from Resolution Consultants.

The five-year review included the following activities: a review of relevant documents, including decision documents and monitoring reports (see Appendix A); a site inspection; and limited interviews. A summary of relevant data regarding the components of the site remedies is presented in Sections 2.0, 3.0, 4.0, and 5.0 for the McAllister Point Landfill, NUSC Disposal Area, OFFTA, and Tanks 53 and 56 at Tank Farm 5, respectively. A site inspection McAllister Point Landfill, NUSC Disposal Area, and OFFTA was completed on February 27, 2014 by a Resolution Consultants engineer.

Notice of the preparation of the five-year review for NAVSTA Newport was provided to community representatives via an electronic mailing to the Restoration Advisory Board (RAB) members and mailing to community leaders on January 10, 2014. In addition, a public notice was placed in the Newport Daily News, a daily publication that has circulation in all four communities. This notice was run on October 18, 2013. The notice and the mailing encouraged public participation in the five-year review process through contact with the Navy, through the RAB, and via a mailed questionnaire. Copies of the final five-year review report will be made available for review in the information repositories listed below.

- Newport Public Library, Aquidneck Park, Newport, RI 02840
- Middletown Free Library, Middletown, RI 02842
- Portsmouth Free Library Association, Portsmouth, RI 02871
- Jamestown Philomenian Library, Jamestown, RI 02835

Additionally, the final five-year review report will be made available on-line in the Administrative Record for NAVSTA Newport at http://go.usa.gov/DyNw and on USEPA's website at http://www.epa.gov/region1/superfund/.

As stated above, a questionnaire was submitted to RAB and other community members via an electronic mailing on January 10, 2014. A total of 42 RAB and community members were contacted and included community members and Navy, EPA, and RIDEM stakeholders. The questionnaire was also mailed to community leaders (town administrator or city manager and fire chief) within Jamestown, Middletown, Portsmouth, and Newport, Rhode Island. Additionally, copies of the questionnaire were made available at the RAB meeting on January 15, 2014. As of the end of September 2014, four questionnaires were returned.

The responses to the questionnaires indicated that most respondents felt well informed about the environmental cleanup activities and progress at the sites. Concerns were cited regarding difficulties with accessing the Navy website and finding documents. One community member felt that information provided at the RAB meetings about the cleanup projects was not always accurate, while another expressed that the RAB meetings were an excellent source of information about the status and progress of site activities.

Two of the respondents noted that progress of the response actions has been too slow. Two respondents expressed concern about future availability of funding to complete cleanup of all of the

CERCLA sites. It was suggested that the RAB evaluate the relative health hazards and incremental cleanup priorities among the sites to establish priorities for cleanups.

Respondents indicated that public interest in the cleanup activities is generally not that high compared to in the past, but that there is interest and concern related to future property transfer and potential redevelopment. One respondent noted another community member's concern about contaminated soils from Navy removal activities potentially having been disposed at a local landfill in Portsmouth that abuts the community member's home. On the other hand, it was noted that community members who attend the RAB meetings have expressed a variety of concerns related to the cleanup sites. On respondent noted that RAB membership should be more diverse to better represent the surrounding communities. Two respondents expressed concern regarding evidence of trespassing at Gould Island and/or the Tank Farm sites and another respondent noted that hunters and others, including kids, have broken down fences to trespass onto sites.

One respondent noted that environmental cleanup work is generally not providing jobs to local people in Rhode Island.

1.4 Report Organization

This report has been organized to address the various components and general format requirements specified in the Comprehensive Five-Year Review Guidance, OSWER No. 9355.7-03B-P (USEPA, 2001). Section 1.0 provides an overview of NAVSTA Newport, including history, chronology, and the five-year review process, and also summarizes the community notification and involvement that occurred for this five-year review. Sections 2.0, 3.0, 4.0, and 5.0 provide the five-year reviews conducted for the individual sites, including McAllister Point Landfill, NUSC Disposal Area, OFFTA, and Tanks 53 and 56 at Tank Farm 5. Section 6.0 includes a brief summary of the history, investigations performed, and current activities underway at each of the remaining sites at NAVSTA Newport that are included in the FFA. The following appendices are included in the report: Appendix A is a list of documents reviewed and referenced in this report; Appendix B includes figures associated with this five-year review; Appendix C includes site inspection information; Appendix D includes a summary of Applicable or Relevant and Appropriate Requirements (ARARs) applicable to McAllister Point Landfill, NUSC Disposal Area, OFFTA, and Tanks 53 and 56 at Tank Farm 5; Appendix E provides monitoring data used in support of this five-year review; and Appendix F includes Installation Restoration (IR) Site Access and Use instructions.

2.0 SITE 1 – MCALLISTER POINT LANDFILL (OU 1 and OU 4)

2.1 History and Site Chronology

The McAllister Point Landfill at NAVSTA Newport was operated as a sanitary landfill over a 20-year period. From 1955 until the mid-1970's the landfill accepted all the wastes generated at the Naval complex, including waste from all operational areas (machine shops, ship repair, etc.), Navy housing areas (domestic refuse), and from the 55 ships home ported at Newport prior to 1973 (approximately 14 40-cubic yard containers each day). The materials disposed of at the landfill reportedly included spent acids, paints, solvents, waste oils (diesel, lubrication, and fuel), polychlorinated biphenyl (PCB)-contaminated transformer oil; domestic refuse; and construction debris.

During the period from 1955 through 1964, wastes were trucked to the landfill, spread out with a bulldozer, and covered. In the late 1950's or early 1960's, an incinerator was built at the landfill. From that time through about 1970, approximately 98 percent of the wastes were burned in the incinerator; the ash and unburned materials were disposed of in the landfill. The incinerator was closed around 1970 due to the resultant air emissions. During the remaining years that the site was operational, all wastes were again disposed of directly into the landfill. Based on a review of aerial photographs of the site covering the period from 1965 through 1975, a change in the shape of the shoreline in the central portion of the site is evident, indicating filling of Narragansett Bay in this area. After disposal activities ceased in 1973, a three-foot thick covering of clay/silt was reportedly placed over the central portion of the landfill, and the site remained inactive.

In November 1989, NAVSTA Newport (then NETC), including the landfill, was listed on the EPA's NPL of abandoned or uncontrolled hazardous waste sites subject to requirements of CERCLA and the Superfund Amendments and Reauthorization Act of 1986 (SARA). Following completion of the Phase I Remedial Investigation, a ROD was signed by EPA and the Navy in September 1993. The ROD selected a multi-media, low permeability cap as a source control measure for the landfill, as discussed in Section 2.2. Construction of the landfill cap commenced in 1995, and was completed in 1996, when the landfill was formally closed in compliance with a Consent Decree Agreement between the Navy and EPA.

Additional information on site use and history can be found in the Draft Final Remedial Investigation Report, Revision 1 (B&RE, 1997b). A chronology of important events regarding the operation and remedies for the McAllister Point Landfill is shown in the table that follows.

Table 2-1
Chronology of Historical Events and Documents
McAllister Landfill, NAVSTA Newport, RI

Event / Document	Date
Landfill operations commenced.	1955
Incinerator built.	late 1950s or early 1960s
Ceased operation of incinerator due to air emission issues.	Approx. 1970
Landfill disposal activities ceased.	1973
NETC Newport listed on NPL	November 21, 1989
Record of Decision (source control, landfill cap) issued – OU1 (Navy, 1993).	September 27, 1993
Phase 2 Remedial Investigation Report and Human Health Risk Assessment completed (TRC, 1994a).	July 1, 1994
Ecological Risk Assessment completed (TRC, 1994b).	October 1, 1994
Feasibility Study Report for Management of Migration completed (TRC, 1994b).	October 1, 1994
Resource Conservation and Recovery Act (RCRA) Subtitle C cap design completed.	1994
Landfill cap construction activities.	March 1995 – October 1996
Explanation of Significant Difference issued (Navy, 1996).	August 1, 1996
30-year operations and maintenance (O&M) period began.	1997
Marine Ecological Risk Assessment completed (SAIC and URI, 1997b).	March 1997
Draft Final Phase II RI Report, Revision 1 completed (B&RE, 1997b).	April 1997
Annual Monitoring Report Operations and Maintenance Activities for 1997 completed (Foster Wheeler, 1998).	September 1, 1998
Final Feasibility Study (management of migration and marine sediment) completed (TtNUS, 1999a).	May 3, 1999
Annual Monitoring Report Operations and Maintenance Activities for 1998 completed (Foster Wheeler, 1999b).	July 1, 1999
First Five-Year Review completed (OU1 only) (TtNUS, 1999d).	December 1, 1999
Phase I Predesign Investigation for Offshore Areas of the McAllister Point Landfill completed.	February 2000

Event / Document	Date
Record of Decision (management of migration, contaminated marine sediments) issued (OU4) (Navy, 2000).	March 1, 2000
Annual Monitoring Report Operations and Maintenance Activities for 1999 completed (Foster Wheeler, 2000).	March 20, 2000
Eel grass restoration performed.	May 2001 – October 2001
Dredging completed.	October 2001
Marine sediment remedial construction work completed.	November 15, 2001
Annual Monitoring Report Operations and Maintenance Activities for 2000 completed (Foster Wheeler, 2002b).	April 2002
Restoration of onshore areas used during the remedial action completed.	May 2002
Long-term monitoring and O&M.	Ongoing
Annual Monitoring Report Operations and Maintenance Activities for 2001 completed (Foster Wheeler, 2002c).	July 2002
Annual Monitoring Report Operations and Maintenance Activities for 2002 completed (Foster Wheeler, 2003a).	May 7, 2003
Post Dredging Habitat and Artificial Reef Surveys	2003
Annual Monitoring Report Operations and Maintenance Activities for 2003 completed (ECC, 2004).	May 2004
Second Five-Year Review completed (TtNUS, 2004f).	December 2004
Final McAllister Point Post Dredging Eelgrass Monitoring Report 2005 completed (Eyak Environmental Science, 2005).	March 2005
Annual Monitoring Report Operations and Maintenance Activities for 2004 completed (ECC, 2005).	July 2005
Work Plan for Long Term Monitoring completed (TtNUS, 2005d).	October 2005
Round 1: December 2004 Long-Term Monitoring Report completed (Marine Sediments) (TtNUS, 2006b).	March 2006
Final Annual Monitoring Report Operations and Maintenance Activities 2005 completed (ECC, 2006a).	February 2006
Final Supplemental Eelgrass Mitigation Work Plan completed (Batelle, 2006).	April 2006
Round 2: October-November 2005 Long-Term Monitoring Report completed (Marine Sediments) (ECC, 2006b).	April 2006

Event/Document	Date
Explanation of Significant Difference (ESD) Report completed (Navy, 2007b).	September 2007
Final Annual Monitoring Report Operations and Maintenance Activities for 2006 completed (ECC, 2007b).	December 2007
Final Marine Sediments Monitoring Report Sampling Round 3: October 2006 completed (ECC, 2007a).	December 2007
Final Annual Monitoring Report Operations and Maintenance Activities for 2007 completed (ECC, 2008a).	November 2008
Final Marine Sediments Monitoring Report Sampling Round 4: October 2007 completed (ECC, 2008b).	December 2008
Final Annual Monitoring Report for Operations and Maintenance Activities for 2008 completed (ECOR, 2009a).	September 2009
Final Marine Sediments Monitoring Report, Sampling Round 5: October 2008 completed (ECOR, 2009b).	September 2009
Final Third Five-Year Review Report (TtNUS, 2009c).	December 2009
Final Marine Sediments Monitoring Report, Sampling Round 6: October 2009 completed (H&S, 2010a).	July 2010
Final Annual Monitoring Report O&M Activities for 2009 completed (H&S, 2010b).	July 2010
Work Plan Addendum, Long Term Monitoring Plan completed (TtNUS, 2010g).	August 2010
Final Annual Monitoring Report O&M Activities for 2010 completed (H&S, 2012).	February 2012
Final Land Use Control Remedial Design completed (Tetra Tech, 2012b).	February 2012
Draft Landfill Vent Gas Screening Report completed for 2013 (Watermark, 2013b)	August 2013
Draft Landfill Cap Inspection Report completed for 2013(Watermark, 2013c)	September 2013
Final Annual Monitoring Report O&M Activities 2011 completed (Watermark, 2013d)	November 2013
Final Annual Monitoring Report O&M Activities 2012 completed (Watermark, 2014a)	August 2014
Draft Annual Monitoring Report O&M Activities 2013 completed (Watermark, 2014b)	October 2014

2.2 Background

The McAllister Point Landfill (Site 1), covers approximately 11.5 acres in the central portion of NAVSTA Newport, and is situated between the Defense Highway (to the east) and Narragansett Bay (to the north, south, and west) (Figure 1-2 of Appendix B.2). Railroad tracks along a right-of-way for the Rhode Island Department of Transportation run in a north-south direction along the eastern side of the site, parallel to the Defense Highway. A locked chain-link fence surrounds the site. Access to the site is via an access road off of Defense Highway, through a gate in the east-central portion of the site.

Physical Characteristics

Approximately 6 acres of the 11.5 - acre site were used for the landfill operations. The central to north-central portion of the site was a mounded area; the northern and southern areas were flat, but have been graded to landfill slopes. Ground elevations were approximately 15 to 35 feet above mean low water level across the site; the grade dropped steeply to the shoreline along the western edge of the site (TRC, 1994a). There were wooded areas north of the mounded area and in the northeast portion of the site between the railroad tracks and the Defense Highway (TRC, 1994a).

The overburden materials included: a silt, clay, and shale fragment layer; a silt and sand layer; domestic and construction debris (e.g., fill); and glacial till deposits. The two layers overlying the fill were discontinuous and were assumed to be cover placed on the fill material in 1973. The fill material ranged from 3 to 8 feet thick in the northern and eastern portions of the site to 25 to 28 feet thick in the western portion of the site, along the shoreline. Bedrock underlies the glacial till deposits at depths of 3 feet in the north portions of the site and is found at depths of 28 feet in the central portion of the site (B&RE, 1997b).

Shallow and deep groundwater flows from east to west toward Narragansett Bay. Depth to groundwater varies a great deal across the site due to site topography and location; seasonal variations in depth to groundwater have also been observed. Depth to groundwater ranges from approximately 7 to 9 feet bgs in the southern portion of the site; and from 14 to 28 feet bgs in the central portion of the site. The greatest depth to groundwater was observed along the western edge of the site (TRC, 1994a).

Currently, the landfill is covered by a multi-media low-permeability cap that prevents direct exposure to and further erosion of landfill materials. This cap was constructed in 1995 and 1996 as part of the remedial action described in Section 2.3. The surface of the cap is vegetated and graded to promote runoff of precipitation, thus minimizing potential infiltration that could cause further leaching of landfill contaminants. The toe of the landfill slope facing Narragansett Bay is covered with a stone revetment to protect the cap from wave erosion. The capped area, excluding the revetment, is fenced. In addition, the periphery on the east side is protected by bollards and chains to prevent trespass in the area near the fence.

There are no surface water bodies on the site. Surface water run-off flows from the landfill area down the western slope of the site into Narragansett Bay and from the eastern portion of the site into drainage swales constructed on the landfill cap and then into culverts that discharge into the bay. Rainfall generally infiltrates into the ground surface before being deflected by the cap materials under the vegetated layer (Foster Wheeler, 2002b).

A passive gas vent system was installed during construction of the cap to dissipate potential off gas buildup that could disturb the capping materials. A network of groundwater monitoring wells on site is used as part of the long-term monitoring program.

Land and Resource Use

The site is located near the center of the 6-mile-long NAVSTA Newport base on Aquidneck Island and is surrounded by other portions of the Base and by Narragansett Bay. As of 1994, the site was zoned by the Navy as “open space” (TRC, 1994a). Institutional controls required under the 1993 ROD include a restriction on future use of the site and site access controls, including a locked, perimeter chain-link fence (Navy, 1993).

The Final Land Use Control Remedial Design (LUC RD) (Tetra Tech, 2012b) prohibits certain activities and uses of the site including excavation activities that compromise the integrity of the landfill’s cover and cover system component; use of groundwater as potable (drinking water); activities that compromise the integrity of the shoreline controls (revetment); vehicular traffic other than certain permissible activities; and any use or activity that would interfere with the implementation, effectiveness, integrity, operation, or maintenance of the required remedy components. Engineering controls include fencing and signage restricting access to the site.

The RIDEM Office of Water Resources continues to prohibit shellfishing (bivalves only) along the entire NAVSTA Newport shoreline of Narragansett Bay, including the shoreline and offshore area of McAllister Point Landfill, due to known or potential sewage discharges (Navy, 2000 and RIDEM, 2013). Use of the area for shellfishing may be a potential future use (Navy, 2000). (Additional discussion is presented in Section 2.5.2). As previously discussed in Section 1.2.1, RIDEM has classified groundwater at the McAllister Point Landfill as GA (RIDEM, 2010). The GA classification indicates that the groundwater is known or presumed to be of drinking water quality. RIDEM does not have an EPA-approved CSGWPP and therefore, EPA does not recognize RIDEM's classification system. EPA expects that all groundwater will be remediated to its beneficial use. However, groundwater cleanup standards do not have to be achieved under a waste in place unit.

2.3 Remedial Actions

There have been two separate remedial actions implemented at the McAllister Point Landfill. A source control remedy, referred to as OU 1, was selected following completion of investigations and an FS in the early 1990s and issuance of a ROD in 1993. In addition to the source control remedy, the 1993 ROD also required the studies described in Section 2.3.1. In April 1996, during construction of the source control remedy, landfill debris was discovered in the intertidal zone following a winter construction hiatus. This discovery led to investigations of the extent of landfill debris in Narragansett Bay and completion of an FS for marine sediment/management of migration. A second ROD that addressed marine sediments/ management of migration, referred to as OU 4, included a remedy for marine sediment contamination, and was issued in March 2000.

The basis for the selection of the remedies for each operable unit described in the 1993 and 2000 RODs and implementation of the selected remedies are described below in Sections 2.3.1 and 2.3.2, respectively.

2.3.1 Remedy Selection

The basis for the selection of the source control and marine sediment/management of migration remedies in the 1993 and 2000 RODs, respectively, is described below.

<u>Source Control (OU 1)</u>

RAOs were developed for the site to aid in the development and screening of response alternatives, and to mitigate existing and future potential threats to human health and the environment. As summarized in the 1993 ROD, these RAOs are:

- To minimize potential environmental impacts by minimizing off-site migration of potentially contaminated surface soils, and by limiting the infiltration of precipitation to the underlying waste within the landfill area, thereby minimizing leachate generation; and
- To minimize potential risk to human health associated with exposure to the landfill area.

As stated in the 1993 ROD, the selected “source control” remedy is comprised of the following components:

- Capping of the site with a RCRA Subtitle C multi-layer cap;
- Establishing landfill gas controls to manage landfill gas migration;
- Constructing surface controls to minimize erosion and manage runoff;
- Fencing and institutional controls (deed restrictions) to control site access and future site use;
- Operation and maintenance of the landfill cover, groundwater monitoring systems, gas control and monitoring system, surface controls, and surveyed benchmarks, and site monitoring including long-term groundwater monitoring and stormwater discharge monitoring; and
- Five-year review.

In addition, the 1993 ROD contains provisions for undertaking additional studies which include:

- Determining if additional measures, beyond capping, must be taken to reduce the amount of groundwater in contact with the contaminated materials of the landfill;
- Determining the nature and extent of groundwater contamination and whether additional measures, beyond capping, are necessary to meet federal or state groundwater standards and to reduce to acceptable levels any unacceptable risks to human health or the environment from groundwater contamination;
- Determining whether “hot spots” (isolated areas of higher concentrations of contaminants) within the landfill materials, if present, will need to be addressed by a separate remedial action or can be addressed by the landfill cap; and
- Determining the nature and extent of any near-shore sediments that have been affected by site-related contamination, and whether they will need to be addressed by a separate remedial action or whether they can be addressed through consolidation under the landfill cap.

In September 2007, an ESD was issued to provide improved enforcement of institutional controls limiting site access and future site use (see Section 2.2).

Marine Sediment/Management of Migration (OU 4)

As described above, the 1993 ROD required investigations of sediments offshore of the landfill, in addition to the implementation of the source control remedy. Those investigations, as well as the investigations completed following the April 1996 discovery of landfill debris in the intertidal zone, determined the presence of landfill material and sediment contamination in both nearshore and offshore areas. The remedy selected in the 2000 ROD covers nearshore and elevated-risk offshore areas and offshore areas with low risk. RAOs for the nearshore and elevated-risk offshore areas include:

- Prevent human ingestion of shellfish impacted by sediments with COC concentrations exceeding the selected Remediation Goals (RGs);
- Prevent exposure of aquatic organisms to sediments with COC concentrations exceeding the selected RGs;
- Prevent avian predator ingestion of shellfish impacted by sediments with COC concentrations exceeding the selected RGs;
- Minimize migration of sediments with COC concentrations exceeding the selected RGs to offshore areas and previously unaffected areas of Narragansett Bay; and
- Prevent washout of landfill debris into the marine environment.

The RAOs for the offshore areas with low risk include:

- Prevent exposure of aquatic organisms to sediments with COC concentrations exceeding the selected RGs; and
- Minimize migration of sediments with COC concentrations exceeding the selected RGs to previously unaffected areas of Narragansett Bay.

Sediment RGs were developed for six COCs to achieve a risk reduction for all identified receptors (aquatic organisms, avian predators, and human health) and all sediment areas. These RGs are shown in the table below. The ROD anticipated that remediating the sediments to the RGs for the six COCs would also reduce concentrations of other co-located COCs.

Contaminant of Concern	Selected RG
Copper	52.9 (ppb in porewater)
Nickel	33.7 (ppb in porewater)
Anthracene	513 (ppb in sediment)
Fluorene	203 (ppb in sediment)
Pyrene	2,992 (ppb in sediment)
Total PCBs	3,634 (ppb in sediment)

Source: Navy, 2000

The nearshore/elevated-risk offshore area remedial action included dredging of an estimated 34,000 cubic yards of contaminated sediment and debris, screening and separating materials by size, dewatering the sediment and debris, treatment of the dewatering liquids and discharge to Narragansett Bay, disposal of contaminated sediment/debris under the McAllister Point Landfill cap or other off-site facility, and backfilling the dredged area with clean material. Following completion of the dredging and backfill operations, the ROD required monitoring to assess the success of site restoration and reestablishment of aquatic habitats. The ROD assumed that monitoring would be required for five years and one five-year review would be conducted since the remedy was intended to completely remove all contaminated sediment exceeding the selected RGs (Navy, 2000).

The 2000 ROD included an excavation/disposal/reuse remedy for “nearshore” sediments and “elevated risk-offshore” sediments, as well as limited action for the “offshore areas with low risk” (Navy, 2000). The limited action alternative did include long-term monitoring (at least 30 years) of sediment and biota and five-year reviews. Annual monitoring was required until the Navy and regulatory agencies determined that the frequency could be reduced from annual to once every five years (Navy, 2000). Following the previous five-year review, the frequency of sediment, porewater, and biota monitoring was reduced to once every five years with monitoring performed the year prior to each five-year review.

2.3.2 Remedy Implementation

Implementation of the source control remedy (OU 1) is described below. As previously mentioned, during construction of the landfill cap, landfill debris was discovered in the intertidal area beyond the landfill boundary. This discovery lead to further investigations, culminating in a second ROD in

March 2000, as described above. Implementation of the marine sediment remedy (OU 4) described in the 2000 ROD is also described below.

<u>Source Control (OU 1)</u>

The remedial activities for the McAllister Point Landfill (Source Control) were completed in 1996, and consisted of the following elements:

- Constructing a heavy armor stone revetment to protect the western slope of the landfill from wave erosion;
- Re-grading and reconsolidating waste material;
- Cleaning up exposed debris within close proximity to the shoreline;
- Covering the fill area with a RCRA Subtitle C multi-layer cap;
- Installing a passive gas collection venting system;
- Installing surface controls to minimize erosion and collect runoff;
- Installing a perimeter chain-link fence and implementing procedures to control site access and use;
- Revegetation planting of upland habitat; and
- Installing groundwater monitoring wells to replace the wells that were destroyed during capping of the landfill.

A final "Certification Report for Remedial Action" (Halliburton NUS Corp., 1997) was submitted to the Navy, EPA, and RIDEM in February 1997. The report documented and certified that the methods, procedures, and inspection and testing activities conducted to close the landfill were performed in accordance with the EPA-approved 100 percent design project specifications and drawings, and the Material Quality Assurance/Construction Quality Assurance Plan. The data collected during the project were used as the basis to certify that the landfill was closed in accordance with the project specifications and drawings. As part of the remedy, institutional controls were implemented, including fencing, access controls, and use restrictions (via Base Instruction). An O&M plan was prepared in March 1997 (Foster Wheeler, 1997). The 30-year O&M period is now underway, in accordance with the May 1997 Operations and Maintenance Manual (see Section 2.3.3).

Marine Sediment/Management of Migration (OU 4)

Following the issuance of the 2000 ROD, a number of studies were completed during the remedial design phase of work. The Pre-Design Investigation evaluated the use of the McAllister Point Landfill for disposal of contaminated marine sediments. A baseline marine habitat survey was completed, followed by completion of a habitat mitigation plan. The remedial design reflected the decision to dispose of contaminated sediment and landfill debris at licensed off-site facilities, rather than under the McAllister Point Landfill cap.

Mobilization commenced in late February 2001. Site preparation activities included: construction of haul roads to and around the material handling area staged at Tank Farm 5; installation of silt and chain link fencing; and construction of the material handling area. The material handling area and a water collection pond at Tank Farm 5 were constructed in accordance with the agency-approved design documents; the pond included a geotextile membrane liner, sand and gravel layers. Turbidity curtains were installed at the perimeter of the nearshore and elevated risk offshore areas to minimize the migration of sediments during the dredging activities. Turbidity curtains were also used as the dredging progressed to separate confirmed clean areas from active dredging areas.

The thickness of the landfill debris layer in the nearshore area generally ranged from 1 to 10 feet thick. Dredging was performed from a haul road constructed along the shore line. The debris dredged from this area included bricks, scrap metal, glass, submarine netting, automobile tires, a safe, ash, sandblast grit, and a decayed metal storage tank; no drums were found (Foster Wheeler, 2003b). Once the landfill debris layer had been removed and the bottom of contaminated sediment reached, based on visual inspection of the material, confirmation samples were collected. After an area was confirmed clean, the area was backfilled with materials appropriate to the area and graded.

Dredging of the sediment from the “elevated risk offshore” area was performed from a barge. Once the bottom extent of the landfill debris material was reached and the material in the clamshell bucket was visually clean, confirmation samples were collected (Foster Wheeler, 2003b). After an area was confirmed clean, the area was backfilled with materials appropriate to the area and graded.

The confirmation samples from both the nearshore and elevated risk offshore areas were analyzed for total anthracene, pyrene, fluorene, and PCBs. Porewater copper and nickel samples were collected from every 2,000 square foot area, or every other sample grid (Foster Wheeler, 2003b). Once the confirmation sample results met the RGs (see table in Section 2.3.1) the area was considered clean. Areas that did not initially meet the RGs were excavated further and the sampling process repeated until the area was determined to be clean (Foster Wheeler, 2003b). The confirmation sampling program included collection of field duplicates, equipment rinsates, and other QA/QC samples.

The dredged materials were staged in the material handling area and stockpiled in 500 cubic yard piles. Samples were taken from each stockpile for waste characterization; based on the analytical results an appropriate off-site disposal facility was selected. Dredged sediment and landfill debris were disposed as follows: non-hazardous materials were taken to two RCRA Subtitle D facilities in Massachusetts; non-Toxic Substances Control Act (TSCA) PCB material was disposed of in New Hampshire; and non-hazardous material with lead concentrations greater than 2000 ppm and non-TSCA PCB material were disposed of in South Carolina. Approximately 46,263 tons of contaminated sediment, 86 tons of scrap metal, and 18.5 tons of steel submarine netting were removed during the remedial action (Foster Wheeler, 2003b). A small amount of material was found that emitted low level radioactivity identified by standard screening processes. This material was containerized into three 55-gallon steel drums, which were removed and properly disposed of by Navy personnel.

Approximately 895,540 gallons of water from the water collection pond were treated and discharged to the Newport publicly-owned treatment works (POTW) under an industrial user wastewater discharge permit. The treatment system installed to treat contaminated groundwater from the Tank 53 area (Site 13) was modified to treat the water from the collection pond. The treatment system included pH adjustment, bag filter units, and carbon units. The treated water was sampled to confirm that the water discharged to the POTW met the RGs.

Prior to the removal of contaminated sediment, a habitat mitigation plan was developed to restore habitat destroyed during the dredging operations to the conditions documented during the baseline habitat survey. The mitigation plan included replacement of dredged sediments with clean backfill, construction of fish habitat structures, and off-site eelgrass restoration (including transplanted and seeded eelgrass). The work was completed in 2001; monitoring in July 2002 found poor survival of the planted eelgrass (SAIC, 2004). Habitat monitoring and eelgrass monitoring was discontinued after the monitoring events in 2003 and 2004.

A site inspection completed in November 2001 identified an area along the shoreline containing miscellaneous metal debris. This material was removed in December 2001. Demobilization, including removal of all temporary facilities and equipment, was completed on December 14, 2001. Additional areas with vitrified landfill debris were observed in January and March 2002. These materials were removed in March 2002 (Foster Wheeler, 2003b). Confirmation samples were collected, and after the area was determined to be clean, the area was backfilled. A final inspection conducted on March 28, 2002, verified that all debris had been removed (Foster Wheeler, 2003b).

2.3.3 Operations and Maintenance

Source Control (OU 1)

In 1997 Foster Wheeler Environmental Corporation (FWENC) completed an O&M plan which outlined site monitoring activities for the on-shore portions of the landfill, as described in the ROD for OU 1. In October 2005, Tetra Tech NUS, Inc. completed a Long Term Monitoring (LTM) work plan, for marine sediment under OU 4 (TtNUS, 2005d). The new work plan incorporated the original source control work plan elements and the marine sediment LTM work plan for the site. In August 2010, Tetra Tech NUS, Inc. completed a Work Plan Addendum to the Long-Term Monitoring Plan, which reflects changes to source control and marine sediment O&M and monitoring programs, including reduced frequencies for some activities (TtNUS, 2010d). Based on the 1997 O&M plan as incorporated into the 2005 LTM work plan, the O&M program for the site includes the following activities.

- Annual collection and analysis of groundwater and landfill gas samples;
- Quarterly and semi-annual inspection and repair of the landfill cap system, as necessary;
- Annual survey of the stone revetment and settling platform; and
- Annual mowing of the landfill cover.

The O&M plan (Foster Wheeler, 1997) specified quarterly groundwater monitoring of all wells for 3 years (1997 – 1999). After 3 years the frequency of monitoring was to be reduced to annual events along with a reduction in the number of monitoring wells sampled. At the direction of the Navy, all wells were sampled annually in 2000, 2001, and 2002 (often some of the wells were dry or there was too little water to collect a sample). Based on the 2010 Work Plan Addendum (TtNUS, 2010d), groundwater monitoring was to continue to be conducted annually with a reduction in the number of monitoring wells to be sampled. Water level measurements were to continue to be conducted annually at all of the groundwater monitoring wells.

The O&M plan (Foster Wheeler, 1997) also specified screening landfill gasses at all vents and gas monitoring points quarterly, and sampling (with laboratory analysis) vents and ambient air once per year (summer). Based on the 2010 Work Plan Addendum, the frequency of point source (gas vent and perimeter station) and ambient air field screening was reduced to once per year (summer). The frequency of sampling for laboratory analysis was reduced to once every five years. These reductions were made because historic concentrations of landfill gases had been consistently below established criteria.

Landfill inspections were to be conducted on a quarterly basis for the first 5 years, and then semiannually after that. Landfill inspections are also required after any storm event with wind speeds greater than 50 mph or 5 inches of rain. The landfill inspections included: cap, storm water drainage system, revetment, gas monitoring wells and vents, access road, perimeter fence, vegetation, and groundwater monitoring wells.

The actual and planned monitoring and maintenance activities and frequencies for the landfill are summarized in Table 2-2. Groundwater and landfill gas monitoring results and landfill inspection observations are discussed in Section 2.4.2.

<u>Marine Sediment/Management of Migration (OU 4)</u>

Following implementation of the restoration components of the mitigation plan (clean backfill, construction of artificial reefs placed offshore in 2001, and eelgrass restoration), followup habitat monitoring was conducted in the spring, summer, and fall of 2003. Post-dredging habitat monitoring included assessments of: the aquatic habitat in the backfilled and restored area; the expansion of eel grass into the dredged area; and monitoring of two seeded areas and one transplant area (SAIC, 2004). Additional habitat monitoring has not been conducted since that time.

A separate long term monitoring program (LTMP) is required for the marine environment under the Marine Sediment/Management of Migration ROD (OU 4). The OU 4 LTMP has two elements, one for the dredged area (nearshore and elevated-risk offshore) and one for the non-remediated offshore area. In the dredged area, porewater chemistry, biota, and toxicity are to be evaluated for the first five years (ROD assumed years 1, 2, and 5) after completion of the remedial action; however, an additional round of evaluation was conducted during year 6 (2009). In the non-remediated area, sediment chemistry, biota, and toxicity are to be evaluated in the long term (up to 30 years). The Final Long-Term Monitoring Work Plan was completed in October 2005, although the first round of off-shore monitoring was conducted in late 2004 under the associated Draft Work Plan (TtNUS, 2004g). Based on the 2010 Work Plan Addendum (TtNUS, 2010d), monitoring of both the dredged area and non-remediated areas will continue beyond 2009 with modifications.

The frequency of monitoring for both the dredged area and non-remediated area was changed to once every five years, with the monitoring events occuring the year prior to each five-year review, and modifications to the analyses associated with each station were made. The planned monitoring events and frequencies for the marine sediments under OU 4 are summarized in Table 2-3. Marine sediment and associated monitoring results are discussed in Section 2.4.2.

Table 2-2
Long-Term Monitoring and Maintenance Activities at McAllister Point Landfill, OU 1
Five-Year Review
NAVSTA Newport, Newport, Rhode Island

<table>
<tr><th>Activity</th><th>Frequency</th></tr>
<tr><td colspan="2">Monitoring Events*</td></tr>
<tr><td>Groundwater Monitoring Well Sampling (including water level measurements)</td><td>Years 1 – 3 (1997 – 1999), quarterly (all wells)
Years 4 – 13 (2000 – 2009), annually (all wells)
Years 14 – 30 (2010 – 2026), annually (water levels at all wells, sampling at 8 wells)</td></tr>
<tr><td>Gas Monitoring Well/Vents Sampling</td><td>Year 1 (1997), field screening annually
Years 2 – 13 (1998 – 2009), field screening quarterly
annual gas sampling and analysis
Years 14 – 30 (2010 – 2026), field screening annually, sampling with laboratory analysis once every 5 years (2013, 2018, etc.)</td></tr>
<tr><td colspan="2">Inspections/Maintenance Events*</td></tr>
<tr><td>Landfill Cap</td><td rowspan="6">Years 1 – 5 (1997 – 2001), quarterly

Years 6 – 30 (2002 – 2026), semiannually</td></tr>
<tr><td>Revetment</td></tr>
<tr><td>Access road/ramp</td></tr>
<tr><td>Perimeter fence</td></tr>
<tr><td>Groundwater monitoring wells</td></tr>
<tr><td>Gas monitoring wells/vents</td></tr>
<tr><td>Vegetation</td><td>Semiannually – for 30 years</td></tr>
<tr><td>Mowing</td><td>Annually – for 30 years</td></tr>
<tr><td>Storm drainage system</td><td>Semiannually – for 30 years</td></tr>
<tr><td>Settlement survey</td><td>Annually – for 30 years</td></tr>
</table>

* O&M monitoring and maintenance projected for a 30-year period per the 1993 ROD for OU 1: Year 1 = 1997.

Table 2-3
Marine Sediment Long-Term Monitoring at McAllister Point Landfill, OU 4
Five-Year Review
NAVSTA Newport, Newport, Rhode Island

Activity	Frequency
Monitoring Events**	
Sediment Porewater toxicity and biota at Monitoring Station Groups (MSGs) 1 and 4 (Dredged Areas)	Years 1, 2, 5, and 6 (2004, 2005, 2008, and 2009); once every 5 years thereafter (2013, 2018, etc.), until year 30 (2034)
Sediment Chemistry, toxicity, and porewater at MSGs 2, 3 and 5 (Non-Dredged Areas)	Annually for years 1-6 (2004 – 2009); once every 5 years thereafter (2013, 2018, etc.), until year 30 (2034)

** Monitoring projected for a 30-year period per the year 2000 ROD for OU 4: Year 1 = 2004.

2.4 Five-Year Review Findings

2.4.1 Site Inspection

A site inspection was conducted for the five-year review on February 27, 2014. The perimeter fence and gates appeared in good condition with locks and signage present. The access road and entrance to the site were in good condition. Although dormant, grass cover appeared plentiful across the landfill cap, with no large or woody vegetation. The drainage swales appeared in good condition with no significant vegetation and no standing water. The stone revetment was viewed from just inside the fence line separating the revetment from the landfill cap. The stone revetment appeared in good condition across the western edge of the landfill cap. No areas of missing revetment stone were observed. The perimeter gas monitoring wells and gas vents all appeared in good condition. The groundwater monitoring well casings were rusted, but assumed to be operational, and the concrete pads were observed to be in good condition. The well cap on monitoring well MW-108R appeared to have been recently replaced due to rusting of the old well cap. Two monitoring wells were missing locks (MW-111S and MW-108R). Following the site inspection, it was confirmed that the well locks had been replaced. All settlement platforms had high visibility protective casings around them. There was no evidence of vandalism or dumping near the site. No observations were made during the site inspection that would call into question the integrity of the landfill cap. As part of the five-year review, landfill settlement data was reviewed. The revised Draft 2013 Annual Monitoring Report (Watermark, 2014b) contains the results of the most recent annual elevation survey, as well as historical survey results and evaluation of the data. As described in this report, settlement has occurred in portions of the landfill since the initial survey completed in 1996. One monitoring well (MW-111S), three settlement platforms, and several revetment toe monitoring points have had settlement of six inches or greater observed over the period from 1996 to 2013. In response to the settlement over 6 inches, a subsurface gas screening was conducted in 2013 to determine if the geomembrane was compromised. Based on the results, it was concluded that the geomembrane is intact. As additional follow-up, the Navy plans to collect ground shots during the 2014, 2015, and 2016 survey events in the areas where settlement has been shown to better document the potential settling and the magnitude and extent of the settling. Photographs taken during the site inspection and a completed site inspection checklist are included in Appendix C.

2.4.2 Document and Analytical Data Review

This five-year review included a review of relevant McAllister Point Landfill documents, including, decision documents, work plans, and monitoring reports (see Appendix A). Included below are summaries of relevant inspection observations and O&M data collected under OU 1, as well as sediment, porewater and biota data collected under OU 4.

2.4.2.1 Groundwater

Groundwater monitoring results for the last 5 years (2009 – 2013) are summarized in each of the annual reports “Annual Monitoring Report – Operation and Maintenance Activities” (each report title includes the associated year, from 2009 through 2013, as applicable). The 2009 and 2010 reports were prepared by H&S Environmental, Inc., while the 2011 through 2013 reports were prepared by Watermark Environmental, Inc. The 2013 report was reviewed as a draft. Summary tables in each report show groundwater results compared to EPA Maximum Contaminant Levels (MCLs) and RIDEM GA aquifer standards. Figures in each annual monitoring report present the monitoring well locations and the corresponding concentrations of COCs that exceeded criteria in groundwater from 1993 through the year of the report (up through 2013 for the latest annual report). Refer to Figure 2-3 of the 2013 annual report, which is expected to be finalized shortly, for the latest available figure. It should be noted that the RIDEM GA aquifer standard for naphthalene was revised to 100 ug/L (from 20 ug/L) in 2011, while the arsenic standard was revised to be similar to the MCL (10 ug/L). These changes are not reflected on all tables provided in Appendix E.1 (i.e., those prepared prior to the draft 2013 annual report).

Contaminants found in groundwater that exceeded criteria were further evaluated. Two polycyclic aromatic hydrocarbons (PAHs), naphthalene and benzo(a)pyrene, were the only organic compounds with concentrations that exceeded a criterion, either MCLs or RIDEM GA standards. Benzo(a)pyrene concentrations exceeded criteria in only one area, in the well cluster MW-103S and

-103R (and only in 2011 at MW-103R). Note that MW-103R was replaced with MW-103RR, which was sampled in 2013 and no organic compounds exceeded criteria. Naphthalene concentrations exceeded criteria in only one location, MW-103S, which is screened in a shallow overburden interval within landfill material containing creosote wood wastes. Contaminant concentrations in groundwater samples from MW-103S have consistently exceeded these two criteria in the past, naphthalene since 1993, and benzo(a)pyrene during seven sampling events. PAHs are relatively immobile in groundwater and neither compound is present in downgradient groundwater locations. Well cluster MW-103S and -103R, and replacement well MW-103RR, are located within the landfill and therefore are within the waste management area and not subject to the groundwater compliance criteria. Analytical data tables summarizing the groundwater monitoring results for 2009 through 2013 are included in Appendix E.1.

During the past 5 annual monitoring events (2009-2013), concentrations of six total (unfiltered) metals, antimony, arsenic, copper, cadmium, lead, and thallium also exceeded criteria. Copper and cadmium exceeded criteria during one monitoring event (2010) at one location (MW-111R). Turbidity was noted to be elevated at its stable level in this well. In addition, these metals were not detected in the corresponding sample analyzed for dissolved metals. Thallium exceeded criteria during one monitoring event (2009) at one location (MW-108R). Thallium was not detected in the corresponding sample analyzed for dissolved metals. Lead (total) exceeded criteria in 2011 at MW-103S, while dissolved lead exceed criteria at MW-103R. Lead was not detected in the corresponding sample analyzed for dissolved metals in MW-103S, nor in the total lead sample for MW-103R. While it is not typical for dissolved concentrations to be higher than total concentrations, this appears to have been an isolated anomaly. Antimony exceeded criteria during one monitoring event (2013) at one location (MW-103RR) in both the total and dissolved metals samples.

Arsenic, occuring primarily as dissolved arsenic, was the only dissolved inorganic COC besides the antimony and lead detections described above that exceeded a criterion. Elevated arsenic concentrations are generally associated with regions under the cap with active methane generation (e.g., 349 ug/L at MW-107R in 2013), and as that groundwater flows out of those regions, the arsenic levels drop (e.g., 15.8 ug/L at MW-108R in 2013). Dissolved arsenic levels in monitoring wells near the shore (MW-108R and MW-111R) have ranged from 15.8 ug/L to 105 ug/L over the past five years (2009-2013). Porewater metals sampling performed by H&S Environmental, Inc. in 2009, conducted as part of the marine sediment sampling event, showed no detections of arsenic in porewater closest to the landfill (Group 1 locations – see Figure 3-1 in Appendix B.2). Arsenic porewater levels of the marine sediment in the other three site-related sampling groups (Groups 2, 3, and 4) ranged from 6.1 J µg/L to 37.7 J µg/L, while the reference area (Group 5) ranged from

12.8 J µg/L to 30.1 J µg/L (H&S, 2010). Porewater metals sampling performed by Sovereign Consulting, Inc. in 2013, conducted as part of the most recent marine sediment sampling event, showed arsenic concentrations ranging from non-detect to 88 µg/L in porewater closest to the landfill (Group 1 locations). Arsenic porewater levels of the marine sediment in the other three site-related sampling groups (Groups 2, 3, and 4) ranged from 12 µg/L to 150 µg/L, while the reference area (Group 5) ranged from 22 µg/L to 150 µg/L (Watermark, 2014b). Although, arsenic levels in porewater appear to have increased between 2009 and 2013, arsenic levels in porewater within the reference area have also increased indicating possible increased non-point source anthropogenic background contamination. However, it is premature to conclude definitively that the 2013 results are[part of an increasing trend and continued monitoring is needed to assess whether the site might be contributing to elevated off-shore arsenic porewater levels.

The evaluations presented in the annual reports show that natural attenuation remains effective at the site in reducing COC levels and limiting migration, and the use prevention of groundwater at this site remains protective of human health.

In summary, the detailed evaluation/description of groundwater monitoring results for the last five years and the historical trend analysis conducted (TtNUS, 2009c), along with recent monitoring data (see Appendix E.1), shows that groundwater contaminant concentrations are stable or decreasing over time, and migration that would impact the downgradient marine sediment and porewater does not appear to be occurring. Based on historical data, the groundwater monitoring program was recently revised to reduce the number of monitored wells to the western perimeter wells and interior wells with frequent historical detections: 103S, 103R, 105R, 107R, 108R, 111S, 111R, and 112S (TtNUS, 2010d).

2.4.2.2 Landfill Gas

A passive landfill gas venting system is currently in operation at the site. Based on historical data, the landfill gas monitoring program was recently revised to reduce the frequency of both gas vent field screening (from quarterly through 2009 to annually starting in 2010) and landfill gas sampling (from annually through 2009 to once every five years starting with 2013) (TtNUS, 2010d). Landfill gas sampling and analysis and gas vent field-screening results were summarized in each of the annual reports, as applicable. In the 2009 and draft 2013 annual reports (H&S, 2010b and Watermark, 2014b), landfill gas concentrations were compared to three sets of criteria: Occupational Safety and Health Administration Permissible Exposure Limits (OSHA PELs), to determine onsite worker safety; RIDEM ambient air levels (AALs), used for comparison of data from perimeter ambient air to determine the need for active landfill gas collection and treatment; and National Emission Standards for Hazardous Air Pollutants (NESHAP). At the landfill cap, surface worker exposure levels are all below criteria. Hazardous Air Pollutant (HAP) landfill gas emissions are considerably less than the 10 tons per year or 25 tons cumulative HAP per year criteria, therefore the Site would not be considered a major source. Volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs) were below PELs at all ambient air sample locations and gas vent locations. Also, VOC and SVOC emissions do not exceed RIDEM AALs.

A total of 40 VOCs and 6 to 12 SVOCs were detected above laboratory method detection limits in landfill gas samples in 2009 and 2013. It appears that VOCs and SVOCs are generally entrained with methane and are being vented in the central portion of the site and by the northeast perimeter vents. Higher concentrations of both methane and total hydrocarbons in landfill gas vents were located in the central and northern portions of the landfill, with generally lower levels at the perimeter vents. These results indicate that landfill gas is being vented, preventing subsurface lateral migration. Ambient air monitoring results downwind and upwind are comparable, indicating landfill gas is not impacting the surrounding area, which support the conclusion that the remedy remains protective.

Tables and figures from the 2009 annual report (for landfill gas sampling) (H&S, 2010b) and the 2013 draft annual report (for landfill gas sampling and gas vent screening) (Watermark, 2014b) have been provided in Appendix E.2 of this five-year review report.

2.4.2.3 Sediment, Porewater and Biota

Sediment, porewater and biota monitoring was initiated in 2004 in accordance with the Management of Migration ROD (OU 4). Sediment and porewater contaminant concentrations are considered primary data and are compared to RGs established in the ROD. This data is supported by collection of secondary data, including biota (shellfish), as well as toxicity testing of porewater and sediment. The secondary data is limited to determining if the exposures (measured by sediment and porewater chemistry) are causing evidence of effects to the ecological community as compared to reference station concentrations. At Monitoring Station Groups (MSGs) 1 and 4 (within the dredged area), collection of monitoring data was planned for years 1, 2, and 5 (2004, 2005, and 2008), although an additional round of evaluation was conducted during year 6 (2009). Per the OU 4 ROD, based on the findings of those three events, a recommendation would be made regarding the need to continue monitoring. The non-dredged areas (where MSGs 2 and 3 are located) would be monitored annually for years 1-5, and then every five years, based on the monitoring results. The decision tree for evaluating monitoring data is provided as Figure 3-2, Revision 1 in the LTM Work Plan Addendum (TtNUS, 2010d) and Figure 3-3 of the LTM Work Plan (TtNUS, 2005d). This decision tree provides for comparison of data to baseline preliminary remediation goals (PRGs) as an indicator of possible concern, and also for comparison to the RGs as an indication that the remedy may not be protective.

Since the previous five-year review, monitoring was conducted in 2009 and 2013. The LTM Work Plan Addendum (TtNUS, 2010d) that was completed in 2010 indicated that monitoring of both the dredged area and non-remediated areas would continue beyond 2009 with reductions in the frequency of sampling and the analyses. Although not required by the 2010 LTM Work Plan Addendum, the 2013 monitoring event included all analyses required by the original 2005 LTM Work Plan.

In accordance with the long term monitoring program, 2009 and 2013 sediment and porewater data from each monitoring station group were compared to the RGs to determine if the ROD is protective: if net Indicator COC (ICOC) concentrations (concentrations above reference concentrations) exceed the RGs for any monitoring station group as shown on Figure 3-1 in Appendix B.2, then the goals of the ROD would have to be re-evaluated (TtNUS, 2005d). In addition, data were evaluated to determine if there is sufficient data to establish a predictive trend (either increasing concentrations or decreasing concentrations). Tables presenting monitoring data from 2004 to 2013 have been included in Appendix E.3. Trends graphs presenting historical concentrations for sediment and porewater ICOCs and biota concentrations are included in the draft 2013 annual report (Watermark, 2014b).

The following information summarizes the conclusions of the monitoring performed in 2009 and 2013. Greater detail is provided on the conclusions of the 2013 sampling event, since this is the most recent sampling event conducted.

The Final Marine Sediment Monitoring Report (H&S, 2010a) presented the results of the 2009 sampling event and provided the following overall conclusions after review of multiple lines of evidence:

- In general, the cumulative long-term monitoring data show that sediment and porewater ICOC contamination levels are decreasing or steady. Note that at MSG-3, the sediment PAHs and PCB congener results showed a slightly increasing trend, but all were below RGs and also below baseline PRGs for all but fluorene Additionally, the porewater ICOC results did not indicate increasing trends. Per the LTM Work Plan, trend evaluation was not required fro MSG-1 and MSG-4 since only four data rounds were collected.

- Non-point source anthropogenic background contamination now appears to be the major source of environmental contamination at the MSGs For example, the report notes that "PAH detections at the Reference Group location stronly suggest that PAHs detected at other MSGs were introduced by upstream anthropogenic non-point sources, most likely flowing in with the current, and not due to Site releases."
- All mean sediment and porewater ICOC contaminant concentrations are below RGs, which indicates that the MSG sediments and porewater are not expected to pose an ecological risk. Note that on an individual basis, only only one location at one MSG (MSG-11 at MSG-3) showed concentrations of ICOCs above the RGs and baseline PRGs for sediment. In porewater, just one location from the Reference Group (MSG-5) showed a copper level that was above the baseline PRG but belowthe RG.
- Toxicity testing shows no elevated risks to the environment.

Based on the Draft Annual Monitoring Report for 2013 (Watermark, 2014b), which presented the results of the 2013 sampling event, and in consideration of regulatory agency comments, the final version of the Annual Monitoring Report for 2013 is expected to include the following conclusions after review of multiple lines of evidence:

MSG-1 – Dredged Near-Shore Area

- All PAHs in sediments were below RGs. Copper and nickel concentrations in porewater exceeded the RGs. The copper and nickel concentrations are also elevated compared to the Reference Group (MSG-5) mean concentrations.
- Based on all monitoring events, sediment concentrations are not increasing over time. Porewater concentrations for two metals are higher in 2013 than previous events and it is premature to indicate a trend. However, Reference Group concentrations were also elevated for this round and most likely reflect background concentrations.
- Of the primary decision data (concentrations in sediment in porewater), only porewater exceeded RGs. However, when reviewing the MSG-1 secondary data, the toxicity results for the sea urchin *Arbacia punctulata* (porewater) indicated higher mean fertilization compared to the Reference Group (MSG-5), but lower mean fertilization compared to the laboratory control sample. The cause of the low fertilization is unknown; however, given the even lower

fertilization in the Reference Group, the toxicity results could be related to impacts generally prevalent in the environs of the site. Biota sampling was not conducted in 2013, consistent with the LTM Work Plan Addendum.

MSG-2 – Non-Dredged Off-Shore Area

- All PAHs in sediments were below RGs. Copper and nickel concentrations in porewater exceeded the RGs. The copper and nickel concentrations are also elevated compared to the Reference Group (MSG-5) mean concentrations.
- Based on this monitoring event and previous rounds, sediment concentrations are not increasing over time. Porewater concentrations for two metals are higher in 2013 than previous events and it is premature to indicate if this is a trend. However, the Reference Group concentrations were also elevated for this round and most likely reflect background concentrations.
- Of the primary decision data (concentrations in sediment and porewater), only porewater exceeded RGs. However, when reviewing the MSG-2 secondary data, the toxicity results for the sea urchin *Arbacia punctulata* (porewater) indicated higher mean fertilization compared to the Reference Group (MSG-5), but lower mean fertilization compared to the laboratory control sample. MSG-2 biota results exceeded project action limits; however, the Reference Group (MSG-5) biota results also exceeded PALs and were similar in concentrations to MSG-2 results. PCB congeners in MSG-2 biota were below the PAL and overall do not show an increasing trend. The cause of the low fertilization and elevated biota results is unknown; however, given the even lower fertilization and similar biota results in the Reference Group, the toxicity and biota results could be related to impacts generally prevalent in the environs of the site.

MSG-3 – Non-Dredged Off-Shore Area

- All PAHs in sediments were below RGs. All metals in porewater were below RGs. Dredging at neighboring MSG-1 and MSG-4 has removed contamination from the offshore area and lowered ICOC contaminant concentrations to near background conditions.
- Based on all monitoring events, porewater trends for ICOCs show a a steady state concentration of porewater copper and a steady state concentration of porewater nickel over the past five sampling rounds, which may reflect improvements in sediment quality after landfill capping and dredging.

- The primary decision data (concentrations in sediment in porewater), did not exceed RGs. In review of the MSG-3 secondary data, MSG-3 biota results exceeded PALs. However, of the seven PAL metal exceedances of MSG-3 biota, all are below the risk threshold by comparison to the Reference Group (MSG-5). PCB congeners were below the PAL in all sampling rounds and are not considered elevated. The two sediment toxicity results for MSG-3 sediments are considered to be non-toxic to benthic invertebrates, while a third toxicity test indicates that MSG-3 porewater may be toxic to benthic intertebrates. The cause of the low fertilization and potential toxicity is uncertain since the Reference Group results also indicated low fertilization relative to a laboratory control sample. Therefore, there do not appear to be elevated risks at MSG-3.

MSG-4 – Dredged Near-Shore Area

- All PAHs in sediments were below RGs, with the exception of anthracene and fluorene. All mean concentrations of metals in porewater were below RGs. Although the mean MSG-4 sediment concentrations for anthracene and fluorene are above their respective RGs, it should be noted that only one of four discrete samples in MSG-4 (specifically MCA-OS-28) exceeded the RGs, thus affecting the mean MSG-4 results. Because of the small sample size, the extent of the area that exceeds the RGs is not known.
- Based on all monitoring events, sediment concentrations for two PAHs are higher in 2013 than previous events, but it is premature to indicate if this is part of a trend. Porewater concentrations of copper increased slightly in 2013, but do not appear to be increasing over time However, Reference Group concentrations were also elevated for this round and most likely reflect background concentrations.
- Of the primary decision data (concentrations in sediment in porewater), only sediment exceeded RGs. When reviewing the MSG-4 secondary data, one of three toxicity test results was toxic; however, the cause of the low fertilization and potential toxicity is uncertain since the Reference Group results also indicated low fertilization relative to a laboratory control sample. Since porewater at MSG-4 did not exceed RGs, then another factor is potentially causing toxicity. MSG-4 biota results exceeded PALs; however, the Reference Group (MSG-5) biota results also exceeded PALs and were similar in concentrations to MSG-4 results. PCB congeners were below the PAL in all sampling rounds and are not considered elevated.

Overall, both primary data, sediment and porewater, did not exceed all the RGs for each MSG. For example, MSG 4 sediment exceeded RGs for anthracene and fluorene, but all MSG 4 porewater results were below RGs. The secondary data (biota and toxicity testing) did not indicate the primary data is causing effects to the ecological community. Only one toxicity test (sea urchin fertility) showed potential toxicity due to low fertility results in MSG 3 and MSG 4, yet the other toxicity tests for MSG 3 and MSG 4 indicated non-toxicity. The Reference Group (MSG 5) sea urchin fertility test was also low when compared to the lab control (36% to 93.6% respectively). This indicates that another factor is causing low fertilization results for MSG 3, MSG 4 and MSG 5.

The cumulative LTM data, prior to this most recent 2013 round, showed that the majority of sediment and porewater ICOC contamination concentrations were decreasing or were stable. The most recent sediment and porewater monitoring results were not consistent with historical results; however, similar results were observed in the reference station data and it is premature to indicate if this is part of a trend.

2.4.3 ARAR and Site-Specific Action Level Changes

The ARARs listed in the decision documents for this site are shown in Appendix D, Tables D-1 through D-3. While there have been changes to some of the ARARs noted in the RODs and previous five-year reviews, as listed in Appendix D, none of the changes affect the protectiveness of the remedies.

Revisions to the RIDEM Remediation Regulations were issued in 1996, 2004, and 2011. Detailed reviews of these updates to the Regulations have been conducted as part of this five-year review: the remedial goals selected in the ROD remain consistent with the Regulations, and the revisions do not affect the protectiveness of the remedy (see Section 2.5.2).

No other new ARARs have been promulgated that would call into question the protectiveness of the remedy.

Action levels for sediment and porewater are risk-based and have not been revised since the previous five-year review in 2009.

2.4.4 Progress Since Last Five-Year Review

The third five-year review report was entitled “Five-Year Review for Naval Station Newport, Newport, Rhode Island” and was prepared by TtNUS in December 2009. This review concluded that the remedies at the McAllister Point Landfill are protective of human health and the environment and that exposure pathways that could result in unacceptable risks are being controlled. The review recommended that scheduled monitoring associated with OU 1 continue, and that if monitoring data are consistently below applicable standards, a decrease in frequency should be considered to optimize cost-effectiveness. The review also noted that Navy and EPA agreed that the groundwater monitoring would be reduced by sampling 8 of the 12 previously sampled monitoring wells (still on an annual basis) (TtNUS, 2009).

The third five-year review also recommended that long-term monitoring associated with the OU 4 Marine Sediment/Management of Migration ROD continue at all MSGs, but at a reduced frequency (once every five years). This change, along with the reduction in the number of monitoring wells sampled for OU 1, required a revision to the long term monitoring work plan (TtNUS, 2009). TtNUS submitted the document entitled "Work Plan Addendum For Long Term Monitoring Program At McAllister Point Landfill NS Newport, RI" in August 2010 (TtNUS, 2010d), following EPA and RIDEM concurrence in July 2010. The recommendations made in the third five-year review were incorporated into the work plan at that time, as well as additional adjustments to O&M parameters.

Landfill monitoring and maintenance have continued. The landfill vent gas and ambient air monitoring results have not indicated a need for active gas collection and treatment. The status of the monitoring and institutional controls is discussed in Section 2.5 of this document.

2.5 Technical Assessment

The following conclusions support the determination that the remedy at the McAllister Point Landfill remains protective of human health and the environment.

2.5.1 Question A: Is the Remedy Functioning as Intended by the Decision Documents?

- **Remedial Action Performance and Monitoring Results:** There are no areas of non-compliance with any of the remedial objectives for McAllister Point Landfill that can be clearly attributed to Site-related contamination. The long term monitoring program is on-going and should generally continue at the locations/frequency recently developed (TtNUS, 2010d). This recommendation is consistent with the recommendations provided in the draft 2013 annual monitoring report (Watermark, 2014b). At the next five-year review, the need for continuation of monitoring shall be reviewed again to identify trends (increasing or decreasing) and to assure that ICOCs are within acceptable conditions established in the ROD.
- **System Operations/O&M:** Based on a review of the system operations/O&M and related sampling and analytical data, the remedy is functioning as intended. In groundwater, dissolved arsenic does not appear to be impacting the downgradient marine sediment and

porewater. Natural attenuation remains effective in reducing ICOCs levels and in limiting migration, and prevention of groundwater use at the site remains protective of human health.

As indicated in the 2009 landfill gas data comparison to criteria, and as detailed in Section 2.4.2, landfill gas emissions are below regulatory criteria and downwind ambient air samples continue to be comparable to upwind air samples, indicating landfill gas is not impacting the surrounding area and supporting the conclusion that the remedy remains protective.

Mowing at the landfill should continue as currently scheduled, along with the groundwater, sediment, and porewater sampling, and vent gas screening and gas sampling. The condition of the wells, vents, fences and all locks, as well as settling and revetment condition should continue to be noted in order to properly fulfill the goals of the ROD.

- **Costs of System Operations/O&M:** There have been no cost issues associated with the remedy.
- **Opportunities for Optimization:** As discussed in earlier sections, modifications to the O&M monitoring for OU 1 and OU 4 were made following the previous five-year review as documented in the Work Plan Addendum For Long Term Monitoring Program At McAllister Point Landfill (TtNUS, 2010d). Based on review of recent monitoring data, monitoring should continue at the locations/frequency specified in the 2010 Work Plan Addendum (TtNUS, 2010d).
- **Early Indicators of Potential Remedy Problems:** No significant issues were noted during the site inspection or based on review of the O&M and monitoring reports except that toxicity was observed in the latest porewater and sediment monitoring event. However, the toxicity cannot be definitively attributed to the Site because of similar results in the reference samples.
- **Implementation of Institutional Controls and Other Measures:** Institutional controls consisting of access controls via a locked gate and surrounding fencing have been maintained appropriately, in accordance with the NAVSTA Newport Instruction, "Installation Restoration (IR) Site Access and Use," NAVSTA Newport/Local Area Rhode Island Coordinator Instruction 5090.15A and 5090.15B (included in Appendix F).

  Public access to the site is restricted and is controlled by the Navy. In addition, the Navy has provided guidance and restrictions for disturbance of the ground surface and for subsurface disturbance of the soil, sediment and extraction of the groundwater, which was added as an ESD in 2007. Based on the ESD, a LUC RD was prepared and implemented to restrict activities that would impact the integrity of the remedy components, restrict use of groundwater for drinking water, and restrict excavation that could compromise the integrity of the landfill cover. The basis for the ESD and LUC RD was an issue cited in the 2004 Five-Year Review Report, which noted that if the property transferred out of federal ownership, a deed restriction would be needed to document controls necessary to maintain protectiveness at the site. At this time, the institutional controls can only be implemented by the Navy, since a deed restriction cannot be placed on the property. However, if there is a change in property ownership in the future, deed notation will be established to place applicable land use restrictions on the property, and will also meet state and local recording standards for land use restrictions.

2.5.2 Question B: Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives (RAOs) Used at the Time of the Remedy Selection Still Valid?

- **Changes in Exposure Pathways:** There have been no changes in exposure pathways since the implementation of the remedies associated with the 1993 and 2000 RODs. The marine sediment/management of migration remedy completed in 2003 removed the contaminated sediments from both the near shore and elevated risk off-shore areas through dredging, thereby eliminating the previously existing exposure point, the contaminated sediments. Vapor intrusion for shallow groundwater VOCs is not an issue because there are no occupied residential or industrial buildings located within 100 feet of the site boundaries.

  There have been no changes with respect to the shellfish ingestion exposure pathway since the previous five-year review.

- **Changes in Land Use:** There have been no changes in land use since the remedy selection of the 1993 and 2000 RODs and there is no anticipated change in land use.

- **New Contaminants and/or Contaminant Sources:** There have been no new contaminants or contaminant sources observed since the remedy selection of the 1993 and 2000 RODs.

- **Remedy Byproducts:** There are no byproducts generated as a result of the remedies of the 1993 and 2000 RODs.

- **Changes in Standards, Newly Promulgated Standards, and TBCs:** As part of this five-year review, ARARs and To Be Considered (TBC) guidance presented in the ROD were reviewed, and current ARARs were also reviewed. Since the previous five-year review, the RIDEM GA aquifer standards were revised. As noted above, the standard for naphthalene was revised to 100 ug/L (from 20 ug/L) in 2011 (RIDEM, 2011), while the arsenic standard was revised to be similar to the MCL (10 ug/L). These changes do not affect the protectiveness of the cap, as the arsenic MCL was already being applied and the naphthalene value went up from the previous concentration. The water quality screening criterion (which uses EPA's National Recommended Water Quality Criteria) for copper increased slightly (from 2.9 ug/L to 3.1 ug/L) since the time that the RGs were developed. This would have increased the RG slightly. No other standards have been promulgated that would affect the protectiveness of the cap or the off-shore actions.

- **Changes in Toxicity and Other Contaminant Characteristics:** While there have been changes in toxicity values and other characteristics of site-related contaminants since the ROD, none of these changes would call into question the protectiveness of the remedy.
- **Expected Progress Towards Meeting RAOs:** The RAOs for both OU 1 and OU 4 have been met. However, the inconsistency of the latest porewater and sediment monitoring results with earlier monitoring results indicates a degree of uncertainty that will require continued monitoring to resolve.
- **Risk Recalculation/Assessment (as applicable):** While there have been changes to human health risk assessment methods since the baseline risk assessments were generated (i.e., dermal exposure assessment, mutagenic carcinogen evaluation, revisions to lead modeling, and revisions to default exposure parameters), based on the methods used to establish RGs, none of these changes would affect the protectiveness of the remedy. Some of these method changes would increase the risks (e.g., mutagenic carcinogen evaluation), while others would decrease the risks/hazards (e.g., revisions to default exposure parameters). However, as noted above, RGs were developed based on ecological exposures due to the lack of potential for human exposure. If there is a future change in the potential for human exposure, further evaluation of human health risks/hazards would be appropriate using the most current risk assessment methods.

2.5.3 Question C: 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 under existing conditions.

2.5.4 Summary of the Technical Assessment

The following conclusions support the determination that the remedies for OU 1 and OU 4 at the McAllister Point Landfill remain protective of human health and the environment.

<u>The remedy is functioning as the decision documents intended</u>. There are no areas of non-compliance with remedial objectives, long-term monitoring results, system operations/O&M or related sampling results that can be clearly attributed to Site-related contamination. Neither landfill gas nor groundwater from the landfill are impacting downgradient areas at levels above regulatory criteria, and there have been no cost issues associated with the remedy. Historical trend analysis of groundwater data, along with recent monitoring data shows that groundwater contaminant concentrations are stable or decreasing over time and migration that would impact the downgradient marine sediment and porewater does not appear to be occurring. The most recent sediment and porewater monitoring results were not consistent with historical results; however, since similar results were observed in the reference samples, the cause is uncertain and cannot be definitively attributed to the site. Landfill gas results have shown only non-detected or low concentrations of non-methane organic compounds (NMOCs) in landfill gas emissions.

Access controls including a locked gate and surrounding fencing have been maintained appropriately in accordance with the LUC RD and the NAVSTA Newport Instruction, "Installation Restoration (IR) Site Access and Use," NAVSTA Newport/Local Area Rhode Island Coordinator Instruction 5090.15A and 5090.15B.

<u>The exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the remedy selection of the 1993 and 2000 RODs are still valid</u>. Since the remedy selection: there have been no changes in land use and there is no anticipated change in land use; there have been no new contaminants or contaminant sources observed; there are no byproducts generated as a result of the remedies; and there have been no changes in exposure pathways since the implementation of the remedies.

While new RIDEM GA aquifer standards are available for arsenic and naphthalene, they would not affect the protectiveness of the cap or the off-shore actions, and there have been no significant changes in toxicity values or contaminant characteristics that would question the protectiveness of the remedy, as previously discussed. The RAOs for both OU 1 and OU 4 have been met. There have been no changes to risk assessment methods that would affect the protectiveness of the remedy. Monitoring should continue to ensure that contaminant concentrations remain below standards so that any potential risk can be properly calculated.

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

2.6 Issues

No new issues have been identified during the technical assessment or other five-year review activities that would call into question the current of future protectiveness of the remedy. The following issue was raised by EPA and RIDEM in comments on the Draft Annual Monitoring Report – Operations and Maintenance Activities 2012 (Watermark, 2013a).

Issues	Affects Protectiveness (Y/N)	
	Current (Y/N)	Future (Y/N)
EPA and RIDEM have requested that the Navy consider the need for replacement of groundwater monitoring well MW-111S.	N	N

2.7 Recommendations and Follow-Up Actions

Recommendations/Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Follow-up Actions: Affects Protectiveness (Y/N)	
				Current	Future
Evaluate the need for a possible replacement well for MW-111S in the 2014 annual monitoring report.	Navy	USEPA	FY2015	N	N

2.8 Protectiveness Statement

The remedies at McAllister Point are protective of human health and the environment, and exposure pathways that could result in unacceptable risks are being controlled.

The source control remedy (OU 1) is complete and functioning as intended. The landfill cap, stone revetment, and surface control are in place and being well maintained to prevent exposure to the landfill area and limit infiltration of precipitation within the cap. Groundwater, vent gas, and ambient air monitoring are on-going to confirm emissions are within acceptable parameters. The most recent annual groundwater monitoring results show few detections of VOCs and SVOCs and mainly infrequent exceedances of the MCLs by these chemicals and by metals, with the few exceedances observed only within the footprint of the landfill. More frequent exceedances of MCLs do occur for arsenic in areas of the landfill cap, including near the downgradient/shoreline edge of the landfill, but still within the footprint of the landfill. The groundwater and vent gas monitoring have shown generally consistent results with no indications of any issues with the protectiveness of the remedy. Groundwater migration does not appear to be providing contaminants above RGs to the bay. Continued monitoring at wells within the landfill and on the western edge will be used to confirm protectiveness by comparing contaminant concentrations measured in the sampled media to RGs and ensure that there is no increased risk to human health or the environment. Land use controls are in place and access controls are being maintained. The protectiveness of the remedy was enhanced by the issuance of the LUC RD in 2012.

The dredging and backfilling activities for the near shore and elevated risk off-shore marine sediment remedial action (OU 4) are complete. Long-term monitoring of the off-shore areas with low risk is ongoing. Monitoring of the near shore and elevated risk off-shore areas is also continuing. The sediment and porewater monitoring results, before the most recent monitoring round, showed ICOCs below RGs for sediment and porewater, and most were below baseline PRGs. Additionally, earlier toxicity testing overall did not demonstrate elevated risks to the environment. However, the most recent sediment and porewater monitoring results were not consistent with historical results. Numerous exceedances of the RGs were detected in the most recent monitoring event and toxicity was indicated in one of three toxicity tests when compared to the reference station data. Similar results were observed in the reference station data, and therefore the cause of the RG exceedances and the toxicity is uncertain and may be because of impacts generally prevalent in the environs of the site and not necessarily related to the Site. There is no evidence that the recent porewater and sediment monitoring results were caused by changes to the integrity of the landfill cap or other components of the source control remedy (OU 1). Monitoring of the near-shore and elevated risk off-shore areas and off-shore areas with low risk will be continued to confirm the protectiveness of the remedy.

2.9 Next Review

The next five-year review of NAVSTA Newport will be completed in December 2019.

3.0 SITE 8 – NAVAL UNDERSEA SYSTEMS CENTER (NUSC) DISPOSAL AREA (OU 7)

3.1 History and Site Chronology

The NUSC Disposal Area (Site 8, OU 7) at NAVSTA Newport is located in Middletown, Rhode Island and was reportedly used for disposal of rubble and inert materials, including scrap lumber, tires, wire, cable, and empty paint cans. The upland portions of the site have been used as fill and storage areas since the Navy developed the site in the early 1950s.

The site was included in the 1983 Initial Assessment Study for NAVSTA Newport with a recommendation for no further action (NFA). In November 1989, NAVSTA Newport (then NETC) was listed on the EPA's NPL of abandoned or uncontrolled hazardous waste sites subject to requirements of CERCLA and SARA. In the 1990s, a propulsion test failure and explosion in Building 179 prompted investigation and remediation activities under RIDEM's underground storage tank (UST) program and Remediation Regulations (Navy, 2012c). Further investigations have been performed under a SASE and an RI for the NUSC Disposal Area. The Study Area Screening Evaluation (SASE) was conducted in June through November 2003, and included a passive soil gas investigation, and collection of soil, sediment, surface water, and groundwater samples (TtNUS, 2005a). The passive soil gas analysis indicated some areas where elevated VOCs were present, and these, along with other target areas identified in the work plan were investigated with a series of test pits, soil borings, and groundwater monitoring wells. Chlorinated solvents (trichloroethene [TCE] and tetrachloroethene [PCE]) were found in groundwater at the north (downgradient) end of the site. The SASE concluded that limited removal actions may be necessary and that additional efforts will be required to complete a remedial investigation, including a baseline human health risk assessment (HHRA) and ecological risk assessment (ERA), for the site (TtNUS, 2005a).

In response to the conclusions of the SASE, some limited removal actions have occurred at the site. A removal action was conducted in 2005 and 2006 to remove drums in various states of decay containing a tar-like substance from the center of the South Meadow. In addition, an area adjacent to Deerfield Creek was excavated in 2005 to remove deposited paint cans and metal debris. A final closure report (TN & Associates, 2006a) provides details on this action.

An RI was conducted in late 2008 to early 2009 and the final RI was submitted in January 2010 (TtNUS, 2010a). The RI found that unacceptable risks were present at the site due to PAHs and arsenic in soil, and due to VOCs and metals in groundwater. It also found that ecological risks were present due to organic and inorganic compounds in the sediment of the pond and from metals in surface soil. Field work for a supplemental remedial investigation (SRI) was conducted in summer

2010 and a final SRI report was submitted in October 2011 (TtNUS, 2011f). Additional groundwater sampling was conducted in 2011 and 2012 to further evaluate the natural attenuation of chlorinated VOCs and metals at the site. The final FS and Proposed Plan were completed in July 2012 and the ROD was issued in September 2012. The land use control remedial design was completed in October 2013. The remedial design for the soil component of the selected remedy was completed in January 2014 and on-site remedial construction began in December 2013. Remedial design for the groundwater and pond and stream sediment components of the remedy are underway.

Additional information on site use and history can be found in the Remedial Investigation Report (TtNUS, 2010a) and the ROD (Navy, 2012c). A chronology of important events regarding the operation and remedies for the NUSC Disposal Area is shown in the table that follows.

Table 3-1
Chronology of Historical Events and Documents
NUSC Disposal Area, NAVSTA Newport, RI

Event/Document	Date
Area used for storage and fill	1950s – present
Building 179 Soil and Groundwater Investigation conducted following a propulsion test failure and explosion (Navy, 2012c)	1995
Building 179 Concrete UST remedial investigation conducted (Navy, 2012c)	1999
Final Project Close-Out Report for Building 179 Remediation (Navy, 2012c)	1999
Environmental Baseline Survey Checklist completed for NUWC Pond – indicates former pumping of water from NUWC Pond to the adjacent Wanumetenomy Golf Course for irrigation between 1974 and 1996 (Navy, 2012c)	2002
Building 185 Removal Action conducted – removal of contaminated soil and concrete (Navy, 2012c)	2004
Final SASE Report completed (TtNUS, 2005a)	January 2005
Draft Removal Action Completion Report completed – removal of drums and paint cans (TN & Associates, Inc., 2006a)	April 2006
Background Soil Investigation Report completed (TtNUS, 2006c)	September 2006
Final Interim Removal Action Report (limited soil removal action) completed (TN & Associates, Inc, 2006b)	December 2006
Final Remedial Investigation Report completed (TtNUS, 2010a)	January 2010
Revised Draft FS completed (TtNUS, 2011b)	July 2011

Event/Document	Date
Final Supplemental Remedial Investigation (SRI) completed (TtNUS, 2011f)	October 2011
Supplemental groundwater sampling performed to evaluate natural attenuation (Navy, 2012c)	2011-2012
Final Feasibility Study completed (Tetra Tech, 2012f)	July 2012
Proposed Plan completed (Navy, 2012a)	July 2012
Final Record of Decision completed (Navy, 2012c)	September 2012
Final Land Use Control Remedial Design completed (Tetra Tech, 2013b)	October 2013
Start of On-site Remedial Construction	December 16, 2013
Final Remedial Design for soil component of remedy completed (Tetra Tech, 2014a)	January 17, 2014
Land Use Control Remedial Design Addendum completed (Tetra Tech, 2014b)	May 2014
Explanation of Significant Differences adding asbestos ARARs completed	December 2014

3.2 Background

The NUSC Disposal Area is located within the NUWC portion of NAVSTA Newport.

Physical Characteristics

The site occupies approximately 12.4 acres along the northern boundary of the NUWC grounds and is surrounded on the northwest, west, and southwest by developed areas of the NUWC facility (Figure 1-4 of Appendix B.3). A wetland area lies southeast of the site and the Wanumetonomy Golf and Country Club borders the site to the northeast.

The NUSC Disposal Area currently includes the Building 179 Area (research facilities), the Building 185 Complex (a Paved Storage Area), as well as undeveloped open fields and wooded areas, two shallow streams bounded by steep slopes, wetlands, and Deerfield Pond, also known as NUWC Pond. A low, concrete dam is present at the northern end of the 2-acre pond. A chain-link fence separates Site 8 from the Wanumetonomy Golf and Country Club to the northeast. A one-lane crushed gravel roadway runs along the Navy side of the fence and is used as a security patrol road as well as a walking/jogging path by NUWC employees (Navy, 2012c).

The overburden geology at the NUSC Disposal Area consists of approximately 0.5 to 19.5 feet of unconsolidated materials overlying bedrock. The overburden thickness is greatest in the western corner of the Paved Storage Area and thinnest in the North Meadow. Debris fill materials, consisting of construction debris and/or natural soil or rock, dominate the South Meadow and the area between the paved storage area and Deerfield Creek and range in thickness from 4 to 18 feet.

Debris was observed only sporadically in the North Meadow, the Paved Storage Area, and the Building 179 Area. Non-debris fill consists of road base materials and reworked native deposits. The site bedrock consists of metamorphosed sedimentary rock (predominantly phyllite) (Navy, 2012c).

Beneath the Building 185 Complex, the Building 179 Area, the Paved Storage Area, and the South Meadow, the water table is generally near the bedrock/overburden interface. Beneath the North Meadow and further north, the water table is located within the bedrock zone. Surface water is present at the site in Deerfield Creek, flowing from the south, the unnamed stream flowing west from the golf course on the east, and NUWC Pond. The depth to groundwater was observed to range from 0.5 to 24 feet below the ground surface (Navy, 2012c).

Groundwater at the site generally flows west toward the NUWC Pond and Deerfield Creek. In the Building 179 Area, groundwater in bedrock flows northward and appears to be influenced by Deerfield Creek, which flows into NUWC Pond. Deerfield Creek appears to be a discharge zone for shallow bedrock groundwater in this area. In the area of the Paved Storage Area and the South Meadow, groundwater generally flows in a west-northwesterly direction. In the northern portion of the site, groundwater flows in a west-northwesterly and a west-southwesterly direction (towards NUWC Pond and associated wetlands). The intermittent, unnamed stream flowing from the east appears to have little influence on the direction of groundwater flow. The potentiometric surface in the northern part of the site could not be developed without significant inference, but groundwater flow in this area is expected to follow the ground surface topography, which drops steeply towards NUWC Pond. (Navy, 2012c).

<u>Land and Resource Use</u>

The NUSC Disposal Area (Site 8) is located adjacent to the northern boundary of the NUWC grounds. Site 8 was reportedly used for disposal of rubble and inert materials, including scrap lumber, tires, wire, cable, and empty paint cans. The upland portions have been used as fill and storage areas since the Navy developed the site in the early 1950s. Currently there is a secured storage area and open storage area (both paved – approximately 2.3 acres), a research facility (Building 179 Area), as well as open fields (1.6 acres) and brush covered areas (4.2 acres). Accordingly, the current site use is industrial and will remain as such for the foreseeable future (Navy, 2012c).

Groundwater underlying NAVSTA Newport is not used for drinking water. Drinking water for NAVSTA Newport and most of the residents of Newport and Middletown is supplied and managed by the Newport Water Department, which receives its water supply from a series of seven surface water reservoirs located on Aquidneck Island and two surface water reservoirs on the mainland. Site 8 is not within the watershed of any of the area supply reservoirs. Private wells located within 3 miles of NAVSTA Newport provide drinking water to approximately 4,800 of the estimated 10,000 people that live within 3 miles of NAVSTA Newport. Due to the near-coastal location, groundwater at Site 8 is downgradient of any potential or existing water sources (Navy, 2012c).

Groundwater flows to Site 8 from the undeveloped wetland to the south and from the golf course area to the east. RIDEM has established a state groundwater classification system to protect its groundwater resources. Site 8 straddles the line delineating the boundary between RIDEM's GA and GB groundwater classification areas. Groundwater under the northeastern half of the Site, abutting the Wanumetonomy Golf and Country Club, is classified by RIDEM as GA (presumed suitable for public or private drinking water use without treatment). Groundwater underlying the southwestern half of the Site has a GB classification as does the NAVSTA property southwest of the Site. Groundwater classified as GB is considered to be not suitable for drinking water without treatment because of known or presumed degradation (Navy, 2012c). RIDEM does not have an EPA-approved CSGWPP and therefore, EPA does not recognize RIDEM's classification system. EPA expects that all groundwater will be remediated to its beneficial use. However, groundwater cleanup standards do not have to be achieved under a waste management unit. The Navy has confirmed that the golf course is not currently operating wells in the vicinity of the site for irrigation of the golf course. The Navy has initiated more communications with the adjacent golf course relative to precautions to prevent irrigation wells near Site 8. Further meetings are scheduled in late 2014 and periodically thereafter per the LUC RD.

3.3 Remedial Actions

The ROD for Site 8 was issued in September 2012. The basis for the selection of the remedy for Site 8 and implementation of the selected remedy is described below in Sections 3.3.1 and 3.3.2, respectively.

3.3.1 Remedy Selection

The basis for the selection of the remedy for Site 8 is described below.

RAOs were developed for the site to aid in the development and screening of response alternatives, and to mitigate existing and future potential threats to human health and the environment. As summarized in the 2012 ROD, these RAOs are:

- Prevent the incidental ingestion of and dermal contact with surface and subsurface soil containing COCs that exceed human health RGs.
- Prevent the use of site groundwater until groundwater RGs have been achieved.
- Restore groundwater quality to its beneficial use.
- Prevent insectivorous mammals and birds from exposure to surface soil containing COCs that exceed ecological RGs.
- Prevent the migration of sediment COCs that could cause unacceptable ecological risk to pond and stream sediment via groundwater transport and overland runoff.
- Prevent pond and stream invertebrates from exposure to sediments containing COCs that exceed ecological RGs.
- Prevent human exposure to stream sediment containing COCs above RGs.

As stated in the 2012 ROD, the selected remedy is comprised of the following components:

- Excavation and offsite disposal of selected soil volumes (e.g., soil exceeding RIDEM leachability standards).
- Construction of a soil cover over the remaining area of unpaved soils where COC concentrations exceed industrial cleanup goals.
- Maintenance of the existing paved area as a Waste Management Area.
- In-situ treatment of the most contaminated portions of groundwater using either enhanced bioremediation or chemical oxidation, as to be determined through pre-design studies.
- Monitored natural attenuation (MNA) of the residual groundwater plume.
- Excavation and offsite disposal of sediment in NUWC Pond (Deerfield Pond) and Deerfield Creek.
- Implementation of LUCs to ensure that future use of the property is limited to industrial activities (residential and unrestricted recreational site use will be prohibited in areas where COC concentrations in soil and sediment exceed residential cleanup goals), to ensure that the soil cover and subsurface soils are not disturbed without appropriate safety precautions, and to prohibit groundwater use until cleanup goals are achieved.
- Long-term monitoring of groundwater and inspection/maintenance of the soil/asphalt cover system.

Remediation goals for soil, groundwater, and sediment as present in the ROD are included below as Tables 3-2, 3-3, and 3-4. Development of these cleanup levels is presented in the 2012 ROD (Navy, 2012c) and the 2012 FS (Tetra Tech, 2012f).

Table 3-2
Soil Remedial Goals from Site 8 ROD
NUSC Disposal Area, NAVSTA Newport, RI

	Soil	
Constituent of Concern	**Industrial Cleanup Level (mg/kg)**	**Basis for Selection**
1,1-Biphenyl	--	(d)
Acenaphthene	--	(d)
Anthracene	--	(d)
Benzo(a)anthracene	2.1	Cancer Risk=10^{-6} (a)
Benzo(a)pyrene	0.21	Cancer Risk=10^{-6} (a)
Benzo(b)fluoranthene	2.1	Cancer Risk=10^{-6} (a)
Benzo(g,h,i)perylene	--	(d)
Benzo(k)fluoranthene	21	Cancer Risk=10^{-6} (a)
Chrysene	780	RIDEM DEC
Dibenzo(a,h)anthracene	0.21	Cancer Risk=10^{-6} (a)
Fluoranthene	--	(d)
Fluorene	--	(d)
Indeno(1,2,3-cd)pyrene	2.1	Cancer Risk=10^{-6} (a)
Naphthalene	0.8	RIDEM Leachability Criterion
Phenanthrene	--	(d)
Pyrene	--	(d)
Arsenic	18	Background (b)
Antimony	--	(e)
Barium	--	(e)
Beryllium	1.5	RIDEM DEC
Cadmium (c)	--	(e)
Chromium (c)	--	(e)
Cyanide	--	(e)
Lead	500	RIDEM DEC
Manganese	--	(d)
Mercury	--	(e)
Nickel	--	(e)

	Soil	
Constituent of Concern	**Industrial Cleanup Level (mg/kg)**	**Basis for Selection**
Selenium	--	(e)
Thallium	--	(e)
Zinc	--	(d)

(a) Risk-based RGs are calculated for the risk-based COCs identified from the HHRA.
(b) Background values area based on the Upper Predictive Limit (UPL) of the background sample data set.
(c) Ecological-based PRPs were calculated for cadmium and chromium in the FS; however, these were not retained as RGs because these ecological COCs are colocated with the human health COCs and the actions performed to address the human health risks will also mitigate the ecological risks.
(d) The COC was selected based on an exceedance of RIDEM's Residential Direct Exposure Criterion (DEC). An industrial RG was not selected because the maximum COC concentration in site soil does not exceed the industrial standards. Exceedences of the Residential DEC in soil at the site will be addressed through LUCs.
(e) Identified in ROD as potential COC based on RIDEM's leachability criteria. The ROD noted that RGs may be modified based on leachability criteria if sampling during the Remedial Design/Remedial Action (RD/RA) shows that Synthetic Precipitation Leaching Procedure (SPLP) criteria are being exceeded by the identified metals in soil. Note that leachability testing was conducted as part of the pre-design investigation and based on the results, antimony, barium, cadmium, chromium, cyanide, mercury, nickel, selenium, and thallium were eliminated as COCs in soil. Lead was retained as a COC in soil based on identified exceedances of the RIDEM leachability criteria (Tetra Tech, 2014).

Table 3-3
Groundwater Remedial Goals from Site 8 ROD
NUSC Disposal Area, NAVSTA Newport, RI

	Groundwater	
Constituent of Concern	**Cleanup Level (ug/L)**	**Basis for Selection**
1,1-Dichloroethane (d)	2.4	Cancer Risk=10^{-6}
1,1-Dichloroethene	7	MCL
1,4-Dioxane (d)	0.67	Cancer Risk=10^{-6}
1,1,1-Trichloroethane	200	MCL
Carbon Tetrachloride	5	MCL
Ethylbenzene	700	MCL
Tetrachloroethene	5	MCL
Trichloroethene	5	MCL
Vinyl Chloride	2	MCL
Arsenic	10	MCL
Chromium (c)	100	MCL
Cobalt (d)	4.7	Non-Cancer HI=1

	Groundwater	
Constituent of Concern	**Cleanup Level (ug/L)**	**Basis for Selection**
Lead	15	MCL
Manganese	300	Health Advisory (b)
Nickel	100	RIDEM GA Criterion (a)
Vanadium (d)	78	Non-Cancer HI=1

(a) RIDEM's Method 1 GA Groundwater Objectives from Section 8.03 of the Rhode Island Remediation Regulations, DEM-DSR-01-93, as amended November 2011.
(b) The calculated risk-based value (non-cancer) for manganese is 775 ug/L; however, EPA has requested that their Health Advisory guidance value be used at Site 8.
(c) Chromium was retained as a COC based on the conservative assumption that it is present in the form of hexavalent chromium, rather than the less toxic trivalent form. If future sampling determines that chromium is present predominantly in the trivalent form, then chromium may be eliminated from the list of groundwater COCs.
(d) The RGs for 1,1-DCA, 1,4-dioxane, cobalt, and vanadium differ from the PRGs calculated in the FS because an updated exposure assumption was used for the ingestion rate under a child resident scenario (assumed ingestion rate of 1.0 liter per day instead of 1.4 liters per day).

Table 3-4
Sediment Remedial Goals from Site 8 ROD
NUSC Disposal Area, NAVSTA Newport, RI

	Pond Sediment		Stream Sediment	
Constituent of Concern	**Cleanup Level**	**Basis for Selection**	**Cleanup Level**	**Basis for Selection**
Organics (ug/kg)				
Total PCBs	150	Ecological risk (a)	451	Ecological risk (a,b)
Metals (mg/kg)				
Lead	--	--	1,233	Ecological risk (d)
PEC-Q (unitless)				
PEC-Q (with DDE)	0.68	Ecological risk (a)	--	--

(a) Geometric mean of No Observed Effects Concentration (NOEC) and Lowest Observed Effects Concentration (LOEC); if a NOEC was not available, RG was set at the LOEC.
(b) Because there is more uncertainty in whether there are risks to sediment invertebrates in the stream, the RGs are based on the endpoint specific NOECs and LOECs.
(c) To calculate the overall mean Probable Effects Concentration Quotient (PEC-Q), first calculate the individual PEC-Qs for total PAHs, total PCBs, DDE, and individual metals (arsenic, cadmium, chromium, copper, lead, nickel, and zinc). PEC-Qs are calculated by dividing the chemical concentrations by the respective PECs (unitless). The average of those ten individual PEC-Qs is used as the overall mean PEC-Q.
(d) The RG for lead in stream sediment is based on the lower of the industrial value for human health (2,200 mg/kg) and the ecological RG (1,233 mg/kg). Lead concentrations in sediment above the human health value of 400 mg/kg will be addressed through LUCs.

3.3.2 Remedy Implementation

The land use control remedial design was completed in October 2013 and a land use control remedial design addendum was completed in May 2014. The remedial design for the soil component of the selected remedy was completed in January 2014, and addressed the excavation and off-site disposal of selected soil volumes, as well as the construction of a 2-foot soil cover over the remaining areas of unpaved soils where concentrations of the identified COCs exceed industrial cleanup goals. Prior to completion of the soil remedial design, a pre-design investigation was conducted in July 2013 in order to provide additional soil data and topographic information to support the soil remedial design. The results of the soil pre-design investigation were provided as an appendix to the Final Remedial Design for Soil (Tetra Tech, 2014a).

Remedial design for the groundwater and sediment components of the remedy is underway. A draft (35%) remedial design was issued in March 2014 for review by EPA and RIDEM.

Implementation of the soil remedy was initiated in December 2013. A Remedial Action Work Plan (RAWP) was drafted in November 2013 and finalized in March 2014 by AGVIQ Environmental, LLC to describe the planned remediation activities. Activities conducted in December 2013 included mobilization, installation of erosion controls, vegetation clearing and grubbing, and construction of soil staging areas. Soil excavation work began in late February 2014, following finalization of the Soil Remedial Design. At the beginning of March 2014, friable asbestos insulation was identified during excavations in three target areas. Asbestos had not been identified as a COC in the Site 8 ROD. The excavations were immediately backfilled to prevent possible exposures. Asbestos had not been identified as a COC in the Site 8 ROD and was not considered in the RAWP. Soil excavation continued in other areas of the site while an addendum to the RAWP was prepared to account for the presence of asbestos including proper work practices and the removal and off-site disposal of asbestos-containing materials and debris where encountered in the planned soil excavations. The RAWP Addendum (AGVIQ, 2014) was finalized on May 20, 2014. Per the RAWP Addendum, soil with visually observed regulated asbestos-containing material (RACM) is stockpiled for disposal off-site as asbestos-contaminated soil, while soil not visually observed to contain RACM is stockpiled separately and sampled for the presence of asbestos. An ESD has been issued to add asbestos ARARs. Although asbestos was not identified as a COC for Site 8, the remedy for the site as outlined in the ROD, including the asphalt/soil cover system and LUCs, will also be protective of human health and the environment with respect to asbestos.

On-site construction of the soil component of the remedy is anticipated to be completed in 2014, with the exception of final seeding of the soil cover system, which will be completed once the groundwater and sediment remedies are constructed. Per AGVIQ construction staff, temporary seeding and/or straw will be used to temporarily stabilize the soil after backfilling and grading of all of the excavations until the site is ready for final restoration and seeding.

3.3.3 Operations and Maintenance

As the remedy has not yet been completed there are no O&M activities occurring.

3.4 Five-Year Review Findings

3.4.1 Site Inspection

A site inspection was conducted for the five-year review on February 27, 2014. Because of the current status of the site, an inspection checklist was not completed; however, observations are summarized below. No photographs were obtained during the inspection. During the site inspection, Resolution staff met with the Site Supervisor from AGVIQ, the remedial construction contractor for the Navy. Implementation of the soil remedy was underway and soil excavation was being conducted in certain areas of the site in accordance with the soil remedial design. Excavated soils were being staged in a staging area in the northeast portion of the site. A gravel road was observed along the northeast boundary of the site, along the chain-link fence that separates the site from the golf course. According to the AGVIQ Site Supervisor, the gravel road is used by NUWC employees as a walking path; however, since construction is occurring, temporary barriers were placed on the gravel road to keep walkers away from the construction areas. No walkers were observed within the portions of the site where construction activities were occurring during the site inspection. The chain-link fence bordering the golf course was observed to be leaning in some areas, but was still secure and no repairs are needed at this time. The fence condition will be inspected during future LUC compliance inspections. The paved, fenced and gated storage area near the entrance to the site was being used for storage of miscellaneous equipment and materials. Signage was present on the fence indicating “No Unauthorized Access, Restricted Area, No Digging, Safety Hazard Present.” There did not appear to be any changes to site uses from those documented in the 2012 ROD. It should also be noted that the Navy confirmed in September 2014 that the golf course is not currently using wells in the vicinity of the site for irrigation of the golf course. Coordination with gold course is required as part of the LUC RD to prevent installation of groundwater supply or extraction wells in areas directly adjacent to the site.

3.4.2 Document and Analytical Data Review

This five-year review included a review of relevant Site 8 documents (see Appendix A). No new data has been collected since the initiation of the remedy construction, nor have any documents been prepared which would provide information related to the protectiveness of the remedy.

3.4.3 ARAR and Site-Specific Action Level Changes

The ARARs listed in the 2012 ROD for this site are shown in Appendix D, Tables E-1 through E-12. The status of the listed ARARs remains the same at this time in the remedial process and no ARARs have been promulgated since the ROD that would call into question the protectiveness of the remedy. As a result of the discovery of asbestos-containing materials in certain target area soil excavations in March 2014, an ESD was issued to add ARARs that pertain to asbestos. Asbestos had not been identified as a COC in the Site 8 ROD.

3.4.4 Progress Since Last Five-Year Review

Site 8 was not included in the last five-year review as the ROD was signed in 2012 and the only progress to report beyond signing of the ROD is initiation of the remedial action.

3.5 Technical Assessment

The following conclusions support the determination that the remedy selected for Site 8 remains protective of human health and the environment.

3.5.1 Question A: Is the Remedy Functioning as Intended by the Decision Documents?

Upon construction completion and LUC and O&M implementation, the remedy will be protective. The LUC RD, including a subsequent addendum, has been completed; however, the engineering controls are under construction and groundwater monitoring and annual LUC compliance inspections have not yet been initiated. The LUC RD included relevant Base Instructions which are still current.

3.5.2 Question B: Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives (RAOs) Used at the Time of the Remedy Selection Still Valid?

- **Changes in Exposure Pathways:** There have been no changes in exposure pathways since the implementation of the remedies associated with the 2012 ROD.
- **Changes in Land Use:** There have been no changes in land use since the remedy selection of the 2012 ROD and there is no anticipated change in land use.

- **New Contaminants and /or Contaminant Sources:** During soil excavation activities in early March 2014, friable asbestos insulation was discovered. Asbestos was not identified as a COC in the 2012 ROD. The approach to addressing this discovery is discussed in Section 3.3.2.

- **Remedy Byproducts:** There have been no byproducts generated as a result of the remedies of the 2012 ROD. However, in-situ treatment of groundwater contaminants may result in the generation of byproducts in the future.

- **Changes in Standards Newly Promulgated Standards and TBCs:** As part of this five-year review, ARARs and TBC guidance presented in the ROD were reviewed, and current ARARs were also reviewed. No new standards have been promulgated that would affect the protectiveness of the remedy.

- **Changes in Toxicity and Other Contaminant Characteristics:** There have been no changes in toxicity or other contaminant characteristics that would call into question the protectiveness of the remedy. There were changes to some human health toxicity values used during the baseline human health risk assessment, but these toxicity changes would not have resulted in any additional detected analytes becoming site COCs.

  With respect to remediation goals, based on current information for vanadium related to dermal exposures (using a gastrointestinal absorption value of 0.026 rather than 1), the groundwater cleanup level for residential exposures would be slightly lower than the ROD value. The current gastrointestinal absorption value can be found in the May 2014 USEPA Regional Screening Levels (RSLs) (http://www.epa.gov/reg3hwmd/risk/human/rb-concentrationtable/index.htm). However, other changes in default exposure parameters (see below) would result in raising the cleanup levels above the current ROD values. Following remedy implementation for groundwater, potential changes to cleanup levels will require evaluation and potential generation of a decision document (i.e., ESD) to document these changes.

  Other toxicity value and contaminant characteristic changes would not change cleanup levels, as MCLs were selected as cleanup levels for those contaminants in groundwater, and background was selected for arsenic in soil (which now would include a factor for bioavailability [USEPA, 2012b]).

- **Expected Progress toward Meeting RAOs:** The RAOs are expected to be achieved upon completion of the remedy.

- **Changes in Risk Assessment Methodologies:** While there have been changes to human health risk assessment methods since the baseline risk assessment was performed (e.g., revisions to how TCE is evaluated), based on the cleanup levels selected for contaminants impacted (i.e., MCLs), none of these changes would affect the protectiveness of the remedy. A recent EPA directive (USEPA, 2014) was published which provides revised default exposure parameter assumptions for various exposure scenarios. Many of these parameters differ from those utilized to generate the risk-based remediation goals presented in the ROD. With respect to the soil RGs, there are changes to the worker soil adherence factor (reduction from 0.2 to 0.12 mg/cm-day), the worker skin surface area (increase from 3,300 cm^2 to 3,470 cm^2), and the worker body weight (increase from 70 to 80 kg). These changes would result in a slight increase in the cleanup levels (to maintain the same risk level) for PAHs with risk-based RGs: benzo(a)anthracene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene would change to 2.9 mg/kg; benzo(a)pyrene and dibenzo(a,h)anthracene would change to 0.29 mg/kg; and benzo(k)fluoranthene would change to 29 mg/kg. Similarly, the following contaminants with risk-based groundwater RGs (based on use as drinking water) would also have slight increases in the RGs based on the revised exposure parameters: 1,1-dichloroethane would change to 2.7 ug/L, 1,4-dioxane would change to 0.78 ug/L, cobalt would change to 6 ug/L, and vanadium would change to 86 ug/L. When compared to the 2012 ROD cleanup levels, the relative change for each of the four analytes listed may be slightly different due to rounding differences in the calculated results, as well as the change in the gastrointestinal absorption factor for vanadium, described above. As all of these changes are increases in RGs, they would not change the protectiveness of the remedy.

3.5.3 Question C: 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 under existing conditions.

3.5.4 Summary of the Technical Assessment

The following conclusions support the determination that the remedy selected for Site 8 remains protective of human health and the environment.

<u>The remedy is functioning as the decision documents intended</u>. Upon construction completion and LUC implementation, the remedy will be protective.

The exposure assumptions and RAOs used at the time of the remedy selection of the 2012 ROD are still valid. There were changes to exposure assumptions which would slightly increase the risk-based remediation goals for soil and groundwater if calculated today. However, these changes are relatively minor and do not impact the selected remedy.

Asbestos was identified in site soils during excavation in early 2014. Although asbestos was not identified as a COC for Site 8, the remedy for the site as outlined in the ROD, including the asphalt/soil cover system and LUCs, will also be protective of human health and the environment with respect to asbestos.

Since the remedy selection: there have been no changes in land use and there is no anticipated change in land use; there are no byproducts generated as a result of the remedy at this time; and there have been no changes in exposure pathways since the implementation of the remedies.

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

3.6 Issues

No issues have been identified that would call into question the current or future protectiveness of the remedy.

3.7 Recommendations and Follow-Up Actions

No recommendations have been identified that would call into question the current or future protectiveness of the remedy.

3.8 Protectiveness Statement

The remedy at Site 8 will be protective of human health and the environment upon completion. In the interim, remedial activities completed to date have adequately addressed all exposure pathways that could result in unacceptable risks in these areas. Although asbestos was not identified as a COC in the Site 8 ROD, the remedy for the site as outlined in the ROD, including the asphalt/soil cover system and LUCs, will also be protective of human health and the environment with respect to asbestos. The discovery of ACM in site soils does not impact current protectiveness, since the excavations where ACM were uncovered were immediately backfilled and the RAWP was amended to include provisions to protect construction workers from potential exposures while the remedial construction is completed and ensure proper handling and disposal of excavated soil and debris.

3.9 Next Review

The next five-year review of NAVSTA Newport will be completed in December 2019.

4.0 SITE 9 – OLD FIRE FIGHTING TRAINING AREA (OU 3)

4.1 History and Site Chronology

The Old Fire Fighting Training Area (OFFTA), Site 9, at NAVSTA Newport is an approximately 8-acre site, located on Coaster's Harbor Island, adjacent to Narragansett Bay, in Newport, Rhode Island. It includes the original OFFTA site area and an adjacent area known as the Surface Warfare Officers School (SWOS) site. The SWOS site was originally identified as Site 20 under the FFA for NAVSTA Newport, but was added to the OFFTA site when it was discovered that subsurface soil contamination at the sites was similar and contiguous.

The fire fighting training area was constructed in 1944 to train Navy personnel in fighting ship-board fires. Waste oils were used to train personnel in fire fighting operations (TRC, 1992). Several buildings were present to simulate ship compartments; these buildings, with several burning pits and paved areas, served as the principal areas of activity. The fire fighting training facility was closed in 1972. Upon closure, the training structures were reportedly demolished and buried in three mounds on the site, and then the entire area was covered with topsoil. The three soil mounds were the primary site features before they were removed in 2005. One approximately 20 foot high mound was located in the center of the site; the other two, approximately 5 to 6 feet high, were located on the western portion of the site.

The old fire fighting training area north of Taylor Drive was converted to a recreational area known as "Katy Field", with a playground, a picnic area with an open pavilion and barbecue grills, and a baseball field following the demolition activities in the early 1970s. The area was used for a variety of recreational activities between 1976 and 1998. A child day care center was also in operation in Building 144 at the site until 1994 when it was relocated to a larger facility on base (TtNUS, 2001b). Building 144 was demolished in 2009 (Navy, 2010b).

The area south of Taylor Drive (previously the SWOS site – Site 20), was the location of the former Brig facility, which served as the Correctional Center from its construction in 1951 until its demolition in 1996. Prior to 1951, this portion of the site was undeveloped. A Phase 1 Environmental Site Assessment for the SWOS Building site was performed prior to the construction of the SWOS Applied Instruction Building (TtNUS, 2001a). No releases of oil or hazardous materials were reported to have occurred at the SWOS site nor were disposal areas present at any time. Oily soils were encountered during the 2003 construction of the SWOS Applied Instruction Building. Tetra Tech FW, Inc. conducted test pitting, soil sampling, and risk assessment to determine the risk to construction workers (TtFW, 2004a). Occupational exposure risks were found to be acceptable for construction workers installing utility lines and constructing parking lots. Tetra Tech FW, Inc. summarized their findings in an Occupational Exposure Assessment for Construction Workers at the SWOS Site report in March 2004 (TtFW, 2004a).

The OFFTA site was included in the 1983 Initial Assessment Study for NAVSTA Newport with a conclusion that the site did not pose any threat. However, oil was found in the subsurface soil in 1987 during work to expand the child day-care center. In 1992, the Navy initiated an RI that included this area. According to the Phase 1 RI, issued in 1994, VOCs, pesticides, and fuel components were present in soils and groundwater. It was determined at that time that the contaminant concentrations did not pose an immediate threat to humans. In 1996, the Navy initiated a study as a follow up to the Phase 1 RI to attempt to define possible continuing sources of oil contamination to the property (Navy, 2003a).

In 1998, the EPA requested that Katy Field and the recreational area around it be closed due to concerns about the adequacy of the characterization of site contaminants and exposure scenarios. The Navy immediately performed an HHRA at Katy Field to determine the possible health effects to adults and children from recreational use of the site. This study concluded that risks to site users were negligible. The Navy decided to keep the site closed until all investigations under CERCLA had been competed (Navy, 2003a).

An ERA was conducted in the harbor adjacent to the site in 1998. This study found some potential for risk to ecological receptors in the near shore areas from contaminants related to old fuel releases. Follow-up sediment studies have confirmed the presence of some contaminants and also the presence of sensitive species such as eelgrass and shellfish in this area (Navy, 2003a).

An RI Report, based on the Phase 1 and 2 investigations conducted in the early 1990s was completed in July 2001 (TtNUS, 2001b). This report incorporated the offshore ecological investigation (1998), a marine ERA (2000), and three supplemental investigations (1997 – 2000). An FS (TtNUS, 2002) was completed in September 2002 that evaluated remedial action alternatives to restore the site for unlimited use, and a Draft Proposed Plan was prepared to outline a proposed remedial action. In 2004, a series of pre-design steps were conducted to support this Draft Proposed Plan for remedial action at the site.

Also in 2004, the Navy deemed it appropriate to conduct a non-time-critical-removal-action. This decision was documented in an Action Memorandum, dated August 13, 2004 (Navy, 2004). The removal action was conducted in three phases. The first phase, conducted September 2004 to March 2005, removed soil and debris in the three mounds (TtNUS, 2005c). The second removal action resulted in excavation of hot spot contamination in the subsurface, as well as former drainage piping, a large oil-water separator, and exploratory excavations around remaining building foundations. The third phase consisted of the construction of a replacement stone revetment, which underwent design in 2008 and 2009, and construction was initiated in January 2010. Due to the discovery of asbestos-containing materials (ACM) in soil, the construction work had a hiatus from September 2010 through July 2011 and then resumed from August 2011 through December 2011 under ACM conditions (AGVIQ-CH2M Hill, 2012).

For the SWOS portion of the site (formerly Site 20), a Focused SI was performed by Tetra Tech in March 2006 to determine the source of the soil contamination and identify any other contaminants harmful to human health (TtNUS, 2006a). COPCs at the site exceeded risk-based criteria in samples collected mostly from the northern portion of the site, which bordered the boundary of Site 09, OFFTA at that time. The petroleum at the SWOS site was determined to be contiguous with that present at the adjacent OFFTA site. Elevated concentrations of PAHs were found in surface soil (believed to be associated with fill and old pavement debris) and in subsurface soil (believed to be associated with either fill or co-located petroleum). Lead was present at the SWOS site above screening criteria in five discrete locations, also associated with fill material (TtNUS, 2006a).

Due to the similarities in the types of contaminants at the SWOS and OFFTA sites (petroleum, PAHs, and lead associated with fill); the Focused SI recommended that the two sites be considered as one. As such, Site 20 is no longer considered its own site. Instead, contamination in the SWOS area is considered to be an extension of OFFTA and the FS revision for OFFTA dated 2007 addresses the SWOS portion (TtNUS, 2007c).

Based on additional site data developed during the pre-design steps, the 2002 FS was revised in December 2007 (TtNUS, 2007c). This revision was prepared to reflect a change in the intended use of the property from residential use to parking, roadways, and open space for limited recreational use as defined by the Navy in discussion with RIDEM (Navy, 2006). A draft final was prepared in 2009 to incorporate site changes from the removal action conducted in 2008. The FS was finalized through a technical memorandum that identified minor revisions to the draft final.

Based on the Final FS, the Proposed Remedial Action Plan (Navy, 2010a) and ROD (Navy, 2010b) were completed, which selected use of a cover system and land use controls as the remedy. The land use controls are managed through the establishment of a waste management unit which encompasses the entire site. The final ROD was signed in late September 2010. In September

2012, the ROD was modified through issuance of an ESD (Navy, 2012b). The ESD added asbestos as a contaminant of concern in soil. ACM was discovered during installation of the replacement stone revetment, conducted as part of a non-time critical removal action. Based on the ROD, a land use control remedial design was completed in February 2012. The remedial design for the P-347 Newport Fitness Facility Phase 1A: Katy Field Parking Lot, which constitutes the asphalt/soil cover and revetment extension components of the remedy, was finalized in October 2012 (Tetra Tech, 2012k). Remedial construction was completed in May 2014 and a construction completion close-out report was subsequently prepared. In June 2014, the ROD was further modified through issuance of a second ESD (Navy, 2014b) which clarified that the groundwater cleanup standards are actually groundwater performance standards and modified the performance standard for arsenic. A remedial action completion report and long-term management plan for the site were finalized in September 2014.

Additional information on site use and history can be found in the Final Remedial Investigation Report (TtNUS, 2001b) and the ROD (Navy, 2010b). A chronology of important OFFTA historical events and documents is shown in the table that follows.

Table 4-1
Chronology of Historical Events and Documents
OFFTA, NAVSTA Newport, RI

Event/Document	Date
Fire fighter training facility in operation	1944 – 1972
Brig facility on the SWOS portion of the site served as a Correctional Center	1951-1996
Area used for recreational activities	1976 – 1998
Child day care center in operation	1983 – 1994
Oil found in subsurface soil	1987
Draft Phase 1 RI and HHRA Report completed (TRC, 1992)	January 1992
Marine ERA Report completed (SAIC and URI, 2000)	April 2000
Final RI Report completed (TtNUS, 2001b)	July 2001
FS for Soil, Groundwater, and Marine Sediment (submitted as final) (TtNUS, 2002)	September 2002
Oily soils encountered during construction of the SWOS Applied Instruction Building south of Taylor Drive	2003

Event/Document	Date
Occupational Exposure Assessment for Construction Workers completed for SWOS portion of the site (TtFW, 2004a)	March 12, 2004
Final Action Memorandum, Soil Management and Removal completed (TtNUS, 2004b)	June 1, 2004
Sediment and Groundwater Monitoring Work Plan completed (TtNUS, 2004e)	November 1, 2004
Soil PDI Report completed (TtNUS, 2005c)	April 2005
Soil PDI Report Addendum completed (TtNUS, 2005e)	November 1, 2005
Final Project Close-Out Report (removal of soil mounds) completed (Universe Technologies, 2005)	December 1, 2005
Draft Final Focused SI completed for Site 20 (SWOS) (TtNUS, 2006a)	March 1, 2006
Draft Revised FS completed – incorporated the SWOS area as an extension of OFFTA (TtNUS, 2007c)	December 1, 2007
Soil Removal Action (removal of hot spots, oil water separator) completed	April 2008
Design for Replacement Stone Revetment completed (TtNUS, 2009d)	December 2009
Final FS report (technical memorandum) completed (TtNUS, 2010f)	July 15, 2010
Proposed Plan issued (Navy, 2010a)	July 2010
Record of Decision signed (Navy, 2010b)	September 28, 2010
Removal Action for Installation of Replacement Stone Revetment completed (AGVIQ-CH2M-Hill, 2012)	December 2011
Final Land Use Control Remedial Design completed (Tetra Tech, 2012c)	February 2012
Explanation of Significant Differences adding asbestos as a COC signed (Navy, 2012b)	September 26, 2012
Final Design Submittal #1 P-347 Newport Fitness Facility, Phase 1A: Katy Field Parking Lot completed (Tetra Tech, 2012k)	October 2012
Remedial construction of the asphalt/soil cover and revetment extension completed	May 2014
Explanation of Significant Differences to revise groundwater standards signed (Navy, 2014b)	June 12, 2014

Event/Document	Date
Final Long-Term Management Plan completed	September 2014
Final Remedial Action Completion Report completed	September 2014

4.2 Background

Site 9 (OFFTA) is located on Coaster's Harbor Island, adjacent to Narragansett Bay, in Newport, Rhode Island.

Physical Characteristics

The site occupies approximately 8.2 acres and is bounded to the east, north, and west by Coasters Harbor, part of Narragansett Bay. The SWOS Applied Instruction Building (Building 1362) is located immediately south of the site and the recently constructed P-347 Newport Fitness Facility straddles the eastern site boundary to the south of Taylor Drive. Figure 2-4 of Appendix B.4 shows the site features in 2010, along with planned asphalt/soil cover areas that have since been constructed. The parking lot constructed on the north side of Taylor Drive, as part of the remedial action, is currently being used for parking.

The Site 9 area is generally flat, with surface elevations ranging from 8 to 12 feet above mean low water (MLW). Prior to the 2004-2005 soil removal action, Site 9 included three soil mounds, one approximately 30 feet above MLW (located in the center of the site) and two that were approximately 17 and 13 feet above MLW (located on the western side of the site). These mounds were created when the fire fighting training structures were demolished but were removed during the 2004 to 2005 removal actions. The ground surface slopes gently from the central and southern portions of the site towards the north and northwest. The entire site is located within the 100-year coastal flood zone (Navy, 2010b).

No natural surface water bodies are located within Site 9. Surface runoff from the facility flows overland and through storm sewers to Coasters Harbor (part of Narragansett Bay) at the northern site boundary (Navy, 2010b).

The overburden geology at Site 9 consists of approximately 6 to 27 feet of unconsolidated materials made up of a mixture of fill (construction debris, sand, and gravel), silty sand and gravel, peat and silt, and glacial till consisting of silt, sand, and gravel. This soil consists of native soil and soil imported from off site and used as fill and topsoil during previous site development. The bedrock at the site has been described as a conglomerate and may contain localized units of sandstone and phyllite. Blasting conducted in the central portion of the site during site development may have resulted in localized areas of higher conductivity in the bedrock by increasing its fracture density (Navy, 2010b).

The groundwater table occurs within the overburden across most of the site, except in the eastern and southern portions, where it occurs within bedrock. Groundwater levels range from approximately 4 to 9 feet bgs, and groundwater flow is generally to the northwest toward Narragansett Bay and toward Coasters Harbor to the north and east of the site. A tidal influence study conducted for this site indicated that both the overburden and bedrock aquifers are influenced by tides in areas along the shoreline, but this influence does not extend beyond the shoreline (Navy, 2010b).

Land and Resource Use

Historically, Site 9 was used as a Navy fire fighting training facility and then as a recreational area until it was closed and fenced in 1998 because of potential environmental and human health concerns. Currently, the site is being used for parking and the newly constructed P-347 Newport Fitness Facility is partially located in the southeastern portion of the site. The SWOS Applied Instruction Building is located just south of the site boundary. Land use at the site is anticipated to be industrial/commercial in the future. Specifically, the Navy plans to use the site for parking and roadways (Navy, 2010b).

Groundwater underlying NAVSTA Newport is not used for drinking water. Groundwater flows to the site from urbanized/developed land, is partially affected by seawater, and is not expected to be used in the future. Although RIDEM groundwater classifications have designated groundwater in the area as GB (may not be suitable for drinking water without treatment), it has not been officially classified by EPA as a non-drinking water source (Navy, 2010b). However, as stated in Section 1.2.1, per EPA groundwater remediation guidance, in states without an EPA-approved CSGWPP such as Rhode Island, CERCLA groundwater remediation must meet federal drinking water standards (i.e., Maximum Contaminant Levels [MCLs] and non-zero Maximum Contaminant Level Goals [MCLGs]) and risk-based standards, or more stringent State groundwater standards, unless the water is non-potable.

Drinking water for NAVSTA Newport and most of the residents of Newport and Middletown is supplied and managed by the Newport Water Department, which receives its water supply from a series of seven surface water reservoirs located on Aquidneck Island and two surface water reservoirs on the mainland. Site 9 is not within the watershed of any of the area supply reservoirs. Private wells located within 3 miles of NAVSTA Newport provide drinking water to approximately 4,800 of the estimated 10,000 people that live within 3 miles of NAVSTA Newport. Because of the Site's coastal location, groundwater at Site 9 is downgradient of any potential or existing water sources (Navy, 2010b).

4.3 Remedial Actions

The ROD for Site 9 was issued in September 2010. Following the discovery of asbestos-containing materials in soil during installation of a replacement stone revetment, conducted as part of a non-time-critical removal action (NTCRA), an ESD adding asbestos to the list of site COCs was issued in September 2012. A second ESD was issued in June 2014, which clarified that the groundwater cleanup levels in the ROD are actually groundwater performance standards and modified the performance standard for arsenic.

The basis for the selection of the remedy for Site 9 and implementation of the selected remedy is described below in Sections 4.3.1 and 4.3.2, respectively.

4.3.1 Remedy Selection

The basis for the selection of the remedy for Site 9 is described below.

RAOs were developed for the site to aid in the development and screening of response alternatives, and to mitigate existing and future potential threats to human health and the environment. As summarized in the 2010 ROD, these RAOs are:

- Prevent the ingestion of and direct contact with vadose zone soil and groundwater containing COC concentrations that exceed cleanup levels developed for the OFFTA site.
- Identify and prevent any migration of contaminants from site soil to marine sediment via groundwater transport.

These RAOs are based on current and reasonably anticipated future industrial/commercial site use. Cleanup levels for soil were established in the FS for Site 9 under an industrial/commercial land use scenario. Cleanup levels for groundwater are based on its unlikely use as a drinking water source. However, these groundwater cleanup levels will be used solely for the purpose of comparing groundwater monitoring data collected upgradient of the site, because all contaminated groundwater is limited to within the compliance boundary established around the area of soil contamination that is being managed in place with a soil cover system, and because groundwater downgradient of the site is saline.

As stated in the 2010 ROD, the selected remedy is comprised of the following components:

- Covering of contaminated soil with a geotextile-lined soil cover in grassy areas and/or with asphalt/concrete such that site-wide exposure concentrations meet the established cleanup levels.
- Long-term O&M of the replacement stone revetment (constructed as a part of a separate CERCLA removal action) to prevent soil erosion at the shoreline and to maintain the protectiveness of the asphalt/soil cap.
- Implementation of LUCs to ensure that future use of the property is limited to nonresidential activities, and to ensure that the soil cover and subsurface soils are not disturbed without appropriate safety precautions.
- Implementation of groundwater use restrictions and a long-term monitoring program. The use restrictions would prevent the installation of wells for any consumptive, irrigational, or industrial purpose and would also describe necessary protection measures for workers that may come into contact with groundwater during any future site development activities. Long-term monitoring will evaluate whether site contamination has migrated to off-shore sediments or to groundwater outside of the compliance boundary for the contamination being managed in place.

Areas that are currently paved (or to be paved) for parking, roadways and sidewalks would provide an effective barrier to prevent access to contaminated soil, including soil contaminated with total petroleum hydrocarbons (TPH). While TPH is not a CERCLA-regulated contaminant, it is comingled with other CERCLA contaminants; therefore, this clean up action will effectively address the TPH and comingled CERCLA contaminants.

Remediation goals for soil and groundwater have been included as Table 4-2. Development of these cleanup levels is presented in the 2010 ROD and the 2007 FS (TtNUS, 2007).

Table 4-2
Soil and Groundwater Remedial Goals for OFFTA Site 9
OFFTA, NAVSTA Newport, RI

	Soil		Groundwater	
Constituent of Concern	**Cleanup Level (mg/kg)**	**Basis for Selection**	**Performance Standard* (referred to as Cleanup Level in ROD) (ug/L)**	**Basis for Selection**
Arsenic	6.2	Background	10 **	Cancer Risk **
Chromium	NA	NA	30	Non-Cancer Risk
Lead	500	RIDEM DEC	15	Action Level/MCL
Manganese	NA	NA	300	Health Advisory
Benzene	NA	NA	1	Cancer Risk
2-Methylnaphthalene	NA	NA	128	Non-Cancer Risk
Benzo(a)anthracene	2.110	Cancer Risk=10^{-6}	NA	NA
Benzo(a)pyrene	0.211	Cancer Risk=10^{-6}	NA	NA
Benzo(b)fluoranthene	2.110	Cancer Risk=10^{-6}	NA	NA
Dibenz(a,h)anthracene	0.211	Cancer Risk=10^{-6}	NA	NA

NA – Not Applicable
* Note that a June 2014 ESD (Navy, 2014b) clarified that what the ROD refers to as groundwater cleanup levels are actually performance standards for monitoring groundwater to confirm that no groundwater contamination from the site is migrating beyond the compliance boundary.
** Note that the ROD groundwater cleanup level for arsenic was 0.04 ug/L based on cancer risk; however, the groundwater compliance standard for arsenic was modified via the June 2014 ESD to be equal to the federal MCL of 10 ug/L.

4.3.2 Remedy Implementation

Prior to completion of the ROD in 2010, a NTCRA was initiated to construct a replacement stone revetment along the north shore of Site 9 to control erosion of the shoreline and limit migration of contaminated soil from the site to Coasters Harbor and Narragansett Bay. On-site construction activities originally occurred from January 2010 through August 2010 and were then put on hold following the discovery of asbestos-containing materials in soil. The work plan was modified to accommodate ACM conditions and construction then recommenced in August 2011 through December 2011. A Construction Completion Report was completed in September 2012 (AGVIQ-CH2M-Hill, 2012). The revised work plan included removal and off-site disposal of ACM encountered during excavation activities within the footprint of the revetment. An ESD adding asbestos to the list of site COCs was issued in September 2012. As documented in the ESD, there is the possibility that additional ACM remains comingled with subsurface soil along the shoreline, landward of the revetment; however, the cover and land use controls required by the ROD will prevent future exposures (Navy, 2012b).

The land use control remedial design was completed in February 2012. It is anticipated that the LUC requirements will be implemented in in the fall of2014, following completion of the Long-Term Management Plan for the site in mid-September 2014.

The remedial design for the soil component of the selected remedy was completed in October 2012, and addressed the construction of asphalt/soil cover system, installation of surface water control structures in paved areas, and extension of the stone revetment upward by approximately 2 feet. Implementation of the soil remedy was initiated in 2013 and completed in May 2014. The Remedial Action Completion Report was finalized in September 2014.

Three groundwater wells will be monitored long-term, including existing well SWOS-MW2 and two newly-installed wells. The two new monitoring wells are anticipated to be located west and east of the waste management area (WMA), respectively and upgradient of the WMA boundary.

The ROD for Site 9 requires groundwater monitoring in the area upgradient of the WMA for the COCs listed in the ROD (i.e., arsenic, chromium, lead, manganese, benzene, and 2-methylnaphthalene). The project action levels (PALs) for LTM groundwater monitoring will be selected as the performance standards (cleanup levels listed in the ROD), or the MCLs, and are described in the Sampling and Analysis Plan (SAP) for the LTM program. Procedures related to groundwater monitoring, including well development, stabilization, sampling, quality assurance/quality control (QA/QC) procedures, etc., are presented and described in the SAP, which was finalized in mid-September 2014.

4.3.3 Operations and Maintenance

As the remedy construction was just recently completed and the Long-Term Management Plan was just finalized in September 2014, there have been no O&M activities occurring. The Long-Term Management Plan specifies the future O&M activities, which will include groundwater and sediment monitoring, O&M of the asphalt/soil cover system and stone revetment, and LUC inspections.

4.4 Five-Year Review Findings

4.4.1 Site Inspection

A site inspection for the five-year review was conducted on February 27, 2014. Because of the current status of the site, an inspection checklist was not completed; however, observations are summarized below. Resolution staff viewed Site 9 with a staff person from the NAVSTA Newport Environmental Office. It was apparent that the stone revetment along the northern boundary of the site had been extended and it appeared in good condtion. The new parking area/bituminous pavement cap was in place and being used for parking. It appeared that the landscape caps, bioswales, and bioretention basins had been constructed but permanent vegetation was not yet in place. The new fitness facility had been constructed over a portion of Site 9. It appeared that there was still some remaining construction work to be done on the east and west sides of the parking area where areas were still surrounded by temporary construction fencing and construction equipment and storage containers were on-site. No evidence of soil erosion was observed in non-paved areas and the newly installed bituminous asphalt was in excellent condition. Silt fence was present along the stone revetment and was observed to have fallen down in some areas. On-going maintenance of the silt fence is recommended until the permanent vegetation has been established. Aside from the active remedial construction work, there was no evidence of site uses or activities that are inconsistent with the land use control objectives or use restrictions. Photographs taken during the site inspection are included in Appendix C. A post-construction site walk to support the Remedial Action Completion Report (RACR) was conducted by EPA, RIDEM, Tetra Tech, and the Navy on May 22, 2014. It was noted that the temporary fence had been removed from the boundary of the site since the elements of the soil cover had been completed, addressing potential for exposure to site soils.

4.4.2 Document and Analytical Data Review

This five-year review included a review of relevant Site 9 documents (see Appendix A). No new data has been collected since the initiation of the remedy construction, nor have any documents been prepared which would provide information related to the protectiveness of the remedy.

4.4.3 ARAR and Site-Specific Action Level Changes

The ARARs listed in the 2010 ROD and 2012 ESD for this site are shown in Appendix D, Tables A-1 through A-6, and the table titled "Attachment A". For the soil remedy, the reference to Rhode Island's Remediation Regulations (chemical-specific; Table A-1 in Appendix D) currently specifies "as amended February 2004." The most recent amendment was performed in 2011. None of the changes in the 2011 document affect the protectiveness of the remedy.

The ESD produced in 2012 included additional ARARs related to asbestos. No ARARs have been promulgated since the ESD that would call into question the protectiveness of the remedy.

The ESD produced in 2014 modified the groundwater monitoring performance standard for arsenic to be equal to the federal MCL, instead of a lower risk-based value. Safe Drinking Water Act MCLs were identified as relevant and appropriate for the groundwater remedy in the 2010 ROD.

4.4.4 Progress Since Last Five-Year Review

Site 9 was not included in the last five-year review as it did not have a remedy. Since that time, a ROD was generated, design work was performed, two ESDs was generated, and remedial construction was completed.

4.5 Technical Assessment

The following conclusions support the determination that the remedy selected for Site 9 remains protective of human health and the environment.

4.5.1 Question A. Is the remedy functioning as intended by the decision documents?

As remedy construction was just recently completed and the Long-Term Management Plan for the site was just finalized in September 2014, monitoring and O&M of the remedy have not yet begun and therefore opportunities for optimization have not been identified. There are no early indicators of potential remedy problems. A LUC RD has been prepared and implemented to ensure that future use of the property is limited to non-residential uses, to ensure that the soil cover and other components of the remedy and underlying soils are not disturbed without appropriate safety precautions, and to prevent installation of wells for any consumption, irrigational, or industrial purpose.

4.5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels and remedial action objectives (RAOs) used at the time of the remedy selection still valid?

- **Changes in Exposure Pathways:** There have been no changes in exposure pathways since the implementation of the remedies associated with the 2010 ROD and 2012 ESD.
- **Changes in Land Use:** There have been no changes in land use since the remedy selection of the 2010 ROD and there is no anticipated change in land use.
- **New Contaminants and /or Contaminant Sources:** The identification of asbestos as a COC was addressed in the 2012 ESD.

Additionally, perfluorinated chemicals (PFCs) (including perfluorooctane sulfonate [PFOS] and perfluorooctanoic acid [PFOA]) have been identified as emerging contaminants and were not considered at the time of the 2010 ROD. It is possible that aqueous film-forming foam (AFFF) with PFOA and PFOS was in use during the period of historical fire fighting training operations at the site.

Groundwater samples collected at Site 9 during the RI were not analyzed for PFCs. However, there are no downgradient human receptors for groundwater, and a LUC is in place at the site to prevent use of groundwater for consumption, and therefore the remedy in place under the existing ROD would be protective from PFCs if they are present in groundwater at concentrations above the EPA preliminary health advisory. Finally, it is noted that based on the conceptual site model, foams and other extinguishing materials used on site would mostly have been washed over land or into the surrounding drains and then dispersed within Coasters Harbor, resulting in a lower PFC concentration in local groundwater than one would expect to see in a landlocked fire training facility where the material was simply dispersed on the ground. The Navy plans to conduct an assessment to evaluate whether AFFF was used at the site and whether there was a potential release of PFOA/PFOS. If the assessment indicates that AFFF was used at the site, then the Navy intends to conduct sampling for PFOA/PFOS.

Otherwise, there have been no new contaminants or contaminant sources observed since the remedy selection of the 2010 ROD.

- **Remedy Byproducts:** There have been no byproducts generated as a result of the remedies associated with the 2010 ROD.
- **Changes in Standards Newly Promulgated Standards and TBCs:** As part of this five-year review, ARARs and TBC guidance presented in the ROD and ESD were reviewed, and current ARARs were also reviewed. No new standards have been promulgated that would affect the protectiveness of the remedy.
- **Changes in Toxicity and Other Contaminant Characteristics:** While there have been changes in toxicity or other characteristics of site-related contaminants, none of these changes would call into question the protectiveness of the soil remedy. While calculations for arsenic now consider a bioavailability factor (USEPA, 2012b), the cleanup level would not be raised above the site background value.

With respect to the groundwater performance standards presented in the ROD, there have been changes to toxicity values for benzene, chromium, and 2-methylnaphthalene since the time of PRG development. For chromium, the performance standard was developed based on non-cancer toxicity. Since that time, hexavalent chromium was determined to be a cancerous mutagen. While the likelihood of the detected chromium at the site being hexavalent chromium is low, Region I EPA conservatively assumes that, without specific lines of evidence showing otherwise, chromium is hexavalent chromium. Therefore, if the performance standard calculations were performed under the assumption of chromium being hexavalent chromium, the resulting value would be approximately 100 times lower than the concentration presented in the ROD. However, the history of the site did not indicate presence or disposal of chromium in hexavalent form, and the presence of chromium and other metals was assumed to be present as a result of fire training (long term combustion of oils and other fuel sources). The RI (Tetra Tech, 2001) notes that metals concentrations (including chromium) in filtered samples were low as compared to unfiltered samples, indicating that these metals in groundwater are likely associated with particulate and colloidal matter. Hexavalent chromium is typically associated with industrial processes such as plating operations, pigmentation in inks and dyes, wood preservatives and leather tanning operations, none of which are associated with the site. The calculated risk-based performance standards for benzene and 2-methylnaphthalene would also be lower than the concentrations presented in the ROD. As discussed in the ROD, these performance standards assume that the groundwater will be used in the future as a drinking water source even though it is not considered an actual potable water supply. Using current methods for developing cleanup levels, drinking water standards (i.e., MCLs) or RIDEM GA groundwater objectives are typically selected as the cleanup levels, even if the risk-based values are below those standards/objectives, unless the presence of multiple contaminants creates an unacceptable cumulative risk. This would result in the cleanup levels being increased for benzene (5 ug/L) and chromium (100 ug/L). There is no expected impact to the protectiveness of the remedy based on the groundwater performance standards.

