BRAC Program Management Office East
Philadelphia, Pennsylvania

Final
Third Five-Year Review Report

Former Naval Air Station South Weymouth
Weymouth, Massachusetts

July 2019

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FINAL

THIRD FIVE-YEAR REVIEW REPORT

FOR

FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
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CONTRACT TASK ORDER WE17

JULY 2019

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APPROVED BY:

July 11, 2019

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Acronyms and Abbreviations

AFFF	Aqueous film-forming foam
AIMD	Aircraft Intermediate Maintenance Division
AOC	Area of Concern
APD	Aquifer Protection District
ARAR	Applicable or Relevant and Appropriate Requirement
AST	Aboveground storage tank
Beta-BHC	Beta-Hexachlorocyclohexane
bgs	Below ground surface
BRAC	Base Realignment and Closure
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CLEAN	Comprehensive Long-Term Environmental Action Navy
CMR	Code of Massachusetts Regulations
COC	Chemical of concern
COD	Chemical oxygen demand
COPC	Contaminant of potential concern
CVOC	Chlorinated volatile organic compound
cy	Cubic yard
DCA	Dichloroethane
2,4-D	2,4-Dichlorophenoxyacetic acid
DCB	Dichlorobenzidine
DCE	Dichloroethene

DDD	Dichlorodiphenyldichloroethane
DDE	Dichlorodiphenyldichloroethylene
DDT	Dichlorodiphenyltrichloroethane
DOI	Department of Interior
DQO	Data quality objective
EBS	Environmental Baseline Survey
EMD	East Mat Ditch
EPA	United States Environmental Protection Agency
EPH	Extractable petroleum hydrocarbons
ERA	Ecological Risk Assessment
ESD	Explanation of Significant Differences
FEMA	Federal Emergency Management Agency
FFA	Federal Facility Agreement
FFS	Focused Feasibility Study
FFTA	Fire Fighting Training Area
FIRM	Flood Insurance Rate Map
FOSL	Finding of Suitability to Lease
FOST	Finding of Suitability to Transfer
FS	Feasibility Study
FVA	Functions and values assessment
FYR	Five-year review
GERE	Grant of Environmental Restriction and Easement
GUVD	Groundwater Use and Value Determination
GWRB	Groundwater Restriction Boundary

HA	Health Advisory
HHRA	Human Health Risk Assessment
HI	Hazard index
IC	Institutional control
ILCR	Incremental lifetime cancer risk
IOA	Industrial Operations Area
IR	Installation Restoration
IRIS	Integrated Risk Information System
ISCO	In-situ chemical oxidation
LEL	Lower explosive limit
LIFOC	Lease in Furtherance of Conveyance
LTM	Long-term monitoring
LUC	Land use control
LUCIP	Land Use Control Implementation Plan
MassDEP	Massachusetts Department of Environmental Protection
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
MCP	Massachusetts Contingency Plan
MCPA	2-Methyl-4-chlorophenoxyactic acid
mg/kg	Milligram per kilogram
mg/L	Milligram per liter
MMCL	Massachusetts Maximum Contaminant Level
MNA	Monitored natural attenuation
NAS	Naval Air Station

NAUL	Notice of Activity and Use Limitation
NAVFAC	Naval Facilities Engineering Command
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NFA	No Further Action
NMCPHC	Navy and Marine Corps Public Health Center
NNPA	N-Nitroso-di-n-propylamine
NPL	National Priorities List
NPS	National Park Service
NRWQC	National Recommended Water Quality Criterion
O&M	Operation and maintenance
OPS	Operating Properly and Successfully
OSWER	Office of Solid Waste and Emergency Response
OU	Operable Unit
OWS	Oil-water separator
PA	Preliminary Assessment
PAH	Polycyclic aromatic hydrocarbon
PAL	Project Action Level
PCB	Polychlorinated biphenyl
PCE	Tetrachloroethene
PCMEMP	Post Closure Maintenance and Environmental Monitoring Plan
PCP	Pentachlorophenol
PDI	Pre-Design Investigation
PFAS	Per- and polyfluoroalkyl substances
PFBS	Perfluorobutanesulfonic acid

PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctane sulfonate
PHA	Provisional Health Advisory
PMO	Program Management Office
PRB	Permeable reactive barrier
PRG	Preliminary Remediation Goal
QAPP	Quality Assurance Project Plan
RA	Remedial Action
RAB	Restoration Advisory Board
RACR	Remedial Action Completion Report
RAM	Release Abatement Measure
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RDA	Rubble Disposal Area
RDWP	Remedial Design Work Plan
RecD	Recreational District
RG	Remedial Goal
RI	Remedial Investigation
RIA	Review Item Area
ROD	Record of Decision
RSL	Regional Screening Level
SAP	Sampling and Analysis Plan

SI	Site Inspection
SLF	Small Landfill
SRA	Solvent Release Area
SSTTDC	South Shore Tri-Town Development Corporation
STP	Sewage Treatment Plant
SVOC	Semi-volatile organic compound
TACAN	Tactical Air Navigation
TBC	To be considered
TCA	Trichloroethane
TCDD	2,3,7,8-Tetrachlorodibenzodioxin
TCE	Trichloroethene
TDS	Total dissolved solids
TOC	Total organic carbon
TSCA	Toxic Substances Control Act
TTZ	Target treatment zone
UEL	Upper explosive limit
µg/L	Microgram per liter
UST	Underground storage tank
UU/UE	Unlimited use and unrestricted exposure
VCD	Village Center District
VISL	Vapor Intrusion Screening Level
VOC	Volatile organic compound
VPH	Volatile petroleum hydrocarbons
WGL	West Gate Landfill

1.0 Introduction

The United States Navy Base Realignment and Closure (BRAC) Program Management Office (PMO) East/Naval Facilities Engineering Command (NAVFAC) Mid-Atlantic, as Lead Agency, has prepared this Five-Year Review (FYR) Report for Former Naval Air Station (NAS) South Weymouth pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, consistent with the National Oil and Hazardous Substances Contingency Plan (NCP), 40 Code of Federal Regulations (CFR) Section 300.430(f)(4)(ii), and considering United States Environmental Protection Agency (EPA) policy.

The purpose of an FYR is to evaluate the implementation and performance of a remedy to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in FYR reports such as this one. Issues and recommendations that may affect current or future protectiveness are identified for each Operable Unit (OU) evaluated in the FYR. Other findings that may improve performance, reduce costs, and accelerate site closeout, for example, but do not affect the protectiveness are also noted.

This is the third FYR for Former NAS South Weymouth, in Weymouth, Massachusetts. The triggering action date for this statutory review is the previous FYR completion date of July 11, 2014. The FYR has been prepared because CERCLA hazardous substances, pollutants, or contaminants remain at the site at concentrations in excess of levels that allow for unlimited use and unrestricted exposure (UU/UE).

Twenty-seven OUs have been identified at Former NAS South Weymouth, ten of which are evaluated in this FYR.[1] The ten OUs consist of seven Installation Restoration Program (IR) sites including West Gate Landfill (WGL), Rubble Disposal Area (RDA), Fire Fighting Training Area (FFTA), Sewage Treatment Plant (STP), Building 81, Building 82, and Solvent Release Area (SRA); one Area of Concern (AOC), AOC Hangar 1; and the Industrial Operations Area (IOA, comprised of two OUs). These sites all have Records of Decision (RODs) as shown in Table 1-1. In addition, a status update is included for the Basewide Per- and Polyfluoroalkyl Substances (PFAS) in Groundwater OU, recently added by EPA but for which no ROD has been signed.

[1] OU 10 (US Coast Guard Buoy Depot Site) is being addressed by the United States Coast Guard under a separate Federal Facility Agreement and a separate FYR process.

The Former NAS South Weymouth Superfund Site FYR was led by NAVFAC BRAC PMO East and was prepared by Tetra Tech. The facility was placed on the National Priorities List (NPL) in 1994. The Navy and EPA entered into a Federal Facility Agreement (FFA) effective April 7, 2000. The Massachusetts Department of Environmental Protection (MassDEP) is not a signatory to the FFA but reviews environmental documents and offers concurrence on the remedy selected in the ROD for each CERCLA site. Community members, the redevelopment authority, local developer, and local officials were consulted for input into the FYR.

1.1 Background

Former NAS South Weymouth is located approximately 15 miles southeast of Boston, Massachusetts, in Norfolk and Plymouth Counties in the Towns of Weymouth, Abington, and Rockland (Figure 1-1). The former base originally encompassed approximately 1,444 acres. Since base closure in 1997, approximately 1,263 acres have been transferred by the Navy to the local redevelopment authority, originally the South Shore Tri-Town Development Corporation and (SSTTDC) now known as the Southfield Redevelopment Authority.

The facility is located in an urban area, and significant redevelopment has occurred since the last FYR, but wetlands, streams, and forested areas remain. The topography is relatively flat but has been regraded throughout its operational history during construction of buildings, runways, and taxiways and now again through redevelopment.

Land Use Controls

Navy-retained property within Former NAS South Weymouth has been leased to Southfield Redevelopment Authority through a Lease in Furtherance of Conveyance (LIFOC) until the Government determines that the property is suitable for transfer by deed (USA, 2011). This mechanism allows some redevelopment to occur if conducted in accordance with robust environmental requirements specified in the LIFOC and in the Finding of Suitability to Lease (FOSL), LIFOC Exhibit B. The LIFOC with the incorporated FOSL acts as a legally binding blanket interim Land Use Control (LUC) until permanent LUCs can be established as deed restrictions, if necessary, upon property transfer.

Key environmental protection provisions noted in Section 13 of the LIFOC include (but are not limited to) the following: access for government officials (Navy, EPA and MassDEP); management of hazardous waste by the Lessee; and requirements for the Lessee to obtain written approval from the Government to conduct (or permit its sublessees to conduct) any subsurface excavation, digging, drilling, or other disturbance of the surface (i.e., slabs, roads, structures or paved areas). Such approval will not be unreasonably withheld, conditioned or delayed. The FOSL Section 3.3 specifies the environmental restrictions, provisions, and conditions, and identifies interim LUCs associated with soil, sediment, and groundwater. FOSL Tables provide details on the environmental conditions on the various parcels and restrictions at the active sites.

Finally, Exhibit C of the LIFOC details the procedures for alteration request submittal and government review of proposed additions, alterations, or improvements to lease premises by lessee or sublessees. All work must be approved by the Navy Real Estate Officer and the technical liaison, currently the BRAC Environmental Coordinator. LIFOC alterations requests are also provided to EPA and MassDEP for review and comment.

A separate LUC addresses perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) in groundwater while the Basewide PFAS in groundwater investigation is ongoing under the Basewide PFAS in Groundwater OU (OU 27). The Basewide PFOS and PFOA LUC is further described in the status summary of Basewide PFAS OU 27 included in this FYR (Section 11.0).

Groundwater Use

In April 2017, the Southfield Redevelopment Authority (formerly SSTTDC) lifted the Aquifer Protection District (APD) designation from two medium-yield aquifers located within the central portion of Former NAS South Weymouth and located beneath five OUs evaluated in this FYR (OU 7 – STP, OU 11 - Building 82, OU 25 - AOC Hangar 1, and OUs 23 and 24 - IOA). The APD designation was established by the Southfield Redevelopment Authority to protect four medium- to high-yield aquifers located at the Former NAS South Weymouth for future use as drinking water sources. A remedial action (RA) under CERCLA is expected to restore groundwater that is a current or potential drinking water source to beneficial use (e.g., clean up to drinking water standards) wherever possible. The removal of the APD designation from STP, Building 82, AOC Hangar 1, and IOA in April 2017 established that groundwater use for a public drinking water source is no longer expected for these sites.

In November 2017, MassDEP issued a Second Amendment to the Groundwater Use and Value Determination (GUVD) for the Former NAS South Weymouth that removed the Potential Drinking Water Source Area designation from the medium-yield aquifers underlying STP, Building 82, AOC Hangar 1, and IOA (MassDEP, 2017). MassDEP concluded that the aquifers have a low use and value, and in accordance with MassDEP guidance, Title 310 Code of Massachusetts Regulation (CMR) 40.0932(5)(b)(1), are no longer identified as a source of drinking water. Because

Massachusetts has an EPA-endorsed Comprehensive Groundwater Protection Program, this finding is consistent with EPA guidance.

1.2 Basewide Five-Year Review Process

For the identified OUs, the process for assessing the general protectiveness and performance of the selected remedies includes community notification and involvement, review of the data (primarily those generated since the last FYR), and a site inspection. These steps provide the basis for the technical evaluation, identification of issues and recommendations, and completion of protectiveness statements.

1.2.1 Operable Units Included in the Five-Year Review

The ten OUs for which ROD-specified remedies have been or are being implemented are included in this FYR. The sites for which remedies have been implemented undergo detailed technical evaluation. A limited evaluation is provided for sites where the remedy is being implemented and not yet complete, and in one case, for a site that was recently determined to require no further action.

Table 1-1: Operable Units Included in the Five-Year Review

Navy Designation	EPA OU Designation[1]	Site Name	Status	FYR Level
IR Site 1	OU 1	West Gate Landfill	ROD/Explanation of Significant Differences (ESD)-specified remedy implemented with ongoing monitoring	Full technical evaluation
IR Site 2	OU 2	Rubble Disposal Area	ROD/ESD-specified remedy implemented with ongoing monitoring	Full technical evaluation
IR Site 4	OU 4	Fire Fighting Training Area	ESD-specified remedy implemented with ongoing monitoring	Full technical evaluation
IR Site 7	OU 7	Former Sewage Treatment Plant	ROD-specified remedy complete per ROD Amendment	Full technical evaluation
IR Site 9	OU 9	Building 81	Implementation of ROD-specified remedy has begun but has not been completed	Limited evaluation because remedy is still being implemented
IR Site 10	OU 11	Building 82	ROD-specified remedy in place and operating successfully per the No Further Action (NFA) ESD	Limited evaluation because BRAC Cleanup Team reached a NFA decision
IR Site 11	OU 14	Solvent Release Area	Implementation of ROD-specified remedy has begun but has not been completed	Limited evaluation because remedy is still being implemented

Navy Designation	EPA OU Designation[1]	Site Name	Status	FYR Level
AOC Hangar 1	OU 25	AOC Hangar 1	ESD-specified remedy implemented with ongoing monitoring	Limited evaluation because a Remedial Investigation (RI) is in progress
IOA-AOC 14, AOC 83	OU 23 OU 24	Industrial Operations Area	ROD-specified remedy being implemented. No Remedial Action Completion Report (RACR) at this time	Limited evaluation because remedy is still being implemented

1 OU 10 is the US Coast Guard Buoy Depot Site, which is being addressed by the US Coast Guard under a separate FFA and through a separate FYR process.

A status summary of Basewide PFAS OU 27, which is at the Site Inspection (SI) stage, has been included, although a ROD has not been signed. LUCs have been implemented for groundwater impacted with two PFAS.

Documents reviewed for this FYR and references cited are included in Appendix A. The individual site chronologies and background information for the sites included in this FYR are included in Appendices B through K. A list and brief summary of the completed IR sites and AOCs for which NFA decisions have been approved are provided in Appendix L.

1.2.2 Community Notification and Involvement and Site Interviews

The Navy initiated the third FYR for Former NAS South Weymouth with a notice published in the *Patriot Ledger* on September 10, 2018, *Weymouth News* on September 12, 2018, and *Abington and Rockland Mariner* on September 14, 2018, as well as a letter to the regulatory agencies and copied to other stakeholders. A copy of the published notice is included in Appendix M. The third FYR process was presented at a Restoration Advisory Board (RAB) meeting on October 11, 2018. An interview questionnaire was made available at the RAB, on the Navy's website, and by request. Tetra Tech also contacted the Navy, Weymouth, Abington, and Rockland town health department officials, Southfield Redevelopment Authority, and the site developer (LSTAR) for interviews in December 2018 and requested input from the EPA and MassDEP.

As of June 2019, one interview questionnaire was returned by a town health official. The responses to the interview questions indicated that the respondent felt well informed about the environmental cleanup activities and progress at the site. Concerns were cited regarding emerging contaminants and management of contaminated soil piles. The respondent also cited confusion related to a municipal water line tie-in. The respondent suggested that soil piles be better or more frequently managed and that a water well tracking system be developed to differentiate between potable, irrigation, and environmental monitoring wells installed and municipal water ties-ins. Interview results and comments are presented Appendix N. The findings of this third FYR will be presented at a RAB meeting on October 10, 2019.

1.3 Report Organization

This report has been organized to address the various components and general format requirements specified in the *Comprehensive Five-Year Review Guidance* (EPA, 2001). It is generally consistent with the EPA FYR Recommended Template of January 2016. Section 1.0 provides an overview of Former NAS South Weymouth, the basewide FYR process, OUs evaluated in this FYR, a summary of the community notification and involvement that occurred to complete this FYR, and the FYR Summary Form (Section 1.4). Sections 2.0 through 10.0 provide the reviews conducted for each individual OU evaluated. Section 11.0 includes a summary of current activities at Basewide PFAS OU 27.

1.4 Five-Year Review Summary Form

SITE IDENTIFICATION		
Site Name: Naval Air Station South Weymouth		
EPA ID: MA2170022022		
Region: 1	**State:** MA	**City/County:** Town of Weymouth/Norfolk County; Towns of Abington and Rockland/Plymouth 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): Tetra Tech under contract to the U.S. Navy		

Author affiliation: Under contract to NAVFAC Mid Atlantic
Review period: July 2014 – July 2019
Date of site inspection: December 4 through 6, 2018
Type of review: Statutory
Review number: 3
Triggering action date: July 11, 2014, (Signature of prior FYR)
Due date *(five years after triggering action date)*: July 11, 2019

Issues/Recommendations

OU(s) without Issues/Recommendations Identified in the Five-Year Review:
OU 1 WGL OU 4 FFTA OU 9 Building 81 OU 11 Building 82 OU 14 SRA OU 25 Hangar 1

Issues and Recommendations Identified in the Five-Year Review:

OU(s): 2/Site 2 (RDA)	**Issue Category: Remedy Performance**			
	Issue: Elevated methane concentrations continue to be observed in two gas probes along the northern perimeter of the landfill.			
	Recommendation: Conduct a landfill gas investigation to determine if elevated methane concentrations are present outside of the compliance boundary.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
No	Yes	Federal Facility	EPA/State	March 2020

OU(s): 7/Site 7 (STP)	**Issue Category: Operations and Maintenance**			
	Issue: The remedy requires the Long-Term Monitoring (LTM) and Operation and Maintenance (O&M) of the soil cover in accordance with the ROD Amendment.			
	Recommendation: Prepare a LTM and O&M Plan and conduct LTM/O&M in accordance with the ROD Amendment.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
No	Yes	Federal Facility	EPA/State	December 2019
OU(s): 23 and 24/IOA	**Issue Category: Remedy Performance**			
	Issue: Increase in soil excavation volume.			
	Recommendation: Prepare and finalize an ESD for the IOA including updated soil excavation volumes.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
No	Yes	Federal Facility	EPA/State	September 2019
OU(s): 23 and 24/IOA	**Issue Category: Remedy Performance**			
	Issue: Site-specific chromium speciation.			
	Recommendation: Prepare and finalize an ESD for the IOA including updated cleanup goal for total chromium based on site-specific chromium speciation.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
No	Yes	Federal Facility	EPA/State	September 2019

OU(s): 23 and 24/IOA	**Issue Category: Remedy Performance**			
	Issue: Revision of EPA toxicity values for polycyclic aromatic hydrocarbons (PAHs).			
	Recommendation: Prepare and finalize ESD including updated cleanup goals for PAHs based on revised EPA toxicity values.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
No	Yes	Federal Facility	EPA/State	September 2019

Protectiveness Statement(s)		
Operable Unit: 1/Site 1 (WGL)	*Protectiveness Determination:* Protective	*Addendum Due Date (if applicable):* NA
Protectiveness Statement: The OU 1 remedy is protective of human health and the environment because exposure pathways that could result in unacceptable risks are being controlled by the landfill cap and Institutional Controls (ICs) in the form of LUCs. All potential unacceptable risks at the site have been addressed through capping of the landfill, and implementation of LUCs. Current inspection and monitoring data indicate that the remedy is functioning as intended by the ROD.		
Operable Unit: 2/Site 2 (RDA)	*Protectiveness Determination:* Short-term Protective	*Addendum Due Date (if applicable):* NA
Protectiveness Statement: The OU 2 remedy is protective of human health and the environment in the short-term because exposure pathways that could result in unacceptable risks have been addressed through capping and O&M of the landfill and are being controlled with ICs in the form of LUCs. However, additional investigation of elevated methane concentrations along the northern perimeter of the landfill is warranted to ensure long-term protectiveness.		

Operable Unit: 4/Site 4 (FFTA)	*Protectiveness Determination:* Protective	*Addendum Due Date (if applicable):* NA
Protectiveness Statement: The OU 4 remedy is protective of human health and the environment because there are no current exposures to contaminated groundwater and OU 4 is Navy-retained property with ICs in the form of LUCs established under the LIFOC. Impacted groundwater west of the FFTA property boundary is covered by LUCs established in a Grant of Restrictions. The OU 4 remedy components (LTM and LUCs) will be incorporated into the Basewide PFAS OU (OU 27) and establishment of LUCs in accordance with OU 27 prior to property transfer. The need to change the type of IC upon property transfer does not change the protectiveness of the remedy.		
Operable Unit: 7/Site 7 (STP)	*Protectiveness Determination:* Short-term Protective	*Addendum Due Date (if applicable):* NA
Protectiveness Statement: The remedy for OU 7 is protective of human health and the environment in the short-term because there is no current exposure to subsurface soil and the OU is Navy-retained property with ICs in the form of LUCs established under the LIFOC. To ensure long-term protectiveness, the LTM and O&M plans and Land Use Control Implementation Plan (LUCIP) must be prepared and LTM/O&M of the soil cover must be conducted. In addition, LUCs in the form of deed restrictions are required to be completed prior to or upon property transfer to address the requirements of the ROD Amendment. The need to change the type of IC upon property transfer does not change the protectiveness of the remedy.		
Operable Unit: 9/Site 9 (Building 81)	*Protectiveness Determination:* Protective	*Addendum Due Date (if applicable):* NA
Protectiveness Statement: The remedy for OU 9 is protective of human health and the environment because no exposure is occurring and the OU is Navy-retained property with ICs in the form of LUCs established under the LIFOC. Prior to or upon property transfer, LUCs in the form of deed restrictions are required to be completed. The need to change the type of IC upon property transfer does not change the protectiveness of the remedy. The remedy, in-situ bioremediation, is progressing and LTM and FYRs are required to be conducted in accordance with the ROD.		

<table>
<tr><td>Operable Unit:
14/Site 11 (SRA)</td><td>Protectiveness Determination:
Protective</td><td>Addendum Due Date (if applicable):
NA</td></tr>
<tr><td colspan="3">Protectiveness Statement:
The remedy for OU 14 is protective of human health and the environment because no exposure is occurring, and the OU is Navy-retained property with ICs in the form of LUCs established under the LIFOC. Prior to or upon property transfer, LUCs in the form of deed restrictions are required to be completed. The need to change the type of IC upon property transfer does not change the protectiveness of the remedy. The remedy, in-situ bioremediation, is progressing and LTM and FYRs are required to be conducted in accordance with the ROD.</td></tr>
<tr><td>Operable Unit:
OU 25/AOC Hangar 1</td><td>Protectiveness Determination:
Protective</td><td>Addendum Due Date (if applicable):
NA</td></tr>
<tr><td colspan="3">Protectiveness Statement:
The OU 25 remedy is protective of human health and the environment because there are no current exposures to contaminated groundwater. The OU consists of either Navy-retained property with ICs in the form of LUCs established under the LIFOC or transferred property with LUCs established under Grants of Restrictions given by multiple Grantees back to the Navy. The OU 25 remedy component (LUCs) for both transferred properties and Navy-retained property will be incorporated into the Basewide PFAS OU (OU 27), and LUCs in the form of deed restrictions are required to be completed prior to transfer of Navy-retained property. The need to change the type of IC upon property transfer does not change the protectiveness of the remedy.</td></tr>
<tr><td>Operable Unit:
OU 23 and 24/IOA</td><td>Protectiveness Determination:
Will be Protective</td><td>Addendum Due Date (if applicable):
NA</td></tr>
<tr><td colspan="3">Protectiveness Statement:
The remedy for OUs 23 and 24 will be protective of human health and the environment upon completion of the RA and attainment of the soil cleanup goals.</td></tr>
</table>

Sitewide Protectiveness Statement (if applicable)	
NA	
Protectiveness Determination: NA	*Addendum Due Date (if applicable):* *NA*
Protectiveness Statement: NA	

2.0 IR Program Site 1 – West Gate Landfill

This section presents the findings of the FYR for the remedy implemented at IR Site 1 (OU 1), the WGL.

2.1 Site Description and History

The WGL is a closed and capped landfill covering approximately 5 acres on the western side of the former base, south of Trotter Road. (Figure 2-1). The landfill is in a cleared area west of French Stream in an otherwise wooded portion of the former base, with wetlands to the south and west. Groundwater flow is generally to the east toward French Stream. There are no surface water bodies within the limits of the site. The site is currently Navy-retained property.

A wooden post-and-rail fence with a locked metal swing gate and stormwater controls consisting of drainage swales and slope protection rip-rap enclose the landfill. A monitoring network of groundwater monitoring wells, piezometers, gas vents, and gas wells (probes) are present within and adjacent to the wetland.

The WGL was active for approximately 30 years, from the 1940s through 1972. The landfill was used primarily for domestic wastes and occasionally other wastes generated at the base. Material observed within the landfill includes metal scraps, asphalt, bricks, concrete, plastic sheeting, wires, bottles, cans, metal wheel rims, rubber pieces, tubing, hoses, glass, and other general debris. There are no records of hazardous wastes regulated under Subtitle C of the Resource Conservation and Recovery Act (RCRA) being disposed of at the WGL.

A site chronology and additional site background information are included in Appendix B.

2.2 Response Action Summary

2.2.1 Basis for Taking Action

This section summarizes the chemicals of concern (COCs), media of concern, potential receptors, and exposure pathways that resulted in potentially unacceptable risks at the site that required RA under CERCLA. Baseline human health and ecological risk assessments were conducted for the WGL as part of the Phase I and Phase II RI/Feasibility Study (FS). The Human Health Risk Assessment (HHRA) indicated potentially unacceptable risks to current on-site workers, trespassing children, construction workers, and future residents and recreational children from exposures to surface soil in the uncapped landfill, if no action were taken. These risk exceedances were related to surface soil COCs including polychlorinated biphenyls (PCBs), arsenic, dioxins, polycyclic aromatic hydrocarbons (PAHs), dieldrin, and lead. The HHRA also indicated potentially unacceptable risks to future hypothetical residents if groundwater beneath the Site were used for drinking water based on the presence of COCs including arsenic, chromium, several PAHs, hexachlorobenzene, and 1,4-dioxane.

The Ecological Risk Assessment (ERA) identified potentially unacceptable risks to terrestrial invertebrates, birds, and mammals from exposure to aluminum, cadmium, chromium, copper, lead, mercury, nickel, vanadium, zinc, total PAHs, dioxin, and total PCBs in surface soil. No unacceptable risks were identified for aquatic invertebrates, amphibians, or fish from exposure to surface water or sediment in French Stream.

Surface soil and groundwater were identified as the media of concern for the WGL. The FS established remedial action objectives (RAOs) (the medium-specific goals) based on the COCs, exposure pathways, and receptors (Navy, 2003a). The FS evaluated six remedial alternatives.

2.2.2 Response Actions

The ROD was signed by Navy and EPA in September 2007, with MassDEP concurrence (Navy, 2007b). The RAOs presented in the ROD are to:

- Eliminate human and ecological exposure to the surface of the landfill.
- Minimize erosion and deposition of surface soil and landfill material into the adjacent wetlands.
- Remove visible landfill material from the palustrine wetlands adjacent to the WGL, and restore the wetlands impacted by the removal.
- Meet state regulations regarding closing a landfill.
- Eliminate human exposure to groundwater containing contaminant concentrations in excess of federal or more stringent state drinking water standards or posing an unacceptable risk to human health.

The major components of the selected remedy in the ROD include the following:

- Conducting compaction and related testing within the landfill area to properly design and construct a soil cover.

- Removing debris from the adjacent wetlands and placing it in the landfill.
- Clearing the landfill area of trees, brush, and exposed rubble, removing tree stumps, and grading the site.
- Constructing a soil cover on the site meeting Commonwealth of Massachusetts solid waste regulations and federal PCB regulations. The design goal for the soil cover is to eliminate direct contact with landfill materials.
- Restoring the wetland area that was disturbed during the removal of debris from the site.
- Implementing a LUC to restrict invasive activities (e.g., digging) on the surface of the site.
- Implementing a LUC to prevent the use of groundwater for any purpose at the site until groundwater cleanup objectives are met as determined by the post-remedial groundwater monitoring program.
- Conducting long-term groundwater monitoring and site maintenance.
- Conducting a review of the site every 5 years.

Remedial goals (RGs) established for the COCs in soil and groundwater are summarized in the following table.

Table 2-1: Summary of Remedial Goals

Medium	COC	RG
Groundwater	1,4 Dioxane	6 µg/L
	Arsenic	10 µg/L
	Benzo(a)anthracene	0.09 µg/L
	Benzo(b)fluoranthene	0.09 µg/L
	Dibenzo(a,h)anthracene	0.009 µg/L
	Hexachlorobenzene	1 µg/L
	Indeno(1,2,3-cd)pyrene	0.09 µg/L
	Chromium	47 µg/L

Medium	COC	RG
Surface Soil	PCBs	0.67 mg/kg
	Benzo(a)pyrene	0.47 mg/kg
	Benzo(a)anthracene	4.73 mg/kg
	Arsenic	1.04 mg/kg
	Dibenzo(a,h)anthracene	0.47 mg/kg
	Dieldrin	0.08 mg/kg
	Dioxin	1.45 x 10^{-5} mg/kg
	Lead	350 mg/kg

µg/L – Micrograms per liter.
mg/kg – Milligrams per kilogram.

In March 2010, the Navy finalized a Memorandum for the Record documenting a change to the cover material for the landfill cap (Navy, 2010a). The design was changed to use a flexible membrane liner material rather than a soil or clay layer. The design change was a non-significant, minor change.

In August 2010, the Navy finalized an ESD that allowed excavated soil from the STP site and AOC 55C to be used as common fill in the subgrade layer of the WGL landfill cap (Tetra Tech, 2010c).

In July 2016, Navy finalized a Memorandum for the Record documenting an administrative change to the schedules for facility and LUC compliance inspections and mowing and maintenance schedules. The mowing and maintenance activities previously conducted in the spring were changed to occur in the late fall (after November 15) to enhance protectiveness of a Massachusetts State species of special concern (Eastern Box Turtle).

2.2.3 Status of Implementation

A 4.7-acre landfill cap was constructed over the WGL as detailed in the *Final Remedial Action Completion Report for Site 1, West Gate Landfill at Naval Air Station South Weymouth* (Shaw, 2012). Debris in the adjacent wetland areas was excavated and placed in the landfill prior to installation of the cover materials. Landfill gas vents with locked gates and concrete pads were installed on the surface of the landfill, and gas probes were placed on the perimeter and outside the landfill cap. The monitoring well and piezometer network was completed.

A system of perimeter drainage swales was built to manage stormwater runoff from the landfill and included two level spreaders that direct uniform flow into the wetlands from the southern and part of the western slopes. Wetlands impacted during construction were either restored or replaced by converted upland areas in 2010, with a net gain in wetlands at the WGL. All elements of the remedy including wetland restoration are in place as of this FYR.

2.2.4 Land Use Controls

The WGL is currently Navy-retained property; therefore, the restrictions established in the LIFOC as described in Section 1.1 apply until the property is transferred. Upon property transfer deed restrictions consistent with the LUCs required by the ROD will be established and a NAUL will be recorded with the deed.

The 2007 ROD included implementation of ICs to achieve the performance objectives. The LUCIP for WGL was finalized in 2011 and details the LUCs (inclusive of ICs and engineering controls) and all actions needed to establish and maintain the LUCs. The LUCs are summarized in Table 2-2.

Table 2-2: Summary of Land Use Controls

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date
Groundwater	Yes	Yes	LUC area established for WGL	Prevent human exposure to groundwater containing contaminant concentrations in excess of federal or more stringent drinking water standards or posing potential risks to humans.	LIFOC (2011), WGL LUCIP (2011)
Soil and remedy components	Yes	Yes	LUC area established for WGL	Prohibit activities or uses of the site that would disturb or otherwise interfere with the integrity or function of the cap (which prevents access to soil). These prohibited activities include construction on, excavation of, or breaching of the cap.	LIFOC (2011), WGL LUCIP (2011)

Annual LUC compliance inspections are conducted at WGL in late fall to confirm that the required LUCs are in place and that LUC objectives are being met. The annual LUC compliance inspection checklists are included as appendices to the annual long-term monitoring (LTM) reports, which were reviewed as part of the FYR. The most recent (2018) annual LUC compliance inspection for WGL was completed on January 4, 2019, by Tetra Tech. Per the 2016 Memorandum for the Record, LUC inspections must be performed each year following the annual mowing event. Due to wet conditions in late fall, the mowing event was delayed until dryer conditions prevailed later in December. Records research and interviews supporting the LUC compliance inspections were performed in early December. Observations during the most recent annual LUC inspection for 2018 confirmed that there have been no unauthorized digging, drilling, excavation, or construction activities on the landfill and that no new water supply wells have been installed within ¼ mile of the WGL. Two new well permit applications were submitted in 2018, but both were withdrawn prior to installation. The annual LUC compliance inspection checklists are included as appendices to the annual LTM reports (Watermark, 2015a; 2016a; 2017a and Tetra Tech, 2018a).

PFAS groundwater contamination under the WGL is being addressed under OU 27. The provisions of the Basewide LUCIP for PFOS and PFOA as they affect the WGL are discussed in Section 11.

2.2.5 Operations and Maintenance

Landfill facility inspections in support of operations and maintenance (O&M) of the landfill were conducted quarterly for the first 2 years and semi-annually for subsequent years in accordance with the Final Post Closure Maintenance and Environmental Monitoring Plan (PCMEMP) (Shaw, 2011). Post-closure care at the WGL must be performed after landfill closure in accordance with the ROD. 2018 is year 7 of post-closure monitoring. The primary activities associated with O&M include the following:

- Taking corrective actions to remediate and/or mitigate conditions that would compromise the integrity and purpose of the final cover.
- Maintaining the integrity of the liner system and final cover system.
- Monitoring and maintaining the environmental monitoring systems for surface water, groundwater, and air quality.
- Maintaining access roads and landfill gas control systems.
- Protecting and maintaining surveyed benchmarks.

The annual fall facility inspection is performed in late November or December after mowing and maintenance activities have been conducted per the 2016 Memorandum for the Record.

Since the last FYR, maintenance and repair activities have included minor regrading of the access road and addition of gravel, placement of additional rip-rap, filling in of ruts from mowing activities, and annual mowing of the cap and drainage features. The following maintenance and repair activities for the WGL were conducted in November and December 2018:

- Annual mowing of landfill cap area.
- Regrading and placement of a new layer of gravel on access roads.
- Addition of rip-rap to cover the flexible membrane exposed on the southern and western sides of the landfill.
- Removal of vegetation in the center of the access roads.
- Removal of vegetation around the edges of the landfill fence.
- Replacement of damaged piezometer PZ-03 with PZ-03R.
- Settlement survey and survey of the new piezometer.

The most recent facility inspection was performed on December 18, 2018, by a Tetra Tech Massachusetts-licensed Professional Engineer after the mowing and maintenance event. The 2018 facility inspection results indicate that the landfill and associated components are in good condition overall. No bare spots exceeding 25 square feet were observed on the landfill cap, discharge swales were observed to be clean and in good condition, and the north and south level spreader overflow edges appeared to be level and in good condition. Based on the results of the 2018 facility inspection, the following recommendations were made for implementation in 2019:

- Place additional stone on the access road in the northwestern and southeastern corners of the landfill where there was still some ponding.
- Modify LFG-08 so that the cap sits flush with the casing and can be locked.

Annual settlement surveys within the last 5 years were performed in April 2014, April 2015, March 2016, October 2017, and October 2018. The maximum measured settlement between 2010 and 2018 was -0.23 foot at a rebar monument at the north level spreader. The changes measured to date are less than 6 inches, which is the maximum differential settlement allowed. The settlement survey results are included in the annual LTM reports for WGL.

2.2.6 Long-Term Monitoring

LTM activities commenced in December 2011 and have been performed in accordance with the ROD, Final PCMEMP, Revised Sampling and Analysis Plan (SAP) (Watermark, 2012), and Final SAP for Long Term Monitoring at WGL, RDA, and Small Landfill (Tetra Tech, 2017). A total of 7 years of LTM have been performed to date (Years 1 through

7). This third FYR evaluates data from the last 5 years of LTM, representing Years 3 through 7 of the LTM program.

The WGL LTM program includes groundwater monitoring as required by the ROD as well as other post-closure landfill monitoring as specified by Massachusetts solid waste regulation 310 CMR 19.132, which was identified in the ROD as an applicable requirement. LTM locations are listed in Table 2-3. The current WGL LTM program as specified in the 2017 SAP includes:

- Semi-annual groundwater, surface water, and sediment monitoring.
- Quarterly landfill gas monitoring.
- Semi-annual water level measurements.

The only LTM medium of concern with ROD-specified RGs is groundwater. There are no RGs for surface water or sediment because no unacceptable risks were identified. However, in addition to groundwater, surface water and landfill gas monitoring is required to comply with 310 CMR 19.132. The regulation specifies that groundwater and surface water be analyzed for sets of indicator parameters, metals, volatile organic compounds (VOCs), and 1,4-dioxane at a minimum. The LTM program includes analysis for these parameters and others that have been requested by the regulators as specified in the SAP. Sediment monitoring has been included at the request of the regulators, initially warranted to address concerns about impacts to French Stream during remedy implementation and during the early post-closure period.

Within the last 5 years (Years 3 through 7 of the LTM program), a total of 20 quarterly landfill gas monitoring events and 12 groundwater, surface water, and sediment monitoring events were completed. Starting in Year 4, groundwater, surface water, and sediment sampling frequency was changed to semi-annual; landfill gas monitoring has continued on a quarterly basis.

Groundwater samples are collected from 17 monitoring wells, and surface water and sediment samples are collected from eight co-located locations along French Stream and in the wetland to the west and south of the landfill. Landfill gas monitoring is completed at two gas vents and 10 perimeter gas probes. Monitoring locations are shown on Figure 2-1.

2.2.7 Wetland Inspections

Within the last 5 years, post-restoration wetland monitoring was conducted in October 2014, April 2016, and September 2016 in accordance with the *Final 100% Design Work*

Plan (Shaw, 2010a), *Wetland Restoration Plan Addendum* (Tetra Tech, 2012a), and *Invasive Species Control Plan for AOC 55C and West Gate Landfill* (Shaw, 2010b). The performance standards for achieving wetland mitigation, as outlined in the Final 100% Design Restoration Plan and Wetland Restoration Plan Addendum, are as follows:

- Achieve at least 80-percent aerial coverage of noninvasive plant species.
- Restore the functions and values of the wetland to the functions and values identified before the RA.
- Monitor and control invasive species.

The Annual Wetland Monitoring Report dated May 2015 summarized the 2014 wetland inspection results and the 2014 Functions and Values Assessment (FVA), discussed performance standards met and provided recommendations (Tetra Tech, 2015a). The first performance standard listed was met as of October 2013, and conditions met or exceeded the minimum requirements for vegetation monitoring as of October 2014 (Tetra Tech, 2015a). The 2014 FVA concluded that the wetland was performing similar roles as prior to restoration. The 2014 inspection results noted that the invasive common reed was emerging at a few locations in the wetland and some defoliation, likely by winter moths, was observed on red maple and pin oak saplings. Recommended actions included horticultural oil spraying to stunt winter moth egg development, manual removal and treatment of common reed with glyphosate, and additional monitoring events (Tetra Tech, 2015a). Treatment of red maple and pin oak trees to prevent winter moth damage occurred in May 2015 (Resolution, 2015a), and treatment of common reed with glyphosate was completed in October 2016.

Based on the results of the 2016 wetland inspections, the third performance standard was met in 2016. The wetland areas at WGL are functioning appropriately as wetland habitats, and no additional inspections were recommended in the October 2016 inspection report. Annual wetland monitoring inspections were discontinued based on the results of the 2016 inspections and treatment of common reed (Resolution, 2016a).

2.3 Progress Since Last Five-Year Review

This section includes the protectiveness determinations and statements from the previous FYR as well as recommendations from the previous FYR and the status of those recommendations.

Table 2-4: Protectiveness Determinations/Statements from the 2014 FYR

OU #	Protectiveness Determination	2014 Protectiveness Statement
1	Protective	The remedy at the WGL is expected to be protective of human health and the environment upon attainment of groundwater cleanup goals. In the interim, exposure pathways that could result in unacceptable risks are being controlled and ICs are preventing exposure to, or the ingestion of, contaminated groundwater. All threats at the site have been addressed through capping of the landfill, the installation of fencing and warning signs, and the implementation of ICs. Long-term protectiveness of the remedial action will be verified by continued facility and LUC inspections and performance of the LTM program. Current monitoring data indicate that the remedy is functioning as required to achieve groundwater cleanup goals. The remedy for the WGL currently protects human health and the environment because LTM activities are being conducted and will continue to be conducted after property transfer. The following actions will be taken to ensure long-term protectiveness of the remedy: continued long-term monitoring of groundwater, surface water, and sediment; continued monitoring of landfill gases to ensure long-term protectiveness; continued post-closure O&M of landfill; continue to monitor the wetland as described in the Final 100% Design Restoration Plan (Shaw, 2010a) and Wetland Inspection Addendum (Tetra Tech, 2012a); and continue implementation of ICs in accordance with the LUCIP (Tetra Tech, 2011a).

No issues or recommendations relating to the protectiveness of the remedy were included in the previous FYR. Although not associated with the protectiveness of the remedy, a recommendation to treat an invasive species (common reed) at WGL was noted in the previous FYR. Treatment of common reed was completed in October 2016 and documented in the 2016 Monitoring Inspections Letter (Resolution, 2016a) as described in Section 2.2.7.

2.4 Five-Year Review Process

This section summarizes the FYR process for WGL and the actions taken to complete the review.

2.4.1 Data Review

The selected remedy for WGL is in place, and an LTM program is ongoing. Data from the WGL LTM monitoring events from December 2013 through July 2018 (Years 3 through 7 of LTM program) were reviewed for this FYR. Summaries of relevant data for the WGL remedy are presented in the following sections.

2.4.1.1 Long-Term Monitoring Results

The results of LTM conducted during Years 3 through Year 7 are discussed in this section. Groundwater is the only medium in the LTM program with RGs, but landfill gas and surface water are included as required by Massachusetts landfill closure regulations, 310 CMR 19.132, which are cited as applicable or relevant and appropriate requirements (ARARs) in the ROD. Sediment sampling has been included at the request of the regulators. Analytes included in the LTM SAPs have included the MassDEP-specified indicator parameter analytes, metals, and VOCs, inclusive of analytes with ROD-specified RGs. These activities are described in the SAP (Tetra Tech, 2017).

Complete analytical results for 2014 through 2018 (Years 3 through Year 7) are presented in the annual monitoring reports (Watermark, 2015a; 2016a; 2017a and Tetra Tech, 2018a) and the Spring 2018 LTM Data Report (Tetra Tech, 2019) . LTM locations are shown on Figure 2-1. A summary of groundwater COC results compared to the ROD-specified RGs is presented in Table 2-5. Groundwater COC trends are presented on Exhibits 2-1 through 2-8, and trends in landfill gas are presented on Exhibit 2-9. A summary of analytical results for surface water and sediment is included in Appendix B. The monitoring results are discussed below by medium and analyte group.

Summary of Groundwater Monitoring Results

The COCs for groundwater are 1,4-dioxane, arsenic, benzo(a)anthracene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, hexachlorobenzene, indeno(1,2,3-cd)pyrene, and chromium. Table 2-1 presents the groundwater RGs specified in the ROD. Exhibits 2-1 through 2-8 illustrate COC trends in groundwater compared to the ROD-specified RGs. Other groundwater analytical data are compared to the project action levels (PALs) if available, typically the lesser of EPA Maximum Contaminant Levels (MCLs), Massachusetts MCLs (MMCLs), or EPA Action Levels for copper and lead, as identified in the SAP (Navy, 2007b; EPA, 2009a MassDEP, 2011; Tetra Tech, 2017). For those chemicals without ROD-specified criteria, (i.e., analytes included to meet Massachusetts solid waste monitoring requirements), a brief discussion of detections in groundwater is included to assess overall groundwater quality.

<u>Chemical of Concern Concentrations Exceeding Remedial Goals</u>

In Years 3 and 4, arsenic was detected in groundwater at one location (WGL-MW-04) at concentrations exceeding the RG, as illustrated on Exhibit 2-2. In the last 5 years, concentrations exceeded the RG at this one location (WGL-MW-04) in June and

September 2014 and September 2015. However, arsenic concentrations in WGL-MW-04 are decreasing, with the most recent (May 2018) arsenic result (3.6 µg/L) significantly less than the RG (10 µg/L). Monitoring well WGL-MW-04 is in the wetland, cross-gradient of the landfill. Arsenic concentrations have not exceeded the RG at other groundwater sample locations.

Benzo(b)fluoranthene has been detected in excess of the RG once (December 2013) at one location (WGL-MW-48D) within the last 5 years (Exhibit 2-4).

No other ROD-specified COCs were detected at concentrations exceeding RGs during Years 3 through Year 7 monitoring.

<u>MassDEP-Specified Parameters</u>

Groundwater samples were also analyzed for alkalinity, chemical oxygen demand (COD), chloride, nitrate-N, sulfate, and total dissolved solids (TDS) to monitor the physical and chemical properties of groundwater in accordance with Massachusetts 310 CMR 19.132.

Elevated alkalinity concentrations can be an indicator of anaerobic degradation. The maximum alkalinity level was measured in the sample collected from WGL-MW-901D in December 2013; there are no federal or state drinking water standards for this parameter.

COD is an index of organic contamination. COD concentrations have ranged from 10 milligram per liter (mg/L) (WGL-MW-903, September 2015) to 190 mg/L (WGL-MW-102S, October 2017) within the last 5 years, but concentrations have not exceeded the PAL for COD of 500 mg/L.

Chloride has been detected in at least one well during Years 3 through 7 at concentrations exceeding the PAL (250 mg/L). Chloride concentrations at WGL-MW-02 have exceeded the PAL every year during the last 5-year period. Sulfate concentrations did not exceed the PAL (250 mg/L) during the last 5 years. Nitrate concentrations did not exceed the PAL (10 mg/L); the maximum concentration was 7.8 mg/L at WGL-MW-901S in October 2017.

TDS include inorganic salts and small amounts of organic matter that are dissolved in water. No PAL for TDS was established in the SAP. The maximum TDS concentration of 789 mg/L was detected at WGL-MW-02 in September 2015.

2.4.1.2 Summary of Surface Water Monitoring Results

Monitoring of surface water has been conducted in accordance with MassDEP post-closure landfill requirements. As previously noted, there are no RGs for surface water. Surface water results are compared to National Recommended Water Quality Criteria (NRWQCs) as presented in the previously cited LTM reports and specified in the SAP (Tetra Tech, 2017). A summary of detected chemicals in surface water for Years 1 through 7 is included in Appendix B.

<u>Comparison of Surface Water Concentrations to NRWQCs</u>

Eleven of the detected dissolved metals have associated NRWQCs (aluminum, arsenic, cadmium, chromium, copper, iron, lead, mercury, nickel, selenium, and zinc). Concentrations of four metals (aluminum, cadmium, copper, and iron) exceeded NRWQCs at surface water locations during Years 3 through 7. Dissolved aluminum and iron concentrations exceeded NRWQCs at most sample locations during the last 5 years. Dissolved copper concentrations exceeded the NRWQC at two locations (WGL-SW-05 and WGL-SW-06), and dissolved cadmium concentrations exceeded the NRWQC infrequently at three locations (WGL-SW-01, WGL-SW-02, and WGL-SW-06) within the last 5 years. Most metals concentrations exceeding NRWQCs occurred at surface water sample locations east, and downgradient, of the landfill in French Stream (WGL-SW-02 through WGL-SW-04), with fewer exceedances at the upstream location (WGL-SW-01) and wetland locations (WGL-SW-07 and WGL-SW-08). These results are similar to those from Years 1 and 2. Overall for Years 3 through 7, the number of metals concentrations exceeding NRWQCs and the number of locations with metals concentrations exceeding NRWQCs has decreased compared to surface water results from Years 1 and 2. Metals concentrations exceeding NRWQCs are either relatively stable or decreasing (Appendix B, Table B-3a).

Cyanide was detected at concentrations exceeding its NRWQC at one location (WGL-SW-02) in Year 6 and at two sample locations (WGL-SW-06 and WGL-SW-08) in Year 7. Cyanide was detected at two locations (WGL-SW-01 and WGL-SW-04) in Year 5 but at concentrations less than the NRWQC. Cyanide was not detected in Years 1 through 4, but concentrations do not appear to be increasing; the laboratory detection limit has decreased since the start of LTM (Appendix B, Table B-3a).

Alkalinity was measured at concentrations greater than the NRWQC at three surface water sample locations (WGL-SW-06 through WGL-SW-08) in Year 7. In Year 6, alkalinity was measured at concentrations exceeding the NRWQC at all surface water sample locations except for WGL-SW-05. In Year 5, alkalinity exceeded the NRWQC at all locations except WGL-SW-4 and WGL-SW-8 (WGL-SW-05 was not sampled).

Overall, alkalinity concentrations detected within the last 5 years appear relatively stable when compared to concentrations detected during Years 1 and 2 (Appendix B, Table B-3a).

Three pesticides (endrin aldehyde, beta-hexachlorocyclohexane [beta-BHC], and endosulfan I) were detected infrequently in surface water at concentrations less than NRWQCs during Years 3 through 7. For LTM data reviewed during the previous FYR period (Years 1 and 2), five pesticides (4,4-dichlorodiphenyldichloroethane [DDD], 4,4-dichlorodiphenyldichloroethylen [DDE], 4,4-dichlorodiphenyltrichloroethane [DDT], gamma-chlordane, and methoxychlor) were detected at concentrations exceeding NRWQCs at various locations.

No PCBs were detected in surface water samples collected during Years 1 through 7.

<u>Other Detected Compounds</u>

Low levels of one VOC (acetone) were detected in surface water in Year 5. Low levels of acetone and toluene were detected in surface water in Year 6, and methyl-tert-butyl ether and toluene were detected at low levels in Year 7. There are no NRWQCs associated with these VOCs. Acetone is a common laboratory contaminant.

Semi-volatile organic compounds (SVOCs) were detected at multiple surface water locations, but no NRWQCs are available for the detected SVOCs. 1,4 Dioxane was detected in surface water during Year 5. There is no PAL for 1,4 Dioxane in surface water but based on the relatively low detected concentrations (0.03 to 1.5 µg/L) compared to the Region 4 screening value (22,000 µg/L), 1,4-dioxane is not present in surface water at concentrations of environmental concern.

Two herbicides (2,4-dichlorophenoxyacetic acid [2,4-D] and 2-methyl-4-chlorophenoxyactic acid (MCPA) were detected infrequently in surface water during the last 5-year period. 2,4-D was detected at five surface water locations (WGL-SW-01, -SW-04, -SW-06, -SW-07 -SW-08), and MCPA was detected at four surface water locations (WGL-SW-01 through -04). No other herbicides were detected in surface water samples collected during Years 3 through 7 or during the LTM rounds reviewed during the previous FYR period (Years 1 and 2).

<u>MassDEP-Specified Parameters</u>

Surface water samples were analyzed for alkalinity, COD, chloride, nitrate-N, sulfate, and TDS (alkalinity and chloride were discussed above) to monitor the physical and chemical properties of surface water in French Stream and in the wetland bordering the perimeter of WGL.

2.4.1.3 Summary of Sediment Monitoring Results

Sediment has been included in the LTM program as requested by the regulatory team. Sediment sampling was initially warranted to address concerns about impacts to French Stream during remedy implementation and during the early post-closure period. Sediment analyte concentrations were compared to the available PALs established in the Remedial Design Work Plan (RDWP) (Shaw, 2010a). These PALs were primarily based on NAS South Weymouth background concentrations for sediment. A summary of detected analytes in sediment from Year 1 through 7 is included in Appendix B.

Comparison of Detected Analytes to Project Action Levels

Concentrations of 15 metals (aluminum, arsenic, beryllium, cadmium, chromium, cobalt, copper, iron, magnesium, mercury, nickel, potassium, selenium, silver, and vanadium) exceeded PALs in one or more sediment samples collected in Years 3 through 7. Iron concentrations consistently exceeded the PAL (2,400 mg/kg based on the RDWP) at all sample locations. However, the background sediment value was 24,000 mg/kg. Other metals concentrations exceeding PALs were detected in both the wetland and downgradient of the landfill in French Stream, similar to surface water results. Also similar to surface water results, the upstream location (WGL-SD-01) had fewer metals concentrations exceeding PALs than downstream locations (WGL-SD-02 through WGL-SD-04). However, there do not appear to be any significant increases in metals concentrations in sediment when comparing data collected in Years 3 through 7 to the previous FYR period (Years 1 and 2) (Appendix B, Table B-3b).

Two VOCs (2-butanone and acetone) were detected infrequently in excess of PALs in Years 6 and 7. VOCs were not detected at concentrations exceeding PALs in Years 1 through 5 except for one exceedance of acetone at WGL-SD-06 in Year 1. Acetone and 2-butanone are common laboratory contaminants.

Several PAHs were detected in Years 3 through 7. In Years 3 and 6, several PAH concentrations at one location (WGL-SD-04) exceeded PALs. In Year 4, PAH concentrations exceeding PALs were detected at two locations (WGL-SD-04 and WGL-SD-06). Most PAH concentrations exceeding PALs were detected at WGL-SD-04, located downgradient of the landfill in French Stream. No consistent or significant increases in PAH concentrations were observed at this location during Years 3 through 7 when compared to data collected in Years 1 and 2 (Appendix B, Table B-3b).