- **Expected Progress toward Meeting RAOs:** The RAOs are expected to be achieved upon completion of the remedy.
- **Changes in Risk Assessment Methodologies:** While there have been changes to human health risk assessment methods since the baseline risk assessment was performed (e.g., revisions to how early-life exposures to mutagens are handled; updated methods for dermal and inhalation evaluations), these revised methods have been accounted for in the supplemental documents/calculations submitted after the baseline risk assessment. The risk-based cleanup levels in the ROD were based on site-specific exposure parameters, which is

still acceptable. However, if the groundwater performance standards were developed currently, based on current Region I EPA recommendations at other sites, it would be appropriate to apply default exposure parameters for resulting cleanup levels which are consistent across the region. When combined with the items discussed above regarding changes in toxicity and use of drinking water standards for cleanup level development, this may only have minor impacts to the performance standards for 2-methylnaphthalene and chromium. Similar to the discussion above, there is no expected impact to the protectiveness of the remedy.

A recent EPA directive (USEPA, 2014) was published which provides revised default exposure parameter assumptions for various exposure scenarios. Many of these parameters differ from those utilized to generate the risk-based cleanup levels presented in the ROD. With respect to the soil RGs, there are changes to the residential skin surface areas for both the adult (increase from 5,700 cm^2 to 6,032 cm^2) and child (decrease from 2,800 cm^2 to 2,690 cm^2), the adult body weight (increase from 70 to 80 kg), and the adult exposure duration (from 24 to 20 years). These changes would result in a slight increase in the cleanup levels (to maintain the same risk level) for PAHs with risk-based RGs: benzo(a)anthracene and benzo(b)fluoranthene would change to 2.9 mg/kg; and benzo(a)pyrene and dibenzo(a,h)anthracene would change to 0.29 mg/kg.

Similarly, based on revised exposure parameters related to drinking water (reduction in child ingestion rate from 1 to 0.78 L/day, increase in adult ingestion rate from 2 to 2.5 L/day, decrease in child skin surface area for bathing from 6,600 cm^2 to 6,378 cm^2, increase in adult skin surface area from 18,000 cm^2 to 20,900 cm^2, change in adult body weight and exposure duration as noted for soil, reduction in child bathing exposure time from 1 to 0.54 hrs/event, and an increase in adult bathing exposure time from 0.58 to 0.71 hrs/event), the cleanup level for 2-methylnaphthalene would be lower (36 ug/L) than that presented in the ROD. As discussed in the ROD, these cleanup levels assume that the groundwater will be used in the future as a drinking water source even though it is not considered an actual potable water supply. As noted above, there is no expected impact to the protectiveness of the remedy based on the groundwater cleanup levels.

4.5.3 Question C. 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.

4.5.4 Summary of the Technical Assessment

The following conclusions support the determination that the remedy selected for Site 9 remains protective of human health and the environment.

<u>The remedy is functioning as the decision documents intended</u>. Remedy construction was recently completed and the Long-Term Management Plan for the site was just finalized in September 2014. O&M of the remedy will be conducted in accordance with the Long-Term Management Plan. The asphalt/soil cover system and replacement stone revetment are in place and preventing exposure to contaminated soils. Land use controls are in place and enforced to prevent unauthorized use of the site.

<u>The exposure assumptions and RAOs used at the time of the remedy selection of the 2010 ROD are still valid</u>. There were changes to toxicity values and cleanup level development methods which would change the groundwater cleanup levels if calculated today. However, these changes do not impact the selected remedy. PFCs (including PFOS and PFOA) are emerging contaminants that were not considered at the time of the RI and ROD and AFFF containing PFOS and PFOA may have been used during historical fire-fighting training operations at the site. Further evaluation is needed to evaluate whether AFFF was historically used and whether there was a potential release of PFOS/PFOA.

Since the remedy selection and follow-up ESD: there have been no changes in land use and there is no anticipated change in land use; there have been no new contaminants or contaminant sources observed; there are no byproducts generated as a result of the remedy at this time; and there have been no changes in exposure pathways since the implementation of the remedies.

<u>No additional information has been identified that would call into question the protectiveness of the remedy under existing conditions</u>.

4.6 Issues

The following presents a summary of issues identified during the during the technical assessment or other five-year review activities. No issues have been identified that would call into question the current or future protectiveness of the remedy.

Issues	Affects Protectiveness (Y/N)	
	Current (Y/N)	Future (Y/N)
PFCs (including PFOS and PFOA) are emerging contaminants that were not considered at the time of the RI and ROD and AFFF containing PFOS and PFOA may have been used during historical fire-fighting training operations at the site.	N	N

4.7 Recommendations and Follow-Up Actions

Recommendations/Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Follow-up Actions: Affects Protectiveness (Y/N)	
				Current	Future
Evaluate whether AFFF was used at the site and whether there was a potential release of PFOA/PFOS as part of an assessment.	Navy	USEPA	June 30, 2015	N	N
If the assessment indicates that AFFF was used at the site, then develop a sampling plan to assess the presence/asbence of PFOA/PFOS.	Navy	USEPA	June 30, 2016 (for completion of draft work plan)	N	N

4.8 Protectiveness Statement

The remedy at Site 9 (OU 3) is protective of human health and exposure pathways that could result in unacceptable risks are being controlled. The asphalt/soil cover system and replacement stone revetment are in place and preventing exposure to contaminated soils. Land use controls are in place and enforced to prevent unauthorized use of the site. The Navy developed a Long-Term Management Plan to monitor near-shore sediment to evaluate whether contamination from soil and groundwater is migrating and adversely impacting sediment. An evaluation will be conducted prior to the next five-year review to determine whether AFFF was used at the site and whether there was a potential release of PFOA/PFOS, which are emerging contaminants, and then sampling will be conducted, if required, to ensure protectiveness.

4.9 Next Review

The next five-year review of NAVSTA Newport will be completed in December 2019.

5.0 TANKS 53 AND 56 AT SITE 13 – TANK FARM 5 (OU 2)

5.1 History and Site Chronology

Tanks 53 and 56 are located within Tank Farm 5, Site 13, at NAVSTA Newport in Middletown, Rhode Island. Tanks 53 and 56 were constructed in 1942 of reinforced concrete and had a capacity of approximately 2.52 million gallons. The tanks were constructed in blasted bedrock sockets and were approximately 116 feet in diameter and 33 feet deep. Approximately 4 feet of soil covered the tanks, and they were surrounded by a 4-foot wide, crushed-rock ring drain system. The ring drain system was installed to remove groundwater from around the tank and to prevent tank damage caused by hydraulic stresses and tank flotation.

Fuel oils were stored in the tanks from approximately World War II through 1974. In 1975, as part of an oil recovery program, the Navy began using the two tanks to store used oil for alternate use as a heating fuel oil (TRC, 1993). The waste became regulated by RCRA in 1980. In 1982, RIDEM adopted hazardous waste regulations that were applicable to the waste oils stored in Tanks 53 and 56. Subsequent sampling of the waste oils in 1983 indicated that the oil and sludge layers were considered hazardous due to elevated concentrations of lead. Also, the water phase was found to contain dissolved hydrocarbon compounds.

In 1984, the Navy decided to discontinue use of the tanks. In 1985, results of a groundwater sampling round using monitoring wells located within the Tank 53 ring drain indicated the presence of chlorinated and aromatic hydrocarbon compounds. In September 1985, RIDEM issued NAVSTA Newport a Hazardous Waste Facility Permit for Tanks 53 and 56, which included a stipulation to remove the contents and close the tanks in accordance with federal hazardous waste regulations and RIDEM requirements applicable for USTs used for oil and hazardous substance storage.

Further investigations conducted in 1986 confirmed the presence of VOCs in the Tank 53 ring drain. Lower concentrations of VOCs were detected in groundwater up to 150 feet downgradient of Tank 53. In January 1990, oil was observed overflowing from the tank gauging chamber and onto the ground as a result of surface water entering the tank through cracks in the tank roof. The Navy took immediate action to lower the level in the tank to prevent further overflow. RIDEM issued an Immediate Compliance Order, which required that the Navy remove the contents of the tank, begin remediation of contaminated groundwater and soils surrounding the tank, and initiate an investigation to determine the extent of oil contamination in the vicinity of Tank 53.

In 1992, pursuant to the Immediate Compliance Order, the Navy completed the removal of sludge, oil, and water from the tank, and cleaned the interior surfaces of the tank. Also in 1992, an Interim Action ROD was signed by EPA and the Navy that selected a management of migration alternative consisting of groundwater extraction, treatment, and discharge as an interim remedial action for the Tanks 53 and 56 site. Additional pertinent site activity since implementation of the Interim Action ROD is included below in Section 5.3.

Additional information on site use and history can be found in the Remedial Investigation Report (TRC, 1992) and the Soil Investigation Report – Tank Farm 5 – Tanks 53 and 56 (TRC, 1993a). A chronology of important events regarding the operation and remedy for Tanks 53 and 56 at Tank Farm 5 is shown in the table that follows.

Table 5-1
Chronology of Historical Events and Documents
Tanks 53 and 56 at Tank Farm 5, NAVSTA Newport, RI

Event/Document	Date
Tank Farm 5 constructed.	Early 1940s
Tank Farm 5 used for fuel storage.	World War II to 1974
Began using Tanks 53 and 56 for waste oil storage.	1975
Ceased using Tanks 53 and 56 for waste oil storage.	1984
Tank Closure Plan for Tanks 53 and 56 was completed.	September 1987
NETC Newport listed on NPL.	November 21, 1989
Groundwater investigation conducted as part of Tanks 53 and 56 closure investigation.	June 1991
Contents of Tanks 53 and 56 were removed and the tank interiors were cleaned.	Summer 1992
Interim Action Record of Decision (interim groundwater pump and treat remedy) (Navy, 1992).	September 29, 1992
Soils investigation conducted as part of Tanks 53 and 56 closure investigation (TRC, 1993a).	October 1992
Design for a groundwater extraction and treatment/ containment system completed.	1993
Construction of system completed.	December 1994

Event/Document	Date
Operation of the groundwater extraction and treatment system began.	December 1994
Tank 53 source removal action contaminated soil surrounding the tank removed.	1995 - 1996
Final Tank Closure Certification Report, Tanks 53 and 56 completed.	September 6, 1996
Groundwater extraction and treatment system was shut off	December 1996
First post-remedial action groundwater sampling round.	December 1996
Second post-remedial action groundwater sampling round.	March 1997
Third post-remedial action groundwater sampling round (B&RE, 1997e).	August 1997
Demolition of the tanks.	1998 -1999
Installation of two bedrock monitoring wells, per RIDEM request.	Late 1999
First Five-Year Review completed (TtNUS, 1999d).	December 1999
System used for treatment of water drained from McAllister Point dredged sediment.	2001
Fourth post-remedial action groundwater sampling round (TtNUS, 2002a).	May 2001
Repairs to monitoring well network and redevelopment of all wells.	May 2004
Fifth post-remedial action groundwater sampling round (TtNUS, 2005b).	May 2004
Second Five-Year Review completed (TtNUS, 2004f).	December 2004
Basis of Design Report for Demolition and Disposal of Groundwater Operable Unit Treatment System completed.	January 2008
Demolition of the groundwater extraction and treatment system.	October 2008
Project Close-out Report completed for the groundwater extraction and treatment system demolition (Sovereign, 2009).	February 2009
Third Five-Year Review completed (TtNUS, 2009c).	December 2009
Groundwater Monitoring Well Abandonment Summary Report completed (TtNUS, 2011h).	June 2011

5.2 Background

Tank Farm 5, Tanks 53 and 56, (Site 13) is located in the central portion of the NAVSTA Newport facilities, in Middletown, Rhode Island (Figure 3-1 of Appendix B.5). The 85-acre tank farm is the site of 11 underground storage tanks (USTs), numbered 49 through 59. Tanks 53 and 56 are located in the western portion of the Tank Farm 5 site. Tank Farm 5 is bordered to the northwest by Defense Highway, to the southwest by a cemetery, to the east by residences, and to the northeast by Greene's Lane.

Physical Characteristics

A paved road provides access to the site, passing between the tank locations in a loop. Site topography generally slopes to the north. Gomes Brook is located approximately 1,200 feet north of Tanks 53 and 56, passing through the northeastern portion of the site and draining toward the west into Narragansett Bay. The tanks are located in the gradually sloping central portion of the site.

Overburden materials include fill around the tanks underlain by native sand and silt and glacial till layers. The till layer ranges from 1 to 21 feet in depth and overlies highly weathered bedrock. The zone of weathered bedrock, up to 22 feet in depth, overlies competent bedrock.

Groundwater in the southern portion of the site, where Tanks 53 and 56 are located, flows generally west-northwest toward Narragansett Bay. Groundwater in the northern portion of the site flows toward Gomes Brook. As previously discussed in Section 1.2.1, RIDEM has classified groundwater at Tank Farm 5 as GA (RIDEM, 2010). The GA classification indicates that the groundwater is known or presumed to be of drinking water quality. RIDEM does not have an EPA-approved CSGWPP and therefore, EPA does not recognize RIDEM's classification system. EPA expects that all groundwater will be remediated to its beneficial use.

5.3 Remedial Actions

A ROD for the Interim Remedial Action – Groundwater Operable Unit – Tank Farm 5, Tanks 53 and 56, (Site 13) was signed by the NAVSTA Newport Commanding Officer and the Regional Administrator of EPA Region I in September 1992, with RIDEM concurrence. The objective of the interim remedial action ROD was to remediate contaminated groundwater around Tanks 53 and 56. At the time it was anticipated that a final ROD including both groundwater and source control components would be issued within 5 years. Since the other nine tanks in Tank Farm 5 were used for storage of fuels only, they are being investigated under the RIDEM UST program (see Section 6.6).

The basis for the selection of the interim remedy for Tanks 53 and 56 at Tank Farm 5 (Site 13) and implementation of the selected interim remedy is described below in Sections 5.3.1 and 5.3.2, respectively.

5.3.1 Remedy Selection

Remedial action objectives were developed based on information obtained from various investigations regarding contaminants and potential exposure pathways. The following four RAOs were used to develop and screen alternatives to mitigate existing and future potential threats to human health and the environment.

- Minimize further migration of the contaminated groundwater;
- Minimize any future negative impact to Gomes Brook and Narragansett Bay resulting from the discharge of contaminated groundwater;
- Reduce the potential risk associated with the future ingestion of contaminated ground water; and
- Reduce the time required for restoration of the aquifer.

The selected remedy was an interim remedial action for groundwater only. Soil contamination was evaluated separately and was envisioned as part of a final ROD for groundwater and soils. The components of the interim remedy as described in the 1992 ROD included:

- Groundwater extraction to contain contaminated groundwater and prevent its migration and potential discharge to surface water bodies;
- Groundwater treatment using coagulation/filtration and UV oxidation to treat organic and inorganic contaminants;
- Discharge of treated groundwater to the local wastewater treatment facility; and
- Continued groundwater monitoring to confirm the capture of contaminated groundwater.

5.3.2 Remedy Implementation

In 1993, the design for the groundwater extraction and treatment/containment system was completed. Construction of the system was completed in December 1994. The system was designed to contain groundwater in the vicinity of Tank 53 and to prevent it from migrating further toward Narragansett Bay. The system consisted of two sets of extraction wells, a treatment system, and groundwater monitoring wells.

The groundwater extraction and treatment system operated during the period from December 1994 to December 1996, when the system was shut down. The system was demolished in October 2008 because analytical results for influent samples were below the cleanup levels established in the Interim Action ROD. Also within this time period (1995 to 1996) the Navy conducted a source removal action at Tank 53, as discussed below, which likely contributed to meeting the established cleanup levels in groundwater.

While the selected interim remedial action for the Tanks 53 and 56 site is a groundwater management of migration remedy, and does not have a “source control” component as part of the Interim Action ROD implemented under CERCLA, the Navy elected to also implement a separate source removal action. This action involved removal of soil surrounding Tank 53. As stated in the Interim Action ROD, the soil contamination in the vicinity of Tanks 53 and 56, and soil cleanup strategies were to be evaluated separately, with a separate ROD determining action required to address soil contamination. The investigation and remediation of groundwater contamination is addressed under CERCLA, and by the Interim Action ROD signed by EPA and the Navy in September 1992. A final ROD is still needed to document the completion of the Management of Migration remedy under the interim ROD for Tanks 53 and 56.

Soil conditions at the tanks were investigated and reported separately, as summarized in “Soil Investigation, Tank Farm 5, Tanks 53 and 56” (TRC, 1993a). The report presented the Navy’s selected remedial alternative for soil at Tanks 53 and 56, and from 1995 through 1996, contaminated soils surrounding Tank 53 were removed and disposed of off-site under a RCRA action. Remediation of soil near Tank 56 was determined not necessary, based on sampling and analytical data. The ring drain at Tank 53 was re-constructed with clean stone/soils. However, the ring drain pumping system was not placed back into operation, rather, the tank was ballasted with clean water to address concerns about flotation.

Three post-remedial action groundwater sampling events were conducted in December 1996, March 1997, and August 1997. EPA MCLs and RIDEM GA objectives were not exceeded except for total metals in the unfiltered groundwater samples collected using bailer methods (B&RE, 1997e). The results of the three groundwater sampling events were summarized in a Technical Memorandum (B&RE, 1997e) which recommended that the groundwater extraction and treatment system, shut down in December 1996, remains shut down.

RIDEM's February 17, 1998 approval for the demolition of tanks at Tank Farm 5 also requested the installation of two additional bedrock wells downgradient of Tank 53 in conjunction with the Tanks 53 and 56 groundwater investigation operable unit. RIDEM also requested performance of a soil gas survey to assist in locating the two bedrock wells in optimal locations. The survey was completed and the "Passive Soil Gas Investigation Report, Tanks 53 and 56, Tank Farm 5" (TtNUS, 1999c) presented the results of the soil gas investigation and recommended proposed locations for two bedrock monitoring wells downgradient of Tank 53, per RIDEM's request. Tanks 53 and 56 were demolished along with the other nine tanks in Tank Farm 5 from late 1998 through early 1999 as part of UST closure activities performed by the Navy in accordance with RIDEM regulations. Further details are provided in Section 6.6.

The two bedrock wells were installed in late 1999 and sampled in January 2000. Groundwater sampling round number four was conducted in May 2001. Due to damaged wells, it was recommended that the monitoring network be repaired, redeveloped, surveyed, and resampled. Well repair occurred in May 2004 and a fifth round of groundwater sampling was conducted later that same month. The analytical results for round 5 of sampling indicated that detected concentrations did not exceed federal MCLs or RIDEMs GA standards, except for arsenic in the unfiltered sample collected from MW-4 (TtNUS, 2005b). This exceedance and additional groundwater sampling results are further explained in Section 5.4.2. Based on the results of that sampling round it was determined that detections did not exceed MCLs or RIDEM GA standards, that the remedial action was successful, and that no additional sampling was required. The groundwater extraction and treatment system was demolished and the extraction wells were abandoned in accordance with RIDEM regulations in October 2008. These activities were documented in the Project Close Out Report (Sovereign, 2009). The monitoring wells associated with groundwater monitoring network were abandoned in accordance with RIDEM regulations in 2010 (TtNUS, 2011h).

5.4 Five-Year Review Findings

5.4.1 Site Inspection

No formal site inspection was conducted for this five-year review since the remedy is considered complete and no components of the interim remedy remain at the site. A brief visit to the Tanks 53 and 56 area was made by Resolution staff on October 22, 2014 in conjunction with field activities in a different portion of Tank Farm 5. The goal was to confirm that the treatment system components that were indicated as remaining at the site in the previous five-year review report had been removed. That was confirmed and no other noteworthy observations were made during the visit.

5.4.2 Document and Analytical Data Review

No data has been collected and no documents have been prepared for the interim remedy since the previous five-year review, with the exception of a brief report documenting abandonment of monitoring wells that were associated with the interim remedy and not expected to be needed in the future (TtNUS, 2011h).

The following review was included in the previous five-year review report (TtNUS, 2009c):

> Following the shutdown of the groundwater extraction and treatment system in 1996, three of four planned rounds of quarterly sampling were conducted to confirm whether the operation of the system should be terminated or whether additional operation and sampling was necessary.
>
> Analytical results from 11 wells (monitoring and extraction wells) sampled during the three events conducted between December 1996 and August 1997, following implementation of the interim remedial action, are summarized in the "Technical Memorandum – Summary of Analytical Results – Sample Round 3 for Tank 53 – Tank Farm 5" (B&RE, 1997e). Groundwater samples were analyzed for VOCs, SVOCs, metals, pesticides/PCBs, and petroleum hydrocarbons. The 1997 report stated that results for potential contaminants of concern did not exceed current (as of August 1996) RIDEM Class GA groundwater quality standards. The report concluded that based on the analytical results from these events and from previous investigations "it appears that the removal action that the Navy conducted in the ring drain has effectively removed the source of contamination and concentrations of potential contaminants of concern have attenuated. Consequently, the extraction and treatment system should remain shut down" (B&RE, 1997e).
>
> A bedrock groundwater investigation was completed in 1999 in response to a request from RIDEM. Two locations were selected and two bedrock wells were installed in each location in

late 1999 and sampled in early 2000. The groundwater sample results showed no contaminants detected above GA standards and no detections of gasoline- or diesel-range organics (TtNUS, 2000).

A fourth groundwater sampling round was conducted in May 2001. Samples were again collected using bailers. Two wells were open and damaged; the analytical results were not considered valid (TtNUS, 2002a). Exceedances of the RIDEM GA groundwater objective and federal MCL for bis(2-ethylhexyl)phthalate were noted in four wells. The fourth sampling round report recommended that the surface seals and protective casings on the two wells be repaired or replaced, and that all the wells in the monitoring network be repaired, redeveloped, surveyed, and resampled (TtNUS, 2002a). These recommendations were implemented in May 2004, followed by completion of the fifth sampling round.

The fifth sampling round used the EPA low-flow sampling protocol, which is not only the current groundwater sampling standard, but also avoids the turbidity impacts seen in the unfiltered results from the prior four sampling rounds (TtNUS, 2005b). The analytical results for Round 5 indicated detected concentrations did not exceed EPA's drinking water standards and RIDEM's GA drinking water objectives except for arsenic in the unfiltered sample collected from MW-04 (40.3 μg/L). No filtered samples exceeded the EPA arsenic MCL of 10 μg/L. Monitoring well MW-04 was sampled using the "bailer method" because there was insufficient head above the pump intake to force sufficient water into the bladder pump. The arsenic exceedence at MW-04 may be due to turbidity from using a bailer to sample this well. Based on analytical results from Rounds 1 through 5, the Technical Memorandum for Sample Round 5 (TtNUS, 2005b) concluded that the removal action conducted in the ring drain had effectively removed the source of contamination and concentrations of potential contaminants of concern had attenuated. The Round 5 Technical Memorandum recommended that the extraction and treatment system be abandoned and demolished, and a No-Further-Action Record of Decision be prepared as a final ROD for environmental closure of the Tank 53/56 site. The treatment system was demolished in October 2008.

A Final ROD has not been issued.

5.4.3 ARAR and Site-Specific Action Level Changes

The ARARs listed in the decision documents for this site are shown in Appendix D, Tables D-4 through D-6. There is no change from the review documented in the previous five-year review report (TtNUS, 2009c), except that Rhode Island's Remediation Regulations were most recently amended in 2011. None of the changes in the 2011 document affect the protectiveness of the remedy. Since the ROD was issued, the EPA's drinking water standard and RIDEM's GA drinking water objective for arsenic have both been lowered from 50 μg/L to 10 μg/L. The change does not affect the findings of this five-year review, since as noted in Section 5.4.2, arsenic concentrations during the most recent groundwater sampling event were all below the current 10 μg/L, except for one well that had high turbidity in the unfiltered sample.

5.4.4 Progress Since Last Five-Year Review

The previous third five-year review, conducted in 2009, concluded that the source of contamination had been removed and the groundwater treatment system was demolished due to attainment of RAOs. The report also concluded that no significant concentrations of COCs were detected during the five rounds of groundwater monitoring if metals results for samples collected by bailer are discounted due to turbidity levels in the samples. The report concluded that the site should be considered as "Remedy Complete" and no further groundwater monitoring need be conducted.

The previous five-year review report recommended that existing monitoring wells be abandoned in accordance with RIDEM regulations and that remaining filter vessels identified during the site inspection be removed from the site. A recent visit to the Tanks 53 and 56 area confirmed that the filter vessels had been removed. As described earlier, monitoring wells associated with interim remedy were abandoned in accordance with RIDEM regulations in 2010 (TtNUS, 2011h). The report also recommended that a final ROD be prepared for the site. This action has not yet been completed; however, the Navy plans to prepare a final decision document to document No Further Action for the interim remedial action at Tanks 53 and 56 (*see also* Section 5.7).

5.5 Technical Assessment

The following conclusions support the determination that the interim remedy selected for Tanks 53 and 56 at Tank Farm 5 remains protective of human health and the environment.

5.5.1 Question A. Is the remedy functioning as intended by the decision documents?

There have been no activities or changes to the site since the previous five-year review report that would change the response provided in that report, which supported that the remedy is protective of human health and the environment. The treatment system was dismantled and groundwater monitoring had ceased prior the previous five-year review.

5.5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels and remedial action objectives (RAOs) used at the time of the remedy selection still valid?

There have been no activities or changes to the site since the previous five-year review report that would change the response provided in that report, which supported that the remedy is protective of human health and the environment. RAOs were met prior to the previous five-year review. The previous five-year review had documented that groundwater monitoring results from the most recent May 2004 fifth monitoring round showed no site contaminants above current RIDEM standards and federal MCLs, with the exception of one arsenic result for an unfiltered sample, which exceeded the current RIDEM standard and federal MCL of 10 μg/L. The well had high turbidity in the unfiltered sample, possible because of the use of a bailer. Note that the arsenic cleanup goal at the time of remedy selection was based on the MCL of 50 μg/L.

5.5.3 Question C. 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 interim remedy.

5.6 Issues

The following presents a summary of issues identified during the during the technical assessment or other five-year review activities. No issues have been identified that would call into question the current or future protectiveness of the remedy.

Issues	Affects Protectiveness (Y/N)	
	Current (Y/N)	Future (Y/N)
A final decision document needs to be prepared to document No Further Action as the final remedy for Tanks 53 and 56.	N	N

5.7 Recommendations and Follow-Up Actions

Recommendations/Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Follow-up Actions: Affects Protectiveness (Y/N) Current	Future
Prepare a final decision document for Tanks 53 and 56 to document No Further Action.	Navy	USEPA	December 2016 (final)	N	N

5.8 Protectiveness Statement

The interim remedy for Tanks 53 and 56 at Tank Farm 5 (Site 13, OU 3) is protective of human health and the environment. The source of contamination has been removed, and the groundwater treatment system has been demolished and the monitoring wells abandoned due to attainment of RAOs. The most recent fifth groundwater sampling round met RIDEM standards and federal MCLs. A final decision document will be prepared to document No Further Action as the final remedy for Tanks 53 and 56.

5.9 Next Review

The next five-year review of NAVSTA Newport will be completed in December 2019.

6.0 OTHER SITES AND STUDY AREAS

6.1 Site 4 – Coddington Cove Rubble Fill Area

Site Description and Historical Site Use

The Coddington Cove Rubble Fill (CCRF) Area is a small area (less than 8 acres) located in Newport, Rhode Island, that was used from 1978 to 1982 as an area for general fill. Records researched for the IAS indicated that the area was used for the disposal of rubble, concrete, asphalt, slate, wood, brush, and possibly small quantities of ash (Navy, 2002a). The area lies on the shoreward side of Coddington Highway, between the highway and the rail spur, south of the former Derecktor Shipyard area. A secure, fenced storage area is located directly north of the site and the Defense Automated Printing Service/Supply Department (Building 47) is to the east. A Navy housing development abuts the south and west boundary of the CCRF. The area is fenced, although there are openings in the fence on the southwest side. The site is currently unoccupied.

A record review and field sampling plan was issued in May 2004. The record review, including historical aerial photographs, was used to develop the field sampling plan to gather preliminary information through a focused field investigation (TtNUS, 2004a). The field sampling plan included excavation of test pits in areas of suspected fill and collection of soil and groundwater samples to characterize the waste materials in the fill areas. The field work was completed in May and July 2004. Soil boring and groundwater samples were collected in September 2004 as part of a Phase 2 Environmental Site Assessment. The report recommended additional sampling.

CERCLA Response Actions

A draft SASE report was issued in April 2011 and a revised draft SASE report was issued in May 2012. The SASE concluded that contaminants detected at CCRF pose minimal concern for risk to human health and the environment. According to the report, some contaminants found in soil are likely a result of the presence of fill, but contaminants in surface water and sediment are likely to be the result of road runoff and storm drainage from the urban surroundings. Pesticides present at CCRF are likely a result of past spraying operations. The site is a partial wetland and cannot be used for residential purposes, and it is currently protected from development by wetland protection regulations. Access to the site is restricted by physical barriers including fences, wetlands, and a railway. Contaminants found in site media have little potential of migrating offsite to impact other areas or media surrounding the Site. In January 2013, the human health and ecological risk assessment portions of the draft SASE report were revised, and the Navy and regulatory agencies determined that additional groundwater characterization would be necessary prior to rendering a final decision on whether further action is required at CCRF. The final SASE report was issued in August 2014. Groundwater was deferred to a supplemental groundwater assessment. The focused groundwater sampling field program occurred in early 2014, which included analysis of metals and geochemical parameters to refine the conceptual site model (CSM) and to quantify whether there are site-related potential risks to groundwater. The analytical results are being evaluated and a supplemental report in the form of a Technical Memorandum (Tech Memo) is being prepared. The Tech Memo will be used as an addendum to the final SASE report, with a recommendation as to whether further action is required at CCRF.

Site Chronology

A list of important CCRF historical events and documents and relevant dates in site chronology is shown below in Table 6-1. The identified events are illustrative, not comprehensive.

Table 6-1
Chronology of Historical Events and Documents
CCRF, NAVSTA Newport, RI

Event / Document	Date
Area used for the disposal of general fill	1978 – 1982
Phase 2 Environmental Site Assessment Report completed (Land America Commercial Services, 2004)	October 15, 2004
Revised Draft SASE report completed (Tetra Tech, 2012e)	May 8, 2012
Final Work Plan (SAP) for supplemental groundwater sampling (Resolution, 2013a)	November 19, 2013
Final SASE report completed	August 2014

CERCLA Path Forward

There have been no remedial actions under CERCLA at the CCRF Area. The CERCLA path forward for CCRF is dependent on the final outcome of the SASE in terms of whether No Further Action is appropriate or whether the site needs to enter the RI/FS process. If a remedial action is selected for the CCRF Area under CERCLA in the future, the protectiveness of the selected remedy will be reviewed in subsequent five-year reviews for NAVSTA Newport.

6.2 Site 7 – Tank Farm 1 (OU 13)

Site Description and Historical Site Use

Tank Farm 1, located in Portsmouth, Rhode Island, was constructed in the early 1940s and was in operation by the Navy between World War II and 1970. There are six 60,000-barrel USTs that were used for storage of diesel oil, fuel oil, jet fuel, 100-octane gasoline, and aviation fuel. According to previous investigation reports, tank bottom sludges were placed in pits on the site. Approximately 6,000 gallons of these sludges were reportedly disposed of in this manner on the site (Navy, 2002e). The site was included in the 1983 IAS and the 1986 CS. A fence around the tank farm area restricts access to the site.

The Defense Energy Support Center (DESC) was licensed by the Navy to use the tank farm as part of Defense Fuel Support Point (DFSP) Melville for petroleum fuel storage and distribution between 1974 and 1998. The tanks were cleaned and ballasted between 1996 and 1997 and the site was administratively closed by DESC in 1998 (TtNUS, 2001b). Further investigations are being planned by DESC to fully characterize and remediate, under the RIDEM UST regulations, any petroleum contamination that occurred as a result of DESC operations. The UST program is mandated by the federal Resource Conservation and Recovery Act.

CERCLA Response Actions

The ethyl blending plant on site (AOC-001) and Transformer Vaults 2 and 3 are currently identified as areas to be investigated and addressed under CERCLA. A Data Gaps Assessment (DGA) for these areas has been performed. A draft final DGA report has been completed and is expected to be finalized late 2014. The final DGA report will be used to initiate an FS. The draft FS report is expected to be submitted for regulatory review in late 2014.

Site Chronology

A list of important Tank Farm 1 historical events and documents and relevant dates in site chronology is shown below in Table 6-2. The identified events are illustrative, not comprehensive.

Table 6-2
Chronology of Historical Events and Documents
Tank Farm 1, NAVSTA Newport, RI

Event/Document	Date
Tank Farm constructed	1940s
Tank Farm in operation by the Navy	1940s – 1970
Tank Farm in operation by the DESC	1974 – 1998
CS completed (Loureiro Engineering Associates and York Wastewater Consultants, 1986)	May 1986
DFSP begins investigations	August 1992
Tanks were cleaned and ballasted	1996 – 1997
Site was administratively closed by the DESC	1998
Final Data Gaps Work Plan completed (Tetra Tech, 2012g)	July 2012
Draft Final Data Gaps Assessment Report completed	April 8, 2014
Draft Feasibility Study Report completed	October 3, 2014

CERCLA Path Forward

There have been no remedial actions under CERCLA at Tank Farm 1. The site does not yet have an OU designation. The CERCLA path forward for Tank Farm 1 and anticipated timeframe for completion of activities through the ROD is as follows:

- Finalize Data Gaps Report (i.e., RI phase of study) (1st Quarter (Q1) Fiscal Year [FY] 2015)
- FS (Q3 FY2015), Proposed Plan (Q1 FY2016), and ROD (Q4 FY2016)
- RD/RA as appropriate
- RA Completion Report as appropriate
- Five-year review as appropriate

If a remedial action is selected for Tank Farm 1 under CERCLA in the future, the protectiveness of the selected remedy will be reviewed in subsequent five-year reviews for NAVSTA Newport.

6.3 Site 10 – Tank Farm 2 (OU 14)

Site Description and Historical Site Use

Tank Farm 2, located in the Melville area of Portsmouth, Rhode Island, was constructed in the early 1940s and used by the Navy between World War II and 1970. Eleven 60,000-barrel USTs were used for storage of fuel. According to previous investigation reports, approximately 100,000-175,000 gallons of tank bottom sludges were disposed in pits on site (Navy, 2002e). The site was part of the 1983 IAS. A fence around the tank farm area restricts access to the site.

The DESC was licensed by the Navy to use the tank farm as part of DFSP Melville for petroleum fuel storage and distribution between 1974 and 1998. The tanks were cleaned and ballasted between 1996 and 1997 and the site was administratively closed by DESC in 1998 (TtNUS, 2001b). A Tank Closure Assessment Report (GZA, 1998b) and Site Investigation Report (GZA, 1998a) were submitted by DESC to RIDEM in 1998 under RIDEM UST regulations. Additional investigations by DESC were undertaken from May 2005 to June 2006 to characterize and remediate, under the RIDEM UST regulations, petroleum contamination that occurred as a result of DESC operations. The UST program is mandated by the federal RCRA.

CERCLA Response Actions

Additional RI field investigations were completed in December 2013 for selected areas of the site regulated under CERCLA. Reporting is scheduled to be completed in at the end of 2014.

Site Chronology

A list of important Tank Farm 2 historical events and documents and relevant dates in site chronology is shown below in Table 6-3. The identified events are illustrative, not comprehensive.

Table 6-3
Chronology of Historical Events and Documents
Tank Farm 2, NAVSTA Newport, RI

Event/Document	Date
Tank farm constructed	1940s
Tank farm used by Navy	1940s – 1970
Tank farm used by DESC	1974 – 1998
Tanks were cleaned and ballasted	1996 – 1997
Draft SI and RA Report completed (Petroleum) (TtEC, 2006b)	July 2006
Draft Sampling and Analysis Plan completed (CERCLA and Petroleum) (Tetra Tech, 2011d)	February 2011
Final Sampling and Analysis Plan completed (CERCLA)	July 18, 2013
Draft Data Gaps Assessment Report completed	July 2014

CERCLA Path Forward

There have been no remedial actions under CERCLA at Tank Farm 2. The site does not yet have an OU designation. The CERCLA path forward for Tank Farm 2 and anticipated timeframe for completion of activities through the ROD is as follows:

- RI (Q2 FY2015)
- FS (Q1 FY2016), Proposed Plan (Q4 FY2016), and ROD (Q3 FY2017)
- RD/RA as appropriate
- RA Completion Report as appropriate
- Five-year review as appropriate

If a remedial action is selected for Tank Farm 2 under CERCLA in the future, the protectiveness of the selected remedy will be reviewed in subsequent five-year reviews for NAVSTA Newport.

6.4 Site 11 - Tank Farm 3 (OU 15)

Tank Farm 3, located in the Melville area of Portsmouth, Rhode Island, was constructed in the early 1940s and was used by the Navy between World War II and 1970. Seven 60,000-barrel USTs were used for storage of fuel. According to previous investigation reports, tank bottom sludges were disposed in burning chambers, which were constructed of steel sides and sand bottoms (Navy, 2002e). The site was part of the 1983 IAS. A fence around the tank farm area restricts access to the site.

DESC was licensed by the Navy to use the tank farm as part of DFSP Melville for petroleum fuel storage and distribution between 1974 and 1998. The tanks were cleaned and ballasted between 1996 and 1997 and the site was administratively closed by DESC in 1998 (TtNUS, 2001b). Further investigations by DESC commenced in June 2004 to fully characterize and remediate, under the RIDEM UST regulations, any petroleum contamination that occurred as a result of DESC operations. The UST program is mandated by the federal Resource Conservation and Recovery Act.

CERCLA Response Actions

A SASE report was finalized in August 2013. An RI Work Plan (SAP) was completed in May 2013 and field investigations were completed in December 2013 for three areas of the site regulated under CERCLA. Reporting is scheduled to be completed at the end of 2014.

Site Chronology

A list of important Tank Farm 3 historical events and documents and relevant dates in site chronology is shown below in Table 6-4. The identified events are illustrative, not comprehensive.

Table 6-4
Chronology of Historical Events and Documents
Tank Farm 3, NAVSTA Newport, RI

Event / Document	Date
Tank farm constructed	1940s
Tank farm used by Navy	1940s – 1970
Tank farm used by DESC	1974 – 1998
DESC began investigations	August 1992
Tanks were cleaned and ballasted	1996 – 1997

Event/Document	Date
Work Plan for Site Closure completed (Foster Wheeler, 2002e)	August 2002
Draft SI and RA Report completed (Petroleum) (TtEC, 2006a)	January 2006
Final Sampling and Analysis Plan completed (CERCLA)	May 29, 2013
Final SASE completed	August 5, 2013
Draft Data Gaps Assessment Report completed	July 2014

CERCLA Path Forward

There have been no remedial actions under CERCLA at Tank Farm 3. The site does not yet have an OU designation. The CERCLA path forward for Tank Farm 3 and anticipated timeframe for completion of activities through the ROD is as follows:

- RI (Q2 FY2015)
- FS (Q1 FY2016), Proposed Plan (Q4 FY2016), and ROD (Q3 FY2017)
- RD/RA as appropriate
- RA Completion Report as appropriate
- Five-year review as appropriate

If a remedial action is selected for Tank Farm 3 under CERCLA in the future, the protectiveness of the selected remedy will be reviewed in subsequent five-year reviews for NAVSTA Newport.

6.5 Site 12 – Tank Farm 4 (OU 11)

Site Description and Historical Site Use

Tank Farm 4 is approximately 80 acres and is located in Portsmouth, Rhode Island. The site is bordered by Defense Highway to the west, beyond which lies Narragansett Bay, and wooded, undeveloped areas to the north and south (TRC, 1992). The topography slopes to the west; the ground elevation falls to mean sea level on the west corner where Normans Brook crosses the site. The brook flows off the site and into Narragansett Bay. The tanks were located in the central portion of the site (TRC, 1992).

The tank farm was constructed in the early 1940s and was used between World War II and 1970. Twelve 60,000-barrel USTs were used for storage of fuel (Navy, 2002d). It was speculated in the IAS that tank bottom sludges may have been disposed of on site. The site was part of the 1983 IAS and the CS in 1986.

All tanks in Tank Farm 4 were cleaned and ballasted between 1994 and 1997 and were demolished between 1997 and 1998 as part of UST closure activities conducted by the Navy under RIDEM UST regulations. Test pits were dug around the perimeter of each tank and a composite soil sample analyzed to ensure no contamination was present. A 15-foot layer of sand was placed into the bottom of each tank and each tank roof was imploded individually. The demolition objective was to collapse and separate the tank roof from the tank walls while maintaining the basic structural integrity of the tank floor and side walls. Following tank demolition, each tank site was backfilled with clean borrow material (Foster Wheeler, 1999a).

CERCLA Response Actions

In October 2004, the Navy began field work on a Site Investigation (SI) to fully characterize the entire site under the IRP. Review Areas are areas targeted for investigation during the SI. These were selected as areas where residual contaminants may be present based on regulatory review of historical records. The work included investigating for possible former sludge pits, assessing piping not previously assessed, demolishing two structures known as Ruin #1 (a former oil water separator/burn pit) and Ruin #2 (a former oil-water separator), and sampling other Review Areas including fence lines and transformer vaults. No evidence of former sludge pits was found. The results of the Site Investigation are summarized in the Final Closeout Report for Sludge Disposal Trenches and Review Areas at Tank Farms 4 and 5 (TtEC, 2007).

Data gaps were identified that were not addressed in the SI. It was determined that the areas of the tank farm that were impacted with petroleum products would be addressed under RIDEM UST regulations (Category 2, as described in Section 2.1). Other areas within the tank farm that were impacted through burning sludge and disposal of burned sludge through concrete chambers and oil water separators to on site wetlands are being addressed under the IRP/CERCLA (Category 1, as described in Section 2.1). Based on this determination, a single CERCLA decision unit was established for the area around and down gradient of the former burning chamber and disposal area, and that area was investigated and evaluated through a CERCLA-type risk assessment (Tetra Tech, 2012i). The Category 2 areas impacted with petroleum will be closed out through Corrective Action Plans and closure assessment reports as appropriate under RIDEM UST regulations.

Decision Unit 4-1 was created to describe the Category 1 areas of concern that are being addressed under CERCLA and a Data Gaps Assessment was conducted to investigate current conditions at the areas and conduct a human health and ecological risk assessment. The primary contaminants of concern for Decision Unit 4-1 include PAHs and metals (mainly arsenic and chromium). The HHRA concluded that there is no significant risk associated with exposures to surface water and sediment; however, there are potential risks to some receptors from exposure to surface and subsurface soil and groundwater. The screening level ecological risk assessment concluded that there was limited potential for ecological risks and no further ecological risk evaluation was needed (Tetra Tech, 2012i).

The Final FS for Decision Unit 4-1 was completed on June 5, 2013 and the Proposed Plan was completed and issued for public comment in June 2013. The ROD was signed on September 30, 2013(Navy, 2013). Remedial design activities are underway, with the required RD documents. A PDI was required by the ROD to refine the extent of soil impacts requiring a CERCLA response action. A final Remedial Design Work Plan (RDWP) with a PDI SAP was completed in May 2014, and the PDI field assessment is ongoing. The results of the PDI will be used to support subsequent refinements to the Soil RD. A draft Soil RD was completed in June 2014, and the final Soil RD is scheduled for late 2014. As also required by the ROD, a final LUC RD was completed in April 2014. Thus, the LUCs are in place and enforced to prevent unauthorized use of the site.

Site Chronology

A list of important Tank Farm 4 historical events and documents and relevant dates in site chronology is shown below in Table 6-5. The identified events are illustrative, not comprehensive.

Table 6-5
Chronology of Historical Events and Documents
Tank Farm 4, NAVSTA Newport, RI

Event/Document	Date
Tank farm constructed	1940s
Tank farm used by Navy	1940s – 1970
CS completed (Loureiro Engineering Associates and York Wastewater Consultants, 1986)	May 1986
Draft Phase 1 RI and HHRA completed (TRC, 1992)	January 1992
Tanks were cleaned and ballasted	1994 – 1997

Event/Document	Date
Tanks were demolished	1997 – 1998
Final Closeout Report (sludge disposal trenches) completed (TtEC, 2007)	June 19, 2007
Final Data Gaps Assessment Report (Including Risk Assessment) completed for Category 1 areas (Tetra Tech, 2012i)	August 3, 2012
Final Feasibility Study Report and Proposed Plan completed	June 5, 2013
Final Record of Decision signed (Navy, 2013)	September 16, 2013
Final LUC RD completed	April 21, 2014
Final RDWP and PDI SAP completed	May 7, 2014
Draft Soil RD completed	June 2, 2014

CERCLA Path Forward

The ROD was signed on September 30, 2013. The RD phase is underway in 2014 as required by the ROD. There have been no remedial actions under CERCLA at Tank Farm 4. The CERCLA path forward for Tank Farm 4 and anticipated timeframe for completion of each activity is as follows:

- RD (Q2 FY2015)/RA (Q2 FY2017) for Decision Unit 4-1
- RA Completion Report (Q2 FY2017)
- Five-year review (1st review - Q1 FY2020)

Since remedial construction has not yet begun at Decision Unit 4-1, this site has not been reviewed in this five-year review. It is expected that the subsequent five-year review for NAVSTA Newport will include a review of the remedy for Decision Unit 4-1 at Tank Farm 4.

6.6 Site 13 – Tank Farm 5 (OU 2)

Site Description and Historical Site Use

Tank Farm 5 occupies approximately 80 acres and is located in the north-central part of NAVSTA Newport, in Middletown, Rhode Island. The site is bordered by Defense Highway to the west, beyond which lies Narragansett Bay, a wooded area and cemetery to the south, and Green Lane to the northeast. Gomes Brook transects the northern portion of the tank farm. The Brook flows westerly, to Narragansett Bay, and provides surface drainage for the northern portion of the facility and of the residential areas to the east.

This tank farm was constructed in the early 1940s and was used between WWII and 1970 for fuel oil storage. The tanks were constructed in blasted bedrock sockets and were approximately 116 feet in diameter and 33 feet deep. Approximately 4 feet of soil covered the tanks, and they were surrounded by a 4-foot wide, crushed-rock ring drain system. The ring drain system was installed to remove groundwater from around the tank and to prevent tank damage caused by hydraulic stresses and tank flotation.

Tank Farm 5 was composed of eleven 60,000-barrel USTs, numbered 49 through 59, that were used for storage of fuel. Tank bottom sludges were burned on the site. Approximately 10,000-175,000 gallons of oily sludges were disposed on site. In 1975, as part of an oil recovery program, the Navy began using Tanks 53 and 56 to store used oil for alternate use as a heating fuel oil (TRC, 1993a). The waste oil became regulated by RCRA in 1980. In 1982, RIDEM adopted hazardous waste regulations that were applicable to the waste oils stored in Tanks 53 and 56. Subsequent sampling of the waste oils in 1983 indicated that the oil and sludge layers were considered hazardous due to elevated concentrations of lead. Also, the water phase was found to contain dissolved hydrocarbon compounds.

In 1984, the Navy decided to discontinue use of Tanks 53 and 56. In 1985, results of a groundwater sampling round using monitoring wells located within the Tank 53 ring drain indicated the presence of chlorinated and aromatic hydrocarbon compounds. In September 1985, RIDEM issued NAVSTA Newport a Hazardous Waste Facility Permit for Tanks 53 and 56, which included a stipulation to remove the contents and close the tanks in accordance with federal hazardous waste regulations and RIDEM requirements applicable for USTs used for oil and hazardous substance storage.

Further investigations conducted in 1986 confirmed the presence of VOCs in the Tank 53 ring drain. Lower concentrations of VOCs were detected in groundwater up to 150 feet downgradient of Tank 53. In January 1990, oil was observed overflowing from the tank gauging chamber and onto the ground as a result of surface water entering the tank through cracks in the tank roof. The Navy took immediate action to lower the level in the tank to prevent further overflow. RIDEM issued an Immediate Compliance Order, which required that the Navy remove the contents of the tank, begin remediation of contaminated groundwater and soils surrounding the tank, and initiate an investigation to determine the extent of oil contamination in the vicinity of Tank 53. In 1992, pursuant to the Immediate Compliance Order, the Navy completed the removal of sludge, oil, and water from the tank, and cleaned the interior surfaces of the tank.

All tanks in Tank Farm 5 were cleaned and ballasted between 1994 and 1997 (TtNUS, 2001b). In addition, all tanks were demolished from late 1998 through early 1999 as part of UST closure activities conducted by the Navy under RIDEM regulations. The tanks were imploded individually, with the demolition objective being to collapse and separate the tank roof from the tank walls while maintaining the basic structural integrity of the tank floor and side walls. A 15-foot layer of sand was placed into the tank to absorb the shock from the collapsing tank roof and to avoid formation of void spaces between the tank floor and collapsed roof. The ballast water was removed from the tanks and pump rooms prior to sand placement. Following tank demolition, each tank site was backfilled with certified clean fill (TtNUS, 2000).

CERCLA Response Actions

Tanks 53 and 56 stored waste oils and were addressed through an interim remedial action, while the other tanks at Tank Farm 5 have been investigated separately because they were used exclusively for the storage of virgin fuel oils. Although virgin fuel oil is not addressed under the IR Program, Tank Farm 5 was included as a “Site” because records suggested that bottom sludge from fuel oil tanks was disposed of in burning chambers.

In 1992, an Interim Action ROD was signed by EPA and the Navy that selected a management of migration alternative consisting of groundwater extraction, treatment, and discharge as an interim remedial action for the Tanks 53 and 56 site. Refer to Section 5.0 of this report for a detailed review of the interim remedial action for the Tanks 53 and 56 site.

In October 2004, the Navy began field work on an SI to build on data collected during the Phase 1 RI for NETC Newport and to better characterize the site soil and review areas under the IRP. The work included investigating for possible former sludge pits, assessing piping not previously assessed, demolishing a former oil-water separator/burn pit, and sampling other Review Areas including fence lines and transformer vaults. No evidence of former sludge pits was found. The results of the SI are summarized in the Final Closeout Report for Sludge Disposal Trenches and Review Areas at Tank Farms 4 and 5 (TtEC, 2007).

Data gaps were identified that were not addressed in the SI. It was determined that the areas of the tank farm that were impacted with petroleum products would be addressed as Category 2 (refer to Section 2.1 of the SI). The other areas within the tank farm that were impacted through burning sludge and disposal of burned sludge through concrete chambers and oil-water separators to on site wetlands are being addressed as Category 1 (refer to Section 2.1 of the SI). Based on this determination, a single CERCLA decision unit, referred to as Decision Unit 5-1, was established for the area around and downgradient of the former burning chamber and disposal area, and that area was investigated and evaluated through a CERCLA-type risk assessment (TtNUS, 2011g). The Category 2 areas impacted with petroleum will be closed out through Corrective Action Plans and closure assessment reports as appropriate under RIDEM UST regulations.

The primary contaminants of concern for Decision Unit 5-1 include PAHs and metals (mainly arsenic and chromium). The HHRA concluded that there is no significant risk associated with exposures to surface soil, surface water and sediment; however, potential risks do exist to some receptors from exposure to soil and groundwater. The screening level ecological risk assessment concluded that there was limited potential for ecological risks and no further ecological risk evaluation was needed (Tetra Tech, 2012i).

The FS and Proposed Plan for Decision Unit 5-1 were completed in November 2013 and the ROD was completed in January 2014. Remedial design activities are underway, with the required RD documents. A PDI was required by the ROD to refine the extent of soil impacts requiring a CERCLA response action. A draft Remedial Design Work Plan (RDWP) with a PDI SAP was completed in May 2014. The results of the PDI will be used to support subsequent refinements to the Soil RD. A draft Soil RD is scheduled for late 2014. As also required by the ROD, a final LUC RD was completed in July 2014. Thus, the LUCs are in place and enforced to prevent unauthorized use of the site.

Site Chronology

A list of important Tank Farm 5 historical events and documents and relevant dates in site chronology is shown below in Table 6-6. Historical events and documents specific to the interim remedial action for Tanks 53 and 56 are provided separately in Table 5-1. The identified events are illustrative, and not comprehensive.

Table 6-6
Chronology of Historical Events and Documents
Tank Farm 5, NAVSTA Newport, RI

Event/Document	Date
Tank farm constructed	1940s
Tank farm used to store virgin fuel oil	1940s – 1970
Tanks 53 and 56 used for waste oil storage	1975 – 1984
Groundwater investigation conducted as part of Tanks 53 and 56 closure investigation	June 1991
Draft Phase 1 RI and HHRA completed (TRC, 1992)	January 1992
Contents of Tanks 53 and 56 were removed and the tank interiors were cleaned	Summer 1992
Interim Action ROD (interim groundwater pump and treat remedy) (Navy, 1992)	September 29, 1992
Tanks were cleaned and ballasted	1994 – 1997
Final Tank Closure Certification Report, Tanks 53 and 56 completed	September 6, 1996
Tanks were demolished	1998 – 1999
Final Closeout Report (sludge disposal trenches) completed (TtEC, 2007)	June 19, 2007
Final Data Gaps Assessment report (including Risk Assessment), DU 5-1 completed (Tetra Tech, 2012i)	August 3, 2012
Final FS completed	November 30, 2013
Final Proposed Plan completed	November 8, 2013
Final Record of Decision for Decision Unit 5-1 (Navy, 2014)	January 9, 2014
Final LUC RD completed	July 24, 2014
Final RDWP and PDI SAP completed	August 2014

CERCLA Path Forward

An interim remedial action was conducted under CERCLA at Tank Farm 5 for Tanks 53 and 56 and was reviewed in Section 5.0 of the report. See Section 5.0 for the path forward for Tanks 53 and 56. Remedial actions have not begun for Decision Unit 5-1. The CERCLA path forward for Decision Unit 5-1 at Tank Farm 5 and anticipated timeframe for completion of each activity is as follows:

- RD (Q2 FY2015)/RA (Q2 FY2017) for Decision Unit 5-1
- RA Completion Report (Q2 FY2017) for Tank Farm 5
- Five-year review (1st review – Q1 FY2020)

Since remedial construction has not yet begun at Decision Unit 5-1, this site has not been reviewed in this five-year review. It is expected that the subsequent five-year review for NAVSTA Newport will include a review of the remedy for Decision Unit 5-1 at Tank Farm 5.

6.7 Site 17 – Building 32, Gould Island (OU 6)

Site Description and Historical Site Use

The FFA initially identified Study Area 17 as Building 32 at the northeast end of Gould Island. Gould Island lies between Aquidneck and Conanicut Islands, about 1.5 miles from the NAVSTA Newport shoreline in the town of Jamestown, Rhode Island. Electroplating and degreasing operations were performed in Building 32 during the mid-1940s, when it was used to service and store torpedoes. Wastes generated from the electroplating and degreasing operations included muriatic acid, chromic acid, copper cyanide, sodium cyanide, sodium hydroxide, nickel sulfate, Anodex cleaner, and degreasing solvents (TtNUS, 2004c).

CERCLA Response Actions

Study Area 17 was included in the IAS (1983). The report suggested that rinse water from the operations was disposed directly into the bay and that contaminated sediments might be present off shore. The CS (1986) reported that sediment samples revealed slightly elevated concentrations of cyanide and copper. Mussels collected from the area of the rinse water out-fall contained elevated levels of copper (Navy, 2002a).

A waste inventory and sampling report characterized waste materials present in Building 32. Liquid samples were collected in 1992 from the Electroplating Shop area, revealing elevated levels of cadmium and organic chemicals. As a result, in 1992, the Navy initiated a removal action to dispose of liquid and semi-liquid wastes from the plating shop area (Navy, 2002b).

In 1997, the Navy performed UST removal and closure actions near Building 32. In an agreement with the EPA and RIDEM, the Navy conducted the first phase of the SASE on all of Building 32. This study found low concentrations of degreasing and fuel-related contaminants in the soils under the building. Based on the findings of the Phase I SASE, the Navy designated the former Building

32 area as Site 17 in April 2000 (TtNUS, 2004c). Site 17 encompasses all of former Building 32 and any contamination emanating from it.

Building 32 was demolished in 2001 to the slab elevation, along with other unused buildings at Gould Island due to the deteriorated condition of the structure and the potential safety threat it caused. PCB contamination was found in some of the concrete floors and soils of the transformer vaults and the switch house following the demolition. Remedial activities to remove PCB-contaminated soil and concrete were completed in 2002. Based on sampling results, materials were disposed off-site as TSCA-regulated waste. Confirmatory samples were collected and the remediation activities were completed in September 2003 (Navy, 2002b).

An RI was conducted between May and September 2005 to determine the nature and extent of contamination associated with the past use and disposal of chemicals and chemical wastes at the site. RI field efforts included the collection of the following samples: soil samples from borings and test pits, groundwater samples from monitoring wells and bedrock fracture zones, sediment samples from intertidal and subtidal areas, biota samples (clams and mussels), aquatic samples from standing water in test pits and underground utilities, soil and sludge samples from underground utilities, and concrete samples. Elevated concentrations of various contaminants, including petroleum, metals, SVOCs, PAHs, pesticides, and PCBs, were detected at the site (TtNUS, 2006b).

A Baseline Human Health Risk Assessment was conducted to evaluate exposure to surface soil, subsurface soil, groundwater, sediment, and shellfish. PAHs, PCBs, and metals are present in the intertidal sediment and subtidal shellfish that are predicted to pose risk to humans from future recreational use of the site, as well as current recreational collection and ingestion of shellfish. A screening ecological risk assessment was conducted to identify contaminants of potential concern to ecological receptors and to determine the necessity for a baseline ecological risk assessment. SVOCs, PAHs, pesticides, PCBs, and metals were present in the intertidal and subtidal sediments that may pose risks to ecological receptors (TtNUS, 2006b).

Based on the findings of the Phase 1 RI, the Navy conducted a Phase 2 RI and Baseline Ecological Risk Assessment (BERA). The Phase 2 RI includes chronic toxicity testing for sediment effects to marine benthic invertebrates and determination of the extent of PCB contamination in sediments of the Stillwater Basin area to the north of the site. Field work began in September 2009, and was completed in October 2010, and the final Phase 2 RI and BERA report was published in May 2012

(Tetra Tech, 2012d). The FS and Proposed Plan for the site were completed in February 2014 and the ROD is in progress.

Site Chronology

A list of important Gould Island historical events and documents and relevant dates in site chronology is shown below in Table 6-7. The identified events are illustrative, not comprehensive.

Table 6-7
Chronology of Historical Events and Documents
Building 32, Gould Island, NAVSTA Newport, RI

Event/Document	Date
Building 32 used to service and store torpedoes; electroplating and degreasing operations performed	1940s
CS completed (Loureiro Engineering Associates and York Wastewater Consultants, 1986)	May 1986
Draft Final SASE Report completed (Tetra Tech, 2000b)	December 2000
Building 32 and other unused buildings demolished	2001
Final Project Closeout Report for Phase 2 PCB Contaminated Soils and Concrete Remediation completed (TtFW, 2004b)	October 29, 2004
Phase 1 RI and HHRA completed (TtNUS, 2006e)	December 29, 2006
Final Phase 2 RI and BERA Report completed (Tetra Tech, 2012d)	May 24, 2012
Final FS completed	February 7, 2014
Final Proposed Plan completed	February 28, 2014
Final Record of Decision completed	June 30, 2014

CERCLA Path Forward

There have been no remedial actions under CERCLA at Gould Island. The CERCLA path forward for Gould Island and anticipated timeframe for completion of each activity is as follows:

- RD (Q1 FY2016)/RA (Q4 FY2018)
- RA Completion Report (Q4 FY2018)

- Five-year review (1st review – Q1 FY2020)

Since remedial construction has not yet begun at Gould Island, this site has not been reviewed in this five-year review. It is expected that the subsequent five-year review for NAVSTA Newport will include a review of the remedy for Gould Island.

6.8 Site 19 – Derecktor Shipyard – Offshore (OU 5) and Onshore (OU 12)

Site Description and Historical Site Use

The Derecktor Shipyard is a 43-acre site located along the easternmost shore of Coddington Cove in Newport, Rhode Island, that was used by the Navy until the military realignment program was implemented in 1973. At that time, the Navy determined that the area was no longer necessary to support military activities. In 1979, the Navy leased the 43-acre site to the Rhode Island Port Authority and Economic Development Corporation, which issued a concurrent sublease to Robert E. Derecktor of Rhode Island, Inc. From 1979 to 1992, the site was used to repair, maintain, and construct private and military ships. These operations generated sand blast grit, paint, and other ship manufacturing wastes.

CERCLA Response Actions

Based on the findings of a Preliminary Assessment completed by the Navy in May 1993, the Derecktor Shipyard was added to the FFA list of sites as a study area (TtNUS, 2004d). The Navy undertook a series of short-term actions to significantly reduce the potential for contamination to pose a health or environmental risk and migrate beyond its current location. These actions included: removing contaminant-filled drums and containers and sandblast grit; excavating and removing above ground and underground storage tanks; locating storm drain systems; and cleaning interiors of remaining buildings to ensure the safety of personnel conducting additional studies (Navy, 2002c).

An SASE was completed in June 1997. The SASE report concluded that the site contained small pockets of soil contamination but that overall human health and ecological risks were not substantial as long as the property remained industrial. Concurrent with the SASE, NAVSTA Newport conducted a marine ERA and human health risk assessment to quantify how contaminants present in bay sediments might be affecting plants and marine life, as well as fishermen collecting lobster and shellfish from the site (Navy, 2002c). Based on the SASE, the status was changed from a “Study Area” to a “Site”. The Navy implemented the recommendations for onshore restorations, including removal of soil hot spots, removal of an underground septic vault, and demolition of some of the deteriorating buildings. It was the recommendation of the SASE to conduct these removal actions so to address risk so that a NFA or a limited remedial action could be implemented.

Supplemental sediment sampling was conducted in August 2004 to better understand the nature and extent of contamination in the offshore marine sediments. Samples were collected to confirm the presence, concentration, and distribution of contaminants previously found in this area, and to identify the source of the hydrocarbon contaminants. The investigation results indicated that concentrations of contaminants in surface sediments had decreased from the values reported in the marine ERA, possibly due to new sedimentation on top of previously sampled substrate. The highest concentrations of contaminants were still primarily located along the shoreline and near the piers, with a decrease in contamination further from shore. An FS was conducted in 1999 for the marine areas near the site and revised in 2007 to incorporate the additional marine sediment data collected in 2004 (TtNUS, 2007a).

As the draft final Revised FS was developed for publication in 2010, it became apparent that the data available was inadequate to formulate a remedial decision for the marine sediment at the site. Therefore a data gaps investigation was initiated and a SAP was developed to more thoroughly evaluate horizontal and vertical extent of marine sediment contamination, potential for deposition, and propensity for sediment scouring during normal and extreme conditions. The Supplemental Sediment Investigation was conducted between August and October 2011 and documented in the Final Supplemental Sediment Investigation Report completed in December 2012 (Tetra Tech, 2012m). Utilizing the findings of the Supplemental Sediment Investigation, remedial alternatives were developed for marine sediment at the site and incorporated into a revised FS which was finalized in May 2014.

Following the SASE in March 2011, additional onshore sampling was conducted at the request of the EPA to update the data on the groundwater conditions and to evaluate risks to future indoor air. The Navy agreed to conduct additional evaluations because new buildings are planned for construction at the north end of the site. Data was collected in early 2011 and a Final SASE Addendum report was completed in January 2013 to address this potential data gap. The SASE satisfied the RI requirements. The FS and Proposed Plan for each operable unit were completed in May 2014 and the RODs were signed in September 2014.

As indicated in the ROD for Derecktor Shipyard On-shore (OU 12), "short-term LUCs, in the form of a Base Instruction, have been implemented to restrict exposure to the site soils that may have been impacted from the excavation/demolition and stockpiling of these soils/debris and sediments until the results of the PRD [pre-remedial design] soil sampling determines if remedial action of these soils is necessary. These controls include maintenance of the existing fencing to prevent uncontrolled access and the restriction of unauthorized excavation of the soils in the Northern Area."

Site Chronology

A list of important Derecktor Shipyard historical events and documents and relevant dates in site chronology is shown below in Table 6-8. The identified events are illustrative, not comprehensive.

Table 6-8
Chronology of Historical Events and Documents
Derecktor Shipyard, NAVSTA Newport, RI

Event/Document	Date
Navy used the site until the military realignment program was implemented	Prior to 1973
Robert E. Derecktor of Rhode Island, Inc. used site to repair, maintain, and construct private and military ships	1979 – 1992
Preliminary Site Assessment Report completed (Halliburton NUS, 1993)	May 1, 1993
Marine ERA Report completed (SAIC and URI, 1997a)	May 1997
Draft Final SASE Report completed (B&RE, 1997c)	June 1, 1997
Final HHRA completed (TtNUS, 1998)	September 29, 1998
Final FS (marine portions, offshore contamination) completed (TtNUS, 1999b)	July 29, 1999
Final RA Report for Various Removal Actions completed (Foster Wheeler, 2002d)	July 25, 2002
Draft Sediment Investigation Work Plan completed	July 1, 2004
Final Closeout Report for Sand Blast Grit Removal completed (TtEC, 2005)	June 17, 2005
Sediment Investigation Report completed	September 2005
Final Action Memorandum completed (TtEC, 2006c)	November 10, 2006
FS Revision 1 (Revised Draft Final) completed (TtNUS, 2007a)	March 1, 2007

Event/Document	Date
Final Removal Action Completion Report for Sandblast Grit Removal at the Firing Point completed (TtEC, 2008)	March 6, 2008
Final Sampling and Analysis Plan, Data Gaps Investigation for Marine Sediment (TtNUS, 2011e)	September 29, 2011
Final Supplemental Sediment Investigation Report (Tetra Tech, 2012m)	December 2012
Final SASE Report Addendum for On-Shore completed (Tetra Tech, 2013a)	January 2013
Final Feasibility Study for Off-Shore	May 2, 2014
Final Proposed Plan for Off-Shore	May 17, 2014
Final Feasibility Study for On-Shore	May 20, 2014
Final Proposed Plan for On-Shore	May 25, 2014
Final Record of Decision for On-Shore	September 16, 2014
Final Record of Decision of Off-Shore	September 16, 2014

CERCLA Path Forward

There have been no remedial actions under CERCLA at Derecktor Shipyard. The FS and Proposed Plan for each site were completed in May 2014 and the RODs were signed in September 2014. The CERCLA path forward for Derecktor Shipyard onshore (OU12) and offshore (OU5) portions and anticipated timeframe for completion of each activity is currently planned as follows:

- RD (Q3 and Q4 FY2015)/RA (Q4 FY2017 and Q3 FY2018)
- RA Completion Report (Q4 FY2017 [OU12] and Q3 FY2018 [OU5])
- Five-year review (1st review – Q1 FY2020)

Since remedial construction has not yet begun at Derecktor Shipyard, this site has not been reviewed in this five-year review. It is expected that the subsequent five-year review for NAVSTA Newport will include a review of the remedies for Derecktor Shipyard (both On-Shore and Off-Shore).

6.9 Site 22 - Carr Point Storage Area (OU 10)

Site Description and Historical Site Use

Carr Point is located in the Melville South portion of Portsmouth, Rhode Island, approximately four miles north of the main portion of the installation. The Site is bounded on the west by the Narragansett Bay, on the north by picnic grounds, on the east by railroad tracks, and on the south by Gomes Brook. To the east of the railroad tracks are Defense Highway and the former Tank Farm 4, which is located upgradient of the Site.

A portion of Carr Point was formerly a recreational skeet-shooting range. From 1967 to 1973 the former Carr Point Shooting Range (MRP Site 1) was used by Navy personnel and from 1975 to 1989 the facility was used by the Aquidneck Island Military Rod and Gun Club (Malcolm Pirnie, 2005). Small arms (i.e., shotguns) were discharged at moving targets (i.e., clay pigeons) over Narragansett Bay (Malcolm Pirnie, 2005). Prior to being used as a shooting range, the adjacent area of Carr Point was used for materials and drum storage (IR Site 22). Since 1995, the IR Site 22 portion of Carr Point has been used as a recreational vehicle camping park (RVCP) and gated storage area for Navy and DOD personnel (Malcolm Pirnie, 2005). Buildings that historically existed at Carr Point included Building 187 (Fire House), Building 212 (Storage), Building 213 (Fire Auxiliary Headquarters), and Building 233 (Club House). Only Building 233 remains on the site today and has been converted to office and storage space for the RV park (Malcolm Pirnie, 2005).

A Water Area Munitions Study (WAMS) was conducted for the former Carr Point shooting range area (Malcolm Pirnie, 2005), and included the review of historical records, personal interviews, and a visual site survey. The WAMS concluded that there are no known or suspected areas with Munitions and Explosives of Concern (MEC), although munitions constituents (MC) are likely to be present at the site (Malcolm Pirnie, 2005). While used as a shooting range, lead shot was fired toward the water from three firing points located along the west side of the site – one firing point at the northern end of the range, a second at the southern end, and a third in between. According to the WAMS report, MC associated with skeet shooting could potentially include "lead, lead styphnate/lead azide, antimony, arsenic, copper, tin, zinc, iron, and PAHs associated with clay targets (Interstate Technology and Regulatory Council, 2003)" (Malcolm Pirnie, 2005).

CERCLA Response Actions

In January 2007, five surface soil samples were collected at the site by NAVSTA Newport and were analyzed for TPH, pesticides, PCBs, VOCs, SVOCs, RCRA metals, and total cyanide. TPH and metals were detected at all locations, and PAHs were found at all locations except the northeast corner. PCB Aroclor-1260 was detected at the northwest corner and central locations (TtNUS, 2009a).

An SI was conducted at MRP Site 1 and IR Site 22 in May and June 2009 to identify contaminants that may have been released to the soil, fill, groundwater, and marine sediments. The investigation area included over 5 acres of coastal land and approximately 17 acres of water. The draft SI report, submitted in October 2009, concluded that contaminants present at the site may pose a risk to human health and the environment. PAHs and propellants were found at elevated concentrations in the surface soil at the former firing area (currently the camping area). Lead shotgun pellets remaining from the former shooting range and elevated metals concentrations were found in the sediment offshore of the camping area at concentrations exceeding screening criteria. VOCs were detected in soil and groundwater and PCBs were detected in surface soil at the storage area, and are likely to be present as a result of spills or leaks during the use of the area for drum and transformer storage. Two distinct sets of contaminants were found in two distinct areas of the sites that are likely to be present as the result of two different site activities. These sites are distinguished as MRP Site 1 (Carr Point Shooting Range), and IR Site 22 (Carr Point Storage Area). The SI Report recommended further investigations or remedial actions at both of these locations under the appropriate environmental cleanup programs. An RI Work Plan SAP was originally drafted to include both MRP Site 1 and IR Site 22 investigations; however, the decision was recently made to split the SAP and finalize the plan for each site separately. A discussion of MRP Site 1 is provided in Section 6.11 and a chronology table is provided in that section for events and documents specific to MRP Site 1. The RI Work Plan SAP for IR Site 22 was finalized in April 2014 and the field effort is expected to be completed in 2014.

Site Chronology

A list of important Carr Point historical events and documents and relevant dates in site chronology is shown below in Table 6-10. The identified events are illustrative, not comprehensive.

Table 6-9
Chronology of Historical Events and Documents
Carr Point Storage Area, NAVSTA Newport, RI

Event/Document	Date
Area used for materials and drum storage	Before 1967
Area used as a shooting range by Navy personnel	1967 – 1973
Area used as a shooting range by the Aquidneck Island Military Rod and Gun Club	1975 – 1989
Area used as an RV camping park and gated storage area for Navy and DOD personnel	1995 – present
Water Area Munitions Study (WAMS) conducted (Malcolm Pirnie, 2005)	October 1, 2005
Surface soil samples collected	January 2007
SI Report completed (TtNUS, 2010b)	May 12, 2010
Draft SAP/RI Work Plan completed for MRP Site 1 and IR Site 22 (Resolution, 2012)	November 5, 2012
Final SAP/RI Work Plan for IR Site 22	April 22, 2014

CERCLA Path Forward

There have been no remedial actions under CERCLA at IR Site 22. The CERCLA path forward for Site 22 and anticipated timeframe for completion of activities through the ROD is as follows:

- RI (Q3 FY2015)
- FS (Q2 FY2016), Proposed Plan (Q1 FY2017), and ROD (Q4 FY2017)
- RD/RA as appropriate
- RA Completion Report as appropriate
- Five-year review as appropriate

If a remedial action is selected for IR Site 22 under CERCLA in the future, the protectiveness of the selected remedy will be reviewed in subsequent five-year reviews for NAVSTA Newport.

6.10 Site 23 – Coddington Point Buried Debris Areas

Site Description and Historical Site Use

Coddington Point is a peninsula approximately 153 acres in total size located within a coastal portion of NAVSTA Newport in Newport, Rhode Island. Coddington Cove is located to the north and Coasters Harbor and Coasters Harbor Island are located to the south. The Coddington Point area is currently used for Naval-related education and training, operational and administrative functions, housing, and recreation.

Coddington Point was purchased by the Navy in 1918 and much of the Base organization was transferred to Coddington Point. During World War I, military personnel were housed in tents on Coddington Point. In 1923, approximately 200 buildings, which were part of the emergency war camps established on Coddington Point, were stripped and sold for scrap (NEECS, 1983). Between 1942 and 1943, numerous barracks were constructed on the northern portion of Coddington Point. These barracks were subsequently demolished in the mid/late 1960s to early 1970s (Tetra Tech, 2012a).

During various recent construction activities starting in the late 2000s on the northern portions of Coddington Point, areas of buried construction and/or demolition (C&D) debris, including ACM have been encountered in soil. Specifically, buried debris and ACM were identified at the following locations on Coddington Point that were identified as AOCs requiring investigation:

- Naval Supply School (MARDET Building 1112CP)
- Combat Training Pool (Building 1357CP)
- P 451 New OTC Barracks
- Nimitz Field (lighting area)
- Bishop’s Rock

A Navy report entitled Sites of Known Buried ACM Rubble (Navy, 2011) was prepared to outline construction projects at which demolition debris and the associated ACM was encountered. This report summarized the nature of ACM and provided the previous and ongoing management practices taken by the Navy to manage and dispose of the ACM encountered during these project constructions at which buried C&D debris with found during excavation activities.

CERCLA Response Actions

In 2011, the Navy conducted a site assessment for the five AOCs on Coddington Point, which was documented in the report entitled Draft Evaluation of Urban Fill, Coddington Point (Tetra Tech, 2012a). As part of the assessment, a review of historical documents was conducted to identify historical land uses and activities that may have resulted in a release of a hazardous substance. Field investigation, including geophysical survey and a subsurface drilling program, was also conducted at each AOC in order to complete visual inspection for potential ACM, document depth of overlaying soil cover, and identify the nature and extent of demolition debris. The reported concluded that buried C&D debris, which may contain ACM, is expected to be present within these AOCs, but that there is no current exposure pathway to the buried debris.

The Navy completed a work plan in January 2014 for further field investigation of the five AOCs on Coddington Point to document the depth of overlaying soil cover and to evaluate the presence of asbestos and potential other contaminants of concern that may be associated with C&D debris. The field program was completed in mid-2014 and the Draft RI report was issued October 16, 2014.

Site Chronology

A list of important Coddington Point historical events and documents and relevant dates in site chronology is shown below in Table 6-11. The identified events are illustrative, not comprehensive.

Table 6-10
Chronology of Historical Events and Documents
Coddington Point Buried Debris Areas, NAVSTA Newport, RI

Event / Document	Date
Numerous barracks were constructed on the northern portion of Coddington Point	1942 – 1943
Many of the barracks constructed in the 1940s were demolished	mid-1960s -early 1970s
Buried debris and ACM discovered during excavation as part of several construction activities on the northern portion of Coddington Point	Late 2000s - 2012
Sites of Known Buried ACM Rubble completed (Navy, 2011)	July 2011
Evaluation of Urban Fill completed (Tetra Tech, 2012a)	January 2012
Final RI Work Plan (SAP) for site investigation completed (Resolution, 2014a)	January 2014
Draft RI Report completed	October 16, 2014

CERCLA Path Forward

There have been no remedial actions under CERCLA at Coddington Point. The CERCLA path forward for Site 23 and anticipated timeframe for completion of activities through the ROD is as follows:

- Focused FS (Q2 FY2016), Proposed Plan (Q2 FY2017), and ROD (Q1 FY2018)
- RD/RA as appropriate
- RA Completion Report as appropriate
- Five-year review as appropriate

If a remedial action is selected for the Coddington Point Buried Debris Areas under CERCLA in the future, the protectiveness of the selected remedy will be reviewed in subsequent five-year reviews for NAVSTA Newport.

6.11 MRP Site 1 - Carr Point Shooting Range (OU 9)

Site Description and Historical Site Use

Carr Point is located in the Melville South portion of Portsmouth, Rhode Island, approximately four miles north of the main portion of the installation. The Site is bounded on the west by the Narragansett Bay, on the north by picnic grounds, on the east by railroad tracks, and on the south by Gomes Brook. To the east of the railroad tracks are Defense Highway and the former Tank Farm 4, which is located upgradient of the Site.

A portion of Carr Point was formerly a recreational skeet-shooting range. From 1967 to 1973 the former Carr Point Shooting Range (MRP Site 1) was used by Navy personnel and from 1975 to 1989 the facility was used by the Aquidneck Island Military Rod and Gun Club (Malcolm Pirnie, 2005). Small arms (i.e., shotguns) were discharged at moving targets (i.e., clay pigeons) over Narragansett Bay (Malcolm Pirnie, 2005). Prior to being used as a shooting range, the adjacent area of Carr Point was used for materials and drum storage (IR Site 22). Since 1995, the IR Site 22 portion of Carr Point has been used as a recreational vehicle camping park (RVCP) and gated storage area for Navy and DOD personnel (Malcolm Pirnie, 2005). Buildings that historically existed at Carr Point included Building 187 (Fire House), Building 212 (Storage), Building 213 (Fire Auxiliary Headquarters), and Building 233 (Club House). Only Building 233 remains on the site today and has been converted to office and storage space for the RV park (Malcolm Pirnie, 2005).

A Water Area Munitions Study (WAMS) was conducted for the former Carr Point shooting range area (Malcolm Pirnie, 2005), and included the review of historical records, personal interviews, and a visual site survey. The WAMS concluded that there are no known or suspected areas with Munitions and Explosives of Concern (MEC), although munitions constituents (MC) are likely to be present at the site (Malcolm Pirnie, 2005). While used as a shooting range, lead shot was fired toward the water from three firing points located along the west side of the site – one firing point at the northern end of the range, a second at the southern end, and a third in between. According to the WAMS report, MC associated with skeet shooting could potentially include "lead, lead styphnate/lead azide, antimony, arsenic, copper, tin, zinc, iron, and PAHs associated with clay targets (Interstate Technology and Regulatory Council, 2003)" (Malcolm Pirnie, 2005).

CERCLA Response Actions

In January 2007, five surface soil samples were collected at the site by NAVSTA Newport and were analyzed for TPH, pesticides, PCBs, VOCs, SVOCs, RCRA metals, and total cyanide. TPH and metals were detected at all locations, and PAHs were found at all locations except the northeast corner. PCB Aroclor-1260 was detected at the northwest corner and central locations (TtNUS, 2009a).

An SI was conducted at MRP Site 1 and IR Site 22 in May and June 2009 to identify contaminants that may have been released to the soil, fill, groundwater, and marine sediments. The investigation area included over 5 acres of coastal land and approximately 17 acres of water. The draft SI report, submitted in October 2009, concluded that contaminants present at the site may pose a risk to human health and the environment. PAHs and propellants were found at elevated concentrations in the surface soil at the former firing area (currently the camping area). Lead shotgun pellets remaining from the former shooting range and elevated metals concentrations were found in the sediment offshore of the camping area at concentrations exceeding screening criteria. VOCs were detected in soil and groundwater and PCBs were detected in surface soil at the storage area, and are likely to be present as a result of spills or leaks during the use of the area for drum and transformer storage. Two distinct sets of contaminants were found in two distinct areas of the sites that are likely to be present as the result of two different site activities. These sites are distinguished as MRP Site 1 (Carr Point Shooting Range), and IR Site 22 (Carr Point Storage Area). The SI Report recommended further investigations or remedial actions at both of these locations under the appropriate environmental cleanup programs. An RI Work Plan SAP was originally drafted to include both MRP Site 1 and IR Site 22 investigations; however, the decision was recently made to split the SAP and finalize the plan for each site separately. A discussion of IR Site 22 is provided in Section 6.9 and a chronology table is provided in that section for events and documents specific to IR Site 22. The RI Work Plan SAP for MRP Site 1 was finalized in November 2013 and the field effort will be completed in 2014. The Draft RI Report was issued September 10, 2014.

Interim Removal Action

In addition to preparing for the RI field investigation, a soil removal action was completed for the MRP Site 1 portion of Carr Point. A recreational risk evaluation for MRP Site 1 was completed in March 2010. Several organic and inorganic chemicals were selected as COPCs. The predominant COPCs at the site are carcinogenic polycyclic aromatic hydrocarbons (cPAHs). All of the locations demonstrating elevated cancer risk are situated within approximately 50 to 100 feet of the Narragansett Bay shoreline and are associated with locations where clay target fragments were found. Scientific literature suggests that the cPAHs detected in the surface soil are tightly bound to the clay matrix of the targets and bioavailability to human or ecological receptors is limited. As part of a time critical removal action (TCRA), a fence was installed in May 2010 to limit access to contaminated soil (TtNUS, 2010e). In 2012, an EE/CA and Action Memorandum were prepared to evaluate and document the decision to conduct a NTCRA. The NTCRA consisted of excavation and removal of contaminated surface soil from the RVCP area as an interim measure to allow seasonal, restricted recreational use of the RVCP, before a more permanent solution can be put in place for MRP Site 1. The soil excavation has been completed and a Removal Action Completion Report is currently being prepared.

Site Chronology

A list of important Carr Point historical events and documents and relevant dates in site chronology is shown below in Table 6-12. The identified events are illustrative, not comprehensive.

Table 6-11
Chronology of Historical Events and Documents
Carr Point Shooting Range, NAVSTA Newport, RI

Event / Document	Date
Area used for materials and drum storage	Before 1967
Area used as a shooting range by Navy personnel	1967 – 1973
Area used as a shooting range by the Aquidneck Island Military Rod and Gun Club	1975 – 1989
Area used as an RV camping park and gated storage area for Navy and DOD personnel	1995 – present

Event / Document	Date
Water Area Munitions Study (WAMS) conducted (Malcolm Pirnie, 2005)	October 1, 2005
Surface soil samples collected	January 2007
SI Report completed (TtNUS, 2010b)	May 2010
Recreational Risk Evaluation for MRP Site 1 completed (TtNUS, 2010c)	May 2010
TCRA performed at MRP Site 1 (fence installed) (TtNUS, 2010e)	May 2010
Final EE/CA report for MRP Site 1 completed (Tetra Tech, 2012h)	August 2012
Final Action Memorandum for MRP Site 1 completed (Tetra Tech, 2012j)	September 2012
NTCRA performed at MRP Site 1 (soil excavation)	2012 – 2013
Draft SAP/RI Work Plan completed for MRP Site 1 and IR Site 22 (Resolution, 2012)	November 2012
Final SAP/RI Work Plan for MRP Site 1 (Resolution, 2013b)	October 2013
Draft RI Report for MRP Site 1	September 10, 2014

CERCLA Path Forward

A TCRA, installing a fence, was performed at MRP Site 1 in May 2010 and a NTCRA, removal of contaminated surface soil, was performed at MRP Site 1 in 2012-2013. The CERCLA path forward for MRP Site 1 and anticipated timeframe for completion of activities through the ROD is as follows:

- FS (Q2 FY2016), Proposed Plan (Q1 FY2017), and ROD (Q4 FY2017)
- RD/RA as appropriate
- RA Completion Report as appropriate
- Five-year review as appropriate

If a remedial action is selected for MRP Site 1 under CERCLA in the future, the protectiveness of the selected remedy will be reviewed in subsequent five-year reviews for NAVSTA Newport.

Appendix A

Document Review List/References

DOCUMENT REVIEW LIST/REFERENCES

AGVIQ-CH2M Hill, 2012. Construction Completion Report, Stone Revetment Replacement, Revision No. 03, IR Site 9, Old Fire-fighting Training Area, Naval Station Newport, Newport, Rhode Island. September.

AGVIQ, 2014. Final Remedial Action Work Plan Addendum, Excavation, Transportation, and Disposal of Soil with Asbestos-Containing Material, Operable Unit 7 (Site 8), Naval Undersea Systems Center Disposal Area, Naval Station Newport, Middletown, Rhode Island. May.

B&RE, 1997a. Certification Report for Remedial Action, McAllister Point Landfill Cap Construction, Naval Education and Training Center, Newport, Rhode Island. Brown & Root Environmental. February.

B&RE, 1997b. Draft Final Remedial Investigation Report, McAllister Point Landfill, Volume 1 – Technical Report, Naval Education and Training Center, Newport, Rhode Island. Brown & Root Environmental. April.

B&RE, 1997c. Site Assessment Screening Evaluation Report, Former Robert E. Derecktor Shipyard, Naval Education and Training Center, Newport, Rhode Island. June.

B&RE, 1997d. Technical Memorandum, Landfill Gas Monitoring Approach for McAllister Point Landfill Site 01. Naval Education and Training Center, Newport, Rhode Island. Brown & Root Environmental. August.

B&RE, 1997e. Technical Memorandum, Summary of Analytical Results – Sample Round 3 for Tank 53, Tank Farm 5, Naval Education and Training Center, Newport, Rhode Island. Brown & Root Environmental. October.

Battelle, 2006. Final Suplemental Eelgrass Mitigation Work Plan for McAllister Point Landfill, Naval Station Newport, Newport RI. Prepared for NAVFAC under Contract No. N62472-00-D-1300. April.

Environmental Chemical Corp. (ECC), 2004. Annual Monitoring Report, Operation and Maintenance Activities 2003, Site 01 – McAllister Point Landfill, Naval Station Newport (NAVSTA), Newport, Rhode Island. May.

ECC, 2005. Annual Monitoring Report, Operation and Maintenance Activities 2004, Site 01 – McAllister Point Landfill, Naval Station Newport (NAVSTA), Newport, Rhode Island. Environmental Chemical Corporation. July.

ECC, 2006a. Annual Monitoring Report, Operation and Maintenance Activities, 2005, Site 01 – McAllister Point Landfill, Naval Station Newport (NAVSTA), Newport, Rhode Island. February.

ECC, 2006b. Round 2: October-November 2005 Long-Term Monitoring Report for McAllister Point Landfill, Naval Station Newport, Newport, Rhode Island. April.

ECC, 2007a. Final Marine Sediments Monitoring Report, Sampling Round 3: October 2006. December.

ECC 2007b Final Annual Monitoring Report, Operation and Maintenance Activities, 2006. Site 01 McAllister Point Landfill, Naval Station Newport, Newport Rhode Island. December.

ECC, 2008a. Final Annual Monitoring Report, Operation and Maintenance Activities, 2007, Site 01 – McAllister Point Landfill, Naval Station Newport (NAVSTA), Newport, Rhode Island. November.

ECC, 2008b. Final Marine Sediments Monitoring Report, Sampling Round 4: October 2007. December.

ECOR 2009a. Final Annual Monitoring Report, Operation and Maintenance Activities 2008, Site 01 – McAllister Point Landfill, Naval Station Newport (NAVSTA), Newport, Rhode Island. ECOR Solutions, Inc.. September.

ECOR, 2009b. Final, Marine Sediments Monitoring Report, Sampling Round 5: October 2008, McAllister Point Landfill, Naval Station Newport (NAVSTA), Newport, Rhode Island. ECOR Solutions, Inc. Westchester PA. September.

Eyak Environmental Science, 2005. McAllister Point Post Dredging Eelgrass Monitoring 2004. March.

Foster Wheeler, 1997. Operations and Maintenance User Manual -McAllister Point Landfill, Naval Education and Training Center, Newport, Rhode Island. Foster Wheeler Environmental Corporation. May.

Foster Wheeler, 1998. Annual Monitoring Report, Operations and Maintenance Activities, January 1 to December 31, 1997, Site 01 – McAllister Point Landfill, Naval Education Training Center (NETC), Newport, Rhode Island. September.

Foster Wheeler, 1999a. Final Tank 46 Closure Assessment Report, Tank Farm 4, Naval Education and Training Center, Newport, Rhode Island. Foster Wheeler Environmental Corporation. January.

Foster Wheeler, 1999b. Annual Monitoring Report Operation and Maintenance Activities, January 1 to December 31, 1998, Site 01 – McAllister Point Landfill, Naval Station Newport (NAVSTA), Newport, Rhode Island. Foster Wheeler Environmental Corporation. July.

Foster Wheeler, 2000. Annual Monitoring Report Operation and Maintenance Activities, January 1 to December 31, 1999, Site 01 – McAllister Point Landfill, Naval Station Newport (NAVSTA), Newport, Rhode Island. Foster Wheeler Environmental Corporation. March.

Foster Wheeler, 2002a. Annual Monitoring Report, Operation and Maintenance Activities, January 1, 2001 to December 31, 2001, Site 01 – McAllister Point Landfill, Naval Station (NAVSTA) Newport, Newport, Rhode Island. Foster Wheeler Environmental Corporation. June 7.

Foster Wheeler, 2002b. Annual Monitoring Report Operation and Maintenance Activities, January 1 to December 31, 2000, Site 01 – McAllister Point Landfill, Naval Station Newport (NAVSTA), Newport, Rhode Island. Foster Wheeler Environmental Corporation. April.

Foster Wheeler, 2002c. Annual Monitoring Report Operation and Maintenance Activities, January 1, 2001 to December 31, 2001, Site 01 – McAllister Point Landfill, Naval Station Newport (NAVSTA), Newport, Rhode Island. Foster Wheeler Environmental Corporation. July.

Foster Wheeler, 2002d. Final Remedial Action Report for Various Removal Actions at the Derecktor Shipyard and Miscellaneous Investigations at Naval Station Newport (NSN), Newport, Rhode Island. July.

Foster Wheeler, 2002e. Work Plan for Site Closure, Tank Farm 3, Defense Fuel Support Point – Melville, Portsmouth, Rhode Island. August.

Foster Wheeler, 2003a. Annual Monitoring Report, Operation and Maintenance Activities, January 1, 2002 to December 31, 2002, Site 01 – McAllister Point Landfill, Naval Station (NAVSTA) Newport, Newport, Rhode Island. Foster Wheeler Environmental Corporation. May 7.

Foster Wheeler, 2003b. Final Interim Remedial Action Report for Site 1 – McAllister Point Landfill, Operable Unit 4 – Marine Sediment/Management of Migration, Naval Station Newport, Middletown, Rhode Island. Foster Wheeler Environmental Corporation. June 23.

GZA GeoEnvironmental, 1998a. Site Investigation Report, Defense Energy Support Center, Melville – Tank Farm No. 2, Portsmouth, Rhode Island. May.

GZA GeoEnvironmental, 1998b. Draft Tank Closure Assessment Report, Tank Farm 2, Defense Energy Support Center, Portsmouth, Rhode Island. September.

Halliburton NUS Corporation, 1997. Certification Report for Remedial Action – McAllister Point Landfill Cap Construction, Naval Education and Training Center, Newport, Rhode Island. Halliburton NUS Corporation. February.

H&S Environmental, 2010a. Final Marine Sediments Monitoring Report, Sampling Round 6: October 2009 for McAllister Point Landfill, Naval Station Newport, Middletown, Rhode Island. July.

H&S Environmental, 2010b. Final Annual Monitoring Report, Operation and Maintenance Activities, 2009, Site 01 – McAllister Point Landfill, Naval Station Newport (NAVSTA), Newport, Rhode Island. July.

H&S Environmental, 2012. Final Annual Monitoring Report, Operation and Maintenance Activities, 2010, Site 01 – McAllister Point Landfill, Naval Station Newport (NAVSTA), Newport, Rhode Island. February.

Land America Commercial Services, 2004. Phase II Environmental Site Assessment Report, Newport Naval Station, Melville and Rainbow Heights, Newport, Rhode Island. Land America Commercial Services. October 15.

Loureiro Engineering Associates and York Wastewater Consultants, 1986. Confirmation Study Report on Hazardous Waste Sites at Naval Education and Training Center, Newport, R.I. May.

Malcolm Pirnie, 2005. “Final Water Area Munitions Study, NAVSTA Newport Carr Point Shooting Range, Newport, Rhode Island.” Prepared for Naval Facilities Engineering Command Engineering Field Activity, Northeast, Lester, Pennsylvania. October.

Naval Energy and Environmental Support Activity, 1983. Final Initial Assessment Study of the Naval Education and Training Center, Newport, RI. March.

Navy, 1992. Record of Decision for an Interim Remedial Action at Tank Farm 5, Tanks 53 and 56, Groundwater Operable Unit, Naval Education and Training Center, Newport, Rhode Island. September 29.

Navy, 1993. Record of Decision – Source Control Operable Unit – Site 01 – McAllister Point Landfill, Naval Education and Training Center, Newport, Rhode Island. September 27.

Navy, 1996. Explanation of Significant Difference at the McAllister Point Landfill Source Control Operable Unit, Naval Education & Training Center, Newport, Rhode Island. August.

Navy, 2000. Record of Decision - Marine Sediment/Management of Migration Operable Unit, McAllister Point Landfill Site, Naval Station Newport, Newport, Rhode Island. March 1.

Navy, 2002a. Coddington Cove Rubble Fill Area, Fact Sheet Update. Naval Station Newport, Newport, Rhode Island. January.

Navy, 2002b. Gould Island Building 32, Fact Sheet Update. Naval Station Newport, Newport, Rhode Island. January.

Navy, 2002c. Derecktor Shipyard, Fact Sheet Update. Naval Station Newport, Newport, Rhode Island. January.

Navy, 2002d. Tank Farms 4 and 5, Fact Sheet Update. Naval Station Newport, Newport, Rhode Island. August.

Navy, 2002e. Tank Farms 1 - 3, Fact Sheet Update. Naval Station Newport, Newport, Rhode Island. August.

Navy, 2003a. Old Fire Fighting Training Area, Fact Sheet Update. Naval Station Newport, Newport, Rhode Island. May.

Navy, 2003b. Installation Restoration (IR) Site Access and Use, NAVSTA Newport/Local Area Rhode Island Coordinator Instruction 5090.15A. June.

Navy, 2004. Action Memorandum, Non-Time Critical Removal Action, Soil and Debris Mound Removal, Old Fire Fighting Training Area (Site 09), Naval Station Newport, Newport, Rhode Island. August 13.

Navy, 2006. Letter from R. Schirmer to M. DeStefano re: Application of Direct Exposure Criteria for Recreational Use Sites; Naval Station Newport, Newport Rhode Island. OPNEEV 4/15/6-017. November.

Navy, 2007a. Installation Restoration (IR) Site Use Restrictions, NAVSTA Newport/Local Area Rhode Island Coordinator Instruction 5090.15B. September 27.

Navy, 2007b. Explanation of Significant Difference for McAllister Point Landfill, Naval Station Newport, Newport, Rhode Island. September (signed October 18, 2007 by Navy, and October 31, 2007 by EPA).

Navy, 2010a. Proposed Plan, Site 9 – Old Fire Fighting Training Area, Naval Station Newport, Newport, Rhode Island. June.

Navy, 2010b. Record of Decision, Site 9 – Old Fire Fighting Training Area, Naval Station Newport, Newport, Rhode Island, September.

Navy, 2011. NAVSTA Newport RI Report, Sites of Known Buried ACM Building Rubble. July.

Navy, 2012a. Proposed Plan, Site 8 – Naval Undersea Systems Center (NUSC) Disposal Area, Naval Station (NAVSTA) Newport, Newport, Rhode Island. July.

Navy, 2012b. Explanation of Significant Differences, Site 9, Old Fire Fighting Training Area, Naval Station Newport, Rhode Island. September.

Navy, 2012c. Record of Decision, Operable Unit 7 (Site 8, the Naval Undersea Systems Center Disposal Area) of the Former Naval Education and Training Center. Naval Station Newport, Rhode Island. September.

Navy, 2013. Record of Decision, Decision Unit 4-1, Tank Farm 4 – Site 12, Operable Unit 11, Naval Station Newport, Portsmouth, Rhode Island. September.

Navy, 2014. Record of Decision, Decision Unit 5-1, Tank Farm 5 – Site 13, Operable Unit 2, Naval Station Newport, Middletown, Rhode Island. January.

Navy, 2014b. Explanation of Significant Differences, Site 9, Operable Unit 3, Old Fire Fighting Training Area, Naval Station Newport, Rhode Island. June.

Resolution, 2012. Draft Sampling and Analysis Plan, Former Carr Point Shooting Range (MRP Site 1, OU9) and Former Carr Point Storage Area (IR Site 22, OU10), Naval Station (NAVSTA) Newport, Rhode Island, November.

Resolution, 2013a. Final Sampling and Analysis Plan Addendum, Coddington Cove Rubble Fill (CCRF) Area, Naval Station (NAVSTA) Newport, Rhode Island, November.

Resolution, 2013b. Final Sampling and Analysis Plan, Former Carr Point Shooting Range (MRP Site 1, OU 9), Naval Station (NAVSTA) Newport, Rhode Island, October.

Resolution, 2014a. Final Tier II Sampling and Analysis Plan, Coddington Point Buried Debris Areas, Naval Station (NAVSTA) Newport, Rhode Island, January.

Resolution, 2014b. Draft Final Sampling and Analysis Plan, Former Carr Point Storage Area (IR Site 22, OU10), Naval Station (NAVSTA) Newport, Rhode Island, March.

RIDEM, 2010. Rules and Regulations for Groundwater Quality and Groundwater Classification and Wellhead Protection Area Maps, July.

RIDEM, 2011. Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (Short Title: Remediation Regulations). State of Rhode Island and

Providence Plantations Department of Environmental Management Office of Waste Management. DEM-DSR-01-93. March 31, 1993 as amended November 2011.

RIDEM, 2013. Notice of Polluted Shellfishing Grounds May 2013. http://www.dem.ri.gov/maps/mapfile/shellfsh.pdf

Science Applications International Corporation (SAIC) and the University of Rhode Island (URI), 1997a. Derecktor Shipyard Marine Ecological Risk Assessment Report, Naval Education and Training Center, Newport, Rhode Island. February.

SAIC and URI, 1997b. McAllister Point Landfill Marine Ecological Risk Assessment Report, Naval Education and Training Center, Newport, Rhode Island. March.

SAIC and URI, 2000. Old Fire Fighting Training Area Marine Ecological Risk Assessment Report, Naval Station Newport, Newport, Rhode Island. April.

SAIC, 2004. Draft McAllister Point Post Dredging Habitat and Artificial Reef Surveys - 2003. Science Applications International Corporation. January.

Sovereign Consulting, Inc. (Sovereign), 2009. Project Close Out Report, Demolition, Transportation, Disposal, and Restoration Services for Groundwater Treatment System and Building at Installation Restoration (IR) Site 13 – Tank Farm 5. February.

TN & Associates, Inc., 2006a. Draft Remedial Action Completion Report – Installation Restoration (IR) Site 08 – NUSC Disposal Area Soil Removal Action. Prepared for Naval Facilities Engineering Command, EFA Northeast. April.

TN & Associates, Inc., 2006b. Final Interim Remedial Action Report, Limited Soil Removal Action, Drum Disposal Area, Paint Can Disposal Area, Site 8 NUWC (Formerly NUSC) Disposal Site, Middletown, RI. December.

TRC, 1992. Final Report - Remedial Investigation Technical Report, Volume 1, Naval Education and Training Center, Newport, Rhode Island, Contract No. N62472-86-C-1282. TRC Environmental Corporation. January.

TRC, 1993. Remedial Design Work Plan, Ground Water Treatment Interim Remedial Action near Tanks 53 and 56 at Tank Farm 5, Naval Education and Training Center, Newport, Rhode Island. TRC Environmental Corporation. January 1993.

TRC, 1993a. Soil Investigation, Tank Farm 5 – Tanks 53 and 56, Naval Education and Training Center, Newport, Rhode Island, TRC Environmental Corporation. December.

TRC, 1994a. Draft Final Remedial Investigation Report, McAllister Point Landfill, Volume 1, Naval Education and Training Center, Newport, Rhode Island, Contract No. N62472-86-C-1282. TRC Environmental Corporation. July.

TRC, 1994b. Draft McAllister Point Landfill Feasibility Study – Management of Migration. Naval Education and Training Center, Newport, Rhode Island,, Contract No. N62472-86-C-1282. October.

Tetra Tech EC, Inc. (TtEC), 2005. Final Closeout Report for Sand Blast Grit Removal at Derecktor Shipyard, Naval Station Newport, Portsmouth, Rhode Island. June.

TtEC, 2006a. Draft Site Investigation and Remedial Action Report for Tank Farm 3, Defense Fuel Support Point – Melville, Portsmouth, Rhode Island. Tetra Tech EC, Inc. January.

TtEC, 2006b. Draft Site Investigation and Remedial Action Report for Tank Farm 2, Defense Fuel Support Point – Melville, Portsmouth, Rhode Island. July.

TtEC, 2006c. Final Action Memorandum for Derecktor Shipyard, Sandblast Grit-Impacted Area, Newport Naval Station, Middletown, Rhode Island. November.

TtEC, 2007. Final Closeout Report for Sludge Disposal Trenches and Review Areas at Tank Farms 4 and 5. Tetra Tech EC, Inc. June 19.

TtEC, 2008. Final Removal Action Completion Report for Sandblast Grit Removal at Derecktor Shipyard, Naval Station Newport Portsmouth, Middletown, Rhode Island. March.

TtFW, 2004a. Occupational Exposure Assessment for Construction Workers at the SWOS Site, Naval Station Newport, Portsmouth, Rhode Island. Tetra Tech FW, Inc. March 12.

TtFW, 2004b. Final Project Closeout Report for Phase II – PCB Contaminated Soioils and Concrete Remediation, Gould Island, Naval Station Newport, Newport, Rhode Island. October.

TtNUS, 1998. Marine Human Health Risk Assessment, Off Shore Areas of the Former Robert E. Derecktor Shipyard, Naval Education and Training Center, Newport, Rhode Island. Tetra Tech NUS, Inc. September.

TtNUS, 1999a. Feasibility Study for Marine Sediment/Management of Migration, McAllister Point Landfill, Naval Station Newport, Newport, Rhode Island. May.

TtNUS, 1999b. Feasibility Study for Former Robert E. Derecktor Shipyard, Naval Station Newport, Newport, Rhode Island. Tetra Tech NUS, Inc. July.

TtNUS, 1999c. Passive Soil Gas Investigation Report, Tanks 53 and 56, Tank Farm 5, Naval Education and Training Center, Newport, Rhode Island. August.

TtNUS, 1999d. Final Five-Year Review Report for Naval Station Newport, Newport, Rhode Island. Tetra Tech NUS, Inc. December.

TtNUS, 2000. Bedrock Groundwater Investigation Report for Former Tanks 53 and 56, Tank Farm 5, Naval Station Newport, Newport, Rhode Island. Tetra Tech NUS, Inc. July.

TtNUS, 2001a. Phase I Environmental Site Assessment for SWOS Building Site, Naval Station Newport, Newport Rhode Island. Oak Point Associates, Biddeford, Maine. July.

TtNUS, 2001b. Remedial Investigation Report, Old Fire Fighting Training Area, Volume 1, Naval Station Newport, Newport, Rhode Island. Tetra Tech NUS, Inc. July.

TtNUS, 2002. Feasibility Study for Old Fire Fighting Training Area, Naval Station Newport, Newport, Rhode Island. September.

TtNUS, 2002a. Technical Memorandum, Summary of Analytical Results, Sample Round 4 for Tank 53 – Tank Farm 5, Naval Station Newport, Newport, Rhode Island. January.

TtNUS, 2004a. Technical Memorandum, Record Review and Field Sampling Plan for Coddington Cove Rubble Fill Area, Naval Station Newport, Newport, Rhode Island. Tetra Tech NUS, Inc. May.

TtNUS, 2004b. Action Memorandum for Non Time Critical Removal Action: Soil and Debris Mound Removal, Old Fire Fighting Training Area, Naval Station Newport, Newport, Rhode Island. June.

TtNUS, 2004c. Work Plan for Remedial Investigation, Site 17, Building 32, Gould Island, Naval Station Newport, Newport, Rhode Island. Tetra Tech NUS, Inc. July.

TtNUS, 2004d. Draft Work Plan for Marine Sediment Sampling for Former Derecktor Shipyard, Naval Station Newport, Newport, Rhode Island. Tetra Tech NUS, Inc. July.

TtNUS, 2004e. Work Plan, Sediment and Groundwater Monitoring for Old Fire Fighting Training Area, Naval Station Newport, Newport, Rhode Island. November.

TtNUS, 2004f. Five-Year Review for Naval Station Newport, Newport, Rhode Island. Tetra Tech NUS, Inc. December.

TtNUS, 2004g. Draft Work Plan for Long Term Monitoring Program, McAllister Point Landfill, Naval Station Newport, Newport, Rhode Island. Tetra Tech NUS, Inc. December.

TtNUS, 2005a. Study Area Screening Evaluation for NUSC Disposal Area, Naval Undersea Warfare Center, Middletown, Rhode Island. Tetra Tech NUS, Inc. January.

TtNUS, 2005b. Technical Memorandum, Summary of Analytical Results, Sample Round 5 for Former Tanks 53 and 56 – Tank Farm 5, Naval Station Newport, Newport, Rhode Island. Tetra Tech NUS, Inc. March.

TtNUS, 2005c. Soil Pre-Design Investigation Report for Old Fire Fighting Training Area, Naval Station Newport, Newport, Rhode Island. Tetra Tech NUS, Inc. April.

TtNUS, 2005d. Final Work Plan for Long Term Monitoring Program, McAllister Point Landfill, Naval Station Newport, Newport, Rhode Island. Tetra Tech NUS, Inc. October.

TtNUS, 2005e. Soil Pre-Design Investigation Report Addendum for Old Fire Fighting Training Area, Naval Station Newport, Newport, Rhode Island. November.

TtNUS, 2006a. Focused Site Inspection for Surface Warfare Officers School, Naval Station Newport, Newport, Rhode Island. Tetra Tech NUS, Inc. March.

TtNUS, 2006b. Round 1: December 2004 Long-Term Monitoring Report for McAllister Point Landfill, Naval Station Newport, Newport, Rhode Island. March.

TtNUS, 2006c. Background Soil Investigation Report for NUSC Disposal Area, SA-08, Naval Undersea Warfare Center, Middletown, Rhode Island. September.

TtNUS, 2006d. Remedial Investigation for Site 17: Building 32, Gould Island, Naval Station Newport, Newport, Rhode Island. Tetra Tech NUS, Inc. December 29.

TtNUS, 2006e. Remedial Investigation for Site 17: Building 32, Gould Island, Naval Station Newport, Newport, Rhode Island. Tetra Tech NUS, Inc. December.

TtNUS, 2007a. Feasibility Study Revision 1 for Former Robert E. Derecktor Shipyard, Naval Station Newport, Newport, Rhode Island. Tetra Tech NUS, Inc. March 1.

TtNUS, 2007b. Draft Basewide Background Study Report for Naval Station Newport, Newport, Rhode Island. Tetra Tech NUS, Inc. October.

TtNUS, 2007c. Draft Revised Feasibility Study for Old Fire Fighting Training Area, Naval Station Newport, Newport, Rhode Island. Tetra Tech NUS, Inc. December 1.

TtNUS, 2008. Removal Action Completion Report, Soil Removal Actions for Melville Water Tower, NAVSTA, Newport, Rhode Island. Tetra Tech NUS, Inc. June.

TtNUS, 2009a. Draft Final Work Plan and Quality Assurance Project Plan for MRP Site 1, Carr Point, Naval Station Newport, Portsmouth, Rhode Island. Tetra Tech NUS, Inc. January.

TtNUS, 2009b. Study Area Screening Evaluation for Former Melville Water Tower Site, NAVSTA, Newport, Rhode Island, Tetra Tech NUS, Inc. September.

TtNUS, 2009c. Five Year Review Report for Naval Station Newport (Formerly NETC Newport), Newport, Rhode Island. Tetra Tech NUS, Inc. December.

TtNUS, 2009d. Stone Revetment Replacement Design for Old Fire-Fighting Training Area, Naval Station Newport, Newport, Rhode Island. December.

TtNUS, 2010a. Remedial Investigation for Site 08, Naval Undersea Systems Center (NUSC) Disposal Area, Naval Station Newport, Rhode Island. Tetra Tech NUS, Inc. January.

TtNUS, 2010b. Site Investigation for MRP Site 1 – Carr Point, NAVSTA, Newport, Rhode Island. Tetra Tech NUS, Inc. May.

TtNUS, 2010c. Technical Memorandum, Recreational Risk Evaluation, MRP Site 1, Carr Point, NAVSTA Newport, Rhode Island. Tetra Tech NUS, Inc. May.

TtNUS, 2010d. Work Plan Addendum Long-Term Monitoring Plan for McAllister Point Landfill, Naval Station Newport, Newport, Rhode Island. Tetra Tech NUS, Inc. August.

TtNUS, 2010e. Final Action Memorandum, MRP Site 1, Former Carr Point Shooting Range, NAVSTA Newport, Rhode Island. Tetra Tech NUS, Inc. August.

TtNUS, 2010f. Technical Memorandum Changes to the Draft Final Feasibility Study, Old Firefighting Training Area, NAVSTA Newport, Newport, Rhode Island. July.

TtNUS, 2010gi. Work Plan Addendum Long-Term Monitoring Plan for McAllister Point Landfill, Naval Station Newport, Newport, Rhode Island. Tetra Tech NUS, Inc. August.

TtNUS, 2011a. Draft Sampling and Analysis Plan (Field Sampling Plan and Quality Assurance Project Plan), February 2011, Data Gaps Assessment, Tank Farm 2, Naval Station Newport, Newport, Rhode Island. Tetra Tech NUS, Inc. February.

TtNUS, 2011b. Revised Draft Feasibility Study for Site 8 – Naval Undersea Systems Center (NUSC) Disposal Area, Naval Station Newport, Newport, Rhode Island. July.

TtNUS, 2011c. Draft Final Remedial Investigation for Site 12, Tank Farm 4, Naval Station Newport, Rhode Island. Tetra Tech NUS, Inc. July.

TtNUS, 2011d. Site Closeout Report for Former Melville North Landfill, NAVSTA, Newport, Rhode Island. January 4.

TtNUS, 2011e. Final Sampling and Analysis Plan (Field Sampling Plan and Quality Assurance Project Plan), May 2011, Former Derecktor Shipyard Marine Sediment Data Gaps Investigation, Naval Station Newport, Newport, Rhode Island. Tetra Tech NUS, Inc. September.

TtNUS, 2011f. Final Technical Memorandum Supplemental Remedial Investigation for Site 08, Naval Undersea Systems Center (NUSC) Disposal Area, Naval Station Newport, Rhode Island. Tetra Tech NUS, Inc. October.

TtNUS, 2011g. Draft Feasibility Study for Site 13, Tank Farm 5, Naval Station Newport, Newport, Rhode Island. Tetra Tech NUS, Inc. October.

TtNUS, 2011h. Groundwater Monitoring Well Abandonment Summary Report, Tank Farm 5, Naval Station Newport, Newport, Rhode Island, Tetra Tech NUS, Inc. June.

Tetra Tech, 2012a. Draft Evaluation of Urban Fill, Coddington Point, Naval Station Newport, Newport, Rhode Island, Tetra Tech NUS, Inc. January.

Tetra Tech, 2012b. Final Land Use Control Remedial Design for Site 1 – McAllister Point Landfill, Operable Unit 1, Naval Station Newport, Newport, Rhode Island, Tetra Tech NUS, Inc. February.

Tetra Tech, 2012c. Final Land Use Control Remedial Design for Site 9 – Old Fire Fighting Training Area, Operable Unit 3, Naval Station Newport, Newport, Rhode Island. February.

Tetra Tech, 2012d. Final Phase 2 Remedial Investigation and Baseline Ecological Risk Assessment, Site 17: Building 32, Gould Island, Naval Station Newport, Newport, Rhode Island. Tetra Tech NUS, Inc. May.

Tetra Tech, 2012e. Study Area Screening Investigation for Site 04 – Coddington Cove Rubble Fill Area, NAVSTA Newport, Rhode Island. Tetra Tech NUS, Inc. May.

Tetra Tech, 2012f. Final Feasibility Study for Site 8 – Naval Undersea Systems Center (NUSC) Disposal Area, Naval Station Newport, Newport, Rhode Island. Tetra Tech NUS, Inc. July.

Tetra Tech, 2012g. Final Sampling and Analysis Plan, Data Gaps Assessment, Category 1 Areas Ethyl Blending Plant and Transformer Sites, Tank Farm 1, Naval Station Newport, Newport, Rhode Island. Tetra Tech NUS, Inc. July.

Tetra Tech, 2012h. Final EE/CA Report, MRP Site 1, Former Carr Point Shooting Range, Naval Station Newport, Newport, Rhode Island. Tetra Tech NUS, Inc. August.

Tetra Tech, 2012i. Final Data Gaps Assessment Report for Installation Restoration Site 12 (Tank Farm 4) and 13 (Tank Farm 5) Category 1 Areas, Naval Station Newport, Rhode Island. Tetra Tech NUS, Inc. August.

Tetra Tech, 2012j. Final Action Memorandum for Non-time Critical Removal Action, MRP Site 1, Former Carr Point Shooting Range, Naval Station Newport, Rhode Island. Tetra Tech NUS, Inc. September.

Tetra Tech, 2012k. Final Design Submittal #1 10.15.12, P-347 Newport Fitness Facility, Phase 1A: Katy Field Parking Lot, Site 9, Naval Station Newport, Newport, Rhode Island. October.

Tetra Tech, 2012l. Remedial Alternatives Package, Site 19, Former Derecktor Shipyard Marine Sediment, Naval Station Newport, Newport, Rhode Island. Tetra Tech NUS, Inc. October.

Tetra Tech, 2012m. Final Supplemental Sediment Investigation Report for IRP Site 19, Former Derecktor Shipyard, Naval Station Newport, Newport, Rhode Island, Tetra Tech NUS, Inc. December.

Tetra Tech, 2013a. Final Study Area Screening Evaluation Addendum, Site 19 – On-Shore Derecktor Shipyard, Naval Station Newport, Newport, Rhode Island. Tetra Tech NUS, Inc. January.

Tetra Tech, 2013b. Land Use Control Remedial Design for Site 8 – Naval Underwater Systems Center (NUSC) Disposal Area, Naval Station Newport, Newport, Rhode Island. Tetra Tech, Inc. October.

Tetra Tech, 2014a. Remedial Design for Soil at Site 8 – Naval Underwater Systems Center (NUSC) Disposal Area, Naval Station Newport, Middletown, Rhode Island. Tetra Tech, Inc. January.

Tetra Tech, 2014b. Addendum to the Land Use Control Remedial Design, Site 8 NUSC Disposal Area, Naval Station Station Newport, Rhode Island. Tetra Tech, Inc. May.

Universe Technologies, 2005. Final Project Close-Out Report – Excavation, Transportation and Disposal Services at Installation Restoration Site 09 – Old Fire Fighting Training Area, Naval Station Newport, Newport, Rhode Island. Universe Technologies, Inc. December.

USEPA Region 1, 1992. Federal Facilities Agreement Under CERCLA §120, The U.S. Department of the Navy Naval Education and Training Center, Newport, Rhode Island and Naval Undersea Warfare Center, Newport. Rhode Island. March.

USEPA, 2001. Comprehensive Five-Year Review Guidance. U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. OSWER Directive 9355.7-03B-P. June.

USEPA, 2012a. Memorandum Clarifying the Use of Protectiveness Determinations for Comprehensive Environmental Response, Compensation, and Liability Act Five-Year Reviews. U.S. Environmental Protection Agency. OSWER Directive 9200.2-111. September.

USEPA, 2012b. Compilation and Review of Data on Relative Bioavailability of Arsenic in Soil and Recommendations for Default Value for Relative Bioavailability of Arsenic in Soil Documents. OSWER Directive 9200.1-113. December 31.

USEPA, 2014. Human Health Evaluation Manual, Supplemental Guidance – Update of Standard Default Exposure Factors. OSWER Directive 9200.1-120. February 6.

Watermark, 2013a. Draft Annual Monitoring Report Operation and Maintenance Activities 2012, McAllister Point Landfill, Naval Station Newport, Middletown Rhode Island. May.

Watermark, 2013b. Draft Landfill Vent Gas Screening Report, McAllister Point Landfill, Naval Station Newport, Middletown Rhode Island. August.

Watermark, 2013c. Draft Landfill Cap Inspection Report, McAllister Point Landfill, Naval Station Newport, Middletown Rhode Island. September.

Watermark, 2013d. Final Annual Monitoring Report Operation and Maintenance Activities 2011, McAllister Point Landfill, Naval Station Newport, Middletown Rhode Island. November.

Watermark, 2014a. Final Annual Monitoring Report Operation and Maintenance Activities 2012, McAllister Point Landfill, Naval Station Newport, Middletown Rhode Island. August.

Watermark, 2014b. Draft Annual Monitoring Report Operation and Maintenance Activities 2013, McAllister Point Landfill, Naval Station Newport, Middletown Rhode Island. October.

Appendix B

Figures

Appendix B.1

Site-wide

IR/MRP Sites

Site	Site Name	Operable Unit
Site 1	McAllister Point Landfill	OU 1, OU 4
Site 4	Coddington Cove Rubble Fill Area (CCRF)	TBD
Site 8	NUSC Disposal Area	OU 7
Site 9 & 20	Old Fire Fighting Training Area (OFFTA)	OU 3
Site 7	Tank Farm 1	OU13
Site 10	Tank Farm 2	OU14
Site 11	Tank Farm 3	OU15
Site 12	Tank Farm 4	OU 11
Site 13	Tank Farm 5	OU 2
Site 17	Gould Island	OU 6
Site 19	Derecktor Shipyard	OU 5, OU 12
IR Site 22	Carr Point Storage Area	OU 10
MRP Site 1	Carr Point Shooting Range	OU 9
Site 23	Coddington Point Buried Debris Sites	TBD

RESOLUTION CONSULTANTS

Drawn: JB 09/25/2014

Approved: MK 09/25/2014

Project #: 60268619

Map Location

N

0 1,200 2,400

Scale in Feet

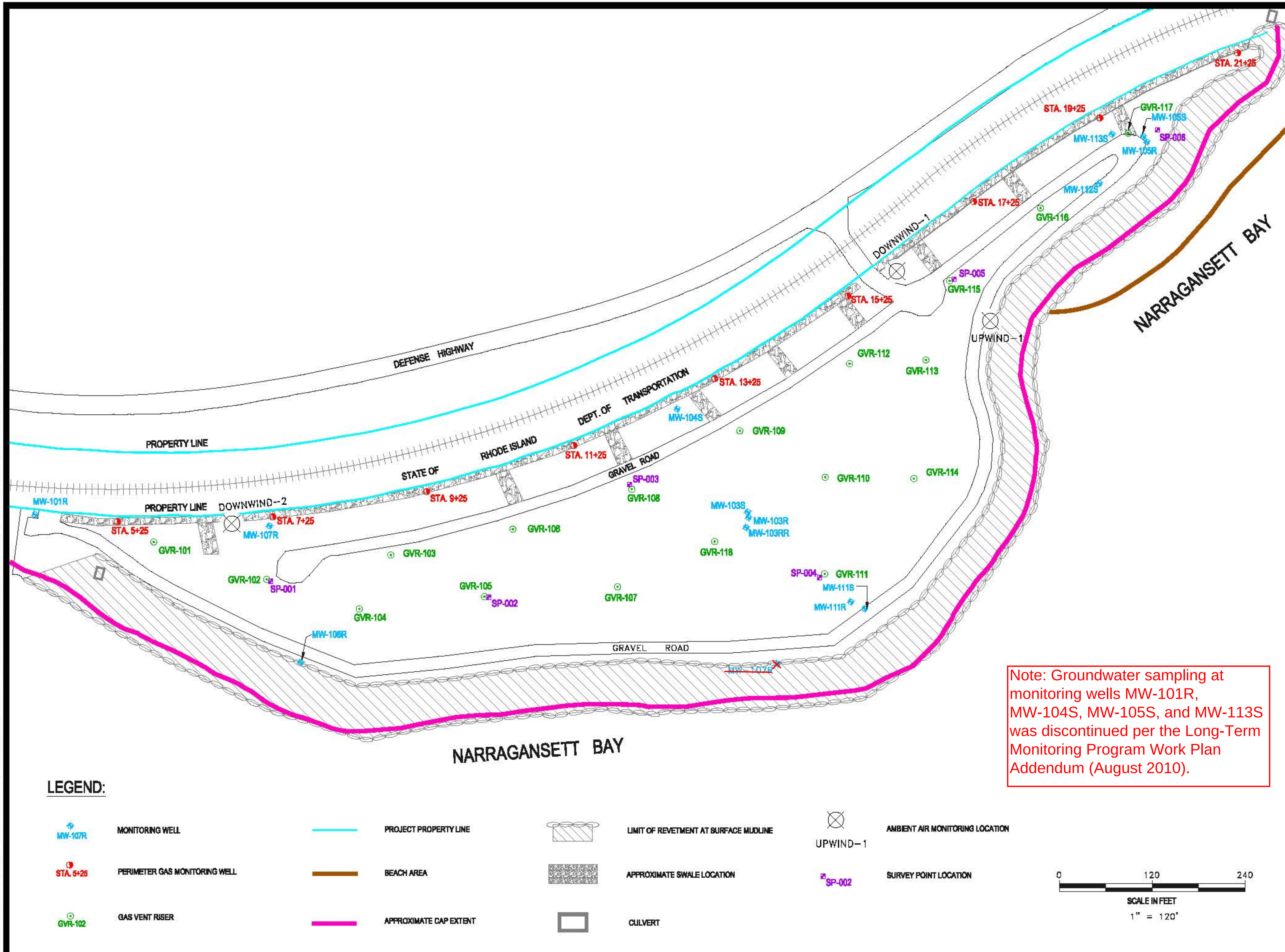
FIGURE 1
SITE MAP

SITES AND STUDY AREAS
NAVSTA NEWPORT, RHODE ISLAND

Path: W:\Govt\Projects\Navy CLEAN AECOM-EnSafe JV\Newport\GIS\Projects\Sitewide\Map\Figure_1_Sites_and_Study_Areas.mxd

Appendix B.2

Site 1



Watermark

ANNUAL MONITORING REPORT

McAllister Point Landfill
Naval Station Newport
Middletown, Rhode Island

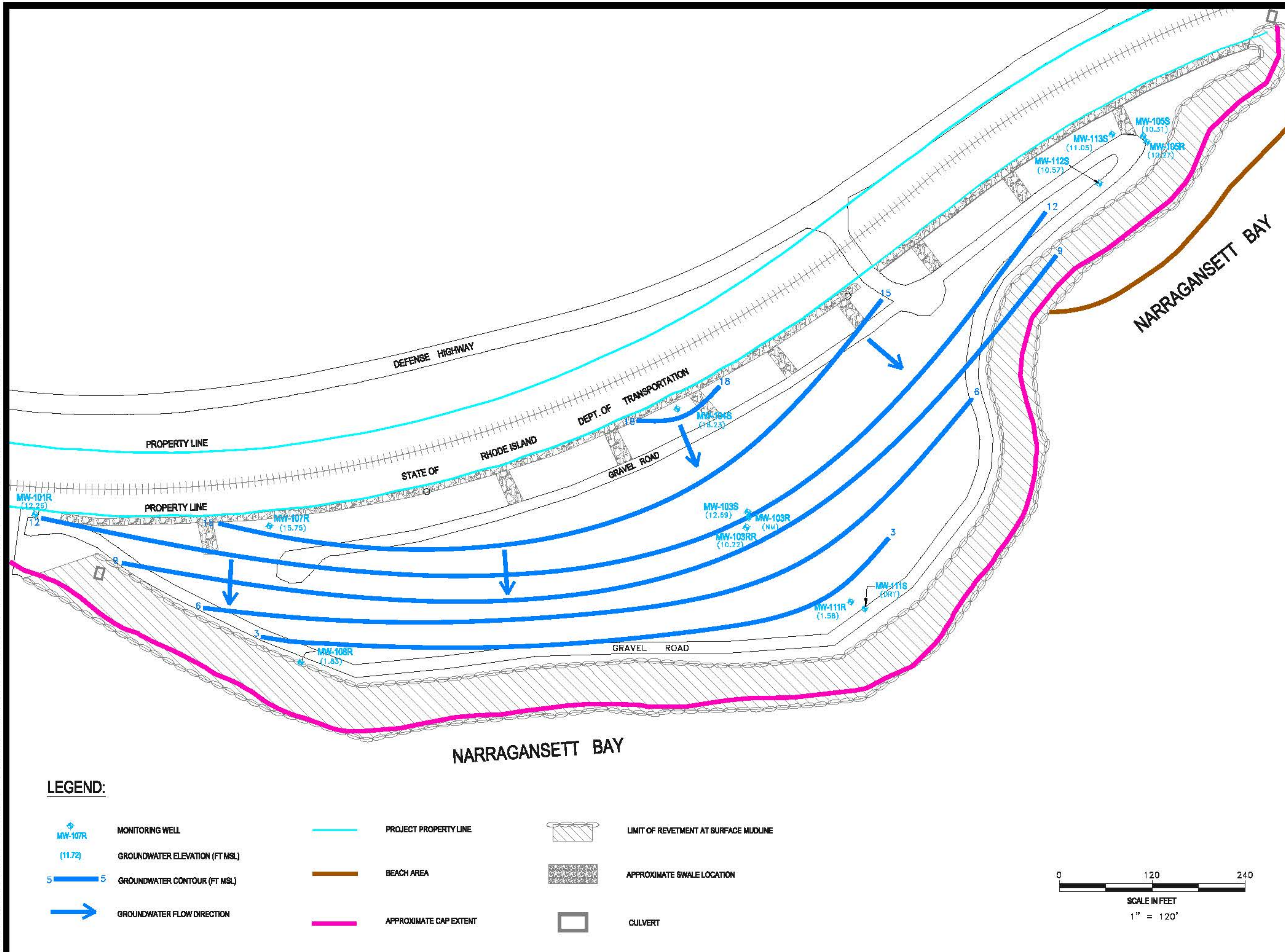
NOTES:

PROJECT NO: 10407-23
MODEL FILE: FIG1-2
DRAWN BY: SDP
CHK'D BY: MRF
DATE: 8/7/2013

Groundwater and Landfill Gas Monitoring Point Locations

Figure 1-2

J:\01 Projects\10XXX\10407 - NAVFAC MIDLANT RAC LTM MAC\TO 003 - Newport, RI\10. Drawings\Annual Monitoring Report\2013\Figure 1-2 Groundwater and Landfill Gas Monitoring Points.dwg



Watermark

ANNUAL MONITORING REPORT

McAllister Point Landfill
Naval Station Newport
Middletown, Rhode Island

NOTES:

1. Groundwater elevations were measured on May 3, 2013.

2. All elevations shown are in feet above mean sea level (AMSL).

PROJECT NO: 10407-23
MODEL FILE: FIG 2-2
DRAWN BY: SDP
CHK'D BY: MRF
DATE: 8/7/2013

Groundwater Potentiometric Surface

Figure 2-2

J:\01 Projects\10XXX\10407 - NAVFAC MIDLANT RAC LTM MAC\TO 003 - Newport, RI\10. Drawings\Annual Monitoring Report\2013\Figure 2-2 Groundwater Potentiometric Surface.dwg

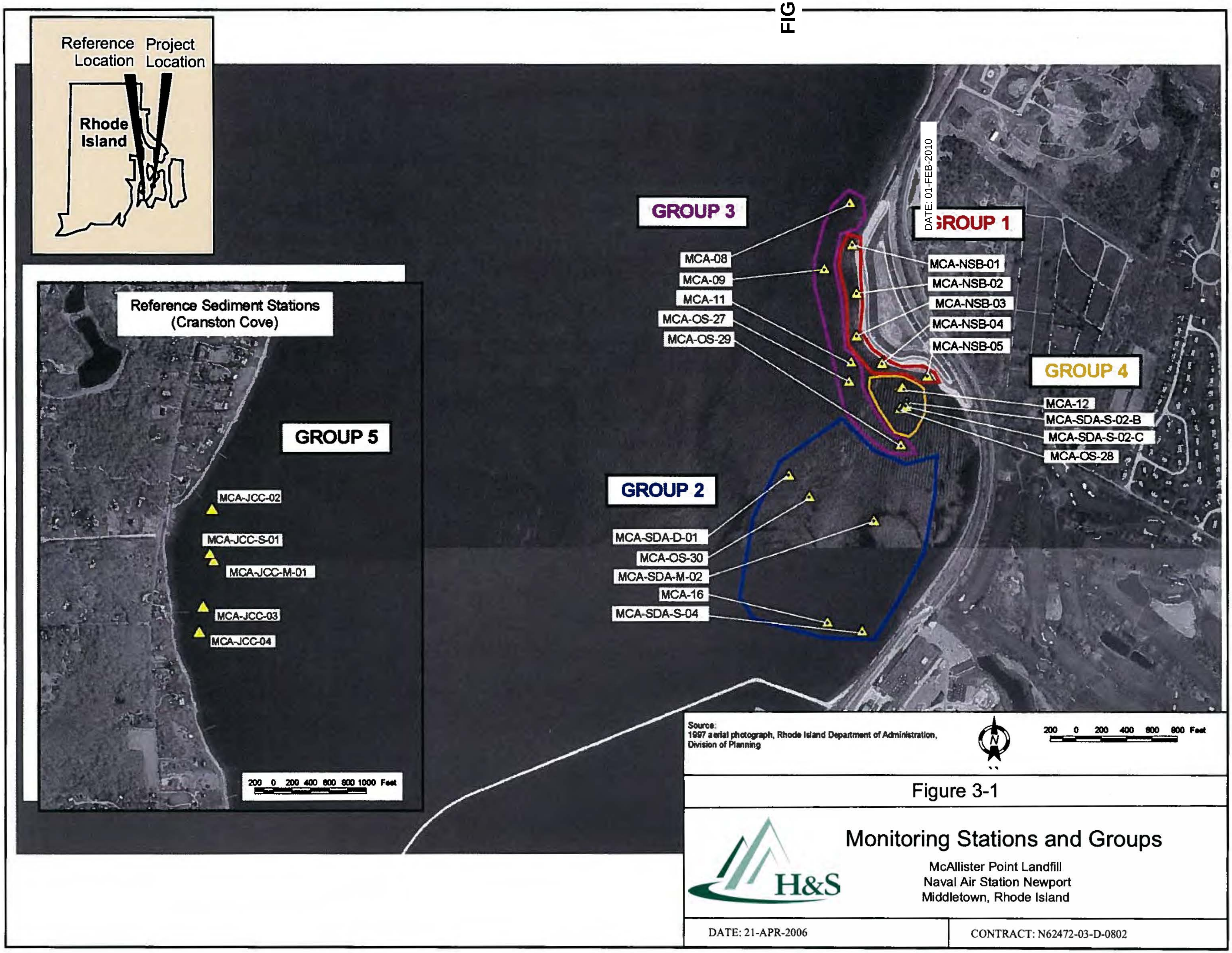
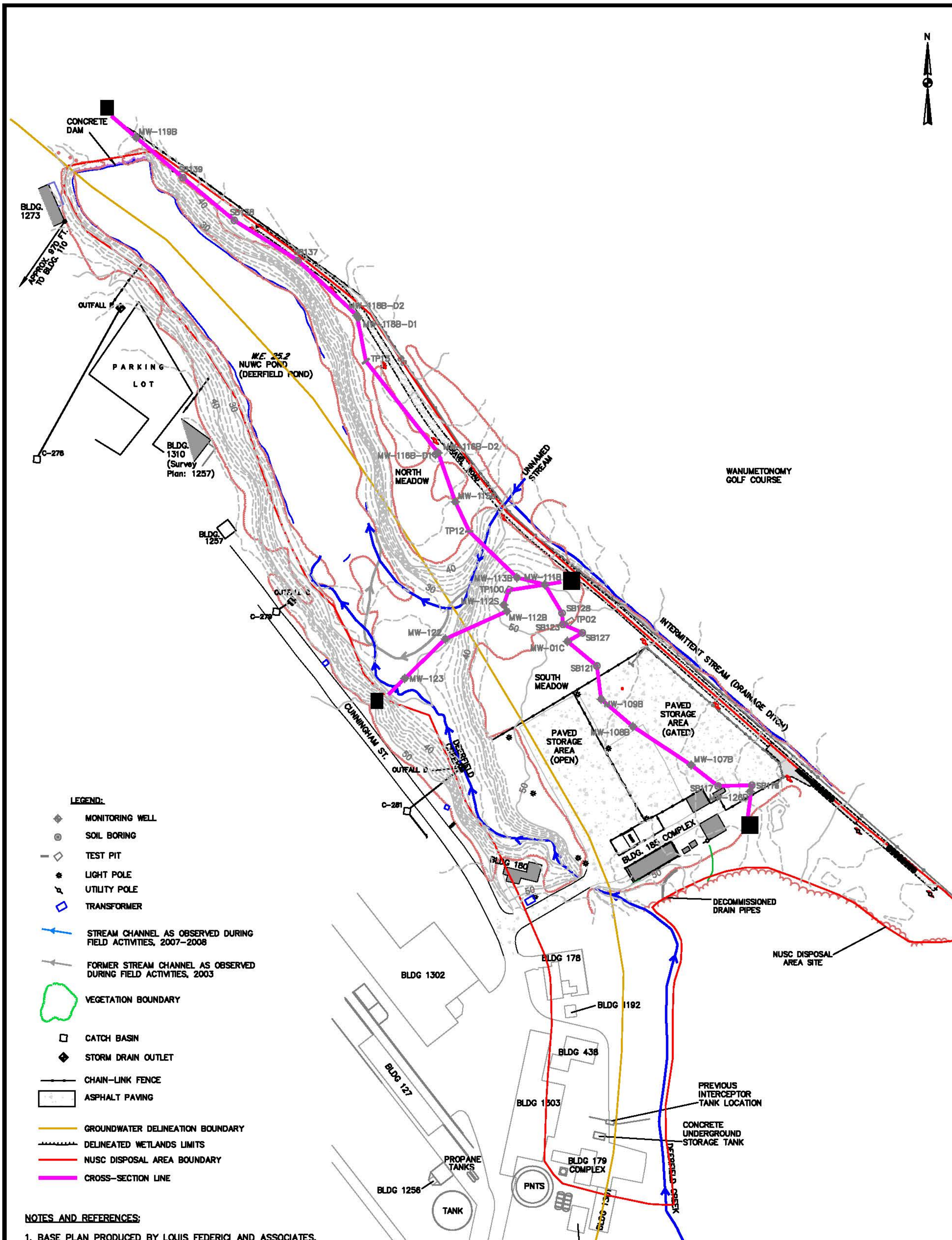


Figure 3-1

Monitoring Stations and Groups

Appendix B.3

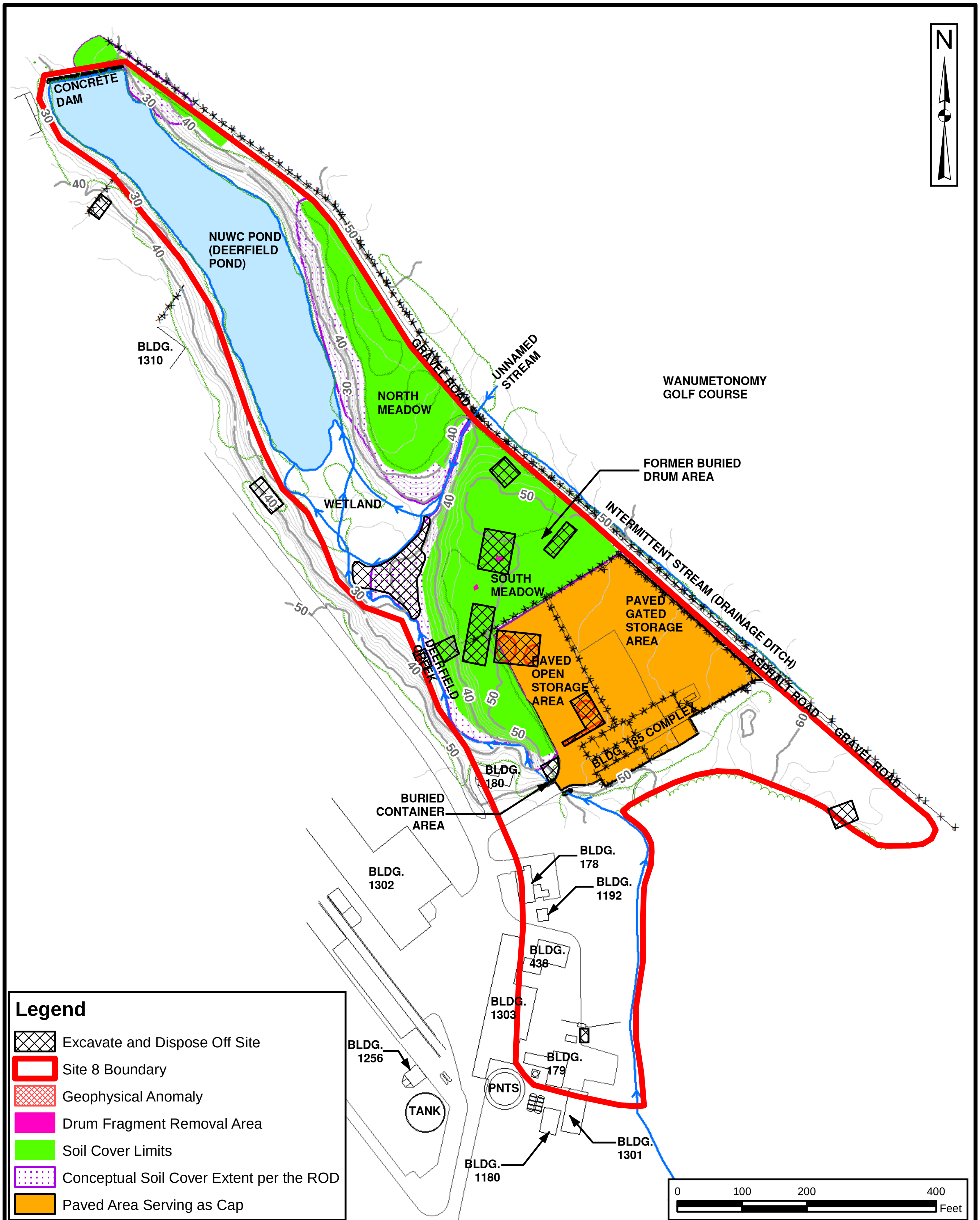
Site 8



NOTES AND REFERENCES:

1. BASE PLAN PRODUCED BY LOUIS FEDERICI AND ASSOCIATES.
2. HORIZONTAL DATUM = NAD 1983.
3. TOPOGRAPHY WAS PRODUCED BY DIGITAL PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY CONDUCTED APRIL 25, 1996.
4. BUILDING 1310 (SHOWN ON SURVEY PLAN AS BLDG. 1257) FROM SURVEY LOCATION (See Note 1); BLDG. 1257 NAME & LOCATION ACCORDING TO PLAN CITED IN NOTE 7 BY THE NAVY FACILITIES ENGINEERING COMMAND.
5. LOCATIONS OF PARKING LOT NEAR BLDG. 1310 AND OUTFALLS B, C, & D ADAPTED AND INTERPRETED FROM A PLAN BY THE DEPARTMENT OF THE NAVY, NAVY FACILITIES ENGINEERING COMMAND, "STORM DRAINAGE SYSTEM, CODDINGTON COVE", CODE IDENT NO. 80091, NO DATE, IN CONJUNCTION WITH THE ACTUAL FIELD SURVEY PLAN, CITED ABOVE.
6. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE AND NOT TO BE USED FOR FINAL DESIGN WITHOUT FIELD VERIFICATION.
7. GROUNDWATER CLASSIFICATION DELINEATION FROM RIGIS.
8. IDENTIFIED CROSS-SECTIONS PROVIDED ON FIGURES 1-5 AND 1-6.