Four pesticides were detected at concentrations exceeding PALs during Years 3 through 7. In Year 7, the dieldrin concentration exceeded the PAL at one location (WGL-SD-02). In Year 6, alpha-chlordane, dieldrin, endosulfan II, and gamma-chlordane concentrations exceeded their respective PALs at least one sample location (WGL-SD-01, WGL-SD-02, or WGL-SD-04). In Year 4, concentrations of dieldrin and endosulfan II exceeded PALs, dieldrin at WGL-SD-01 and WGL-SD-04 and endosulfan II at WGL-SD-06. Most pesticide concentrations exceeding PALs have been detected at the upgradient location (WGL-SD-01) and locations downgradient of the landfill in French Stream (WGL-SD-02 through WGL-SD-04). No significant increases in pesticide concentrations have been observed in sediment during Years 1 through 7 of the LTM program (Appendix B, Table B-3b). PCBs have not been detected at concentrations exceeding PALs.

2.4.1.4 Summary of Landfill Gas Monitoring Results

Based on the landfill gas monitoring results for the last 5 years, there are no signs of methane-enriched areas within the landfill gas vents or exterior gas probes. Methane levels in monitoring probes surrounding the landfill are less than the MassDEP action level of 25 percent of the lower explosive limit (LEL) or 1.25 percent methane. The greatest methane percentages within the landfill were measured at the gas vents, ranging from 0.1 to 1.8 percent (October 2017) at GV-01 and 0.1 to 0.7 (January 2018) percent at GV-02. Gas vents GV-01 and GV-02 are centrally located on top of the landfill. The PAL for methane concentrations is 1.25 percent as specified in the SAP (Tetra Tech, 2017). As illustrated on Exhibit 2-9, there have been no exceedances of the methane LEL (5 percent) since the start of LTM landfill gas monitoring in 2011. Methane percentages have trended downward since 2011.

2.4.2 Site Inspection

The FYR site inspection was conducted on December 4, 2018, by Tetra Tech personnel (see Appendix B). The purpose of the inspection was, as part of the overall assessment of the protectiveness of the remedy, to observe current conditions independent of facility inspections to note the integrity of the cap, condition of drainage structures, and presence of fencing and signage to restrict access.

The capped landfill was well vegetated, and no major erosion or damage to the cap was noted. The annual mowing event was in process at the time of the site inspection; therefore, the vegetation on the cap of the landfill was still high (approximately 3 feet). The mowing event was completed by mid-December 2018. The north and south level spreaders were observed to be in good condition with no areas of erosion. Monitoring wells and gas vents appeared to be in good condition and secured, with the exception of LFG-08, which needs to be modified so the cap is flush with the casing and can be locked. Some areas of ponded water were observed along the access road. The access gate was locked, signs were posted at three locations along the perimeter warning of the presence of a capped landfill, and warning signs were observed on each gas vent. Property development in the vicinity of the WGL includes a public road, sidewalk, and residential housing. No motorized vehicles or passive pedestrians were observed at WGL at the time of the inspection, and there was no evidence of vandalism or trespassing. A site inspection checklist and photographic log are included in Appendix B.

2.5 Technical Assessment

This section provides a technical assessment of the remedy implemented at the WGL in the form of responses to the three questions outlined in the Comprehensive Five-Year Review Guidance (EPA, 2001).

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

The landfill cap is in good condition and is functioning as designed. It was covered by grasses up to 3 feet tall in some areas at the time of the FYR site inspection, prior to 2018 mowing. The two passive gas vents and 10 gas probes appeared to be in good condition. A wooden guardrail fence surrounds WGL, and signs are posted on the northern, western, and eastern landfill boundaries warning of the presence of a closed landfill. The signs are in good condition and are readable. The drainage swale located along the southern side of the landfill appeared in good condition. New construction along Trotter Road, located just north of the landfill, and at the new residential development (Woodstone Crossing), located northeast of WGL, has not impacted the condition of the landfill.

The remedy components that have been completed (soil and landfill material relocation, landfill soil cap installation, wetland restoration, and fencing and signage) and those that are ongoing (LUC inspections and post-closure maintenance and monitoring) are functioning as designed. Erosion and deposition of landfill material and soil has been minimized by the cap. State landfill closure requirements are being met. Wetland restoration and annual post-remediation wetland inspections have been completed. LTM data indicate progress toward meeting the chemical RAOs; no groundwater COCs with ROD-specified RGs were detected at concentrations exceeding RGs during Years 4 through 7, as illustrated by trend analyses and discussed in Section 2.4.1. Based on the completed and ongoing activities, the intent and goals of the WGL ROD have been met. No problems with the remedy in place or ongoing O&M activities were identified during this FYR. There are opportunities to reduce costs of monitoring and sampling, as described in Section 2.7, Other Findings.

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

2.5.2.1 Changes in Exposure Pathways

No changes in exposure pathways or land use have occurred since selection of the remedy and the last FYR.

2.5.2.2 Changes in Standards or Newly Promulgated Standards

The location-specific ARARs for wetlands and floodplains cited at 40 C.F.R Part 6 regarding federal floodplain standards no longer exist. The former regulations required any remedial infrastructure in the 100-year flood zone not to release contaminants into the environment in the event of up to a 100-year flood. Current federal floodplain regulations at 44 C.F.R Part 9 require flood protection on any part of a landfill within the 500-year floodplain. The WGL is within an area currently not designated as floodplain on the current Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM). In addition, according to the Town of Weymouth Hazard Mitigation Plan 2014 Update (draft), the WGL is not within a 500-year flood zone (Town of Weymouth, 2015).

There have been no changes to relevant ARARs or newly promulgated standards since the last FYR that affect the protectiveness of the remedy.

2.5.2.3 Changes in Toxicity and Other Contaminant Characteristics

EPA released its toxicological review of benzo(a)pyrene in January 2017 and updated its toxicity factors in the Integrated Risk Information System (IRIS) database. The oral cancer slope factor for benzo(a)pyrene decreased from 7.3 $(mg/kg\text{-}day)^{-1}$ to 1 $(mg/kg\text{-}day)^{-1}$. The approximate seven-fold reduction in the cancer slope factor corresponds to an approximate seven-fold reduction in the risk associated with benzo(a)pyrene.

The change in the cancer potency factor for benzo(a)pyrene impacts the evaluation of the other carcinogenic PAHs. Although the cancer slope factor for benzo(a)pyrene changed, the relative potency factors used to evaluate risks associated with exposure to other carcinogenic PAHs have not changed. As a result, the cancer slope factors for the other carcinogenic PAHs decrease proportionately. For example, the oral cancer slope factor for benzo(b)fluoranthene (using a relative potency factor of 0.1) decreased from 0.73 to 0.1 $(mg/kg\text{-}day)^{-1}$. This approximate seven-fold reduction in the cancer slope factor corresponds to an increase in the residential soil Regional Screening Level (RSL) from 0.034 to 0.25 μg/L and a corresponding seven-fold reduction in risk.

Although this results in an overall decrease in risks associated with exposure to PAHs in soil and groundwater, the risk reduction is not sufficient to warrant a change in the selected remedy. As discussed in Section 2.5.1.2, concentrations of PAHs in the most recent groundwater samples are less than the existing RGs and therefore would be less than any revised RGs based on the current toxicity criteria for PAHs.

There have been no changes since the last FYR in toxicity factors for COCs other than PAHs.

The last FYR evaluated the ERA conducted as part of the Phase II RI to determine whether the results would change based on current ERA criteria and/or methodologies. The assessment concluded that changes in screening levels were unlikely to have a significant impact on the results and conclusions of the ERA because site-specific toxicity studies and biological studies were conducted as part of the ERA. As indicated throughout the ERA, multiple lines of evidence were used to evaluate ecological risk. The last FYR recommended a re-evaluation of ecological risks if increasing trends are observed in monitored surface water or sediment quality. Concentrations in surface water and sediment are generally decreasing or similar to previous results; therefore, ecological risks do not need to be re-evaluated in this FYR. The emerging contaminant 1,4-dioxane was detected in a few surface water samples. Based on the relatively low detected concentrations (0.03 to 1.5 μg/L) in surface water compared to the Region 4 screening value (22,000 μg/L), 1,4-dioxane is not present in surface water at concentrations of environmental concern.

2.5.2.4 Changes in Risk Assessment Methods

There have been no changes in HHRA methodology since the last FYR that would affect the protectiveness of the remedy. Methodologies for conducting the site-specific studies conducted for the ERA generally have not changed.

2.5.3 Question C: Has Any Other Information Come to Light that Could Call into Question the Protectiveness of the Remedy?

No other information was identified during the completion of this FYR that could affect the protectiveness of the remedy. No weather-related events have affected the protectiveness of the remedy.

2.5.4 Technical Assessment Summary

Based on review of data, LTM reports (which include the LUC compliance and facility inspection reports), the site inspection, and interview responses, the remedy is functioning as intended by the ROD. There have been no changes in the physical conditions of the Site that would affect the protectiveness of the remedy. There is progress toward achieving groundwater cleanup objectives as determined by the post-remedial groundwater monitoring program. ROD-specified RGs for groundwater contamination and landfill gas criteria have been met within the last 5 years, except for arsenic concentrations at one groundwater monitoring well (WGL-MW-04). However, arsenic concentrations at WGL-MW-04 are decreasing. There have been no significant changes in the toxicity factors for the COCs that were used in the HHRA and ERA, and there have been no changes in the standardized risk assessment methodology that would affect the conclusions of the HHRA or ERA or the protectiveness of the remedy for the WGL.

There is no other information that calls into question the protectiveness of the remedy.

2.6 Issues/Recommendations

No deficiencies were identified during this FYR for WGL, and no issues related to current site conditions or activities prevent the remedy from being protective at this time. Because no issues affecting the protectiveness of the remedy were identified, there are no recommendations for WGL, and no follow-up actions are required.

2.7 Other Findings

Based on this data review, the Navy believes optimization of the LTM program is appropriate, as recommended in the annual LTM reports. The project team may consider recommendations including reducing groundwater and surface water sampling frequency to annual; reducing or eliminating analysis of surface water samples for pesticides, herbicides, and PCBs because it is not needed to meet landfill post-closure monitoring requirements; and reducing sediment sampling frequency to once every 5 years. In addition, the frequency of landfill gas monitoring may be reduced to biannual.

The presence of PFOS and PFOA in groundwater beneath the WGL is being investigated under a separate OU (OU 27) to address basewide PFAS in groundwater at former NAS South Weymouth. The ongoing basewide PFAS investigation is discussed in Section 11.0 of this report.

2.8 Protectiveness Statements

Table 2-6: Protectiveness Statement

OU #	Protectiveness Determination	Protectiveness Statement
1	Protective	The OU 1 remedy is protective of human health and the environment because exposure pathways that could result in unacceptable risks are being controlled by the landfill cap and ICs in the form of LUCs. All potential unacceptable risks at the site have been addressed through capping of the landfill, and implementation of LUCs. Current inspection and monitoring data indicate that the remedy is functioning as intended by the ROD.

2.9 Next Review

The fourth FYR for former NAS South Weymouth will be completed in 2024; OU 1, the WGL, will be included for full review.

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3.0 IR Program Site 2 – Rubble Disposal Area

This section presents the findings of the FYR for the remedy implemented at IR Site 2 (OU 2), the RDA.

3.1 Site Description and History

The RDA is a closed and capped landfill covering approximately 4 acres in the eastern portion of the NAS South Weymouth property in Rockland, Massachusetts (Figure 3-1). An access road and the Bill Delahunt Parkway are located to the west and north of the site, and forested uplands and palustrine wetlands border the site to the south and east, respectively. The wetlands border Old Swamp River, which flows north along the northern end of the landfill. A small intermittent stream, known as the Feeder Stream forms the south-southwestern boundary of the RDA (Tetra Tech, 2007a). The site is currently Navy-retained property.

The RDA is now covered by a vegetated soil cap. A locked, metal, swing gate is located at the landfill entrance on the northwest side of the landfill. A 3.5-foot-high wooden post-and-rail fence and stormwater controls consisting of drainage swales and slope protection rip-rap enclose the landfill. A monitoring network of groundwater monitoring wells, piezometers, gas vents, and gas probes are present within and adjacent to the wetland.

The RDA was active for approximately 4 years, from 1959 to 1962 and again for a short period in 1978. The landfill was used primarily for disposal of large natural debris (e.g., boulders and tree stumps) and building debris (e.g., concrete and other construction materials). In 1979, partially burned building debris and associated rubble from Building 21, which was destroyed by a fire, were placed in the RDA. Materials observed within the site included glass, insulation material, concrete, scrap metal, wire, asphalt, rubber, fabric, boulders, and wood. There are no records of hazardous wastes regulated under Subtitle C of the RCRA being disposed of at the RDA.

A site chronology and additional background information are provided in Appendix C.

3.2 Response Action Summary

3.2.1 Basis for Taking Action

This section summarizes the COCs, media of concern, potential receptors, and exposure pathways that resulted in potentially unacceptable risks at the site that required remedial action under CERCLA. Baseline human health and ecological risk assessments were conducted for RDA as part of the Phase I and Phase II RI/FS. The HHRA determined that potential carcinogenic and non-carcinogenic risks under the current use scenario were within or less than the acceptable risk benchmarks at the RDA. However, potential risks under the future scenario were greater than acceptable carcinogenic and non-carcinogenic risk benchmarks for residential receptors. These exceedances were based on potential exposure to arsenic, benzo(a)pyrene, and manganese in groundwater used as drinking water (Navy, 2003b).

The ERA did not identify adverse effects to receptors based on exposure to surface soil, sediment, surface water, or wetland plants and aquatic animal tissue. However, the presence of PCBs in hydric soil and small mammal tissue suggested potential risk to small mammals. The ERA concluded that, although the presence of PCBs in hydric soil and lower trophic-level animals (mice, fish, amphibians, and earthworms) presents potential risks to small mammals, it does not impact the food chain and does not exceed regulatory risk thresholds for higher trophic-level birds and mammals.

Based on the risks identified in the RI, an FS was completed in March 2002. The FS established RAOs, which are medium-specific goals based on the COCs, exposure pathways, and receptors at the site. The RAOs also were established to ensure compliance with the ARARs included in the FS. The FS identified seven remedial alternatives and evaluated each one based on the nine FS criteria.

3.2.2 Response Actions

In the February 2003 Proposed Plan, the Navy proposed removal of soil and sediment containing PCBs at concentrations greater than RGs; disposal of excavated soil off site, and construction of a soil cover over the site (Navy, 2003b).

The ROD for the RDA was signed by the Navy and EPA in December 2003, with MassDEP concurrence (Navy, 2003c). The RAOs for the RDA are as follows:

- Minimize erosion and deposition of waste materials into the adjacent wetlands.
- Eliminate or minimize the potential for small mammals to be exposed to PCBs present in hydric soil in the adjacent wetlands.
- If capping is being considered, comply with Massachusetts solid waste landfill closure and post-closure requirements.
- Prevent human exposure to groundwater containing contaminant concentrations in excess of federal or more stringent state drinking water standards or posing potential risks to humans.

The remedy selected to meet these RAOs included excavation and off-site disposal of PCB-impacted hydric soil, a permeable soil cap over landfilled materials , LTM; and LUCs. As required by the ROD, implementation of the selected remedy included the following:

- Conducting, as necessary, further data evaluation or collection to support the design of the soil cover (e.g., compaction and related testing).
- Excavating PCB-impacted material from the adjacent wetland area, and disposing of the material in an off-site landfill.
- Conducting confirmatory PCB sampling and analysis within the excavated wetland area, as well as the immediately abutting upland soil, as part of the remedial action process prior to landfill capping.
- Removing physical debris from the wetland area for either placement on the upland portion of the disposal area or for off-site disposal.
- Restoring the wetland area that was disturbed during removal of the PCB-impacted material and debris.
- Clearing, grubbing, and grading the site.
- Constructing a soil cover on the site in accordance with Massachusetts solid waste landfill closure requirements.
- Constructing a fence around the site and posting warning signs plans.
- ICs to achieve the LUC performance objectives.
- Conducting LTM and site maintenance.
- Conducting a review of the site every 5 years.

RGs established for the constituents in soil and groundwater are summarized in the following table.

Table 3-1: Summary of Remedial Goals

Medium	COC	RG
Groundwater	Arsenic	10 µg/L
	Benzo(a)pyrene	0.2 µg/L
	Manganese	313 µg/L
Soil	Total PCBs	8 mg/kg total dry weight with post-excavation average of 1 mg/kg

A LUCIP for the RDA was completed in 2009 (Tetra Tech, 2009a).

In 2010, the Navy finalized an ESD that provided administrative changes to the ARARs and To Be Considered (TBC) provisions of the ROD (Tetra Tech, 2010a). Additionally, the ESD documented a change in the groundwater portion of the remedy to specify monitored natural attenuation (MNA), primarily to address concentrations of manganese greater than RGs outside the compliance boundary. As a result, an interim LUC boundary was established through the 2010 ESD and was identified in the 2010 amendment to the 2009 LUCIP for RDA.

Changes to the ROD documented in a 2012 ESD to allow for the construction of the Bill Delahunt Parkway included:

- Removal, replacement, and realignment of certain Engineering Controls (post-and-rail fence).
- Removal and replacement of certain monitoring wells and stations.
- Alteration of the low-permeability soil cover's perimeter drainage swale (Navy, 2012).

In July 2016, Navy finalized a Memorandum for the Record documenting an administrative change to the schedules for LTM facility and LUC inspections and mowing and maintenance schedules at RDA. The mowing and maintenance activities conducted in the spring were changed to occur in the late fall after November 15, to enhance protectiveness of a Massachusetts State species of special concern (Eastern Box Turtle).

3.2.3 Status of Implementation

The components of the remedy as implemented are documented in the Final Remedial Action Completion Report (RACR) (Tetra Tech EC, 2007). The report provides a comprehensive list of modifications to the original RD and a detailed explanation of the construction process, summarized in the following sections.

A 4-acre landfill cap was constructed over the RDA. The cover system for most of the landfill was constructed from May to October 2004. The soil cover included the following components: in-situ material; a common borrow layer; 6-inch gas management layer; 16-ounce non-woven geotextile (animal intrusion layer); 18-inch select fill layer; and 6-inch topsoil layer, erosion barriers, and slope protection rip-rap.

Eight gas vents were installed over the surface of the landfill, and seven gas probes were placed on the perimeter, outside the landfill cap. Locked gates and concrete pads were installed around each gas vent.

A drainage swale was constructed between the existing access road to the north and the edge of the landfill cap. A series of gabion baskets were installed outside the cap limits at the southern portion of the landfill for slope stabilization. A stormwater swale along the west-southwestern boundary and slope protection rip-rap were installed along the boundary of the wetland on the eastern side of the cap.

Turtle surveys were conducted prior to construction and periodically during the construction period. Nine soil turtle bridge crossings were constructed to provide access between the upland and wetland portions of their habitat. A layer of ¾-inch crushed stone was placed over the perimeter rip-rap to assist turtle crossings.

The landfill cap construction and PCB removal activities occurred concurrently. Excavation of PCB hotspots occurred in June and August 2004 and November 2005. Approximately 230 tons of upland and hydric soils were removed during these PCB excavation events. Approximately 5,500 square feet in the PCB areas were not capped during the initial mobilization. The same low-permeability select soil material was not available when the PCB area was being capped, so a geosynthetic clay liner was used instead of a low-permeability select fill layer. The PCB area cap consisted of a 6-inch crushed gravel gas management layer, geosynthetic liner, 3-inch crushed gravel drainage layer, geotextile, 15 inches of compacted common fill, and 6-inch layer of topsoil.

During landfill construction activities, a petroleum-like odor was detected in soil on the south side of the landfill. The source of the odor was an asphalt-like petroleum material. Test pit excavations delineated the extent of the asphalt material, which was limited. The material was excavated to the water table and incorporated into the landfill.

Wetland restoration activities were conducted in September and October 2004. Less than 1 acre of palustrine scrub shrub and forested wetlands were impacted. Wetlands were restored, and additional acreage of emergent wetland was created, with an overall net gain in wetlands at the RDA (Tetra Tech EC, 2007).

A supplemental landfill gas investigation was conducted from June to September 2010 to delineate the lateral extent of a methane-enriched area along the western and northern margins of the Site boundary, investigate the presence of organic material in the overburden at selected locations, and determine the origin and source of methane and VOCs. A report presenting the results was finalized in October 2011 (Tetra Tech, 2011b). Based on the conclusions, the Navy, in consultation with EPA and MassDEP, developed a corrective action consistent with requirements in 310 CMR 19.151. The corrective action was implemented in October/November 2013 and included installing wick drains along the northern perimeter of the landfill to mitigate methane gas build up in the RDA.

3.2.4 Land Use Controls

The RDA is Navy-retained property; therefore, the restrictions established in the LIFOC as described in Section 1.1 of the FYR apply until the property is transferred. Upon property transfer, deed restrictions consistent with the ROD will be established, and a Grant of Environmental Restriction and Easement (GERE) will be recorded with the deed.

The 2008 ROD included implementation of LUCs to achieve the LUC performance objectives listed in Table 3-2. In addition, an interim LUC area was established through the 2010 ESD and identified in the 2010 amendment to the 2009 LUCIP. The interim LUC was established to prevent human exposure to COCs in groundwater beyond the landfill footprint.

Table 3-2: Summary of Land Use Controls

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date
Groundwater	Yes	Yes	LUC area and interim LUC area established for RDA	Prevent human exposure to groundwater containing contaminant concentrations in excess of federal or more stringent drinking water standards or posing potential risks to humans	LIFOC (2011), RDA LUCIP (2009), LUCIP Amendment (2010)
Soil	Yes	Yes	RDA cap	Prohibit activities or uses of the Site that would disturb or otherwise interfere with the integrity or function of the permeable soil cap. These prohibited activities include construction on, excavation of, or breaching of the permeable soil cap	LIFOC (2011), RDA LUCIP (2009)

Annual LUC compliance inspections are conducted at RDA in late fall each year to verify that LUCs remain in place and that LUC objectives are being met. The most recent annual LUC inspection for WGL was completed on January 4, 2019, by Tetra Tech. Per the 2016 Memorandum for the Record, LUC inspections are to be done after the annual mowing event, but due to wet conditions in late fall, the mowing event was not completed until December and therefore the 2018 LUC inspection was delayed. Records research and interviews were performed in early December. Observations during the most recent annual LUC inspection confirmed that there have been no unauthorized digging, drilling, excavation, or construction activities on the landfill and that no new water supply wells have been installed within ¼ mile of the RDA.

PFAS groundwater contamination beneath RDA is being addressed under OU 27. The provisions of the Basewide LUCIP for PFOS and PFOA as they affect the RDA and results of the 2018 LUC inspection are discussed in Section 11.

3.2.5 Operations and Maintenance

Landfill inspections were conducted quarterly for the first 2 years and then semi-annually for each subsequent year in accordance with the Final LTM Plan (Tetra Tech

EC, 2008). Post-closure care at RDA must be performed after landfill closure in accordance with the ROD and 310 CMR 19.000. 2018 is considered year 12 of monitoring.

The activities associated with O&M of the landfill include:

- Monitoring and inspection of the landfill cap.
- Visual inspection of the landfill cap with regard to vegetative cover, settlement, erosion, evidence of burrowing animals, and need for corrective action.
- Inspection of the access road, security fence, gate, and signage.
- Visual inspection of the eastern margin of the landfill to monitor the areas for leachate breakout, oil seepage, and iron-staining flocculent.
- Inspection and maintenance of the stormwater drainage system for erosion, vegetative growth, ponding, and obstructions.
- Inspection of the condition of the gas vents, gas probes, monitoring wells, and piezometers.
- Monitoring for settlement of the landfill cap.

Landfill facility (or O&M) inspections have generally been performed coincident with the LTM sampling events by a Massachusetts-licensed Professional Engineer. However, since 2016, they are performed after mowing and maintenance activities that start in mid-November.

The most recent facility inspection was performed on December 18, 2018, by a Massachusetts-licensed Professional Engineer employed by Tetra Tech. The 2018 landfill inspection concluded that, overall, the landfill cap is in good condition and functioning according to the design, including the vegetative cover, storm water drainage system, gas vents and probes, perimeter road, fence, and signage. The following observations were noted during the 2018 facility inspection:

- The landfill cap is in good condition with some minor ruts caused by mowing activities near GV-03.
- The storm water drainage swale and perimeter rip-rap are in good condition.

- The perimeter wooden fence is in good condition, although approximately six wooden posts along the southeastern perimeter were observed to have some rotting at the center of the posts.
- Gas vents and probes are in good condition.
- Minor erosion was observed in the gravel parking area and access road.
- Vegetation across the landfill is in good condition.

Based on the results of the fall 2018 inspection, the following recommendations were made for implementation in 2019:

- Continue to monitor ruts that are currently revegetated and gravel surfaces of the access road.
- Fill wooden posts with center rot with wood filler and cap to prevent additional rotting of the wood from pooled water.

Annual settlement surveys are now performed once prior to each FYR. The most recent settlement survey was conducted in October 2018. Survey measurements were collected from marked points on the surface of the concrete pad at each gas vent and compared to previously collected data. The maximum measured settlement reported between 2013 and 2018 was 0.26 foot at GV-05, on the eastern side of the landfill. The maximum change measured to date (between 2006 and 2018) is 0.42 foot at GV-05, which is still less than 6 inches, the maximum differential settlement allowed.

3.2.6 Long-Term Monitoring

LTM activities commenced at the RDA during February 2007 and have been performed in accordance with the Final Quality Assurance Project Plan (QAPP) for LTM (Tetra Tech, 2007a), as modified by the Final QAPP Addendum 1 (Tetra Tech, 2008b), 2013 PCMEMP (Navy, 2013a), and Final SAP for LTM at WGL, RDA, and Small Landfill (Tetra Tech, 2017). Revisions to the LTM program have included reductions in frequency of sample collection, sample locations, and analytical parameters. A total of 12 years of LTM have been performed to date (Years 1 through 12). This third FYR evaluates data from the last 5 years of LTM, representing Years 8 through 12 of the LTM program.

As outlined in the Final SAP, LTM is performed as required by the ROD and post-closure landfill monitoring as required by MassDEP, in accordance with Massachusetts solid waste monitoring requirements specified in 310 CMR 19.132. There are no ROD-specified RGs for surface water, sediment, or landfill gas. Surface water monitoring is completed to comply with 310 CMR 19.132 and 19.142 (identified as ARARs in the ROD) to assess surface water quality near the RDA. Sediment monitoring has been included in the LTM program to assess the quality of sediment in the wetlands and in Old Swamp River. Landfill gas monitoring is required to comply with 310 CMR 19.132. The components of the current RDA LTM program include:

- Annual groundwater and surface water monitoring (spring).
- Sediment monitoring (prior to each FYR).
- Landfill gas monitoring (semi-annual).
- Water level measurements (semi-annual).

Within the last 5 years (Years 8 through 12 of the LTM program), a total of 10 semi-annual landfill gas monitoring events, five annual groundwater and surface water monitoring events, and two sediment monitoring events were completed.

Groundwater samples are collected from 11 monitoring wells, and water levels are measured in 12 monitoring wells and 10 piezometers. There are three co-located surface water and sediment sample locations along the eastern boundary in the adjacent wetland and two surface water locations in Old Swamp River (upgradient and downgradient locations).

Landfill gas monitoring is completed at eight gas vents (GV-01 through -08) and seven gas probes (GP-01, GP-02, GP-04 through -07 and RDA-GP-900). The LTM locations are summarized in Table 3-3 and illustrated on Figure 3-1. An evaluation of LTM data collected within the last 5 years is included in Section 3.4.1.

3.2.7 Wetland Inspections

Post-restoration wetland inspections were conducted semi-annually (spring and fall) from June 2009 through September 2012 (Tetra Tech EC, 2008). The LTM Plan identified performance standards to determine if the restored and created wetlands at RDA were successfully established 5 years following remediation. After the fall 2010 inspection, the post-restoration wetland conditions at RDA met all the performance standards outlined in the LTM Plan. A stem count in the created wetland conducted in spring 2011 verified that all planted material was well established. No further monitoring or restorative measures were warranted, and none were conducted during the past 5 years.

3.3 Progress Since Last Five-Year Review

This section includes the protectiveness determinations and statements from the previous FYR.

Table 3-4: Protectiveness Determinations/Statements from the 2014 FYR

OU #	Protectiveness Determination	Protectiveness Statement
2	Protective	The remedy for the RDA currently protects human health and the environment because exposure pathways that could result in unacceptable risks are being controlled and ICs are preventing exposure to, or the ingestion of, contaminated groundwater. All threats at the site have been addressed through capping of the landfill, the installation of fencing and warning signs, and the implementation of ICs. LTM activities are being conducted and will continue to be conducted after property transfer.

No issues or recommendations relating to the protectiveness of the remedy were included in the previous FYR. Although not associated with the protectiveness of the remedy, the following recommendations were noted in the previous FYR: (1) continue monitoring manganese concentrations in groundwater due to manganese concentrations in groundwater exceeding the RG; (2) continue monitoring select metals (aluminum, iron, and lead) in surface water due to exceedances of applicable NRWQCs; and (3) prepare the RACR for the 2013 corrective action and continue landfill gas monitoring post wick drain installation to assess the effectiveness of the corrective action.

Monitoring of groundwater and surface water has continued through 2018. The RACR for the landfill gas mitigation system was finalized in 2016 (Tetra Tech EC, 2016). Based on the continued monitoring of landfill gases the Navy is preparing a work plan focusing on two areas where the wick drain system has not been fully effective in reducing methane detections in gas probes.

3.4 Five-Year Review Process

This section provides a summary of the third FYR process and the actions taken to complete the review.

3.4.1 Data Review

The selected remedy for RDA is in place and an LTM program is ongoing. A review was completed of monitoring data from April 2014 through May 2018 (i.e., Years 8 through 12). A summary of relevant data regarding the components of the RDA remedy is presented below.

3.4.1.1 Long-Term Monitoring Results

LTM activities at the RDA have been performed as described in Section 3.2.6. Complete analytical results for monitoring data from Years 8 through 12 are included in the annual monitoring reports (Watermark, 2015b; 2016b; 2017b and Tetra Tech, 2018b) and the Spring 2018 Data Report (Tetra Tech, 2018c) A summary of groundwater COC results compared to ROD-specified RGs is presented in Table 3-5. Groundwater COC trend graphs are presented on Exhibits 3-1 through 3-5, and trends in landfill gas are presented on Exhibit 3-6. A summary of analytical results for surface water and sediment is included in Appendix C. LTM locations are illustrated on Figure 3-1. The monitoring results are discussed below by medium and analyte group.

Summary of Groundwater Monitoring Results

Groundwater sampling has been conducted to determine whether contaminant concentrations exceed RGs and federal and state drinking water criteria, determine whether contaminants are migrating off site at unacceptable levels, determine whether the groundwater remedy (MNA) is working, and identify when groundwater conditions at the RDA no longer present a risk to human health or the environment.

Groundwater monitoring results are compared to the site RGs for manganese, arsenic, and benzo(a)pyrene, as specified in the ROD. Exhibits 3-1 through 3-5 illustrate COC trends in groundwater compared to the ROD-specified RGs. Although there are no ROD-specified RGs for volatile petroleum hydrocarbons (VPH) or chlorobenzene, trend graphs have also been prepared to monitor long-term trends in concentrations of petroleum constituents and derivatives in groundwater and to evaluate the progress of MNA at the Site.

Groundwater analytical data for analytes without RGs are compared to PALs, which are the lesser of the EPA MCLs, and MMCLs for groundwater (Navy, 2003c; EPA, 2009b; MassDEP, 2011) and EPA action levels (applicable for copper and lead) for drinking water, as identified in the revised SAP (Tetra Tech, 2017). For those compounds without ROD-specified criteria, a brief discussion of detections in groundwater is included to present overall groundwater quality.

Chemicals of Concern Exceeding Remedial Goals

Manganese was the only COC detected in groundwater at concentrations exceeding its ROD-specified RG during Years 8 through 12. In Year 12, manganese concentrations exceeded the RG at all groundwater monitoring locations except RDA-TT06, with concentrations ranging from 510 µg/L in the upgradient well (RDA-MW01-064) to 15,000 µg/L (RDA-TT04). The majority of manganese concentrations detected since the start of LTM sampling in 2007 have exceeded the RG. Maximum concentrations of manganese have consistently been detected at downgradient well TT04, and minimum concentrations have consistently been detected in upgradient well TT06. Based on the data illustrated in Exhibit 3-5, upward trends in manganese concentrations are observed in downgradient well TT02 and upgradient wells TT01, TT08, and MW01-064, and concentrations remain stable at downgradient wells TT03, TT05, TT06, MW50D, and MW50D2. A downward trend is observed at TT07 (centrally located within the landfill) and downgradient well TT04. Greater manganese concentrations in downgradient wells may be a result of reducing conditions generated under the landfill cap and/or material with high organic content in the wetland abutting the downgradient side of the landfill.

Arsenic concentrations have not been detected in excess of the ROD-specified RG within the last 5 years (i.e., Years 8 through 12). Since the start of LTM, arsenic has only been detected at two locations at concentrations exceeding the RG (10 µg/L), at TT07 in September 2010 and TT02 in December 2007. Overall, the data set for arsenic shows decreasing or stable trends at all locations except for TT04 (Exhibit 3-4).

Benzo(a)pyrene has not been detected at concentrations greater than the ROD-specified RG within the last 5 years (Exhibit 3-1). Since the start of LTM, benzo(a)pyrene has only been detected in excess of the RG at RDA-TT07 in March 2007. Overall, the data set for benzo(a)pyrene shows a decreasing trend between April 2014 and May 2018.

Other Chemicals Detected

Other chemicals for which there are no ROD-specified RGs were detected in groundwater, but none of the concentrations exceeded MCLs or MassDEP MMCLs, where established.

Several VOCs were detected in groundwater samples collected at RDA within the last 5 years (acetone, chlorobenzene, cyclohexane, methyl tert-buryl ether, and methyl cyclohexane), but concentrations did not exceed the PALs. Exhibit 3-2 shows that chlorobenzene has been consistently detected at low concentrations (less than the PAL) at two monitoring well locations (RDA-TT04 and TT05) downgradient of the landfill cap. Overall, detections of chlorobenzene have shown a decreasing trend at TT04 and a stable trend at TT05. Chlorobenzene has not been detected at other groundwater monitoring locations.

One VPH fraction (C_5-C_8 aliphatics) has been detected at all monitoring well locations sampled in the last 5 years, but concentrations have not exceeded the PAL. Exhibit 3-3 shows VPH C_5-C_8 aliphatics concentrations and trends from each monitoring well location in the RDA LTM network. The only exceedances of the C_5-C_8 aliphatics PAL (300 µg/L) have occurred in samples collected from RDA-TT05, located downgradient of the landfill, in June 2008 and March 2010. Overall, concentrations of C_5-C_8 aliphatics at TT05 are stable.

Very low concentrations of PAHs have been detected in groundwater at RDA within the last 5 years. Benzo(a)pyrene is the only PAH with an RG, as discussed above.

During the last 5 years, only one SVOC (pentachlorophenol) was detected in excess of the PAL (at RDA-MW50D, RDA-TT04, and RDA-TT08 during Year 10).

A total of sixteen metals were detected in groundwater within the last 5 years; however, total metals concentrations did not exceed the PALs, other than manganese as discussed above.

Herbicides and PCBs were not detected in groundwater samples collected from the RDA during Years 8 through 12.

Miscellaneous Parameters

Groundwater samples were also analyzed for miscellaneous parameters including alkalinity, COD, chloride, nitrate-N, sulfate, and TDS to monitor the physical and chemical properties of groundwater. There were no exceedances of indicator parameters with established PALs. TDS is the only parameter to exceed a secondary MCL of 500 mg/L, which has been used for comparison in LTM reports within the last 5 years. TDS was detected in excess of the PAL at one location in April 2014 (RDA-TT02) and at multiple locations in May 2017 and June 2018. Results indicate mostly reducing conditions, which support an anaerobic environment at RDA.

Summary of Surface Water Monitoring Results

Monitoring in accordance with post-closure landfill requirements is conducted to assess surface water quality in the vicinity of the RDA. There are no action levels or RGs for surface water specified in the ROD because no unacceptable human health or ecological risks were associated with chemicals detected in surface water collected during the RI. However, the NRWQCs are included in the ROD as relevant and appropriate monitoring criteria. Dissolved metals results in surface water samples at RDA are compared to NRWQCs. Surface water results for Years 8 through 12 are discussed below. A summary of analytical results for surface water is included in Appendix C.

Comparison of Detected Analytes to NRWQCs

Eight of the 17 dissolved metals detected in surface water have associated NRWQCs, and 3 of these 17 metals (aluminum, iron, and lead) were detected at dissolved concentrations exceeding their respective NRWQC value during Years 8 through 12. Dissolved aluminum concentrations exceeded the NRWQC at 3 of 5 locations (RDA-SWD, RDA-SWU, and RDA-SW03) within the last 5 years; most exceedances were detected at the downstream location (RDA-SWD). Dissolved aluminum concentrations did not exceed the NRWQC in Years 9 or 10. Dissolved iron concentrations exceeded the NRWQC in at least one surface water sample each year during the past 5 years. In Year 11, dissolved iron concentrations exceeding the NRWQC at all five surface water sample locations (RDA-SW01, -SW02, -SW03, -SWU, and -SWD). In Year 12, iron concentrations exceeded the NRWQC at three of five locations (RDA-SW02, -SW03, and -SWU). Dissolved lead was detected at one location (RDA-SWD) in excess of the NRWQC in Year 9 (April 2015); dissolved lead has not been detected at concentrations greater than the NRWQC at any other location during Years 8 through 12. Overall, there does not appear to be any significant increases in dissolved metals concentrations in surface water when compared to results collected in Years 1 through 7 (Appendix C, Table C-3a).

Pesticides were not detected in surface water samples collected within the last 5 years. The overall frequency and detection of pesticides in surface water at RDA has decreased since the start of LTM in 2007 (Appendix C, Table C-3a).

Other Detected Compounds

Other compounds detected in surface water for which there are no established NRWQC criteria include VOCs, PAHs, and VPH. Low concentrations of VOCs have been detected at all five surface water sample locations within the last 5 years. However, in the last year VOCs were detected at only three of the five surface water sample locations (RDA-SW01 through -SW03).

Low concentrations of VPH compounds were detected at all five surface water sample locations within the last 5 years. In Years 8 through 10, VPH compounds (C_5-C_8, C_9-C_{12} aliphatics, and C_9-C_{10} aromatics) were detected at all five surface water locations. In

Years 11 and 12, VPH compounds (ethylbenzene and toluene) were detected in at least one surface water sample each year located along the eastern boundary of the landfill.

Low concentrations of PAHs have been detected at one or more surface water sample locations at RDA within the last 5 years. Most PAHs were detected during Years 9 and 10 at three surface water sample locations (RDA-SW01 through -SW03). Acenaphthene was detected in one sample (RDA-SW01) during Year 8 and 11. PAHs were not detected in surface water samples collected during Year 12.

Herbicides have not been detected in surface water at RDA since Year 1.

Miscellaneous Parameters

Surface water samples were also analyzed for miscellaneous parameters including alkalinity, COD, chloride, nitrate-N, sulfate, and TDS to monitor the physical and chemical properties of surface water in the wetland abutting RDA and Old Swamp River. Results indicate mostly reducing conditions at RDA-SW01, -SW02, and -SW03, which supports an anaerobic environment at RDA. As noted with groundwater analytical results, elevated manganese concentrations in surface water may indicate reducing conditions generated beneath the landfill cap and/or due to the natural condition of the wetland located downgradient of the landfill.

Summary of Sediment Monitoring Results

Monitoring is conducted to assess the quality of the sediment in the wetland adjacent to the RDA. There are no action levels or RGs specified in the ROD for sediment; sediment sample results are compared to the base background values, where available. The following summarizes the chemicals exceeding available base background levels. Sediment samples were collected in Year 10 (March 2016) and Year 12 (May 2018) during the last 5-year period. A summary of analytical results for sediment is included in Appendix C, Table C-3b.

Concentrations of twelve metals (antimony, arsenic, barium, beryllium, calcium, chromium, iron, magnesium, potassium, selenium, silver, and vanadium) exceeded their base background levels at multiple sediment sample locations during the last 5 years. In Year 12, metals were detected at all three sediment sample locations in exceedance of base background levels, with the majority of exceedances detected at downgradient location RDA-SD01.

Overall, the frequency of metals detected in exceedance of base background values has decreased since Year 1, and concentrations appear to be either stable or decreasing. Chromium, iron, and magnesium have consistently been detected at concentrations greater than the base background values at all sample locations since the start of LTM, but concentrations do not indicate an increasing trend.

Five VOCs have been detected at low levels within the last 5 years of LTM. Two VOCs (acetone and 2-butanone) were detected in excess of base background values during the most recent sampling event (May 2018). Concentrations detected within the last 5 years appear to be consistent with concentrations detected during the previous 5-year period.

Extractable petroleum hydrocarbons (EPH) have been detected in sediment at RDA during the past 5 years. In Year 12, 14 EPH compounds were detected at concentrations exceeding base background values at RDA-SD03 and one EPH compounds (2-methylnaphthalene) was detected at RDA-SD01 at concentrations exceeding base background values. Two EPH compounds (C_{11}-C_{22} aromatics and C_{19}-C_{36} aliphatics) have consistently been detected in most sediment samples collected; there are no base background values established for these compounds.

Several PAHs were detected at low levels in both Year 10 and 12, but concentrations did not exceed base background values.

One PCB (Aroclor-1260) was detected during Year 12 at one sample location (RDA-SD01), but the concentration did not exceed the base background value. Several PCBs and pesticides were detected during Years 1 through 3, but all concentrations were less than base background values, except one pesticide (endosulfan sulfate) at RDA-SD02 in Year 2.

Summary of Landfill Gas Monitoring Results

Based on the landfill gas monitoring results from the last 5 years, there are two methane-enriched areas at the RDA, as illustrated on Exhibit 3-6. Measurements taken at gas probe GP-01, near the northern perimeter of the site, consistently show methane concentrations exceeding 25 percent of the LEL (i.e. 1.25 percent methane), ranging from 31.7 to 61.7 percent and exceeding the upper explosive limit (UEL). At gas probe GP-02, also located near the northern perimeter of the site, methane concentrations have ranged from 0 to 29.5 percent within the last 5 years. The majority of oxygen levels at GP-01 and GP-02 have been low (less than 5 percent). Methane percentages measured at perimeter gas probes GP-01 and GP-02 have exceeded the perimeter PAL for methane (1.25 percent) as specified in the SAP (Tetra Tech, 2017) each year within the last 5 years.

Methane has been detected at gas vents within the landfill boundary but at levels less than the 5-percent LEL. Methane has been detected at five gas vents (GV-01, GV-04, GV-06, GV-07, and GV-08) within the last 5 years. The maximum methane concentration detected within the landfill was 4 percent at GV-06 during the October 2017 LTM event; GV-06 is located near the apex of the landfill. Overall, methane concentrations detected within the landfill have decreased since the start of monitoring in 2007 at RDA.

Methane was only detected at one gas vent GV-06 (0.1 percent methane) in May 2018 and was not detected in any of the perimeter gas probes; these results are inconsistent with historical results, that have consistently shown elevated methane concentrations at the northern perimeters of the landfill in gas probes GP-01 and GP-02 (Exhibit 3-6). Although review of calibration information did not identify specific problems for the methane sensor, instrument drift was noted for the hydrogen sulfide sensor. The anomalous May results may have been a result of faulty instrumentation. In October 2018, methane concentrations in the two probes were similar to historical results.

The landfill gas mitigation system installed in 2013 (i.e., wick drain system) has been effective in reducing methane levels at RDA. However, monitoring has shown that there are still two areas with elevated methane levels at two gas probes. At least one area (GP-01) correlates to a location where wick drain installations were not able to get to depth due to refusal (Tetra Tech EC, 2016). Additional investigations are planned for spring 2019 to confirm that methane is not migrating off site at these locations and to determine options for addressing the two areas with elevated methane levels.

3.4.2 Site Inspection

The FYR site inspection was conducted at the Site on December 5, 2018, by Tetra Tech personnel (see Appendix C). The purpose of the inspection was to observe current conditions independent of facility inspections to note the integrity of the cap, condition of drainage structures, and presence of fencing and signage to restrict access, as part of the overall assessment of the protectiveness of the remedy.

The capped landfill was well vegetated; no areas of erosion or damage to the cap were noted. Vegetation on the landfill cap was high at the time of the inspection (between 1 and 3 feet), and the drainage path along the southern perimeter was overgrown with brush and vegetation. The annual mowing event was in process at the time of the inspection, and mowing of the cap and vegetation removal along the drainage swale had not yet been completed. The mowing event was completed by mid-December 2018. One sign was observed at the access gate to the landfill warning of the presence of a capped landfill. Monitoring wells and gas vents appeared to be in good condition and secured with locks. Gas vents were noted to be incorrectly labeled when compared to the site map at the time of the inspection but were subsequently corrected. It was also noted that the polyvinyl chloride casing at TT-06 needs to be trimmed so the well top can sit flush with the casing and be locked. The Bill Delahunt Parkway is located north of the site, and passive recreation users (e.g., walkers, runners) were observed using the associated sidewalk located on the northern side of the parkway. A site inspection checklist and photographic log are included in Appendix C.

3.5 Technical Assessment

This section provides a technical assessment of the remedy implemented at the RDA, in the form of responses to the three questions outlined in the Comprehensive Five-Year Review Guidance (EPA, 2001).

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

The on-site landfill cap is in good condition and is functioning as designed. It is covered by grasses that were observed to be up to 3 feet tall in some areas at the time of the inspection. The eight passive gas vents and seven gas probes appeared to be in good condition. A sign is posted on the northern landfill boundary, at the access gate, warning of the presence of a closed landfill, and a wooden guardrail fence surrounds the perimeter of RDA. The drainage swales along the perimeter of the landfill contained vegetation and several bushes at the time of the site inspection, but these were removed during the annual mowing and vegetation removal event in December 2018.

As a result of LTM for landfill gas, elevated methane at the northern perimeter of the landfill was identified but within the LUC boundary. A corrective action (i.e., wick drain installation) was completed in 2013, and post-corrective action landfill gas monitoring results indicate that the corrective action was successful in decreasing overall methane concentrations at the RDA. Post-corrective action landfill gas monitoring indicates that elevated methane concentrations remain at two gas probe locations along the northern landfill perimeter. The monitoring program has functioned as intended because it has identified a need for increased monitoring, study, and potentially additional corrective action at the two landfill gas probe locations.

The components of the remedy that have been completed (soil excavation, landfill soil cap, wetland restoration, fencing/signage) have met the RAOs. Actions that are underway (LUC inspections and post-closure maintenance and monitoring) are operating as designed. Based on the completed and ongoing activities, the remedy is functioning as intended by the ROD and modified by the ESD, but additional investigation is warranted to assess elevated methane concentrations along the northern perimeter of the landfill.

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

3.5.2.1 Changes in Exposure Pathways

No changes in exposure pathways or land use have occurred in the past five years, or since selection of the remedy.

3.5.2.2 Changes in Standards or Newly Promulgated Standards

The location-specific ARARs for wetlands and floodplains cited at 40 C.F.R Part 6 regarding federal floodplain standards no longer exist. The former regulations required any remedial infrastructure in the 100-year flood zone not to release contaminants into the environment in the event of up to a 100-year flood. Current federal floodplain regulations at 44 C.F.R Part 9 require flood protection on any part of a landfill within the 500-year floodplain. The RDA is within an area currently not delineated as floodplain on the current Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM). In addition, according to the Town of Rockland Hazard Mitigation Plan 2019 (draft), the RDA is not within a 500-year flood zone (Town of Rockland, 2019).

There have been no changes to relevant ARARs or newly promulgated standards since the last FYR that affect the protectiveness of the remedy.

3.5.2.3 Changes in Toxicity and Other Contaminant Characteristics

EPA released its toxicological review of benzo(a)pyrene in January 2017 and updated its toxicity factors in the IRIS database. The oral cancer slope factor for benzo(a)pyrene decreased from 7.3 (mg/kg-day)-1 to 1 (mg/kg-day)-1. The approximate seven-fold reduction in the cancer slope factor corresponds to an approximate seven-fold reduction in the risk associated with benzo(a)pyrene. The carcinogenic residential tap water RSL for benzo(a)pyrene increased from 0.0034 to 0.025 µg/L.

Arsenic, benzo(a)pyrene, and manganese were identified as COCs for groundwater in the ROD. Although this results in an overall decrease in risks associated with exposure to benzo(a)pyrene in groundwater, the risk reduction is not sufficient to warrant a change in the selected remedy. The change in toxicity criteria does not affect the RGs because the MCL was used as the RG for benzo(a)pyrene.

There have been no changes since the last five-year review in toxicity factors for COCs other than benzo(a)pyrene.

The last five-year review evaluated the ERA conducted as part of the Phase II RI to determine whether the results of the risk assessment would change based on current criteria and/or methodologies. The assessment concluded that changes in screening levels are unlikely to have a significant impact on the results and conclusions of the ERA because site-specific toxicity studies and biological studies were conducted as part of the ERA. As indicated throughout the ERA, several lines of evidence were used to evaluate ecological risk. The last five-year review recommended re-evaluation of ecological risks if increasing trends are observed in monitored surface water or sediment quality. Concentrations of COCs in surface water and sediment are generally decreasing or similar to previous results; therefore, ecological risks do not need to be re-evaluated in this five-year review. The emerging contaminant 1,4-dioxane was detected in surface water samples during the last 5 years. Based on the relatively low detected concentrations (0.54 to 4.2 µg/L) in surface water compared to the Region 4 screening value (22,000 µg/L), 1,4-dioxane is not present in surface water at concentrations of environmental concern.

3.5.2.4 Changes in Risk Assessment Methods

There have been no changes in HHRA methodology since the last FYR that affect the protectiveness of the remedy. Methodologies for conducting the site-specific studies conducted for the ERA generally have not changed.

3.5.3 Question C: Has Any Other Information Come to Light that Could Call into Question the Protectiveness of the Remedy?

No other information was identified during the completion of this FYR that could affect the protectiveness of the remedy. No weather-related events have affected the protectiveness of the remedy.

3.5.4 Technical Assessment Summary

According to the data reviewed, site inspection, and interview responses, the remedy is functioning as intended by the ROD; however, additional investigation is warranted to assess observed elevated methane concentrations along the northern perimeter of the landfill. There have been changes to the physical conditions of the Site (i.e., construction of wick drains to address landfill gas issues) that have improved the effectiveness of the remedy by increasing venting of landfill gas and decreasing methane concentrations at the landfill. The additional investigation is planned to determine if an additional corrective action is warranted to mitigate elevated methane detected in two gas probes along the northern perimeter of the landfill, within the LUC boundary. Methane has not been detected in ambient air at these locations. Although the ROD-based RG for manganese in groundwater has not yet been met, the monitoring program to assess groundwater, surface water, sediment, and landfill gas quality has been implemented and continues to identify changes that could indicate potential for adverse impacts to human health or the environment.

There is no other information that calls into question the protectiveness of the remedy.

3.6 Issues/Recommendations

A corrective action was implemented in 2013 to mitigate elevated levels of methane gas within the landfill. An evaluation of the impact of the corrective action was completed and determined that additional investigation is warranted to further assess elevated methane concentrations along the northern perimeter of the landfill. Elevated methane has not been detected in ambient air. Additional investigation and monitoring are recommended to confirm that methane from the landfill is not migrating off-site and to determine whether additional corrective action is warranted to mitigate elevated methane along the northern perimeter of the landfill.

Table 3-6: Summary of Recommendations and Follow-Up Actions

Issue	Recommendation/ Follow-Up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness? (Y/N)	
					Current	Future
Elevated methane concentrations continue to be observed in two gas probes along the northern perimeter of the landfill	Conduct a landfill gas investigation to determine if elevated methane concentrations are present outside of the compliance boundary	Navy	EPA/MassDEP	March 2020	N	Y

3.7 Other Findings

Manganese concentrations in 10 of the 11 monitoring wells consistently exceeded the ROD-specified RG within the past 5 years. Manganese is the only analyte with concentrations that have consistently exceeded RGs. Some of the manganese detected in groundwater at RDA may be naturally occurring. Elevated manganese concentrations detected downgradient of the landfill may also be the result of reducing conditions generated by the landfill and organic material in the wetland, also located downgradient of the landfill. Continued monitoring of manganese concentrations and trends in groundwater is recommended.

Concentrations of aluminum and iron in surface water have consistently exceeded NRWQCs. Most aluminum concentrations exceeding the NRWQC within the last 5 years were detected at the downgradient location (RDA-SWD). Iron concentrations exceeding the NRWQC were detected at all five surface water samples within last 5 years. However, no significant increases in metals concentrations in exceedance of NRWQCs have been observed when reviewing results from Year 8 through 12. Continued monitoring of aluminum and iron concentrations and trends in surface water is recommended.

Based on the data review completed for this FYR, the Navy believes optimization of the LTM program is appropriate. Groundwater and surface water sampling frequency for VOCs and PAHs may be reduced to once every 3 years because these compounds have been detected at low concentrations during the past 5 years.

PFAS, including PFOS and PFOA, in groundwater beneath the RDA are being investigated under a separate OU (OU 27) to address basewide PFAS in groundwater at former NAS South Weymouth. The ongoing Basewide PFAS Investigation is discussed in Section 11 of this report.

3.8 Protectiveness Statements

Table 3-7: Protectiveness Statement

OU #	Protectiveness Determination	Protectiveness Statement
2	Short-term Protective	The OU 2 remedy is protective of human health and the environment in the short-term because exposure pathways that could result in unacceptable risks have been addressed through capping and O&M of the landfill and are being controlled with ICs in the form of LUCs. However, additional investigation of elevated methane concentrations along the northern perimeter of the landfill is warranted to ensure long-term protectiveness.

3.9 Next Review

A fourth FYR for former NAS South Weymouth will be completed in 2024. The RDA (OU 2) remedy will receive a full review in the next FYR.

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4.0 IR Program Site 4 – Fire Fighting Training Area

This section presents the findings of the FYR for the remedy implemented at IR Site 4 (OU 4), the FFTA. A no action ROD under CERCLA was signed in 2004. However, a 2010 study conducted to assess the presence or absence of PFOA and PFOS, two PFAS associated aqueous film-forming foam (AFFF) at the FFTA. AFFF was known to have been used and released to the environment at the FFTA during fire-fighting exercises. The study indicated the presence of these compounds in groundwater in exceedance of the EPA Preliminary Health Advisories (PHAs) in effect at the time. Based on the results of the study, a modification to the previous no action ROD was implemented to address the exceedances of PFOA and PFOS in groundwater. In 2013, the Navy issued an ESD that required implementation of LUCs prohibiting the use of groundwater within the FFTA and development of an LTM plan to monitor PFOA and PFOS plume migration. Because the ESD requires that LTM data be evaluated as part of the FYR, the FFTA was included in the 2014 second FYR. The FFTA is included in this (third) FYR; however, it will be considered a completed site in subsequent FYRs, since any remaining groundwater issues involve PFAS only so are being incorporated in the Basewide PFAS OU (OU 27).

4.1 Site Description and History

The FFTA comprises approximately 3.8 acres located south of Runway 8-26 and east of Taxiway C, as shown on Figure 4-1. Topographically, the FFTA is relatively flat. The FFTA consists of a cracked asphalt pad. As observed during test pit excavation and drilling activities, there are multiple layers of asphalt underlying the FFTA, each exhibiting various stages of wear. Its primary surface feature is a paved semi-circular area adjacent to Taxiway C wetlands, cranberry bog, and woodland. The site is bounded by unpaved access roads to the north, south, and east and by Taxiway C to the west. The eastern branch of French Stream flows from north to south through the semi-circular area that is the center of the site. The site is currently Navy-retained property.

A site chronology and additional background information are included in Appendix D.

4.2 Response Action Summary

The Phase I RI was completed by Brown and Root Environmental, now Tetra Tech, in 1998. The Phase II RI was conducted in 2001 to address data gaps from the Phase I RI and previous investigations and to further verify the absence of hazardous substances at the Site. In 2002, an investigation to determine the extent of residual petroleum was conducted.

4.2.1 Basis for Taking Action

In 2004, the Navy and EPA concluded that no action under CERCLA was warranted to respond to the residual petroleum contamination observed at the FFTA based on results of the RI and previous investigations. However, as noted in the introduction and described below, the basis for taking action and for including the site in the FYR was the finding of the PFOS and PFOA in groundwater at concentrations exceeding EPA PHAs.

4.2.2 Response Actions

A No Action Proposed Plan was issued in September 2003, and the Navy and EPA signed the ROD that specified no action under CERCLA in September 2004 (Navy, 2004b).

The Navy addressed petroleum residuals at the site in accordance with the Massachusetts Contingency Plan (MCP) in response to a Notice of Responsibility received from MassDEP in November 2004. Petroleum-impacted soils were removed, and confirmatory samples were collected during an MCP Release Abatement Measure (RAM) performed from 2005 to 2007. A total of 5,582 tons of soil were removed from the Site. The Navy submitted a RAM Completion Report and a response action outcome in July 2008. MassDEP approved the response action outcome on August 1, 2008.

In 2010, the Navy investigated PFOA and PFOS at the FFTA for Phase II Environmental Baseline Survey (EBS) Review Item Area (RIA) 11, for which AFFF was the concern. Groundwater samples around Hangar 1 and FFTA were analyzed for two PFAS, PFOA and PFOS. PFOA and PFOS were present in groundwater in the probable source area and downgradient of the FFTA at concentrations exceeding the PHAs for PFOA and PFOS in drinking water (Tetra Tech, 2010b).

Additional sampling was conducted to determine the extent of PFOA and PFOS in groundwater and if PFOA and PFOS were present in soil, sediment, and surface water at the FFTA (Tetra Tech, 2011c). The Navy and Marine Corps Public Health Center (NMCPHC) calculated site-specific screening levels for PFOA and PFOS for groundwater (non-drinking water), soil, surface water, and sediment following the process EPA used to derive the PHAs. The most likely potential exposure scenarios were selected, and receptors included child residents, child recreators, maintenance workers, and construction workers. The EPA PHAs and NMCPHC-calculated screening levels were used to evaluate analytical results from FFTA.

The results of the investigation defined the lateral extent of PFOA and PFOS in groundwater and exceedances of PHAs. Concentrations of PFOA and PFOS in soil, sediment, and surface water did not exceed NMCPHC site-specific screening levels. No further action for soil, sediment, and surface water was recommended in the FFTA portion of RIA 11. Further action under the CERCLA was recommended for the FFTA source area where concentrations of PFOS and PFOA in groundwater exceed PHAs.

A modification to the previous no action decision was developed to address potential unacceptable risks associated with future use of groundwater at the Site. In August 2013, the Navy finalized an ESD modifying the no action decision to include LUCs to restrict the use of groundwater in the 8.8-acre parcel encompassing the FFTA and requiring LTM of site groundwater, surface water, and sediment (Navy, 2013b). No RGs for PFOA or PFOS in groundwater were established in the ESD. The Navy developed an LTM plan for PFOA and PFOS and implemented a monitoring program in April 2014 (Resolution, 2014b).

4.2.3 Status of Implementation

The components of the remedy as implemented are documented in the 2013 ESD (Navy, 2013b).

4.2.4 Land Use Controls

The FFTA is currently Navy-retained property; therefore, the restrictions established in the LIFOC as discussed in Section 1.1 apply until the property is transferred. When the property is transferred, deed restrictions will be established, and a NAUL will be recorded with the deed. The PFAS impacted groundwater located outside of the FFTA is on property that has been transferred and is subject to a Grant of Restrictions given by LSTAR Southfield LLC to the Navy; the area transferred is illustrated on the Grant of Restriction Plan (Appendix K).

In accordance with the 2013 ESD, the Navy implemented LUCs described in Attachment 1 of the ESD (which is a primary document) to restrict the use of groundwater from the site for drinking water purposes and to restrict the use of groundwater for non-drinking water purposes unless the Navy, EPA, and MassDEP provide their prior written consent. The following activities are restricted at the Site:

- Installation of any wells for drinking water purposes.
- Installation of any wells for any purpose other than drinking water (non-drinking water wells) without prior written consent from the Navy, MassDEP, and EPA.
- Extraction, consumption, or utilization of groundwater for drinking water purposes.
- Extraction, consumption, or utilization of groundwater for any purpose other than drinking water (non-drinking water uses) without prior written consent from the Navy, MassDEP, and EPA.

Attachment 1 to the ESD, which is in form and content equivalent to a LUCIP, was implemented by the Navy to verify that LUCs established in the ESD remained in place. The FFTA Groundwater Restriction Boundary (GWRB) established in Attachment 1 (equivalent to the LUC area) is illustrated on Figure 4-1.

Annual LUC compliance inspections were completed in June 2014, September 2015, September 2016, and November 2017 in accordance with the ESD. The Annual LUC compliance inspections completed in 2014 through 2017 noted that there had been no actions or practices inconsistent with the restrictions specified in the FFTA ESD and that no installation of wells for drinking water or wells for any other purpose had occurred within the GWRB, except for new monitoring wells installed in 2016 for the LTM program.

In February 2018, the Navy finalized the Basewide PFOA and PFOA LUCIP for OU 27, which addresses the presence of PFOA and PFOS in groundwater throughout NAS South Weymouth, including the FFTA (Resolution, 2018a). The LUCs prevent exposure to PFOS and PFOA in groundwater until cleanup standards are established and met. The provisions of the 2018 Basewide PFOS and PFOA LUCIP and results of the 2018 annual LUC compliance inspection are included in Section 11.

Table 4-1: Summary of Institutional Controls/Land Use Controls

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date
Groundwater	Yes	Yes	8.8-acre LUC area established for FFTA (GWRB)	Prevent the use of groundwater within the 8.8-acre FFTA site	LIFOC (2011), FFTA ESD Attachment 1 (2013)

Within the Basewide PFOS and PFOA LUC area there are properties that have been transferred and properties that are still Navy-retained. Grants of Restrictions were placed on all property that had already been transferred prior to the establishment of the Basewide PFOS and PFOA LUC area. For Navy-retained property, restrictions are covered by the LIFOC held by the Southfield Redevelopment Authority until the property is transferred. When the FFTA property (area within the GWRB) is transferred, the Navy will establish deed restrictions, and a NAUL will be recorded with the deed.

In 2018, the LUC compliance inspection for the FFTA was conducted with the LUC compliance inspection for the 2018 Basewide PFOS and PFOA LUCIP (OU 27). There had been no actions or practices that were inconsistent with the restrictions specified in the FFTA ESD Attachment 1.

4.2.5 Long-Term Monitoring

LTM activities at the FFTA commenced in April 2014 with the objective of ensuring that dissolved-phase PFOA and PFOS concentrations were stable and that PFAS were not migrating at levels that exceeded PHAs. LTM activities were performed in accordance with the SAP and LTM Plan (Resolution, 2014b) and the revised SAP (Resolution, 2016b). The revised SAP updated screening criteria for groundwater, surface water, and sediment for the FFTA based on current toxicological information, which included the May 2016 EPA Lifetime Health Advisories (HAs) for drinking water of 0.07 µg/L for PFOS and PFOS individually and combined (EPA, 2016a and 2016b). FFTA sample locations are summarized in Table 4-2 and illustrated on Figure 4-1.

Nine monitoring events have been conducted since LTM activities commenced in 2014. From April 2014 to March 2016, five LTM monitoring events were conducted. The monitoring network consisted of 19 groundwater monitoring wells, one piezometer, and three co-located surface water and sediment locations. The LTM network expanded to 41 monitoring wells during the fall 2016 LTM event to delineate downgradient PFAS detections. Following the spring 2017 data review, the LTM network was reduced to 14 wells to monitor the limits of the PFOS and PFOA groundwater plume. The current monitoring network consists of 14 groundwater monitoring wells and three co-located surface water and sediment monitoring locations.

The FFTA remedy (LUCs and LTM) will be incorporated in the Basewide PFAS OU (OU 27). The LTM activities will be continued as specified in the revised SAP (Resolution, 2016b) until a Basewide PFAS SAP under OU 27 is developed.

4.3 Progress Since Last Five-Year Review

This section includes the protectiveness determinations and statements from the previous FYR.

Table 4-3: Protectiveness Determinations/Statements from the 2014 FYR

OU #	Protectiveness Determination	Protectiveness Statement
4	Protective	The remedy for the FFTA currently protects human health and the environment since ICs are preventing exposure to, or the ingestion of, contaminated groundwater. Long-term protectiveness of the remedy will be verified by completion of annual LUC inspections, the LTM program, and evaluation of the LTM data consistent with the LTM SAP.

No issues or recommendations relating to the protectiveness of the remedy were identified in the previous FYR. Although not affecting the protectiveness of the remedy because LUCs are preventing exposure to contaminated groundwater, a recommendation was noted in the previous FYR to complete an evaluation of the validated April 2014 LTM data and continue the LTM program to monitor potential contaminant migration. An evaluation of the April 2014 LTM data was completed and documented in an LTM and Groundwater Evaluation FFTA and Hangar 1 Report (Resolution, 2014b).

4.4 Five-Year Review Process

This section provides a summary of the FYR process for the FFTA and the actions taken to complete the review.

4.4.1 Data Review

The remedy for the FFTA has been implemented and is ongoing; the first LTM event was conducted in April 2014, with semi-annual monitoring conducted through April 2018. The April 2014 through April 2018 LTM results are included and reviewed in this FYR.

4.4.1.1 Groundwater Long-Term Monitoring Results

The LTM plan includes groundwater, surface water, sediment, sampling and groundwater level measurement. These activities are described in the revised SAP (Resolution, 2016b). LTM groundwater data are presented in Table 4-4, and surface water and sediment LTM data are presented in Tables 4-5 and 4-6, respectively. Sample locations are illustrated on Figure 4-1.

The current groundwater monitoring program includes sampling at eight overburden wells and six bedrock wells. Exhibits 4-1 through 4-4 illustrate total PFOS/PFOA concentration trends in groundwater at FFTA from April 2014 through April 2018. PFOS and PFOA groundwater results are compared to the Lifetime HAs of 0.07 µg/L. Perfluorobutanesulfonic acid (PFBS) groundwater results are compared to a screening value of 38 µg/L calculated using the EPA RSL Calculator for a residential tap water exposure scenario.

<u>Overburden Groundwater</u>

Maximum PFAS concentrations in overburden groundwater have been detected in monitoring wells within the GWRB (Figure 4-1). The maximum total PFOS/PFOA concentration (256 µg/L) was detected at FFTA-MW-110I in March 2017; FFTA-MW-110I is centrally located within the FFTA. No significant increases in PFAS concentrations were observed in overburden monitoring wells during the last 5 years of LTM (Exhibit 4-1).

PFAS concentrations in exceedance of Lifetime HAs were also detected at overburden wells located west of the GWRB. PFAS concentrations exceeding Lifetime HAs extend to FFTA-MW-102I, located approximately 1,200 feet west of the GWRB. However, based on known PFAS groundwater impacts at the Hangar 1 site, it is unclear whether PFAS concentrations detected at FFTA-MW-102I are exclusively related to historical FFTA activities or represent a comingled plume also related to historical activities at Hangar 1. PFAS concentrations in overburden monitoring wells located west of the GWRB appear to fluctuate seasonally, with greater concentrations during fall LTM events (Exhibit 4-2).

PFAS concentrations in monitoring wells located south and east of the GWRB have been less than Lifetime HAs since October 2016.

No significant increases in PFAS concentrations were observed in overburden monitoring wells during the most recent LTM event in spring 2018.

<u>Bedrock Groundwater</u>

The PFAS distribution in bedrock groundwater is similar to overburden groundwater, with maximum concentrations within the GWRB. In general, PFAS concentrations are lower in bedrock groundwater than in overburden groundwater. PFAS concentrations in bedrock are greatest in one bedrock monitoring well (FFTA-MW-46D2) located within the GWRB. Total PFOS/PFOA concentrations at FFTA-MW-46D2 ranged from 1.5 µg/L (October 2017) to 5.1 µg/L (April 2014). Overall, PFAS concentrations at FFTA-MW-46D2 have been relatively stable (Exhibit 4-3).

Total PFOS/PFOA concentrations in three of the five bedrock monitoring wells located outside of the GWRB consistently exceed the combined Lifetime HA. Maximum total PFOS/PFOA concentrations in a bedrock monitoring well located outside the GWRB were detected in FFTA-MW-104I, located approximately 300 feet west of the FFTA. Total PFOS/PFOA concentrations at FFTA-MW-104I range from 1.4 µg/L (April 2018) to 4.18 µg/L (March 2017). Overall, PFAS concentrations in bedrock monitoring wells outside the GWRB appear stable (Exhibit 4-4).

No significant increases in PFAS concentrations were observed in bedrock monitoring wells during the most recent LTM event in spring 2018.

In summary, groundwater within the GWRB has greater PFAS concentrations than groundwater outside of the GWRB. The distributions of PFAS concentrations within the overburden and bedrock are similar, but PFAS concentrations in bedrock groundwater are generally less than in the overburden. No significant increases in total PFOS/PFOA concentrations have been observed in overburden or bedrock groundwater at FFTA within the last 5 years. Based on LTM data collected from April 2014 through April 2018, the current LTM monitoring network appears sufficient to evaluate PFAS concentrations across the FFTA Site.

4.4.1.2 Surface Water and Sediment Monitoring Results

Co-located surface water and sediment samples were collected at three locations in 2014 through 2018. PFOS, PFOA, and PFBS surface water results are compared to screening values calculated using the EPA RSL Calculator under a child recreational scenario. The surface water screening values are 5.26 µg/L for PFOS and PFOA (individually) and 1,140 µg/L for PFBS. PFOS, PFOA, and PFBS were detected in surface water at all three sampling locations, but PFOS and PFOA concentrations exceeded screening criteria at only one location (FFTA-SW-05). The PFOS concentration at FFTA-SW-05 (duplicate sample only) in October 2017, 5.87 µg/L, exceeded the screening criterion (5.26 µg/L), and the PFOA concentration at FFTA-SW-05 (duplicate sample only) in March 2017, 5.85 µg/L, exceeded the screening criterion (5.26 µg/L). However, the original samples associated with these duplicates had lower concentrations of PFOS and PFOA (2.53 and 1.55 µg/L). Historically, PFOS and PFOA concentrations in surface water have been significantly less than screening criteria. PFBS was detected at all three surface water locations but at concentrations less than the screening criterion (1,140 µg/L). Overall, maximum concentrations of

PFAS have been detected at FFTA-SW-05, located where French Stream now runs through the approximate center of the FFTA. PFAS concentrations in surface water appear to fluctuate, but in general, concentrations decrease with distance from the FFTA.

PFOS, PFOA, and PFBS sediment results are compared to screening values calculated using the EPA RSL Calculator under a child recreational scenario. The sediment screening values are 714 µg/kg for PFOS and PFOA and 1,050,00 µg/kg for PFBS. PFAS have been detected at all three sediment sample locations at FFTA; however, all concentrations were less than screening criteria. Maximum PFOS and PFOA concentrations were detected at FFTA-SED-06, located approximately 200 feet south of the asphalt pad. PFAS concentrations in sediment appear to fluctuate but remain less than screening criteria.

4.4.2 Site Inspection

The FYR site inspection was conducted at the FFTA on December 5, 2018, by Tetra Tech personnel. The purpose of the inspection was to assess the protectiveness of the remedy and to confirm that the LUCs established in the LUCIP have been properly implemented.

There were no signs of any newly installed wells or construction activities (that might require dewatering) at the site. Two passive recreational users were observed at the site during the inspection (dog walker and cyclist). There was no indication of a change of land use at the site at the time of the inspection. The site inspection checklist and photographic log are included in Appendix D.

4.5 Technical Assessment

This section provides a technical assessment of the remedy implemented at the FFTA in the form of responses to the three questions outlined in the Comprehensive Five-Year Review Guidance (EPA, 2001).

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

The 2013 ESD Attachment 1 entitled *LUC Implementation Actions* has been implemented, and LUCs remain in place at the FFTA. LUCs prohibit the use of groundwater for drinking water purposes within the 8.8-acre parcel encompassing the FFTA site and use of groundwater for any other purpose without prior written approval from the Navy, EPA, and MassDEP. Based on LTM data collected within the last

5 years, there are groundwater sample locations with total PFOS/PFOA concentrations greater than Lifetime HAs outside of the FFTA GWRB. However, the LUC area established in the 2018 Basewide PFOS and PFOA LUCIP (OU 27) currently includes all FFTA groundwater sample locations with total PFOS/PFOA concentrations in exceedance of Lifetime HAs. The 2018 LUC inspection performed in accordance with the Basewide PFOS and PFOA LUCIP confirmed that there have been no changes in land use at the site and that LUCs are being properly implemented. Further, the area west of the GWRB where exceedances have been detected is included in LSTAR Southfield LLC Grant of Restrictions Area 6 as illustrated on the Grant of Restriction Plan (Appendix K).

FFTA LTM is ongoing and based on data collected within the last 5 years, the current LTM monitoring network is currently sufficient to monitor PFAS concentrations across the FFTA site and in locations beyond the current OU 4 LUC area. The OU 4 remedy (LUCs and LTM) will be incorporated into the OU 27 Basewide PFAS.

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

4.5.2.1 Changes in Exposure Pathways

There have been no changes at the site that would have resulted in new exposure pathways to human or ecological receptors. Groundwater was not previously being used as a drinking water source, and now such action is prohibited by LUCs.

4.5.2.2 Changes in Standards or Newly Promulgated Standards

There have been no changes to relevant ARARs or newly promulgated standards since the last FYR that affect the protectiveness of the remedy.

4.5.2.3 Changes in Toxicity and Other Contaminant Characteristics

EPA published Lifetime HAs for PFOA and PFOS in May 2016, which are lower than the PHAs in effect at the time that the ESD was signed. The changed health advisories, based upon currently utilized toxicity information in their calculation, potentially impact the effectiveness of the remedy, because groundwater beyond the current LUC area contains concentrations of PFOS/PFOA that exceed Lifetime HAs. However, the 2018 Basewide PFOS and PFOA LUC area encompasses the OU 4 LUC area and ensures protectiveness. In addition, the LSTAR Southfield LLC Grant of Restrictions is in effect for the area west of the OU 4 LUC area.

4.5.2.4 Changes in Risk Assessment Methods

There have been no changes in HHRA methodology since the last FYR that affect the protectiveness of the remedy. Methodologies for conducting the site-specific tests/studies conducted for the ERA generally have not changed.

4.5.3 Question C: Has Any Other Information Come to Light that Could Call into Question the Protectiveness of the Remedy?

No other information was identified during the completion of this FYR that could affect the protectiveness of the remedy. No weather-related events have affected the protectiveness of the remedy.

4.5.4 Technical Assessment Summary

According to the data reviewed, site inspection, annual LUC inspection, and interview responses, the remedy is functioning as intended by the 2013 ESD within the GWRB. PFOA and PFOS have been detected outside the OU 4 GWRB (LUC area) but not outside the OU 27 LUC boundary established by the 2018 Basewide PFOS and PFOA LUCIP or the LSTAR Southfield LLC Grant of Restrictions Area 6. There have been no other changes in the physical conditions of the site that would affect the protectiveness of the remedy There has been no change to the regulatory status of PFAS. Since the 2016 EPA Lifetime HAs were published for PFOS and PFOA, EPA has not proposed or published any standards for PFAS. The 2016 EPA Lifetime HAs for PFOS and PFOA do not affect the effectiveness of the remedy. There have been no significant changes to the standardized risk assessment methodology that could affect the protectiveness of the remedy.

4.6 Issues/Recommendations

No issues affecting the protectiveness of the FFTA remedy were identified, therefore, there are no recommendations for FFTA and no follow-up actions are required.

4.7 Other Findings

The LUCs included in the Basewide PFOS and PFOA LUCIP (OU27) encompass the area within the FFTA GWRB. The Navy will issue an ESD for the FFTA nullifying the OU 4 remedy requirement to establish LUCs to address PFAS contamination because the LUCs are duplicated in the Basewide PFOS and PFOA LUCIP (OU 27). Areas with exceedances of Lifetime HAs outside the GWRB are included in the LSTAR Southfield LLC Grant of Restrictions. Upon transfer, the Navy will establish deed restrictions and record a NAUL with the deed. The FFTA LTM program will continue under the revised SAP until a Basewide PFAS SAP under OU 27 is developed.

4.8 Protectiveness Statements

Table 4-7: Protectiveness Statement

OU #	Protectiveness Determination	Protectiveness Statement
4	Protective	The OU 4 remedy is protective of human health and the environment because there are no current exposures to contaminated groundwater and OU 4 is Navy-retained property with ICs in the form of LUCs established under the LIFOC. Impacted groundwater west of the FFTA property boundary is covered by LUCs established in a Grant of Restrictions. The OU 4 remedy components (LTM and LUCs) will be incorporated into the Basewide PFAS OU (OU 27) and establishment of LUCs in accordance with OU 27 prior to property transfer. The need to change the type of IC upon property transfer does not change the protectiveness of the remedy.

4.9 Next Review

A fourth FYR review for former NAS South Weymouth will be completed in 2024. A status update of the FFTA will be included in the Fourth FYR, presuming that groundwater at the site will be incorporated into OU 27.

5.0 IR Program Site 7 – Former Sewage Treatment Plant

This section presents the findings of the FYR for the remedy implemented at IR Site 7 (OU 7), the STP.

5.1 Site Description and History

The STP comprises approximately 3.3 acres in the northern portion of the former base within the Town of Weymouth, as shown on Figure 5-1. The site includes the former STP Area (upland area), the former Tile Bed Area (leach field), and a portion of an adjacent wetland area. The STP is unpaved and relatively flat, with a gentle slope to the west toward an adjacent drainage channel and wetland area. The site's ground surface is covered by grasses, shrubs, and mixed upland forest. The site is bounded by a forested wetland to the west, forested areas to the south, and paved roads to the east and south. Groundwater flow throughout the STP area is generally toward the southwest, in the direction of French Stream (Tetra Tech, 2000). The site is currently Navy-retained property.

A site chronology and additional background information is included in Appendix E.

5.2 Response Action Summary

5.2.1 Basis for Taking Action

This section summarizes the COCs, media of concern, potential receptors, and exposure pathways that resulted in potentially unacceptable risks at the site that required remedial action under CERCLA. Baseline human health and ecological risk assessments were conducted at STP as part of the Phase I and II RI/FS. The results of the HHRA showed that potential carcinogenic and non-carcinogenic risks at the site under current use scenarios were within or less than acceptable risk benchmarks. However, potential risks under the future scenarios exceeded acceptable risk benchmarks for future residential and recreational child receptors. COCs identified include arsenic, 4,4'-DDT, dieldrin, benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene in surface soil and arsenic, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, dieldrin, and methyl mercury in sediments. Groundwater and surface water were not identified as media of concern based on human health risks.

The ERA found acceptable risks for terrestrial plants, terrestrial invertebrates, aquatic plants, and invertebrates. Potential unacceptable risks were found for terrestrial vertebrates (birds and mammals) based on exposure to surface soil and sediment. No other unacceptable ecological risks were identified for the current and future use scenarios evaluated.

Based on the risks identified, an FS was completed (Tetra Tech, 2007b). Preliminary Remediation Goals (PRGs) for the COCs were selected for the media of concern, soil and sediment. The FS established medium-specific RAOs based on the COCs, exposure pathways, and receptors at the site. The FS identified four remedial alternatives and evaluated each based on EPA's nine FS criteria. including implementability, effectiveness, and cost.

5.2.2 Response Actions

The Navy's proposed remedy in the August 2007 Proposed Plan was removal and off-site disposal or recycling (asphalt batching) of COC-impacted soil and sediment to achieve the selected RGs (Navy, 2007c). The ROD was signed in April 2008 (Navy, 2008). The RAOs developed for the STP were to:

- Eliminate potential human and ecological receptor exposure to COCs present in site soil at concentrations above the selected PRGs.
- Eliminate potential human and ecological receptor exposure to COCs present in site sediment at concentrations above the selected PRGs.

The major components of the selected remedy documented in the ROD included the following:

- A Pre-Design Investigation (PDI) to further delineate the types and extents of COCs requiring remediation in soil and sediment.
- Additional sampling for methyl mercury in sediment and PCBs in surface water to verify conclusions of the risk assessments.
- A comprehensive round of water level measurements to help evaluate groundwater flow at the site and to determine whether there were potential migration pathways that had not been adequately investigated.
- Use of the PDI results to support the planning of the excavation activities.
- Excavation of soil and sediment containing COCs at concentrations exceeding PRGs.
- Off-site disposal or recycling (asphalt batching) of excavated soil and sediment.

- Post-remediation sediment monitoring to verify that post-remediation COC concentrations do not rebound in sediment.
- Pre- and post-remediation groundwater monitoring to confirm groundwater is not a medium of concern.

RGs established in the ROD for soil and sediment COCs are presented in the following table.

Table 5-1: Summary of Original Remedial Goals

Medium	COC	RG (mg/kg)
Surface Soil	Arsenic	9.1
	4,4'-DDT	2.8
	Dieldrin	0.88
	Benzo(a)anthracene	14.5
	Benzo(a)pyrene	1.8
	Benzo(b)fluoranthene	14.5
Sediment	Arsenic	23.7
	Dieldrin	5.7
	4,4-DDD	0.73
	4,4-DDE	0.23
	4,4-DDT	0.29

5.2.3 Status of Implementation

After the ROD was signed in 2008, the PDI was performed, followed by implementation of the RA in 2009. However, the remedial action was suspended when additional impacted soil was discovered during excavation. Exploratory test pits completed to a depth of 15.5 feet below ground surface (bgs) indicated that subsurface petroleum contamination was present within and beyond the original excavation area. Further investigation in the form of a supplemental PDI was recommended (Tetra Tech EC, Inc. 2011a).

In August 2010, the Navy finalized an ESD to the WGL ROD (Tetra Tech, 2010c) that modified the STP remedy from off-site disposal or recycling by asphalt batching to use of non-hazardous excavated materials (soil and sediment) from the site as subgrade fill in construction of the WGL cover system. The ESD also noted that the volume of excavated materials at STP had increased to 3,700 cubic yards (cy) from the 1,100 cy estimated in the ROD. The WGL cap was completed in 2011, and the soil from the first STP RA mobilization was used as subgrade fill.

Supplemental Pre-Design Investigation

The Final Supplemental PDI Project Report was issued in May 2012 (Tetra Tech, 2012c) and presented results of the PDI performed in 2011. Based on the findings, the list of COCs, media of concern, and exposure scenarios were expanded from those originally identified in the ROD. A human health risk screening evaluation was performed to support the selection of COCs and development of new preliminary remedial goals (PRGs) for soil; the 2008 ROD-specified sediment RGs did not change. The risk screening identified potentially unacceptable risks for hypothetical residents and industrial workers at the site; therefore, additional CERCLA actions such as focused excavation or LUCs were recommended. During the investigation, the PCBs Aroclor-1016 and -1260 were discovered at depths of 11 to 14 feet. The 2008 ROD had not designated PCBs as COCs or establish RGs for PCBs. The updated PRGs were referred to as the post-ROD PRGs.

Additional Soil Delineation Investigation

In 2013, the Additional Soil Delineation Investigation was performed to follow up on the 2009 RA and 2011 Supplemental PDI (Tetra Tech, 2014b). The investigation showed that soil with COC concentrations exceeding post-ROD soil PRGs and sediment with COC concentrations exceeding the ROD-specified RGs remained on site. Navy, EPA, and MassDEP concurred that further excavation was warranted. The Navy prepared an addendum to the RAWP to address remaining concerns (Tetra Tech EC, 2014).

Additional Remedial Action

In 2014 and 2015, the Navy completed additional excavation of impacted surface soil, unsaturated subsurface soil, structures, and piping in the previously remediated area. Approximately 6,100 cy of impacted surface soil and sediment were excavated and disposed of off-site. The 2014/2015 RA mobilization successfully removed contaminated surface soil and sediment to less than post-ROD PRGs for soil and ROD-specified RGs for sediment. However, COCs remained at concentrations exceeding PRGs in saturated subsurface soils at depths below 11 feet bgs in the eastern upland area near former STP structures and in the wetland area at depths below 2 feet bgs. Wetland areas impacted by the RA were restored. The RA was completed in June 2015 as documented in the draft RACR (Tetra Tech EC, 2015). A final RACR is expected in July 2019.

Focused Feasibility Study

In 2016, the Navy completed a Focused FS (FFS) to evaluate remedial alternatives to address impacted subsurface soil that remained on site after the completion of the 2015

RA (Resolution, 2015b). The FFS updated the human health PRGs for unrestricted/residential and non-residential (recreational, commercial/industrial, construction worker). The updated PRGs were based on recent changes to EPA guidance on risk assessment methods and toxicological values and included a future construction worker exposure scenario. These PRGs differed from the RGs identified in the 2008 ROD and the post-ROD PRGs identified in the 2012 Supplemental PDI Report.

Post-Remedy Monitoring

Post-remedy groundwater and sediment monitoring, as required by the ROD, was completed between 2016 and 2018. Three rounds of post-remedy groundwater monitoring and one post-excavation sediment sample were collected to verify that groundwater and sediment were not impacted by earth disturbances caused by RA excavation activities. The results of the post-remedy groundwater and sediment monitoring are documented in the Post-Remedy Monitoring Report (Resolution, 2018c) and discussed in Section 5.4.1.

Basis for ROD Amendment

In April 2017, the Southfield Redevelopment Authority lifted the APD designation from the aquifer that lies beneath a portion of STP. The APD designation was established by the Southfield Redevelopment Authority to protect four medium- to high-yield aquifers located at the former NAS South Weymouth for future use as drinking water sources. A remedial action under CERCLA is expected to restore groundwater that is a current or potential drinking water source to beneficial use (e.g., clean up to drinking water standards) wherever possible. The removal of the APD designation from the STP in April 2017 established that use of STP groundwater for a public drinking water source is no longer expected.

In November 2017, MassDEP issued a Second Amendment to the GUVD for the former NAS South Weymouth that removed the Potential Drinking Water Source Area designation from the aquifer underlying STP (MassDEP, 2017). MassDEP concluded that the aquifer has a low use and value, and in accordance with MassDEP guidance, 310 CMR 40.0932(5)(b)(1), is no longer identified as a source of drinking water. Because Massachusetts has an EPA-endorsed Comprehensive Groundwater Protection Program, this finding is consistent with EPA guidance. Based on the amended GUVD, groundwater underlying STP is no longer considered a suitable source of public drinking water and therefore drinking water would not be an anticipated potential future use.

In 2018, a groundwater HHRA was performed for a non-potable groundwater use scenario (Resolution, 2018d). The HHRA concluded that concentrations of groundwater COCs detected at the site during 2016 through 2018 post-remedy sampling events do not pose a cancer risk or noncancer hazard greater than MassDEP or EPA target risk levels. The HHRA indicated that there is no unacceptable risk associated with exposure to site groundwater under a non-potable groundwater use scenario.

The sediment sampling performed in 2017 confirmed that COC concentrations are less than RGs. Based on the results of the RA, post-remedy monitoring, and 2018 HHRA, COCs at the site remain in subsurface soils. All surface soil, unsaturated subsurface soil, and sediment associated with unacceptable risks were excavated during the 2015 RA.

A ROD Amendment finalized in February 2019 documented the addition of LUCs to the selected remedy (Navy, 2019). The amended remedy accomplishes the following:

- Applies LUCs restricting access to impacted subsurface soils below 9 feet bgs in the upland area and subsurface soils below 2 feet bgs in the wetland by maintaining a soil cover. Upland soil impacts begin at 11 feet bgs. The upland soil access restriction includes a 2-foot buffer from 9 feet to 11 feet to allow for a margin of error during potential construction.
- Prohibits residential land use within the LUC boundaries.
- Designates the LUC boundaries in a LUCIP.
- Includes as a provision of the LUCs a requirement that the property owner develop a soil management plan to ensure that impacted soils are managed properly and that any future construction work is completed by properly trained workers. The soil management plan must be approved by EPA and MassDEP prior to the start of construction activities.
- Includes Annual Inspection/Certification and FYRs to evaluate the remedy.
- Includes LTM and O&M of the soil cover.
- Updates ARARs identified in the 2008 ROD to add revised and newly promulgated state and federal standards.
- Adds PCBs as a COC, incorporates PCB RGs into the remedy, describes how PCBs encountered during the initial remedial action and post-ROD activities were

addressed, and describes how PCBs remaining in the subsurface soil will be addressed in the amended remedy.

- Changes the cost of the remedy from cost cited in the ROD, $587,077, to $2,685,000.

The RAO developed for the amended remedy is to eliminate potential human and ecological exposure to COCs present in site subsurface soil at concentrations greater than the selected RGs. RGs established in the ROD Amendment for the constituents in subsurface soil are summarized in the following table.

Table 5-2: Summary of Revised Remedial Goals for Subsurface Soil

Media	COCs	RGs
Subsurface Soil	Aroclor-1016	4,110 µg/kg
	Aroclor-1260	2,410 µg/kg
	Benzo(a)anthracene	11,300 µg/kg
	Benzo(a)pyrene	1,829 µg/kg
	Benzo(b)fluoranthene	11,500 µg/kg
	Dibenzo(a,h)anthracene	1,150 µg/kg
	4-4'-DDD	1,900 µg/kg
	4,4'-DDT	18,900 µg/kg
	Arsenic	6.8 mg/kg

Note:
Benzo(k)fluoranthene is no longer identified as a COC because the maximum concentration is less than the revised PRG. An RG for dieldrin was presented in the ROD because dieldrin was identified as a COC in surface soil and sediment. Dieldrin was not identified as a COC in subsurface soil; therefore, an RG was not developed in the FFS for dieldrin in subsurface soil.

5.2.4 Land Use Controls

The ROD Amendment includes LUCs to achieve the performance objectives. Annual LUC compliance inspections will be conducted in accordance with the ROD Amendment and LUCIP to verify that LUCs remain in place and LUC objectives are being met. The STP LUCIP for subsurface soil is expected to be finalized in September 2019. After the LUCIP is finalized, annual LUC inspections associated with subsurface soil will be performed. The Navy conducted an internal review to confirm that no activities inconsistent with proposed LUCs had occurred during 2018.

Table 5-3: Summary of Land Use Controls

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date
Subsurface Soil	Yes	Yes	LUC Area established for STP	Restrict access to impacted subsurface soil by maintaining a soil cover and LUC	LIFOC (2011), LUCIP (pending September 2019)

The STP is Navy-retained property covered by the LIFOC until it is transferred with deed restrictions and a NAUL is recorded with the deed. The LIFOC restrictions are consistent with the LUCs established in the LUCIP in that they both restrict access to the subsurface without prior Navy and regulatory approval.

PFAS groundwater contamination under OU 7 is being addressed under OU 27 Basewide PFAS. The provisions of the 2018 Basewide PFOS and PFOA LUCIP and results of the associated 2018 LUC inspection are outlined in Section 11 of this report.

5.2.5 Operations and Maintenance

In accordance with the ROD Amendment, LTM and O&M will be completed on the soil cover at the site to maintain a minimum 2-foot soil cover. The details of LTM will be incorporated into the LUCIP. O&M actions will be taken as needed based on observations made during the annual LUC compliance inspections.

5.3 Progress Since Last Five-Year Review

This section includes the protectiveness determinations and statements from the previous FYR as well as the recommendations from the previous FYR and the status of those recommendations.

Table 5-4: Protectiveness Determinations/Statements from the 2014 FYR

OU #	Protectiveness Determination	Protectiveness Statement
7	Will be protective	The remedy for STP is currently in process and not yet complete. The current remedy (i.e. soil/sediment excavation) will be protective of human health and the environment in the short-term but changes to the remedy (i.e. addition of LUCs and/or LTM plan) will be necessary to ensure long-term protectiveness.

Table 5-5: Status of Recommendations for OU 7 from the 2014 FYR

Issue	Recommendations	Current Status	Current Implementation Status Description	Completion Date (if applicable)
Additional investigations conducted Post-ROD indicate shallow soil and sediment results exceed the Post-ROD cleanup goals	Additional remedial action is necessary to remove soil/sediment in exceedance of the Post-ROD cleanup goals.	Draft RACR (August 2015)	RACR	Final RACR (pending August 2019)
Additional investigations conducted Post-ROD indicate soil contamination observed at depth	A ROD Amendment or ESD is warranted to document any changes to the remedy (i.e. addition of LUCs and/or LTM plan).	Complete	ROD Amendment	February 2019

5.4 Five-Year Review Process

This section provides a summary of the FYR process and the actions taken to complete the review.

5.4.1 Data Review

Post-remedy groundwater and sediment results from 2016, 2017, and 2018 sampling events were reviewed for this FYR. Post-remedy sampling locations are included in Table 5-6, and summaries of the data reviewed are included in Tables 5-7 and 5-8. Sampling was performed in accordance with the SAP (Resolution, 2017a). As outlined in the 2008 ROD, post-remedy sediment monitoring was required to verify COC concentrations did not rebound in sediment and post-remedy groundwater monitoring was required to confirm groundwater is not a medium of concern. The main data quality objectives (DQOs) established in the SAP were to determine whether:

- Soil and sediment COCs (i.e., ROD-specified COCs) (PAHs, pesticides, PCBs, and metals) were present in groundwater in excess of MCP Method GW-1, GW-2 or GW-3 standards.
- Sediment COC concentrations (pesticides and metals) within the northern drainage channel increased to levels exceeding RGs.

- VPH and EPH were present in groundwater near the former underground storage tank (UST) at concentrations that could pose a potential future vapor intrusion concern.

5.4.1.1 Summary of Post-Remedy Groundwater Results

The ROD-specified soil and sediment COCs and Aroclor-1016 or Aroclor-1260 were not detected in groundwater in excess of MCP Method 1 GW-2 or GW-3 standards during post-remedy sampling events. GW-1 standards are no longer applicable at STP because, as discussed above, the 2017 GUVD amendment determined that the aquifer underlying STP is of low use and value and therefore no longer needs to be restored for beneficial use as a drinking water source. VPH and EPH were not detected in groundwater near the former UST and therefore there are no future vapor intrusion concerns.

5.4.1.2 Summary of Post-Remedy Sediment Results

Sediment COC concentrations did not exceed RGs during the 2017 sediment sampling event. Sediment results indicate that RA activities did not re-mobilize sediment contaminants in the northern drainage channel. It was agreed that further sediment sampling was not warranted.

5.4.2 Site Inspection

The FYR site inspection was conducted at the STP on December 5, 2018, by Tetra Tech personnel. The purpose of the inspection was to observe current site conditions as part of the overall assessment of the protectiveness of the remedy.

There were no signs of any newly installed wells or construction activities at the site and no evidence of disturbance to the soil cover (i.e. excavation, digging, etc.). One passive recreational user was observed at the site during the inspection (walker). Property development near the STP includes both open space (e.g., park land, active and passive recreation, reservations, and similar uses) and village commercial use (e.g., light industry, commercial uses, and parking areas). There was no indication of a change of land use at the site at the time of inspection. A site inspection checklist and photographic log are included in Appendix E.

5.5 Technical Assessment

This section provides a technical assessment of the remedy implemented at the STP in the form of responses to the three questions outlined in the Comprehensive Five-Year Review Guidance (EPA, 2001).

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

The elements of the remedy as specified in the 2008 ROD and modified in the 2010 ESD have been completed. A PDI was completed to further delineate the nature and extent of COCs in surface soil and sediment, and excavation of contaminated soil and sediment was conducted in 2009, with reuse of excavated material for the WGL subgrade cover system. Because additional soil contamination was identified, further investigation and soil excavation were completed between 2011 and 2015. Post-remedy LTM for groundwater and sediment was completed (2016 through 2018). The amended remedy, as outlined in the ROD Amendment, adds LUCs, LTM and O&M of the soil cover, and FYRs to the STP remedy. The amended remedy also updates ARARs, adds PCBs as a COC, and updates the remedy cost. Based on the completed and ongoing activities, the intent and goals of the STP ROD, ESD, and ROD Amendment have been or will be met.

The LTM and O&M plans for the soil cover are in process and expected to be finalized in September 2019. There is no current exposure to soil with unacceptable risks and the remedy will be protective in the long-term when the LTM and O&M of the soil cover are implemented in accordance with the ROD Amendment.

LUCs have not been fully implemented as outlined in the ROD Amendment; however, STP is Navy-retained property and LUCs are established in the LIFOC. A LUCIP establishing LUCs in accordance with the ROD Amendment is in process and expected to be finalized in September 2019. There is no other information that calls into question the protectiveness of the remedy.

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

5.5.2.1 Changes in Exposure Pathways

As discussed in Section 5.2.3, MassDEP has determined that groundwater underlying the former STP is no longer considered a suitable source of public drinking water and drinking water would not be an anticipated potential future use. Therefore, potential exposures to groundwater as a potable water source is not a complete exposure pathway.

Based on the post-remedy LTM results and the change in aquifer status, an HHRA for non-potable groundwater exposures was completed in 2018 and presented in the

Groundwater Human Health Risk Assessment Technical Memorandum (Resolution, 2018d). Receptors evaluated in the HHRA included future construction workers, on-site workers, and residents (non-potable exposure). Chemicals evaluated in the groundwater HHRA included the ROD-specified soil and sediment COCs and two PCB compounds identified as subsurface soil PRGS to determine if they were present in groundwater at concentrations that would result in unacceptable risk. Maximum detected groundwater concentrations from 2016 through 2018 post-remedy groundwater sampling events were used as exposure point concentrations. The concentrations of the target chemicals detected in site groundwater during the 2016 through 2018 groundwater sampling events (which were considered representative of current conditions) did not pose a cancer risk or noncancer hazard exceeding MassDEP or EPA target risk levels.

These results indicate that there is no unacceptable risk associated with exposure to groundwater at the former STP under a non-potable groundwater use scenario in which groundwater is used for irrigation or other outdoor use only. The vapor intrusion pathway was also evaluated by comparing maximum detected groundwater concentrations to EPA Vapor Intrusion Screening Levels (VISLs). The evaluation concluded that the vapor intrusion pathway is not a concern at the former STP site.

5.5.2.2 Changes in Standards or Newly Promulgated Standards

The amended remedy updated the ARARs identified in the 2008 ROD to add revised and newly promulgated state and federal standards (Appendix E). Changes to relevant ARARs or newly promulgated standards since the last FYR do not affect the protectiveness of the remedy.

5.5.2.3 Changes in Toxicity and Other Contaminant Characteristics

EPA released its toxicological review of benzo(a)pyrene in January 2017 and updated its toxicity factors in the IRIS database. The approximate seven-fold reduction in the cancer slope factor corresponds to an approximate seven-fold reduction in the risk associated with benzo(a)pyrene. The cancer slope factors for the other carcinogenic PAHs decrease proportionately. For example, the oral cancer slope factor for benzo(a)anthracene (using a relative potency factor of 0.1) decreased from 0.73 to 0.1 $(mg/kg\text{-}day)^{-1}$. This approximate seven-fold reduction in the cancer slope factor corresponds to an increase in the residential soil RSL from 0.16 to 1.1 mg/kg and a corresponding seven-fold reduction in risk.

Although this results in an overall decrease in risks associated with exposure to PAHs in soil, the risk reduction is not sufficient to warrant a change in the selected remedy.

There have been no changes since the last five-year review in toxicity factors for COCs other than PAHs.

The original RGs for the former STP site were updated in the ROD Amendment (Navy, 2019) due to changes in exposure assumptions and changes in the toxicity criteria for benzo(a)pyrene since the original RGs were developed. The changes in RGs do not affect the protectiveness of the remedy for the former STP site.

The last five-year review evaluated the ERA conducted as part of the Phase II RI to determine whether the results of the risk assessment would change based on current criteria and/or methodologies. The assessment concluded that changes in screening levels are unlikely to have a significant impact on the results and conclusions of the ERA because site-specific toxicity studies and biological studies were conducted as part of the ERA. As indicated throughout the ERA, several lines of evidence were used to evaluate ecological risk.

5.5.2.4 Changes in Risk Assessment Methods

There have been no changes in HHRA methodology since the last FYR that affect the protectiveness of the remedy for the former STP site. Methodologies for conducting the site-specific tests/studies conducted for the ERA generally have not changed.

5.5.3 Question C: Has Any Other Information Come to Light that Could Call into Question the Protectiveness of the Remedy?

No other information was identified during the completion of this FYR that could affect the protectiveness of the remedy. No weather-related events have affected the protectiveness of the remedy.

5.5.4 Technical Assessment Summary

According to the data reviewed, site inspection, and interview responses, the remedy is functioning as intended by the ROD, ESD, and ROD Amendment; however, to ensure long-term protectiveness the LTM and O&M of the soil cover are to be implemented in accordance with the ROD Amendment. There have been no changes to the physical condition of the site that would affect the protectiveness of the remedy. Due to changes in exposure assumptions since the original RGs were developed and as a result of changes in the toxicity criteria for benzo(a)pyrene, the RGs for subsurface soil were updated in the ROD Amendment. The changes in RGs do not affect the protectiveness of the remedy for the former STP site.

5.6 Issues/Recommendations

Table 5-9: Summary of Recommendations and Follow-Up Actions

Issue	Recommendation/ Follow-Up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness ? (Y/N)	
					Current	Future
The remedy requires the LTM and O&M of the soil cover in accordance with the ROD Amendment	Prepare a LTM and O&M Plan and conduct LTM/O&M in accordance with the ROD Amendment	Navy	EPA/MassDEP	September 2019	N	Y

5.7 Other Findings

OU 7 is Navy-retained property and LUCs are established in the LIFOC. The completion of the LUCIP and establishment of LUCs in accordance with the ROD Amendment will be completed; however, because the property is owned by the Navy, the LIFOC ensures protectiveness until the property is transferred. The OU 7 LUCIP is expected to be finalized in September 2019.

PFAS, including PFOS and PFOA, in groundwater beneath portions of STP are being investigated under a separate OU (OU 27) to address basewide PFAS in groundwater at former NAS South Weymouth. The ongoing Basewide PFAS Investigation is discussed in Section 11.0 of this report.

5.8 Protectiveness Statements

Table 5-10: Protectiveness Statement

OU #	Protectiveness Determination	Protectiveness Statement
7	Short-term Protective	The remedy for OU 7 is protective of human health and the environment in the short-term because there is no current exposure to subsurface soil and the OU is Navy-retained property with ICs in the form of LUCs established under the LIFOC. To ensure long-term protectiveness, the LTM and O&M plans and LUCIP must be prepared and LTM/O&M of the soil cover must be conducted. In addition, LUCs in the form of deed restrictions are required to be completed prior to or upon property transfer to address the requirements of the ROD Amendment. The need to change the type of IC upon property transfer does not change the protectiveness of the remedy.

5.9 Next Review

A fourth FYR for former NAS South Weymouth will be completed in 2024. The protectiveness of the STP remedy will be evaluated in the next FYR.

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6.0 IR Program Site 9 – Building 81

This section presents the findings of the FYR for the remedy implemented at IR Site 9 (OU 9), Building 81.

6.1 Site Description and History

The Building 81 site, located in the central portion of the Base, is fenced and is bounded by Shea Memorial Drive, Redfield Road, Building 140, and a heavily vegetated area (Figure 6-1). The fenced area of the site comprises approximately 1 acre of land consisting of the former Building 81 foundation and paved areas to the east and south and an unpaved area (former excavation area) east of the former Building 81 foundation. Groundwater flow is generally to the west-southwest. There are no surface water bodies within the limits of the site. The OU 9 is Navy-retained property.

Building 81 was the Naval Station's Marine Air Reserve Training and former vehicle maintenance area. Facility drawings indicate that Building 81 was present in 1955 and was used for vehicle maintenance. Waste materials generated at Building 81 included hydraulic oil, crankcase oil, brake fluid, ethylene glycol, solvents, oil filters, and other wastes typical of routine vehicle maintenance. The Building 81 site initially contained a 500-gallon UST for the storage of waste oil. The UST, associated piping, and a small quantity of surrounding soil (estimated at less than 30 cy) were removed in 1991. In the 1990s, multiple petroleum-related investigations and removal actions were conducted in accordance with the MCP. However, after significant chlorinated VOC (CVOC) contamination was encountered, site work proceeded under CERCLA.

A site chronology and additional background information is in Appendix F.

6.2 Response Action Summary

6.2.1 Basis for Taking Action

This section summarizes the COCs, media of concern, potential receptors, and exposure pathways that resulted in potentially unacceptable risks at the site that required remedial action under CERCLA. Unacceptable human health cancer and/or noncancer risks were estimated in the RI baseline risk assessment for future residents from exposure to groundwater via ingestion, dermal, or inhalation (vapor intrusion) and for future construction workers from exposure to groundwater via ingestion, dermal contact, or inhalation (vapors in construction trenches). COCs were identified as tetrachloroethene (PCE), trichloroethene (TCE), vinyl chloride, carcinogenic PAHs, arsenic, cadmium and manganese in groundwater and PCE and naphthalene in indoor air and trench air (vapor intrusion). The Building 81 site lacks any significant potential ecological habitat, and there was no current complete exposure pathway for site contaminants to ecological receptors; therefore, an ERA was not conducted.

A supplemental RI work plan was developed in 2009 to fill data gaps identified in the draft RI report (Tetra Tech, 2009h). The final RI Report was issued in October 2011 (Tetra Tech, 2011e). Based on the results of the RI and supplemental RI, an FS was completed in April 2013 to evaluate remedial alternatives to address groundwater associated with potentially unacceptable human health risks (Tetra Tech, 2013b). RAOs in the FS included the following:

- Prevent the migration of COC-impacted groundwater at concentrations that pose unacceptable risk.
- Prevent exposure of construction workers to COCs at concentrations that pose unacceptable risk.
- Prevent exposure of potential building occupants to VOCs resulting from vapor intrusion into any future buildings on the site at concentrations that pose unacceptable risk.
- Prevent human exposure to COCs in groundwater at concentrations that pose unacceptable risk.

Remedial alternatives developed in the FS included no action; bio-barriers, MNA, and LUCs; enhanced in-situ bioremediation, bio-barriers, MNA, and LUCs; and in-situ chemical oxidation (ISCO), bio-barriers, MNA, and LUCs.

6.2.2 Response Actions

A Proposed Plan was completed in September 2013, and the ROD was signed in September 2014 (Navy, 2013c; 2014).

The remedy selected to meet the RAOs was designed to address potential unacceptable human health risks associated with direct exposure to groundwater and exposure to vapors from contaminated groundwater that migrated to the indoor air of a building or to the air in a construction trench by reducing site-wide contaminant concentrations in groundwater to cleanup levels. As stated in the ROD, the major components of the selected remedy included the following:

- Enhanced in-situ bioremediation to reduce contaminant concentrations in the overburden and bedrock source zone.
- Bio-barriers in the overburden and bedrock to intercept and treat the contaminant plume at its leading edge.
- MNA in the area between the source zone target treatment zones (TTZs) and bio-barriers to further reduce concentrations of any residual CVOCs remaining after active treatment with enhanced bioremediation.
- Permanent LUCs to prohibit installation of groundwater production, supply, and irrigation wells at the site; and future residential uses within the Recreational District (RecD) zoning district at the site.
- Interim LUCs to restrict the type and nature of construction permitted in the source area of the plume until cleanup levels are achieved; restrict construction in the vicinity of the bio-barriers to prevent disturbance of and damage to the injection wells and allow future injections; require prior Navy, EPA, and MassDEP approval of:
  - Construction dewatering plans before excavation activities can be conducted.
  - Health and safety procedures to be used by construction workers to prevent unacceptable exposure risks until cleanup levels are achieved.
  - Passive ventilation design and building construction methods, such as sub-slab vapor mitigation systems, to prevent exposure of building occupants to vapor intrusion from VOCs in groundwater at levels that pose unacceptable risks until cleanup levels are achieved.
- Inspections to confirm compliance with the LUC objectives.
- Monitoring of groundwater to evaluate the progress of remediation.
- Completion of FYRs as long as COCs are present at concentrations that prevent UU/UE.

RGs established for the COCs are summarized in the following table.

Table 6-1: Summary of Remedial Goals

Medium	COC	RGs (µg/L)[1]	
		RecD Zoning District[2]	VCD Zoning District[3]
Groundwater	PCE	500	110
	TCE	23	8.5
	cis-1,2-DCE	29,000	29,000
	Vinyl Chloride	18	2.6
	Toluene	40,000	32,000
	Benzene	140	21
	Naphthalene	38	38

cis-1,2-DCE cis-1,2-Dichloroethene

(1) The RGs for COCs in site groundwater were selected from the risk-based value (i.e. the lower of the value representing the 10^{-5} incremental lifetime cancer risk (ILCR) level or hazard index (HI) equal to 1 or the MassDEP GW-3 groundwater standard (310 CMR 40.0974), whichever was lower. For this site, the federal drinking water standards (MCLs) are no longer applicable or relevant and appropriate since the site groundwater is not considered a drinking water source.

(2) RecD – Recreational District allows for future indoor and outdoor commercial recreation, athletic fields, health and fitness clubs, some institutional uses under special permit, and passive recreation such as walking trails.