TETRA TECH	NAVAL STATION NEWPORT MIDDLETOWN, RHODE ISLAND **SITE MAP** SITE 8 - NUSC DISPOSAL AREA FEASIBILITY STUDY	SCALE 1" = 150' FILE I:\..\FIGURE_1-4.DWG REV 0 DATE 6/29/12 FIGURE NUMBER 1-4



I:\02124\DD.DRI\NUSC_PRE-DES_SOIL_INV.MXD DWM/NEC 09/13/13

TETRA TECH

NAVAL STATION NEWPORT
MIDDLETOWN, RHODE ISLAND

EXTENT OF PLANNED SOIL EXCAVATION AND SOIL COVER CONSTRUCTION

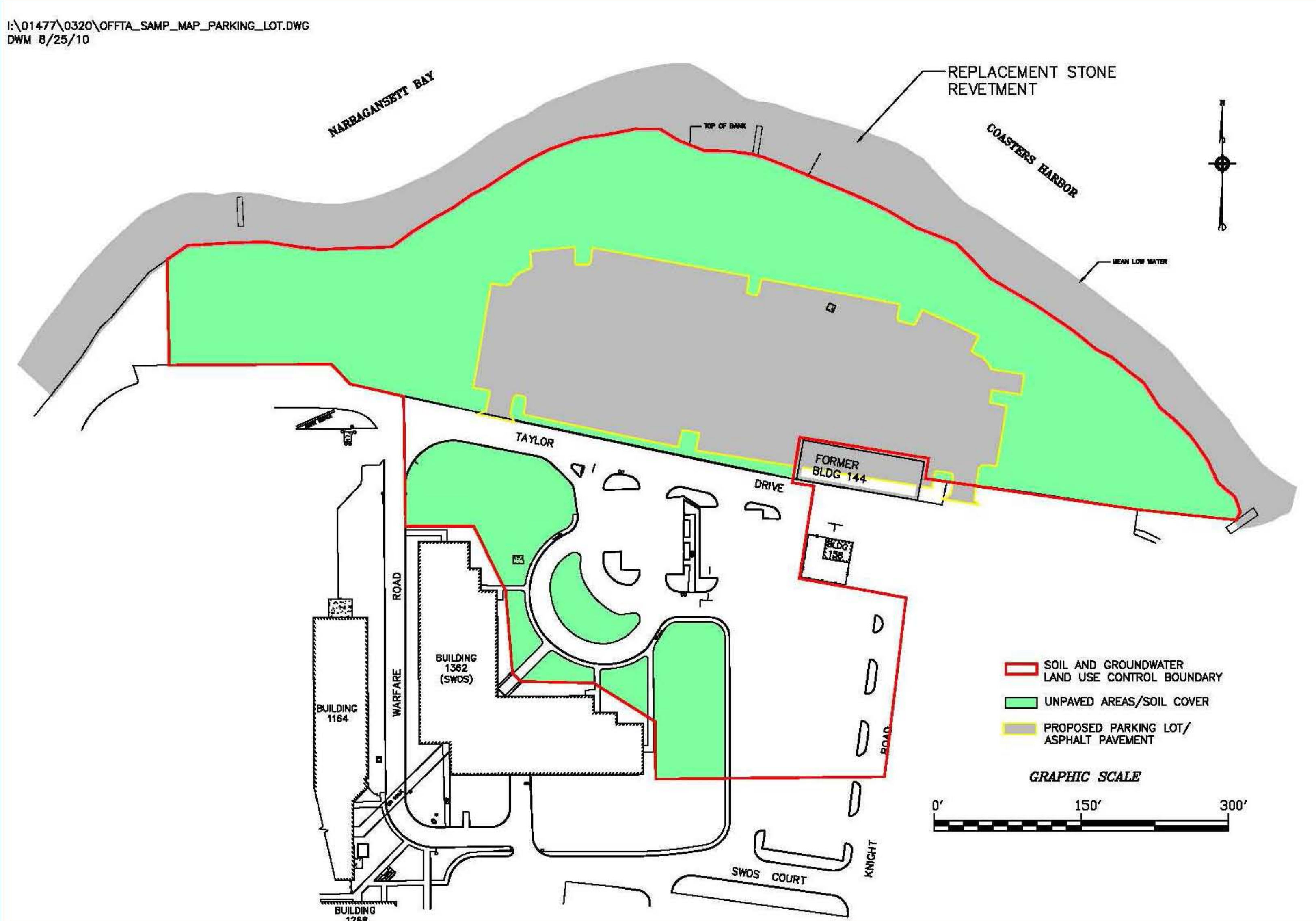
SITE 8 - NUSC DISPOSAL AREA
SOIL REMEDIAL DESIGN

SCALE	
PER SCALE BAR	
FILE	
I\..\NUSC_PRE-DES_SOIL_INV.MXD	
REV	DATE
0	09/13/13
FIGURE NUMBER	
3-1	

Appendix B.4

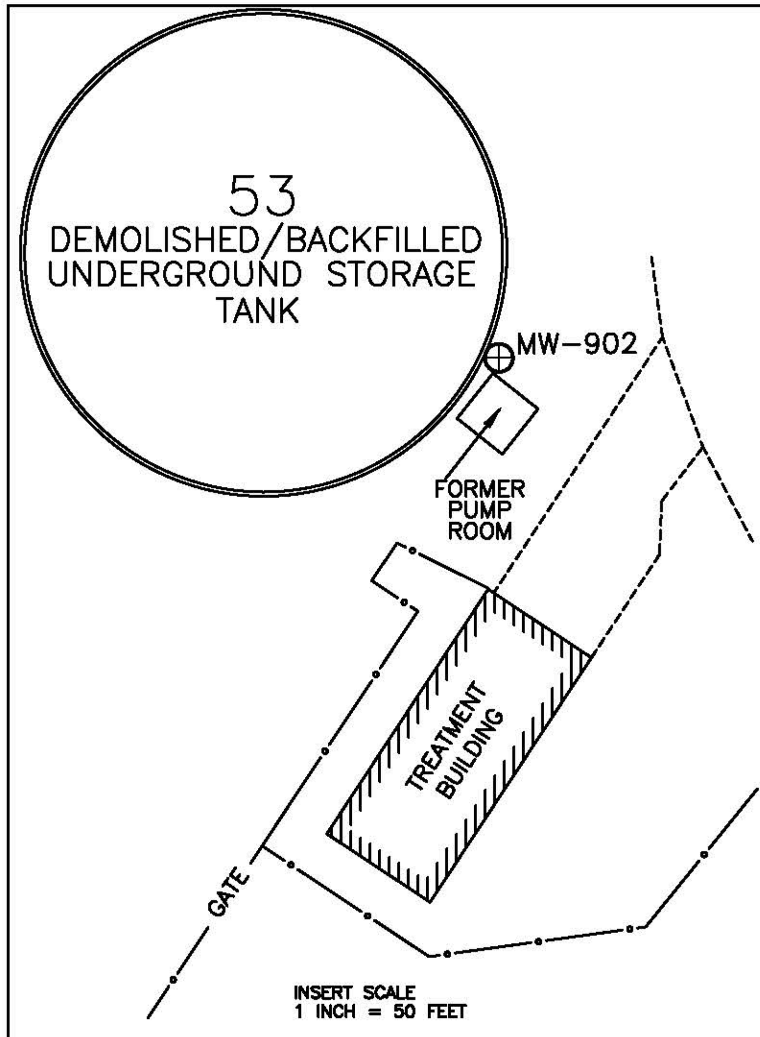
Site 9

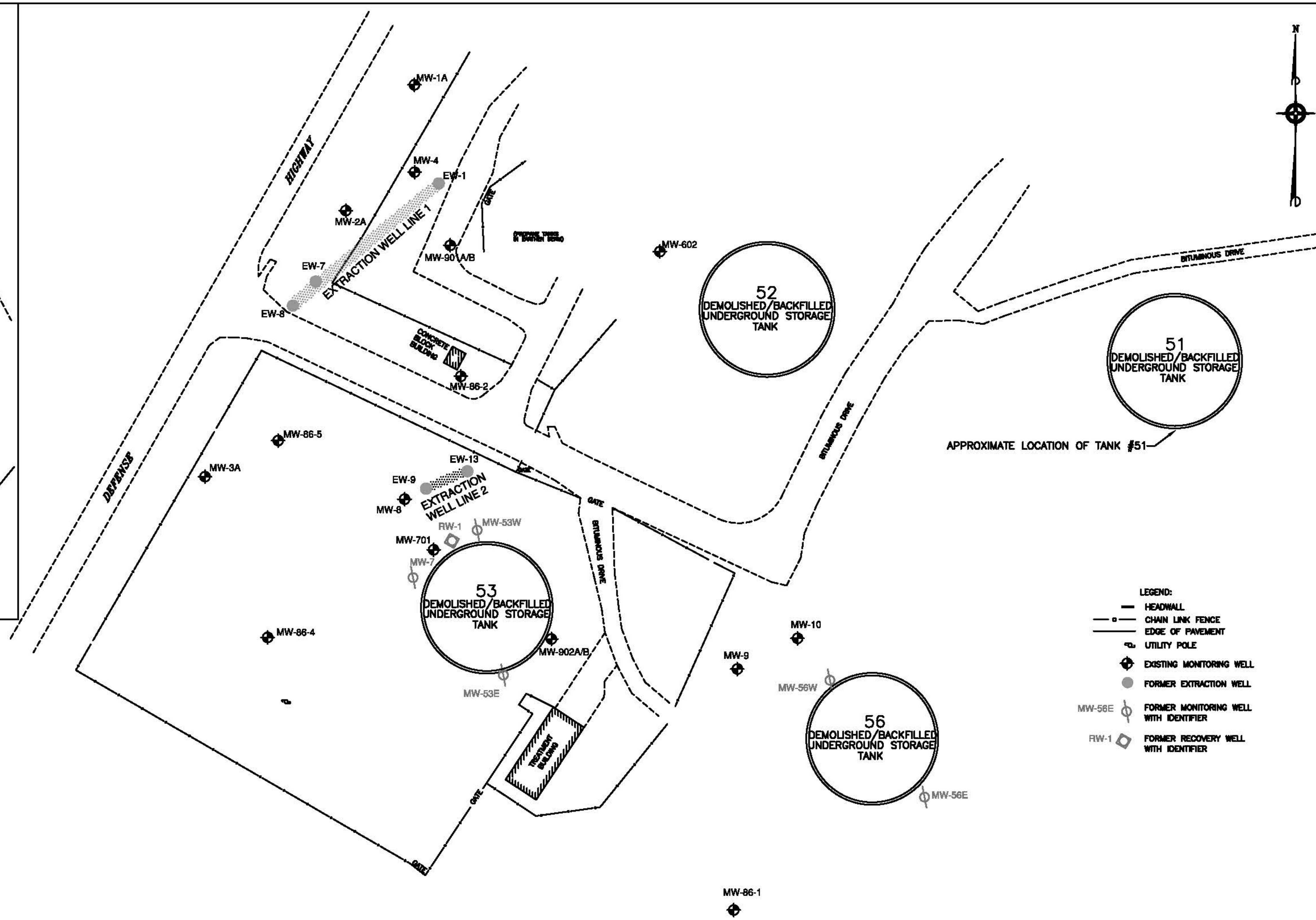
FIGURE 2 4. SELECTED REMEDY ASPHALT/SOIL COVER AND LAND USE CONTROL BOUNDARY



Appendix B.5

Tanks 53 and 56 within Site 13





NOTES AND REFERENCES:

1. U.S. NAVAL BASE NEWPORT, RI, MELVILLE AREAS 2, 3, 4, 8, 5, LOCATION OF ESTABLISHED BENCH ... DEPARTMENT OF THE NAVY BUREAU OF YARDS & DOCKS, DR ... 8,210, SHEET 1 OF 1, SKETCH NO. C-52-65.
   BM NO. 5 (TANK FARM NO. 5) IS ... CUT ON N.W. COR. OF R.R. BRIDGE ABUT'MT 83.5'W. ... TION. BM ELEV. ARE REFERRED TO THE DATUM OF M.L...
2. VERTICAL DATUM IS BASED ON LO ... W WATER (SEE NOTE #2).
3. HORIZONTAL DATUM IS BASED ON ... OF RHODE ISLAND GRID COORDINATE SYSTEM (NAD ...
4. PLAN NOT TO BE USED FOR DES...
5. ALL LOCATIONS TO BE CONSIDERE... TE.

* Monitoring wells were abandoned in 2010.

*

GRAPHIC SCALE
0' 100' 200'

FORMER TANKS 53 AND 56 – TANK FARM 5				FIGURE 3-1
NAVSTA NEWPORT – FIVE-YEAR REVIEW				TETRA TECH NUS, INC.
NEWPORT, RHODE ISLAND				55 Jonspin Road Wilmington, MA 01887 (978)658-7899
DRAWN BY:	D.W. MACDOUGALL	REV.:	0	
CHECKED BY:	S. PARKER	DATE:	APRIL 22, 2009	
SCALE:	AS NOTED	FILE NO.:	\01636\0210\5YrRev_TF5.DWG	

Appendix C

Site Inspection Information

Five-Year Review Site Inspection Checklist

I. SITE INFORMATION	
Site name: IR Site 1 – McAllister Landfill	**Date of inspection: February 27, 2014**
Location and Region: NAVSTA Newport, RI	**EPA ID: RI6170085470**
Agency, office, or company leading the five-year review: Resolution Consultants	**Weather/temperature: Partly Cloudy, ~20°F, Windy**

Remedy Includes: (Check all that apply)

X Landfill cover/containment ☐ Monitored natural attenuation
X Access controls ☐ Groundwater containment
X Institutional controls ☐ Vertical barrier walls
☐ Groundwater pump and treatment
☐ Surface water collection and treatment
X Other_**stone revetment**____
____

Attachments: ☐ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** ______________________ ______________________ ____________
Name Title Date
Interviewed ☐ at site ☐ at office ☐ by phone Phone no. ____________
Problems, suggestions; ☐ Report attached ____
____

2. **O&M staff** ______________________ ______________________ ____________
Name Title Date
Interviewed ☐ at site ☐ at office ☐ by phone Phone no. ____________
Problems, suggestions; ☐ Report attached ____
____

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 ______________________________
Contact ______________________________ ____________________ _________ _____________
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached ____
____

Agency ______________________________
Contact ______________________________ ____________________ _________ _____________
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached ____
____

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.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**
X O&M manual X Readily available X Up to date ☐ N/A
☐ As-built drawings ☐ Readily available ☐ Up to date ☐ N/A
X Maintenance logs X Readily available X Up to date ☐ N/A
Remarks______No documents are maintained at the site, but several documents were obtained and reviewed._

2. **Site-Specific Health and Safety Plan** X Readily available X Up to date ☐ N/A
☐ Contingency plan/emergency response plan ☐ Readily available ☐ Up to date ☐ N/A
Remarks

3. **O&M and OSHA Training Records** ☐ Readily available ☐ Up to date ☐ N/A
Remarks

4. **Permits and Service Agreements**
☐ Air discharge permit ☐ Readily available ☐ Up to date X N/A
☐ Effluent discharge ☐ Readily available ☐ Up to date X N/A
☐ Waste disposal, POTW ☐ Readily available ☐ Up to date X N/A
☐ Other permits_____________________ ☐ Readily available ☐ Up to date X N/A
Remarks

5. **Gas Generation Records** ☐ Readily available ☐ Up to date X N/A
Remarks

6. **Settlement Monument Records** X Readily available X Up to date ☐ N/A
Remarks

7. **Groundwater Monitoring Records** X Readily available X Up to date ☐ N/A
Remarks

8. **Leachate Extraction Records** ☐ Readily available ☐ Up to date X N/A
Remarks

9. **Discharge Compliance Records**
☐ Air ☐ Readily available ☐ Up to date X N/A
☐ Water (effluent) ☐ Readily available ☐ Up to date X N/A
Remarks

10. **Daily Access/Security Logs** ☐ Readily available ☐ Up to date X 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 X Contractor for Federal Facility
☐ Other____Not Reviewed____
____

2. **O&M Cost Records**
☐ Readily available ☐ Up to date
☐ Funding mechanism/agreement in place
Original O&M cost estimate____________________ ☐ Breakdown attached

Total annual cost by year for review period if available

From__________ To__________ ____________________ ☐ Breakdown attached
Date Date Total cost
From__________ To__________ ____________________ ☐ Breakdown attached
Date Date Total cost
From__________ To__________ ____________________ ☐ Breakdown attached
Date Date Total cost
From__________ To__________ ____________________ ☐ Breakdown attached
Date Date Total cost
From__________ To__________ ____________________ ☐ Breakdown attached
Date Date Total cost

3. **Unanticipated or Unusually High O&M Costs During Review Period**
Describe costs and reasons: ____
____
____
____
____
____

V. ACCESS AND INSTITUTIONAL CONTROLS X Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map X Gates secured ☐ N/A
Remarks__Fence and gates are in good condition and locked.____________________
____

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A
Remarks__Signage was present and in good condition.___________________________
____

C. Institutional Controls (ICs)				
1.	**Implementation and enforcement** Site conditions imply ICs not properly implemented ☐ Yes X No ☐ N/A Site conditions imply ICs not being fully enforced ☐ Yes X No ☐ N/A Type of monitoring (*e.g.*, self-reporting, drive by) ___ Frequency ___ Responsible party/agency ___ Contact ___ ___ ___ ___ 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 ___**Inspections have been conducted in accordance with the Land Use Control Remedial Design and documented in annual monitoring reports prepared by Navy contractors.**___			
2.	**Adequacy** X ICs are adequate ☐ ICs are inadequate ☐ N/A Remarks___			
D. General				
1.	**Vandalism/trespassing** ☐ Location shown on site map X No vandalism evident Remarks___			
2.	**Land use changes on site** ☐ N/A Remarks__**None**___			
3.	**Land use changes off site** ☐ N/A Remarks_**None apparent.**___			
VI. GENERAL SITE CONDITIONS				
A. Roads X Applicable ☐ N/A				
1.	**Roads damaged** ☐ Location shown on site map X Roads adequate ☐ N/A Remarks__The landfill access roads appeared in adequate condition.___			

B. Other Site Conditions

Remarks ____

VII. LANDFILL COVERS X Applicable □ N/A

A. Landfill Surface

1. **Settlement** (Low spots) □ Location shown on site map X Settlement not evident
Areal extent______________ Depth____________
Remarks____

2. **Cracks** □ Location shown on site map X Cracking not evident
Lengths____________ Widths___________ Depths__________
Remarks____

3. **Erosion** □ Location shown on site map X Erosion not evident
Areal extent______________ Depth____________
Remarks____

4. **Holes** □ Location shown on site map X Holes not evident
Areal extent______________ Depth____________
Remarks____

5. **Vegetative Cover** □ Grass □ Cover properly established X No signs of stress
□ Trees/Shrubs (indicate size and locations on a diagram)
Remarks____

6. **Alternative Cover (armored rock, concrete, etc.)** □ N/A
Remarks__The stone revetment appeared in good condition.__________________________________

7. **Bulges** □ Location shown on site map X Bulges not evident
Areal extent______________ Height____________
Remarks____

8. **Wet Areas/Water Damage** X Wet areas/water damage not evident

☐ Wet areas ☐ Location shown on site map Areal extent______________

☐ Ponding ☐ Location shown on site map Areal extent______________

☐ Seeps ☐ Location shown on site map Areal extent______________

☐ Soft subgrade ☐ Location shown on site map Areal extent______________

Remarks____

____

9. **Slope Instability** ☐ Slides ☐ Location shown on site map X No evidence of slope instability

Areal extent______________

Remarks____

____

B. Benches ☐ Applicable X 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.)

1. **Flows Bypass Bench** ☐ Location shown on site map X N/A or okay

Remarks____

____

2. **Bench Breached** ☐ Location shown on site map X N/A or okay

Remarks____

____

3. **Bench Overtopped** ☐ Location shown on site map X N/A or okay

Remarks____

____

C. Letdown Channels X Applicable ☐ 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.)

1. **Settlement** ☐ Location shown on site map X No evidence of settlement

Areal extent______________ Depth____________

Remarks____

____

2. **Material Degradation** ☐ Location shown on site map X No evidence of degradation

Material type_______________ Areal extent_____________

Remarks____

____

3. **Erosion** ☐ Location shown on site map X No evidence of erosion

Areal extent______________ Depth____________

Remarks____

____

4. **Undercutting** □ Location shown on site map X No evidence of undercutting
Areal extent______________ Depth____________
Remarks____

5. **Obstructions** Type_____________________ X No obstructions
□ Location shown on site map Areal extent______________
Size____________
Remarks____

6. **Excessive Vegetative Growth** Type____________________
X No evidence of excessive growth
□ Vegetation in channels does not obstruct flow
□ Location shown on site map Areal extent______________
Remarks____

D. Cover Penetrations X Applicable □ N/A

1. **Gas Vents** □ Active X Passive
□ Properly secured/locked X Functioning X Routinely sampled X Good condition
□ Evidence of leakage at penetration □ Needs Maintenance
□ N/A
Remarks____

2. **Gas Monitoring Probes**
□ Properly secured/locked X Functioning X Routinely sampled X Good condition
□ Evidence of leakage at penetration □ Needs Maintenance □ N/A
Remarks____

3. **Monitoring Wells** (within surface area of landfill)
□ Properly secured/locked □ Functioning X Routinely sampled □ Good condition
□ Evidence of leakage at penetration □ Needs Maintenance □ N/A
Remarks_Locks are missing from well MW-111S and MW-108R. The groundwater monitoring well casings were rusted, but there were no holes . ____

4. **Leachate Extraction Wells**
□ Properly secured/locked □ Functioning □ Routinely sampled □ Good condition
□ Evidence of leakage at penetration □ Needs Maintenance X N/A
Remarks____

5. **Settlement Monuments** X Located X Routinely surveyed □ N/A
Remarks____

E. Gas Collection and Treatment ☐ Applicable X N/A

1. **Gas Treatment Facilities**
☐ Flaring ☐ Thermal destruction ☐ Collection for reuse
☐ Good condition ☐ Needs Maintenance
Remarks____

2. **Gas Collection Wells, Manifolds and Piping**
☐ Good condition ☐ Needs Maintenance
Remarks____

3. **Gas Monitoring Facilities** (*e.g.*, gas monitoring of adjacent homes or buildings)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks____

F. Cover Drainage Layer ☐ Applicable X N/A

1. **Outlet Pipes Inspected** ☐ Functioning ☐ N/A
Remarks____

2. **Outlet Rock Inspected** ☐ Functioning ☐ N/A
Remarks____

G. Detention/Sedimentation Ponds ☐ Applicable X N/A

1. **Siltation** Areal extent____________ Depth__________ ☐ N/A
☐ Siltation not evident
Remarks____

2. **Erosion** Areal extent____________ Depth__________
☐ Erosion not evident
Remarks____

3. **Outlet Works** ☐ Functioning ☐ N/A
Remarks____

4. **Dam** ☐ Functioning ☐ N/A
Remarks____

H. Retaining Walls ☐ Applicable X N/A	
1.	**Deformations** ☐ Location shown on site map ☐ Deformation not evident Horizontal displacement_____________ Vertical displacement_______________ Rotational displacement_____________ Remarks____
2.	**Degradation** ☐ Location shown on site map ☐ Degradation not evident Remarks____
I. Perimeter Ditches/Off-Site Discharge X Applicable ☐ N/A	
1.	**Siltation** ☐ Location shown on site map X Siltation not evident Areal extent______________ Depth____________ Remarks____
2.	**Vegetative Growth** ☐ Location shown on site map ☐ N/A X Vegetation does not impede flow Areal extent______________ Type____________ Remarks____
3.	**Erosion** ☐ Location shown on site map X Erosion not evident Areal extent______________ Depth____________ Remarks____
4.	**Discharge Structure** X Functioning ☐ N/A Remarks____
VIII. VERTICAL BARRIER WALLS ☐ Applicable X N/A	
1.	**Settlement** ☐ Location shown on site map ☐ Settlement not evident Areal extent______________ Depth____________ Remarks____
2.	**Performance Monitoring** Type of monitoring__________________________ ☐ Performance not monitored Frequency________________________________ ☐ Evidence of breaching Head differential___________________________ Remarks____

IX. GROUNDWATER/SURFACE WATER REMEDIES ☐ Applicable X N/A	
A. Groundwater Extraction Wells, Pumps, and Pipelines ☐ Applicable ☐ N/A	
1.	**Pumps, Wellhead Plumbing, and Electrical** ☐ Good condition☐ All required wells properly operating ☐ Needs Maintenance ☐ N/A Remarks_______________
2.	**Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances** ☐ Good condition☐ Needs Maintenance Remarks_______________
3.	**Spare Parts and Equipment** ☐ Readily available ☐ Good condition☐ Requires upgrade ☐ Needs to be provided Remarks_______________
B. Surface Water Collection Structures, Pumps, and Pipelines ☐ Applicable X N/A	
1.	**Collection Structures, Pumps, and Electrical** ☐ Good condition☐ Needs Maintenance Remarks_______________
2.	**Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances** ☐ Good condition☐ Needs Maintenance Remarks_______________
3.	**Spare Parts and Equipment** ☐ Readily available ☐ Good condition☐ Requires upgrade ☐ Needs to be provided Remarks_______________

C. Treatment System ☐ Applicable X N/A

1. **Treatment Train** (Check components that apply)
☐ Metals removal ☐ Oil/water separation ☐ Bioremediation
☐ Air stripping ☐ Carbon adsorbers
☐ Filters____
☐ Additive (*e.g.*, chelation agent, flocculent)________________________
☐ Others____
☐ Good condition ☐ Needs Maintenance
☐ Sampling ports properly marked and functional
☐ Sampling/maintenance log displayed and up to date
☐ Equipment properly identified
☐ Quantity of groundwater treated annually________________
☐ Quantity of surface water treated annually________________
Remarks____

2. **Electrical Enclosures and Panels** (properly rated and functional)
☐ N/A ☐ Good condition ☐ Needs Maintenance
Remarks____

3. **Tanks, Vaults, Storage Vessels**
☐ N/A ☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance
Remarks____

4. **Discharge Structure and Appurtenances**
☐ N/A ☐ Good condition ☐ Needs Maintenance
Remarks____

5. **Treatment Building(s)**
☐ N/A ☐ Good condition (esp. roof and doorways) ☐ Needs repair
☐ Chemicals and equipment properly stored
Remarks____

6. **Monitoring Wells** (pump and treatment remedy)
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ All required wells located ☐ Needs Maintenance ☐ N/A
Remarks____

D. Monitoring Data

1. Monitoring Data
☐ Is routinely submitted on time ☐ Is of acceptable quality

2. Monitoring data suggests:
☐ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining

D. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ All required wells located ☐ Needs Maintenance ☐ N/A
Remarks____

X. OTHER REMEDIES

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.).

_See report text. ____

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.

__Based on the site inspection, it appears that landfill cap and other remedy components are being adequately maintained. ______________________

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. __See report text.____

Locked front access gate with signage.

Looking north from site entrance. Fence is in good condition.

Drainage swale (condition is typical).

Southwest access gate with signage and revetment area looking northwest.

Eastern landfill slope looking north.

Monitoring well MW-111S is missing a well lock.

Locked west access gate to revetment.

West access road looking north.

View of landfill cap looking south. Grass is plentiful across the cap.

Monitoring well MW-108R has a new well cap, but there is no lock.

View of the southern end of the revetment looking south.

View of the central portion of the revetment looking northwest.

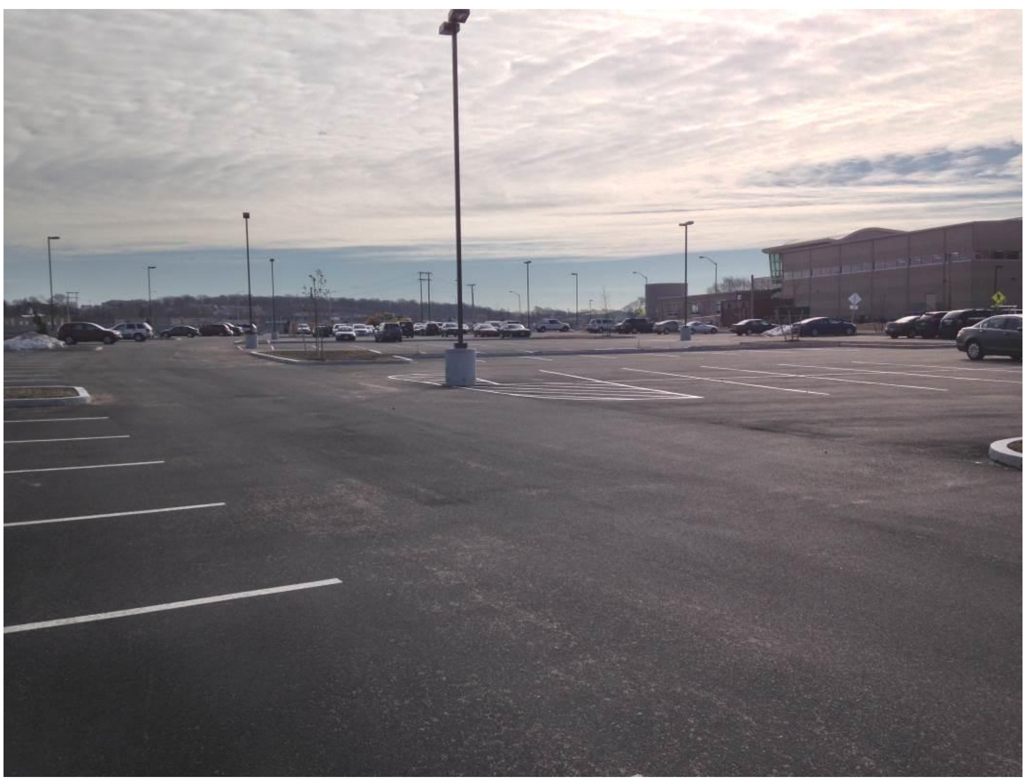
View of the northern portion of the revetment looking southwest.

NAVSTA Newport IR Site 09 Old Fire Fighting Training Area (OFFTA) Site Inspection for 5-Year Review
February 27, 2014

Western most end of Site 9 (to the left in photo) looking east. Landscape cap area surrounded by fencing.

Westernmost portion of the stone revetment which was extended as part of the remedial construction is to the right (north) in photo with a landscape cap area to the left (south). Permanent seeding has not yet been completed.

Bituminous pavement cap surrounded by landscape cap areas, still to be seeded. Temporary construction fencing separates this western portion of the site and a storage box and several drums are present within the fenced area.



Recently completed bituminous pavement cap looking southeast.

Bioretention basin surrounded by landscape cap areas. Permanent seeding is still to be completed. Silt fence remains at the revetment edge but has collapsed in several areas.

Easternmost portion of Site 9, looking southeast. A landscape cap will be installed in the area currently located within the temporary construction fencing.

The western half of the new fitness center building (to right in photo) is located within the Site 9 boundary. A gravel cap was placed at grade beneath the building.

Appendix D

ARARs and TBCs

TABLE D-1
CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPOPRIATE REQUIREMENTS, ADVISORIES AND GUIDANCE - McALLISTER POINT LANDFILL
FIVE-YEAR REVIEW
NAVSTA NEWPORT
NEWPORT, RHODE ISLAND

Requirement	Citation	Requirement Synopsis	Current Status/Applicability
FEDERAL			
EPA Human Health Assessment Cancer Slope Factors (CSFs)	None	These are guidance values used to evaluate the potential carcinogenic hazard caused by exposure to contaminants.	TBC (OU4) - EPA CSFs were used to compute the individual incremental cancer risk resulting from exposure to carcinogenic contaminants in site media. CSFs will be used in future evaluations of remedy protectiveness.
EPA Risk Reference Doses (RfDs)	None	Toxicity values for evaluating non-carcinogenic hazards from exposures to contamination.	TBC (OU4) - EPA RfDs were used to characterize human health risks due to non-carcinogens in site media. RfDs will be used in future evaluations of remedy protectiveness.
Clean Water Act, Section 304	40 USC 1314; 40 CFR 122.44	Establish Ambient Water Quality Criteria (AWQC): Guidelines for the protection of human health and/or the aquatic organisms.	Relevant and appropriate (OU4) - Sediment PRGs were derived using these water quality criteria. Sediments exceeding PRGs had to be addressed to meet standards. These values will be used in future evaluations of remedy protectiveness.

Requirement	Citation	Requirement Synopsis	Current Status/Applicability
STATE			
Remediation regulations- Risk Management Section	DEM-DSR-01-93 Section 8	This section of the remediation regulations sets forth remediation requirements for impacted media at contaminated sites.	Relevant and Appropriate (OU4) - PRGs were developed under these requirements to minimize the risk to affected media. These requirements will continue to be considered while remedy monitoring is ongoing.

Requirement	Citation	Requirement Synopsis	Current Status/Applicability
Water Pollution Control	RIGL 46-12 *et seq.*; ENVM 112-88.97-1	Establishes water use classification and water criteria for waters of the state. Also establishes acute and chronic water quality criteria for the protection of aquatic life.	Relevant and appropriate (OU4) - Sediment PRGs were derived using these water quality criteria. Sediments exceeding PRGs had to be addressed to meet standards. These values will be used in future evaluations of remedy protectiveness.

TABLE D-2
LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS, ADVISORIES AND GUIDANCE - McALLISTER POINT LANDFILL
FIVE-YEAR REVIEW
NAVSTA NEWPORT
NEWPORT, RHODE ISLAND

Requirement	Citation	Requirement Synopsis	Current Status/Applicability
FEDERAL			
Executive Order 11990 RE: Protection of Wetlands	40 CFR Part 6, Appendix A	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.	Applicable (OU1 and OU4) – Ongoing monitoring will continue to minimize impacts to coastal or on-shore wetlands.
Clean Water Act, Section 404	33 USC 1344; 40 CFR Part 230 and 33 CFR Parts 320-323	This statute regulates the discharge of dredge and fill materials into Waters of the United States, including special aquatic sites – such as wetlands, intertidal habitats, and vegetated shallows. Such discharges are not allowed if practicable alternatives are available.	No longer Applicable (OU1 and OU4) – Complied with during remediation activities.
Rivers and Harbors Act, Section 10	33 USC 403; 33 CFR Parts 320-323	Sets forth criteria for obstructions or alterations of navigable waters	No longer Applicable (OU1 and OU4) - Excavation/dredging and habitat restoration was performed in compliance with the Act's environmental standards.
Executive Order 11988 RE: Floodplain Management	40 CFR Part 6, Appendix A	This order requires Federal agencies to evaluate the potential effects of actions it may take within a designated 100-year flood plain of a waterway to avoid adversely impacting floodplains wherever possible.	No longer Applicable (OU1 and OU4) – This order was considered and complied with during design and remediation activities.
Fish and Wildlife Coordination Act	16 USC 661 *et seq.*; 40 CFR 122.49	This statute requires consultation with appropriate agencies to protect fish and wildlife when federal actions result in control or structural modification of a body of water or to critical habitat upon which endangered or threatened species depend.	Applicable (OU1 and OU4) – Consultation with appropriate federal and state agencies will continue during ongoing monitoring activities.

Requirement	Citation	Requirement Synopsis	Current Status/Applicability
FEDERAL (cont.)			
Endangered Species Act-	16 USC 1531 *et seq*., 50 CFR Part 200, 50 CFR Part 402	If a location contains a federal endangered or threatened species or its critical habitat, and an action may impact the species or its habitat, the U.S. Fish & Wildlife Service or the National Marine Fisheries Service must be consulted. .	Applicable (OU1 and OU4) - Federally endangered loggerhead turtles and federally endangered Kemp's ridley turtles occur in the waters of Narragansett Bay. Appropriate agencies will continue to be consulted to find ways to minimize adverse effects to the listed species and its habitat from monitoring activities.
Coastal Zone Management Act	16 USC Parts 1451 et seq.	Requires that any actions must be conducted in a manner consistent with state approved management programs.	Applicable (OU4) - The entire site is located in a coastal zone management area, therefore, applicable coastal zone management requirements need to be considered during monitoring activities.
National Historic Preservation Act	16 USC 470 et seq., 26 CFR Part 800	Requires action to take into account effects on properties included on or eligible for the National Register of Historic Places and minimizes harm to National Historic Landmarks.	No longer Applicable (OU1) – There are no historic features to consider during ongoing monitoring on the landfill. Applicable (OU4) - Historic vessels may be sunken in the area. Monitoring activities will be carried out to minimize potential harm to historic sites.
Archaeological and Historic Preservation Act of 1974; Historic Sites, Building and Antiquities Act	132 CFR 229 & 229.4, 43 CFR 7 & 7.4	Remedial actions must be coordinated with preservation agencies and societies to minimize loss of significant scientific, prehistoric, historic or archaeological data.	No longer Applicable (OU1) – There are no historic features to consider during ongoing monitoring on the landfill.

Requirement	Citation	Requirement Synopsis	Current Status/Applicability
STATE			
Endangered Species Act	RIGL 20-37-1, et seq.	Regulates activities affecting state-listed endangered or threatened species or their critical habitat.	Applicable (OU4) - The state listed endangered loggerhead turtles and federally endangered Kemp's ridley turtles occur in the waters of Narragansett Bay. Appropriate agencies will continue to be consulted to find ways to minimize adverse

Requirement	Citation	Requirement Synopsis	Current Status/Applicability
			effects to the listed species and its habitat from monitoring activities.
Hazardous Waste Management- Location Standards for Hazardous Waste Facilities	RIGL 23-19.1-7; CRIR 12-030-003 (10.00)	RI is delegated to administer the federal RCRA statute through its state regulations. The standards of 40 CFR 264.18(b) are incorporated by reference. A facility, including an existing landfill, located in a 100-year floodplain must be designed, constructed, operated, and maintained to prevent washout of any hazardous waste by a 100-year flood, unless the owner can demonstrate to the Regional Administrator's satisfaction that no adverse effects on human health or the environment will result if washout occurs.	No longer Relevant and Appropriate (OU4) – The landfill wastes in the nearshore area were removed.
Coastal Resources Management	RIGL 46-23-1 *et seq.*	Sets standards for management and protection of coastal resources	Applicable (OU1 and OU4) - The entire site is located in a coastal resource management area, therefore, applicable coastal resource management requirements need to be considered during monitoring activities.
Fresh Water Wetlands Act	RIGL 2-1, Sections 2-1-18 through 2-1-20.2; Fresh Water Wetlands Act; DEM Rules And Regulations Governing the Administration and Enforcement of the Fresh Water Wetlands Act (Dec 2010), Rules 4.00 and 5.00	Rules and regulations governing the administration and enforcement of the Fresh Water Wetlands Act. Defines and establishes provisions for the protection of swamps, marshes and other fresh water wetlands in the state. Actions are required to prevent the undesirable drainage, excavation, filling, alteration, encroachment or any other form of disturbance or destruction of a wetland. Also establishes standards for land within 50 feet of the edge of state-regulated wetlands.	Applicable (OU1) – Ongoing monitoring will continue to minimize impacts to on-shore wetlands.

TABLE D-3
ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS, ADVISORIES AND GUIDANCE - McALLISTER POINT LANDFILL
FIVE-YEAR REVIEW
NAVSTA NEWPORT
NEWPORT, RHODE ISLAND

Requirement	Citation	Requirement Synopsis	Current Status/Applicability
FEDERAL			
Resource Conservation and Recovery Act (RCRA), Subtitle C – Standards for Hazardous Waste Facilities	42 USC 6291 et seq., 40 CFR Part 264	RI is delegated to administer the federal RCRA statute through its state regulations. The standards of 40 CFR Part 264 are incorporated by reference. .	Applicable (OU1); No longer Relevant and Appropriate (OU4) - Substantive requirements will be met and adhered to onsite during future monitoring and O&M activities. The landfill wastes in the nearshore area (OU4) have been removed.
Resource Conservation and Recovery Act (RCRA), Subtitle D – Standards for Solid Waste Facilities	40 CFR Part 258	Sets standards for location restrictions, operating criteria, monitoring, closure, and post-closure.	Applicable (OU4) – Sediments will be monitored in accordance with the substantive provisions of these standards.
Clean Water Act (CWA), Section 402, National Pollutant Discharge Elimination System (NPDES)	33 USC 1342; 40 CFR 122-125, 131	These standards govern discharge of water into surface waters. Regulated discharges must meet ambient water quality criteria (WQC).	No longer Applicable (OU1 and OU4) – As remedial actions are completed, there are no regulated discharges.
Clean Air Act (CAA), National Emission Standards for Hazardous Air Pollutants (NESHAPs)	42 USC 7411, 7412; 40 CFR Part 61	NESHAPs are a set of emission standards for specific chemicals, including naphthalene, arsenic, cadmium, chromium, lead, mercury, nickel, PCBs, DDE, and hexachlorobenzene. Certain activities are regulated including site remediation.	Applicable (OU1); No longer Applicable (OU4) - Monitoring of air emissions from the landfill will be used to assess compliance with these standards. There are no excavation activities remaining for OU4.
Clean Water Act, Section 404	33 USC 1344; 40 CFR Part 230.10	This statute regulates the discharge of dredge and fill materials into Waters of the United States, including special aquatic sites – such as wetlands, intertidal habitats, and vegetated shallows. Such discharges are not allowed if practicable alternatives are available.	No longer Applicable (OU1) – Complied with during remediation activities.
Rivers and Harbors Act, Section 10	33 USC 403; 33 CFR Parts 320-323	Sets forth criteria for obstructions or alterations of navigable waters and prohibition of wetland filling.	No longer Applicable (OU1) - Capping and habitat restoration was performed in compliance with the Act's environmental standards.

Requirement	Citation	Requirement Synopsis	Current Status/Applicability
STATE			
Hazardous Waste Management-Identification and Listing of Hazardous Wastes	RIGL 23-19.1; CRIR 12-030-003 (3.25)	RI is delegated to administer the federal Resource Conservation and Recovery Act (RCRA) statute through its state regulations. The standards of 40 CFR Part 261 regarding RCRA identification and listing are incorporated by reference.	No longer Relevant and Appropriate (OU1 and OU4) – Following the landfill capping and sediment removal which occurred, only monitoring remains.
Hazardous Waste Management-Standards for Treatment, Storage, Disposal Facilities	RIGL 23-19.1 *et seq*; CRIR 12-030-003 (10.00)	Outlines specifications and standards for design, operation, closure, and monitoring of performance for hazardous waste storage, treatment and disposal facilities. The standards for 40 CFR Part 264 are incorporated by reference.	Applicable (OU1 and OU4) – Monitoring activities within areas containing hazardous waste will comply with these standards.
Refuse Disposal - Solid Waste Management Facilities	RIGL 23-18.9 *et seq*.; CRIR 12-030-21	Rules and regulations more stringent than the federal standards under 40 CFR 258 are applicable. The standards require minimization of environmental hazards associated with the operation of solid waste facilities.	Applicable (OU4) – Monitoring of non-hazardous sediments will satisfy the substantive requirements of these provisions.
Clean Air Act - Fugitive Dust Control	RIGL, 23-23 *et seq*.; CRIR 12-31-05	Requires that reasonable precaution be taken to prevent particulate matter from becoming airborne.	No longer Applicable (OU1 and OU4) - On-site remedial actions were performed using good industrial practices to prevent particulate matter from becoming airborne.
Clean Air Act - Emissions Detrimental to Person or Property	RIGL, 23-23 *et seq*.; CRIR 12-31-07	Prohibits emissions of contaminants which may be injurious to human, plant or animal life or cause damage to property or which reasonably interfere with the enjoyment of life and property.	Applicable (OU1); No longer Applicable (OU4) - All emissions from landfill vents will meet this requirement or gas treatment will be required. No further processing of sediments (OU4) occurring.
Clean Air Act – Air Pollution Control	RIGL 23-23 *et seq*.; CRIR 12-31-09	Establishes guidelines for the construction, installation, or operation of potential air emission units. Establishes permissible emission rates for some contaminants.	Applicable (OU1); No longer Applicable (OU4) - All emissions from landfill vents will meet these requirements. No further processing of sediments (OU4) occurring.
Clean Air Act - Odors	RIGL 23-23 *et seq*.; CRIR 12-31-17	Prohibits the release of objectionable odors across property lines.	Applicable (OU1); No longer Applicable (OU4) - No remedial action or air emissions will emit objectionable odors beyond the facility boundary, as practicable. No further processing of sediments (OU4) occurring.

Requirement	Citation	Requirement Synopsis	Current Status/Applicability
Clean Air Act – Air Toxics	RIGL 23-23 *et seq*.; CRIR 12-31-22	Prohibits the emissions of specified contaminants at rates which would result in ground level concentrations greater than acceptable ambient levels or acceptable ambient levels as set in the regulation.	Applicable (OU1); No longer Applicable (OU4) - If necessary to meet these standards, air emissions controls equipment will be designed for landfill gas emissions control. No further processing of sediments (OU4) occurring.
Water Pollution Control - Water Quality	RIGL, 46-16, *et seq*.; CRIR 12-190-001	Establishes water use classification and water quality criteria for waters of the state. Also establishes criteria for discharge to a water body.	Applicable (OU1 and OU4) – Monitoring performed will not cause degradation of surface water quality in Narragansett Bay.
Water Pollution Control Pollution Discharge Elimination System	RIGL, 46-12, *et seq*. CRIR 12-190-003	Contains applicable effluent monitoring requirements, and standards and special conditions for discharges.	No longer Applicable (OU1 and OU4) – There are no ongoing remedial actions which require effluent discharge monitoring.
Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases	DEM-DSR-01-93 Section 8.01 §§ A to D	This section regulates impacted media at contaminated sites.	Relevant and Appropriate (OU4) – This section is used as a performance measurement during post-remedial monitoring. If such monitoring indicates an unacceptable human health risk, further action will be required and an additional decision document may be issued.

TABLE D-4
CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS, ADVISORIES AND GUIDANCE – TANK FARM 5, TANKS 53 AND 56
FIVE-YEAR REVIEW
NAVSTA NEWPORT
NEWPORT, RHODE ISLAND

Requirement	Citation	Requirement Synopsis	Current Status/Applicability
FEDERAL			
Safe Drinking Water Act- Maximum Contaminant Levels (MCLs)	40 CFR 141.11 -.16	MCLs directly apply to "public water systems", defined as systems with at least 15 connections which service a minimum of 25 persons	Relevant and Appropriate- MCLs were used to assess risk associated with the ingestion of site groundwater.
Safe Drinking Water Act- Maximum Contaminant Level Goals (MCLGs)	40 CFR 141.50 -.51	Non-enforceable health goals for public water supply systems, set at levels which result in no known or anticipated adverse health effects.	Relevant and Appropriate- Non-zero MCLGs are to be used as remedial goals, per the NCP (40 CFR 300). Contaminant concentrations were compared to MCLGs to assess potential risks associated with ingestion of groundwater.
Resource Conservation and Recovery Act, Subpart F: Groundwater Protection Standards, Alternate Concentration Limits	40 CFR 264.94	Sets groundwater protection standards or allows for the development of alternate concentration limits for facilities which treat, store, or dispose of hazardous waste.	Relevant and Appropriate- Groundwater at the site is not a current source of drinking water, therefore RCRA groundwater concentrations are not applicable. In addition, removal of the treatment plant indicates that this citation is not relevant and appropriate.
EPA Risk Reference Doses (RfDs)	None	Toxicity values for evaluating noncarcinogenic effects resulting from exposures to contamination.	Applicable- EPA RfDs were used to characterize risks due to noncarcinogens in groundwater. Risks have not been recalculated for this Five Year Review.
EPA Human Health Assessment Group Cancer Slope Factors (CSFs)	None	A slope factor is used to estimate an upper-bound probability of an individual developing cancer as a result of a lifetime of exposure to a particular level of a potential carcinogen.	Applicable- EPA CSFs were used to compute the individual incremental cancer risk resulting from exposure to certain compounds. Risks have not been recalculated for this Five Year Review.

TABLE D-4
CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS, ADVISORIES AND GUIDANCE – TANK FARM 5, TANKS 53 AND 56
FIVE-YEAR REVIEW
NAVSTA NEWPORT
NEWPORT, RHODE ISLAND

Requirement	Citation	Requirement Synopsis	Current Status/Applicability
FEDERAL (cont.)			
Clean Water Act, Effluent Discharge Limitations	40 CFR 401.15	Regulates the discharge of contaminants from an industrial point source.	Applicable if groundwater is discharged directly to surface water. However, treated groundwater was discharged to the Newport WWTP. The treatment plant has been demolished so this regulation is no longer applicable.
STATE			
RI Groundwater Protection Act- Public Drinking Water Regulations	RIGL, 46-13 et seq.	Establishes provisions for the protection and management of potable drinking waters, including the development of groundwater classifications and associated standards which specify maximum contaminant levels for each classification.	Applicable- Contaminant concentrations will be compared to the established groundwater quality standards.
RI Pollution Control Law- RI Water Quality Standards	RIGL 46-12 et seq.	Establishes water use classification and water quality criteria for all waters of the state. Also established acute and chronic water quality criteria for the protection of aquatic life.	Applicable if groundwater is discharged directly to surface water. However, treated groundwater was discharged to the Newport WWTP. The treatment plant has been demolished so this regulation is no longer applicable.

TABLE D-5
LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS, ADVISORIES AND GUIDANCE - TANK FARM 5, TANKS 53 AND 56
FIVE-YEAR REVIEW
NAVSTA NEWPORT
NEWPORT, RHODE ISLAND

Requirement	Citation	Requirement Synopsis	Current Status/Applicability
FEDERAL			
Wetlands Executive Order 11990	40 CFR 6, Appendix A	Regulates activities conducted in a wetland area to minimize the destruction, loss, or degradation of the wetlands.	Regulation applicable if implementation of the remedial action impacts wetland areas.
Wetlands Construction and Management Procedures	40 CFR 6, Appendix A	Sets forth EPA policy for carrying out the provisions of Executive Order 11990 (see above)	Regulation applicable if implementation of the remedial action impacts wetland areas.

Requirement	Citation	Requirement Synopsis	Current Status/Applicability
STATE OF RHODE ISLAND			
Rhode Island Wetlands Laws	RIGL 2-1-18 et seq.	Defines and establishes provisions for the protection of swamps, marshes and other freshwater wetlands in the state.	Regulation applicable if implementation of the remedial action impacts wetland areas.
RI Groundwater Protection Act	RIGL, Title 46, Chapter 13.1 et. seq.	Provides for protection of state groundwater, required the maintenance or upgrading of existing or potential drinking water sources.	Applicable- Groundwater at Tank Farm 5 is GA-NA.

Requirement	Citation	Requirement Synopsis	Current Status/Applicability
FEDERAL			
Hazardous and Solid Waste Amendments of 1984 (HSWA)- Land Disposal Restrictions		Prohibits placement of hazardous wastes in locations of vulnerable hydrogeology and lists certain wastes, which will be evaluated for prohibition by EPA under RCRA.	A residual sludge containing hazardous constituents was generated from the treatment system. If analysis of the sludge fails TCLP analysis, land disposal restrictions were potentially applicable. However, the treatment plant has been demolished so these restrictions are no longer applicable.
RCRA Generator Requirements for Manifesting Waste for Off-Site Disposal	40 CFR 262	Standards for manifesting, making and recording off-site hazardous waste shipments for treatment/disposal.	Applicable for the off-site disposal/treatment of the treatment system residual if determined to be hazardous. However, the treatment plant has been demolished so these requirements are no longer applicable.
RCRA Transporter Requirements for Off-Site Disposal	40 CFR 263	Standards for transporters of hazardous waste materials.	Applicable for the off-site disposal/treatment of the treatment system residual if determined to be hazardous. However, the treatment plant has been demolished so these requirements are no longer applicable.
RCRA Subpart B- General Facility Standards	40 CFR 264.10-264.18	General requirements regarding waste analysis, security, training, inspections, and location applicable to a facility which stores, treats or dispose of hazardous wastes (a TSDF facility).	Relevant and Appropriate- NETC was issued a Hazardous Waste Facility Permit by RIDEM in 1985, RCRA General Facilities Standards were relevant to interim remedial actions conducted at the facility. However, the treatment plant has been demolished so these standards are no longer relevant and appropriate.

TABLE D-6
ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS, ADVISORIES, AND GUIDANCE - TANK FARM 5, TANKS 53 AND 56
FIVE-YEAR REVIEW
NAVSTA NEWPORT
NEWPORT, RHODE ISLAND

Requirement	Citation	Requirement Synopsis	Current Status/Applicability
FEDERAL (cont.)			
RCRA Subpart C- Preparedness and Prevention	40 CFR 264.30-264.37	Requirements applicable to the design and operation, equipment and communications associated with a TSDF facility, and to arrangements with local response departments.	Relevant and Appropriate- NETC was issued a Hazardous Waste Facility Permit by RIDEM in 1985, RCRA General Facilities Standards were relevant to interim remedial actions conducted at the facility. However, the treatment plant has been demolished so these standards are no longer relevant and appropriate.
RCRA Subpart D- Contingency Plan and Emergency Procedures	40 CFR 264.50- 264.56	Emergency planning procedures applicable to a TSDF facility	Relevant and Appropriate- NETC was issued a Hazardous Waste Facility Permit by RIDEM in 1985, RCRA General Facilities Standards were relevant to interim remedial actions conducted at the facility. However, the treatment plant has been demolished so these standards are no longer relevant and appropriate.
RCRA Subpart X- Miscellaneous Units	40 CFR 264.600-264.999	Environmental performance standards, monitoring requirements and post-closure care requirements applicable to miscellaneous units (not otherwise defined in the RCRA regulations) used to treat, store, or dispose hazardous waste.	Relevant and Appropriate- NETC was issued a Hazardous Waste Facility Permit by RIDEM in 1985, RCRA General Facilities Standards were relevant to interim remedial actions conducted at the facility. However, the treatment plant has been demolished so these standards are no longer relevant and appropriate.

Requirement	Citation	Requirement Synopsis	Current Status/Applicability
FEDERAL (cont.)			
RCRA Land Disposal Restrictions	40 CFR 268	Identifies hazardous wastes that are restricted from land disposal and sets treatment standards for restricted wastes.	A residual sludge containing hazardous constituents was generated from the treatment system. If analysis of the sludge fails TCLP analysis, land disposal restrictions were potentially applicable. However, the treatment plant has been demolished so these restrictions are no longer applicable.
Safe Drinking Water Act- Underground Injection Control Requirements	40 CFR 144 and 146	Establishes general requirements, technical criteria and standards for underground injection wells.	Applicable if treated groundwater is discharged to groundwater. Preferred alternative was to discharge to WWTP. However, the treatment plant has been demolished and groundwater is not being treated, so these requirements are no longer applicable.
Clean Water Act- National Pollutant Discharge Elimination System (NPDES) Permit Requirements	40 CFR 122-125	Permits contain applicable effluent standards (i.e. technology-based and/or water quality-based) monitoring requirements, and standards and special conditions for discharge.	Applicable if treated groundwater is discharged to groundwater or surface water. Preferred alternative was to discharge to WWTP. A permit would be required if the treated groundwater is discharged on-site. However, the treatment plant has been demolished and groundwater is not being treated, so these requirements are no longer applicable.
Clean Water Act- Discharge to Publicly-Owned Treatment Works (POTW)	40 CFR 403	A national pretreatment program designed to protect municipal wastewater treatment plants and the environment from damage that may occur when hazardous, toxic or other non-domestic wastes are discharged into a sewer system.	Applicable- Since discharge alternative preferred is to the Newport WWTP. Treated groundwater had to meet discharge limitations established by the WWTP. However, the treatment plant has been demolished and groundwater is not being treated, so these requirements are no longer applicable.

Requirement	Citation	Requirement Synopsis	Current Status/Applicability
FEDERAL (cont.)			
Hazardous Materials Transportation Act- Rules for Transportation of Hazardous Materials	49 CFR 170, 171	Procedures for packaging, labeling, manifesting, and off-site transport of hazardous materials.	Applicable for off-site disposal/ treatment of the treatment system residual, if determined to be hazardous. However, the treatment plant has been demolished so these requirements are no longer applicable.
Federal Water Pollution Control Act- Ocean Discharge Criteria	40 CFR 200-223	Establishes general requirements for discharge into United States' oceans.	Applicable if treated groundwater is discharged to groundwater or surface water. Preferred alternative was to discharge to WWTP. A permit would be required if the treated groundwater is discharged on-site. However, the treatment plant has been demolished and groundwater is not being treated, so these requirements are no longer applicable.
Occupational Safety and Health Act (OSHA)- Recordkeeping, Reporting and Related Regulations	29 CFR 1904	Outlines recordkeeping and reporting requirements.	Applicable because hazardous materials were present at Tank Farm 5. Apply for all contractors/ subcontractors involved in hazardous activities. However, hazardous materials are no longer present at Tank Farm 5 so these regulations are no longer applicable.
OSHA General Industry Standards	29 CFR 1910	Establishes requirement for 40-hour training and medical surveillance of hazardous waste workers. Establishes Permissible Exposure Limits (PELs) for workers at hazardous waste operations and during emergency response.	Applicable because hazardous materials were present at Tank Farm 5. Apply for all contractors/ subcontractors involved in hazardous activities. If PELs are exceeded during site activities, appropriate respiratory equipment will be worn. However, hazardous materials are no longer present at Tank Farm 5 so these regulations are no longer applicable.

Requirement	Citation	Requirement Synopsis	Current Status/Applicability
FEDERAL (cont.)			
OSHA Safety and Health Standards	29 CFR 1926	Regulations specify the type of safety equipment and procedures for site remediation/excavation.	Applicable because hazardous materials were present at Tank Farm 5. During remedial activities appropriate safety equipment must be worn and a health and safety plan followed. However, hazardous materials are no longer present at Tank Farm 5 so these regulations are no longer applicable.
STATE			
RI Water Pollution Control Act. RI Water Quality Regulations	RIGL 46-12 et seq.	Establishes general requirements and effluent limits for discharge to area waters.	Applicable if treated groundwater is discharged to groundwater or surface water, however preferred alternative was to discharge to WWTP. The treatment plant has been demolished and groundwater is not being treated, so these regulations are no longer applicable.
RI Water Pollution Control Act. RI Pollutant Discharge Elimination Systems	RIGL 46-12 et seq.	Permits contain applicable effluent standards (i.e. technology-based and/or water quality-based) monitoring requirements, and standards and special conditions for discharge.	Applicable if treated groundwater is discharged to groundwater or surface water, however preferred alternative was to discharge to WWTP. The treatment plant has been demolished and groundwater is not being treated, so these regulations are no longer applicable.
RI Water Pollution Control Act. RI Pretreatment Regulations	RIGL 46-12 et seq.	Establishes rules concerning pretreatment of water prior to discharge to a Rhode Island POTW.	Applicable- Effluent levels established by the WWTP were achieved prior to discharge. However, the treatment plant has been demolished and groundwater is not being treated, so these regulations are no longer applicable.

TABLE D-6
ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS, ADVISORIES, AND GUIDANCE - TANK FARM 5, TANKS 53 AND 56
FIVE-YEAR REVIEW
NAVSTA NEWPORT
NEWPORT, RHODE ISLAND

Requirement	Citation	Requirement Synopsis	Current Status/Applicability
STATE (cont.)			
RI Water Pollution Control Act. Underground Injection Control Regulations	RIGL 46-12 et seq.	Establishes the general requirements, technical criteria and standards for underground injection wells.	Applicable if treated groundwater is discharged to groundwater or surface water, however preferred alternative was to discharge to WWTP. The treatment plant has been demolished and groundwater is not being treated, so these regulations are no longer applicable.
RI Hazardous Waste Management Act of 1978, Hazardous Waste Management	RIGL 23-19.1 et seq.	Rules and regulations for hazardous waste generation, transportation, treatment, storage and disposal.	Applicable for off-site treatment/disposal of the treatment system residual, if hazardous. However, the treatment plant has been demolished so these regulations are no longer applicable.
RI Hazardous Substance Community Right-to-Know Act, Public Right-to-Know Requirements	RIGL Title 23, Chapter 24.4	Establishes rules for the public's right-to-know concerning hazardous waste storage and transportation.	Applicable for the off-site disposal/treatment if residual is hazardous. Documents applicable to remediation of groundwater in the vicinity of Tanks 53 and 56 at Tank Farm 5 will be available for public review. However, the treatment plant has been demolished and hazardous materials are no longer present at the site, so these regulations are no longer applicable.

TABLE E-1

CHEMICAL-SPECIFIC ARARs AND TBCs
SOIL ALTERNATIVE SO3 – SOIL COVER, SELECTIVE EXCAVATION, REMOVAL OF ANOMALIES, OFF-SITE DISPOSAL, LUCS, MONITORING
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Federal				
EPA Carcinogenicity Slope Factor	None	To Be Considered	These are guidance values used to evaluate the potential carcinogenic hazard caused by exposure to contaminants. Slope factors are developed by EPA from health effects assessments. Carcinogenic effects present the most up-to-date information on cancer risk potency. Potency factors are developed by EPA from Health Effects Assessments of evaluation by the Carcinogenic Assessment Group.	Used to compute the individual incremental cancer risk resulting from exposure to carcinogenic contaminants in site media. Risks due to carcinogens as assessed with slope factors will be addressed through remediation to industrial cleanup levels based on installing a cover over areas of contaminated soil (except in areas where an existing pavement cover will be maintained), removal of anomalies, LUCs and long-term monitoring of the area under the soil cover and the waste management area. LUCs to prevent residential development will prevent human exposure to COCs in areas exceeding residential risk levels developed using these standards.
EPA Risk Reference Dose (RfDs)	None	To Be Considered	Guidance used to compute human health hazard resulting from exposure to non-carcinogens in site media. RfDs are considered to be the levels unlikely to cause significant adverse health effects associated with a threshold mechanism of action in human exposure for a lifetime.	Used to calculate potential non-carcinogenic hazards caused by exposure to contaminants. Hazards due to noncarcinogens with EPA RfDs will be addressed through remediation to industrial cleanup levels based on installing a cover over areas of contaminated soil (except in areas where an existing pavement cover will be maintained), removal of anomalies, LUCs and long-term monitoring of the area under the soil cover and the waste management area. LUCs to prevent residential development will prevent human exposure to COCs in areas exceeding residential risk levels developed using these standards.

CHEMICAL-SPECIFIC ARARs AND TBCs
SOIL ALTERNATIVE SO3 – SOIL COVER, SELECTIVE EXCAVATION, REMOVAL OF ANOMALIES, OFF-SITE DISPOSAL, LUCS, MONITORING
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Federal (Continued)				
Guidelines for Carcinogen Risk Assessment	EPA/630/P-03/001F (March 2005)	To Be Considered	Guidance for assessing cancer risk.	Used to calculate potential carcinogenic risks caused by exposure to contaminants. Hazards due to carcinogens assessed through this guidance will be addressed through remediation to industrial cleanup levels based on installing a cover over areas of contaminated soil (except in areas where an existing pavement cover will be maintained), removal of anomalies, LUCs and long-term monitoring of the area under the soil cover and the waste management area. LUCs to prevent residential development will prevent human exposure to COCs in areas exceeding residential risk levels developed using these standards.
Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens	EPA/630/R-03/003F (March 2005)	To Be Considered	Guidance of assessing cancer risks to children.	Used to calculate potential carcinogenic risks to children caused by exposure to contaminants. Carcinogenic risks to children assessed through this guidance will be addressed through remediation to industrial cleanup levels based on installing a cover over areas of contaminated soil (except in areas where an existing pavement cover will be maintained), removal of anomalies, LUCs and long-term monitoring of the area under the soil cover and the waste management area. LUCs to prevent residential development will prevent human exposure to COCs in areas exceeding residential risk levels developed using these standards.

CHEMICAL-SPECIFIC ARARs AND TBCs
SOIL ALTERNATIVE SO3 – SOIL COVER, SELECTIVE EXCAVATION, REMOVAL OF ANOMALIES, OFF-SITE DISPOSAL, LUCS, MONITORING
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Federal (Continued)				
Recommendations of the Technical Review Workgroup for Lead for an approach to Assessing Risks Associated with Adult Exposure to Lead In Soil	EPA-540-R-03-001 (January 2003)	To Be Considered	EPA Guidance for evaluating risks posed by lead in soil.	Risks from lead assessed under this guidance will be addressed through remediation to industrial cleanup levels based on installing a cover over areas of contaminated soil (except in areas where an existing pavement cover will be maintained), removal of anomalies, LUCs and long-term monitoring of the area under the soil cover and the waste management area. LUCs to prevent residential development will prevent human exposure to COCs in areas exceeding residential risk levels developed using these standards.

TABLE E-1

CHEMICAL-SPECIFIC ARARs AND TBCs
SOIL ALTERNATIVE SO3 – SOIL COVER, SELECTIVE EXCAVATION, REMOVAL OF ANOMALIES, OFF-SITE DISPOSAL, LUCS, MONITORING
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
State				
Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (Short Title: Remediation Regulations)	Code of Rhode Island Rules (CRIR) 12-180-001; DEM-DSR-01-93, sections 8.01 and 8.02	Applicable	These regulations set remediation standards for direct contact and leachability for contaminated soil at NPL sites when they are more stringent than federal standards.	These standards were used to develop soil PRGs. Remediation to industrial cleanup levels based on placement of 2 feet of clean permeable cover material (except in areas where an existing pavement cover will be maintained), removal and off-site disposal of anomalies, LUCs and long-term monitoring (of the area under the soil cover and the waste management area) meets the regulations' requirements for allowing industrial use. Leachability standards will be met through excavation and off-site disposal. PRGs based on these standards will be achieved outside of the compliance zone for the waste management area (i.e., beyond the edge of the waste management area) and will be used as monitoring standards inside the compliance boundary. LUCs to prevent residential development will prevent human exposure to COCs in areas exceeding residential risk levels developed using these standards.

TABLE E-2

LOCATION-SPECIFIC ARARs AND TBCs
SOIL ALTERNATIVE SO3 – SOIL COVER, SELECTIVE EXCAVATION, REMOVAL OF ANOMALIES, OFF-SITE DISPOSAL, LUCS, MONITORING
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Federal				
Clean Water Act, Section 404; Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material	33 U.S.C. § 1344; 40 C.F.R. Part 230, 231 and 33 C.F.R. Parts 320-323	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. Controls discharges of dredged or fill material to protect aquatic ecosystems. Filling or discharge of dredged material will only occur where there is no other practicable alternative and any adverse impacts to aquatic ecosystems will be mitigated. Under these standards the Navy must solicit public comment through the Proposed Plan on its finding that one of the alternatives is the Least Environmentally Damaging Practicable Alternative.	Alternatives may involve discharge of dredged material and/or excavation. Soil remediation or other remedial actions that include dredging or filling in wetlands will be implemented to meet these requirements, including mitigation of altered wetland/aquatic resource as required. The Navy has determined that this alternative is the Least Environmentally Damaging Practicable Alternative to protect wetland resources because it provides the best balance of addressing contaminated soil within and adjacent to wetlands and waterways with minimizing both temporary and permanent alteration of wetlands and aquatic habitats on site. The Navy solicited public comment on its determination in the Proposed Plan and received no negative public comments.

LOCATION-SPECIFIC ARARs AND TBCs
SOIL ALTERNATIVE SO3 – SOIL COVER, SELECTIVE EXCAVATION, REMOVAL OF ANOMALIES, OFF-SITE DISPOSAL, LUCS, MONITORING
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Federal (Continued)				
Fish and Wildlife Coordination Act	16 U.S.C. §661 *et seq*.	Applicable	Requires Federal agencies involved in actions that will result in the control of structural modification of any stream or body of water for any purpose to take action to protect fish and wildlife resources that may be affected by the action. The Navy must coordinate with appropriate federal and state resource agencies to ascertain the means and measures necessary to mitigate, prevent, and compensate for project related losses of fish and wildlife resources and to enhance the resources.	Measures to mitigate or compensate adverse project related impacts to fish and wildlife resources will be taken, if determined necessary. The appropriate federal and state resource agencies will be consulted, in particular regarding remedial measures for contaminated soil that will impact streams, wetlands, and downstream water bodies.
Floodplain Management and Protection of Wetlands	44 C.F.R. 9	Relevant and Appropriate	Implements Executive Order 11990 (Protection of Wetlands). Prohibits activities that adversely affect a federally-regulated wetland unless there is no practicable alternative and the proposed action includes all practicable measures to minimize harm to wetlands that may result from such use.	During the remedial design stage the effects of soil remedial actions on federal jurisdictional wetlands will be evaluated. All practicable means will be used to minimize harm to the wetlands. Wetlands disturbed by soil remediation, will be mitigated in accordance with requirements. No impact to downstream floodplain areas will occur. The Navy solicited public comment on its determination in the Proposed Plan and received no negative public comments.

LOCATION-SPECIFIC ARARs AND TBCs
SOIL ALTERNATIVE SO3 – SOIL COVER, SELECTIVE EXCAVATION, REMOVAL OF ANOMALIES, OFF-SITE DISPOSAL, LUCS, MONITORING
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NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Federal (Continued)				
Endangered Species Act	16 U.S.C. 1531 *et seq.*; 50 CFR parts 200 and 402	Applicable	Regulates activities affecting federally listed endangered or threatened species or their habitat. The federally-listed loggerhead turtle, Kemps-Ridley turtle, and Atlantic Sturgeon occur in the water of Narragansett Bay.	Appropriate federal agencies will be consulted to ensure that remedial measure taken under this alternative will prevent site contamination from migrating downstream to the Bay.
National Historic Landmarks (Historic Sites Act)	16 USC §461 *et seq.*; 36 C.F.R. Part 65	Applicable	The purpose of the National Historic Landmarks program is to identify and designate National Historic Landmarks, and encourage the long range preservation of nationally significant properties that illustrate or commemorate the history and prehistory of the United States.	Features with potential historical/cultural significance will be evaluated during the remedial design phase. Should this remedy impact historical properties/structures determined to be protected by this standard, activities will be coordinated with the Department of the Interior.
Protection of Historic Properties (National Historic Preservation Act)	16 USC §470 *et seq.*, 36 C.F.R. Part 800	Applicable	Section 106 of the National Historic Preservation Act requires federal agencies to take into account the effects of their undertakings on historic properties and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment.	Features with potential historical/cultural significance will be evaluated during the remedial design phase. Should this remedy impact properties/structures determined to be protected by this standard, activities will be coordinated with the Advisory Council on Historic Preservation.

TABLE E-2

LOCATION-SPECIFIC ARARs AND TBCs
SOIL ALTERNATIVE SO3 – SOIL COVER, SELECTIVE EXCAVATION, REMOVAL OF ANOMALIES, OFF-SITE DISPOSAL, LUCS, MONITORING
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
State				
Rhode Island Endangered Species Act	RIGL 20-37-1 *et seq.*	Relevant and Appropriate	Regulates activities affecting State-listed endangered or threatened species or their habitat. The State-listed loggerhead turtle and Kemps-Ridley turtle occur in the water of Narragansett Bay.	Appropriate State agencies will be consulted to ensure that remedial measure taken under this alternative will prevent site contamination from migrating downstream to the Bay.
Rhode Island Historical Preservation Act	RIGL 42-45 *et seq.*	Applicable	Requires action to take into account effects on properties included on or eligible for the National register of Historic Places and minimizes harm to National Historic Landmarks.	Features with potential historical/cultural significance will be evaluated during the remedial design phase. Should this remedy impact properties/structures determined to be protected by this standard, activities will be coordinated with the State Agency.
Fresh Water Wetlands Act	RIGL 2-1, Sections 2-1-18 through 2-1-20.2; Fresh Water Wetlands Act; DEM Rules And Regulations Governing the Administration and Enforcement of the Fresh Water Wetlands Act (Dec 2010), Rules 4.00 and 5.00	Applicable	Rules and regulations governing the administration and enforcement of the Fresh Water Wetlands Act. Defines and establishes provisions for the protection of swamps, marshes and other fresh water wetlands in the state. Actions are required to prevent the undesirable drainage, excavation, filling, alteration, encroachment or any other form of disturbance or destruction of a wetland. Also establishes standards for land within 50 feet of the edge of state-regulated wetlands.	Cover installation and excavation activities will be conducted to minimize the disturbance of state jurisdictional wetland and perimeter wetland.

ACTION-SPECIFIC ARARs AND TBCs
SOIL ALTERNATIVE SO3 – SOIL COVER, SELECTIVE EXCAVATION AND REMOVAL OF ANOMALIES, OFF-SITE DISPOSAL, LUCS, MONITORING
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Federal				
Toxic Substances Control Act (TSCA) 15 U.S.C. 2601 *et seq.*; PCB Remediation Waste	40 C.F.R. 761.61(c)	Applicable	This section of the TSCA regulations provides risk-based cleanup and disposal options for PCB remediation waste based on the risks posed by the concentrations at which the PCBs are found. Written approval for the proposed risk-based cleanup must be obtained from the Director, Office of Site Remediation and Restoration, USEPA Region 1.	All soil exceeding identified PCB cleanup levels will either be removed, dewatered (if required) and disposed of off-site or will be placed under a cover system that meets TSCA protectiveness standards. The excavation, transportation/ dewatering, and management of PCB contaminated media will be performed in a manner to comply with TSCA, including air and surface water monitoring during remedial activities. The ROD includes a finding by the Director, Office of Site Remediation and Restoration, USEPA Region 1, that the remedy's soil PCB cleanup levels, along with the excavation, dewatering, and management of the contaminated media will not pose an unreasonable risk to human health or the environment.
Safe Drinking Water Act; National primary drinking water regulations	42 U.S.C. §300f *et seq.*; 40 C.F.R. 141, Subparts B and G	Relevant and Appropriate	Establishes MCLs for common organic and inorganic contaminants applicable to public drinking water supplies. Used as relevant and appropriate standards for aquifers and surface water bodies that are potential drinking water sources.	The MCLs will be used to develop performance standards for monitoring the compliance boundary for the waste management area. If contamination levels have been reduced enough so that no unacceptable site risk remains, monitoring can be ended.

TABLE E-3

ACTION-SPECIFIC ARARs AND TBCs
SOIL ALTERNATIVE SO3 – SOIL COVER, SELECTIVE EXCAVATION AND REMOVAL OF ANOMALIES, OFF-SITE DISPOSAL, LUCS, MONITORING
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Safe Drinking Water Act; National primary drinking water regulations	42 U.S.C. §300f *et seq.*; 40 C.F.R. 141, Subpart F	Relevant and Appropriate for non-zero MCLGs only	Establishes maximum contaminant level goals (MCLGs) for public water supplies. MCLGs are health goals for drinking water sources. These unenforceable health goals are available for a number of organic and inorganic compounds.	The non-zero MCLGs will be used to develop performance standards for monitoring the compliance boundary for the waste management area. If contamination levels have been reduced enough so that no unacceptable site risk remains, monitoring can be ended.
Health Advisories (EPA Office of Drinking Water)		To Be Considered	Health Advisories are estimates of risk due to consumption of contaminated drinking water; they consider non-carcinogenic effects only. To be considered for contaminants in groundwater that may be used for drinking water. The risk-based standard for manganese is 0.3 mg/L.	The Health Advisory for manganese will be used to develop performance standards for monitoring the compliance boundary for the waste management area. If contamination levels have been reduced enough so that no unacceptable site risk remains, monitoring can be ended.
CWA National Recommended Water Quality Criteria (NRWQC)	40 C.F.R. 122.44	Applicable	Federal NRWQC are health-based and ecologically based criteria developed for carcinogenic and non-carcinogenic compounds.	Water quality standards used to develop monitoring standards both during the active remedial period and for long-term monitoring of the protectiveness of the waste management area that will be established under this alternative.
Clean Water Act - National Pollutant Discharge Elimination System (NPDES)	40 C.F.R. Parts 122 and 125	Applicable	Includes stormwater standards for activities disturbing more than one acre.	Best management practices will be used to meet stormwater standards during the remedial action.

ACTION-SPECIFIC ARARs AND TBCs
SOIL ALTERNATIVE SO3 – SOIL COVER, SELECTIVE EXCAVATION AND REMOVAL OF ANOMALIES, OFF-SITE DISPOSAL, LUCS, MONITORING
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Management of Undesirable Plants on Federal Lands	7 U.S.C. 2814	Relevant and Appropriate	Requires federal agencies to establish integrated management systems to control or contain undesirable plant species on federal lands under the agency's jurisdiction.	Measures will be taken to control the establishment of *Phragmites*, purple loosestrife or other invasive plants within all remediated areas. An invasive species control plan will be developed as part of the long-term O&M for this site. The responsibility of control will be transitioned to NAVSTA after (1) the remedy is in place, and (2) NAVSTA develops a base-wide program for controlling undesirable plants.
State				
Clean Air Act -Emissions Detrimental to Persons or Property	RIGL 23-23 *et seq.*; CRIR 12-31-07	Applicable	Prohibits emissions of contaminants, which may be injurious to humans, plant or animal life or cause damage to property, or which reasonably interferes with the enjoyment of life and property.	Monitoring of air emissions during cover installation and O&M will be used to assess compliance with these standards if threshold levels are reached.
Clean Air Act – Air Toxics	RIGL 23-23 *et seq.*; CRIR 12-31-22	Applicable	Prohibits the emission of specified contaminants at rates which would result in ground level concentrations greater than acceptable ambient levels or acceptable ambient levels as set in the regulations.	Monitoring of air emissions during cover installation and O&M will be used to assess compliance with these standards if threshold levels are reached.
Water Pollution Control - Pollution Discharge Elimination Systems	RIGL 42-16 *et seq.*; CRIR 12-190-003 Rule 31	Applicable	Includes storm water requirements for construction projects that disturb over one acre.	Stormwater standards for construction projects over one acre will be met.

ACTION-SPECIFIC ARARs AND TBCs
SOIL ALTERNATIVE SO3 – SOIL COVER, SELECTIVE EXCAVATION AND REMOVAL OF ANOMALIES, OFF-SITE DISPOSAL, LUCS, MONITORING
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Rules and Regulations for Dredging and Management of Dredge Materials	DEM-OWR-DR-0203	Applicable	Addresses dredging activities and disposal of dredge spoils.	Any dredging of wetland soils and backfilling with cover material that is required while implementing the alternative must comply with the requirements of the regulations.
Drilling of Drinking Water Wells; Rules and Regulations Governing the Enforcement of Chapter 46-13.2 Relating to the Drilling of Drinking Water Wells	RIGL 46-13..2 *et seq.*	Applicable	Prohibits installing drinking water wells in contaminated aquifers. Establishes standards for decommissioning monitoring wells (Rule 9.03).	Under these standards drinking water wells are prohibited within the waste management area that will be established under this alternative and monitoring wells used will be properly decommissioned when no longer needed.
Rules and Regulations for Groundwater Quality	RIGL Ch. 46-12, Section 46-12-2; Ch. 46-13.1, Ch. 23-18.9, Sec. 23-18-9.1; DEM Rules and Regulations for Groundwater Quality (Mar 2005), Appendix 1	Applicable	Identifies the standards and specifications that must be followed for installation or abandonment of monitoring wells.	Under this alternative, wells installed for monitoring the waste management area will be installed and abandoned according to these standards.
Standards for Identification and Listing of Hazardous Waste	RIGL 23-19.1 *et seq.*; CRIR 12-030-003 Rule 5.8	Applicable	Defines the listed and characteristic hazardous wastes.	These regulations would apply when determining whether or not a solid waste is hazardous, either by being listed or by exhibiting a hazardous characteristic.

ACTION-SPECIFIC ARARs AND TBCs
SOIL ALTERNATIVE SO3 – SOIL COVER, SELECTIVE EXCAVATION AND REMOVAL OF ANOMALIES, OFF-SITE DISPOSAL, LUCS, MONITORING
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NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Hazardous Waste Management Standards for Generators	RIGL 23-19.1 *et seq.*; CRIR 12-030-003 Rule 5.0	Applicable	Sets standards for handling and disposal of hazardous waste.	Wastes generated will be tested to determine if they constitute hazardous waste. Any hazardous waste identified will be handled and disposed according to these standards.
Operational Requirements for Treatment, Storage, and Disposal Facilities (TSDF)	RIGL 23-19.1 *et seq.*; CRIR 12-030-003 Rule 8.0	Potentially Applicable	Outlines operational requirements for all hazardous waste TSDFs including, but not limited to, general waste analysis, security procedures, inspections, safety, groundwater monitoring. Also, sets design, construction, and operational requirements for hazardous waste containers and tanks, and closure requirements for hazardous waste facilities. The site is not a TSDF, and the Navy does not intend to treat, store or dispose of hazardous wastes in a manner that would require the site to be considered a TSDF under these regulations.	If remediation at the site results in the necessity to treat, store, or dispose of hazardous waste in the manner required of a TSDF, the substantive requirements must be met.
Rhode Island Solid Waste Regulations – Closure	DEM OWM-SW0401, 1.7.14(b)	Relevant and Appropriate	Regulation states that an approved closure plan must be implemented.	The site will be closed under a plan developed in accordance with the substantive requirements of this section of the regulations, to be incorporated into the Remedial Design and the Operations and Maintenance Plan (O&M) (including a monitoring plan). Contaminated soil beneath the Paved Storage Area will be left in place as a waste management area.

TABLE E-3

ACTION-SPECIFIC ARARs AND TBCs
SOIL ALTERNATIVE SO3 – SOIL COVER, SELECTIVE EXCAVATION AND REMOVAL OF ANOMALIES, OFF-SITE DISPOSAL, LUCS, MONITORING
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Rhode Island Solid Waste Regulations – Dust Control	DEM OWM-SW0401, 1.7.10	Relevant and Appropriate	Requires dust control.	Dust must be controlled at the site during cover construction and during maintenance activities.
Rhode Island Solid Waste Regulations – Health and Safety	DEM OWM-SW0401, 1.7.12 (a)	Relevant and Appropriate	Requires solid waste management facilities be designed and maintained to protect the health and safety of personnel at the facility and persons in close proximity.	Under this subsection health and safety of construction workers and persons in the proximity of the site would be maintained during construction and maintenance activities.
Rhode Island Solid Waste Regulations – Groundwater Monitoring and Closure	DEM OWM-SW0401, 1.8.01 (a) and 1.8.01 (b)	Relevant and Appropriate	Requires facilities to monitor groundwater and to meet closure requirements	The substantive requirements of this section of the regulations will be met by monitoring groundwater and meeting closure requirements. Because contaminants will be left in place , the Paved Storage Area will be closed as a waste management area, and undergo long term monitoring. Monitoring of the area under the soil cover would also be conducted. The Remedial Design, remedial action work plan (RAWP), operations and monitoring plan (O&M) (including the long term monitoring plan [LTMP]) developed for this cleanup will contain the specific monitoring and closure requirements for the waste management area that will comply with the substantive requirements.

TABLE E-3

ACTION-SPECIFIC ARARs AND TBCs
SOIL ALTERNATIVE SO3 – SOIL COVER, SELECTIVE EXCAVATION AND REMOVAL OF ANOMALIES, OFF-SITE DISPOSAL, LUCS, MONITORING
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Rhode Island Solid Waste Regulations – Sedimentation and Erosion Control	DEM OWM-SW0401, 2.1.04	Relevant and Appropriate	Requires a “Sedimentation and Erosion Control Plan” be developed.	An erosion and sediment control plan will be developed for this site in accordance with the substantive requirements of this section. The Remedial Design and the RAWP, to be developed for this cleanup, will contain the specific erosion and sediment controls requirements for the remedial construction.
Rhode Island Solid Waste Regulations - Monitoring Wells	DEM OWM-SW0401, 2.1.08 (a) (8)	Relevant and Appropriate	Contains requirements for construction of monitoring wells to monitor a solid waste landfill.	The substantive requirements of this section of the regulations will be met for construction of new monitoring wells.
Rhode Island Solid Waste Regulations – Long-term Monitoring	DEM OWM-SW0401, 2.1.08 (c)	Relevant and Appropriate	Contains requirements for monitoring wells.	The substantive requirements of this section of the regulations will be met by maintaining monitoring wells for the purpose of monitoring groundwater conditions at the site. Because this remedy leaves contamination in place, it will be supported with a Long Term Monitoring Plan (LTMP) for groundwater. The LTMP will be directed by a work plan that will contain the specific monitoring requirements.
Rhode Island Solid Waste Regulations – Cover Systems	DEM OWM-SW0401, 2.2.12 (d) (1) and 2.2.12 (d) (2) (ii)(iii) and (v).	Relevant and Appropriate	Contains requirements for construction and maintenance of the vegetative cover final cover system.	Remedies including cover systems will include appropriate vegetation requirements of a soil cover in compliance with these standards.

TABLE E-3

ACTION-SPECIFIC ARARs AND TBCs
SOIL ALTERNATIVE SO3 – SOIL COVER, SELECTIVE EXCAVATION AND REMOVAL OF ANOMALIES, OFF-SITE DISPOSAL, LUCS, MONITORING
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Rhode Island Solid Waste Regulations – Cover Permeability	DEM OWM-SW0401, 2.3.04(e), (f)	Relevant and Appropriate	Outlines the requirements for the maintenance and permeability of cover material.	The substantive requirements of this section of the regulations will be met by maintaining the asphalt cover that has been determined to provide an adequate barrier for specific areas to be used for storage (waste management area), or a soil cover that has been determined to provide an adequate barrier for the remainder of the land within the site.
Rhode Island Solid Waste Regulations – Compliance Boundaries	DEM OWM-SW0401, 2.3.05	Relevant and Appropriate	Establishes requirement for compliance boundary for pollution of ground waters or surface waters.	The substantive requirements of this section of the regulations will be met by monitoring groundwater under the soil cover and by the requirement that no contamination of groundwater be permitted outside the boundary of the waste management area. Because this remedy leaves contamination in place, groundwater monitoring will be conducted to assure that no contaminants are transported to the groundwater beyond the boundary of the waste management area.

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Rhode Island Solid Waste Regulations – Surface Water Drainage	DEM OWM-SW0401, 2.3.10	Relevant and Appropriate	Contains requirements for surface water drainage.	The substantive requirements of this section of the regulations will be met through design of appropriate surface drainage considerations for the cover. The cover system would be designed to prevent erosion, sedimentation, and standing water on the cover. Minimum slope requirements for solid waste landfills have been determined not relevant or appropriate for a soil cover which is not intended to reduce infiltration.
Rhode Island Solid Waste Regulations - Monitoring Wells	DEM OWM-SW0401, 2.3.11	Relevant and Appropriate	Contains requirements for monitoring wells.	The substantive requirements of this section of the regulations will be met by having and maintaining monitoring wells for the purpose of monitoring groundwater conditions by the soil cover and the waste management area. Because this remedy leaves contaminants in place, it will be supported with a Long Term Monitoring Plan (LTMP) for groundwater. The LTMP will be directed by a work plan that will contain the specific monitoring well requirements.

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Rhode Island Solid Waste Regulations – Siting in and Adjacent to Wetlands and Floodplains	DEM OWM-SW0401, 2.3.14	Relevant and Appropriate	Provides requirements for new solid waste landfill units and expansions that impact wetlands and coastal wetlands, coastal flood zones, etc.	This alternative will involve alteration of land within wetlands. The substantive requirements of this section of the regulations will be met by protecting wetland and downstream floodplain resources during construction and maintenance of a cover over soil containing residual contamination. The Remedial Design, RAWP, and the LTMP will be developed and provide specific requirements, to meet the substantive requirements of this section.
Rhode Island Solid Waste Regulations – Closure in “Unstable Areas”	DEM OWM-SW0401, 2.3.23	Relevant and Appropriate	Provides requirements for closure of solid waste units in “unstable areas”, interpreted to include wetland and floodplains.	This alternative establishes a soil cover and a waste management area within and/or adjacent to “unstable areas.” The substantive requirements of this section of the regulations will be met through the closure of the cover areas. This alternative meets the intent because the site will be covered in a manner that prevents the release of contaminants during a 100-year flood event.

TABLE E-4

CHEMICAL-SPECIFIC ARARs AND TBCs
GROUNDWATER ALTERNATIVE GW3 - IN-SITU ENHANCED BIOREMEDIATION, MNA, AND LUCs
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Federal				
Safe Drinking Water Act; National primary drinking water regulations	42 U.S.C. §300f *et seq.*; 40 C.F.R. 141, Subparts B and G	Relevant and Appropriate	Establishes MCLs for common organic and inorganic contaminants applicable to public drinking water supplies. Used as relevant and appropriate standards for aquifers and surface water bodies that are potential drinking water sources.	MCLs were considered in development of PRGs. Outside of the compliance boundary of the waste management area, PRGs would be met through bioremediation and natural attenuation. LUCs within the compliance boundary of the waste management area will prevent use of contaminated groundwater that exceeds these standards.
Safe Drinking Water Act; National primary drinking water regulations	42 U.S.C. §300f *et seq.*; 40 C.F.R. 141, Subpart F	Relevant and Appropriate for non-zero MCLGs only	Establishes maximum contaminant level goals (MCLGs) for public water supplies. MCLGs are health goals for drinking water sources. These unenforceable health goals are available for a number of organic and inorganic compounds.	Non-zero MCLGs were considered in development of PRGs. Outside of the compliance boundary of the waste management area, PRGs would be met through bioremediation and natural attenuation. LUCs within the compliance boundary of the waste management area will prevent use of contaminated groundwater that exceeds these standards.
Health Advisories (EPA Office of Drinking Water)		To Be Considered	Health Advisories are estimates of risk due to consumption of contaminated drinking water; they consider non-carcinogenic effects only. To be considered for contaminants in groundwater that may be used for drinking water. The risk-based standard for manganese is 0.3 mg/L.	Health Advisory was considered in development of PRG for manganese. Outside of the compliance boundary of the waste management area, PRG would be met through natural attenuation. LUCs within the compliance boundary of the waste management area will prevent use of contaminated groundwater that exceeds these standards.
EPA Carcinogenicity Slope Factor		To Be Considered	These are guidance values used to evaluate the potential carcinogenic hazard caused by exposure to contaminants. Slope factors are developed by EPA from health effects assessments.	Used to compute the individual incremental cancer risk resulting from exposure to carcinogenic contaminants in groundwater for COCs without MCLs, non-zero MCLGs, or Health Advisory values. Outside of the compliance boundary of the waste management area, PRG would be met through

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
			Carcinogenic effects present the most up-to-date information on cancer risk potency. Potency factors are developed by EPA from Health Effects Assessments of evaluation by the Carcinogenic Assessment Group.	bioremediation and natural attenuation. LUCs within the compliance boundary of the waste management area will prevent use of contaminated groundwater that exceeds these standards.
EPA Risk Reference Dose (RfDs)		To Be Considered	Guidance used to compute human health hazard resulting from exposure to non-carcinogens in site media. RfDs are considered to be the levels unlikely to cause significant adverse health effects associated with a threshold mechanism of action in human exposure for a lifetime.	Used to compute the individual incremental cancer risk resulting from exposure to carcinogenic contaminants in groundwater for COCs without MCLs, non-zero MCLGs, or Health Advisory values. Outside of the compliance boundary of the waste management area, PRG would be met through bioremediation and natural attenuation. LUCs within the compliance boundary of the waste management area will prevent use of contaminated groundwater that exceeds these standards.
Guidelines for Carcinogen Risk Assessment	EPA/630/P-03/001F (March 2005)	To Be Considered	Guidance for assessing cancer risk.	Used to calculate potential carcinogenic risks caused by exposure to contaminants. Outside of the compliance boundary of the waste management area, PRG would be met through bioremediation and natural attenuation. LUCs within the compliance boundary of the waste management area will prevent use of contaminated groundwater that exceeds these standards.
Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens	EPA/630/R-03/003F (March 2005)	To Be Considered	Guidance of assessing cancer risks to children.	Used to calculate potential carcinogenic risks to children caused by exposure to contaminants. Outside of the compliance boundary of the waste management area, PRG would be met through bioremediation and natural attenuation. LUCs within the compliance boundary of the waste management area will prevent use of contaminated groundwater

TABLE E-4

CHEMICAL-SPECIFIC ARARs AND TBCs
GROUNDWATER ALTERNATIVE GW3 - IN-SITU ENHANCED BIOREMEDIATION, MNA, AND LUCs
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
				that exceeds these standards.
State				
Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (Short Title: Remediation Regulations)	Code of Rhode Island Rules (CRIR) 12-180-001; DEM-DSR-01-93, sections 8.01 and 8.03	Applicable	These regulations set remediation standards for groundwater at NPL sites when they are more stringent than federal standards.	These standards were used to develop groundwater PRGs. Outside of the compliance boundary of the waste management area, PRG would be met through bioremediation and natural attenuation. LUCs within the compliance boundary of the waste management area will prevent use of contaminated groundwater that exceeds these standards.

TABLE E-5

LOCATION-SPECIFIC ARARs AND TBCs
GROUNDWATER ALTERNATIVE GW3 - IN-SITU ENHANCED BIOREMEDIATION, MNA, AND LUCs
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Federal				
Floodplain Management and Protection of Wetlands	44 C.F.R. 9	Relevant and Appropriate	Implements Executive Order 11990 (Protection of Wetlands)). Prohibits activities that adversely affect a federally-regulated wetland unless there is no practicable alternative and the proposed action includes all practicable measures to minimize harm to wetlands that may result from such use.	During the remedial design stage the effects of installing and maintaining monitoring wells on federal jurisdictional wetlands will be evaluated. All practicable means will be used to minimize harm to the wetlands. Wetlands disturbed by well installation and maintenance will be mitigated in accordance with requirements. Public comment will be solicited in the Proposed Plan.
Clean Water Act, Section 404; Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material	33 U.S.C. § 1344; 40 C.F.R. Part 230, 231 and 33 C.F.R. Parts 320-323	Applicable	Controls discharges of dredged or fill material to protect aquatic ecosystems. Filling or discharge of dredged material will only occur where there is no other practicable alternative and any adverse impacts to aquatic ecosystems will be mitigated.	Activities involving discharge of dredged material and/or excavation. Installation or maintenance of monitoring wells that include dredging or filling in wetlands will be implemented to meet these requirements, including mitigation of altered wetland/aquatic resource as required.
State				
Fresh Water Wetlands Act	RIGL 2-1, Sections 2-1-18 through 2-1-20.2; Fresh Water Wetlands Act; DEM Rules And Regulations	Applicable	Rules and regulations governing the administration and enforcement of the Fresh Water Wetlands Act. Defines and establishes provisions for the protection of swamps, marshes and other fresh water wetlands in the state. Actions are required to prevent the undesirable drainage, excavation, filling, alteration, encroachment or any	Injection well installation, injection, and monitoring activities will be conducted to minimize the disturbance of state jurisdictional wetland and perimeter wetland.

TABLE E-5

LOCATION-SPECIFIC ARARs AND TBCs
GROUNDWATER ALTERNATIVE GW3 - IN-SITU ENHANCED BIOREMEDIATION, MNA, AND LUCs
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
	Governing the Administration and Enforcement of the Fresh Water Wetlands Act (Dec 2010), Rules 4.00 and 5.00		other form of disturbance or destruction of a wetland. Also establishes standards for land within 50 feet of the edge of a state-regulated wetland.	

TABLE E-6

ACTION-SPECIFIC ARARs AND TBCs
GROUNDWATER ALTERNATIVE GW3 - IN-SITU ENHANCED BIOREMEDIATION, MNA, AND LUCs
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Federal				
Underground Injection Control (UIC)	40 C.F.R. 144,146, and 147.2000	Applicable	These regulations address the discharge of wastes, chemicals or other substances into the subsurface. The federal UIC program designates injection wells incidental to aquifer remediation as Class V wells.	These regulations apply underground injection of electron donor substrate.
Safe Drinking Water Act; National primary drinking water regulations	42 U.S.C. §300f *et seq.*; 40 C.F.R. 141, Subparts B and G	Relevant and Appropriate	Establishes MCLs for common organic and inorganic contaminants applicable to public drinking water supplies. Used as relevant and appropriate standards for aquifers and surface water bodies that are potential drinking water sources.	The MCLs will be used to develop performance standards for monitoring the compliance boundary for the waste management area established where contamination is left in place under a cover. Exceedances of these standards within the compliance boundary will be addressed by LUCs.
Safe Drinking Water Act; National primary drinking water regulations	42 U.S.C. §300f *et seq.*; 40 C.F.R. 141, Subpart F	Relevant and Appropriate for non-zero MCLGs only	Establishes maximum contaminant level goals (MCLGs) for public water supplies. MCLGs are health goals for drinking water sources. These unenforceable health goals are available for a number of organic and inorganic compounds.	The non-zero MCLGs will be used to develop performance standards for monitoring the compliance boundary for the waste management area established where contamination is left in place under a cover. Exceedances of these standards within the compliance boundary will be addressed by LUCs.
Health Advisories (EPA Office of Drinking Water)		To Be Considered	Health Advisories are estimates of risk due to consumption of contaminated drinking water; they consider non-carcinogenic effects only. To be considered for contaminants in groundwater that may be used for drinking water. The risk-based standard for manganese is 0.3 mg/L.	The Health Advisory for manganese will be used to develop performance standards for monitoring the compliance boundary for the waste management area established where contamination is left in place under a cover. Exceedances of these standards (particularly for manganese) within the

TABLE E-6

ACTION-SPECIFIC ARARs AND TBCs
GROUNDWATER ALTERNATIVE GW3 - IN-SITU ENHANCED BIOREMEDIATION, MNA, AND LUCs
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
				compliance boundary will be addressed by LUCs.
Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites,	OSWER Directive 9200.4-17P (April 21, 1999)	To Be Considered	EPA guidance regarding the use of monitored natural attenuation for the cleanup of contaminated soil and groundwater. In particular, a reasonable time frame for achieving cleanup standard though monitored attenuation would be comparable to that which could be achieved through active restoration.	Bioremediation and MNA can attain federal drinking water and risk standards as defined by this guidance within a reasonable time frame outside of the compliance boundary for the waste management area.
EPA Groundwater Protection Strategy (August 1984); NCP Preamble; Guidelines for Ground-Water Classification (November 1986)	Federal Register Vol 55, No. 46, March 8, 1990, p. 8733 (NCP Preamble)	To Be Considered	The Groundwater Protection Strategy provides a common reference for preserving clean groundwater and protecting the public health against the effects of past contamination. Guidelines for consistency in groundwater protection programs focus on the highest beneficial use of a groundwater aquifer and define three classes of groundwater. These documents defined Class I, II and III groundwaters.	Under federal standards, groundwater within the Site is considered a potential drinking water source except within the compliance boundary of any waste management area established under the soil or sediment alternatives; therefore, groundwater must achieve federal drinking water and risk-based standards or more stringent State groundwater standards outside of the compliance boundary. Groundwater use restrictions outside of the compliance boundary will be maintained until these standards are achieved. Inside of the compliance boundary groundwater use restrictions will be in effect for as long as the waste management area remains in place. Groundwater monitoring using these standards will be used to make sure groundwater exceeding these standards does not migrate beyond the

TABLE E-6

ACTION-SPECIFIC ARARs AND TBCs
GROUNDWATER ALTERNATIVE GW3 - IN-SITU ENHANCED BIOREMEDIATION, MNA, AND LUCs
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
				compliance boundary. Exceedances of these standards within the compliance boundary is a basis for establishing prohibitions on the use of groundwater within the compliance boundary. An additional buffer zone beyond the compliance boundary to prevent groundwater wells from being installed that would draw contaminated groundwater beyond the compliance boundary may also be established, if required.
State				
Standards for Identification and Listing of Hazardous Waste	Rules and Regulations for Hazardous Waste Management, Rhode Island General Laws (RIGL) 23-19 et seq,, Code of Rhode Island Rules (CRIR) 12-030-003 Rule 5.8	Applicable	Defines the listed and characteristic hazardous wastes.	These regulations would apply when determining whether or not a solid waste is hazardous, either by being listed or by exhibiting a hazardous characteristic.

TABLE E-6

ACTION-SPECIFIC ARARs AND TBCs
GROUNDWATER ALTERNATIVE GW3 - IN-SITU ENHANCED BIOREMEDIATION, MNA, AND LUCs
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
State (Continued)				
Standards for Generators of Hazardous Waste	Rules and Regulations for Hazardous Waste Management, RIGL 23-19 et seq,, CRIR 12-030-003 Rule 5.0	Applicable	Establishes manifesting, pre-transport, and recordkeeping requirements for hazardous waste.	These regulations would apply to well installation and monitoring well sampling IDW, if hazardous.
Injection Control Regulations	Underground Injection Control Program Rules and Regulations; RIGL Ch. 46-12, 46-13.1; Rules for the Discharge of Non-Sanitary Wastewater and Other Fluid to or Below the Ground Surface (June 2012)	Applicable	Establishes a State Underground Injection Control Program consistent with federal requirements to preserve the quality of the groundwater of the state and to prevent contamination of groundwater resources from the discharge of non-sanitary wastewater or other fluid to or below the ground surface.	These regulations apply underground injection of electron donor substrate.
Rhode Island Solid Waste Regulations - Monitoring Wells	DEM OWM-SW0401, 2.1.08(a)(8)	Relevant and Appropriate	Contains requirements for construction of monitoring wells to monitor a solid waste landfill.	The substantive requirements of this section of the regulations will be met for construction of new monitoring wells and maintenance of all monitoring wells.

ACTION-SPECIFIC ARARs AND TBCs
GROUNDWATER ALTERNATIVE GW3 - IN-SITU ENHANCED BIOREMEDIATION, MNA, AND LUCs
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Rhode Island Solid Waste Regulations – Long-term Monitoring	DEM OWM-SW0401, 2.1.08(c)	Relevant and Appropriate	Contains requirements for monitoring wells.	The substantive requirements of this section of the regulations will be met by maintaining monitoring wells for the purpose of monitoring groundwater conditions at the site, including monitoring for soil contamination left in place. Groundwater monitoring for alternatives for all media will be addressed through a monitoring program under the selected groundwater alternative.
Rhode Island Solid Waste Regulations - Monitoring Wells	DEM OWM-SW0401, 2.3.11	Relevant and Appropriate	Contains requirements for monitoring wells.	The substantive requirements of this section of the regulations will be met by maintaining monitoring wells for the purpose of monitoring groundwater conditions at the site, including monitoring for soil contamination left in place. Groundwater monitoring for alternatives for all media will be addressed through a monitoring program under the selected groundwater alternative.

TABLE E-6

ACTION-SPECIFIC ARARs AND TBCs
GROUNDWATER ALTERNATIVE GW3 - IN-SITU ENHANCED BIOREMEDIATION, MNA, AND LUCs
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Rules and Regulations for Groundwater Quality	RIGL Ch. 46-12, Section 46-12-2; Ch. 46-13.1, Ch. 23-18.9, Sec. 23-18-9.1; DEM Rules and Regulations for Groundwater Quality (March 2005), Appendix 1	Applicable	Identifies the standards and specification that must be followed for the installation or abandonment of monitoring wells.	Wells installed for monitoring and in-situ treatment will be installed and abandoned according to these standards.

TABLE E-7

CHEMICAL-SPECIFIC ARARs AND TBCs
GROUNDWATER ALTERNATIVE GW4 - IN-SITU CHEMICAL OXIDATION, MNA, AND LUCs
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Federal				
Safe Drinking Water Act; National primary drinking water regulations	42 U.S.C. §300f *et seq.*; 40 C.F.R. 141, Subparts B and G	Relevant and Appropriate	Establishes MCLs for common organic and inorganic contaminants applicable to public drinking water supplies. Used as relevant and appropriate standards for aquifers and surface water bodies that are potential drinking water sources.	MCLs were considered in development of PRGs. Outside of the compliance boundary of the waste management area, PRGs would be met through chemical oxidation and natural attenuation. LUCs within the compliance boundary of the waste management area will prevent use of contaminated groundwater that exceeds these standards.
Safe Drinking Water Act; National primary drinking water regulations	42 U.S.C. §300f *et seq.*; 40 C.F.R. 141, Subpart F	Relevant and Appropriate for non-zero MCLGs only	Establishes maximum contaminant level goals (MCLGs) for public water supplies. MCLGs are health goals for drinking water sources. These unenforceable health goals are available for a number of organic and inorganic compounds.	Non-zero MCLGs were considered in development of PRGs. Outside of the compliance boundary of the waste management area, PRGs would be met through chemical oxidation and natural attenuation. LUCs within the compliance boundary of the waste management area will prevent use of contaminated groundwater that exceeds these standards.
Health Advisories (EPA Office of Drinking Water)		To Be Considered	Health Advisories are estimates of risk due to consumption of contaminated drinking water; they consider non-carcinogenic effects only. To be considered for contaminants in groundwater that may be used for drinking water. The risk-based standard for manganese is 0.3 mg/L.	Health Advisory was considered in development of PRG for manganese. Outside of the compliance boundary of the waste management area, PRG would be met through natural attenuation. LUCs within the compliance boundary of the waste management area will prevent use of contaminated groundwater that exceeds these standards.
EPA Carcinogenicity Slope Factor		To Be Considered	These are guidance values used to evaluate the potential carcinogenic hazard caused by exposure to contaminants. Slope factors are developed by EPA from health effects	Used to compute the individual incremental cancer risk resulting from exposure to carcinogenic contaminants in groundwater for COCs without MCLs, non-zero MCLGs, or Health Advisory values. Outside of the

TABLE E-7

CHEMICAL-SPECIFIC ARARs AND TBCs
GROUNDWATER ALTERNATIVE GW4 - IN-SITU CHEMICAL OXIDATION, MNA, AND LUCs
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
			assessments. Carcinogenic effects present the most up-to-date information on cancer risk potency. Potency factors are developed by EPA from Health Effects Assessments of evaluation by the Carcinogenic Assessment Group.	compliance boundary of the waste management area, PRG would be met through chemical oxidation and natural attenuation. LUCs within the compliance boundary of the waste management area will prevent use of contaminated groundwater that exceeds these standards.
EPA Risk Reference Dose (RfDs)		To Be Considered	Guidance used to compute human health hazard resulting from exposure to non-carcinogens in site media. RfDs are considered to be the levels unlikely to cause significant adverse health effects associated with a threshold mechanism of action in human exposure for a lifetime.	Used to compute the individual incremental cancer risk resulting from exposure to carcinogenic contaminants in groundwater for COCs without MCLs, non-zero MCLGs, or Health Advisory values. Outside of the compliance boundary of the waste management area, PRG would be met through chemical oxidation and natural attenuation. LUCs within the compliance boundary of the waste management area will prevent use of contaminated groundwater that exceeds these standards.
Guidelines for Carcinogen Risk Assessment	EPA/630/P-03/001F (March 2005)	To Be Considered	Guidance for assessing cancer risk.	Used to calculate potential carcinogenic risks caused by exposure to contaminants. Outside of the compliance boundary of the waste management area, PRG would be met through chemical oxidation and natural attenuation. LUCs within the compliance boundary of the waste management area will prevent use of contaminated groundwater that exceeds these standards.
Supplemental Guidance for Assessing Susceptibility from	EPA/630/R-03/003F (March 2005)	To Be Considered	Guidance of assessing cancer risks to children.	Used to calculate potential carcinogenic risks to children caused by exposure to contaminants. Outside of the compliance boundary of the waste management area, PRG would be met

TABLE E-7

CHEMICAL-SPECIFIC ARARs AND TBCs
GROUNDWATER ALTERNATIVE GW4 - IN-SITU CHEMICAL OXIDATION, MNA, AND LUCs
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Early-Life Exposure to Carcinogens				through chemical oxidation and natural attenuation. LUCs within the compliance boundary of the waste management area will prevent use of contaminated groundwater that exceeds these standards.
State				
Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (Short Title: Remediation Regulations)	Code of Rhode Island Rules (CRIR) 12-180-001; DEM-DSR-01-93, sections 8.01 and 8.03	Applicable	These regulations set remediation standards for groundwater at NPL sites when they are more stringent than federal standards.	These standards were used to develop groundwater PRGs. Outside of the compliance boundary of the waste management area, PRG would be met through chemical oxidation and natural attenuation. LUCs within the compliance boundary of the waste management area will prevent use of contaminated groundwater that exceeds these standards.

TABLE E-8

LOCATION-SPECIFIC ARARs AND TBCs
GROUNDWATER ALTERNATIVE GW4 - IN-SITU CHEMICAL OXIDATION, MNA, AND LUCS
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Federal				
Floodplain Management and Protection of Wetlands	44 C.F.R. 9	Relevant and Appropriate	Implements Executive Order 11990 (Protection of Wetlands)). Prohibits activities that adversely affect a federally-regulated wetland unless there is no practicable alternative and the proposed action includes all practicable measures to minimize harm to wetlands that may result from such use.	During the remedial design stage the effects of installing and maintaining monitoring wells on federal jurisdictional wetlands will be evaluated. All practicable means will be used to minimize harm to the wetlands. Wetlands disturbed by well installation and maintenance will be mitigated in accordance with requirements. Public comment will be solicited in the Proposed Plan.
Clean Water Act, Section 404; Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material	33 U.S.C. § 1344; 40 C.F.R. Part 230, 231 and 33 C.F.R. Parts 320-323	Applicable	Controls discharges of dredged or fill material to protect aquatic ecosystems. Filling or discharge of dredged material will only occur where there is no other practicable alternative and any adverse impacts to aquatic ecosystems will be mitigated.	Activities involving discharge of dredged material and/or excavation. Installation or maintenance of monitoring wells that include dredging or filling in wetlands will be implemented to meet these requirements, including mitigation of altered wetland/aquatic resource as required.
State				
Fresh Water Wetlands Act	RIGL 2-1, Sections 2-1-18 through 2-1-20.2; Fresh Water Wetlands Act; DEM Rules And Regulations	Applicable	Rules and regulations governing the administration and enforcement of the Fresh Water Wetlands Act. Defines and establishes provisions for the protection of swamps, marshes and other fresh water wetlands in the state. Actions are required to prevent the undesirable drainage, excavation, filling, alteration, encroachment or any	Injection well installation, injection, and monitoring activities will be conducted to minimize the disturbance of state jurisdictional wetland and perimeter wetland.

LOCATION-SPECIFIC ARARs AND TBCs
GROUNDWATER ALTERNATIVE GW4 - IN-SITU CHEMICAL OXIDATION, MNA, AND LUCS
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
	Governing the Administration and Enforcement of the Fresh Water Wetlands Act (Dec 2010), Rules 4.00 and 5.00		other form of disturbance or destruction of a wetland. Also establishes standards for land within 50 feet of the edge of a state-regulated wetlands.	

TABLE E-9

ACTION-SPECIFIC ARARs AND TBCs
GROUNDWATER ALTERNATIVE GW4 - IN-SITU CHEMICAL OXIDATION, MNA, AND LUCS
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Federal				
Underground Injection Control (UIC)	40 C.F.R. 144,146, and 147.2000	Applicable	These regulations address the discharge of wastes, chemicals or other substances into the subsurface. The federal UIC program designates injection wells incidental to aquifer remediation as Class V wells.	These regulations apply underground injection of oxidizing chemical.
Safe Drinking Water Act; National primary drinking water regulations	42 U.S.C. §300f *et seq.*; 40 C.F.R. 141, Subparts B and G	Relevant and Appropriate	Establishes MCLs for common organic and inorganic contaminants applicable to public drinking water supplies. Used as relevant and appropriate standards for aquifers and surface water bodies that are potential drinking water sources.	The MCLs will be used to develop performance standards for monitoring the compliance boundary for the waste management area established where contamination is left in place under a cover. Exceedances of these standards within the compliance boundary will be addressed by LUCs.
Safe Drinking Water Act; National primary drinking water regulations	42 U.S.C. §300f *et seq.*; 40 C.F.R. 141, Subpart F	Relevant and Appropriate for non-zero MCLGs only	Establishes maximum contaminant level goals (MCLGs) for public water supplies. MCLGs are health goals for drinking water sources. These unenforceable health goals are available for a number of organic and inorganic compounds.	The non-zero MCLGs will be used to develop performance standards for monitoring the compliance boundary for the waste management area established where contamination is left in place under a cover. Exceedances of these standards within the compliance boundary will be addressed by LUCs.
Health Advisories (EPA Office of Drinking Water)		To Be Considered	Health Advisories are estimates of risk due to consumption of contaminated drinking water; they consider non-carcinogenic effects only. To be considered for contaminants in groundwater that may be used for drinking water. The risk-based standard for manganese is 0.3 mg/L.	The Health Advisory for manganese will be used to develop performance standards for monitoring the compliance boundary for the waste management area established where contamination is left in place under a cover. Exceedances of these standards (particularly for manganese) within the compliance boundary will be addressed by LUCs.

TABLE E-9

ACTION-SPECIFIC ARARs AND TBCs
GROUNDWATER ALTERNATIVE GW4 - IN-SITU CHEMICAL OXIDATION, MNA, AND LUCS
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites,	OSWER Directive 9200.4-17P (April 21, 1999)	To Be Considered	EPA guidance regarding the use of monitored natural attenuation for the cleanup of contaminated soil and groundwater. In particular, a reasonable time frame for achieving cleanup standard though monitored attenuation would be comparable to that which could be achieved through active restoration.	Chemical oxidation and MNA can attain federal drinking water and risk standards as defined by this guidance within a reasonable time frame outside of the compliance boundary for the waste management area.
EPA Groundwater Protection Strategy (August 1984); NCP Preamble; Guidelines for Ground-Water Classification (November 1986)	Federal Register Vol 55, No. 46, March 8, 1990, p. 8733 (NCP Preamble)	To Be Considered	The Groundwater Protection Strategy provides a common reference for preserving clean groundwater and protecting the public health against the effects of past contamination. Guidelines for consistency in groundwater protection programs focus on the highest beneficial use of a groundwater aquifer and define three classes of groundwater. These documents defined Class I, II and III groundwaters.	Under federal standards, groundwater within the Site is considered a potential drinking water source source except within the compliance boundary of any waste management area established under the soil or sediment alternatives; therefore, groundwater must achieve federal drinking water and risk-based standards or more stringent State groundwater standards outside of the compliance boundary. Groundwater use restrictions outside of the compliance boundary will be maintained until these standards are achieved. Inside of the compliance boundary groundwater use restrictions will be in effect for as long as the waste management area remains in place. Groundwater monitoring using these standards will be used to make sure groundwater exceeding these standards does not migrate beyond the compliance boundary. Exceedances of these standards within the compliance boundary is a basis for establishing

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
				prohibitions on the use of groundwater within the compliance boundary. An additional buffer zone beyond the compliance boundary to prevent groundwater wells from being installed that would draw contaminated groundwater beyond the compliance boundary may also be established, if required.
State				
Standards for Identification and Listing of Hazardous Waste	Rules and Regulations for Hazardous Waste Management, Rhode Island General Laws (RIGL) 23-19 *et seq*,, Code of Rhode Island Rules (CRIR) 12-030-003 Rule 5.8	Applicable	Defines the listed and characteristic hazardous wastes.	These regulations would apply when determining whether or not a solid waste is hazardous, either by being listed or by exhibiting a hazardous characteristic.
Standards for Generators of Hazardous Waste	Rules and Regulations for Hazardous Waste Management, RIGL 23-19 *et seq*,, CRIR 12-030-003 Rule 5.0	Applicable	Establishes manifesting, pre-transport, and recordkeeping requirements for hazardous waste.	These regulations would apply to well installation and monitoring well sampling IDW, if hazardous.

ACTION-SPECIFIC ARARs AND TBCs
GROUNDWATER ALTERNATIVE GW4 - IN-SITU CHEMICAL OXIDATION, MNA, AND LUCS
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Injection Control Regulations	Underground Injection Control Program Rules and Regulations; RIGL Ch. 46-12, 46-13.1; Rules for the Discharge of Non-Sanitary Wastewater and Other Fluid to or Below the Ground Surface (June 2012)	Applicable	Establishes a State Underground Injection Control Program consistent with federal requirements to preserve the quality of the groundwater of the state and to prevent contamination of groundwater resources from the discharge of non-sanitary wastewater or other fluid to or below the ground surface.	These regulations apply underground injection of oxidizing chemical.
Rhode Island Solid Waste Regulations - Monitoring Wells	DEM OWM-SW0401, 2.1.08(a)(8)	Relevant and Appropriate	Contains requirements for construction of monitoring wells to monitor a solid waste landfill.	The substantive requirements of this section of the regulations will be met for construction of new monitoring wells and maintenance of all monitoring wells.
Rhode Island Solid Waste Regulations – Long-term Monitoring	DEM OWM-SW0401, 2.1.08(c)	Relevant and Appropriate	Contains requirements for monitoring wells.	The substantive requirements of this section of the regulations will be met by maintaining monitoring wells for the purpose of monitoring groundwater conditions at the site, including monitoring for soil contamination left in place. Groundwater monitoring for alternatives for all media will be addressed through a monitoring program under the selected groundwater alternative.

TABLE E-9

ACTION-SPECIFIC ARARs AND TBCs
GROUNDWATER ALTERNATIVE GW4 - IN-SITU CHEMICAL OXIDATION, MNA, AND LUCS
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Rhode Island Solid Waste Regulations - Monitoring Wells	DEM OWM-SW0401, 2.3.11	Relevant and Appropriate	Contains requirements for monitoring wells.	The substantive requirements of this section of the regulations will be met by maintaining monitoring wells for the purpose of monitoring groundwater conditions at the site, including monitoring for soil contamination left in place. Groundwater monitoring for alternatives for all media will be addressed through a monitoring program under the selected groundwater alternative.
Rules and Regulations for Groundwater Quality	RIGL Ch. 46-12, Section 46-12-2; Ch. 46-13.1, Ch. 23-18.9, Sec 23-18-9.1; DEM Rules and Regulations for Groundwater Quality (March 2005), Appendix 1	Applicable	Identifies the standards and specification that must be followed for the installation or abandonment of monitoring wells.	Wells installed for monitoring and in-situ treatment will be installed and abandoned according to these standards.

TABLE E-10

CHEMICAL-SPECIFIC ARARs AND TBCs
SEDIMENT ALTERNATIVE SD4 – SEDIMENT REMOVAL AND OFF-SITE DISPOSAL
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Federal				
Probable Effects Concentration Quotients (PEC-Qs)	MacDonald, *et al*., 2000 and Ingersoll *et al*., 2000.	To Be Considered	Provides guidance values for identifying potential risk to ecological receptors exposed to contaminated sediments.	Primary basis for evaluating risk to aquatic ecological receptors. This guidance can be used to develop PRGs.
Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems. Probable Effects Concentrations (PECs)	MacDonald *et al*., 2000	To Be Considered	The PEC value is the concentration above which the adverse effects on sediment-dwelling organisms are likely to occur.	Sediment removal will prevent exposure to COCs at concentrations greater than PRGs calculated through the use of PECs.
Recommendations of the Technical Review Workgroup for Lead for an approach to Assessing Risks Associated with Adult Exposure to Lead In Soil	EPA-540-R-03-001 (January 2003)	To Be Considered	EPA Guidance for evaluating risks posed by lead in soil.	Risks from lead assessed under this guidance will be addressed through a combination of remediation (stream sediment removal to industrial levels) and LUCs (to prevent residential/unrestricted recreational exposure to lead remaining in stream sediment above residential levels developed using these standards).
State				
There are no state chemical-specific ARARs.				

TABLE E-11

LOCATION-SPECIFIC ARARs AND TBCs
SEDIMENT ALTERNATIVE SD4 – SEDIMENT REMOVAL AND OFF-SITE DISPOSAL
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Federal				
Clean Water Act, Section 404; Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material	33 U.S.C. § 1344; 40 C.F.R. Part 230, 231 and 33 C.F.R. Parts 320-323	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. Controls discharges of dredged or fill material to protect aquatic ecosystems. Filling or discharge of dredged material will only occur where there is no other practicable alternative and any adverse impacts to aquatic ecosystems will be mitigated. Under these standards the Navy must solicit public comment through the Proposed Plan on its finding that one of the alternatives is the Least Environmentally Damaging Practicable Alternative.	Sediment remediation or other remedial actions that include dredging in wetlands/waterways will be implemented to meet these requirements, including mitigation of altered wetland/aquatic resource as required. The Navy has determined that this alternative is the Least Environmentally Damaging Practicable Alternative to protect wetland resources because it provides the best balance of addressing contaminated sediment within and adjacent to wetlands and waterways with minimizing both temporary and permanent alteration of wetlands and aquatic habitats on site. The Navy solicited public comment on its determination in the Proposed Plan and received no negative public comments.
Fish and Wildlife Coordination Act	16 U.S.C. §661 *et seq*.	Applicable	Requires Federal agencies involved in actions that will result in the control of structural modification of any stream or body of water for any purpose to take action to protect fish and wildlife resources that may be affected by the action. The Navy must coordinate with appropriate federal and state resource agencies to ascertain the means and	Measures to mitigate or compensate adverse project related impacts to fish and wildlife resources will be taken, if determined necessary. The appropriate federal and state resource agencies will be consulted, in particular regarding remedial measures for contaminated sediment that will impact streams,

LOCATION-SPECIFIC ARARs AND TBCs
SEDIMENT ALTERNATIVE SD4 – SEDIMENT REMOVAL AND OFF-SITE DISPOSAL
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
			measures necessary to mitigate, prevent, and compensate for project related losses of fish and wildlife resources and to enhance the resources.	wetlands, and downstream water bodies.
Floodplain Management and Protection of Wetlands	44 C.F.R. 9	Relevant and Appropriate	Implements Executive Order 11990 (Protection of Wetlands)). Prohibits activities that adversely affect a federally-regulated wetland unless there is no practicable alternative and the proposed action includes all practicable measures to minimize harm to wetlands that may result from such use.	During the remedial design stage the effects of sediment remedial actions on federal jurisdictional wetlands will be evaluated. All practicable means will be used to minimize harm to the wetlands. Wetlands disturbed by sediment remediation, will be mitigated in accordance with requirements. The remedy will not adversely impact the downstream floodplain area as contaminated sediment would be removed from the site. The Navy solicited public comment on its determination in the Proposed Plan and received no negative public comments.
Endangered Species Act	16 U.S.C. 1531 *et seq.*; 50 C.F.R. parts 200 and 402	Applicable	Regulates activities affecting federally listed endangered or threatened species or their habitat. The federally-listed loggerhead turtle, Kemps-Ridley turtle, and Atlantic Sturgeon occur in the water of Narragansett Bay.	Appropriate federal agencies will be consulted to ensure that remedial measure taken under this alternative will prevent site contamination from migrating downstream to the Bay.

TABLE E-11

LOCATION-SPECIFIC ARARs AND TBCs
SEDIMENT ALTERNATIVE SD4 – SEDIMENT REMOVAL AND OFF-SITE DISPOSAL
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
State				
Rhode Island Endangered Species Act	RIGL 20-37-1 *et seq.*	Relevant and Appropriate	Regulates activities affecting State-listed endangered or threatened species or their habitat. The State-listed loggerhead turtle and Kemps-Ridley turtle occur in the water of Narragansett Bay.	Appropriate State agencies will be consulted to ensure that remedial measure taken under this alternative will prevent site contamination from migrating downstream to the Bay.
Fresh Water Wetlands Act	RIGL 2-1, Sections 2-1-18 through 2-1-20.2; Fresh Water Wetlands Act; DEM Rules And Regulations Governing the Administration and Enforcement of the Fresh Water Wetlands Act (Dec. 2010), Rules 4.00 and 5.00	Applicable	Rules and regulations governing the administration and enforcement of the Fresh Water Wetlands Act. Defines and establishes provisions for the protection of swamps, marshes and other fresh water wetlands in the state. Actions are required to prevent the undesirable drainage, excavation, filling, alteration, encroachment or any other form of disturbance or destruction of a wetland. Also establishes standards for land within 50 feet of the edge of a state-regulated wetlands.	Sediment removal activities will be conducted to minimize the disturbance of state jurisdictional wetland and perimeter wetland.

TABLE E-12

ACTION-SPECIFIC ARARs AND TBCs
SEDIMENT ALTERNATIVE SD4 – SEDIMENT REMOVAL AND OFF-SITE DISPOSAL
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Federal				
Contaminated Sediment Remediation Guidance for Hazardous Waste Sites	EPA-540-R-05-012 OSWER 9355.0-85 (December 2005)	To Be Considered	Guidance for making remedy decisions for contaminated sediment sites. Some of the relevant sections of the guidance address Remedial Investigations (Ch. 2), FS Considerations (Ch. 3), and Dredging and Excavation (Ch. 6).	Removal of all contaminated sediment, along with dewatering and off-site disposal under this alternative meets guidance standards for addressing contaminated sediments in the wetlands/waterway (as long as habitat restoration requirements can be met).
Toxic Substances Control Act (TSCA); PCB Remediation Waste,	40 C.F.R. 761.61(c)	Applicable	This section of the TSCA regulations provides risk-based cleanup and disposal options for PCB remediation waste based on the risks posed by the *in-situ* concentrations at which the PCBs are found. Written approval for the proposed risk-based cleanup must be obtained from the Director, Office of Site Remediation and Restoration, U.S. Environmental Protection Agency (USEPA) Region 1.	All sediment exceeding identified PCB cleanup levels will be removed, dewatered (if required) and disposed of off-site. The excavation, transportation, dewatering, and management of PCB contaminated media will be performed in a manner to comply with TSCA, including air and surface water monitoring during remedial activities. This ROD contains a finding by the Director, Office of Site Remediation and Restoration, USEPA Region 1, that the remedy's sediment PCB cleanup levels, along with the excavation, dewatering, and management of the contaminated media will not pose an unreasonable risk to human health or the environment.
CWA National Recommended Water Quality Criteria (NRWQC)	40 C.F.R. 122.44	Applicable	Federal NRWQC are health-based and ecologically based criteria developed for carcinogenic and non-carcinogenic compounds.	Water quality standards used to develop monitoring standards during the sediment excavation/dredging and dewatering.

TABLE E-12

ACTION-SPECIFIC ARARs AND TBCs
SEDIMENT ALTERNATIVE SD4 – SEDIMENT REMOVAL AND OFF-SITE DISPOSAL
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Clean Water Act - National Pollutant Discharge Elimination System (NPDES)	40 C.F.R. Parts 122 and 125	Applicable	Establishes the specifications for discharging pollutants from any point source into the waters of the U.S. Includes stormwater standards for activities disturbing more than one acre.	Any water discharged to surface water bodies during remedial activities such as sediment dewatering will comply with this regulation. Best management practices will be used to meet stormwater standards during the remedial action.
Clean Water Act; General Pretreatment Regulations for Existing and New Sources of Pollution	33 U.S.C. § 1251 *et seq*., 40 CFR. Part 403	Applicable	Standards for direct discharge of waste water into a Publicly Owned Treatment Works (POTW).	These standards will apply if water from the remedial action such as from dewatering is discharged to a POTW.
Management of Undesirable Plants on Federal Lands	7 U.S.C. 2814	Relevant and Appropriate	Requires federal agencies to establish integrated management systems to control or contain undesirable plant species on federal lands under the agency's jurisdiction.	Measures will be taken to control the establishment of *Phragmites*, purple loosestrife or other invasive plants within all remediated areas. An invasive species control plan will be developed as part of the long-term O&M for this site. The responsibility of control will be transitioned to NAVSTA after (1) the remedy is in place, and (2) NAVSTA develops a base-wide program for controlling undesirable plants.
State				
Clean Air Act -Emissions Detrimental to Persons or Property	RIGL 23-23 *et seq.*; CRIR 12-31-07	Applicable	Prohibits emissions of contaminants which may be injurious to humans, plant or animal life or cause damage to property or which reasonably interferes with the enjoyment of life and property.	Monitoring of air emissions during excavation/dredging and dewatering will be used to assess compliance with these standards if threshold levels are reached.

TABLE E-12

ACTION-SPECIFIC ARARs AND TBCs
SEDIMENT ALTERNATIVE SD4 – SEDIMENT REMOVAL AND OFF-SITE DISPOSAL
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Clean Air Act –Air Toxics	RIGL 23-23 *et seq.*; CRIR 12-31-22	Applicable	Prohibits the emission of specified contaminants at rates which would result in ground level concentrations greater than acceptable ambient levels or acceptable ambient levels as set in the regulations.	Monitoring of air emissions during excavation/dredging and dewatering will be used to assess compliance with these standards if threshold levels are reached.
Water Pollution Control - Pollution Discharge Elimination Systems	RIGL 42-16 *et seq.*; CRIR 12-190-003	Applicable	Contains discharge limitations, monitoring requirements and best management practices. Substantive requirements under NPDES are written such that state and federal NRWQC are met. Permits are required for off-site discharges, RI Standards apply to POTWs. Includes storm water requirements for construction projects that disturb over one acre.	Discharge of any water from remedial activities during sediment excavation/dredging into surface waters or POTW will meet applicable standards. Stormwater standards for construction projects over one acre will also be met.
Water Pollution Control - Water Quality	RIGL 42-16 *et seq.*; CRIR 12-190-001	Applicable	Establishes water use classification and water quality criteria for waters of the state.	Water quality standards will be used to develop monitoring standards during the sediment excavation/dredging and dewatering.
Pretreatment Regulations	RIGL 46-12, 4217.1, 42-45	Applicable	Rhode Island standards for discharge to POTWs.	These standards will apply if water from the remedial action such as from dewatering is discharged to a POTW.
Hazardous Waste Determination	RIGL 23-19.1 *et seq.*; CRIR 12-030-003, Rule 5.8	Applicable	Defines the listed and characteristic hazardous wastes.	These regulations would apply when determining whether or not a solid waste is hazardous, either by being listed or by exhibiting a hazardous characteristic.
Hazardous Waste Management Standards for Generators	RIGL 23-19.1 *et seq.*; CRIR 12-030-003, Rule 5.0	Applicable	Sets standards for handling, design, operation, and monitoring of hazardous waste. The standards of 40 CFR Part 264 are incorporated by reference.	Wastes generated would be tested to determine if they constitute hazardous waste. Any hazardous waste identified will be handled and disposed according to these standards.

TABLE E-12

ACTION-SPECIFIC ARARs AND TBCs
SEDIMENT ALTERNATIVE SD4 – SEDIMENT REMOVAL AND OFF-SITE DISPOSAL
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Rules and Regulations for Dredging and Management of Dredge Materials	DEM-OWR-DR-0203	Applicable	Addresses dredging activities and disposal of dredge spoils.	Any dredging/excavation of sediment and dewatering will comply with the requirements of the regulations.

TABLE E-3 – ADDITIONAL ARARs
ACTION-SPECIFIC ARARs AND TBCs
SOIL ALTERNATIVE SO3 – SOIL COVER, SELECTIVE EXCAVATION AND REMOVAL OF ANOMALIES, OFF-SITE DISPOSAL, LUCs, MONITORING
SITE 8 – NUSC DISPOSAL AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Federal				
Clean Air Act (CAA), National Emission Standards for Hazardous Air Pollutants (NESHAPS); Standards for inactive waste disposal sites for asbestos mills and manufacturing and fabricating operations	42 USC §§ 7411 & 7412; 40 CFR § 61.151)	Relevant and Appropriate	NESHAPS standards for preventing air releases from inactive asbestos disposal sites, including cover standards, dust suppression, and land use controls.	Although this site is not an active waste disposal site, unless a specific area of asbestos contamination is defined, the entire site will be managed in a manner that meets the substantive requirements of these standards. Land use controls will be established for the entire site to maintain the surface cover and to address any potential asbestos exposure if the cover is disturbed. If a specific area of asbestos is defined, this requirement will apply to that specific area.
Framework for Investigating Asbestos-contaminated Superfund Sites	OSWER Directive #9200.0-68 (September 2008)	To be Considered	Guidance for investigating and characterizing the potential human exposure from asbestos contamination in outdoor soil at Superfund sites.	This guidance allows response actions to proceed for asbestos at a site without requirement further characterization beforehand if the site conditions support the need for a response.

TABLE A - 1

ASSESSMENT OF CHEMICAL-SPECIFIC ARARs AND TBCs
SOIL ALTERNATIVE 4: SOIL COVER AND LUCS
RECORD OF DECISION
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

FEDERAL REQUIREMENTS

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
EPA Human Health Assessment Cancer Slope Factors (CSFs).		To Be Considered	These are guidance values used to evaluate the potential carcinogenic hazard caused by exposure to contaminants.	Used to compute the individual incremental cancer risk resulting from exposure to carcinogenic contaminants in site media. Installing and the grass/asphalt cover and revetment, along with LUCs and monitoring will prevent exposure to site contaminants exceeding risk levels.
Reference Dose (RfD)		To Be Considered	Guidance used to compute human health hazard resulting from exposure to non-carcinogens in site media.	Used to calculate potential non-carcinogenic hazards caused by exposure to contaminants. Installing and the grass/asphalt cover and revetment, along with LUCs and monitoring will prevent exposure to site contaminants exceeding risk levels.
Guidelines for Carcinogen Risk Assessment EPA/630/P-03/001F (March 2005)		To Be Considered	Guidance for assessing cancer risk.	Used to calculate potential carcinogenic risks caused by exposure to contaminants. Installing and the grass/asphalt cover and revetment, along with LUCs and monitoring will prevent exposure to site contaminants exceeding risk levels.
Recommendations of the Technical Review Workgroup for Lead for an approach to Assessing Risks Associated with Adult Exposure to Lead In soil		To Be Considered	EPA Guidance for evaluating risks posed by lead in soil.	This alternative will meet these guidelines by isolating lead impacted soil exceeding adult and child industrial and commercial risk levels below cover materials and establishing land use controls and monitoring to address remaining residential risks.
Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens EPA/630/R-03/003F (March 2005)		To Be Considered	Guidance of assessing cancer risks to children.	Used to calculate potential carcinogenic risks to children caused by exposure to contaminants. Installing and the grass/asphalt cover and revetment, along with LUCs and monitoring will prevent exposure to site contaminants exceeding risk levels.

TABLE A - 1

ASSESSMENT OF CHEMICAL-SPECIFIC ARARs AND TBCs
SOIL ALTERNATIVE 4: SOIL COVER AND LUCS
RECORD OF DECISION
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

STATE OF RHODE ISLAND REQUIREMENTS

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
State of Rhode Island Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (Short Title: Remediation Regulations)	CRIR 12-180-001, Section 8; DEM-DSR-01-93, as amended February 2004	Applicable	These regulations set remediation standards for contaminated media. These standards are applicable to a CERCLA remedy when they are more stringent than federal standards. Establishes criteria for groundwater and both direct contact and leachability of contaminants in soil.	These standards were used to develop soil PRGs. This alternative meets this standard because soil exceeding PRGs is isolated from exposure to receptors with a barrier and soil cover. Long term monitoring will assess whether contamination does not migrate and LUCs will prevent residential use of property, disturbance of the cover and exposure to contaminated groundwater.

TABLE A - 2

ASSESSMENT OF LOCATION-SPECIFIC ARARs AND TBCs
SOIL ALTERNATIVE 4: SOIL COVER AND LUCS
RECORD OF DECISION
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

FEDERAL REQUIREMENTS

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Coastal Zone Management Act	16 USC Parts 1451 *et. seq.*	Applicable	Requires that any actions must be conducted in a manner consistent with state-approved management programs.	The site is located next to a coastal zone management area; therefore, applicable coastal zone management requirements need to be addressed.
Fish and Wildlife Coordination Act	16 U.S.C. 661 et seq	Applicable	Requires Federal agencies involved in actions that will result in the control of structural modification of any stream or body of water for any purpose to take action to protect fish and wildlife resources that may be affected by the action. The Navy must coordinate with appropriate federal and state resource agencies to ascertain the mans and measures necessary to mitigate, prevent, and compensate for project related losses of fish and wildlife resources and to enhance the resources.	Measures to mitigate or compensate adverse project related impacts to fish and wildlife resources will be taken, if determined necessary. The appropriate federal and state resource agencies will be consulted, in particular regarding any revetment O&M
Endangered Species Act	16 U.S.C. 1531 et seq.; 50 CFR Parts 200 and 402	Applicable	Regulates activities affecting federally listed endangered or threatened species or their critical habitat.	The federally-listed loggerhead turtle and Kemps-ridley turtle occur in the waters of Narragansett Bay. Appropriate federal agencies will be consulted to find ways to minimize adverse effects to listed species for the O&M of the revetment.
Rivers and Harbors Act	(33 U.S.C. Section 403); Section 10	Applicable	These regulations set forth criteria from the Army Corps of Engineers (ACOE) for placing dams/structures in navigable waters of the United States.	Excavation, dredging, and habitat restoration will comply with the Act's substantive environmental standards.

TABLE A - 2

ASSESSMENT OF LOCATION-SPECIFIC ARARs AND TBCs
SOIL ALTERNATIVE 4: SOIL COVER AND LUCS
RECORD OF DECISION
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

FEDERAL REQUIREMENTS (CONT)

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Clean Water Act	Section 404 (33 U.S.C. s 1344); Section 404 (b)(1) Guidelines for Specification of disposal sites for dredged or fill material (40 CFR Part 230, 231 and 33 C.F.R. Parts 320-323)."	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. Controls discharges of dredged or fill material to protect aquatic ecosystems. Filling or discharge of dredged material will only occur where there is no other practicable alternative and any adverse impacts to aquatic ecosystems will be mitigated.	Alternatives may involve discharge of dredged material and/or excavation during O &M of the shoreline revetment. Filling or discharge of dredged material will only occur where there is no other practicable alternative and any adverse impacts to aquatic ecosystems will be mitigated.
National Historic Preservation Act	16 USC 470 *et seq.*, 26 CFR Part 800	Applicable	Requires action to take into account effects on properties included on or eligible for the National Register of Historic Places and minimizes harm to National Historic Landmarks	Historic vessels may be sunken in the area. Remedial actions may involve actions that might cause potential harm to historic sites. Such actions would be prevented.

STATE OF RHODE ISLAND REQUIREMENTS

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Coastal Resources Management	RIGL 46-23-1 *et seq.*	Applicable	Sets standards for management and protection of coastal resources.	The entire site is located in a coastal resource management area, therefore, applicable coastal resource management requirements need to be addressed.
Rhode Island Endangered Species Act	RIGL 20-37-1 et seq.	Applicable	Regulates activities affecting state listed endangered or threatened species or their critical habitat.	The State listed loggerhead turtle and Kemps-ridley turtle occur in the waters of Narragansett Bay. The Navy will coordinate with appropriate agencies to find ways to minimize adverse effects to listed species for the O&M of the revetment and cover system within the 100 year flood zone.

TABLE A - 3

ASSESSMENT OF ACTION-SPECIFIC ARARs AND TBCs
SOIL ALTERNATIVE 4: SOIL COVER AND LUCs
RECORD OF DECISION
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

FEDERAL REQUIREMENTS

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Clean Air Act (CAA), National Emission Standards for Hazardous Air Pollutants (NESHAPS)	42 USC 7411, 7412; 40 CFR Part 61	Applicable	NESHAPS are a set of emission standards for specific chemicals, including naphthalene, arsenic, cadmium, chromium, lead, mercury, nickel, PCBs, DDE, and hexachlorobenzene. Certain activities are regulated including site remediation.	Monitoring of air emissions during regrading will be used to assess compliance with these standards if threshold levels are reached. Operation and maintenance activities will be carried out in a manner which will minimize potential air releases.
Clean Water Act (CWA), Section 402, National Pollutant Discharge Elimination System (NPDES)	33 USC 1342; 40 CFR Parts 122-125, 131	Applicable	These standards govern discharge of water into surface waters. Regulated discharges must meet national recommended water quality criteria. Includes storm water requirements for construction projects that disturb over one acre.	Erosion and storm water from the site will be managed through best management practices. Construction and O&M of the cover, as well as O & M of the shoreline revetment will be managed so as to not discharge contaminants into adjacent waters.
Clean Water Act; General Pretreatment Regulations for Existing and New Sources of Pollution	33 U.S.C. § 1251 et seq. 40 CFR. Part 403	Applicable	Standards for direct discharge of waste water into a Publicly Owned Treatment Works (POTW).	These standards will apply if water from the remedial action such as from dewatering is discharged to a POTW.

ASSESSMENT OF ACTION-SPECIFIC ARARs AND TBCs
SOIL ALTERNATIVE 4: SOIL COVER AND LUCs
RECORD OF DECISION
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

STATE OF RHODE ISLAND REQUIREMENTS

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Clean Air Act - Fugitive Dust Control	RIGL 23-23 et seq.; CRIR 12-31-05	Applicable	Requires that reasonable precaution be taken to prevent particulate matter from becoming airborne.	Dust control measures would be incorporated during construction activities to prevent material from becoming airborne.
Clean Air Act - Emissions Detrimental to Persons or Property	RIGL 23-23 *et seq.*; CRIR 12-31-07	Applicable	Prohibits emissions of contaminants which may be injurious to humans, plant or animal life or cause damage to property or which reasonably interferes with the enjoyment of life and property.	Monitoring of air emissions during regrading will be used to assess compliance with these standards if threshold levels are reached.
Clean Air Act - Air Pollution Control	RIGL 23-23 *et seq.*; CRIR 12-31-09	Applicable	Establishes guidelines for the construction, installation, or operation of potential air emission units. Establishes permissible emission rates for some contaminants.	No emissions are expected, however, regrading activities would be monitored and any if any control system is required it will meet the substantive provisions of the standards if threshold levels are reached.
Clean Air Act - Air Toxics	RIGL 23-23 *et seq.*; CRIR 12-31-22	Applicable	Prohibits the emission of specified contaminants at rates which would result in ground level concentrations greater than acceptable ambient levels or acceptable ambient levels as set in the regulations	Monitoring of air emissions during regrading will be used to assess compliance with these standards if threshold levels are reached. Operation and maintenance activities will be carried out in a manner which will minimize potential air releases.
Water Pollution Control - Water Quality	RIGL 42-16 *et seq.*; CRIR 12-190-001	Applicable	Establishes water use classification and water quality criteria for waters of the state. Also establishes criteria for discharge to a water body.	Construction and O&M of the cover as well as O & M of the shoreline revetment that will be managed so as to not discharge contaminants into adjacent waters.

TABLE A - 3

ASSESSMENT OF ACTION-SPECIFIC ARARs AND TBCs
SOIL ALTERNATIVE 4: SOIL COVER AND LUCs
RECORD OF DECISION
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

STATE OF RHODE ISLAND REQUIREMENTS (con't)

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Rhode Island Solid Waste Regulations	DEM OWM-SW04-01, 1.7.14(b)	Relevant and Appropriate	Regulation states that an approved closure plan must be implemented.	The site will be closed under a plan developed in accordance with the substantive requirements of this section of the regulations, (to be incorporated into the remedial design (RD,) and the Operations and Maintenance Plan (O&M) (including a monitoring plan).
Rhode Island Solid Waste Regulations	DEM OWM-SW04-01, 1.7.10	Relevant and Appropriate	Requires dust control.	Dust must be controlled at the site during cover construction and during maintenance activities.
Rhode Island Solid Waste Regulations	DEM OWM-SW04-01, 1.7.12 (a)	Relevant and Appropriate	Requires solid waste management facilities be designed and maintained to protect the health and safety of personnel at the facility and persons in close proximity.	Under this subsection health and safety of construction workers and persons in the proximity of the site would be maintained during construction and maintenance activities.
Rhode Island Solid Waste Regulations	DEM OWM-SW04-01, 1.8.01 (a) and 1.8.01 (b)	Relevant and Appropriate	Requires facilities to monitor groundwater and to meet closure requirements.	The substantive requirements of this section of the regulations will be met by monitoring groundwater and meeting closure requirements Because contaminants will be left in place the site the site will be closed as a waste management unit, and undergo long term monitoring. The remedial design (RD), remedial action work plan (RAWP), operations and monitoring plan (O&M) (including the long term monitoring plan [LTMP]) developed for this cleanup will contain the specific monitoring and closure requirements for the waste management unit that will comply with the substantive requirements.

STATE OF RHODE ISLAND REQUIREMENTS (con't)

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Rhode Island Solid Waste Regulations	DEM OWM-SW04-01, 2.1.04	Relevant and Appropriate	Requires a "Sedimentation and Erosion Control Plan" be developed.	An erosion and sediment control plan will be developed for this site in accordance with the substantive requirements of this section. The RD and the RAWP, to be developed for this cleanup, will contain the specific erosion and sediment controls requirements for the remedial construction.
Rhode Island Solid Waste Regulations	DEM OWM-SW04-01, 2.1.08 (a) (8)	Relevant and Appropriate	Contains requirements for construction of monitoring wells to monitor a solid waste landfill.	The substantive requirements of this section of the regulations will be met for construction of new monitoring wells.
Rhode Island Solid Waste Regulations	DEM OWM-SW04-01, 2.1.08 (c)	Relevant and Appropriate	Contains requirements for monitoring wells.	The substantive requirements of this section of the regulations will be met by maintaining monitoring wells for the purpose of monitoring groundwater conditions at the site. Because this remedy leaves contamination in place, it will be supported with a Long Term Monitoring Plan (LTMP) for groundwater. The LTMP will be directed by a work plan that will contain the specific monitoring requirements.
Rhode Island Solid Waste Regulations	DEM OWM-SW04-01, 2.2.12 (d) (1) and 2.2.12 (d) (2) (ii)(iii) and (v).	Relevant and Appropriate	Contains requirements for construction and maintenance of the vegetative cover final cover system.	Remedies including cover systems will include appropriate vegetation requirements of a soil cover in compliance with these standards.
Rhode Island Solid Waste Regulations	DEM OWM-SW04-01, 2.3.04(e), (f)	Relevant and Appropriate	Outlines the requirements for the maintenance and permeability of cover material .	The substantive requirements of this section of the regulations will be met by installing an asphalt cover that has been determined to provide an adequate barrier for specific areas to be used for parking, or a soil cover that has been determined to provide an adequate barrier for the remainder of the land within the waste management area.

ASSESSMENT OF ACTION-SPECIFIC ARARs AND TBCs
SOIL ALTERNATIVE 4: SOIL COVER AND LUCs
RECORD OF DECISION
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

STATE OF RHODE ISLAND REQUIREMENTS (con't)

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Rhode Island Solid Waste Regulations	DEM OWM-SW04-01, 2.3.05	Relevant and Appropriate	Establishes requirement for compliance boundary for pollution of ground waters or surface waters.	The substantive requirements of this section of the regulations will be met by the requirement that no contamination of groundwater be permitted outside the boundary of the waste management area. Because this remedy leaves contamination in place, groundwater and sediment monitoring will be conducted to assure that no contaminants are transported to the groundwater or surface water beyond the boundary of the waste management area.
Rhode Island Solid Waste Regulations	DEM OWM-SW04-01, 2.3.10	Relevant and Appropriate	Contains requirements for surface water drainage.	The substantive requirements of this section of the regulations will be met through design of appropriate surface drainage considerations for the WMA cover. The cover system would be designed to prevent erosion, sedimentation, and standing water on the cover. Minimum slope requirements for solid waste landfills have been determined not relevant or appropriate for a soil cover which is not intended to reduce infiltration.
Rhode Island Solid Waste Regulations	DEM OWM-SW04-01, 2.3.11	Relevant and Appropriate	Contains requirements for monitoring wells.	The substantive requirements of this section of the regulations will be met by having and maintaining monitoring wells for the purpose of monitoring groundwater conditions. Because this remedy leaves contaminants in place, it will be supported with a Long Term Monitoring Plan (LTMP) for groundwater. The LTMP will be directed by a work plan that will contain the specific monitoring well requirements.
Rhode Island Solid Waste Regulations	DEM OWM-SW04-01, 2.3.14	Relevant and Appropriate	Provides requirements for new solid waste landfill units and expansions that impact wetlands and coastal wetlands, coastal flood zones, etc.	This alternative will involve alteration of land within a 100 year coastal flood zone. The substantive requirements of this section of the regulations will be met by protecting the adjacent coastal wetland resources during construction and maintenance of a soil cover over soil containing residual contamination. The RD, RAWP, and the LTMP will be developed and provide specific requirements, to meet the substantive requirements of this section

ASSESSMENT OF ACTION-SPECIFIC ARARs AND TBCs
SOIL ALTERNATIVE 4: SOIL COVER AND LUCs
RECORD OF DECISION
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

STATE OF RHODE ISLAND REQUIREMENTS (con't)

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Rhode Island Solid Waste Regulations	DEM OWM-SW04-01, 2.3.23	Relevant and Appropriate	Provides requirements for closure of solid waste units in "unstable areas", interpreted to include 100 year flood zones.	This alternative establishes a waste management area within a 100 year coastal flood zone. The substantive requirements of this section of the regulations will be met through the closure of the waste management area. This alternative meets the intent because the waste management area will be covered in a manner that prevents the release of contaminants during a 100 year flood event and will be protected from coastal erosion by the stone revetment.
Regulations for the RI Pollutant Discharge Elimination System	RIGL 46-12, 42-17.1, 42-45	Relevant and Appropriate	Contains discharge limitations, monitoring requirements and best management practices. Substantive requirements under NPDES are written such that state and federal national recommended water quality criteria (NRWQC) are met. Permits are required for off-site discharges, RI Standards apply to POTWs. Includes storm water requirements for construction projects that disturb over one acre	Discharge of any contaminated groundwater during soil excavation or during O&M of the remedy into Narragansett Bay or POTWs will meet applicable standards. Storm water standards for construction projects over one acre will also be met.
Pretreatment Regulations	RIGL 46-12, 42-17.1, 42-45	Applicable	Rhode Island standards for discharge to POTWs.	These standards will apply if water from the remedial action such as from dewatering is discharged to a POTW.
State of Rhode Island Rules and Regulations for Dredging and Management of Dredge Materials	Rules and regulations for Dredging and Management of Dredge Materials DEM-OWR-DR-02-03	Applicable	Addresses dredging activities and disposal of dredge spoils.	Any dredging that is required for maintenance of the remedy must comply with the requirements of the regulations.

TABLE A - 4

ASSESSMENT OF CHEMICAL-SPECIFIC ARARs AND TBCs
GROUNDWATER ALTERNATIVE 2: LIMITED ACTION
RECORD OF DECISION
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

FEDERAL REQUIREMENTS

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
EPA Human Health Assessment Cancer Slope Factors (CSFs).		To Be Considered	These are guidance values used to evaluate the potential carcinogenic hazard caused by exposure to contaminants.	Used to compute the individual incremental cancer risk resulting from exposure to carcinogenic contaminants in site media. LUCs and monitoring will prevent exposure to site contaminants exceeding risk levels.
Reference Dose (RfD)		To Be Considered	Guidance used to compute human health hazard resulting from exposure to non-carcinogens in site media.	Used to calculate potential non-carcinogenic hazards caused by exposure to contaminants. LUCs and monitoring will prevent exposure to site contaminants exceeding risk levels.
Guidelines for Carcinogen Risk Assessment EPA/630/P-03/001F (March 2005)		To Be Considered	Guidance for assessing cancer risk.	Used to calculate potential carcinogenic risks caused by exposure to contaminants. LUCs and monitoring will prevent exposure to site contaminants exceeding risk levels.
Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens EPA/630/R-03/003F (March 2005)		To Be Considered	Guidance of assessing cancer risks to children.	Used to calculate potential carcinogenic risks to children caused by exposure to contaminants. LUCs and monitoring will prevent exposure to site contaminants exceeding risk levels.

STATE OF RHODE ISLAND REQUIREMENTS

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Remediation Regulations DEM-DSR-01-93 Section 8.03, A to D.		To Be Considered	Sets levels for monitoring of contaminated groundwater when more stringent than federal standards.	This alternative meets these criteria using long term monitoring, maintenance of the source control remedy, and LUCs will prevent exposure to groundwater contaminants exceeding risk levels.

TABLE A - 5

ASSESSMENT OF LOCATION-SPECIFIC ARARs AND TBCs
GROUNDWATER ALTERNATIVE 2: LIMITED ACTION
RECORD OF DECISION
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

FEDERAL REQUIREMENTS

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Clean Water Act	Section 404 (33 U.S.C. s 1344); Section 404 (b)(1) Guidelines for Specification of disposal sites for dredged or fill material (40 CFR Part 230, 231 and 33 C.F.R. Parts 320-323)."	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. Controls discharges of dredged or fill material to protect aquatic ecosystems. Filling or discharge of dredged material will only occur where there is no other practicable alternative and any adverse impacts to aquatic ecosystems will be mitigated.	Alternatives may involve sediment sampling and installation/maintenance of monitoring wells along the shoreline. Monitoring activities will be conducted to minimize impact to aquatic systems and mitigate if monitoring activities cause disruption to those aquatic systems.
Coastal Zone Management Act	16 USC Parts 1451 *et. seq*.	Applicable	Requires that any actions must be conducted in a manner consistent with state approved management programs.	The site is located next to a coastal zone management area, therefore, applicable coastal zone management requirements need to be addressed.
Fish and Wildlife Coordination Act	16 U.S.C. 661 et seq.	Applicable	Requires Federal agencies involved in actions that will result in the control of structural modification of any stream or body of water for any purpose to take action to protect fish and wildlife resources that may be affected by the action. The Navy must coordinate with appropriate federal and state resource agencies to ascertain the means and measures necessary to mitigate, prevent, and compensate for project related losses of fish and wildlife resources and to enhance the resources.	Measures to mitigate or compensate adverse project related impacts to fish and wildlife resources will be taken, if determined necessary. The appropriate federal and state resource agencies will be consulted, in particular regarding any sediment sampling or monitoring well installation/ maintenance.
Endangered Species Act	16 U.S.C. 1531 et seq.; 50 CFR Parts 200 and 402	Applicable	Regulates activities affecting federally listed endangered or threatened species or their critical habitat.	The federally-listed loggerhead turtle and Kemps-Ridley turtle occur in the waters of Narragansett Bay. Appropriate federal agencies will be consulted to find ways to minimize adverse effects to listed species for sediment sampling or monitoring well installation/maintenance.

TABLE A - 5

ASSESSMENT OF LOCATION-SPECIFIC ARARs AND TBCs
GROUNDWATER ALTERNATIVE 2: LIMITED ACTION
RECORD OF DECISION
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

STATE OF RHODE ISLAND REQUIREMENTS

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Coastal Resources Management	RIGL 46-23-1 *et seq.*	Applicable	Sets standards for management and protection of coastal resources.	The entire site is located in a coastal resource management area; therefore, applicable coastal resource management requirements need to be addressed.
Rhode Island Endangered Species Act	RIGL 20-37-1 et seq.	Applicable	Regulates activities affecting state listed endangered or threatened species or their critical habitat.	The State listed loggerhead turtle and Kemps-ridley turtle occur in the waters of Narragansett Bay. Navy will coordinate with appropriate agencies to find ways to minimize adverse effects to listed species for sediment sampling or monitoring well installation/maintenance.

TABLE A – 6

ASSESSMENT OF ACTION-SPECIFIC ARARs AND TBCs
GROUNDWATER [1] ALTERNATIVE 2: LIMITED ACTION
RECORD OF DECISION
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

FEDERAL REQUIREMENTS

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Safe Drinking Water Act Maximum Contaminant Levels (MCLs)	40 CFR 141.11-141.16, Subpart B	Relevant and Appropriate	These standards are for protection of drinking water sources. MCLs consider health factors as well as economic and technical feasibility of removing a contaminant.	MCLs were considered in development of PRGs, . The PRGs will be used to determine whether contamination has migrated outside of the compliance zone or if contamination levels have been reduced enough and that no site risk remains and monitoring can be ended.

STATE OF RHODE ISLAND REQUIREMENTS

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Water Pollution Control - Water Quality	RIGL 42-16 *et seq.*; CRIR 12-190-001	Applicable	Establishes water use classification and water quality criteria for waters of the state.	Groundwater concentrations will be compared against these criteria during the long-term monitoring events.

[1] Action-specific standards for establishing monitoring goals, well installation and maintenance, and handling/disposal of contaminated media from monitoring activities are included with the soil ARARs (Table A-3).

ATTACHMENT A – ADDITIONAL ARAR AND TBC FOR SITE 9 ROD

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Clean Air Act (CAA), National Emission Standards for Hazardous Air Pollutants (NESHAPS), Standards for Inactive waste disposal sites for asbestos mills and manufacturing and fabricating operations	42 U.S.C. §§7411 & 7412; 40 C.F.R. §61.151	Relevant and Appropriate	NESHAPS standards for preventing air releases from inactive asbestos disposal sites, including cover standards, dust suppression, and land use controls.	Although this site is not an active waste disposal site, unless a specific area of asbestos-contamination is defined, the entire area of the Site will be covered in a manner that meets the substantive requirements of these standards. Land use controls will be established to maintain the cover and to address any potential asbestos exposure in case the cover is disturbed. If a smaller area of asbestos contamination is defined then these standards will apply to the smaller area.
Framework for Investigating Asbestos-Contaminated Superfund Sites	OSWER Directive #9200.0-68 (Sept. 2008)	To Be Considered	Guidance on investigating and characterizing the potential human exposure from asbestos contamination in outdoor soil at Superfund sites.	Guidance allows response actions at a site without further characterization, after review of historical and current information, if review of the site conditions supports a response.

Appendix E

Site 1 Monitoring Data

Appendix E.1

Groundwater

Table 2-11
Groundwater Sampling Stabilized Parameters
McAllister Point Landfill
Middletown, Rhode Island

Well ID	Date	Sample Time	Flow Rate (mL/min)	Temperature (°C)	pH (SU)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Salinity (ppt)
MW-103RR	5/3/2013	19:35	350	13.43	6.65	680	5.04	-4.7	814	0.33
MW-103S	5/3/2013	15:20	<25[1]	15.62	6.75	1311	1.03	-99.1	12.1	0.66
MW-105R	5/3/2013	12:20	180	12.95	5.37	155	10.22	313.5	0.27	0.10
MW-107R	5/3/2013	17:25	160	11.90	6.17	745	1.44	-81.8	15.3	0.37
MW-108R	5/3/2013	13:20	220	11.49	6.55	1,213	0.54	47.5	0.00	0.61
MW-111R	5/3/2013	15:45	130	16.05	6.45	3,396	1.87	6.0	7.33	1.79
MW-111S	5/3/2013	Well Dry - No Parameters Taken								
MW-112S	5/3/2013	11:35	250	11.83	5.89	199	0.91	68.1	0.34	0.10

Notes:
MW-103S went dry while sampling and was not able to pump at a high flow rate due to a very slow recharge rate.
°C = degrees Celsius
mg/L = milligrams per liter
mL/min = milliliters per minute
µS/cm = microsiemens per centimeter
mV = millivolts
NTU = nephelometric turbidity units
ORP = oxidation-reduction potential
ppt = parts per thousand
SU = standard units

Table 2-12
Groundwater Analytical Results – SVOCs
McAllister Point Landfill
Middletown, Rhode Island

Analyte	Units	EPA MCLs[1]	RIDEM GA[2]	MW-103 RR 5/3/2013	MW-103 S 5/3/2013	MW-105 R 5/3/2013	MW-107 R 5/3/2013	MW-107R (DUP) 5/3/2013	MW-108 R 5/3/2013	MW-111 R 5/3/2013	MW-112 S 5/3/2013
SVOCs											
1,2,4-Trichlorobenzene	ug/L	70	70	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	ug/L	600	600	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	ug/L	NSE	NSE	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	ug/L	75	75	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
2,2′-oxybis(1-Chloropropane)	ug/L	NSE	NSE	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
2,4,5-Trichlorophenol	ug/L	NSE	NSE	20 U	20 UJ	20 U	20 U	20 U	20 U	20 U	20 U
2,4,6-Trichlorophenol	ug/L	NSE	NSE	10 U	10 UJ	10 U	10 U	10 U	10.0 U	10 U	10 U
2,4-Dichlorophenol	ug/L	NSE	NSE	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	ug/L	NSE	NSE	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	ug/L	NSE	NSE	20 U	20 UJ	20 U	20 U	20 U	20 U	20 U	20 U
2,4-Dinitrotoluene	ug/L	NSE	NSE	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	ug/L	NSE	NSE	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
2-Chloronaphthalene	ug/L	NSE	NSE	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	ug/L	NSE	NSE	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	ug/L	NSE	NSE	**0.19**	**3.0 J**	0.10 U	0.10 U	10 U	0.10 U	0.10 U	0.10 U
2-Methylphenol	ug/L	NSE	NSE	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	ug/L	NSE	NSE	20 U	20 UJ	20 U	20 U	20 U	20 U	20 U	20 U
2-Nitrophenol	ug/L	NSE	NSE	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
3,3′-Dichlorobenzidine	ug/L	NSE	NSE	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline	ug/L	NSE	NSE	20 U	20 UJ	20 U	20 U	20 U	20 U	20 U	20 U
4,6-Dinitro-2-methylphenol	ug/L	NSE	NSE	20 U	20 UJ	20 U	20 U	20 U	20 U	20 U	20 U
4-Bromophenyl-phenylether	ug/L	NSE	NSE	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	ug/L	NSE	NSE	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	ug/L	NSE	NSE	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	ug/L	NSE	NSE	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	ug/L	NSE	NSE	10 U	**4.1 J**	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	ug/L	NSE	NSE	20 U	20 UJ	20 U	20 U	20 U	20 U	20 U	20 U
4-Nitrophenol	ug/L	NSE	NSE	20 U	20 UJ	20 U	20 U	20 U	20 U	20 U	20 U
Acenaphthene	ug/L	NSE	NSE	**0.62**	**6.6 J**	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Acenaphthylene	ug/L	NSE	NSE	0.10 U	**2.1 J**	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Anthracene	ug/L	NSE	NSE	**0.29**	**1.9 J**	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(a)anthracene	ug/L	NSE	NSE	0.10 U	**0.34 J**	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(a)pyrene	ug/L	0.2	0.2	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(b)fluoranthene	ug/L	NSE	NSE	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)perylene	ug/L	NSE	NSE	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(k)fluoranthene	ug/L	NSE	NSE	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Bis(2-chloroethoxy)methane	ug/L	NSE	NSE	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
Bis(2-chloroethyl)ether	ug/L	NSE	NSE	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
Bis(2-ethylhexyl)phthalate	ug/L	6	6	**0.60 J**	**2.3 J**	**1.1**	1.0 U	1.0 U	1.0 U	1.0 U	**0.31 J**
Butylbenzylphthalate	ug/L	NSE	NSE	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U

Table 2-12
Groundwater Analytical Results – SVOCs
McAllister Point Landfill
Middletown, Rhode Island

Analyte	Units	EPA MCLs[1]	RIDEM GA[2]	MW-103 RR 5/3/2013	MW-103 S 5/3/2013	MW-105 R 5/3/2013	MW-107 R 5/3/2013	MW-107R (DUP) 5/3/2013	MW-108 R 5/3/2013	MW-111 R 5/3/2013	MW-112 S 5/3/2013
SVOCs (continued)											
Carbazole	ug/L	NSE	NSE	10 U	**7.0 J**	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	ug/L	NSE	NSE	0.10 U	**0.26 J**	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenzo(a,h)anthracene	ug/L	NSE	NSE	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenzofuran	ug/L	NSE	NSE	10 U	**3.0 J**	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	ug/L	NSE	NSE	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
Dimethylphthalate	ug/L	NSE	NSE	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	ug/L	NSE	NSE	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-octylphthalate	ug/L	NSE	NSE	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	ug/L	NSE	NSE	**0.20**	**1.8 J**	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Fluorene	ug/L	NSE	NSE	**0.69**	**4.0 J**	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Hexachlorobenzene	ug/L	1	1	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Hexachlorobutadiene	ug/L	NSE	NSE	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	ug/L	50	50	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Hexachloroethane	ug/L	NSE	NSE	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	ug/L	NSE	NSE	0.10 U	10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Isophorone	ug/L	NSE	NSE	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	ug/L	NSE	100	**0.76**	**37 J**	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Nitrobenzene	ug/L	NSE	NSE	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	ug/L	NSE	NSE	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosodiphenylamine	ug/L	NSE	NSE	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	ug/L	1	1	**0.15 J**	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ
Phenanthrene	ug/L	NSE	NSE	**1.5 J**	**2.5 J**	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ
Phenol	ug/L	NSE	NSE	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	ug/L	NSE	NSE	**0.13**	**1.3 J**	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U

Table 2-12
Groundwater Analytical Results – SVOCs
McAllister Point Landfill
Middletown, Rhode Island

Analyte	Units	EPA MCLs[1]	RIDEM GA[2]	MW-103 RR 5/3/2013	MW-103 S 5/3/2013	MW-105 R 5/3/2013	MW-107 R 5/3/2013	MW-107R (DUP) 5/3/2013	MW-108 R 5/3/2013	MW-111 R 5/3/2013	MW-112 S 5/3/2013
Pesticides											
4,4′-DDD	ug/L	NSE	NSE	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4′-DDE	ug/L	NSE	NSE	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4′-DDT	ug/L	NSE	NSE	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Aldrin	ug/L	NSE	NSE	0.050 U	0.050 UJ	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
alpha-BHC	ug/L	NSE	NSE	0.050 U	**0.058 J**	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
alpha-Chlordane	ug/L	NSE	NSE	0.050 U	0.050 UJ	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
beta-BHC	ug/L	NSE	NSE	0.050 U	0.050 UJ	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
delta-BHC	ug/L	NSE	NSE	0.050 U	0.050 UJ	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Dieldrin	ug/L	NSE	NSE	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endosulfan I	ug/L	NSE	NSE	0.050 U	0.050 UJ	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Endosulfan II	ug/L	NSE	NSE	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endosulfan sulfate	ug/L	NSE	NSE	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endrin	ug/L	2	2	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endrin aldehyde	ug/L	NSE	NSE	0.10 U	0.10 UJ	0.10 U	0.10 UJ	**0.12 J**	0.10 U	0.10 U	0.10 U
Endrin ketone	ug/L	NSE	NSE	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
gamma-BHC (Lindane)	ug/L	NSE	NSE	0.050 U	0.050 UJ	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
gamma-Chlordane	ug/L	NSE	NSE	0.050 U	0.050 UJ	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Heptachlor	ug/L	0.4	0.4	0.050 U	0.050 UJ	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Heptachlor epoxide	ug/L	0.2	0.2	0.050 U	0.050 UJ	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Methoxychlor	ug/L	40	40	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Toxaphene	ug/L	3	3	5.0 U	5.0 UJ	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U

Notes :
(1) EPA MCLs = Environmental Protection Agency Maximum Contaminant Levels
(2) RIDEM GA = Rhode Island Department of Environmental Management Groundwater Criteria updated June 2010.

SVOCs analytes bolded were analyzed by the BNASIM method. All other SVOCs were analyzed by EPA Method 8270.
Pesticides were analyzed by EPA Method 8081.

µg/L = micrograms per liter
J = quantitation is approximate
U = value is not detected
UJ = detection limit is approximate
NS = not sampled
NSE = no standard established
Bold concentrations indicates detection above the method detection limit.
Bold and highlighted concentrations indicate exceedances of an EPA or RIDEM level. The color of the highlight indicates which criteria was exceeded.
If both criteria were exceeded the lower of both values was used.

Table 2-13
Groundwater Analytical Results – Total and Dissolved Metals
McAllister Point Landfill
Middletown, Rhode Island

Analyte	Units	EPA MCLs[1]	RIDEM GA[2]	MW-103 RR (total) 5/3/2013	MW-103 RR (dissolved) 5/3/2013	MW-103 S (total) 5/3/2013	MW-103 S (dissolved) 5/3/2013	MW-105 R (total) 5/3/2013	MW-105 R (dissolved) 5/3/2013
Antimony	ug/L	6	6	**9.80**	**6.60**	1.20 U	0.33 U	0.20 U	0.20 U
Arsenic	ug/L	10	10	**18.0**	**13.2**	**15.5**	**10.0**	**1.40 J**	**1.30 J**
Barium	ug/L	2000	2000	**76.5**	**63.2**	**268**	**241**	1.30 U	1.30 U
Beryllium	ug/L	4	4	**0.088 J**	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U
Cadmium	ug/L	5	5	**0.86 J**	0.084 U	**0.40 J**	0.084 U	0.084 U	0.084 U
Chromium	ug/L	100	100	**7.40**	**0.55 J**	**3.10**	**2.40**	**0.18 J**	0.16 UJ
Copper	ug/L	1300	1300	**13.5**	**1.30 J**	**265**	**126**	**5.10**	**5.70**
Lead	ug/L	15	15	**20.4**	**0.52 J**	**15.0**	**1.30**	**0.76 J**	**0.76 J**
Mercury	ug/L	2	2	**0.077 J**	0.028 U	**0.03 J**	0.028 U	0.028 U	0.028 UJ
Nickel	ug/L	NSE	NSE	**21.1**	**14.8**	**29.1**	**16.2**	**6.60**	**7.30**
Selenium	ug/L	50	50	0.22 U	0.20 U	0.58 U	0.53 U	0.15 U	0.15 U
Thallium	ug/L	2	2	0.048 U	0.048 U	0.048 U	0.048 U	0.048 U	0.048 U

Table 2-13
Groundwater Analytical Results – Total and Dissolved Metals
McAllister Point Landfill
Middletown, Rhode Island

Analyte	Units	EPA MCLs[1]	RIDEM GA[2]	MW-107 R (total) 5/3/2013	MW-107 R (DUP) (total) 5/3/2013	MW-107 R (dissolved) 5/3/2013	MW-107 R (DUP) (dissolved) 5/3/2013	MW-108 R (total) 5/3/2013	MW-108 R (dissolved) 5/3/2013
Antimony	ug/L	6	6	0.20 U	0.20 U	0.20 U	0.20 U	0.23 U	0.20 U
Arsenic	ug/L	10	10	351	351	349	317	14.1	15.8
Barium	ug/L	2000	2000	**16.8**	**17.0**	**16.8**	**16.0**	**20.0**	**20.4**
Beryllium	ug/L	4	4	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U
Cadmium	ug/L	5	5	0.084 U	0.084 U	0.084 U	0.084 U	**0.099 J**	**0.44 J**
Chromium	ug/L	100	100	**1.20**	**1.30 J**	**0.40 J**	**0.50 J**	**0.53**	**0.51 J**
Copper	ug/L	1300	1300	**2.40**	**2.40**	**1.00 J**	**0.80 J**	**9.50**	**4.80**
Lead	ug/L	15	15	**0.42 J**	**0.45 J**	0.094 U	0.12 U	**0.46 J**	**1.00**
Mercury	ug/L	2	2	**0.029 J**	0.028 U	0.028 U	0.028 UJ	0.028 U	0.028 U
Nickel	ug/L	NSE	NSE	**3.30**	**3.20**	**3.70**	**3.50**	**29.0**	**29.3**
Selenium	ug/L	50	50	0.15 U	0.15 U	0.15 U	0.15 U	0.72 U	**1.40 J**
Thallium	ug/L	2	2	0.048 U	0.048 U	0.048 U	0.066 U	0.048 U	0.048 U

Table 2-13
Groundwater Analytical Results – Total and Dissolved Metals
McAllister Point Landfill
Middletown, Rhode Island

Analyte	Units	EPA MCLs[1]	RIDEM GA[2]	MW-111 R (total) 5/3/2013	MW-111 R (dissolved) 5/3/2013	MW-112 S (total) 5/3/2013	MW-112 S (dissolved) 5/3/2013
Antimony	ug/L	6	6	0.20 U	0.20 U	0.20 U	0.33 U
Arsenic	ug/L	10	10	**110**	**105**	**9.8**	**8.8**
Barium	ug/L	2000	2000	**84.8**	**82.9**	**27.3**	**27.0**
Beryllium	ug/L	4	4	0.072 U	0.072 U	0.072 U	0.072 U
Cadmium	ug/L	5	5	**0.29 J**	**0.35 J**	0.084 U	0.084 U
Chromium	ug/L	100	100	**0.39 J**	0.16 U	**0.16**	**0.25 J**
Copper	ug/L	1300	1300	**43.30**	**4.80**	**14.0**	**3.20**
Lead	ug/L	15	15	**1.20**	**0.44 J**	**0.72**	**0.44 J**
Mercury	ug/L	2	2	**0.031 J**	0.028 U	0.028 U	0.028 U
Nickel	ug/L	NSE	NSE	**8.40**	**7.80**	**1.30**	**1.50**
Selenium	ug/L	50	50	**5.90**	**6.00**	0.21 U	0.16 U
Thallium	ug/L	2	2	0.048 U	0.048 U	0.048 U	0.21 U

Table 2-13
Groundwater Analytical Results – Total and Dissolved Metals
McAllister Point Landfill
Middletown, Rhode Island

Notes :
(1) EPA MCLs = Environmental Protection Agency Maximum Contaminant Levels.
(2) RIDEM GA = Rhode Island Department of Environmental Management Groundwater Criteria updated June 2010.

All values given in µg/L (micrograms per liter).
J = quantitation is approximate
U = value is not detected
UJ = detection limit is approximate
NSE = no standard established
NS = not sampled
Bold concentrations indicates a detection above the method detection limit.
Bold and highlighted concentrations indicate exceedances of an EPA or RIDEM level. The color of the highlight indicates which criteria was exceeded.
If both criteria were exceeded the lower of both values was used.

Table 2-4
Groundwater Sampling Stabilized Parameters
McAllister Point Landfill
Middletown, Rhode Island

Well ID	Date	Sample Time	Flow Rate (mL/min)	Temperature (°C)	pH (SU)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)
MW-103R	4/26/2012	Not Sampled[1]							
MW-103S	4/26/2012	Not Sampled[2]							
MW-105R	4/26/2012	14:00	200	12.37	5.49	143	7.76	-102	2.61
MW-107R	4/26/2012	18:20	350	11.68	6.34	677	0.57	-57.0	8.59
MW-108R	4/26/2012	16:55	150	11.39	6.61	1,220	3.70	-67.0	1.43
MW-111R	4/26/2012	17:00	300	15.01	6.67	3,286	3.50	-21.6	5.78
MW-111S	**DRY WELL**								
MW-112S	4/26/2012	14:50	200	11.94	5.88	164	1.46	-26.3	1.90

Notes:
1. MW-103R was not sampled due to an obstruction approximately 20 feet below ground surface on the well casing.
2. MW-103S was not sampled to due minimal well water volume and slow recharge rate.

°C = degrees Celsius
mg/L = milligrams per liter
mL/min = milliliters per minute
µS/cm = microsiemens per centimeter
mV = millivolts
NTU = nephelometric turbidity units
ORP = oxidation-reduction potential
SU = standard units

Table 2-5
Groundwater Analytical Results - SVOCs
McAllister Point Landfill
Middletown, Rhode Island

Analyte	Units	EPA MCLs[1]	RIDEM GA[2]	MW-103 R 4/26/2012	MW-103 S 4/26/2012	MW-105 R 4/26/2012	MW-107 R 4/26/2012	MW-108 R 4/26/2012	MW-111 R 4/26/2012	MW-112 S 4/26/2012
1,2,4-Trichlorobenzene	µg/L	70	70	NS	NS	10.0 U	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ
1,2-Dichlorobenzene	µg/L	600	600	NS	NS	10.0 U	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ
1,3-Dichlorobenzene	µg/L	NSE	600	NS	NS	10.0 U	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ
1,4-Dichlorobenzene	µg/L	75	75	NS	NS	10.0 U	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ
Benzo(a)pyrene	µg/L	0.2	0.2	NS	NS	10.0 U	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ
Bis(2-ethylhexyl)phthalate	µg/L	6	6	NS	NS	10.0 U	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ
Hexachlorobenzene	µg/L	1	1	NS	NS	10.0 U	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ
Hexachlorocyclopentadiene	µg/L	50	NSE	NS	NS	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ
Methoxychlor	µg/L	40	NSE	NS	NS	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Naphthalene	µg/L	NSE	20	NS	NS	10.0 U	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ
Pentachlorophenol	µg/L	1	1	NS	NS	20.0 UJ	20.0 UJ	20.0 UJ	20.0 UJ	20.0 UJ

Notes :
1. EPA MCLs = Collective criteria based on the lower of both values
2. RIDEM GA = Collective criteria based on the lower of both values
µg/L = micrograms per liter   NS = Not Sampled   NSE = No Standard Established
J = Quantitation is approximate   U = Value is not detected   UJ = Detection limit is approximate
Bold indicates detection above method detection limit.
Bold and highlighted concentrations indicate exceedances of an EPA or RIDEM level. The color of the highlight indicates which criteria was exceeded.

Table 2-6
Groundwater Analytical Results - Total and Dissolved Metals
McAllister Point Landfill
Middletown, Rhode Island

Analyte	Units	EPA MCLs[1]	RIDEM GA[2]	MW-105 R (total) 4/26/2012	MW-105 R (dissolved) 4/26/2012	MW-107 R (total) 4/26/2012	MW-107 R (dissolved) 4/26/2012	MW-108 R (total) 4/26/2012	MW-108 R (dissolved) 4/26/2012
Antimony	ug/L	6	6	0.26 U	0.3 U	0.29 U	0.2 U	0.70 U	0.63 U
Arsenic[3]	ug/L	10	50	**1.6 J**	**1.30 J**	**244**	**244**	**32.4**	**33.0**
Barium	ug/L	2000	2000	8.0 U	9.9 U	20 U	20.6 U	**32.0**	26.2 U
Beryllium	ug/L	4	4	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U
Cadmium	ug/L	5	5	0.084 U	0.084 U	**0.150 J**	0.08 U	0.084 U	0.084 U
Chromium	ug/L	100	100	0.16 U	0.16 U	**0.88 J**	**0.27 J**	**0.37 J**	**0.33 J**
Copper	ug/L	1300	NSE	**2.4**	**2.6**	**3.20**	**0.73 J**	**12.1**	**10.0**
Lead	ug/L	15	15	**0.37 J**	**0.31 J**	**0.280 J**	0.07 U	**0.33 J**	**0.28 J**
Mercury	ug/L	2	2	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U
Nickel	ug/L	NSE	100	**6.5**	**6.4**	**1.3**	**1.3**	**27.0**	**27.9**
Selenium	ug/L	50	50	0.15 U	0.15 U	0.16 U	0.15 U	0.84 U	0.82 U
Thallium	ug/L	2	2	0.05 U	0.05 U	0.048 U	0.05 U	0.048 U	0.048 U

Table 2-6 (Cont'd)
Groundwater Analytical Results - Total and Dissolved Metals
McAllister Point Landfill
Middletown, Rhode Island

Analyte	Units	EPA MCLs[1]	RIDEM GA[2]	MW-111 R (total) 4/26/2012	MW-111 R (dissolved) 4/26/2012	MW-112 S (total) 4/26/2012	MW-112 S (dissolved) 4/26/2012
Antimony	ug/L	6	6	0.49 U	0.3 U	0.72 U	0.61 U
Arsenic[3]	ug/L	10	50	**98.2**	**93.5**	**9.9**	**7.70**
Barium	ug/L	2000	2000	**87.4**	**87.3**	27.3 U	28.0 U
Beryllium	ug/L	4	4	0.072 U	0.072 U	0.072 U	0.072 U
Cadmium	ug/L	5	5	**0.26 J**	**0.18 J**	0.084 U	0.084 U
Chromium	ug/L	100	100	**0.22 J**	0.16 U	0.16 U	0.16 U
Copper	ug/L	1300	NSE	**36.8**	**5.2**	**12.6**	**1.2 J**
Lead	ug/L	15	15	**0.85 J**	**0.09 J**	**0.87 J**	**0.38 J**
Mercury	ug/L	2	2	0.028 U	0.028 U	0.028 U	0.028 U
Nickel	ug/L	NSE	100	**5.9**	**5.6**	**1.4**	**1.4**
Selenium	ug/L	50	50	**4.40 J**	**4.5 J**	0.15 U	0.18 U
Thallium	ug/L	2	2	0.048 U	0.072 U	0.048 U	0.048 U

Table 2-6 (Cont'd)
Groundwater Analytical Results - Total and Dissolved Metals
McAllister Point Landfill
Middletown, Rhode Island

Notes :
1. EPA MCLs = Collective criteria based on the lower of both values.
2. RIDEM GA = Collective criteria based on the lower of both values.
3. The EPA MCL for Arsenic was reduced from 50 µg/L to 10 µg/L on January 23, 2006.

All values given in µg/L (micrograms per liter).
J = Quantitation is approximate
U = Value is not detected
UJ = Detection limit is approximate
NSE = No standard established
NS = No sample taken
Bold indicates detection above method detection limit.
Bold and highlighted concentrations indicate exceedances of an EPA or RIDEM level. The color of the highlight indicates which criteria was exceeded.

Watermark

Table 2-4
Groundwater Sampling Stabilized Parameters
McAllister Point Landfill
Middletown, Rhode Island

Well ID	Date	Sample Time	Flow Rate (mL/min)	Temperature (°C)	pH (STD)	Specific Conductance (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Salinity (ppt)
MW-103R	4/29/2011	9:50	150	16.53	6.05	0.523	28.10	4.7	67.40	0.25
MW-103S	4/25/2011	10:00	100	13.92	6.90	1.207	1.10	-123.0	18.90	0.61
MW-105R	4/26/2011	9:35	200	11.18	5.48	0.143	7.65	198.1	6.50	0.07
MW-107R	4/26/2011	11:40	100	12.79	6.21	0.703	0.13	-85.8	12.40	0.34
MW-108R	4/22/2011	11:10	100	10.72	6.66	1.272	1.70	-74.4	0.26	0.64
MW-111R	4/26/2011	11:20	200	14.82	6.55	3.052	0.47	6.3	8.76	1.60
MW-111S	DRY WELL									
MW-112S	4/26/2011	9:50	100	11.67	5.63	0.171	1.75	72.8	1.51	0.08

Notes:
°C = degrees Celsius
mg/L = milligrams per liter
mL/min = milliliters per minute
mS/cm = millisiemens per centimeter
mV = millivolts
NTU = nephelometric turbidity units
ORP = oxidation-reduction potential
STD = standard units

Table 2-5
Groundwater Analytical Results - SVOCs
McAllister Point Landfill
Middletown, Rhode Island

Analyte	Units	EPA MCLs[1]	RIDEM GA[2]	MW-103 R 4/29/2011		MW-103 S 4/25/2011		MW-105 R 4/26/2011		MW-107 R 4/26/2011	
1,2,4-Trichlorobenzene	ug/L	70	70	0.67	U	0.68	U	0.69	U	0.67	U
1,2-Dichlorobenzene	ug/L	600	600	0.78	U	0.79	U	0.80	U	0.79	U
1,3-Dichlorobenzene	ug/L	NSE	600	0.69	U	0.70	U	0.71	U	0.69	U
1,4-Dichlorobenzene	ug/L	75	75	0.77	U	0.78	U	0.79	U	0.78	U
Benzo(a)pyrene	ng/L	200	200	**2600**		**760**		5.0	U	5.0	U
Bis(2-ethylhexyl)phthalate	ug/L	6	6	1.1	U	3.1	J	1.2	U	1.2	U
Dinoseb	ug/L	7	NSE	9.5	U	9.7	U	9.8	U	9.6	U
Hexachlorobenzene	ug/L	1	1	0.62	U	0.63	U	0.64	U	0.62	U
Hexachlorocyclopentadiene	ug/L	50	NSE	1.3	U	1.4	U	1.4	U	1.3	U
Methoxychlor	ug/L	40	NSE	0.02	UJ	0.24	UJ	0.26	U	0.24	UJ
Naphthalene	ug/L	NSE	20	1.4	U	**53**		1.5	U	1.4	U
Pentachlorophenol	ug/L	1	1	24	U	24	U	25	U	24	U

Notes :
1. EPA MCLs = Collective criteria based on the lower of both values
2. RIDEM GA = Collective criteria based on the lower of both values
µg/L = micrograms per liter
ng/L = nanograms per liter
J = Quantitation is approximate
U = Value is not detected
UJ = Detection limit is approximate
NSE = No Standard Established
Bold indicates detection above method detection limit
Bold and highlighted concentrations indicate exceedances of an EPA, or RIDEM level.
The color of the hightlight indicates which criteria was exceeded.

Table 2-5
Groundwater Analytical Results - SVOCs
McAllister Point Landfill
Middletown, Rhode Island

Analyte	Units	EPA MCLs[1]	RIDEM GA[2]	MW-108 R 4/22/2011		MW-111 R 4/26/2011		MW-111 R (DUP) 4/26/2011		MW-112 S 4/26/2011	
1,2,4-Trichlorobenzene	ug/L	70	70	0.66	U	0.71	U	0.71	U	0.68	U
1,2-Dichlorobenzene	ug/L	600	600	0.78	U	0.83	U	0.83	U	0.79	U
1,3-Dichlorobenzene	ug/L	NSE	600	0.68	U	0.73	U	0.73	U	0.7	U
1,4-Dichlorobenzene	ug/L	75	75	0.77	U	0.82	U	0.82	U	0.78	U
Benzo(a)pyrene	ng/L	200	200	4.9	U	5.4	U	5.4	U	5.1	U
Bis(2-ethylhexyl)phthalate	ug/L	6	6	1.1	UJ	1.2	U	1.2	U	1.2	U
Dinoseb	ug/L	7	NSE	9.5	U	10	U	10	U	9.7	U
Hexachlorobenzene	ug/L	1	1	0.62	U	0.66	U	0.66	U	0.63	U
Hexachlorocyclopentadiene	ug/L	50	NSE	1.3	U	1.4	U	1.4	U	1.4	U
Methoxychlor	ug/L	40	NSE	0.25	U	0.27	U	0.27	U	0.24	U
Naphthalene	ug/L	NSE	20	1.4	U	1.5	U	1.5	U	1.4	U
Pentachlorophenol	ug/L	1	1	24	U	25	U	25	U	24	U

Notes :
1. EPA MCLs = Collective criteria based on the lower of both
2. RIDEM GA = Collective criteria based on the lower of both
µg/L = micrograms per liter
ng/L = nanograms per liter
J = Quantitation is approximate
U = Value is not detected
UJ = Detection limit is approximate
NSE = No Standard Established
Bold indicates detection above method detection limit
Bold and highlighted concentrations indicate exceedances of an
The color of the hightlight indicates which criteria was exceede

Watermark

Table 2-6
Groundwater Analytical Results – Total and Disolved Metals
McAllister Point Landfill
Middletown, Rhode Island

Analyte	Units	EPA MCLs[1]	RIDEM GA[2]	MW-103 R (total) 4/29/2011	MW-103 R (dissolved) 4/29/2011	MW-103 S (total) 4/25/2011	MW-103 S (dissolved) 4/25/2011	MW-104 S (total) 4/5/2010	MW-104 S (dissolved) 4/5/2010	MW-105 R (total) 4/26/2011
Antimony	ug/L	6	6	1.60 U	**5.20 J**	**2.10 J**	1.6 U	0.16 U	0.16 U	1.60 U
Arsenic[3]	ug/L	10	50	7.7 J	**20 J**	**17 J**	**3.4 J**	**14.4**	**12.0**	**1.4 J**
Barium	ug/L	2000	2000	28 U	38 U	**270**	**160**	21.2 U	**25.6 J**	9.9 U
Beryllium	ug/L	4	4	0.053 U	0.053 U	0.053 U	0.053 U	0.0032 U	0.0032 U	0.053 U
Cadmium	ug/L	5	5	0.07 U	**0.62 J**	**0.14 J**	0.070 U	0.0 UJ	0.011 UJ	0.070 U
Chromium	ug/L	100	100	0.29 U	**10**	**2.9 J**	1.1 U	**0.28 J**	**0.21 J**	0.45 U
Copper	ug/L	1300	NSE	0.89 U	**21**	**74 J**	**20**	**18.4 J**	**1.9 J**	**2.4 J**
Lead[4]	ug/L	15	15	0.72 UJ	**33**	**21 J**	0.68 U	**1.4 J**	**0.8 J**	0.94 UJ
Mercury	ug/L	2	2	0.034 U	0.034 U	0.034 U	0.034 U	0.10 U	0.10 U	0.034 U
Nickel	ug/L	NSE	100	**52**	**82**	**63**	**44**	**3.4 J**	**4.0 J**	**6.4 J**
Selenium	ug/L	50	50	0.40 UJ	0.40 UJ	**0.52 J**	**0.48 J**	**0.088 J**	**0.27 J**	0.40 UJ
Thallium	ug/L	2	2	0.52 U	0.56 U	0.53 U	0.51 U	0.14 U	0.13 U	0.51 U

Notes :

1. EPA MCLs- Collective criteria based on the lower of both values.
2. RIDEM GA- Collective criteria based on the lower of both values.
3. The EPA MCL for Arsenic was reduced from 50 µg/L to 10 µg/L on January 23, 2006.
4. Lead criteria is an action level referenced in the LTMP.

All values given in µg/L (micrograms per liter)
J = Quantitation is approximate
U = Value is not detected
UJ = Detection limit is approximate
NSE = No standard established
NS = No sample taken
Bold indicates detection above method detection limit

Bold and shaded indicates exceedance of criteria

Table 2-6
Groundwater Analytical Results – Total and Disolved Metals
McAllister Point Landfill
Middletown, Rhode Island

Analyte	Units	EPA MCLs[1]	RIDEM GA[2]	MW-105 R (dissolved) 4/26/2011	MW-105 S (total) 4/6/2010	MW-105S 4/26/2011 4/6/2010	MW-107 R (total) 4/26/2011	MW-107 R (DUP) (total) 4/5/2010	MW-107 R (dissolved) 4/26/2011	MW-107 R (DUP) (dissolved) 4/5/2010	MW-108 R (total) 4/22/2011	MW-108 R (dissolved) 4/22/2011
Antimony	ug/L	6	6	1.6 U	**0.62 J**	**0.72 J**	1.60 U	0.16 U	1.6 U	0.16 U	1.6 U	1.6 U
Arsenic[3]	ug/L	10	50	**0.92 J**	**5.6**	**6.1**	**280 J**	**432**	**16 J**	**441**	**82 J**	**9.9 J**
Barium	ug/L	2000	2000	9.8 U	**26.5**	**29.2 J**	25 U	15.9 U	20 U	15.8 UJ	31 U	22 U
Beryllium	ug/L	4	4	0.053 U	0.0050 U	0.011 U	0.053 U	0.0032 U	0.053 U	0.0032 UJ	0.053 U	0.053 U
Cadmium	ug/L	5	5	0.070 U	0.011 UJ	0.011 UJ	**0.10 J**	0.011 UJ	0.07 U	0.011 UJ	0.07 U	0.070 U
Chromium	ug/L	100	100	0.53 U	**0.30 J**	**0.49 J**	**3.7 J**	**0.29 J**	0.63 U	**0.33 J**	0.83 U	0.83 U
Copper	ug/L	1300	NSE	**1.6 J**	**4.9 J**	**2.3 J**	**7.8 J**	**0.097 J**	0.89 U	**0.16 J**	**18 J**	0.89 U
Lead[4]	ug/L	15	15	**0.67 J**	**1.3 J**	**0.93 J**	1.8 UJ	0.12 U	0.62 U	**0.13 J**	0.79 UJ	0.58 U
Mercury	ug/L	2	2	0.034 U	0.10 U	0.10 U	0.034 U	0.10 U	0.034 U	0.10 U	0.034 U	0.034 U
Nickel	ug/L	NSE	100	**5.7 J**	**5.2 J**	**6.4 J**	**2.4 J**	**0.54 J**	**1.8 J**	**0.54 J**	**29**	**27**
Selenium	ug/L	50	50	0.40 UJ	**0.12 J**	0.057 U	0.40 UJ	0.057 U	0.40 UJ	0.057 UJ	**0.51 J**	**0.57 J**
Thallium	ug/L	2	2	0.50 U	0.12 U	0.12 U	0.50 U	0.13 U	0.51 U	0.14 UJ	0.57 U	0.52 U

Notes :

1. EPA MCLs- Collective criteria based on the lower of both values.
2. RIDEM GA- Collective criteria based on the lower of both values.
3. The EPA MCL for Arsenic was reduced from 50 µg/L to 10 µg/L on January 23, 2006.
4. Lead criteria is an action level referenced in the LTMP.

All values given in µg/L (micrograms per liter)

J = Quantitation is approximate

U = Value is not detected

UJ = Detection limit is approximate

NSE = No standard established

NS = No sample taken

Bold indicates detection above method detection limit

Bold and shaded indicates exceedance of criteria

Table 2-6
Groundwater Analytical Results – Total and Disolved Metals
McAllister Point Landfill
Middletown, Rhode Island

Analyte	Units	EPA MCLs[1]	RIDEM GA[2]	MW-111 R (total) 4/26/2011	MW-111 R (DUP) (total) 4/26/2011	MW-111 R (dissolved) 4/26/2011	MW-111 R (DUP) (dissolved) 4/26/2011	MW-112 S (total) 4/26/2011	MW-112 S (dissolved) 4/26/2011
Antimony	ug/L	6	6	1.6 U	1.6 U	1.6 U	1.60 U	1.6 U	1.6 U
Arsenic[3]	ug/L	10	50	**85 J**	**90 J**	**22 J**	**22 J**	**10 J**	**0.80 J**
Barium	ug/L	2000	2000	**79 J**	**82 J**	**78 J**	**79 J**	23.0 U	23 U
Beryllium	ug/L	4	4	0.053 U	0.053 U	0.053 U	0.053 U	0.053 U	0.053 U
Cadmium	ug/L	5	5	**0.30 J**	**0.34 J**	**0.18 J**	**0.19 J**	**0.71 J**	**0.24 J**
Chromium	ug/L	100	100	0.56 U	0.76 U	0.44 U	0.51 U	0.65 U	0.48 U
Copper	ug/L	1300	NSE	**56 J**	**78 J**	**1.6 J**	**1.8 J**	**63 J**	**16 J**
Lead[4]	ug/L	15	15	1.8 UJ	2.2 UJ	0.63 U	0.64 U	**4.0 J**	0.63 U
Mercury	ug/L	2	2	0.059 U	0.034 U	0.034 U	**0.11 J**	0.034 U	0.034 U
Nickel	ug/L	NSE	100	1.5 U	1.5 U	1.5 U	1.5 U	**3.7 J**	**3.4 J**
Selenium	ug/L	50	50	**0.90 J**	**1.4 J**	**1.3 J**	**1.4 J**	0.40 UJ	0.40 UJ
Thallium	ug/L	2	2	0.54 U	0.55 U	0.52 U	0.53 U	0.52 U	0.51 U

Notes :

1. EPA MCLs- Collective criteria based on the lower of both values.
2. RIDEM GA- Collective criteria based on the lower of both values.
3. The EPA MCL for Arsenic was reduced from 50 µg/L to 10 µg/L on January 23, 2006.
4. Lead criteria is an action level referenced in the LTMP.

All values given in µg/L (micrograms per liter)
J = Quantitation is approximate
U = Value is not detected
UJ = Detection limit is approximate
NSE = No standard established
NS = No sample taken
Bold indicates detection above method detection limit

Bold and shaded indicates exceedance of criteria

TABLE 2-4
GROUNDWATER SAMPLING STABILIZED PARAMETERS
APRIL 2010
MCALLISTER POINT LANDFILL - NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Well ID	Date	Sample Time	Flow Rate (mL/min)	Temperature (°C)	pH (STD)	Specific Conductance (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (ntu)
MW-101R	4/5/2010	1230	200	11.08	5.33	0.209	4.86	245	0.00
MW-103R	4/6/2010	1445	100	12.79	5.82	0.433	0.84	18.3	5.97
MW-103S	4/5/2010	1545	150	14.20	6.02	0.666	0.44	-30.0	25.50
MW-104S	4/5/2010	1400	70	10.72	6.50	0.489	0.51	-111	24.00
MW-105R	4/6/2010	1100	180	11.51	5.50	0.116	7.53	243	0.00
MW-105S	4/6/2010	1300	120	11.95	5.95	0.160	0.09	-3.0	5.00
MW-107R	4/5/2010	1230	200	12.29	6.21	0.398	0.46	-40.6	9.70
MW-108R	4/6/2010	1255	150	11.50	6.43	1.051	0.61	-13.8	1.33
MW-111R	4/6/2010	1045	150	14.89	6.45	2.426	2.22	5.7	16.00
MW-111S	**DRY WELL**								
MW-112S	4/7/2010	1030	100	11.70	5.62	0.148	1.71	65	0.00
MW-113S	4/6/2010	1510	150	10.96	5.63	0.126	5.05	113	0.06

Notes:
°C = degrees Celsius
mg/L = milligrams per liter
mL/min = milliliters per minute
mS/cm = millisiemens per centimeter
mV = millivolts
ntu = nephelometric turbidity units
ORP = oxidation-reduction potential
STD = standard units

TABLE 2-5
SVOCs
GROUNDWATER ANALYTICAL RESULTS
MCALLISTER POINT LANDFILL - NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

ANALYTE	EPA MCLs[1]	RIDEM GA[2]	MW-101 R 4/5/2010	MW-103 R 4/6/2010	MW-103 S 4/5/2010	MW-104 S 4/5/2010	MW-105 R 4/6/2010	MW-105 S 4/6/2010	MW-107 R 4/5/2010	MW-107R (DUP) 4/5/2010	MW-108 R 4/6/2010	MW-111 R 4/6/2010	MW-111 R (DUP) 4/6/2010	MW-112 S 4/7/2010	MW-113 S 4/6/2010
1,2-Dichlorobenzene	600	600	9.5 U	9.6 U	94 U	9.5 U	9.5 U	9.5 U	9.5 U	9.4 U	10 U	9.5 U	9.6 U	9.5 U	9.5 U
1,2,4-Trichlorobenzene	70	70	9.5 U	9.6 U	94 U	9.5 U	9.5 U	9.5 U	9.5 U	9.4 U	10 U	9.5 U	9.6 U	9.5 U	9.5 U
1,3-Dichlorobenzene	NSE	600	9.5 U	9.6 U	94 U	9.5 U	9.5 U	9.5 U	9.5 U	9.4 U	10 U	9.5 U	9.6 U	9.5 U	9.5 U
1,4-Dichlorobenzene	75	75	9.5 U	9.6 U	94 U	9.5 U	9.5 U	9.5 U	9.5 U	9.4 U	10 U	9.5 U	9.6 U	9.5 U	9.5 U
Benzo(a)pyrene	0.2	0.2	0.019 U	**0.089**	**0.25**	0.019 UJ	0.02 U	0.019 U	0.019 U	0.019 U	0.019 UJ	0.020 UJ	0.021 UJ	0.019 UJ	**0.017 J**
bis(2-Ethylhexyl)phthalate	6	6	9.5 U	9.6 U	94 U	**0.72 J**	**0.5 J**	9.5 U	**0.5 J**	9.4 UJ	**0.64 J**	9.5 U	9.6 U	9.5 U	9.6 U
Dinoseb	7	NSE	19 U	19 U	190 U	19 U	19 U	19 U	19 U	19 U	20 U	19 U	19 U	19 U	19 U
Hexachlorobenzene	1	1	9.5 U	9.6 U	94 U	9.5 U	9.5 U	9.5 U	9.5 U	9.4 U	10 U	9.5 U	9.6 U	9.5 U	9.6 U
Hexachlorocyclopentadiene	50	NSE	9.5 U	9.6 U	94 U	9.5 U	9.5 U	9.5 U	9.5 U	9.4 U	10 U	9.5 U	9.6 U	9.5 U	9.6 U
Methoxychlor	40	NSE	0.480 U	0.50 U	0.47 U	0.480 U	0.48 U	0.48 U	0.47 U	0.48 U	0.52 U	0.47 U	0.47 U	0.50 UJ	0.48 U
Naphthalene	NSE	20	9.5 U	9.6 U	**460**	9.5 U	9.5 U	9.5 U	9.5 U	9.4 U	10 U	9.5 U	9.6 U	9.5 U	9.6 U
Pentachlorophenol	1	1	24 U	24 U	240 U	24 U	24 U	24 U	24 U	24 U	25 U	24 U	24 U	24 U	24 U

Notes :
1. EPA MCLs = Collective criteria based on the lower of both values
2. RIDEM GA = Collective criteria based on the lower of both values

All values given in µg/L (micrograms per liter)

J = Quantitation is approximate
U = Value is not detected
UJ = Detection limit is approximate
R = Rejected
NSE = No standard established

Bold indicates detection above method detection limit
Bold and shaded indicates exceedance of criteria

TABLE 2-11
GROUNDWATER SAMPLING STABILIZED PARAMETERS
APRIL 2009
MCALLISTER POINT LANDFILL - NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Well ID	Date	Sample Time	Flow Rate (ml/min)	Temperature (°C)	pH (STD)	Specific Conductance (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (ntu)
MW-101R	4/27/2009	1050	250	10.66	5.10	0.239	4.88	236	0.00
MW-103R	4/28/2009	1150	200	13.62	5.75	0.552	0.88	27.4	45.80
MW-103S	4/28/2009	0900	350	14.03	6.49	1.229	1.70	-78.1	15.90
MW-104S	4/27/2009	1415	50	17.91	6.25	0.749	4.08	-16.8	13.00
MW-105R	4/28/2009	1405	200	12.19	5.35	0.154	9.06	200.1	1.77
MW-105S	4/28/2009	1600	275	11.52	5.93	0.291	1.58	-8.0	2.94
MW-107R	4/28/2009	1610	150	12.09	6.26	0.731	0.41	-58.0	5.0
MW-108R	4/29/2009	0945	150	11.14	6.39	1.432	0.84	-81.0	0.00
MW-111R	4/28/2009	1350	250	16.07	6.55	2.987	2.06	17.0	8.00
MW-111S	**DRY WELL**								
MW-112S	4/29/2009	1155	200	11.31	5.76	0.194	1.10	6.1	4.85
MW-113S	4/29/2009	1000	250	10.11	5.67	0.198	3.37	43.6	3.57

Notes:
°C = degrees Celsius
mg/L = milligrams per liter
ml/min = milliliters per minute
mS/cm = millisiemens per centimeter
mV = millivolts
ntu = nephelometric turbidity units
ORP = oxidation-reduction potential
STD = standard units

TABLE 2-12
SVOCs
GROUNDWATER ANALYTICAL RESULTS
MCALLISTER POINT LANDFILL - NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

ANALYTE	EPA MCLs[1]	RIDEM GA[2]	MW-101 R 4/29/2009	MW-103 R 4/28/2009	MW-103 S 4/28/2009	MW-104 S 4/27/2009	MW-105 R 4/28/2009	MW-105 S 4/28/2009	MW-107 R 4/28/2009	MW-107R (DUP) 4/28/2009	MW-108 R 4/23/2009	MW-111 R 4/29/2009	MW-111 R (DUP) 4/28/2009	MW-112 S 4/29/2009	MW-113 S 4/29/2009
1,2-Dichlorobenzene	600	600	5.6 U	5.3 U	6.3 R	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
1,2,4-Trichlorobenzene	70	70	5.6 U	5.3 U	6.3 R	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
1,3-Dichlorobenzene	NSE	600	5.6 U	5.3 U	6.3 R	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
1,4-Dichlorobenzene	75	75	5.6 U	5.3 U	6.3 R	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
2-Chloronaphthalene	NSE	NSE	5.6 U	5.3 U	6.3 R	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
2-Chlorophenol	NSE	NSE	5.6 U	5.3 R	6.3 U	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 UJ	5.3 U	5.3 U	5.3 U
2-Methylnaphthalene	NSE	NSE	5.6 U	5.3 U	**4.1 J**	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
2-Methylphenol	NSE	NSE	11 U	11 R	**4.4 J**	11 U	11 U	11 U	11 R	11 R	11 U	13 R	11 R	11 U	11 U
2-Nitroaniline	NSE	NSE	11 U	11 U	13 R	11 U	11 U	11 U	11 R	11 R	11 U	13 U	11 U	11 U	11 U
2-Nitrophenol	NSE	NSE	11 U	11 R	13 U	11 U	11 U	11 U	11 R	11 R	11 U	13 R	11 R	11 U	11 U
2,4-Dichlorophenol	NSE	NSE	11 U	11 R	13 U	11 U	11 U	11 U	11 R	11 R	11 U	13 R	11 R	11 U	11 U
2,4-Dimethylphenol	NSE	NSE	11 U	11 R	**8.5 J**	11 U	11 U	11 U	11 R	11 R	11 U	13 R	11 R	11 U	11 U
2,4-Dinitrophenol	NSE	NSE	22 U	21 R	25 UJ	22 UJ	22 UJ	22 UJ	22 R	22 R	21 U	25 R	21 R	21 UJ	21 UJ
2,4-Dinitrotoluene	NSE	NSE	11 U	11 R	13 R	11 U	11 U	11 U	11 R	11 R	11 U	13 U	11 R	11 U	11 U
2,4,5-Trichlorophenol	NSE	NSE	11 U	11 R	13 U	11 U	11 U	11 U	11 R	11 R	11 U	13 R	11 R	11 U	11 U
2,4,6-Trichlorophenol	NSE	NSE	11 U	11 R	13 U	11 U	11 U	11 U	11 R	11 R	11 U	13 R	11 R	11 U	11 U
2,6-Dinitrotoluene	NSE	NSE	11 U	11 R	13 R	11 U	11 U	11 U	11 R	11 R	11 U	13 R	11 U	11 U	11 U
3-Nitroaniline	NSE	NSE	11 U	11 UJ	13 R	11 UJ	11 UJ	11 U	11 R	11 R	11 UJ	13 UJ	11 UJ	11 UJ	11 U
3,3'-Dichlorobenzidine	NSE	NSE	5.6 UJ	5.3 UJ	6.3 R	5.6 UJ	5.6 UJ	5.6 UJ	5.6 R	5.6 R	5.3 UJ	6.3 UJ	5.3 UJ	5.3 UJ	5.3 UJ
3&4-Methylphenol	NSE	NSE	11 U	11 R	**96**	11 U	11 U	**7.7 J**	11 R	11 R	11 U	13 R	11 R	11 U	11 UJ
4-Bromophenyl phenyl ether	NSE	NSE	5.6 U	5.3 U	6.3 R	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
4-Chloroaniline	NSE	NSE	11 UJ	11 UJ	13 R	11 UJ	11 UJ	11 UJ	11 R	11 R	11 UJ	13 UJ	11 UJ	11 UJ	11 UJ
4-Chlorophenyl phenyl ether	NSE	NSE	5.6 U	5.3 U	6.3 R	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
4-Nitroaniline	NSE	NSE	11 U	11 U	13 R	11 U	11 U	11 U	11 R	11 R	11 U	13 U	11 R	11 U	11 U
4-Nitrophenol	NSE	NSE	22 UJ	21 R	25 U	22 U	22 U	22 U	22 R	22 R	21 U	25 R	21 R	21 U	21 UJ
4-Chloro-3-methyl phenol	NSE	NSE	11 U	11 R	13 U	11 U	11 U	11 U	11 R	11 R	11 U	13 R	11 R	11 U	11 U
4,4'-DDD	NSE	NSE	0.056 UJ	0.051 U	0.051 UJ	0.063 U	0.056 U	0.056 U	0.056 U	0.063 U	0.051 U	0.063 U	0.053 U	0.053 U	0.053 UJ
4,4'-DDE	NSE	NSE	0.056 U	0.051 U	0.051 UJ	0.063 U	0.056 U	0.056 U	0.056 U	0.063 U	0.051 U	0.063 U	0.053 U	0.053 U	0.053 U
4,4'-DDT	NSE	NSE	0.056 UJ	0.051 U	0.051 UJ	0.063 U	0.056 U	0.056 U	0.056 U	0.063 U	0.051 U	0.063 U	0.053 U	0.053 U	0.053 UJ
4,6-Dinitro-o-cresol	NSE	NSE	11 U	11 R	13 U	11 U	11 U	11 U	11 R	11 R	11 U	13 R	11 R	11 U	11 U
Acenaphthene	NSE	NSE	5.6 U	5.3 U	**8.4 J**	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
Acenaphthylene	NSE	NSE	5.6 U	5.3 U	6.3 R	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
Aldrin	NSE	NSE	0.056 U	0.051 U	0.051 UJ	0.063 U	0.056 U	0.056 U	0.056 U	0.063 U	0.051 U	0.063 U	0.053 U	0.053 U	0.053 U
Anthracene	NSE	NSE	5.6 U	5.3 U	**3.7 J**	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
Benzo(a)anthracene	NSE	NSE	5.6 U	5.3 U	**1.0 J**	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
Benzo(a)pyrene	0.2	0.2	5.6 U	5.3 U	6.3 R	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
Benzo(b)fluoranthene	NSE	NSE	5.6 U	5.3 U	6.3 R	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
Benzo(g,h,i)perylene	NSE	NSE	5.6 U	5.3 U	6.3 R	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
Benzo(k)fluoranthene	NSE	NSE	5.6 U	5.3 U	6.3 R	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 UJ	5.3 UJ
Benzoic Acid	NSE	NSE	11 U	11 U	**48 J**	11 U	11 U	**12.6**	11 R	11 R	11 U	13 U	11 U	**1.6 J**	11 U
Benzyl Alcohol	NSE	NSE	11 U	11 R	13 R	11 U	11 U	11 U	11 R	11 R	11 U	13 R	11 R	11 U	11 U
bis(2-Chloroethoxy)methane	NSE	NSE	5.6 U	5.3 U	6.3 R	5.6 U	5.6 U	5.6 U	5.6 U	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
bis(2-Chloroethyl)ether	NSE	NSE	5.6 U	5.3 U	6.3 R	5.6 U	5.6 U	5.6 U	5.6 U	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
bis(2-Chloroisopropyl)ether	NSE	NSE	5.6 U	5.3 U	6.3 R	5.6 U	5.6 U	5.6 U	5.6 U	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
bis(2-Ethylhexyl)phthalate	6	6	2.2 U	**1.2 J**	**1.3 J**	2.2 U	**1.3 J**	**2.1 J**	**2.9 J**	**1.2 J**	2.1 U	**1.1 J**	**0.93 J**	2.1 U	2.1 U
Butyl benzyl phthalate	NSE	NSE	5.6 U	5.3 U	6.3 R	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
Carbazole	NSE	NSE	5.6 U	5.3 U	**4.6 J**	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
Carbofuran	40	NSE	5.6 R	5.3 R	6.3 R	5.6 R	5.6 R	5.6 R	5.6 R	5.6 R	5.3 UJ	6.3 R	5.3 R	5.3 UJ	5.3 UJ
Chrysene	NSE	NSE	5.6 U	5.3 U	1.0 J	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 UJ	5.3 UJ
Dibenzo(a,h)anthracene	NSE	NSE	5.6 U	5.3 U	6.3 R	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
Dibenzofuran	NSE	NSE	5.6 U	5.3 U	**3.5 J**	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
Dieldrin	NSE	NSE	0.056 U	0.051 U	0.051 UJ	0.063 U	0.056 U	0.056 U	0.056 U	0.063 U	0.051 U	0.063 U	0.053 U	0.053 U	0.053 U
Diethyl phthalate	NSE	NSE	5.6 U	5.3 U	6.3 R	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
Dimethyl phthalate	NSE	NSE	5.6 U	5.3 R	6.3 R	5.6 R	5.6 R	5.6 R	5.6 R	5.6 R	5.3 U	6.3 R	5.3 R	5.3 U	5.3 U
Di-n-butyl phthalate	NSE	NSE	5.6 U	5.3 U	6.3 R	5.6 U	**0.61 J**	5.6 U	**0.83 J**	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U

TABLE 2-12
SVOCs
GROUNDWATER ANALYTICAL RESULTS
MCALLISTER POINT LANDFILL - NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

ANALYTE	EPA MCLs[1]	RIDEM GA[2]	MW-101 R 4/29/2009	MW-103 R 4/28/2009	MW-103 S 4/28/2009	MW-104 S 4/27/2009	MW-105 R 4/28/2009	MW-105 S 4/28/2009	MW-107 R 4/28/2009	MW-107R (DUP) 4/28/2009	MW-108 R 4/23/2009	MW-111 R 4/29/2009	MW-111 R (DUP) 4/28/2009	MW-112 S 4/29/2009	MW-113 S 4/29/2009
Di-n-octyl phthalate	NSE	NSE	5.6 U	5.3 U	6.3 R	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
Dinoseb	7	NSE	11 U	11 U	13 R	11 U	11 U	11 U	11 R	11 R	11 U	13 U	11 U	11 U	11 U
Endosulfan sulfate	NSE	NSE	0.056 U	0.051 U	0.051 UJ	0.063 U	0.056 U	0.056 U	0.056 U	0.063 U	0.051 U	0.063 U	0.053 U	0.053 U	0.053 U
Endrin	NSE	NSE	0.056 UJ	0.051 U	0.051 UJ	0.063 U	0.056 U	0.056 U	0.056 U	0.063 U	0.051 U	0.063 U	0.053 U	0.053 U	0.053 UJ
Endrin aldehyde	NSE	NSE	0.056 UJ	0.051 U	0.051 UJ	0.063 U	0.056 U	0.056 U	0.056 U	0.063 U	0.051 U	0.063 U	0.053 U	0.053 U	0.053 UJ
Endrin ketone	NSE	NSE	0.056 U	0.051 U	0.051 UJ	0.063 U	0.056 U	0.056 U	0.056 U	0.063 U	0.051 U	0.063 U	0.053 U	0.053 U	0.053 U
Fluoranthene	NSE	NSE	5.6 U	5.3 U	**5.0 J**	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
Fluorene	NSE	NSE	5.6 U	5.3 U	**5.4 J**	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
Heptachlor	NSE	NSE	0.056 U	0.051 U	0.051 UJ	0.063 U	0.056 U	0.056 U	0.056 U	0.063 U	0.051 U	0.063 U	0.053 U	0.053 U	0.053 U
Heptachlor epoxide	NSE	NSE	0.056 U	0.051 U	0.051 UJ	0.063 U	0.056 U	0.056 U	0.056 U	0.063 U	0.051 U	0.063 U	0.053 U	0.053 U	0.053 U
Hexachlorobenzene	1	1	5.6 U	5.3 U	6.3 R	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
Hexachlorobutadiene	NSE	NSE	5.6 U	5.3 U	6.3 R	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
Hexachlorocyclopentadiene	50	NSE	11 UJ	11 UJ	13 R	11 UJ	11 UJ	11 UJ	11 R	11 R	11 UJ	13 UJ	11 UJ	11 UJ	11 UJ
Hexachloroethane	NSE	NSE	5.6 U	5.3 U	6.3 R	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
Indeno(1,2,3-cd)pyrene	NSE	NSE	5.6 U	5.3 U	6.3 R	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
Isophorone	NSE	NSE	5.6 U	5.3 U	6.3 R	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 UJ	5.3 UJ
Methoxychlor	40	NSE	0.056 U	0.051 U	0.051 UJ	0.063 U	0.056 U	0.056 U	0.056 U	0.063 U	0.051 U	0.063 U	0.053 U	0.053 U	0.053 U
Naphthalene	NSE	20	5.6 U	5.3 U	**54.2 J**	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
Nitrobenzene	NSE	NSE	5.6 U	5.3 U	6.3 R	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
N-Nitroso-di-n-propylamine	NSE	NSE	5.6 U	5.3 U	6.3 R	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
N-Nitrosodiphenylamine	NSE	NSE	5.6 U	5.3 U	6.3 R	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
Pentachlorophenol	1	1	11 U	11 R	13 U	11 U	11 U	11 U	11 R	11 R	11 U	13 R	11 R	11 U	11 U
Phenanthrene	NSE	NSE	5.6 U	5.3 U	5.5 J	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
Phenol	NSE	NSE	5.6 U	5.3 R	6.3 U	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 R	5.3 R	5.3 U	5.3 U
Pyrene	NSE	NSE	5.6 U	5.3 U	**3.3 J**	5.6 U	5.6 U	5.6 U	5.6 R	5.6 R	5.3 U	6.3 U	5.3 U	5.3 U	5.3 U
Toxaphene	NSE	NSE	2.8 U	2.6 U	2.6 UJ	3.1 U	2.8 U	2.8 U	2.8 U	3.1 U	2.5 U	3.1 U	2.6 U	2.6 U	2.6 U

Notes :
1. EPA MCLs = Collective criteria based on the lower of both values
2. RIDEM GA = Collective criteria based on the lower of both values

All values given in µg/L (micrograms per liter)

J = Quantitation is approximate
U = Value is not detected
UJ = Detection limit is approximate
R = Rejected
NSE = No standard established

Bold indicates detection above method detection limit
Bold and shaded indicates exceedance of criteria

TABLE 2-13
TOTAL AND DISSOLVED METAL GROUNDWATER ANALYTICAL RESULTS
MCALLISTER POINT LANDFILL - NAVSTA MIDDLETOWN, RHODE ISLAND

ANALYTE	EPA MCLs[1]	RIDEM GA[2]	MW-101 R (total) 4/29/2009	MW-101 R (dissolved) 4/29/2009	MW-103 R (total) 4/28/2009	MW-103 R (dissolved) 4/28/2009	MW-103 S (total) 4/28/2009	MW-103 S (dissolved) 4/28/2009	MW-104 S (total) 4/27/2009	MW-104 S (dissolved) 4/27/2009	MW-105 R (total) 4/28/2009	MW-105 R (dissolved) 4/28/2009	MW-105 S (total) 4/28/2009	MW-105S (dissolved) 4/28/2009
Aluminum	NSE	NSE	200 U	200 U	**1010**	200 U	**70.7 J**	**47.9 J**	200 U	200 U	200 U	200 U	200 U	200 U
Antimony	6	6	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U
Arsenic[3]	10	50	4.0 U	4.0 U	**18.0**	**13.4**	**19.8**	**16.1**	**9.9**	**10.5**	**2.0 J**	4.0 U	**5.9**	**5.2**
Barium	2000	2000	**1.4 J**	**1.4 J**	**25.7 J**	**19.8 J**	**249**	**243**	**26.8 J**	**25.9 J**	200 U	**1.2 J**	**38.2 J**	**34.5 J**
Beryllium	4	4	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Cadmium	5	5	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Calcium	NSE	NSE	**5680**	**5660**	**31300**	**31800**	**99700**	**100000**	**20700**	**21200**	**8530**	**8420**	**12200**	**11600**
Chromium[4]	100	100	**2.4 J**	10 U	**3.7 J**	10 U	**1.9 J**	**1.7 J**	10 U	10 U	10 U	10 U	10 U	NS
Cobalt	NSE	NSE	50 U	**0.3 J**	**27.7 J**	**26.6 J**	**8.9 J**	**8.6 J**	**16.5 J**	**17.4 J**	**0.40 J**	**0.50 J**	**2.1 J**	**1.7 J**
Copper	1300	NSE	25 U	25 U	**5.8 J**	25 U	**59.5**	**7.4 J**	25 U	25 U	25 U	25 U	25 U	25 U
Iron	NSE	NSE	**15.5 J**	100 U	**26500**	**24400**	**82600**	**80500**	**34800**	**34600**	**54.4 J**	**20.8 J**	**21300**	**19500**
Lead	15	15	5.0 U	5.0 U	**5.0**	5.0 U	**10.6**	**3.6 J**	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Magnesium	NSE	NSE	**2640 J**	**2650 J**	**14500**	**14400**	**20100**	**19800**	**11400**	**11900**	**4300 J**	**4270 J**	**5450**	**5240**
Manganese	NSE	NSE	**5.5 J**	**5.4 J**	**2050**	**2030**	**8070**	**8060**	**1290**	**1340**	**11.6 J**	**4.8 J**	**612**	**575**
Mercury	2	2	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.2 U	**0.059 J**	0.20 U
Nickel	NSE	100	**3.9 J**	**4.1 J**	**56**	**52.0**	**52.9**	**49.0**	**4.9 J**	**5.0 J**	**6.1 J**	**6.2 J**	**4.7 J**	**3.9 J**
Potassium	NSE	NSE	**1140 J**	**1160 J**	**1480 J**	**1230 J**	**13100**	**13400**	**11700**	**12300**	**2270 J**	**2260 J**	**5440**	**5100**
Selenium	50	50	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Silver	NSE	NSE	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Sodium	NSE	NSE	**33000**	**32600**	**39700**	**39900**	**61600**	**62300**	**38700**	**39000**	**11500**	**11300**	**13200**	**12800**
Thallium	2	2	**0.48 J**	0.4 U	**0.34 J**	1.0 U	**0.39 J**	0.32 U	1.0 U	0.44 U	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	NSE	NSE	30 U	30 U	30 U	30 U	**11.3 J**	**10.7 J**	30 U	30 U	30 U	30 U	30 U	30 U
Zinc	NSE	NSE	**19.3 J**	13.9 U	**161**	**47.3**	**68.0**	**59.8**	**19.9 J**	**16.1 J**	**19.8 J**	**18.5 J**	**24.6**	13.5 U

Notes :
1. EPA MCLs- Collective criteria based on the lower of both values.
2. RIDEM GA- Collective criteria based on the lower of both values.
3. The EPA MCL for Arsenic was reduced from 50 µg/L to 10 µg/L on January 23, 2006.
4. Criteria presented for Chromium as Chromium VI. No criteria established for Chromium+3 or Chromium (total).
All values given in µg/L (micrograms per liter)

J = Quantitation is approximate
U = Value is not detected
UJ = Detection limit is approximate
NSE = No standard established
NS = No sample taken
Bold indicates detection above method detection limit
Bold and shaded indicates exceedance of criteria

TABLE 2-13
TOTAL AND DISSOLVED METAL GROUNDWATER ANALYTICAL RESULTS
MCALLISTER POINT LANDFILL - NAVSTA MIDDLETOWN, RHODE ISLAND

ANALYTE	EPA MCLs[1]	RIDEM GA[2]	MW-107 R (total) 4/28/2009	MW-107 R (DUP) (total) 4/28/2009	MW-107 R (dissolved) 4/28/2009	MW-107 R (DUP) (dissolved) 4/28/2009	MW-108 R (total) 4/29/2009	MW-108 R (dissolved) 4/29/2009	MW-111 R (total) 4/28/2009	MW-111 R (DUP) (total) 4/28/2009	MW-111 R (dissolved) 4/28/2009	MW-111 R(DUP) (dissolved) 4/28/2009	MW-112 S (total) 4/29/2009	MW-112 S (dissolved) 4/29/2009	MW-113 S (total) 4/29/2009	MW-113 S (dissolved) 4/29/2009
Aluminum	NSE	NSE	200 U	200 U	200 U	200 U	200 U	200 U	404	244	200 U	200 U	200 U	200 U	200 U	200 U
Antimony	6	6	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U
Arsenic[3]	10	50	391	393	447	465	64.0	72.5	111	104	94.7	95.1	15	13.0	25	22.8
Barium	2000	2000	22.9 U	24.1 U	25.5 J	24.9 J	28.3 J	28.8 J	79.8 J	78.8 J	76.6 J	77.1 J	17.40 U	20.4 U	17.6	14.6 U
Beryllium	4	4	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4 U	4.0 U
Cadmium	5	5	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	1.9 J	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4 U	4.0 U
Calcium	NSE	NSE	29300	29600	30800	31900	30400	30000	228000	226000	195000	189000	8220	8440	8850	8810
Chromium[4]	100	100	1.1 J	1.1 J	10.0 U	10.0 U	10 U	10 U	1.9 J	10.0 U	10.0 U	10.0 U	10 U	10 U	10 U	10 U
Cobalt	NSE	NSE	20.0 J	20 J	22.7 J	21.8 J	27.7 J	24.9 J	26.0 J	24.7 J	13.0 J	12.4 J	0.90 J	0.8 J	1.3 J	1.1 J
Copper	1300	NSE	25 U	25 U	25 U	25 U	9.5 J	25 U	77.6	76.3	25 J	25 U	12.0 J	25 U	14.8 J	4.1 J
Iron	NSE	NSE	107000	109000	113000	117000	8100	11900	5010	4870	3650	3560	9130	8250	5650	5120
Lead	15	15	5.0 U	5.0 U	5.0 U	3.3 U	5.0 U	5.0 U	5.0 U	3.7 U	5.0 U	3.4 U	2.90 U	5.0 U	4.4 U	3.1 U
Magnesium	NSE	NSE	10000	10100	10600	11000	30900	30700	81100	73400	65700	64700	3270 J	3300 J	3660 J	3600 J
Manganese	NSE	NSE	8420	8480	7460	7330	2800	2670	2360	2330	2480	2430	114	109	417	425
Mercury	2	2	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.055 J	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Nickel	NSE	100	3.3 J	3.1 J	3.7 J	3.5 J	34.9 J	33.8 J	8.6 J	8.4 J	3.7 J	3.5 J	1.80 J	1.8 J	7.7 J	7.3 J
Potassium	NSE	NSE	8490	8620.0	9490	10000	59700	58400	5140	5700.0	11900	13000	2980 J	2990 J	2800 J	2750 J
Selenium	50	50	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	4.3 U	5.0 U	5.00 U	5.0 U	5.0 U	5.0 U
Silver	NSE	NSE	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.00 U	5.0 U	5.0 U	5.0 U
Sodium	NSE	NSE	21900	22400	24700	26600	120000	119000	226000	250000	223000	223000	14300	14400	14000	14000
Thallium	2	2	1.0 U	1.0 U	1.0 U	1.0 U	16.7 J	1.0 U	0.78 J	1.0 U	0.61 U	1.0 U	1.00 U	1.0 U	1.0 U	1.0 U
Vanadium	NSE	NSE	30 UJ	30.0 UJ	30 UJ	30.0 UJ	30 UJ	30 UJ	30 U	30.0 UJ	30 UJ	30.0 UJ	30.00 UJ	30 UJ	30 UJ	30 UJ
Zinc	NSE	NSE	14.6 J	14.0 J	9.9 U	20.7	16.7 J	12.5 J	20.5	19.7 J	8.0 J	7.3 J	35.2	42.8	25.4	22.4

Notes :
1. EPA MCLs- Collective criteria based on the lower of bo
2. RIDEM GA- Collective criteria based on the lower of bo
3. The EPA MCL for Arsenic was reduced from 50 µg/L to
4. Criteria presented for Chromium as Chromium VI. No c
All values given in µg/L (micrograms per liter)

J = Quantitation is approximate
U = Value is not detected
UJ = Detection limit is approximate
NSE = No standard established
NS = No sample taken
Bold indicates detection above method detection limit
Bold and shaded indicates exceedance of criteria

APPENDIX D

Historic Groundwater Data

MW-101R

Historic Analytical Results
Groundwater Monitoring
McAllister Point Landfill
NAVSTA Newport, Rhode Island

COMPOUND	AWQC [1]		EPA MCLs (ug/L)	RIDEM GA (ug/L)	Dec-93	Mar-97	Jun-97	Sep-97	Jan-98	Apr-98	Jul-98	Oct-98	Jun-99
Semivolatile Organic Compounds (ug/l)													
1,2-Dichlorobenzene	129		600	600	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4, Tricholorobenzene			70	70									
1,3-Dichlorobenzene	129		NA	600	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	129		75	75	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	4380	a			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	NA				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	2120	a			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
2,6-Dinitrotoluene [2]	370	e			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	NA				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol [3]	29700	e			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	710				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenapthylene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	300	c	0.2	0.2	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	360	P	6	6	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbazole	NA				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbofuran			40	NA									
Chrysene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	20	d			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	3.4				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	3.4				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dinoseb			7	NA									
Fluoranthene	16				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene			1	1									
Hexacholorcylcopentadiene			50	NA									
Indeno (1,2,3-cd)pyrene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methoxychlor			40	NA									
Naphthalene	620	b	NA	20	ND	10 U	3 J	10 U	10 U	10 U	10 U	10 U	10 U
n-Nitrosodiphenylamine	5850	a			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol			1	1									
Phenanthrene	4.6	P			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenol	2560	b			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

J - Quantitation is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

MW-101R

Historic Analytical Results
Groundwater Monitoring
McAllister Point Landfill
NAVSTA Newport, Rhode Island

COMPOUND	AWQC [1]		EPA MCLs (ug/L)	RIDEM GA (ug/L)	Oct-00	Oct-01	Oct-02	Jul-03	Jul-04	Apr-05	Oct-06	Apr-07	Apr-08 Duplicates Averaged
Semivolatile Organic Compounds (ug/l)													
1,2-Dichlorobenzene	129		600	600	10 U	5.3 U	No	10 U	10 U	11 U	5.6 U	0.21 U	5.6 U
1,2,4, Tricholorobenzene			70	70							5.6 U	0.28 U	5.6 U
1,3-Dichlorobenzene	129		NA	600	10 U	5.3 U	Sample	10 U	10 U	11 U	5.6 U	0.85 U	5.6 U
1,4-Dichlorobenzene	129		75	75	10 U	5.3 U		10 U	10 U	11 U	5.6 U	0.25 U	5.6 U
2-Chlorophenol	4380	a			10 U	5.3 U		10 U	10 U	11 U	5.6 U	0.29 U	5.6 U
2-Methylnaphthalene	300	c			10 U	5.3 U		5.2 U	5 U	5.3 U	0.22 U	0.21 U	5.6 UJ
2-Methylphenol	NA				10 U	5.3 U		10 U	10 U	11 U	11 U	0.51 U	11 U
2,4-Dimethylphenol	2120	a			10 U	5.3 U		21 U	20 U	21 U	11 UJ	0.83 U	11 U
2,6-Dinitrotoluene [2]	370	e			10 U	5.3 U		10 U	10 U	11 U	11 U	0.44 U	11 U
4-Methylphenol	NA				10 U			10 U		11 U	0.11 U	0.67 U	11 U
4-Chloro-3-methylphenol [3]	29700	e			10 U	5.3 U		21 U	20 U	21 U	11 U	0.43 U	11 U
Acenaphthene	710				10 U			5.2	5 U	5.3 U	0.11 U	0.23 U	5.6 U
Acenapthylene	300	c			10 U	5.3 U		5.2 U	5 U	5.3 U	0.11 U	0.19 U	5.6 U
Anthracene	300	c			10 U	5.3 U		5.2 U	5 U	5.3 U	0.11 U	0.16 U	5.6 U
Benzo(a)anthracene	300	c			10 U	5.3 U		5.2 U	5 U	5.3 U	0.056 U	0.28 U	5.6 U
Benzo(a)pyrene	300	c	0.2	0.2	10 U	5.3 U		5.2 U	5 U	5.3 U	0.11 U	0.30 U	5.6 U
Benzo(b)fluoranthene	300	c			10 U	5.3 U		5.2 U	5 U	5.3 U	0.056 U	0.34 U	5.6 U
Benzo(g,h,i)perylene	300	c			10 U	5.3 U		5.2 U	5 U	5.3 U	0.11 U	0.80 U	5.6 U
Benzo(k)fluoranthene	300	c			10 U	5.3 U		5.2 U	5 U	5.3 U	0.11 U	0.45 U	5.6 U
bis(2-Ethylhexyl)phthalate	360	P	6	6	10 U	5.3 U		10 U	10 U	11 U	5.6 U	2.5 U	2.2 U
Carbazole	NA				10 U	5.3 U		10 U	10 U	11 U	5.6 U	0.86 U	5.6 U
Carbofuran			40	NA							5.6 U	0.45 U	5.6 R
Chrysene	300	c			10 U	5.3 U		5.2 U	5 U	5.3 U	0.11 UJ	0.32 U	5.6 U
Dibenzofuran	20	d			10 U	5.3 U		5.2 U	5 U	5.3 U	5.6 U	0.79 U	5.6 U
Diethylphthalate	3.4				10 U	5.3 U		10 U	10 U	11 U	5.6 U	0.20 U	5.6 U
Di-n-butylphthalate	3.4				10 U	5.3 U		10 U	10 U	11 U	5.6 U	0.17 U	0.62 J
Dinoseb			7	NA							11 U	10 U	10 U
Fluoranthene	16				10 U	5.3 U		5.2 U	5 U	5.3 U	0.11 U	0.19 U	5.6 U
Fluorene	300	c			10 U	5.3 U		5.2 U	5 U	5.3 U	0.62	0.21 U	5.6 U
Hexachlorobenzene			1	1							0.22 U	0.27 U	5.6 U
Hexacholorcylcopentadiene			50	NA							11 U	0.28 UJ	11 UJ
Indeno (1,2,3-cd)pyrene	300	c			10 U	5.3 U		5.2 U	5 U	5.3 U	0.11 U	0.44 U	5.6 UJ
Methoxychlor			40	NA							0.053 U	0.050 UJ	0.0525 UJ
Naphthalene	620	b	NA	20	25	5.3		5.2	5 U	5.3 U	5.6 U	0.35 U	5.6 U
n-Nitrosodiphenylamine	5850	a			10 U	5.3 U		10 U	10 U	11 U	5.6 U	0.23 U	5.6 U
Pentachlorophenol			1	1							1.1 UJ	1.7 U	11 U
Phenanthrene	4.6	P			10 U	5.3 U		5.2 U	5 U	5.3 U	0.11 U	0.92 U	5.6 U
Phenol	2560	b			10 U			10	10 U	11 U	5.6 U	0.31 U	5.6 U
Pyrene	300	c			10 U	5.3 U		5.2 U	5 U	5.3 U	0.11 U	0.34 U	5.6 U

J - Quantitation is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

MW-103R

Historic Analytical Results
Groundwater Monitoring
McAllister Point Landfill
NAVSTA Newport, Rhode Island

COMPOUND	AWQC [1]	EPA MCLs (ug/L)	RIDEM GA (ug/L)	Dec-93	Mar-97	Jun-97	Sep-97	Jan-98	Apr-98	Jul-98	Oct-98	Jun-99
Semivolatile Organic Compounds (ug/l)												
1,2-Dichlorobenzene	129	600	600	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4, Tricholorobenzene		70	70									
1,3-Dichlorobenzene	129	NA	600	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	129	75	75	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	4380 a			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	300 c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	NA			ND	10 U	R	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	2120 a			ND	10 U	R	10 U	10 U	10 U	10 U	10 U	20 U
2,6-Dinitrotoluene [2]	370 e			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	NA			ND	10 U	R	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol [3]	29700 e			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	710			ND	2 J	1 J	2 J	2 J	1 J	10 U	10 U	10 U
Acenapthylene	300 c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	300 c			ND	1 J	10 U	1 J	1 J	1 J	10 U	10 U	10 U
Benzo(a)anthracene	300 c			7 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	300 c	0.2	0.2	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	300 c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	300 c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	300 c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	360 P	6	6	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbazole	NA			ND	1 J	1 J	1 J	10 U	10 U	10 U	10 U	10 U
Carbofuran		40	NA									
Chrysene	300 c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	20 d			ND	1 J	1 J	1 J	1 J	10 U	10 U	10 U	10 U
Diethylphthalate	3.4			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	3.4			1 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dinoseb		7	NA									
Fluoranthene	16			1 J	2 J	2 J	2 J	2 J	2 J	1 J	2	10 U
Fluorene	300 c			ND	2 J	2 J	2 J	2 J	1 J	10 U	1	10 U
Hexachlorobenzene		1	1									
Hexacholorcylcopentadiene		1	1									
Indeno (1,2,3-cd)pyrene	300 c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methoxychlor		40	NA									
Naphthalene	620 b	NA	20	ND	3 J	2 J	2 J	10 U	10 U	10 U	10 U	10 U
n-Nitrosodiphenylamine	5850 a			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol		50	NA									
Phenanthrene	4.6 P			1 J	**7 J**	**7 J**	**7 J**	**6 J**	**5 J**	**5 J**	4 J	2 J
Phenol	2560 b			ND	10 U	R	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	300 c			9 J	1 J	2 J	1 J	1 J	1 J	1 J	10 U	10 U

J - Quantitation is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

MW-103R

Historic Analytical Results
Groundwater Monitoring
McAllister Point Landfill
NAVSTA Newport, Rhode Island

COMPOUND	AWQC [1]	EPA MCLs (ug/L)	RIDEM GA (ug/L)	Oct-00	Oct-01	Oct-02	Jul-03	Jul-04	Apr-05	Oct-06	Apr-07	Apr-08
Semivolatile Organic Compounds (ug/l)												
1,2-Dichlorobenzene	129	600	600	10 U	5.2 U	10 U	10 U	10 U	11 U	5 U	0.23 U	5.1 U
1,2,4, Tricholorobenzene		70	70							5.0 U	0.31 U	5.1 U
1,3-Dichlorobenzene	129	NA	600	10 U	5.2 U	10 U	10 U	10 U	11 U	5.0 U	0.94 U	5.1 U
1,4-Dichlorobenzene	129	75	75	10 U	5.2 U	10 U	10 U	10 U	11 U	5.0 U	0.28 U	5.1 U
2-Chlorophenol	4380 a			10 U	5.2 U	10 U	10 U	10 U	11 R	5.0 U	0.33 R	5.1 U
2-Methylnaphthalene	300 c			10 U	5.2 U	10 U	5.2 U	5 U	5.3 U	0.20 U	0.23 U	5.1 UJ
2-Methylphenol	NA			10 U	5.2 U	10 U	10 U	10 U	11 R	10 U	0.57 R	10 U
2,4-Dimethylphenol	2120 a			10 U	5.2 U	10 U	21 U	20 U	21 R	10 UJ	0.92 R	10 U
2,6-Dinitrotoluene [2]	370 e			10 U	5.2 U	10 U	10 U	10 U	11 U	10 U	0.49 U	10 U
4-Methylphenol	NA			10 U	5.2 U	10 U	10 U		11 R	10 U	0.74 R	10 U
4-Chloro-3-methylphenol [3]	29700 e			10 U	5.2 U	10 U	21 U	20 U	21 R	10 U	0.48 R	10 U
Acenaphthene	710			10 U	NA	10 U	5.2 U	5 U	5.3 U	0.20	0.25 U	5.1 U
Acenapthylene	300 c			10 U	5.2 U	10 U	5.2 U	5 U	5.3 U	0.10 U	0.21 U	5.1 U
Anthracene	300 c			10 U	5.2 U	10 U	5.2 U	5 U	5.3 U	0.27	0.18 U	5.1 U
Benzo(a)anthracene	300 c			10 U	5.2 U	10 U	5.2 U	5 U	5.3 U	0.42	0.31 U	5.1 U
Benzo(a)pyrene	300 c	0.2	0.2	10 U	5.2 U	10 U	5.2 U	5 U	5.3 U	0.23	0.33 U	5.1 U
Benzo(b)fluoranthene	300 c			10 U	5.2 U	10 U	5.2 U	5 U	5.3 U	0.20	0.38 U	5.1 U
Benzo(g,h,i)perylene	300 c			10 U	5.2 U	10 U	5.2 U	5 U	5.3 U	0.11	0.89 U	5.1 U
Benzo(k)fluoranthene	300 c			10 U	5.2 U	10 U	5.2 U	5 U	5.3 U	0.18	0.50 U	5.1 U
bis(2-Ethylhexyl)phthalate	360 P	6	6	10 U	5.2 U	10 U	10 U	10 U	11 U	5.0 U	2.7 U	2.0 U
Carbazole	NA			10 U	5.2 U	10 U	10 U	10 U	11 U	5.0 U	0.95 U	5.1 U
Carbofuran		40	NA							5.0 U	0.49 U	5.1 R
Chrysene	300 c			10 U	5.2 U	10 U	5.2 U	5 U	5.3 U	0.10 U	0.35 U	5.1 U
Dibenzofuran	20 d			10 U	5.2 U	10 U	5.2 U	5 U	5.3 U	5.0 U	0.88 U	5.1 U
Diethylphthalate	3.4			10 U	5.2 U	10 U	10 U	10 U	11 U	5.0 U	0.23 U	5.1 U
Di-n-butylphthalate	3.4			10 U	5.2 U	10 U	10 U	10 U	11 U	5.0 U	0.19 U	5.1 U
Dinoseb		7	NA							10 U	10 U	10 U
Fluoranthene	16			1 J	1.2 J	1 J	0.67 J	5 U	5.3 U	1.3	0.21 U	5.1 U
Fluorene	300 c			10 U	5.2 U	10 U	5.2 U	5 U	5.3 U	0.26	0.23 U	5.1 U
Hexachlorobenzene		1	1							0.20 U	0.30 U	5.1 U
Hexacholorcylcopentadiene		1	1							10 U	1.9 R	10 UJ
Indeno (1,2,3-cd)pyrene	300 c			10 U	5.2 U	10 U	5.2 U	5 U	5.3 U	0.11	0.49 U	5.1 UJ
Methoxychlor		40	NA							0.050 U	0.051 UJ	0.054 U
Naphthalene	620 b	NA	20	10 U	5.2 U	2 J	5.2 U	5 U	5.3 U	0.10 U	0.39 U	5.1 U
n-Nitrosodiphenylamine	5850 a			10 U	5.2 U	10 U	10 U	10 U	11 U	5.0 U	0.25 U	5.1 U
Pentachlorophenol		50	NA							1.0 UJ	0.31 UJ	10 U
Phenanthrene	4.6 P			10 U	5.2 U	10 U	5.2 U	5 U	5.3 U	0.29 J	1.0 U	5.1 U
Phenol	2560 b			10 U	NA	10 U	10 U	10 U	11 R	5.0 U	0.34 R	5.1 U
Pyrene	300 c			1 J	0.9 J	10 U	5.2 U	5 U	5.3 U	0.80	0.38 U	5.1 U

J - Quantitation is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

MW-103S

Historic Analytical Results
Groundwater Monitoring
McAllister Point Landfill
NAVSTA Newport, Rhode Island

COMPOUND	AWQC [1]	EPA MCLs (ug/L)	RIDEM GA (ug/L)	Dec-93	Mar-97	Jun-97	Sep-97	Jan-98	Apr-98	Jul-98	Oct-98	Jun-99
Semivolatile Organic Compounds (ug/l)												
1,2-Dichlorobenzene	129	600	600	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4, Tricholorobenzene		70	70									
1,3-Dichlorobenzene	129	NA	600	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	129	75	75	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	4380 a			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	300 c			9 J	210 *	240 *	100	63	35	74	51	10 U
2-Methylphenol	NA			3 J	6 J	4 J	1 J	10 U	100 D	51	2	10 U
2,4-Dimethylphenol	2120 a			1 J	15	22 J	14	10 U	34	38	13	20 U
2,6-Dinitrotoluene [2]	370 e			ND	10 U	12 J	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	NA			ND	44	17 U	4 J	3 J	310 D	140 D	2	10 U
4-Chloro-3-methylphenol [3]	29700 e			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	710			28	170 *	180 J*	130	140	64	64	49	10 U
Acenaphthylene	300 c			ND	10 *	8 J	10 U	10	65	12	13	10 U
Anthracene	300 c			3 J	19	18	12	17	15	11	14	10 U
Benzo(a)anthracene	300 c			ND	10 U	10 U	10 U	4 J	5 J	2 J	4	10 U
Benzo(a)pyrene	300 c	0.2	0.2	ND	10 U	10 U	10 U	2 J	2 J	10 U	2	10 U
Benzo(b)fluoranthene	300 c			ND	10 U	10 U	10 U	3 J	3 J	1 J	3	10 U
Benzo(g,h,i)perylene	300 c			ND	10 U	10 U	10 U	1 J	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	300 c			ND	10 U	10 U	10 U	2 J	2 J	10 U	2	10 U
bis(2-Ethylhexyl)phthalate	360 P	6	6	ND	10 U	10 U	10 U	10 U	10 U	10 U	5	10 U
Carbazole	NA			24	120	120 J*	95 J	120	38	57	85	10 U
Carbofuran		40	NA									
Chrysene	300 c			ND	10 U	1 J	10 U	4 J	4 J	2 J	3	4 J
Dibenzofuran	20 d			15	**130 ***	**150 J***	**76**	10 U	**50**	**53**	**40**	10 U
Diethylphthalate	3.4			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	3.4			1 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dinoseb		7	NA									
Fluoranthene	16			5 J	**23**	**23**	**18**	**29**	**36**	**24**	**24**	7 J
Fluorene	300 c			20	150 *	170 J*	100	120	81 DJ	70	81	10 U
Hexachlorobenzene		1	1									
Hexacholorcylcopentadiene		50	NA									
Indeno (1,2,3-cd)pyrene	300 c			ND	10 U	10 U	10 U	1 J	10 U	10 U	10 U	10 U
Methoxychlor		40	NA									
Naphthalene	620 b	NA	20	98	**1400 ***	**1400 ***	**1800**	530	570 D	180 D	**760**	230
n-Nitrosodiphenylamine	5850 a			ND	10 U	4 J	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol		1	1									
Phenanthrene	4.6 P			**23**	160 *	**160 J***	100	80	67	62	48	2 J
Phenol	2560 b			ND	3 J	10 U	10 U	10 U	10 U	10 U	1	10 U
Pyrene	300 c			4 J	10 J	14	10	17	25	17	16	10 U

J - Quantitation is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

MW-103S

Historic Analytical Results
Groundwater Monitoring
McAllister Point Landfill
NAVSTA Newport, Rhode Island

COMPOUND	AWQC [1]		EPA MCLs (ug/L)	RIDEM GA (ug/L)	Oct-00	Oct-01	Oct-02	Jul-03	Jul-04	Apr-05	Oct-06	Apr-07	Apr-08
Semivolatile Organic Compounds (ug/l)													
1,2-Dichlorobenzene	129		600	600	20 U	No Sample	No Sample	No Sample	No Sample	11 U	No Sample	0.21 U	5.1 U
1,2,4, Tricholorobenzene			70	70								0.28 U	5.1 UJ
1,3-Dichlorobenzene	129		NA	600	20 U					11 U		0.85 U	5.1 U
1,4-Dichlorobenzene	129		75	75	20 U					11 U		0.25 U	5.1 U
2-Chlorophenol	4380	a			20 U					11 U		0.29 U	5.1 U
2-Methylnaphthalene	300	c			16 J					23.3		20.1	2.3 J
2-Methylphenol	NA				20 U					7.5 J		0.51 U	10 U
2,4-Dimethylphenol	2120	a			5 J					18.4 J		11.1	5.4 J
2,6-Dinitrotoluene [2]	370	e			20 U					11 U		0.44 U	10 UJ
4-Methylphenol	NA				20 U					71.5		50.8	37.3
4-Chloro-3-methylphenol [3]	29700	e			20 U					21 U		0.43 U	10 UJ
Acenaphthene	710				28					19.8		18.6	6.9 J
Acenaphthylene	300	c			3 J					4.6 J		3.7 J	1.4 J
Anthracene	300	c			8 J					3.8 J		3.3 J	8.7
Benzo(a)anthracene	300	c			7 J					5.3 U		0.70 J	4.9 J
Benzo(a)pyrene	300	c	0.2	0.2	5 J					5.3 U		0.30 U	2.2 J
Benzo(b)fluoranthene	300	c			7 J					5.3 U		0.34 U	2.3 J
Benzo(g,h,i)perylene	300	c			3 J					5.3 U		0.80 U	1.2 J
Benzo(k)fluoranthene	300	c			2 J					5.3 U		0.45 U	2.6 J
bis(2-Ethylhexyl)phthalate	360	P	6	6	2 J					11 U		3.7 U	2.0 UJ
Carbazole	NA				16 J					14.4		11.6	10.6
Carbofuran			40	NA								0.45 U	5.1 R
Chrysene	300	c			6 J					5.3 U		0.53 J	4.3 J
Dibenzofuran	20	d			17 J					7.4		6.2	4.4 J
Diethylphthalate	3.4				20 U					11 U		0.20 U	5.1 UJ
Di-n-butylphthalate	3.4				20 U					11 U		0.17 U	5.1 U
Dinoseb			7	NA								10 U	10 U
Fluoranthene	16				**34**					4.2 J		3.6 J	**18.8**
Fluorene	300	c			27					12.4		11.4	13.6 J
Hexachlorobenzene			1	1								0.27 U	5.1 U
Hexacholorcylcopentadiene			50	NA								0.28 UJ	10 UJ
Indeno (1,2,3-cd)pyrene	300	c			2 J					5.3 U		0.44 U	1.4 J
Methoxychlor			40	NA								0.050 UJ	0.050 R
Naphthalene	620	b	NA	20	200					304		305	37.2 J
n-Nitrosodiphenylamine	5850	a			20 U					11 U		1.1 J	5.1 U
Pentachlorophenol			1	1								1.7 U	0.51 J
Phenanthrene	4.6	P			43					**5.8**		**5.1**	**16.3**
Phenol	2560	b			20 U					3.4 J		0.31 U	5.1 U
Pyrene	300	c			23					2.4 J		2.1 J	12.1 J

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NA - Parameter not analyzed

MW-104S

Historic Analytical Results
Groundwater Monitoring
McAllister Point Landfill
NAVSTA Newport, Rhode Island

COMPOUND	AWQC [1]		EPA MCLs (ug/L)	RIDEM GA (ug/L)	Dec-93	Mar-97	Sep-97	Jan-98	Apr-98	Jul-98	Oct-98	Jun-99
Semivolatile Organic Compounds (ug/l)												
1,2-Dichlorobenzene	129		600	600	ND	10 U	No	No	10 U	10 U	No	No
1,2,4, Tricholorobenzene			70	70								
1,3-Dichlorobenzene	129		NA	600	ND	10 U	Sample	Sample	10 U	10 U	Sample	Sample
1,4-Dichlorobenzene	129		75	75	12	9 J			5 J	2 J		
2-Chlorophenol	4380	a			ND	10 U			10 U	10 U		
2-Methylnaphthalene	300	c			1 J	3 J			10 U	10 U		
2-Methylphenol	NA				11	10 U			10 U	10 U		
2,4-Dimethylphenol	2120	a			ND	10 U			2 J	10 U		
2,6-Dinitrotoluene [2]	370	e			ND	10 U			10 U	10 U		
4-Methylphenol	NA				ND	10 U			120 D	43		
4-Chloro-3-methylphenol [3]	29700	e			ND	8 J			10 U	10 U		
Acenaphthene	710				ND	10 U			10 U	10 U		
Acenapthylene	300	c			ND	10 U			10 U	10 U		
Anthracene	300	c			ND	10 U			10 U	10 U		
Benzo(a)anthracene	300	c			ND	10 U			10 U	10 U		
Benzo(a)pyrene	300	c	0.2	0.2	ND	NA			10 U	10 U		
Benzo(b)fluoranthene	300	c			ND	NA			10 U	10 U		
Benzo(g,h,i)perylene	300	c			ND	NA			10 U	10 U		
Benzo(k)fluoranthene	300	c			ND	NA			10 U	10 U		
bis(2-Ethylhexyl)phthalate	360	P	6	6	ND	10 U			58	2 J		
Carbazole	NA				ND	1 J			10 U	10 U		
Carbofuran			40	NA								
Chrysene	300	c			ND	10 U			10 U	10 U		
Dibenzofuran	20	d			ND	10 U			10 U	10 U		
Diethylphthalate	3.4				1 J	2 J			2 J	0		
Di-n-butylphthalate	3.4				**4 J**	10 U			10 U	10 U		
Dinoseb			7	NA								
Fluoranthene	16				ND	10 U			10 U	10 U		
Fluorene	300	c			ND	10 U			10 U	10 U		
Hexachlorobenzene			1	1								
Hexacholorcylcopentadiene			1	1								
Indeno (1,2,3-cd)pyrene	300	c			ND	NA			10 U	10 U		
Methoxychlor			40	NA								
Naphthalene	620	b	NA	20	3 J	15			2 J	0		
n-Nitrosodiphenylamine	5850	a			ND	10 U			10 U	10 U		
Pentachlorophenol			50	NA								
Phenanthrene	4.6	P			ND	1 J			10 U	10 U		
Phenol	2560	b			ND	10 U			4 J	0		
Pyrene	300	c			ND	10 U			10 U	10 U		

J - Quantitation is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

MW-104S

Historic Analytical Results
Groundwater Monitoring
McAllister Point Landfill
NAVSTA Newport, Rhode Island

COMPOUND	AWQC [1]		EPA MCLs (ug/L)	RIDEM GA (ug/L)	Oct-01	Oct-02	Jul-03	Jul-04	Apr-05	Oct-06	Apr-07	Apr-08
Semivolatile Organic Compounds (ug/l)												
1,2-Dichlorobenzene	129		600	600	No	No	No	No	No		0.21 U	5.0 U
1,2,4, Tricholorobenzene			70	70							0.28 U	5.0 U
1,3-Dichlorobenzene	129		NA	600	Sample	Sample	Sample	Sample	Sample	No	0.85 U	5.0 U
1,4-Dichlorobenzene	129		75	75						Sample	0.25 U	5.0 U
2-Chlorophenol	4380	a									0.29 U	110 U
2-Methylnaphthalene	300	c									0.21 U	5.0 U
2-Methylphenol	NA										0.51 U	54 U
2,4-Dimethylphenol	2120	a									0.83 UJ	110 U
2,6-Dinitrotoluene [2]	370	e									0.44 U	10 U
4-Methylphenol	NA										0.67 U	110 U
4-Chloro-3-methylphenol [3]	29700	e									0.43 U	110 U
Acenaphthene	710										0.23 U	5.0 U
Acenapthylene	300	c									0.19 U	5.0 U
Anthracene	300	c									0.16 U	5.0 U
Benzo(a)anthracene	300	c									0.28 U	5.0 U
Benzo(a)pyrene	300	c	0.2	0.2							0.30 U	5.0 U
Benzo(b)fluoranthene	300	c									0.34 U	5.0 U
Benzo(g,h,i)perylene	300	c									0.80 U	5.0 U
Benzo(k)fluoranthene	300	c									0.45 U	5.0 U
bis(2-Ethylhexyl)phthalate	360	P	6	6							3.4 U	2.0 U
Carbazole	NA										0.86 U	5.0 U
Carbofuran			40	NA							0.45 U	5.0 R
Chrysene	300	c									0.32 U	5.0 U
Dibenzofuran	20	d									0.79 U	5.0 U
Diethylphthalate	3.4										0.20 U	5.0 U
Di-n-butylphthalate	3.4										0.17 U	0.35 J
Dinoseb			7	NA							10 U	10 U
Fluoranthene	16										0.19 U	5.0 U
Fluorene	300	c									0.21 U	5.0 U
Hexachlorobenzene			1	1							0.27 U	5.0 U
Hexacholorcylcopentadiene			1	1							1.7 U	10 UJ
Indeno (1,2,3-cd)pyrene	300	c									0.44 U	5.0 U
Methoxychlor			40	NA							0.050 UJ	0.12 UJ
Naphthalene	620	b	NA	20							0.35 U	5.0 U
n-Nitrosodiphenylamine	5850	a									0.23 U	5.0 U
Pentachlorophenol			50	NA							0.28 UJ	54 U
Phenanthrene	4.6	P									0.92 U	5.0 U
Phenol	2560	b									0.31 U	54 U
Pyrene	300	c									0.34 U	5.0 U