(3) VCD – Village Center District allows for mixed use areas with a range of future uses that could include residential development, office, and commercial and/or retail uses.

6.2.3 Status of Implementation

The selected remedy for Building 81 has been initiated but is not yet complete. After the ROD was signed in 2014, a draft RD/RAWP was issued in April 2015 (Resolution, 2015c), and implementation of the RA began in December 2015 with installation of the overburden injection wells.

In 2017, the RD for the groundwater remedy was finalized (Resolution, 2017b). The RD focused on treatment of CVOCs in groundwater and specifically targeted PCE because it was the most frequently detected compound in groundwater; benzene, naphthalene, and PCE dechlorination daughter products were detected at lesser concentrations than PCE. The bio-barriers proposed in the ROD were replaced with targeted injections in the impacted zones based on data collected in 2015 and 2016. Enhanced bioremediation is being conducted in overburden, shallow bedrock, and deep bedrock treatment zones at Building 81 in accordance with the ROD. Pre-injection groundwater sampling was conducted in 2016. In fall 2016, overburden injections were completed that successfully reduced concentrations to less than RGs in all but one of the VCD monitoring wells. Data from the 3-month (March 2017), 6-month (June 2017), 12-month (December 2017) and 24-month (June 2018) post-injection sampling events indicate decreases in PCE concentrations to less than the RGs in all wells except one. Semi-annual post-injection sampling will continue through October 2019 to evaluate the efficiency of the overburden injections in achieving RGs.

Bedrock injection and monitoring wells were installed in summer 2017, and bedrock injections were conducted in fall 2017. The first three post-injection monitoring events were conducted in January 2018 (3 months post-injection), April 2018 (6 months post-injection), and October 2018 (12 months post-injection). In addition, an in-well slow-release bioremediation “sock” was installed in April 2018 in the well with maximum PCE concentrations (BR-7). The sock was removed prior to the October 2018 sampling event to assess the its effectiveness. The results of the October 2018 sampling event indicate that the sock was effective in reducing PCE concentrations and accelerating the dechlorination process. Semi-annual monitoring will be conducted through October 2019 to evaluate the efficiency of the bedrock injections in achieving RGs.

MNA will be addressed after active treatment with enhanced bioremediation is complete.

6.2.4 Land Use Controls

A LUCIP implementing the interim and permanent LUCs outlined in the ROD has not been finalized. A final LUCIP for the site is scheduled for October 2019. However, the property remains under Navy control, and LUCs are included in the LIFOC held by the Southfield Redevelopment Authority.

Table 6-2: Summary of Land Use Controls

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date
Groundwater	Yes	Yes	Building 81 LUC area	Prevent unacceptable risks associated with extraction of groundwater and vapor intrusion or vapors in construction trenches until cleanup standards are achieved	LIFOC (2011), LUCIP (scheduled for October 2019)

PFAS groundwater contamination under OU 9 is being addressed under OU 27 Basewide PFAS. The provisions of the Basewide LUCIP for PFOS and PFOA as they affect Building 81 are discussed in Section 11.

6.3 Progress Since Last Five-Year Review

The Building 81 site was not included in the second FYR because the ROD had not been signed when the second FYR was completed in July 2014.

6.4 Five-Year Review Process

This section provides a summary of the FYR process for the Building 81 site and the actions taken to complete the review.

6.4.1 Data Review

The selected remedy for Building 81 has been initiated but is not yet complete. A RACR and LTM Plan will be generated after the RA is complete. Building 81 monitoring and injection locations are presented in Table 6-3, and post-injection groundwater results from March 2017 through May 2018 are provided in Tables 6-4 through 6-7. Exhibits 6-1 through 6-17 illustrate trends for select CVOCs and total organic carbon (TOC) in key overburden and bedrock monitoring wells. The following presents a summary of post-injection groundwater results.

Summary of Post-Injection Groundwater Results

Overburden

Overburden enhanced bioremediation injections were completed in December 2016, and post-injection PCE concentrations were less than the VCD RG (110 µg/L) in all but one overburden well (MW-38I). PCE concentrations at MW-38I have ranged from 106 µg/L (June 2017) to 130 µg/L (March 2017). Exhibits 6-1 through 6-5 illustrate trends for select CVOCs and TOC in key overburden groundwater monitoring wells (I-12, MW-32S, MW-33S, MW-38I, and MW-58W). The trends for these five overburden monitoring wells indicate that the December 2016 injection successfully reduced CVOC concentrations at the Building 81 site. Semi-annual post-injection sampling will continue through October 2019 to evaluate the efficacy of the overburden injections in achieving RGs.

Bedrock

Bedrock enhanced bioremediation injections were completed from September through October 2017, and post-injection sampling events were performed in January 2018, April 2018, and October 2018 (results pending). Exhibits 6-6 through 6-17 illustrate trends in select CVOCs and TOC in bedrock groundwater after the bedrock injections completed in September and October 2017.

Based on April 2018 post-injection monitoring results, only 1 of 16 wells in the West Bedrock Plume had PCE in excess of the VCD RG. Bedrock well BR-11D had a PCE concentration of 321 µg/L. TOC concentrations increased in several monitoring wells, which indicates adequate distribution of injected amendments. In addition, PCE dechlorination by-products were detected, indicating degradation of PCE.

Based on April 2018 post-injection monitoring results, only 2 of 10 wells (BR-7 and MW-03D) in the South Bedrock Plume had PCE concentrations in exceedance of the VCD RG. April 2018 PCE concentrations were 4,110 µg/L at BR-7 and 733 µg/L at MW-03D. Similar to observations made for overburden groundwater, TOC concentrations increased in several monitoring, indicating adequate distribution of injected amendments, and PCE dechlorination by-products were detected, indicating degradation of PCE. Semi-annual monitoring will be conducted through October 2019 to evaluate the efficacy of the bedrock injections in achieving RGs.

6.4.2 Site Inspection

An FYR site inspection was performed on December 5, 2018, by Tetra Tech personnel. The site inspection noted that both site access gates were locked at the time of the inspection but that the gate on the northern side needed to be re-secured. There is a cut in the site fence in the northern portion of the site that has a temporary repair, but a permanent repair is needed. A warning sign and no trespassing sign are posted on the western access gate of the site. No changes in land use at the site were observed. Buildings 15 and 16, previously located west of Shea Memorial Drive, have been demolished, and Building 11 has been partially demolished. The inspection report noted that monitoring and injections wells observed were locked, labeled, and in good condition. No evidence of trespassing or vandalism was observed during the site inspection. The site inspection checklist and photographic log are included in Appendix F.

6.5 Technical Assessment

This section provides a technical assessment of the remedy implemented at Building 81 in the form of responses to the three questions outlined in the Comprehensive Five-Year Review Guidance (EPA, 2001).

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

The Building 81 remedy has been initiated and remedy implementation is functioning as intended by the ROD. Enhanced bioremediation is being conducted in overburden, shallow bedrock, and deep bedrock treatment zones at Building 81 in accordance with the ROD and RD/RAWP. Post-injection monitoring results indicate decreases in PCE concentrations in both overburden and bedrock wells and the progressive dechlorination of CVOCs. Post-injection monitoring will continue through October 2019.

LUCs have not been fully implemented as outlined in the ROD; however, Building 81 is Navy-retained property and LUCs are established in the LIFOC. A LUCIP in accordance with the ROD is in process and expected to be finalized in October 2019. Prior to or upon property transfer, LUCs in the form of deed restrictions are required to be completed.

There is no other information that calls into question the protectiveness of the remedy.

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

6.5.2.1 Changes in Exposure Pathways

There have been no changes at the site since the selection of the remedy that would have resulted in new exposure pathways.

6.5.2.2 Changes in Standards or Newly Promulgated Standards

There have been no changes to relevant ARARs or newly promulgated standards that affect the protectiveness of the remedy.

6.5.2.3 Changes in Toxicity and Other Contaminant Characteristics

There have been no changes in toxicity or other contaminant characteristics that affect the protectiveness of the remedy.

6.5.2.4 Changes in Risk Assessment Methods

There have been no changes in HHRA methodology that affect the protectiveness of the remedy.

6.5.3 Question C: Has Any Other Information Come to Light that Could Call into Question the Protectiveness of the Remedy?

No other information was identified during the completion of this FYR that could affect the protectiveness of the remedy. No weather-related events have affected the protectiveness of the remedy.

6.5.4 Technical Assessment Summary

According to the data reviewed, site inspection, and interview responses, the remedy is still under construction with treatment ongoing; implementation of the remedy is functioning as intended by the ROD. The Navy retains ownership of the OU with LUCs established in the LIFOC. A LUCIP will be completed to establish LUCs prior to property transfer in accordance with the ROD. Deed restrictions will be implemented and a NAUL will be recorded with the deed. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. There have been no significant changes in the toxicity factors for the COCs that were used in the HHRA, and there have been no changes to the standardized risk assessment methodology that would affect the conclusions of the HHRA or the protectiveness of the remedy for Building 81.

6.6 Issues\Recommendations

No issues affecting the protectiveness of the Building 81 remedy were identified; therefore, there are no recommendations for Building 81 and no follow-up actions are required.

6.7 Other Findings

LUCs required by the Building 81 ROD have not been fully implemented; however, the site is Navy-retained property, and LUCs are included in the LIFOC held by the Southfield Redevelopment Authority ensuring current protectiveness. The ROD requirement for development of a LUCIP is in process, and once it is finalized, will include both the permanent and interim LUCs ensuring future protectiveness. Upon transfer, deed restrictions will be implemented and a NAUL will be recorded with the deed.

PFAS in groundwater beneath the Building 81 are being investigated under a separate OU (OU 27) to address basewide PFAS in groundwater at former NAS South Weymouth. The ongoing basewide PFAS investigation is discussed in Section 11.0 of this report.

6.8 Protectiveness Statements

Table 6-8: Protectiveness Statement

OU #	Protectiveness Determination	Protectiveness Statement
9	Protective	The remedy for OU 9 is protective of human health and the environment because no exposure is occurring and the OU is Navy-retained property with ICs in the form of LUCs established under the LIFOC. Prior to or upon property transfer, LUCs in the form of deed restrictions are required to be completed. The need to change the type of IC upon property transfer does not change the protectiveness of the remedy. The remedy, in-situ bioremediation, is progressing and LTM and FYRs are required to be conducted in accordance with the ROD.

6.9 Next Review

A fourth FYR for former NAS South Weymouth will be completed in 2024. A full evaluation of OU 9 will be included in the next FYR.

7.0 IR Program Site 10 – Building 82

This section presents the findings of the FYR for the remedy implemented at IR Site 10 (OU 11), Building 82.

7.1 Site Description and History

The Building 82 site, located in the central building area of the base, includes Building 82 (the hangar) and the concrete apron surrounding the building to the north, west, and south, Building 15, and Building 41 (Figure 7-1). There is a complex network of subsurface drainage structures at the site, but there are no surface water bodies within the limits of the site. Surface water runoff flows into catch basins that empty into drain pipes that discharge into drainage ditches in grassy areas at the northwestern and southwestern perimeters of the site. The drainage ditches drain to storm sewers that connect to each other and empty into the Tactical Air Navigation (TACAN) outfall drainage system south of the site and ultimately into French Stream (not shown on Figure 7-1). The Building 82 property was transferred to Southfield Redevelopment Authority via Finding of Suitability to Transfer (FOST) 6B-2 in March 2018. The transfer deed contained groundwater use restrictions consistent with those required for the OU 27 Basewide PFOS and PFOA LUC area.

Building 82, also referred to as Hangar 2, was constructed in 1956 as an aircraft hangar and maintenance facility for fixed-wing aircraft. Building 82 was continuously used by the Marine Corps for that purpose from 1956 through 1996, when operations at the base ceased. During that time, oils, lubricants, and solvents necessary for aircraft maintenance were used and stored in the building. Following base closure, Building 82 was used for the storage of miscellaneous Navy-owned vehicles (e.g., plows, backhoes, etc.) until 2000. Building 15 was used as a transportation building and contained an aboveground storage tank (AST), a battery storage room, floor drains and associated piping, an oil/water separator (OWS), and a hydraulic lift. Building 41 (former family services center) was used as a restaurant and office space. Buildings 82, 15, and 41 are currently vacant.

Initial responses to petroleum contamination began in 1998 in accordance with the MCP. With the detection of 1,1,1-trichloroethane (TCA) at Building 82, the site was moved into the IR Program. Areas within the Building 82 footprint and concrete apron that were previously evaluated during the EBS (RIAs 30A and 107) were also incorporated into IR Site 10.

A site chronology and additional site background information are included in Appendix G.

7.2 Response Action Summary

7.2.1 Basis for Taking Action

This section summarizes the COCs, media of concern, potential receptors, and exposure pathways that resulted in potentially unacceptable risks at the site that required remedial action under CERCLA. The RI concluded that generally low concentrations of VOCs, SVOCs, pesticides, PCBs, and metals were detected in groundwater, soil, surface water and sediment (Tetra Tech, 2010e). The HHRA concluded that site COCs in groundwater included VOCs, SVOCs, pesticides and metals. The RI Report documented potentially unacceptable risks for future residents primarily from use of groundwater as drinking water and for future construction workers from inhalation of dust and volatile contaminants in trench air. The HHRA also concluded there were no human health risks associated with exposure to soil, surface water, or sediment. Potential ecological risks to terrestrial plants and invertebrates, invertebrates in sediments, aquatic organisms, and terrestrial receptors at the site were evaluated in the ERA and were determined to not warrant further assessment.

After the final RI Report was issued, and in conjunction with preparation of the FS, additional delineation of the groundwater contaminant plume was conducted as part of an RI Addendum (Tetra Tech, 2011f). In October 2010, the Navy completed a maintenance action, separate from the FS, to remove additional drainage piping, manholes, and some impacted soil near the new access road. The final maintenance action report was issued in July 2011 (Tetra Tech EC, 2011b). The Navy completed the FS in July 2012 (Tetra Tech, 2012d).

7.2.2 Response Action

The Proposed Plan was completed in August 2012, and the ROD signed in September 2012 (Tetra Tech, 2012e and 2012f).

The RAOs established in the ROD are to:

- Present human exposure to groundwater containing concentrations of contaminants in excess of the RGs that cause unacceptable risk.
- Prevent or minimize migration of contaminants in groundwater.

- Restore groundwater quality at the Building 82 site such that there are no risks to human health preventing its permissible beneficial use.

The major components of the selected remedy in the ROD include the following:

- ISCO of VOCs and n-nitroso-di-n-propylamine (NNPA) in shallow and deep groundwater.
- Implementation of LUCs on an interim basis to prohibit the installation of groundwater extraction wells for production, supply, or irrigation at the site and to require Navy, EPA, and MassDEP approval of construction dewatering plans prior to conducting any construction dewatering activities at the site.
- Performance monitoring to evaluate the progress of remediation and LTM for other analytes of interest.
- FYRs, as needed.

RGs established for the COCs in groundwater are summarized in the following table.

Table 7-1: Summary of Remedial Goals

Medium	COC	RG (µg/L)(1)
Groundwater	1,1-DCA	70
	NNPA	0.073
	TCE	5
	Manganese	300
	1,1,1-TCA	200
	cis-1,2-DCE	70
	Vinyl Chloride	2
	Arsenic	10
	Benzene	5
	Chloroform	70
	PCE	5
	Heptachlor Epoxide	0.2

1,1-DCA 1,1-Dichloroethane.

(1) The RGs for site groundwater were selected from MCLs or non-zero maximum contaminant level goals (MCLGs), if available. MassDEP drinking water standards and EPA Health Advisories were also considered in selection of RGs. If an MCL or non-zero MCLG was not available, or if the ARAR alone would not be sufficiently protective in the given circumstances, the value representing the 10^{-5} ILCR or HI equal to 1 was selected as the RG.

The primary COCs targeted for remediation were TCE, 1,1-DCA, and NNPA, and three areas were identified in the ROD for potential treatment, one area for each of these contaminants. The area identified for potential treatment of TCE was west of

Buildings 15 and 41 and south of Building 82. The area identified for treatment of 1,1-DCA was a limited area located immediately west of Building 82 near B82-MW-01, and the area identified for treatment of NNPA was near well B82-MW-200S, north of Building 82.

7.2.3 Status of Implementation

RA construction began in December 2013. Injection wells were installed from December 2013 to January 2014, and a baseline groundwater sampling event (existing monitoring well network) was conducted in December 2013. New monitoring wells were installed in January 2014, and a pre-injection groundwater monitoring event was completed in February 2014. ISCO injections were conducted in April 2014. Design details for the ISCO injections and performance monitoring are presented in the Final Pilot Test Work Plan for Building 82 (Resolution, 2014a). RA performance monitoring was conducted from June 2014 to October 2015, and semi-annual LTM was initiated in March 2016 in accordance with the LTM Plan (Resolution, 2016e). LTM was conducted in March 2016, October 2016, and March 2017.

In April 2017, the Southfield Redevelopment Authority lifted the APD designation from the aquifer that lies beneath a portion of the Building 82 site. MassDEP concluded in November 2017 that the aquifer has low use and value, and in accordance with MassDEP guidance, 310 CMR 40.0932(5)(b)(1), is no longer identified as a potential source of drinking water (MassDEP, 2017). Because Massachusetts has an EPA-endorsed Comprehensive Groundwater Protection Program, this finding is consistent with EPA guidance.

The results of LTM showed that groundwater contaminant concentrations have been attenuating and are less than or are approaching the RGs across the site. Based on the LTM and the change of the aquifer designation, Navy and regulators concurred that an Operating Properly and Successfully (OPS) Demonstration was appropriate. In January 2018, an OPS Demonstration/RACR was finalized (Resolution, 2018f). The OPS/RACR documented that the remedy for Building 82, including ISCO for VOCs in shallow and deep groundwater, performance monitoring, and LUCs, was complete.

In February 2018, the Navy and EPA, with MassDEP concurrence, signed an ESD that modified the Building 82 remedy to no further action (NFA) (Resolution, 2018g). This change was based on the 2017 exclusion of the underlying aquifer from the APD by the Southfield Redevelopment Authority and the MassDEP November 2017 finding that the aquifer has low use and value and is no longer identified as a potential drinking water source. In light of this change, the risk assessment cited in the September 2012 ROD was revised to assess potential risk from exposure to groundwater based on non-potable groundwater use. The revised risk evaluation (appended to the ESD) determined that the groundwater contamination does not exceed CERCLA risk criteria for unrestricted contact exposure and does not require further CERCLA action for the groundwater COCs identified in the ROD. The results of an updated vapor intrusion screening in conjunction with the nature and extent of TCE impacts at the site and groundwater elevation data, indicate that the vapor intrusion pathway is not a pathway of concern at the site.

Based on these results, the Navy, EPA, and MassDEP agreed that the ROD requirements for groundwater treatment, LUCs, LTM monitoring, and FYRs are no longer required.

7.2.4 Land Use Controls

A LUCIP for Building 82 was finalized in November 2016. The LUCIP detailed the implementation of LUCs on an interim basis to prohibit the installation of groundwater extraction wells for production, supply, or irrigation at the site and to require Navy, EPA, and MassDEP approval of construction dewatering plans obtained prior to conducting any dewatering at the site. The first annual LUC inspection was performed in December 2017, and the LUC requirements of the ROD were in place through February 2018. However, with finalization of the 2018 ESD, the Navy, EPA, and MassDEP have agreed that LUCs are no longer required with respect to ROD COCs in groundwater. Therefore, a 2018 LUC inspection was not performed per the ESD.

In February 2018, a Basewide PFOS and PFOA LUCIP was finalized to address the presence of PFOA and PFOS in groundwater throughout NAS South Weymouth, including Building 82 (Resolution, 2018a). The LUCs will prevent potential unacceptable risks from exposure to PFOS and PFOA in groundwater until cleanup standards are formally established and met. The provisions of the 2018 Basewide PFOS and PFOA LUCIP and results of the 2018 LUC inspection are included in Section 11.

As noted in Section 7.1, the property was transferred to the Southfield Redevelopment Authority in accordance with FOST 6B-2, which identified groundwater use restrictions that were incorporated into the transfer deed. The deed restrictions are consistent with those required for the Basewide PFOS and PFOA LUC area.

7.2.5 Long-Term Monitoring

In 2016, an LTM Plan was finalized, and groundwater LTM began in March 2016 (Resolution, 2016e). The objective of the LTM was to confirm that concentrations of

COCs were less than RGs and that no rebound in contaminants occurred, as described in the ROD. In accordance with the LTM Plan, groundwater monitoring was conducted at the site on a semi-annual basis until the underlying aquifer was reclassified in April 2017. LTM locations are listed in Table 7-2.

7.3 Progress Since Last Five-Year Review

The Building 82 Site remedy was not in place when the second FYR was completed in July 2014.

7.4 Five-Year Review Process

This section provides a summary of the FYR process for Building 82 and the actions taken to complete the limited review.

7.4.1 Data Review

LTM groundwater results, the revised risk evaluation, and updated vapor intrusion screening data were reviewed. Three LTM groundwater sampling events were completed in March 2016, October 2016, and March 2017 to determine whether COC concentrations were less than RGs and if rebound in concentrations was occurring after ISCO treatment, as described in the ROD. LTM was conducted until the underlying aquifer was reclassified in April 2017. Building 82 LTM locations are presented in Table 7-2. A summary of LTM groundwater data is presented in Table 7-3, and a summary of all available TCE and manganese groundwater data is presented in Table 7-4. The revised risk evaluation and updated vapor intrusion screening are included in the 2018 ESD (Resolution, 2018g).

7.4.1.1 Long-Term Monitoring Results

During LTM, VOCs including TCE and cis-1,2-DCE were detected, and TCE concentrations exceeded the RG at several wells, although concentrations appear to be trending downward since the RI (Tables 7-3 and 7-4). Manganese was detected in excess of the RG at several wells (Table 7-3); however, based on March 2017 LTM data, manganese concentrations appear stable or decreasing in all wells (Table 7-4).

7.4.1.2 Revised Risk Evaluation and Updated Vapor Intrusion Screening

Based on the exclusion of the underlying aquifer from the APD by the Southfield Redevelopment Authority in April 2017, a revised risk evaluation was completed to evaluate risk associated with exposure to COCs in groundwater assuming non-potable use of groundwater. The revised risk assessment assumed a non-potable groundwater use scenario in which site groundwater may be contacted by future construction workers, maintenance workers, or residents while using groundwater for non-potable/irrigation purposes. The cumulative potential ILCR and total noncancer HI were conservatively estimated for each exposure scenario based on the maximum detected groundwater concentrations for the ROD COCs reported during one or more groundwater sampling events conducted between 2013 and 2017. The risk evaluation (appended to the ESD) concluded that risks associated with exposure to Building 82 COCs under non-potable use scenarios did not exceed EPA's target risk ranges for unrestricted contact exposure. The results of the vapor intrusion screening, in conjunction with the nature and extent of TCE impacts at the site and groundwater elevation data, indicate that the vapor intrusion pathway is not a pathway of concern. Therefore, the ESD states that the site does not require further CERCLA action for groundwater COCs identified in the ROD. The Navy, EPA, and MassDEP agreed that the ROD requirement for LTM monitoring is no longer required.

7.4.2 Site Inspection

The FYR site inspection was conducted at the site on December 5, 2018, by Tetra Tech personnel. The inspection checklist and photographic log are included in Appendix G. The site inspection noted that a portion of the site is used as an event venue for concerts, also referred to as "The Hang Out." Monitoring wells observed were locked and in good condition. The site is partially fenced, but access is unrestricted because the gates are open. The hangar building was observed to be used for storage of vehicles and was secured at the time of the inspection. Building 82 is centrally located within the Union Point (former NAS South Weymouth) redevelopment area.

7.5 Technical Assessment

Due to the change in groundwater classification and results of the revised risk assessment, the OU 11 CERCLA remedy was changed to NFA for the groundwater COCs identified in the ROD. In light of this change, a revised risk assessment was completed to assess potential risk from exposure based on non-potable groundwater use. The revised risk evaluation determined that risks associated with exposure to site COCs in groundwater do not exceed CERCLA risk target ranges for unrestricted contact exposure and that the site does not require further CERCLA action for the COCs identified in the ROD. Therefore, the Navy, EPA and MassDEP agreed that groundwater treatment, LUCs, and LTM monitoring are no longer required. No FYRs will be required for the COCs identified in the ROD. unless there are changes in site conditions or factors contributing to the assumptions underlying the NFA CERCLA decision. The 2018 ESD stated that PFOS and PFOA in groundwater at the site will be addressed under a newly established OU (OU 27), as discussed in Section 11 of this FYR. Therefore, no formal technical assessment has been performed.

8.0 IR Program Site 11 – Solvent Release Area

This section presents the findings of the FYR for the remedy implemented at IR Site 11 (OU14), the SRA.

8.1 Site Description and History

The SRA, located in the northeastern portion of former NAS South Weymouth, is approximately 14 acres of undeveloped flat land. The SRA is identified as Site 11 and OU 14. The SRA is bounded to the north by Pidgeon Road, to the east by the Eastern Drainage Ditch and to the south by the northern part of the East Mat (Figure 8-1). The East Mat is an open, flat, paved area that was a mooring area for lighter-than-air aircraft, aircraft fuel discharge area, aircraft de-arming area, and taxiway and parking area for aircraft. The unpaved road along the eastern perimeter of the site provides access to the East Mat. The East Mat Ditch (EMD) provided drainage for the East Mat. The site is currently Navy-retained property.

Contamination was initially detected during the 2000 Phase II EBS when results from a subsurface soil sample intended to assess background conditions (BG-05) contained PCE (Stone & Webster, 2004). Additional field investigations including a geophysical study and source delineation led to the site being moved to the IR Program and identified as the SRA in early 2005. Chlorinated VOC plumes have been delineated in overburden and bedrock groundwater. The most plausible explanation for the source of contamination is that waste containing PCE was discharged onto the ground surface.

A site chronology and additional background information is in Appendix H.

8.2 Response Action Summary

8.2.1 Basis for Taking Action

This section summarizes the COCs, media of concern, potential receptors, and exposure pathways that resulted in potentially unacceptable risks at the site that required remedial action under CERCLA. Baseline risk assessments were performed as part of the RI, and a final RI Report was issued in August 2010 (Tetra Tech, 2010f). The HHRA evaluated potential risks from contaminants in soil, groundwater, drainage ditch sediment, and surface water at the SRA. The HHRA concluded that there were no unacceptable human health risks under current exposure scenarios; however, potential unacceptable risks were identified for future residents from exposure to groundwater via ingestion, dermal, or inhalation (vapor intrusion) and for future construction workers from exposures to groundwater via ingestion, dermal contact, and inhalation of VOCs in trench air. The theoretical risk exceedances were based on the presence of the following COCs: PCE, TCE, cis-1,2-DCE, vinyl chloride, 3,3'-dichlorobenzidine (3,3-DCB), pentachlorophenol (PCP), arsenic, and barium in groundwater used as drinking water and PCE in trench air, with PCE in groundwater as the primary risk driver for chemicals migrating from groundwater through vapor intrusion (construction worker and residential scenarios) and groundwater used for irrigation (for residents). No unacceptable risks were estimated from exposures to soil, sediment, or surface water. However, contaminated groundwater discharging to the EMD may result in potential future exposure to contaminated surface water in the EMD. The ERA concluded that there was no unacceptable risk to ecological receptors.

An FS evaluated remedial alternatives to address the potential unacceptable risks identified in the HHRA. Risks were identified for hypothetical future residential receptors and construction workers; however, based on the established zoning, future residential uses are not allowed. The FS evaluated response actions to address risks from recreational and construction worker exposure to COCs, consistent with the allowable future uses. The range of future uses allowed in open space and recreation zoning districts could include indoor and outdoor commercial recreation and passive recreation such as walking trails. Thus, although the HHRA did not identify a risk to future recreational users based on ingestion or dermal contact with groundwater, the FS evaluated risks to future recreational users based on potential vapor intrusion risk to occupants of future buildings. Future uses of site groundwater for production, supply, and irrigation purposes are not reasonably foreseeable uses.

The Final FS was issued in December 2012 (Tetra Tech, 2012g). To support the FS decision-making process, the Navy performed two additional groundwater sampling rounds in spring and fall of 2011 at key locations at the fringe of the SRA PCE plume.

RAOs identified in the FS included the following:

- Prevent the migration of COCs to surface water at concentrations that pose an unacceptable risk to human health.
- Prevent exposure of building occupants to VOCs resulting from vapor intrusion into future buildings at the site at concentrations that pose unacceptable risk.
- Prevent exposure of construction workers during excavation activities to VOCs and COCs in groundwater at concentrations that pose unacceptable risk.

- Prevent migration of groundwater containing COCs at concentrations that pose unacceptable risk.

8.2.2 Response Actions

The Navy issued the Final ROD in September of 2013 (Tetra Tech, 2013d). The selected remedy for SRA included overburden and bedrock source zone enhanced bioremediation, two overburden permeable reactive barriers (PRBs), monitoring, engineering controls, LUCs, and FYRs (as needed). As stated in the ROD, the major components of the selected remedy included the following:

- In-situ enhanced bioremediation to reduce contaminant concentrations in the overburden and bedrock source zones.
- Installation of two overburden mulch PRBs to intercept and treat the overburden groundwater contaminant plume.
- Implementation of a permanent LUC to prohibit the installation of groundwater extraction wells for production, supply, and irrigation uses at the site.
- Implementation of a permanent LUC to prohibit residential uses at the site.
- Implementation of interim LUCs to require that Navy, EPA, and MassDEP approve: (1) construction dewatering plans prior to conducting any construction dewatering activities at the site and (2) building design and construction methods, such as foundation venting, to prevent unacceptable exposure to VOCs through vapor intrusion for any future structures that might be built in the upland area.
- Implementation of engineering controls to restrict access to surface water in the EMD.
- Maintenance and inspections of the LUCs and engineering controls.
- Monitoring of groundwater to evaluate the progress of remediation.
- Monitoring of surface water to evaluate potential impacts of groundwater discharges to surface water.
- Monitoring of sediment to evaluate trends in concentrations of inorganic chemicals.

- Completion of FYRs as long as COCs are present at concentrations that prevent unrestricted use.

RGs established for the COCs in groundwater and surface water were based on a commercial/industrial reuse scenario and are summarized in the following table.

Table 8-1: Summary of Remedial Goals

Medium	COC	RG (µg/L)[(1)]	Basis for Selection
Groundwater	PCE	370	Human Health Non-Cancer Risk (HI=1)
	TCE	18	Human Health Non-Cancer Risk (HI=1)
	cis-1,2-DCE	4,400	Human Health Non-Cancer Risk (HI=1)
	Vinyl Chloride	39*	Human Health Non-Cancer Risk (HI=1)
	PCP	200	MassDEP GW-3 standard
	3,3'-DCB	1,200	Human Health Cancer Risk (ILCR=10^{-5})
	Arsenic	900	MassDEP GW-3 standard
	Barium	50,000	MassDEP GW-3 standard
Surface Water	PCE	860	Human Health Non-Cancer Risk (HI=1)
	TCE	220	Human Health Non-Cancer Risk (HI=1)
	cis-1,2-DCE	1,000	Human Health Non-Cancer Risk (HI=1)
	Vinyl Chloride	130	Human Health Cancer Risk (ILCR=10^{-5})
	Aroclor-1248	140	Human Health Cancer Risk (ILCR=10^{-5})

*Recreation zone value; open space zone RG – 52 µg/L.

(1) RGs for COCs in site groundwater and surface water were selected from the risk-based value (i.e. the lower of the value representing the 10-5 ILCR level or HI equal to 1 or the MassDEP GW-3 groundwater standard [310 CMR 40.0974], whichever was lower). Federal drinking water standards (MCLs) are no longer applicable since future use of site groundwater for drinking water purposes is not a reasonable foreseeable future use.

8.2.3 Status of Implementation

The selected remedy for SRA has been implemented but is not yet complete. In accordance with the 2013 ROD, an enhanced bioremediation pilot-scale study (Phase I) and full-scale enhanced bioremediation (Phase II) were performed on the PCE Plume at the SRA. The Phase I Source Area RA focused on a treatment zone encompassing the center of the mapped overburden plume and the entire bedrock plume. Installation of the monitoring wells and injection wells necessary to conduct the Phase I Source Area RA was completed in April 2014. Phase I sodium lactate bioremediation injections were conducted in June 2015, followed by emulsified vegetable oil injections in March and April 2016. Post-injection sampling data (July 2015, September 2015, December 2015, May 2016, and August 2016) indicate that PCE concentrations in groundwater decreased and that dechlorination daughter product concentrations have increased in the injection area, suggesting that reductive dechlorination of PCE is occurring.

Site characterization data and post-injection sampling data from 2015 and 2016 were used to develop the Phase II Source Area RD, which included an expanded treatment area and modified the PRB walls from mulch-based to injection-based. Installation of the injection wells and monitoring wells included in the Phase II RD was completed in spring 2017. Injections were conducted June and August 2017, with an additional volume injected in October 2017. Semi-annual post-injection sampling will be conducted for 3 years. The first Phase II post-injection monitoring event was performed in February and March 2018, and the second event was conducted in September 2018 (results pending).

Based on initial Phase II sampling results, a Phase II Addendum Work Plan was issued in June 2018 to treat weathered bedrock in select areas (Resolution, 2018h). The purpose of the addendum is to conduct additional weathered bedrock injections in impacted areas identified during the 2017 investigation; and to further investigate PCE concentrations in bedrock below the impacted weathered bedrock areas.

The remedial approach for the Phase II Addendum extends beyond the ROD-specified area (i.e., source areas) to accelerate treatment of COCs at the SRA. In September 2018, 45 additional weathered bedrock injection wells were installed in PRB#1, PRB#2, PRB#3 and Overburden TTZ areas. In addition, ten bedrock borings were installed along the main axis of the overburden and weathered bedrock plume. Injections were conducted in November 2018 and February 2019.

8.2.4 Land Use Controls

A LUCIP implementing the interim and permanent LUCs outlined in the ROD is scheduled to be finalized in December 2019. The property remains under Navy control, and LUCs are included in the LIFOC held by the Southfield Redevelopment Authority.

Table 8-2: Summary of Land Use Controls

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date
Groundwater	Yes	Yes	SRA LUC area	Prevent unacceptable risks associated with exposure to COCs in groundwater until cleanup standards are achieved.	LIFOC (2011), LUCIP (scheduled for December 2019)

PFAS groundwater contamination under OU14 is being addressed under OU27 Basewide PFAS. The provisions of the 2018 Basewide PFOS and PFOA LUCIP and results of the 2018 LUC inspection are included in Section 11.

8.3 Progress Since Last Five-Year Review

The SRA remedy was not in place when the second FYR was completed in July 2014.

8.4 Five-Year Review Process

This section provides a summary of the FYR process for the SRA site and the actions taken to complete the review.

8.4.1 Data Review

The remedy selected for SRA has been implemented but is not yet complete. The Phase I and II post-injection groundwater monitoring results were reviewed during this FYR process. SRA monitoring locations are listed in Table 8-3. Exhibits 8-1 through 8-21 illustrate trends for select CVOCs and TOC in key overburden, weathered bedrock, and bedrock groundwater monitoring wells. The following presents a summary of post-injection groundwater results.

Exhibits 8-1 through 8-12 illustrate Phase I and II post-injection groundwater results for key overburden and weathered bedrock monitoring wells. Exhibits 8-13 through 8-21 illustrate Phase I and II post-injection groundwater results for key bedrock monitoring wells. The results of the initial February and March 2018 sampling event (6 months after Phase II injections) show that PCE concentrations have decreased in several wells within the treatment areas, and PCE dechlorination by-products were detected in several monitoring wells. The post-injection results indicate PCE concentrations in weathered bedrock remain elevated in areas that were not treated during Phase I or II (PRB#1, PRB#2, PRB#3, and Overburden TTZ). The 12-month post-injection sampling event was conducted in September 2018. The Phase II Addendum will focus on treating weathered bedrock areas that have not been treated (PRB#1, PRB#2, PRB#3, and Overburden TTZ).

8.4.2 Site Inspection

The FYR site inspection was performed at the SRA on December 6, 2018, by Tetra Tech personnel. The site inspection checklist and photographic log are included in Appendix H. No land use changes were observed. Construction of an athletic complex west of the site is ongoing. All monitoring and injections wells observed were in good condition, but several wells were not labeled or locked. A frac tank associated with ongoing RA activities was observed on site at the time of the inspection.

8.5 Technical Assessment

This section provides a technical assessment of the remedy implemented at SRA in the form of responses to the three questions outlined in the Comprehensive Five-Year Review Guidance (EPA, 2001).

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

The SRA remedy has been initiated and is functioning as intended by the ROD. Enhanced bioremediation is being conducted on overburden, weathered bedrock, and bedrock treatment zones at SRA in accordance with the ROD, RD/RAWP, and Phase II Addendum Work Plan.

LUCs have not been fully implemented as outlined in the ROD. A LUCIP is in process and expected to be finalized in December 2019. However, the OU is Navy-retained property with LUCs established in the LIFOC. Prior to or upon property transfer, LUCs in the form of deed restrictions are required to be completed.

There is no other information that calls into question the protectiveness of the remedy.

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

8.5.2.1 Changes in Exposure Pathways

There have been no changes at the site since the selection of the remedy that would have resulted in new exposure pathways.

8.5.2.2 Changes in Standards or Newly Promulgated Standards

There have been no changes to relevant ARARs or newly promulgated standards that affect the protectiveness of the remedy.

8.5.2.3 Changes in Toxicity and Other Contaminant Characteristics

There have been no changes in toxicity or other contaminant characteristics that affect the protectiveness of the remedy.

A screening-level ERA evaluating ecological risks to terrestrial plants, soil invertebrates, and wildlife exposed to chemicals in surface soil was conducted in 2009 as part of the Supplement RI (Tetra Tech, 2010f). The screening-level ERA included comparison of chemical concentrations in surface soil to several sources of screening values including EPA Region 4 soil screening levels, which were updated in 2018. The chemicals of potential concern (COPC) table from the ERA was revised to include the March 2018 EPA Region 4 soil screening levels, along with an evaluation of which chemicals would be retained as COPCs based on 2018 screening levels (see Appendix H-5, Table H-5). Only four additional chemicals would have been selected as COPCs considering the updated screening values (see Table H-5). Also, several chemicals would not be retained as COPCs based on the updated screening levels, including some of the pesticides and VOCs. Several refinement factors are considered when evaluating the results of a screening-level ERA and determining whether chemical concentrations present a risk to ecological receptors exposed to surface soil. These factors, such as frequency of detection, comparison to background values, and bioavailability, are not affected by any changes to screening criteria. Therefore, the minor COPC changes would not impact the conclusions of the screening-level ERA that plants or invertebrates are not likely to be significantly impacted from the concentrations of chemicals detected in surface soil at the site. Sediment screening values have not been updated since 2010; therefore, the list of sediment COPCs would not change. Risks to wildlife were based on food-chain modeling, and toxicity reference values have not changed.

8.5.2.4 Changes in Risk Assessment Methods

There have been no changes in the HHRA and ERA methodology since the RI evaluation that affect the protectiveness of the remedy.

8.5.3 Question C: Has Any Other Information Come to Light that Could Call into Question the Protectiveness of the Remedy?

No other information was identified during the completion of this FYR that could affect the current protectiveness of the remedy. The leading edge of the plume has concentrations of PCE in bedrock groundwater that exceed MCLs, which could become an issue in the future if the plume migrates beyond the area protected by groundwater use restrictions. The plume will continue to be monitored during the remedy implementation phase and during the LTM program. The LUC boundary will be established accordingly. No weather-related events have affected the protectiveness of the remedy.

8.5.4 Technical Assessment Summary

According to the data reviewed, site inspection, and interview responses, the remedy is still under construction with treatment ongoing; implementation of the remedy is functioning as intended by the ROD. The Navy retains ownership of the OU with LUCs established in the LIFOC. A LUCIP will be completed to establish LUCs in accordance with the ROD prior to property transfer, and deed restrictions for groundwater use will be implemented upon transfer. A NAUL will be recorded with the deed. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. There have been no significant changes in the toxicity factors for the COCs that were used in the HHRA and ERA and no changes in the risk assessment methodology that would affect the protectiveness of the remedy for the SRA.

8.6 Issues/Recommendations

No issues affecting the protectiveness of the SRA remedy were identified; therefore, there are no recommendations for SRA, and no follow-up actions are required.

8.7 Other Findings

LUCs required by the SRA ROD have not been fully implemented; however, the site is Navy-retained property, and LUCs are included in the LIFOC held by the Southfield Redevelopment Authority ensuring current protectiveness. The ROD requirement for development of a LUCIP is in process in accordance with CERCLA. Once the LUCIP is finalized, it will include both the permanent and interim LUCs ensuring future protectiveness. Deed restrictions will be implemented upon transfer, and a NAUL will be recorded with the deed.

PFAS in groundwater beneath portions of SRA are being investigated under a separate OU (OU 27) to address basewide PFAS in groundwater at former NAS South Weymouth. The ongoing basewide PFAS investigation is discussed in Section 11.0 of this report.

8.8 Protectiveness Statements

Table 8-4: Protectiveness Statement

OU #	Protectiveness Determination	Protectiveness Statement
11	Protective	The remedy for OU 11 is protective of human health and the environment because no exposure is occurring, and the OU is Navy-retained property with ICs in the form of LUCs established under the LIFOC. Prior to or upon property transfer, LUCs in the form of deed restrictions are required to be completed. The need to change the type of IC upon property transfer does not change the protectiveness of the remedy. The remedy, in-situ bioremediation, is progressing and LTM and FYRs are required to be conducted in accordance with the ROD.

8.9 Next Review

A fourth FYR for former NAS South Weymouth will be completed in 2024. The protectiveness of the SRA remedy will be evaluated in the next FYR.

9.0 Area of Concern – Hangar 1

This section presents the findings of the FYR for the remedy implemented at AOC Hangar 1 (OU25). A no action ROD under CERCLA was signed in July 2010. However, a 2010 study conducted to assess the presence/absence of PFOA and PFOS indicated the presence of PFAS in groundwater at AOC Hangar 1 at concentrations exceeding EPA PHAs. AFFF spills were known to have occurred at Hangar 1. Based on the results of the study, a modification to the previous no action ROD was implemented through an ESD to address the exceedances of PFOA and PFOS in groundwater. In December 2011 the Navy issued an ESD to establish LUCs prohibiting the use of groundwater within a portion of AOC Hangar 1. The ESD required a review of the RA within 5 years of implementation, and AOC Hangar 1 was evaluated as part of the second FYR in 2014. The AOC Hangar 1 site is included in this (third) FYR; however, it will be considered a completed site in subsequent FYR reports, since it is being incorporated into the Basewide PFAS OU (OU27).

9.1 Site Description and History

AOC Hangar 1 is located at the intersection of Shea Memorial Drive and Cummings Road, as illustrated on Figure 9-1. The parcel comprises approximately 33 acres encompassing the aircraft parking apron and former Hangar 1 building area. The Bill Delahunt Parkway runs through the southeastern portion of AOC Hangar 1. Hangar 1 was demolished in 2012, and the area surrounding the former hangar is paved. There are no water bodies located within 1,500 feet of AOC Hangar 1, and only sparse vegetation exists on the site (Foster Wheeler Environmental, 2001). Topographically, AOC Hangar 1 is relatively flat. Groundwater flow is generally to the southwest across the site and to the south-southwest downgradient of the site.

Hangar 1 was originally constructed in 1942 and was re-constructed in 1966. The building was used for storage and maintenance of aircraft, and the concrete apron surrounding Hangar 1 was used for storage and fueling of aircraft. AFFF for fire suppression was distributed through piping in the floor to distribution stations within the hangar and associated lean-tos. AFFF was stored in Hangar 1 in two 10,000-gallon ASTs and in 55-gallon drums in the crash truck garage in the South Lean-to.

Currently, the only activities occurring at AOC Hangar 1 are associated with extension of the Bill Delahunt Parkway through the southern portion of the parcel to connect with Trotter Road via the newly constructed Patriot Parkway. AOC Hangar 1 is located in an area zoned as a VCD and also borders a residential district. The VCD zone is mixed use, with housing, offices and commercial and retail uses.

A site chronology and additional site background information is included in Appendix I.

9.2 Response Action Summary

9.2.1 Basis for Taking Action

Hangar 1 was initially identified as an area requiring further investigation under the EBS program (Tetra Tech, 2009b). The site was designated AOC Hangar 1 due to the presence of contamination in the floor drain system. From 1999 to 2001, the Navy removed two OWSs, the floor drain system, and approximately 105 tons of contaminated soil. In 2009, a streamlined HHRA prepared for AOC Hangar 1 determined that cancer risks to future residents exposed to subsurface soil and groundwater were within EPA's target risk levels (Tetra Tech, 2009c). The HHRA did not identify any COCs at this AOC, and because there are no ecological receptors in the paved industrial area, an ERA was not performed.

9.2.2 Response Actions

Based on the findings of the HHRA, an NFA ROD was completed for AOC Hangar 1 in July 2010 (Navy, 2010c). Subsequent to issuing the 2010 NFA ROD, EPA requested an additional investigation for the potential presence of PFOA and PFOS at Hangar 1 due to the documented release of 5,000 to 10,000 gallons of AFFF in 1987 (Tetra Tech, 2012b). Although AFFF is not a CERCLA hazardous substance, chemical additives to AFFF known as PFAS are considered "emerging contaminants" by EPA and the Department of Defense (EPA, 2014).

Following completion of the 2010 NFA ROD and commencement of the PFOS/PFOA investigation, the site was divided into two parcels, AOC Hangar 1 Non-APD parcel and AOC Hangar 1 APD parcel. AOC Hangar 1 Non-APD parcel covered the portion of the site where groundwater was outside a medium-yield aquifer and was not a viable drinking water source. AOC Hangar 1 APD parcel covered the portion of the site located within a medium-yield aquifer that was considered a viable drinking water source.

The study completed between 2010 and 2011 to assess the presence or absence of PFOA and PFOS focused on the following: two former AFFF ASTs; the AFFF distribution system; floor drain system; two former OWS locations; and former Crash Truck Garage. The investigation concluded that PFOS and PFOA were present in groundwater in excess of EPA PHAs; however, there were no exceedances of soil screening values.

In 2011, an ESD was finalized to address PFOS and PFOA in groundwater in the Non-APD parcel at concentrations exceeding PHAs for drinking water (Tetra Tech, 2011d). The ESD added a LUC remedy for the Non-APD portion of the site prohibiting the use of groundwater as a source of drinking water. The Non-APD LUC area is shown as the groundwater restriction boundary on Figure 9-1. The Final LUCIP was attached to the ESD and documented actions to be taken by the Navy to implement, monitor, and enforce the restrictions outlined in the ESD. The APD parcel was not part of the ESD but noted to be subject to a future decision document.

A RI for PFAS contamination at AOC Hangar 1 is ongoing. In May 2016, EPA replaced the PHAs with more stringent Lifetime HAs for PFOS and PFOA in drinking water, which were used for comparison with RI groundwater data (EPA, 2016a and 2016b). The draft final RI is discussed in Section 9.4.1.

In April 2017, the Southfield Redevelopment Authority lifted the APD designation from the aquifer that lies beneath a portion of AOC Hangar 1. On November 1, 2017, MassDEP issued a Second Amendment to the GUVD that concluded the aquifer underlying a portion of AOC Hangar 1 has low use and value and is no longer classified as a potential drinking water source area. Because Massachusetts has an EPA-endorsed Comprehensive Groundwater Protection Program, this finding is consistent with EPA guidance. Based on the amended GUVD, groundwater underlying the entire AOC Hangar 1 is not considered a suitable source of public drinking water, and therefore drinking water would not be an anticipated potential future use (MassDEP, 2017).

9.2.3 Status of Implementation

The components of the remedy as documented in the 2011 ESD have been implemented (Tetra Tech, 2011d).

9.2.4 Land Use Controls

In accordance with the 2011 ESD, the Navy implemented a LUC (and deed restriction upon property transfer) to restrict the use of groundwater for drinking water purposes in the 22-acre Non-APD portion of the site. The LUC prohibited installation of any wells for drinking water purposes; and extraction, consumption, or utilization of groundwater for drinking water purposes. A LUCIP (Attachment 1 of ESD) for the site was implemented by the Navy (Tetra Tech, 2011d) to confirm that LUCs are in place and that LUC objectives are being met. The LUC area did not include the former APD area of AOC Hangar 1.

The former Non-APD portion of the site has been transferred and is subject to Grants of Restrictions given by Southfield Redevelopment Authority and LSTAR Southfield LLC to the Navy; the areas transferred are illustrated on the Grant of Restriction Plan (Appendix K). The remaining portion of AOC Hangar 1 remains Navy-retained property and is subject to restrictions under the LIFOC.

Annual LUC compliance inspections in accordance with the 2011 LUCIP were conducted in December 2014, September 2015, November 2016, and November 2017 for the Non-APD portion of AOC Hangar 1. Annual LUC inspections from 2014 through 2017 noted that no actions or practices that were inconsistent with the restrictions specified in the LUCIP had occurred, no use of groundwater for potable purposes had occurred, and no wells for any purpose were installed within the LUC area except for new monitoring wells installed for during the 2015-2016 Hangar 1 RI.

The 2017 LUC compliance inspection noted that the Bill Delahunt Parkway and Patriot Parkway through the LUC zone had been completed, and that monitoring wells disturbed during construction had been replaced. The remainder of the site was unchanged. A file review was also performed and confirmed there were no new well construction permits within a ¼-mile radius of the site.

In February 2018, the Navy finalized the Basewide PFOA and PFOA LUCIP that addresses the presence of PFOA and PFOS in groundwater throughout NAS South Weymouth, including both Hangar 1 parcels (Resolution, 2018a). The LUCs prevent potential unacceptable risks from exposure to PFOS and PFOA in groundwater until cleanup standards are formally established and met. The provisions of the 2018 Basewide PFOS and PFOA LUCIP and results of the 2018 LUC compliance inspection are outlined in Section 11.

The 2018 LUC compliance inspection for AOC Hangar 1 was conducted in December 2018, and results were incorporated into the Land Use Control Compliance Inspection Letter Report for 2018 Basewide PFOS and PFOA in Groundwater (Tetra Tech, 2019).

Table 9-1: Summary of Land Use Controls

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date
Groundwater	Yes	Yes	LUC area established for AOC Hangar 1 Non-APD parcel	Prevent unacceptable risks from exposure to PFOS and PFOA in groundwater until cleanup standards are established and achieved	LIFOC (2011), LUCIP (2011)
Groundwater	Yes	Yes	AOC Hangar 1 Former APD and Non-APD parcels	Control potential unacceptable human health risks associated with exposure to groundwater by restricting access to groundwater and protecting the ongoing RI.	LIFOC (2011), Grants of Restrictions given by Southfield Redevelopment Authority, and subsidiaries of LSTAR Southfield LLC to the Navy (2018)

OU 25 is being incorporated into OU 27 Basewide PFAS. The Navy is in the process of preparing an ESD to nullify the Hangar 1 LUCs, as they are duplicated in the 2018 Basewide LUCIP for PFOS and PFOA under OU 27.

9.3 Progress Since Last Five-Year Review

This section includes the protectiveness determinations and statements from the previous FYR as well as the recommendations from the previous FYR and the status of those recommendations.

Table 9-2: Protectiveness Determinations/Statements from the 2014 FYR

OU #	Protectiveness Determination	Protectiveness Statement
25	Protective	The remedy for the Hangar 1 Non-APD is protective of human health and the environment since ICs are preventing exposure to, or the ingestion of, contaminated groundwater. Long-term protectiveness of the remedy will be verified by completion of an evaluation of the validated data collected during the April 2014 groundwater assessment sampling and annual LUC inspections.

No issues or recommendations relating to the protectiveness of the remedy were identified in the previous FYR. Although not affecting the protectiveness of the remedy because LUCs are preventing exposure to contaminated groundwater, a recommendation was noted in the previous FYR to complete an evaluation of the validated April 2014 groundwater data and complete an assessment to determine the current extent of PFAS. An evaluation of the April 2014 data was completed and documented in an LTM and Groundwater Evaluation FFTA and Hangar 1 report (Resolution, 2014b).

9.3.1 Five-Year Review Process

This section provides a summary of the FYR process for Hangar 1 and the actions taken to complete the review.

9.3.2 Data Review

The remedy for AOC Hangar 1 is in place until the Navy determines whether a future CERCLA remedy to address PFAS is required. A review of the Hangar 1 RI data results was completed for this FYR. AOC Hangar 1 monitoring locations are presented in Table 9-3, and RI analytical results are included in Appendix I. A status update of the PFAS RI for Hangar 1 is presented.

<u>Status of PFAS Remedial Investigation Results</u>

A PFAS RI was completed between December 2015 and August 2016 at the Hangar 1 site to investigate the presence of PFAS in soil, groundwater, surface water, and sediment samples at the former Hangar 1 site. The results of the RI are summarized below.

- Four source areas of AFFF and PFAS impacts were identified at the former Hangar 1 site: the foam room and floor drain system; bulk AFFF delivery area; crash truck garage; and tarmac area.
- Sources not related to Hangar 1 operations were also identified: Building 96 (former Fire House); several sites within the IOA boundary (located north of Hangar 1); and the basewide storm sewer network.
- The RI also identified three areas of PFAS impacts with unknown sources: the area east of South Hangar 1 tarmac; area southwest of Hangar 1; and French Stream.

PFAS at the former Hangar 1 site would have been distributed by groundwater migration, the storm sewer system, and overland flow from AFFF releases along the tarmac and taxiways. The results of the PFAS RI indicate that distribution of PFAS in groundwater is a complex dissolved-phase plume within the following areas:

- Foam room and floor drain system west of Building 96: Maximum PFOS and PFOA concentrations in groundwater (100 times the current screening level) extend approximately 1,000 feet west of the Foam Room. Primary sources are Hangar 1 operations (AFFF spills), non-Hangar 1 operations (AFFF storage), and discharge to the “grassy area west of Building 96” (stormwater discharge point).
- South Tarmac Area: Total PFOS and PFOA concentrations range from 10 to 40 times the current screening level. Primary sources include handling and washing off AFFF into the storm sewer network.
- North of Hangar 1: Total PFOS and PFOA concentrations are less than 10 times the current screening level. Sources of impacts may be from storm sewer line migration, non-Hangar 1 operations, and transport in groundwater north of Hangar 1.
- East of Hangar 1 Tarmac: Monitoring well H1-MW-122D had the fifth greatest total PFOS and PFOA concentration in groundwater. Co-located wells had lower concentrations. Navy personnel suggested that the East Mat area may have been used for firefighting training or disposal of AFFF.
- Southwest of Hangar 1: Total PFOS and PFOA concentrations are less than 10 times the current screening level. It is unlikely that PFAS impacts in this area are entirely related to Hangar 1 operations. It is possible that the September 1969 applicable of finished foam along Runway 17-35 may be the source of PFAS impacts in this area.