J - Quantitation is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

MW-105R

Historic Analytical Results
Groundwater Monitoring
McAllister Point Landfill
NAVSTA Newport, Rhode Island

COMPOUND	AWQC [1]		EPA MCLs (ug/L)	RIDEM GA (ug/L)	Dec-93	Mar-97	Jun-97	Sep-97	Jan-98	Apr-98	Jul-98	Oct-98	Jun-99
Semivolatile Organic Compounds (ug/l)													
1,2-Dichlorobenzene	129		600	600	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4, Tricholorobenzene			70	70									
1,3-Dichlorobenzene	129		NA	600	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	129		75	75	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	4380	a			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	NA				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	2120	a			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
2,6-Dinitrotoluene [2]	370	e			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	NA				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol [3]	29700	e			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	710				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenapthylene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	300	c	0.2	0.2	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	360	P	6	6	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbazole	NA				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbofuran			40	NA									
Chrysene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	20	d			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	3.4				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	3.4				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dinoseb			7	NA									
Fluoranthene	16				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene			1	1									
Hexacholorcylcopentadiene			1	1									
Indeno (1,2,3-cd)pyrene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methoxychlor			40	NA									
Naphthalene	620	b	NA	20	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
n-Nitrosodiphenylamine	5850	a			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol			50	NA									
Phenanthrene	4.6	P			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenol	2560	b			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

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UJ - Detection limit is approximate
NA - Parameter not analyzed

MW-105R
Historic Analytical Results
Groundwater Monitoring
McAllister Point Landfill
NAVSTA Newport, Rhode Island

COMPOUND	AWQC [1]		EPA MCLs (ug/L)	RIDEM GA (ug/L)	Oct-00	Oct-01	Oct-02	Jul-03	Jul-04	Apr-05	Oct-06	Apr-07	Apr-08
Semivolatile Organic Compounds (ug/l)													
1,2-Dichlorobenzene	129		600	600	10 U	5.3 U	10 U	10 U	10 U	11 U	5.1 U	0.21 U	5.0 U
1,2,4, Tricholorobenzene			70	70							5.1 U	0.28 U	5.0 U
1,3-Dichlorobenzene	129		NA	600	10 U	5.3 U	10 U	10 U	10 U	11 U	5.1 U	0.85 U	5.0 U
1,4-Dichlorobenzene	129		75	75	10 U	5.3 U	10 U	10 U	10 U	11 U	5.1 U	0.25 U	5.0 U
2-Chlorophenol	4380	a			10 U	5.3 U	10 U	10 U	10 U	11 U	5.1 U	0.29 U	5.0 U
2-Methylnaphthalene	300	c			10 U	5.3 U	10 U	5 U	5 U	5.4 U	0.20 U	0.21 U	5.0 UJ
2-Methylphenol	NA				10 U	5.3 U	10 U	10 U	10 U	11 U	10 U	0.51 U	10 U
2,4-Dimethylphenol	2120	a			10 U	5.3 U	10 U	20 U	20 U	22 U	10 UJ	0.83 UJ	10 U
2,6-Dinitrotoluene [2]	370	e			10 U	5.3 U	10 U	10 U	10 U	11 U	10 U	0.44 U	10 U
4-Methylphenol	NA				10 U	5.3 U	10 U	10 U		11 U	10 U	0.67 U	10 U
4-Chloro-3-methylphenol [3]	29700	e			10 U	5.3 U	10 U	20 U	20 U	22 U	10 U	0.43 U	10 U
Acenaphthene	710				10 U	NA	10 U	5 U	5 U	5.4 U	0.10 U	0.23 U	5.0 U
Acenapthylene	300	c			10 U	5.3 U	10 U	5 U	5 U	5.4 U	0.10 U	0.19 U	5.0 U
Anthracene	300	c			10 U	5.3 U	10 U	5 U	5 U	5.4 U	0.10 U	0.16 U	5.0 U
Benzo(a)anthracene	300	c			10 U	5.3 U	10 U	5 U	5 U	5.4 U	0.051 U	0.28 U	5.0 U
Benzo(a)pyrene	300	c	0.2	0.2	10 U	5.3 U	10 U	5 U	5 U	5.4 U	0.10 U	0.30 U	5.0 U
Benzo(b)fluoranthene	300	c			10 U	5.3 U	10 U	5 U	5 U	5.4 U	0.051 U	0.34 U	5.0 U
Benzo(g,h,i)perylene	300	c			10 U	5.3 U	10 U	5 U	5 U	5.4 U	0.10 U	0.80 U	5.0 U
Benzo(k)fluoranthene	300	c			10 U	5.3 U	10 U	5 U	5 U	5.4 U	0.10 U	0.45 U	5.0 U
bis(2-Ethylhexyl)phthalate	360	P	6	6	10 U	5.3 U	10 U	10 U	10 U	11 U	5.1 U	2.6 U	2.0 U
Carbazole	NA				10 U	5.3 U	10 U	10 U	10 U	11 U	5.1 U	0.86 U	5.0 U
Carbofuran			40	NA							5.1 U	0.45 U	5.0 R
Chrysene	300	c			10 U	5.3 U	10 U	5 U	5 U	5.4 U	0.10 UJ	0.32 U	5.0 U
Dibenzofuran	20	d			10 U	5.3 U	10 U	5 U	5 U	5.4 U	5.1 U	0.79 U	5.0 U
Diethylphthalate	3.4				10 U	5.3 U	10 U	10 U	10 U	11 U	5.1 U	0.20 U	5.0 U
Di-n-butylphthalate	3.4				10 U	5.3 U	10 U	10 U	10 U	11 U	5.1 U	0.17 U	5.0 U
Dinoseb			7	NA							10 U	10 U	10 U
Fluoranthene	16				10 U	5.3 U	10 U	5 U	5 U	5.4 U	0.10 U	0.19 U	5.0 U
Fluorene	300	c			10 U	5.3 U	10 U	5 U	5 U	5.4 U	0.10 U	0.21 U	5.0 U
Hexachlorobenzene			1	1							0.20 U	0.27 U	5.0 U
Hexacholorcylcopentadiene			1	1							10 U	1.7 U	10 UJ
Indeno (1,2,3-cd)pyrene	300	c			10 U	5.3 U	10 U	5 U	5 U	5.4 U	0.10 U	0.44 U	5.0 UJ
Methoxychlor			40	NA							0.051 U	0.050 UJ	0.050 U
Naphthalene	620	b	NA	20	10 U	5.3 U	10 U	5 U	5 U	5.4 U	0.1 U	0.35 U	5.0 U
n-Nitrosodiphenylamine	5850	a			10 U	5.3 U	10 U	10 U	10 U	11 U	5.1 U	0.23 U	5.0 U
Pentachlorophenol			50	NA							1.0 UJ	0.28 UJ	10 U
Phenanthrene	4.6	P			10 U	5.3 U	10 U	5 U	5 U	5.4 U	0.051 U	0.92 U	5.0 U
Phenol	2560	b			10 U	NA	10 U	10 U	10 U	11 U	5.1 U	0.31 U	5.0 U
Pyrene	300	c			10 U	5.3 U	10 U	5 U	5 U	5.4 U	0.10 U	0.34 U	5.0 U

J - Quantitation is approximate
R - Value is rejected
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UJ - Detection limit is approximate
NA - Parameter not analyzed

MW-105S

Historic Analytical Results
Groundwater Monitoring
McAllister Point Landfill
NAVSTA Newport, Rhode Island

COMPOUND	AWQC [1]		EPA MCLs (ug/L)	RIDEM GA (ug/L)	Dec-93	Mar-97	Jun-97	Sep-97	Jan-98	Apr-98	Jul-98	Oct-98	Jun-99
Semivolatile Organic Compounds (ug/l)													
1,2-Dichlorobenzene	129		600	600	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4, Tricholorobenzene			70	70									
1,3-Dichlorobenzene	129		NA	600	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	129		75	75	ND	10 U	10 U	10 U	10 U	6 J	6 J	2	1 J
2-Chlorophenol	4380	a			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	300	c			ND	8 J	10 U	1 J	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	NA				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	2120	a			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
2,6-Dinitrotoluene [2]	370	e			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	NA				ND	10 U	10 U	10 U	10 U	63	26	10 U	10 U
4-Chloro-3-methylphenol [3]	29700	e			ND	1 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	710				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenapthylene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	300	c	0.2	0.2	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	360	P	6	6	ND	10 U	3 J	10 U	10 U	10 U	2 J	1	10 U
Carbazole	NA				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbofuran			40	NA									
Chrysene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	20	d			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	3.4				ND	2 J	2 J	10 U	10 U	10 U	10 U	10 U	**7 J**
Di-n-butylphthalate	3.4				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dinoseb			7	NA									
Fluoranthene	16				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene			1	1									
Hexacholorcylcopentadiene			1	1									
Indeno (1,2,3-cd)pyrene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methoxychlor			40	NA									
Naphthalene	620	b	NA	20	ND	13	10 U	1 J	10 U	2 J	4 J	4	2 J
n-Nitrosodiphenylamine	5850	a			ND	1 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol			50	NA									
Phenanthrene	4.6	P			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenol	2560	b			ND	10 U	10 U	10 U	10 U	2 J	10 U	10 U	10 U
Pyrene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

J - Quantitation is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

MW-105S

Historic Analytical Results
Groundwater Monitoring
McAllister Point Landfill
NAVSTA Newport, Rhode Island

COMPOUND	AWQC [1]		EPA MCLs (ug/L)	RIDEM GA (ug/L)	Oct-00	Oct-01	Oct-02	Jul-03	Jul-04	Apr-05	Oct-06	Apr-07	Apr-08
Semivolatile Organic Compounds (ug/l)													
1,2-Dichlorobenzene	129		600	600	10 U	No	No	No	No	10 U	5.1 U	0.21 U	5.0 U
1,2,4, Tricholorobenzene			70	70							5.1 U	0.28 U	5.0 U
1,3-Dichlorobenzene	129		NA	600	10 U	Sample	Sample	Sample	Sample	10 U	5.1 U	0.85 U	5.0 U
1,4-Dichlorobenzene	129		75	75	10 U					10 U	5.1 U	0.25 U	5.0 U
2-Chlorophenol	4380	a			10 U					10 U	5.1 U	0.29 U	5.0 U
2-Methylnaphthalene	300	c			10 U					5.2 U	0.097 J	0.21 U	5.0 UJ
2-Methylphenol	NA				10 U					10 U	10 U	0.51 U	10 U
2,4-Dimethylphenol	2120	a			10 U					21 U	10 UJ	0.83 UJ	10 U
2,6-Dinitrotoluene [2]	370	e			10 U					10 U	10 U	0.44 U	10 U
4-Methylphenol	NA				10 U					10 U	10 U	3.0 J	10 U
4-Chloro-3-methylphenol [3]	29700	e			10 U					21 U	10 U	0.43 U	10 U
Acenaphthene	710				10 U					5.2 U	0.062 J	0.23 U	5.0 U
Acenapthylene	300	c			10 U					5.2 U	0.10 U	0.19 U	5.0 U
Anthracene	300	c			10 U					5.2 U	0.10 U	0.16 U	5.0 U
Benzo(a)anthracene	300	c			10 U					5.2 U	0.051 U	0.28 U	5.0 U
Benzo(a)pyrene	300	c	0.2	0.2	10 U					5.2 U	0.10 U	0.30 U	5.0 U
Benzo(b)fluoranthene	300	c			10 U					5.2 U	0.051 U	0.34 U	5.0 U
Benzo(g,h,i)perylene	300	c			10 U					5.2 U	0.10 U	0.80 U	5.0 U
Benzo(k)fluoranthene	300	c			10 U					5.2 U	0.10 U	0.45 U	5.0 U
bis(2-Ethylhexyl)phthalate	360	P	6	6	10 U					10 U	5.1 U	2.3 U	2.0 U
Carbazole	NA				10 U					10 U	5.1 U	0.86 U	5.0 U
Carbofuran			40	NA							5.1 U	0.45 U	5.0 R
Chrysene	300	c			10 U					5.2 U	0.10 UJ	0.32 U	5.0 U
Dibenzofuran	20	d			10 U					5.2 U	5.1 U	0.79 U	5.0 U
Diethylphthalate	3.4				10 U					10 U	5.1 U	0.20 U	5.0 U
Di-n-butylphthalate	3.4				10 U					10 U	5.1 U	0.17 U	5.0 U
Dinoseb			7	NA							10 U	10 U	10 U
Fluoranthene	16				10 U					5.2 U	0.10 U	0.19 U	5.0 U
Fluorene	300	c			10 U					5.2 U	0.10 U	0.21 U	5.0 U
Hexachlorobenzene			1	1							0.20 U	0.27 U	5.0 U
Hexacholorcylcopentadiene			1	1							10 U	1.7 U	10 UJ
Indeno (1,2,3-cd)pyrene	300	c			10 U					5.2 U	0.10 U	0.44 U	5.0 UJ
Methoxychlor			40	NA							0.051 U	0.051 UJ	0.050 U
Naphthalene	620	b	NA	20	10 U					5.2 U	0.17	0.35 U	5.0 U
n-Nitrosodiphenylamine	5850	a			10 U					10 U	5.1 U	0.23 U	5.0 U
Pentachlorophenol			50	NA							1.0 UJ	0.28 UJ	10 U
Phenanthrene	4.6	P			10 U					5.2 U	0.051 U	0.92 U	5.0 U
Phenol	2560	b			10 U					10 U	5.1 U	0.31 U	5.0 U
Pyrene	300	c			10 U					5.2 U	0.10 U	0.34 U	5.0 U

J - Quantitation is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

MW-107R

Historic Analytical Results
Groundwater Monitoring
McAllister Point Landfill
NAVSTA Newport, Rhode Island

COMPOUND	AWQC [1]		EPA MCLs (ug/L)	RIDEM GA (ug/L)	Dec-93	Mar-97	Jun-97	Sep-97	Jan-98	Apr-98	Jul-98	Oct-98	Jun-99
Semivolatile Organic Compounds (ug/l)													
1,2-Dichlorobenzene	129		600	600	ND	10 U	10 U	10 U	8 J	10 U	10 U	10 U	10 U
1,2,4, Tricholorobenzene			70	70									
1,3-Dichlorobenzene	129		NA	600	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	129		75	75	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
2-Chlorophenol	4380	a			ND	10 U	10 U	10 U	2 J	10 U	10 U	10 U	10 U
2-Methylnaphthalene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	NA				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	2120	a			ND	10 U	10 U	10 U	10 U	10 U	10 U	2	1 J
2,6-Dinitrotoluene [2]	370	e			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	NA				ND	10 U	10 U	2 J	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol [3]	29700	e			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	710				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenapthylene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	300	c	0.2	0.2	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	360	P	6	6	ND	10 U	10 U	10 U	10 U	10 U	10 U	3	0
Carbazole	NA				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbofuran			40	NA									
Chrysene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	20	d			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	3.4				ND	**4 J**	2 J	**5 J**	10 U	3 J	2 J	2	10 U
Di-n-butylphthalate	3.4				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dinoseb			7	NA									
Fluoranthene	16				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene			1	1									
Hexacholorcylcopentadiene			1	1									
Indeno (1,2,3-cd)pyrene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methoxychlor			40	NA									
Naphthalene	620	b	NA	20	ND	10 U	10 U	10 U	7 J	10 U	10 U	10 U	10 U
n-Nitrosodiphenylamine	5850	a			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol			50	NA									
Phenanthrene	4.6	P			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenol	2560	b			ND	10 U	10 U	10 U	12	10 U	10 U	10 U	10 U
Pyrene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

J - Quantitation is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

MW-107R

Historic Analytical Results
Groundwater Monitoring
McAllister Point Landfill
NAVSTA Newport, Rhode Island

COMPOUND	AWQC [1]		EPA MCLs (ug/L)	RIDEM GA (ug/L)	Oct-00	Oct-01	Oct-02	Jul-03	Jul-04	Apr-05	Oct-06	Apr-07	Apr-08
Semivolatile Organic Compounds (ug/l)													
1,2-Dichlorobenzene	129		600	600	10 U	No	No	No	No	10 U	No	0.21 U	5.2 U
1,2,4, Tricholorobenzene			70	70								0.28 U	5.2 UJ
1,3-Dichlorobenzene	129		NA	600	10 U	Sample	Sample	Sample	Sample	10 U	Sample	0.85 U	5.2 U
1,4-Dichlorobenzene	129		75	75	10 U					10 U		0.25 U	5.2 U
2-Chlorophenol	4380	a			10 U					10 R		0.29 R	5.2 U
2-Methylnaphthalene	300	c			10 U					5.2 U		0.21 U	5.2 UJ
2-Methylphenol	NA				10 U					10 R		0.51 R	10 U
2,4-Dimethylphenol	2120	a			10 U					21 R		0.83 R	10 UJ
2,6-Dinitrotoluene [2]	370	e			10 U					10 U		0.44 U	10 UJ
4-Methylphenol	NA				10 U					10 R		0.67 R	43.5
4-Chloro-3-methylphenol [3]	29700	e			10 U					21 R		0.43 R	10 UJ
Acenaphthene	710				10 U					5.2 U		0.23 U	5.2 UJ
Acenapthylene	300	c			10 U					5.2 U		0.19 U	5.2 UJ
Anthracene	300	c			10 U					5.2 U		0.16 U	5.2 U
Benzo(a)anthracene	300	c			10 U					5.2 U		0.28 U	5.2 U
Benzo(a)pyrene	300	c	0.2	0.2	10 U					5.2 U		0.30 U	5.2 U
Benzo(b)fluoranthene	300	c			10 U					5.2 U		0.34 U	5.2 U
Benzo(g,h,i)perylene	300	c			10 U					5.2 U		0.80 U	5.2 U
Benzo(k)fluoranthene	300	c			10 U					5.2 U		0.45 U	5.2 U
bis(2-Ethylhexyl)phthalate	360	P	6	6	10 U					10 U		2.5 U	2.1 UJ
Carbazole	NA				10 U					10 U		0.86 U	5.2 U
Carbofuran			40	NA								0.45 U	5.2 R
Chrysene	300	c			10 U					5.2 U		0.32 U	5.2 UJ
Dibenzofuran	20	d			10 U					5.2 U		0.79 U	5.2 UJ
Diethylphthalate	3.4				2 J					10 U		0.20 U	5.2 UJ
Di-n-butylphthalate	3.4				10 U					10 U		0.17 U	0.59 J
Dinoseb			7	NA								10 U	10 U
Fluoranthene	16				10 U					5.2 U		0.19 U	5.2 U
Fluorene	300	c			10 U					5.2 U		0.21 U	5.2 UJ
Hexachlorobenzene			1	1								0.27 U	5.2 U
Hexacholorcylcopentadiene			1	1								1.7 R	10 UJ
Indeno (1,2,3-cd)pyrene	300	c			10 U					5.2 U		0.44 U	5.2 UJ
Methoxychlor			40	NA								0.053 UJ	0.053 UJ
Naphthalene	620	b	NA	20	10 U					5.2 U		0.35 U	5.2 UJ
n-Nitrosodiphenylamine	5850	a			10 U					10 U		0.23 U	5.2 U
Pentachlorophenol			50	NA								0.28 UJ	10 U
Phenanthrene	4.6	P			25					5.2 U		0.92 U	5.2 U
Phenol	2560	b			10 U					10 R		0.31 R	5.2 U
Pyrene	300	c			10 U					5.2 U		0.34 U	5.2 UJ

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MW-108R

Historic Analytical Results
Groundwater Monitoring
McAllister Point Landfill
NAVSTA Newport, Rhode Island

COMPOUND	AWQC [1]		EPA MCLs (ug/L)	RIDEM GA (ug/L)	Dec-93	Mar-97	Jun-97	Sep-97	Jan-98	Apr-98	Jul-98	Oct-98	Jun-99
Semivolatile Organic Compounds (ug/l)												Duplicates Averaged	
1,2-Dichlorobenzene	129		600	600	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4, Tricholorobenzene			70	70									
1,3-Dichlorobenzene	129		NA	600	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	129		75	75	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	4380	a			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	NA				ND	10 U	R	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	2120	a			ND	10 U	R	10 U	10 U	10 U	10 U	10 U	20 U
2,6-Dinitrotoluene [2]	370	e			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	NA				ND	10 U	R	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol [3]	29700	e			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	710				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenapthylene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	300	c	0.2	0.2	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	360	P	6	6	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbazole	NA				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbofuran			40	NA									
Chrysene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	20	d			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	3.4				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	3.4				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dinoseb			7	NA									
Fluoranthene	16				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene			1	1									
Hexacholorcylcopentadiene			1	1									
Indeno (1,2,3-cd)pyrene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methoxychlor			40	NA									
Naphthalene	620	b	NA	20	ND	10 U	10 U	10 U	10 U	10 U	10 U	1	10 U
n-Nitrosodiphenylamine	5850	a			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol			50	NA									
Phenanthrene	4.6	P			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenol	2560	b			ND	10 U	R	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

J - Quantitation is approximate
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U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

MW-108R

Historic Analytical Results
Groundwater Monitoring
McAllister Point Landfill
NAVSTA Newport, Rhode Island

COMPOUND	AWQC [1]		EPA MCLs (ug/L)	RIDEM GA (ug/L)	Oct-00	Oct-01	Oct-02	Jul-03	Jul-04	Apr-05	Oct-06	Apr-07	Apr-08
Semivolatile Organic Compounds (ug/l)						**Duplicates Averaged**							
1,2-Dichlorobenzene	129		600	600	10 U	5.2 U	10 U	No	10 U	10 U	5.6 U	0.21 U	5.3 U
1,2,4, Tricholorobenzene			70	70							5.6 U	0.28 U	5.3 U
1,3-Dichlorobenzene	129		NA	600	10 U	5.2 U	10 U	Sample	10 U	10 U	5.6 U	0.85 U	5.3 U
1,4-Dichlorobenzene	129		75	75	10 U	5.2 U	10 U		10 U	10 U	5.6 U	0.25 U	5.3 U
2-Chlorophenol	4380	a			10 U	5.2 U	10 U		10 U	10 U	5.6 U	0.29 U	5.3 U
2-Methylnaphthalene	300	c			10 U	5.2 U	10 U		5 U	5 U	0.22 U	3.9 J	5.3 UJ
2-Methylphenol	NA				10 U	5.2 U	10 U		10 U	10 U	11 U	0.51 U	11 U
2,4-Dimethylphenol	2120	a			10 U	5.2 U	10 U		20 U	20 U	11 UJ	0.83 UJ	11 U
2,6-Dinitrotoluene [2]	370	e			10 U	5.2 U	10 U		10 U	10 U	11 U	0.44 U	11 U
4-Methylphenol	NA				10 U	5.2 U	10 U			10 U	11 U	0.67 U	11 U
4-Chloro-3-methylphenol [3]	29700	e			10 U	5.2 U	10 U		20 U	20 U	11 U	0.43 U	11 U
Acenaphthene	710				10 U	NA	10 U		5 U	5 U	0.11 U	0.23 U	5.3 U
Acenapthylene	300	c			10 U	5.2 U	10 U		5 U	5 U	0.11 U	0.19 U	5.3 U
Anthracene	300	c			10 U	5.2 U	10 U		5 U	5 U	0.11 U	0.16 U	5.3 U
Benzo(a)anthracene	300	c			10 U	5.2 U	10 U		5 U	5 U	0.056 U	0.28 U	5.3 U
Benzo(a)pyrene	300	c	0.2	0.2	10 U	5.2 U	10 U		5 U	5 U	0.11 U	0.30 U	5.3 U
Benzo(b)fluoranthene	300	c			10 U	5.2 U	10 U		5 U	5 U	0.056 U	0.34 U	5.3 U
Benzo(g,h,i)perylene	300	c			10 U	5.2 U	10 U		5 U	5 U	0.11 U	0.80 U	5.3 U
Benzo(k)fluoranthene	300	c			10 U	5.2 U	10 U		5 U	5 U	0.11 U	0.45 U	5.3 U
bis(2-Ethylhexyl)phthalate	360	P	6	6	10 U	1.2 J	10 U		10 U	10 U	5.6 U	2.4 U	2.1 U
Carbazole	NA				10 U	5.2 U	10 U		10 U	10 U	5.6 U	0.86 U	5.3 U
Carbofuran			40	NA							5.6 U	0.45 U	5.3 R
Chrysene	300	c			10 U	5.2 U	10 U		5 U	5 U	0.11 UJ	0.32 U	5.3 U
Dibenzofuran	20	d			10 U	5.2 U	10 U		5 U	5 U	5.6 U	0.79 U	5.3 U
Diethylphthalate	3.4				10 U	5.2 U	10 U		10 U	10 U	5.6 U	0.20 U	5.3 U
Di-n-butylphthalate	3.4				10 U	5.2 U	10 U		10 U	10 U	5.6 U	0.17 U	0.62 J
Dinoseb			7	NA							11 U	10 U	10 U
Fluoranthene	16				10 U	5.2 U	10 U		5 U	5 U	0.11 U	0.19 U	5.3 U
Fluorene	300	c			10 U	5.2 U	10 U		5 U	5 U	0.11 U	0.21 U	5.3 U
Hexachlorobenzene			1	1							0.22 U	0.27 U	5.3 U
Hexacholorcylcopentadiene			1	1							11 U	1.7 U	11 UJ
Indeno (1,2,3-cd)pyrene	300	c			10 U	5.2 U	10 U		5 U	5 U	0.11 U	0.44 U	5.3 UJ
Methoxychlor			40	NA							0.053 U	0.050 UJ	0.051 UJ
Naphthalene	620	b	NA	20	10 U	5.2 U	10 U		5 U	5 U	0.11 U	0.35 U	5.3 U
n-Nitrosodiphenylamine	5850	a			10 U	5.2 U	10 U		10 U	10 U	5.6 U	0.23 U	5.3 U
Pentachlorophenol			50	NA							1.1 UJ	0.28 UJ	11 U
Phenanthrene	4.6	P			10 U	5.2 U	10 U		5 U	5 U	0.056 U	0.92 U	5.3 U
Phenol	2560	b			10 U	NA	10 U		10 U	10 U	5.6 U	0.31 U	5.3 U
Pyrene	300	c			10 U	5.2 U	10 U		5 U	5 U	0.11 U	0.34 U	5.3 U

J - Quantitation is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

MW-111R

Historic Analytical Results
Groundwater Monitoring
McAllister Point Landfill
NAVSTA Newport, Rhode Island

COMPOUND	AWQC [1]		EPA MCLs (ug/L)	RIDEM GA (ug/L)	Dec-93	Mar-97	Jun-97	Sep-97	Jan-98	Apr-98	Jul-98	Oct-98	Jun-99
Semivolatile Organic Compounds (ug/l)													
1,2-Dichlorobenzene	129		600	600	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4, Tricholorobenzene			70	70									
1,3-Dichlorobenzene	129		NA	600	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	129		75	75	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	4380	a			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	300	c			1 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	2 J
2-Methylphenol	NA				ND	10 U	R	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	2120	a			ND	10 U	R	10 U	10 U	10 U	10 U	10 U	20 U
2,6-Dinitrotoluene [2]	370	e			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	NA				ND	10 U	R	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol [3]	29700	e			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	710				2 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	4 J
Acenapthylene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	300	c			1 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	8 J
Benzo(a)anthracene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	17
Benzo(a)pyrene	300	c	0.2	0.2	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	12
Benzo(b)fluoranthene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	16
Benzo(g,h,i)perylene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	8 J
bis(2-Ethylhexyl)phthalate	360	P	6	6	ND	10 U	10 U	10 U	10 U	10 U	10 U	1	9 J
Carbazole	NA				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	5 J
Carbofuran			40	NA									
Chrysene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	15
Dibenzofuran	20	d			2 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	3 J
Diethylphthalate	3.4				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	3.4				1 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dinoseb			7	NA									
Fluoranthene	16				2 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**28**
Fluorene	300	c			2 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	4 J
Hexachlorobenzene			1	1									
Hexacholorcylcopentadiene			1	1									
Indeno (1,2,3-cd)pyrene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methoxychlor			40	NA									
Naphthalene	620	b	NA	20	8 J	2 J	10 U	10 U	10 U	10 U	10 U	10 U	4 J
n-Nitrosodiphenylamine	5850	a			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol			50	NA									
Phenanthrene	4.6	P			**5 J**	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**32**
Phenol	2560	b			ND	10 U	R	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	300	c			1 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	41

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Historic Analytical Results
Groundwater Monitoring
McAllister Point Landfill
NAVSTA Newport, Rhode Island

COMPOUND	AWQC [1]		EPA MCLs (ug/L)	RIDEM GA (ug/L)	Oct-00	Oct-01	Oct-02	Jul-03	Jul-04	Apr-05	Oct-06	Apr-07 Duplicates Averaged	Apr-08 Duplicates Averaged
Semivolatile Organic Compounds (ug/l)													
1,2-Dichlorobenzene	129		600	600	10 U	5.1 U	10 U	10 U	10 U	11 U	5.1 UJ	0.21 U	5.35 U
1,2,4, Tricholorobenzene			70	70							5.1 UJ	0.285 U	5.35 U
1,3-Dichlorobenzene	129		NA	600	10 U	5.1 U	10 U	10 U	10 U	11 U	5.1 UJ	0.88 U	5.35 U
1,4-Dichlorobenzene	129		75	75	10 U	5.1 U	10 U	10 U	10 U	11 U	5.1 UJ	0.255 U	5.35 U
2-Chlorophenol	4380	a			10 U	5.1 U	10 U	10 U	10 U	11 R	5.1 UJ	0.305 R	5.35 U
2-Methylnaphthalene	300	c			10 U	5.1 U	10 U	5.1 U	5 U	5.3 U	0.22 U	0.21 U	5.35 UJ
2-Methylphenol	NA				10 U	5.1 U	10 U	10 U	10 U	11 R	10 U	0.525 R	10.5 U
2,4-Dimethylphenol	2120	a			10 U	5.1 U	10 U	20 U	20 U	21 R	10 UJ	0.85 R	10.5 U
2,6-Dinitrotoluene [2]	370	e			10 U	5.1 U	10 U	10 U	10 U	11 U	10 U	0.455 U	10.5 U
4-Methylphenol	NA				10 U	5.1 U	10 U	10 U		11 R	10 U	0.685 R	10.5 U
4-Chloro-3-methylphenol [3]	29700	e			10 U	5.1 U	10 U	20 U	20 U	21 R	10 UJ	0.445 R	10.5 U
Acenaphthene	710				10 U	NA	10 U	5.1 U	5 U	5.3 U	0.11 U	0.23 U	5.35 U
Acenapthylene	300	c			10 U	5.1 U	10 U	5.1 U	5 U	5.3 U	0.11 U	0.195 U	5.35 U
Anthracene	300	c			10 U	5.1 U	10 U	5.1 U	5 U	5.3 U	0.11 U	0.165 U	5.35 U
Benzo(a)anthracene	300	c			10 U	5.1 U	10 U	5.1 U	5 U	5.3 U	0.056 U	0.29 U	5.35 U
Benzo(a)pyrene	300	c	0.2	0.2	10 U	5.1 U	10 U	5.1 U	5 U	5.3 U	0.11 U	0.31 U	5.35 U
Benzo(b)fluoranthene	300	c			10 U	5.1 U	10 U	5.1 U	5 U	5.3 U	0.056 U	0.35 U	5.35 U
Benzo(g,h,i)perylene	300	c			10 U	5.1 U	10 U	5.1 U	5 U	5.3 U	0.11 U	0.825 U	5.35 U
Benzo(k)fluoranthene	300	c			10 U	5.1 U	10 U	5.1 U	5 U	5.3 U	0.11 U	0.465 U	5.35 U
bis(2-Ethylhexyl)phthalate	360	P	6	6	10 U	5.1 U	10 U	10 U	10 U	11 U	5.1 U	2.35 U	2.1 U
Carbazole	NA				10 U	5.1 U	10 U	10 U	10 U	11 U	5.1 U	0.885 U	5.35 U
Carbofuran			40	NA							5.1 U	0.455 U	5.35 R
Chrysene	300	c			10 U	5.1 U	10 U	5.1 U	5 U	5.3 U	0.11 UJ	0.325 U	5.35 U
Dibenzofuran	20	d			10 U	5.1 U	10 U	5.1 U	5 U	5.3 U	5.1 UJ	0.815 U	5.35 U
Diethylphthalate	3.4				10 U	5.1 U	10 U	10 U	10 U	11 U	5.1 U	0.21 U	5.35 U
Di-n-butylphthalate	3.4				10 U	5.1 U	10 U	10 U	10 U	11 U	5.1 U	0.175 U	5.35 U
Dinoseb			7	NA							10 U	10 U	10 U
Fluoranthene	16				10 U	5.1 U	10 U	5.1 U	5 U	5.3 U	0.11 U	0.19 U	5.35 U
Fluorene	300	c			10 U	5.1 U	10 U	5.1 U	5 U	5.3 U	0.11 U	0.215 U	5.35 U
Hexachlorobenzene			1	1							0.22 U	0.28 U	5.35 U
Hexacholorcylcopentadiene			1	1							10 UJ	1.75 R	10.5 UJ
Indeno (1,2,3-cd)pyrene	300	c			10 U	5.1 U	10 U	5.1 U	5 U	5.3 U	0.11 U	0.455 U	5.35 UJ
Methoxychlor			40	NA							0.051 U	0.0505 UJ	0.05 UJ
Naphthalene	620	b	NA	20	10 U	5.1 U	10 U	5.1 U	5 U	5.3 U	0.11 UJ	0.365 U	5.35 U
n-Nitrosodiphenylamine	5850	a			10 U	5.1 U	10 U	10 U	10 U	11 U	5.1 U	0.235 U	5.35 U
Pentachlorophenol			50	NA							1.1 UJ	0.29 U	10.5 U
Phenanthrene	4.6	P			10 U	5.1 U	10 U	5.1 U	5 U	5.3 U	0.056 U	0.94 U	5.35 U
Phenol	2560	b			10 U	NA	10 U	10 U	10 U	11 R	5.1 UJ	0.315 R	5.35 U
Pyrene	300	c			10 U	5.1 U	10 U	5.1 U	5 U	5.3 U	0.11 U	0.355 U	5.35 U

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Historic Analytical Results
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McAllister Point Landfill
NAVSTA Newport, Rhode Island

COMPOUND	AWQC [1]		Dec-93	Mar-97	Jun-97	Sep-97	Jan-98	Apr-98	Jul-98	Oct-98
Semivolatile Organic Compounds (ug/l)										
1,2-Dichlorobenzene	129		No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample
1,3-Dichlorobenzene	129									
1,4-Dichlorobenzene	129									
2,4-Dimethylphenol	2120	a								
2,6-Dinitrotoluene [2]	370	e								
2-Chlorophenol	4380	a								
2-Methylnaphthalene	300	c								
2-Methylphenol	NA									
4-Chloro-3-methylphenol [3]	29700	e								
4-Methylphenol	NA									
Acenaphthene	710									
Acenapthylene	300	c								
Anthracene	300	c								
Carbazole	NA									
Chrysene	300	c								
Dibenzofuran	20	d								
Diethylphthalate	3.4									
Fluoranthene	16									
Fluorene	300	c								
n-Nitrosodiphenylamine	5850	a								
Naphthalene	620	b								
Phenanthrene	4.6	P								
Phenol	2560	b								
Pyrene	300	c								
Di-n-butylphthalate	3.4									
Benzo(a)anthracene	300	c								
Benzo(b)fluoranthene	300	c								
Benzo(k)fluoranthene	300	c								
Benzo(a)pyrene	300	c								
Indeno (1,2,3-cd)pyrene	300	c								
Benzo(g,h,i)perylene	300	c								
bis(2-Ethylhexyl)phthalate	360	P								

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Groundwater Monitoring
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NAVSTA Newport, Rhode Island

COMPOUND	AWQC [1]		Jun-99	Oct-00	Oct-01	Oct-02	Jul-03	Jul-04	Apr-05	Oct-06	Apr-07	Apr-08
Semivolatile Organic Compounds (ug/l)												
1,2-Dichlorobenzene	129		No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample
1,3-Dichlorobenzene	129											
1,4-Dichlorobenzene	129											
2,4-Dimethylphenol	2120	a										
2,6-Dinitrotoluene [2]	370	e										
2-Chlorophenol	4380	a										
2-Methylnaphthalene	300	c										
2-Methylphenol	NA											
4-Chloro-3-methylphenol [3]	29700	e										
4-Methylphenol	NA											
Acenaphthene	710											
Acenapthylene	300	c										
Anthracene	300	c										
Carbazole	NA											
Chrysene	300	c										
Dibenzofuran	20	d										
Diethylphthalate	3.4											
Fluoranthene	16											
Fluorene	300	c										
n-Nitrosodiphenylamine	5850	a										
Naphthalene	620	b										
Phenanthrene	4.6	P										
Phenol	2560	b										
Pyrene	300	c										
Di-n-butylphthalate	3.4											
Benzo(a)anthracene	300	c										
Benzo(b)fluoranthene	300	c										
Benzo(k)fluoranthene	300	c										
Benzo(a)pyrene	300	c										
Indeno (1,2,3-cd)pyrene	300	c										
Benzo(g,h,i)perylene	300	c										
bis(2-Ethylhexyl)phthalate	360	P										

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Historic Analytical Results
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NAVSTA Newport, Rhode Island

COMPOUND	AWQC [1]		EPA MCLs (ug/L)	RIDEM GA (ug/L)	Dec-93	Mar-97	Jun-97	Sep-97	Jan-98	Apr-98	Jul-98	Oct-98	Jun-99
Semivolatile Organic Compounds (ug/l)													Duplicates Averaged
1,2-Dichlorobenzene	129		600	600	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4, Tricholorobenzene			70	70									
1,3-Dichlorobenzene	129		NA	600	2 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	129		75	75	13	10 U	1 J	10 U	10 U	10 U	4 J	10 U	1 J
2-Chlorophenol	4380	a			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	300	c			1 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	NA				ND	10 U	10 U	10 U	10 U	10 U	1 J	10 U	10 U
2,4-Dimethylphenol	2120	a			ND	10 U	10 U	10 U	10 U	10 U	2 J	10 U	20 U
2,6-Dinitrotoluene [2]	370	e			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	NA				ND	10 U	10 U	10 U	10 U	10 U	7 J	10 U	10 U
4-Chloro-3-methylphenol [3]	29700	e			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	710				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenapthylene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	300	c	0.2	0.2	ND	NR	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	300	c			ND	NR	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	300	c	6	6	ND	NR	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	300	c			ND	NR	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	360	P	40	NA	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbazole	NA				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbofuran			7	NA									
Chrysene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	20	d			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	3.4				ND	10 U	10 U	10 U	10 U	10 U	2 J	10 U	10 U
Di-n-butylphthalate	3.4				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dinoseb			40	NA									
Fluoranthene	16				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene			50	NA									
Hexacholorcylcopentadiene			70	70									
Indeno (1,2,3-cd)pyrene	300	c			ND	NR	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methoxychlor			1	1									
Naphthalene	620	b	NA	20	3 J	10 U	10 U	10 U	1 J	10 U	4 J	10 U	10 U
n-Nitrosodiphenylamine	5850	a			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol			1	1									
Phenanthrene	4.6	P			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenol	2560	b			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	300	c			1 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

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Historic Analytical Results
Groundwater Monitoring
McAllister Point Landfill
NAVSTA Newport, Rhode Island

COMPOUND	AWQC [1]	EPA MCLs (ug/L)	RIDEM GA (ug/L)	Oct-00	Oct-01	Oct-02	Jul-03	Jul-04	Apr-05	Oct-06	Apr-07	Apr-08
Semivolatile Organic Compounds (ug/l)												
1,2-Dichlorobenzene	129	600	600	10 U	5.2 U	No	No	10 U	10 U	5.1 U	0.21 U	5.1 U
1,2,4, Tricholorobenzene		70	70							5.1 U	0.29 U	5.1 U
1,3-Dichlorobenzene	129	NA	600	10 U	5.2 U	Sample	Sample	10 U	10 U	5.1 U	0.89 U	5.1 U
1,4-Dichlorobenzene	129	75	75	3 J	1.1 J			10 U	10 U	5.1 U	0.26 U	5.1 U
2-Chlorophenol	4380 a			10 U	5.2 U			10 U	10 U	5.1 U	0.31 U	5.1 U
2-Methylnaphthalene	300 c			10 U	5.2 U			5 U	5.2 U	0.20 U	0.21 U	5.1 UJ
2-Methylphenol	NA			10 U	5.2 U			10 U	10 U	10 U	0.53 U	10 U
2,4-Dimethylphenol	2120 a			10 U	5.2 U			20 U	21 U	10 UJ	0.86 U	10 U
2,6-Dinitrotoluene [2]	370 e			10 U	5.2 U			10 U	10 U	10 U	0.46 U	10 U
4-Methylphenol	NA			10 U	5.2 U				10.5	10 U	0.69 U	2.6 J
4-Chloro-3-methylphenol [3]	29700 e			10 U	5.2 U			20 U	21 U	10 U	0.45 U	10 U
Acenaphthene	710			10 U	NA			5 U	5.2 U	0.10 U	0.23 U	5.1 U
Acenapthylene	300 c			10 U	5.2 U			5 U	5.2 U	0.10 U	0.20 U	5.1 U
Anthracene	300 c			10 U	5.2 U			5 U	5.2 U	0.10 U	0.17 U	5.1 U
Benzo(a)anthracene	300 c			10 U	5.2 U			5 U	5.2 U	0.051 U	0.29 U	5.1 U
Benzo(a)pyrene	300 c	0.2	0.2	10 U	5.2 U			5 U	5.2 U	0.10 U	0.31 U	5.1 U
Benzo(b)fluoranthene	300 c			10 U	5.2 U			5 U	5.2 U	0.051 U	0.35 U	5.1 U
Benzo(g,h,i)perylene	300 c	6	6	10 U	5.2 U			5 U	5.2 U	0.10 U	0.83 U	5.1 U
Benzo(k)fluoranthene	300 c			10 U	5.2 U			5 U	5.2 U	0.10 U	0.47 U	5.1 U
bis(2-Ethylhexyl)phthalate	360 P	40	NA	10 U	3.3 J			10 U	10 U	5.1 U	2.4 U	2.0 U
Carbazole	NA			10 U	5.2 U			10 U	10 U	5.1 U	0.89 U	5.1 U
Carbofuran		7	NA							5.1 U	0.46 U	5.1 R
Chrysene	300 c			10 U	5.2 U			5 U	5.2 U	0.10 UJ	0.33 U	5.1 U
Dibenzofuran	20 d			10 U	5.2 U			5 U	5.2 U	5.1 U	0.82 U	5.1 U
Diethylphthalate	3.4			10 U	5.2 U			10 U	10 U	5.1 U	0.21 U	5.1 U
Di-n-butylphthalate	3.4			10 U	5.2 U			10 U	10 U	5.1 U	0.18 U	5.1 U
Dinoseb		40	NA							10 U	10 U	10 U
Fluoranthene	16			10 U	5.2 U			5 U	5.2 U	0.10 U	0.19 U	5.1 U
Fluorene	300 c			10 U	5.2 U			5 U	5.2 U	0.10 U	0.22 U	5.1 U
Hexachlorobenzene		50	NA							0.20 U	0.28 U	5.1 U
Hexacholorcylcopentadiene		70	70							10 U	1.8 U	10 UJ
Indeno (1,2,3-cd)pyrene	300 c			10 U	5.2 U			5 U	5.2 U	0.10 U	0.46 U	5.1 UJ
Methoxychlor		1	1							0.053 U	0.056 UJ	0.053 U
Naphthalene	620 b	NA	20	10 U	5.2 U			5 U	5.2 U	0.10 U	0.37 U	5.1 U
n-Nitrosodiphenylamine	5850 a			10 U	5.2 U			10 U	10 U	5.1 U	0.24 U	5.1 U
Pentachlorophenol		1	1							1.0 UJ	0.29 U	10 U
Phenanthrene	4.6 P			10 U	5.2 U			5 U	5.2 U	0.051 U	0.95 U	5.1 U
Phenol	2560 b			10 U	NA			10 U	10 U	5.1 U	0.32 U	5.1 U
Pyrene	300 c			10 U	5.2 U			5 U	5.2 U	0.10 U	0.36 U	5.1 U

J - Quantification is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA -Parameter is not analyzed

MW-113S

Historic Analytical Results
Groundwater Monitoring
McAllister Point Landfill
NAVSTA Newport, Rhode Island

COMPOUND	AWQC [1]		EPA MCLs (ug/L)	RIDEM GA (ug/L)	Dec-93	Mar-97	Jun-97	Sep-97	Jan-98	Apr-98	Jul-98	Oct-98	Jun-99
Semivolatile Organic Compounds (ug/l)													
1,2-Dichlorobenzene	129		600	600	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4, Tricholorobenzene			70	70									
1,3-Dichlorobenzene	129		NA	600	0.5 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	129		75	75	2 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	4380	a			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	300	c			1 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	NA				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	2120	a			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
2,6-Dinitrotoluene [2]	370	e			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	NA				1 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol [3]	29700	e			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	710				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenapthylene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	300	c	0.2	0.2	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	360	P	6	6	ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbazole	NA				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbofuran			40	NA									
Chrysene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	20	d			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	3.4				ND	10 U	10 U	10 U	**4 J**	10 U	10 U	10 U	10 U
Di-n-butylphthalate	3.4				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dinoseb			40	NA									
Fluoranthene	16				ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene			1	1									
Hexacholorcylcopentadiene			70	70									
Indeno (1,2,3-cd)pyrene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methoxychlor			40	NA									
Naphthalene	620	b	NA	20	0.9 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
n-Nitrosodiphenylamine	5850	a			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol			50	NA									
Phenanthrene	4.6	P			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenol	2560	b			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	300	c			ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

J - Quantification is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter is not analyzed

MW-113S

Historic Analytical Results
Groundwater Monitoring
McAllister Point Landfill
NAVSTA Newport, Rhode Island

COMPOUND	AWQC [1]		EPA MCLs (ug/L)	RIDEM GA (ug/L)	Oct-00	Oct-01	Oct-02	Jul-03	Jul-04	Apr-05	Oct-06	Apr-07	Apr-08
Semivolatile Organic Compounds (ug/l)													
1,2-Dichlorobenzene	129		600	600	10 U	5.1 U	No	No	No	10 U	5.1 U	0.21 U	5.3 U
1,2,4, Tricholorobenzene			70	70							5.1 U	0.28 U	5.3 U
1,3-Dichlorobenzene	129		NA	600	10 U	5.1 U	Sample	Sample	Sample	10 U	5.1 U	0.85 U	5.3 U
1,4-Dichlorobenzene	129		75	75	10 U	5.1 U				10 U	5.1 U	0.25 U	5.3 U
2-Chlorophenol	4380	a			10 U	5.1 U				10 U	5.1 U	0.29 U	5.3 U
2-Methylnaphthalene	300	c			10 U	5.1 U				5.2 U	0.20 U	0.21 U	5.3 UJ
2-Methylphenol	NA				10 U	5.1 U				10 U	10 U	0.51 U	11 U
2,4-Dimethylphenol	2120	a			10 U	5.1 U				21 U	10 UJ	0.83 U	11 U
2,6-Dinitrotoluene [2]	370	e			10 U	5.1 U				10 U	10 U	0.44 U	11 U
4-Methylphenol	NA				10 U	5.1 U				10 U	10 U	0.67 U	11 U
4-Chloro-3-methylphenol [3]	29700	e			10 U	5.1 U				21 U	10 U	0.43 U	11 U
Acenaphthene	710				10 U	NA				5.2 U	0.10 U	0.23 U	5.3 U
Acenapthylene	300	c			10 U	5.1 U				5.2 U	0.10 U	0.19 U	5.3 U
Anthracene	300	c			10 U	5.1 U				5.2 U	0.10 U	0.16 U	5.3 U
Benzo(a)anthracene	300	c			10 U	5.1 U				5.2 U	0.051 U	0.28 U	5.3 U
Benzo(a)pyrene	300	c	0.2	0.2	10 U	5.1 U				5.2 U	0.10 U	0.30 U	5.3 U
Benzo(b)fluoranthene	300	c			10 U	5.1 U				5.2 U	0.051 U	0.34 U	5.3 U
Benzo(g,h,i)perylene	300	c			10 U	5.1 U				5.2 U	0.10 U	0.80 U	5.3 U
Benzo(k)fluoranthene	300	c			10 U	5.1 U				5.2 U	0.10 U	0.45 U	5.3 U
bis(2-Ethylhexyl)phthalate	360	P	6	6	10 U	5.1 U				10 U	5.1 U	2.3 U	2.1 U
Carbazole	NA				10 U	5.1 U				10 U	5.1 U	0.86 U	5.3 U
Carbofuran			40	NA							5.1 U	0.45 U	5.3 R
Chrysene	300	c			10 U	5.1 U				5.2 U	0.10 UJ	0.32 U	5.3 U
Dibenzofuran	20	d			10 U	5.1 U				5.2 U	5.1 U	0.79 U	5.3 U
Diethylphthalate	3.4				10 U	5.1 U				10 U	5.1 U	0.20 U	5.3 U
Di-n-butylphthalate	3.4				10 U	5.1 U				10 U	5.1 U	0.17 U	0.83 J
Dinoseb			40	NA							10 U	10 U	10 U
Fluoranthene	16				10 U	5.1 U				5.2 U	0.10 U	0.19 U	5.3 U
Fluorene	300	c			10 U	5.1 U				5.2 U	0.10 U	0.21 U	5.3 U
Hexachlorobenzene			1	1							0.20 U	0.27 U	5.3 U
Hexacholorcylcopentadiene			70	70							10 U	1.7 U	11 UJ
Indeno (1,2,3-cd)pyrene	300	c			10 U	5.1 U				5.2 U	0.10 U	0.44 U	5.3 UJ
Methoxychlor			40	NA							0.051 U	0.050 UJ	0.051 UJ
Naphthalene	620	b	NA	20	10 U	5.1 U				5.2 U	0.10 U	0.35 U	5.3 U
n-Nitrosodiphenylamine	5850	a			10 U	5.1 U				10 U	5.1 U	0.23 U	5.3 U
Pentachlorophenol			50	NA							1.0 UJ	0.28 U	11 U
Phenanthrene	4.6	P			10 U	5.1 U				5.2 U	0.051 U	0.92 U	5.3 U
Phenol	2560	b			10 U	NA				10 U	5.1 U	0.31 U	5.3 U
Pyrene	300	c			10 U	5.1 U				5.2 U	0.10 U	0.34 U	5.3 U

J - Quantification is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter is not analyzed

NOTES FOR SVOC TABLES:

1. Ambient Water Quality Criteria (AWQC) from 40 FR 79318, "Quality Criteria for Water", December 1992 (with revisions for metals: May 1995).
   Marine chronic values used unless not available, in which case the lowest of a, b, c, d, or e were used as available.
   a - AWQC acute freshwater value.
   b - AWQC chronic freshwater value.
   c - AWQC acute marine value.
   d - Ecotox Tier II freshwater value (US EPA, ECO Update, Intermittent Bulletin Volume 3, Number 2, January 1996).
   e - Canadian MEQ marine acute value (Environment Canada, The Development of Canadian Marine Environmental Quality (MEQ) Guidelines, 1992.
   P - Value is proposed.

2. Criteria presented for Dinitrotoluene. No criteria established for 2,6-Dinitrotoluene.

3. Criteria presented for 4-Chlorophenol. No criteria established for 4-Chloro-3-methylphenol.

4. Data collected by TRC Environmental Corporation as presented in: "Remedial Investigation, Draft Final Report for McAllister Point Landfill, NETC-Newport, Rhode Island", July 1994.

5. Wells installed and sampled by Foster Wheeler Environmental Corporation (FWENC) as described in: "Operations and Maintenance Manual", May 1997.

J - Value estimated.

B - The flagged compound was detected in the associated laboratory blank.

NA - AWQC value for contaminant was not available.

ND - Not detected above QL reported by analytical laboratory.

NR - Concentration not reported in summary tables prior to October 1998.

MDL - Method Detection Limit reported by analytical laboratory.

QL - Quanitation Limit reported by analytical laboratory.

R - Value rejected due to limitations found in the data review.

NS - Not Sampled.

Bolded values exceed the indicated AWQC value.
Shaded values exceed the indicated EPA MCLs and/or RIDEM GA values.
---------- - Not analyzed.

MW-101R
Historical Analytical Results
Groundwater Monitoring
McAllister Point Landfill NAVSTA - Newport, Rhode Island

ELEMENT	AWQC[1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Mar-97	Jun-97	Sep-97	Jan-98	Apr-98	Jul-98	Oct-98	Jun-99
Dissolved Metals (ug/l)												
Antimony	500	P	6	6	NA	NA	3.0 U	NA	NA	NA	5 U	NA
Arsenic[5]	36		10	50	2.3 UJ	2 U	2.2 U	2 U	2.0 U	2.0 U	2 U	3 U
Barium	3.9	d	2000	2000	2.6 U	4 U	3.1 U	10.8 U	1.9 B	1.5 B	1.2 B	1.8 B
Beryllium	5.3	b	4	4	NA	NA	1.0 U	NA	NA	NA	0.2 U	NA
Cadmium	9.3		5	5	0.44 UJ	0.4 U	0.60 U	0.6 U	1.0 U	1 U	1 U	2 U
Chromium [2]	50		100	100	0.6 U	0.6 U	0.50 UJ	0.5 U	0.6 U	0.60 U	0.98 B	2 U
Cobalt	3	d			NA	NA	1.3 U	NA	NA	NA	NA	NA
Copper	2.4		1300	NA	2 U	2 U	7.5 U	4.2 UJ	2.2 B	**3.2 B**	2 U	**4.6 B**
Iron	1000	b			24.8 U	22.1 U	23.2 U	52.5 U	12.2 B	13.2 B	36.2 B	23 U
Lead	8.1		15	15	2 U	7.2 UJ	2.0 U	2 U	2.0 U	3.5	3.00 U	**13.8**
Magnesium	NA				4590	5530	3920 J	4210	4220 B	2710 B	3750 B	5250
Manganese	80	d			78.3	NA	**81.5**	NA	NA	NA	NA	NA
Mercury	0.025		2	2	0.08 U	0.08 U	0.09 UJ	0.09 U	0.26 U	0.09 U	0.1 U	0.14
Nickel	8.2		NA	100	NA	NA	7.1	NA	NA	NA	2 B	NA
Potassium	NA				3300 U	3300 U	1300 U	1780	4000 U	4000 U	1170 B	1460
Selenium	71		50	50	5 U	5 U	5.0 UJ	5 U	5.0 U	5 U	5 U	4 U
Silver	0.92	P			0.8 UJ	3.9 U	2.0 UJ	2 U	2.0 U	**10.8**	2 U	3 U
Sodium	NA				27300	33800	25400	27400	30800	20400	25800	35500
Thallium	NA		2	2	NA	NA	2.0 U	NA	NA	NA	4 U	NA
Vanadium	19	d			NA	NA	3.1	NA	NA	NA	1 U	NA
Zinc	81				10 U	10 J	13.0 U	12.4 U	8.8 B	10.9 B	15 B	25.9 B

B - Reported concentration is between Method Detection Limit and Reporting Limit
J - Quantitation is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

MW-101R
Historical Analytical Results
Groundwater Monitoring
McAllister Point Landfill NAVSTA - Newport, Rhode Island

ELEMENT	AWQC[1]	EPA MCLs(ug/L)	RIDEM GA (ug/L)	Oct-99	Oct-01	Oct-02	Jul-03	Jul-04	Apr-05	Oct-06	Apr-07	Apr-08
Dissolved Metals (ug/l)												Duplicates Averaged
Antimony	500 P	6	6	NA	NA	No	6 U	6 U	1.6 U	6.0 U	1.4 UJ	3.75 UJ
Arsenic[5]	36	10	50	4 U	1.2 U	Sample	4 U	5 U	5 U	10 U	1.8 U	5 U
Barium	3.9 d	2000	2000	**297**	NA		200 U	1.6 J	200 U	1.4 J	1.7 J	2.1 U
Beryllium	5.3 b	4	4	NA	NA		4 U	4 U	4 U	4.0 U	0.25 U	0.51 U
Cadmium	9.3	5	5	0.4 U	0.26 U		4 U	4 U	4 U	4.0 U	0.22 U	4 U
Chromium [2]	50	100	100	2 U	1.9 B		10 U	4.1 J	3.6 J	4.0 J	0.37 U	10 U
Cobalt	3 d			NA	NA		2.7 J	50 U	50 U	50 U	0.80 J	0.61 J
Copper	2.4	1300	NA	**7.6 B**	**5.6 B**		**3.7 J**	1.6 J	25 U	1.8 J	1.4 U	3.25 U
Iron	1000 b			18.6 B	15.1 U		**1200**	24 U	28.1 J	100 U	6.3 U	54.2 J
Lead	8.1	15	15	2.3 U	0.62 B		5 U	3 U	5 U	5 U	0.92 U	1.5 J
Magnesium	NA			6070	10600		5830	4370 J	3500 J	2570 J	2190 J	2375 J
Manganese	80 d			19.6 B	19.5		**193**	10.3 J	9.1 J	7.3 J	5.8 J	4.75 J
Mercury	0.025	2	2	0.14 U	0.11 U		**0.11 J**	0.2 U	0.2 U	**0.2 U**	0.027 UJ	0.117 U
Nickel	8.2	NA	100	NA	NA		**13.5 J**	9.2 J	**8.7 J**	**8.3 J**	3.3 J	3.1 U
Potassium	NA			1890 B	2270 B		1430 J	1060 J	1350 J	1120 J	1010 J	978.5 J
Selenium	71	50	50	4 U	1.6 U		10 U	1.3 J	5 U	5 U	1.0 U	3.45 UJ
Silver	0.92 P			2 U	1.2 B		5 U	5 U	5 U	5 U	0.31 U	5 U
Sodium	NA			43200	103000		56800	52700	46900	40800	33700	33500
Thallium	NA	2	2	NA	NA		10 U	10 U	10 U	1 U	0.28 J	1 U
Vanadium	19 d			NA	NA		2.6 J	50 U	50 U	50 UJ	0.41 J	30 U
Zinc	81			**112**	20.2		34.6	36	14.9 J	14.6 J	17.7 J	25.8

B - Reported concentration is between Method Detection Limit and Reporting Limit
J - Quantitation is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

MW-103R

Historical Analytical Results
Groundwater Monitoring
McAllister Point Landfill NAVSTA - Newport, Rhode Island

ELEMENT	AWQC[1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Mar-97	Jun-97	Sep-97	Jan-98	Apr-98	Jul-98	Oct-98	Jun-99
Dissolved Metals (ug/l)												
Antimony	500	P	6	6	NA	NA	3.0 U	NA	NA	NA	5 U	NA
Arsenic[5]	36		10	50	7.8 U	9.4 U	9.1 U	8.8	30.5	9.0 B	11.5	7.9 B
Barium	3.9	d	2000	2000	19.7 U	**22.5**	**23.2**	29.6 U	**184 B**	**17.9 B**	**21.7 B**	**21.1 B**
Beryllium	5.3	b	4	4	NA	NA	1.0 U	NA	NA	NA	0.2 U	NA
Cadmium	9.3		5	5	0.4 U	0.4 U	0.60 U	0.6 U	2.3 B	1.5 B	**111 B**	2.4 B
Chromium [2]	50		100	100	0.86 UJ	0.63 J	0.68 J	0.65 J	3.3 B	1.4 B	0.74 B	2.7 B
Cobalt	3	d			NA	NA	**23.9**	NA	NA	NA	NA	NA
Copper	2.4		1300	NA	2 U	2 U	5.4 U	4.7 UJ	**5.4 B**	**3.4 B**	2 U	2 U
Iron	1000	b			**25600**	**24800**	**26000**	**26800**	**77400**	**23000**	**28800**	**28100**
Lead	8.1		15	15	2 U	2 UJ	2.0 U	2 U	2.0 U	2.0 U	3 U	3 U
Magnesium	NA				12700	12700	13100 J	13400	19000	11700	13600	14100
Manganese	80	d			**1850**	NA	**1850**	NA	NA	NA	NA	NA
Mercury	0.025		2	2	0.08 U	0.08 U	0.12 U	0.09 U	0.26 U	0.10 U	**0.29**	0.015 B
Nickel	8.2		NA	100	NA	NA	**47.4**	NA	NA	NA	6.7	NA
Potassium	NA				3300 U	3300 U	1730 J	2420	13800	4000 U	1180	1590 B
Selenium	71		50	50	7.7 UJ	7.9 UJ	5.0 UJ	5 U	7.1 B	5.0 U	5 U	7.4
Silver	0.92	P			0.8 UJ	2.5 U	2.0 UJ	2 U	**2.6 B**	2.0 U	2 U	**3.2 B**
Sodium	NA				33000	31900	32200	32500	51900	31400	29200	35100
Thallium	NA		2	2	NA	NA	2.0 U	NA	NA	NA	4 U	NA
Vanadium	19	d			NA	NA	9.7	NA	NA	NA	3.7 B	NA
Zinc	81				13.1	20.9	41.2 U	50.7	9.4 B	42.8	21.1	30

B - Reported concentration is between Method Detection Limit and Reporting Limit
J - Quantitation is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

MW-103R
Historical Analytical Results
Groundwater Monitoring
McAllister Point Landfill NAVSTA - Newport, Rhode Island

ELEMENT	AWQC[1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Oct-99	Oct-01	Oct-02	Jul-03	Jul-04	Apr-05	Oct-06	Apr-07	Apr-08
Dissolved Metals (ug/l)													
Antimony	500	P	6	6	NA	NA	1.8 U	6 U	6 U	1.6 U	6 UJ	1.4 UJ	6.0 UJ
Arsenic[5]	36		10	50	15.1	11	5 U	14.9	**67.9**	9.4	9.4 J	14.8 U	13.2 U
Barium	3.9	d	2000	2000	**138 B**	NA	**23 B**	**20.0 J**	**20.5 J**	**20.1 J**	**20.5 J**	**20.0 J**	**21.6 J**
Beryllium	5.3	b	4	4	NA	NA	0.48 U	4 U	4 U	4 U	4.0 U	0.34 U	0.34 U
Cadmium	9.3		5	5	1.1 B	0.26 U	0.35 U	4 U	4 U	4 U	4.0 U	0.22 U	4.0 U
Chromium [2]	50		100	100	2 U	5.8 B	6.4 U	10 U	10 U	10 U	10 U	0.30 U	10 U
Cobalt	3	d			NA	NA	**21 B**	**26.4 J**	**27.8 J**	**25.3 J**	27.1 J	**26.2 J**	**26.5 J**
Copper	2.4		1300	NA	5 U	0.6 U	8.7 U	25 UJ	25 U	25 U	25 U	0.81 U	25 U
Iron	1000	b			**30900**	**24400**	**25000**	**27800**	**29500**	**28400**	**26700**	**25900**	**25900**
Lead	8.1		15	15	2.3 U	0.6 U	1.8 U	5 U	3 U	5 U	5 UJ	0.92 U	5.0 U
Magnesium	NA				16300	15100	14000	14600	15700	15300	14400	14400	14300
Manganese	80	d			**2250**	**1810**	**1900**	**2020**	**2160**	**1970**	**2110**	**1920**	**1990**
Mercury	0.025		2	2	0.1 U	0.11 U	0.2 JU	0.2 UJ	0.2 U	0.2 U	0.2 U	0.083 UJ	0.20 U
Nickel	8.2		NA	100	NA	NA	**42**	**52.6**	**59.3**	**52.4**	**61.4**	**53.2**	53.3
Potassium	NA				2250	1120 B	1100 B	1090 J	1040 J	1140 J	1050 J	998 J	1010 J
Selenium	71		50	50	15.2 B	1.6 U	4.6 B	10 U	5 U	5 U	5 U	1.0 U	5.0 UJ
Silver	0.92	P			**4.2 B**	0.27 U	6.1 U	5 U	5 U	5 U	5 U	0.31 U	5.0 U
Sodium	NA				34600	40400	38000	39300	39600	41800	38700	38700	39400
Thallium	NA		2	2	NA	NA	2.4 U	10 U	10 U	10 U	1 U	0.17 J	1.0 U
Vanadium	19	d			NA	NA	4.5 U	2.5 J	50 U	50 U	50 U	0.35 UJ	30 U
Zinc	81				37.5 B	22.1	19 B	27.9	32.4	29.5	36.9	31.2	35.6

B - Reported concentration is between Method Detection Limit and Reporting Limit
J - Quantitation is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

MW-103S

Historical Analytical Results
Groundwater Monitoring
McAllister Point Landfill NAVSTA - Newport, Rhode Island

ELEMENT	AWQC[1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Mar-97	Jun-97	Sep-97	Jan-98	Apr-98	Jul-98	Oct-98	Jun-99
Dissolved Metals (ug/l)												
Antimony	500	P	6	6	NA	NA	3.0 U	NA	NA	NA	No	No
Arsenic[5]	36		10	50	6.4 U	11.9 U	**65.5**	**45.8**	7.3 B	13.1	Sample	Sample
Barium	3.9	d	2000	2000	**119**	**160**	**255**	**366**	**19.2 B**	**157 B**		
Beryllium	5.3	b	4	4	NA	NA	1.0 U	NA	NA	NA		
Cadmium	9.3		5	5	0.4 U	0.4 U	0.70 J	0.6 U	1.3 B	1.0 U		
Chromium [2]	50		100	100	2.9 U	3.2	3.0 J	3	0.6 U	4.8 B		
Cobalt	3	d			NA	NA	**38.9**	NA	NA	NA		
Copper	2.4		1300	NA	2 U	2 U	3.0 U	3 U	**3.1 B**	1.0 U		
Iron	1000	b			**59200**	**68800**	**44900**	**52500**	**24600**	**64800**		
Lead	8.1		15	15	2 U	14 UJ	6.0 U	2 U	2.0 U	2.0 U		
Magnesium	NA				15700	18400	21000 J	24800	12600	17100		
Manganese	80	d			**12400**	NA	**6120**	NA	NA	NA		
Mercury	0.025		2	2	0.07 U	0.08 U	0.09 UJ	**0.26**	0.27 U	1.0 U		
Nickel	8.2		NA	100	NA	NA	**253**	NA	NA	NA		
Potassium	NA				11700	16100 J	16600	24900	4000 U	11800		
Selenium	71		50	50	12.4 UJ	13.7 U	5.0 UJ	7.2 J	5.0 U	5.0 U		
Silver	0.92	P			0.8 UJ	1.4 UJ	2.0 UJ	2 U	2.0 U	**2.0 B**		
Sodium	NA				46200	52400	65800	92700	31400	45200		
Thallium	NA		2	2	NA	NA	4.1	NA	NA	NA		
Vanadium	19	d			NA	NA	16.7	NA	NA	NA		
Zinc	81				10 U	10 U	18.9 U	25.2 U	28.7 B	9.5 B		

B - Reported concentration is between Method Detection Limit and Reporting Limit
J - Quantitation is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

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Historical Analytical Results
Groundwater Monitoring
McAllister Point Landfill NAVSTA - Newport, Rhode Island

ELEMENT	AWQC[1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Oct-99	Oct-01	Oct-02	Jul-03	Jul-04	Apr-05	Oct-06	Apr-07	Apr-08
Dissolved Metals (ug/l)													
Antimony	500	P	6	6	NA	No	No	No	No	1.6 U	No	1.4 UJ	6.0 UJ
Arsenic[5]	36		10	50	**113**	Sample	Sample	Sample	Sample	6.6	Sample	11.7	35.0
Barium	3.9	d	2000	2000	**731**					**221**		**176 J**	**250 J**
Beryllium	5.3	b	4	4	NA					4 U		0.40 U	0.54 U
Cadmium	9.3		5	5	5.4					4 U		0.22 U	0.49 U
Chromium[2]	50		100	100	2.1 B					1.7 J		0.80 U	2.7 J
Cobalt	3	d			NA					**5.9 J**		**6.5 J**	**8.6 J**
Copper	2.4		1300	NA	**27 B**					25 U		0.81 U	**30.5**
Iron	1000	b			**66200**					**84300**		**65000**	**93500**
Lead	8.1		15	15	2.3 U					5 U		0.92 U	8.0
Magnesium	NA				23500					17400		14200	18100
Manganese	80	d			**6830**					**6440**		**6430**	**8500**
Mercury	0.025		2	2	0.1 U					0.2 U		0.018 UJ	0.12 U
Nickel	8.2		NA	100	NA					**34.3 J**		30.0 J	**79.1**
Potassium	NA				22800					12900		7650	9190
Selenium	71		50	50	4 U					5 U		2.3 J	1.9 UJ
Silver	0.92	P			2 U					5 U		0.31 U	1.0 U
Sodium	NA				80300					60300		51800	57400
Thallium	NA		2	2	NA					10 U		0.17 J	1.0 U
Vanadium	19	d			NA					5.4 J		4.2 J	9.1 J
Zinc	81				**241**					11.7 J		29.3	**176**

B - Reported concentration is between Method Detection Limit and Reporting Limit
J - Quantitation is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

MW-104S
Historical Analytical Results
Groundwater Monitoring
McAllister Point Landfill NAVSTA - Newport, Rhode Island

ELEMENT	AWQC[1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Mar-97	Jun-97	Sep-97	Jan-98	Apr-98	Jul-98	Oct-98	Jun-99
Dissolved Metals (ug/l)												
Antimony	500	P	6	6	NA	No Sample	No Sample	No Sample	NA	NA	NA	No Sample
Arsenic[5]	36		10	50	17.8				21.0	7.4 B	7.4 B	
Barium	3.9	d	2000	2000	**69.9**				**120 B**	**125 B**	**125 B**	
Beryllium	5.3	b	4	4	NA				NA	NA	NA	
Cadmium	9.3		5	5	0.4 U				3.5 B	1.0 U	1 U	
Chromium [2]	50		100	100	2 U				0.6 U	7.0 B	7 B	
Cobalt	3	d			NA				NA	NA	NA	
Copper	2.4		1300	NA	2 U				**7.6 B**	1.0 U	1 U	
Iron	1000	b			**113000**				**155000**	**136000**	136000	
Lead	8.1		15	15	2 U				2.0 U	2.0 U	2 U	
Magnesium	NA				30800				26700	21800	21800	
Manganese	80	d			**1380**				NA	NA	NA	
Mercury	0.025		2	2	0.07 U				0.26 U	0.09 U	0.09 U	
Nickel	8.2		NA	100	NA				NA	NA	NA	
Potassium	NA				30000				23200	20600	20600	
Selenium	71		50	50	13 UJ				6.4 B	5.0 U	5 U	
Silver	0.92	P			0.8 UJ				**3.0 B**	**4.6 B**	**4.6 B**	
Sodium	NA				49200				42400	37700	37700	
Thallium	NA		2	2	NA				NA	NA	NA	
Vanadium	19	d			NA				NA	NA	NA	
Zinc	81				10 U				10.1 B	24.5 B	24.5 B	

B - Reported concentration is between Method Detection Limit and Reporting Limit
J - Quantitation is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

MW-104S

Historical Analytical Results
Groundwater Monitoring
McAllister Point Landfill NAVSTA - Newport, Rhode Island

ELEMENT	AWQC[1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Oct-01	Oct-02	Jul-03	Jul-04	Apr-05	Oct-06	Apr-07	Apr-08
Dissolved Metals (ug/l)												
Antimony	500	P	6	6	No	No	No	No	No	No	1.4 UJ	6.0 U
Arsenic[5]	36		10	50	Sample	Sample	Sample	Sample	Sample	Sample	11.5 U	7.5 U
Barium	3.9	d	2000	2000							**42.2 J**	**35.8 J**
Beryllium	5.3	b	4	4							0.33 U	0.39 U
Cadmium	9.3		5	5							0.22 U	0.65 U
Chromium [2]	50		100	100							0.30 U	10 U
Cobalt	3	d									**35.5 J**	**25.8 J**
Copper	2.4		1300	NA							1.5 U	**11.9 J**
Iron	1000	b									**46000**	**40200**
Lead	8.1		15	15							0.92 U	5.0 UJ
Magnesium	NA										15300	14100
Manganese	80	d									**936**	**1430**
Mercury	0.025		2	2							0.062 UJ	0.063 U
Nickel	8.2		NA	100							**8.6 J**	**12.3 J**
Potassium	NA										16600	14700
Selenium	71		50	50							1.0 U	1.7 U
Silver	0.92	P									0.31 U	5.0 U
Sodium	NA										41200	42500
Thallium	NA		2	2							0.070 J	1.0 U
Vanadium	19	d									0.35 UJ	30 U
Zinc	81										11.3 J	56.0

B - Reported concentration is between Method Detection Limit and Reporting Limit
J - Quantitation is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

MW-105R

Historical Analytical Results
Groundwater Monitoring
McAllister Point Landfill NAVSTA - Newport, Rhode Island

ELEMENT	AWQC[1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Mar-97	Jun-97	Sep-97	Jan-98	Apr-98	Jul-98	Oct-98	Jun-99
Dissolved Metals (ug/l)												
Antimony	500	P	6	6	NA	NA	3.0 U	NA	NA	NA	NA	NA
Arsenic[5]	36		10	50	4.4 U	4.1 U	2.7 U	2 U	2.0 U	2.0 U	2 U	3 U
Barium	3.9	d	2000	2000	4.1 U	2.2 U	2.0 J	11 U	1.3 B	1.1 B	1.1 B	1 U
Beryllium	5.3	b	4	4	NA	NA	1.0 U	NA	NA	NA	NA	NA
Cadmium	9.3		5	5	0.4 U	1.1 U	0.60 U	0.6 U	1.0 U	1.0 U	1 U	2 U
Chromium [2]	50		100	100	0.6 U	0.6 U	0.50 U	0.5 U	0.6 U	0.60 U	0.6 U	2 U
Cobalt	3	d			NA	NA	2.4 U	NA	NA	NA	NA	NA
Copper	2.4		1300	NA	2 U	2 U	**5.7 J**	3 U	**2.8 B**	2.3 B	2.3 B	2 U
Iron	1000	b			133 U	28.3 U	80.0 U	122 U	76.2 B	73.5 B	73.5 B	61.8 B
Lead	8.1		15	15	2 U	**17.4 J**	2.0 U	2 U	2.0 U	2.0 U	2 U	**9.8**
Magnesium	NA				4480	4450	3490 J	3370	3770 B	3460 B	3460 B	3960
Manganese	80	d			**191**	NA	**94.5**	NA	NA	NA	NA	NA
Mercury	0.025		2	2	0.07 U	0.08 U	0.13 U	0.09 U	0.26 U	**0.18 B**	**0.18 B**	0.14 U
Nickel	8.2		NA	100	NA	NA	**9.4**	NA	NA	NA	NA	NA
Potassium	NA				3300 U	3300 U	1300 U	1300 U	4000 U	4000 U	4000 U	1620
Selenium	71		50	50	5 U	5 U	5.0 UJ	6.4 J	5.0 U	5.0 U	5 U	4 U
Silver	0.92	P			0.8 UJ	3.2 U	2.0 UJ	2 U	2.0 U	**2.2 B**	**2.2 B**	3 U
Sodium	NA				9800	10000	9930	6740	8790	7340	7340	7940
Thallium	NA		2	2	NA	NA	2.0 U	NA	NA	NA	NA	NA
Vanadium	19	d			NA	NA	2.6	NA	NA	NA	NA	NA
Zinc	81				13.1 J	10 U	9.0 U	7.8 UJ	9.0 B	7.3 B	7.3 B	8.5 B

B - Reported concentration is between Method Detection Limit and Reporting Limit
J - Quantitation is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

MW-105R

Historical Analytical Results

Groundwater Monitoring

McAllister Point Landfill NAVSTA - Newport, Rhode Island

ELEMENT	AWQC[1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Oct-99	Oct-01	Oct-02	Jul-03	Jul-04	Apr-05	Oct-06	Apr-07	Apr-08
Dissolved Metals (ug/l)							**Duplicates Averaged**						
Antimony	500	P	6	6	NA	NA	1.8 U	6 U	6 U	1.6 U	6.0 U	1.4 UJ	6.0 UJ
Arsenic[5]	36		10	50	4 U	1.2 B	5 U	4 U	8.9 U	5 U	10 U	3.7 U	5.0 U
Barium	3.9	d	2000	2000	108 BE	NA	4.1 U	200 U	1.1 J	200 U	200 U	1.4 U	5.1 U
Beryllium	5.3	b	4	4	NA	NA	0.48 U	4 U	4 U	4 U	4.0 U	0.32 U	4.0 U
Cadmium	9.3		5	5	0.4 U	0.26 U	0.35 U	4 U	4 U	4 U	4.0 U	0.22 U	4.0 U
Chromium [2]	50		100	100	2 U	1.5 B	6.4 U	10 U	10 U	10 U	10 U	0.46 U	10 U
Cobalt	3	d			NA	NA	3.3 U	50 U	50 U	50 U	50 U	0.61 U	50 U
Copper	2.4		1300	NA	5 U	1.2 B	8.7 U	25 UJ	25 U	25 U	1.8 J	3.1 U	1.5 U
Iron	1000	b			19.7 B	15.1 U	82 B	100 U	100 U	18 J	92.8 J	6.3 U	100 U
Lead	8.1		15	15	2.3 U	0.6 U	1.8 U	5 U	3 U	5 U	5 U	0.92 U	1.4 J
Magnesium	NA				4370	4480 B	3600 B	3760 J	4270 J	3840 J	3510 J	3740 J	4190 J
Manganese	80	d			20.7 B	54.2	5.9 B	2.1 J	15 U	5 J	6.9 J	9.2 J	4.1 J
Mercury	0.025		2	2	0.14 U	0.11 U	0.2 JU	0.2 UJ	0.2 U	0.2 U	0.2 U	0.018 UJ	0.021 U
Nickel	8.2		NA	100	NA	NA	7.3 U	5.3 J	6.1 J	5.2 J	5.7 J	7.6 J	5.8 J
Potassium	NA				2180	1700 B	1450 B	1940 J	1520 J	2040 J	1720 J	1800 J	1860 J
Selenium	71		50	50	4 U	1.6 U	5 B	10 U	1.6 J	5 U	5 U	1.0 U	5.0 UJ
Silver	0.92	P			2 U	0.67 B	6.1 U	5 U	5 U	5 U	5 U	0.31 U	5.0 U
Sodium	NA				8770	11300	11000	12100	12200	12700	10200	9910	10200
Thallium	NA		2	2	NA	NA	2.4 U	10 U	10 U	10 U	1 U	0.046 U	1.0 U
Vanadium	19	d			NA	NA	4.5 U	2.0 J	50 U	50 U	50 UJ	0.35 UJ	30 U
Zinc	81				64.4	5.1 B	24 B	15.3 J	18.3 J	14.9 J	14.5 J	20.8	19.4 J

B - Reported concentration is between Method Detection Limit and Reporting Limit

J - Quantitation is approximate

R - Value is rejected

U - Value is not detected

UJ - Detection limit is approximate

NA - Parameter not analyzed

MW-105S

Historical Analytical Results
Groundwater Monitoring
McAllister Point Landfill NAVSTA - Newport, Rhode Island

ELEMENT	AWQC[1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Mar-97	Jun-97	Sep-97	Jan-98	Apr-98	Jul-98	Oct-98	Jun-99
Dissolved Metals (ug/l)									**Duplicates Averaged**	**Duplicates Averaged**		
Antimony	500	P	6	6	NA	NA	3.0 U	NA	NA	NA	NA	No Sample
Arsenic[5]	36		10	50	4.1 U	7.7 U	3.0 U	3.1 J	4.2 B	3.1 B	3.1 B	
Barium	3.9	d	2000	2000	**222**	**54.1**	**39.7**	35.6 U	**336**	**238**	**238**	
Beryllium	5.3	b	4	4	NA	NA	1.0 U	NA	NA	NA	NA	
Cadmium	9.3		5	5	0.4 U	0.4 U	0.60 U	0.6 U	2.3 B	1.0 U	1 U	
Chromium[2]	50		100	100	1.6 U	0.81 J	0.50 U	0.5 U	1.3 B	5.4 B	5.4 B	
Cobalt	3	d			NA	NA	3.0 U	NA	NA	NA	NA	
Copper	2.4		1300	NA	2.3 UJ	2 U	3.0 U	3 U	**13.2 B**	2.3 B	2.3 B	
Iron	1000	b			**64100**	**13600**	**13200**	**11600**	**114000**	**83100**	**83100**	
Lead	8.1		15	15	5.2 J	**13.9 J**	3.0 U	2 U	2.0 U	2.0 U	2 U	
Magnesium	NA				13200	5890	4810 J	3860	18600	12900	12900	
Manganese	80	d			**370**	NA	**384**	NA	NA	NA	NA	
Mercury	0.025		2	2	0.07 U	0.08 U	0.09 UJ	0.09 U	0.2 U	**0.17 B**	**0.18 B**	
Nickel	8.2		NA	100	NA	NA	3.7 J	NA	NA	NA	--	
Potassium	NA				13500	7500 J	3250	3660	17900	13100	13100	
Selenium	71		50	50	5.4 UJ	5 U	5.0 UJ	5 U	5.0 U	5.0 U	5 U	
Silver	0.92	P			0.8 UJ	3.2 U	2.0 UJ	2 U	2.0 U	2.0 U	2 U	
Sodium	NA				22400	13700	11800	9120	24700	19500	19500	
Thallium	NA		2	2	NA	NA	2.0 U	NA	NA	NA	--	
Vanadium	19	d			NA	NA	4.4	NA	NA	NA	--	
Zinc	81				12.3 J	29.8	20.0 U	11.2 UJ	44.4	**164**	**164**	

B - Reported concentration is between Method Detection Limit and Reporting Limit
J - Quantitation is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

MW-105S

Historical Analytical Results
Groundwater Monitoring
McAllister Point Landfill NAVSTA - Newport, Rhode Island

ELEMENT	AWQC[1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Oct-99	Oct-01	Oct-02	Jul-03	Jul-04	Apr-05	Oct-06	Apr-07	Apr-08
Dissolved Metals (ug/l)													
Antimony	500	P	6	6	NA	No	No	No	No	1.6 U	6.0 U	1.4 UJ	3.5 UJ
Arsenic[5]	36		10	50	4.0 U	Sample	Sample	Sample	Sample	3.1 J	10 U	3.5 U	1.2 U
Barium	3.9	d	2000	2000	72 BE					**28.7 J**	**69.9 J**	**60.8 J**	**33.0 J**
Beryllium	5.3	b	4	4	NA					4 U	4.0 U	0.25 U	4.0 U
Cadmium	9.3		5	5	1.2 B					4 U	4.0 U	0.22 U	4.0 U
Chromium [2]	50		100	100	2 U					10 U	10 U	0.30 U	10 U
Cobalt	3	d			NA					1.1 J	50 U	2.5 U	2.1 J
Copper	2.4		1300	NA	5 U					25 U	1.5 J	0.81 U	25 U
Iron	1000	b			**27600**					**12900**	**33300**	**24400**	**16600**
Lead	8.1		15	15	2.3 U					5 U	5 U	0.92 U	5.0 U
Magnesium	NA				6940					5010	8520	5770	4810 J
Manganese	80	d			**361**					**560**	**544**	**276**	**473**
Mercury	0.025		2	2	0.13 U					0.2 U	0.2 U	0.025 UJ	0.20 U
Nickel	8.2		NA	100	NA					**10.9 J**	3.5 J	7.5 J	3.0 U
Potassium	NA				6510					4550 J	8880 J	5540	3860 J
Selenium	71		50	50	10 B					5 U	5 U	1.0 U	1.1 UJ
Silver	0.92	P			**3.5 B**					5 U	5 U	0.31 U	5.0 U
Sodium	NA				12300					14600	17400	11900	12600
Thallium	NA		2	2	NA					10 U	1 U	0.046 U	1.0 U
Vanadium	19	d			NA					50 U	50 UJ	0.35 UJ	0.61 U
Zinc	81				54.8					12 J	17.9 J	26.0	13.9 J

B - Reported concentration is between Method Detection Limit and Reporting Limit
J - Quantitation is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

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Historical Analytical Results
Groundwater Monitoring
McAllister Point Landfill NAVSTA - Newport, Rhode Island

ELEMENT	AWQC[1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Mar-97	Jun-97	Sep-97	Jan-98	Apr-98	Jul-98	Oct-98	Jun-99
Dissolved Metals (ug/l)												
Antimony	500	P	6	6	NA	NA	3.0 UJ	NA	NA	NA	NA	NA
Arsenic[5]	36		10	50	**341**	**210**	**288**	**216**	**325**	**368 B**	**368 B**	11.3
Barium	3.9	d	2000	2000	22 U	14.4 U	**42.3 J**	42.3 U	**26.6 B**	**4.2 B**	**4.2 B**	**192 B**
Beryllium	5.3	b	4	4	NA	NA	1.0 U	NA	NA	NA	NA	NA
Cadmium	9.3		5	5	0.4 U	0.4 U	3.0 J	0.6 U	**10.5**	4.1 B	4.1 B	2 U
Chromium [2]	50		100	100	3.1 U	1.9	7.7 J	6.9	1.5 B	1.0 U	1.0 U	2.8 B
Cobalt	3	d			NA	NA	**338**	NA	NA	NA	NA	NA
Copper	2.4		1300	NA	3.2 UJ	2 U	3.0 U	3 U	**5.1 B**	2 U	2 U	**212**
Iron	1000	b			**78600**	**56500**	**120000**	**11200**	**67600**	**69300**	**69300**	**1790**
Lead	8.1		15	15	2 U	**12.5 J**	2.0 U	2 U	2.0 U	2.0 U	2.0 U	**107**
Magnesium	NA				13000	8070	15900 J	16300	9460	8620	8620	8440
Manganese	80	d			**10700**	NA	**17900**	NA	NA	0.09 U	0.09 U	NA
Mercury	0.025		2	2	0.07 U	0.08 U	0.09 UJ	0.09 U	0.2 U	NA	NA	**0.2 B**
Nickel	8.2		NA	100	NA	NA	**52.9**	NA	NA	NA	NA	NA
Potassium	NA				13700	8790 J	15700	14500	11300	9330	9330	8160
Selenium	71		50	50	20.5 U	9.1 UJ	5.0 UJ	21.3	5.1 B	5.0 U	5.0 U	4 U
Silver	0.92	P			0.8 UJ	1.5 UJ	2.0 UJ	2 U	**3.6 B**	2.0 U	2.0 U	3 U
Sodium	NA				25500	18700	26500	27300	16000	14700	14700	96400
Thallium	NA		2	2	NA	NA	11.6 J	NA	NA	7.3 B	7.3 B	NA
Vanadium	19	d			NA	NA	12.4 J	NA	NA	NA	NA	NA
Zinc	81				21.1	13.9 J	57.0 J	38.7 U	10.5 B	NA	NA	65.8

B - Reported concentration is between Method Detection Limit and Reporting Limit
J - Quantitation is approximate
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UJ - Detection limit is approximate
NA - Parameter not analyzed

MW-107R
Historical Analytical Results
Groundwater Monitoring
McAllister Point Landfill NAVSTA - Newport, Rhode Island

ELEMENT	AWQC[1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Oct-00	Oct-01	Oct-02	Jul-03	Jul-04	Apr-05	Oct-06	Apr-07	Apr-08
Dissolved Metals (ug/l)													
Antimony	500	P	6	6	NA	No Sample	No Sample	No Sample	No Sample	1.6 U	No Sample	1.4 UJ	6.0 UJ
Arsenic[5]	36		10	50	**384**					**506**		**485**	**391**
Barium	3.9	d	2000	2000	**503**					**18.6 J**		**16.7 J**	**22.3 J**
Beryllium	5.3	b	4	4	NA					4 U		0.25 U	4.0 U
Cadmium	9.3		5	5	**8.2**					4 U		0.22 U	0.89 U
Chromium[2]	50		100	100	2 U					10 U		0.30 U	10 U
Cobalt	3	d			NA					**10.8 J**		**18.7 J**	**30.9 J**
Copper	2.4		1300	NA	**5.5 B**					25 U		0.81 U	25 U
Iron	1000	b			**100000**					**105000**		**95000**	**150000**
Lead	8.1		15	15	2.3 U					5 U		0.92 U	5.0 U
Magnesium	NA				11900					10700		9020	12600
Manganese	80	d			**15100**					**6400**		**6900**	**12200**
Mercury	0.025		2	2	0.14 U					0.2 U		0.040 UJ	0.023 U
Nickel	8.2		NA	100	NA					1.6 J		1.9 J	3.7 U
Potassium	NA				9010					9140		6830	7690
Selenium	71		50	50	4 U					5 U		1.8 J	5.0 UJ
Silver	0.92	P			**2.2 B**					5 U		0.31 U	0.66 U
Sodium	NA				20700					21500		22900	24200
Thallium	NA		2	2	NA					10 U		0.046 U	1.0 U
Vanadium	19	d			NA					50 U		0.35 UJ	30 U
Zinc	81				**225**					22.4		8.7 J	22.6

B - Reported concentration is between Method Detection Limit and Reporting Limit
J - Quantitation is approximate
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U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

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Historical Analytical Results

Groundwater Monitoring

McAllister Point Landfill NAVSTA - Newport, Rhode Island

ELEMENT	AWQC[1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Mar-97	Jun-97	Sep-97	Jan-98	Apr-98	Jul-98	Oct-98	Jun-99
Dissolved Metals (ug/l)											**Duplicates Averaged**	
Antimony	500	P	6	6	NA	NA	3.0 U	NA	NA	NA	NA	NA
Arsenic[5]	36		10	50	**62.2**	**48.3**	31.3	**10.9**	**56.5**	**52.2 B**	**52.2 B**	NA
Barium	3.9	d	2000	2000	36.4 U	**39.8**	**33.2**	41.5 U	**41.2 B**	1.1 B	1.1 B	**19.4**
Beryllium	5.3	b	4	4	NA	NA	1.0 U	NA	NA	NA	NA	**29.3 B**
Cadmium	9.3		5	5	0.4 U	0.4 U	0.60 U	0.6 U	2.4 B	0.63 B	0.63 B	NA
Chromium [2]	50		100	100	3.1 U	2.4	1.9 J	1	0.62 B	1.0 U	1.0 U	NA
Cobalt	3	d			NA	NA	**68.9**	NA	NA	NA	NA	2 U
Copper	2.4		1300	NA	2 U	2 U	9.9 U	4.4 U	**2.9 B**	NA	NA	NA
Iron	1000	b			**14400**	**11900**	**8080**	**5910**	**11800**	**10500**	**10500**	**2770**
Lead	8.1		15	15	2 U	**15.7 J**	3.9 U	2 U	2.0 U	2.0 U	2.0 U	12.9
Magnesium	NA				40900	44700	37100 J	39900	36800	35500	35500	33600
Manganese	80	d			**3680**	NA	**3630**	NA	NA	0.09 U	0.09 U	NA
Mercury	0.025		2	2	0.07 U	0.08 U	0.09 UJ	0.09 U	0.2 U	NA	NA	0.14
Nickel	8.2		NA	100	NA	NA	**64.0**	NA	NA	NA	NA	**43.5**
Potassium	NA				87400	85600 U	76900	81500	4000.0 U	4000 U	4000 U	67300
Selenium	71		50	50	14.6 UJ	5 U	5.0 UJ	5 U	5.0 U	5.0 U	5.0 U	4 U
Silver	0.92	P			0.8 UJ	2 U	2.0 UJ	2 U	2 U	2 U	2 U	3 U
Sodium	NA				199000	204000	182000	21500	193000	166000	166000	162000
Thallium	NA		2	2	NA	NA	2.0 U	NA	NA	NA	NA	NA
Vanadium	19	d			NA	NA	**25.3**	NA	NA	NA	NA	NA
Zinc	81				10 U	14.3 J	9.4 U	10.3 UJ	14.9 B	10.1 B	10.1 B	10.5

B - Reported concentration is between Method Detection Limit and Reporting Limit
J - Quantitation is approximate
R - Value is rejected
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UJ - Detection limit is approximate
NA - Parameter not analyzed

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Historical Analytical Results
Groundwater Monitoring
McAllister Point Landfill NAVSTA - Newport, Rhode Island

ELEMENT	AWQC[1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Oct-00	Oct-01	Oct-02	Jul-03	Jul-04	Apr-05	Oct-06	Apr-07	Apr-08
Dissolved Metals (ug/l)						**Duplicates Averaged**							
Antimony	500	P	6	6	NA	NA	1.8 U	No	6 U	1.6 U	6.0 U	1.4 UJ	6.0 UJ
Arsenic[5]	36		10	50	28.2	26.9	7.3 B	Sample	32.6	33.3	25.0	11.9	**55.9**
Barium	3.9	d	2000	2000	**85.4 B**	NA	**26 B**		**23.4 J**	**24.3 J**	**23.1 J**	**20.9 J**	**25.6 J**
Beryllium	5.3	b	4	4	NA	NA	0.48 U		4 U	4 U	4.0 U	0.80 U	0.96 U
Cadmium	9.3		5	5	0.4 U	0.26 U	1.9 B		4 U	4 U	4.0 U	0.22 U	4.0 U
Chromium[2]	50		100	100	2 U	14.8	6.4 U		10 U	0.79 J	10 U	0.79 U	10 U
Cobalt	3	d			NA	NA	**17 B**		**16.6 J**	**23.3 J**	**14.4 J**	**15.8 J**	**25.2 J**
Copper	2.4		1300	NA	5 U	2.2 B	8.7 U		25 U	25 U	**5.9 J**	**7.4 J**	4.0 U
Iron	1000	b			**4390**	**2645**	**1400**		**5620**	**9310**	**4090**	**1670**	**7810**
Lead	8.1		15	15	2.3 U	0.6 U	1.8 U		3 U	5 U	5 U	0.92 U	1.3 J
Magnesium	NA				35700	40750	36000		38100	39500	36500	34600	34200
Manganese	80	d			**2150**	**1970**	**1800**		**1890**	**2820**	**1660**	**2090**	**2190**
Mercury	0.025		2	2	0.1 U	0.11 U	0.2 JU		0.2 U	0.2 U	0.2 U	0.018 UJ	0.20 U
Nickel	8.2		NA	100	NA	NA	40 B		**41.1**	**35 J**	**34.9 J**	**32.6 J**	**36.3 J**
Potassium	NA				75400	77150	260 U		53000	65500	61400 J	55300	60200
Selenium	71		50	50	4 U	4.4 B	3.7 U		5 U	5 U	5 U	1.0 U	5.0 UJ
Silver	0.92	P			2 U	0.27 U	6.1 U		5 U	5 U	5 U	0.31 U	5.0 U
Sodium	NA				143000	195000	170000		148000	138000	113500	109000	134000
Thallium	NA		2	2	NA	NA	2.4 U		10 U	10 U	1 U	0.046 U	1.0 U
Vanadium	19	d			NA	NA	4.5 U		50 U	50 U	50 UJ	0.35 UJ	30 U
Zinc	81				6.4 B	3.2 B	13 B		10.7 J	8.3 J	18.8 J	27.5	13.6 J

B - Reported concentration is between Method Detection Limit and Reporting Limit
J - Quantitation is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

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Historical Analytical Results
Groundwater Monitoring
McAllister Point Landfill NAVSTA - Newport, Rhode Island

ELEMENT	AWQC[1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Mar-97	Jun-97	Sep-97	Jan-98	Apr-98	Jul-98	Oct-98	Jun-99
Dissolved Metals (ug/l)							**Duplicates Averaged**			**Duplicates Averaged**		
Antimony	500	P	6	6	NA	NA	3.0 U	NA	NA	NA	NA	NA
Arsenic[5]	36		10	50	**70.9**	**103**	**117**	**109**	**87.9**	**84.4**	**84.4**	**120**
Barium	3.9	d	2000	2000	**70.2**	**53.7**	**54.7**	54.2 U	**37.8 B**	**30.6 B**	**30.6 B**	**40.3 B**
Beryllium	5.3	b	4	4	NA	NA	1.0 U	NA	NA	NA	NA	NA
Cadmium	9.3		5	5	0.4 UJ	0.4 U	0.60 U	0.6 U	2.7 B	1.2 B	1.2 B	2 U
Chromium [2]	50		100	100	2.8 U	1.2	9.2 J	0.5 U	0.6 U	0.60 U	0.60 U	2.7 B
Cobalt	3	d			NA	NA	**12.4**	NA	NA	NA	NA	NA
Copper	2.4		1300	NA	2 U	2 U	13.8 U	4.6 UJ	1.0 U	1.0 U	1.0 U	2
Iron	1000	b			**3300**	**3420**	**3160**	**2790**	**1530**	**1390**	**1390**	**1910**
Lead	8.1		15	15	2 U	10.7 UJ	4.8 U	2 U	2.0 U	2.0 U	2.0 U	3 U
Magnesium	NA				61600	59100	56700 J	52100	37800	34200	34200	41900
Manganese	80	d			**2770**	NA	**2120**	NA	NA	NA	NA	NA
Mercury	0.025		2	2	0.07 U	0.08 U	0.09 UJ	0.09 U	0.2 U	0.09 B	**0.09 B**	**0.18 B**
Nickel	8.2		NA	100	NA	NA	5.2 J	NA	NA	NA	NA	NA
Potassium	NA				40900	24800 J	21400	25200	31300	32900	32900	29100
Selenium	71		50	50	9.3 UJ	5 U	8.3 J	5 U	5.0 U	5.0 U	5.0 U	5.2
Silver	0.92	P			0.8 UJ	0.83 UJ	2.0 UJ	2 U	2.0 U	**51.5**	**51.5**	3 U
Sodium	NA				236000	197000	207000	212000	212000	180000	180000	216000
Thallium	NA		2	2	NA	NA	2.0 U	NA	NA	NA	NA	NA
Vanadium	19	d			NA	NA	**35.6**	NA	NA	NA	NA	NA
Zinc	81				10 U	10 U	7.4 U	7 UJ	4.6 B	4.0 B	4.0 B	8.6 B

B - Reported concentration is between Method Detection Limit and Reporting Limit
J - Quantitation is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

MW-111R
Historical Analytical Results
Groundwater Monitoring
McAllister Point Landfill NAVSTA - Newport, Rhode Island

ELEMENT	AWQC[1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Oct-00	Oct-01	Oct-02	Jul-03	Jul-04	Apr-05	Oct-06	Apr-07	Apr-08
Dissolved Metals (ug/l)								**Duplicates Averaged**	**Duplicates Averaged**	**Duplicates Averaged**		**Duplicates Averaged**	**Duplicates Averaged**
Antimony	500	P	6	6	NA	NA	1.8 U	6 U	6 U	1.6 U	6.0 U	1.4 U	6 U
Arsenic[5]	36		10	50	**125**	**100**	**120**	**113.5**	**124**	**93.45**	**118**	**94**	**114**
Barium	3.9	d	2000	2000	**74.4 B**	NA	**72 B**	**68.25 J**	**73.5 J**	**69.15 J**	**75.7 J**	**70.2 J**	**75.3 J**
Beryllium	5.3	b	4	4	NA	NA	0.48 U	4 U	4 U	4 U	1.3 J	1.45 U	1.6 U
Cadmium	9.3		5	5	0.4 U	0.26 U	0.35 U	4 U	4 U	4 U	4.0 U	0.22 U	4 U
Chromium[2]	50		100	100	2 U	4.4 B	6.4 U	10 U	10 U	10 U	10 U	0.32 U	10 U
Cobalt	3	d			NA	NA	**5.1 B**	**11.15 J**	**10.7 J**	**15.45 J**	**12.0 J**	**11.15 J**	**29.35 J**
Copper	2.4		1300	NA	5 U	2.2 B	8.7 U	**14 J**	25 U	25 U	25 U	0.85 J	**4.95 J**
Iron	1000	b			**2430**	**1550**	**6100**	**3800**	**5320**	**4085**	**5390**	**3175**	**4700**
Lead	8.1		15	15	2.3 U	0.6 U	1.8 U	5 U	3 U	5 U	5 UJ	0.92 U	1.8 UJ
Magnesium	NA				45400	58100	77000	55700	75300	69900	79800	62150	86200
Manganese	80	d			**1980**	**2340**	**3000**	**1900**	**2655**	**2130**	**2520**	**2045**	**2085**
Mercury	0.025		2	2	0.1 U	0.11 U	0.2 JU	0.155 UJ	0.2 U	0.089 U	0.2 U	0.033 UJ	0.11 U
Nickel	8.2		NA	100	NA	NA	7.3 B	4.15 J	3.45 J	5.1 J	3.7 J	3.95 J	**9.25 J**
Potassium	NA				31600	19100	22000	15350	11400	11850	12500 J	14450 J	2525 J
Selenium	71		50	50	4 U	8	7.3 B	10 U	1.6 J	5 U	5 U	1 U	1.7 U
Silver	0.92	P			2 U	0.27 U	6.1 U	5 U	5 U	5 U	5 U	0.31 U	5 U
Sodium	NA				170000	198000	250000	197000	221500	217000	242000	201500	249000
Thallium	NA		2	2	NA	NA	2.4 U	**6.75 J**	10 U	10 U	0.19 U	1.5 J	0.905 U
Vanadium	19	d			NA	NA	4.5 U	5.9 J	50 U	50 U	50 U	0.35 U	30 U
Zinc	81				4 U	1.5 U	28	6.45 J	1.65 J	5.5 J	7.1 J	7.9 J	12.7 U

B - Reported concentration is between Method Detection Limit and Reporting Limit
J - Quantitation is approximate
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UJ - Detection limit is approximate
NA - Parameter not analyzed

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Historical Analytical Results
Groundwater Monitoring
McAllister Point Landfill NAVSTA - Newport, Rhode Island

ELEMENT	AWQC[1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Mar-97	Jun-97	Sep-97	Jan-98	Apr-98	Jul-98	Oct-98	Jun-99
Dissolved Metals (ug/l)												**Duplicates Averaged**
Antimony	500	P	6	6	NA	NA	3.0 U	NA	NA	NA	NA	NA
Arsenic[5]	36		10	50	17.7	28.3	27.6	28.3	14.3	19.9	19.9	29
Barium	3.9	d	2000	2000	22.8 U	**35**	**20.9**	33.2 U	**22.5 B**	**61.4 B**	**61.4 B**	**28.3**
Beryllium	5.3	b	4	4	NA	NA	1.0 U	NA	NA	NA	NA	NA
Cadmium	9.3		5	5	0.4 U	0.4 U	0.60 U	0.6 U	1.4 B	2.2 B	2.2 B	2 U
Chromium[2]	50		100	100	0.6 U	0.6 U	0.50 U	0.5 U	0.6 U	4.1 B	4.1 B	2 U
Cobalt	3	d			NA	NA	**3.7**	NA	NA	NA	NA	NA
Copper	2.4		1300	NA	2 U	2 U	7.9 U	5.8 UJ	**2.9 B**	**2.5 B**	2.5 B	2 U
Iron	1000	b			**20500**	**23000**	**22000**	**19700**	**23600**	**57700**	**57700**	**18200**
Lead	8.1		15	15	2 U	**12.3 J**	3.1 U	2 U	2.0 U	2.0 U	2.0 U	**14**
Magnesium	NA				3240	3510	2880 J	2890	3260 B	4320 B	4320 B	3700
Manganese	80	d			**501**	NA	**494**	NA	NA	NA	NA	NA
Mercury	0.025		2	2	0.07 U	0.08 U	0.09 UJ	0.09 U	0.2 U	0.09 B	0.09 B	0.12 U
Nickel	8.2		NA	100	NA	NA	5.5 J	NA	NA	NA	NA	NA
Potassium	NA				3300 U	4120 J	2780	1940	4000 U	4000 U	4000 U	2750
Selenium	71		50	50	6.4 UJ	5 U	5.0 UJ	5 U	5.0 U	5.0 U	5.0 U	14 B
Silver	0.92	P			0.9 UJ	3.7 U	2.0 UJ	2 U	2.0 U	**36.7**	**36.7**	3 U
Sodium	NA				10400	10800	9410	8800	10000	11000	11000	10400
Thallium	NA		2	2	NA	NA	2.0 U	NA	NA	NA	NA	NA
Vanadium	19	d			NA	NA	2.9	NA	NA	NA	NA	NA
Zinc	81				20.3	15.3 J	13.5 U	12.7 U	21.0 B	41.4	41.4	11.3 B

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U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

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Historical Analytical Results
Groundwater Monitoring
McAllister Point Landfill NAVSTA - Newport, Rhode Island

ELEMENT	AWQC[1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Oct-00	Oct-01	Oct-02	Jul-03	Jul-04	Apr-05	Oct-06	Apr-07	Apr-08
Dissolved Metals (ug/l)													
Antimony	500	P	6	6	NA	NA	No	No	6 U	1.6 U	6 UJ	1.4 UJ	6.0 UJ
Arsenic[5]	36		10	50	**38.3**	1.7 B	Sample	Sample	**55.9**	20.5	5.8 J	7.5 U	19.9
Barium	3.9	d	2000	2000	358 E	NA			**18.1**	**24.3 J**	**28.3 J**	**27.0 J**	18.6 U
Beryllium	5.3	b	4	4	NA	NA			4 U	4 U	4.0 U	0.25 U	0.26 U
Cadmium	9.3		5	5	0.97 B	0.26 U			4 U	4 U	4.0 U	0.22 U	4.0 U
Chromium [2]	50		100	100	2 U	1.9 B			10 U	10 U	10 U	0.30 U	10 U
Cobalt	3	d			NA	NA			1.5 J	0.89 J	50 U	0.97 U	**3.2 J**
Copper	2.4		1300	NA	5 U	0.6 U			25 U	25 U	25 U	0.81 U	25 U
Iron	1000	b			**30500**	**15900**			**40100**	**14500**	**5290**	**3510**	**17500**
Lead	8.1		15	15	2.3 U	0.6 U			3 U	5 U	5 UJ	0.92 U	5.0 U
Magnesium	NA				4380	4450 B			5200	3680 J	2990 J	3130 J	4550 J
Manganese	80	d			**640**	**858**			**458**	**164**	**107**	71.1	**412**
Mercury	0.025		2	2	0.14 U	0.11 U			0.2 U	0.2 U	0.2 U	0.047 UJ	0.034 U
Nickel	8.2		NA	100	NA	NA			1.1 J	2.5 J	40 U	1.7 U	2.1 U
Potassium	NA				2750	2370 B			2530 J	2620 J	2010 J	2030 J	2320 J
Selenium	71		50	50	16 B	1.6 U			1.9 J	5 U	5 U	1.0 U	5.0 UJ
Silver	0.92	P			**4.3 B**	0.27 U			5 U	5 U	5 U	0.31 U	5.0 U
Sodium	NA				12800	14900			18300	14100	10700	9100	13700
Thallium	NA		2	2	NA	NA			10 U	10 U	1 U	0.046 U	1.0 U
Vanadium	19	d			NA	NA			50 U	50 U	50 U	0.35 UJ	30 U
Zinc	81				**137**	3.5 B			26.5	20.7	30.6	18.6 J	29.3

B - Reported concentration is between Method Detection Limit and Reporting Limit
J - Quantitation is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

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Historical Analytical Results
Groundwater Monitoring
McAllister Point Landfill NAVSTA - Newport, Rhode Island

ELEMENT	AWQC[1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Mar-97	Jun-97	Sep-97	Jan-98	Apr-98	Jul-98	Oct-98	Jun-99
Dissolved Metals (ug/l)								**Duplicates Averaged**				
Antimony	500	P	6	6	NA	NA	3.0 U	NA	NA	NA	NA	NA
Arsenic[5]	36		10	50	2 U	4.2	2.6 U	2 U	2.7 B	2.0 U	2.0 U	3 U
Barium	3.9	d	2000	2000	8.1 U	**37.8**	**10.2**	16 U	3.2 B	**8.0 B**	**8.0 B**	**6.8 B**
Beryllium	5.3	b	4	4	NA	NA	1.0 U	NA	NA	NA	NA	NA
Cadmium	9.3		5	5	0.4 U	0.48 U	0.60 U	0.6 U	1.0 U	1.0 B	1.0 B	2 U
Chromium [2]	50		100	100	0.6 U	0.6 U	0.50 U	0.5 U	0.6 U	0.60 U	0.60 U	2 U
Cobalt	3	d			NA	NA	1.9 J	NA	NA	NA	NA	NA
Copper	2.4		1300	NA	8.7 U	2 U	6.7 U	6.9 U	**7.9 B**	**5.7 B**	**5.7 B**	**10 B**
Iron	1000	b			214 U	**3430**	278	506	15.2 B	**1590**	**1590**	**1570**
Lead	8.1		15	15	5.4 J	**13.4 J**	3.5 U	2 U	2.0 U	**8.7**	**8.7**	**13.9**
Magnesium	NA				3080	3450	3020 J	2790	2640 B	2280 B	2280 B	3040
Manganese	80	d			61.6	NA	**123**	NA	NA	NA	NA	NA
Mercury	0.025		2	2	0.07 U	0.08 U	0.09 UJ	0.09 U	0.2 U	0.09 U	0.09 U	0.14 U
Nickel	8.2		NA	100	NA	NA	3.2 J	NA	NA	NA	NA	NA
Potassium	NA				3300 U	3300 U	1730 J	1970	4000 U	4000 U	4000 U	2180
Selenium	71		50	50	5 U	5 U	5.0 UJ	5 U	5.0 U	5.0 U	5.0 U	4 U
Silver	0.92	P			0.8 UJ	4 U	2.0 UJ	2 U	2.0 U	3 U	3 U	3 U
Sodium	NA				8100	10900	8630	6200	7970	NA	NA	8530
Thallium	NA		2	2	NA	NA	2.0 U	NA	NA	NA	NA	NA
Vanadium	19	d			NA	NA	2.1	NA	NA	NA	NA	NA
Zinc	81				46.3	27.6 J	38.8 U	17.1	10.8 B	25.1 B	25.1 B	27.3 B

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J - Quantitation is approximate
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U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

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Historical Analytical Results
Groundwater Monitoring
McAllister Point Landfill NAVSTA - Newport, Rhode Island

ELEMENT	AWQC[1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Oct-00	Oct-01	Oct-02	Jul-03	Jul-04	Apr-05	Oct-06	Apr-07	Apr-08
Dissolved Metals (ug/l)													
Antimony	500	P	6	6	NA	NA	No Sample	No Sample	No Sample	1.6 U	6 UJ	1.4 U	1.4 UJ
Arsenic[5]	36		10	50	5.7 B	3.2 B				5 U	3.2 J	5.1 U	12.9 U
Barium	3.9	d	2000	2000	**316**	NA				**6.2 J**	**13.9 J**	**6.6 J**	9.5 U
Beryllium	5.3	b	4	4	NA	NA				4 U	4.0 U	0.25 U	0.37 U
Cadmium	9.3		5	5	0.4 U	0.26 U				4 U	4.0 U	0.22 U	4.0 U
Chromium [2]	50		100	100	2 U	1.3 B				10 U	10 U	0.30 U	10 U
Cobalt	3	d			NA	NA				0.67 J	50 U	1.2 J	1.7 J
Copper	2.4		1300	NA	**6.4 B**	**13.1 B**				**7.3 J**	**5.2 J**	**9.7 J**	6.3 U
Iron	1000	b			**3400**	591				**1850**	**1570**	951	**7650**
Lead	8.1		15	15	2.3 U	0.6 U				5 U	5 UJ	0.92 U	1.5 U
Magnesium	NA				3910	3310 B				3480 J	3090 J	3190 J	3640 J
Manganese	80	d			**267**	**428**				**276**	**347**	**213**	**459**
Mercury	0.025		2	2	0.1 U	0.11 U				0.2 U	0.2 U	0.018 UJ	0.20 U
Nickel	8.2		NA	100	NA	NA				2.2 J	3.7 J	3.0 J	3.1 U
Potassium	NA				4110	2200 B				2170 J	2190 J	1950 J	2170 J
Selenium	71		50	50	4 U	1.6 U				5 U	5 U	1.0 U	5.0 UJ
Silver	0.92	P			2 U	0.27 U				5 U	5 U	0.31 U	5.0 U
Sodium	NA				10900	11300				12900	9600	8750	12300
Thallium	NA		2	2	NA	NA				10 U	1 U	0.046 U	1.0 U
Vanadium	19	d			NA	NA				50 U	50 U	0.35 U	30 U
Zinc	81				70.5	16.7 B				19.2 J	39.8	19.3 J	16.5 J

B - Reported concentration is between Method Detection Limit and Reporting Limit
J - Quantitation is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

NOTES FOR METALS TABLES:

1. Ambient Water Quality Criteria (AWQC) from 40 FR 79318, "Quality Criteria for Water", December 1992 (with revisions for metals: May 1995).
   Marine chronic values used unless not available, in which case the lowest of a, b, c, d, or e were used as available.
   a - AWQC acute freshwater value.
   b - AWQC chronic freshwater value.
   c - AWQC acute marine value.
   d - Ecotox Tier II freshwater value (US EPA, ECO Update, Intermittent Bulletin Volume 3, Number 2, January 1996).
   e - Canadian MEQ marine acute value (Environment Canada, The Development of Canadian Marine Environmental Quality (MEQ) Guidelines, 1992.
   P - Value is proposed.
2. Criteria presented for Chromium as Chromium VI. No criteria established for Chromium +3 or Chromium (total).
3. Data collected by TRC Environmental Corporation as presented in: "Remedial Investigation, Draft Final Report for McAllister Point Landfill, NETC-Newport, Rhode Island", July 1994.
4. Wells installed and sampled by Foster Wheeler Environmental Corporation (FWENC) as described in: "Operations and Maintenance Manual", May 1997.
5. The EPA MCL for Arsenic was reduced from 50 µg/L to 10 µg/L on January 23, 2006.

J - Value estimated.
B - For inorganic concentrations, the detected concentration is between the IDL and the CRDL.
NA - AWQC value for contaminant was not available.
ND - Not detected above DL reported by analytical laboratory.
NR - Concentration not reported in summary tables prior to October 1998.
MDL - Method Detection Limit reported by analytical laboratory.
DL - Detection Limit reported by analytical laboratory.
R - Value rejected due to limitations found in the data review.
NS - Not Sampled.
---------- - Not analyzed.
Bolded values exceed the indicated AWQC value.
Shaded values exceed the indicated EPA MCLs and/or RIDEM GA values.

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Historical Analytical Results
Groundwater Monitoring
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ELEMENT	AWQC [1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Dec-93	Mar-97	Jun-97	Sep-97	Jan-98	Apr-98	Jul-98	Oct-98	Jun-99
Total Metals (ug/l)													
Antimony	500	P	6	6	ND	5 U	3.1 U	3 U	3 U	2 U	2 U	5 U	2 U
Arsenic[5]	36		10	50	27.9 J	2 U	2 U	2 U	2 U	2 U	2 U	2 U	3 U
Barium	3.9	d	2000	2000	**114**	0.7 U	2.9 U	2.3 U	14.5 U	1.5 B	**5.2 B**	1.3 B	1.8 B
Beryllium	5.3	b	4	4	4.1	0.2 U	0.5 U	1 U	1 U	0.5 U	0.5 U	0.2 U	2 U
Cadmium	9.3		5	5	1.2 J	0.2 U	0.87	0.6 U	0.6 U	1 U	1 U	0.5 U	2 U
Chromium [2]	50		100	100	**176 J**	0.7 U	0.6 U	0.5 U	0.5 U	0.6 U	0.6 U	0.73 B	2 U
Cobalt	3	d			**129 J**	0.7 U	0.7 U	1.2 U	1.2 U	0.6 U	**4.6 B**	0.5 U	3 U
Copper	2.4		1300	NA	**189 J**	2 U	2 U	3 U	3 U	1.9 B	**3.7 B**	2 U	**7.4** B
Iron	1000	b			**262000 J**	30.7	33 U	28.5 U	28.5 U	36.2 B	24.6 B	58.8 B	23 U
Lead	8.1		15	15	**275 J**	1.5 U	**19.8 J**	8 U	8 U	2 U	2 U	3 U	**18.8**
Magnesium	NA				45700 J	4510	4830	4040 J	3740 J	3630 B	7000	3820 B	5640
Manganese	80	d			**2540 J**	79.6 J	NA	87.8	NA	NA	NA	NA	NA
Mercury	0.025		2	2	ND	0.08 U	0.12 U	0.09 U	0.1 U	0.27 U	0.27 U	0.1 U	0.1 U
Nickel	8.2		NA	100	**256**	0.7 U	**8.7**	7.6	5.1 J	5.1 B	8.1 B	1.8 B	6.7 B
Potassium	NA				5250	460 U	3300 U	1320	1300 U	4000 U	8690	1190 B	1510
Selenium	71		50	50	-----	5 U	5 U	5 U	5 U	5 U	5 U	5 U	4 U
Silver	0.92	P			0.4	0.6 U	4.1 U	2 U	2 U	2 U	**163**	2 U	3 U
Sodium	NA				27300	26100	30300	25800	24700	25800	38900	26200	37800
Thallium	NA		2	2	-----	2 U	2 U	2 U	3 J	3 U	3 U	4 U	3 U
Vanadium	19	d			14.3 J	0.6 U	1.4 J	3	3	3 U	3 U	1 U	2 U
Zinc	81				**550 J**	11.2 J	10.4 J	8.4 U	17 U	7.5 B	14.3 B	12.4 B	29.3 B

B - Reported concentration is between Method Detection Limit and Reporting Limit
J - Quantitation is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

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Historical Analytical Results
Groundwater Monitoring
McAllister Point Landfill
NAVSTA Newport, Rhode Island

ELEMENT	AWQC [1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Oct-00	Oct-01	Jul-03	Jul-04	Apr-05	Oct-06	Apr-07	Apr-08
Total Metals (ug/l)												**Duplicates Averaged**
Antimony	500	P	6	6	3 U	0.38 U	1.4 U	6 U	1.6 U	6.0 U	1.4 UJ	6 UJ
Arsenic[5]	36		10	50	4 U	1.2 U	3.6 U	5 U	5 U	10 U	0.74 U	2.92 U
Barium	3.9	d	2000	2000	**4.1 B**	**3.9 B**	4.2 U	200 U	2.2 J	2.0 J	1.5 J	2.9 U
Beryllium	5.3	b	4	4	2 U	0.34 U	0.47 U	4 U	4 UJ	4.0 U	0.26 U	0.38 U
Cadmium	9.3		5	5	0.4 U	0.26 U	0.5 U	4 U	4 UJ	4.0 U	0.22 U	4 U
Chromium [2]	50		100	100	2 U	1.4 B	3.9 J	5 J	8.2 J	**56.8**	2.1 U	0.965 U
Cobalt	3	d			0.3 U	0.16 U	0.76 U	50 U	50 U	50 U	0.61 U	50 U
Copper	2.4		1300	NA	**9.3 B**	**14.5 B**	**4.1 J**	1.5 J	25 U	3.5 U	1.4 U	2.7 U
Iron	1000	b			22.9 B	31.8 B	20.3 J	30.8 U	54.2 J	607	40.4 J	192 J
Lead	8.1		15	15	2.3 U	1.3 B	1.4 U	3 U	5 U	5.0 U	0.92 U	3.1 U
Magnesium	NA				6180	9550	5090	4160 J	3530 J	2680 J	2130 J	2390 J
Manganese	80	d			21.1 B	57.6	13.7 J	9.9 J	9.9 J	12.5 J	6.1 J	5.7 J
Mercury	0.025		2	2	0.14 U	0.11 U	0.092 U	0.2 U	0.2 U	0.2 U	0.026 UJ	0.048 U
Nickel	8.2		NA	100	**8.6 B**	**13.6 B**	**10.2 J**	8.1 J	**9.9 J**	**16.8 J**	3.3 J	3.4 U
Potassium	NA				1910 B	2030 B	1430 J	1140 J	1250 J	1160 J	990 J	986 J
Selenium	71		50	50	4 U	1.6 U	2.7 U	5 U	5 U	5 U	1.0 U	5 UJ
Silver	0.92	P			2 U	0.27 U	0.36 U	5 U	5 U	5 U	0.31 U	5 U
Sodium	NA				43600	84500	59800	53100	45500	42900	32800	33500
Thallium	NA		2	2	3 U	0.65 U	2.6 U	10 U	10 U	1 U	0.26 J	1 U
Vanadium	19	d			7.8 B	5 U	1.3 J	50 U	50 U	50 UJ	0.35 UJ	30 U
Zinc	81				19.1 B	24.6	35.6	20.1	14.6 J	19 J	14.1 J	21.3

B - Reported concentration is between Method Detection Limit and Reporting Limit
J - Quantitation is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

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Historical Analytical Results
Groundwater Monitoring
McAllister Point Landfill
NAVSTA Newport, Rhode Island

ELEMENT	AWQC [1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Dec-93	Mar-97	Jun-97	Sep-97	Jan-98	Apr-98	Jul-98	Oct-98	Jun-99
Total Metals (ug/l)													
Antimony	500	P	6	6	ND	5 U	3 U	3 U	3 U	2 U	2 U	5 U	2.4 B
Arsenic[5]	36		10	50	34.4 J	2 U	3.3 J	10.1 U	7.8	8.7 B	5.9 B	13	7.8 B
Barium	3.9	d	2000	2000	**34.1**	0.7 U	**23.0**	**23.1**	31.7 U	**18.7 B**	**15.3 B**	**24.2 B**	**22 B**
Beryllium	5.3	b	4	4	1.1	0.2 U	0.5 U	1 U	1 U	0.5 U	0.5 U	0.2 U	0
Cadmium	9.3		5	5	3.6 J	0.2 U	0.4 U	0.6 U	0.6 U	1.2 B	1.2 B	0.96 B	2.3 B
Chromium [2]	50		100	100	ND	0.7 U	0.92 J	0.94 J	0.97 J	0.6 U	1.3 B	1.5 B	3.7 B
Cobalt	3	d			**44.5 J**	**20.5**	**22.2**	**24.1**	**24.5**	**21.3 B**	**15.3 B**	**26.4 B**	140 U
Copper	2.4		1300	NA	**58.6 J**	2 U	2 U	9.9 U	6.3 U	**3.7 B**	**3.9 B**	**8.8 B**	**9.5 B**
Iron	1000	b			**42400 J**	**24600**	**24800**	**26600**	**27100**	**24500**	**19500**	**33800**	**28900**
Lead	8.1		15	15	**91.2**	1.5 U	2 U	6.2 U	2 U	2 U	2 U	3 U	3 **U**
Magnesium	NA				15800 J	12300	12700	13200 J	13500	12500	9830	14300	14400
Manganese	80	d			**2400 J**	**1760 J**	NA	**1870**	NA	NA	NA	NA	NA
Mercury	0.025		2	2	**0.12**	0.08 U	0.08 U	0.09 U	**0.2 J**	0.27 **U**	0.27 **U**	0.1 U	0.099 **U**
Nickel	8.2		NA	100	**106**	0.7 U	**47.8**	**48**	**49.3**	**45.1**	**35.6 B**	5.6 B	**57.4**
Potassium	NA				5890	460 U	3420 J	2190 J	1980 J	4000 U	4000 U	1230 B	1370 B
Selenium	71		50	50	-----	7 J	5 U	5 U	5 U	5 U	5 U	5 U	4 U
Silver	0.92	P			0.5 J	0.6 U	2 U	2 U	2 U	**18.1 B**	**4.5 B**	2 **U**	**3.9 B**
Sodium	NA				46200 J	31300	31500	32300	32600	31600	24300	30600	36000
Thallium	NA		2	2	-----	2 U	2 U	2 U	2 U	3 U	3 U	4 U	3 U
Vanadium	19	d			15.8 J	0.6 U	2.5	10	10.5	3 U	3 U	4.6 B	4.2 U
Zinc	81				**1000 J**	22.2	19.9	58.7 J	41 U	33	28.3 B	50.1	33.3

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J - Quantitation is approximate
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UJ - Detection limit is approximate
NA - Parameter not analyzed

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Historical Analytical Results
Groundwater Monitoring
McAllister Point Landfill
NAVSTA Newport, Rhode Island

ELEMENT	AWQC [1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Oct-00	Oct-01	Oct-02	Jul-03	Jul-04	Apr-05	Oct-06	Apr-07	Apr-08
Total Metals (ug/l)													
Antimony	500	P	6	6	3 U	0.8 B	1.8 U	6 U	6 U	1.6 U	6 UJ	1.4 UJ	6.0 UJ
Arsenic[5]	36		10	50	12	15.1	5.7 B	12.7	**12.4**	13.4	23.7	16.3	13.9 U
Barium	3.9	d	2000	2000	**23.2 B**	**23.9 B**	**22 B**	**20 J**	**20.8 J**	**19.3 J**	20.3 J	**20.4 J**	**24.2 J**
Beryllium	5.3	b	4	4	2 U	0.34 U	0.48 U	4 U	4 U	4 UJ	4 U	0.28 U	0.42 U
Cadmium	9.3		5	5	1.1 B	0.26 U	0.35 U	4 U	4 U	4 UJ	4 U	0.22 U	4.0 U
Chromium [2]	50		100	100	2 U	2.6 B	6.4 U	9.9 J	10 U	1.1 J	6.5 J	0.48 U	1.6 U
Cobalt	3	d			**26.8 B**	**29.2 B**	**23 B**	**25.8 J**	**27.3 J**	**25.3 J**	27.1 J	**27.4 J**	**26.8 J**
Copper	2.4		1300	NA	5 U	**3.2 B**	8.7 **U**	25 U	25 U	25 U	2.2 U	0.81 U	2.0 U
Iron	1000	b			**28700**	**28600**	**24000**	**27900**	**28900**	**28500**	30900	**27100**	**25500**
Lead	8.1		15	15	2.3 U	3.6	1.8 U	5 U	3 U	5 U	5.0 UJ	0.92 U	5.0 U
Magnesium	NA				15100	14300	14000	14300	15500	15300	14600	14700	14200
Manganese	80	d			**2110**	**2120**	**1800**	**2000**	**2110**	**1950**	2030	**1980**	**1960**
Mercury	0.025		2	2	0.1 U	0.11 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.018 UJ	0.20 U
Nickel	8.2		NA	100	**57.5**	**60.7**	**41**	**53.3**	**58.5**	**52.2**	58.8	**54.5**	**51.9**
Potassium	NA				1910	1140 B	1100 B	1020 J	1000 J	1060 J	1050 J	1010 J	1000 J
Selenium	71		50	50	13.3 B	1.6 U	4.9 U	10 U	5 U	5 U	5 U	1.0 U	5.0 UJ
Silver	0.92	P			**3.9 B**	0.27 U	6.1 U	5 U	5 U	5 U	5 U	0.31 U	5.0 U
Sodium	NA				31900	38600	38000	38700	40700	40300	38900	39600	39200
Thallium	NA		2	2	3 U	0.65 U	2.4 U	10 U	10 U	10 U	1 U	0.085 J	1.0 U
Vanadium	19	d			3.4 B	5 U	4.5 U	50 U	50 U	50 U	1.2 J	0.35 UJ	30 U
Zinc	81				28.2 B	47.3	61	33	29.9	30.3	143	52.8	36.2

B - Reported concentration is between Method Detection Limit and Reporting Limit
J - Quantitation is approximate
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UJ - Detection limit is approximate
NA - Parameter not analyzed

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Groundwater Monitoring
McAllister Point Landfill
NAVSTA Newport, Rhode Island

ELEMENT	AWQC [1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Dec-93	Mar-97	Jun-97	Sep-97	Jan-98	Apr-98	Jul-98	Oct-98	Jun-99
Total Metals (ug/l)													
Antimony	500	P	6	6	176 J	5 U	3 U	6.1	7.1 U	2 U	2 U	5 U	2.7 B
Arsenic[5]	36		10	50	176 J	2 U	5.0	76.4	37	33.6	16.2	43.4	157
Barium	3.9	d	2000	2000	969 J	119	146	213	361	199 B	171 B	276	257
Beryllium	5.3	b	4	4	5.9	0.2 U	0.5 U	1 U	1 U	0.5 U	0.5 U	0.2 U	2 U
Cadmium	9.3		5	5	28 J	0.2 U	0.4 U	0.6 U	0.6 U	2.4 U	2.4 U	1.2 B	5.2
Chromium [2]	50		100	100	256 J	0.7 U	3.0	3.4 J	6.8	3.5 B	5.4 B	4.7 B	8.8 B
Cobalt	3	d			205 J	0.7 U	4.5	44.4	6.9	13.8 B	4.6 B	91	0 U
Copper	2.4		1300	NA	1730 J	2 U	2 U	22.3 U	44.8 U	14.7 B	5.2 B	51.8	86.5
Iron	1000	b			341000 J	59500	63500	29000	53500	82300	69100	67900	80200
Lead	8.1		15	15	4060	1.5 U	6 U	31	44.3	2 U	2 U	3 U	5.9
Magnesium	NA				57000 J	15200	17000	20100 J	24800	20300	18400	22100	24800
Manganese	80	d			7990 J	12000 J	NA	5090	NA	NA	NA	NA	NA
Mercury	0.025		2	2	4.51	0.08 U	0.08 U	0.27 U	0.12 J	0.27 U	0.27 U	0.1 U	0.12 B
Nickel	8.2		NA	100	386	4.2	10.8	346	43.1	19.5 B	13.8	453	48.8
Potassium	NA				25900	10500	15100 J	14700	20000	14800	12800	17100	16700
Selenium	71		50	50	-----	13.1 J	8.8 U	5 U	5 U	5 U	5 U	5 U	13.4
Silver	0.92	P			25 J	0.6 U	1.7 U	2 U	2 U	23.7	5.2 B	3.2 B	10.9
Sodium	NA				91600 J	43900	49100	61700	78600	55800	48800	59000	70200
Thallium	NA		2	2	-----	3.8 U	2 U	2.8 U	2 U	3 U	3 U	4 U	3 U
Vanadium	19	d			432	0.6 U	3.6	19.9	29.5	15 B	13.7 B	14 B	27.1 B
Zinc	81				6800 J	5 U	16.7 J	156	229	13.9 B	14.6 B	114	62.3 B

B - Reported concentration is between Method Detection Limit and Reporting Limit
J - Quantitation is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

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Historical Analytical Results
Groundwater Monitoring
McAllister Point Landfill
NAVSTA Newport, Rhode Island

ELEMENT	AWQC [1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Oct-00	Oct-02	Jul-03	Jul-04	Apr-05	Oct-06	Apr-07	Apr-08
Total Metals (ug/l)												
Antimony	500	P	6	6	4 B	No Sample	No Sample	No Sample	1.6 U	No Sample	1.4 UJ	6.7 UJ
Arsenic[5]	36		10	50	**119**				9.9		13.7	**57.5**
Barium	3.9	d	2000	2000	**306**				**222**		**173 J**	**237 J**
Beryllium	5.3	b	4	4	2 U				4 UJ		0.37 U	0.54 U
Cadmium	9.3		5	5	6.8				4 UJ		0.22 U	0.53 U
Chromium [2]	50		100	100	3.8 B				2.4 J		0.74 U	3.3 J
Cobalt	3	d			**12.2 B**				**6.3 J**		**6.1 J**	**22.0 J**
Copper	2.4		1300	NA	**38 B**				**44.7**		**8.4 J**	**120**
Iron	1000	b			**80800**				**87700**		**64800**	**92500**
Lead	8.1		15	15	2.3 U				7.2		2.0 J	**39.1**
Magnesium	NA				26200				18300		13500	17500
Manganese	80	d			**6390**				**6720**		**6320**	**8560**
Mercury	0.025		2	2	0.1 U				0.081 U		**0.026 J**	0.12 U
Nickel	8.2		NA	100	**128**				**35.7 J**		**26.2 J**	**189**
Potassium	NA				19600				12300		7210	8470
Selenium	71		50	50	4 U				5 U		1.1 J	5.0 UJ
Silver	0.92	P			2 U				5 U		0.31 U	1.4 U
Sodium	NA				69300				59700		51100	56300
Thallium	NA		2	2	15.1				3.6 J		0.17 J	1.0 U
Vanadium	19	d			17.1 B				10.3 J		4.1 J	13.6 J
Zinc	81				**203**				24.3		32.2	**437**

B - Reported concentration is between Method Detection Limit and Reporting Limit
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NA - Parameter not analyzed

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Historical Analytical Results
Groundwater Monitoring
McAllister Point Landfill
NAVSTA Newport, Rhode Island

ELEMENT	AWQC [1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Dec-93	Mar-97	Jun-97	Sep-97	Jan-98	Apr-98	Jul-98	Oct-98	Jun-99
Total Metals (ug/l)													
Antimony	500	P	6	6	ND	5 U	No	No	No	2 U	2 U	No	No
Arsenic[5]	36		10	50	11.7 J	19.4	Sample	Sample	Sample	20.5	9.3 B	Sample	Sample
Barium	3.9	d	2000	2000	**67.6**	**73.2**				**118 B**	**119 B**		
Beryllium	5.3	b	4	4	ND	0.2 U				0.5 U	0.5 U		
Cadmium	9.3		5	5	6.2 J	0.2 U				4 B	4.4 B		
Chromium [2]	50		100	100	5.4 J	0.7 U				0.75 B	7.9 B		
Cobalt	3	d			**21**	0.7 U				**34.3 B**	**13.7 B**		
Copper	2.4		1300	NA	**59.6 J**	2 U				**44.8**	**13.2 B**		
Iron	1000	b			**69100 J**	**120000**				**148000**	**139000**		
Lead	8.1		15	15	**42.3 J**	1.5 U				**24.4**	2 U		
Magnesium	NA				4580 J	32000				25300	24200		
Manganese	80	d			**2180 J**	**1440 J**				NA	NA		
Mercury	0.025		2	2	**0.19 J**	0.08 U				0.27 U	0.09 U		
Nickel	8.2		NA	100	**48**	0.7 U				**50.6**	**37.7 B**		
Potassium	NA				6290	31800				21900	23700		
Selenium	71		50	50	-----	9.4 J				5 U	5 U		
Silver	0.92	P			0.4	0.6 U				**29.9**	**9.2 B**		
Sodium	NA				8920 J	53000				40200	40300		
Thallium	NA		2	2	-----	4 U				3 U	3 U		
Vanadium	19	d			ND	17.4				7.1 B	18.1 B		
Zinc	81				**1030 J**	11.4 J				**102**	75.2		

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NA - Parameter not analyzed

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Historical Analytical Results
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NAVSTA Newport, Rhode Island

ELEMENT	AWQC [1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Oct-01	Oct-02	Jul-03	Jul-04	Apr-05	Oct-06	Apr-07	Apr-08
Total Metals (ug/l)												
Antimony	500	P	6	6	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	2.8 J	6.0 U
Arsenic[5]	36		10	50							27.7	10.3 U
Barium	3.9	d	2000	2000							**44.5 J**	**40.3 J**
Beryllium	5.3	b	4	4							0.31 U	4.0 U
Cadmium	9.3		5	5							0.22 U	0.31 U
Chromium [2]	50		100	100							4.0 J	10 U
Cobalt	3	d									**38.2 J**	**25.4 J**
Copper	2.4		1300	NA							**233**	**32.3**
Iron	1000	b									**49800**	**40100**
Lead	8.1		15	15							**16.3**	4.1 UJ
Magnesium	NA										15200	14400
Manganese	80	d									**962**	**1450**
Mercury	0.025		2	2							0.018 UJ	0.019 U
Nickel	8.2		NA	100							**15.6 J**	**9.9 J**
Potassium	NA										16300	15400
Selenium	71		50	50							1.0 J	5.0 U
Silver	0.92	P									0.31 U	5.0 U
Sodium	NA										41700	42700
Thallium	NA		2	2							0.54 J	1.0 U
Vanadium	19	d									3.4 J	30 U
Zinc	81										**149**	45.7

B - Reported concentration is between Method Detection Limit and Reporting Limit
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U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

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Historical Analytical Results
Groundwater Monitoring
McAllister Point Landfill
NAVSTA Newport, Rhode Island

ELEMENT	AWQC [1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Dec-93	Mar-97	Jun-97	Sep-97	Jan-98	Apr-98	Jul-98	Oct-98	Jun-99
Total Metals (ug/l)													
Antimony	500	P	6	6	ND	5 U	3 U	3 U	3 U	2 U	2.5 B	5 U	2 U
Arsenic[5]	36		10	50	19.2 J	**43.7**	2 U	2.5 U	2 U	2.2 B	2 U	2.5 B	3 U
Barium	3.9	d	2000	2000	**17.6**	0.7 U	1 U	2.8 J	12.5 U	1 U	1.2 B	1.1 B	**4.3 B**
Beryllium	5.3	b	4	4	1.1	0.2 U	0.5 U	1 U	1 U	0.5 U	0.5 U	0.2 U	2 U
Cadmium	9.3		5	5	ND	0.2 U	0.4 U	0.6 U	0.6 U	1 U	1 U	0.5 U	2 U
Chromium [2]	50		100	100	ND	0.7 U	0.6 U	0.5 U	0.5 U	0.6 U	0.6 U	0.57 B	2 U
Cobalt	3	d			**43.5 J**	0.7 U	0.81	2.3 U	2.3 U	0.87 B	0.6 U	1.1 B	3 U
Copper	2.4		1300	NA	**6.7 J**	2 U	2 U	**5.5 J**	9.2 U	1 U	**2.4 B**	2 U	2.1 B
Iron	1000	b			**25600 J**	355	46.7 U	130	266	709	856	877	23 U
Lead	8.1		15	15	ND	1.5 U	7 U	2 U	2 U	2 U	3.8	5.1	**13.2**
Magnesium	NA				8520 J	4240	3610	3460 J	3550	3820 B	3400 B	3700 B	4150
Manganese	80	d			**1200 J**	**190** J	NA	**92**	NA	NA	NA	NA	NA
Mercury	0.025		2	2	0.17	0.08 U	0.08 U	0.13 U	0.09 U	0.26 U	0.09 U	0.1 U	0.1 **U**
Nickel	8.2		NA	100	**61.2**	0.7 U	8.1	**9.9**	**8.2**	6.2 B	4.4 B	4.6 B	7.8 B
Potassium	NA				2340	460 U	3300 U	1300 U	2150	4000 U	4000 U	1270 B	1840
Selenium	71		50	50	-----	17.9	5 U	5 U	5 U	5 U	5 U	5 U	4 U
Silver	0.92	P			ND	0.6 U	5.2 U	2 U	2 U	**5.7 B**	**4.9 B**	2 U	**3.7 B**
Sodium	NA				9340 J	9360	9320	7820	7080	8740	6870	6950	8340
Thallium	NA		2	2	-----	0 U	2 U	2 U	2 U	3 U	3 U	4 U	3 U
Vanadium	19	d			7.7 J	0.6 U	1 U	2.6	2.9	3 U	3 U	1 U	2 U
Zinc	81				39.9 J	13.7 J	10.6 J	9.5 U	13.9 U	5.2 B	8 B	20.4 B	10.6 B

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UJ - Detection limit is approximate
NA - Parameter not analyzed

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Historical Analytical Results
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McAllister Point Landfill
NAVSTA Newport, Rhode Island

ELEMENT	AWQC [1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Oct-00	Oct-01	Oct-02	Jul-03	Jul-04	Apr-05	Oct-06	Apr-07	Apr-08
Total Metals (ug/l)							**Duplicates Averaged**						
Antimony	500	P	6	6	3 U	0.56 B	1.8 U	6 U	6 U	1.6 U	6.0 U	1.4 UJ	6.0 UJ
Arsenic[5]	36		10	50	4 U	1.9 B	5 U	4 U	2.5 J	5 U	10 U	2.9 U	5.0 U
Barium	3.9	d	2000	2000	1 U	1.3 B	9.5 U	200 U	200 U	200 U	200 U	1.3 U	3.3 U
Beryllium	5.3	b	4	4	2 U	0.34 U	0.48 U	4 U	4 U	4 UJ	4.0 U	0.25 U	4.0 U
Cadmium	9.3		5	5	0.4 U	0.26 U	0.35 U	4 U	4 U	4 UJ	4.0 U	0.22 U	4.0 U
Chromium [2]	50		100	100	2 U	1.2 B	6.4 U	10 U	10 U	10 U	10 U	0.30 U	10 U
Cobalt	3	d			0.3 U	0.84 B	3.3 U	50 U	50 U	0.59 J	50 U	0.61 U	50 U
Copper	2.4		1300	NA	5 U	**5.7 B**	8.7 U	25 U	1.6 J	25 U	2.3 J	3.8 U	2.1 U
Iron	1000	b			94.5 B	151	87 B	92 J	100 U	45.4 J	100 U	84.9 J	61.5 J
Lead	8.1		15	15	2.3 U	0.67 U	1.8 U	5 U	1.7 J	5 U	5.0 U	0.92 U	1.8 J
Magnesium	NA				4450	4280 B	3650 B	3850 J	4210 J	3950 J	3470 J	3680 J	4260 J
Manganese	80	d			22.3 B	64.2	7.8 B	5.5 J	5.7 J	6.2 U	0.95 J	10.4 J	5.8 J
Mercury	0.025		2	2	0.13 U	0.11 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.018 UJ	0.20 U
Nickel	8.2		NA	100	6.6 B	7.7 B	7.3 U	5.4 J	6.2 J	5.6 J	5.3 J	5.7 J	6.0 J
Potassium	NA				2410	1730 B	1400 B	1720 J	1750 J	1890 J	1740 J	1770 J	1920 J
Selenium	71		50	50	5.3 B	1.6 U	3.7 U	10 U	5 U	5 U	5 U	1.0 U	5.0 UJ
Silver	0.92	P			2 U	0.27 U	6.1 U	5 U	0.31 J	5 U	5 U	0.31 U	5.0 U
Sodium	NA				8430	11000	11000	11700	12500	12800	10400	9570	10500
Thallium	NA		2	2	3 U	0.65 U	2.4 U	10 U	10 U	10 U	1 U	0.21 J	1.0 U
Vanadium	19	d			0.5 U	5 U	4.5 U	2 J	50 U	50 U	50 UJ	0.35 UJ	0.41 U
Zinc	81				6.1 B	15.5 B	54 B	12.8 J	16.9 J	13.6 J	12.9 J	19.1 J	16.8 J

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UJ - Detection limit is approximate
NA - Parameter not analyzed

MW-105S
Historical Analytical Results
Groundwater Monitoring
McAllister Point Landfill
NAVSTA Newport, Rhode Island

ELEMENT	AWQC [1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Dec-93	Mar-97	Jun-97	Sep-97	Jan-98	Apr-98	Jul-98	Oct-98
Total Metals (ug/l)										Duplicates Averaged	Duplicates Averaged	
Antimony	500	P	6	6	ND	5 U	3 U	3 U	3 U	6.6 B	2.1 B	5 U
Arsenic[5]	36		10	50	12 J	2 U	2.5 J	4 U	3.2 J	3 B	2.6 B	8.7 B
Barium	3.9	d	2000	2000	**23.9**	**163**	**43.9**	**42.5**	40.2 U	**310**	**308**	**195 B**
Beryllium	5.3	b	4	4	ND	0.2 U	0.5 U	1 U	1 U	0.5 U	0.5 U	0.2 U
Cadmium	9.3		5	5	ND	0.2 U	0.4 U	0.6 U	0.6 U	2.4 B	1 U	1.3 B
Chromium [2]	50		100	100	ND	0.7 U	0.77 J	0.5 U	0.86 J	1.6 B	7.2 B	1.8 B
Cobalt	3	d			**4.7 J**	0.7 U	1.1 J	3.8 U	2.8 U	**11.6 B**	2 B	**10.3 B**
Copper	2.4		1300	NA	**3.8 J**	2 U	2 U	**8.2**	4.6 U	**27.8**	**12.4 B**	**14.8 B**
Iron	1000	b			**19300 J**	**46800**	**12400**	**13800**	**12200**	**106500**	**106500**	**50700**
Lead	8.1		15	15	ND	1.5 U	5.6 U	4.2 U	2 U	**10**	2 U	3 **U**
Magnesium	NA				5060 J	9730	4940	5000 J	3950	17400	16550	14900
Manganese	80	d			**679 J**	**303 J**	NA	**390**	NA	NA	NA	NA
Mercury	0.025		2	2	**0.14 J**	0.08 U	0.18 U	0.09 U	0.09 U	0.2 U	0.2 U	0.1 U
Nickel	8.2		NA	100	**10.7**	0.7 U	3.8 J	5.1 J	3.4 J	**14.4 B**	**42.5**	**26.6**
Potassium	NA				6060	9030	4090 J	3690	3260	17000	17800	16200
Selenium	71		50	50	-----	10.4 J	5 U	5 U	5 U	5 U	5 U	5 U
Silver	0.92	P			ND	0.6 U	3.9 U	2 U	2 U	**12.7 B**	**4.2**	2 **U**
Sodium	NA				15900 J	17900	13400	12700	9110	**22400**	**24200**	21400
Thallium	NA		2	2	-----	2 U	2 U	2 U	2 U	3 U	3 U	4 U
Vanadium	19	d			ND	0.6 U	1.9 J	5.1	4.3	8.6 B	15.8 B	7.8
Zinc	81				50.3 J	21.6	24.7	31.9 U	30.4 U	**91.8**	**242**	**119**

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NA - Parameter not analyzed

MW-105S

Historical Analytical Results
Groundwater Monitoring
McAllister Point Landfill
NAVSTA Newport, Rhode Island

ELEMENT	AWQC [1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Jun-99	Oct-00	Oct-01	Oct-02	Jul-03	Jul-04	Apr-05	Oct-06	Apr-07	Apr-08
Total Metals (ug/l)														
Antimony	500	P	6	6	2 U	3 U	No	No	No	No	1.6 U	6.0 U	1.4 J	6.0 UJ
Arsenic[5]	36		10	50	3 U	4.2 B	Sample	Sample	Sample	Sample	2.6 J	10 U	3.4 U	4.9 U
Barium	3.9	d	2000	2000	**226**	**84.7** BE					**26 J**	**65.0 J**	**71.6 J**	**35.8 J**
Beryllium	5.3	b	4	4	2 U	2 U					4 UJ	4.0 U	0.25 U	0.31 U
Cadmium	9.3		5	5	5.0 B	1.5 B					4 UJ	4.0 U	0.22 U	4.0 U
Chromium [2]	50		100	100	3.7 B	2 U					10 U	10 U	0.30 U	10 U
Cobalt	3	d			3 U	**3.3** B					0.88 J	50 U	2.6 U	1.4 J
Copper	2.4		1300	NA	**10 B**	5 U					25 U	**7.2 J**	4.0 U	1.1 U
Iron	1000	b			**68400**	**28900**					**12000**	31100	**29700**	**17400**
Lead	8.1		15	15	3 U	2.3 U					5 U	5 U	2.0 J	0.92 J
Magnesium	NA				18200	7680					4540 J	7920	6350	4860 J
Manganese	80	d			NA	**391**					**520**	510	**305**	**483**
Mercury	0.025		2	2	0.1 U	0.15 U					0.2 U	0.2 U	0.018 UJ	0.20 U
Nickel	8.2		NA	100	**57.8**	**15.3** B					**9.7 J**	4.1 J	**8.7 J**	3.7 U
Potassium	NA				20800	7180					4200 J	8170 J	6190	3870 J
Selenium	71		50	50	10.8	14.4 B					5 U	5 U	1.0 U	5.0 UJ
Silver	0.92	P			**6.6 B**	**4.6** B					5 U	5 U	0.31 U	5.0 U
Sodium	NA				27000	13300					13400	16600	12600	12600
Thallium	NA		2	2	3 U	3 U					10 U	1 U	0.12 J	1.0 U
Vanadium	19	d			5.5 B	5.1 B					50 U	50 UJ	0.35 UJ	0.40 U
Zinc	81				40	32.8 B					10.8 J	21.4	32.4	16.6 J

B - Reported concentration is between Method Detection Limit and Reporting Limit
J - Quantitation is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

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Historical Analytical Results
Groundwater Monitoring
McAllister Point Landfill
NAVSTA Newport, Rhode Island

ELEMENT	AWQC [1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Dec-93	Mar-97	Jun-97	Sep-97	Jan-98	Apr-98	Jul-98	Oct-98
Total Metals (ug/l)												
Antimony	500	P	6	6	ND	5 U	5 U	3 U	3 U	2 U	2 U	5 U
Arsenic[5]	36		10	50	**114 J**	**311**	**237**	**275**	**189**	**334**	**324**	**472**
Barium	3.9	d	2000	2000	**131**	0.7 U	12.8 U	**42 J**	43 U	**27.5 B**	**21.1 B**	**26 B**
Beryllium	5.3	b	4	4	4.3	0.2 U	0.5 U	1 U	1 U	0.5 U	0.5 U	0.2 U
Cadmium	9.3		5	5	2.8 J	0.2 U	0.4 U	2.9 J	0.6 U	**10.5**	4.8 B	**13.6**
Chromium [2]	50		100	100	**153 J**	0.7 U	1.6	7.5 J	6.3	1.4 B	3.3 B	2.5 B
Cobalt	3	d			**743 J**	0.7 U	**20.5**	**325**	**247**	**54.4**	**23.9 B**	**243**
Copper	2.4		1300	NA	**285 J**	2 U	2 U	15.3 U	4 U	**6.2 B**	**3.4 B**	**16.8 B**
Iron	1000	b			**2E+05 J**	**71200**	**59700**	**115000**	**102000**	**69100**	**61900**	**56600**
Lead	8.1		15	15	**190 J**	1.5 U	6.3 U	2 U	2 U	2 U	2 U	3 U
Magnesium	NA				39400 J	11700	7960	15100 J	15000	9600	7680	8690
Manganese	80	d			**17400 J**	**9260 J**	NA	**17200**	NA	NA	NA	NA
Mercury	0.025		2	2	**0.12**	0.08 U	0.08 U	0.09 U	0.1 U	0.2 U	0.09 U	0.1 U
Nickel	8.2		NA	100	**501**	0.7 U	**10.2**	**51.4**	**34.4**	3.9 B	6.6 B	0.6 U
Potassium	NA				7310	11300	8260 J	14600 J	13200	11600	8300	9000
Selenium	71		50	50	-----	20.6	12.7 U	5 U	12.6	5 U	5 U	5 U
Silver	0.92	P			ND	0.6 U	3.2 U	2 U	2 U	**36.5**	**2.9 B**	2 U
Sodium	NA				14600 J	22400	19900	25800	25200	16200	13500	16000
Thallium	NA		2	2	-----	5.5 U	2 U	11.4 J	7.9	3 U	3 U	4 U
Vanadium	19	d			**37.2 J**	0.6 U	1 U	12.1 J	13	3 U	6.9 B	4.1 B
Zinc	81				**679 J**	5 U	10 U	58.6 J	35.5 U	9 B	9 B	64.5

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NA - Parameter not analyzed

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ELEMENT	AWQC [1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Jun-99	Oct-00	Oct-01	Oct-02	Jul-03	Jul-04	Apr-05	Oct-06	Apr-07	Apr-08
Total Metals (ug/l)														
Antimony	500	P	6	6	2 U	4.2 B	No Sample	No Sample	No Sample	No Sample	1.6 U	No Sample	1.4 UJ	6.0 UJ
Arsenic[5]	36		10	50	**332**	**373**					**467**		**501**	**415**
Barium	3.9	d	2000	2000	**30.6 B**	**25.6 B**					**20.7 J**		**17.5 J**	**25.7 J**
Beryllium	5.3	b	4	4	2 U	2 U					4 UJ		0.25 U	0.32 U
Cadmium	9.3		5	5	6.7	7.8					4 UJ		0.22 U	0.87 U
Chromium [2]	50		100	100	8.8 B	2 U					6.5 J		8.2 J	10.5
Cobalt	3	d			3 U	**47 B**					**9.6 J**		**19.5 J**	**27.9 J**
Copper	2.4		1300	NA	**14.1 B**	**10.1 B**					**3 J**		1.3 U	3.6 U
Iron	1000	b			**96900**	**96000**					**101000**		**98300**	**157000**
Lead	8.1		15	15	3 U	2.3 U					5 U		0.92 U	5.0 U
Magnesium	NA				12900	11200					10200		9100	12900
Manganese	80	d			NA	**15300**					**6190**		**6950**	**12300**
Mercury	0.025		2	2	**0.19 B**	0.14 U					0.2 U		0.018 UJ	0.028 U
Nickel	8.2		NA	100	**25.9 B**	**51.4**					2.6 J		2.1 J	3.5 U
Potassium	NA				9480	8540					8870		6860	8000
Selenium	71		50	50	12.3	4 U					5 U		1.1 J	1.4 UJ
Silver	0.92	P			**11.9**	**2.4 B**					5 U		0.43 J	0.70 U
Sodium	NA				19600	17400					21800		22500	25000
Thallium	NA		2	2	11.9	10.6					10 U		0.048 J	1.0 U
Vanadium	19	d			4.2 U	0.5 U					50 U		0.35 UJ	30 U
Zinc	81				13.4 B	63.1					9.2 J		14.2 J	16.8 J

B - Reported concentration is between Method Detection Limit and Reporting Limit
J - Quantitation is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

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ELEMENT	AWQC [1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Dec-93	Mar-97	Jun-97	Sep-97	Jan-98	Apr-98	Jul-98	Oct-98
Total Metals (ug/l)												Duplicates Averaged
Antimony	500	P	6	6	ND	5 U	5.2 U	3 U	6.4 U	2 U	2 U	5 U
Arsenic[5]	36		10	50	24.4 J	**65**	**40.4**	31.9	16.8	**53.3**	**49.7**	**51.8**
Barium	3.9	d	2000	2000	**179**	0.7 U	**35.1**	**32.4**	43.6 U	**38.9 B**	**34.4 B**	**37.5 B**
Beryllium	5.3	b	4	4	1.8	0.2 U	0.5 U	1 U	1 U	0.5 U	0.5 U	0.2 U
Cadmium	9.3		5	5	1.4 J	0.2 U	0.4 U	0.6 U	0.6 U	2.1 B	1.8 B	1.7 B
Chromium [2]	50		100	100	24.1 J	0.7 U	2.2	2 J	1.2	0.77 B	0.81 B	2 B
Cobalt	3	d			**258 J**	**73.8**	**67.7**	**70.9**	**76.1**	**66.1**	**42.9 B**	**46.8 B**
Copper	2.4		1300	NA	**91.8 J**	2 U	2 U	6 U	11.2 U	**4.6 B**	**4 B**	2 U
Iron	1000	b			**38900 J**	**14900**	**10500**	**8120**	**6160**	**11200**	**10000**	**8935**
Lead	8.1		15	15	**26.9**	1.5 U	9.2 U	2 U	2 U	2 U	2 U	3 U
Magnesium	NA				118000 J	42100	42500	38500 J	35600	35400	34100	39400
Manganese	80	d			**6330 J**	**3730 J**	NA	**3710**	NA	NA	NA	NA
Mercury	0.025		2	2	ND	0.08 U	0.8 U	0.09 U	0.09 U	0.2 U	0.2 U	0.1 U
Nickel	8.2		NA	100	**235**	**66.7**	**65.8**	**64.9**	**61.5**	**54.6**	**47.7**	**29.9 B**
Potassium	NA				110000	86200	83200 J	78400	71800	4000 U	NA	2 U
Selenium	71		50	50	-----	7.8 J	5 U	5 U	5 U	5 U	5 U	5 U
Silver	0.92	P			ND	0.6 U	3.5 U	2 U	2 U	2 U	11.3	2 U
Sodium	NA				721000 J	198000	198000	183000	193000	183000	162000	173000
Thallium	NA		2	2	-----	2 U	2 U	2 U	2 U	3 U	3 U	4 U
Vanadium	19	d			**28.7 J**	17.8	10.3	**25.4**	**24.1**	3 U	3 U	7 B
Zinc	81				**156 J**	16.7 J	10 U	9.6 U	11.8 U	6 B	10.5 B	8.2 B

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ELEMENT	AWQC [1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Jun-99	Oct-00	Oct-01	Oct-02	Jul-03	Jul-04	Apr-05	Oct-06	Apr-07	Apr-08
Total Metals (ug/l)							**Duplicates Averaged**							
Antimony	500	P	6	6	2 U	3 U	3 B	1.8 U	No	6 U	1.6 U	6.0 U	1.4 UJ	6.0 U
Arsenic[5]	36		10	50	23.7	**38.2**	27.2	6.3 B	Sample	32.1	32.4	20.5	7.8 U	**53.5**
Barium	3.9	d	2000	2000	**30.9 B**	**32.2 B**	**29.5 B**	**28 B**		**24.2 J**	**23.9 J**	21.3 J	**20.4 J**	**25.9 J**
Beryllium	5.3	b	4	4	2 U	2 U	0.34 U	0.48 U		4 U	4 UJ	4.0 U	0.78 U	0.72 U
Cadmium	9.3		5	5	2 U	0.4 U	0.29 B	0.35 U		4 U	4 UJ	4.0 U	0.22 U	4.0 U
Chromium [2]	50		100	100	2 U	2 U	1.35 B	6.4 U		10 U	0.66 J	10 U	0.84 U	10 U
Cobalt	3	d			3 U	**29.2 B**	**24** B	**18 B**		**16.8 J**	**20 J**	15.1 J	**14.2 J**	**26.5 J**
Copper	2.4		1300	NA	**4.9 B**	5 U	**4.45** B	8.7 U		**1.2 J**	25 U	6.7 J	**11.6 J**	**10.1 J**
Iron	1000	b			**2980**	**6240**	**3935**	**1500**		**5360**	**8180**	3570	**1300**	**8100**
Lead	8.1		15	15	**16.8**	2.3 U	1 B	1.8 U		3 U	5 U	5 U	1.2 J	5.0 UJ
Magnesium	NA				35200	40100	37950	37000		37600	36200	36600	35000	34300
Manganese	80	d			NA	**2620**	**2195**	**1900**		**1840**	**2540**	1630	**1930**	**2240**
Mercury	0.025		2	2	0.1 U	0.1 U	0.11 U	0.2 U		0.2 U	0.2 U	0.2 U	0.061 UJ	0.20 U
Nickel	8.2		NA	100	**453 B**	**52.9**	**49.35**	**41** c		**39.7 J**	**34.3 J**	34.8 J	**30.8 J**	**35.7 J**
Potassium	NA				71400	83200	68350	260 U		62000	61100	62200 J	58100	59700
Selenium	71		50	50	4 U	5.7 B	3.95 B	4.6 B		5 U	5 U	5 U	1.0 U	5.0 U
Silver	0.92	P			3 U	2 U	0.27 U	6.1 U		5 U	5 U	5 U	0.31 U	5.0 U
Sodium	NA				171000	164000	172500	17000		154000	131000	13600	113000	134000
Thallium	NA		2	2	3 U	3 U	0.65 U	2.4 U		10 U	10 U	1 U	0.046 U	1.0 U
Vanadium	19	d			2 U	0.5 U	5 U	4.5 U		50 U	50 U	50 UJ	0.35 UJ	30 U
Zinc	81				12.3 B	4 U	5.3 B	9.8 B		12.9 J	6.9 J	10.8 J	31.9	14.4 U

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ELEMENT	AWQC [1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Dec-93	Mar-97	Jun-97	Sep-97	Jan-98	Apr-98	Jul-98	Oct-98
Total Metals (ug/l)								**Duplicates Averaged**			**Duplicates Averaged**	
Antimony	500	P	6	6	ND	5 U	3.2 U	3 U	3.8 U	2 U	2 U	5 U
Arsenic[5]	36		10	50	22.5 J	**67.1**	**120**	**114**	**112**	**95.4**	**89.6**	**110**
Barium	3.9	d	2000	2000	**154**	**68.5**	**55.3**	**53.4**	57.4 U	**41.1 B**	**31.4 B**	**33.4 B**
Beryllium	5.3	b	4	4	2	0.2 U	0.5 U	1 U	1 U	0.5 U	0.5 U	0.2 U
Cadmium	9.3		5	5	1.8 J	0.2 U	0.4 U	0.6 U	0.6 U	3.1 B	1 U	3.1 B
Chromium [2]	50		100	100	**82.8 J**	0.7 U	1.6	1.95 J	0.5 U	0.6 U	0.6 U	1.4 B
Cobalt	3	d			**116 J**	0.7 U	**8.9**	**13.45**	**7.2**	**4.7 B**	**5.4 B**	**9.4 B**
Copper	2.4		1300	NA	**267 J**	2 U	2 U	5.9 U	7 U	1.1 B	2.5 B	2.2
Iron	1000	b			**128000 J**	**3770**	**3850**	**4200**	**3000**	**1790**	**1630**	**1380**
Lead	8.1		15	15	**548**	1.5 U	**14.7 J**	5.2 U	2 U	2 U	2 U	3 U
Magnesium	NA				53100 J	58100	60100	55200 J	52100	405 U	35700	39900
Manganese	80	d			**15900 J**	**2590 J**	NA	**2060**	NA	NA	NA	NA
Mercury	0.025		2	2	**0.33**	0.08 U	0.8 U	0.09 U	0.1 U	**0.2**	0.09 U	0.1 U
Nickel	8.2		NA	100	**122**	0.7 U	2 U	5.15 J	3 U	2.7 B	3.2 B	0.6 U
Potassium	NA				33500	36300	26300 J	20600	25000	33400	NA	38300
Selenium	71		50	50	-----	9 J	5 U	5.7 J	9 J	5 U	5 U	5 U
Silver	0.92	P			**1.3 J**	0.6 U	1.8 U	2 U	2 U	2 U	**48.4**	2 U
Sodium	NA				76800 J	213000	208000	197000	212000	227000	199000	202000
Thallium	NA		2	2	-----	2 U	2 U	2 U	2 U	3 U	3 U	4 U
Vanadium	19	d			**45.8 J**	**23.5**	12.0	**35.4**	**32.3**	3 U	3 U	6.8 B
Zinc	81				**1060 J**	15.3 J	10 U	17.1 U	15.8 U	5.2 B	6.8 B	9.8 B

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ELEMENT	AWQC [1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Jun-99	Oct-00	Oct-01	Oct-02	Jul-03	Jul-04	Apr-05	Oct-06	Apr-07	Apr-08
Total Metals (ug/l)									Duplicates Averaged	Duplicates Averaged			Duplicates Averaged	Duplicates Averaged
Antimony	500	P	6	6	2 U	3 U	0.38 U	1.8 U	6 U	6 U	1.6 U	6.0 U	1.6 J	6 U
Arsenic[5]	36		10	50	**119**	**129**	**140**	**130**	**119.5**	**120**	**104.45**	**125**	**104.5 J**	**121**
Barium	3.9	d	2000	2000	**42 B**	**51.8 B**	**67.4 B**	**73 B**	**69.7 J**	**74.1 J**	**72.45 J**	**79.3 J**	**72.65 J**	**76.2 J**
Beryllium	5.3	b	4	4	2 U	2 U	0.34 U	0.48 U	4 U	4 U	4 UJ	1.7 J	1.35 U	1.45 U
Cadmium	9.3		5	5	2 U	0.81 B	0.26 U	0.35 U	4 U	4 U	0.52 J	4.0 U	0.485 U	0.43 U
Chromium [2]	50		100	100	2.9 B	2 U	0.59 B	6.4 U	10 U	10 U	2.9 J	1.5 J	2.9 J	10 U
Cobalt	3	d			**140**	**9.4 B**	**5.7 B**	**5.2 B**	**12.95 J**	**13.1 J**	**19.5 J**	21.4 J	**12.2 J**	**28 J**
Copper	2.4		1300	NA	**10 B**	**18.7 B**	**5.2 B**	8.7 U	**6.2 J**	**10.4 J**	**97.05 J**	51.5	**32.5**	**116.5**
Iron	1000	b			**2090**	**3260**	**4650**	**6100**	**4205**	**5400**	**6140 J**	6710	**4145**	**4955**
Lead	8.1		15	15	3 U	**10.5**	0.67 U	1.8 U	5 U	1.85 J	**8.2 J**	6.0	2.15	3.4 J
Magnesium	NA				43400	44400	58500	75000	58950	74500	69050	82900	61950	84400
Manganese	80	d			NA	**1940**	**2540**	**3000**	**2005**	**2495**	**2115**	2380	**2065**	**2085**
Mercury	0.025		2	2	0.1 U	0.1 U	0.11 U	0.2 U	0.2 U	0.2 U	0.069 U	0.2 U	0.0565 U	0.2 U
Nickel	8.2		NA	100	3.2	7.3 B	7.1 B	7.3 U	5.05 J	5.45 J	**10.4 J**	8.5 J	**7.9 J**	**8.85 J**
Potassium	NA				29000	28700	17500	22000	15850	11100	12975 J	7820 J	15100	2960 J
Selenium	71		50	50	4 U	4 U	3.2 B	5.3 B	10 U	5 U	5 U	5 U	1 U	2.65 U
Silver	0.92	P			3 U	2 U	0.27 U	6.1 U	5 U	5 U	5 U	5 U	0.31 U	5 U
Sodium	NA				225000	168000	201000	24000	206500	224000	217000 J	248000	200000	247500
Thallium	NA		2	2	3 U	3 U	0.65 U	3.4 U	10 U	10 U	10 U	1 U	0.586 J	0.635 U
Vanadium	19	d			14.3 B	2.4 B	5 U	4.5 U	5.15 J	50 U	4.5 J	50 UJ	1 J	30 U
Zinc	81				7.1 B	41.8 B	4.1 B	16 B	9 J	3.6 J	49.65 J	24.2	12.4 J	13.9 J

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J - Quantitation is approximate
R - Value is rejected
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NA - Parameter not analyzed

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ELEMENT	AWQC [1]		Dec-93	Mar-97	Jun-97	Sep-97	Jan-98	Apr-98	Jul-98	Oct-98	Jun-99
Total Metals (ug/l)											
Antimony	500	P	Well	No	No	No	No	No	No	No	No
Arsenic	36		Dry	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample
Barium	3.9	d									
Beryllium	5.3	b	No								
Cadmium	9.3		Sample								
Chromium [2]	50										
Cobalt	3	d									
Copper	2.4										
Iron	1000	b									
Lead	8.1										
Magnesium	NA										
Manganese	80	d									
Mercury	0.025										
Nickel	8.2										
Potassium	NA										
Selenium	71										
Silver	0.92	P									
Sodium	NA										
Thallium	NA										
Vanadium	19	d									
Zinc	81										

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ELEMENT	AWQC [1]		Oct-00	Oct-01	Oct-02	Jul-03	Jul-04	Apr-05	Oct-06	Apr-07	Apr-08
Total Metals (ug/l)											
Antimony	500	P	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample
Arsenic	36										
Barium	3.9	d									
Beryllium	5.3	b									
Cadmium	9.3										
Chromium [2]	50										
Cobalt	3	d									
Copper	2.4										
Iron	1000	b									
Lead	8.1										
Magnesium	NA										
Manganese	80	d									
Mercury	0.025										
Nickel	8.2										
Potassium	NA										
Selenium	71										
Silver	0.92	P									
Sodium	NA										
Thallium	NA										
Vanadium	19	d									
Zinc	81										

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UJ - Detection limit is approximate
NA - Parameter not analyzed

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ELEMENT	AWQC [1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Dec-93	Mar-97	Jun-97	Sep-97	Jan-98	Apr-98	Jul-98	Oct-98
Total Metals (ug/l)												
Antimony	500	P	6	6	26.5 J	5 U	3 U	3 U	3 U	2 U	2 U	5 U
Arsenic[5]	36		10	50	**51.6 J**	24.5	26.7	32.45	27.6	29.7	28.2	17.5
Barium	3.9	d	2000	2000	**112**	0.7 U	**30.9**	**23.6**	32.8 U	**24.4 B**	**69.5 B**	**33.2 B**
Beryllium	5.3	b	4	4	1	0.2 U	0.5 U	1 U	1 U	0.5 U	0.5 U	0.2 U
Cadmium	9.3		5	5	**10 J**	0.2 U	0.4 U	0.6 U	0.6 U	2.1 B	1.1 B	0.8 B
Chromium [2]	50		100	100	**67.9 J**	0.7 U	0.6 U	0.5 U	0.56 J	0.91 B	5.4 B	0.6 U
Cobalt	3	d			**43.8**	0.7 U	1.8	**4.35**	3 U	1.9 B	U U	1.5 B
Copper	2.4		1300	NA	**97.2 J**	2 U	2 U	4.2 U	3.9 U	**5.3 B**	**2.6 B**	2 U
Iron	1000	b			**87300 J**	**21000**	**23200**	**24750**	**18300**	**27400**	**67400**	**13300**
Lead	8.1		15	15	**375 J**	1.5 U	8.1 U	2.85 U	2 U	3.7 B	2 U	3 U
Magnesium	NA				10000 J	3220	3350	3125 J	2570	3360 B	4950 B	3300 B
Manganese	80	d			**2730 J**	**495 J**	NA	**544**	NA	NA	NA	NA
Mercury	0.025		2	2	**1.7**	0.08 U	0.08 U	0.09 U	0.1 U	0.2 U	0.09 U	0.1 U
Nickel	8.2		NA	100	**97**	0.7 U	2.8 J	5.9 J	3.2 J	2 B	10.9 B	0.6 U
Potassium	NA				3070	460 U	3300 U	2610 J	1940 J	4000 U	NA	1760 B
Selenium	71		50	50	-----	5 U	6.5 U	5 U	5 U	5 U	5 U	5 U
Silver	0.92	P			**11.6**	0.6 U	4.2 U	2 U	2 U	2 U	8.9 B	2 U
Sodium	NA				7590 J	10700	12300	10350	7720	10300	13100	7780
Thallium	NA		2	2	-----	2 U	2 U	2 U	2 U	3 U	3 U	4 U
Vanadium	19	d			**189**	0.6 U	1 U	3.55	3.3	3.9 B	12.1 B	2 B
Zinc	81				**1440 J**	23.3	12.3 J	13.95 U	9.3 U	55.7	66.3	23 B

B - Reported concentration is between Method Detection Limit and Reporting Limit
J - Quantitation is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

MW-112S
Historical Analytical Results
Groundwater Monitoring
McAllister Point Landfill
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ELEMENT	AWQC [1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Jun-99	Oct-00	Oct-01	Oct-02	Jul-03	Jul-04	Apr-05	Oct-06	Apr-07	Apr-08
Total Metals (ug/l)					**Duplicates Averaged**									
Antimony	500	P	6	6	2 U	3 U	0.38 U	No Sample	No Sample	6 U	1.6 U	6.0 U	1.4 UJ	3.1 UJ
Arsenic[5]	36		10	50	30.0	**39.0**	26.9			**53.3**	21.1	9.4 J	9.5 U	22.2
Barium	3.9	d	2000	2000	**27.6 B**	**24.8 B**	17.6 B			**18.8**	**26.3 J**	26.7 J	**28.8 J**	**23.4 J**
Beryllium	5.3	b	4	4	2 U	2 U	0.34 U			4 U	4 UJ	4.0 U	0.25 U	4.0 U
Cadmium	9.3		5	5	2 U	0.96 B	0.26 U			4 U	4 UJ	4.0 U	0.22 U	0.40 U
Chromium [2]	50		100	100	2 U	2 U	0.93 B			10 U	0.68 J	10 U	0.30 U	0.52 U
Cobalt	3	d			3 U	3 B	**6.4 B**			1.7 J	0.67 J	50 U	0.86 U	**3.4 J**
Copper	2.4		1300	NA	5.7 B	5 U	**3.4 B**			0.47 J	25 U	9.9 J	4.1 U	**8.9 J**
Iron	1000	b			**17500**	**30200**	**33800**			**40000**	**15600**	5810	**4600**	**18300**
Lead	8.1		15	15	**15.6**	2.3 U	2.1 B			2 J	5 U	5 UJ	0.92 U	5.0 U
Magnesium	NA				3560	4310	4040 B			5120	3530 J	3110 J	3200 J	4680 J
Manganese	80	d			NA	**623**	**871**			**419**	**168**	107	**82.4**	**422**
Mercury	0.025		2	2	0.1 U	0.14 U	0.11 U			0.2 U	0.2 U	0.2 U	0.035 UJ	0.20 U
Nickel	8.2		NA	100	6.9 B	3.8 B	4 B			0.97 J	2.7 J	1.4 J	2.0 U	3.3 U
Potassium	NA				2170	2880	2140 B			2870 J	2500 J	2080 J	2120 J	2370 J
Selenium	71		50	50	12.4 B	13.4 B	1.6 U			5 U	5 U	5 U	1.0 U	5.0 UJ
Silver	0.92	P			**3.9**	**3.8 B**	0.27 U			5 U	5 U	5 U	0.31 U	0.53 U
Sodium	NA				9900	11700	13400			18700	13900	11100	9320	14000
Thallium	NA		2	2	3 U	3 U	0.65 U			10 U	10 U	1 U	0.046 U	1.0 U
Vanadium	19	d			2 U	3.1 B	5 U			50 U	50 U	50 U	0.89 UJ	30 U
Zinc	81				10.4 B	8.4 B	25.3			14.5 J	20.8	33.7	28.5	33.7

B - Reported concentration is between Method Detection Limit and Reporting Limit
J - Quantitation is approximate
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NA - Parameter not analyzed

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Historical Analytical Results
Groundwater Monitoring
McAllister Point Landfill
NAVSTA Newport, Rhode Island

ELEMENT	AWQC [1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Dec-93	Mar-97	Jun-97	Sep-97	Jan-98	Apr-98	Jul-98	Oct-98	Jun-99
Total Metals (ug/l)									**Duplicates Averaged**				
Antimony	500	P	6	6	34.1	5 U	6.5 U	3 U	4.3 U	2 U	2 U	5 U	2 U
Arsenic[5]	36		10	50	**117**	2 U	2 U	2 U	2 U	2 U	2 U	2 U	3 U
Barium	3.9	d	2000	2000	**228**	0.7 U	**34.9**	**12.4**	19 U	**4.3 B**	**9.9 B**	**33 B**	**7 B**
Beryllium	5.3	b	4	4	4.9	0.2 U	0.5 U	1 U	1 U	0.5 U	0.5 U	0.2 U	2 U
Cadmium	9.3		5	5	9.9	0.2 U	0.4 U	0.6 U	0.6 U	1 U	1 U	0.51 B	2 U
Chromium [2]	50		100	100	**146**	0.7 U	0.6 U	0.5 U	0.5 U	0.6 U	0.6 U	0.6 B	2 U
Cobalt	3	d			**127**	0.7 U	0.7 U	2.1	1.75 U	0.6 U	0.89 B	1.1 B	3 U
Copper	2.4		1300	NA	**241**	2 U	2 U	14.7 U	8.3 U	**8.1 B**	**11.5 B**	**6.5 B**	**14.3 B**
Iron	1000	b			**2E+05**	305	**3640**	414	622	**1020**	**2360**	**1500**	**1760**
Lead	8.1		15	15	**1860**	1.5 U	7.8 U	3.4 U	2.5 J	2 U	2 U	5.5	**20.3**
Magnesium	NA				32700	2960	3210	3200 J	2990	2830 B	2500 B	3090 B	3110
Manganese	80	d			**4020**	58.3 J	NA	**130**	NA	NA	NA	NA	NA
Mercury	0.025		2	2	**0.23**	0.08 U	0.8 U	0.09 U	0.09 U	0.2 U	0.09 U	0.1 U	0.1 U
Nickel	8.2		NA	100	**250**	0.7 U	2.4 J	3.9 J	3 U	1.5 B	4.3 B	0.6 U	2.4 B
Potassium	NA				8840	460 U	3300 U	1870 J	1590	4000 U	NA	1860 B	2040
Selenium	71		50	50	-----	5 U	5 U	5 U	5 U	5 U	5 U	5 U	4 U
Silver	0.92	P			**2**	0.6 U	5.4 U	2 U	2 U	**9.5 B**	**12.1**	2 U	3 U
Sodium	NA				11600	8010	10700	9540	6635	8290	5990	7600	8580
Thallium	NA		2	2	-----	2 U	2 U	2 U	2 U	3 U	3 U	4 U	3 U
Vanadium	19	d			**107**	0.6 U	1 U	2.4	2.4	3	5 U	1 U	2 U
Zinc	81				**856**	27.2	26.0	50.1 J	18.3 U	13.4 B	19.9 B	29.2	27.1 B

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UJ - Detection limit is approximate
NA - Parameter not analyzed

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Historical Analytical Results
Groundwater Monitoring
McAllister Point Landfill
NAVSTA Newport, Rhode Island

ELEMENT	AWQC [1]		EPA MCLs(ug/L)	RIDEM GA (ug/L)	Oct-00	Oct-01	Oct-02	Jul-03	Jul-04	Apr-05	Oct-06	Apr-07	Apr-08
Total Metals (ug/l)													
Antimony	500	P	6	6	3 U	0.46 B	No	No	No	1.6 U	6 UJ	1.4 U	6.0 UJ
Arsenic[5]	36		10	50	4.7 B	6.3 B	Sample	Sample	Sample	2.9 J	7.3 J	5.7 U	13.8 U
Barium	3.9	d	2000	2000	**6.1 B**	**10.4 B**				**6.9 J**	13.4 J	**6.7 J**	12.0 U
Beryllium	5.3	b	4	4	2 U	0.34 U				4 UJ	4.0 U	0.25 U	0.28 U
Cadmium	9.3		5	5	0.4 U	0.26 U				4 UJ	4.0 U	0.22 U	4.0 U
Chromium [2]	50		100	100	2 U	0.5 U				10 U	10 U	0.47 U	10 U
Cobalt	3	d			0.56 B	1.5 B				0.87 J	50 U	**0.83 J**	1.9 J
Copper	2.4		1300	NA	**14.8 B**	**16.8 B**				**12 J**	23.7 J	**14.5 J**	**22.9 J**
Iron	1000	b			**3260**	**1930**				**1780**	2760	**1170**	**8040**
Lead	8.1		15	15	2.3 U	1.3 B				5 U	3.2 J	1.0 J	1.6 U
Magnesium	NA				3830	3170 B				3250 J	3370 J	3170 J	3700 J
Manganese	80	d			**260**	**445**				**260**	489	**221**	**467**
Mercury	0.025		2	2	0.1 U	0.11 U				0.2 U	0.2 U	0.018 UJ	0.20 U
Nickel	8.2		NA	100	2.4 B	3.3 B				2.2 J	4.2 J	3.3 J	2.9 U
Potassium	NA				3230	2150 B				2070 J	2210 J	1920 J	2250 J
Selenium	71		50	50	4 U	1.6 U				5 U	5 U	1.0 U	5.0 UJ
Silver	0.92	P			2 U	0.27 U				5 U	5 U	0.31 U	5.0 U
Sodium	NA				9920	11000				12400	9870	8780	12500
Thallium	NA		2	2	3 U	0.65 U				10 U	1 U	0.046 U	1.0 U
Vanadium	19	d			0.5 U	5 U				50 U	50 U	0.35 U	30 U
Zinc	81				10.1	21.4				13.5 J	26.9	19.0 J	15.9 J

B - Reported concentration is between Method Detection Limit and Reporting Limit
J - Quantitation is approximate
R - Value is rejected
U - Value is not detected
UJ - Detection limit is approximate
NA - Parameter not analyzed

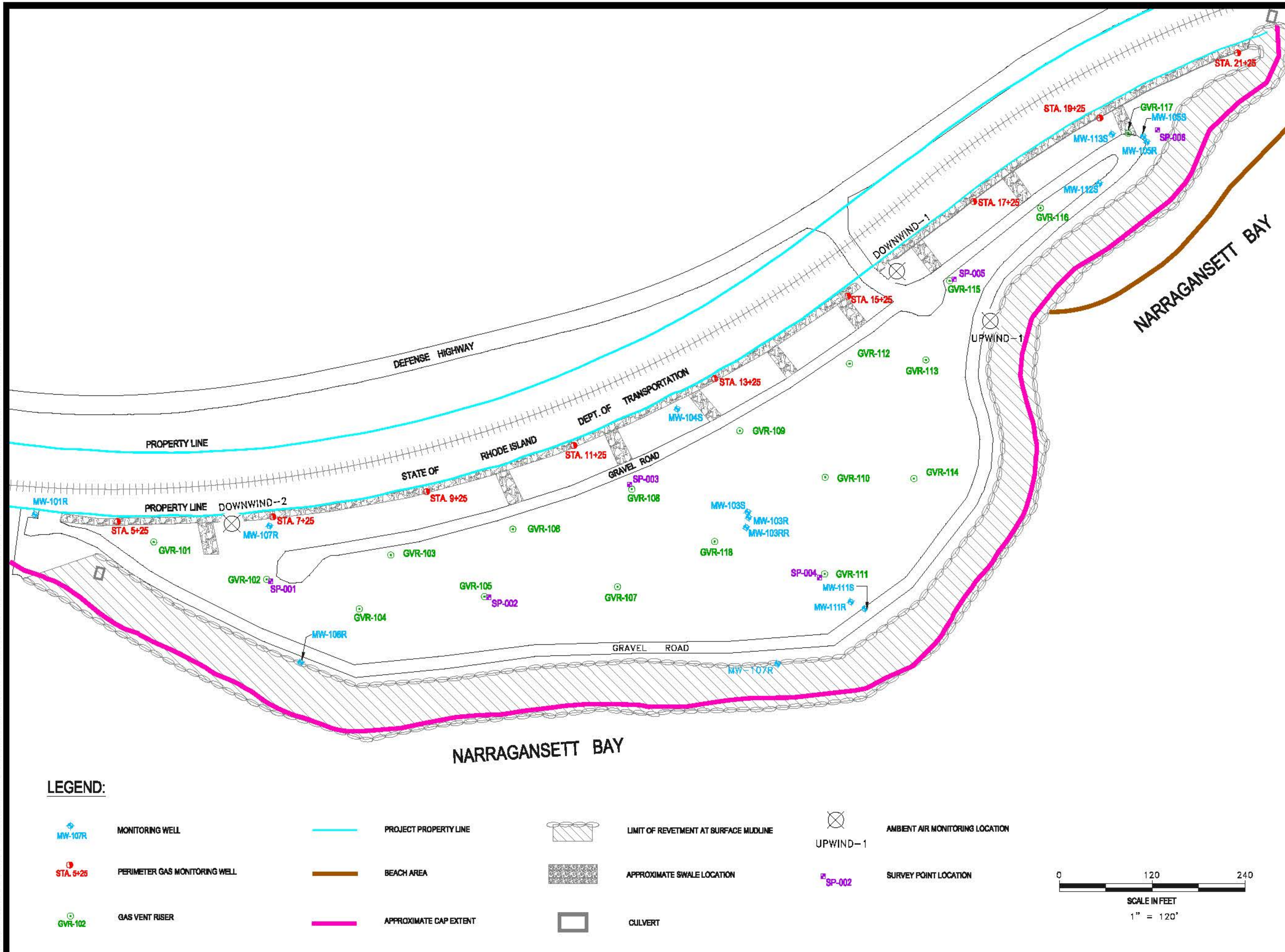
NOTES FOR METALS TABLES:

1. Ambient Water Quality Criteria (AWQC) from 40 FR 79318, "Quality Criteria for Water", December 1992 (with revisions for metals: May 1995).
   Marine chronic values used unless not available, in which case the lowest of a, b, c, d, or e were used as available.
   a - AWQC acute freshwater value.
   b - AWQC chronic freshwater value.
   c - AWQC acute marine value.
   d - Ecotox Tier II freshwater value (US EPA, ECO Update, Intermittent Bulletin Volume 3, Number 2, January 1996).
   e - Canadian MEQ marine acute value (Environment Canada, The Development of Canadian Marine Environmental Quality (MEQ) Guidelines, 1992.
   P - Value is proposed.
2. Criteria presented for Chromium as Chromium VI. No criteria established for Chromium +3 or Chromium (total).
3. Data collected by TRC Environmental Corporation as presented in: "Remedial Investigation, Draft Final Report for McAllister Point Landfill, NETC-Newport, Rhode Island", July 1994.
4. Wells installed and sampled by Foster Wheeler Environmental Corporation (FWENC) as described in: "Operations and Maintenance Manual", May 1997.
5. The EPA MCL for Arsenic was reduced from 50 µg/L to 10 µg/L on January 23, 2006.

J - Value estimated.
B - For inorganic concentrations, the detected concentration is between the IDL and the CRDL.
NA - AWQC value for contaminant was not available.
ND - Not detected above DL reported by analytical laboratory.
NR - Concentration not reported in summary tables prior to October 1998.
MDL - Method Detection Limit reported by analytical laboratory.
DL - Detection Limit reported by analytical laboratory.
R - Value rejected due to limitations found in the data review.
NS - Not Sampled.
---------- - Not analyzed.
Bolded values exceed the indicated AWQC value.
Shaded values exceed the indicated EPA MCLs and/or RIDEM GA values.

Appendix E.2

Landfill Gas



Watermark

ANNUAL MONITORING REPORT

McAllister Point Landfill
Naval Station Newport
Middletown, Rhode Island

NOTES:

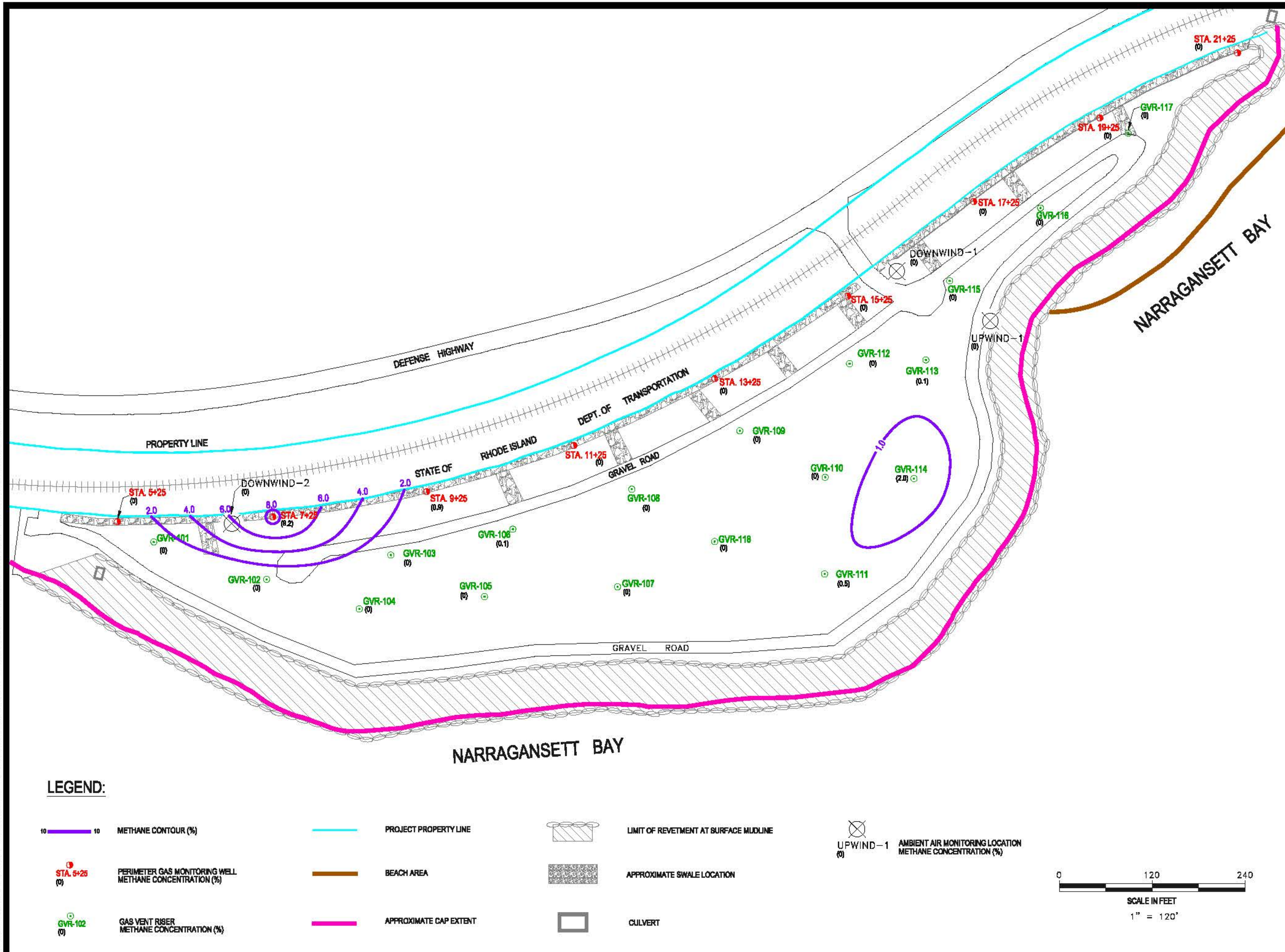
PROJECT NO: 10407-23
MODEL FILE: FIG1-2
DRAWN BY: SDP
CHK'D BY: MRF
DATE: 8/7/2013

Groundwater and Landfill Gas Monitoring Point Locations

Figure 1-2

J:\01 Projects\10XXX\10407 - NAVFAC MIDLANT RAC LTM MACTO 003 - Newport, RI\10. Drawings\Annual Monitoring Report\2013\Figure 1-2 Groundwater and Landfill Gas Monitoring Points.dwg

J:\01 Projects\10XXX\10407 - NAVFAC MIDLANT RAC LTM MAC\TO 003 - Newport, RI\10. Drawings\Annual Monitoring Report\2013\Figure 2-1 Methane Gas Profile Plan.dwg



Watermark

ANNUAL MONITORING REPORT

McAllister Point Landfill
Naval Station Newport
Middletown, Rhode Island

NOTES:

1. Gas screening was completed on July 24, 2013.

PROJECT NO: 10407-23
MODEL FILE: FIG 2-1
DRAWN BY: SDP
CHK'D BY: MRF
DATE: 8/5/2013

Methane Gas Profile Plan
July 24, 2013

Figure 2-1

Table 2-1
Landfill Vent Gas Field Screening Results
McAllister Point Landfill
Middletown, Rhode Island

Vent Location Identifier	Time	Barometric Pressure** (mm Hg)	Flow (cfm)	Temp. (°C)	Temp (°F)	O_2 (%)	CO (%)	H_2S (ppm)	CH_4 (%)	LEL (%)	VOC PID (ppm)
STA 5+25	14:25	755.50	**0.33**	**34.2**	***93.6***	***17.6***	**0.0**	***2.0***	**0.0**	**0.0**	
STA 7+25	14:40	755.40	0.21	34.2	93.6	13.6	0.2	2.0	***8.2***	OR[3]	
STA 9+25	14:55	755.80	0.49	31.9	89.4	16.4	1.4	**0.0**	0.9	18.0	
STA 11+25	15:08	755.80	0.12	30.6	87.1	18.2	**0.0**	**0.0**	**0.0**	**0.0**	
STA 13+25	15:21	755.80	**3.12**	29.1	84.4	19.2	**0.0**	**0.0**	**0.0**	**0.0**	
STA 15+25	15:34	755.90	0.71	29.2	84.6	19.4	**0.0**	**0.0**	**0.0**	**0.0**	
STA 17+25	9:25	754.60	0.29	31.6	88.9	15.9	1.7	**0.0**	**0.0**	1.0	
STA 19+25	8:54	754.40	0.28	31.7	89.1	15.0	2.7	**0.0**	**0.0**	1.0	
STA 21+25	8:15	754.40	0.27	**29.0**	**84.2**	19.4	0.3	**0.0**	**0.0**	**0.0**	
GVR-101	14:06	755.00	0.31	37.2	99.0	17.6	**0.0**	**0.0**	**0.0**	**0.0**	
GVR-102	13:48	755.00	0.52	32.7	90.9	17.7	**0.0**	1.0	**0.0**	1.0	
GVR-103	13:20	755.00	0.34	31.2	88.2	17.4	**0.0**	1.0	**0.0**	1.0	
GVR-104	13:35	755.00	0.37	34.9	94.8	17.7	**0.0**	***3.0***	**0.0**	1.0	
GVR-105	13:06	754.90	0.16	31.4	88.5	16.9	**0.0**	**0.0**	**0.0**	1.0	NR[1]
GVR-106	12:50	754.70	0.12	33.2	91.8	16.3	**0.0**	**0.0**	0.1	2.0	
GVR-107	15:50	755.00	0.22	33.7	92.7	20.1	**0.0**	**0.0**	**0.0**	**0.0**	
GVR-108	12:24	754.30	**0.00**	33.6	92.5	16.2	**0.0**	**0.0**	**0.0**	1.0	
GVR-109	11:44	754.30	0.21	43.4	110.1	19.6	**0.0**	**0.0**	**0.0**	1.0	
GVR-110	11:10	754.10	0.24	39.0	102.2	19.7	**0.0**	**0.0**	**0.0**	**0.0**	
GVR-111	10:58	753.90	0.84	***47.2***	***117.0***	18.0	0.8	**0.0**	0.5	11.0	
GVR-112	11:22	754.20	0.21	38.2	100.8	19.7	**0.0**	**0.0**	**0.0**	**0.0**	
GVR-113	10:10	754.30	0.14	30.7	87.3	16.8	0.4	**0.0**	0.1	3.0	
GVR-114	10:34	754.50	0.51	36.5	97.7	**3.7**	***5.7***	**0.0**	2.0	***41.0***	
GVR-115	9:42	754.00	0.26	33.1	91.6	18.6	**0.0**	**0.0**	**0.0**	**0.0**	
GVR-116	9:08	753.90	0.24	35.8	96.4	20.1	**0.0**	**0.0**	**0.0**	**0.0**	
GVR-117	8:40	754.20	0.04	31.4	88.5	***20.3***	**0.0**	**0.0**	**0.0**	**0.0**	
GVR-118	11:58	754.20	0.06	38.4	101.1	18.8	**0.0**	***3.0***	**0.0**	1.0	
UPWIND-1	16:55	754.00	N/A	35.7	96.3	20.6	0.0	0.0	0.0	0.0	0.4
DOWNWIND-1	17:08	754.10	N/A	35.7	96.3	18.0	0.0	0.0	0.0	0.0	0.0
DOWNWIND-2	16:40	756.10	N/A	35.1	95.2	20.6	0.0	0.0	0.0	0.0	0.0
Maximum[2]	-	***755.90***	***3.12***	***47.2***	***117.0***	***20.6***	***5.7***	***3.0***	***8.2***	***41.0***	-
Minimum[2]	-	**753.90**	**0.00**	**29.0**	**84.2**	**3.7**	**0.0**	**0.0**	**0.0**	**0.0**	

Notes:
** An average pressure taken from Weather Underground was used for this sampling event. Equipment used during this sampling round was reading false values.
Bold, Italicized, and highlighted text indicates the highest value for a parameter.
Bold text indicates the lowest value for a parameter.
The level of LEL was above the gas meters screening limits (OR = over range).
Screening was completed on 24 July 2013.
1 VOC screening is not required for perimeter stations or gas vent risers (NR = not required).
2 Maximum and Minimum values do not include results from the ambient upwind and downwind locations.

Note: Screening results for STA 5+25 are highlighted in error.

Table 2-2
Historic Landfill Vent Gas Field Screening Results
McAllister Point Landfill
Middletown, Rhode Island

Vent ID	Measurement Date	Screening Prior to Gas Sample Collection	Barometric Pressure (mm Hg)	Flow (cfm)	Temperature (°C)	O_2 (%)	CO_2 (%)	H_2S (ppm)	CH_4 (%)
STA 5+25	03/28/02		762.0	0.00	18.9	3.5	15.2	1.0	15.1
	06/20/02		NA	0.00	27.8	4.5	13.1	0.0	4.8
	08/14/02	Initial	764.5	0.00	30.0	0.0	31.1	2.0	43.1
	08/15/02	Initial	764.5	0.00	25.0	0.2	32.3	0.0	46.0
	10/17/02		NA	NA	NA	4.4	14.4	1.0	7.4
	04/23/03		753.4	0.85	14.8	0.0	24.1	2.0	45.2
	06/10/03		756.9	0.54	30.5	20.7	0.0	0.0	0.0
	07/22/03	Initial	757.7	2.30	27.1	9.3	11.3	0.0	19.7
	11/21/03	Initial	756.9	0.00	13.4	20.3	0.0	2.0	0.0
	03/02/04		758.3	0.70	9.0	9.1	12.6	2.0	11.8
	05/11/04		767.4	0.36	32.6	21.3	0.0	0.0	0.0
	07/06/04	Initial	764.4	0.26	28.7	0.7	21.9	0.0	20.3
	11/12/04		765.0	0.83	9.7	21.0	0.2	0.0	0.0
	03/03/05		749.7	2.25	-1.8	16.8	4.2	0.0	1.4
	05/23/05		749.8	0.44	13.8	14.0	6.7	0.0	9.3
	07/07/05	Initial	764.3	1.29	21.6	20.7	0.0	0.0	0.0
	11/17/05		762.0	8.30	14.2	6.1	13.6	0.0	17.0
	04/12/06		760.8	0.89	16.5	18.8	1.9	0.0	0.1
	10/24/06	Initial	750.0	0.00	12.0	2.7	17.0	0.0	13.1
	12/26/06	Initial	745.1	0.12	11.3	20.4	0.9	0.0	0.6
	06/21/07	Initial	761.5	2.18	37.3	13.5	5.8	0.0	5.1
	08/14/07		775.6	0.17	22.9	20.9	0.0	0.0	0.0
	09/28/07		761.8	1.22	21.6	0.0	24.1	1.0	28.8
	12/27/07		755.8	1.03	5.1	21.1	0.2	0.0	0.1
	03/25/08		774.8	0.96	13.5	20.9	0.1	0.0	0.0
	06/27/08		758.8	0.35	28.4	0.6	20.2	0.0	22.7
	09/29/08		760.0	0.62	21.5	15.2	6.7	0.0	7.5
	12/12/08		747.2	37.00	14.0	3.6	20.5	0.0	32.5
	03/23/09		767.7	1.20	3.5	13.5	6.1	0.0	1.6
	06/12/09		744.2	0.51	19.6	1.0	20.0	0.0	27.1
	09/08/09		762.0	0.32	22.6	0.4	21.6	0.0	27.5
	12/23/09		764.1	1.57	-0.1	16.4	2.0	0.0	0.0
	06/04/10		750.3	2.09	31.1	4.9	11.6	0.0	3.0
	08/10/11		751.4	0.37	29.8	20.3	0.0	0.0	0.0
	07/18/12		756.9	0.12	35.0	5.8	29.0	0.9	0.0
	07/24/13		755.5	0.33	34.2	17.6	0.0	2.0	0.0
		Average[3]:	759.4	0.70	27.5	8.7	13.8	0.3	14.2
		Min:	744.2	0.00	-1.8	0.0	0.0	0.0	0.0
		Max:	775.6	37.00	37.3	21.3	32.3	2.0	46.0

Notes:

1. Initial denotes field screening performed prior to gas vent sampling.
2. During the 18 July 2012 screening event CO was measured instead of CO_2.
3. Average results only include sampling events conducted during the summer months (June - September).

Table 2-2
Historic Landfill Vent Gas Field Screening Results
McAllister Point Landfill
Middletown, Rhode Island

Vent ID	Measurement Date	Screening Prior to Gas Sample Collection	Barometric Pressure (mm Hg)	Flow (cfm)	Temperature (°C)	O_2 (%)	CO_2 (%)	H_2S (ppm)	CH_4 (%)
STA 7+25	03/28/02		762.0	0.00	13.3	1.5	19.5	0.0	21.9
	06/20/02		NA	0.00	26.7	0.4	18.7	0.0	9.0
	08/14/02	Initial	764.5	0.00	35.0	0.0	30.6	1.0	43.2
	08/15/02	Initial	764.5	0.00	25.0	0.0	30.4	0.0	43.1
	10/17/02		NA	NA	NA	11.4	9.1	1.0	5.7
	04/23/03		753.2	0.17	15.6	0.0	24.2	2.0	45.0
	06/10/03		756.9	0.34	31.1	20.7	0.0	0.0	0.0
	07/22/03	Initial	757.7	1.30	27.4	6.3	11.7	0.0	9.2
	11/21/03	Initial	756.9	0.00	13.8	20.3	1.8	2.0	0.0
	03/02/04		758.2	3.50	8.0	4.0	16.7	2.0	18.8
	05/11/04		768.4	0.09	32.7	20.3	0.0	0.0	0.0
	07/09/04	Initial	765.8	0.61	34.9	20.7	0.0	0.0	0.1
	11/12/04		765.0	0.25	9.6	6.0	13.3	0.0	6.7
	03/03/05		749.0	1.76	-1.6	21.0	0.0	0.0	0.0
	05/23/05		749.7	0.00	14.0	3.5	16.2	0.0	13.3
	07/06/05	Initial	761.2	0.15	28.5	20.5	0.0	0.0	0.0
	11/17/05		761.6	1.04	14.9	21.6	0.1	0.0	0.2
	04/12/06		760.6	0.488	18.8	17.5	2.6	0.0	0.2
	10/24/06	Initial	750.4	0.07	12.5	19.2	0.0	0.0	0.0
	12/26/06	Initial	745.0	0.19	11.6	0.7	24.8	0.0	40.4
	06/21/07	Initial	762.6	2.44	32.1	6.1	13.7	0.0	10.5
	08/14/07		776.2	0.24	23.4	6.7	15.3	0.0	15.7
	09/28/07		762.3	3.45	25.2	0.0	28.7	0.0	41.7
	12/27/07		755.9	0.27	4.7	17.2	5.2	0.0	5.1
	03/25/08		774.5	2.27	14.4	19.3	1.9	0.0	0.0
	06/27/08		758.5	0.44	28.3	1.5	17.7	0.0	16.0
	09/29/08		760.0	1.03	22.3	9.3	25.0	0.0	17.7
	12/12/08		747.3	19.03	13.8	3.8	20.9	0.0	34.0
	03/23/09		767.8	1.33	5.1	20.4	0.1	0.0	0.0
	06/12/09		744.2	0.49	19.7	5.3	8.4	0.0	6.1
	09/08/09		762.0	0.44	22.4	3.1	16.1	0.0	14.1
	12/23/09		764.1	0.44	-2.6	20.0	0.2	0.0	0.0
	06/04/10		750.3	1.83	27.7	4.4	11.9	0.0	4.6
	08/10/11		751.3	0.04	31.1	6.1	12.5	0.0	15.6
	07/18/12		756.9	0.12	35.0	8.7	9.0	0.0	0.0
	07/24/13		755.4	0.21	34.2	13.6	0.2	2.0	8.2
		Average[3]:	759.4	0.73	28.3	7.4	13.9	0.2	14.2
		Min:	744.2	0.00	-2.6	0.0	0.0	0.0	0.0
		Max:	776.2	19.03	35.0	21.6	30.6	2.0	45.0

Notes:

1. Initial denotes field screening performed prior to gas vent sampling.
2. During the 18 July 2012 screening event CO was measured instead of CO_2.
3. Average results only include sampling events conducted during the summer months (June - September).

Table 2-2
Historic Landfill Vent Gas Field Screening Results
McAllister Point Landfill
Middletown, Rhode Island

Vent ID	Measurement Date	Screening Prior to Gas Sample Collection	Barometric Pressure (mm Hg)	Flow (cfm)	Temperature (°C)	O_2 (%)	CO_2 (%)	H_2S (ppm)	CH_4 (%)
STA 9+25	03/28/02		762.0	0.00	16.7	4.3	14.1	0.0	13.1
	06/20/02		NA	0.00	27.2	13.1	6.6	0.0	3.0
	08/14/02	Initial	764.5	0.00	29.0	0.5	26.8	1.0	39.1
	08/15/02	Initial	764.5	0.00	24.0	1.9	22.4	0.0	28.3
	10/17/02		NA	NA	NA	17.3	2.5	1.0	0.4
	04/23/03		753.1	0.34	15.8	0.0	19.8	3.0	42.8
	06/10/03		756.9	1.08	30.2	20.7	0.0	0.0	0.0
	07/22/03	Initial	757.7	1.70	28.9	15.6	3.6	0.0	3.3
	11/21/03	Initial	756.9	0.05	13.6	17.5	2.0	2.0	0.0
	03/02/04		758.2	1.70	10.5	9.2	10.1	0.0	15.1
	05/11/04		767.4	0.44	33.9	21.1	0.0	0.0	0.0
	07/08/04	Initial	762.5	0.68	26.6	29.1	3.5	0.0	2.8
	11/12/04		765.0	0.25	12.0	9.3	9.7	0.0	5.2
	03/03/05		748.8	1.93	-1.4	21.0	0.0	0.0	0.0
	05/23/05		749.7	0.35	14.9	3.0	14.3	0.0	10.7
	07/06/05	Initial	761.1	0.09	26.1	20.5	0.0	0.0	0.0
	11/17/05		761.9	2.12	14.9	15.7	4.6	0.0	3.4
	04/12/06		760.9	0.745	21.0	19.0	1.4	0.0	0.4
	10/24/06	Initial	750.6	0.20	11.9	19.2	0.0	0.0	0.0
	12/26/06	Initial	745.0	0.19	10.2	7.9	13.2	0.0	24.8
	06/21/07	Initial	761.2	1.91	31.1	10.1	8.4	0.0	5.8
	08/14/07		776.2	0.32	23.4	10.0	10.4	1.0	9.8
	09/28/07		762.2	0.49	27.7	0.1	19.6	0.0	12.4
	12/27/07		755.9	0.74	5.0	19.3	1.2	0.0	2.5
	03/25/08		774.4	2.79	14.2	20.2	0.9	0.0	0.0
	06/27/08		758.7	0.35	28.3	19.4	1.7	0.0	1.8
	09/29/08		760.0	1.51	22.7	6.3	17.2	0.0	15.8
	12/12/08		747.6	24.21	13.5	10.4	12.1	0.0	23.2
	03/23/09		767.7	1.11	5.2	20.7	0.0	0.0	0.0
	06/12/09		741.7	0.44	19.2	15.5	4.2	0.0	5.8
	09/08/09		764.5	0.22	22.5	0.3	22.4	0.0	26.3
	12/23/09		764.1	4.28	-1.9	20.1	0.2	0.0	0.0
	06/04/10		750.3	1.57	30.1	12.4	6.0	0.0	1.4
	08/10/11		751.4	1.30	33.0	2.6	15.8	0.0	21.5
	07/18/12		756.9	0.02	34.0	15.8	6.0	0.0	0.0
	07/24/13		755.8	0.49	31.9	16.4	1.4	0.0	0.9
		Average[3]:	759.2	0.68	27.6	11.7	9.8	0.1	9.9
		Min:	741.7	0.00	-1.9	0.0	0.0	0.0	0.0
		Max:	776.2	24.21	34.0	29.1	26.8	3.0	42.8

Notes:

1. Initial denotes field screening performed prior to gas vent sampling.
2. During the 18 July 2012 screening event CO was measured instead of CO_2.
3. Average results only include sampling events conducted during the summer months (June - September).

Table 2-2
Historic Landfill Vent Gas Field Screening Results
McAllister Point Landfill
Middletown, Rhode Island

Vent ID	Measurement Date	Screening Prior to Gas Sample Collection	Barometric Pressure (mm Hg)	Flow (cfm)	Temperature (°C)	O_2 (%)	CO_2 (%)	H_2S (ppm)	CH_4 (%)
STA 11+25	03/28/02		762.0	0.00	12.8	6.5	11.4	1.0	11.7
	06/20/02		NA	0.00	28.9	9.6	9.6	0.0	3.7
	08/14/02	Initial	764.5	0.00	32.0	0.7	22.9	0.0	35.3
	08/15/02	Initial	764.5	0.00	26.0	14.6	5.8	0.0	8.7
	10/17/02		NA	NA	NA	16.5	3.3	0.0	1.2
	04/23/03		753.6	0.32	15.1	0.0	18.5	3.0	40.7
	06/10/03		756.9	1.82	30.9	20.7	0.0	0.0	0.0
	07/22/03	Initial	757.7	1.90	27.8	12.6	4.0	0.0	2.7
	11/21/03	Initial	754.4	0.88	12.7	18.7	1.2	2.0	0.0
	03/02/04		758.2	0.80	11.6	14.5	4.9	0.0	7.1
	05/11/04		767.6	0.35	31.0	21.0	0.0	0.0	0.0
	07/08/04	Initial	760.4	0.17	24.1	12.4	6.0	0.0	2.3
	11/12/04		765.4	2.04	14.5	13.2	5.7	0.0	2.3
	03/03/05		749.0	2.02	-1.5	21.0	0.0	0.0	0.0
	05/23/05		749.6	0.61	14.1	12.5	6.2	0.0	4.2
	07/06/05	Initial	761.6	0.13	26.2	20.6	0.0	0.0	0.0
	11/17/05		762.9	3.02	15.0	17.7	2.8	0.0	2.0
	04/12/06		761.1	0.945	25.5	20.9	0.0	0.0	0.0
	10/24/06	Initial	750.7	0.55	12.1	6.3	13.6	0.0	15.0
	12/26/06	Initial	744.0	0.83	11.8	20.9	0.0	0.0	0.0
	06/21/07	Initial	761.3	17.10	32.6	9.8	8.3	0.0	6.1
	08/14/07		775.9	0.23	28.2	0.0	19.0	0.0	16.4
	09/28/07		762.2	1.32	23.5	0.0	35.2	0.0	57.6
	12/27/07		756.2	0.75	4.8	21.1	0.3	0.0	0.1
	03/25/08		774.4	2.27	13.6	18.1	2.4	0.0	0.0
	06/27/08		758.6	0.18	29.2	21.2	0.0	0.0	0.0
	09/29/08		760.1	0.73	25.1	17.2	3.2	0.0	4.3
	12/12/08		747.6	14.97	14.9	18.4	3.7	0.0	9.4
	03/23/09		767.9	0.72	6.1	20.5	0.4	0.0	0.0
	06/12/09		741.7	1.51	18.7	20.8	0.3	0.0	0.0
	09/08/09		764.5	0.10	22.4	5.8	12.9	0.0	18.6
	12/23/09		764.1	1.05	-2.7	19.9	0.7	0.0	0.0
	06/04/10		750.3	2.09	29.4	16.3	3.4	0.0	0.6
	08/10/11		751.6	0.60	32.8	19.8	0.0	0.0	0.0
	07/18/12		756.9	0.88	36.0	21.6	4.0	0.0	0.0
	07/24/13		755.8	0.12	30.6	18.2	0.0	0.0	0.0
		Average[3]:	759.1	1.60	28.0	13.4	7.5	0.0	8.7
		Min:	741.7	0.00	-2.7	0.0	0.0	0.0	0.0
		Max:	775.9	17.10	36.0	21.6	35.2	3.0	57.6

Notes:

1. Initial denotes field screening performed prior to gas vent sampling.
2. During the 18 July 2012 screening event CO was measured instead of CO_2.
3. Average results only include sampling events conducted during the summer months (June - September).

Table 2-2
Historic Landfill Vent Gas Field Screening Results
McAllister Point Landfill
Middletown, Rhode Island

Vent ID	Measurement Date	Screening Prior to Gas Sample Collection	Barometric Pressure (mm Hg)	Flow (cfm)	Temperature (°C)	O_2 (%)	CO_2 (%)	H_2S (ppm)	CH_4 (%)
STA 13+25	03/28/02		762.0	0.00	12.2	8.0	9.4	0.0	9.7
	06/20/02		NA	0.00	27.8	1.1	16.8	0.0	5.6
	08/14/02	Initial	764.5	0.00	29.0	4.7	16.2	0.0	24.9
	08/15/02	Initial	764.5	0.00	26.0	15.8	4.2	0.0	5.9
	10/17/02		NA	NA	NA	18.2	1.5	1.0	0.1
	04/23/03		753.6	0.19	16.8	0.0	17.3	3.0	39.4
	06/10/03		756.9	0.33	30.1	20.7	0.0	0.0	0.0
	07/22/03	Initial	757.7	3.70	27.3	18.7	1.5	0.0	3.2
	11/21/03	Initial	756.9	0.02	13.5	20.1	0.3	2.0	0.0
	03/02/04		758.2	1.10	11.5	20.7	0.0	0.0	0.0
	05/11/04		768.8	0.18	31.9	20.6	0.0	0.0	0.0
	07/08/04	Initial	761.1	0.95	24.9	20.8	0.0	1.0	0.1
	11/12/04		765.3	2.22	14.3	18.5	1.5	0.0	0.1
	03/03/05		748.5	2.25	-1.4	20.6	0.2	0.0	0.1
	05/23/05		749.8	0.53	13.3	19.0	1.1	0.0	0.3
	07/06/05	Initial	763.0	0.19	27.1	19.5	0.5	0.0	0.3
	11/17/05		763.5	6.95	13.8	19.5	1.4	0.0	0.3
	04/12/06		761.4	0.930	24.2	20.9	0.0	0.0	0.1
	10/24/06	Initial	750.7	1.22	13.5	6.2	12.2	0.0	15.8
	12/26/06	Initial	744.5	0.54	11.0	20.9	0.0	0.0	0.0
	06/21/07	Initial	761.5	2.91	33.6	18.9	1.3	0.2	0.8
	08/14/07		775.6	0.15	27.9	5.7	11.8	0.0	5.1
	09/28/07		762.3	6.18	28.1	0.3	16.3	1.0	10.9
	12/27/07		756.5	0.09	4.9	20.7	0.5	0.0	0.1
	03/25/08		774.4	1.48	15.9	19.2	1.3	0.0	0.0
	06/27/08		758.8	0.87	28.7	21.2	0.0	0.0	0.1
	09/29/08		760.1	1.07	25.5	14.0	4.4	0.0	5.3
	12/12/08		747.8	5.08	15.1	20.8	0.1	0.0	0.1
	03/23/09		768.0	1.13	6.0	20.2	0.6	0.0	0.0
	06/12/09		741.7	3.95	18.9	0.0	20.7	0.0	0.0
	09/08/09		764.5	0.09	22.5	20.1	0.2	0.0	0.1
	12/23/09		764.0	0.44	-1.9	11.9	0.6	0.0	0.0
	06/04/10		750.6	1.37	30.6	16.9	2.4	0.0	0.0
	08/10/11		751.7	0.04	31.1	19.2	0.0	0.0	0.0
	07/18/12		756.9	0.17	36.0	21.4	6.0	0.0	0.0
	07/24/13		755.8	3.12	29.1	19.2	0.0	0.0	0.0
		Average[3]:	759.2	1.39	28.0	14.3	5.7	0.1	3.5
		Min:	741.7	0.00	-1.9	0.0	0.0	0.0	0.0
		Max:	775.6	6.95	36.0	21.4	20.7	3.0	39.4

Notes:

1. Initial denotes field screening performed prior to gas vent sampling.
2. During the 18 July 2012 screening event CO was measured instead of CO_2.
3. Average results only include sampling events conducted during the summer months (June - September).

Table 2-2
Historic Landfill Vent Gas Field Screening Results
McAllister Point Landfill
Middletown, Rhode Island

Vent ID	Measurement Date	Screening Prior to Gas Sample Collection	Barometric Pressure (mm Hg)	Flow (cfm)	Temperature (°C)	O_2 (%)	CO_2 (%)	H_2S (ppm)	CH_4 (%)
STA 15+25	03/28/02		762.0	0.00	15.0	7.2	9.6	0.0	10.8
	06/20/02		NA	0.00	29.4	6.5	9.4	0.0	1.9
	08/14/02	Initial	764.5	0.00	32.0	0.3	25.9	1.0	30.5
	08/13/02	Initial	764.5	0.00	32.0	0.2	23.6	2.0	31.7
	10/17/02		NA	NA	NA	18.2	1.5	0.0	0.0
	04/23/03		753.0	0.44	14.8	0.0	15.8	4.0	40.0
	06/10/03		756.9	0.28	31.2	20.7	0.0	0.0	0.0
	07/22/03	Initial	757.7	0.70	27.9	20.4	0.0	0.0	0.0
	11/21/03	Initial	756.9	0.00	13.3	20.0	0.1	2.0	0.0
	03/02/04		758.2	0.10	14.6	20.9	0.0	0.0	0.0
	05/11/04		767.6	0.26	28.8	20.5	0.0	0.0	0.0
	07/07/04	Initial	762.5	0.26	35.7	9.9	7.9	0.0	8.0
	11/12/04		765.1	1.62	17.2	21.0	0.2	0.0	0.0
	03/03/05		748.5	1.80	-1.6	21.0	0.0	0.0	0.0
	05/23/05		749.9	0.00	12.2	20.5	0.3	0.0	0.0
	07/06/05	Initial	765.6	0.27	28.3	20.6	0.0	0.0	0.0
	11/17/05		762.3	2.40	12.8	20.5	1.1	0.0	0.3
	04/12/06		761.6	0.750	25.5	20.8	0.0	0.0	0.1
	10/24/06	Initial	750.8	0.78	12.2	15.8	1.7	0.0	1.0
	12/26/06	Initial	744.6	0.08	11.2	20.0	0.5	0.0	0.6
	06/21/07	Initial	762.4	2.44	34.2	21.2	0.0	0.0	0.0
	08/14/07		776.2	0.24	29.0	19.1	1.1	0.0	0.0
	09/28/07		762.3	3.12	25.5	0.0	19.1	0.0	12.4
	12/27/07		756.5	0.74	5.1	21.1	0.3	0.0	0.1
	03/25/08		774.4	0.61	11.5	20.9	0.0	0.0	0.0
	06/27/08		758.9	0.35	30.2	18.2	1.8	0.0	0.5
	09/29/08		760.0	0.85	22.2	20.8	0.2	0.0	0.1
	12/12/08		747.7	17.03	14.6	9.7	9.3	0.0	25.6
	03/23/09		768.1	1.77	6.3	20.2	0.0	0.0	0.0
	06/12/09		741.7	0.21	20.0	20.5	0.0	0.0	0.0
	09/08/09		764.5	0.04	22.4	6.6	8.2	0.0	5.4
	12/23/09		764.1	0.96	-1.0	19.1	0.2	0.0	0.0
	06/04/10		750.6	2.62	28.7	20.8	0.0	0.0	0.0
	08/10/11		751.4	0.60	31.8	20.0	0.0	0.0	0.0
	07/18/12		756.9	0.24	32.0	21.4	0.0	0.0	0.0
	07/24/13		755.9	0.71	29.2	19.4	0.0	0.0	0.0
		Average[3]:	759.6	0.72	29.0	14.8	5.4	0.2	5.0
		Min:	741.7	0.00	-1.6	0.0	0.0	0.0	0.0
		Max:	776.2	17.03	35.7	21.4	25.9	4.0	40.0

Notes:

1. Initial denotes field screening performed prior to gas vent sampling.
2. During the 18 July 2012 screening event CO was measured instead of CO_2.
3. Average results only include sampling events conducted during the summer months (June - September).

Table 2-2
Historic Landfill Vent Gas Field Screening Results
McAllister Point Landfill
Middletown, Rhode Island

Vent ID	Measurement Date	Screening Prior to Gas Sample Collection	Barometric Pressure (mm Hg)	Flow (cfm)	Temperature (°C)	O_2 (%)	CO_2 (%)	H_2S (ppm)	CH_4 (%)
STA 17+25	03/28/02		762.0	0.00	13.9	7.9	7.4	0.0	8.6
	06/20/02		NA	0.00	24.4	12.3	6.4	12.0	0.3
	08/14/02	Initial	764.5	0.00	29.0	0.5	22.3	1.0	24.5
	08/13/02	Initial	764.5	0.00	33.0	19.9	0.0	2.0	0.3
	10/17/02		NA	NA	NA	19.3	1.0	0.0	0.0
	04/23/03		753.1	0.34	12.5	0.0	17.2	3.0	39.3
	06/10/03		754.4	0.13	35.0	20.7	0.0	0.0	0.0
	07/22/03	Initial	757.5	5.10	25.3	17.1	1.9	0.0	1.4
	11/21/03	Initial	756.9	0.12	13.3	20.6	0.0	2.0	0.0
	03/02/04		758.4	2.60	9.0	15.4	1.9	1.0	0.4
	05/11/04		767.2	0.18	31.0	18.1	1.3	0.0	0.2
	07/06/04	Initial	761.2	2.79	29.6	6.4	11.2	0.0	9.9
	11/12/04		765.7	1.90	15.2	21.0	0.1	0.0	0.0
	03/03/05		748.9	1.63	-1.8	21.0	0.0	0.0	0.0
	05/23/05		749.8	0.47	13.8	20.1	0.7	0.0	0.0
	07/06/05	Initial	760.4	0.15	25.9	11.1	5.7	0.0	0.4
	11/17/05		762.5	4.30	11.1	21.4	0.3	0.0	0.2
	04/12/06		761.7	2.38	22.5	20.4	0.2	0.0	0.0
	10/24/06	Initial	751.3	0.16	12.3	18.0	0.5	0.0	0.1
	12/26/06	Initial	744.9	0.11	12.1	20.8	0.0	0.0	0.0
	06/21/07	Initial	762.8	2.04	34.3	12.3	5.8	0.0	1.2
	08/14/07		776.2	0.12	27.9	19.6	0.8	0.0	0.0
	09/28/07		762.7	0.76	24.5	0.2	10.3	0.0	3.9
	12/27/07		756.4	0.09	5.2	21.1	0.3	0.0	0.1
	03/25/08		774.3	1.31	10.4	19.6	0.2	0.0	0.0
	06/27/08		758.9	0.26	30.0	14.4	3.8	0.0	0.1
	09/29/08		760.4	0.22	23.1	9.1	5.2	0.0	3.6
	12/12/08		747.6	21.25	13.1	7.9	5.5	0.0	16.6
	03/23/09		769.2	1.11	3.7	20.7	0.0	0.0	0.0
	06/12/09		734.1	1.43	20.5	14.3	3.7	0.0	0.0
	09/08/09		764.5	0.04	22.3	11.3	6.0	0.0	0.2
	12/23/09		764.1	1.13	-0.7	20.2	0.3	0.0	0.0
	06/04/10		751.6	1.13	30.6	16.6	3.0	0.0	0.1
	08/10/11		751.9	0.07	30.4	20.1	0.0	0.0	0.0
	07/18/12		756.9	0.08	30.0	15.7	3.0	0.0	0.0
	07/24/13		754.6	0.29	31.6	15.9	1.7	0.0	0.0
		Average[3]:	758.7	0.81	28.2	13.2	5.0	0.8	2.6
		Min:	734.1	0.00	-1.8	0.0	0.0	0.0	0.0
		Max:	776.2	21.25	35.0	21.4	22.3	12.0	39.3

Notes:

1. Initial denotes field screening performed prior to gas vent sampling.
2. During the 18 July 2012 screening event CO was measured instead of CO_2.
3. Average results only include sampling events conducted during the summer months (June - September).

Table 2-2
Historic Landfill Vent Gas Field Screening Results
McAllister Point Landfill
Middletown, Rhode Island

Vent ID	Measurement Date	Screening Prior to Gas Sample Collection	Barometric Pressure (mm Hg)	Flow (cfm)	Temperature (°C)	O_2 (%)	CO_2 (%)	H_2S (ppm)	CH_4 (%)
STA 19+25	03/28/02		762.0	0.00	14.4	14.7	3.1	0.0	3.4
	06/20/02		NA	0.00	26.7	15.9	3.1	0.0	0.0
	08/14/02	Initial	764.5	0.00	29.0	5.6	11.0	1.0	7.5
	08/13/02	Initial	764.5	0.00	32.0	2.7	13.1	2.0	5.9
	10/17/02		NA	NA	NA	19.3	1.0	0.0	0.1
	04/23/03		753.1	0.49	12.8	0.0	17.2	3.0	38.0
	06/10/03		759.5	0.64	24.3	20.3	0.4	0.0	0.0
	07/22/03	Initial	757.5	2.80	26.1	17.7	2.2	0.0	0.6
	11/21/03	Initial	756.9	0.04	10.7	20.3	0.1	2.0	0.0
	03/02/04		758.3	0.70	12.4	20.3	0.2	0.0	0.0
	05/11/04		767.9	0.35	30.7	18.2	1.4	0.0	0.1
	07/07/04	Initial	761.6	0.35	33.5	19.9	1.0	0.0	0.0
	11/12/04		765.5	0.50	15.7	21.0	0.1	0.0	0.0
	03/03/05		749.0	1.75	-1.8	20.9	0.0	0.0	0.0
	05/23/05		749.9	0.09	12.4	21.0	0.0	0.0	0.0
	07/06/05	Initial	760.4	0.09	26.4	14.2	4.0	0.0	0.0
	11/17/05		762.3	7.05	13.2	21.6	0.2	0.0	0.2
	04/12/06		761.5	0.760	20.3	20.9	0.0	0.0	0.0
	10/24/06	Initial	751.4	0.02	14.7	18.7	0.2	0.0	0.1
	12/26/06	Initial	745.0	0.02	9.3	20.8	0.0	0.0	0.0
	06/21/07	Initial	762.5	17.40	32.4	19.3	1.5	0.0	0.0
	08/14/07		776.2	0.13	29.2	15.4	2.9	0.0	0.0
	09/28/07		761.2	0.76	23.8	15.5	2.1	0.0	0.0
	12/27/07		756.6	0.25	5.1	21.1	0.3	0.0	0.0
	03/25/08		773.7	3.32	8.3	19.5	0.1	0.0	0.0
	06/27/08		758.8	0.18	29.1	12.2	4.5	0.0	0.0
	09/29/08		760.5	0.27	22.8	20.7	0.0	0.0	0.0
	12/12/08		747.6	18.05	12.3	19.5	0.8	0.0	0.5
	03/23/09		769.3	1.42	2.9	20.1	0.1	0.0	0.0
	06/12/09		734.1	0.14	21.3	19.3	1.2	0.0	0.0
	09/08/09		764.5	0.08	22.4	13.8	4.2	0.0	0.0
	12/23/09		764.1	1.13	-1.0	20.2	0.3	0.0	0.0
	06/04/10		752.3	1.05	32.2	20.2	1.0	0.0	0.0
	08/10/11		751.8	0.05	29.2	20.2	0.0	0.0	0.0
	07/18/12		756.9	1.04	24.0	20.5	0.0	0.0	0.0
	07/24/13		754.4	0.28	31.7	15.0	2.7	0.0	0.0
		Average[3]:	758.9	1.40	27.6	16.0	3.1	0.2	0.8
		Min:	734.1	0.00	-1.8	0.0	0.0	0.0	0.0
		Max:	776.2	18.05	33.5	21.6	17.2	3.0	38.0

Notes:

1. Initial denotes field screening performed prior to gas vent sampling.
2. During the 18 July 2012 screening event CO was measured instead of CO_2.
3. Average results only include sampling events conducted during the summer months (June - September).

Table 2-2
Historic Landfill Vent Gas Field Screening Results
McAllister Point Landfill
Middletown, Rhode Island

Vent ID	Measurement Date	Screening Prior to Gas Sample Collection	Barometric Pressure (mm Hg)	Flow (cfm)	Temperature (°C)	O_2 (%)	CO_2 (%)	H_2S (ppm)	CH_4 (%)
STA 21+25	03/28/02		762.0	0.00	14.4	18.4	1.3	0.0	1.1
	06/20/02		NA	0.00	25.6	19.2	0.3	0.0	0.0
	08/14/02	Initial	764.5	0.00	29.0	18.7	0.5	1.0	0.3
	08/13/02	Initial	764.5	0.00	32.0	19.8	0.0	1.0	0.2
	10/17/02		NA	NA	NA	20.6	0.0	0.0	0.0
	04/23/03		753.0	0.24	15.0	1.3	13.5	2.0	26.8
	06/10/03		759.9	0.25	21.1	20.4	0.0	0.0	0.0
	07/22/03	Initial	763.9	6.85	26.4	20.9	0.0	1.0	0.0
	11/21/03	Initial	756.9	0.42	11.3	20.5	0.0	2.0	0.0
	03/02/04		758.4	5.70	7.5	20.8	0.0	0.0	0.0
	05/11/04		767.8	0.18	25.4	19.7	0.4	0.0	0.0
	07/07/04	Initial	761.7	1.13	28.3	21.6	0.1	0.0	0.2
	11/12/04		764.4	2.25	16.2	20.7	0.2	0.0	0.0
	03/03/05		749.4	1.26	-1.5	21.0	0.0	0.0	0.1
	05/23/05		750.0	0.63	13.1	20.9	0.0	0.0	0.0
	07/06/05	Initial	760.4	2.01	26.5	20.6	0.0	0.0	0.0
	11/17/05		762.5	6.05	11.3	21.6	0.1	0.0	0.2
	04/12/06		760.9	2.70	16.4	21.1	0.0	0.0	0.0
	10/24/06	Initial	751.2	0.76	13.7	19.1	0.0	0.0	0.0
	12/26/06	Initial	745.0	0.20	10.5	20.2	0.2	0.0	0.0
	06/21/07	Initial	761.5	0.98	28.4	20.6	0.1	0.0	0.0
	08/14/07		776.2	0.10	28.6	20.5	0.4	0.0	0.0
	09/28/07		762.0	1.11	25.2	19.9	0.2	0.0	0.0
	12/27/07		757.0	0.80	5.5	21.1	0.2	0.0	0.0
	03/25/08		771.3	2.97	8.6	19.7	0.0	0.0	0.0
	06/27/08		758.9	0.35	31.6	20.1	0.2	0.0	0.0
	09/29/08		760.6	0.42	22.3	20.1	0.4	0.0	0.0
	12/12/08		747.6	16.22	12.6	20.7	0.1	0.0	0.2
	03/23/09		769.4	2.33	4.1	20.3	0.0	0.0	0.0
	06/12/09		734.1	1.93	22.0	20.9	0.0	0.0	0.0
	09/08/09		767.1	0.12	22.2	17.9	1.3	0.0	0.0
	12/23/09		764.2	4.28	-0.9	20.2	0.2	0.0	0.0
	06/04/10		754.4	2.53	29.3	21.2	0.2	0.0	0.0
	08/10/11		751.8	0.49	28.9	20.4	0.0	0.0	0.0
	07/18/12		756.9	0.08	22.0	19.2	0.0	0.0	0.0
	07/24/13		754.4	0.27	29.0	19.4	0.3	0.0	0.0
		Average[3]:	759.6	1.03	26.6	20.1	0.2	0.2	0.0
		Min:	734.1	0.00	-1.5	1.3	0.0	0.0	0.0
		Max:	776.2	16.22	32.0	21.6	13.5	2.0	26.8

Notes:

1. Initial denotes field screening performed prior to gas vent sampling.
2. During the 18 July 2012 screening event CO was measured instead of CO_2.
3. Average results only include sampling events conducted during the summer months (June - September).

Table 2-2
Historic Landfill Vent Gas Field Screening Results
McAllister Point Landfill
Middletown, Rhode Island

Vent ID	Measurement Date	Screening Prior to Gas Sample Collection	Barometric Pressure (mm Hg)	Flow (cfm)	Temperature (°C)	O_2 (%)	CO_2 (%)	H_2S (ppm)	CH_4 (%)
GVR-101	03/28/02		764.5	0.00	7.2	1.0	19.9	1.0	33.8
	06/20/02		NA	0.00	28.3	0.5	17.0	0.0	9.9
	08/13/02	Initial	762.0	0.00	29.0	0.3	25.5	0.0	46.4
	08/12/02	Initial	764.5	0.00	26.0	1.3	28.7	0.0	43.0
	10/17/02		NA	NA	NA	12.2	6.5	1.0	0.2
	04/23/03		753.6	0.25	17.7	0.4	21.7	2.0	42.6
	06/10/03		756.9	0.23	32.0	20.7	0.0	0.0	0.0
	07/22/03	Initial	757.4	1.20	26.5	11.5	11.7	0.0	20.2
	11/21/03	Initial	756.9	0.09	12.7	14.2	7.0	2.0	11.1
	03/02/04		757.7	1.30	9.7	0.3	22.2	2.0	40.0
	05/11/04		767.6	0.35	33.1	21.5	0.0	0.0	0.0
	07/06/04	Initial	762.5	0.08	28.8	15.4	5.8	0.0	8.5
	11/12/04		764.0	0.33	12.8	3.8	19.2	0.0	36.8
	03/03/05		748.0	1.32	-2.9	8.9	13.8	0.0	24.4
	05/23/05		749.6	0.09	13.1	1.5	22.7	0.0	41.8
	07/07/05	Initial	765.2	1.60	21.4	18.7	1.6	0.0	0.9
	11/17/05		761.6	4.61	14.4	3.8	15.4	0.0	34.1
	04/12/06		760.5	0.865	15.8	7.1	9.9	0.0	1.9
	10/24/06	Initial	750.2	0.23	13.1	1.5	21.2	0.0	39.7
	12/26/06	Initial	744.9	0.11	12.6	4.3	17.3	0.0	29.5
	06/21/07	Initial	762.4	2.18	29.5	0.5	21.0	0.0	30.2
	08/14/07		775.3	0.03	26.9	19.3	2.4	0.0	2.6
	09/28/07		761.2	2.11	22.6	0.0	24.7	0.0	46.6
	12/27/07		755.3	0.04	4.6	16.7	5.2	0.0	7.7
	03/25/08		774.6	0.52	12.4	10.2	8.1	0.0	1.6
	06/27/08		758.4	0.35	29.6	0.6	20.2	0.0	29.0
	09/29/08		759.8	0.29	22.7	2.1	43.0	0.0	36.6
	12/12/08		746.9	14.31	13.4	3.4	18.6	0.0	34.9
	03/23/09		767.4	1.62	2.2	1.6	18.6	0.0	23.5
	06/12/09		746.8	0.54	19.7	0.5	22.4	0.0	39.9
	09/08/09		764.5	0.09	22.5	0.2	24.4	0.0	44.9
	12/23/09		764.1	1.75	-3.6	2.8	17.3	0.0	22.6
	06/04/10		750.3	0.00	31.0	0.0	15.9	0.0	5.9
	08/10/11		751.2	0.05	30.9	20.2	0.0	0.0	0.0
	07/18/12		756.9	0.25	34.0	13.3	6.0	0.0	0.0
	07/24/13		755.0	0.31	37.2	17.6	0.0	0.0	0.0
		Average[3]:	759.4	0.52	27.7	7.9	15.0	0.0	20.3
		Min:	744.9	0.00	-3.6	0.0	0.0	0.0	0.0
		Max:	775.3	14.31	37.2	21.5	43.0	2.0	46.6

Notes:

1. Initial denotes field screening performed prior to gas vent sampling.
2. During the 18 July 2012 screening event CO was measured instead of CO_2.
3. Average results only include sampling events conducted during the summer months (June - September).

Table 2-2
Historic Landfill Vent Gas Field Screening Results
McAllister Point Landfill
Middletown, Rhode Island

Vent ID	Measurement Date	Screening Prior to Gas Sample Collection	Barometric Pressure (mm Hg)	Flow (cfm)	Temperature (°C)	O_2 (%)	CO_2 (%)	H_2S (ppm)	CH_4 (%)
GVR-102	03/28/02		764.5	0.00	10.0	0.1	16.9	0.0	47.9
	06/20/02		NA	0.00	22.8	12.4	5.1	4.0	0.0
	08/13/02	Initial	762.0	0.00	30.0	0.3	19.1	0.0	51.6
	08/12/02	Initial	762.0	0.00	26.0	1.1	21.4	0.0	47.8
	10/17/02		NA	NA	NA	20.4	0.2	0.0	0.0
	04/23/03		753.4	1.95	16.7	0.1	17.4	1.0	43.6
	06/10/03		756.9	0.14	30.2	20.9	0.0	0.0	0.0
	07/22/03	Initial	757.4	3.30	25.7	9.7	10.0	0.0	23.6
	11/21/03	Initial	756.9	0.11	13.4	12.3	6.4	2.0	18.3
	03/02/04		756.4	1.50	13.1	0.7	17.0	1.0	47.1
	05/11/04		767.6	0.18	31.9	20.4	0.8	0.0	2.1
	07/08/04	Initial	765.2	0.34	27.8	5.6	14.9	0.0	26.1
	11/12/04		763.7	0.69	10.5	8.1	11.0	0.0	27.6
	03/03/05		747.9	1.15	-1.1	15.0	4.0	0.0	12.3
	05/23/05		749.5	0.35	13.2	0.9	18.1	0.0	48.8
	07/07/05	Initial	761.6	0.09	20.1	16.3	3.4	0.0	6.1
	11/17/05		761.9	6.85	14.4	1.6	13.3	0.0	50.2
	04/12/06		760.0	1.42	14.6	5.4	11.0	0.0	15.7
	10/24/06	Initial	749.9	1.12	11.2	2.5	14.8	0.0	38.3
	12/26/06	Initial	744.6	0.36	11.7	1.0	16.0	0.0	46.9
	06/21/07		761.3	2.01	32.5	0.0	17.5	0.2	30.2
	08/14/07		775.4	0.29	23.6	18.2	2.5	0.0	3.8
	09/28/07		762.3	1.18	24.7	19.9	0.2	0.0	0.0
	12/27/07		755.2	0.67	4.5	6.9	11.7	0.0	32.5
	03/25/08		774.4	0.26	11.8	7.8	9.4	0.0	13.0
	06/27/08		758.4	0.35	28.8	0.6	16.8	0.0	37.4
	09/29/08		759.6	0.89	23.9	0.6	32.7	0.0	41.1
	12/12/08		747.6	22.48	12.6	6.7	11.1	0.0	31.4
	03/23/09		767.5	1.54	2.7	1.0	16.1	0.0	38.5
	06/12/09		739.1	0.60	18.9	0.1	18.0	0.0	47.0
	09/08/09		764.5	0.07	19.6	7.7	12.3	0.0	29.0
	12/23/09		764.1	1.40	-2.8	0.5	16.7	0.0	43.2
	06/04/10		750.3	0.44	29.3	1.5	13.0	0.0	11.9
	08/10/11		751.0	0.00	29.7	20.0	0.0	0.0	0.0
	07/18/12		756.9	0.12	34.0	21.7	4.0	0.0	0.0
	07/24/13		755.0	0.52	32.7	17.7	0.0	1.0	0.0
		Average[3]:	758.8	0.57	26.7	9.7	10.6	0.3	19.8
		Min:	739.1	0.00	-2.8	0.0	0.0	0.0	0.0
		Max:	775.4	22.48	34.0	21.7	32.7	4.0	51.6

Notes:

1. Initial denotes field screening performed prior to gas vent sampling.
2. During the 18 July 2012 screening event CO was measured instead of CO_2.
3. Average results only include sampling events conducted during the summer months (June - September).

Table 2-2
Historic Landfill Vent Gas Field Screening Results
McAllister Point Landfill
Middletown, Rhode Island

Vent ID	Measurement Date	Screening Prior to Gas Sample Collection	Barometric Pressure (mm Hg)	Flow (cfm)	Temperature (°C)	O_2 (%)	CO_2 (%)	H_2S (ppm)	CH_4 (%)
GVR-103	03/28/02		764.5	0.00	9.4	0.1	19.1	0.0	47.1
	06/20/02		NA	0.00	25.0	12.6	5.2	0.0	0.0
	08/13/02	Initial	762.0	0.00	28.0	0.3	20.5	6.0	60.7
	08/12/02	Initial	762.0	0.00	26.0	1.5	22.1	0.0	55.1
	10/17/02		NA	NA	NA	19.3	1.0	1.0	0.0
	04/23/03		753.7	0.41	19.3	0.4	20.9	2.0	50.3
	06/10/03		756.9	0.11	31.5	20.8	0.0	0.0	0.0
	07/22/03	Initial	757.5	1.50	28.1	6.9	11.7	0.0	31.6
	11/21/03	Initial	754.4	0.00	12.8	19.2	0.8	2.0	0.0
	03/02/04		756.6	0.40	12.3	2.0	21.5	1.0	54.4
	05/11/04		768.8	0.18	32.6	20.6	1.1	0.0	2.4
	07/07/04	Initial	771.3	0.96	37.6	1.3	19.3	3.0	23.8
	11/12/04		763.4	0.19	10.5	5.4	13.7	0.0	21.2
	03/03/05		748.2	0.73	-1.4	21.0	0.0	0.0	0.0
	05/23/05		749.8	1.13	15.0	0.0	24.0	0.0	62.4
	07/07/05	Initial	762.2	0.26	17.7	16.9	3.3	0.0	5.2
	11/17/05		761.6	0.69	13.4	3.1	11.2	0.0	9.0
	04/12/06		759.6	2.78	14.7	6.4	12.1	0.0	11.3
	10/24/06	Initial	750.1	0.00	12.5	1.6	18.1	0.0	30.8
	12/26/06	Initial	744.6	0.29	12.4	0.0	24.2	0.0	60.4
	06/21/07	Initial	761.2	1.06	30.4	0.0	18.3	0.0	24.7
	08/14/07		776.0	0.37	23.4	21.6	0.0	0.0	0.0
	09/28/07		761.6	0.99	25.6	0.0	23.2	3.0	66.6
	12/27/07		755.5	0.05	4.4	21.1	0.2	0.0	0.1
	03/25/08		774.0	0.52	12.2	19.0	1.5	0.0	0.0
	06/27/08		758.8	0.52	28.7	0.5	20.5	0.0	39.5
	09/29/08		759.7	0.48	22.1	6.3	31.0	0.0	36.3
	12/12/08		746.9	20.00	11.9	1.5	22.9	0.0	52.0
	03/23/09		767.5	0.92	3.6	3.8	17.7	0.0	29.6
	06/12/09		739.1	1.11	18.8	0.0	26.1	0.0	58.0
	09/08/09		764.5	0.04	19.4	2.5	21.1	0.0	49.3
	12/23/09		764.0	1.05	-3.6	19.7	0.9	0.0	0.0
	06/04/10		750.6	2.18	28.0	0.0	16.3	0.0	10.0
	08/10/11		751.0	0.00	32.0	19.1	0.7	0.0	0.9
	07/18/12		756.9	0.24	37.0	7.2	26.0	0.0	0.0
	07/24/13		755.0	0.34	31.2	17.4	0.0	1.0	0.0
		Average[3]:	759.2	0.56	27.3	7.5	14.7	0.7	25.7
		Min:	739.1	0.00	-3.6	0.0	0.0	0.0	0.0
		Max:	776.0	20.00	37.6	21.6	31.0	6.0	66.6

Notes:

1. Initial denotes field screening performed prior to gas vent sampling.
2. During the 18 July 2012 screening event CO was measured instead of CO_2.
3. Average results only include sampling events conducted during the summer months (June - September).

Table 2-2
Historic Landfill Vent Gas Field Screening Results
McAllister Point Landfill
Middletown, Rhode Island

Vent ID	Measurement Date	Screening Prior to Gas Sample Collection	Barometric Pressure (mm Hg)	Flow (cfm)	Temperature (°C)	O_2 (%)	CO_2 (%)	H_2S (ppm)	CH_4 (%)
GVR-104	03/28/02		767.1	0.00	7.8	0.2	12.0	0.0	47.5
	06/20/02		NA	0.00	26.7	0.5	12.2	0.0	7.8
	08/13/02	Initial	762.0	0.00	29.0	0.3	12.4	0.0	51.9
	08/12/02	Initial	762.0	0.00	26.0	0.7	13.4	0.0	49.2
	10/17/02		NA	NA	NA	19.3	1.0	1.0	0.0
	04/23/03		754.1	1.27	18.1	0.0	12.2	0.0	46.7
	06/10/03		756.9	0.03	30.1	20.9	0.0	0.0	0.0
	07/22/03	Initial	757.4	2.09	25.9	5.1	10.0	0.0	34.4
	11/21/03	Initial	754.4	0.07	14.1	10.6	5.1	2.0	8.2
	03/02/04		756.4	0.60	12.1	0.1	10.9	1.0	45.8
	05/11/04		764.9	1.75	28.6	3.4	10.6	0.0	34.3
	07/07/04	Initial	769.3	1.50	38.1	0.6	13.6	3.0	25.8
	11/12/04		763.5	0.78	9.9	4.9	9.3	0.0	37.1
	03/03/05		747.9	2.62	-2.1	14.1	3.8	0.0	17.8
	05/23/05		749.4	0.98	14.1	1.0	11.5	0.0	44.1
	07/07/05	Initial	762.6	1.10	19.6	2.1	11.0	0.0	24.4
	11/17/05		761.5	7.60	11.1	6.1	7.1	0.0	31.1
	04/12/06		759.8	2.35	13.8	2.5	10.2	0.0	22.8
	10/24/06	Initial	749.9	0.01	12.9	0.8	10.7	0.0	43.3
	12/26/06	Initial	744.6	0.81	12.4	0.4	11.0	0.0	43.2
	06/21/07	Initial	761.4	0.99	29.6	1.0	13.0	0.0	31.4
	08/14/07		775.5	0.01	22.7	20.6	0.5	0.0	0.2
	09/28/07		761.5	1.76	25.9	0.0	12.8	1.0	46.8
	12/27/07		755.1	0.53	4.7	11.7	5.6	0.0	20.7
	03/25/08		774.4	0.17	13.4	7.4	7.7	0.0	13.4
	06/27/08		758.3	0.44	27.9	0.8	11.9	0.0	33.9
	09/29/08		759.5	1.09	24.7	0.1	19.9	0.0	39.7
	12/12/08		747.6	19.21	12.1	3.2	10.1	0.0	36.5
	03/23/09		767.6	1.16	3.2	0.3	11.8	0.0	36.7
	06/12/09		746.8	1.26	19.4	0.0	12.4	0.0	43.1
	09/08/09		764.5	0.15	19.9	0.8	12.5	0.0	42.8
	12/23/09		764.1	2.09	-2.4	0.7	11.9	0.0	35.5
	06/04/10		750.3	1.05	28.9	0.3	11.1	0.0	6.5
	08/10/11		750.9	0.04	30.9	20.2	0.0	0.0	0.0
	07/18/12		756.9	0.03	34.0	8.7	9.0	0.0	0.0
	07/24/13		755.0	0.37	34.9	17.7	0.0	3.0	0.0
		Average[3]:	759.5	0.66	27.5	5.6	9.8	0.4	24.3
		Min:	744.6	0.00	-2.4	0.0	0.0	0.0	0.0
		Max:	775.5	19.21	38.1	20.9	19.9	3.0	51.9

Notes:

1. Initial denotes field screening performed prior to gas vent sampling.
2. During the 18 July 2012 screening event CO was measured instead of CO_2.
3. Average results only include sampling events conducted during the summer months (June - September).

Table 2-2
Historic Landfill Vent Gas Field Screening Results
McAllister Point Landfill
Middletown, Rhode Island

Vent ID	Measurement Date	Screening Prior to Gas Sample Collection	Barometric Pressure (mm Hg)	Flow (cfm)	Temperature (°C)	O_2 (%)	CO_2 (%)	H_2S (ppm)	CH_4 (%)
GVR-105	03/28/02		764.5	0.00	10.0	0.1	16.1	1.0	49.0
	06/20/02		NA	0.00	30.0	1.1	7.2	0.0	0.0
	08/13/02	Initial	762.0	0.00	28.0	0.2	17.3	0.0	50.5
	08/12/02	Initial	762.0	0.00	27.0	0.7	18.2	0.0	41.4
	10/17/02		NA	NA	NA	19.3	1.0	1.0	0.0
	04/23/03		753.0	0.34	17.8	0.1	17.1	1.0	46.5
	06/10/03		756.9	0.10	28.9	20.9	0.0	0.0	0.0
	07/22/03	Initial	757.4	1.40	25.4	16.5	3.4	0.0	7.8
	11/21/03	Initial	756.9	0.11	14.0	17.9	1.7	2.0	2.2
	03/02/04		756.7	0.70	12.3	0.2	16.0	0.0	48.5
	05/11/04		764.7	1.75	28.4	4.0	13.8	0.0	33.6
	07/08/04	Initial	761.3	0.34	26.1	3.0	15.3	1.0	27.6
	11/12/04		763.4	0.95	10.8	1.5	13.7	0.0	40.4
	03/03/05		747.9	3.13	-1.7	14.1	4.7	0.0	17.0
	05/23/05		749.6	0.61	13.7	0.2	16.0	0.0	48.8
	07/07/05	Initial	764.6	0.59	19.8	5.0	12.0	0.0	19.7
	11/17/05		761.6	12.20	11.5	5.1	9.8	0.0	30.9
	04/12/06		759.7	0.895	15.2	2.2	13.2	0.0	17.4
	10/24/06	Initial	750.0	0.54	13.2	0.1	15.2	0.0	45.4
	12/26/06	Initial	744.3	0.54	13.2	0.3	16.5	0.0	50.9
	06/21/07	Initial	761.3	1.92	26.5	0.1	15.2	0.0	31.1
	08/14/07		775.7	0.08	24.2	14.4	4.5	0.0	2.7
	09/28/07		761.8	2.75	23.2	0.0	15.6	0.0	46.4
	12/27/07		755.2	0.96	4.9	8.2	9.5	0.0	29.1
	03/25/08		774.4	1.22	12.1	10.5	7.3	0.0	12.1
	06/27/08		758.3	0.61	28.5	1.1	14.5	0.0	34.1
	09/29/08		759.6	0.83	25.3	0.0	27.8	0.0	40.5
	12/12/08		746.5	13.49	12.0	4.6	11.3	0.0	36.0
	03/23/09		767.6	1.44	5.1	2.4	14.4	0.0	33.8
	06/12/09		746.8	0.19	19.6	0.0	16.7	0.0	45.5
	09/08/09		764.5	0.08	20.1	1.5	14.7	0.0	41.2
	12/23/09		764.1	2.62	-3.4	0.4	16.1	0.0	41.5
	06/04/10		750.3	1.31	30.6	2.0	11.7	0.0	6.8
	08/10/11		751.0	0.11	31.7	20.1	0.0	0.0	0.0
	07/18/12		756.9	0.06	34.0	18.0	6.0	0.0	0.0
	07/24/13		754.9	0.16	31.4	16.9	0.0	0.0	0.0
		Average[3]:	759.1	0.58	26.7	6.7	11.1	0.1	22.0
		Min:	744.3	0.00	-3.4	0.0	0.0	0.0	0.0
		Max:	775.7	13.49	34.0	20.9	27.8	2.0	50.9

Notes:

1. Initial denotes field screening performed prior to gas vent sampling.
2. During the 18 July 2012 screening event CO was measured instead of CO_2.
3. Average results only include sampling events conducted during the summer months (June - September).

Table 2-2
Historic Landfill Vent Gas Field Screening Results
McAllister Point Landfill
Middletown, Rhode Island

Vent ID	Measurement Date	Screening Prior to Gas Sample Collection	Barometric Pressure (mm Hg)	Flow (cfm)	Temperature (°C)	O_2 (%)	CO_2 (%)	H_2S (ppm)	CH_4 (%)
GVR-106	03/28/02		764.5	0.00	12.2	0.4	17.7	0.0	46.4
	06/20/02		NA	0.00	24.4	9.1	7.4	1.0	0.0
	08/13/02	Initial	762.0	0.00	34.0	0.3	21.8	0.0	64.8
	08/12/02	Initial	762.0	0.00	30.0	3.5	17.4	0.0	40.0
	10/17/02		NA	NA	NA	19.3	1.0	1.0	0.0
	04/23/03		753.8	0.69	20.8	0.1	20.6	2.0	54.5
	06/10/03		756.9	0.21	29.3	20.8	0.0	0.0	0.0
	07/22/03	Initial	757.5	1.40	27.5	9.2	10.6	0.0	33.0
	11/21/03	Initial	756.9	0.00	13.2	20.4	0.0	2.0	0.0
	03/02/04		756.6	1.10	10.7	2.3	20.1	1.0	58.7
	05/11/04		767.9	0.18	32.3	17.1	4.4	0.0	11.6
	07/07/04	Initial	763.4	0.27	34.8	3.9	16.0	0.0	24.6
	11/12/04		763.6	0.31	12.8	10.8	6.1	0.0	8.2
	03/03/05		747.7	0.63	-1.3	21.0	0.0	0.0	0.0
	05/23/05		749.6	1.13	15.0	0.8	21.9	0.0	68.1
	07/06/05	Initial	762.9	0.85	27.6	5.9	15.4	0.0	42.7
	11/17/05		761.6	5.60	14.9	3.7	10.5	0.0	10.3
	04/12/06		760.0	1.28	14.5	7.8	7.4	0.0	1.2
	10/24/06	Initial	750.1	1.02	13.0	4.1	15.1	0.0	36.4
	12/26/06	Initial	743.8	0.38	18.6	0.0	20.7	0.0	66.2
	06/21/07	Initial	761.4	1.18	29.0	2.0	15.6	0.0	26.6
	08/14/07		776.1	0.01	25.1	13.7	5.3	0.0	2.3
	09/28/07		761.8	0.85	25.4	0.0	19.5	0.0	67.4
	12/27/07		755.6	0.19	5.3	19.4	2.4	0.0	4.8
	03/25/08		774.0	2.01	16.5	19.9	1.1	0.0	0.0
	06/27/08		758.5	0.68	29.1	2.8	15.8	0.0	37.9
	09/29/08		759.6	0.86	25.6	0.0	44.5	0.0	58.0
	12/12/08		746.9	23.28	11.8	3.5	17.4	0.0	50.7
	03/23/09		766.7	1.47	4.1	2.2	17.7	0.0	37.0
	06/12/09		741.7	1.07	20.1	0.1	22.2	0.0	62.1
	09/08/09		764.5	0.02	19.5	2.6	17.0	0.0	50.2
	12/23/09		764.1	1.83	-0.3	19.3	1.5	0.0	0.0
	06/04/10		750.6	2.44	27.8	0.6	13.7	0.0	7.6
	08/10/11		751.2	0.00	30.6	20.0	0.0	0.0	0.0
	07/18/12		756.9	0.02	34.0	15.8	6.0	0.0	0.0
	07/24/13		754.7	0.12	33.2	16.3	0.0	0.0	0.1
		Average[3]:	758.9	0.55	28.2	7.0	13.8	0.1	28.7
		Min:	741.7	0.00	-1.3	0.0	0.0	0.0	0.0
		Max:	776.1	23.28	34.8	21.0	44.5	2.0	68.1

Notes:

1. Initial denotes field screening performed prior to gas vent sampling.
2. During the 18 July 2012 screening event CO was measured instead of CO_2.
3. Average results only include sampling events conducted during the summer months (June - September).

Table 2-2
Historic Landfill Vent Gas Field Screening Results
McAllister Point Landfill
Middletown, Rhode Island

Vent ID	Measurement Date	Screening Prior to Gas Sample Collection	Barometric Pressure (mm Hg)	Flow (cfm)	Temperature (°C)	O_2 (%)	CO_2 (%)	H_2S (ppm)	CH_4 (%)
GVR-107	03/28/02		764.5	0.00	12.2	0.1	10.1	1.0	47.0
	06/20/02		NA	0.00	22.8	0.8	11.7	0.0	11.2
	08/13/02	Initial	762.0	0.00	27.0	0.3	12.3	0.0	43.6
	08/12/02	Initial	762.0	0.00	27.0	0.5	13.6	0.0	47.3
	10/17/02		NA	NA	NA	19.3	1.0	1.0	0.0
	04/23/03		753.7	0.34	18.1	3.5	9.2	2.0	34.2
	06/10/03		756.9	0.05	29.1	20.9	0.0	0.0	0.0
	07/22/03	Initial	757.4	2.20	25.7	18.4	1.0	0.0	2.8
	11/21/03	Initial	756.9	0.03	12.9	19.0	0.8	2.0	0.2
	03/02/04		756.8	2.10	12.0	0.8	9.6	1.0	46.8
	05/11/04		764.7	0.44	29.4	5.1	8.3	0.0	27.3
	07/08/04	Initial	763.9	0.26	27.0	7.4	8.4	0.0	21.9
	11/12/04		763.5	0.83	11.6	3.3	9.3	0.0	36.0
	03/03/05		747.7	2.26	-1.5	2.0	8.4	0.0	45.1
	05/23/05		749.6	0.44	14.6	0.3	11.7	0.0	48.6
	07/07/05	Initial	764.0	0.61	20.0	11.5	5.1	0.0	7.4
	11/17/05		761.8	3.12	15.1	4.0	7.9	0.0	21.8
	04/12/06		759.8	0.850	14.0	1.2	10.3	0.0	17.7
	10/24/06	Initial	750.0	0.01	13.6	3.0	9.6	0.0	38.4
	12/26/06	Initial	744.0	0.88	14.9	8.0	6.8	0.0	29.0
	06/21/07	Initial	761.2	1.68	25.7	2.1	10.8	0.0	25.0
	08/14/07		776.1	0.28	24.4	13.1	4.5	0.0	0.1
	09/28/07		761.8	1.27	24.9	0.0	12.1	1.0	50.6
	12/27/07		755.2	2.33	5.2	6.9	6.8	0.0	29.9
	03/25/08		774.4	1.04	13.2	9.6	5.8	0.0	10.2
	06/27/08		758.6	0.52	27.5	0.7	11.0	0.0	30.6
	09/29/08		759.6	1.40	26.5	0.0	20.5	0.0	39.7
	12/12/08		746.5	12.03	12.2	0.1	9.9	0.0	43.4
	03/23/09		767.4	2.55	3.1	1.2	10.2	0.0	35.8
	06/12/09		746.8	1.22	18.5	0.0	11.7	0.0	43.7
	09/08/09		764.5	0.04	20.0	1.9	12.1	0.0	37.4
	12/23/09		764.1	1.22	-3.8	2.8	9.7	0.0	32.6
	06/04/10		750.3	2.18	29.1	4.0	8.5	0.0	1.7
	08/10/11		751.0	0.00	31.4	20.3	0.0	0.0	0.0
	07/18/12		756.9	0.24	37.0	16.1	14.0	0.0	0.0
	07/24/13		755.0	0.22	33.7	20.1	0.0	0.0	0.0
		Average[3]:	759.3	0.68	26.5	7.7	8.7	0.1	20.2
		Min:	744.0	0.00	-3.8	0.0	0.0	0.0	0.0
		Max:	776.1	12.03	37.0	20.9	20.5	2.0	50.6

Notes:

1. Initial denotes field screening performed prior to gas vent sampling.
2. During the 18 July 2012 screening event CO was measured instead of CO_2.
3. Average results only include sampling events conducted during the summer months (June - September).

Table 2-2
Historic Landfill Vent Gas Field Screening Results
McAllister Point Landfill
Middletown, Rhode Island

Vent ID	Measurement Date	Screening Prior to Gas Sample Collection	Barometric Pressure (mm Hg)	Flow (cfm)	Temperature (°C)	O_2 (%)	CO_2 (%)	H_2S (ppm)	CH_4 (%)
GVR-108	03/28/02		764.5	0.00	10.6	0.0	13.0	0.0	35.2
	06/20/02		NA	0.00	30.6	9.7	6.6	0.0	0.0
	08/13/02	Initial	762.0	0.00	28.0	0.3	15.4	0.0	54.5
	08/12/02	Initial	762.0	0.00	28.0	0.2	17.5	0.0	56.0
	10/17/02		NA	NA	NA	19.3	1.0	1.0	0.0
	04/23/03		753.1	0.59	17.9	0.3	16.1	1.0	38.9
	06/10/03		756.9	0.30	30.7	20.9	0.0	0.0	0.0
	07/22/03	Initial	757.5	1.70	27.1	7.9	8.8	0.0	30.8
	11/21/03	Initial	756.9	0.05	14.1	19.4	0.8	2.0	0.0
	03/02/04		757.1	1.50	12.5	0.2	15.7	0.0	49.0
	05/11/04		768.2	0.53	31.3	19.9	1.3	0.0	2.9
	07/07/04	Initial	764.6	0.17	33.8	4.5	12.3	0.0	13.5
	11/12/04		763.2	0.39	10.3	3.0	11.2	0.0	3.0
	03/03/05		747.8	4.83	-1.8	20.9	0.0	0.0	0.0
	05/23/05		749.6	0.78	14.3	0.0	17.6	0.0	60.3
	07/06/05	Initial	762.9	0.87	27.4	4.6	13.2	0.0	38.1
	11/17/05		761.5	0.73	13.8	6.3	7.8	0.0	1.2
	04/12/06		760.1	0.925	14.0	3.0	9.3	0.0	2.8
	10/24/06	Initial	750.2	1.42	13.3	1.1	13.8	0.0	36.6
	12/26/06	Initial	743.4	0.57	15.2	0.0	15.9	0.0	53.8
	06/21/07	Initial	761.3	1.13	28.7	3.4	12.0	0.0	12.1
	08/14/07		776.0	0.01	24.3	12.1	5.6	0.0	0.0
	09/28/07		762.0	3.41	25.6	0.0	14.7	0.0	59.8
	12/27/07		755.8	0.35	4.7	21.1	0.2	0.0	0.1
	03/25/08		774.0	1.04	13.6	18.1	1.5	0.0	0.0
	06/27/08		758.7	0.35	29.8	0.9	13.4	0.0	23.3
	09/29/08		759.6	1.03	25.0	0.3	30.0	0.0	50.0
	12/12/08		746.8	21.12	13.5	5.1	12.7	0.0	37.4
	03/23/09		766.7	0.92	4.7	1.2	13.2	0.0	18.2
	06/12/09		741.7	0.93	20.1	0.0	17.3	0.0	55.0
	09/08/09		764.5	0.05	19.4	3.4	13.8	0.0	37.0
	12/23/09		764.1	0.61	-2.2	2.3	1.1	0.0	0.0
	06/04/10		750.6	1.75	26.9	3.6	9.7	0.0	3.0
	08/10/11		751.2	0.03	32.1	19.5	0.0	0.0	0.0
	07/18/12		756.9	0.14	34.0	21.7	5.0	0.0	0.0
	07/24/13		754.3	0.00	33.6	16.2	0.0	0.0	0.0
		Average[3]:	759.0	0.66	28.1	7.2	10.9	0.0	24.1
		Min:	741.7	0.00	-2.2	0.0	0.0	0.0	0.0
		Max:	776.0	21.12	34.0	21.7	30.0	2.0	60.3

Notes:

1. Initial denotes field screening performed prior to gas vent sampling.
2. During the 18 July 2012 screening event CO was measured instead of CO_2.
3. Average results only include sampling events conducted during the summer months (June - September).