Soil PFOS and PFOA concentrations did not exceed the approved screening levels.

The distribution of PFAS in surface water and sediment along the TACAN outfall indicate the presence of PFOS and PFOA at concentrations less than current screening levels. This finding suggests that if PFAS-impacted groundwater that originates from Hangar 1 reaches the storm sewer lines, it is not resulting in significant human health impacts at the TACAN outfall. PFAS concentrations in co-located surface water and sediment samples from French Stream are less than current screening levels and indicate PFAS related compounds detected in French Stream surface water and sediment are unlikely to adversely impact local ecological receptors.

HHRA results indicate that PFOA, PFOS, and PFBS concentrations in surficial soil, subsurface soil, groundwater (as a non-potable exposure), surface water, and sediment attributable to the site do not pose a risk exceeding EPA’s target levels to current or potential future human receptors and are not media of concern for current or future human receptors, since potable use of groundwater is prohibited through LUCs. The HHRA concluded that no action is warranted for these media at this time. In addition, no significant ecological impacts were identified as part of the qualitative ERA.

9.3.3 Site Inspection

The FYR site inspection was conducted on December 5, 2018, by Tetra Tech personnel. A site inspection checklist and photographic log are included in Appendix I. The site inspection noted that construction of the Bill Delahunt Parkway and Patriot Parkway, which runs through the southern portion of the Hangar 1 area, is complete. Piles of construction materials were noted west of former Hangar 1, and an area west of former Hangar 1 is currently used for temporary car parking. Portions of the former Hangar 1 area were used as a film set, and some of the associated building structures remain on site. There is an outdoor ice rink located south of the intersection of Shea Memorial Drive and Bill Delahunt Parkway, and portions of the site are frequently used for passive recreation (e.g., dog walkers, biking, etc.). There were no signs of any newly installed drinking water wells or construction activities, and there was no indication of land use changes inconsistent with the LUCs at the time of the inspection.

9.4 Technical Assessment

This section provides a technical assessment of the remedy implemented at the Hangar 1 site in the form of responses to the three questions outlined in the Comprehensive Five-Year Review Guidance (EPA, 2001).

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

The 2011 ESD remedy components have been implemented and are ongoing. LUCs are in place to prohibit use of groundwater for drinking water purposes within the 22-acre parcel of the Hangar 1 Non-APD area.

Based on 2015-2016 Hangar 1 RI data, there are groundwater sample locations with total PFOS and PFOA concentrations in exceedance of the Lifetime HAs outside of the groundwater restriction boundary (i.e., LUC area) established in the 2011 LUCIP. However, the LUC area established in the 2018 Basewide PFOS and PFOA LUCIP currently includes the Hangar 1 study area. The results of the 2018 LUC inspection performed under the Basewide PFOS and PFOA LUCIP confirmed there were no new well construction permits within a ¼-mile radius of the site, there are no indications of a change in land use at the site, and the LUCs are being properly implemented.

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

9.4.2.1 Changes in Exposure Pathways

No new exposure pathways have been identified since the last FYR.

9.4.2.2 Changes in Standards or Newly Promulgated Standards

There have been no changes to relevant ARARs or newly promulgated standards that affect the protectiveness of the remedy.

9.4.2.3 Changes in Toxicity and Other Contaminant Characteristics

There have been no changes in toxicity or other contaminant characteristics that affect the protectiveness of the remedy.

9.4.2.4 Changes in Risk Assessment Methods

No changes in risk assessment methods have occurred that have affected the protectiveness of the remedy at AOC Hangar 1 Non-APD.

9.4.3 Question C: Has Any Other Information Come to Light that Could Call into Question the Protectiveness of the Remedy?

No other information was identified during the completion of this FYR that could affect the protectiveness of the remedy. No weather-related events have affected the protectiveness of the remedy, and there is no information that calls into question the protectiveness of the remedy.

9.4.4 Technical Assessment Summary

According to the data reviewed, site inspection, and interviews, the remedy is functioning as intended by the 2011 ESD within the GWRB and by the 2018 Basewide PFOS and PFOA LUCIP within the current Hangar 1 RI study area. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. There have been no changes in the toxicity factors for the COCs that were used in the streamlined HHRA, and there have been no changes to the standardized risk assessment methodology that could affect the protectiveness of the remedy. There has been no change to the regulatory status of PFAS. Since the 2016 EPA Lifetime HA was published, EPA has not proposed or published any standards for PFAS. There is no other information that calls into question the protectiveness of the remedy. Groundwater at the site has not been used.

9.5 Issues/Recommendations

No issues affecting the protectiveness of the OU 25 remedy were identified; therefore, there are no recommendations, and no follow-up actions are required.

9.6 Other Findings

The LUCs included in the Basewide PFOS and PFOA LUCIP (OU 27) encompass OU 25. Therefore, the Navy will issue an ESD for the OU 25 remedy nullifying the requirement to establish LUCs to address PFAS contamination because the LUCs are duplicated in the Basewide PFOS and PFOA LUCIP (OU 27). The completion of the ESD does not affect the protectiveness of the remedy.

9.7 Protectiveness Statements

Table 9-4: Protectiveness Statement

OU #	Protectiveness Determination	Protectiveness Statement
25	Protective	The OU 25 remedy is protective of human health and the environment because there are no current exposures to contaminated groundwater. The OU consists of either Navy-retained property with ICs in the form of LUCs established under the LIFOC or transferred property with LUCs established under Grants of Restrictions given by multiple Grantees back to the Navy. The OU 25 remedy component (LUCs) for both transferred properties and Navy-retained property will be incorporated into the Basewide PFAS OU (OU 27), and LUCs in the form of deed restrictions are required to be completed prior to transfer of Navy-retained property. The need to change the type of IC upon property transfer does not change the protectiveness of the remedy.

9.8 Next Review

A fourth FYR for former NAS South Weymouth will be completed in 2024. A status update of AOC Hangar 1 will be included in the Fourth FYR, presuming that OU 25 groundwater is incorporated into OU 27.

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10.0 Industrial Operations Area

This section presents the findings of the FYR for the remedy implemented at the IOA (OU 23 and OU 24).

10.1 Site Description and History

The IOA covers approximately 20 acres and is in the central part of the base (Figure 10-1). Four active environmental sites are located within the boundary of the IOA: AOC 14 Drum Storage Area; AOC 83 Hazardous Waste Storage Area; RIA 33 Aircraft Intermediate Maintenance Division (AIMD) Building Shops (Building 117); and RIA 82 Power House (Building 8). In addition, 13 other environmental sites are located in the IOA, but those locations have been addressed previously and are not considered ongoing sources of contamination within the IOA. The IOA is generally flat and mostly covered by asphalt or buildings, with a few small grassy areas. Wetlands have not been identified within the IOA site. Shea Memorial Drive runs through the approximate center of the IOA. The IOA is Navy-retained property.

The IOA was an area where predominantly industrial operations occurred, including storage of industrial materials, equipment, and coal for the power plant, a railroad spur, and power plant operations. In 2009, the boundary of the IOA was established to investigate potential low-level dispersed contamination in surface soils as a result of historical industrial operations.

A site chronology and additional background information is in Appendix J.

10.2 Response Action Summary

10.2.1 Basis for Taking Action

This section summarizes the COCs, medium of concern, potential receptors, and exposure pathways that resulted in potentially unacceptable risks at the site that required remedial action under CERCLA. The 2013 IOA Project Report included a streamlined HHRA to evaluate potential risks to human health from exposures to chemicals at or originating from the site in accordance with CERCLA risk assessment guidance (Tetra Tech, 2013a). A review of groundwater data had shown no exceedances of MCP GW-2 standards, and it was concluded that a vapor intrusion pathway was not a concern at the IOA. Therefore, groundwater was not identified as a medium of concern (Tetra Tech, 2010d). No sediment or surface water are present within the IOA; therefore, these media were not evaluated in the HHRA.

The HHRA identified COCs based on exposures to hypothetical future residents, which is protective of all future land uses. Unacceptable human health risks were estimated for future commercial receptors and future residents from exposure to surface soil via ingestion, dermal, or inhalation (fugitive dust). The HHRA identified several COCs present at concentrations exceeding risk-based cleanup goals in surface soil and delineated the areal extent requiring remedial actions to address these contaminants. The theoretical risk exceedances were based on the presence of the following COCs: benzo(a)pyrene equivalents, carcinogenic PAHs, Aroclor-1260, heptachlor epoxide, 2,3,7,8-tetrachlorodibenzodioxin (TCDD) equivalents, arsenic, and chromium in surface soil. Following the 2013 HHRA, a decision of no further action was identified for two of the active site located within the IOA (RIA 33 or RIA 82).

As part of the HHRA, site-specific risk-based PRGs were calculated for the COCs based on exposures of hypothetical future residents to surface soil, While the HHRA evaluated potential risks to both the hypothetical future resident and hypothetical future commercial receptor, the risk-based PRGs were calculated based on future residential risks only, due to the fact that this exposure scenario is more protective, and therefore inclusive, of other potential future receptors in the IOA.

An ERA was not required because the IOA is largely paved and located in the central industrial portion of the base. The western portion of the site is listed as a Priority Habitat of Rare Species; however, there is no exposure pathway for site contaminants to create an ecological risk because most of the site is covered with pavement and buildings.

In April 2015, the Navy issued an FFS to address site-wide surface soil contamination within the IOA (Tetra Tech, 2015b). As part of the FFS, PRGs for COCs were reviewed and re-calculated to accommodate recent updates in exposure assumptions. The alternatives considered in the FFS included no action, excavation and off-site disposal, and asphalt capping and LUCs. The RAO identified in the FFS was to prevent exposure (i.e., direct contact or ingestion) to COCs in soils at concentrations exceeding risk-based cleanup goals.

The Navy, EPA, and MassDEP agreed that soil removal should be performed to protect human health, facilitate property transfer, and allow for immediate site closure of AOC 14 and AOC 83 with UU/UE for future property use.

10.2.2 Response Actions

The ROD was signed by the Navy and EPA, and MassDEP issued a letter of concurrence in September 2015 (Navy, 2015b). The selected remedy was excavation and off-site disposal of surface soil. The proposed total soil removal area was estimated to cover 25,100 square feet with removal to a depth of 2 feet bgs. The approximate volume of soil to be removed was 1,862 cy.

The major components of the selected remedy in the ROD included the following:

- Pre-excavation soil sampling to further define the areas to be excavated.
- Excavation and off-site disposal of soil with COC concentrations exceeding RGs.
- Post-excavation soil sampling to confirm achievement of the RAO.

RGs established for the COCs in soil are summarized in the following table. The RG for each COC is either the calculated PRG or surface soil background value (whichever greater).

Table 10-1: Summary of Remedial Goals

Medium	COC	RG	Basis for Selection(1)
Soil	Aroclor-1260	1,100 µg/kg*	Residential Risk
	Heptachlor epoxide	590 µg/kg	Residential Risk
	Dioxin	0.049 µg/kg	Residential Risk
	Arsenic	6.7 mg/kg	Residential Risk
	Chromium	10.1 mg/kg	Background
	Lead	400 mg/kg	Residential Risk
	Benzo(a)pyrene equivalents	213 µg/kg	Background
	Benzo(a)anthracene	1,500 µg/kg	Residential Risk
	Benzo(a)pyrene	1,828.8 µg/kg	Background
	Benzo(b)fluoranthene	1,500 µg/kg	Residential Risk
	Benzo(k)fluoranthene	15,000 µg/kg	Residential Risk
	Dibenzo(a,h)anthracene	150 µg/kg	Residential Risk
	Indeno(1,2,3-cd)pyrene	1,500 µg/kg	Residential Risk

*Calculated using the non-cancer toxicity for Aroclor-1254
(1) Risk-based RGs based on residential exposures.

10.2.3 Status of Implementation

After the ROD was signed in 2015, pre-excavation soil sampling was performed in December 2015 and March 2016. A Final PDI Report/RDWP was finalized in August 2016 (Resolution, 2016c). The PDI data were used to refine the areas of excavation, and based on the RDWP, the total volume of soil to be excavated was increased to 3,100 cy. Implementation of the excavation RA began in October 2016. Post-excavation sampling is still required in some areas and has resulted in increased excavation volumes. In addition, Building 2 was demolished, and additional excavation is being performed within the former building footprint. Approximately 2,663 cy of soil with PCB concentrations exceeding Toxic Substances Control Act (TSCA) limits of 50 mg/kg (PCB soil); 5,710 cy of soil with PCB concentrations less than TSCA limits (non-TSCA PCB soil), and 800 cy of PAH-impacted soil have been excavated from within the former Building 2 footprint. In addition, approximately 1,000 cy of concrete rubble, asphalt, and railroad ties were excavated.

Excavation activities ended on September 20, 2018, because the scope of the excavation expanded beyond the allocated funding for the excavation contractor. The Navy is in the process of selecting a contractor to dispose of the soil stockpiles at the site. It is anticipated that the soil piles will be transported for off-site disposal in spring 2019. In December 2018, the soil piles were covered with high-density ultra violet-resistant tarps and clips designed to withstand sun and wind exposure. Disposal of the soil is planned by spring 2019, with completion of the remedial actions in fall 2019.

The Navy has prepared a Draft ESD to update the proposed volume of soil excavated and disposed of and to modify the RGs for total chromium and several PAHs in surface soil across the IOA (Navy, 2017). An additional 1,238 cy of soil in addition to what was estimated in the ROD was identified for excavation. The increased soil volume is primarily due to expanded excavation to address Aroclor-1260 contamination in the northeastern portion of the IOA. A chromium speciation analysis was performed in 2016 to identify the site-specific ratio of hexavalent chromium to total chromium present in soil at the IOA. The speciation analysis determined hexavalent chromium comprises 2 to 4 percent of the total chromium concentration. Using the chromium speciation data, a more accurate risk-based chromium PRG, based on hypothetical future residential exposure scenario, was calculated for IOA. In January 2017, the EPA released the final IRIS assessment of benzo(a)pyrene (EPA, 2017). The assessment includes revised toxicity values as well as new noncancer toxicity values for benzo(a)pyrene, which also affects the cancer toxicity values for other potentially carcinogenic PAHs. Therefore, the risk-based surface soil PRGs for PAHs identified as COCs in the IOA ROD have been revised. The ESD is expected to be finalized in September 2019.

In April 2017, the Southfield Redevelopment Authority lifted the APD designation from the aquifer that lies beneath a portion of the IOA. MassDEP concluded in November 2017 that the aquifer has low use and value and, in accordance with MassDEP guidance, 310 CMR 40.0932(5)(b)(1), is no longer identified as a source of drinking water (MassDEP, 2017). Because Massachusetts has an EPA-endorsed Comprehensive Groundwater Protection Program, this finding is consistent with EPA guidance.

10.2.4 Land Use Controls

The ROD did not identify LUCs as part of the remedy for soil. PFAS groundwater contamination under the IOA (OU 23 and OU 24) is being addressed under OU 27 (Resolution, 2018a). The provisions of the Basewide LUCIP for PFOS and PFOA as they affect the IOA are discussed in Section 11.

10.3 Progress Since Last Five-Year Review

The ROD for the IOA had not been signed when the second FYR for NAS South Weymouth was completed in July 2014; thus, the IOA was not included in the last FYR.

10.4 Five-Year Review Process

This section provides a summary of the FYR process for the IOA and the actions taken to complete the review.

10.4.1 Data Review

The selected remedy for IOA has been implemented but is not yet complete. According to the soil excavation contractor (Tetra Tech EC), post-excavation soil sampling data indicate that additional excavation is required to meet the RAO established in the ROD. Figure 10-1 illustrates the excavation status as of September 28, 2018. A RACR including all post-excavation soil sample results will be generated after the RA is complete in 2019.

10.4.2 Site Inspection

The FYR site inspection was conducted on December 4, 2018, by Tetra Tech personnel. A temporary construction chain-link fence around the soil excavation area with warning signs (“Danger Construction Area – Keep Out”) was observed during the inspection. The fence and associated gates were secured and in good condition. Soil piles were observed on site and in need of repair/maintenance at the time of the inspection. Maintenance of the soil pile covers was subsequently completed in December 2018. No land use changes were observed at the site. The IOA is centrally located within former NAS South Weymouth, and redevelopment of the surrounding area is ongoing. There was no evidence of trespassing within the fenced soil excavation area at the time of the inspection. A site inspection checklist and photographic log are included in Appendix J.

10.5 Technical Assessment

This section provides a technical assessment of the remedy implemented at the IOA in the form of responses to the three questions outlined in the Comprehensive Five-Year Review Guidance (EPA, 2001).

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

The remedy, as specified in the 2015 ROD, has been initiated but is not yet complete. The remedy was initiated in 2015 but the extent of contamination encountered during remedy implementation was beyond the originally anticipated excavation boundaries. Excavation and post-excavation soil sampling are still required and are expected to be completed in 2019. The Navy is in the process of finalizing a contract to complete the excavation and all field elements of the RA.

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

10.5.2.1 Changes in Exposure Pathways

There have been no changes at the site that would have resulted in new exposure pathways to human receptors.

10.5.2.2 Changes in Standards or Newly Promulgated Standards

There have been no changes to relevant ARARs or newly promulgated standards that affect the protectiveness of the remedy.

10.5.2.3 Changes in Toxicity and Other Contaminant Characteristics

EPA released its toxicological review of benzo(a)pyrene in January 2017 and updated its toxicity factors in the IRIS database. The oral cancer slope factor for benzo(a)pyrene decreased from 7.3 $(mg/kg\text{-}day)^{-1}$ to 1 $(mg/kg\text{-}day)^{-1}$. The approximate seven-fold reduction in the cancer slope factor corresponds to an approximate seven-fold reduction in the risk associated with benzo(a)pyrene. The change in the cancer potency factor for benzo(a)pyrene impacts the evaluation of the other carcinogenic PAHs, and the cancer slope factors for the other carcinogenic PAHs decrease proportionately. For example, the oral cancer slope factor for benzo(a)anthracene (using a relative potency factor of 0.1) decreased from 0.73 to 0.1 $(mg/kg\text{-}day)^{-1}$. This approximate seven-fold reduction in the cancer slope factor corresponds to an increase in the residential soil RSL from 0.16 to 1.1 mg/kg and a corresponding seven-fold reduction in risk.

Although this results in an overall decrease in risks associated with exposure to PAHs in soil, the risk reduction does not impact the effectiveness of the selected remedy for the IOA, which was excavation and off-site disposal of soil. In addition, as discussed in Section 10.5.1.1, the RGs for PAHs will be revised based on the updated toxicity criteria.

The RG for total chromium presented in the 2015 ROD was based on applying the hypothetical risk-based PRG established for hexavalent chromium to total chromium as a conservative approach. A chromium speciation analysis was completed in 2016 to identify the site-specific ratio of hexavalent chromium to total chromium present in soil at IOA, providing a more accurate risk-based chromium PRG.

There have been no changes in toxicity factors for COCs other than PAHs evaluated in the soil HHRA documents.

10.5.2.4 Changes in Risk Assessment Methods

There have been no changes in HHRA methodology that affect the protectiveness of the remedy.

10.5.3 Question C: Has Any Other Information Come to Light that Could Call into Question the Protectiveness of the Remedy?

No other information was identified during the completion of this FYR that could affect the protectiveness of the remedy. No weather-related events have affected the protectiveness of the remedy.

10.5.4 Technical Assessment Summary

According to the data reviewed, site inspection, and interview responses, the remedy for the IOA has been implemented and will be protective in accordance with the ROD and ESD (pending September 2019). There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. The site excavation area is secured, and soil stockpiles will be monitored and maintained until offsite disposal. Completion of the excavation and disposal activities is expected by fall 2019. RGs for PAHs will be revised in the ESD (pending September 2019) based on the updated toxicity criteria for benzo(a)pyrene. There have been no changes to the standardized risk assessment methodology that could affect the protectiveness of the remedy. There is no other information that calls into question the protectiveness of the remedy.

10.6 Issues/Recommendations

Issues identified during this FYR for IOA are listed in the following table:

Table 10-2: Summary of Recommendations and Follow-Up Actions

Issue	Recommendation/ Follow-Up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness? (Y/N)	
					Current	Future
Increase in soil excavation volume	Finalize ESD including updated soil excavation volumes	Navy	EPA/MassDEP	September 2019	N	N
Site-specific chromium speciation	Finalize ESD including updated cleanup goal for total chromium based on site-specific chromium speciation	Navy	EPA/MassDEP	September 2019	N	Y
Revision of EPA toxicity values for PAHs	Finalize ESD including updated cleanup goal for PAHs based on revised EPA toxicity values	Navy	EPA/MassDEP	September 2019	N	Y

10.7 Other Findings

No other findings were identified during the FYR process for IOA.

10.8 Protectiveness Statements

Table 10-3: Protectiveness Statement

OU #	Protectiveness Determination	Protectiveness Statement
23 and 24	Will be protective	The remedy for OU 23 and OU 24 will be protective of human health and the environment upon completion of the RA and attainment of the soil cleanup goals.

10.9 Next Review

A fourth FYR for former NAS South Weymouth will be completed in 2024. The IOA remedy will be evaluated in the next FYR.

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11.0 Basewide PFAS, OU 27

This section presents a summary of the ongoing OU 27 Basewide PFAS investigation at NAS South Weymouth.

11.1 Site Description and History

On June 12, 2018, EPA issued a letter notifying the Navy that pursuant to the FFA, EPA had designated a new OU for Basewide PFAS, OU 27. OU 27 consists of areas containing groundwater contaminated with PFAS as currently defined by the ongoing Basewide PFAS SI (AECOM, 2018b). The current OU 27 site boundaries are shown on Figure 11-1.

PFOS and PFOA are identified as emerging contaminants by EPA and the Navy and are considered “pollutants or contaminants” under CERCLA but are not currently listed as CERCLA hazardous substances. There are currently no promulgated federal standards for PFOA and PFOS in any medium. In 2009, EPA published PHAs for PFOA and PFOS in groundwater used for drinking water of 0.4 and 0.2 µg/L, respectively (EPA, 2009d). In 2016, EPA published more stringent Lifetime HAs for PFOA and PFOS in groundwater used for drinking water of 0.07 µg/L for PFOA, 0.07 µg/L for PFOS, and 0.07 µg/L for total combined PFOA/PFOS (EPA, 2016a; 2016b).

AFFF containing formulations of PFAS including PFOA and PFOS were used in operations at the base. AFFF was used in the fire suppression systems at Hangar 1 and in firefighting training activities on base. Although AFFF is considered the primary source of PFAS at the base, PFAS are also used in water-resistant coatings, herbicides, insecticides, cosmetics, greases, lubricants, and adhesives and are now considered to be widespread in the environment. Additionally, historical landfills, wastewater treatment plants, and areas where industrial operations such as electroplating and photograph development have occurred may be sources of PFAS at the base. See Appendix K for a site chronology and more detailed background information.

As described in Section 1.1, since base closure, approximately 1,263 acres of land have been transferred. Most of the land has been transferred to the local redevelopment authority, Southfield Redevelopment Authority, which in turn has transferred some land to other parties, including the property developer (LSTAR). Grants of Restrictions given to the Navy by the land owners were established to allow Navy to continue work associated with the presence of PFOS and PFOA on the previously transferred properties.

Some property has been assigned by the Navy to the Department of Interior (DOI) National Park Service (NPS) but has not yet been transferred from the DOI to the Southfield Redevelopment Authority. Property within OU 27 and currently assigned to the DOI is illustrated on the Grant of Restriction Plan (Appendix K).

Navy-retained land is managed by the Southfield Redevelopment Authority under a LIFOC. Both entities are involved in redevelopment of parcels with PFAS concerns. The proposed redevelopment includes construction of commercial property, mixed-use buildings, recreational facilities, and associated roadways and utility infrastructure.

11.2 Response Action Summary

11.2.1 Basis for Taking Action

Inadvertent spills of AFFF were investigated as part of the Phase II EBS at RIA 11 in the early 2000s, with focus of determining whether releases of hazardous substances had occurred. In 2003, at the request of MassDEP, the Navy conducted a literature review on the specific types of AFFF used at the base. Further research in 2009 indicated that AFFF used at the base may have contained PFAS. Two sites (FFTA and Hangar 1) were initially investigated due to documented use and spills of AFFF; both sites had achieved regulatory closure prior to being reopened to address concerns related to PFAS. In 2010 and 2011, a study was conducted to assess the presence or absence of PFOA and PFOS at the FFTA and Hangar 1 sites. The study identified PFOA and PFOS in groundwater at both sites at concentrations exceeding EPA PHAs.

ESDs were developed for both sites to apply LUCs to prevent potential unacceptable human health risks associated with exposure to contaminated groundwater by restricting access to groundwater. Assessment of PFAS has been ongoing at both FFTA and Hangar 1 since detection of these chemicals in 2010.

In July 2016, EPA requested that the Navy complete basewide PFAS assessment activities for NAS South Weymouth. Two separate tasks requested by EPA were completed concurrently. The first task was to conduct a Basewide PFAS Preliminary Assessment (PA), which included 12 existing IR sites and other locations around the perimeter of the base. The second was to investigate the presence of PFAS at sites with executed RODs, where existing well networks could be used to gather data.

11.2.2 Response Actions

The Basewide PFAS PA, finalized in December 2016, focused on review of available records concerning use, storage, and releases of PFAS-containing materials, including

Fire Department response records and building historical use records. The locations of AFFF storage, fire training areas, electroplating facilities, and photograph development facilities were researched. The PA identified 13 areas to be considered for further PFAS investigation.

Concurrent with the Basewide PFAS PA, Navy conducted a PFAS investigation at 12 sites with RODs in place to accelerate PFAS data acquisition at sites with existing monitoring wells. In addition to the 12 sites with ROD, Navy also collected samples from select locations along the perimeter of NAS South Weymouth to obtain data representative of overall basewide conditions. Basewide PFAS environmental samples were collected between November 2016 and February 2017, and the Basewide PFAS Sampling Report was finalized in July 2017 (AECOM, 2017). PFAS concentrations were detected in excess of EPA Lifetime HAs at the following AOCs or sites: Building 81, Building 82, East Mat, Former Pistol Range (within the SRA), Main Gate, RDA, Small Landfill (SLF), SRA, and WGL.

EPA requested that the Navy conduct a Basewide PFAS Site Inspection (SI) in an Additional Work Letter dated January 18, 2018. Based on the results of the PA and Basewide PFAS sampling, additional investigation of groundwater is warranted and will be incorporated into a PFAS SI. The first goal of the SI is to determine the presence or absence of PFAS in soil and/or groundwater for the areas identified in the PA as potential PFAS point sources. The second goal of the SI is to supplement Basewide PFAS sampling results at locations where screening levels were exceeded and resolve any data gaps identified outside the sites identified during the PA or basewide investigation. The SI SAP was finalized in February 2018 (AECOM, 2018b), and the field program was completed in spring 2018.

The sites included in the SI are:

- Building 81
- Building 82
- RDA
- SLF
- SRA
- WGL
- AOC-8 (Wyoming Street Area)
- Building 14 (Vehicle Maintenance Facility)
- Building 15 (Transportation Building Fuel Tank Farm)
- Fuel Tank Farm
- Building 107 (Sewage Lift Station)

- IOA
- Runway 17-35
- Building 33 Area

11.2.3 Status of Implementation

In February 2018, the Navy finalized the Basewide PFOS and PFOA LUCIP, which addresses the presence of PFOS and PFOA in groundwater throughout NAS South Weymouth (Figure 11-1). This LUCIP, in conjunction with a set of Grants of Environmental Restrictions from property owners of transferred land impacted by PFAS, was developed to protect the Navy's ability to conduct investigations and take any potential future remedial action throughout areas being investigated for two PFAS (PFOS and PFOA) under the Navy's Basewide PFAS SI by restricting access to groundwater and protecting the ongoing remedial investigation through LUCs.

The LUCIP defines how the Navy will create and maintain LUCs, identifies areas covered, states required and prohibited activities and access rights, and provides implementation guidelines for the LUCs. The LUCs were implemented to prevent unacceptable risks from exposure to PFOS and PFOA in groundwater until cleanup standards are established and met.

The Basewide PFOS and PFOA LUCIP includes provisions that restrict:

- Extraction of groundwater for any use including but not limited to domestic, potable, irrigation, or industrial uses without prior written consent of the Navy. Exceptions will be made for development or construction activities (subject to additional requirements).

- Drilling, boring, or other construction of, or any use of a well for the purpose of extracting groundwater without prior written consent of the Navy. Exceptions are allowed for wells used for environmental investigations or remediation or geothermal systems that do not involve direct contact with groundwater.

- Construction or development activities if they impact any groundwater (exceptions are allowed if activities are performed in compliance with a dewatering plan approved by the Navy).

- Activities that disrupt or interfere with infrastructure components of a Navy investigation (e.g., monitoring wells) without prior approval from the Navy.

Southfield Redevelopment Authority, the grantee of the property transferred by the Navy, has transferred some land to other parties including property developer LSTAR.

The landowners of parcels already transferred from the Navy have voluntarily agreed to Grants of Restrictions in favor of the Navy to limit activities that interfere with the investigation or final CERCLA remedy for PFOS and PFOA. The LUCs identified in the grants are consistent with those established in the LUCIP. Six grants have been signed to date. The interim restrictions (those established through the grants, those for Navy-held property established in the LIFOC held by the Southfield Redevelopment Authority, and those as will be included in future Navy transfer deeds) will remain in place until the Navy determines whether a future CERCLA remedy to address PFOS and PFOA is required. The Navy is coordinating with DOI (NPS) to add the OU 27 restrictions to the deed prior to conveyance in accordance with the Public Benefit Conveyance.

All Navy-retained property remains subject to the restrictions in the LIFOC; the LUCs identified in the LIFOC are consistent with those established in the LUCIP. Exhibit C of the LIFOC details the procedures for alteration request submittal and government review of proposed additions, alterations, or improvements to lease premises by lessee or sublessees. All work must be approved by the Navy Real Estate Officer and the technical liaison, currently the BRAC Environmental Coordinator.

In December 2018, the Navy finalized Amendment No. 1 to the Basewide LUCIP for PFOS and PFOA in groundwater to include the WGL. The first annual LUC inspection under the Basewide PFOS and PFOA LUCIP was conducted on from December 4 to 6, 2018. Based on information collected during file reviews completed, interviews with the Navy and Southfield Redevelopment Authority office, and observations made during the LUC site inspection, the basewide PFOS and PFOA LUCs are being properly implemented, and the LUC objectives for the PFOS and PFOA groundwater LUC area are being met.

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TABLES

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Table 2-3: West Gate Landfill Monitoring Locations

Monitoring Location	
Groundwater	
WGL-MW01	Located along northern boundary of landfill, downgradient location
WLG-MW02	Located along the western perimeter, upgradient location
WGL-MW04	Located along southern perimeter, upgradient location
WGL-MW43	Located along eastern boundary of landfill, east of French Stream, cross gradient location
WGL-MW48D	Located along southeastern perimeter of landfill, downgradient location
WGL-MW101	Located along southern perimeter of landfill, cross gradient location
WGL-MW102/S	Located along southeastern perimeter of landfill, downgradient location
WGL-MW103/S	Located southeast of landfill perimeter, adjacent to wetlands, downgradient location
WGL-MW901S/D	Located along western boundary of landfill, cross gradient location
WGL-MW902	Located along northwestern perimeter of landfill, downgradient location
WGL-MW903S/D	Located along eastern boundary of landfill, cross gradient location
WGL-MW904S/D	Located along southeastern perimeter of landfill, upgradient location
WGL-PZ-01	French Stream north of landfill, downstream location
WGL-PZ-02	French Stream east of landfill, cross stream location
WGL-PZ-03	Located along southeastern perimeter of landfill, downgradient location (replaced in 2018)
WGL-PZ-04	French Stream southeast of landfill, upstream location
WGL-PZ-05	Along southern perimeter of landfill, between landfill and wetland
WGL-PZ-06	In wetland, south of landfill
WGL-PZ-07	Along southwest perimeter of landfill, between landfill and wetland
WGL-PZ-08	In wetland, along southwest perimeter of landfill
Surface Water/Sediment	
WGL-SW01/SD01	French Stream north of landfill, downstream location
WGL-SW02/SD02	French Stream east of landfill, cross stream location
WGL-SW03/SD03	French Stream east of landfill, cross stream location
WGL-SW04/SD04	French Stream southeast of landfill, upstream location
WGL-SW05/SD05	Along southern perimeter of landfill, between landfill and wetland
WGL-SW06/SD06	In wetland, south of landfill
WGL-SW07/SD07	Along southwest perimeter of landfill, between landfill and wetland
WGL-SW08/SD08	In wetland, along southwest perimeter of landfill
Landfill Gas	
WGL-GV-01	Passive gas vent, north central portion of landfill
WGL-GV-02	Passive gas vent, south central portion of landfill
WGL-LFG-01	Perimeter landfill gas probe, along western boundary of landfill
WGL-LFG-02	Perimeter landfill gas probe, along northwestern boundary of landfill
WGL-LFG-03	Perimeter landfill gas probe, along northwestern boundary of landfill
WGL-LFG-04	Perimeter landfill gas probe, along northern boundary of landfill
WGL-LFG-05	Perimeter landfill gas probe, along northern boundary of landfill
WGL-LFG-06	Perimeter landfill gas probe, along northern boundary of landfill
WGL-LFG-07	Perimeter landfill gas probe, along northern boundary of landfill
WGL-LFG-08	Perimeter landfill gas probe, along eastern boundary of landfill
WGL-LFG-09	Perimeter landfill gas probe, along southeastern boundary of landfill
WGL-LFG-10	Perimeter landfill gas probe, along southeastern boundary of landfill

Notes:

1) Monitoring locations included in SAP.

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Table 2-5: West Gate Landfill Summary of Groundwater Analytical Results for COCs - December 2013 - May 2018

PARAMETER	CRITERIA			WGL-MW-01	WGL-MW-01	WGL-MW-01	WGL-MW-01	WGL-MW-01	WGL-MW-01	WGL-MW-01	WGL-MW-01	WGL-MW-01	WGL-MW-01	WGL-MW-01	WGL-MW-01
	PAL	PAL SOURCE	BKG	Dec-13	Apr-14	Jun-14	Sep-14	Apr-15	Sep-15	Mar-16	Sep-16	May-17	Oct-17	Oct-17	May-18
ARSENIC	10	MCL		0.61 J	0.19 U	0.19 U	0.19 U	0.81 J	0.2 J	0.58 J	0.6 J	3 U	3.4 J	--	3 U
CHROMIUM	47	RG	18.1	0.16 U	0.16 U	0.16 U	5.2	0.16 U	0.16 U	0.19 J	0.02 UJ	4 U	4 U	--	4 U
1,4-DIOXANE	6	RG		0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 UJ	0.07 U	0.07 UJ	9.6 UJ	0.017 J	--	0.025 J
BENZO(A)ANTHRACENE	0.09	RG	0.05	0.042 R	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.19 U	2 UJ	--	0.2 U
BENZO(B)FLUORANTHENE	0.09	RG		--	--	--	--	--	--	--	--	0.19 U	--	--	0.2 U
DIBENZO(A,H)ANTHRACENE	0.009	RG	0.03	0.018 R	0.018 R	0.018 R	0.018 R	0.018 U	0.018 U	0.018 UJ	0.018 U	0.19 U	2 UJ	--	0.2 U
HEXACHLOROBENZENE	1	MCL		0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	1.9 UJ	2 UJ	--	1.9 UJ
INDENO(1,2,3-CD)PYRENE	0.09	RG		0.019 R	0.019 R	0.019 R	0.019 R	0.019 U	0.019 U	0.019 UJ	0.019 U	0.19 U	2 UJ	--	0.2 U

Notes:
PAL - Project Action Limit listed in the SAP
BKG - Background value
MCL - Maximum Contaminant Level
RG - Remedial Goal
U - Undetected at the laboratory limit
J - Estimated value
UJ - Undetected at approximated reported limit
NA - Analysis not performed

Table 2-5: West Gate Landfill Summary of Groundwater Analytical Results for COCs - December 2013 - May 2018

PARAMETER	CRITERIA			WGL-MW-02	WGL-MW-02	WGL-MW-02	WGL-MW-02	WGL-MW-02	WGL-MW-02	WGL-MW-02	WGL-MW-02	WGL-MW-02	WGL-MW-02	WGL-MW-02
	PAL	PAL SOURCE	BKG	Dec-13	Apr-14	Jun-14	Sep-14	Apr-15	Sep-15	Mar-16	Sep-16	May-17	Oct-17	May-18
ARSENIC	10	MCL		0.19 U	0.4 J	0.19 U	0.19 U	0.73 J	0.19 U	0.19 U	0.02 UJ	3 U	3 U	3 U
CHROMIUM	47	RG	18.1	3.1	0.16 U	0.16 U	0.16 U	0.48 J	0.16 U	0.25 J	0.78 J	1.7 J	4 U	4 U
1,4-DIOXANE	6	RG		0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 UJ	0.07 U	0.07 UJ	**9.6 UJ**	0.029 J	0.029 U
BENZO(A)ANTHRACENE	0.09	RG	0.05	0.042 U	0.042 R	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.19 U	1.9 U	0.2 U
BENZO(B)FLUORANTHENE	0.09	RG		--	--	--	--	--	--	--	--	0.19 U	--	0.2 U
DIBENZO(A,H)ANTHRACENE	0.009	RG	0.03	0.018 U	0.018 R	0.018 R	0.018 R	0.018 U	0.018 U	**0.018 UJ**	0.018 U	0.19 U	1.9 U	0.2 U
HEXACHLOROBENZENE	1	MCL		0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	**2 UJ**	1.9 U	1.9 U
INDENO(1,2,3-CD)PYRENE	0.09	RG		0.019 U	0.019 R	0.019 R	0.019 R	0.019 U	0.019 U	0.019 UJ	0.019 U	0.19 U	1.9 U	0.2 U

Notes:
PAL - Project Action Limit listed in the SAP
BKG - Background value
MCL - Maximum Contaminant Level
RG - Remedial Goal
U - Undetected at the laboratory limit
J - Estimated value
UJ - Undetected at approximated reported limit
NA - Analysis not performed

Table 2-5: West Gate Landfill Summary of Groundwater Analytical Results for COCs - December 2013 - May 2018

PARAMETER	CRITERIA			WGL-MW-04	WGL-MW-04	WGL-MW-04	WGL-MW-04	WGL-MW-04	WGL-MW-04	WGL-MW-04	WGL-MW-04	WGL-MW-04	WGL-MW-04	WGL-MW-04	WGL-MW-04	WGL-MW-04	WGL-MW-04
	PAL	PAL SOURCE	BKG	Dec-13	Dec-13 (Dup)	Jun-14	Jun-14 (Dup)	Sep-14	Sep-14 (Dup)	Apr-15	Sep-15	Sep-15 (Dup)	Mar-16	Sep-16	Sep-16 (Dup)	May-17	Oct-17
ARSENIC	10	MCL		2.6	2.8	**15.4**	**14.8**	**14.7**	**13.7**	0.8 J	**11.9 J**	**12 J**	1.9 J	6.07 J	6.49 J	5.9	2.9 J
CHROMIUM	47	RG	18.1	2.3	2.4	1.8 J	1.9 J	3.9	3.8	0.32 J	3.4 J	3.3 J	0.68 J	3.05 J	3.2 J	2.5 J	4 U
1,4-DIOXANE	6	RG		0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 UJ	0.07 UJ	0.07 U	0.07 UJ	0.07 UJ	**9.7 UJ**	0.03 J
BENZO(A)ANTHRACENE	0.09	RG	0.05	0.042 U	0.042 U	0.042 U	0.042 UJ	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	**0.2 UJ**	**1.9 UJ**
BENZO(B)FLUORANTHENE	0.09	RG		--	--	--	--	--	--	--	--	--	--	--	--	0.2 U	--
DIBENZO(A,H)ANTHRACENE	0.009	RG	0.03	0.018 U	0.018 U	0.018 R	0.018 R	0.018 R	0.018 R	0.018 U	0.018 U	0.018 U	**0.018 UJ**	0.018 U	0.018 U	0.2 U	**1.9 UJ**
HEXACHLOROBENZENE	1	MCL		0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.12 J	**1.9 UJ**	**1.9 UJ**
INDENO(1,2,3-CD)PYRENE	0.09	RG		0.019 U	0.019 U	0.019 R	0.019 R	0.019 R	0.019 R	0.019 U	0.019 U	0.019 U	0.019 UJ	0.019 U	0.019 U	**0.2 UJ**	**1.9 UJ**

Notes:
PAL - Project Action Limit listed in the SAP
BKG - Background value
MCL - Maximum Contaminant Level
RG - Remedial Goal
U - Undetected at the laboratory limit
J - Estimated value
UJ - Undetected at approximated reported limit
NA - Analysis not performed

Table 2-5: West Gate Landfill Summary of Groundwater Analytical Results for COCs - December 2013 - May 2018

PARAMETER	CRITERIA			WGL-MW-04	WGL-MW-101	WGL-MW-101	WGL-MW-101	WGL-MW-101	WGL-MW-101	WGL-MW-101	WGL-MW-101	WGL-MW-101	WGL-MW-101	WGL-MW-101	WGL-MW-101
	PAL	PAL SOURCE	BKG	May-18	Dec-13	Jun-14	Sep-14	Apr-15	Sep-15	Mar-16	Sep-16	May-17	Oct-17	May-18	May-18 (Dup)
ARSENIC	10	MCL		3.6	1.9 J	1.8 J	2.2	1.9 J	1.6 J	1.1 J	0.7 J	1.6 J	2 J	3 U	3 U
CHROMIUM	47	RG	18.1	1.9 J	0.49 J	0.16 U	0.27 J	0.16 U	0.16 U	0.16 U	0.47 J	4 U	4 U	4 U	4 U
1,4-DIOXANE	6	RG		0.15 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 UJ	0.07 U	0.07 UJ	9.7 UJ	0.098	0.065 J	0.068 J
BENZO(A)ANTHRACENE	0.09	RG	0.05	0.19 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.2 U	1.9 U	0.19 U	0.19 U
BENZO(B)FLUORANTHENE	0.09	RG		0.19 U	--	--	--	--	--	--	--	0.2 U	--	0.19 U	0.19 U
DIBENZO(A,H)ANTHRACENE	0.009	RG	0.03	0.19 U	0.018 U	0.018 R	0.018 R	0.018 U	0.018 U	0.018 UJ	0.018 U	0.2 U	1.9 U	0.19 U	0.19 U
HEXACHLOROBENZENE	1	MCL		2 UJ	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	2 UJ	1.9 U	1.9 U	1.9 U
INDENO(1,2,3-CD)PYRENE	0.09	RG		0.19 U	0.019 U	0.019 R	0.019 R	0.019 U	0.019 U	0.019 UJ	0.019 U	0.2 U	1.9 U	0.19 U	0.19 U

Notes:
PAL - Project Action Limit listed in the SAP
BKG - Background value
MCL - Maximum Contaminant Level
RG - Remedial Goal
U - Undetected at the laboratory limit
J - Estimated value
UJ - Undetected at approximated reported limit
NA - Analysis not performed

Table 2-5: West Gate Landfill Summary of Groundwater Analytical Results for COCs - December 2013 - May 2018

PARAMETER	CRITERIA			WGL-MW-102	WGL-MW-102	WGL-MW-102	WGL-MW-102	WGL-MW-102	WGL-MW-102	WGL-MW-102	WGL-MW-102	WGL-MW-102	WGL-MW-102	WGL-MW-102
	PAL	PAL SOURCE	BKG	Dec-13	Apr-14	Jun-14	Sep-14	Apr-15	Sep-15	Mar-16	Sep-16	May-17	Oct-17	May-18
ARSENIC	10	MCL		0.64 J	0.31 J	0.27 J	0.69 J	0.26 J	0.57 J	0.33 J	0.02 UJ	3 U	3 U	3 U
CHROMIUM	47	RG	18.1	0.29 J	0.16 U	0.37 J	0.37 J	0.16 U	0.5 J	0.19 J	0.02 UJ	4 U	4 U	4 U
1,4-DIOXANE	6	RG		0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 UJ	0.07 U	0.07 UJ	10 U	0.085 J	0.081 J
BENZO(A)ANTHRACENE	0.09	RG	0.05	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.19 U	1.9 U	0.19 U
BENZO(B)FLUORANTHENE	0.09	RG		--	--	--	--	--	--	--	--	0.19 U	--	0.19 U
DIBENZO(A,H)ANTHRACENE	0.009	RG	0.03	0.018 U	0.018 R	0.018 R	0.018 R	0.018 U	0.018 U	**0.018 UJ**	0.018 U	0.19 U	1.9 U	0.19 U
HEXACHLOROBENZENE	1	MCL		0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	2 U	1.9 U	1.9 U
INDENO(1,2,3-CD)PYRENE	0.09	RG		0.019 U	0.019 R	0.019 R	0.019 R	0.019 U	0.019 U	0.019 UJ	0.019 U	0.19 U	1.9 U	0.19 U

Notes:
PAL - Project Action Limit listed in the SAP
BKG - Background value
MCL - Maximum Contaminant Level
RG - Remedial Goal
U - Undetected at the laboratory limit
J - Estimated value
UJ - Undetected at approximated reported limit
NA - Analysis not performed

Table 2-5: West Gate Landfill Summary of Groundwater Analytical Results for COCs - December 2013 - May 2018

PARAMETER	CRITERIA			WGL-MW-102S	WGL-MW-102S	WGL-MW-102S	WGL-MW-102S	WGL-MW-102S	WGL-MW-102S	WGL-MW-102S	WGL-MW-102S	WGL-MW-102S	WGL-MW-102S	WGL-MW-102S
	PAL	PAL SOURCE	BKG	Dec-13	Apr-14	Jun-14	Sep-14	Apr-15	Sep-15	Mar-16	Sep-16	May-17	May-17 (Dup)	Oct-17
ARSENIC	10	MCL		3.6	2.7	2	3.2	2.9 J	2.7 J	3.1	0.02 UJ	2.8 J	2 J	3.3
CHROMIUM	47	RG	18.1	18.5	4.6	3.9	33.7	4.6 J	11 J	4.9	10.8 J	5.1	4.8 J	18
1,4-DIOXANE	6	RG		0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 UJ	0.07 U	0.07 UJ	9.8 UJ	9.6 UJ	0.029 U
BENZO(A)ANTHRACENE	0.09	RG	0.05	0.042 UJ	0.042 UJ	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.19 U	0.19 U	1.9 UJ
BENZO(B)FLUORANTHENE	0.09	RG		--	--	--	--	--	--	--	--	0.19 U	0.19 U	--
DIBENZO(A,H)ANTHRACENE	0.009	RG	0.03	0.018 UJ	0.018 R	0.018 R	0.018 R	0.018 U	0.018 U	0.018 UJ	0.018 U	0.19 U	0.19 U	1.9 UJ
HEXACHLOROBENZENE	1	MCL		0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	1.9 UJ	1.9 UJ	1.9 UJ
INDENO(1,2,3-CD)PYRENE	0.09	RG		0.019 UJ	0.019 R	0.019 R	0.019 R	0.019 U	0.019 U	0.019 UJ	0.019 U	0.19 U	0.19 U	1.9 UJ

Notes:
PAL - Project Action Limit listed in the SAP
BKG - Background value
MCL - Maximum Contaminant Level
RG - Remedial Goal
U - Undetected at the laboratory limit
J - Estimated value
UJ - Undetected at approximated reported limit
NA - Analysis not performed

Table 2-5: West Gate Landfill Summary of Groundwater Analytical Results for COCs - December 2013 - May 2018

PARAMETER	CRITERIA			WGL-MW-102S	WGL-MW-103	WGL-MW-103	WGL-MW-103	WGL-MW-103	WGL-MW-103	WGL-MW-103	WGL-MW-103	WGL-MW-103	WGL-MW-103	WGL-MW-103	WGL-MW-103
	PAL	PAL SOURCE	BKG	May-18	Dec-13	Apr-14	Jun-14	Sep-14	Apr-15	Sep-15	Mar-16	Sep-16	May-17	Oct-17	May-18
ARSENIC	10	MCL		3 U	1.4 J	0.67 J	0.54 J	1.2 J	0.93 J	1.2 J	0.52 J	1.28 J	3 U	3 U	3 U
CHROMIUM	47	RG	18.1	2.6 J	0.29 J	0.16 U	0.26 J	0.44 J	0.16 U	0.4 J	0.35 J	2.25 J	4 U	4 U	4 U
1,4-DIOXANE	6	RG		0.029 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 UJ	0.07 U	0.07 UJ	11 UJ	0.053 J	0.045 J
BENZO(A)ANTHRACENE	0.09	RG	0.05	0.19 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.19 U	2 U	0.19 U
BENZO(B)FLUORANTHENE	0.09	RG		0.19 U	--	--	--	--	--	--	--	--	0.19 U	--	0.19 U
DIBENZO(A,H)ANTHRACENE	0.009	RG	0.03	0.19 U	0.018 U	0.018 R	0.018 R	0.018 R	0.018 U	0.018 U	0.018 UJ	0.018 U	0.19 U	2 U	0.19 U
HEXACHLOROBENZENE	1	MCL		1.9 UJ	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	2.1 UJ	2 U	1.9 U
INDENO(1,2,3-CD)PYRENE	0.09	RG		0.19 U	0.019 U	0.019 R	0.019 R	0.019 R	0.019 U	0.019 U	0.019 UJ	0.019 U	0.19 U	2 U	0.19 U

Notes:

PAL - Project Action Limit listed in the SAP

BKG - Background value

MCL - Maximum Contaminant Level

RG - Remedial Goal

U - Undetected at the laboratory limit

J - Estimated value

UJ - Undetected at approximated reported limit

NA - Analysis not performed

Table 2-5: West Gate Landfill Summary of Groundwater Analytical Results for COCs - December 2013 - May 2018

PARAMETER	CRITERIA			WGL-MW-103S	WGL-MW-103S	WGL-MW-103S	WGL-MW-103S	WGL-MW-103S	WGL-MW-103S	WGL-MW-103S	WGL-MW-103S	WGL-MW-103S	WGL-MW-103S	WGL-MW-103S
	PAL	PAL SOURCE	BKG	Dec-13	Apr-14	Jun-14	Sep-14	Apr-15	Sep-15	Mar-16	Sep-16	May-17	Oct-17	May-18
ARSENIC	10	MCL		1.5 J	2.3	1.7 J	2.6	0.48 J	1.7 J	0.82 J	1.14 J	1.9 J	3.9 J	1.6 J
CHROMIUM	47	RG	18.1	0.78 J	0.67 J	1.3 J	6.5	0.32 J	3.2 J	1.1 J	3.78 J	4 U	3.7 J	4 U
1,4-DIOXANE	6	RG		0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 UJ	0.07 U	0.07 UJ	**9.8 UJ**	0.05 J	0.15 U
BENZO(A)ANTHRACENE	0.09	RG	0.05	0.042 R	0.042 UJ	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.2 U	**2.2 UJ**	0.19 U
BENZO(B)FLUORANTHENE	0.09	RG		--	--	--	--	--	--	--	--	0.2 U	--	0.19 U
DIBENZO(A,H)ANTHRACENE	0.009	RG	0.03	0.018 R	0.018 R	0.018 R	0.018 R	0.018 U	0.018 U	**0.018 UJ**	0.018 U	0.2 U	**2.2 UJ**	0.19 U
HEXACHLOROBENZENE	1	MCL		0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	**2 UJ**	**2.2 UJ**	**2 UJ**
INDENO(1,2,3-CD)PYRENE	0.09	RG		0.019 R	0.019 R	0.019 R	0.019 R	0.019 U	0.019 U	0.019 UJ	0.019 U	0.2 U	**2.2 UJ**	0.19 U

Notes:

PAL - Project Action Limit listed in the SAP

BKG - Background value

MCL - Maximum Contaminant Level

RG - Remedial Goal

U - Undetected at the laboratory limit

J - Estimated value

UJ - Undetected at approximated reported limit

NA - Analysis not performed

Table 2-5: West Gate Landfill Summary of Groundwater Analytical Results for COCs - December 2013 - May 2018

PARAMETER	CRITERIA			WGL-MW-43	WGL-MW-43	WGL-MW-43	WGL-MW-43	WGL-MW-43	WGL-MW-43	WGL-MW-43	WGL-MW-43	WGL-MW-43	WGL-MW-43	WGL-MW-43	WGL-MW-43	WGL-MW-43
	PAL	PAL SOURCE	BKG	Dec-13	Dec-13 (Dup)	Apr-14	Apr-14 (Dup)	Jun-14	Jun-14 (Dup)	Sep-14	Sep-14 (Dup)	Apr-15	Sep-15	Sep-15 (Dup)	Mar-16	Mar-16 (Dup)
ARSENIC	10	MCL		1.4 J	1.4 J	0.33 J	0.38 J	1.1 J	1.1 J	2	1.9 J	0.19 U	1.8 J	1.6 J	0.86 J	1.1 J
CHROMIUM	47	RG	18.1	0.16 U	0.16 U	0.16 U	0.16 U	0.17 J	0.18 J	0.16 U	0.3 J	0.48 J	0.81 J	1.2 J	0.35 J	0.16 U
1,4-DIOXANE	6	RG		0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 UJ	0.07 UJ	0.07 U	0.07 U
BENZO(A)ANTHRACENE	0.09	RG	0.05	0.042 R	0.042 R	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U
BENZO(B)FLUORANTHENE	0.09	RG		--	--	--	--	--	--	--	--	--	--	--	--	--
DIBENZO(A,H)ANTHRACENE	0.009	RG	0.03	0.018 R	0.018 R	0.018 R	0.018 R	0.018 R	0.018 R	0.018 R	0.018 R	0.018 U	0.018 U	0.018 U	**0.018 UJ**	**0.018 UJ**
HEXACHLOROBENZENE	1	MCL		0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
INDENO(1,2,3-CD)PYRENE	0.09	RG		0.019 R	0.019 R	0.019 R	0.019 R	0.019 R	0.019 R	0.019 R	0.019 R	0.019 U	0.019 U	0.019 U	0.019 UJ	0.019 UJ

Notes:
PAL - Project Action Limit listed in the SAP
BKG - Background value
MCL - Maximum Contaminant Level
RG - Remedial Goal
U - Undetected at the laboratory limit
J - Estimated value
UJ - Undetected at approximated reported limit
NA - Analysis not performed