Table 2-2
Historic Landfill Vent Gas Field Screening Results
McAllister Point Landfill
Middletown, Rhode Island

Vent ID	Measurement Date	Screening Prior to Gas Sample Collection	Barometric Pressure (mm Hg)	Flow (cfm)	Temperature (°C)	O_2 (%)	CO_2 (%)	H_2S (ppm)	CH_4 (%)
GVR-109	03/28/02		764.5	0.00	12.8	0.0	13.9	0.0	41.4
	06/20/02		NA	0.00	26.1	1.1	12.0	0.0	6.0
	08/12/02	Initial	764.5	0.00	30.0	0.5	15.2	1.0	66.0
	08/14/02	Initial	762.0	0.00	29.0	0.4	15.1	2.0	64.3
	10/17/02		NA	NA	NA	19.3	1.0	1.0	0.0
	04/23/03		753.4	0.25	19.1	0.1	14.7	1.0	45.9
	06/10/03		756.9	0.39	29.8	20.9	0.0	0.0	0.0
	07/22/03	Initial	757.7	0.70	26.9	9.3	6.0	0.0	20.6
	11/21/03	Initial	756.9	0.12	14.2	20.4	0.0	2.0	0.0
	03/02/04		757.2	1.60	11.4	0.9	15.8	0.0	52.7
	05/11/04		767.8	0.44	31.8	19.8	1.4	0.0	3.2
	07/07/04	Initial	765.2	0.17	33.0	2.5	12.9	1.0	14.0
	11/12/04		762.9	0.16	9.2	2.4	11.6	0.0	7.3
	03/03/05		748.2	2.78	-1.0	20.9	0.0	0.0	0.0
	05/23/05		749.7	0.53	12.6	0.7	17.2	0.0	65.4
	07/06/05	Initial	762.4	0.50	24.8	14.5	4.4	0.0	17.0
	11/17/05		761.7	0.53	13.1	13.3	4.9	0.0	0.1
	04/12/06		760.0	865	14.1	5.4	7.8	0.0	2.4
	10/24/06	Initial	750.3	0.78	13.2	4.8	11.1	0.0	31.8
	12/26/06	Initial	743.8	0.73	16.9	0.1	16.2	0.0	62.8
	06/21/07	Initial	761.0	1.36	25.4	6.6	8.9	0.0	7.5
	08/14/07		776.1	0.06	25.8	13.0	5.1	0.0	0.0
	09/28/07		762.5	1.58	24.7	0.0	14.1	0.0	68.3
	12/27/07		755.9	0.03	4.5	21.1	0.2	0.0	0.1
	03/25/08		773.9	0.04	13.7	19.0	1.0	0.0	0.0
	06/27/08		758.8	0.61	29.3	0.7	13.0	0.0	29.7
	09/29/08		759.6	1.30	24.2	0.0	28.2	0.0	56.9
	12/12/08		747.7	26.00	14.1	2.3	14.0	0.0	51.7
	03/23/09		767.3	0.99	2.7	4.2	10.1	0.0	11.0
	06/12/09		741.7	1.12	19.3	0.0	15.8	0.0	60.7
	09/08/09		764.5	0.11	19.2	3.7	11.7	0.0	40.1
	12/23/09		764.0	0.79	-1.2	19.4	0.9	0.0	0.0
	06/04/10		750.6	0.26	29.1	3.0	9.7	0.0	2.4
	08/10/11		751.2	0.02	32.3	19.3	0.0	0.0	0.0
	07/18/12		756.9	0.13	35.0	21.4	6.0	0.0	0.0
	07/24/13		754.3	0.21	43.4	19.6	0.0	0.0	0.0
		Average[3]:	759.2	0.47	28.2	7.6	9.9	0.2	25.2
		Min:	741.7	0.00	-1.2	0.0	0.0	0.0	0.0
		Max:	776.1	26.00	43.4	21.4	28.2	2.0	68.3

Notes:

1. Initial denotes field screening performed prior to gas vent sampling.
2. During the 18 July 2012 screening event CO was measured instead of CO_2.
3. Average results only include sampling events conducted during the summer months (June - September).

Table 2-2
Historic Landfill Vent Gas Field Screening Results
McAllister Point Landfill
Middletown, Rhode Island

Vent ID	Measurement Date	Screening Prior to Gas Sample Collection	Barometric Pressure (mm Hg)	Flow (cfm)	Temperature (°C)	O_2 (%)	CO_2 (%)	H_2S (ppm)	CH_4 (%)
GVR-110	03/28/02		764.5	0.00	13.9	0.0	6.1	0.0	51.8
	06/20/02		NA	0.00	25.0	11.6	5.0	0.0	0.0
	08/12/02	Initial	767.1	0.00	24.0	0.0	5.8	0.0	68.8
	08/14/02	Initial	762.0	0.00	31.0	0.3	5.5	2.0	64.4
	10/17/02		NA	NA	NA	19.3	1.0	1.0	0.0
	04/23/03		753.4	1.86	18.6	0.2	6.5	1.0	62.4
	06/10/03		754.4	0.24	31.2	20.5	0.2	0.0	0.0
	07/22/03	Initial	757.4	0.30	26.2	18.9	0.3	0.0	4.3
	11/21/03	Initial	756.9	0.70	15.2	20.2	0.0	2.0	0.0
	03/02/04		757.5	2.20	11.9	0.5	4.5	1.0	75.0
	05/11/04		764.5	0.60	27.7	2.8	6.2	0.0	41.3
	07/08/04	Initial	764.2	2.44	30.3	0.3	5.8	1.0	67.9
	11/12/04		762.6	0.12	9.2	4.7	8.6	0.0	1.8
	03/03/05		748.2	2.30	-1.2	20.6	0.0	0.0	0.1
	05/23/05		749.6	2.53	17.4	0.3	4.7	0.0	83.7
	07/07/05	Initial	764.6	0.86	19.0	20.7	0.0	0.0	0.0
	11/17/05		761.7	0.69	12.1	9.3	5.5	0.0	2.0
	04/12/06		759.4	0.680	13.3	10.4	4.3	0.0	0.0
	10/24/06	Initial	750.3	0.10	13.0	3.2	6.2	0.0	40.6
	12/26/06	Initial	744.5	0.05	12.5	18.8	0.6	0.0	9.7
	06/21/07	Initial	760.7	5.54	26.0	3.0	7.5	0.0	15.8
	08/14/07		776.2	0.13	26.0	17.4	2.1	0.0	0.0
	09/28/07		762.3	4.25	25.2	0.0	5.3	0.0	73.1
	12/27/07		755.3	1.89	5.2	1.4	8.2	0.0	28.5
	03/25/08		774.4	1.92	11.4	21.0	0.6	0.0	0.0
	06/27/08		758.6	2.09	27.6	0.6	6.3	0.0	53.1
	09/29/08		759.7	1.16	24.8	0.2	7.7	0.0	59.0
	12/12/08		746.6	5.21	13.2	5.9	4.0	0.0	50.4
	03/23/09		767.9	1.30	7.0	1.2	8.2	0.0	31.7
	06/12/09		746.8	1.97	18.7	0.2	5.6	0.0	66.0
	09/08/09		764.5	0.04	21.3	3.2	6.6	0.0	47.1
	12/23/09		764.1	0.53	-1.5	18.2	1.1	0.0	0.0
	06/04/10		750.3	2.88	28.8	9.5	4.8	0.0	0.7
	08/10/11		751.2	0.00	30.5	19.2	0.0	0.0	0.0
	07/18/12		756.9	0.36	33.0	21.5	4.0	0.0	0.0
	07/24/13		754.1	0.24	39.0	19.7	0.0	0.0	0.0
		Average[3]:	759.5	1.25	27.1	9.3	4.0	0.2	28.9
		Min:	744.5	0.00	-1.5	0.0	0.0	0.0	0.0
		Max:	776.2	5.54	39.0	21.5	8.6	2.0	83.7

Notes:

1. Initial denotes field screening performed prior to gas vent sampling.
2. During the 18 July 2012 screening event CO was measured instead of CO_2.
3. Average results only include sampling events conducted during the summer months (June - September).

Table 2-2
Historic Landfill Vent Gas Field Screening Results
McAllister Point Landfill
Middletown, Rhode Island

Vent ID	Measurement Date	Screening Prior to Gas Sample Collection	Barometric Pressure (mm Hg)	Flow (cfm)	Temperature (°C)	O_2 (%)	CO_2 (%)	H_2S (ppm)	CH_4 (%)
GVR-111	03/28/02		764.5	0.00	14.4	0.0	12.8	0.0	64.1
	06/20/02		NA	0.00	24.4	0.5	11.5	0.0	20.2
	08/12/02	Initial	767.1	0.00	24.0	0.4	11.2	0.0	72.2
	08/14/02	Initial	762.0	0.00	31.0	0.3	13.0	0.0	69.4
	10/17/02		NA	NA	NA	19.3	1.0	1.0	0.0
	04/23/03		752.7	1.61	16.9	0.3	8.6	1.0	66.7
	06/10/03		756.9	0.13	29.3	20.7	0.0	0.0	0.0
	07/22/03	Initial	757.4	2.27	26.8	20.4	0.0	0.0	0.0
	11/21/03	Initial	754.4	0.91	14.3	4.8	10.6	2.0	30.4
	03/02/04		757.2	2.10	11.1	0.3	13.7	0.0	65.5
	05/11/04		764.5	0.96	27.8	1.6	12.5	0.0	48.5
	07/08/04	Initial	764.1	2.18	30.8	0.3	15.1	1.0	66.5
	11/12/04		762.8	0.94	8.4	1.1	14.6	0.0	70.6
	03/03/05		747.9	1.77	-1.6	17.5	0.9	0.0	4.1
	05/23/05		749.5	1.75	15.1	0.0	14.9	0.0	68.0
	07/07/05	Initial	764.6	2.20	20.4	5.6	10.0	0.0	27.5
	11/17/05		761.3	3.32	12.9	2.8	10.7	0.0	50.2
	04/12/06		759.6	3.07	14.9	1.3	10.8	0.0	49.6
	10/24/06	Initial	750.1	0.03	12.1	0.3	13.1	0.0	55.7
	12/26/06	Initial	744.0	0.57	13.0	2.1	14.2	0.0	59.8
	06/21/07	Initial	761.0	4.67	25.8	0.1	12.1	0.0	37.8
	08/14/07		776.2	0.10	26.0	2.3	10.4	0.0	2.3
	09/28/07		762.5	5.72	25.7	0.0	13.7	0.0	66.3
	12/27/07		755.2	2.90	5.0	0.3	13.4	0.0	60.4
	03/25/08		774.6	1.57	10.4	2.8	9.7	0.0	25.4
	06/27/08		758.7	2.09	27.3	0.7	12.4	0.0	50.2
	09/29/08		759.5	1.94	26.6	0.0	28.4	0.0	62.5
	12/12/08		746.6	16.03	15.2	3.2	14.1	0.0	56.2
	03/23/09		767.8	1.42	5.3	0.0	13.9	0.0	61.5
	06/12/09		744.2	1.88	19.0	0.0	14.1	0.0	59.8
	09/08/09		764.5	0.14	21.2	0.7	13.2	0.0	54.3
	12/23/09		763.9	0.53	-2.7	1.2	14.6	0.0	34.3
	06/04/10		750.3	2.09	37.5	2.9	9.4	0.0	4.1
	08/10/11		750.9	0.00	30.9	19.9	0.0	0.0	0.0
	07/18/12		756.9	0.31	33.0	21.8	5.0	0.0	0.0
	07/24/13		753.9	0.84	47.2	18.0	0.8	0.0	0.5
		Average[3]:	759.5	1.48	28.2	6.4	10.0	0.1	33.0
		Min:	744.0	0.00	-2.7	0.0	0.0	0.0	0.0
		Max:	776.2	16.03	47.2	21.8	28.4	2.0	72.2

Notes:

1. Initial denotes field screening performed prior to gas vent sampling.
2. During the 18 July 2012 screening event CO was measured instead of CO_2.
3. Average results only include sampling events conducted during the summer months (June - September).

Table 2-2
Historic Landfill Vent Gas Field Screening Results
McAllister Point Landfill
Middletown, Rhode Island

Vent ID	Measurement Date	Screening Prior to Gas Sample Collection	Barometric Pressure (mm Hg)	Flow (cfm)	Temperature (°C)	O_2 (%)	CO_2 (%)	H_2S (ppm)	CH_4 (%)
GVR-112	03/28/02		764.5	0.00	16.1	1.5	9.5	0.0	13.4
	06/20/02		NA	0.00	28.3	12.7	4.7	0.0	0.0
	08/12/02	Initial	764.5	0.00	30.0	0.4	11.2	0.0	47.4
	08/15/02	Initial	762.0	0.00	29.0	0.3	11.3	1.0	47.6
	10/17/02		NA	NA	NA	19.3	1.0	1.0	0.0
	04/23/03		752.6	0.17	14.7	3.4	7.8	2.0	11.8
	06/10/03		756.9	0.16	28.3	20.9	0.0	0.0	0.0
	07/22/03	Initial	757.7	0.70	28.1	9.5	5.8	0.0	19.4
	11/21/03	Initial	756.9	0.88	14.8	18.9	0.9	2.0	0.0
	03/02/04		757.4	0.50	14.4	4.0	8.6	0.0	19.7
	05/11/04		768.8	0.53	33.8	21.5	0.0	0.0	0.0
	07/07/04	Initial	766.1	0.00	32.0	6.5	9.1	0.0	10.5
	11/12/04		762.6	0.07	8.3	15.4	3.8	0.0	2.0
	03/03/05		748.4	2.58	-1.8	20.0	0.1	0.0	0.9
	05/23/05		749.8	0.09	12.3	5.4	9.6	0.0	22.3
	07/06/05	Initial	764.5	0.34	28.0	3.0	10.1	0.0	19.6
	11/17/05		761.6	0.77	14.9	13.3	4.2	0.0	0.8
	04/12/06		759.5	0.190	12.4	19.7	0.9	0.0	0.0
	10/24/06	Initial	750.6	0.04	13.2	2.2	8.2	0.0	31.2
	12/26/06	Initial	744.1	0.55	13.9	0.0	8.3	0.0	41.1
	06/21/07	Initial	761.8	3.28	24.9	0.4	13.8	0.0	32.9
	08/14/07		776.2	0.12	25.4	16.5	2.6	0.0	0.0
	09/28/07		762.5	2.12	26.3	16.5	1.4	0.0	7.6
	12/27/07		756.0	0.03	4.5	21.1	0.2	0.0	0.1
	03/25/08		773.9	0.26	12.3	20.2	0.4	0.0	0.0
	06/27/08		758.9	0.18	29.5	1.6	9.2	0.0	6.0
	09/29/08		759.6	0.57	23.1	1.5	13.8	0.0	27.9
	12/12/08		747.0	9.21	12.8	11.7	4.2	0.0	16.3
	03/23/09		767.3	2.15	4.7	6.4	6.7	0.0	1.1
	06/12/09		741.7	0.33	19.6	0.2	10.3	0.0	26.8
	09/08/09		764.5	0.09	19.0	6.6	7.5	0.0	24.1
	12/23/09		764.1	0.26	-0.8	11.2	4.9	0.0	0.0
	06/04/10		747.8	1.18	28.5	16.3	2.5	0.0	0.0
	08/10/11		751.4	0.00	31.3	19.3	0.0	0.0	0.0
	07/18/12		756.9	0.03	32.0	21.5	4.0	0.0	0.0
	07/24/13		754.2	0.21	38.2	19.7	0.0	0.0	0.0
		Average[3]:	759.2	0.52	27.9	9.6	6.5	0.1	15.0
		Min:	741.7	0.00	-1.8	0.0	0.0	0.0	0.0
		Max:	776.2	9.21	38.2	21.5	13.8	2.0	47.6

Notes:

1. Initial denotes field screening performed prior to gas vent sampling.
2. During the 18 July 2012 screening event CO was measured instead of CO_2.
3. Average results only include sampling events conducted during the summer months (June - September).

Table 2-2
Historic Landfill Vent Gas Field Screening Results
McAllister Point Landfill
Middletown, Rhode Island

Vent ID	Measurement Date	Screening Prior to Gas Sample Collection	Barometric Pressure (mm Hg)	Flow (cfm)	Temperature (°C)	O_2 (%)	CO_2 (%)	H_2S (ppm)	CH_4 (%)
GVR-113	03/28/02		764.5	0.00	16.7	0.2	4.4	0.0	33.1
	06/20/02		NA	0.00	34.4	14.4	2.9	0.0	0.0
	08/12/02	Initial	767.1	0.00	27.0	0.2	4.2	0.0	40.5
	08/15/02	Initial	762.0	0.00	29.0	0.4	4.1	0.0	38.5
	10/17/02		NA	NA	NA	19.3	1.0	1.0	0.0
	04/23/03		752.9	0.17	12.8	3.4	3.7	2.0	26.6
	06/10/03		756.9	0.05	29.8	20.9	0.0	0.0	0.0
	07/21/03	Initial	760.3	2.27	27.8	1.6	3.8	0.0	33.9
	11/21/03	Initial	754.4	0.12	15.6	15.1	2.5	2.0	0.0
	03/02/04		757.7	0.40	12.9	0.2	3.3	0.0	32.8
	05/11/04		764.1	0.44	29.5	5.2	3.7	0.0	19.3
	07/08/04	Initial	760.8	0.34	27.2	1.5	4.9	0.0	27.6
	11/12/04		762.7	0.25	10.6	2.4	5.4	0.0	21.8
	03/03/05		748.3	2.15	-1.4	21.0	0.0	0.0	0.0
	05/23/05		749.5	1.05	13.4	12.7	1.4	0.0	15.8
	07/07/05	Initial	765.0	0.54	22.6	20.6	0.0	0.0	0.0
	11/17/05		761.2	3.53	14.4	4.8	5.5	0.0	4.1
	04/12/06		759.6	2.68	12.4	1.7	5.3	0.0	16.8
	10/24/06	Initial	750.6	0.00	16.4	4.3	4.3	0.0	17.6
	12/26/06	Initial	744.3	0.45	11.3	16.9	0.7	0.0	7.3
	06/21/07	Initial	761.1	1.27	24.3	5.0	5.4	0.0	5.5
	08/14/07		776.3	0.14	27.3	10.7	4.2	0.0	0.0
	09/28/07		762.5	1.11	27.4	0.2	3.4	0.0	33.3
	12/27/07		755.7	1.42	5.1	9.8	3.0	0.0	12.7
	03/25/08		774.0	1.40	11.6	19.0	1.0	0.0	0.0
	06/27/08		758.9	0.26	28.8	2.4	5.4	0.0	11.7
	09/29/08		759.9	0.24	24.8	2.1	4.9	0.0	23.2
	12/12/08		746.9	28.23	13.9	3.0	2.8	0.0	29.5
	03/23/09		768.0	0.40	9.8	0.5	6.1	0.0	15.2
	06/12/09		746.8	0.51	21.1	0.0	4.1	0.0	31.9
	09/08/09		764.5	0.05	18.4	9.4	3.9	0.0	13.6
	12/23/09		764.0	0.35	-1.9	2.1	0.2	0.0	0.0
	06/04/10		751.6	2.01	28.1	5.1	5.9	0.0	0.1
	08/10/11		751.0	0.12	26.7	12.7	2.3	0.0	0.5
	07/18/12		756.9	0.18	32.0	21.4	3.0	0.0	0.0
	07/24/13		754.3	0.14	30.7	16.8	0.4	0.0	0.1
		Average[3]:	759.8	0.51	27.1	8.1	3.5	0.0	14.5
		Min:	744.3	0.00	-1.9	0.0	0.0	0.0	0.0
		Max:	776.3	28.23	34.4	21.4	6.1	2.0	40.5

Notes:

1. Initial denotes field screening performed prior to gas vent sampling.
2. During the 18 July 2012 screening event CO was measured instead of CO_2.
3. Average results only include sampling events conducted during the summer months (June - September).

Table 2-2
Historic Landfill Vent Gas Field Screening Results
McAllister Point Landfill
Middletown, Rhode Island

Vent ID	Measurement Date	Screening Prior to Gas Sample Collection	Barometric Pressure (mm Hg)	Flow (cfm)	Temperature (°C)	O_2 (%)	CO_2 (%)	H_2S (ppm)	CH_4 (%)
GVR-114	03/28/02		764.5	0.00	16.7	0.0	4.1	0.0	51.5
	06/20/02		NA	0.00	23.9	10.9	4.3	0.0	0.0
	08/12/02	Initial	767.1	0.00	26.0	0.0	3.4	3.0	65.3
	08/15/02	Initial	762.0	0.01	29.0	0.4	3.0	3.0	63.5
	10/17/02		NA	NA	NA	19.3	1.0	1.0	0.0
	04/23/03		753.1	1.57	15.8	0.2	5.3	1.0	62.6
	06/10/03		756.9	0.04	26.9	20.7	0.0	0.0	0.0
	07/22/03	Initial	757.4	5.00	25.6	13.0	1.5	0.0	20.9
	11/21/03	Initial	756.9	0.00	14.2	15.8	2.1	2.0	0.2
	03/02/04		757.5	2.50	12.2	0.5	4.5	0.0	57.9
	05/11/04		764.5	0.79	25.1	3.8	4.8	0.0	33.4
	07/08/04	Initial	762.3	2.27	27.8	0.2	5.4	0.0	57.5
	11/12/04		764.9	0.85	10.1	1.4	6.1	0.0	52.8
	03/03/05		748.1	2.56	-1.4	17.8	0.6	0.0	6.2
	05/23/05		749.4	1.57	12.6	0.3	5.3	0.0	59.8
	07/07/05	Initial	765.0	0.49	20.8	20.7	0.0	0.0	0.0
	11/17/05		761.2	1.92	13.6	0.6	7.2	0.0	20.5
	04/12/06		759.4	3.04	12.6	4.0	5.4	0.0	21.6
	10/24/06	Initial	750.2	0.06	14.0	0.2	5.7	0.0	54.7
	12/26/06	Initial	744.2	0.42	11.8	11.9	2.8	0.0	24.9
	06/21/07	Initial	761.1	2.29	26.5	3.5	7.2	0.0	12.8
	08/14/07		776.2	0.11	25.4	9.9	5.0	0.0	0.0
	09/28/07		762.2	7.71	25.9	0.0	5.3	0.0	57.2
	12/27/07		755.4	1.63	5.5	1.1	6.1	0.0	48.6
	03/25/08		774.1	0.34	11.4	15.9	2.6	0.0	0.2
	06/27/08		758.4	1.13	27.8	0.6	6.5	0.0	43.5
	09/29/08		759.6	1.27	25.8	0.0	9.5	0.0	50.8
	12/12/08		746.4	13.05	16.4	6.4	5.3	0.0	38.4
	03/23/09		767.8	1.25	4.4	0.1	7.7	0.0	34.6
	06/12/09		746.8	1.83	19.3	0.2	6.5	0.0	54.2
	09/08/09		764.5	0.15	21.8	0.9	7.3	0.0	45.1
	12/23/09		764.0	0.09	-3.1	10.5	4.1	0.0	0.1
	06/04/10		751.6	1.22	29.5	4.7	6.4	0.0	1.3
	08/10/11		750.9	0.01	29.5	18.6	0.5	0.0	0.1
	07/18/12		756.9	0.43	31.0	20.3	3.0	0.0	0.0
	07/24/13		754.5	0.51	36.5	3.7	5.7	0.0	2.0
		Average[3]:	759.6	1.36	26.6	7.1	4.5	0.3	26.3
		Min:	744.2	0.00	-3.1	0.0	0.0	0.0	0.0
		Max:	776.2	13.05	36.5	20.7	9.5	3.0	65.3

Notes:

1. Initial denotes field screening performed prior to gas vent sampling.
2. During the 18 July 2012 screening event CO was measured instead of CO_2.
3. Average results only include sampling events conducted during the summer months (June - September).

Table 2-2
Historic Landfill Vent Gas Field Screening Results
McAllister Point Landfill
Middletown, Rhode Island

Vent ID	Measurement Date	Screening Prior to Gas Sample Collection	Barometric Pressure (mm Hg)	Flow (cfm)	Temperature (°C)	O_2 (%)	CO_2 (%)	H_2S (ppm)	CH_4 (%)
GVR-115	03/28/02		762.0	0.00	12.8	0.1	5.9	2.0	23.8
	06/20/02		NA	0.00	21.7	17.9	1.6	1.0	0.0
	08/12/02	Initial	767.1	0.00	26.0	1.2	6.7	0.0	25.8
	08/15/02	Initial	762.0	0.00	29.0	0.4	6.3	1.0	26.7
	10/17/02		NA	NA	NA	19.3	1.0	1.0	0.0
	04/23/03		752.8	0.17	11.6	5.8	4.0	3.0	12.4
	06/10/03		756.9	0.12	27.2	20.9	0.0	0.0	0.0
	07/21/03	Initial	761.0	2.35	28.9	1.5	6.3	0.0	19.5
	11/21/03	Initial	756.9	0.02	13.3	20.1	0.2	2.0	0.0
	03/02/04		757.8	0.20	13.9	6.4	4.0	0.0	11.4
	05/11/04		767.4	0.26	34.1	21.6	0.0	0.0	0.1
	07/06/04	Initial	767.8	0.17	33.6	20.0	0.0	0.0	0.2
	11/12/04		762.5	0.39	10.0	2.0	8.3	0.0	3.3
	03/03/05		748.6	3.75	-1.1	21.0	0.0	0.0	0.0
	05/23/05		749.4	0.88	11.6	3.5	5.6	0.0	21.2
	07/05/05	Initial	762.5	0.81	30.6	0.2	8.3	0.0	15.1
	11/17/05		762.0	0.22	11.8	17.2	0.2	0.0	0.2
	04/12/06		761.4	1.65	16.4	10.2	4.9	0.0	0.0
	10/24/06	Initial	750.7	0.06	14.6	3.7	6.2	0.0	8.2
	12/26/06	Initial	744.2	0.27	15.4	0.2	4.2	0.0	26.0
	06/21/07	Initial	761.1	0.93	26.5	7.4	5.2	0.0	3.6
	08/14/07		776.3	0.01	26.2	13.4	2.7	0.0	0.3
	09/28/07		762.3	3.19	28.1	0.0	22.4	0.0	19.7
	12/27/07		755.9	0.01	5.7	21.1	0.2	0.0	0.1
	03/25/08		774.0	2.27	9.9	18.8	0.9	0.0	0.0
	06/27/08		758.8	0.85	31.1	2.5	7.0	0.0	8.8
	09/29/08		759.9	1.05	26.4	1.9	7.1	0.0	16.7
	12/12/08		746.7	10.00	14.6	10.9	2.2	0.0	12.5
	03/23/09		768.4	1.52	8.6	5.9	6.5	0.0	0.9
	06/12/09		746.8	1.12	20.2	10.8	3.4	0.0	7.8
	09/08/09		767.1	0.06	19.4	19.6	0.5	0.0	0.5
	12/23/09		764.0	0.53	-2.8	20.5	0.2	0.0	0.0
	06/04/10		751.6	0.34	32.7	5.4	6.4	0.0	0.0
	08/10/11		751.1	0.99	30.6	19.9	0.0	0.0	0.0
	07/18/12		756.9	0.06	31.0	21.4	0.0	0.0	0.0
	07/24/13		754.0	0.26	33.1	18.6	0.0	0.0	0.0
		Average[3]:	760.2	0.68	27.9	10.2	4.7	0.1	8.0
		Min:	744.2	0.00	-2.8	0.0	0.0	0.0	0.0
		Max:	776.3	10.00	34.1	21.6	22.4	3.0	26.7

Notes:

1. Initial denotes field screening performed prior to gas vent sampling.
2. During the 18 July 2012 screening event CO was measured instead of CO_2.
3. Average results only include sampling events conducted during the summer months (June - September).

Table 2-2
Historic Landfill Vent Gas Field Screening Results
McAllister Point Landfill
Middletown, Rhode Island

Vent ID	Measurement Date	Screening Prior to Gas Sample Collection	Barometric Pressure (mm Hg)	Flow (cfm)	Temperature (°C)	O_2 (%)	CO_2 (%)	H_2S (ppm)	CH_4 (%)
GVR-116	03/28/02		762.0	0.00	13.9	0.0	5.8	0.0	27.9
	06/20/02		NA	0.00	31.7	9.9	5.8	0.0	0.1
	08/12/02	Initial	764.5	0.00	29.0	0.6	7.0	0.0	28.9
	08/15/02	Initial	764.5	0.00	28.0	2.5	6.0	1.0	24.2
	10/17/02		NA	NA	NA	19.3	1.0	1.0	0.0
	04/23/03		753.0	1.70	14.3	1.4	6.0	3.0	19.4
	06/10/03		756.9	0.66	31.8	20.9	0.0	0.0	0.0
	07/21/03	Initial	761.2	2.44	27.9	3.2	5.5	0.0	28.9
	11/21/03	Initial	756.9	0.02	11.9	5.8	5.8	2.0	2.1
	03/02/04		757.7	0.50	13.3	2.2	4.1	0.0	30.0
	05/11/04		767.6	0.35	33.1	21.4	0.1	0.0	0.4
	07/07/04	Initial	766.9	0.26	32.8	17.8	0.6	0.0	2.0
	11/12/04		763.2	0.39	10.4	2.4	6.6	0.0	25.1
	03/03/05		748.7	1.29	-1.3	13.6	1.5	0.0	14.9
	05/23/05		749.6	0.09	13.6	1.6	6.5	0.0	32.6
	07/06/05	Initial	760.4	0.29	25.0	18.3	0.7	0.0	3.5
	11/17/05		762.4	0.37	10.1	13.7	3.6	0.0	1.6
	04/12/06		760.7	0.417	17.1	4.0	6.5	0.0	7.5
	10/24/06	Initial	751.0	0.17	13.5	2.8	4.0	0.0	31.7
	12/26/06	Initial	744.4	0.29	13.9	0.0	4.3	0.0	42.9
	06/21/07	Initial	761.0	1.18	25.4	5.1	6.9	0.0	11.3
	08/14/07		776.4	0.09	28.6	9.9	4.5	0.0	1.7
	09/28/07		762.2	4.11	27.7	1.6	4.5	0.0	28.5
	12/27/07		755.9	0.54	4.8	16.3	1.4	0.0	10.1
	03/25/08		774.4	0.08	9.8	10.9	3.9	0.0	0.8
	06/27/08		758.8	0.52	28.9	10.6	3.7	0.0	11.6
	09/29/08		760.1	0.75	24.0	0.9	6.8	0.0	29.4
	12/12/08		746.9	3.07	15.0	0.5	3.9	0.0	37.5
	03/23/09		768.5	0.21	10.4	6.0	5.8	0.0	6.8
	06/12/09		746.8	0.62	20.3	10.9	2.9	0.0	16.0
	09/08/09		767.1	0.04	19.7	16.5	1.8	0.0	7.3
	12/23/09		763.9	0.26	-3.4	20.6	0.2	0.0	0.0
	06/04/10		752.3	0.18	31.6	3.9	6.7	0.0	1.5
	08/10/11		751.8	0.00	30.1	20.0	0.0	0.0	0.0
	07/18/12		756.9	0.01	29.0	21.5	0.0	0.0	0.0
	07/24/13		753.9	0.24	35.8	20.1	0.0	0.0	0.0
		Average[3]:	760.1	0.63	28.2	10.8	3.5	0.1	10.8
		Min:	744.4	0.00	-3.4	0.0	0.0	0.0	0.0
		Max:	776.4	4.11	35.8	21.5	7.0	3.0	42.9

Notes:

1. Initial denotes field screening performed prior to gas vent sampling.
2. During the 18 July 2012 screening event CO was measured instead of CO_2.
3. Average results only include sampling events conducted during the summer months (June - September).

Table 2-2
Historic Landfill Vent Gas Field Screening Results
McAllister Point Landfill
Middletown, Rhode Island

Vent ID	Measurement Date	Screening Prior to Gas Sample Collection	Barometric Pressure (mm Hg)	Flow (cfm)	Temperature (ºC)	O_2 (%)	CO_2 (%)	H_2S (ppm)	CH_4 (%)
GVR-117	03/28/02		762.0	0.00	18.3	0.1	8.8	0.0	10.5
	06/20/02		NA	0.00	24.4	11.0	5.7	0.0	0.0
	08/12/02	Initial	764.5	0.00	33.0	3.6	10.0	0.0	13.7
	08/15/02	Initial	764.5	0.00	33.0	2.5	10.2	1.0	15.2
	10/17/02		NA	NA	NA	19.3	1.0	1.0	0.0
	04/23/03		752.9	0.01	12.3	1.2	8.2	2.0	16.4
	06/10/03		759.5	0.31	27.3	20.6	0.0	0.0	0.0
	07/21/03	Initial	761.4	0.84	28.9	9.0	6.6	0.0	7.4
	11/21/03	Initial	756.9	0.03	10.7	12.1	4.3	2.0	6.5
	03/02/04		758.0	0.00	12.1	4.5	6.9	0.0	11.8
	05/11/04		767.3	0.35	31.6	21.6	0.0	0.0	0.0
	07/07/04	Initial	765.1	0.38	30.9	19.3	0.2	0.0	0.7
	11/12/04		763.7	0.65	10.3	20.9	1.0	0.0	0.0
	03/03/05		748.8	1.11	-1.4	20.5	0.0	0.0	0.3
	05/23/05		749.6	0.00	13.6	8.4	6.4	0.0	11.4
	07/06/05	Initial	760.4	0.20	27.3	11.0	5.1	0.0	7.5
	11/17/05		761.9	0.14	14.0	11.2	5.2	0.0	6.4
	04/12/06		760.8	0.655	16.1	7.5	6.5	0.0	2.7
	10/24/06	Initial	751.2	0.00	14.0	2.4	9.2	0.0	24.3
	12/26/06	Initial	744.5	0.19	13.6	0.8	9.3	0.0	32.4
	06/21/07	Initial	761.4	2.09	26.3	5.6	7.9	0.0	2.7
	08/14/07		776.4	0.31	29.2	17.3	1.9	0.0	1.5
	09/28/07		762.3	3.10	25.8	0.2	10.4	0.0	25.7
	12/27/07		756.0	0.96	5.2	10.5	5.5	0.0	13.2
	03/25/08		774.6	0.17	11.6	12.3	4.0	0.0	0.0
	06/27/08		758.2	0.35	30.2	11.5	4.8	0.0	5.1
	09/29/08		760.2	0.21	23.2	4.8	12.4	0.0	18.9
	12/12/08		747.5	16.84	14.9	7.4	6.0	0.0	22.0
	03/23/09		768.4	0.41	6.6	6.8	7.2	0.0	4.6
	06/12/09		734.1	0.49	22.3	13.6	4.0	0.0	4.3
	09/08/09		767.1	0.12	18.8	16.7	2.1	0.0	3.6
	12/23/09		764.0	0.09	-2.7	19.4	0.9	0.0	0.0
	06/04/10		754.4	0.09	34.0	6.1	7.6	0.0	0.7
	08/10/11		751.8	0.00	33.2	20.0	0.0	0.0	0.0
	07/18/12		756.9	0.09	27.0	21.3	0.0	0.0	0.0
	07/24/13		754.2	0.04	31.4	20.3	0.0	0.0	0.0
		Average[3]:	759.6	0.48	28.1	11.9	4.9	0.1	5.9
		Min:	734.1	0.00	-2.7	0.1	0.0	0.0	0.0
		Max:	776.4	16.84	34.0	21.6	12.4	2.0	32.4

Notes:

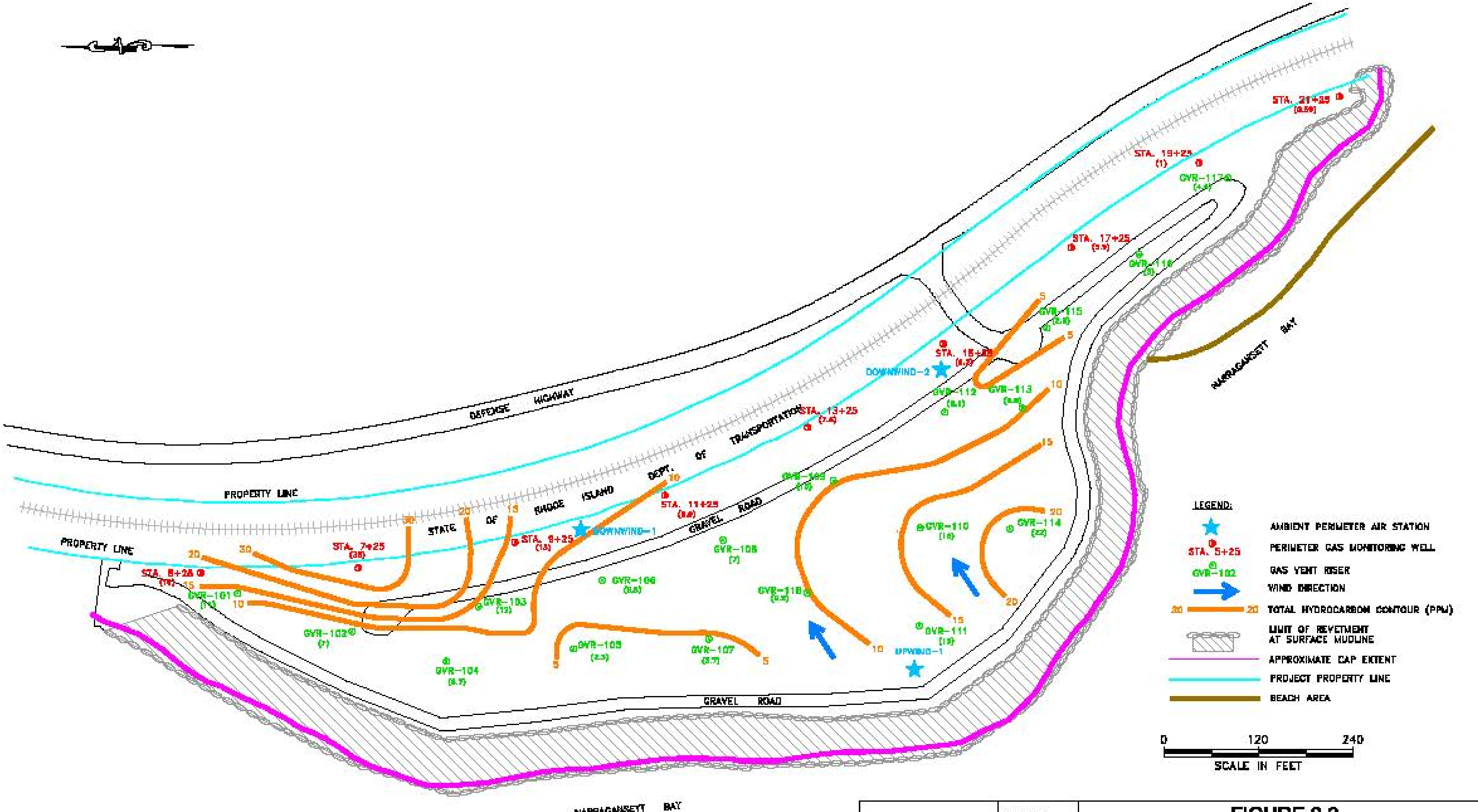
1. Initial denotes field screening performed prior to gas vent sampling.
2. During the 18 July 2012 screening event CO was measured instead of CO_2.
3. Average results only include sampling events conducted during the summer months (June - September).

Table 2-2
Historic Landfill Vent Gas Field Screening Results
McAllister Point Landfill
Middletown, Rhode Island

Vent ID	Measurement Date	Screening Prior to Gas Sample Collection	Barometric Pressure (mm Hg)	Flow (cfm)	Temperature (ºC)	O_2 (%)	CO_2 (%)	H_2S (ppm)	CH_4 (%)
GVR-118	03/28/02		764.5	0.00	12.8	0.0	12.3	0.0	53.6
	06/20/02		NA	0.00	29.4	3.5	10.7	0.0	0.0
	08/12/02	Initial	767.1	0.00	25.0	0.6	13.6	0.0	60.7
	08/15/02	Initial	764.5	0.00	32.0	0.3	12.9	2.0	60.6
	10/17/02		NA	NA	NA	19.3	1.0	1.0	0.0
	04/23/03		753.1	1.86	19.7	0.2	12.9	1.0	51.3
	06/10/03		756.9	0.05	29.5	20.9	0.0	0.0	0.0
	07/22/03	Initial	757.4	1.40	25.7	15.3	3.4	0.0	12.9
	11/21/03	Initial	756.9	0.88	14.6	20.2	0.0	2.0	0.0
	03/02/04		757.2	1.70	12.5	2.0	11.3	0.0	56.8
	05/11/04		764.5	0.96	28.6	2.0	11.5	0.0	35.7
	07/08/04	Initial	761.6	2.01	28.5	0.3	14.0	0.0	53.9
	11/12/04		763.1	0.23	10.8	2.1	12.0	0.0	30.1
	03/03/05		747.9	1.91	-1.7	14.2	3.1	0.0	0.6
	05/23/05		749.5	1.22	15.1	0.7	13.2	0.0	60.4
	07/07/05	Initial	763.6	0.44	21.7	8.1	7.7	0.0	4.1
	11/17/05		761.5	2.63	13.9	0.0	10.5	0.0	27.7
	04/12/06		759.8	0.321	14.0	2.5	10.0	0.0	2.1
	10/24/06	Initial	750.2	1.02	13.8	2.8	10.4	0.0	45.0
	12/26/06	Initial	744.3	0.30	12.0	16.9	2.6	0.0	10.7
	06/21/07	Initial	761.5	0.53	28.5	3.2	10.6	0.0	24.1
	08/14/07		773.2	0.05	26.5	15.7	2.7	0.0	0.0
	09/28/07		762.5	3.52	24.2	0.0	10.9	0.0	59.2
	12/27/07		755.2	1.53	5.3	1.2	11.6	0.0	45.6
	03/25/08		775.1	1.04	11.5	16.9	2.6	0.0	0.0
	06/27/08		758.2	0.17	27.7	1.4	10.9	0.0	39.1
	09/29/08		759.6	1.83	25.7	0.0	21.5	0.0	51.6
	12/12/08		746.7	24.39	15.8	7.0	8.2	0.0	36.5
	03/23/09		767.5	1.45	6.4	1.1	11.7	0.0	35.5
	06/12/09		746.8	1.64	18.8	0.9	12.0	0.0	50.7
	09/08/09		746.5	0.09	19.9	3.9	10.4	0.0	34.9
	12/23/09		764.1	0.70	2.4	12.1	7.0	0.0	0.0
	06/04/10		750.3	1.75	29.2	1.2	10.2	0.0	3.5
	08/10/11		751.0	0.00	30.6	20.2	0.0	0.0	0.0
	07/18/12		756.9	0.11	34.0	20.2	0.0	0.0	0.0
	07/24/13		754.2	0.06	38.4	18.8	0.0	3.0	0.0
		Average[3]:	758.3	0.76	27.5	7.5	8.4	0.3	25.3
		Min:	744.3	0.00	-1.7	0.0	0.0	0.0	0.0
		Max:	775.1	24.39	38.4	20.9	21.5	3.0	60.7

Notes:

1. Initial denotes field screening performed prior to gas vent sampling.
2. During the 18 July 2012 screening event CO was measured instead of CO_2.
3. Average results only include sampling events conducted during the summer months (June - September).



H&S Environmental, Inc.

DRAWN BY: RH	FIGURE 2-2		
APPROVED BY:	TOTAL HYDROCARBON PROFILE PLAN JULY 28-29, 2009 McAllister Point Landfill Naval Station Newport Middletown, Rhode Island		
DATE: 22 FEB 2010	H&S PROJECT NO: [illegible]	CONTRACT CODE: [illegible]	
SIZE: B	SCALE: AS SHOWN	SHEET: 1 OF 1	REV: 0

TABLE 2-3
GAS VENT SAMPLING
VOC and SVOC SUMMARY OF ANALYTICAL RESULTS
MCALLISTER POINT LANDFILL - NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Sampling Conducted July 28-30, 2009

Compound Name	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Detected Concentration
Volatile Organic Compaounds (VOCs) (ppbv)			
1,1-DICHLOROETHANE	0.056 J	10	STA-5+25
1,1-DICHLOROETHENE	0.17 J	0.17 J	GVR-101
1,1,1-TRICHLOROETHANE	ND	1.0	GVR-101
1,2-DICHLOROETHANE	0.72 J	0.72 J	GVR-101
1,2-DICHLOROPROPANE	0.53 J	2.4	STA-7+25
1,2,4-TRIMETHYBENZENE	0.12 J	2.1 J	GVR104
1,3-DICHLOROBENZENE	0.18 J	0.61 J	GVR-110
1,3,5-TRIMETHYLBENZENE	0.12 J	0.77 J	GVR-104
2-BUTANONE (METHYL ETHYL KETONE)	0.86	160	GVR-117
2-HEXANONE	0.14 J	0.14 J	GVR-110
2-PROPANOL	1.3 J	130	STA-7+25
2,2,4-TRIMETHYLPENTANE	8.7	1300 J	GVR-114
4-ETHYLTOLUENE	0.12 J	2.3 J	GVR-104
ACETONE	4.3	520	STA-7+25
BENZENE	0.45 J	26	STA-7+25
CARBON DISULFIDE	0.38 J	53 J	GVR-110
CHLOROETHANE	0.44 J	54 J	STA-9+25
CHLOROFORM	0.80 J	3.6	GVR-102
CHLOROMETHANE	4.1	94 J	GVR-114
CIS-1,2-DICHLOROETHENE	0.3 J	10	STA-5+25
CUMENE	0.14 J	7	STA-7+25
CYCLOHEXANE	1.6	280	STA-11+25
ETHANOL	8.6 J	2600 J	GVR-105
ETHYL BENZENE	0.61 J	10	STA-7+25
FREON 11	0.12 J	32	STA-5+25
FREON 114	1.8	190	STA-5+25
FREON 12	2.5	270	STA-5+25
HEPTANE	1.1	61 J	STA-9+25
HEXANE	1.8	200	STA-5+25
M,P-XYLENE	0.18 J	18	GVR-117
METHYL TERT-BUTYL ETHER	0.10 J	0.14 J	GVR-107
METHYLENE CHLORIDE	0.88	7.8	UPWIND-1
O-XYLENE	0.51 J	6.8	GVR-117
PROPYLBENZENE	0.10	1.2	GVR-101
TETRACHLOROETHENE	0.16 J	4.1	STA-7+25
TETRAHYDROFURAN	18.00	580	STA-19+25, STA-21+25
TOLUENE	1.20	200	STA-7+25
TRANS-1,2-DICHLOROETHENE	0.19 J	4.4	STA-5+25
TRICHLOROETHENE	0.24 J	5.8	STA-5+25
VINYL CHLORIDE	0.76 J	35	STA-5+25
Semi-Volatile Organic Compounds (SVOCs) (ppmv)			
1,4-DICHLOROBENZENE	0.00011	0.0064	STA-5+25
BENZOIC ACID	ND	0.0032 J	STA-9+25
BENZO(A)ANTHRACINE	0.0000086	0.000011	STA-11+25
BUTYLBENZYLPHTHALATE	ND	.00011 J	STA-19+25
CHRYSENE	0.000036	0.00004	DOWNWIND-2, GVR-103, GVR-118
DIETHYLPHTHALATE	0.000075 J	0.00037	GVR-102
2-METHYLNAPHTHALENE	0.000036	0.000062	DOWNWIND-2
4-METHYLPHENOL/3-METHYLPHENOL	0.0013	0.0048	STA-7+25
NAPHTHALENE	0.000067 J	0.00066	STA-7+25
NITROBENZENE	ND	0.00098	GVR-102
PHENOL	0.00060 J	0.0026	GVR-106
PYRENE	0.0000084	0.000011	GVR-102

Notes:
ppbv = parts per billion by volume
µg = microgram

TABLE 2-4
GAS VENT SAMPLING
TOTAL VOC AND SVOC RESULTS
MCALLISTER POINT LANDFILL
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Sampling Conducted July 28-30, 2009

Sample Name	Total VOCs (ppbv)	Total SVOCs (ppmv)
ML-GV-101-LG-09	504.91	0.0008
ML-GV-102-LG-09	886.92	0.0036
ML-GV-103-LG-09	861.65	0.0008
ML-GV-104-LG-09	474.17	0.0032
ML-GV-105-LG-09	3024.74	0.0030
ML-GV-106-LG-09	483.72	0.0037
ML-GV-107-LG-09	324.00	0.0017
ML-GV-108-LG-09	444.61	0.0020
ML-GV-109-LG-09	364.30	0.0014
ML-GV-110-LG-09	721.75	0.0002
ML-GV-111-LG-09	488.56	0.0017
ML-GV-112-LG-09	394.30	0.0008
ML-GV-113-LG-09	1321.40	0.0003
ML-GV-114-LG-09	2072.30	0.0006
ML-GV-115-LG-09	685.60	0.0011
ML-GV-116-LG-09	420.90	0.0017
ML-GV-117-LG-09	1614.60	0.0024
ML-GV-118-LG-09	507.70	0.0001
ML-STA-5+25-LG-09	1726.50	0.0101
ML-STA-7+25-LG-09	1868.70	0.0101
ML-STA-9+25-LG-09	1476.53	0.0082
ML-STA-11+25-LG-09	1256.90	0.0010
ML-STA-13+25-LG-09	1049.90	0.0011
ML-STA-15+25-LG-09	968.70	0.0002
ML-STA-17+25-LG-09	764.40	0.000038
ML-STA-19+25-LG-09	692.00	0.0002
ML-STA-21+25-LG-08	659.00	0.0001

Notes:
ppbv = parts per billion by volume
pppmv = parts per million by volume
SVOC = semi-volatile organic compound
VOC = volatile organic compound

TABLE 2-5
GAS VENT SAMPLING
PERMISSIBLE EXPOSURE LIMITS EXCEEDENCES
MCALLISTER POINT LANDFILL
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Sampling Conducted July 28-30, 2009

Compound Name	8 hour PEL (ppmv)	Stations that exceeded the PEL
Volatile Organic Compounds (VOCs)		
1,1-DICHLOROETHANE	100	No stations exceeded the PEL.
1,1-DICHLOROETHENE	NA	NA
1,1,1-TRICHLOROETHANE	350	No stations exceeded the PEL.
1,2-DICHLOROETHANE	50	No stations exceeded the PEL.
1,2-DICHLOROPROPANE	75	No stations exceeded the PEL.
1,2,4-TRIMETHYLBENZENE	NA	NA
1,3-DICHLOROBENZENE	NA	NA
1,3,5-TRIMETHYLBENZENE	NA	NA
2-BUTANONE (METHYL ETHYL KETONE)	200	No stations exceeded the PEL.
2-HEXANONE	100	No stations exceeded the PEL.
2-PROPANOL	400	No stations exceeded the PEL.
2,2,4-TRIMETHYLPENTANE	NA	NA
4-ETHYLTOLUENE	NA	NA
ACETONE	1000	No stations exceeded the PEL.
BENZENE	1	No stations exceeded the PEL.
CARBON DISULFIDE	20	No stations exceeded the PEL.
CHLOROETHANE	1000	No stations exceeded the PEL.
CHLOROFORM	50	No stations exceeded the PEL.
CHLOROMETHANE	100	No stations exceeded the PEL.
CIS-1,2-DICHLOROETHENE	200	No stations exceeded the PEL.
CUMENE	50	No stations exceeded the PEL.
CYCLOHEXANE	300	No stations exceeded the PEL.
ETHANOL	1000	No stations exceeded the PEL.
ETHYL BENZENE	100	No stations exceeded the PEL.
FREON 11	1000	No stations exceeded the PEL.
FREON 113	1000	No stations exceeded the PEL.
FREON 114	1000	No stations exceeded the PEL.
FREON 12	1000	No stations exceeded the PEL.
HEPTANE	500	No stations exceeded the PEL.
HEXANE	500	No stations exceeded the PEL.
M,P-XYLENE	100	No stations exceeded the PEL.
METHYL TERT-BUTYL ETHER	NA	NA
METHYLENE CHLORIDE	25	No stations exceeded the PEL.
O-XYLENE	100	No stations exceeded the PEL.
PROPYLBENZENE	NA	NA
TETRACHLOROETHENE	100	No stations exceeded the PEL.
TETRAHYDROFURAN	200	No stations exceeded the PEL.
TOLUENE	200	No stations exceeded the PEL.
TRANS-1,2-DICHLOROETHENE	200	No stations exceeded the PEL.
TRICHLOROETHENE	100	No stations exceeded the PEL.
VINYL CHLORIDE	1	No stations exceeded the PEL.
Semi- Volatile Organic Compounds (SVOCs)		
1,4-DICHLOROBENZENE	75	No stations exceeded the PEL.
BENZOIC ACID	NA	NA
BENZO(A)ANTHRACENE	NA	NA
BUTYLBENZYLPHTHALATE	NA	NA
CHRYSENE	0.06	No stations exceeded the PEL.
DIETHYLPHTHALATE	NA	NA
2-METHYLNAPHTHALENE	NA	NA
4-METHYLPHENOL/3-METHYLPHENOL	5	No stations exceeded the PEL.
NAPHTHALENE	10	No stations exceeded the PEL.
NITROBENZENE	1	No stations exceeded the PEL.
PHENANTHRENE	0.06	No stations exceeded the PEL.
PHENOL	5	No stations exceeded the PEL.
PYRENE	NA	NA
METHANE	NA	NA
TOTAL HYDROCARBON	NA	NA

Notes:
NA = Not available
PEL = Permissible Exposure Limit, as designated by OSHA (29CRF1910)
ppmv = parts per million by volume

TABLE 2-6
GAS VENT SAMPLING - RESULTS vs. RIDEM AAL CRITERIA
MCALLISTER POINT LANDFILL
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Sampling Conducted July 28-30, 2009

Station Location	Chemical Name	Net Downwind (µ/m^3)	RIDEM AAL (µ/m^3)	Exceedence
DOWNWIND-1	2-BUTANONE	X	5,000	N
DOWNWIND-1	2-PROPANOL	ND	NSE	NA
DOWNWIND-1	4-ETHYLTOLUENE	ND	NSE	NA
DOWNWIND-1	4-METHYL-2-PENTANONE	ND	NSE	NA
DOWNWIND-1	ACETONE	X	30,000	NA
DOWNWIND-1	BENZENE	ND	20	NA
DOWNWIND-1	CARBON DISULFIDE	8.87	700	N
DOWNWIND-1	CARBON TETRACHLORIDE	ND	200	NA
DOWNWIND-1	CHLOROETHANE	ND	NSE	NA
DOWNWIND-1	ETHANOL	ND	NSE	NA
DOWNWIND-1	FREON 11	ND	NSE	NA
DOWNWIND-1	FREON 113	ND	NSE	NA
DOWNWIND-1	FREON 12	ND	NSE	NA
DOWNWIND-1	HEPTANE	ND	NSE	NA
DOWNWIND-1	HEXANE	ND	700	NA
DOWNWIND-1	M,P-XYLENE	ND	3,000	NA
DOWNWIND-1	METHYLENE CHLORIDE	X	400	NA
DOWNWIND-1	TOLUENE	X	4,000	NA
DOWNWIND-2	2-BUTANONE	1.32	5,000	N
DOWNWIND-2	ACETONE	5.55	30,000	N
DOWNWIND-2	ALPHA-CHLOROTOLUENE	ND	NSE	NA
DOWNWIND-2	BENZENE	ND	20	NA
DOWNWIND-2	CARBON DISULFIDE	6.97	700	N
DOWNWIND-2	CARBON TETRACHLORIDE	ND	200	NA
DOWNWIND-2	FREON 11	ND	NSE	NA
DOWNWIND-2	FREON 113	ND	NSE	NA
DOWNWIND-2	FREON 12	ND	NSE	NA
DOWNWIND-2	HEXANE	ND	700	NA
DOWNWIND-2	M,P-XYLENE	ND	3,000	NA
DOWNWIND-2	METHYLENE CHLORIDE	X	400	NA
DOWNWIND-2	TOLUENE	X	4,000	NA
DOWNWIND-1	BENZO(A)ANTHRACENE	X	NSE	NA
DOWNWIND-1	CHRYSENE	0.01899	NSE	NA
DOWNWIND-1	PYRENE	X	NSE	NA
DOWNWIND-2	BENZO(A)ANTHRACENE	X	NSE	NA
DOWNWIND-2	CHRYSENE	0	NSE	NA
DOWNWIND-2	PYRENE	X	NSE	NA
DOWNWIND-2	2-METHYLNAPHTHALENE	0.367	NSE	NA
DOWNWIND-2	NAPHTHALENE	0.906	3	N
DOWNWIND-1	METHANE	66.7	NSE	NSE
DOWNWIND-2	METHANE	66.7	NSE	NSE

Notes: Net downwind concentration is based upon subtracting upwind level from downwind levels
RIDEM AAL cited is the 24-hour AAL or if no 24-hour AAL is available, then 1-hour or Annual AAL cited.
SVOC samples evaluted were the highest hits of the detected SVOCs
SVOC = semi-volatile organic compound
RIDEM = Rhode Island Department of Environmental Mangement
AAL = acceptable air levels
X = upwind level exceeds downwind level
NA = not applicable
NSE = no standard established
N = not exceeded
ND = both upwind and downwind levels are Non Detect

TABLE 2-7
GAS VENT SAMPLING
HAZARDOUS AIR POLLUTANT EMISSIONS
MCALLISTER POINT LANDFILL
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Sampling Conducted July 28-30, 2009

Hazardous Air Pollutants	Average of Site-Wide Gas Vent Concentrations (μg/m^3)	Emitted Tons per Year
ETHYL BENZENE	7.23	3.68E-06
1,1-DICHLOROETHENE	1.06	5.38E-07
1,2-DICHLOROETHANE	1.27	6.47E-07
1,2-DICHLOROPROPANE	1.32	6.72E-07
1,4-DICHLOROBENZENE	1.78	9.07E-07
2,2,4-TRIMETHYLPENTANE	543.18	2.76E-04
2-BUTANONE (METHYL ETHYL KETONE)	114.78	5.84E-05
4-METHYL-2-PENTANONE	1.08	5.50E-07
ALPHA-CHLOROTOLUENE	0.69	3.51E-07
BENZENE	13.42	6.83E-06
BROMOMETHANE	2.12	1.08E-06
CARBON DISULFIDE	21.87	1.11E-05
CHLOROBENZENE	0.83	4.20E-07
CHLOROETHANE	30.28	1.54E-05
CHLOROFORM	1.63	8.30E-07
CHLOROMETHANE	50.67	2.58E-05
HEXANE	147.28	7.49E-05
M,P-XYLENE	20.38	1.04E-05
METHYL TERT-BUTYL ETHER	0.73	3.73E-07
METHYLENE CHLORIDE	2.12	1.08E-06
NAPHTHALENE	1.05	5.33E-07
PHENOL	3.19	1.63E-06
O-XYLENE	7.20	3.66E-06
STYRENE	0.63	3.21E-07
TETRACHLOROETHENE	3.28	1.67E-06
TOLUENE	94.41	4.80E-05
TRICHLOROETHENE	3.82	1.94E-06
VINYL CHLORIDE	14.76	7.51E-06
	Cumulative Tons per Year:	5.56E-04

Notes:
Average Flow Rate calculated from the four Quarterly Sampling Events, used worst-case flow rate.
HAP = hazardous air pollutant
μg/m3 = micrograms per cubic meter
E = exponential order of magnitude

TABLE 2-8
GAS VENT SAMPLING
TOTAL HYDROCARBON AND METHANE SUMMARY OF ANALYTICAL RESULTS
MCALLISTER POINT LANDFILL
NAVAL STATION NEWPORT, MIDDLETOWN, RHODE ISLAND

Sampling Conducted July 28-30, 2009

Sample Name	Total Hydrocarbon (ppmv)	Methane (%)
ML-GV-101-LG-08	11.0	25.0
ML-GV-102-LG-08	7.0	27.0
ML-GV-103-LG-08	12.0	40.0
ML-GV-104-LG-08	6.7	26.0
ML-GV-105-LG-08	2.3	3.5
ML-GV-106-LG-08	8.8	38.0
ML-GV-107-LG-08	3.7	27.0
ML-GV-108-LG-08	7.0	32.0
ML-GV-109-LG-08	10.0	36.0
ML-GV-110-LG-08	16.0	44.0
ML-GV-111-LG-08	13.0	46.0
ML-GV-112-LG-08	5.1	19.0
ML-GV-113-LG-08	8.8	17.0
ML-GV-114-LG-08	22.0	43.0
ML-GV-115-LG-08	2.8	7.8
ML-GV-116-LG-08	3.0	23.0
ML-GV-117-LG-08	4.4	18.0
ML-GV-118-LG-08	9.2	31.0
ML-STA-5+25-LG-08	19.0	31.0
ML-STA-7+25-LG-08	38.0	28.0
ML-STA-9+25-LG-08	13.0	23.0
ML-STA-11+25-LG-08	9.9	20.0
ML-STA-13+25-LG-08	7.6	18.0
ML-STA-15+25-LG-08	9.2	19.0
ML-STA-17+25-LG-08	5.9	11.0
ML-STA-19+25-LG-08	1	1.8
ML-STA-21+25-LG-08	0.59	0.26
ML-UPWIND-1-08	0.060	0.00019
ML-DOWNWIND-1-08	0.030 U	0.00020
ML-DOWNWIND-2-08	0.042 U	0.00020

Notes:
ppmv = parts per million by volume
% = percent

Watermark

Sampling Conducted
June 18-19-2013

Table 2-3
Gas Vent Sampling:
VOC and SVOC Summary of Analytical Results
McAllister Point Landfill
Middletown, Rhode Island

Compound Name	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Detected Concentration
Volatile Organic Compounds (VOCs) (ppbV)			
1,1-Dichloroethane	0.590 J	0.720 J	GV-7+25
1,1,2,2-Tetrachloroethane	ND	0.075 J	GVR-110
1,2,4-Trimethylbenzene	0.072 J	0.776	GVR-105
1,3,5-Trimethylbenzene	.075 J	0.247 J	GVR-105
2-Butanone	3.82	62.8	GVR-116
2-Hexanone	0.63	3.83	GVR-109
2,2,4-Trimethylpentane	3.69	50.8	GVR-103
4-Ethyltoluene	0.108 J	0.184 J	GV-19+25
4-Methyl-2-pentanone	1.17	9.18	GVR-108
Acetone	3.95	715	GVR-109
Benzene	0.393	2.67	GV-9+25
Bromomethane	ND	0.0112 J	GVR-118
Carbon disulfide	0.247	0.874	GV-11+25
Carbon tetrachloride	0.070 J	0.077 J	GV-17+25
Chloroethane	0.233	6.23	GVR-103
Chloroform	0.059 J	0.790 J	GV-7+25
Chloromethane	0.641	15.2	GVR-104
cis-1,2-Dichloroethene	0.059 J	0.080 J	GVR-110
Cyclohexane	0.100 J	62.5	GVR-103
Dichlorodifluoromethane	0.451	152	GVR-108
Ethanol	11.4 J	311	GVR-116
Ethylbenzene	0.292 J	1.52	GVR-101
Freon-113	0.067 J	0.076 J	GVR-113
Freon-114	0.364 J	209	GVR-108
Heptane	1.07	22.4	GVR-108
Isopropanol	3.18	35.3	GV-11+25
Isopropylbenzene	3.76	26	GVR-104
n-Hexane	0.388	36.7	GVR-103
p/m-Xylene	0.269 J	4.48	GVR-105
Methylene chloride	0.979 J	1290	GVR-111
o-Xylene	0.073 J	1.47	GVR-105
n-Propylbenzene	0.086 J	0.190 J	GVR-105
Styrene	0.139 J	0.71	GVR-105
Tetrachloroethene	0.080 J	0.460 J	GVR-105
Tetrahydrofuran	0.074 J	2.68	GV-11+25
Toluene	0.859	5.95	GVR-101
trans-1,2-Dichloroethene	ND	0.670 J	GV-7+25
Trichloroethene	0.316	1.5	GVR-108
Trichlorofluoromethane	0.163 J	0.695 J	GV-7+25
Vinyl chloride	0.090 J	4.16	GVR-103
Semi-Volatile Organic Compounds (SVOCs) (ppmV)			
Acenaphthene	0.00002156 J	0.000101	GVR-106
Acenaphthylene	0.0000204 J	0.000027 J	GVR-106
Anthracene	0.00001577 J	0.000024 J	GVR-106
Fluorene	0.00001823 J	0.000187	GVR-106
Naphthalene	0.00005227 J	0.000309	GV-9+25
Phenanthrene	0.0000155 J	0.000166	GVR-106

Notes:

ppbV = parts per billion by Volume
ppmV = parts per million by Volume
J = estimated value
ND = non-detect

Table 2-4
Gas Vent Sampling:
Total VOC and SVOC Summary of Analytical Results
McAllister Point Landfill
Middletown, Rhode Island

Sampling Conducted
June 18-19, 2013

Sample Name	Total VOCs (ppbV)	Total SVOCs (ppmV)
GVR-101-061813	453.405	0.000271
GVR-102-061813	168.3	0.000091
GVR-103-061813	559.905	0.000550
GVR-104-061813	606.59	0.000471
GVR-105-061813	324.47	0.000600
GVR-106-061813	384.275	0.000479
GVR-107-061813	364.58	0.000179
GVR-108-061813	817.705	0.000067
GVR-109	833.24	ND
GVR-110	141.639	ND
GVR-111	1503.05	ND
GVR-112	208.85	ND
GVR-113	70.81	ND
GVR-114	231.24	ND
GVR-115	328.79	ND
GVR-116	716.02	ND
GVR-117	212.40	ND
GVR-118	180.20	ND
GV-5+25-061813	276.18	0.000596
GV-7+25-061813	198.36	0.000129
GV-9+25-061813	189.82	0.000294
GV-11+25-061813	490.67	0.000330
GV-13+25-061813	329.51	0.000229
GV-15+25	220.34	ND
GV-17+25	83.73	ND
GV-19+25	199.73	ND
GV-21+25	176.10	ND

Notes:

ppbV = parts per billion by Volume
pppmV = parts per million by Volume
SVOC = semi-volatile organic compound
VOC = volatile organic compound

Sampling Conducted
June 18-19, 2013

Table 2-5
Gas Vent Sampling:
PEL Exceedances
McAllister Point Landfill
Middletown, Rhode Island

Compound Name	8 hour PEL (ppmV)	Stations that Exceeded the PEL
Volatile Organic Compounds (VOCs)		
1,1-Dichloroethane	100	No stations exceeded the PEL.
1,1-Dichloroethene	NA	NA
1,1,1-Trichloroethane	NA	NA
1,2-Dichloroethane	NA	NA
1,2-Dichloropropane	NA	NA
1,2,4-Trimethylbenzene	NA	NA
1,3-Dichlorobenzene	NA	NA
1,3,5-Trimethylbenzene	NA	NA
2-Butanone (Methyl Ethyl Ketone)	NA	NA
2-Hexanone	NA	NA
2-Propanol	NA	NA
2,2,4-Trimethylpentane	NA	NA
4-Ethyltoluene	NA	NA
Acetone	1000	No stations exceeded the PEL.
Benzene	1	No stations exceeded the PEL.
Carbon Disulfide	20	No stations exceeded the PEL.
Chloroethane	NA	NA
Chloroform	NA	NA
Chloromethane	NA	NA
Cis-1,2-Dichloroethene	NA	NA
Cumene	50	No stations exceeded the PEL.
Cyclohexane	300	No stations exceeded the PEL.
Ethanol	NA	NA
Ethyl Benzene	100	No stations exceeded the PEL.
Freon 11	NA	NA
Freon 113	NA	NA
Freon 114	NA	NA
Freon 12	NA	NA
Heptane	500	No stations exceeded the PEL.
Hexane	500	No stations exceeded the PEL.
M,P-Xylene	NA	NA
Methyl Tert-Butyl Ether	NA	NA
Methylene Chloride	500	No stations exceeded the PEL.
O-Xylene	100	No stations exceeded the PEL.
Propylbenzene	NA	NA
Tetrachloroethene	NA	NA
Tetrahydrofuran	200	No stations exceeded the PEL.
Toluene	200	No stations exceeded the PEL.
Trans-1,2-Dichloroethene	NA	NA
Trichloroethene	NA	NA
Vinyl Chloride	1	No stations exceeded the PEL.
Semi-Volatile Organic Compounds (SVOCs)		
1,4-Dichlorobenzene	NA	NA
Benzoic Acid	NA	NA
Benzo(A)Anthracine	NA	NA
Butylbenzylphthalate	NA	NA
Chrysene	NA	NA
Diethylphthalate	NA	NA
2-Methylnaphthalene	NA	NA
4-Methylphenol/3-Methylphenol	5	No stations exceeded the PEL.
Naphthalene	10	No stations exceeded the PEL.
Nitrobenzene	1	No stations exceeded the PEL.
Phenanthrene	NA	NA
Phenol	5	No stations exceeded the PEL.
Pyrene	NA	NA
Methane	NA	NA
Total Hydrocarbon	NA	NA

Notes:
NA = not available
PEL = Permissible Exposure Limit, as designated by OSHA (29CFR1910)
ppmV = parts per million by Volume

Table 2-6
Gas Vent Sampling:
RIDEM AALs
McAllister Point Landfill
Middletown, Rhode Island

Sampling Conducted
June 18-19, 2013

Station Location	Chemical Name	Net Downwind (μ/m^3)	RIDEM AAL (μ/m^3)	Exceedence
Downwind-1	2-Butanone	0.51	5,000	N
Downwind-1	2-Propanol	NA	NSE	NA
Downwind-1	4-Ethyltoluene	ND	NSE	NA
Downwind-1	4-Methyl-2-Pentanone	ND	NSE	NA
Downwind-1	Acetone	2.22	30,000	N
Downwind-1	Benzene	0.007	20	N
Downwind-1	Carbon Disulfide	0.16	700	N
Downwind-1	Carbon Tetrachloride	X	200	NA
Downwind-1	Chloroethane	ND	NSE	NA
Downwind-1	Ethanol	0.15	NSE	N
Downwind-1	Freon 11	NA	NSE	NA
Downwind-1	Freon 113	X	NSE	NA
Downwind-1	Freon 12	NA	NSE	NA
Downwind-1	Heptane	ND	NSE	NA
Downwind-1	N-Hexane	0.479	700	N
Downwind-1	M,P-Xylene	ND	3,000	NA
Downwind-1	Methylene Chloride	2.96	400	N
Downwind-1	Toluene	0.008	4,000	N
Downwind-2	2-Butanone	X	5,000	NA
Downwind-2	Acetone	0.05	30,000	N
Downwind-2	Alpha-Chlorotoluene	NA	NSE	NA
Downwind-2	Benzene	0.019	20	N
Downwind-2	Carbon Disulfide	ND	700	NA
Downwind-2	Carbon Tetrachloride	X	200	NA
Downwind-2	Freon 11	NA	NSE	NA
Downwind-2	Freon 113	X	NSE	NA
Downwind-2	Freon 12	NA	NSE	NA
Downwind-2	N-Hexane	0.296	700	NA
Downwind-2	M,P-Xylene	ND	3,000	NA
Downwind-2	Methylene Chloride	0.98	400	N
Downwind-2	Toluene	X	4,000	NA
Downwind-1	Benzo(A)Anthracene	X	NSE	NA
Downwind-1	Chrysene	ND	NSE	NA
Downwind-1	Pyrene	X	NSE	NA
Downwind-2	Benzo(A)Anthracene	ND	NSE	NA
Downwind-2	Chrysene	ND	NSE	NA
Downwind-2	Pyrene	ND	NSE	NA
Downwind-2	2-Methylnaphthalene	NA	NSE	NA
Downwind-2	Naphthalene	ND	3	NA
Downwind-1	Methane	X	NSE	NA
Downwind-2	Methane	347.9	NSE	NA

Notes:

Net downwind concentration is based upon subtracting upwind level from downwind levels.
RIDEM AAL cited is the 24-hour AAL or if no 24-hour AAL is available, then 1-hour or Annual AAL cited.
SVOC samples evaluted were the highest hits of the detected SVOCs
SVOC = semi-volatile organic compound
RIDEM = Rhode Island Department of Environmental Management
AAL = acceptable air levels
NA = not applicable
N = not exceeded
X = upwind level exceeds downwind level
NSE = no standard established
ND = both upwind and downwind levels are non-detect

Watermark

Table 2-7
Gas Vent Sampling:
HAP Emissions
McAllister Point Landfill
Middletown, Rhode Island

Sampling Conducted June 18-19, 2013

Hazardous Air Pollutants	Average of Site-Wide Gas Vent Concentrations ($\mu g/m^3$)	Emitted Tons per Year
Ethyl Benzene	3.01	4.87E-07
1,1-Dichloroethene	ND	ND
1,2-Dichloroethane	ND	ND
1,2-Dichloropropane	ND	ND
1,4-Dichlorobenzene	ND	ND
2,2,4-Trimethylpentane	36.52	5.90E-06
2-Butanone (Methyl Ethyl Ketone)	81.03	1.31E-05
4-Methyl-2-Pentanone	17.38	2.81E-06
Alpha-Chlorotoluene	NA	NA
Benzene	3.46	5.59E-07
Bromomethane	0.01	2.34E-09
Carbon Disulfide	1.21	1.96E-07
Chlorobenzene	ND	ND
Chloroethane	3.60	5.82E-07
Chloroform	0.29	4.64E-08
Chloromethane	7.99	1.29E-06
Hexane	20.30	3.28E-06
M,P-Xylene	6.54	1.06E-06
Methyl Tert-Butyl Ether	ND	ND
Methylene Chloride	156.41	2.53E-05
Naphthalene	0.000142	2.30E-11
Phenol	NA	NA
O-Xylene	1.85	2.99E-07
Styrene	0.27	4.33E-08
Tetrachloroethene	0.42	6.84E-08
Toluene	10.57	1.71E-06
Trichloroethene	3.94	6.37E-07
Vinyl Chloride	2.05	3.31E-07
	Cumulative Tons per Year:	**5.77E-05**

Notes:
Average Flow Rate calculated from the four Quarterly Sampling Events, used worst-case flow rate.
HAP = hazardous air pollutants
µg/m3 = micrograms per cubic meter
E = exponential order of magnitude

Table 2-8
Gas Vent Sampling:
Total Hydrocarbon and Methane Results
McAllister Point Landfill
Middletown, Rhode Island

Sampling Conducted
June 18-19, 2013

Sample Name	Total Hydrocarbon (ppmC)	Methane (%)	Flow (ft^3/min)	Mass Flow (mg/year)
GVR-101-061813	41.9	6.8	0.31	9.64E-05
GVR-102-061813	13.6	4.5	0.52	5.25E-05
GVR-103-061813	44.8	16.4	0.34	1.13E-04
GVR-104-061813	157.0	12.3	0.37	4.31E-04
GVR-105-061813	17.5	12.1	0.16	2.08E-05
GVR-106-061813	49.4	17.2	0.12	4.40E-05
GVR-107-061813	32.6	12.3	0.22	5.32E-05
GVR-108-061813	50.8	14.1	0.00	0.00E+00
GVR-109	14.9	0.000230 J	0.21	2.32E-05
GVR-110	12.9	0.000174 J	0.24	2.30E-05
GVR-111	9.7	0.000151 J	0.84	6.04E-05
GVR-112	18.4	0.000198 J	0.21	2.87E-05
GVR-113	5.6	0.000188 J	0.14	5.85E-06
GVR-114	22.6	0.0	0.51	8.56E-05
GVR-115	24.9	0.000226 J	0.26	4.81E-05
GVR-116	24.5	0.0	0.24	4.37E-05
GVR-117	17.0	0.0	0.04	5.05E-06
GVR-118	15.5	0.000139 J	0.06	6.90E-06
GV-5+25-061813	26.0	1.8	0.33	6.37E-05
GV-7+25-061813	36.0	7.9	0.21	5.61E-05
GV-9+25-061813	11.3	2.4	0.49	4.11E-05
GV-11+25-061813	179.0	2.8	0.12	1.59E-04
GV-13+25-061813	7.5	0.7	3.12	1.74E-04
GV-15+25	18.0	0.0	0.71	9.49E-05
GV-17+25	4.9	0.000176 J	0.29	1.05E-05
GV-19+25	11.6	0.000709	0.28	2.41E-05
GV-21+25	14.8	0.000114 J	0.27	2.97E-05
Upwind	0.058	0.000342	NA	NA
Downwind #1	0.07	0.00020	NA	NA
Downwind #2	0.068	0.00039	NA	NA
		Total NMOCs Emitted (Mg/Year):		**1.80E-03**

Notes:

ppmC = parts per million carbon — ft = feet — % = percent

mg = milligram — min = minute

Flow data obtained during gas screening event.

Molecular weight used for calculation is 12 (carbon).

Table 2-9
Historic Total Hydrocarbon and Methane Results
McAllister Point Landfill
Middletown, Rhode Island

Sample Name	Total Hydrocarbon (ppmV)									Methane (ppmV)								
	2002	2003	2004	2005	2006	2007	2008	2009	2013*	2002	2003	2004	2005	2006**	2007**	2008**	2009**	2013**
GVR-101-061813	4	13	54	6.40	10.00	24.0	16.0	11.0	41.9	980	130,000	420,000	81,000	39.0	13.0	29.0	25.0	6.8
GVR-102-061813	0.0048	9.3	20	8.40	16.00	31.0	11.0	7.0	13.6	2.8	110,000	330,000	140,000	50.0	20.0	36.0	27.0	4.5
GVR-103-061813	NA	15	16	4.40	3.20	29.0	12.5	12.0	44.8	NA	305,000	260,000	120,000	17.0	13.0	40.5	40.0	16.4
GVR-104-061813	0.37	2.3	19	10.00	13.00	22.0	13.0	6.7	157.0	7	33,000	280,000	220,000	47.0	11.0	35.0	26.0	12.3
GVR-105-061813	0.087	16	9	3.20	9.40	7.3	6.9	2.3	17.5	3.9	320,000	320,000	160,000	47.0	5.8	33.0	3.5	12.1
GVR-106-061813	0.021	33	10	8.00	1.90	22.0	14.0	8.8	49.4	2.2	560,000	180,000	160,000	14.0	9.0	45.0	38.0	17.2
GVR-107-061813	0.11	2.5	5.1	0.50	1.60	3.4	3.6	3.7	32.6	4.6	170,000	310,000	36,000	24.0	1.5	34.0	27.0	12.3
GVR-108-061813	0.097	25.5	4.5	11.00	1.40	5.5	9.8	7.0	50.8	4.7	530,000	58,000	270,000	16.0	0.2	38.0	32.0	14.1
GVR-109	0.74	30	1.2	9.40	1.20	4.0	17.0	10.0	14.9	18	590,000	14,000	200,000	9.0	0.1	46.0	36.0	0.000230 J
GVR-110	0.19	31	30	0.16	3.70	3.2	21.0	16.0	12.9	13	700,000	690,000	34	25.0	0.0	52.0	44.0	0.000174 J
GVR-111	0.082	24	25	7.20	12.00	21.0	14.0	13.0	9.7	3.7	720,000	660,000	230,000	55.0	10.0	50.0	46.0	0.000151 J
GVR-112	0.15	9.4	0.21	4.20	1.10	3.8	1.6	5.1	18.4	5.5	310,000	5.4	160,000	16.0	0.1	14.0	19.0	0.000198 J
GVR-113	0.57	24	16	0.55	2.60	16.0	10.0	8.8	5.6	5.8	380,000	290,000	5,600	16.0	0.9	21.0	17.0	0.000188 J
GVR-114	0.55	60	61	14.00	14.00	20.0	7.5	22.0	22.6	5.7	560,000	570,000	120,000	38.0	0.6	15.0	43.0	0.000205
GVR-115	NA	4.9	6	5.40	0.17	13.0	2.4	2.8	24.9	NA	190,000	180,000	140,000	0.0	5.8	7.4	7.8	0.000226 J
GVR-116	0.39	5.9	0.68	2.20	1.20	10.0	3.5	3.0	24.5	36	340,000	24,000	180,000	15.0	8.6	27.0	23.0	0.000248
GVR-117	0.41	2.9	1.1	2.70	1.50	13.0	2.8	4.4	17.0	250	130,000	36,000	100,000	23.0	8.5	15.0	18.0	0.000216
GVR-118	0.27	11	13	1.80	2.40	4.4	9.6	9.2	15.5	11	230,000	540,000	44,000	24.0	1.8	39.0	31.0	0.000139 J
GV-5+25-061813	14	36	67	28.00	1.00	90.0	10.7	19.0	26.0	89,000	200,000	320,000	110,000	1.1	14.0	18.5	31.0	1.84
GV-7+25-061813	22	8.9	20	23.00	3.20	81.0	10.5	38.0	36.0	85,000	7,000	150,000	170,000	3.4	18.0	20.0	28.0	7.92
GV-9+25-061813	1.5	2.9	11	0.51	3.20	82.0	4.0	13.0	11.3	4,900	11,000	59,000	1,000	7.9	24.0	11.0	23.0	2.42
GV-11+25-061813	1.2	0.28	3.8	2.60	1.80	70.0	8.7	9.9	179.0	6,800	1,100	20,000	27,000	4.9	19.0	12.0	20.0	2.8
GV-13+25-061813	0.44	0.36	1.1	6.80	1.40	55.0	3.6	7.6	7.5	780	360	8,400	61,000	4.5	16.0	9.8	18.0	0.717
GV-15+25	0.25	0.30	10	2.20	0.53	22.0	1.9	9.2	18.0	180	650	90,000	25,000	2.0	8.2	5.8	19.0	0.00278
GV-17+25	0.14	0.052	11	0.51	0.52	4.4	1.3	5.9	4.9	1.6 U	1.5	83,000	7,500	1.2	1.7	2.9	11.0	0.000176 J
GV-19+25	NM	0.042	0.16	0.34	0.25	4.0	0.66	1	11.6	NM	56	330	2,500	0.4	0.5	0.089	1.8	0.000709
GV-21+25	0.14	0.12	0.15 U	0.07	0.17	2.4	0.56	0.59	14.8	1.9	1.7	1.6	1.6 U	0.1	0.1	0.015	0.26	0.000114 J
Upwind	NA	0.027	0.076	0.045 U	0.016	0.0	0.058	0.060	0.058	NA	1.7	2.1	2.0	0.0	0.0	0.00021	0.00019	0.000342
Downwind #1	NA	0.051	0.049	0.049 U	0.016	0.0	0.046 U	0.030 U	0.07	NA	2.2	2.0	2.2	0.0	0.0	0.00018 J	0.0002	0.000201
Downwind #2	NA	0.059	0.061	0.054 U	0.016	0.0	0.025 U	0.042 U	0.068	NA	2.2	2.9	2.0	0.0	0.0	0.00019 J	0.0002	0.000394

Notes:

* Hydrocarbon units reported in parts per million Carbon (ppmC) in 2013.
**Methane was measured with the unit percent (%) from years 2006 through 2013.

NA = not available
NM = not measured

J = quantitation is approximate
U = value is not detected

ppmV = parts per million by Volume

Appendix E.3

Porewater and Sediment

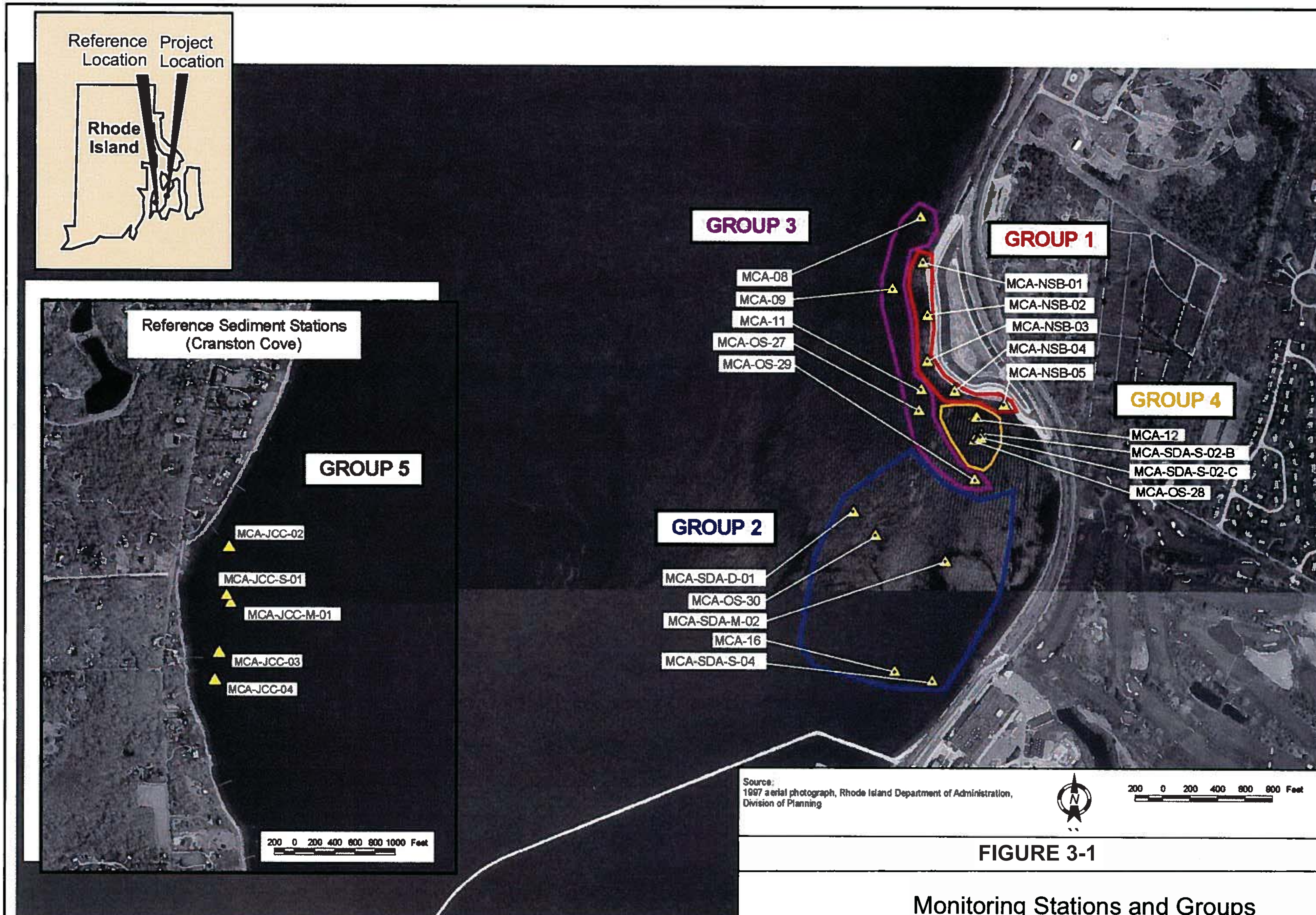


FIGURE 3-1

Monitoring Stations and Groups

McAllister Point Landfill
Naval Air Station Newport
Middletown, Rhode Island

Watermark

DATE: 29-AUG-2014

Contract No.: N4085-10-D-9407

Source: ECC, 2006

Table 4-5
Sediment Analytical Comparison
McAllister Point Landfill
Naval Station Newport
Middletown, Rhode Island

Parameter	Units	Fraction	BPRG	RG																		
			MSG		MSG 1																	
			Sample Location		MCA-NSB-01	MCA-NSB-01	MCA-NSB-01	MCA-NSB-01	MCA-NSB-01	MCA-NSB-02	MCA-NSB-02	MCA-NSB-02	MCA-NSB-02	MCA-NSB-02	MCA-NSB-03	MCA-NSB-03	MCA-NSB-03	MCA-NSB-03	MCA-NSB-03	MCA-NSB-04	MCA-NSB-04	MCA-NSB-04
			Sample Number		MCA-SD-NSB-01-01	MCA-SD-NSB-01-02	MCA-SD-NSB-01-05	MCA-SD-NSB-01-06	MCA-SD-MCANSB01	MCA-SD-NSB-02-01	MCA-SD-NSB-02-02	MCA-SD-NSB-02-05	MCA-SD-NSB-02-06	MCA-SD-MCANSB02	MCA-SD-NSB-03-01	MCA-SD-NSB-03-02	MCA-SD-NSB-03-05	MCA-SD-NSB-03-06	MCA-SD-MCANSB03	MCA-SD-NSB-04-01	MCA-SD-NSB-04-01-D	MCA-SD-NSB-04-02
			Sample Date		12/22/2004	10/20/2005	10/9/2008	10/12/2009	10/16/2013	12/15/2004	10/20/2005	10/9/2008	10/15/2009	10/16/2013	12/22/2004	10/20/2005	10/9/2008	10/15/2009	10/16/2013	12/13/2004	12/13/2004	10/20/2005
			QC Identifier		ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	DUP	ORIG
			Matrix		SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD
Acid Volatile Sulfide	µmo/g	AVS/SEM			0.062 U	0.05	3.3	0.56 UJ	0.01 U	0.063	0.05 U	1.7	0.49 UJ	0.112 U	0.059	0.05 U	1.2	0.58 J	0.093 U	1.232	1.313	0.05 U
SEM/AVS	ratio	AVS/SEM			25.1	9.07	0.266	NA	NA	0.005	177	0.183	NA	NA	5.1	0	0.234	0.38	NA	0.3	0.38	288 J
Anthracene	µg/Kg	PAH	171	513	1.2 U	38.6	4.6	5.5 U	8.5 U	1.2 UJ	5.5 U	2.2 U	0.71 J	9.14 U	1.1 U	5.2 U	2.1 U	0.94 J	8.26 U	1.3 U	1.4 UJ	3.8 J
Chrysene	µg/Kg	PAH	589		12 U	128	22	5.7	8.5 U	20 J	7.9	2.5	60	9.14 U	11 U	41.9	4.1	12	8.26 U	13 UJ	14 UJ	7.2 J
Fluorene	µg/Kg	PAH	67.7	203	1.2 U	7.6	2.7 U	5.5 U	8.5 U	1.2 U	5.5 U	2.2 U	5.2 U	9.14 U	1.1 U	5.2 U	2.1 U	5.3 U	8.26 U	1.3 U	1.4 UJ	5.2 U
Pyrene	µg/Kg	PAH	997	2,992	5.6	252	31	3.4 J	8.5 U	25 J	5.8	2.2 U	38	9.14 U	5	30.4	2.3	11	8.26 U	8.3 J	1.4 UJ	5.1 J
SUM OF PCB CONGENERS X 2	ng/Kg	PCBC	1,211,000	3,634,000	5,747.20	5,040	97,480	23,570	ND	2,070.28	7,900	9,280	254,660	ND	1,732.40	5,020	6,040	27,010	ND	6,485.20	10,911	22020

Parameter	Units	Fraction	BPRG	RG																	
			MSG		MSG 1										2004 MSG 1 MEANS USING 1/2 ND	2005 MSG 1 MEANS USING 1/2 ND	2006 MSG 1 MEANS USING 1/2 ND	2007 MSG 1 MEANS USING 1/2 ND	2008 MSG 1 MEANS USING 1/2 ND	2009 MSG 1 MEANS USING 1/2 ND	2013 MSG 1 MEANS USING 1/2 ND
			Sample Location		MCA-NSB-04	MCA-NSB-04	MCA-NSB-04	MCA-NSB-04	MCA-NSB-05	MCA-NSB-05	MCA-NSB-05	MCA-NSB-05	MCA-NSB-05	MCA-NSB-05							
			Sample Number		MCA-SD-DUP02	MCA-SD-NSB-04-05	MCA-SD-NSB-04-06	MCA-SD-MCANSB04	MCA-SD-NSB-05-01	MCA-SD-NSB-05-02	MCA-SD-NSB-05-05	MCA-SD-DUP03-05	MCA-SD-NSB-05-06	MCA-SD-MCANSB05							
			Sample Date		10/20/2005	10/9/2008	10/15/2009	10/16/2013	12/13/2004	10/20/2005	10/9/2008	10/9/2008	10/15/2009	10/16/2013							
			QC Identifier		DUP	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	DUP	ORIG	ORIG							
			Matrix		SD	SD	SD	SD	SD	SD	SD	SD	SD	SD							
Acid Volatile Sulfide	µmo/g	AVS/SEM			0.05 U	1.6	0.55 UJ	0.099 U	0.06	0.05 U	2.4	2.1	0.50 UJ	0.109 U	0.46	0.03 U	NS	NS	2.050	0.330	0.051
SEM/AVS	ratio	AVS/SEM			0 J	0.222	NA	NA	2.5	19.4	0.066	0.102	NA	NA	5.56	82.25	NS	NS	SEM<1	SEM<1	SEM<1
Anthracene	µg/Kg	PAH	171	513	5.9	2.4	1 J	8.88 U	1.1 U	5.6 U	2.3 UJ	2.4 J	5.1 U	9.84 U	0.61 U	2.73	NS	NS	2.120	1.590	4.462
Chrysene	µg/Kg	PAH	589		20.5 J	24	6.5	8.88 U	11 U	3.2 J	2.3 UJ	4.3 J	0.65 J	9.84 U	8.42	34.78	NS	NS	9.680	16.97	4.462
Fluorene	µg/Kg	PAH	67.7	203	5.7	2.3 U	2.4 J	0.019756	1.1 U	5.6 U	2.3 U	2.3 U	5.1 U	9.84 U	0.61 U	4.01	NS	NS	1.16 U	2.59	3.576
Pyrene	µg/Kg	PAH	997	2,992	19.7 J	32	7.1	8.88 U	1.1 U	4.2 J	2.3 UJ	6.1 J	0.96 J	9.84 U	7.52	52.87	NS	NS	12.28	12.09	4.462
SUM OF PCB CONGENERS X 2	ng/Kg	PCBC	1,211,000	3,634,000	5400	21,550	21,860	ND	1935	5,220	3,600	3,480	23,410	ND	4,810	8,430	NS	NS	23,570	70,102	ND

Parameter	Units	Fraction	BPRG	RG																
			MSG		MSG 2															
			Sample Location		MCA-16	MCA-16	MCA-16	MCA-16	MCA-16	MCA-16	MCA-16	MCA-16	MCA-16	MCA-OS-30	MCA-OS-30	MCA-OS-30	MCA-OS-30	MCA-OS-30	MCA-OS-30	MCA-OS-30
			Sample Number		MCA-16-01-121304	MCA-SD-16-02	MCA-SD-16-03	MCA-SD-16-04	MCA-SD-16-05	MCA-SD-DUP01-05	MCA-SD-16-06	MCA-SD-DUP01-06	MCA-SD-MCA16-10172013	MCA-SD-OS-30-01	MCA-SD-OS-30-02	MCA-SD-OS-30-03	MCA-SD-OS-30-04	MCA-SD-OS-30-05	MCA-SD-OS-30-06	MCA-SD-MCAOS30-10172013
			Sample Date		12/13/2004	10/19/2005	10/17/2006	10/10/2007	10/7/2008	10/7/2008	10/13/2009	10/13/2009	10/17/2013	12/16/2004	10/19/2005	10/17/2006	10/10/2007	10/7/2008	10/14/2009	10/17/2013
			QC Identifier		ORIG	ORIG	ORIG	ORIG	ORIG	DUP	ORIG	DUP	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG
			Matrix		SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD
Acid Volatile Sulfide	µmo/g	AVS/SEM			0.068 U	0.07	0.61 U	0.65 U	2.1	0.067 U	0.58 UJ	0.62 UJ	3.85	0.067 U	0.19	0.66 U	1.8	9.8	0.84	1.91
SEM/AVS	ratio	AVS/SEM			12.4	6.89	0.6	0.7	0.231	0.011	NA	NA	0.087859	0.011	3.34	0.8	0.87	0.100	78.8	0.202714
Anthracene	µg/Kg	PAH	171	513	15	70.7 J	54 J	110	56 J	1.3 U	14 J	5.3 J	52.4	1.3 U	107 J	36 J	410 J	63 J	25	30.9
Chrysene	µg/Kg	PAH	589		23	170 J	120 J	310	150 J	7.1 J	35 J	19 J	114	7.1 J	243 J	99 J	1300 J	200 J	77	81.2
Fluorene	µg/Kg	PAH	67.7	203	7.5	39.6 J	20 J	53	25	1.3 U	7.2 J	2.2 J	21.9	1.3 U	50.3 J	17 J	170 J	28	12	13.5
Pyrene	µg/Kg	PAH	997	2,992	41	282 J	200 J	610	270 J	11	55 J	31 J	165	11	368 J	190 J	2400 J	350 J	130	142
SUM OF PCB CONGENERS X 2	ng/Kg	PCBC	1,211,000	3,634,000	243,574.00	30,000	61,580	56,380	37,990	14,378	37,560	44,720	ND	14,377.80	51,000	133,790	130,400	130,450.00	88,230	4,690

Parameter	Units	Fraction	BPRG	RG																	
			MSG		MSG 2																
			Sample Location		MCA-SDA-D-01	MCA-SDA-D-01	MCA-SDA-D-01	MCA-SDA-D-01	MCA-SDA-D-01	MCA-SDA-D-01	MCA-SDA-D-01	MCA-SDA-D-01	MCA-SDA-D-01	MCA-SDA-M-02	MCA-SDA-M-02	MCA-SDA-M-02	MCA-SDA-M-02	MCA-SDA-M-02	MCA-SDA-M-02	MCA-SDA-M-02	MCA-SDA-M-02
			Sample Number		MCA-SD-SDA-D-01-01	MCA-SD-SDA-D-01-02	MCA-SD-SDA-D-01-03	MCA-SD-SDA-D-01-04	MCA-SD-SDA-D-01-05	MCA-SD-DUP02-05	MCA-SD-SDA-D-01-06	MCA-SD-DUP03-06	MCA-SD-MCASDAD01-10172013	MCA-SDA-M-02-01	MCA-SDA-M-02-02	MCA-SDA-M-02-03	MCA-SDA-M-02-04	MCA-SD-DUP03-04	MCA-SDA-M-02-05	MCA-SDA-M-02-06	MCA-SD-MCASDAM02-10172013
			Sample Date		12/16/2004	11/7/2005	10/17/2006	10/10/2007	10/7/2008	10/7/2008	10/14/2009	10/14/2009	10/17/2013	12/13/2004	10/19/2005	10/17/2006	10/10/2007	10/10/2007	10/7/2008	10/15/2009	10/17/2013
			QC Identifier		ORIG	ORIG	ORIG	ORIG	ORIG	DUP	ORIG	DUP	ORIG	ORIG	ORIG	ORIG	ORIG	DUP	ORIG	ORIG	ORIG
			Matrix		SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD
Acid Volatile Sulfide	µmo/g	AVS/SEM			0.07 U	3.1	0.74 U	1.1	2.1	1.8	9 J	0.75 J	4.62	0.078 U	0.2	0.59 U	2.2 J	2.2	3.1	0.61 UJ	5.41
SEM/AVS	ratio	AVS/SEM			0.0095	0.139	1	0.8	0.318	0.339	0.018	0.29	0.100434	13.7	2.45	1.2	0.35	0.32	0.213	NA	0.079272
Anthracene	µg/Kg	PAH	171	513	1.4 U	12.8	28 J	200	19 J	34 J	9.5 J	40 J	31.3	1.5 U	41.3 J	900	140 J	140 J	38 J	15	22.9
Chrysene	µg/Kg	PAH	589		14 U	4.5 J	84 J	1600	63	98 J	37	69	74.3	15 J	126 J	1000	350 J	450 J	110 J	42	44.4
Fluorene	µg/Kg	PAH	67.7	203	1.4 U	6.2 J	11 J	56	8 J	16 J	3.8 J	11	14.9	1.5 U	21.2 J	700	56 J	60 J	15	6.4	11.1
Pyrene	µg/Kg	PAH	997	2,992	1.4 U	54.3	160 J	1500	130 J	200 J	68 J	120 J	137	17 J	187 J	2200	730 J	990 J	200 J	68	79.3
SUM OF PCB CONGENERS X 2	ng/Kg	PCBC	1,211,000	3,634,000	7,512	21,500	59,220	63,410	56,790	62,340	50,230	79,500	2,300	5,395	34,600	64,995	65,940	64,240	65,770	43,280	8,060

Parameter	Units	Fraction	BPRG	RG													
			MSG		MSG 2							2004 MSG 2 MEANS USING 1/2 ND	2005 MSG 2 MEANS USING 1/2 ND	2006 MSG 2 MEANS USING 1/2 ND	2007 MSG 2 MEANS USING 1/2 ND	2008 MSG 2 MEANS USING 1/2 ND	2009 MSG 2 MEANS USING 1/2 ND	2013 MSG 2 MEANS USING 1/2 ND
			Sample Location		MCA-SDA-S-04	MCA-SDA-S-04	MCA-SDA-S-04	MCA-SDA-S-04	MCA-SDA-S-04	MCA-SDA-S-04	MCA-SDA-S-04							
			Sample Number		MCA-SD-SDA-S-04-01	MCA-SD-SDA-S-04-02	MCA-SD-SDA-S-04-03	MCA-SD-SDA-S-04-04	MCA-SD-SDA-S-04-05	MCA-SD-SDA-S-04-06	MCA-SD-MCASDAS04-10172013							
			Sample Date		12/14/2004	10/19/2005	10/17/2006	10/10/2007	10/7/2008	10/14/2009	10/17/2013							
			QC Identifier		ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG							
			Matrix		SD	SD	SD	SD	SD	SD	SD							
Acid Volatile Sulfide	µmo/g	AVS/SEM			0.141	0.4	0.61 U	0.65 U	2.5	0.72	5.34	0.060	0.790	0.32 U	1.330	3.440	1.750	4.226
SEM/AVS	ratio	AVS/SEM			6.1	1.8	2.6	1	0.273	0.5	0.076159	6.440	2.920	1.200	0.700	SEM<1	SEM<1	0.109288
Anthracene	µg/Kg	PAH	171	513	1.3 UJ	23.6 U	23 J	6.3	3.8	3.2 J	5.71 U	3.55	48.72	208.2	18.33	38.40	16.07	28.07
Chrysene	µg/Kg	PAH	589		13 J	70.5 J	50 J	25	26	24	13.3	13	122.8	270.6	672.5	111	48.31	65.44
Fluorene	µg/Kg	PAH	67.7	203	1.3 U	6.3 U	11 J	2.8	2.6 U	1.6 J	5.71 U	2.050	24.09	151.8	66.30	16.90	7.386	13.42
Pyrene	µg/Kg	PAH	997	2,992	24 J	130 J	90 J	45	43	40	23	18.70	204.3	586.0	1045.83	206.1	86.71	109.3
SUM OF PCB CONGENERS X 2	ng/Kg	PCBC	1,211,000	3,634,000	7,249	29,300	49,408	45,130	35,490	35,590	ND	55,600	33,280	73,800	70,860	61,980	54,159	3,010

Table 4-5
Sediment Analytical Comparison
McAllister Point Landfill
Naval Station Newport
Middletown, Rhode Island

			MSG		MSG 3												
			Sample Location		MCA-08	MCA-08	MCA-08	MCA-08	MCA-08	MCA-08	MCA-09	MCA-09	MCA-09	MCA-09	MCA-09	MCA-09	MCA-09
			Sample Number		MCA-SD-08-01	MCA-SD-08-02	MCA-SD-08-03	MCA-SD-08-05	MCA-SD-08-06	MCA-SD-MCA08-10162013	MCA-SD-09-01	MCA-SD-09-02	MCA-SD-09-03	MCA-SD-09-04	MCA-SD-09-05	MCA-SD-09-06	MCA-SD-MCA09-10162013
			Sample Date		12/21/2004	10/31/2005	10/17/2006	10/8/2008	10/13/2009	10/16/2013	12/21/2004	10/31/2005	10/17/2006	10/10/2007	10/9/2008	10/14/2009	10/16/2013
			QC Identifier		ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG
			Matrix		SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD
Parameter	Units	Fraction	BPRG	RG													
Acid Volatile Sulfide	µmo/g	AVS/SEM			1.731	2.3	15.6	5.3	8	41.2	1.764	3	21.3	9.2	8.9	0.69 U	14.9
SEM/AVS	ratio	AVS/SEM			0.71	0.46	0.1	0.148	0.11	0.019791	0.66	0.35	0.1	0.14	0.102	NA	0.042452
Anthracene	µg/Kg	PAH	171	513	1.7 U	9.5	15 J	37 J	15	11.5	1.8 U	13.6	40 J	55 J	24 J	21	8.88
Chrysene	µg/Kg	PAH	589		17 U	34.1	83 J	110 J	69	40.3	11 J	8.5 U	150 J	230 J	85	86	35.2
Fluorene	µg/Kg	PAH	67.7	203	2.3	8.7 U	6.9 J	17	93 U	6.01 U	1.8 U	4.9 J	19 J	25 J	10	9	6.31 U
Pyrene	µg/Kg	PAH	997	2,992	1.7	51.8	130 J	190 J	120	65.9	8.8	45.9	260 J	440 J	150 J	130	60.6
SUM OF PCB CONGENERS X 2	ng/Kg	PCBC	1,211,000	3,634,000	8,913.60	40,910	144,580	171,000	82,910	5,740	7,464	30,120	172,018	162,310	97,670	125,490	5,180

			MSG		MSG 3														
			Sample Location		MCA-11	MCA-11	MCA-11	MCA-11	MCA-11	MCA-11	MCA-11	MCA-11	MCA-OS-27	MCA-OS-27	MCA-OS-27	MCA-OS-27	MCA-OS-27	MCA-OS-27	MCA-OS-27
			Sample Number		MCA-SD-11-01	MCA-SD-11-02	MCA-SD-DUP01	MCA-SD-11-03	MCA-SD-11-04	MCA-SD-11-05	MCA-SD-11-06	MCA-SD-MCA11-10162013	MCA-SD-OS-27-01	MCA-SD-OS27-01-D	MCA-SD-OS-27-02	MCA-SD-DUP03	MCA-SD-OS-27-03	MCA-SD-DUP03-03	MCA-SD-OS-27-04
			Sample Date		12/21/2004	11/1/2005	11/1/2005	10/17/2006	10/10/2007	10/8/2008	10/14/2009	10/16/2013	12/21/2004	12/21/2004	11/1/2005	11/1/2005	10/17/2006	10/17/2006	10/10/2007
			QC Identifier		ORIG	ORIG	DUP	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	DUP	ORIG	DUP	ORIG	DUP	ORIG
			Matrix		SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD
Parameter	Units	Fraction	BPRG	RG															
Acid Volatile Sulfide	µmo/g	AVS/SEM			1.288	0.05 U	0.06	12.3	28.8	15.4	1.9	33	0.602	0.603	0.5	0.6	0.64 U	0.58 U	1.8
SEM/AVS	ratio	AVS/SEM			1.8	57.8 J	14.5 J	0.1	0.06	0.113	0.17	0.031403	1.4	1.2	1.39	1.36	1.1	0.8	0.49
Anthracene	µg/Kg	PAH	171	513	300	10 J	19.9 J	100	310 J	120 J	620	156	9.9 J	1.9 J	31.3	26	31 J	67 J	69 J
Chrysene	µg/Kg	PAH	589		72	6.8 UJ	37.3 J	230	580 J	310 J	860	270	23 J	6.8 J	49.7	43.1	110 J	130 J	250 J
Fluorene	µg/Kg	PAH	67.7	203	61	6.5 J	9.7	45	150 J	66	340	70.1	3.4 J	1.2 UJ	17	14.1	11 J	24 J	39 J
Pyrene	µg/Kg	PAH	997	2,992	150	43.1 J	97.8 J	450	1200 J	620 J	2000	523	60 J	6.6 J	154	112	180 J	290 J	510 J
SUM OF PCB CONGENERS X 2	ng/Kg	PCBC	1,211,000	3,634,000	42,800	22,300	23,260	86,872	98,120	429,370	256,760	74,570	6,721	5,689	19,220	20,480	192,506	58,512	62,200

			MSG		MSG 3											2004 MSG 3 MEANS USING 1/2 ND	2005 MSG 3 MEANS USING 1/2 ND	2006 MSG 3 MEANS USING 1/2 ND	2007 MSG 3 MEANS USING 1/2 ND	2008 MSG 3 MEANS USING 1/2 ND	2009 MSG 3 MEANS USING 1/2 ND	2013 MSG 3 MEANS USING 1/2 ND
			Sample Location		MCA-OS-27	MCA-OS-27	MCA-OS-27	MCA-OS-29	MCA-OS-29	MCA-OS-29	MCA-OS-29	MCA-OS-29	MCA-OS-29	MCA-OS-29	MCA-OS-29							
			Sample Number		MCA-SD-OS-27-05	MCA-SD-OS-27-06	MCA-SD-MCAOS27-10162013	MCA-SD-OS-29-01	MCA-SD-OS-29-02	MCA-SD-OS-29-03	MCA-SD-OS-29-04	MCA-SD-DUP04-04	MCA-SD-OS-29-05	MCA-SD-OS-29-06	MCA-SD-MCAOS29-10162013							
			Sample Date		10/7/2008	10/15/2009	10/16/2013	12/22/2004	11/7/2005	10/17/2006	10/10/2007	10/10/2007	10/7/2008	10/14/2009	10/16/2013							
			QC Identifier		ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	DUP	ORIG	ORIG	ORIG							
			Matrix		SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD							
Parameter	Units	Fraction	BPRG	RG																		
Acid Volatile Sulfide	µmo/g	AVS/SEM			6	0.63 UJ	5.75	1.336	2	13.3	26.6	21.1	10.9	20.6	32.1	1.220	1.210	10.52	17.50	9.300	6.364	25.39
SEM/AVS	ratio	AVS/SEM			0.355	NA	0.070362	0.93	0.323	0.1	0.045	0.05	0.105	0.027	0.024954	1.120	10.88	0.400	0.2	SEM<1	SEM<1	SEM<1
Anthracene	µg/Kg	PAH	171	513	33 J	14	52.4	7	48.1	89 J	520 J	210 J	54 J	74	64.4	53.40	22.63	57.00	232.8	53.6	148.8	58.64
Chrysene	µg/Kg	PAH	589		94	55	101	9.7 J	104	220 J	1300 J	570 J	160 J	150	158	21.80	39.41	153.8	586	151.8	244	120.9
Fluorene	µg/Kg	PAH	67.7	203	17	5.6 J	30.9	2.5	20.7	75 J	230 J	77 J	27	33 J	29.3	11.80	11.04	30.15	104.2	27.40	86.82	27.29
Pyrene	µg/Kg	PAH	997	2,992	160 J	89	197	17	197	600 J	2500 J	1100 J	320 J	320	291	40.50	100.2	318.3	1150	288.0	531.8	227.5
SUM OF PCB CONGENERS X 2	ng/Kg	PCBC	1,211,000	3,634,000	79,560	79,950	ND	33,774	32,080	151,596	177,630	143,470	137,290	332,630	36,940	17,600	26,910	134,350	128,710	182,980	175,548	24,490

			MSG		MSG 4														
			Sample Location		MCA-12	MCA-12	MCA-12	MCA-12	MCA-12	MCA-OS-28	MCA-OS-28	MCA-OS-28	MCA-OS-28	MCA-OS-28	MCA-SDA-S-02-B	MCA-SDA-S-02-B	MCA-SDA-S-02-B	MCA-SDA-S-02-B	MCA-SDA-S-02-B
			Sample Number		MCA-SD-12-01	MCA-SD-12-02	MCA-SD-12-05	MCA-SD-12-06	MCA-SD-MCA12-10162013	MCA-SD-OS-28-01	MCA-SD-OS-28-02	MCA-SD-OS-28-05	MCA-SD-OS-28-06	MCA-SD-MCAOS28-10162013	MCA-SD-SDA-S02B/C-01	MCA-SD-SDA-S-02-B-02	MCA-SD-SDA-S-02-B-05	MCA-SD-SDA-S-02-B-06	MCA-SD-MCASDAS02B-10162013
			Sample Date		12/22/2004	10/19/2005	10/8/2008	10/15/2009	10/16/2013	12/22/2004	11/3/2005	10/8/2008	10/13/2009	10/16/2013	12/22/2004	11/3/2005	10/9/2008	10/14/2009	10/16/2013
			QC Identifier		ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG
			Matrix		SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD
Parameter	Units	Fraction	BPRG	RG															
Acid Volatile Sulfide	µmo/g	AVS/SEM			0.559	0.3	2.5	0.66 UJ	6.73	0.063 U	2.1	13.3	0.71 J	8.65	0.146	1.8	2.5	4.1	7.43
SEM/AVS	ratio	AVS/SEM			0.69	1.28	0.368	NA	0.037013	4.8	0.109	0.093	0.61	0.077073	2.6	0.0639	0.086	0.037	0.042806
Anthracene	µg/Kg	PAH	171	513	6.3	6.6 U	2.9 U	6.4 J	10.4 U	7.7	9.2	440 J	12	3340	1.3 U	3.2 J	7.2	17	10.1
Chrysene	µg/Kg	PAH	589		21	89.3 J	9.2	29	10.4 U	8.1 J	6.4 U	650 J	28	3570	13 U	8.3	28	44	11.7
Fluorene	µg/Kg	PAH	67.7	203	2.4	6.6 U	2.9 U	2.7 J	10.4 U	4.4	3.2 J	240	5.9 J	1860	1.3 U	6.5 U	3.1	7.7	9.29 U
Pyrene	µg/Kg	PAH	997	2,992	28	155 J	12	44	10.4 U	11	34.9	1600 J	48	6970	1.3 U	11.5	51	83	23
SUM OF PCB CONGENERS X 2	ng/Kg	PCBC	1,211,000	3,634,000	3,952.28	27,500	18,780	48,760	ND	3,643	15,860	266,950	28,590	ND	4,549	15,000	28,040	36,980	ND

Table 4-5
Sediment Analytical Comparison
McAllister Point Landfill
Naval Station Newport
Middletown, Rhode Island

			MSG		MSG 4				2004 MSG 4 MEANS USING 1/2 ND	2005 MSG 4 MEANS USING 1/2 ND	2006 MSG 4 MEANS USING 1/2 ND	2007 MSG 4 MEANS USING 1/2 ND	2008 MSG 4 MEANS USING 1/2 ND	2009 MSG 4 MEANS USING 1/2 ND	2013 MSG 4 MEANS USING 1/2 ND
			Sample Location		MCA-SDA-S-02-C	MCA-SDA-S-02-C	MCA-SDA-S-02-C	MCA-SDA-S-02-C							
			Sample Number		MCA-SD-SDA-S-02-C-02	MCA-SD-SDA-S-02-C-05	MCA-SD-SDA-S-02-C-06	MCA-SD-MCASDAS02C-10162013							
			Sample Date		11/3/2005	10/8/2008	10/14/2009	10/16/2013							
			QC Identifier		ORIG	ORIG	ORIG	ORIG							
			Matrix		SD	SD	SD	SD							
Parameter	**Units**	**Fraction**	**BPRG**	**RG**											
Acid Volatile Sulfide	µmo/g	AVS/SEM			0.5	2.1	0.73	4.51	0.250	1.180	NS	NS	5.100	1.468	6.83
SEM/AVS	ratio	AVS/SEM			0.3	0.112	0.22	0.042806	2.700	0.440	NS	NS	SEM<1	SEM<1	SEM<1
Anthracene	µg/Kg	PAH	171	513	4.2 J	4.6 J	14	9.29 U	4.880	4.980	NS	NS	113.31	12.35	840.0
Chrysene	µg/Kg	PAH	589		6.4 U	27	35	11.7	11.90	26.00	NS	NS	178.55	34.00	905.3
Fluorene	µg/Kg	PAH	67.7	203	6.4 U	2.7 U	7.1	9.29 U	2.480	3.240	NS	NS	61.48	5.850	468.6
Pyrene	µg/Kg	PAH	997	2,992	15.2	34 J	66	23	13.20	54.15	NS	NS	424.3	42.50	1765
SUM OF PCB CONGENERS X 2	ng/Kg	PCBC	1,211,000	3,634,000	15,220	95,100	20,620	ND	4,050	18,400	NS	NS	102,220	33,738	6,370

			MSG		MSG 5																
			Sample Location		MCA-JCC-02	MCA-JCC-02	MCA-JCC-02	MCA-JCC-02	MCA-JCC-02	MCA-JCC-02	MCA-JCC-02	MCA-JCC-02	MCA-JCC-03	MCA-JCC-03	MCA-JCC-03	MCA-JCC-03	MCA-JCC-03	MCA-JCC-03	MCA-JCC-03	MCA-JCC-04	MCA-JCC-04
			Sample Number		MCA-JCC-02-01-121304	MCA-SD-JCC-02-02	MCA-SD-JCC-02-03	MCA-SD-JCC-02-04	MCA-SD-JCC-02-05	MCA-SD-JCC-02-06	MCA-SD-MCAJCC02-10152013	MCA-SD-DUPLICATE-10152013	MCA-JCC-03-01-121404	MCA-SD-JCC-03-02	MCA-SD-JCC-03-03	MCA-SD-JCC-03-04	MCA-SD-JCC-03-05	MCA-SD-JCC-03-06	MCA-SD-MCAJCC03-10152013	MCA-SD-JCC-04-01	MCA-SD-JCC-04-02
			Sample Date		12/13/2004	10/18/2005	10/19/2006	10/11/2007	10/8/2008	10/14/2009	10/15/2013	10/15/2013	12/14/2004	10/31/2005	10/19/2006	10/11/2007	10/8/2008	10/14/2009	10/15/2013	12/15/2004	10/28/2005
			QC Identifier		ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG
			Matrix		SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD
Parameter	**Units**	**Fraction**	**BPRG**	**RG**																	
Acid Volatile Sulfide	µmo/g	AVS/SEM			0.063 U	0.07	0.67 U	1.2	1.6	0.55 U	3.91	4.01	0.065 U	0.05 U	0.63 U	1.4	1.6	0.48 U	1.1	0.063 U	0.05 U
SEM/AVS	ratio	AVS/SEM			9.9	6.03	0.7	0.37	0.33	NA	0.095684	0.099195	13.7	9.2	0.6	0.3	0.21	NA	0.14716	0.0089	21
Anthracene	µg/Kg	PAH	171	513	1.2 U	67.5 J	2300	32 J	28 J	36	56.9	41.7	1.3 UJ	6.6 U	9.6	9.3	2.5 U	5.8	9.92 U	1.2 U	5.3 J
Chrysene	µg/Kg	PAH	589		3.1 J	227 J	3300	130 J	84 J	80	149	108	13 UJ	10	25	47	12	19	18	2.7 J	21.5
Fluorene	µg/Kg	PAH	67.7	203	1.2 U	6.8 U	830	12 J	11	13	23.5	12.9	1.3 UJ	6.6 U	3.5	3.7	2.5 U	1.9 J	9.92 U	1.2 U	2.9 J
Pyrene	µg/Kg	PAH	997	2,992	9.3	362 J	9700	320 J	170 J	190	346	224	1.3 UJ	14.6	50	95	21	32	42.4	4.1	32
SUM OF PCB CONGENERS X 2	ng/Kg	PCBC	1,211,000	3,634,000	2,105.48	30,000	29,423	8,980	30,220	16,760	ND	40,920	2,044	15,110	30,079	26,220	11,360	9,260	ND	2,520	16,250

			MSG		MSG 5															
			Sample Location		MCA-JCC-04	MCA-JCC-04	MCA-JCC-04	MCA-JCC-04	MCA-JCC-04	MCA-JCC-M-01	MCA-JCC-M-01	MCA-JCC-M-01	MCA-JCC-M-01	MCA-JCC-M-01	MCA-JCC-M-01	MCA-JCC-M-01	MCA-JCC-M-01	MCA-JCC-S-01	MCA-JCC-S-01	MCA-JCC-S-01
			Sample Number		MCA-SD-JCC-04-03	MCA-SD-JCC-04-04	MCA-SD-JCC-04-05	MCA-SD-JCC-04-06	MCA-SD-MCAJCC04-10152013	MCA-JCC-M-01-01-121304	MCA-SD-JCC-M-01-02	MCA-SD-JCC-M-01-03	MCA-SD-JCC-M-01-04	MCA-SD-JCC-M-01-05	MCA-SD-JCC-M-01-06	MCA-SD-DUP-02-06	MCA-SD-MCAJCCM01-10152013	MCA-JCC-S-01-01-121304	MCA-SD-JCC-S-01-02	MCA-SD-JCC-S-01-03
			Sample Date		10/19/2006	10/11/2007	10/8/2008	10/14/2009	10/15/2013	12/13/2004	10/31/2005	10/19/2006	10/11/2007	10/8/2008	10/14/2009	10/14/2009	10/15/2013	12/13/2004	10/18/2005	10/19/2006
			QC Identifier		ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	DUP	ORIG	ORIG	ORIG	ORIG
			Matrix		SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD
Parameter	**Units**	**Fraction**	**BPRG**	**RG**																
Acid Volatile Sulfide	µmo/g	AVS/SEM			0.59 U	0.89	2.6	0.57 U	2.54	0.071 U	0.29	0.62 U	1.3	2	0.64 U	0.56 U	0.868	0.068 U	0.05 U	0.72 U
SEM/AVS	ratio	AVS/SEM			0.7	0.56	0.283	NA	0.120211	8.7	1.27	0.6	0.32	0.244	NA	NA	0.32657	7.9	11.8	0.6
Anthracene	µg/Kg	PAH	171	513	5.9	3.5	6.2	5.4 J	9.51 U	1.4 U	14.4	56 J	2600 J	28	5.9 J	32 J	10.7 U	13	56.1 J	31 J
Chrysene	µg/Kg	PAH	589		29	23	34	18	9.51 U	3.3 J	46.8	160 J	4500 J	100	31 J	72 J	32.1	26	195 J	87 J
Fluorene	µg/Kg	PAH	67.7	203	2.4	1.4	3.3 U	1.8 J	9.51 U	1.4 U	6.7 U	14 J	1200 J	11	2.4	11	10.7 U	1.4 U	6.1 U	14 J
Pyrene	µg/Kg	PAH	997	2,992	45	47	59	40	9.81	1.4 U	86.3	410 J	12000 J	220	67 J	160 J	76.8	48	379 J	230 J
SUM OF PCB CONGENERS X 2	ng/Kg	PCBC	1,211,000	3,634,000	37,368	22,480	16,210	17,840	ND	2,746	15,220	32,270	25,200	25,660	27,480	29,410	ND	2,469	31,800	22,669

			MSG		MSG 5				2004 MSG 5 MEANS USING 1/2 ND	2005 MSG 5 MEANS USING 1/2 ND	2006 MSG 5 MEANS USING 1/2 ND	2007 MSG 5 MEANS USING 1/2 ND	2008 MSG 5 MEANS USING 1/2 ND	2009 MSG 5 MEANS USING 1/2 ND	2013 MSG 5 MEANS USING 1/2 ND
			Sample Location		MCA-JCC-S-01	MCA-JCC-S-01	MCA-JCC-S-01	MCA-JCC-S-01							
			Sample Number		MCA-SD-JCC-S-01-04	MCA-SD-JCC-S-01-05	MCA-SD-JCC-S-01-06	MCA-SD-MCAJCCS01-10152013							
			Sample Date		10/11/2007	10/8/2008	10/14/2009	10/15/2013							
			QC Identifier		ORIG	ORIG	ORIG	ORIG							
			Matrix		SD	SD	SD	SD							
Parameter	**Units**	**Fraction**	**BPRG**	**RG**											
Acid Volatile Sulfide	µmo/g	AVS/SEM			1.4	1.7	0.58 U	2.87	0.03U	0.090	0.32U	1.240	1.900	0.28U	2.550
SEM/AVS	ratio	AVS/SEM			0.3	0.259	NA	0.102455	8.04	9.860	0.6	0.37	SEM<1	SEM<1	SEM<1
Anthracene	µg/Kg	PAH	171	513	110 J	6.2	32	52.1	3.11	29.32	480.5	550.96	13.93	19.52	27.63
Chrysene	µg/Kg	PAH	589		430 J	30	65	106	8.32	100.1	720.2	1026	52.00	47.50	69.64
Fluorene	µg/Kg	PAH	67.7	203	47	2.6 U	14	19.6	3.2U	3.2	172.78	252.82	5.240	7.350	11.84
Pyrene	µg/Kg	PAH	997	2,992	1000 J	64	140	242	12.60	174.8	2087	2692.4	106.3	104.8	156.8
SUM OF PCB CONGENERS X 2	ng/Kg	PCBC	1,211,000	3,634,000	21,660	18,090	13,670	ND	2,380	21,680	30,360	20,910	20,310	19,070	ND

Table 4-5
Sediment Analytical Comparison
McAllister Point Landfill
Naval Station Newport
Middletown, Rhode Island

Notes:

Shading indicates exceedance of remediation goal.
Means are calculated using 1/2 non-detect values.

AVS/SEM=	Acid Volatile Sulfide/Simultaneously Extracted Metals	ORIG=	Original sample
BPRG=	Baseline Preliminary Remediation Goal	PAH=	Polyaromatic Hydrocarbons
SD=	Sediment	PCBC=	Polychlorinated Hydrocarbon Congener
J=	Estimated Value	QC=	Quality control
NA=	Not Analyzed	RG=	Remediation Goal
ND=	Non-detect	U=	Non-detect
ng/kg=	Nanograms per kilogram	UJ=	Non-detect, estimated
NS=	Not sampled	µg/Kg=	Micrograms per kilogram
MSG=	Monitoring Sample Group		

Table 4-6
Porewater Analytical Comparison
McAllister Point Landfill
Naval Station Newport
Middletown, Rhode Island

			MSG		MSG 1								
			Sample Location		MCA-NSB-01	MCA-NSB-01	MCA-NSB-01	MCA-NSB-01	MCA-NSB-01	MCA-NSB-02	MCA-NSB-02	MCA-NSB-02	MCA-NSB-02
			Sample Number		MCA-SD-NSB-01-01-PW	MCA-PW-NSB-01	MCA-PW-NSB-01-05	MCA-PW-NSB-01-06	MCA-PW-MCANSB01-10162013	MCA-SD-NSB-02-01-PW	MCA-PW-NSB-02-02	MCA-PW-NSB-02-05	MCA-PW-MCANSB02-10162013
			Sample Date		12/22/2004	11/3/2005	10/14/2008	10/15/2009	10/16/2013	12/15/2004	10/20/2005	10/14/2008	10/16/2013
			QC Identifier		ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG
			Matrix		PW	PW	PW	PW	PW	PW	PW	PW	PW
Parameter	Units	Fraction	BPRG	RG									
Copper	µg/L	M	17.6	52.9	128 J	7.4	6.3 J	2.4 J	**220**	**27.7 J**	11.7 J	2.6 U	**95**
Nickel	µg/L	M	11.2	33.7	8.96 J	4.3 J	9.6 J	3.1 U	50	3.1 J	4 J	3.1 J	**33**

			MSG		MSG 1				
			Sample Location		MCA-NSB-03	MCA-NSB-03	MCA-NSB-03	MCA-NSB-03	MCA-NSB-03
			Sample Number		MCA-SD-NSB-03-01-PW	MCA-PW-NSB-03	MCA-PW-NSB-03-05	MCA-PW-NSB-03-06	MCA-PW-MCANSB03-10162013
			Sample Date		12/22/2004	10/20/2005	10/14/2008	10/15/2009	10/16/2013
			QC Identifier		ORIG	ORIG	ORIG	ORIG	ORIG
			Matrix		PW	PW	PW	PW	PW
Parameter	Units	Fraction	BPRG	RG					
Copper	µg/L	M	17.6	52.9	0.739 U	3.8 J	2.9 U	0.31 U	**54**
Nickel	µg/L	M	11.2	33.7	5.55 U	4 J	5.2 J	1.7 U	**13**

			MSG		MSG 1						
			Sample Location		MCA-NSB-04	MCA-NSB-04	MCA-NSB-04	MCA-NSB-04	MCA-NSB-04	MCA-NSB-04	MCA-NSB-04
			Sample Number		MCA-NSB-04-01-121304-PW	MCA-NSB-04-01-121304-PW	MCA-PW-NSB-04	MCA-PW-NSB-04 DUP	MCA-PW-NSB-04-05	MCA-SD-NSB-04-06	MCA-SD-MCANSB04-10162013
			Sample Date		12/13/2004	12/13/2004	10/20/2005	10/20/2005	10/14/2008	10/15/2009	10/16/2013
			QC Identifier		ORIG	DUP	ORIG	DUP	ORIG	ORIG	ORIG
			Matrix		PW	PW	PW	PW	PW	PW	PW
Parameter	Units	Fraction	BPRG	RG							
Copper	µg/L	M	17.6	52.9	32.6 J	96.7 J	6.1 J	6.5	28.5	3.8 J	3
Nickel	µg/L	M	11.2	33.7	5.89 J	14.2 J	4.6 J	4.3 J	7.4 J	7.3 U	4 U

			MSG		MSG 1							
			Sample Location		MCA-NSB-05	MCA-NSB-05	MCA-NSB-05	MCA-NSB-05	MCA-NSB-05	MCA-NSB-05	MSG 1 Not Sampled in 2006	MSG 1 Not Sampled in 2007
			Sample Number		MCA-NSB-05-01-121304-PW	MCA-PW-NSB-05	MCA-PW-NSB-05-05	MCA-PW-DUP03-05	MCA-PW-NSB-05-06	MCA-PW-MCANSB05-10162013		
			Sample Date		12/13/2004	10/20/2005	10/14/2008	10/14/2008	10/15/2009	10/16/2013		
			QC Identifier		ORIG	ORIG	ORIG	DUP	ORIG	ORIG		
			Matrix		PW	PW	PW	PW	PW	PW		
Parameter	Units	Fraction	BPRG	RG								
Copper	µg/L	M	17.6	52.9	52.1 J	12 J	5.4 J	9.1 J	1.7 U	**540**	NS	NS
Nickel	µg/L	M	11.2	33.7	15.2 J	6.2 J	4.6 J	4.8 J	1.5 U	**240**	NS	NS

			MSG								
			Sample Location Sample Number Sample Date QC Identifier		2004 MSG 1 MEANS USING 1/2 ND	2005 MSG 1 MEANS USING 1/2 ND	2006 MSG 1 MEANS USING 1/2 ND	2007 MSG 1 MEANS USING 1/2 ND	2008 MSG 1 MEANS USING 1/2 ND	2009 MSG 1 MEANS USING 1/2 ND	2013 MSG 1 MEANS USING 1/2 ND
			Matrix								
Parameter	Units	Fraction	BPRG	RG							
Copper	µg/L	M	17.6	52.9	56.2	7.92	NS	NS	8.68	1.80	**182**
Nickel	µg/L	M	11.2	33.7	8.35	4.57	NS	NS	5.78	1.7 U	**68.0**

Table 4-6
Porewater Analytical Comparison
McAllister Point Landfill
Naval Station Newport
Middletown, Rhode Island

MSG					MSG 2							
Sample Location					MCA-16	MCA-16	MCA-16	MCA-16	MCA-16	MCA-16	MCA-16	MCA-16
Sample Number					MCA-16-01-121304	MCA-PW-16-03	MCA-PW-16-04	MCA-PW-16-05	MCA-PW-DUP01-05	MCA-PW-16-06	MCA-PW-DUP01-06	MCA-PW-MCA16-10172013
Sample Date					12/13/2004	10/23/2006	10/12/2007	10/13/2008	10/13/2008	10/13/2009	10/13/2009	10/17/2013
QC Identifier					ORIG	ORIG	ORIG	ORIG	DUP	ORIG	DUP	ORIG
Matrix					PW	PW	PW	PW	PW	PW	PW	PW
Parameter	Units	Fraction	BPRG	RG								
Copper	µg/L	M	17.6	52.9	11 UJ	2 UJ	0.5 U	2.4 U	2.4 U	0.45 J	0.79 J	**96**
Nickel	µg/L	M	11.2	33.7	5.55 UJ	2.1 J	0.4 U	6.1 U	4.8 U	0.33 U	3.6 J	**23**

MSG					MSG 2						
Sample Location					MCA-OS-30	MCA-OS-30	MCA-OS-30	MCA-OS-30	MCA-OS-30	MCA-OS-30	MCA-OS-30
Sample Number					MCA-SD-OS-30-01-PW	MCA-PW-OS-30-02	MCA-PW-OS-30-03	MCA-PW-OS-30-04	MCA-PW-OS-30-05	MCA-PW-OS-30-06	MCA-MCAPWOS30-10172013
Sample Date					12/16/2004	11/2/2005	10/23/2006	10/12/2007	10/13/2008	10/14/2009	10/17/2013
QC Identifier					ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG
Matrix					PW	PW	PW	PW	PW	PW	PW
Parameter	Units	Fraction	BPRG	RG							
Copper	µg/L	M	17.6	52.9	4.19 UJ	39.7	2 UJ	0.5 U	3.3 U	0.31 U	**380**
Nickel	µg/L	M	11.2	33.7	7.3 J	5.4 J	1.5 U	0.4 U	10.2 U	1.4 U	**92**

MSG					MSG 2								
Sample Location					MCA-SDA-D-01	MCA-SDA-D-01	MCA-SDA-D-01	MCA-SDA-D-01	MCA-SDA-D-01	MCA-SDA-D-01	MCA-SDA-D-01	MCA-SDA-D-01	MCA-SDA-D-01
Sample Number					MCA-SD-SDA-D-01-01-PW	MCA-SDA-D-01	MCA-SDA-D -01-03	MCA-PW-SDA-D-01-04	MCA-PW-SDA-D-01-05	MCA-PW-DUP02-05	MCA-PW-SDA-D-01-06	MCA-PW-DUP03-06	MCA-PW-MCASDAD01-10172013
Sample Date					12/16/2004	11/7/2005	10/23/2006	10/12/2007	10/13/2008	10/13/2008	10/14/2009	10/14/2009	10/17/2013
QC Identifier					ORIG	ORIG	ORIG	ORIG	ORIG	DUP	ORIG	DUP	ORIG
Matrix					PW	PW	PW	PW	PW	PW	PW	PW	PW
Parameter	Units	Fraction	BPRG	RG									
Copper	µg/L	M	17.6	52.9	3.3 UJ	2.7 J	2 U	1 U	0.7 U	1.1 U	0.64 J	0.31 U	**360**
Nickel	µg/L	M	11.2	33.7	5.6 J	4.2 J	1.5 U	3.1 J	0.46 U	2.2 U	0.88 U	0.33 U	**81**

MSG					MSG 2							
Sample Location					MCA-SDA-M-02	MCA-SDA-M-02	MCA-SDA-M-02	MCA-SDA-M-02	MCA-SDA-M-02	MCA-SDA-M-02	MCA-SDA-M-02	MCA-SDA-M-02
Sample Number					MCA-SDA-M-02-01-121304-PW	MCA-PW-SDA-M-02-02	MCA-PW-SDA-M-02-03	MCA-PW-SDA-M-02-04	MCA-PW-DUP03-04	MCA-PW-SDA-M-02-05	MCA-PW-SDA-M-02-06	MCA-PW-MCASDAM02-10172013
Sample Date					12/13/2004	11/2/2005	10/23/2006	10/12/2007	10/12/2007	10/13/2008	10/15/2009	10/17/2013
QC Identifier					ORIG	ORIG	ORIG	ORIG	DUP	ORIG	ORIG	ORIG
Matrix					PW	PW	PW	PW	PW	PW	PW	PW
Parameter	Units	Fraction	BPRG	RG								
Copper	µg/L	M	17.6	52.9	6.67 UJ	12.3 J	2 U	0.5 U	0.5 U	1.2 U	0.31 U	**210**
Nickel	µg/L	M	11.2	33.7	5.55 U	6.7 J	1.5 U	4.1 J	0.4 UJ	3.8 J	0.95 U	**37**

MSG					MSG 2						
Sample Location					MCA-SDA-S-04	MCA-SDA-S-04	MCA-SDA-S-04	MCA-SDA-S-04	MCA-SDA-S-04	MCA-SDA-S-04	MCA-SDA-S-04
Sample Number					MCA-SDA-S-04-01-121404-PW	MCA-PW-SDA-S-04-02	MCA-PW-SDA-S-04-03	MCA-PW-S-04-04	MCA-PW-S-04-05	MCA-PW-SDA-S-04-06	MCA-PW-MCASDAS04-10172013
Sample Date					12/14/2004	11/2/2005	10/23/2006	10/12/2007	10/13/2008	10/14/2009	10/17/2013
QC Identifier					ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG
Matrix					PW	PW	PW	PW	PW	PW	PW
Parameter	Units	Fraction	BPRG	RG							
Copper	µg/L	M	17.6	52.9	9.49 UJ	168 J	2 U	0.5 U	0.7 U	0.31 U	**79**
Nickel	µg/L	M	11.2	33.7	5.56 J	39.8 J	4.8 J	0.4 U	0.46 U	1.2 U	**18**

MSG											
Sample Location / Sample Number / Sample Date / QC Identifier / Matrix					2004 MSG 2 MEANS USING 1/2 ND	2005 MSG 2 MEANS USING 1/2 ND	2006 MSG 2 MEANS USING 1/2 ND	2007 MSG 2 MEANS USING 1/2 ND	2008 MSG 2 MEANS USING 1/2 ND	2009 MSG 2 MEANS USING 1/2 ND	2013 MSG 2 MEANS USING 1/2 ND
Parameter	Units	Fraction	BPRG	RG							
Copper	µg/L	M	17.6	52.9	3.46 U	45.9	1.0 U	0.29 U	0.84 U	0.357	**225**
Nickel	µg/L	M	11.2	33.7	4.80	12.7	1.83	1.33	2.27	0.621	**50.2**

Table 4-6
Porewater Analytical Comparison
McAllister Point Landfill
Naval Station Newport
Middletown, Rhode Island

			MSG		MSG 3					
			Sample Location		MCA-08	MCA-08	MCA-08	MCA-08	MCA-08	MCA-09
			Sample Number		MCA-SD-08-01-PW	MCA-08	MCA-08-03	MCA-PW-08-05	MCA-PW-08-06	MCA-SD-09-01-PW
			Sample Date		12/21/2004	11/7/2005	10/23/2006	10/14/2008	10/13/2009	12/21/2004
			QC Identifier		ORIG	ORIG	ORIG	ORIG	ORIG	ORIG
			Matrix		PW	PW	PW	PW	PW	PW
Parameter	**Units**	**Fraction**	**BPRG**	**RG**						
Copper	µg/L	M	17.6	52.9	0.739 U	3.2 J	5.1 J	1 U	0.31 U	2.21 U
Nickel	µg/L	M	11.2	33.7	5.55 U	5.1 J	1.5 U	3.4 U	0.53 U	5.55 U

			MSG		MSG 3					
			Sample Location		MCA-09	MCA-09	MCA-09	MCA-09	MCA-09	MCA-09
			Sample Number		MCA-SD-09-01-PW	MCA-09	MCA-09-03	MCA-PW-09-04	MCA-PW-09-05	MCA-PW-09-06
			Sample Date		12/21/2004	11/7/2005	10/23/2006	10/12/2007	10/14/2008	10/14/2009
			QC Identifier		ORIG	ORIG	ORIG	ORIG	ORIG	ORIG
			Matrix		PW	PW	PW	PW	PW	PW
Parameter	**Units**	**Fraction**	**BPRG**	**RG**						
Copper	µg/L	M	17.6	52.9	2.21 U	10.5 J	2 U	0.5 U	2 U	0.31 U
Nickel	µg/L	M	11.2	33.7	5.55 U	2040	1.5 U	0.4 U	5.7 J	1.8 U

			MSG		MSG 3						
			Sample Location		MCA-11	MCA-11	MCA-11	MCA-11	MCA-11	MCA-11	MCA-11
			Sample Number		MCA-SD-11-01-PW	MCA-SD-11-01-PW-D	MCA-11	MCA-11-03	MCA-11-DUP	MCA-PW-11-06	MCA-PW-MCA11-10162013
			Sample Date		12/21/2004	12/21/2004	11/7/2005	10/23/2006	11/7/2005	10/14/2009	10/16/2013
			QC Identifier		ORIG	DUP	ORIG	ORIG	DUP	ORIG	ORIG
			Matrix		PW	PW	PW	PW	PW	PW	PW
Parameter	**Units**	**Fraction**	**BPRG**	**RG**							
Copper	µg/L	M	17.6	52.9	3.17 U	0.739 U	23.5 J	5.6 J	9.6 J	0.31 U	19
Nickel	µg/L	M	11.2	33.7	5.55 U	5.6 U	28.7 J	1.6 J	4.7 J	0.93 J	57

			MSG		MSG 3						
			Sample Location		MCA-OS-27	MCA-OS-27	MCA-OS-27	MCA-OS-27	MCA-OS-27	MCA-OS-27	MCA-OS-27
			Sample Number		MCA-SD-OS-27-01-PW	MCA-05-27	MCA-OS-27-03	MCA-PW-OS-27-04	MCA-PW-OS-27-05	MCA-PW-OS-27-06	MCA-PW-MCAOS27-10162013
			Sample Date		12/21/2004	11/7/2005	10/23/2006	10/12/2007	10/13/2008	10/15/2009	10/16/2013
			QC Identifier		ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG
			Matrix		PW	PW	PW	PW	PW	PW	PW
Parameter	**Units**	**Fraction**	**BPRG**	**RG**							
Copper	µg/L	M	17.6	52.9	0.739 U	3.1 J	2.8 J	0.5 U	1.3 U	0.31 U	5
Nickel	µg/L	M	11.2	33.7	5.55 U	1170	1.5 U	0.4 U	7.3 U	1.8 U	4

			MSG		MSG 3							
			Sample Location		MCA-OS-29	MCA-OS-29	MCA-OS-29	MCA-OS-29	MCA-OS-29	MCA-OS-29	MCA-OS-29	MCA-OS-29
			Sample Number		MCA-SD-OS-29-01-PW	MCA-05-29	MCA-OS-29-03	MCA-PW-OS-29-04	MCA-PW-DUP04-04	MCA-PW-OS-29-05	MCA-PW-OS-29-06	MCA-PW-MCAOS29-10162013
			Sample Date		12/22/2004	11/7/2005	10/23/2006	10/12/2007	10/12/2007	10/13/2008	10/14/2009	10/16/2013
			QC Identifier		ORIG	ORIG	ORIG	ORIG	DUP	ORIG	ORIG	ORIG
			Matrix		PW	PW	PW	PW	PW	PW	PW	PW
Parameter	**Units**	**Fraction**	**BPRG**	**RG**								
Copper	µg/L	M	17.6	52.9	0.739 U	6.2 J	2 U	0.5 U	1 U	3.2 U	0.62 U	41
Nickel	µg/L	M	11.2	33.7	5.55 U	5.5 J	1.5 J	0.4 UJ	4.2 J	7.3 U	1 U	28

			MSG								
			Sample Location		2004 MSG 3 MEANS USING 1/2 ND	2005 MSG 3 MEANS USING 1/2 ND	2006 MSG 3 MEANS USING 1/2 ND	2007 MSG 3 MEANS USING 1/2 ND	2008 MSG 3 MEANS USING 1/2 ND	2009 MSG 3 MEANS USING 1/2 ND	2013 MSG 3 MEANS USING 1/2 ND
			Sample Number								
			Sample Date								
			QC Identifier								
			Matrix								
Parameter	**Units**	**Fraction**	**BPRG**	**RG**							
Copper	µg/L	M	17.6	52.9	0.70 U	8.63	3.10	0.30 U	0.94 U	0.186 U	21.7
Nickel	µg/L	M	11.2	33.7	2.77 U	642	0.920	1.00	3.68	0.699	29.7

Table 4-6
Porewater Analytical Comparison
McAllister Point Landfill
Naval Station Newport
Middletown, Rhode Island

			MSG		MSG 4							
			Sample Location		MCA-12	MCA-12	MCA-12	MCA-12	MCA-12	MCA-OS-28	MCA-OS-28	MCA-OS-28
			Sample Number		MCA-SD-12-01-PW	MCA-PW-12-02	MCA-PW-12-05	MCA-PW-12-06	MCA-PW-MCA12-10162013	MCA-SD-OS-28-01-PW	MCA-05-28	MCA-PW-OS-28-05
			Sample Date		12/22/2004	11/2/2005	10/14/2008	10/15/2009	10/16/2013	12/22/2004	11/7/2005	10/14/2008
			QC Identifier		ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG
			Matrix		PW	PW	PW	PW	PW	PW	PW	PW
Parameter	Units	Fraction	BPRG	RG								
Copper	µg/L	M	17.6	52.9	0.739 U	10.4	1.9 U	0.31 U	49	0.739 U	9 J	0.7 U
Nickel	µg/L	M	11.2	33.7	0.55 U	5.4 J	0.81 U	1.7 U	10	5.55 U	1330	1.6 U

			MSG		MSG 4						
			Sample Location		MCA-OS-28	MCA-OS-28	MCA-SDA-S-02-B	MCA-SDA-S-02-B	MCA-SDA-S-02-B	MCA-SDA-S-02-B	MCA-SDA-S-02-B
			Sample Number		MCA-PW-OS-28-06	MCA-PW-MCAOS28-10162013	MCA-SD-SDA-S02B/C-01-PW	MCA-SDA-S-02-B	MCA-PW-SDA-S-02-B-05	MCA-PW-SDA-S-02-B-06	MCA-PW-MCASDAS02B-10162013
			Sample Date		10/13/2009	10/16/2013	12/22/2004	11/7/2005	10/14/2008	10/14/2009	10/16/2013
			QC Identifier		ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG
			Matrix		PW	PW	PW	PW	PW	PW	PW
Parameter	Units	Fraction	BPRG	RG							
Copper	µg/L	M	17.6	52.9	0.31 U	71	0.739 U	3.9 J	2.2 U	0.31 U	6
Nickel	µg/L	M	11.2	33.7	0.72 U	14	5.55 U	1670	4.5 J	0.33 U	4 U

			MSG		MSG 4					
			Sample Location		MCA-SDA-S-02-C	MCA-SDA-S-02-C	MCA-SDA-S-02-C	MCA-SDA-S-02-C	MSG 4 Not Sampled in 2006	MSG 4 Not Sampled in 2007
			Sample Number		MCA-SDA-02-C	MCA-PW-SDA-S-02-C-05	MCA-PW-SDA-S-02-C-06	MCA-PW-MCASDAS02C-10162013		
			Sample Date		11/7/2005	10/14/2008	10/14/2009	10/16/2013		
			QC Identifier		ORIG	ORIG	ORIG	ORIG		
			Matrix		PW	PW	PW	PW		
Parameter	Units	Fraction	BPRG	RG						
Copper	µg/L	M	17.6	52.9	3.4 J	1.1 U	0.31 U	2	NS	NS
Nickel	µg/L	M	11.2	33.7	870.0	1.2 U	2.0 U	4 U	NS	NS

			MSG								
			Sample Location Sample Number Sample Date QC Identifier Matrix		2004 MSG 4 MEANS USING 1/2 ND	2005 MSG 4 MEANS USING 1/2 ND	2006 MSG 4 MEANS USING 1/2 ND	2007 MSG 4 MEANS USING 1/2 ND	2008 MSG 4 MEANS USING 1/2 ND	2009 MSG 4 MEANS USING 1/2 ND	2013 MSG 4 MEANS USING 1/2 ND
Parameter	Units	Fraction	BPRG	RG							
Copper	µg/L	M	17.6	52.9	U	6.68	NS	NS	0.74 U	0.155 U	32.0
Nickel	µg/L	M	11.2	33.7	U	969	NS	NS	1.58	0.594 U	7.00

Table 4-6
Porewater Analytical Comparison
McAllister Point Landfill
Naval Station Newport
Middletown, Rhode Island

Parameter	Units	Fraction	BPRG	RG								
			MSG		MSG 5							
			Sample Location		MCA-JCC-02	MCA-JCC-02	MCA-JCC-02	MCA-JCC-02	MCA-JCC-02	MCA-JCC-02	MCA-JCC-02	MCA-JCC-02
			Sample Number		MCA-JCC-02-01-121304-PW	MCA-PW-JCC-02-02	MCA-PW-JCC-02-03	MCA-PW-JCC-02-04	MCA-PW-JCC-02-05	MCA-PW-JCC-02-06	MCA-PW-MCAJCC02-10152013	MCA-PW-DUPLICATE-10152013
			Sample Date		12/13/2004	11/2/2005	10/23/2006	10/12/2007	10/14/2008	10/14/2009	10/15/2013	10/15/2013
			QC Identifier		ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	DUP
			Matrix		PW	PW	PW	PW	PW	PW	PW	PW
Parameter	Units	Fraction	BPRG	RG								
Copper	µg/L	M	17.6	52.9	23 J	11.4	4.6 J	0.5 U	2.9 U	30.3 J	**85**	**80**
Nickel	µg/L	M	11.2	33.7	5.55 U	5.2 J	5.9 J	4.3 J	4.7 U	2.6 U	**28**	**25**

Parameter	Units	Fraction	BPRG	RG							
			MSG		MSG 5						
			Sample Location		MCA-JCC-03	MCA-JCC-03	MCA-JCC-03	MCA-JCC-03	MCA-JCC-03	MCA-JCC-03	MCA-JCC-03
			Sample Number		MCA-JCC-03-01-121404-PW	MCA-M-03	MCA-M-03-03	MCA-M-03-04	MCA-M-03-05	MCA-JCC-03-06	MCA-MCAJCC03-10152013
			Sample Date		12/14/2004	11/7/2005	10/23/2006	10/12/2007	10/14/2008	10/14/2009	10/15/2013
			QC Identifier		ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG
			Matrix		PW	PW	PW	PW	PW	PW	PW
Parameter	Units	Fraction	BPRG	RG							
Copper	µg/L	M	17.6	52.9	6.97 UJ	8 J	9.6 J	0.5 U	1.1 U	3.3 J	**13**
Nickel	µg/L	M	11.2	33.7	5.55 U	6.7 J	2.4 J	5.3 J	7.5 U	4.4 J	**30**

Parameter	Units	Fraction	BPRG	RG							
			MSG		MSG 5						
			Sample Location		MCA-JCC-04	MCA-JCC-04	MCA-JCC-04	MCA-JCC-04	MCA-JCC-04	MCA-JCC-04	MCA-JCC-04
			Sample Number		MCA-SD-JCC-04-01-PW	MCA-JCC-04	MCA-JCC-04-03	MCA-JCC-04-04	MCA-JCC-04-05	MCA-JCC-04-06	MCA-MCAJCC04-10152013
			Sample Date		12/15/2004	11/7/2005	10/23/2006	10/12/2007	10/14/2008	10/14/2009	10/15/2013
			QC Identifier		ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG
			Matrix		PW	PW	PW	PW	PW	PW	PW
Parameter	Units	Fraction	BPRG	RG							
Copper	µg/L	M	17.6	52.9	9.07 UJ	4.4 J	2.8 J	0.5 U	0.88 U	0.62 U	**210**
Nickel	µg/L	M	11.2	33.7	4.5 J	5.2 J	1.5 U	0.4 U	8.6 U	**3.5 J**	**48**

Parameter	Units	Fraction	BPRG	RG								
			MSG		MSG 5							
			Sample Location		MCA-JCC-M-01	MCA-JCC-M-01	MCA-JCC-M-01	MCA-JCC-M-01	MCA-JCC-M-01	MCA-JCC-M-01	MCA-JCC-M-01	MCA-JCC-M-01
			Sample Number		MCA-JCC-M-01-01-121304-PW	JCC-M-01	JCC-M-01-03	MCA-PW-JCC-M-01-04	MCA-PW-JCC-M-01-05	MCA-PW-JCC-M-01-06	MCA-PW-DUP-02-06	MCA-PW-MCAJCCM01-10152013
			Sample Date		12/13/2004	11/7/2005	10/23/2006	10/12/2007	10/14/2008	10/14/2009	10/14/2009	10/15/2013
			QC Identifier		ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	DUP	ORIG
			Matrix		PW	PW	PW	PW	PW	PW	PW	PW
Parameter	Units	Fraction	BPRG	RG								
Copper	µg/L	M	17.6	52.9	7.02 UJ	4.1 J	3.6 J	0.5 U	0.86 U	0.31 U	0.62 U	**92**
Nickel	µg/L	M	11.2	33.7	5.55 U	4.1 J	2.3 J	0.4 U	4.8 U	0.33 U	1.5 U	**25**

Parameter	Units	Fraction	BPRG	RG							
			MSG		MSG 5						
			Sample Location		MCA-JCC-S-01	MCA-JCC-S-01	MCA-JCC-S-01	MCA-JCC-S-01	MCA-JCC-S-01	MCA-JCC-S-01	MCA-JCC-S-01
			Sample Number		MCA-JCC-S-01-01-121304	MCA-PW-JCC-S-01-02	MCA-PW-JCC-S-01-03	MCA-PW-JCC-S-01-04	MCA-PW-JCC-S-01-05	MCA-PW-JCC-S-01-06	MCA-PW-MCAJCCS01-10152013
			Sample Date		12/13/2004	11/2/2005	10/23/2006	10/12/2007	10/14/2008	10/14/2009	10/15/2013
			QC Identifier		ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG
			Matrix		PW	PW	PW	PW	PW	PW	PW
Parameter	Units	Fraction	BPRG	RG							
Copper	µg/L	M	17.6	52.9	8.6 UJ	9.4 J	6.6 J	0.5 U	2 U	0.62 U	**17**
Nickel	µg/L	M	11.2	33.7	5.55 U	6.6 J	1.5 U	0.4 U	5.8 U	**3.7 J**	**30**

Parameter	Units	Fraction	BPRG	RG							
			MSG		2004 MSG 5 MEANS USING 1/2 ND	2005 MSG 5 MEANS USING 1/2 ND	2006 MSG 5 MEANS USING 1/2 ND	2007 MSG 5 MEANS USING 1/2 ND	2008 MSG 5 MEANS USING 1/2 ND	2009 MSG 5 MEANS USING 1/2 ND	2013 MSG 5 MEANS USING 1/2 ND
			Sample Location								
			Sample Number								
			Sample Date								
			QC Identifier								
			Matrix								
Parameter	Units	Fraction	BPRG	RG							
Copper	µg/L	M	17.6	52.9	7.77	7.46	5.44	0.25 U	0.77 U	5.78	**83.0**
Nickel	µg/L	M	11.2	33.7	3.12	5.56	2.42	2.04	3.14 U	2.30	**31.0**

Table 4-6
Porewater Analytical Comparison
McAllister Point Landfill
Naval Station Newport
Middletown, Rhode Island

Notes:

Shading indicates exceedance of remediation goal.
Means are calculated using 1/2 non-detect values.
Bold indicates detection in current data round.

BPRG=	Baseline Preliminary Remediation Goal	ORIG=	Original sample
DUP=	Duplicate sample	PW=	Porewater
J=	Estimated Value	QC=	Quality control
M=	Metals	RG=	Remediation Goal
NA=	Not Analyzed	U=	Non-detect
ND=	Non-detect	UJ=	Non-detect, estimated
NS=	Not sampled	µg/L=	Micrograms per kilogram
MSG =	Monitoring Station Group		

Table 4-7
Biota (Clam) Analytical Comparison
McAllister Point Landfill
Naval Station Newport
Middletown, Rhode Island

			MSG		MSG 1						
			Sample Location		MCA-NSB-02	MCA-NSB-03	MCA-NSB-03	MCA-NSB-04	MCA-NSB-04	MCA-NSB-05	MCA-NSB-05
			Sample Number		MCA-ET-NSB-02-02	MCA-ET-NSB-03-02	MCA-ET-NSB-03-06	MCA-ET-NSB-04-02	MCA-ET-NSB-04-06	MCA-SD-NSB-05-02	MCA-ET-NSB-05-06
			Sample Date		10/28/2005	10/28/2006	10/15/2009	10/20/2005	10/15/2009	10/20/2005	10/15/2009
			QC Identifier		ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG
			Matrix		ET	ET	ET	ET	ET	ET	ET
Parameter	**Units**	**Fraction**	**PAL**	**1997 REF**							
Aluminum	mg/Kg	M	10	2.61	7.6 U	11	16.7	11.1 U	13.5	7.9 J	10.4
Antimony	mg/Kg	M	0.2	0.2	0.056 U	0.0072 U	0.032 U	0.01 J	0.040 U	0.0079 U	0.10 U
Arsenic	mg/Kg	M	2	19.82	1	0.6	1.5 J	0.72	1.5 J	0.6	1.5 J
Cadmium	mg/Kg	M	0.2	ND	0.07 U	0.06 J	0.11 J	0.068 J	0.11 J	0.053 U	0.11 J
Chromium	mg/Kg	M	0.1	<0.2258	0.26 U	0.16 U	1.2	0.19 U	0.23 J	0.34 U	0.31 J
Copper	mg/Kg	M	5	45.71	0.41 J	0.51 J	0.75 J	0.51 J	0.83 J	0.44 J	0.64 J
Iron	mg/Kg	M	50	15.32	38.1 U	39.1	60.4	38.6	48.1	32	39.3
Lead	mg/Kg	M	0.1	0.14	0.48 J	0.23 J	0.17 J	0.23 J	0.23 J	0.16 J	0.13 J
Manganese	mg/Kg	M	5	8.97	1.4 J	2.1	1.7 J	2.1 J	1.6 J	1.9 J	1.8 J
Mercury	mg/Kg	M	0.01	0.558	0.016 U	0.016 J	0.012 J	0.011 J	0.012 J	0.014 U	0.012 J
Nickel	mg/Kg	M	0.5	<0.531	0.14 U	0.15 U	0.71 J	0.18 J	0.22 J	0.26 J	0.27 J
Selenium	mg/Kg	M	1	-	0.21 J	0.2 J	0.45 J	0.28 J	0.30 J	0.28 J	0.44 J
Silver	mg/Kg	M	0.01	-	0.0049 UJ	0.0036 UJ	0.012 UJ	0.0042 UJ	0.025 J	0.004 UJ	0.012 U
Zinc	mg/Kg	M	50	-	14.8	7.3	13.2	7.1	14.7	5.3 U	14.4
1-Methylnaphthalene	µg/Kg	PAH	20	-	NA	NA	20 U	NA	20 U	NA	20 U
2-Methylnaphthalene	µg/Kg	PAH	20	-	NA	NA	24	NA	32	NA	39
Benzo(a)anthracene	µg/Kg	PAH	20	-	350 U	NA	20 U	38 U	20 U	40 U	20 U
Chrysene	µg/Kg	PAH	20	-	350 U	NA	20 U	38 U	20 U	40 U	20 U
Fluorene	µg/Kg	PAH	20	-	350 U	NA	20 U	38 U	20 U	40 U	20 U
Naphthalene	µg/Kg	PAH	20	-	350 U	NA	20 U	38 U	20 U	40 U	20 U
SUM OF PCB CONGENERS X 2	ng/kg	PCBC	1000	-	NA	NA	77,760	17,020	85,430	20,650	96,250

			MSG Sample Location Sample Number Sample Date QC Identifier Matrix		MSG 1 Not Sampled in 2004	MSG 1 Not Sampled in 2006	MSG 1 Not Sampled in 2007	MSG 1 Not Sampled in 2008	2004 MSG 1 MEANS USING 1/2 ND	2005 MSG 1 MEANS USING 1/2 ND	2006 MSG 1 MEANS USING 1/2 ND	2007 MSG 1 MEANS USING 1/2 ND	2008 MSG 1 MEANS USING 1/2 ND	2009 MSG 1 MEANS USING 1/2 ND	MSG 1 Not Sampled in 2013
Parameter	**Units**	**Fraction**	**PAL**	**1997 REF**											
Aluminum	mg/Kg	M	10	2.61	NS	NS	NS	NS	NS	7.06	NS	NS	NS	13.5	NS
Antimony	mg/Kg	M	0.2	0.2	NS	NS	NS	NS	NS	0.010	NS	NS	NS	0.030	NS
Arsenic	mg/Kg	M	2	19.82	NS	NS	NS	NS	NS	0.730	NS	NS	NS	1.50	NS
Cadmium	mg/Kg	M	0.2	ND	NS	NS	NS	NS	NS	0.050	NS	NS	NS	0.110	NS
Chromium	mg/Kg	M	0.1	<0.2258	NS	NS	NS	NS	NS	U	NS	NS	NS	0.580	NS
Copper	mg/Kg	M	5	45.71	NS	NS	NS	NS	NS	0.470	NS	NS	NS	0.740	NS
Iron	mg/Kg	M	50	15.32	NS	NS	NS	NS	NS	32.2	NS	NS	NS	49.3	NS
Lead	mg/Kg	M	0.1	0.14	NS	NS	NS	NS	NS	0.280	NS	NS	NS	0.177	NS
Manganese	mg/Kg	M	5	8.97	NS	NS	NS	NS	NS	1.88	NS	NS	NS	1.70	NS
Mercury	mg/Kg	M	0.01	0.558	NS	NS	NS	NS	NS	0.010	NS	NS	NS	0.012	NS
Nickel	mg/Kg	M	0.5	<0.531	NS	NS	NS	NS	NS	0.150	NS	NS	NS	0.400	NS
Selenium	mg/Kg	M	1	-	NS	NS	NS	NS	NS	0.240	NS	NS	NS	0.397	NS
Silver	mg/Kg	M	0.01	-	NS	NS	NS	NS	NS	U	NS	NS	NS	0.012	NS
Zinc	mg/Kg	M	50	-	NS	NS	NS	NS	NS	7.96	NS	NS	NS	14.1	NS
1-Methylnaphthalene	µg/Kg	PAH	20	-	NS	NS	NS	NS	NS	NA	NS	NS	NS	10.0	NS
2-Methylnaphthalene	µg/Kg	PAH	20	-	NS	NS	NS	NS	NS	NA	NS	NS	NS	31.7	NS
Benzo(a)anthracene	µg/Kg	PAH	20	-	NS	NS	NS	NS	NS	U	NS	NS	NS	10.0	NS
Chrysene	µg/Kg	PAH	20	-	NS	NS	NS	NS	NS	U	NS	NS	NS	10.0	NS
Fluorene	µg/Kg	PAH	20	-	NS	NS	NS	NS	NS	U	NS	NS	NS	10.0	NS
Naphthalene	µg/Kg	PAH	20	-	NS	NS	NS	NS	NS	U	NS	NS	NS	10.0	NS
SUM OF PCB CONGENERS X 2	ng/kg	PCBC	1000	-	NS	NS	NS	NS	NS	9,420	NS	NS	NS	86,480	NS

Table 4-7
Biota (Clam) Analytical Comparison
McAllister Point Landfill
Naval Station Newport
Middletown, Rhode Island

			MSG		MSG 2							
			Sample Location		MCA-16	MCA-16	MCA-16	MCA-16	MCA-16	MCA-16	MCA-16	MCA-16
			Sample Number		MCA-ET-16-01	MCA-ET-16-02	MCA-ET-16-03	MCA-ET-DUP02-03	MCA-ET-16-04	MCA-ET-16-05	MCA-ET-DUP01-05	MCA-ET-16-06
			Sample Date		12/16/2004	10/27/2005	10/17/2006	10/17/2006	10/10/2007	10/7/2008	10/7/2008	10/14/2009
			QC Identifier		ORIG	ORIG	ORIG	DUP	ORIG	ORIG	DUP	ORIG
			Matrix		ET	ET	ET	ET	ET	ET	ET	ET
Parameter	Units	Fraction	PAL	1997 REF								
Aluminum	mg/Kg	M	10	2.61	12.3	2.7 U	7.3 J	11.2	0.65 U	33.8	24.4	7.4 J
Antimony	mg/Kg	M	0.2	0.2	0.557 U	0.011 U	0.024 U	0.021 U	0.0054 U	0.068 U	0.082 U	0.12 U
Arsenic	mg/Kg	M	2	19.82	3.34	2	2.5	2.5	2.3	4.4	2.9	2.5 J
Cadmium	mg/Kg	M	0.2	ND	0.046 UJ	0.041 J	0.097	0.088 J	0.0031 U	0.2 J	0.14 J	0.086 J
Chromium	mg/Kg	M	0.1	<0.2258	0.74	0.26 U	0.47	0.54	1.6	1.2	0.9	1.4
Copper	mg/Kg	M	5	45.71	2.46	0.87	1.5	1.5	1.3 J	2.5	1.7 J	1.0 J
Iron	mg/Kg	M	50	15.32	31.5 J	12.3	28.4	42.7	0.46 U	103	98.2	28.8
Lead	mg/Kg	M	0.1	0.14	0.486 UJ	0.14 J	0.3 U	0.24 U	0.24	0.81 J	0.36 J	0.14 J
Manganese	mg/Kg	M	5	8.97	4.58	1.6 J	3.5 J	4.9 J	5.7	13.7	9.2	4.0 J
Mercury	mg/Kg	M	0.01	0.558	0.028 UJ	0.021 J	0.03	0.019	0.019 J	0.027 J	0.014 UJ	0.025
Nickel	mg/Kg	M	0.5	<0.531	1.37	0.98	1.5	1.2	1.7	1.5 J	1.4 J	2.0
Selenium	mg/Kg	M	1	-	0.768 UJ	0.23 J	1370	0.35	0.0077 U	0.55	0.33	0.25 J
Silver	mg/Kg	M	0.01	-	1.29	0.38 J	0.39	0.68	0.00015 U	2.4 J	0.85 J	0.51
Zinc	mg/Kg	M	50	-	14.3	10.7	13.9	14.8	14.4	20	20	13.5
1-Methylnaphthalene	µg/Kg	PAH	20	-	0.99 U	NA	1 U	1 U	1 U	2 U	2 U	20 U
2-Methylnaphthalene	µg/Kg	PAH	20	-	0.99 U	NA	1 U	1 U	1 U	2 U	2 U	7.3 U
Benzo(a)anthracene	µg/Kg	PAH	20	-	9.9 U	40 U	1 U	1	1 U	2 U	2 U	20 U
Chrysene	µg/Kg	PAH	20	-	9.9 U	40 U	1.1	1.8	1.4	2 U	2 U	20 U
Fluorene	µg/Kg	PAH	20	-	0.99 U	40 U	1.1	1 U	1 U	2 U	2 U	20 U
Naphthalene	µg/Kg	PAH	20	-	0.99 U	40 U	1 U	1 U	1 U	2 U	2 U	20 U
SUM OF PCB CONGENERS X 2	ng/kg	PCBC	1000	-	6,190	10,460	17,152	28,672	16,680	22,660	18,840	40,800

			MSG		MSG 2								
			Sample Location		MCA-16	MCA-OS-30	MCA-OS-30	MCA-OS-30	MCA-OS-30	MCA-OS-30	MCA-OS-30	MCA-OS-30	MCA-SDA-S-04
			Sample Number		MCA-ET-MCA16-10172013	MCA-ET-OS-30-01	MCA-ET-OS-30-02	MCA-ET-OS-30-03	MCA-ET-OS-30-04	MCA-ET-OS-30-05	MCA-ET-OS-30-06	MCA-ET-MCAOS30-10172013	MCA-ET-SDA-S-04
			Sample Date		10/17/2013	12/22/2004	10/28/2005	10/17/2006	10/10/2007	10/7/2008	10/14/2009	10/17/2013	10/14/2009
			QC Identifier		ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG
			Matrix		ET	ET	ET	ET	ET	ET	ET	ET	ET
Parameter	Units	Fraction	PAL	1997 REF									
Aluminum	mg/Kg	M	10	2.61	0.11	14.5	2.4 J	9.9	0.58 U	30.4	19.0	11.2 U	3.7 J
Antimony	mg/Kg	M	0.2	0.2	10.9 U	0.563 U	0.0071 U	0.02 U	0.0045 U	0.061 U	0.071 U	0.056 U	0.054 U
Arsenic	mg/Kg	M	2	19.82	0.054 U	1.68	0.99	1.3	2.1	3.2	1.4 J	2.44	2.7 J
Cadmium	mg/Kg	M	0.2	ND	0.084	0.163 J	0.094	0.19	0.0026 U	0.36 J	0.18 J	0.117	0.092 J
Chromium	mg/Kg	M	0.1	<0.2258	0.489	0.32	0.17 U	0.22 U	0.0013 U	0.82	0.72	0.27	0.39 J
Copper	mg/Kg	M	5	45.71	0.907	2.67 J	0.58 J	0.99	1.6	2.7	0.67 J	0.954	1.9 J
Iron	mg/Kg	M	50	15.32	14.9	81.4 J	30.6	81.9	0.41 U	161	96.2	40.7	22.9
Lead	mg/Kg	M	0.1	0.14	0.124	1.44 J	0.62	1.7	0.41	2.9	1.6	1.21	0.083 J
Manganese	mg/Kg	M	5	8.97	3.76	13.3	2.4 J	14.4 J	14.2	23.5	9.1 J	12.2	6.7 J
Mercury	mg/Kg	M	0.01	0.558	0.024	0.012	0.013 U	0.011 J	0.016 J	0.035 J	0.0088 J	0.014 U	0.0086 U
Nickel	mg/Kg	M	0.5	<0.531	1.08	0.874	0.45 J	0.67 J	1.4	2 J	0.85 J	0.556	0.53 J
Selenium	mg/Kg	M	1	-	1.38	0.373 J	0.21 J	0.37	0.0064 U	0.68	0.30 J	1.26	0.26 J
Silver	mg/Kg	M	0.01	-	0.481	0.679	0.14 UJ	0.24	0.00013 U	2.1	0.25 J	0.166	0.41 J
Zinc	mg/Kg	M	50	-	9.44	12	5.2 U	18.2	21.4	23.4	10.0	13.1	17.5
1-Methylnaphthalene	µg/Kg	PAH	20	-	NA	0.99 U	NA	1 U	1 U	2 U	19 U	NA	20 U
2-Methylnaphthalene	µg/Kg	PAH	20	-	NA	0.99 U	NA	1 U	1 U	2 U	5.9 U	NA	26
Benzo(a)anthracene	µg/Kg	PAH	20	-	6.88 U	9.9 U	38 U	1 U	1 U	2 U	19 U	7.81 U	20 U
Chrysene	µg/Kg	PAH	20	-	6.88 U	9.9 U	38 U	1.4	1 U	2 U	19 U	7.81 U	20 U
Fluorene	µg/Kg	PAH	20	-	6.88 U	0.99 U	38 U	1 U	1 U	2 U	19 U	7.81 U	20 U
Naphthalene	µg/Kg	PAH	20	-	6.88 U	0.99 U	38 U	1 U	1 U	2 U	19 U	7.81 U	20 U
SUM OF PCB CONGENERS X 2	ng/kg	PCBC	1000	-	ND	13,965	10,060	33,301	16,330	18,420	37,260	1,860	43,960

Table 4-7
Biota (Clam) Analytical Comparison
McAllister Point Landfill
Naval Station Newport
Middletown, Rhode Island

			MSG		MSG 2						
			Sample Location		MCA-SDA-S-04	MCA-SDA-D-01	MCA-SDA-D-01	MCA-SDA-D-01	MCA-SDA-D-01	MCA-SDA-D-01	MCA-SDA-D-01
			Sample Number		MCA-ET-MCASDA-S04-10172013	MCA-ET-SDA-D-01-01	MCA-ET-SDA-D-01-02	MCA-ET-SDA-D-01-03	MCA-ET-SDA-D-01-04	MCA-ET-SDA-D-01-05	MCS-ET-SDA-D-01-06
			Sample Date		10/17/2013	12/16/2004	10/27/2005	10/17/2006	10/10/2007	10/7/2008	10/14/2009
			QC Identifier		ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG
			Matrix		ET	ET	ET	ET	ET	ET	ET
Parameter	**Units**	**Fraction**	**PAL**	**1997 REF**							
Aluminum	mg/Kg	M	10	2.61	11.2 U	10.2	5.8 J	5 J	0.61 U	13.3 J	21.3
Antimony	mg/Kg	M	0.2	0.2	0.056 U	0.563 U	0.0083 U	0.02 U	0.0052 U	0.11 U	0.055 U
Arsenic	mg/Kg	M	2	19.82	4.08	2.1 U	1.5	2.1	2.1	2	2.1 J
Cadmium	mg/Kg	M	0.2	ND	0.1	0.082 J	0.077 J	0.088 J	0.003 U	0.25 J	0.23
Chromium	mg/Kg	M	0.1	<0.2258	0.52	0.48	0.26 U	0.26 U	1.5	0.7	0.99
Copper	mg/Kg	M	5	45.71	1.3	2.23	0.96	1.6	1.6	1.7 J	1.0 J
Iron	mg/Kg	M	50	15.32	15.4	64.4 J	34.5	19.8	0.43 U	113	113
Lead	mg/Kg	M	0.1	0.14	0.282	2.6 J	0.48	0.23	1.7	3	2.6
Manganese	mg/Kg	M	5	8.97	10.2	17.3	3.2 J	2.7 J	19.1	16.3	10.3 J
Mercury	mg/Kg	M	0.01	0.558	0.019	0.017 UJ	0.019 UJ	0.012 J	0.014 J	0.023 J	0.016 J
Nickel	mg/Kg	M	0.5	<0.531	0.876	0.991	1.3 U	1.1	1.9	1.8 J	1.1 J
Selenium	mg/Kg	M	1	-	1.22	1.49 UJ	0.25 J	0.33	0.0074 U	0.55	0.44 J
Silver	mg/Kg	M	0.01	-	0.576	0.636	0.26 J	0.38	0.00015 U	1	0.40 J
Zinc	mg/Kg	M	50	-	16.5	21.4	9	14.4	20.6	29.4	16.9
1-Methylnaphthalene	µg/Kg	PAH	20	-	NA	0.99 U	NA	1 U	1 U	2 U	20 U
2-Methylnaphthalene	µg/Kg	PAH	20	-	NA	0.99 U	NA	1 U	1 U	2 U	31
Benzo(a)anthracene	µg/Kg	PAH	20	-	7.66 U	9.9 U	39 U	1 U	1 U	2 U	20 U
Chrysene	µg/Kg	PAH	20	-	7.66 U	9.9 U	39 U	1.5	1 J	2 U	20 U
Fluorene	µg/Kg	PAH	20	-	7.66 U	0.99 U	39 U	1 U	1 U	2 U	20 U
Naphthalene	µg/Kg	PAH	20	-	7.66 U	0.99 U	39 U	1 U	1 U	2 U	20 U
SUM OF PCB CONGENERS X 2	ng/kg	PCBC	1000	-	3,370	6,685	11,450	40,964	12,820	22,770	44,020

			MSG		MSG 2						
			Sample Location		MCA-SDA-D-01	MCA-SDA-M-02	MCA-SDA-M-02	MCA-SDA-M-02	MCA-SDA-M-02	MCA-SDA-M-02	MCA-SDA-M-02
			Sample Number		MCS-ET-MCASDAD01-10162013	MCA-ET-SDA-M-02-01	MCA-ET-SDA-M-02-02	MCA-ET-DUP01	MCA-ET-SDA-M-02-03	MCA-ET-SDA-M-02-04	MCA-ET-DUP02-04
			Sample Date		10/16/2013	12/16/2004	10/28/2005	10/28/2005	10/17/2006	10/10/2007	10/10/2007
			QC Identifier		ORIG	ORIG	ORIG	DUP	ORIG	ORIG	DUP
			Matrix		ET	ET	ET	ET	ET	ET	ET
Parameter	**Units**	**Fraction**	**PAL**	**1997 REF**							
Aluminum	mg/Kg	M	10	2.61	11.4 U	10.3	2.6 J	2.7 U	7.5 J	0.66 U	0.67 U
Antimony	mg/Kg	M	0.2	0.2	0.057 U	0.563 U	0.0074 U	0.0083 U	0.019 U	0.005 U	0.0052 U
Arsenic	mg/Kg	M	2	19.82	2.5	2.99	2.2	2	1.9	2	1.9
Cadmium	mg/Kg	M	0.2	ND	0.133	0.046 UJ	0.051 J	0.042 J	0.073 J	0.0028 U	0.003 U
Chromium	mg/Kg	M	0.1	<0.2258	0.316	0.505	0.25 U	0.19 U	0.34 U	0.0014 U	0.0015 U
Copper	mg/Kg	M	5	45.71	0.74	2.33	0.88	0.78 J	1.1	0.97 J	1.1 J
Iron	mg/Kg	M	50	15.32	44.4	26.3 J	13.6	12.7	24.2	0.47	0.47 U
Lead	mg/Kg	M	0.1	0.14	1.22	0.722 UJ	0.17 J	0.15 J	0.13	0.00071 UJ	0.19 J
Manganese	mg/Kg	M	5	8.97	7.5	6.05	1.7 J	2.2 J	2.4 J	4.2 J	8.9 J
Mercury	mg/Kg	M	0.01	0.558	0.014 U	0.024 UJ	0.011 J	0.15	0.017	0.014 U	0.016 U
Nickel	mg/Kg	M	0.5	<0.531	0.461	1.48	0.76	0.77 UJ	1.2	1 J	1.4 J
Selenium	mg/Kg	M	1	-	1.44	0.909 UJ	0.21 J	0.25 J	0.3	0.0071 U	0.0074 U
Silver	mg/Kg	M	0.01	-	0.129	1.81	0.66 J	0.47 J	0.58	0.00014 U	0.00015 U
Zinc	mg/Kg	M	50	-	8.18	15.1	9.2	9.5	15.5	13	15.9
1-Methylnaphthalene	µg/Kg	PAH	20	-	NA	0.99 U	NA	NA	1 U	1 U	1 U
2-Methylnaphthalene	µg/Kg	PAH	20	-	NA	0.99 U	NA	NA	1 U	1 U	1 U
Benzo(a)anthracene	µg/Kg	PAH	20	-	7.89 U	9.9 U	40 U	39 U	1 U	1 U	1 U
Chrysene	µg/Kg	PAH	20	-	7.89 U	9.9 U	40 U	39 U	1 U	1 J	1 UJ
Fluorene	µg/Kg	PAH	20	-	7.89 U	0.99 U	40 U	39 U	1 U	1 U	1 U
Naphthalene	µg/Kg	PAH	20	-	7.89 U	0.99 U	40 U	39 U	1 U	1 U	1 U
SUM OF PCB CONGENERS X 2	ng/kg	PCBC	1000	-	ND	7,651	9,460	9,960	16,050	14,100	12,900

Table 4-7
Biota (Clam) Analytical Comparison
McAllister Point Landfill
Naval Station Newport
Middletown, Rhode Island

			MSG		MSG 2			2004 MSG 2 MEANS USING 1/2 ND	2005 MSG 2 MEANS USING 1/2 ND	2006 MSG 2 MEANS USING 1/2 ND	2007 MSG 2 MEANS USING 1/2 ND	2008 MSG 2 MEANS USING 1/2 ND	2009 MSG 2 MEANS USING 1/2 ND	2013 MSG 2 MEANS USING 1/2 ND
			Sample Location		MCA-SDA-M-02	MCA-SDA-M-02	MCA-SDA-M-02							
			Sample Number		MCA-SDA-M-02-05	MCA-ET-SDA-M-02-06	MCS-ET-MCASDAD02-10172013							
			Sample Date		10/7/2008	10/13/2009	10/17/2013							
			QC Identifier		ORIG	ORIG	ORIG							
			Matrix		ET	ET	ET							
Parameter	Units	Fraction	PAL	1997 REF										
Aluminum	mg/Kg	M	10	2.61	32.7	6.5 U	11.2 U	11.8	2.7	8.18	0.31 U	28.9	10.9	5.59 U
Antimony	mg/Kg	M	0.2	0.2	0.08 U	0.027 U	0.056 U	0.28 U	0.0 U	0.01 U	0.0 U	0.04 U	0.033	0.0279 U
Arsenic	mg/Kg	M	2	19.82	4.3	2.8	3.25	2.26	1.74	2.06	2.08	3.36	2.30	3.23
Cadmium	mg/Kg	M	0.2	ND	0.2 J	0.10 J	0.098	0.070	0.06	0.110	0.0 U	0.230	0.138	0.106
Chromium	mg/Kg	M	0.1	<0.2258	0.92	0.47	0.476	0.510	0.11 U	0.280	0.620	0.910	0.794	0.414
Copper	mg/Kg	M	5	45.71	2.2	1.1	1.01	2.42	0.81	1.34	1.31	2.16	1.13	0.982
Iron	mg/Kg	M	50	15.32	124	22.8	17.2	50.9	20.74	39.4	0.180	120	56.7	26.5
Lead	mg/Kg	M	0.1	0.14	0.51	0.20 U	0.17	1.16	0.31	0.470	0.540	1.52	0.905	0.601
Manganese	mg/Kg	M	5	8.97	13.6	2.8 J	5.77	10.3	2.22	4.88	10.4	15.3	6.58	7.89
Mercury	mg/Kg	M	0.01	0.558	0.013 UJ	0.012 J	0.016	0.010	0.010	0.02	0.013	0.020	0.01322	0.015
Nickel	mg/Kg	M	0.5	<0.531	1.4 J	1.1 J	1.31	1.18	0.650	1.13	1.32	1.62	1.12	0.857
Selenium	mg/Kg	M	1	-	0.54	0.36 J	1.33	0.490	0.230	0.350	0.0 U	0.530	0.322	1.33
Silver	mg/Kg	M	0.01	-	2.2	0.46	0.359	1.10	0.370	0.580	0.0 U	1.71	0.408	0.342
Zinc	mg/Kg	M	50	-	21.3	14.0	14.6	15.7	8.20	15.4	15.8	22.8	14.4	12.4
1-Methylnaphthalene	µg/Kg	PAH	20	-	2 U	20 U	NA	0.5 U	NA	0.5 U	0.5 U	1.00 U	9.90	NA
2-Methylnaphthalene	µg/Kg	PAH	20	-	2 U	28	NA	0.5 U	NA	0.5 U	0.5 U	1.00 U	18.3	NA
Benzo(a)anthracene	µg/Kg	PAH	20	-	2 U	20 U	7.55 U	4.95 U	19.6 U	0.7 U	0.5 U	1.00 U	9.90	3.779 U
Chrysene	µg/Kg	PAH	20	-	2 U	20 U	7.55 U	4.95 U	19.6 U	1.26	0.880	1.00 U	9.90	3.779 U
Fluorene	µg/Kg	PAH	20	-	2 U	20 U	7.55 U	0.5 U	19.6 U	0.620	0.5 U	1.00 U	9.90	3.779 U
Naphthalene	µg/Kg	PAH	20	-	2 U	20 U	7.55 U	0.5 U	19.6 U	0.5 U	0.5 U	1.00 U	9.90	3.779 U
SUM OF PCB CONGENERS X 2	ng/kg	PCBC	1000	-	17,770	115,340	ND	8,620	10,310	27,230	14,566	20,090		371.6

Table 4-7
Biota (Clam) Analytical Comparison
McAllister Point Landfill
Naval Station Newport
Middletown, Rhode Island

			MSG		MSG 3								
			Sample Location		MCA-08	MCA-08	MCA-08	MCA-09	MCA-09	MCA-09	MCA-09	MCA-09	MCA-09
			Sample Number		MCA-ET-08-05	Not Sampled in 2009	Not Sampled in 2013	MCA-ET-09-01	MCA-ET-09-02	Not Sampled in 2006	MCA-ET-09-04	MCA-ET-09-05	MCA-ET-09-06
			Sample Date		10/7/2008			12/21/2004	10/28/2005		10/10/2007	10/9/2008	10/13/2009
			QC Identifier		ORIG			ORIG	ORIG		ORIG	ORIG	ORIG
			Matrix		ET	ET	ET	ET	ET	ET	ET	ET	ET
Parameter	**Units**	**Fraction**	**PAL**	**1997 REF**									
Aluminum	mg/Kg	M	10	2.61	7.6 J	NS	NS	5.6	20.5	NS	0.06 U	2.7 J	11.0 U
Antimony	mg/Kg	M	0.2	0.2	0.083 U	NS	NS	0.563 U	0.0098 U	NS	0.005 U	0.083 U	0.082 U
Arsenic	mg/Kg	M	2	19.82	2	NS	NS	1.54	0.95	NS	2.1	0.92 U	1.8
Cadmium	mg/Kg	M	0.2	ND	0.065 J	NS	NS	0.046 UJ	0.11	NS	0.0028 U	0.14 J	0.22 J
Chromium	mg/Kg	M	0.1	<0.2258	0.21 J	NS	NS	0.136 J	0.31 U	NS	0.0014 U	0.21 J	0.64 J
Copper	mg/Kg	M	5	45.71	1.2 J	NS	NS	3.99	1	NS	1.2 J	0.68 J	0.97 J
Iron	mg/Kg	M	50	15.32	33.8	NS	NS	19.6 J	87.8	NS	0.42 U	50.3	67.1
Lead	mg/Kg	M	0.1	0.14	0.16 J	NS	NS	0.468	0.64	NS	0.24	1.2	1.9
Manganese	mg/Kg	M	5	8.97	3.3	NS	NS	6.05	4.2 J	NS	8.6	5.5	5.0 J
Mercury	mg/Kg	M	0.01	0.558	0.014 UJ	NS	NS	0.011 J	0.011 U	NS	0.016 U	0.019 J	0.017 U
Nickel	mg/Kg	M	0.5	<0.531	1.1 J	NS	NS	0.857	0.35 J	NS	0.0021 U	0.73 J	1.0 J
Selenium	mg/Kg	M	1	-	0.24	NS	NS	0.454 J	0.24 J	NS	0.0071 U	0.31	0.45 J
Silver	mg/Kg	M	0.01	-	0.47	NS	NS	0.11 J	0.037 UJ	NS	0.00014 U	0.44	0.44 J
Zinc	mg/Kg	M	50	-	18.6	NS	NS	17.9	17.7	NS	16.9	9.9	11.3
1-Methylnaphthalene	µg/Kg	PAH	20	-	2 U	NS	NS	0.99 U	NA	NS	1 U	2 U	20 U
2-Methylnaphthalene	µg/Kg	PAH	20	-	2 U	NS	NS	0.99 U	NA	NS	1 U	2 U	6.4 U
Benzo(a)anthracene	µg/Kg	PAH	20	-	2 U	NS	NS	9.9 U	38 U	NS	1 U	2 U	20 U
Chrysene	µg/Kg	PAH	20	-	2 U	NS	NS	9.9 U	38 U	NS	1 U	2 U	20 U
Fluorene	µg/Kg	PAH	20	-	2 U	NS	NS	0.99 U	38 U	NS	1 U	2 U	20 U
Naphthalene	µg/Kg	PAH	20	-	2 U	NS	NS	0.99 U	38 U	NS	1 U	2 U	20 U
SUM OF PCB CONGENERS X 2	ng/kg	PCBC	1000	-	22,000	NS	NS	9,526	27,470	NS	28,040	29,440	96,840

			MSG		MSG 3					
			Sample Location		MCA-09	MCA-11	MCA-11	MCA-11	MCA-11	MCA-11
			Sample Number		Not Sampled in 2013	MCA-ET-11-01	MCA-ET-11-01-D	MCA-ET-11-02	MCA-ET-11-03	MCA-ET-11-04
			Sample Date			12/21/2004	12/21/2004	10/28/2005	10/17/2006	10/10/2007
			QC Identifier			ORIG	DUP	ORIG	ORIG	ORIG
			Matrix		ET	ET	ET	ET	ET	ET
Parameter	**Units**	**Fraction**	**PAL**	**1997 REF**						
Aluminum	mg/Kg	M	10	2.61	NS	8.03	14.8	4 J	10.8	0.64 U
Antimony	mg/Kg	M	0.2	0.2	NS	0.557 U	0.563 U	0.0077 U	0.02 U	0.005 U
Arsenic	mg/Kg	M	2	19.82	NS	3.03	3.66	2.1	2.4	1.7
Cadmium	mg/Kg	M	0.2	ND	NS	0.046 UJ	0.056 J	0.11	0.085 J	0.0029 U
Chromium	mg/Kg	M	0.1	<0.2258	NS	0.269	0.404	0.24 U	0.26 U	1.5
Copper	mg/Kg	M	5	45.71	NS	4.55	4.43	0.58 J	1.2	1.1 J
Iron	mg/Kg	M	50	15.32	NS	45.6 J	127 J	29.6	36.1	0.45 U
Lead	mg/Kg	M	0.1	0.14	NS	0.451	0.734	0.34 J	0.2	0.00071 U
Manganese	mg/Kg	M	5	8.97	NS	4.13	6.83	2 J	7.6 J	4.6
Mercury	mg/Kg	M	0.01	0.558	NS	0.017 J	0.024	0.015 U	0.0081 U	0.016 U
Nickel	mg/Kg	M	0.5	<0.531	NS	0.718	0.802	0.7 J	0.6 J	1.4
Selenium	mg/Kg	M	1	-	NS	0.509 J	0.903 J	0.29 J	0.28	0.0071 U
Silver	mg/Kg	M	0.01	-	NS	1.14	1.68	0.76 J	0.2	0.00014 U
Zinc	mg/Kg	M	50	-	NS	11.3	14.8	7.4	14.7	13.6
1-Methylnaphthalene	µg/Kg	PAH	20	-	NS	0.66 J	0.99 U	NA	1 U	1 U
2-Methylnaphthalene	µg/Kg	PAH	20	-	NS	0.99 J	0.99 U	NA	1 U	1 U
Benzo(a)anthracene	µg/Kg	PAH	20	-	NS	9.9 U	2.1 J	37 U	1 U	1 U
Chrysene	µg/Kg	PAH	20	-	NS	9.9 U	2 J	37 U	1 U	1.3
Fluorene	µg/Kg	PAH	20	-	NS	0.99 U	1.2	37 U	1 U	1 U
Naphthalene	µg/Kg	PAH	20	-	NS	1.5	0.99 U	37 U	1 U	1 U
SUM OF PCB CONGENERS X 2	ng/kg	PCBC	1000	-	NS	12,683	10,917	8,900	32,547	13,840

Table 4-7
Biota (Clam) Analytical Comparison
McAllister Point Landfill
Naval Station Newport
Middletown, Rhode Island

			MSG		MSG 3							
			Sample Location		MCA-OS-27	MCA-OS-27	MCA-OS-27	MCA-OS-27	MCA-11	MCA-11	MCA-11	MCA-11
			Sample Number		MCA-ET-OS-27-01	MCA-ET-OS-27-04	MCA-ET-OS-27-05	MCA-ET-OS-27-06	MCA-ET-11-05	MCA-ET-11-06	MCA-ET-DUP01-06	MCA-ET-MCA11-10162013
			Sample Date		12/21/2004	10/10/2007	10/7/2008	10/15/2009	10/7/2008	10/13/2009	10/13/2009	10/16/2013
			QC Identifier		ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	DUP	ORIG
			Matrix		ET	ET	ET	ET	ET	ET	ET	ET
Parameter	**Units**	**Fraction**	**PAL**	**1997 REF**								
Aluminum	mg/Kg	M	10	2.61	7.93	0.65 U	12.6 J	4.0 U	40	3.0 U	4.1 U	11.4 U
Antimony	mg/Kg	M	0.2	0.2	0.563 U	0.0051 U	0.056 U	0.033 U	0.075 U	0.030 U	0.033 U	0.057 U
Arsenic	mg/Kg	M	2	19.82	2.99	1.9	2.8	1.6	3.8	2.5	2.8	3.3
Cadmium	mg/Kg	M	0.2	ND	0.049 UJ	0.0029 U	0.14 J	0.079 J	0.19 J	0.084 J	0.075 U	0.083
Chromium	mg/Kg	M	0.1	<0.2258	0.313	0.44	0.69	0.39 J	1.4	0.32 J	0.43 J	0.491
Copper	mg/Kg	M	5	45.71	2.36	0.97 J	2	0.86 J	2	0.94 J	0.74 J	1.18
Iron	mg/Kg	M	50	15.32	30.3 J	0.46 U	49.6	14.5	126	13.5	16.0	18.8
Lead	mg/Kg	M	0.1	0.14	0.531	0.00073 U	0.31	0.17 U	0.56	0.11 U	0.14 U	0.146
Manganese	mg/Kg	M	5	8.97	7.35	6.4	11.5	2.4 J	11.4	3.0 J	10.1 J	6.37
Mercury	mg/Kg	M	0.01	0.558	0.014 J	0.015 J	0.029 J	0.012 J	0.025 J	0.010 J	0.0082 U	0.014 U
Nickel	mg/Kg	M	0.5	<0.531	0.913	0.0022 U	1.5 J	1.2 J	2.2 J	0.68 J	0.92 J	0.81
Selenium	mg/Kg	M	1	-	0.77 J	0.0073 U	0.37	0.26 J	0.51	0.31 J	0.31 J	1.17
Silver	mg/Kg	M	0.01	-	0.689	0.00015 U	0.83	0.22 J	1.3	0.39 J	0.34 J	0.447
Zinc	mg/Kg	M	50	-	15.6	12.6	16.7	10.7	19	9.8	12.6	11.8
1-Methylnaphthalene	µg/Kg	PAH	20	-	1.2	1 U	2 U	20 U	2 U	20 U	20 U	NA
2-Methylnaphthalene	µg/Kg	PAH	20	-	1.3	1 U	2 U	5.4 U	2 U	5.8 U	3.6 U	NA
Benzo(a)anthracene	µg/Kg	PAH	20	-	10 U	1 U	2 U	20 U	2 U	20 U	20 U	7.68 U
Chrysene	µg/Kg	PAH	20	-	10 U	1 U	2 U	20 U	2 U	20 U	20 U	7.68 U
Fluorene	µg/Kg	PAH	20	-	1 U	1 U	2 U	20 U	2 U	20 U	20 U	7.68 U
Naphthalene	µg/Kg	PAH	20	-	1.5	1 U	2 U	20 U	2 U	20 U	20 U	7.68 U
SUM OF PCB CONGENERS X 2	ng/kg	PCBC	1000	-	10,264	1 U	14,650	32,920	17,250	62,260	42,110	ND

			MSG		MSG 3							
			Sample Location		MCA-OS-27	MCA-OS-27	MCA-OS-27	MCA-OS-29	MCA-OS-29	MCA-OS-29	MCA-OS-29	MCA-OS-29
			Sample Number		Not Sampled in 2005	Not Sampled in 2006	MCA-ET-MCAOS27-10162013	MCA-ET-OS-29-01	MCA-ET-OS-29-02	MCA-ET-DUP02	MCA-ET-OS-29-03	MCA-ET-DUP01-03
			Sample Date				10/16/2013	12/21/2004	10/27/2005	10/27/2005	10/17/2006	10/17/2006
			QC Identifier				ORIG	ORIG	ORIG	DUP	ORIG	DUP
			Matrix		ET	ET	ET	ET	ET	ET	ET	ET
Parameter	**Units**	**Fraction**	**PAL**	**1997 REF**								
Aluminum	mg/Kg	M	10	2.61	NS	NS	11.8 U	11.6	2.7 U	2.4 U	7.4 J	12.3
Antimony	mg/Kg	M	0.2	0.2	NS	NS	0.059 U	0.563 U	0.0082 U	0.0074 U	0.019 U	0.02 U
Arsenic	mg/Kg	M	2	19.82	NS	NS	3.44	5.54	1.7	1.6	1.9	1.5
Cadmium	mg/Kg	M	0.2	ND	NS	NS	0.085	0.083 J	0.033 J	0.033 U	0.081 J	0.13
Chromium	mg/Kg	M	0.1	<0.2258	NS	NS	0.455	0.668	0.23 U	0.25 U	0.29 U	0.29 U
Copper	mg/Kg	M	5	45.71	NS	NS	1.1	4.47	0.69 J	0.6 J	1.1	1.4
Iron	mg/Kg	M	50	15.32	NS	NS	13.6	35.7 J	8.6	8.7	23	57.9
Lead	mg/Kg	M	0.1	0.14	NS	NS	0.115	0.441	0.053 J	0.093 J	0.12	1.6
Manganese	mg/Kg	M	5	8.97	NS	NS	4.83	5.58	0.58 J	1.1 J	3.8 J	7.6 J
Mercury	mg/Kg	M	0.01	0.558	NS	NS	0.016	0.042	0.014 J	0.016	0.02	0.014 J
Nickel	mg/Kg	M	0.5	<0.531	NS	NS	0.942	1.01	0.89 J	0.9 J	1.2	1.1
Selenium	mg/Kg	M	1	-	NS	NS	1.25	0.836 J	0.6 J	0.26 J	0.31	0.39
Silver	mg/Kg	M	0.01	-	NS	NS	0.368	2.05	0.095 UJ	0.16 J	0.19	0.56
Zinc	mg/Kg	M	50	-	NS	NS	12.1	15.3	7.1	7.2	11.5	14
1-Methylnaphthalene	µg/Kg	PAH	20	-	NS	NS	7.86 U	0.99 U	NA	NA	1 U	1 U
2-Methylnaphthalene	µg/Kg	PAH	20	-	NS	NS	7.86 U	0.99 U	NA	NA	1 U	1 U
Benzo(a)anthracene	µg/Kg	PAH	20	-	NS	NS	7.86 U	9.9 U	40 U	38 U	1 U	1 U
Chrysene	µg/Kg	PAH	20	-	NS	NS	7.86 U	9.9 U	40 U	38 U	1	1.4
Fluorene	µg/Kg	PAH	20	-	NS	NS	7.86 U	0.99 U	40 U	38 U	1 U	1 U
Naphthalene	µg/Kg	PAH	20	-	NS	NS	7.86 U	0.99 U	40 U	38 U	1 U	1 U
SUM OF PCB CONGENERS X 2	ng/kg	PCBC	1000	-	NS	NS	ND	5,683	23,400	10,560	25,187	32,597

Table 4-7
Biota (Clam) Analytical Comparison
McAllister Point Landfill
Naval Station Newport
Middletown, Rhode Island

			MSG		MSG 3					2004 MSG 3 MEANS USING 1/2 ND	2005 MSG 3 MEANS USING 1/2 ND	2006 MSG 3 MEANS USING 1/2 ND	2007 MSG 3 MEANS USING 1/2 ND	2008 MSG 3 MEANS USING 1/2 ND	2009 MSG 3 MEANS USING 1/2 ND	2013 MSG 3 MEANS USING 1/2 ND
			Sample Location		MCA-OS-29	MCA-OS-29	MCA-OS-29	MCA-OS-29	MCA-OS-29							
			Sample Number		MCA-ET-OS-29-04	MCA-ET-DUP01-04	MCA-ET-OS-29-05	MCA-ET-OS-29-06	MCA-ET-MCAOS29-10162013							
			Sample Date		10/10/2007	10/10/2007	10/7/2008	10/13/2009	10/16/2013							
			QC Identifier		ORIG	DUP	ORIG	ORIG	ORIG							
			Matrix		ET	ET	ET	ET	ET							
Parameter	**Units**	**Fraction**	**PAL**	**1997 REF**												
Aluminum	mg/Kg	M	10	2.61	0.64 U	0.67 U	9.8 J	6.8 J	11 U	9.59	6.76	10.2	0.32 U	14.54	3.95	5.70
Antimony	mg/Kg	M	0.2	0.2	0.0047 U	0.0051 U	0.057 U	0.033 UJ	0.055 U	0.281 U	0.0 U	0.01 U	0.0 U	0.04 U	0.022	0.029
Arsenic	mg/Kg	M	2	19.82	2.6	2.1 J	4	2.6	3.6	3.35	1.59	1.93	2.08	2.61	2.13	3.45
Cadmium	mg/Kg	M	0.2	ND	0.0027 U	0.0029 U	0.18 J	0.095 J	0.082	0.040	0.070	0.100	0.0 U	0.140	0.120	0.083
Chromium	mg/Kg	M	0.1	<0.2258	0.0013 U	0.0014 UJ	0.74	0.54	4.16	0.360	0.13 U	0.140	0.00	0.650	0.473	0.454
Copper	mg/Kg	M	5	45.71	0.95 J	1 J	1.5 J	1.0 J	1.02	3.96	0.720	1.23	1.04	1.48	0.943	1.10
Iron	mg/Kg	M	50	15.32	0.45 U	0.47 UJ	39.7	22.4	14.2	51.6	33.7	39.0	0.23 U	59.9	29.4	15.5
Lead	mg/Kg	M	0.1	0.14	0.00067 U	0.21 J	0.39	0.13 U	0.117	0.530	0.280	0.640	0.090	0.520	0.526	0.126
Manganese	mg/Kg	M	5	8.97	3.9	4.1 J	8	2.1 J	2.38	5.99	1.97	6.33	5.52	7.94	3.13	4.53
Mercury	mg/Kg	M	0.01	0.558	0.025	0.015 U	0.037 J	0.011 J	0.017	0.020	0.010	0.010	0.010	0.020	0.010	0.013
Nickel	mg/Kg	M	0.5	<0.531	1.1 J	1.2 J	1.5 J	1.1 J	0.926	0.860	0.710	0.970	0.740	1.41	1.00	0.893
Selenium	mg/Kg	M	1	-	0.0067 U	0.0073 U	0.39	0.27 J	1.28	0.690	0.350	0.330	0.0 U	0.360	0.323	1.23
Silver	mg/Kg	M	0.01	-	0.00013 U	0.00014 U	0.91	0.57	0.44	1.13	0.250	0.320	0.0 U	0.790	0.405	0.418
Zinc	mg/Kg	M	50	-	10.7	12.7 J	18.8	13.2	10.1	15.0	9.85	13.4	13.3	16.6	11.3	11.3
1-Methylnaphthalene	µg/Kg	PAH	20	-	1 U	1 U	2 U	20 U	7.98 U	0.670	NA	0.5 U	0.5 U	1.0 U	10.0	3.92
2-Methylnaphthalene	µg/Kg	PAH	20	-	1 U	1 U	2 U	10 U	7.98 U	0.760	NA	0.5 U	0.5 U	1.0 U	3.45	3.92
Benzo(a)anthracene	µg/Kg	PAH	20	-	1 U	1 U	2 U	20 U	7.98 U	4.39	19.13 U	0.5 U	0.5 U	1.0 U	10.0	3.92
Chrysene	µg/Kg	PAH	20	-	1 U	1 U	2 U	20 U	7.98 U	4.37	19.13 U	0.97 U	0.400	1.0 U	10.0	3.92
Fluorene	µg/Kg	PAH	20	-	1 U	1 U	2 U	20 U	7.98 U	0.640	19.13 U	0.5 U	0.5 U	1.0 U	10.0	3.92
Naphthalene	µg/Kg	PAH	20	-	1 U	1 U	2 U	20 U	7.98 U	0.900	19.13 U	0.5 U	0.5 U	1.0 U	10.0	3.92
SUM OF PCB CONGENERS X 2	ng/kg	PCBC	1000	-	11,800	13,940	15,060	131,720	ND	9,810	14,940	30,110	18,040	19,680	73,170	ND

Table 4-7
Biota (Clam) Analytical Comparison
McAllister Point Landfill
Naval Station Newport
Middletown, Rhode Island

			MSG		**MSG 4**								
			Sample Location		MCA-12	MCA-12	MCA-OS-28	MCA-OS-28	MCA-OS-28	MCA-OS-28	MCA-OS-28	MCA-OS-28	MCA-SDA-S-02-B
			Sample Number		MCA-ET-12-06	MCA-ET-MCA12-10162013	MCA-ET-OS-28-01	MCA-ET-OS-28-05	MCA-ET-DUP02-05	MCA-ET-OS-28-06	MCA-ET-DUP-02-06	MCA-ET-MCAOS28-10162013	MCA-ET-SDA-S-02-B-06
			Sample Date		10/14/2009	10/16/2013	12/21/2004	10/8/2008	10/8/2008	10/13/2009	10/14/2009	10/16/2013	10/13/2009
			QC Identifier		ORIG	ORIG	ORIG	ORIG	DUP	ORIG	DUP	ORIG	ORIG
			Matrix		ET	ET	ET	ET	ET	ET	ET	ET	ET
Parameter	**Units**	**Fraction**	**PAL**	**1997 REF**									
Aluminum	mg/Kg	M	10	2.61	8.7 J	11 U	8.18	20.6 J	10.5 J	4.0 J	5.2 U	11.6 U	8.8 J
Antimony	mg/Kg	M	0.2	0.2	0.034 U	0.055 U	0.563 U	0.08 U	0.072 U	0.060 U	0.033 U	0.058 U	0.034 UJ
Arsenic	mg/Kg	M	2	19.82	0.98 J	3.24	2.37	3.6	3.5	2.2 J	3.0	2.53	1.4
Cadmium	mg/Kg	M	0.2	ND	0.096 J	0.07	0.046 UJ	0.16 J	0.17 J	0.069 J	0.11 J	0.068	0.097 J
Chromium	mg/Kg	M	0.1	<0.2258	0.42 J	0.571	0.409	0.58	0.51	0.64 J	0.34 J	0.357	0.45 J
Copper	mg/Kg	M	5	45.71	0.86 J	1.33	3.43	1.7 J	1.6 J	0.82 J	1.0 J	1.23	1.1 J
Iron	mg/Kg	M	50	15.32	35.8	19	38.7 J	78.6 J	43.3 J	17.2	19.1	16.1	34.6
Lead	mg/Kg	M	0.1	0.14	0.29 J	0.153	0.346	0.43	0.48	0.11 J	0.25 U	0.17	0.45 U
Manganese	mg/Kg	M	5	8.97	5.4 J	7.63	7.77	9.3	13.3	4.3 J	7.3 J	6.54	6.1 J
Mercury	mg/Kg	M	0.01	0.558	0.0079 U	0.014 U	0.014 J	0.025 J	0.018 J	0.010 J	0.0092 J	0.015 U	0.0086 U
Nickel	mg/Kg	M	0.5	<0.531	0.59 J	0.588	0.817	1.3 J	1.3 J	1.1 J	0.88 J	0.619	0.67 J
Selenium	mg/Kg	M	1	-	0.096 J	0.788	0.517 J	0.38	0.43	0.24 J	0.29 J	1.13	0.13 J
Silver	mg/Kg	M	0.01	-	0.012 UJ	0.073	0.616	0.72	0.92	0.096 J	0.25 J	0.061	0.053 U
Zinc	mg/Kg	M	50	-	8.8	13.4	13.1	22.2	19.2	10.4	13.9	12.7	12.2
1-Methylnaphthalene	µg/Kg	PAH	20	-	20 U	NA	0.83	2 U	2 U	20 U	19 U	NA	19 U
2-Methylnaphthalene	µg/Kg	PAH	20	-	15 U	NA	1 U	2 U	2 U	14 U	10 U	NA	9.1 U
Benzo(a)anthracene	µg/Kg	PAH	20	-	20 U	7.21 U	1.2 J	2 U	2 U	20 U	19 U	7.84 U	19 U
Chrysene	µg/Kg	PAH	20	-	20 U	7.21 U	10 U	2 U	2 U	20 U	19 U	7.84 U	19 U
Fluorene	µg/Kg	PAH	20	-	20 U	7.21 U	1 J	2 U	2 U	20 U	19 U	7.84 U	19 U
Naphthalene	µg/Kg	PAH	20	-	20 U	7.21 U	0.83 J	2 U	2 U	20 U	19 U	7.84 U	19 U
SUM OF PCB CONGENERS X 2	ng/kg	PCBC	1000	-	35,080	1,770	10,334	15,850	19,990	19,590	105,780	ND	89,480

			MSG		**MSG 4**				MSG 4 Not Sampled in 2005	MSG 4 Not Sampled in 2006	MSG 4 Not Sampled in 2007	2004 MSG 4 MEANS USING 1/2 ND	2005 MSG 4 MEANS USING 1/2 ND	2006 MSG 4 MEANS USING 1/2 ND	2007 MSG 4 MEANS USING 1/2 ND	2008 MSG 4 MEANS USING 1/2 ND	2009 MSG 4 MEANS USING 1/2 ND	2013 MSG 4 MEANS USING 1/2 ND
			Sample Location		MCA-SDA-S-02-B	MCA-SDA-S-02-C	MCA-SDA-S-02-C	MCA-SDA-S-02-C										
			Sample Number		MCA-ET-MCASDAS02B-10162013	MCA-ET-SDA-S-02-C-05	MCA-ET-SDA-S-02-C-06	MCA-ET-MCASDAS02C-10162013										
			Sample Date		10/16/2013	10/8/2008	10/13/2009	10/16/2013										
			QC Identifier		ORIG	ORIG	ORIG	ORIG										
			Matrix		ET	ET	ET	ET										
Parameter	**Units**	**Fraction**	**PAL**	**1997 REF**														
Aluminum	mg/Kg	M	10	2.61	11.8 U	2.6 U	7.2 J	10.8 U	NS	NS	NS	8.18	NS	NS	NS	10.8	7.18	5.65
Antimony	mg/Kg	M	0.2	0.2	0.059 U	0.055 U	0.030 UJ	0.054 U	NS	NS	NS	0.282 U	NS	NS	NS	0.03 U	0.020	0.028
Arsenic	mg/Kg	M	2	19.82	3.42	1 U	2.9	2.88	NS	NS	NS	2.37	NS	NS	NS	2.53	1.87	3.02
Cadmium	mg/Kg	M	0.2	ND	0.065	0.068 J	0.080 J	0.076	NS	NS	NS	0.023 UJ	NS	NS	NS	0.13	0.086	0.070
Chromium	mg/Kg	M	0.1	<0.2258	0.426	0.27 J	0.51	0.392	NS	NS	NS	0.41	NS	NS	NS	0.45	0.505	0.437
Copper	mg/Kg	M	5	45.71	1.44	1 J	0.71 J	1.3	NS	NS	NS	3.43	NS	NS	NS	1.43	0.873	1.33
Iron	mg/Kg	M	50	15.32	15.3	27.9	21.8	16.3	NS	NS	NS	38.7	NS	NS	NS	49.9	27.4	16.7
Lead	mg/Kg	M	0.1	0.14	0.113	0.24	0.21 U	0.178	NS	NS	NS	0.350	NS	NS	NS	0.380	0.183	0.154
Manganese	mg/Kg	M	5	8.97	4.83	13.9	4.1 J	8.33	NS	NS	NS	7.77	NS	NS	NS	12.2	4.98	6.83
Mercury	mg/Kg	M	0.01	0.558	0.015 U	0.022 J	0.010 J	0.013 U	NS	NS	NS	0.010	NS	NS	NS	0.020	0.010	0.0071
Nickel	mg/Kg	M	0.5	<0.531	0.443	0.57 J	0.80 J	0.572	NS	NS	NS	0.820	NS	NS	NS	1.06	0.790	0.556
Selenium	mg/Kg	M	1	-	0.977	0.22	0.21 J	0.906	NS	NS	NS	0.520	NS	NS	NS	0.340	0.169	0.950
Silver	mg/Kg	M	0.01	-	0.073	0.066 J	0.28 U	0.058	NS	NS	NS	0.620	NS	NS	NS	0.570	0.067	0.066
Zinc	mg/Kg	M	50	-	13	14.2	9.6	13.7	NS	NS	NS	13.1	NS	NS	NS	18.5	10.3	13.2
1-Methylnaphthalene	µg/Kg	PAH	20	-	7.77 U	2 U	20 U	7.83 U	NS	NS	NS	0.830	NS	NS	NS	1.0 U	9.88	3.83
2-Methylnaphthalene	µg/Kg	PAH	20	-	7.77 U	2 U	32	7.83 U	NS	NS	NS	0.5 U	NS	NS	NS	1.0 U	12.8	3.83
Benzo(a)anthracene	µg/Kg	PAH	20	-	7.77 U	2 U	20 U	7.83 U	NS	NS	NS	1.20	NS	NS	NS	1.0 U	9.88	3.83
Chrysene	µg/Kg	PAH	20	-	7.77 U	2 U	20 U	7.83 U	NS	NS	NS	5 U	NS	NS	NS	1.0 U	9.88	3.83
Fluorene	µg/Kg	PAH	20	-	7.77 U	2 U	20 U	7.83 U	NS	NS	NS	1.00	NS	NS	NS	1.0 U	9.88	3.83
Naphthalene	µg/Kg	PAH	20	-	7.77 U	2 U	20 U	7.83 U	NS	NS	NS	0.830	NS	NS	NS	1.0 U	9.88	3.83
SUM OF PCB CONGENERS X 2	ng/kg	PCBC	1000	-	1,590	18,980	95,120	ND	NS	NS	NS	10,300	NS	NS	NS	18,270	69,010	840

Table 4-7
Biota (Clam) Analytical Comparison
McAllister Point Landfill
Naval Station Newport
Middletown, Rhode Island

			MSG		MSG 5								
			Sample Location		MCA-JCC-02	MCA-JCC-02	MCA-JCC-02	MCA-JCC-02	MCA-JCC-02	MCA-JCC-02	MCA-JCC-02	MCA-JCC-03	MCA-JCC-03
			Sample Number		MCA-ET-JCC-02-01	MCA-ET-JCC-02-02	MCA-ET-JCC-02-03	MCA-ET-JCC-02-04	MCA-ET-JCC-02-05	MCA-ET-JCC-02-06	MCA-ET-MCAJCC02-10152013	MCA-ET-JCC-03-01	MCA-ET-JCC-03-01-D
			Sample Date		12/16/2004	10/28/2005	10/19/2006	10/11/2007	10/8/2008	10/14/2009	10/15/2013	12/15/2004	12/15/2004
			QC Identifier		ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	DUP
			Matrix		ET	ET	ET	ET	ET	ET	ET	ET	ET
Parameter	Units	Fraction	PAL	1997 REF									
Aluminum	mg/Kg	M	10	2.61	11.8	5.2 J	12.5	0.68 U	10.3 J	13.9	11.2 U	13.6	15.8
Antimony	mg/Kg	M	0.2	0.2	0.563 U	0.0092 U	0.019 U	0.0048 U	0.071 U	0.033 U	0.056 U	0.563 U	0.587 J
Arsenic	mg/Kg	M	2	19.82	2.59 U	0.94	1.2	1.7	1.5 U	2.4 J	2.83	2.58 U	3.23
Cadmium	mg/Kg	M	0.2	ND	0.205 J	0.13	0.19	0.0028 U	0.18 J	0.32	0.146	0.046 UJ	0.046 UJ
Chromium	mg/Kg	M	0.1	<0.2258	0.65	0.19 U	0.37	4.4	0.51	1.0	0.269	0.612	0.678
Copper	mg/Kg	M	5	45.71	2.1	0.62 J	0.94	1.4 J	0.82 J	1.1 J	0.716	2.24	2.87
Iron	mg/Kg	M	50	15.32	76.7 J	41.9	84.6	159	78.6	119	34.6	28.6 J	44.3 J
Lead	mg/Kg	M	0.1	0.14	2.68 J	0.89	1.9	2.2	1.6	3.5	0.921	0.549 UJ	1.27 UJ
Manganese	mg/Kg	M	5	8.97	13.4	5.5 J	16.5 J	22.5	7	14.3 J	5.18	8.47	9.31
Mercury	mg/Kg	M	0.01	0.558	0.033	0.018 U	0.0093 J	0.011 U	0.02 J	0.020	0.014 U	0.016 UJ	0.021 UJ
Nickel	mg/Kg	M	0.5	<0.531	1.02	0.49 J	0.82 J	3.1	1 J	1.2 J	0.516	1.17	1.21
Selenium	mg/Kg	M	1	-	1.27 UJ	0.24 J	0.39	0.0069 U	0.39	0.56 J	1.3	1.12 UJ	2.43 J
Silver	mg/Kg	M	0.01	-	1	0.17 J	0.4	0.00014 U	0.55	0.89	0.234	1.25	1.69
Zinc	mg/Kg	M	50	-	21.1	7.8	15 J	18.3	13	15.6	8.31	17	16.3
1-Methylnaphthalene	µg/Kg	PAH	20	-	0.99 U	NA	1 U	1 U	2 UJ	20 U	7.56 U	0.98 U	0.99 U
2-Methylnaphthalene	µg/Kg	PAH	20	-	0.99 U	NA	1 U	1 U	2 UJ	24	7.56 U	0.98 U	0.99 U
Benzo(a)anthracene	µg/Kg	PAH	20	-	9.9 U	39 U	1 U	1 U	2 U	20 U	7.56 U	9.8 U	9.9 U
Chrysene	µg/Kg	PAH	20	-	9.9 U	39 U	1.4	1	2 U	20 U	7.56 U	9.8 U	9.9 U
Fluorene	µg/Kg	PAH	20	-	0.99 U	39 U	1 U	1 U	2 U	20 U	7.56 U	0.98 U	0.99 U
Naphthalene	µg/Kg	PAH	20	-	0.99 U	39 U	1 U	1 U	2 UJ	20 U	7.56 U	0.98 U	0.99 U
SUM OF PCB CONGENERS X 2	ng/kg	PCBC	1000	-	NA	9,300	28,498	15,630	21,030	43,990	ND	5,290	6,875

			MSG		MSG 5					
			Sample Location		MCA-JCC-03	MCA-JCC-03	MCA-JCC-03	MCA-JCC-03	MCA-JCC-03	MCA-JCC-03
			Sample Number		Not Sampled in 2005	MCA-ET-JCC-03-03	MCA-ET-JCC-03-04	MCA-ET-JCC-03-05	MCA-ET-JCC-03-06	MCA-ET-MCAJCC03-10152013
			Sample Date			10/19/2006	10/11/2007	10/8/2008	10/14/2009	10/15/2013
			QC Identifier			ORIG	ORIG	ORIG	ORIG	ORIG
			Matrix		ET	ET	ET	ET	ET	ET
Parameter	Units	Fraction	PAL	1997 REF						
Aluminum	mg/Kg	M	10	2.61	NS	8.8 J	0.69 U	48.8	4.6 J	11.2 U
Antimony	mg/Kg	M	0.2	0.2	NS	0.018 U	0.0046 U	0.066 U	0.050 U	0.056 U
Arsenic	mg/Kg	M	2	19.82	NS	1.2	1.9	2.2	2.6 J	3.49
Cadmium	mg/Kg	M	0.2	ND	NS	0.068 J	0.0026 U	0.17 J	0.17 J	0.099
Chromium	mg/Kg	M	0.1	<0.2258	NS	0.2 U	4.5	0.62	0.49	0.425
Copper	mg/Kg	M	5	45.71	NS	1.4	1.5	1.2 J	1.1 J	1.57
Iron	mg/Kg	M	50	15.32	NS	24	0.49 U	164	28.3	23.8
Lead	mg/Kg	M	0.1	0.14	NS	0.25	0.21	1.9	0.60	0.311
Manganese	mg/Kg	M	5	8.97	NS	12.4 J	9.2	10.7	6.7 J	16.8
Mercury	mg/Kg	M	0.01	0.558	NS	0.0074 J	0.013 U	0.018 J	0.017	0.014 U
Nickel	mg/Kg	M	0.5	<0.531	NS	0.71 J	2.7	0.71 J	0.77 J	0.708
Selenium	mg/Kg	M	1	-	NS	0.26	0.0066 U	0.45	0.35 J	0.999
Silver	mg/Kg	M	0.01	-	NS	0.23	0.00013 U	0.72	0.56	0.194
Zinc	mg/Kg	M	50	-	NS	15.6	16.6	15.8	11.8	15.1
1-Methylnaphthalene	µg/Kg	PAH	20	-	NS	1 U	1 U	2 UJ	20 U	6.99 U
2-Methylnaphthalene	µg/Kg	PAH	20	-	NS	1 U	1 U	2 UJ	21	6.99 U
Benzo(a)anthracene	µg/Kg	PAH	20	-	NS	1 U	1 U	2 U	20 U	6.99 U
Chrysene	µg/Kg	PAH	20	-	NS	1 U	1 U	2 U	20 U	6.99 U
Fluorene	µg/Kg	PAH	20	-	NS	1.8	1 U	2 U	20 U	6.99 U
Naphthalene	µg/Kg	PAH	20	-	NS	1 U	1 U	2 UJ	20 U	6.99 U
SUM OF PCB CONGENERS X 2	ng/kg	PCBC	1000	-	NS	25,576	20,940	36,020	37,600	ND

Table 4-7
Biota (Clam) Analytical Comparison
McAllister Point Landfill
Naval Station Newport
Middletown, Rhode Island

			MSG		MSG 5								
			Sample Location		MCA-JCC-04	MCA-JCC-04	MCA-JCC-04	MCA-JCC-04	MCA-JCC-04	MCA-JCC-04	MCA-JCC-04	MCA-JCC-S-01	MCA-JCC-S-01
			Sample Number		MCA-ET-JCC-04-01	MCA-ET-JCC-04-02	MCA-ET-JCC-04-03	MCA-ET-JCC-04-04	MCA-ET-JCC-04-05	MCA-ET-JCC-04-06	MCA-ET-MCAJCC04-10152013	MCA-ET-JCC-S-01-01	MCA-ET-JCC-S-01-02
			Sample Date		12/15/2004	10/28/2005	10/19/2006	10/11/2007	10/8/2008	10/14/2009	10/15/2013	12/15/2004	10/28/2005
			QC Identifier		ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG
			Matrix		ET	ET	ET	ET	ET	ET	ET	ET	ET
Parameter	**Units**	**Fraction**	**PAL**	**1997 REF**									
Aluminum	mg/Kg	M	10	2.61	11.8	8.3 U	14.6	0.67 U	42.1	5.0 J	11.2 U	18.4	8.2
Antimony	mg/Kg	M	0.2	0.2	0.563 U	0.0072 U	0.019 U	0.0048 U	0.075 U	0.10 U	0.056 U	0.557 U	0.0079 U
Arsenic	mg/Kg	M	2	19.82	1.37 U	0.99	1.3	2.4	3.6	2.0 J	2.87	1.41 U	1.1
Cadmium	mg/Kg	M	0.2	ND	0.046 UJ	0.093 U	0.14	0.0028 U	0.2 J	0.12 J	0.149	0.143 J	0.17
Chromium	mg/Kg	M	0.1	<0.2258	0.519	0.21 U	0.35	1.8	0.8	0.50	0.341	0.589	0.24 U
Copper	mg/Kg	M	5	45.71	1.98	0.65 J	1.1	1.4	1.4 J	0.72 J	1.02	2.24	0.62 J
Iron	mg/Kg	M	50	15.32	41.3 J	63.1	80	0.47 U	191	36.9	36.7	69 J	50.1
Lead	mg/Kg	M	0.1	0.14	1.52 UJ	0.83	1.3	0.34	1.4	0.77	0.888	2.41 J	0.94
Manganese	mg/Kg	M	5	8.97	8.06	6.7 J	13.2 J	3.2	13	4.1 J	5.01	17.4	4.2 J
Mercury	mg/Kg	M	0.01	0.558	0.024 UJ	0.015 J	0.0082 J	0.014 J	0.018 J	0.0090 J	0.014 U	0.024 UJ	0.02 U
Nickel	mg/Kg	M	0.5	<0.531	0.982	0.52 J	0.75 J	1.3 J	1.2 J	0.88 J	0.924	0.773	0.43 J
Selenium	mg/Kg	M	1	-	0.747 UJ	0.34 J	0.39	0.0069 U	0.59	0.31 J	1.2	0.747 UJ	0.31 J
Silver	mg/Kg	M	0.01	-	0.298	0.12 UJ	0.41	0.00014 U	1.7	0.39 J	0.172	0.415	0.17 J
Zinc	mg/Kg	M	50	-	14.8	9.9	12	13.7	19.5	14.0	10.3	21	7.1
1-Methylnaphthalene	µg/Kg	PAH	20	-	0.99 U	NA	1 U	1 U	2 U	20 U	7.84 U	0.99 U	NA
2-Methylnaphthalene	µg/Kg	PAH	20	-	0.99 U	NA	1 U	1 U	2 U	16 J	7.84 U	0.99 U	NA
Benzo(a)anthracene	µg/Kg	PAH	20	-	9.9 U	38 U	1 U	1 U	2 U	20 U	7.84 U	9.9 UJ	40 U
Chrysene	µg/Kg	PAH	20	-	9.9 U	38 U	1.4	1 U	2 U	20 U	7.84 U	9.9 UJ	40 U
Fluorene	µg/Kg	PAH	20	-	0.99 U	38 U	1 U	1 U	2 U	20 U	7.84 U	0.99 U	40 U
Naphthalene	µg/Kg	PAH	20	-	0.99 U	38 U	1 U	1 U	2 U	20 U	7.84 U	0.99 U	40 U
SUM OF PCB CONGENERS X 2	ng/kg	PCBC	1000	-	6,621	12,230	37,645	17,500	34,150	57,480	ND	9,760	NA

			MSG		MSG 5						
			Sample Location		MCA-JCC-S-01	MCA-JCC-S-01	MCA-JCC-S-01	MCA-JCC-S-01	MCA-JCC-S-01	MCA-JCC-M-01	MCA-JCC-M-01
			Sample Number		Not Sampled in 2006	MCA-ET-JCC-S-01-04	MCA-SD-JCC-S-01-05	MCA-ET-JCC-S-01-06	MCA-ET-MCAJCCS01-10152013	Not Sampled in 2004	MCA-ET-JCC-M-01-02
			Sample Date			10/11/2007	10/8/2008	10/14/2009	10/15/2013		10/28/2005
			QC Identifier			ORIG	ORIG	ORIG	ORIG		ORIG
			Matrix		ET	ET	ET	ET	ET	ET	ET
Parameter	**Units**	**Fraction**	**PAL**	**1997 REF**							
Aluminum	mg/Kg	M	10	2.61	NS	0.69 U	18.3 J	5.5 J	11.6 U	NS	5.1 J
Antimony	mg/Kg	M	0.2	0.2	NS	0.0049 U	0.058 U	0.038 U	0.058 U	NS	0.008 U
Arsenic	mg/Kg	M	2	19.82	NS	1.3	1.9	2.3 J	3.1	NS	1
Cadmium	mg/Kg	M	0.2	ND	NS	0.0028 U	0.25 J	0.099 J	0.09	NS	0.098 U
Chromium	mg/Kg	M	0.1	<0.2258	NS	3.8	0.36	0.86	0.424	NS	0.17 U
Copper	mg/Kg	M	5	45.71	NS	1.1 J	1.1 J	0.98 J	1.24	NS	0.59 J
Iron	mg/Kg	M	50	15.32	NS	94.7	128	23.0	19.4	NS	28.6
Lead	mg/Kg	M	0.1	0.14	NS	2.2	2.5	0.50	0.411	NS	0.59
Manganese	mg/Kg	M	5	8.97	NS	13	17.5	1.9 J	7.29	NS	2.2 J
Mercury	mg/Kg	M	0.01	0.558	NS	0.014 U	0.037 J	0.014 J	0.015 U	NS	0.016 J
Nickel	mg/Kg	M	0.5	<0.531	NS	3.2	0.98 J	1.0 J	1	NS	0.59 J
Selenium	mg/Kg	M	1	-	NS	0.007 U	0.47	0.23 J	1.32	NS	0.31 J
Silver	mg/Kg	M	0.01	-	NS	0.00014 U	0.61	0.45 J	0.53	NS	0.21 J
Zinc	mg/Kg	M	50	-	NS	17.9	21.5	9.2	15.8	NS	9.7
1-Methylnaphthalene	µg/Kg	PAH	20	-	NS	1 U	2 U	20 U	7.12 U	NS	NA
2-Methylnaphthalene	µg/Kg	PAH	20	-	NS	1 U	2 U	13 U	7.12 U	NS	NA
Benzo(a)anthracene	µg/Kg	PAH	20	-	NS	1 U	2 U	20 U	7.12 U	NS	39 U
Chrysene	µg/Kg	PAH	20	-	NS	1 U	2 U	20 U	7.12 U	NS	39 U
Fluorene	µg/Kg	PAH	20	-	NS	1 U	2 U	20 U	7.12 U	NS	39 U
Naphthalene	µg/Kg	PAH	20	-	NS	1 U	2 U	20 U	7.12 U	NS	39 U
SUM OF PCB CONGENERS X 2	ng/kg	PCBC	1000	-	NS	21,550	23,350	48,420	ND	NS	NA

Table 4-7
Biota (Clam) Analytical Comparison
McAllister Point Landfill
Naval Station Newport
Middletown, Rhode Island

										2004 MSG 5 MEANS USING 1/2 ND	2005 MSG 5 MEANS USING 1/2 ND	2006 MSG 5 MEANS USING 1/2 ND	2007 MSG 5 MEANS USING 1/2 ND	2008 MSG 5 MEANS USING 1/2 ND	2009 MSG 5 MEANS USING 1/2 ND	2013 MSG 5 MEANS USING 1/2 ND
			MSG		MSG 5											
			Sample Location		MCA-JCC-M-01	MCA-JCC-M-01	MCA-JCC-M-01	MCA-JCC-M-01	MCA-JCC-M-01							
			Sample Number		MCA-ET-JCC-M-01-03	MCA-ET-JCC-M-01-04	MCA-ET-JCC-M-01-05	MCA-ET-JCC-M-01-06	MCA-ET-MCAJCCM01-10152013							
			Sample Date		10/19/2006	10/11/2007	10/8/2008	10/14/2009	10/15/2013							
			QC Identifier		ORIG	ORIG	ORIG	ORIG	ORIG							
			Matrix		ET	ET	ET	ET	ET							
Parameter	**Units**	**Fraction**	**PAL**	**1997 REF**												
Aluminum	mg/Kg	M	10	2.61	11.6	0.66 U	9.1 J	9.5 J	11.1 U	14.3	5.85	11.8	0.339 U	25.7	6.85	5.63
Antimony	mg/Kg	M	0.2	0.2	0.019 U	0.0049 U	0.054 U	0.044 U	0.056 U	0.340	0 U	0.01 U	0.0 U	0.03 U	0.025	0.028
Arsenic	mg/Kg	M	2	19.82	1.2	1.4 J	1.1 U	1.6 J	2.67	1.44	1.01	1.23	1.74	1.80	2.32	2.99
Cadmium	mg/Kg	M	0.2	ND	0.15	0.0028 U	0.19 J	0.16 J	0.134	0.080	0.120	0.140	0.0 U	0.200	0.163	0.124
Chromium	mg/Kg	M	0.1	<0.2258	0.25 U	1.5	0.17 J	0.51	0.26	0.610	0.11 U	0.240	3.20	0.490	0.617	0.344
Copper	mg/Kg	M	5	45.71	1.1	1.1 J	0.65 J	0.78 J	0.729	2.29	0.630	1.14	1.30	1.03	0.947	1.06
Iron	mg/Kg	M	50	15.32	67.2	121 J	43.2	78.3	30.8	52.0	51.7	64.0	75.0	121.0	50.8	29.1
Lead	mg/Kg	M	0.1	0.14	1.4	2.7 J	0.89	1.9	0.977	1.35	0.890	1.21	1.53	1.66	1.23	0.702
Manganese	mg/Kg	M	5	8.97	836 J	20.2	6.6	11.5 J	7.37	11.3	5.47	220	13.6	11.0	7.63	8.33
Mercury	mg/Kg	M	0.01	0.558	8.9	0.013 U	0.015 J	0.0083 J	0.014 U	0.01	0.010	2.23	0.010	0.020	0.013	0.007
Nickel	mg/Kg	M	0.5	<0.531	0.8 J	1.7	0.46 J	0.80 J	0.615	1.03	0.480	0.770	2.40	0.870	0.922	0.753
Selenium	mg/Kg	M	1	-	0.4	0.007 U	0.27	0.47 J	1.26	0.910	0.300	0.360	0.0 U	0.430	0.368	1.21
Silver	mg/Kg	M	0.01	-	0.39	0.00014 U	0.22	0.66	0.14	0.930	0.130	0.360	0.0 U	0.760	0.533	0.254
Zinc	mg/Kg	M	50	-	11.8	20.9 J	8.3	13.2	9.39	18.0	8.27	13.6	17.5	15.6	13.0	11.8
1-Methylnaphthalene	µg/Kg	PAH	20	-	1 U	1 U	2 U	20 U	7.83 U	0.49 U	NA	0.5 U	0.5 U	1.00 U	9.92	3.73
2-Methylnaphthalene	µg/Kg	PAH	20	-	1 U	1 U	2 U	22	7.83 U	0.49 U	NA	0.5 U	0.5 U	1.00 U	15.8	3.73
Benzo(a)anthracene	µg/Kg	PAH	20	-	1 U	1 U	2 U	20 U	7.83 U	4.95 U	19.5 U	0.5 U	0.5 U	1.00 U	9.92	3.73
Chrysene	µg/Kg	PAH	20	-	1.4	1 U	2 U	20 U	7.83 U	4.95 U	19.5 U	1.18	0.500	1.00 U	9.92	3.73
Fluorene	µg/Kg	PAH	20	-	1 U	1 U	2 U	20 U	7.83 U	0.490	19.5 U	0.83 U	0.5 U	1.00 U	9.92	3.73
Naphthalene	µg/Kg	PAH	20	-	1 U	1 U	2 U	20 U	7.83 U	0.490	19.5 U	0.5 U	0.5 U	1.00 U	9.92	3.73
SUM OF PCB CONGENERS X 2	ng/kg	PCBC	1000	-	39,635	8,880	22,860	43,460	ND	6,260	7,820	32,840	16,900	27,480	46,190	ND

Notes:
Shading indicates exceedance of project action limit (PAL).
Means are calculated using 1/2 non-detect values, with the exception of the SUM of PCB Congeners X 2

1997 REF=	1997 Reference Locations used for ERA	ORIG=	Original sample
DUP=	Duplicate Sample	PAH=	Polyaromatic Hydrocarbons
ET=	Biota	PCBC=	Polychlorinated Biphenyl Congener
M=	Metals	PAL=	Project Action Limit (Based on NOAA S&T)
J=	Estimated Value	QC=	Quality control
NA=	Not Available	U=	Non-detect
ND=	Non-detect	UJ=	Non-detect, estimated
ng/kg=	Nanograms per kilogram	µg/Kg=	Micrograms per kilogram
NS=	Not sampled	mg/Kg=	Milligrams per Kilogram

Appendix F

Installation Restoration (IR) Site Access and Use

DEPARTMENT OF THE NAVY
NAVAL STATION NEWPORT
690 PEARY ST
NEWPORT, RI 02841-1522

IN REPLY REFER TO:
NAVSTANPT/LOCAL AREA RI
COORDINST 5090.15A
Code N8N
17 Jun 03

NAVSTA NEWPORT/LOCAL AREA RHODE ISLAND COORDINATOR INSTRUCTION 5090.15A

Subj: INSTALLATION RESTORATION (IR) SITE ACCESS AND USE

Ref: (a) Comprehensive Environmental Response Compensation and Liability Act (CERCLA)
(b) Federal Facilities Agreement of 1992
(c) Superfund Amendments and Reauthorization Act (SARA)
(d) Administrative Record
(e) Navy/Marine Corps Installation Restoration Manual February 1992

1. Purpose. To control access and use of IR Sites at Naval Station Newport.

2. Cancellation. NAVSTANPT/LOCAL AREA RI COORDINST 5090.15.

3. Background. The NAVSTA IR Program consists of 12 study areas. These areas include Building 32 Gould Island, Derecktor Shipyard, McAllister Point Landfill, Melville North Landfill, Old Fire Fighter Training Area (Katy Field), Coddington Cove Rubble Fill, Naval Undersea Warfare Center Disposal Area, and Tank Farms 1-5. A Locus Map of each site can be viewed on our Restoration Advisory Board website at www.nsnpt.navy.mil/Environmental/rab_home.htm.

4. Discussion. This instruction establishes the procedures for controlling site access and use of IR sites and abutting properties (offshore areas, land and facilities) to protect against exposure to hazardous substances.

5. Responsibilities

a. Commanding Officer, NAVSTA Newport shall:

(1) Ensure compliance with references (a) through (e).

(2) Approve or disapprove of the recommendations made by NAVSTA Environmental Protection Storefront.

b. NAVSTA Environmental Protection (Code N8N) shall:

(1) Process all requests for site use and access, and provide written recommendations to the Commanding Officer for final disposition.

(2) Authorize limited access and use by contractors, consultants and others for the purpose of administering the IR Program.

(3) The IR Program Manager shall conduct annual visual inspections of all sites to ensure that all necessary land use controls have been implemented.

(4) If a significant change occurs, prepare and forward a report to the USEPA and RIDEM certifying the change in use and land use controls.

c. NAVSTA Security (Code N53) shall:

(1) Report any incidents of unauthorized access and use to NAVSTA Environmental Protection.

(2) Remove any individuals not authorized access and use.

d. All NAVSTA Newport area and tenant commands shall:

(1) Request, in writing, permission from NAVSTA Environmental Protection Storefront for access and use of IR sites by Navy personnel and contractors.

(2) Ensure all personnel and contractors under their cognizance are aware that access and use of IR sites are prohibited without prior approval from Commanding Officer, NAVSTA Newport.

/s/
R. A. COOPER

Distribution:
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Stocked by: NAVSTANPT Code N01A1

FINAL, SIGNED

DEPARTMENT OF THE NAVY
NAVAL STATION NEWPORT
690 PEARY ST
NEWPORT, RI 02841-1522

IN REPLY REFER TO
NAVSTANPT/LOCAL AREA RI
COORDINST 5090.15B
Code N8N
SEP 2 7 2007

NAVSTA NEWPORT/LOCAL AREA RHODE ISLAND COORDINATOR INSTRUCTION 5090.15B

Subj: INSTALLATION RESTORATION (IR) SITE USE RESTRICTIONS

Ref: (a) Comprehensive Environmental Response Compensation and Liability Act of 1980 (CERCLA)
(b) Federal Facilities Agreement under CERCLA 120, In the Matter of the US Department of the Navy, Naval Education and Training Center, Newport, Rhode Island, 1992
(c) Superfund Amendments and Reauthorization Act of 1986 (SARA)
(d) Resource Conservation and Recovery Act (RCRA)
(e) Rhode Island Department of Environmental Management Site Remediation Regulations
(f) Operational Naval Instruction (OPNAVINST) 5090.1B, Current Version
(g) Record of Decision, Source Control Operable Unit, Site 01, McAllister Point Landfill, Naval Education and Training Center, Newport, Rhode Island, September, 1993
(h) Record of Decision, Marine Sediment/Management of Migration Operable Unit, McAllister Point Landfill, Naval Education and Training Center, Newport, Rhode Island, March, 2000
(i) Record of Decision for an Interim Remedial Action, Tank Farm 5, Tanks 53 and 56, Naval Education and Training Center, Newport, Rhode Island, September, 1992
(j) Operation and Maintenance User Manual for McAllister Point Landfill, 1997
(k) Operation and Maintenance Manual for the Interim Remedial Action at Tank Farm 5, 1995
(l) Explanation of Significant Difference (ESD) for Implementation of Land Use Controls at McAllister Point Landfill, August, 2007
(m) ESD for McAllister Point Landfill, September, 2002

Encl: (1) McAllister Point Landfill Installation Restoration Site and Landfill Cap
(2) Installation Restoration Site Map for Naval Station

Newport
(3) Excavated Soil Management for Installation Restoration Sites at Naval Station Newport
(4) Management of Dewatering Wastewaters for Installation Restoration Sites at Naval Station Newport

1. Purpose. This instruction defines the Naval Station Newport (NAVSTANPT) policy regarding ground surface disturbance of soils/sediments or any subsurface disturbance of soils/sediments and/or groundwater extraction, and/or changes in land use at Installation Restoration (IR) sites and the disturbance of any remedial infrastructure, including monitoring wells and waste caps. Disturbance is defined as any form of damage to remedial infrastructure, excavation, soil penetration, soil compaction, filling, or change of topography and/or change in land use. The definition of disturbance also includes any proposed action to dewater excavations or extract/expose groundwater for discharge, consumption, or use in any way. This instruction is intended to enact institutional controls that are specified in references (a) through (m) at the NAVSTANPT IR sites including the McAllister Point Landfill, Coddington Cove Rubble Fill Area, Old Fire Fighting Training Area, Melville Water Tower, Melville North Landfill, SWOS Parking Area, Former Carr Point Shooting Range, NUSC Disposal Area, and Tank Farms 1-5, Derecktor Shipyard, and Gould Island (BLDG 32).

2. Applicability. This instruction is applicable to all Navy departments, tenant commands, contractors, invitees, and personnel at Naval Station Newport.

3. Cancellation. NAVSTANPT/LOCAL AREA RI COORDINST 5090.15, 5090.15A, and 5090.15A CH-1.

4. Discussion. In accordance with references (a) through (m), the NAVSTANPT IR Program manages the identification, characterization and cleanup of contaminated soils, sediments and groundwater at specific NAVSTANPT IR locations. The existing IR sites at NAVSTANPT are in various stages of investigation and cleanup. A specialized cap has been installed over the former landfill at McAllister Point (see reference (g)), in order to isolate contaminated soils and sediments from the surrounding environment. This cap can be damaged by the operation or storage of heavy equipment on the cap surface or by unauthorized excavation or penetration through the cap surface. Enclosure (1) shows the landfill site and cap. Enclosure (2) shows all other IR sites at NAVSTANPT where restrictions are in effect. Areas shown in enclosures (1) and (2) may contain contaminated soil, sediment, or groundwater which can potentially threaten human health

or the environment if disturbed. Groundwater and surface water shall not be extracted and used for any purpose at NAVSTANPT. Work can be safely conducted within IR sites, but proper planning, coordination, preparation, and safety measures must be implemented in accordance with federal and state laws. IR site work requires strict adherence to a site-specific health and safety plan, proper training of site workers, correct use of personal protective equipment by site workers, and proper management of any generated waste. Enclosures (3) and (4) provide guidance for excavation and dewatering activities at IR sites at NAVSTANPT.

References (j) and (k) provide requirements and guidance for the protection and maintenance of McAllister Point Landfill and Tank Farm 5 and the associated structures, e.g. landfill cap asphalt wearing surfaces, landfill cap toe-slope protection, diversion channels, gas management vents, stormwater conveyances, material handling and storage pads, monitoring wells, and site perimeter fencing. Monitoring wells are not exclusively situated within the IR sites depicted in enclosure (2). All such structures shall not be modified, disturbed, or in any way affected without coordination with the NAVSTANPT Environmental Department. The periodic and routine maintenance, operation of equipment, and storage of materials at the McAllister Point Landfill and Tank Farm 5, and their associated structures, will be accomplished in strict adherence to references (j) and (k) by authorized Navy personnel.

5. Action.

a. The IR Program Manager of the NAVSTANPT Environmental Department will produce an annual report and submit it to RIDEM for review and approval for each IR site where remedial action has been implemented and contaminants are present above standards or cleanup objectives. The contents of the report will meet the requirements specified by RIDEM.

b. Prior to the operation or storage of any heavy equipment at the site depicted in enclosures (1) and (2), all NAVSTANPT departments, tenant commands, Navy contractors, and personnel shall contact the NAVSTANPT Environmental Department, which will determine general landfill cap loading restrictions for all equipment/materials to be operated or stationed on the landfill cap. The McAllister Point Landfill Installation Restoration Site and Landfill Cap depicted in enclosure (1) is a restricted area. All requests for access to this site and for the storage of any heavy equipment/materials will be referred to the Environmental Department. Precaution must be taken to insure that any equipment operated and/or stationed on the landfill cap will not damage the cap to any appreciable degree. Damage to the cap must be reported immediately to the NAVSTANPT Environmental Department.

c. Any NAVSTANPT department, tenant command or Navy contractor planning projects involving subsurface excavation, subsurface penetration of the soil, dewatering, ground surface disturbance or change in land use at the sites depicted in enclosures (1) and (2) shall notify the NAVSTANPT IR Program Manager in the Environmental Department at (401) 841-7561 at the earliest project planning phase. The IR Program Manager will coordinate project review with the Naval Facilities Remedial Project Manager, the NAVSTANPT Public Works Department, and the Safety Department. The IR Program Manager will coordinate project review with the USEPA and the RIDEM, as applicable under references (a) through (m), and obtain USEPA and RIDEM approval for the proposed actions at the IR sites. Based on the outcome of this coordination, the NAVSTANPT IR Program Manager will provide guidance for projects proposing ground surface disruption, subsurface excavation, penetration, or dewatering work in accordance with enclosures (3) and (4). No work shall commence in IR sites until permission is granted by the IR Program Manager. The IR Program Manager will specify requirements for the project, detail waste management procedures, and establish standards for protecting remedial infrastructure and restoration of the project site.

M. T. POIRIER

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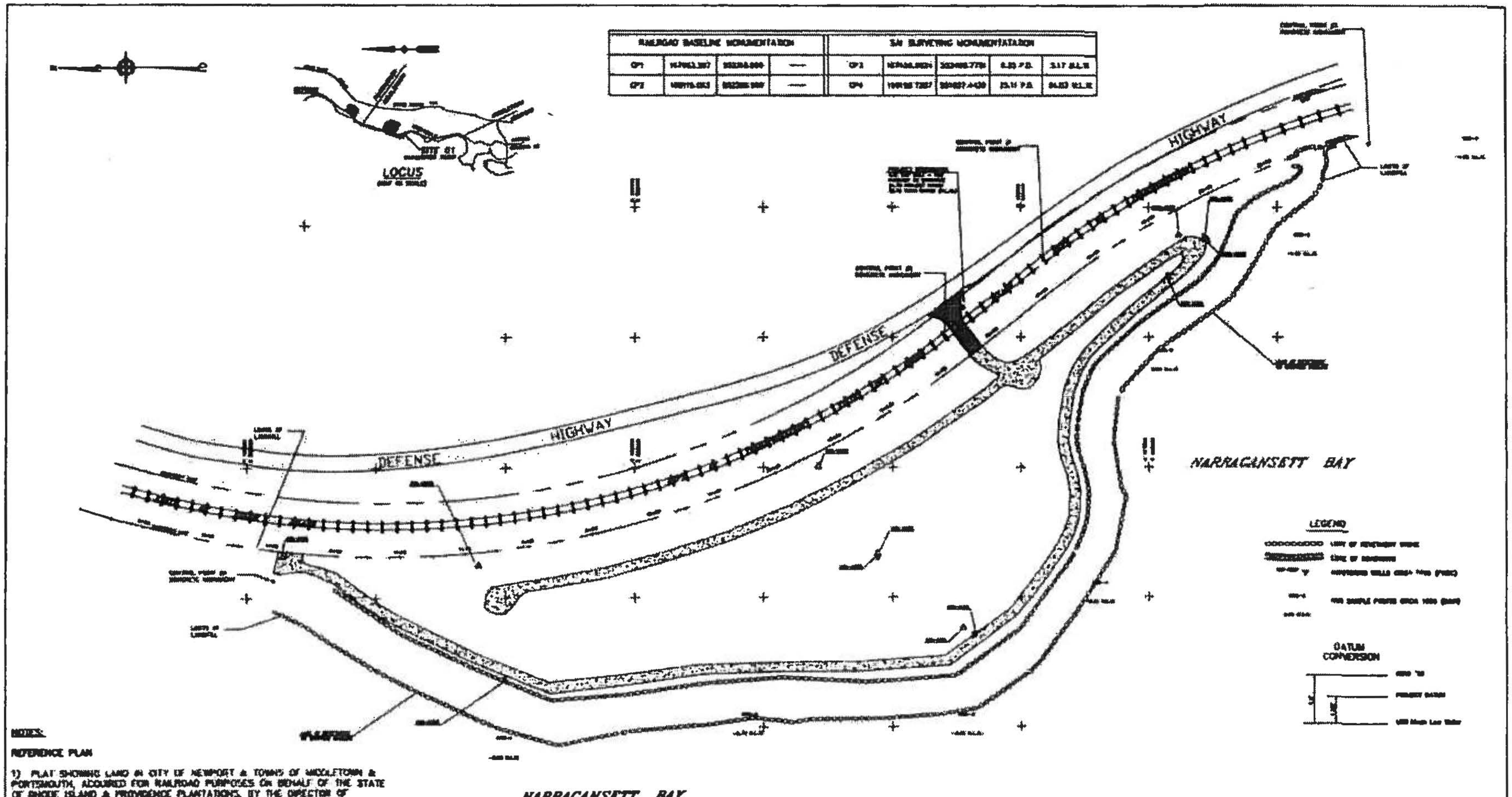


NOTES:

REFERENCE PLAN

1) PLAT SHOWING LAND IN CITY OF NEWPORT & TOWNS OF MIDDLETOWN & PORTSMOUTH, ACQUIRED FOR RAILROAD PURPOSES ON BEHALF OF THE STATE OF RHODE ISLAND & PROVIDENCE PLANTATIONS, BY THE DIRECTOR OF TRANSPORTATION, RAILROAD PLAT NO. 1.

2) SAI SURVEYING CO. INC. 5-22-97 SITE PLAN, MCALLISTER POINT LANDFILL, NAVAL EDUCATION AND TRAINING CENTER, MIDDLETOWN, RHODE ISLAND FOR BROWN AND ROOT ENVIRONMENTAL

GENERAL NOTE

1) NSB SAMPLE POINTS ELEVATIONS ARE LISTED AS NAVY MEAN LOW WATER.

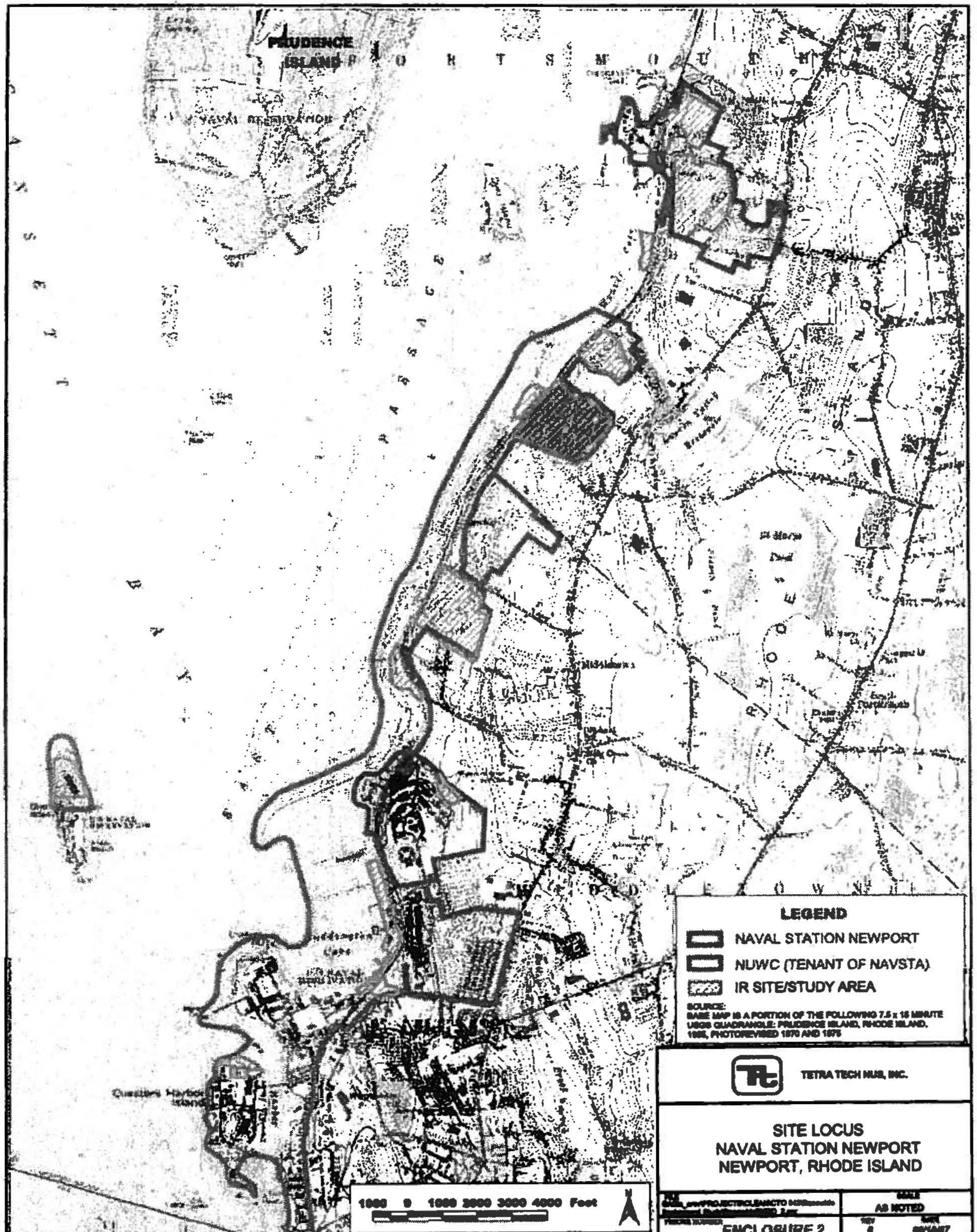
2) DATUM USED FOR PLAN – PROJECT DATUM, HORIZONTAL COORDINATES BASED ON REFERENCE PLAN NO. 1, NOTED ABOVE.

MCALLISTER POINT LANDFILL			
NAVSTA NEWPORT			
NEWPORT, RHODE ISLAND			
DRAWN BY	D.W. MACDOUGALL	REV.	0
CHECKED BY	S. PARKER	DATE	SEPTEMBER 12, 2007
SCALE	AS NOTED	FILE NO.	00632\0450\ENCLOSURE_1.DWG

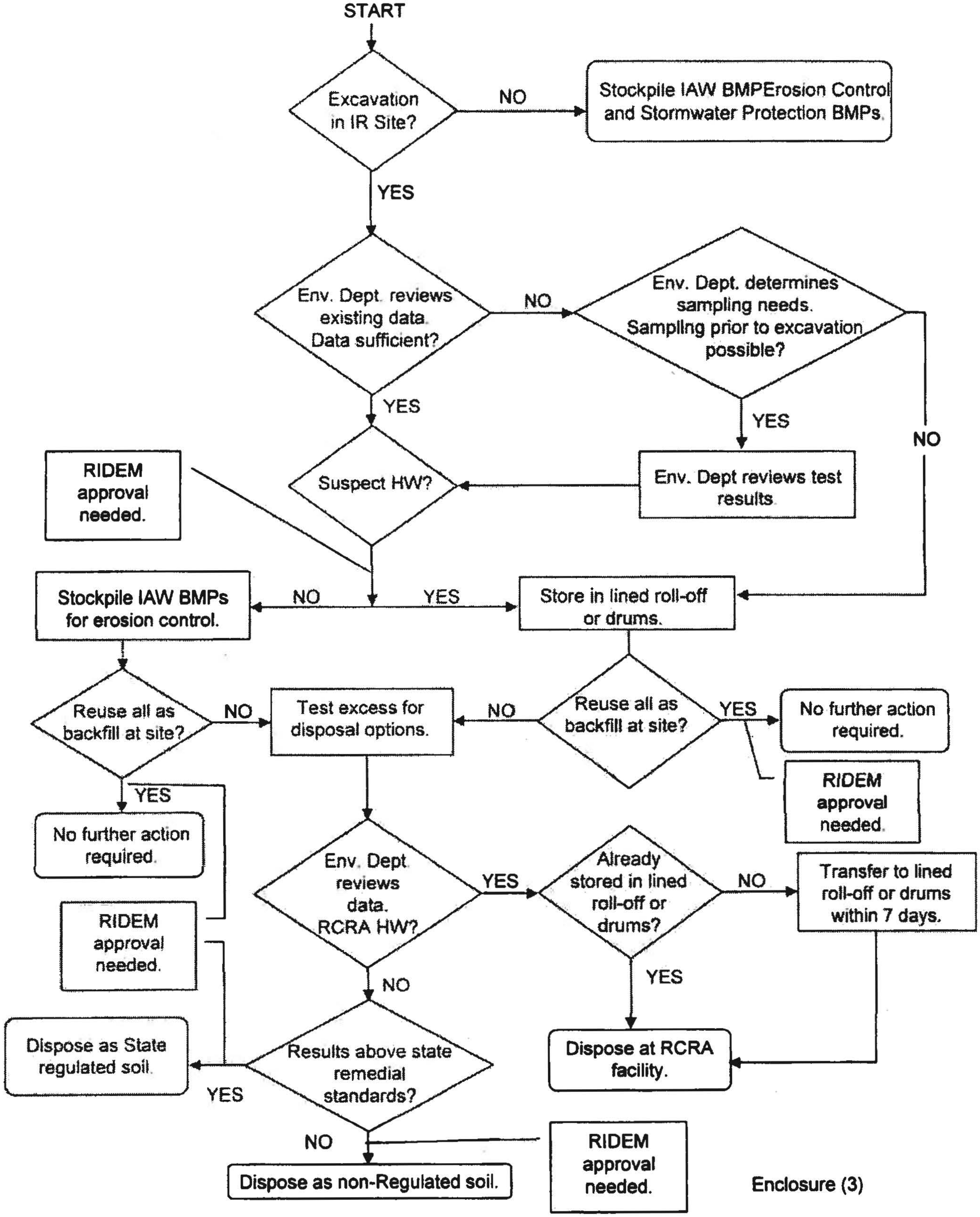
ENCLOSURE 1

TETRA TECH NUS, INC.

55 Jonspin Road Wilmington, MA 01887 (978)658-7899

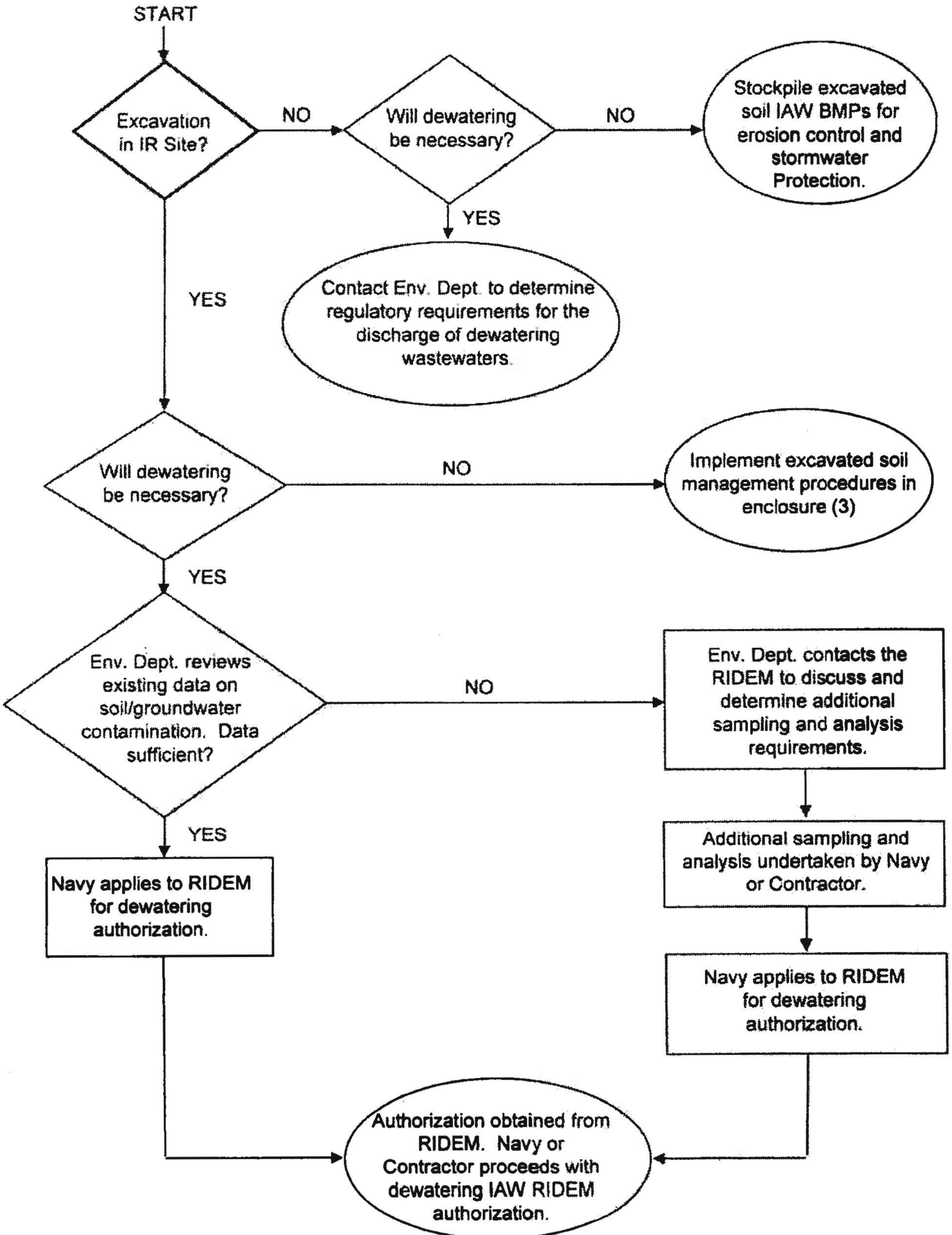

PRUDENCE ISLAND
P O R T S M O U T H
M I D D L E T O W N
LEGEND
NAVAL STATION NEWPORT
NUWC (TENANT OF NAVSTA)
IR SITE/STUDY AREA
SOURCE:
BASE MAP IS A PORTION OF THE FOLLOWING 7.5 x 15 MINUTE
USGS QUADRANGLE: PRUDENCE ISLAND, RHODE ISLAND,
TETRA TECH NUS, INC.
SITE LOCUS
NAVAL STATION NEWPORT
NEWPORT, RHODE ISLAND
AS NOTED
ENCLOSURE 2
1000 0 1000 2000 3000 4000 Feet

EXCAVATED SOIL MANAGEMENT FOR INSTALLATION RESTORATION SITES
NAVAL STATION NEWPORT (formerly NETC)
NEWPORT, RHODE ISLAND



Enclosure (3)

MANAGEMENT OF DEWATERING WASTEWATERS FOR INSTALLATION RESTORATION SITES
NAVAL STATION NEWPORT (formerly NETC)
NEWPORT, RHODE ISLAND



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 (COMNAVFACENGCOM 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[1] 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,

---

[1] "Engineering controls" is also used in some texts to refer to engineered controls. For purposes of this instruction these terms are synonymous.

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[2] 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.

[2] 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).

(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.

(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[3] 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.

[3]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.

(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

(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

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