Table 2-5: West Gate Landfill Summary of Groundwater Analytical Results for COCs - December 2013 - May 2018

PARAMETER	CRITERIA			WGL-MW-43	WGL-MW-43	WGL-MW-43	WGL-MW-43	WGL-MW-43	WGL-MW-43	WGL-MW-43	WGL-MW-48D	WGL-MW-48D	WGL-MW-48D	WGL-MW-48D	WGL-MW-48D
	PAL	PAL SOURCE	BKG	Sep-16	Sep-16 (Dup)	May-17	Oct-17	Oct-17	May-18	May-18 (Dup)	Dec-13	Apr-14	Jun-14	Sep-14	Apr-15
ARSENIC	10	MCL		1.51 J	0.88 J	3 U	3.5 J	--	3 U	3 U	0.34 J	0.19 U	0.19 U	0.34 J	0.39 J
CHROMIUM	47	RG	18.1	0.02 U	4.24 J	4 U	4 U	--	4 U	4 U	0.63 J	0.16 U	0.34 J	0.64 J	0.16 U
1,4-DIOXANE	6	RG		0.07 UJ	0.07 UJ	10 U	0.17	--	0.015 J	0.017 J	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
BENZO(A)ANTHRACENE	0.09	RG	0.05	0.042 U	0.042 U	0.19 U	**1.9 UJ**	--	0.19 U	0.19 U	0.042 R	0.042 R	0.042 U	0.042 U	0.042 U
BENZO(B)FLUORANTHENE	0.09	RG		--	--	0.19 U	--	--	0.19 U	0.19 U	--	--	--	--	--
DIBENZO(A,H)ANTHRACENE	0.009	RG	0.03	0.018 U	0.018 U	0.19 U	**1.9 UJ**	--	0.19 U	0.19 U	0.018 R	0.018 R	0.018 R	0.018 R	0.018 U
HEXACHLOROBENZENE	1	MCL		0.014 U	0.014 U	2 U	**1.9 UJ**	--	**1.9 UJ**	**1.9 UJ**	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
INDENO(1,2,3-CD)PYRENE	0.09	RG		0.019 U	0.019 U	0.19 U	**1.9 UJ**	--	0.19 U	0.19 U	0.019 R	0.019 R	0.019 R	0.019 R	0.019 U

Notes:

PAL - Project Action Limit listed in the SAP

BKG - Background value

MCL - Maximum Contaminant Level

RG - Remedial Goal

U - Undetected at the laboratory limit

J - Estimated value

UJ - Undetected at approximated reported limit

NA - Analysis not performed

PARAMETER	CRITERIA			WGL-MW-48D	WGL-MW-48D	WGL-MW-48D	WGL-MW-48D	WGL-MW-48D	WGL-MW-48D	WGL-MW-48D	WGL-MW-901D	WGL-MW-901D	WGL-MW-901D	WGL-MW-901D	WGL-MW-901D
	PAL	PAL SOURCE	BKG	Apr-15 (Dup)	Sep-15	Mar-16	Sep-16	May-17	Oct-17	May-18	Dec-13	Apr-14	Apr-14 (Dup)	Jun-14	Apr-15
ARSENIC	10	MCL		0.45 J	0.19 U	0.19 U	0.02 UJ	3 U	3 U	3 U	0.72 J	0.41 J	0.57 J	0.44 J	1 J
CHROMIUM	47	RG	18.1	0.16 U	0.16 U	0.16 U	0.02 UJ	4 U	1.8 J	4 U	0.53 J	0.16 U	0.16 U	0.16 U	0.16 U
1,4-DIOXANE	6	RG		0.07 U	0.07 UJ	0.07 U	0.07 UJ	9.7 UJ	0.029 U	0.029 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
BENZO(A)ANTHRACENE	0.09	RG	0.05	0.042 U	0.042 U	0.042 U	0.042 U	0.19 U	1.9 UJ	0.19 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U
BENZO(B)FLUORANTHENE	0.09	RG		--	--	--	--	0.19 U	--	0.19 U	--	--	--	--	--
DIBENZO(A,H)ANTHRACENE	0.009	RG	0.03	0.018 U	0.018 U	0.018 UJ	0.018 U	0.19 U	1.9 UJ	0.19 U	0.018 U	0.018 R	0.018 R	0.018 R	0.018 U
HEXACHLOROBENZENE	1	MCL		0.014 U	0.014 U	0.014 U	0.014 U	1.9 UJ	1.9 UJ	1.9 UJ	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
INDENO(1,2,3-CD)PYRENE	0.09	RG		0.019 U	0.019 U	0.019 UJ	0.019 U	0.19 U	1.9 UJ	0.19 U	0.019 U	0.019 R	0.019 R	0.019 R	0.019 U

Notes:
PAL - Project Action Limit listed in the SAP
BKG - Background value
MCL - Maximum Contaminant Level
RG - Remedial Goal
U - Undetected at the laboratory limit
J - Estimated value
UJ - Undetected at approximated reported limit
NA - Analysis not performed

PARAMETER	CRITERIA			WGL-MW-901D	WGL-MW-901D	WGL-MW-901D	WGL-MW-901D	WGL-MW-901D	WGL-MW-901D	WGL-MW-901D	WGL-MW-901S	WGL-MW-901S	WGL-MW-901S	WGL-MW-901S	WGL-MW-901S
	PAL	PAL SOURCE	BKG	Sep-15	Mar-16	Sep-16	May-17	Oct-17	Oct-17	May-18	Dec-13	Apr-14	Jun-14	Apr-15	Sep-15
ARSENIC	10	MCL		0.79 J	0.19 U	0.02 UJ	1.5 J	3 U	--	3 U	0.19 U	0.19 U	0.19 U	0.24 J	0.19 U
CHROMIUM	47	RG	18.1	0.16 U	0.16 U	0.69 J	4 U	4 U	--	4 U	0.49 J	0.16 U	0.16 U	0.16 U	0.24 J
1,4-DIOXANE	6	RG		0.07 UJ	0.07 U	0.07 UJ	11 U	0.1	--	0.029 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 UJ
BENZO(A)ANTHRACENE	0.09	RG	0.05	0.042 U	0.042 U	0.042 U	0.22 U	1.9 U	--	0.2 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U
BENZO(B)FLUORANTHENE	0.09	RG		--	--	--	0.22 U	--	--	0.2 U	--	--	--	--	--
DIBENZO(A,H)ANTHRACENE	0.009	RG	0.03	0.018 U	**0.018 UJ**	0.018 U	0.22 U	1.9 U	--	0.2 U	0.018 U	0.018 R	0.018 R	0.018 U	0.018 U
HEXACHLOROBENZENE	1	MCL		0.014 U	0.014 U	0.014 U	2.2 U	1.9 U	--	2 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
INDENO(1,2,3-CD)PYRENE	0.09	RG		0.019 U	0.019 UJ	0.019 U	0.22 U	1.9 U	--	0.2 U	0.019 U	0.019 R	0.019 R	0.019 U	0.019 U

Notes:
PAL - Project Action Limit listed in the SAP
BKG - Background value
MCL - Maximum Contaminant Level
RG - Remedial Goal
U - Undetected at the laboratory limit
J - Estimated value
UJ - Undetected at approximated reported limit
NA - Analysis not performed

Table 2-5: West Gate Landfill Summary of Groundwater Analytical Results for COCs - December 2013 - May 2018

PARAMETER	CRITERIA			WGL-MW-901S	WGL-MW-901S	WGL-MW-901S	WGL-MW-901S	WGL-MW-901S	WGL-MW-902	WGL-MW-902	WGL-MW-902	WGL-MW-902	WGL-MW-902	WGL-MW-902
	PAL	PAL SOURCE	BKG	Mar-16	Sep-16	May-17	Oct-17	May-18	Dec-13	Apr-14	Jun-14	Sep-14	Apr-15	Sep-15
ARSENIC	10	MCL		0.19 U	0.25 UJ	3 U	3 U	3 U	0.5 J	0.31 J	0.27 J	0.68 J	0.19 U	0.57 J
CHROMIUM	47	RG	18.1	0.2 J	0.16 UJ	4 U	4 U	4 U	4.8	0.16 U	0.53 J	0.16 U	0.23 J	0.46 J
1,4-DIOXANE	6	RG		0.07 U	0.07 UJ	9.8 U	0.029 U	0.029 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 UJ
BENZO(A)ANTHRACENE	0.09	RG	0.05	0.042 U	0.042 U	0.19 U	1.9 U	0.19 U	0.042 U	0.042 R	0.042 U	0.042 U	0.042 U	0.042 U
BENZO(B)FLUORANTHENE	0.09	RG		--	--	0.19 U	--	0.19 U	--	--	--	--	--	--
DIBENZO(A,H)ANTHRACENE	0.009	RG	0.03	**0.018 UJ**	0.018 U	0.19 U	1.9 U	0.19 U	0.018 U	0.018 R	0.018 R	0.018 R	0.018 U	0.018 U
HEXACHLOROBENZENE	1	MCL		0.014 U	0.014 U	2 U	1.9 U	**1.9 UJ**	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
INDENO(1,2,3-CD)PYRENE	0.09	RG		0.019 UJ	0.019 U	0.19 U	1.9 U	0.19 U	0.019 U	0.019 R	0.019 R	0.019 R	0.019 U	0.019 U

Notes:
PAL - Project Action Limit listed in the SAP
BKG - Background value
MCL - Maximum Contaminant Level
RG - Remedial Goal
U - Undetected at the laboratory limit
J - Estimated value
UJ - Undetected at approximated reported limit
NA - Analysis not performed

Table 2-5: West Gate Landfill Summary of Groundwater Analytical Results for COCs - December 2013 - May 2018

PARAMETER	CRITERIA			WGL-MW-902	WGL-MW-902	WGL-MW-902	WGL-MW-902	WGL-MW-902	WGL-MW-903D	WGL-MW-903D	WGL-MW-903D	WGL-MW-903D	WGL-MW-903D	WGL-MW-903D
	PAL	PAL SOURCE	BKG	Mar-16	Mar-16 (Dup)	May-17	May-17 (Dup)	May-18	Dec-13	Apr-14	Jun-14	Sep-14	Apr-15	Sep-15
ARSENIC	10	MCL		0.19 U	0.2 J	3 U	3 U	3 U	1.3 J	1.9 J	1.4 J	1.6 J	1.8 J	2.5 J
CHROMIUM	47	RG	18.1	0.42 J	0.47 J	4 U	4 U	4 U	1.6 J	0.54 J	0.7 J	0.53 J	0.32 J	0.41 J
1,4-DIOXANE	6	RG		0.07 U	0.07 U	**9.8 UJ**	**9.8 UJ**	0.028 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 UJ
BENZO(A)ANTHRACENE	0.09	RG	0.05	0.042 U	0.042 U	0.19 U	0.19 U	0.19 U	0.042 U	0.042 R	0.042 U	0.042 U	0.042 U	0.042 U
BENZO(B)FLUORANTHENE	0.09	RG		--	--	0.19 U	0.19 U	0.19 U	--	--	--	--	--	--
DIBENZO(A,H)ANTHRACENE	0.009	RG	0.03	**0.018 UJ**	**0.018 UJ**	0.19 U	0.19 U	0.19 U	0.018 U	0.018 R	0.018 U	0.018 R	0.018 U	0.018 U
HEXACHLOROBENZENE	1	MCL		0.014 U	0.014 U	**2 UJ**	**1.9 UJ**	2 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
INDENO(1,2,3-CD)PYRENE	0.09	RG		0.019 UJ	0.019 UJ	0.19 U	0.19 U	0.19 U	0.019 U	0.019 R	0.019 U	0.019 R	0.019 U	0.019 U

Notes:

PAL - Project Action Limit listed in the SAP

BKG - Background value

MCL - Maximum Contaminant Level

RG - Remedial Goal

U - Undetected at the laboratory limit

J - Estimated value

UJ - Undetected at approximated reported limit

NA - Analysis not performed

Table 2-5: West Gate Landfill Summary of Groundwater Analytical Results for COCs - December 2013 - May 2018

PARAMETER	CRITERIA			WGL-MW-903D	WGL-MW-903D	WGL-MW-903D	WGL-MW-903D	WGL-MW-903D	WGL-MW-903S	WGL-MW-903S	WGL-MW-903S	WGL-MW-903S	WGL-MW-903S	WGL-MW-903S
	PAL	PAL SOURCE	BKG	Mar-16	Sep-16	May-17	Oct-17	May-18	Dec-13	Apr-14	Jun-14	Sep-14	Apr-15	Sep-15
ARSENIC	10	MCL		1.5 J	1.32 J	1.5 J	2.7 J	3 U	0.52 J	0.32 J	2.4	0.23 J	0.96 J	0.79 J
CHROMIUM	47	RG	18.1	0.26 J	0.02 UJ	4 U	4 U	4 U	0.18 J	0.16 U	0.64 J	0.23 J	0.19 J	0.34 J
1,4-DIOXANE	6	RG		0.07 U	0.07 UJ	9.8 U	0.078 J	0.029 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 UJ
BENZO(A)ANTHRACENE	0.09	RG	0.05	0.042 U	0.042 U	0.21 U	1.9 U	0.19 U	0.042 U	0.042 R	0.042 U	0.042 U	0.042 U	0.042 U
BENZO(B)FLUORANTHENE	0.09	RG		--	--	0.21 U	--	0.19 U	--	--	--	--	--	--
DIBENZO(A,H)ANTHRACENE	0.009	RG	0.03	0.018 UJ	0.018 U	0.21 U	1.9 U	0.19 U	0.018 U	0.018 R	0.018 U	0.018 R	0.018 U	0.018 U
HEXACHLOROBENZENE	1	MCL		0.014 U	0.014 U	2 U	1.9 U	1.9 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
INDENO(1,2,3-CD)PYRENE	0.09	RG		0.019 UJ	0.019 U	0.21 U	1.9 U	0.19 U	0.019 U	0.019 R	0.019 U	0.019 R	0.019 U	0.019 U

Notes:
PAL - Project Action Limit listed in the SAP
BKG - Background value
MCL - Maximum Contaminant Level
RG - Remedial Goal
U - Undetected at the laboratory limit
J - Estimated value
UJ - Undetected at approximated reported limit
NA - Analysis not performed

Table 2-5: West Gate Landfill Summary of Groundwater Analytical Results for COCs - December 2013 - May 2018

PARAMETER	CRITERIA			WGL-MW-903S	WGL-MW-903S	WGL-MW-903S	WGL-MW-903S	WGL-MW-903S	WGL-MW-903S	WGL-MW-903S	WGL-MW-904D	WGL-MW-904D	WGL-MW-904D	WGL-MW-904D	WGL-MW-904D
	PAL	PAL SOURCE	BKG	Mar-16	Sep-16	May-17	Oct-17	Oct-17 (Dup)	Oct-17	May-18	Dec-13	Apr-14	Jun-14	Sep-14	Apr-15
ARSENIC	10	MCL		0.57 J	0.9 J	3 U	1.8 J	3 U	--	1.8 J	0.69 J	1.1 J	0.55 J	0.19 J	0.5 J
CHROMIUM	47	RG	18.1	0.16 U	0.02 UJ	4 U	4 U	4 U	--	4 U	11.1	0.16 U	0.16 U	1.9 J	0.26 J
1,4-DIOXANE	6	RG		0.3	0.07 UJ	9.7 U	0.012 J	0.012 J	--	0.023 J	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
BENZO(A)ANTHRACENE	0.09	RG	0.05	0.042 U	0.042 U	0.19 U	1.9 U	**1.9 UJ**	--	--	0.042 U	0.042 R	0.042 U	0.042 U	0.042 U
BENZO(B)FLUORANTHENE	0.09	RG		--	--	0.19 U	--	--	--	0.19 U	--	--	--	--	--
DIBENZO(A,H)ANTHRACENE	0.009	RG	0.03	**0.018 UJ**	0.018 U	0.19 U	1.9 U	**1.9 UJ**	--	0.19 U	0.018 U	0.018 R	0.018 U	0.018 R	0.018 U
HEXACHLOROBENZENE	1	MCL		0.014 U	0.014 U	1.9 U	1.9 U	**1.9 UJ**	--	1.9 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
INDENO(1,2,3-CD)PYRENE	0.09	RG		0.019 UJ	0.019 U	0.19 U	1.9 U	**1.9 UJ**	--	0.19 U	0.019 U	0.019 R	0.019 U	0.019 R	0.019 U

Notes:
PAL - Project Action Limit listed in the SAP
BKG - Background value
MCL - Maximum Contaminant Level
RG - Remedial Goal
U - Undetected at the laboratory limit
J - Estimated value
UJ - Undetected at approximated reported limit
NA - Analysis not performed

Table 2-5: West Gate Landfill Summary of Groundwater Analytical Results for COCs - December 2013 - May 2018

PARAMETER	CRITERIA			WGL-MW-904D	WGL-MW-904D	WGL-MW-904D	WGL-MW-904D	WGL-MW-904D	WGL-MW-904D	WGL-MW-904D	WGL-MW-904S	WGL-MW-904S	WGL-MW-904S	WGL-MW-904S	WGL-MW-904S
	PAL	PAL SOURCE	BKG	Apr-15 (Dup)	Sep-15	Mar-16	Sep-16	May-17	Oct-17	May-18	Dec-13	Apr-14	Jun-14	Sep-14	Apr-15
ARSENIC	10	MCL		0.19 U	0.93 J	0.41 J	0.02 UJ	3 U	1.9 J	3 U	0.21 J	0.2 J	0.19 U	0.51 J	0.19 U
CHROMIUM	47	RG	18.1	0.16 U	0.34 J	0.54 J	0.02 UJ	4 U	4 U	4 U	11.2	1.5 J	1.8 J	0.16 U	1.2 J
1,4-DIOXANE	6	RG		0.07 U	0.07 UJ	0.07 U	0.07 UJ	9.6 U	0.033 J	0.028 J	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
BENZO(A)ANTHRACENE	0.09	RG	0.05	0.042 U	0.042 U	0.042 U	0.042 U	0.19 U	1.9 U	0.2 U	0.042 U	0.042 R	0.042 U	0.042 U	0.042 U
BENZO(B)FLUORANTHENE	0.09	RG		--	--	--	--	0.19 U	--	0.2 U	--	--	--	--	--
DIBENZO(A,H)ANTHRACENE	0.009	RG	0.03	0.018 U	0.018 U	**0.018 UJ**	0.018 U	0.19 U	1.9 U	0.2 U	0.018 U	0.018 R	0.018 U	0.018 R	0.018 U
HEXACHLOROBENZENE	1	MCL		0.014 U	0.014 U	0.014 U	0.014 U	1.9 U	1.9 U	**2 UJ**	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
INDENO(1,2,3-CD)PYRENE	0.09	RG		0.019 U	0.019 U	0.019 UJ	0.019 U	0.19 U	1.9 U	0.2 U	0.019 U	0.019 R	0.019 U	0.019 R	0.019 U

Notes:

PAL - Project Action Limit listed in the SAP

BKG - Background value

MCL - Maximum Contaminant Level

RG - Remedial Goal

U - Undetected at the laboratory limit

J - Estimated value

UJ - Undetected at approximated reported limit

NA - Analysis not performed

Table 2-5: West Gate Landfill Summary of Groundwater Analytical Results for COCs - December 2013 - May 2018

PARAMETER	CRITERIA			WGL-MW-904S	WGL-MW-904S	WGL-MW-904S	WGL-MW-904S	WGL-MW-904S	WGL-MW-904S
	PAL	PAL SOURCE	BKG	Sep-15	Mar-16	Sep-16	May-17	Oct-17	May-18
ARSENIC	10	MCL		0.58 J	0.21 J	0.02 UJ	3 U	3 U	3 U
CHROMIUM	47	RG	18.1	1.2 J	2	0.02 UJ	3.5 J	2.1 J	1.9 J
1,4-DIOXANE	6	RG		0.07 UJ	0.07 U	0.07 UJ	9.6 U	0.019 J	0.029 U
BENZO(A)ANTHRACENE	0.09	RG	0.05	0.042 U	0.042 U	0.042 U	0.19 U	**1.9 UJ**	0.19 U
BENZO(B)FLUORANTHENE	0.09	RG		--	--	--	0.19 U	--	0.19 U
DIBENZO(A,H)ANTHRACENE	0.009	RG	0.03	0.018 U	**0.018 UJ**	0.018 U	0.19 U	**1.9 UJ**	0.19 U
HEXACHLOROBENZENE	1	MCL		0.014 U	0.014 U	0.014 U	1.9 U	**1.9 UJ**	**2 UJ**
INDENO(1,2,3-CD)PYRENE	0.09	RG		0.019 U	0.019 UJ	0.019 U	0.19 U	**1.9 UJ**	0.19 U

Notes:
PAL - Project Action Limit listed in the SAP
BKG - Background value
MCL - Maximum Contaminant Level
RG - Remedial Goal
U - Undetected at the laboratory limit
J - Estimated value
UJ - Undetected at approximated reported limit
NA - Analysis not performed

Table 3-3: Rubble Disposal Area Monitoring Locations

Monitoring Location	
Groundwater	
RDA-TT01	West side of landfill. Well destroyed during parkway construction activities in 2011.
RDA-TT02	Northeastern boundary of landfill; potentially downgradient of former PCB hotspot
RDA-TT03	Along east-central portion of the landfill boundary
RDA-TT04	Along southeastern boundary of landfill
RDA-TT05	Along east-central portion of the landfill boundary
RDA-TT06	North end of landfill, in tree line; potentially downgradient of former PCB hotspot
RDA-TT07	Center of landfill
RDA-TT08	Western boundary of landfill. Added to LTMP in 2010.
RDA-MW05	Adjacent to southeast boundary of landfill, upgradient location. Effective March 2010, no longer sampled due to re-charge issues. Well used for water level measurements only.
RDA-MW50D	Northeastern boundary of landfill, downgradient location
RDA-MW50D2	Northeastern boundary of landfill, downgradient location
RDA-MW01-064	West of landfill. Added to LTMP in 2010.
RDA-MW900	Northern perimeter of landfill. Added to LTMP in 2011 as replacement for RDA-TT01
RDA-PZ01	Southern perimeter of landfill
RDA-PZ02	Southern perimeter of landfill
RDA-PZ03	Southeast perimeter of landfill
RDA-PZ04	Along east-central portion of the landfill boundary
RDA-PZ05	Destroyed and replaced with PZ-900
RDA-PZ06	Along east-central portion of the landfill boundary
RDA-PZ07	Along east-central portion of the landfill boundary
RDA-PZ08	Along east-central portion of the landfill boundary
PZ-900	Northern perimeter of landfill
RDA-SPZ-101	Located in Swamp River, upstream
RDA-SPZ-102	Located in Swamp River, downstream
Surface Water/Sediment	
RDA-SW01/SD01	Northeastern boundary of landfill; potentially downgradient of former PCB hotspot
RDA-SW02/SD02	Along east-central portion of landfill boundary
RDA-SW01/SD03	In wetland area southeast of landfill boundary
RDA-SWU	Old Swamp River east of landfill, upstream location
RDA-SWD	Old Swamp River adjacent to north end of culverts north of landfill, downstream location
Small Mammal Tissue	
RDA-ET01	Northern end of landfill
RDA-ET02	Former PCB hotspot area of landfill extending from GV-07 to RDA-TT02
RDA-ET03	Three areas including one from the center of the landfill in the vicinity of GV-04 and two areas from the southern portion of the landfill adjacent to the wetland
Landfill Gas	
GV-01	Passive gas vent
GV-02	Passive gas vent
GV-03	Passive gas vent
GV-04	Passive gas vent

Table 3-3: Rubble Disposal Area Monitoring Locations

Monitoring Location	
GV-05	Passive gas vent
GV-06	Passive gas vent
GV-07	Passive gas vent
GV-08	Passive gas vent
GP-01	Perimeter landfill gas probe
GP-02	Perimeter landfill gas probe
GP-03	Perimeter landfill gas probe. GP-03 destroyed and replaced with RDA-GP900
GP-04	Perimeter landfill gas probe
GP-05	Perimeter landfill gas probe
GP-06	Perimeter landfill gas probe
GP-07	Perimeter landfill gas probe
GP-900	Perimeter landfill gas probe. Replaced GP-03

Notes:

1) Monitoring locations included in 2017 SAP.

Table 3-5: Rubble Disposal Area Summary of Groundwater Analytical Results for COCs - April 2014 - May 2018

PARAMETER	CRITERIA			RDA-MW01-064				RDA-MW50D				
	PAL	PAL SOURCE	MCL	Mar-16	Mar-16 (Dup)	May-17	Jun-18	Apr-14	Apr-15	Mar-16	May-17	May-18
ARSENIC	10	RG		0.19 U	1.7 J	3 U	3 U	3.8	3.3 J	2.7	2.6 J	2.8 J
MANGANESE	313	RG		462	8470	620	510	10700	10600 J	10900	12000	11000
BENZO(A)PYRENE	0.2	RG		0.017 U	0.017 U	0.19 U	0.2 U	0.017 U	0.017 U	0.19	0.19 U	0.19 U

Notes:

PAL - Project Action Limit listed in the SAP

RG - Remedial Goal

U - Undetected at the laboratory limit

J - Estimated value

UJ - Undetected at approximated reported limit

Table 3-5: Rubble Disposal Area Summary of Groundwater Analytical Results for COCs - April 2014 - May 2018

PARAMETER	CRITERIA			RDA-MW50D2					RDA-MW900		
	PAL	PAL SOURCE	MCL	Apr-14	Apr-15	Mar-16	May-17	May-18	May-17	May-17 (Dup)	Jun-18
ARSENIC	10	RG		3.5	2.9 J	2.8	2.7 J	2.9 J	3 U	3 U	3 U
MANGANESE	313	RG		9450	10500 J	10900	12000	11000	12000	10000	12000
BENZO(A)PYRENE	0.2	RG		0.017 U	0.017 U	0.13	0.19 U	0.19 U	0.19 U	0.19 U	0.19 UJ

Notes:

PAL - Project Action Limit listed in the SAP

RG - Remedial Goal

U - Undetected at the laboratory limit

J - Estimated value

UJ - Undetected at approximated reported limit

Table 3-5: Rubble Disposal Area Summary of Groundwater Analytical Results for COCs - April 2014 - May 2018

PARAMETER	CRITERIA			RDA-TT02								
	PAL	PAL SOURCE	MCL	Apr-14	Apr-14 (Dup)	Apr-15	Apr-15 (Dup)	Mar-16	May-17	May-17 (Dup)	Jun-18	Jun-18 (Dup)
ARSENIC	10	RG		1 J	0.83 J	1.5 J	1.3 J	1.5 J	3 U	1.6 J	2.3 J	3 U
MANGANESE	313	RG		**6300**	**6650**	**8420 J**	**7920 J**	**8300**	**8600**	**8300**	**10000 J**	**4800 J**
BENZO(A)PYRENE	0.2	RG		0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.19 U	0.19 U	0.2 UJ	0.2 UJ

Notes:

PAL - Project Action Limit listed in the SAP

RG - Remedial Goal

U - Undetected at the laboratory limit

J - Estimated value

UJ - Undetected at approximated reported limit

Table 3-5: Rubble Disposal Area Summary of Groundwater Analytical Results for COCs - April 2014 - May 2018

PARAMETER	CRITERIA			RDA-TT03					RDA-TT04			
	PAL	PAL SOURCE	MCL	Apr-14	Apr-15	Mar-16	May-17	Jun-18	Apr-14	Apr-15	Mar-16	May-17
ARSENIC	10	RG		0.61 J	0.81 J	1.2 J	3 U	1.5 J	3	3.9 J	3.3	3.1
MANGANESE	313	RG		**9050**	**9310 J**	**8480**	**11000**	**8800 J**	**17400**	**17700 J**	**16700**	**21000**
BENZO(A)PYRENE	0.2	RG		0.017 U	0.017 U	0.017 U	0.2 U	0.19 UJ	0.017 U	0.017 U	0.017 U	0.2 U

Notes:

PAL - Project Action Limit listed in the SAP

RG - Remedial Goal

U - Undetected at the laboratory limit

J - Estimated value

UJ - Undetected at approximated reported limit

Table 3-5: Rubble Disposal Area Summary of Groundwater Analytical Results for COCs - April 2014 - May 2018

PARAMETER	CRITERIA			RDA-TT04		RDA-TT05				
	PAL	PAL SOURCE	MCL	May-18	May-18 (Dup)	Apr-14	Apr-15	Mar-16	May-17	Jun-18
ARSENIC	10	RG		3	3.2	0.27 J	0.54 J	0.31 J	3 U	3 U
MANGANESE	313	RG		14000	16000	10900	8710 J	7970	12000	10000 J
BENZO(A)PYRENE	0.2	RG		0.19 U	0.19 U	0.017 U	0.017 U	0.017 U	0.2 U	0.19 UJ

Notes:

PAL - Project Action Limit listed in the SAP

RG - Remedial Goal

U - Undetected at the laboratory limit

J - Estimated value

UJ - Undetected at approximated reported limit

Table 3-5: Rubble Disposal Area Summary of Groundwater Analytical Results for COCs - April 2014 - May 2018

PARAMETER	CRITERIA			RDA-TT06					RDA-TT07				
	PAL	PAL SOURCE	MCL	Apr-14	Apr-15	Apr-16	May-17	Jun-18	Apr-14	Apr-15	Mar-16	May-17	Jun-18
ARSENIC	10	RG		0.87 J	0.41 J	0.19 U	3 U	3 U	1.9 J	4 J	1.5 J	3.6	3 U
MANGANESE	313	RG		133	307 J	154	720	140 J	9940	8510 J	8640	12000	5700 J
BENZO(A)PYRENE	0.2	RG		0.017 U	0.017 U	0.017 U	0.2 U	0.19 UJ	0.017 U	0.017 U	0.017 U	0.2 U	0.19 UJ

Notes:

PAL - Project Action Limit listed in the SAP

RG - Remedial Goal

U - Undetected at the laboratory limit

J - Estimated value

UJ - Undetected at approximated reported limit

Table 3-5: Rubble Disposal Area Summary of Groundwater Analytical Results for COCs - April 2014 - May 2018

PARAMETER	CRITERIA			RDA-TT08				
	PAL	PAL SOURCE	MCL	Apr-14	Apr-15	Mar-16	May-17	May-18
ARSENIC	10	RG		2.3	2.7 J	2.1	1.6 J	3
MANGANESE	313	RG		**6660**	**6960 J**	**7650**	**12000**	**10000**
BENZO(A)PYRENE	0.2	RG		0.017 U	0.017 U	0.017 U	0.2 U	0.19 U

Notes:

PAL - Project Action Limit listed in the SAP

RG - Remedial Goal

U - Undetected at the laboratory limit

J - Estimated value

UJ - Undetected at approximated reported limit

Table 4-2: Fire Fighting Training Area Monitoring Locations

Monitoring Location	
Groundwater	
BW-MW-31	Upgradient location
FFTA-MW-01	East/northeast of FFTA – west of access road
FFTA- MW-02	West/southwest of FFTA
FFTA- MW-02B	West/southwest of FFTA
FFTA- MW-02D	West/southwest of FFTA
FFTA-MW-11	Downgradient location
FFTA-MW-12	Located in northern portion of FFTA
FFTA-MW-13	Located in central portion of FFTA
FFTA-MW-13B	Located in central portion of FFTA
FFTA-MW-46	Located in central portion of FFTA
FFTA MW-46D2	Located adjacent to FFTA operations area at depth
FFTA-MW-51D2	Located east of FFTA
FFTA-MW-52D2	Upgradient of FFTA
FFTA-MW-53A	Located south, downgradient of FFTA
FFTA-MW-53D2	Located south, downgradient of FFTA
FFTA-MW-53I	Located south, downgradient of FFTA
FFTA-MW-60	Located in northern portion of FFTA
FFTA-MW-60D	Located in northern portion of FFTA
FFTA-MW-60D2	Located in northern portion of FFTA
FFTA-MW-61	Located west, downgradient of FFTA
FFTA-MW-100I	West of FFTA in TACAN drainage ditch
FFTA-MW-101I	West of FFTA in TACAN drainage ditch
FFTA-MW-102I	Southwest of FFTA in TACAN drainage ditch
FFTA-MW-103I	Southwest of FFTA, downgradient of FFTA
FFTA-MW-104	Located west, cross gradient of FFTA
FFTA-MW-104B	Located west, cross gradient of FFTA
FFTA-MW-104I	Located west, cross gradient of FFTA
FFTA-MW-105B	Southwest of FFTA, downgradient of FFTA
FFTA-MW-105I	Southwest of FFTA, downgradient of FFTA
FFTA-MW-106I	Located east of FFTA
FFTA-MW-107I	Located northeast of FFTA
FFTA-MW-108B	Located south, downgradient of FFTA
FFTA-MW-108I	Located south, downgradient of FFTA
FFTA-MW-109B	Located north, upgradient of FFTA
FFTA-MW-109I	Located north, upgradient of FFTA
FFTA-MW-110I	Located in central portion of FFTA
MW01-063	Located at south end of Base near west branch of French Stream
MW01-073	Located on east side of west branch of French Stream
MW01-093	West of FFTA in TACAN drainage ditch
TLF-MW-55D	Near confluence of TACAN drainage ditch and west branch of French stream
PZ-11D	South end of Base near east branch of French Stream

Table 4-2: Fire Fighting Training Area Monitoring Locations

Monitoring Location	
Surface Water/Sediment	
SW05/SD05	East Branch of French Stream, central portion of FFTA, downstream location
SW06/SD06	East Branch of French Stream, south of FFTA, downstream location
SW07/SD07	East Branch of French Stream, south of FFTA, downstream location

Table 4-4: Fire Fighting Training Area Groundwater Analytical Results - April 2014 - April 2018
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Location ID	Sample ID	Sample Date	Well Screen Interval (bgs)	PFBS (µg/L)	PFOS (µg/L)	PFOA (µg/L)	Total PFOS and PFOA (µg/L)
			U.S. EPA HAs	38	0.07	0.07	0.07
Bedrock Wells - Within the GWRB							
FFTA-MW-46D2	AFFF-GW-MW46D2-0511-D	5/5/2011	13.5 — 28.5	NA	2.5	1.3	3.8
	AFFF-GW-MW46D2-0511	5/5/2011	13.5 — 28.5	NA	2	1.2	3.2
	AFFF-DUP3-040314	4/3/2014	13.5 — 28.5	NA	3.1	1.9	5.0
	AFFF-FFTA-MW-46D2-040314	4/3/2014	13.5 — 28.5	NA	3.2 J	1.9 J	5.1
	AFFF-FFTA-MW-46D2-GW100814 2	10/8/2014	13.5 — 28.5	NA	1.9 J	1.0	2.9
	AFFF-GW-DUP3-100814	10/8/2014	13.5 — 28.5	NA	1.9	1.0	2.9
	AFFF-FFTA-MW-46D2-GW-033115	3/31/2015	13.5 — 28.5	NA	2.1	1.3	3.4
	AFFF-GW-DUP1-033115	3/31/2015	13.5 — 28.5	NA	2.2	1.4	3.6
	AFFF-FFTA-MW-46D2-GW-100615	10/6/2015	13.5 — 28.5	NA	1.3	0.85	2.2
	AFFF-FFTA-MW-46D2-GW-031016	3/10/2016	13.5 — 28.5	NA	1.6 J	0.84	2.4
	AFFF-GW-DUP1-031016	3/10/2016	13.5 — 28.5	NA	1.5	0.85	2.4
	AFFF-FFTA-MW-46D2-102116	10/21/2016	13.5 — 28.5	0.104	1.22	0.896	2.12
	AFFF-FFTA-46D2-032117	3/21/2017	13.5 — 28.5	0.134	1.6	0.937	2.54
	AFFF-FFTA-MW-46D2-102617	10/26/2017	13.5 — 28.5	0.0747	0.988	0.54	1.528
	AFFF-FFTA-MW-46D2-040318	4/3/2018	13.5 — 28.5	0.139	0.981	1.03	2.011
Bedrock Wells - Outside the GWRB							
FFTA-MW-2B	AFFF-FFTA-MW-2B-101816	10/18/2016	25.0 — 35.0	0.0771	0.828 J	0.673 J	1.5
	AFFF-FFTA-MW-2B-032217	3/22/2017	25.0 — 35.0	0.0405	0.512	0.398	0.91
	AFFF-FFTA-MW-2B-102617	10/26/2017	25.0 — 35.0	0.00268 J+	0.172 J+	0.0651 J+	0.2371 J+
	AFFF-FFTA-DUP2-040318	4/3/2018	25.0 — 35.0	0.0211	0.26	0.225	0.485
	AFFF-FFTA-MW-2B-040318	4/3/2018	25.0 — 35.0	0.0258	0.216	0.236	0.452
FFTA-MW-104B	AFFF-FFTA-MW-104B-102416	10/24/2016	55.0 — 65.0	0.0188	0.209	0.172	0.381
	AFFF-FFTA-MW-104B-032317	3/23/2017	55.0 — 65.0	0.0210	0.205	0.173	0.378
	AFFF-FFTA-MW-104B-102417	10/24/2017	55.0 — 65.0	0.0195	0.216	0.186	0.402
	AFFF-FFTA-MW-104B-040518	4/5/2018	55.0 — 65.0	0.0183	0.181	0.151	0.332
FFTA-MW-104I	AFFF-FFTA-MW-104I-102416	10/24/2016	37.0 — 47.0	0.0766	0.81	0.68	1.5
	AFFF-FFTA-MW-104I-032417	3/24/2017	37.0 — 47.0	0.0740	3.57	0.61	4.18
	AFFF-FFTA-MW-104I-102417	10/24/2017	37.0 — 47.0	0.0798	0.785	0.643	1.428
	AFFF-FFTA-MW-104I-040518	4/5/2018	37.0 — 47.0	0.0787	0.824	0.584	1.408
FFTA-MW-105B	AFFF-FFTA-MW-105B-102016	10/20/2016	14.0 — 24.0	0.00253 J	0.0599	0.0314	0.0913
	AFFF-FFTA-MW-105B-032217	3/22/2017	14.0 — 24.0	0.00238 J	0.0391	0.0269	0.0660
	AFFF-FFTA-MW-105B-102517	10/25/2017	14.0 — 24.0	0.00246 J	0.0496	0.035	0.0846
	AFFF-FFTA-MW-105B-040318	4/3/2018	14.0 — 24.0	< 0.00512 U	0.0469	0.0225	0.0694
FFTA-MW-108B	AFFF-FFTA-MW-108B-102016	10/20/2016	23.0 — 33.0	< 0.00391 U	0.0235	0.0181	0.0416
	AFFF-FFTA-MW-108B-032417	3/24/2017	23.0 — 33.0	< 0.00442 U	0.0250	0.0314	0.0564
	AFFF-FFTA-MW-108B-102517	10/25/2017	23.0 — 33.0	< 0.00548 U	0.0172	0.0132	0.02855 J
	AFFF-FFTA-WG-DUP1-102517	10/25/2017	23.0 — 33.0	< 0.00530 U	0.0128 J	0.0139 J	0.0267 J
	AFFF-FFTA-MW-108B-040318	4/3/2018	23.0 — 33.0	< 0.00539 U	0.0189	0.0309	0.0498
Overburden Wells - Within the GWRB							
FFTA-MW-46	AFFF-GW-FFTA-MW46-0410	4/22/2010	2.2 — 11.1	NA	0.75	1.9	2.7
	AFFF-FFTA-MW-46-040314	4/3/2014	2.2 — 11.1	NA	2.9	2.2	5.1
	AFFF-FFTA-MW-46-GW-100814	10/8/2014	2.2 — 11.1	NA	2.5	2.3	4.8
	AFFF-FFTA-MW-46-GW-033115	3/31/2015	2.2 — 11.1	NA	2.7	2.3	5.0
	AFFF-FFTA-MW-46-GW-100615	10/6/2015	2.2 — 11.1	NA	1.3	1.1	2.4
	AFFF-FFTA-MW-46-GW-031016	3/10/2016	2.2 — 11.1	NA	1.5	1.1	2.6
	AFFF-FFTA-MW-46-102116	10/21/2016	2.2 — 11.1	12.3 J	69.4 J	46 J	115
	AFFF-FFTA-MW-46-032117	3/21/2017	2.2 — 11.1	0.244	1.22	1.58	2.8
	AFFF-FFTA-MW-46-102617	10/26/2017	2.2 — 11.1	0.222	1.96 J	1.65	3.61 J
	AFFF-FFTA-WG-DUP2-102617	10/26/2017	2.2 — 11.1	0.226	1.37 J	1.35	2.72 J
	AFFF-FFTA-MW-46-040318	4/3/2018	2.2 — 11.1	0.186	1.15	1.25	2.4
FFTA-MW-110I	AFFF-FFTA-MW-110I-102016	10/20/2016	19.0 — 29.0	5.61	8.38	46.7 J	55.1
	AFFF-FFTA-MW-110I-032117	3/21/2017	19.0 — 29.0	6.86 J	195 J	60.7 J	256
	AFFF-FFTA-MW-110I-102517	10/25/2017	19.0 — 29.0	8.59 J	127 J	48.4 J	175.4 J
	AFFF-FFTA-DUP1-040318	4/3/2018	19.0 — 29.0	6.6 J	113 J	34.1 J	147.1 J
	AFFF-FFTA-MW-110I-040318	4/3/2018	19.0 — 29.0	6.35 J	90.1 J	36.3 J	126.4 J
Overburden Wells West of the GWRB							
FFTA-MW-102I	AFFF-FFTA-MW-102I-102416	10/24/2016	4.5 — 12.5	0.00200 J	0.0458	0.0682	0.114
	AFFF-FFTA-MW-102I-032117	3/21/2017	4.5 — 12.5	0.00372 J	0.031	0.0429	0.0739
	AFFF-FFTA-MW-102I-102617	10/26/2017	4.5 — 12.5	0.0347	0.274	0.391	0.665
	AFFF-FFTA-MW-102I-040518	4/5/2018	4.5 — 12.6	0.00289 J	< 0.00534 U	0.0602	0.0602
FFTA-MW-104	AFFF-FFTA-MW-104-102416	10/24/2016	5.0 — 15.0	0.109	1.37	0.928	2.3
	AFFF-FFTA-MW-104-032317	3/23/2017	5.0 — 15.0	0.0233	0.172	0.156	0.328
	AFFF-FFTA-MW-104-102417	10/24/2017	5.0 — 15.0	0.0616	0.765	0.597	1.362
	AFFF-FFTA-MW-104-040518	4/5/2018	5.0 — 15.0	0.00833 J	0.0598	0.0565	0.1163
FFTA-MW-105I	AFFF-FFTA-MW-105I-102016	10/20/2016	3.0 — 9.0	0.00245 J	0.0909	0.0568	0.148
	AFFF-FFTA-MW-105I-032217	3/22/2017	3.0 — 9.0	< 0.00407 U	0.00251 J	0.00161 J	0.00412
	AFFF-FFTA-MW-105I-102517	10/25/2017	3.0 — 9.0	< 0.00534 U	0.0388	0.0155	0.0543
	AFFF-FFTA-MW-105I-040318	4/3/2018	3.0 — 9.0	< 0.00525 U	< 0.00525 U	< 0.00525 U	< 0.00525 U
Overburden Wells South of the GWRB							
FFTA-MW-108I	AFFF-FFTA-MW-108I-102016	10/20/2016	10.0 — 20.0	0.00179 J	0.0406	0.0208	0.0614
	AFFF-FFTA-MW-108I-032417	3/24/2017	10.0 — 20.0	< 0.00431 U	0.0297	0.0324	0.0621
	AFFF-FFTA-MW-108I-102517	10/25/2017	10.0 — 20.0	< 0.00543 U	0.0332	0.0193	0.0525
	AFFF-FFTA-MW-108I-040318	4/3/2018	10.0 — 20.0	< 0.00530 U	0.0259	0.0325	0.0584
Overburden Wells East of the GWRB							
FFTA-MW-106I	AFFF-FFTA-MW-106I-102416	10/24/2016	6.0 — 11.0	0.00218 J	0.0100	0.0491	0.0591
	AFFF-FFTA-MW-106I-032217	3/22/2017	6.0 — 11.0	0.00270 J	0.0139	0.0494	0.0633
	AFFF-FFTA-MW-106I-102617	10/26/2017	6.0 — 11.0	< 0.00534 U	0.00549 J	0.0432	0.04869 J
	AFFF-FFTA-MW-106I-040518	4/5/2018	6.0 — 11.0	0.00244 J	< 0.00517 U	0.0385	0.0385
FFTA-MW-107I	AFFF-FFTA-MW-107I-102416	10/24/2016	10.5 — 20.5	< 0.00391 U	< 0.00784 U	0.0133	0.0133
	AFFF-FFTA-MW-107I-032317	3/23/2017	10.5 — 20.5	< 0.00394 U	0.00594 J	0.0122	0.0181
	AFFF-FFTA-MW-107I-102617	10/26/2017	10.5 — 20.5	< 0.00530 U	0.00102 J	0.0175	0.01852 J
	AFFF-FFTA-MW-107I-040518	4/5/2018	10.5 — 20.5	< 0.00530 U	< 0.00530 U	0.0137	0.0137

Notes:
NAS - Naval Air Station
GWRB - Groundwater Restriction Boundary
PFBS - Perfluorobutanesulfonic Acid
PFHpA - Perfluoroheptanoic Acid
PFHxS - Perfluorohexanesulfonic Acid
PFNA - Perfluorononanoic Acid
PFOS - Perfluorooctane Sulfonate
PFOA - Perfluorooctanoic Acid
LHA - Lifetime Health Advisory Value (U.S. EPA May 2016)
ug/L - microgram per liter
bgs - Below ground surface
U - Non-detect at laboratory detection limit
J - Estimated value
NA - Analysis not performed
Data provided by AECOM, October 2018.
Exceedances to U.S. EPA Lifetime Health Advisory (LHA) are highlighted and bolded

Table 4-5: Fire Fighting Training Area Surface Water Analytical Results - April 2014 - April 2018

Location ID	Sample ID	Sample Date	PFBS (µg/L)	PFOS (µg/L)	PFOA (µg/L)
			Screening Criteria[1]		
			1,140	**5.26**	**5.26**
FFTA-SW/SED-05	AFFF-FFTA-SW-5-040414	4/4/2014		0.94 J	0.25
	AFFF-SW-DUP1-040414	4/4/2014		0.83	0.23
	AFFF-FFTA-SW-SW/SED5-040215	4/2/2015		0.56 J	0.18 J
	AFFF-SW-DUP-040215	4/2/2015		0.66	0.21
	AFFF-SW-DUP-100815	10/8/2015		1.6	1.0
	AFFF-SW-SW/SED5-100815	10/8/2015		1.5	1.0
	AFFF-SW-DUP-030816	3/8/2016		0.42	0.24
	AFFF-SW-SW/SED5-030816	3/8/2016		0.41	0.23
	AFFF-FFTA-SW-DUP1-102516	10/25/2016	0.388	1.56 J	3.61 J
	AFFF-FFTA-SW-SW/SED05-102516	10/25/2016	0.326	2.16 J	2.64 J
	AFFF-FFTA-SW-SW/SED5-032317	3/23/2017	0.0725 J	2.36 J	1.55 J
	AFFF-FFTA-SW-DUP1-032317	3/23/2017	0.119 J	4.85 J	**5.85 J**
	AFFF-FFTA-SW-SW/SED5-102717	10/27/2017	0.169 J	2.53 J	0.898 J
	AFFF-FFTA-WS-DUP1-102717	10/27/2017	0.156 J	**5.87 J**	0.889 J
	AFFF-FFTA-SW-SW/SED5-040518	4/5/2018	0.00820 J	0.306 J+	0.143
FFTA-SW/SED-06	AFFF-FFTA-SW-6-040414	4/4/2014		0.74	0.30
	AFFF-FFTA-SW-SW/SED6-040215	4/2/2015		0.47	0.18
	AFFF-SW-SW/SED6-100815	10/8/2015		0.93	3.0
	AFFF-SW-SW/SED6-030816	3/8/2016		0.38	0.29
	AFFF-FFTA-SW-SW/SED06-102516	10/25/2016	0.131	0.447	1.78
	AFFF-FFTA-SW-SW/SED6-032317	3/23/2017	0.00904	0.259	0.173
	AFFF-FFTA-SW-SW/SED6-102717	10/27/2017	0.254 J	0.514 J	2.11 J
	AFFF-FFTA-SW-DUP1-040518	4/5/2018	0.00864	0.3	0.163
	AFFF-FFTA-SW-SW/SED6-040518	4/5/2018	< 0.00539 U	0.29	0.168
FFTA-SW/SED-07	AFFF-FFTA-SW-7-040414	4/4/2014		0.37	0.14
	AFFF-FFTA-SW-SW/SED7-040215	4/2/2015		0.19	0.081
	AFFF-SW-SW/SED7-030816	3/8/2016		0.22	0.17
	AFFF-FFTA-SW-SW/SED07-102516	10/25/2016	0.0488	0.25	0.569
	AFFF-FFTA-SW-SW/SED7-032317	3/23/2017	0.00544 J	0.115	0.0782
	AFFF-FFTA-SW-SW/SED7-102717	10/27/2017	0.0184 J	0.131 J	0.152 J
	AFFF-FFTA-SW-SW/SED7-040518	4/5/2018	0.00541 J	0.144	0.0831

Notes:

1. The Screening Criteria for surface water are based on the U.S. Environmental Protection Agency Regional Screening Level calculator for a child receptor and consistent with assumptions utilized in the calculation for the same exposure scenario by the Navy and Marine Corps. Public Health Center, 2012.

NAS - Naval Air Station

PFBS - Perfluorobutanesulfonic Acid; PFOS - Perfluorooctane Sulfonate, and ; PFOA - Perfluorooctanoic Acid

ug/L - microgram per liter

J - Estimated value

NA - Analysis not performed

Data provided by AECOM, October 2018.

Exceedances to Screening Criteria are highlighted and bolded

Table 4-6: Fire Fighting Training Area Sediment Analytical Results - April 2014 - April 2018

Location ID	Sample ID	Sample Date	PFBS (µg/kg)	PFOS (µg/kg)	PFOA (µg/kg)
			Screening Criteria[1]		
			1,050,000	714	714
FFTA-SW/SED-05	AFFF-FFTA-SED-5-040414	4/4/2014		36 J	82 J
	AFFF-SED-DUP1-040414	4/4/2014		43	51 J
	AFFF-SED-SW/SED5-100914	10/9/2014		200 J	46 J
	AFFF-SED-DUP-100914	10/9/2014		200	41 J
	AFFF-FFTA-SED-SW/SED5-040215	4/2/2015		220 J	70 J
	AFFF-SED-DUP-040215	4/2/2015		240 J	61 J
	AFFF-SED-DUP-100715	10/7/2015		210 J	44
	AFFF-SED-SW/SED5-100715	10/7/2015		120 J	38
	AFFF-SED-DUP-030816	3/8/2016		21	26 EB
	AFFF-SED-SW/SED5-030816	3/8/2016		33	33 EB
	AFFF-FFTA-SED-DUP1-102516	10/25/2016	0.574 J	204	29.6
	AFFF-FFTA-SED-SW/SED05-102516	10/25/2016	0.376 J	184	30.1
	AFFF-FFTA-SED-SW/SED5-032317	3/23/2017	< 0.472 U	39.2 J	9.47 J
	AFFF-FFTA-SED-DUP1-032317	3/23/2017	0.234 J	58.3 J	17.4 J
	AFFF-FFTA-SED-SW/SED5-102617	10/26/2017	0.512 J	159 J	48.4 JEB
	AFFF-FFTA-SED-DUP1-102617	10/26/2017	0.267 J	38.1 J	8.60 JEB
	AFFF-FFTA-SED-SW/SED5-040518	4/5/2018	< 1.08 U	196	19.9 J
FFTA-SW/SED-06	AFFF-FFTA-SED-6-040414	4/4/2014		26	75 J
	AFFF-SED-SW/SED6-100914	10/9/2014		280 J	100 J
	AFFF-FFTA-SED-SW/SED6-040215	4/2/2015		330 J	190 J
	AFFF-SED-SW/SED6-100815	10/8/2015		600 J	210 J
	AFFF-SED-SW/SED6-030816	3/8/2016		97	79 EB
	AFFF-FFTA-SED-SW/SED06-102516	10/25/2016	0.777 J	308	230
	AFFF-FFTA-SED-SW/SED6-032317	3/23/2017	< 0.479 U	73.4	108
	AFFF-FFTA-SED-SW/SED6-102617	10/26/2017	< 0.851 U	46.5	78.9 EB
	AFFF-FFTA-SED-DUP1-040518	4/5/2018	< 1.01 U	37.8	27.6
	AFFF-FFTA-SED-SW/SED6-040518	4/5/2018	< 1.01 U	35.2	21.4
FFTA-SW/SED-07	AFFF-FFTA-SED-7-040414	4/4/2014		7.9	70 J
	AFFF-SED-SW/SED7-100914	10/9/2014		29	57 J
	AFFF-FFTA-SED-SW/SED7-040215	4/2/2015		86 J	55 J
	AFFF-SED-SW/SED7-100815	10/8/2015		29 J-	22
	AFFF-SED-SW/SED7-030816	3/8/2016		220 J	160 JEB
	AFFF-FFTA-SED-SW/SED07-102516	10/25/2016	< 0.479 U	8.77	10.4
	AFFF-FFTA-SED-SW/SED7-032317	3/23/2017	< 0.466 U	92.5	52.8
	AFFF-FFTA-SED-SW/SED7-102617	10/26/2017	< 0.955 U	40.6	98.9 EB
	AFFF-FFTA-SED-SW/SED7-040518	4/5/2018	< 1.82 U	108	71

Notes:

1. The Screening Criteria for sediment are based on the U.S. Environmental Protection Agency Regional Screening Level calculator for a child receptor and consistent with assumptions utilized in the calculation for the same exposure scenario by the Navy and Marine Corps. Public Health Center, 2012.

NAS - Naval Air Station

PFBS - Perfluorobutanesulfonic Acid; PFOS - Perfluorooctane Sulfonate, and ; PFOA - Perfluorooctanoic Acid

ug/kg - microgram per kilogram

J - Estimated value

NA - Analysis not performed

EB - Presence of contaminant in equipment blank sample

Data provided by AECOM, October 2018.

Exceedances to Screening Criteria are highlighted and bolded

Table 5-6: Sewage Treatment Plant Monitoring Locations

Monitoring Location	
Monitoring Wells	
STP-LTM-MW-01	Located in central portion of site, north of former sludge drying area and within Area A-2.
STP-MW-33	Located in central portion of site, west of former sludge drying area and Area A-2.
STP-MW-34	Located in central portion of site, west of former sludge drying area and Area A-2.
STP-MW-35	Located in northern portion of STP area.
STP-MW-57	Located western portion of site, near headwall and drainage ditch.
STP-MW-57D	Located western portion of site, near headwall and drainage ditch.
STP-MW-57D2	Located western portion of site, near headwall and drainage ditch.
STP-MW-62	Located in northern portion of site.
STP-MW-62D	Located in northern portion of site.
STP-MW-64	Located in southwestern portion of the site.
STP-MW-64D	Located in southwestern portion of the site.
STP-MW-64D2	Located in southwestern portion of the site.
STP-MW-65	Located in south-central portion of the site within former Tile Bed Area.
STP-MW-70	Located in northern portion of site.
STP-MW-71	Located in northeast portion of the site.
STP-MW-72	Located in east-central portion of the site.
STP-MW-73	Located in the southeastern portion of the site.
FF-MW-24	Located south of site.
FF-MW-24D2	Located south of site.
Sediment	
STP-LTM-D01	Sediment samples collected in Area D - Drainage Channel
STP-LTM-D02	
STP-LTM-D03 (prev. loc. FSD-3)	

Notes:

1) Monitoring locations included in LTMP.

Table 5-7: Sewage Treatment Plan Summary of Post-Remedy Groundwater Monitoring Results - April 2016 - March 2018

				Location ID	STP-LTM-MW-01	STP-LTM-MW-01	STP-LTM-MW-01	STP-LTM-MW-01	STP-LTM-MW-01	STP-LTM-MW-01	STP-LTM-MW-01	STP-LTM-MW-01	STP-MW-33	STP-MW-33	STP-MW-33
				Sample Date	4/13/2016	4/13/2016	6/3/2016	6/3/2016	12/20/2016	12/20/2016	3/10/2017	3/15/2018	4/13/2016	3/9/2017	3/15/2018
				Sample ID	LTM-MW-01-041316	STP-DUP1-041316	STP-DUP1-060316	STP-LTM-MW-01-060316	STP-DUP1-122016	STP-LTM-MW-01-122016	STP-LTM-MW-01-031017	STP-LTM-MW-01-031518	STP-MW-33-041316	STP-MW-33-030917	STP-MW-33-031518
				Sample Type Code	N	FD	FD	N	FD	N	N	N	N	N	N
Chemical Name	Unit	MCP GW-2	MCP GW-3												
EPH															
2-METHYLNAPHTHALENE	UG_L	2000	20000		< 1.5 U	< 1.5 U									
ACENAPHTHENE	UG_L	NE	10000		< 2.0 UJ	< 2.0 UJ									
ACENAPHTHYLENE	UG_L	10000	40		< 1.5 UJ	< 1.5 UJ									
ANTHRACENE	UG_L	NE	30		< 1.5 U	< 1.5 U									
BENZO[A]ANTHRACENE	UG_L	NE	1000		< 1.5 U	< 1.5 U									
BENZO[A]PYRENE	UG_L	NE	500		< 1.5 U	< 1.5 U									
BENZO[B]FLUORANTHENE	UG_L	NE	400		< 1.5 U	< 1.5 U									
BENZO[G,H,I]PERYLENE	UG_L	NE	20		< 1.5 U	< 1.5 U									
BENZO[K]FLUORANTHENE	UG_L	NE	100		< 1.5 U	< 1.5 U									
CHRYSENE	UG_L	NE	70		< 1.5 U	< 1.5 U									
DIBENZ[A,H]ANTHRACENE	UG_L	NE	40		< 1.5 U	< 1.5 U									
FLUORANTHENE	UG_L	NE	200		< 1.5 U	< 1.5 U									
FLUORENE	UG_L	NE	40		< 1.5 UJ	< 1.5 UJ									
INDENO[1,2,3-CD]PYRENE	UG_L	NE	100		< 1.5 U	< 1.5 U									
NAPHTHALENE	UG_L	700	20000		< 1.5 UJ	< 1.5 UJ									
PHENANTHRENE	UG_L	NE	10000		< 1.5 U	< 1.5 U									
PYRENE	UG_L	NE	20		< 1.5 U	< 1.5 U									
TPH-C11-C22 AROMATICS	UG_L	NE	NE		< 77 U	< 77 U									
TPH-C11-C22 AROMATICS UNADJUSTED	UG_L	NE	NE		< 77 U	< 77 U									
TPH-C19-C36 ALIPHATICS	UG_L	NE	NE		< 77 U	< 77 U									
TPH-C9-C18 ALIPHATICS	UG_L	NE	NE		< 77 U	< 77 U									
Metals															
ARSENIC	UG_L	NE	900		5.37 J	1.96 J					0.90 J	1.4	< 0.50 UJ	< 0.50 U	< 0.50 U
PCBs															
AROCLOR-1016	UG_L	NE	NE		< 0.417 U	< 0.408 U					< 0.408 U	< 0.400 U	< 0.400 U	< 0.412 U	< 0.400 U
AROCLOR-1260	UG_L	NE	NE		< 0.417 U	< 0.408 U					< 0.408 U	< 0.400 U	< 0.400 U	< 0.412 U	< 0.400 U
Pest															
4,4-DDD	UG_L	NE	50		0.014 J	0.017 J					< 0.00408 U	< 0.00400 U	< 0.00400 U	< 0.00412 U	< 0.00400 U
4,4-DDE	UG_L	NE	400		< 0.00417 U	< 0.00408 U					0.012 J	< 0.00400 U	< 0.00400 U	< 0.00412 U	< 0.00400 U
4,4-DDT	UG_L	NE	1		< 0.00417 U	< 0.00408 U					< 0.00408 U	< 0.00400 U	< 0.00400 U	< 0.00412 U	< 0.00400 U
DIELDRIN	UG_L	8	0.5		0.241	0.261	0.184	0.177	0.094 J	0.086 J	0.313	< 0.00400 U	< 0.00400 U	< 0.00412 U	< 0.00400 U
SVOCs SIM															
BENZO[A]ANTHRACENE	UG_L	NE	1000		< 0.050 U	< 0.057 UJ					< 0.053 U	< 0.050 U	< 0.050 U	< 0.053 U	< 0.050 U
BENZO[A]PYRENE	UG_L	NE	500		< 0.050 U	< 0.057 UJ					< 0.053 U	< 0.050 U	< 0.050 U	< 0.053 U	< 0.050 U
BENZO[B]FLUORANTHENE	UG_L	NE	400		0.022 J	< 0.057 UJ					< 0.053 U	< 0.050 U	< 0.050 U	< 0.053 U	< 0.050 U
BENZO[K]FLUORANTHENE	UG_L	NE	100		< 0.050 U	< 0.057 UJ					< 0.053 U	< 0.050 U	< 0.050 U	< 0.053 U	< 0.050 U
DIBENZ[A,H]ANTHRACENE	UG_L	NE	40		< 0.050 UJ	< 0.057 UJ					< 0.053 UJ	< 0.050 UJ	< 0.050 U	< 0.053 U	< 0.050 U
VPH															
BENZENE	UG_L	1000	10000		< 2.0 U	< 2.0 U									
ETHYLBENZENE	UG_L	20000	5000		< 3.8 U	< 3.8 U									
M- AND P-XYLENE	UG_L	NE	NE		< 7.5 U	< 7.5 U									
METHYL TERT-BUTYL ETHER	UG_L	50000	50000		< 3.8 U	< 3.8 U									
NAPHTHALENE	UG_L	700	20000		< 3.8 U	< 3.8 U									
O-XYLENE	UG_L	NE	NE		< 3.8 U	< 3.8 U									
TOLUENE	UG_L	50000	40000		< 3.8 U	< 3.8 U									
TPH-C5-C8 ALIPHATICS	UG_L	NE	NE		< 75 U	< 75 U									
TPH-C5-C8 ALIPHATICS UNADJUSTED	UG_L	NE	NE		< 75 U	< 75 U									
TPH-C9-C10 AROMATICS	UG_L	NE	NE		< 75 U	< 75 U									
TPH-C9-C12 ALIPHATICS	UG_L	NE	NE		< 75 UJ	< 75 UJ									
TPH-C9-C12 ALIPHATICS UNADJUSTED	UG_L	NE	NE		< 75 U	< 75 U									

Notes:
1) U or < = Non-detect at laboratory detection limit
2) J = Estimated Value, J+ = biased high, J- = biased low, R = rejected
3) Sample Type N = normal sample, FD = duplicate sample
4) ug/l = micrograms per liter; ng/l = nanograms per liter
5) Exceedances are highlighted and bolded
6) NE = not established
7) Data provided by AECOM, October 2018.

				STP-MW-34	STP-MW-34	STP-MW-34	STP-MW-35	STP-MW-35	STP-MW-35	STP-MW-62	STP-MW-62	STP-MW-62	STP-MW-62
				4/12/2016	3/9/2017	3/15/2018	4/11/2016	3/10/2017	3/15/2018	4/12/2016	3/10/2017	3/15/2018	3/15/2018
				STP-MW-34-041216	STP-MW-34-030917	STP-MW-34-031518	STP-MW-35-041116	STP-MW-35-031017	STP-MW-35-031518	STP-MW-62-041216	STP-MW-62-031017	STP-MW-62-031518	STP-DUP1-031518
				N	N	N	N	N	N	N	N	N	FD
Chemical Name	Unit	MCP GW-2	MCP GW-3										
EPH													
2-METHYLNAPHTHALENE	UG_L	2000	20000										
ACENAPHTHENE	UG_L	NE	10000										
ACENAPHTHYLENE	UG_L	10000	40										
ANTHRACENE	UG_L	NE	30										
BENZO[A]ANTHRACENE	UG_L	NE	1000										
BENZO[A]PYRENE	UG_L	NE	500										
BENZO[B]FLUORANTHENE	UG_L	NE	400										
BENZO[G,H,I]PERYLENE	UG_L	NE	20										
BENZO[K]FLUORANTHENE	UG_L	NE	100										
CHRYSENE	UG_L	NE	70										
DIBENZ[A,H]ANTHRACENE	UG_L	NE	40										
FLUORANTHENE	UG_L	NE	200										
FLUORENE	UG_L	NE	40										
INDENO[1,2,3-CD]PYRENE	UG_L	NE	100										
NAPHTHALENE	UG_L	700	20000										
PHENANTHRENE	UG_L	NE	10000										
PYRENE	UG_L	NE	20										
TPH-C11-C22 AROMATICS	UG_L	NE	NE										
TPH-C11-C22 AROMATICS UNADJUSTED	UG_L	NE	NE										
TPH-C19-C36 ALIPHATICS	UG_L	NE	NE										
TPH-C9-C18 ALIPHATICS	UG_L	NE	NE										
Metals													
ARSENIC	UG_L	NE	900	< 0.50 UJ	< 0.50 U	< 0.50 U	0.52 J	< 0.50 U	0.37 J	< 0.50 UJ	< 0.50 U	< 0.50 U	< 0.50 U
PCBs													
AROCLOR-1016	UG_L	NE	NE	< 0.408 U	< 0.404 U	< 0.400 U	< 0.400 U	< 0.408 U	< 0.400 U	< 0.400 U	< 0.435 U	< 0.400 U	< 0.400 U
AROCLOR-1260	UG_L	NE	NE	< 0.408 U	< 0.404 U	< 0.400 U	< 0.400 U	< 0.408 U	< 0.400 U	< 0.400 U	< 0.435 U	< 0.400 U	< 0.400 U
Pest													
4,4-DDD	UG_L	NE	50	< 0.00408 U	< 0.00404 U	< 0.00400 U	< 0.00400 U	< 0.00408 U	< 0.00400 U	0.170 J	0.076 J	0.056 J	0.046 J
4,4-DDE	UG_L	NE	400	< 0.00408 U	< 0.00404 U	< 0.00400 U	0.00477 J	< 0.00408 U	< 0.00400 U	0.017 J	< 0.00435 U	0.00280 J	0.00580 J
4,4-DDT	UG_L	NE	1	< 0.00408 U	< 0.00404 U	< 0.00400 U	< 0.00400 U	< 0.00408 U	< 0.00400 U	0.123	0.070 J	0.027 J	0.010 J
DIELDRIN	UG_L	8	0.5	< 0.00408 U	< 0.00404 U	< 0.00400 U	< 0.00400 U	< 0.00408 U	< 0.00400 U	< 0.00400 U	< 0.00435 U	< 0.00400 U	< 0.00400 U
SVOCs SIM													
BENZO[A]ANTHRACENE	UG_L	NE	1000	< 0.050 U	< 0.052 U	< 0.050 U	< 0.050 U	< 0.053 U	< 0.050 U	0.116	< 0.063 U	< 0.051 U	< 0.051 U
BENZO[A]PYRENE	UG_L	NE	500	< 0.050 U	< 0.052 U	< 0.050 U	< 0.050 U	< 0.053 U	< 0.050 U	0.097 J	< 0.063 U	< 0.051 U	< 0.051 U
BENZO[B]FLUORANTHENE	UG_L	NE	400	< 0.050 U	< 0.052 U	< 0.050 U	< 0.050 U	< 0.053 U	< 0.050 U	0.125	< 0.063 U	< 0.051 U	< 0.051 U
BENZO[K]FLUORANTHENE	UG_L	NE	100	< 0.050 U	< 0.052 U	< 0.050 U	< 0.050 U	< 0.053 U	< 0.050 U	0.124	< 0.063 U	< 0.051 U	< 0.051 U
DIBENZ[A,H]ANTHRACENE	UG_L	NE	40	< 0.050 U	< 0.052 U	< 0.050 U	< 0.050 U	< 0.053 U	< 0.050 U	0.129	< 0.063 U	< 0.051 U	< 0.051 U
VPH													
BENZENE	UG_L	1000	10000										
ETHYLBENZENE	UG_L	20000	5000										
M- AND P-XYLENE	UG_L	NE	NE										
METHYL TERT-BUTYL ETHER	UG_L	50000	50000										
NAPHTHALENE	UG_L	700	20000										
O-XYLENE	UG_L	NE	NE										
TOLUENE	UG_L	50000	40000										
TPH-C5-C8 ALIPHATICS	UG_L	NE	NE										
TPH-C5-C8 ALIPHATICS UNADJUSTED	UG_L	NE	NE										
TPH-C9-C10 AROMATICS	UG_L	NE	NE										
TPH-C9-C12 ALIPHATICS	UG_L	NE	NE										
TPH-C9-C12 ALIPHATICS UNADJUSTED	UG_L	NE	NE										

Notes:
1) U or < = Non-detect at laboratory detection limit
2) J = Estimated Value, J+ = biased high, J- = biased low, R = rejected
3) Sample Type N = normal sample, FD = duplicate sample
4) ug/l = micrograms per liter; ng/l = nanograms per liter
5) Exceedances are highlighted and bolded
6) NE = not established
7) Data provided by AECOM, October 2018.

Table 5-7: Sewage Treatment Plan Summary of Post-Remedy Groundwater Monitoring Results - April 2016 - March 2018

				STP-MW-62D	STP-MW-62D	STP-MW-62D	STP-MW-62D
				4/11/2016	3/10/2017	3/10/2017	3/15/2018
				STP-MW-62D-041116	STP-DUP1-031017	STP-MW-62D-031017	STP-MW-62D-031518
				N	FD	N	N
Chemical Name	Unit	MCP GW-2	MCP GW-3				
EPH							
2-METHYLNAPHTHALENE	UG_L	2000	20000				
ACENAPHTHENE	UG_L	NE	10000				
ACENAPHTHYLENE	UG_L	10000	40				
ANTHRACENE	UG_L	NE	30				
BENZO[A]ANTHRACENE	UG_L	NE	1000				
BENZO[A]PYRENE	UG_L	NE	500				
BENZO[B]FLUORANTHENE	UG_L	NE	400				
BENZO[G,H,I]PERYLENE	UG_L	NE	20				
BENZO[K]FLUORANTHENE	UG_L	NE	100				
CHRYSENE	UG_L	NE	70				
DIBENZ[A,H]ANTHRACENE	UG_L	NE	40				
FLUORANTHENE	UG_L	NE	200				
FLUORENE	UG_L	NE	40				
INDENO[1,2,3-CD]PYRENE	UG_L	NE	100				
NAPHTHALENE	UG_L	700	20000				
PHENANTHRENE	UG_L	NE	10000				
PYRENE	UG_L	NE	20				
TPH-C11-C22 AROMATICS	UG_L	NE	NE				
TPH-C11-C22 AROMATICS UNADJUSTED	UG_L	NE	NE				
TPH-C19-C36 ALIPHATICS	UG_L	NE	NE				
TPH-C9-C18 ALIPHATICS	UG_L	NE	NE				
Metals							
ARSENIC	UG_L	NE	900	0.99 J	< 0.50 U	< 0.50 U	< 0.50 U
PCBs							
AROCLOR-1016	UG_L	NE	NE	< 0.408 U	< 0.417 U	< 0.426 U	< 0.400 U
AROCLOR-1260	UG_L	NE	NE	< 0.408 U	< 0.417 U	< 0.426 U	< 0.400 U
Pest							
4,4-DDD	UG_L	NE	50	< 0.00408 U	< 0.00417 U	< 0.00426 U	< 0.00400 U
4,4-DDE	UG_L	NE	400	< 0.00408 U	< 0.00417 U	< 0.00426 U	< 0.00400 U
4,4-DDT	UG_L	NE	1	< 0.00408 U	< 0.00417 U	< 0.00426 U	< 0.00400 U
DIELDRIN	UG_L	8	0.5	< 0.00408 U	< 0.00417 U	< 0.00426 U	< 0.00400 U
SVOCs SIM							
BENZO[A]ANTHRACENE	UG_L	NE	1000	< 0.050 UJ	< 0.054 U	< 0.054 U	< 0.050 U
BENZO[A]PYRENE	UG_L	NE	500	< 0.050 UJ	< 0.054 U	< 0.054 U	< 0.050 U
BENZO[B]FLUORANTHENE	UG_L	NE	400	< 0.050 UJ	< 0.054 U	< 0.054 U	< 0.050 U
BENZO[K]FLUORANTHENE	UG_L	NE	100	< 0.050 UJ	< 0.054 U	< 0.054 U	< 0.050 U
DIBENZ[A,H]ANTHRACENE	UG_L	NE	40	< 0.050 UJ	< 0.054 U	< 0.054 U	< 0.050 U
VPH							
BENZENE	UG_L	1000	10000				
ETHYLBENZENE	UG_L	20000	5000				
M- AND P-XYLENE	UG_L	NE	NE				
METHYL TERT-BUTYL ETHER	UG_L	50000	50000				
NAPHTHALENE	UG_L	700	20000				
O-XYLENE	UG_L	NE	NE				
TOLUENE	UG_L	50000	40000				
TPH-C5-C8 ALIPHATICS	UG_L	NE	NE				
TPH-C5-C8 ALIPHATICS UNADJUSTED	UG_L	NE	NE				
TPH-C9-C10 AROMATICS	UG_L	NE	NE				
TPH-C9-C12 ALIPHATICS	UG_L	NE	NE				
TPH-C9-C12 ALIPHATICS UNADJUSTED	UG_L	NE	NE				

Notes:
1) U or < = Non-detect at laboratory detection limit
2) J = Estimated Value, J+ = biased high, J- = biased low, R = rejected
3) Sample Type N = normal sample, FD = duplicate sample
4) ug/l = micrograms per liter; ng/l = nanograms per liter
5) Exceedances are highlighted and bolded
6) NE = not established
7) Data provided by AECOM, October 2018.

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Table 5-8: Sewage Treatment Plant Sediment Analytical Results: June 2017

		Location ID	STP-LTM-D01	STP-LTM-D01	STP-LTM-D02	STP-LTM-D03
		Sample Date	6/8/2017	6/8/2017	6/8/2017	6/8/2017
		Sample ID	STP-LTM-D01-060817	STP-DUP1-060817	STP-LTM-D02-060817	STP-LTM-D03-060817
		Sample Type	N	FD	N	N
Chemical Name	Unit	RGs				
Metals						
ARSENIC	UG/KG	23700	1520 J	2940 J	3220 J	1460 J
Pesticides						
4,4-DDD	UG/KG	730	32.9 J+	35.6 J	32.0	32.6
4,4-DDE	UG/KG	230	3.41 J	18.8 J	10.5	6.25
4,4-DDT	UG/KG	290	37.7 J	138 J	21.4	26.2
DIELDRIN	UG/KG	5,730	3.60 J	5.43 J	4.10 J	2.23 J

Notes:
1) U or < = Non-detect at laboratory detection limit
2) J = Estimated Value, J+ = biased high, J- = biased low, R = rejected
3) Sample Type N = normal sample, FD = duplicate sample
4) ug/kg = micrograms per kilogram
5) NE = not established
6) Data provided by AECOM, October 2018.

Table 6-3: Building 81 Monitoring Locations

Monitoring Location	
Monitoring Wells	
B81-MW-02S	Located in north-central portion of site within MW-58 Area Biobarrier
B81-MW-03D	Located in central portion of the site in TTZ
B81-MW-03D2	Located in central portion of the site in TTZ
B81-MW-03S	Located in central portion of the site
B81-MW-04S	Located in eastern portion of site within previous excavation area
B81-MW-05S	Replaced with B81-MW-5SR
B81-MW-05SR	Located in north-central portion of site within previous excavation area and upgradient of MW-58 Area Biobarrier
B81-MW-08D	Located in south-central portion of site in TTZ
B81-MW-08S	Located in south-central portion of site
B81-MW-09D	Located in central portion of site between overburden TTZ and Building 81 foundation
B81-MW-09D2	Located in central portion of site between overburden TTZ and Building 81 foundation and downgradient of TTZ.
B81-MW-09S	Located in central portion of site between overburden TTZ and Building 81 foundation
B81-MW-10D	Located in north-central portion of site between overburden TTZ and Mid-Site Biobarrier
B81-MW-10D2	Located in north-central portion of site between overburden TTZ and Mid-Site Biobarrier
B81-MW-10S	Located in north-central portion of site between overburden TTZ and Mid-Site Biobarrier
B81-MW-11S	Located in eastern portion of site within previous excavation area
B81-MW-12S	Located in eastern portion of site
B81-MW-13B	Located in northeast portion of site
B81-MW-13D	Located in northeast portion of site
B81-MW-13S	Located in northeast portion of site
B81-MW-15S	Located in central portion of site within New Former Tank Treatment Zone
B81-MW-16S	Located in central portion of site between Building 81 foundation and previous excavation area
B81-MW-20D	Located in central portion of site near overburden TTZ
B81-MW-20S	Located in central portion of site near overburden TTZ
B81-MW-21D	At existing western fenceline and downgradient of West Bedrock Plume Biobarrier
B81-MW-21D2	At existing western fenceline and downgradient of West Bedrock Plume Biobarrier
B81-MW-21S	At existing western fenceline and downgradient of overburden Biobarrier
B81-MW-22D2	Located west of site and west of Shea Memorial Drive
B81-MW-22N	Located west of site and west of Shea Memorial Drive
B81-MW-23B	Located in south-central portion of site
B81-MW-23D	Located in south-central portion of site
B81-MW-23S	Located in south-central portion of site
B81-MW-24D	Northwest portion of site within West Bedrock Plume Biobarrier area
B81-MW-24S	Northwest portion of site within West Bedrock Plume Biobarrier area
B81-MW-25D	Located in eastern portion of site within Building 81 building foundation
B81-MW-26D	Located in central portion of site within Building 81 building foundation
B81-MW-27D	Located in the eastern portion of site within previous excavation area and near former source UST
B81-MW-28S	Located in eastern portion of site within Building 81 building foundation
B81-MW-29S	Located in central portion of site within Building 81 building foundation
B81-MW-30S	Located in central portion of site near former source UST location
B81-MW-31D	Located west of site and west of Shea Memorial Drive
B81-MW-31S	Located west of site and west of Shea Memorial Drive
B81-MW-32B	Located in northwest portion of site within biobarrier area

Table 6-3: Building 81 Monitoring Locations

Monitoring Location	
B81-MW-32D	At existing western fenceline, downgradient of biobarrier area
B81-MW-32S	At existing western fenceline, downgradient of biobarrier area
B81-MW-33D	Northwest portion of site, downgradient of biobarrier area
B81-MW-33S	Northwest portion of site, downgradient of biobarrier area
B81-MW-34B	Located in south-central portion of site in TTZ
B81-MW-34D	Located in south-central portion of site in TTZ
B81-MW-35D	Located south-central portion of site in TTZ
B81-MW-36D	Located in southeastern portion of site in TTZ
B81-MW-37D	Located in southwestern portion of the site
B81-MW-38B	Located in overburden TTZ and upgradient of biobarrier
B81-MW-38I	Located in overburden TTZ and upgradient of biobarrier
B81-MW-38S	Located in overburden TTZ and upgradient of biobarrier
B81-MW-39B	Located along east side of Shea Memorial Drive, northwest of site boundary
B81-MW-39I	Located along east side of Shea Memorial Drive, northwest of site boundary
B81-MW-39S	Located along east side of Shea Memorial Drive, northwest of site boundary
B81-MW-40B	Located along west side of Shea Memorial Drive, northwest of site boundary
B81-MW-40B2	Located along west side of Shea Memorial Drive, northwest of site boundary
B81-MW-40I	Located along west side of Shea Memorial Drive, northwest of site boundary
B81-MW40S	Located along west side of Shea Memorial Drive, northwest of site boundary
B81-MW-41B	Located in east-central portion of site along existing fenceline
B81-MW-42B	Located west of site and west of Shea Memorial Drive
B81-MW-42B2	Located west of site and west of Shea Memorial Drive
B81-MW-42I	Located west of site and west of Shea Memorial Drive
B81-MW-42S	Located west of site and west of Shea Memorial Drive
B81-MW-43B	Located north of site along north side of Redfield Road
B81-MW-43B2	Located north of site along north side of Redfield Road
B81-MW-43I	Located north of site along north side of Redfield Road
B81-MW-43S	Located north of site along north side of Redfield Road
B81-MW-44S	Located in south-central portion of site
B81-MW-45S	Located in southeastern portion of site
B81-MW-46S	Located southwest of site
B81-MW-47B1	Located west of site and west of Shea Memorial Drive
B81-MW-47B2	Located west of site and west of Shea Memorial Drive
B81-MW-47N	Located west of site and west of Shea Memorial Drive
B81-MW-47I	Located west of site and west of Shea Memorial Drive and downgradient of biobarrier
B81-MW-48I	Located west of site
B81-MW4-49I	Located west of site
B81-MW-50B	Located in southwestern portion of the site
B81-MW-51B	Located west of site
B81-MW-51I	Located in overburden TTZ and upgradient of biobarrier
B81-MW-52I	Located in overburden TTZ and upgradient of biobarrier
B81-MW-53I	Northwest portion of site, within overburden biobarrier area
B81-MW-54I	At existing site fence, downgradient of overburden biobarrier.
B81-MW-55I	Downgradient of the overburden biobarrier.
B81-MW-56I	Located along east side of Shea Memorial Drive and downgradient of the overburden biobarrier.
B81-MW-57I	Located in overburden TTZ and upgradient of biobarrier
B81-MW-57W	

Table 6-3: Building 81 Monitoring Locations

Monitoring Location	
B81-MW-58I	Located in overburden TTZ and upgradient of biobarrier
B81-MW-58W	
B81-MW-59W	Located in overburden TTZ and upgradient of biobarrier
B81-MW-74S	Located along east side of Shea Memorial Drive
B81-MW-74I	
B81-MW-75S	Located along west side of Shea Memorial Drive
B81-MW-75I	
Injection Wells	
B81-I-1	Located in central portion of site within Building 81 building foundation
B81-I-2	Located in central portion of site within Building 81 building foundation
B81-I-3	Located in central portion of site within Building 81 building foundation
B81-I-4	Located in central portion of site within Building 81 building foundation
B81-I-5	Located in central portion of site within Building 81 building foundation
B81-I-6	Located in overburden TTZ and upgradient of biobarrier
B81-I-7	Located in central portion of site within Building 81 building foundation
B81-I-8	Located in central portion of site within Building 81 building foundation
B81-I-9	Located in overburden TTZ and upgradient of biobarrier
B81-I-10	Located in central portion of site within Building 81 building foundation
B81-I-11	Located in central portion of site between overburden TTZ and Building 81 foundation
B81-I-12	Located in overburden TTZ and upgradient of biobarrier
B81-I-13	Located in central portion of site between Building 81 building foundation and previous excavation area
B81-I-14	Located in central portion of site within previous excavation area
B81-I-15	Located in central portion of site within previous excavation area
B81-I-16	Located in central portion of site within previous excavation area
B81-I-17	Located in east-central portion of site within previous excavation area
B81-I-18	Located in east-central portion of the site between two previous excavation areas
B81-I-19	Located in central portion of site within New Former Tank Treatment Zone
B81-I-20	Located in central portion of site within New Former Tank Treatment Zone
B81-BR-1	Located in West Bedrock Plume Biobarrier
B81-BR-2	Located in West Bedrock Plume Biobarrier
B81-BR-3	Located in West Bedrock Plume TTZ
B81-BR-4	Located in West Bedrock Plume TTZ
B81-BR-5	Located in West Bedrock Plume TTZ
B81-BR-6	Located in West Bedrock Plume TTZ
B81-BR-7	Located in South Bedrock Plume TTZ
B81-BR-8	Located outside treatment areas
B81-BR-9	Located outside treatment areas
B81-BR-10	Located in West Bedrock Plume TTZ
B81-BR-11	Located in West Bedrock Plume TTZ
B81-BR-12	Located in West Bedrock Plume TTZ
B81-BR-13	Located in South Bedrock Plume TTZ
B81-BR-14	Located outside treatment areas
B81-BR-15	Located outside treatment areas
B81-BR-16	Located outside treatment areas
B81-BR-17	Located in South Bedrock Plume TTZ
B81-BR-18	Located in South Bedrock Plume Biobarrier
B81-BR-19	Located in South Bedrock Plume Biobarrier

Table 6-3: Building 81 Monitoring Locations

Monitoring Location	
B81-BR-20	Located in South Bedrock Plume TTZ
B81-BR-21	Located in South Bedrock Plume Biobarrier
B81-BR-22	Located in South Bedrock Plume TTZ
B81-BR-23	Located in West Bedrock Plume Biobarrier
B81-BR-24	Located in West Bedrock Plume Biobarrier
B81-BR-25	Located in West Bedrock Plume Biobarrier
B81-BR-26	Located in West Bedrock Plume Biobarrier
B81-BR-27	Located in West Bedrock Plume TTZ
B81-BR-28	Located in West Bedrock Plume TTZ
B81-BR-29	Located in West Bedrock Plume Biobarrier
B81-BR-30	Located in West Bedrock Plume Biobarrier
B81-BR-31	Located in West Bedrock Plume Biobarrier
B81-BR-32	Located in South Bedrock Plume Biobarrier
B81-BR-33	Located in South Bedrock Plume Biobarrier
B81-BR-34	Located in South Bedrock Plume Biobarrier
B81-OIW-101	Overburden injection well in Biobarrier Area.
B81-OIW-102	Overburden injection well in Biobarrier Area.
B81-OIW-103	Overburden injection well in Biobarrier Area.
B81-OIW-104	Overburden injection well in Biobarrier Area.
B81-OIW-105	Overburden injection well in Biobarrier Area.

Notes:

1) Monitoring and injection locations included in RD and draft RACR.

		Location ID	B81-I-06	B81-I-06	B81-I-06	B81-I-09	B81-I-09	B81-I-09	B81-I-12
		Sample ID	B81-I-6-061317	B81-I-6-120817	B81-I-6-060618	B81-I-9-061317	B81-I-9-120717	B81-I-9-060618	B81-DUP1-120717
		Lab ID	21706162302	21712094623	21806070523	21706162303	21712094622	21806070517	21712094619
		Sample Type	N	N	N	N	N	N	FD
		Sample Date	6/13/2017	12/8/2017	6/6/2018	6/13/2017	12/8/2017	6/6/2018	12/7/2017
		Validated (Y/N)	Y	Y	N	Y	Y	N	Y
PARAMETER	**RecD RG**	**VCD RG**							
Metals 6020A (µg/L)									
ARSENIC	NE	NE							13.1
IRON	NE	NE							50100
MANGANESE	NE	NE							3120
VOCs 8260B (µg/L)									
CIS-1,2-DICHLOROETHENE	29000	29000	15.0	16.4	12.9	89.1	70.6	48.8	17.5
TETRACHLOROETHENE	500	110	16.0	19.4	17.9	34.3	17.7	7.38	1.67
TRICHLOROETHENE	23	8.5	3.21	3.71	3.24	**9.31**	4.19	2.07	0.764 J
VINYL CHLORIDE	18	2.6	< 0.500 U	< 0.500 U	< 0.500 U	0.660 J	**13.9**	**16.1**	0.492 J
2320B (mg/LCACO3)									
ALKALINITY, TOTAL	NE	NE							196
5310B (mg/L)									
TOTAL ORGANIC CARBON	NE	NE	2.0	1.3 J	14.4	4.7	6.3	18.1	48.8
9056A (mg/L)									
CHLORIDE	NE	NE							8.00
SULFATE	NE	NE	5.88	6.40	7.95	3.76	3.58	0.612	2.53
GENETRAC-VC (GC/L)									
Dehalococcoides 16S rRNA gene	NE	NE							
RSK 175 (µg/L)									
ETHANE	NE	NE							0.147 J
ETHENE	NE	NE							< 0.290 U
METHANE	NE	NE							6330

Notes:
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4) micrograms per liter (µg/L)
5) NE = Not Established
6) Bold = Exceedence of RG
7) Data provided by AECOM, October 2018

Table 6-4: Building 81 Overburden and Weathered Bedrock Post-Injection Groundwater Results - March 2017, June 2017, December 2017 and June 2018

		Location ID	B81-I-12	B81-I-12	B81-I-12	B81-I-12	B81-I-12	B81-I-12	B81-I-12
		Sample ID	B81-DUP1-120717	B81-I-12-031717	B81-I-12-061417	B81-I-12-120717	B81-I-12-120717	B81-DUP1-060618	B81-I-12-060618
		Lab ID	S462609	21703222313	21706162304	21712094616	S462608	21806070511	21806070508
		Sample Type	FD	N	N	N	N	FD	N
		Sample Date	12/7/2017	3/17/2017	6/14/2017	12/7/2017	12/7/2017	6/6/2018	6/6/2018
		Validated (Y/N)	N	Y	Y	Y	N	N	N
PARAMETER	**RecD RG**	**VCD RG**							
Metals 6020A (µg/L)									
ARSENIC	NE	NE			3.84	14.0		7.52	7.33
IRON	NE	NE			31000	52500		46300	44700
MANGANESE	NE	NE			2460	3190		2170	2150
VOCs 8260B (µg/L)									
CIS-1,2-DICHLOROETHENE	29000	29000		15.8	7.33	19.9		12.9	12.3
TETRACHLOROETHENE	500	110		6.96	2.46	1.89		2.12	2.10
TRICHLOROETHENE	23	8.5		< 0.500 U	0.789 J	< 0.500 U		1.10	1.21
VINYL CHLORIDE	18	2.6		0.303 J	< 0.500 U	0.408 J		< 0.500 U	< 0.500 U
2320B (mg/LCACO3)									
ALKALINITY, TOTAL	NE	NE			133	195		123	117
5310B (mg/L)									
TOTAL ORGANIC CARBON	NE	NE		3.1	2.4	56.8		39.5	51.6
9056A (mg/L)									
CHLORIDE	NE	NE			7.87	7.98		4.91	5.01
SULFATE	NE	NE			3.76	2.69		2.75	2.21
GENETRAC-VC (GC/L)									
Dehalococcoides 16S rRNA gene	NE	NE	2000				3000		
RSK 175 (µg/L)									
ETHANE	NE	NE				0.122 J			
ETHENE	NE	NE				< 0.290 U			
METHANE	NE	NE				7320 J			

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4) micrograms per liter (µg/L)
5) NE = Not Established
6) Bold = Exceedence of RG
7) Data provided by AECOM, October 2018

Table 6-4: Building 81 Overburden and Weathered Bedrock Post-Injection Groundwater Results - March 2017, June 2017, December 2017 and June 2018

		Location ID	B81-MW-21S	B81-MW-21S	B81-MW-21S	B81-MW-32S	B81-MW-32S	B81-MW-32S	B81-MW-32S
		Sample ID	B81-MW-21S-061317	B81-MW-21S-120817	B81-MW-21S-060618	B81-MW-32S-031717	B81-MW-32S-061417	B81-MW-32S-120517	B81-MW-32S-120517
		Lab ID	21706162305	21712094624	21806070518	21703222315	21706162306	21712094606	S462602
		Sample Type	N	N	N	N	N	N	N
		Sample Date	6/13/2017	12/8/2017	6/6/2018	3/17/2017	6/14/2017	12/5/2017	12/5/2017
		Validated (Y/N)	Y	Y	N	Y	Y	Y	N
PARAMETER	**RecD RG**	**VCD RG**							
Metals 6020A (µg/L)									
ARSENIC	NE	NE	< 0.50 U	< 0.50 U	< 0.50 U		5.19	9.48	
IRON	NE	NE	70.1 J	170	72.0 J		13300	23300	
MANGANESE	NE	NE	5.31	15.3	6.76		10000	16800	
VOCs 8260B (µg/L)									
CIS-1,2-DICHLOROETHENE	29000	29000	1.14	0.649 J	2.29	83.8	108	7.58	
TETRACHLOROETHENE	500	110	4.46	4.24	7.45	63.6	10.9	1.45	
TRICHLOROETHENE	23	8.5	< 0.500 U	< 0.500 U	0.561 J	**14.1**	5.12	0.684 J	
VINYL CHLORIDE	18	2.6	< 0.500 U	< 0.500 U	< 0.500 U	1.46	1.41	**48.8**	
2320B (mg/LCACO3)									
ALKALINITY, TOTAL	NE	NE					500	742	
5310B (mg/L)									
TOTAL ORGANIC CARBON	NE	NE	0.63 J	1.3 J	< 2.0 U	20.1	27.0	90.7	
9056A (mg/L)									
CHLORIDE	NE	NE					26.6	23.0	
SULFATE	NE	NE					0.616	0.422	
GENETRAC-VC (GC/L)									
Dehalococcoides 16S rRNA gene	NE	NE							6000
RSK 175 (µg/L)									
ETHANE	NE	NE						< 0.220 U	
ETHENE	NE	NE						0.663 J	
METHANE	NE	NE						7880	

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4) micrograms per liter (µg/L)
5) NE = Not Established
6) Bold = Exceedence of RG
7) Data provided by AECOM, October 2018

Table 6-4: Building 81 Overburden and Weathered Bedrock Post-Injection Groundwater Results - March 2017, June 2017, December 2017 and June 2018

		Location ID	B81-MW-32S	B81-MW-33S	B81-MW-33S	B81-MW-33S	B81-MW-33S	B81-MW-33S	B81-MW-38I
		Sample ID	B81-MW-32S-060518	B81-MW-33S-031717	B81-MW-33S-061417	B81-MW-33S-120517	B81-MW-33S-120517	B81-MW-33S-060518	B81-DUP1-061417
		Lab ID	21806070506	21703222316	21706162307	21712094605	S462601	21806070501	21706162319
		Sample Type	N	N	N	N	N	N	FD
		Sample Date	6/5/2018	3/17/2017	6/14/2017	12/5/2017	12/5/2017	6/5/2018	6/14/2017
		Validated (Y/N)	N	Y	Y	Y	N	N	Y
PARAMETER	**RecD RG**	**VCD RG**							
Metals 6020A (µg/L)									
ARSENIC	NE	NE	5.98		4.16	2.27		1.61	< 0.50 U
IRON	NE	NE	15800		9960	5230		4900	89.5 J
MANGANESE	NE	NE	11000		5190	2180		1390	15.4
VOCs 8260B (µg/L)									
CIS-1,2-DICHLOROETHENE	29000	29000	4.67	5.06	5.89	1.40		< 0.500 U	3.53
TETRACHLOROETHENE	500	110	2.18	8.02	4.73	0.883 J		< 0.500 U	105
TRICHLOROETHENE	23	8.5	0.968 J	1.29	1.07	< 0.500 U		< 0.500 U	0.711 J
VINYL CHLORIDE	18	2.6	**6.95**	< 0.500 U	< 0.500 U	0.765 J		1.45	0.496 J
2320B (mg/LCACO3)									
ALKALINITY, TOTAL	NE	NE	602			126		125	56.8
5310B (mg/L)									
TOTAL ORGANIC CARBON	NE	NE	15.7	9.9	8.5	7.4		< 2.0 U	0.49 J
9056A (mg/L)									
CHLORIDE	NE	NE	20.8			4.76		5.27	4.71
SULFATE	NE	NE	0.695			2.62		2.26	5.38
GENETRAC-VC (GC/L)									
Dehalococcoides 16S rRNA gene	NE	NE					1000000		
RSK 175 (µg/L)									
ETHANE	NE	NE				< 0.220 U			
ETHENE	NE	NE				< 0.290 U			
METHANE	NE	NE				3490			

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4) micrograms per liter (µg/L)
5) NE = Not Established
6) Bold = Exceedence of RG
7) Data provided by AECOM, October 2018

		Location ID	B81-MW-38I	B81-MW-38I	B81-MW-38I	B81-MW-38I	B81-MW-38I	B81-MW-47I	B81-MW-47I
		Sample ID	B81-MW-38I-031317	B81-MW-38I-061417	B81-MW-38I-120517	B81-MW-38I-120517	B81-MW-38I-060618	B81-MW-47I-061417	B81-MW-47I-120517
		Lab ID	21703222306	21706162308	21712094609	S462604	21806070520	21706162316	21712094610
		Sample Type	N	N	N	N	N	N	N
		Sample Date	3/13/2017	6/14/2017	12/5/2017	12/5/2017	6/6/2018	6/14/2017	12/5/2017
		Validated (Y/N)	Y	Y	Y	N	N	Y	Y
PARAMETER	**RecD RG**	**VCD RG**							
Metals 6020A (µg/L)									
ARSENIC	NE	NE		< 0.50 U	< 0.50 U		< 0.50 U	0.41 J	0.57 J
IRON	NE	NE		102	74.3 J		136	440	123
MANGANESE	NE	NE		15.6	13.4		15.6	763	72.7
VOCs 8260B (µg/L)									
CIS-1,2-DICHLOROETHENE	29000	29000	2.69	3.24	3.22		10.3	1.37	< 0.500 U
TETRACHLOROETHENE	500	110	**130**	106 J	**113**		**118**	2.66	1.67
TRICHLOROETHENE	23	8.5	< 0.500 U	0.635 J	0.718 J		1.59	0.816 J	< 0.500 U
VINYL CHLORIDE	18	2.6	0.286 J	0.490 JJ	0.325 J		2.12	< 0.500 U	< 0.500 U
2320B (mg/LCACO3)									
ALKALINITY, TOTAL	NE	NE		57.2	63.8		113		
5310B (mg/L)									
TOTAL ORGANIC CARBON	NE	NE	< 2.0 U	1.2 J	0.79 J		< 2.0 U	1.2 J	0.41 J
9056A (mg/L)									
CHLORIDE	NE	NE		4.68	5.77		6.28		
SULFATE	NE	NE		5.46	5.55		4.90		
GENETRAC-VC (GC/L)									
Dehalococcoides 16S rRNA gene	NE	NE				< 1290			
RSK 175 (µg/L)									
ETHANE	NE	NE			< 0.220 U				
ETHENE	NE	NE			< 0.290 U				
METHANE	NE	NE			39.3				

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4) micrograms per liter (µg/L)
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6) Bold = Exceedence of RG
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Table 6-4: Building 81 Overburden and Weathered Bedrock Post-Injection Groundwater Results - March 2017, June 2017, December 2017 and June 2018

		Location ID	B81-MW-51I	B81-MW-51I	B81-MW-51I	B81-MW-51I	B81-MW-51I	B81-MW-52I	B81-MW-52I
		Sample ID	B81-DUP2-061417	B81-MW-51I-031317	B81-MW-51I-061417	B81-MW-51I-120717	B81-MW-51I-060618	B81-MW-52I-061317	B81-MW-52I-120517
		Lab ID	21706162320	21703222304	21706162311	21712094621	21806070512	21706162312	21712094608
		Sample Type	FD	N	N	N	N	N	N
		Sample Date	6/14/2017	3/13/2017	6/14/2017	12/7/2017	6/6/2018	6/13/2017	12/5/2017
		Validated (Y/N)	Y	Y	Y	Y	N	Y	Y
PARAMETER	**RecD RG**	**VCD RG**							
Metals 6020A (µg/L)									
ARSENIC	NE	NE							
IRON	NE	NE							
MANGANESE	NE	NE							
VOCs 8260B (µg/L)									
CIS-1,2-DICHLOROETHENE	29000	29000	10.4	21.2	10.6	23.8	21.2	7.21	6.97
TETRACHLOROETHENE	500	110	9.18	26.7	10.7	12.3	5.51	5.90	8.34
TRICHLOROETHENE	23	8.5	1.32	2.95	1.37	1.60	0.878 J	0.832 J	1.07
VINYL CHLORIDE	18	2.6	0.508 J	0.894 J	0.394 J	1.48	0.723 J	< 0.500 U	< 0.500 U
2320B (mg/LCACO3)									
ALKALINITY, TOTAL	NE	NE							
5310B (mg/L)									
TOTAL ORGANIC CARBON	NE	NE	2.0 J	0.90 J	2.1	18.6	< 2.0 U	0.74 J	0.41 J
9056A (mg/L)									
CHLORIDE	NE	NE							
SULFATE	NE	NE	4.07		4.06	3.83	3.21	9.46	9.13
GENETRAC-VC (GC/L)									
Dehalococcoides 16S rRNA gene	NE	NE							
RSK 175 (µg/L)									
ETHANE	NE	NE							
ETHENE	NE	NE							
METHANE	NE	NE							

Notes:
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2) J = Estimated Value
3) Sample Type N = normal sample, FD = duplicate sample
4) micrograms per liter (µg/L)
5) NE = Not Established
6) Bold = Exceedence of RG
7) Data provided by AECOM, October 2018

Table 6-4: Building 81 Overburden and Weathered Bedrock Post-Injection Groundwater Results - March 2017, June 2017, December 2017 and June 2018

		Location ID	B81-MW-52I	B81-MW-53I	B81-MW-53I	B81-MW-53I	B81-MW-53I	B81-MW-53I	B81-MW-54I
		Sample ID	B81-MW-52I-060518	B81-MW-53I-031317	B81-MW-53I-061217	B81-MW-53I-120717	B81-MW-53I-120717	B81-MW-53I-060618	B81-MW-54I-031317
		Lab ID	21806070502	21703222305	21706162313	21712094620	S462610	21806070524	21703222303
		Sample Type	N	N	N	N	N	N	N
		Sample Date	6/5/2018	3/13/2017	6/12/2017	12/7/2017	12/7/2017	6/6/2018	3/13/2017
		Validated (Y/N)	N	Y	Y	Y	N	N	Y
PARAMETER	**RecD RG**	**VCD RG**							
Metals 6020A (µg/L)									
ARSENIC	NE	NE			9.21	14.3		13.5	
IRON	NE	NE			24200	44200		52500	
MANGANESE	NE	NE			6240	5480		7510	
VOCs 8260B (µg/L)									
CIS-1,2-DICHLOROETHENE	29000	29000	7.09	38.2	62.1	3.75		3.82	10.9
TETRACHLOROETHENE	500	110	7.46	18.2	6.06	0.388 J		< 0.500 U	14.9
TRICHLOROETHENE	23	8.5	0.748 J	4.56	2.49	< 0.500 U		< 0.500 U	2.85
VINYL CHLORIDE	18	2.6	< 0.500 U	0.620 J	0.957 J	0.866 J		1.25	0.797 J
2320B (mg/LCACO3)									
ALKALINITY, TOTAL	NE	NE			342	1540		903	
5310B (mg/L)									
TOTAL ORGANIC CARBON	NE	NE	< 2.0 U	10.1	54.5	1040		76.5	31.2
9056A (mg/L)									
CHLORIDE	NE	NE			18.9	40.7		27.5	
SULFATE	NE	NE	8.03		0.420	< 0.400 U		0.242	
GENETRAC-VC (GC/L)									
Dehalococcoides 16S rRNA gene	NE	NE					10000		
RSK 175 (µg/L)									
ETHANE	NE	NE				0.191 J			
ETHENE	NE	NE				0.742 J			
METHANE	NE	NE				3340			

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5) NE = Not Established
6) Bold = Exceedence of RG
7) Data provided by AECOM, October 2018

		Location ID	B81-MW-54I	B81-MW-54I	B81-MW-54I	B81-MW-54I	B81-MW-55I	B81-MW-55I	B81-MW-55I
		Sample ID	B81-MW-54I-061617	B81-MW-54I-120517	B81-MW-54I-120517	B81-MW-54I-060518	B81-MW-55I-061617	B81-MW-55I-120417	B81-MW-55I-060518
		Lab ID	21706170706	21712094607	S462603	21806070505	21706170707	21712094603	21806070504
		Sample Type	N	N	N	N	N	N	N
		Sample Date	6/16/2017	12/5/2017	12/5/2017	6/5/2018	6/16/2017	12/4/2017	6/5/2018
		Validated (Y/N)	Y	Y	N	N	Y	Y	N
PARAMETER	**RecD RG**	**VCD RG**							
Metals 6020A (µg/L)									
ARSENIC	NE	NE	4.15	12.8		5.76	0.29 J	0.81 J	2.77
IRON	NE	NE	14300	40900		38600	74.2 J	891	4680
MANGANESE	NE	NE	3890	12000		14300	867	1970	6630
VOCs 8260B (µg/L)									
CIS-1,2-DICHLOROETHENE	29000	29000	19.1	14.1		5.11	22.7	14.0	2.57
TETRACHLOROETHENE	500	110	2.23	< 0.500 U		< 0.500 U	10.4	5.93	1.29
TRICHLOROETHENE	23	8.5	0.782 J	< 0.500 U		< 0.500 U	2.11	1.08	< 0.500 U
VINYL CHLORIDE	18	2.6	0.543 J	0.844 J		1.61	< 0.500 U	**4.85**	**3.21**
2320B (mg/LCACO3)									
ALKALINITY, TOTAL	NE	NE	239	500		643			
5310B (mg/L)									
TOTAL ORGANIC CARBON	NE	NE	19.5	88.9		37.7	5.8	10.8	< 2.0 U
9056A (mg/L)									
CHLORIDE	NE	NE	17.3	21.7		23.4			
SULFATE	NE	NE	2.54	0.527		3.14			
GENETRAC-VC (GC/L)									
Dehalococcoides 16S rRNA gene	NE	NE			1000				
RSK 175 (µg/L)									
ETHANE	NE	NE		0.236 J					
ETHENE	NE	NE		0.347 J					
METHANE	NE	NE		7830					

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3) Sample Type N = normal sample, FD = duplicate sample
4) micrograms per liter (µg/L)
5) NE = Not Established
6) Bold = Exceedence of RG
7) Data provided by AECOM, October 2018

		Location ID	B81-MW-56I	B81-MW-56I	B81-MW-56I	B81-MW-57I	B81-MW-57I	B81-MW-57I	B81-MW-57I
		Sample ID	B81-MW-56I-061617	B81-MW-56I-120417	B81-MW-56I-060518	B81-MW-57I-031617	B81-MW-57I-061317	B81-MW-57I-120617	B81-MW-57I-060618
		Lab ID	21706170708	21712094604	21806070503	21703222307	21706162314	21712094611	21806070513
		Sample Type	N	N	N	N	N	N	N
		Sample Date	6/16/2017	12/4/2017	6/5/2018	3/16/2017	6/13/2017	12/6/2017	6/6/2018
		Validated (Y/N)	Y	Y	N	Y	Y	Y	N
PARAMETER	**RecD RG**	**VCD RG**							
Metals 6020A (µg/L)									
ARSENIC	NE	NE	0.42 J	0.26 J	0.46 J				
IRON	NE	NE	< 50.0 U	< 50.0 U	228				
MANGANESE	NE	NE	461	864	3510				
VOCs 8260B (µg/L)									
CIS-1,2-DICHLOROETHENE	29000	29000	9.60	18.5	25.9	62.7	53.5	24.8	7.62
TETRACHLOROETHENE	500	110	19.8	24.7	20.9	3.20	1.63	< 0.500 U	< 0.500 U
TRICHLOROETHENE	23	8.5	2.27	2.82	3.18	1.34	0.816 J	< 0.500 U	< 0.500 U
VINYL CHLORIDE	18	2.6	< 0.500 U	0.589 J	1.35	1.66	1.67	**5.10**	**4.77**
2320B (mg/LCACO3)									
ALKALINITY, TOTAL	NE	NE							
5310B (mg/L)									
TOTAL ORGANIC CARBON	NE	NE	< 2.0 U	7.3	< 2.0 U	287	185	289	126
9056A (mg/L)									
CHLORIDE	NE	NE							
SULFATE	NE	NE					0.149 J	0.261 J	0.205
GENETRAC-VC (GC/L)									
Dehalococcoides 16S rRNA gene	NE	NE							
RSK 175 (µg/L)									
ETHANE	NE	NE							
ETHENE	NE	NE							
METHANE	NE	NE							

Notes:
1) U or < = Non-detect at laboratory detection limit
2) J = Estimated Value
3) Sample Type N = normal sample, FD = duplicate sample
4) micrograms per liter (µg/L)
5) NE = Not Established
6) Bold = Exceedence of RG
7) Data provided by AECOM, October 2018

Table 6-4: Building 81 Overburden and Weathered Bedrock Post-Injection Groundwater Results - March 2017, June 2017, December 2017 and June 2018

		Location ID	B81-MW-57W	B81-MW-57W	B81-MW-57W	B81-MW-57W	B81-MW-58I	B81-MW-58I	B81-MW-58I
		Sample ID	B81-MW-57W-031617	B81-MW-57W-061217	B81-MW-57W-120617	B81-MW-57W-060618	B81-DUP3-061517	B81-MW-58I-031617	B81-MW-58I-061517
		Lab ID	21703222309	21706162315	21712094612	21806070514	21706162321	21703222308	21706162322
		Sample Type	N	N	N	N	FD	N	N
		Sample Date	3/16/2017	6/12/2017	12/6/2017	6/6/2018	6/15/2017	3/16/2017	6/15/2017
		Validated (Y/N)	Y	Y	Y	N	Y	Y	Y
PARAMETER	**RecD RG**	**VCD RG**							
Metals 6020A (µg/L)									
ARSENIC	NE	NE					0.32 J		0.30 J
IRON	NE	NE					243		184
MANGANESE	NE	NE					39.8		43.2
VOCs 8260B (µg/L)									
CIS-1,2-DICHLOROETHENE	29000	29000	91.2	75.8	8.00	1.50	< 0.500 U	< 0.500 U	< 0.500 U
TETRACHLOROETHENE	500	110	7.40	0.565 J	0.453 J	< 0.500 U	2.03	1.75	2.16
TRICHLOROETHENE	23	8.5	2.33	0.413 J	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
VINYL CHLORIDE	18	2.6	**2.71**	1.83	**4.71**	2.19	< 0.500 U	< 0.500 U	< 0.500 U
2320B (mg/LCACO3)									
ALKALINITY, TOTAL	NE	NE					138		139
5310B (mg/L)									
TOTAL ORGANIC CARBON	NE	NE	90.5	93.0	1480	115	4.8	< 2.0 U	6.4
9056A (mg/L)									
CHLORIDE	NE	NE					18.7		16.3
SULFATE	NE	NE		0.262	< 0.400 U	0.219	12.5		11.8
GENETRAC-VC (GC/L)									
Dehalococcoides 16S rRNA gene	NE	NE							
RSK 175 (µg/L)									
ETHANE	NE	NE							
ETHENE	NE	NE							
METHANE	NE	NE							

Notes:
1) U or < = Non-detect at laboratory detection limit
2) J = Estimated Value
3) Sample Type N = normal sample, FD = duplicate sample
4) micrograms per liter (µg/L)
5) NE = Not Established
6) Bold = Exceedence of RG
7) Data provided by AECOM, October 2018

Table 6-4: Building 81 Overburden and Weathered Bedrock Post-Injection Groundwater Results - March 2017, June 2017, December 2017 and June 2018

		Location ID	B81-MW-58I	B81-MW-58I	B81-MW-58I	B81-MW-58W	B81-MW-58W	B81-MW-58W	B81-MW-58W
		Sample ID	B81-MW-58I-120617	B81-MW-58I-120617	B81-MW-58I-060618	B81-MW-58W-031617	B81-MW-58W-061517	B81-MW-58W-120617	B81-MW-58W-120617
		Lab ID	21712094613	S462605	21806070521	21703222310	21706170701	21712094614	S462606
		Sample Type	N	N	N	N	N	N	N
		Sample Date	12/6/2017	12/6/2017	6/6/2018	3/16/2017	6/15/2017	12/6/2017	12/6/2017
		Validated (Y/N)	Y	N	N	Y	Y	Y	N
PARAMETER	**RecD RG**	**VCD RG**							
Metals 6020A (µg/L)									
ARSENIC	NE	NE	< 0.50 U		0.32 J		4.13	3.96	
IRON	NE	NE	49.1 J		511		1760	1160	
MANGANESE	NE	NE	163		29.7		516	212	
VOCs 8260B (µg/L)									
CIS-1,2-DICHLOROETHENE	29000	29000	< 0.500 U		0.700 J	0.363 J	< 0.500 U	4.15	
TETRACHLOROETHENE	500	110	4.24		0.954 J	68.2	47.6	52.1	
TRICHLOROETHENE	23	8.5	< 0.500 U		< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	
VINYL CHLORIDE	18	2.6	< 0.500 U		< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	
2320B (mg/LCACO3)									
ALKALINITY, TOTAL	NE	NE	225		110		186	252	
5310B (mg/L)									
TOTAL ORGANIC CARBON	NE	NE	2.2		< 2.0 U	1.1 J	1.8 J	4.0	
9056A (mg/L)									
CHLORIDE	NE	NE	19.8		5.33		16.1	9.35	
SULFATE	NE	NE	9.93		5.73		36.5	19.3	
GENETRAC-VC (GC/L)									
Dehalococcoides 16S rRNA gene	NE	NE		< 1290					< 10750
RSK 175 (µg/L)									
ETHANE	NE	NE						0.636 J	
ETHENE	NE	NE						< 0.290 U	
METHANE	NE	NE						401	

Notes:
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2) J = Estimated Value
3) Sample Type N = normal sample, FD = duplicate sample
4) micrograms per liter (µg/L)
5) NE = Not Established
6) Bold = Exceedence of RG
7) Data provided by AECOM, October 2018

Table 6-4: Building 81 Overburden and Weathered Bedrock Post-Injection Groundwater Results - March 2017, June 2017, December 2017 and June 2018

		Location ID	B81-MW-58W	B81-MW-59W	B81-MW-59W	B81-MW-59W	B81-MW-59W	B81-MW-59W	B81-MW-59W
		Sample ID	B81-MW-58W-060618	B81-MW-59W-031317	B81-MW-59W-061317	B81-MW-59W-120617	B81-MW-59W-120617	B81-DUP2-060618	B81-MW-59W-060618
		Lab ID	21806070519	21703222302	21706162317	21712094615	S462607	21806070516	21806070515
		Sample Type	N	N	N	N	N	FD	N
		Sample Date	6/6/2018	3/13/2017	6/13/2017	12/6/2017	12/6/2017	6/6/2018	6/6/2018
		Validated (Y/N)	N	Y	Y	Y	N	N	N
PARAMETER	**RecD RG**	**VCD RG**							
Metals 6020A (µg/L)									
ARSENIC	NE	NE	1.63		1.55	2.24		0.83 J	0.79 J
IRON	NE	NE	918		298	1010		180	193
MANGANESE	NE	NE	167		557	561		272	261
VOCs 8260B (µg/L)									
CIS-1,2-DICHLOROETHENE	29000	29000	3.50	5.81	6.31	3.95		2.29	1.97
TETRACHLOROETHENE	500	110	65.9	12.7	10.5	8.77		7.14	6.21
TRICHLOROETHENE	23	8.5	0.897 J	< 0.500 U	0.500 J	< 0.500 U		< 0.500 U	< 0.500 U
VINYL CHLORIDE	18	2.6	< 0.500 U	0.302 J	0.576 J	0.275 J		< 0.500 U	< 0.500 U
2320B (mg/LCACO3)									
ALKALINITY, TOTAL	NE	NE	230		85.1	97.7		83.7	83.3
5310B (mg/L)									
TOTAL ORGANIC CARBON	NE	NE	< 2.0 U	1.1 J	1.8 J	1.9 J		< 2.0 U	< 2.0 U
9056A (mg/L)									
CHLORIDE	NE	NE	9.78		7.13	6.45		5.66	5.73
SULFATE	NE	NE	11.7		8.45	4.66		3.92	3.90
GENETRAC-VC (GC/L)									
Dehalococcoides 16S rRNA gene	NE	NE					< 1290		
RSK 175 (µg/L)									
ETHANE	NE	NE				0.371 J			
ETHENE	NE	NE				0.223 J			
METHANE	NE	NE				36.2			

Notes:
1) U or < = Non-detect at laboratory detection limit
2) J = Estimated Value
3) Sample Type N = normal sample, FD = duplicate sample
4) micrograms per liter (µg/L)
5) NE = Not Established
6) Bold = Exceedence of RG
7) Data provided by AECOM, October 2018

Table 6-4: Building 81 Overburden and Weathered Bedrock Post-Injection Groundwater Results - March 2017, June 2017, December 2017 and June 2018

		Location ID	B81-MW-74I	B81-MW-74S	B81-MW-75I	B81-MW-75S
		Sample ID	B81-MW-74I-061617	B81-MW-74S-061617	B81-MW-75I-061617	B81-MW-75S-061517
		Lab ID	21706170704	21706170703	21706170702	21706162318
		Sample Type	N	N	N	N
		Sample Date	6/16/2017	6/16/2017	6/16/2017	6/15/2017
		Validated (Y/N)	Y	Y	Y	Y
PARAMETER	**RecD RG**	**VCD RG**				
Metals 6020A (µg/L)						
ARSENIC	NE	NE				
IRON	NE	NE				
MANGANESE	NE	NE				
VOCs 8260B (µg/L)						
CIS-1,2-DICHLOROETHENE	29000	29000	1.19	< 0.500 U	3.71	1.67
TETRACHLOROETHENE	500	110	4.59	< 0.500 U	9.29	4.56
TRICHLOROETHENE	23	8.5	0.336 J	< 0.500 U	0.966 J	0.461 J
VINYL CHLORIDE	18	2.6	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
2320B (mg/LCACO3)						
ALKALINITY, TOTAL	NE	NE				
5310B (mg/L)						
TOTAL ORGANIC CARBON	NE	NE				
9056A (mg/L)						
CHLORIDE	NE	NE				
SULFATE	NE	NE				
GENETRAC-VC (GC/L)						
Dehalococcoides 16S rRNA gene	NE	NE				
RSK 175 (µg/L)						
ETHANE	NE	NE				
ETHENE	NE	NE				
METHANE	NE	NE				

Notes:
1) U or < = Non-detect at laboratory detection limit
2) J = Estimated Value
3) Sample Type N = normal sample, FD = duplicate sample
4) micrograms per liter (µg/L)
5) NE = Not Established
6) Bold = Exceedence of RG
7) Data provided by AECOM, October 2018

Table 6-5: Building 81 West Bedrock Post-Injection Groundwater Results - January and April 2018

		Location ID	B81-BR-11D	B81-BR-11D	B81-BR-24D1	B81-BR-24D1	B81-BR-24D2	B81-BR-24D2	B81-BR-28D
		Sample ID	B81-BR-11D-012418	B81-BR-11D-042618	B81-BR-24D1-011618	B81-BR-24D1-042618	B81-BR-24D2-011118	B81-BR-24D2-042618	B81-BR-28D-011118
		Lab ID	21801252604	21804300203	21801182928	21804300206	21801182910	21804300207	21801182911
		Sample Type	N	N	N	N	N	N	N
		Sample Date	1/24/2018	4/26/2018	1/16/2018	4/26/2018	1/11/2018	4/26/2018	1/11/2018
		Validated (Y/N)	Y	Y	Y	Y	Y	Y	Y
PARAMETER	**RecD RG**	**VCD RG**							
Metals 6020A (µg/L)									
ARSENIC	NE	NE		< 0.50 U					
IRON	NE	NE		646					
MANGANESE	NE	NE		1990					
VOCs 8260B (µg/L)									
CIS-1,2-DICHLOROETHENE	**29000**	**29000**	13.6	17.3	0.399 J	0.476 J	1.53	1.97	19.2
TETRACHLOROETHENE	**500**	**110**	**532**	**321**	< 0.500 U	< 0.500 U	0.798 J	< 0.500 U	12.6
TRICHLOROETHENE	**23**	**8.5**	**78.0**	**67.6**	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	2.25
VINYL CHLORIDE	**18**	**2.6**	< 2.50 U	< 2.50 U	0.296 J	0.550 J	**9.19**	**21.3**	**36.9**
2320B (mg/LCACO3)									
ALKALINITY, TOTAL	NE	NE		91.2					
5310B (mg/L)									
TOTAL ORGANIC CARBON	NE	NE	1.5 J	5.6	3940	1480	71.5	26.2	< 4.0 U
9056A (mg/L)									
CHLORIDE	NE	NE		13.9					
SULFATE	NE	NE		73.1		< 4.00 U		1.82	

Notes:
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2) J = Estimated Value
3) Sample Type N = normal sample, FD = duplicate sample
4) Exceedances of standards are bolded
5) NE = not established
6) Data provided by AECOM, October 2018

Table 6-5: Building 81 West Bedrock Post-Injection Groundwater Results - January and April 2018

		Location ID	B81-BR-28D	B81-BR-31	B81-BR-31	B81-BR-35D1	B81-BR-35D1	B81-BR-35D2	B81-BR-35D2
		Sample ID	B81-BR-28D-042618	B81-BR-31-011618	B81-BR-31-043018	B81-BR-35D1-011618	B81-BR-35D1-042718	B81-BR-35D2-011618	B81-BR-35D2-042718
		Lab ID	21804300208	21801182922	21805043322	21801182924	21804300217	21801182919	21804300218
		Sample Type	N	N	N	N	N	N	N
		Sample Date	4/26/2018	1/16/2018	4/30/2018	1/16/2018	4/27/2018	1/16/2018	4/27/2018
		Validated (Y/N)	Y	Y	Y	Y	Y	Y	Y
PARAMETER	**RecD RG**	**VCD RG**							
Metals 6020A (µg/L)									
ARSENIC	NE	NE			11.1		7.06		0.31 J
IRON	NE	NE			33100		15300		1030
MANGANESE	NE	NE			4430		9200		2050
VOCs 8260B (µg/L)									
CIS-1,2-DICHLOROETHENE	**29000**	**29000**	37.5	57.5	3.01	113	47.4	49.9	39.9
TETRACHLOROETHENE	**500**	**110**	56.8	1.20	0.732 J	34.1	23.2	5.26	2.92
TRICHLOROETHENE	**23**	**8.5**	6.40	< 0.500 U	< 0.500 U	6.09	4.92	2.49	1.11
VINYL CHLORIDE	**18**	**2.6**	**17.9**	**31.6**	**6.69**	**8.39**	**16.1**	**15.9**	**28.4**
2320B (mg/LCACO3)									
ALKALINITY, TOTAL	NE	NE			397		518		199
5310B (mg/L)									
TOTAL ORGANIC CARBON	NE	NE	10.0	313	74.6	41.1	81.2	< 2.0 U	10.8
9056A (mg/L)									
CHLORIDE	NE	NE			20.3		21.3		37.9
SULFATE	NE	NE	52.8		< 0.400 U		33.7		197

Notes:
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2) J = Estimated Value
3) Sample Type N = normal sample, FD = duplicate sample
4) Exceedances of standards are bolded
5) NE = not established
6) Data provided by AECOM, October 2018

Table 6-5: Building 81 West Bedrock Post-Injection Groundwater Results - January and April 2018

		Location ID	B81-BR-35D2	B81-BR-35D2	B81-BR-3D	B81-BR-3D	B81-MW-09D2	B81-MW-09D2	B81-MW-21D
		Sample ID	B81-DUP1-042718	B81-DUP3-011618	B81-BR-3D-011118	B81-BR-3D-042618	B81-MW-09D2-011618	B81-MW-09D2-043018	B81-DUP2-042618
		Lab ID	21804300222	21801182923	21801182907	21804300201	21801182925	21805043323	21804300216
		Sample Type	FD	FD	N	N	N	N	FD
		Sample Date	4/27/2018	1/16/2018	1/11/2018	4/26/2018	1/16/2018	4/30/2018	4/26/2018
		Validated (Y/N)	Y	Y	Y	Y	Y	Y	Y
PARAMETER	**RecD RG**	**VCD RG**							
Metals 6020A (µg/L)									
ARSENIC	NE	NE	0.32 J			1.38		< 0.50 U	
IRON	NE	NE	961			22400		33.2 J	
MANGANESE	NE	NE	1940			4470		3.11 J	
VOCs 8260B (µg/L)									
CIS-1,2-DICHLOROETHENE	**29000**	**29000**	38.7	48.5	152	282	2.83	2.11	15.7
TETRACHLOROETHENE	**500**	**110**	2.71	5.02	13.9	11.4	1.38	0.775 J	4.97
TRICHLOROETHENE	**23**	**8.5**	1.24	1.65	6.75	3.61	0.912 J	0.506 J	1.55
VINYL CHLORIDE	**18**	**2.6**	**27.3**	**15.8**	1.38	**32.5**	< 0.500 U	< 0.500 U	**16.7**
2320B (mg/LCACO3)									
ALKALINITY, TOTAL	NE	NE	196			266		37.9	
5310B (mg/L)									
TOTAL ORGANIC CARBON	NE	NE	11.4	3.0	37.4	22.9	1.1 J	0.65 J	139
9056A (mg/L)									
CHLORIDE	NE	NE	35.6			11.5		5.78	
SULFATE	NE	NE	206			1.63		9.10	2.17

Notes:
1) U or < = Non-detect at laboratory detection limit
2) J = Estimated Value
3) Sample Type N = normal sample, FD = duplicate sample
4) Exceedances of standards are bolded
5) NE = not established
6) Data provided by AECOM, October 2018

Table 6-5: Building 81 West Bedrock Post-Injection Groundwater Results - January and April 2018

		Location ID	B81-MW-21D	B81-MW-21D	B81-MW-21D2	B81-MW-24D	B81-MW-25D	B81-MW-25D	B81-MW-32B
		Sample ID	B81-MW-21D-012418	B81-MW-21D-042618	B81-MW-21D2-042618	B81-MW-24D-050118	B81-MW-25D-011618	B81-MW-25D-050118	B81-MW-32B-012418
		Lab ID	21801252602	21804300213	21804300214	21805043316	21801182927	21805043317	21801252605
		Sample Type	N	N	N	N	N	N	N
		Sample Date	1/24/2018	4/26/2018	4/26/2018	5/1/2018	1/16/2018	5/1/2018	1/24/2018
		Validated (Y/N)	Y	Y	Y	Y	Y	Y	Y
PARAMETER	**RecD RG**	**VCD RG**							
Metals 6020A (µg/L)									
ARSENIC	NE	NE						0.42 J	
IRON	NE	NE						66.8 J	
MANGANESE	NE	NE						80.3	
VOCs 8260B (µg/L)									
CIS-1,2-DICHLOROETHENE	**29000**	**29000**	16.9	18.6	0.799 J	1.89	9.34	9.08	8.32
TETRACHLOROETHENE	**500**	**110**	3.46	5.36	< 0.500 U	< 0.500 U	5.26	4.77	1.83
TRICHLOROETHENE	**23**	**8.5**	1.04	1.77	< 0.500 U	< 0.500 U	1.75	1.73	< 0.500 U
VINYL CHLORIDE	**18**	**2.6**	**14.1**	**19.1**	**33.6**	1.18	1.59	1.65	**45.8**
2320B (mg/LCACO3)									
ALKALINITY, TOTAL	NE	NE							
5310B (mg/L)									
TOTAL ORGANIC CARBON	NE	NE	194	152	99.4	1620	0.93 J	5.0	40.0
9056A (mg/L)									
CHLORIDE	NE	NE							
SULFATE	NE	NE		2.00	1.52	< 4.00 U			

Notes:
1) U or < = Non-detect at laboratory detection limit
2) J = Estimated Value
3) Sample Type N = normal sample, FD = duplicate sample
4) Exceedances of standards are bolded
5) NE = not established
6) Data provided by AECOM, October 2018

Table 6-5: Building 81 West Bedrock Post-Injection Groundwater Results - January and April 2018

		Location ID	B81-MW-32B	B81-MW-32D	B81-MW-33D
		Sample ID	B81-MW-32B-043018	B81-MW-32D-043018	B81-MW-33D-050318
		Lab ID	21805043320	21805043321	21805043319
		Sample Type	N	N	N
		Sample Date	4/30/2018	4/30/2018	5/3/2018
		Validated (Y/N)	Y	Y	Y
PARAMETER	**RecD RG**	**VCD RG**			
Metals 6020A (µg/L)					
ARSENIC	NE	NE	4.16	0.42 J	2.03
IRON	NE	NE	10400	145	3740
MANGANESE	NE	NE	15700	485	1310
VOCs 8260B (µg/L)					
CIS-1,2-DICHLOROETHENE	**29000**	**29000**	2.78	3.06	4.81
TETRACHLOROETHENE	**500**	**110**	0.617 J	< 0.500 U	1.47
TRICHLOROETHENE	**23**	**8.5**	< 0.500 U	< 0.500 U	0.656 J
VINYL CHLORIDE	**18**	**2.6**	**38.2**	0.894 J	**19.5**
2320B (mg/LCACO3)					
ALKALINITY, TOTAL	NE	NE	603	91.3	143
5310B (mg/L)					
TOTAL ORGANIC CARBON	NE	NE	53.0	< 2.0 U	8.2
9056A (mg/L)					
CHLORIDE	NE	NE	48.9	16.1	21.6
SULFATE	NE	NE	0.614	16.2	11.4

Notes:
1) U or < = Non-detect at laboratory detection limit
2) J = Estimated Value
3) Sample Type N = normal sample, FD = duplicate sample
4) Exceedances of standards are bolded
5) NE = not established
6) Data provided by AECOM, October 2018

Table 6-6: Building 81 South Bedrock Post-Injection Groundwater Analytical Data - January and April 2018

		Location ID	B81-BR-07	B81-BR-07	B81-BR-07	B81-BR-19D1	B81-BR-19D2	B81-BR-19D2	B81-BR-32
		Sample ID	B81-BR-07-011118	B81-BR-07-042618	B81-DUP2-011118	B81-BR-19D1-042618	B81-BR-19D2-011118	B81-BR-19D2-042618	B81-BR-32-011518
		Lab ID	21801182909	21804300202	21801182904	21804300204	21801182908	21804300205	21801182915
		Sample Type	N	N	FD	N	N	N	N
		Sample Date	1/11/2018	4/26/2018	1/11/2018	4/26/2018	1/11/2018	4/26/2018	1/15/2018
		Validated (Y/N)	Y	Y	Y	Y	Y	Y	Y
PARAMETER	**RecD RG**	**VCD RG**							
Metals 6020A (µg/L)									
ARSENIC	NE	NE		< 0.50 U				1.13	
IRON	NE	NE		1410				13500	
MANGANESE	NE	NE		680				7310	
VOCs 8260B (µg/L)									
CIS-1,2-DICHLOROETHENE	**29000**	**29000**	19.5 J	106	20.8 J	11.2	24.8	1790	86.8
TETRACHLOROETHENE	**500**	**110**	**7750**	**4110**	**7720**	1.42	**141**	24.5	0.594 J
TRICHLOROETHENE	**23**	**8.5**	**99.7**	**98.4**	**101**	< 0.500 U	**33.6**	**11.0**	< 0.500 U
VINYL CHLORIDE	**18**	**2.6**	< 25.0 U	< 20.0 U	< 25.0 U	0.270 J	**1.37**	**8.14 J**	**9.01**
2320B (mg/LCACO3)									
ALKALINITY, TOTAL	NE	NE		149				356	
5310B (mg/L)									
TOTAL ORGANIC CARBON	NE	NE	1.3 J	7.3	0.81 J	260	17.5	104	2190
9056A (mg/L)									
CHLORIDE	NE	NE		6.20				10.1	
SULFATE	NE	NE		10.8		0.268 J		5.99	

Notes:
1) U or < = Non-detect at laboratory detection limit
2) J = Estimated Value
3) Sample Type N = normal sample, FD = duplicate sample
4) Exceedances of standards are bolded
5) NE = not established
6) Data provided by AECOM, October 2018

Table 6-6: Building 81 South Bedrock Post-Injection Groundwater Analytical Data - January and April 2018

		Location ID	B81-BR-32	B81-BR-32	B81-BR-36D	B81-BR-37D1	B81-BR-37D1	B81-BR-37D2	B81-BR-37D2
		Sample ID	B81-BR-32-043018	B81-DUP1-011518	B81-BR-36D-011118	B81-BR-37D1-011618	B81-BR-37D1-042618	B81-BR-37D2-011118	B81-BR-37D2-042618
		Lab ID	21805043315	21801182914	21801182906	21801182929	21804300209	21801182905	21804300212
		Sample Type	N	FD	N	N	N	N	N
		Sample Date	4/30/2018	1/15/2018	1/11/2018	1/16/2018	4/26/2018	1/11/2018	4/26/2018
		Validated (Y/N)	Y	Y	Y	Y	Y	Y	Y
PARAMETER	**RecD RG**	**VCD RG**							
Metals 6020A (µg/L)									
ARSENIC	NE	NE					0.75 J		1.39
IRON	NE	NE					196		3650
MANGANESE	NE	NE					3460		3020
VOCs 8260B (µg/L)									
CIS-1,2-DICHLOROETHENE	**29000**	**29000**	< 0.500 U	86.3	< 0.500 U	< 0.500 U	< 0.500 U	10.8	31.6
TETRACHLOROETHENE	**500**	**110**	0.637 J	0.526 J	0.526 J	2.17	1.82	21.1	3.68
TRICHLOROETHENE	**23**	**8.5**	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	2.94	0.873 J
VINYL CHLORIDE	**18**	**2.6**	1.13	**8.85**	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	**3.71**
2320B (mg/LCACO3)									
ALKALINITY, TOTAL	NE	NE					161		212
5310B (mg/L)									
TOTAL ORGANIC CARBON	NE	NE	122	1970	0.93 J	3.8	16.1	3.7	15.6
9056A (mg/L)									
CHLORIDE	NE	NE					32.9		27.4
SULFATE	NE	NE					63.1		51.2

Notes:
1) U or < = Non-detect at laboratory detection limit
2) J = Estimated Value
3) Sample Type N = normal sample, FD = duplicate sample
4) Exceedances of standards are bolded
5) NE = not established
6) Data provided by AECOM, October 2018

Table 6-6: Building 81 South Bedrock Post-Injection Groundwater Analytical Data - January and April 2018

		Location ID	B81-BR-38D1	B81-BR-38D2	B81-BR-39D1	B81-BR-39D2	B81-MW-03D	B81-MW-03D	B81-MW-03D2
		Sample ID	B81-BR-38D1-011618	B81-BR-38D2-011518	B81-BR-39D1-011618	B81-BR-39D2-011018	B81-MW-03D-011118	B81-MW-03D-050118	B81-MW-03D2-050318
		Lab ID	21801182926	21801182912	21801182930	21801182902	21801182903	21805043324	21805043318
		Sample Type	N	N	N	N	N	N	N
		Sample Date	1/16/2018	1/15/2018	1/16/2018	1/10/2018	1/11/2018	5/1/2018	5/3/2018
		Validated (Y/N)	Y	Y	Y	Y	Y	Y	Y
PARAMETER	**RecD RG**	**VCD RG**							
Metals 6020A (µg/L)									
ARSENIC	NE	NE						1.54	0.46 J
IRON	NE	NE						27600	825
MANGANESE	NE	NE						15300	956
VOCs 8260B (µg/L)									
CIS-1,2-DICHLOROETHENE	**29000**	**29000**	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	1230	3660	1.90
TETRACHLOROETHENE	**500**	**110**	< 0.500 U	< 0.500 U	< 0.500 U	2.29	**752**	**733**	1.39
TRICHLOROETHENE	**23**	**8.5**	< 0.500 U	< 0.500 U	< 0.500 U	0.433 J	**191**	**375**	0.557 J
VINYL CHLORIDE	**18**	**2.6**	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	**46.8**	**167**	< 0.500 U
2320B (mg/LCACO3)									
ALKALINITY, TOTAL	NE	NE						751	101
5310B (mg/L)									
TOTAL ORGANIC CARBON	NE	NE	4.8	6.6	2.0 J	5.9	95.7	307	27.8
9056A (mg/L)									
CHLORIDE	NE	NE						14.1	4.96
SULFATE	NE	NE						0.978 J	4.17

Notes:
1) U or < = Non-detect at laboratory detection limit
2) J = Estimated Value
3) Sample Type N = normal sample, FD = duplicate sample
4) Exceedances of standards are bolded
5) NE = not established
6) Data provided by AECOM, October 2018

Table 6-6: Building 81 South Bedrock Post-Injection Groundwater Analytical Data - January and April 2018

		Location ID	B81-MW-08D	B81-MW-08D	B81-MW-34B	B81-MW-34D	B81-MW-35D	B81-MW-35D
		Sample ID	B81-MW-08D-011618	B81-MW-08D-042718	B81-MW-34B-011518	B81-MW-34D-011518	B81-MW-35D-012418	B81-MW-35D-042618
		Lab ID	21801182931	21804300221	21801182918	21801182913	21801252603	21804300215
		Sample Type	N	N	N	N	N	N
		Sample Date	1/16/2018	4/27/2018	1/15/2018	1/15/2018	1/24/2018	4/26/2018
		Validated (Y/N)	Y	Y	Y	Y	Y	Y
PARAMETER	**RecD RG**	**VCD RG**						
Metals 6020A (µg/L)								
ARSENIC	NE	NE						3.93
IRON	NE	NE						22500
MANGANESE	NE	NE						8020
VOCs 8260B (µg/L)								
CIS-1,2-DICHLOROETHENE	**29000**	**29000**	30.0	9.20	< 0.500 U	< 0.500 U	81.3	24.5
TETRACHLOROETHENE	**500**	**110**	0.950 J	0.918 J	1.44	2.27	15.2	< 0.500 U
TRICHLOROETHENE	**23**	**8.5**	0.670 J	< 0.500 U	< 0.500 U	< 0.500 U	3.57	< 0.500 U
VINYL CHLORIDE	**18**	**2.6**	**5.93**	**5.79**	< 0.500 U	< 0.500 U	**3.43**	**14.9**
2320B (mg/LCACO3)								
ALKALINITY, TOTAL	NE	NE						1060
5310B (mg/L)								
TOTAL ORGANIC CARBON	NE	NE	138	115	0.92 J	< 2.0 U	221	321
9056A (mg/L)								
CHLORIDE	NE	NE						17.7
SULFATE	NE	NE		0.403				< 1.00 U

Notes:
1) U or < = Non-detect at laboratory detection limit
2) J = Estimated Value
3) Sample Type N = normal sample, FD = duplicate sample
4) Exceedances of standards are bolded
5) NE = not established
6) Data provided by AECOM, October 2018

Table 6-7: Building 81 Supplemental Sampling Groundwater Analytical Data - May 2018

		Location ID	B81-GP-UI-3	B81-GP-UI-5	B81-MW-22D2	B81-MW-22D2	B81-MW-28S	B81-MW-31D	B81-MW-42B	B81-MW-47B1
		Sample ID	B81-GP-UI3-050218	B81-GP-UI5-050218	B81-DUP3-050218	B81-MW-22D2-050218	B81-MW-28S-050318	B81-MW-31D-050218	B81-MW-42B-050118	B81-MW-47B1-050218
		Lab ID	21805043303	21805043301	21805043308	21805043314	21805043307	21805043304	21805043312	21805043302
		Sample Type	N	N	FD	N	N	N	N	N
		Sample Date	5/2/2018	5/2/2018	5/2/2018	5/2/2018	5/3/2018	5/2/2018	5/1/2018	5/3/2018
		Validated (Y/N)	Y	Y	Y	Y	Y	Y	Y	Y
PARAMETER	**RecD RG**	**VCD RG**								
VOCs 8260B (µg/L)										
CIS-1,2-DICHLOROETHENE	29000	29000	1.26	5.79	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	0.451 J
TETRACHLOROETHENE	500	110	3.74	6.78	< 0.500 U	< 0.500 U	1.44	< 0.500 U	< 0.500 U	< 0.500 U
TRICHLOROETHENE	23	8.5	< 0.500 U	1.20	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	1.09	< 0.500 U
VINYL CHLORIDE	18	2.6	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U

Notes:
1) U or < = Non-detect at laboratory detection limit
2) J = Estimated Value
3) Sample Type N = normal sample, FD = duplicate sample
4) Bold = Exceedence of RG
5) Data provided by AECOM, October 2018

Table 6-7: Building 81 Supplemental Sampling Groundwater Analytical Data - May 2018

		Location ID	B81-MW-48I	B81-MW-74I	B81-MW-74S	B81-MW-75I	B81-MW-75S
		Sample ID	B81-MW-48I-050118	B81-MW-74I-050318	B81-MW-74S-050318	B81-MW-75I-050118	B81-MW-75S-050118
		Lab ID	21805043313	21805043305	21805043306	21805043311	21805043310
		Sample Type	N	N	N	N	N
		Sample Date	5/1/2018	5/3/2018	5/3/2018	5/1/2018	5/1/2018
		Validated (Y/N)	Y	Y	Y	Y	Y
PARAMETER	**RecD RG**	**VCD RG**					
VOCs 8260B (µg/L)							
CIS-1,2-DICHLOROETHENE	29000	29000	< 0.500 U	7.60	< 0.500 U	18.4	10.1
TETRACHLOROETHENE	500	110	< 0.500 U	6.57	0.416 J	13.4	7.95
TRICHLOROETHENE	23	8.5	< 0.500 U	0.913 J	< 0.500 U	1.87	1.18
VINYL CHLORIDE	18	2.6	< 0.500 U	< 0.500 U	< 0.500 U	0.822 J	< 0.500 U

Notes:
1) U or < = Non-detect at laboratory detection limit
2) J = Estimated Value
3) Sample Type N = normal sample, FD = duplicate sample
4) Bold = Exceedence of RG
5) Data provided by AECOM, October 2018

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Table 7-3: Building 82 Monitoring Locations

Monitoring Location	
Monitoring Wells	
B82-MW-02	Located west of Building 82 in vicinity of floor drain system
B82-MW-10D	Located in southern portion of site within TCE plume area
B82-MW-11S	Located west of Building 82
B82-MW-200S	Located northwest of Building 82
B82-MW-202D	Located in southern portion of site downgradient of TCE plume area
B82-MW-300D	Located in southeastern portion of site within TCE plume area
B82-MW-300I	Located in southeastern portion of site within TCE plume area
B82-MW-302D	Located in southeastern portion of site within TCE plume area
B82-MW-303D	Located in southeastern portion of site along eastern edge of TCE plume area
B82-MW-304D	Located west of Building 82 in vicinity of floor drain system
B82-MW-304I	Located west of Building 82 in vicinity of floor drain system
B82-MW-307D	Located in southeastern portion of site within TCE plume area
B82-MW-308D	Located in southeastern portion of site within TCE plume area
B82-MW-308I	Located in southeastern portion of site within TCE plume area
B82-MW-309D	Located in southern portion of site within TCE plume area
PT-E1D	Located in southeastern portion of site within TCE plume area

Notes:

1) Monitoring locations included in LTMP.

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Table 7-4: Building 82 Summary of LTM Groundwater Analytical Results - Spring 2016 - Spring 2017

		B82-MW-02	B82-MW-02	B82-MW-02	B82-MW-10D	B82-MW-10D	B82-MW-10D
		3/15/2016	10/11/2016	3/8/2017	3/15/2016	10/12/2016	3/7/2017
		B82-MW-02-031516	B82-MW-02-101116	B82-MW-02-030817	B82-MW-10D-031516	B82-MW-10D-101216	B82-MW-10D-030717
Chemical Name	Remedial Goal						
Metals							
MANGANESE	300	**1350 J+**	**1770**	**1720 J+**	**856 J+**	**1310**	**915 J+**
VOCs							
1,1,1-TRICHLOROETHANE	200				< 0.500 U	< 0.500 U	< 0.500 U
1,1-DICHLOROETHANE	70				< 0.500 U	< 0.500 U	< 0.500 U
BENZENE	5				< 0.500 U	< 0.500 U	< 0.500 U
CHLOROFORM	70				< 0.500 U	< 0.500 U	< 0.500 U
CIS-1,2-DICHLOROETHENE	70				< 0.500 U	< 0.500 U	< 0.500 U
TETRACHLOROETHENE	5				< 0.500 U	< 0.500 U	< 0.500 U
TRICHLOROETHENE	5				**7.25**	**8.22**	**6.99**
VINYL CHLORIDE	2				< 0.500 U	< 0.500 U	< 0.500 U

Notes:
1) U or < = Non-detect at laboratory detection limit
2) J+ = Estimated Value that may be biased high
3) All units are in micrograms per liter (ug/l)
4) Remedial goal exceedances are bolded and highlighted
5) Data provided by AECOM, October 2018

Table 7-4: Building 82 Summary of LTM Groundwater Analytical Results - Spring 2016 - Spring 2017

		B82-MW-11S	B82-MW-11S	B82-MW-11S	B82-MW-200S	B82-MW-200S	B82-MW-200S
		3/17/2016	10/11/2016	3/6/2017	3/16/2016	10/11/2016	3/6/2017
		B82-MW-11S-031716	B82-MW-11S-101116	B82-MW-11S-030617	B82-MW-200S-031616	B82-MW-200S-101116	B82-MW-200S-030617
Chemical Name	Remedial Goal						
Metals							
MANGANESE	300	**2570 J+**	**1710**	**1960 J+**	**2740 J+**	**1130**	**1590 J+**
VOCs							
1,1,1-TRICHLOROETHANE	200						
1,1-DICHLOROETHANE	70						
BENZENE	5						
CHLOROFORM	70						
CIS-1,2-DICHLOROETHENE	70						
TETRACHLOROETHENE	5						
TRICHLOROETHENE	5						
VINYL CHLORIDE	2						

Notes:
1) U or < = Non-detect at laboratory detection limit
2) J+ = Estimated Value that may be biased high
3) All units are in micrograms per liter (ug/l)
4) Remedial goal exceedances are bolded and highl
5) Data provided by AECOM, October 2018

Table 7-4: Building 82 Summary of LTM Groundwater Analytical Results - Spring 2016 - Spring 2017

		B82-MW-202D	B82-MW-202D	B82-MW-202D	B82-MW-300D	B82-MW-300D	B82-MW-300D
		3/16/2016	10/12/2016	3/7/2017	3/16/2016	3/16/2016	10/12/2016
		B82-MW-202D-031616	B82-MW-202D-101216	B82-MW-202D-030717	DUP2-031616	B82-MW-300D-031616	B82-DUP2-101216
Chemical Name	Remedial Goal						
Metals							
MANGANESE	300	**632 J+**	**773**	260 J+	139 J+	143 J+	156
VOCs							
1,1,1-TRICHLOROETHANE	200	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
1,1-DICHLOROETHANE	70	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
BENZENE	5	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
CHLOROFORM	70	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
CIS-1,2-DICHLOROETHENE	70	0.452 J	0.464 J	0.403 J	< 0.500 U	< 0.500 U	< 0.500 U
TETRACHLOROETHENE	5	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
TRICHLOROETHENE	5	3.92	3.63	4.03	**16.7**	**17.1**	**11.6**
VINYL CHLORIDE	2	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U

Notes:
1) U or < = Non-detect at laboratory detection limit
2) J+ = Estimated Value that may be biased high
3) All units are in micrograms per liter (ug/l)
4) Remedial goal exceedances are bolded and highl
5) Data provided by AECOM, October 2018

Table 7-4: Building 82 Summary of LTM Groundwater Analytical Results - Spring 2016 - Spring 2017

		B82-MW-300D	B82-MW-300D	B82-MW-300D	B82-MW-300I	B82-MW-300I	B82-MW-300I
		10/12/2016	3/6/2017	3/6/2017	3/16/2016	10/12/2016	3/6/2017
		B82-MW-300D-101216	B82-DUP2-030617	B82-MW-300D-030617	B82-MW-300I-031616	B82-MW-300I-101216	B82-MW-300I-030617
Chemical Name	Remedial Goal						
Metals							
MANGANESE	300	177	120 J+	119 J+	**576 J+**	70.1	112 J+
VOCs							
1,1,1-TRICHLOROETHANE	200	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
1,1-DICHLOROETHANE	70	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
BENZENE	5	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
CHLOROFORM	70	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
CIS-1,2-DICHLOROETHENE	70	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
TETRACHLOROETHENE	5	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
TRICHLOROETHENE	5	**12.7**	**17.3**	**17.3**	**10.9**	**6.56**	**6.92**
VINYL CHLORIDE	2	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U

Notes:
1) U or < = Non-detect at laboratory detection limi
2) J+ = Estimated Value that may be biased high
3) All units are in micrograms per liter (ug/l)
4) Remedial goal exceedances are bolded and highl
5) Data provided by AECOM, October 2018

Table 7-4: Building 82 Summary of LTM Groundwater Analytical Results - Spring 2016 - Spring 2017

		B82-MW-302D	B82-MW-302D	B82-MW-302D	B82-MW-303D	B82-MW-303D	B82-MW-303D
		3/16/2016	10/14/2016	3/7/2017	3/18/2016	10/13/2016	3/7/2017
		B82-MW-302D-031616	B82-MW-302D-101416	B82-MW-302D-030717	B82-MW-303D-031816	B82-MW-303D-101316	B82-MW-303D-030717
Chemical Name	Remedial Goal						
Metals							
MANGANESE	300						
VOCs							
1,1,1-TRICHLOROETHANE	200	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
1,1-DICHLOROETHANE	70	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
BENZENE	5	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
CHLOROFORM	70	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
CIS-1,2-DICHLOROETHENE	70	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
TETRACHLOROETHENE	5	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
TRICHLOROETHENE	5	4.20	**7.33**	**5.02**	4.33	4.99	3.32
VINYL CHLORIDE	2	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U

Notes:
1) U or < = Non-detect at laboratory detection limi
2) J+ = Estimated Value that may be biased high
3) All units are in micrograms per liter (ug/l)
4) Remedial goal exceedances are bolded and highl
5) Data provided by AECOM, October 2018

Table 7-4: Building 82 Summary of LTM Groundwater Analytical Results - Spring 2016 - Spring 2017

		B82-MW-304D	B82-MW-304D	B82-MW-304D	B82-MW-304I	B82-MW-304I	B82-MW-304I
		3/15/2016	10/11/2016	3/8/2017	3/15/2016	10/10/2016	3/8/2017
		B82-MW-304D-031516	B82-MW-304D-101116	B82-MW-304D-030817	B82-MW-304I-031516	B82-MW-304I-101016	B82-MW-304I-030817
Chemical Name	Remedial Goal						
Metals							
MANGANESE	300	**1360 J+**	**1100**	**1020 J+**			
VOCs							
1,1,1-TRICHLOROETHANE	200				< 0.500 U	< 0.500 U	< 0.500 U
1,1-DICHLOROETHANE	70				< 0.500 U	< 0.500 U	< 0.500 U
BENZENE	5				< 0.500 U	< 0.500 U	< 0.500 U
CHLOROFORM	70				< 0.500 U	< 0.500 U	< 0.500 U
CIS-1,2-DICHLOROETHENE	70				< 0.500 U	< 0.500 U	< 0.500 U
TETRACHLOROETHENE	5				< 0.500 U	< 0.500 U	< 0.500 U
TRICHLOROETHENE	5				< 0.500 U	< 0.500 U	< 0.500 U
VINYL CHLORIDE	2				< 0.500 U	< 0.500 U	< 0.500 U

Notes:
1) U or < = Non-detect at laboratory detection limit
2) J+ = Estimated Value that may be biased high
3) All units are in micrograms per liter (ug/l)
4) Remedial goal exceedances are bolded and highl
5) Data provided by AECOM, October 2018

Table 7-4: Building 82 Summary of LTM Groundwater Analytical Results - Spring 2016 - Spring 2017

		B82-MW-307D	B82-MW-307D	B82-MW-307D	B82-MW-308D	B82-MW-308D	B82-MW-308D
		3/18/2016	10/13/2016	3/7/2017	3/18/2016	10/14/2016	3/8/2017
		B82-MW-307D-031816	B82-MW-307D-101316	B82-MW-307D-030717	B82-MW-308D-031816	B82-MW-308D-101416	B82-MW-308D-030817
Chemical Name	Remedial Goal						
Metals							
MANGANESE	300	224 J+	23.9	67.0 J+			
VOCs							
1,1,1-TRICHLOROETHANE	200	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
1,1-DICHLOROETHANE	70	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
BENZENE	5	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
CHLOROFORM	70	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
CIS-1,2-DICHLOROETHENE	70	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
TETRACHLOROETHENE	5	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
TRICHLOROETHENE	5	4.67	**10.8**	< 0.500 U	**9.57**	**11.2**	**10.6**
VINYL CHLORIDE	2	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U

Notes:
1) U or < = Non-detect at laboratory detection limi
2) J+ = Estimated Value that may be biased high
3) All units are in micrograms per liter (ug/l)
4) Remedial goal exceedances are bolded and highl
5) Data provided by AECOM, October 2018

Table 7-4: Building 82 Summary of LTM Groundwater Analytical Results - Spring 2016 - Spring 2017

		B82-MW-308I	B82-MW-308I	B82-MW-308I	B82-MW-309D	B82-MW-309D	B82-MW-309D
		3/18/2016	10/14/2016	3/8/2017	3/18/2016	10/13/2016	3/7/2017
		B82-MW-308I-031816	B82-MW-308I-101416	B82-MW-308I-030817	B82-MW-309D-031816	B82-MW-309D-101316	B82-MW-309D-030717
Chemical Name	Remedial Goal						
Metals							
MANGANESE	300				**778 J+**	**772**	**790 J+**
VOCs							
1,1,1-TRICHLOROETHANE	200	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
1,1-DICHLOROETHANE	70	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
BENZENE	5	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
CHLOROFORM	70	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
CIS-1,2-DICHLOROETHENE	70	< 0.500 U	0.421 J	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
TETRACHLOROETHENE	5	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
TRICHLOROETHENE	5	**12.1**	**7.56**	**10.4**	**7.78**	**8.33**	**9.04**
VINYL CHLORIDE	2	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U

Notes:
1) U or < = Non-detect at laboratory detection limi
2) J+ = Estimated Value that may be biased high
3) All units are in micrograms per liter (ug/l)
4) Remedial goal exceedances are bolded and highl
5) Data provided by AECOM, October 2018

Table 7-4: Building 82 Summary of LTM Groundwater Analytical Results - Spring 2016 - Spring 2017

		PT-E1D	PT-E1D	PT-E1D	PT-E1D	PT-E1D	PT-E1D
		3/17/2016	3/17/2016	10/14/2016	10/14/2016	3/8/2017	3/8/2017
		DUP1-031716	PT-E1D-031716	B82-DUP1-101416	PT-E1-101416	B82-DUP1-030817	PT-E1D-030817
Chemical Name	Remedial Goal						
Metals							
MANGANESE	300	77.5 J+	76.0 J+	11.5			
VOCs							
1,1,1-TRICHLOROETHANE	200	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
1,1-DICHLOROETHANE	70	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
BENZENE	5	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
CHLOROFORM	70	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
CIS-1,2-DICHLOROETHENE	70	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
TETRACHLOROETHENE	5	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U
TRICHLOROETHENE	5	**14.5**	**14.4**	**13.2**	**13.1**	**13.0**	**13.0**
VINYL CHLORIDE	2	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.500 U

Notes:
1) U or < = Non-detect at laboratory detection limit
2) J+ = Estimated Value that may be biased high
3) All units are in micrograms per liter (ug/l)
4) Remedial goal exceedances are bolded and highl
5) Data provided by AECOM, October 2018

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Table 7-5: Building 82 Summary of Available TCE and Manganese Analytical Results
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		MANGANESE	TRICHLOROETHENE
	Goal	300	5
Location ID	Sample Date		
B82-MW-02	11/2/2006	**995**	< 0.1 U
	7/21/2015	**1020**	
	10/27/2015	**1070**	
	3/15/2016	**1350 J+**	
	10/11/2016	**1770**	
	3/8/2017	**1720 J+**	
B82-MW-10D	10/27/2006	**821**	**9**
	12/19/2013	**2470**	**5.84**
	6/3/2014		**5.44**
	8/20/2014		4.29
	3/25/2015	**673**	**5.28**
	7/23/2015	**963**	**5.65**
	10/26/2015	**748**	**7.19**
	3/15/2016	**856 J+**	**7.25**
	10/12/2016	**1310**	**8.22**
	3/7/2017	**915 J+**	**6.99**
B82-MW-11S	10/26/2006	**1270**	< 0.1 U
	7/23/2015	**2720**	
	10/26/2015	**2160**	
	3/17/2016	**2570 J+**	
	10/11/2016	**1710**	
	3/6/2017	**1960 J+**	
B82-MW-200S	10/26/2006	**6020**	< 0.1 U
	12/19/2013	**1230**	< 0.200 U
	7/22/2015	**2620**	< 0.500 U
	7/22/2015	**2720**	< 0.500 U
	10/26/2015	**3270**	
	3/16/2016	**2740 J+**	
	10/11/2016	**1130**	
	3/6/2017	**1590 J+**	
B82-MW-202D	10/27/2006	**711**	3.1
	12/19/2013	**453**	2.10
	3/25/2015	**498**	4.25
	7/22/2015	**361**	3.58
	10/27/2015	**725**	3.44
	3/16/2016	**632 J+**	3.92
	10/12/2016	**773**	3.63
	3/7/2017	260 J+	4.03
B82-MW-300D	2/26/2014	**917**	**14.0**
	10/23/2014	**6400**	2.52
	10/23/2014	**11000**	2.27
	3/26/2015	163	**8.15**
	3/26/2015	209	**8.16**
	7/22/2015		**10.9**
	7/23/2015	**724**	
	10/28/2015	199	**11.5**
	10/28/2015	153	**11.7**
	3/16/2016	139 J+	**16.7**
	3/16/2016	143 J+	**17.1**
	10/12/2016	156	**11.6**
	10/12/2016	177	**12.7**
	3/6/2017	120 J+	**17.3**
	3/6/2017	119 J+	**17.3**

Table 7-5: Building 82 Summary of Available TCE and Manganese Analytical Results

		MANGANESE	TRICHLOROETHENE
	Goal	300	5
Location ID	Sample Date		
B82-MW-300I	2/25/2014	127	**7.64**
	10/24/2014	**476**	1.35
	3/26/2015	85.5	**6.74**
	7/22/2015		**6.58**
	7/23/2015	90.3	
	10/28/2015	222	**7.35**
	3/16/2016	**576 J+**	**10.9**
	10/12/2016	70.1	**6.56**
	3/6/2017	112 J+	**6.92**
B82-MW-302D	2/25/2014	158	**6.95**
	6/3/2014		**5.77**
	8/20/2014		3.77
	3/26/2015		4.45
	7/20/2015		**5.49**
	10/29/2015		**5.25**
	3/16/2016		4.20
	10/14/2016		**7.33**
	3/7/2017		**5.02**
B82-MW-303D	2/26/2014	97.9	4.93
	6/3/2014		1.21
	8/20/2014		4.72
	3/26/2015		1.49
	7/21/2015		4.54
	10/30/2015		**5.83**
	3/18/2016		4.33
	10/13/2016		4.99
	3/7/2017		3.32
B82-MW-304D	2/27/2014	**1160**	< 0.200 U
	7/23/2015	**582**	< 0.500 U
	10/27/2015	**1280**	
	3/15/2016	**1360 J+**	
	10/11/2016	**1100**	
	3/8/2017	**1020 J+**	
B82-MW-304I	2/27/2014	62.0	< 0.200 U
	7/23/2015	106	< 0.500 U
	10/27/2015		< 0.500 U
	3/15/2016		< 0.500 U
	10/10/2016		< 0.500 U
	3/8/2017		< 0.500 U
B82-MW-307D	2/25/2014	26.9	2.91
	6/2/2014		1.26
	8/19/2014		1.23
	3/25/2015	258	**12.1**
	7/21/2015	**459**	**20.9**
	10/29/2015	232	**12.4**
	10/29/2015	259	**11.4**
	3/18/2016	224 J+	4.67
	10/13/2016	23.9	**10.8**
	3/7/2017	67.0 J+	< 0.500 U

Table 7-5: Building 82 Summary of Available TCE and Manganese Analytical Results

		MANGANESE	TRICHLOROETHENE
	Goal	300	5
Location ID	Sample Date		
B82-MW-308D	2/25/2014		**7.59**
	6/3/2014		**8.63**
	8/20/2014		**6.70**
	3/26/2015	**356**	**8.60**
	7/21/2015	186	**10.0**
	10/30/2015		**9.31**
	3/18/2016		**9.57**
	10/14/2016		**11.2**
	3/8/2017		**10.6**
B82-MW-308I	2/25/2014		**8.00**
	6/3/2014		3.38
	8/20/2014		**5.83**
	3/26/2015	271	**7.87**
	7/21/2015		**7.61**
	10/30/2015		**9.36**
	3/18/2016		**12.1**
	10/14/2016		**7.56**
	3/8/2017		**10.4**
B82-MW-309D	2/26/2014	139	1.67
	6/2/2014	213	4.63
	6/2/2014	143	< 0.200 U
	8/21/2014		**7.39**
	10/23/2014	**532**	**5.92**
	3/26/2015	**334**	**6.44**
	7/23/2015	**1120**	**7.50**
	10/28/2015	**970**	**8.49**
	3/18/2016	**778 J+**	**7.78**
	10/13/2016	**772**	**8.33**
	3/7/2017	**790 J+**	**9.04**
PT-E1D	4/7/2015		**8.66**
	4/7/2015		**9.11**
	7/22/2015		**9.52**
	10/29/2015		**13.8**
	3/17/2016	77.5 J+	**14.5**
	3/17/2016	76.0 J+	**14.4**
	10/14/2016	11.5	**13.2**
	10/14/2016		**13.1**
	3/8/2017		**13.0**
	3/8/2017		**13.0**

Notes:
1) U or < = Non-detect at laboratory detection limit
2) J+ = Estimated value that may be biased high
3) All units are in micrograms per liter (ug/l)
4) Remedial goal exceedances are bolded and highlighted
5) Data provided by AECOM, October 2018

Table 8-3: Solvent Release Area Monitoring Locations
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Monitoring Location	
Groundwater Monitoring / Injection Wells	
CH108-MW01	Suspected source area
CH108-MW02	Downgradient of suspected source area
MW10-302	Downgradient of suspected source area
MW10-302D	
MW10-303	Near east mat ditch
MW10-304	Near east mat ditch
MW10-304D	
MW20-316	Near former temporary well location GW10-316
MW10-338	Located upgradient of PCE plume.
MW10-339	Located near eastern boundary of PCE source zone.
MW10-340	Located in core of PCE plume
MW10-400	Downgradient of suspected source area
MW10-401	Downgradient of suspected source area
MW10-402	Downgradient of suspected source area
MW10-403	Downgradient of suspected source area
MW10-404	Downgradient of suspected source area
MW10-405	Installed in the vicinity of the potential DNAPL zone
MW10-405D1	
MW10-405D2	
MW10-406	Installed downgradient of the suspected source area in the vicinity of the ditch located south of the former Pistol Range.
MW10-406D1	
MW10-406D2	
MW10-407	Installed downgradient of the suspected source area south of the ditch located south of the former Pistol Range.
MW10-407D1	
MW10-407D2	
MW10-408	Installed upgradient of the suspected source area
MW10-408D1	
MW10-408D2	
MW10-409D1	Downgradient of suspected source area
MW10-409D2	
MW10-410D1	Downgradient of suspected source area
MW10-410D2	
MW20-411	Installed downgradient of the suspected source area in the vicinity of the ditch located south of the former Pistol Range.
MW10-411D1	
MW10-411D2	
MW20-412	Downgradient of suspected source area
MW10-412D1	
MW10-412D2	
MW10-BG4	Installed upgradient of the suspected source area
MW20-501	East Mat northeast of MW11-128
MW20-502D	Between MW10-409 and MW10-412
MW20-503D	North of CH108-MW-01
MW20-504D	South-southwest of MW-411 on East Mat
PZ-10	North-Northeast of MW10-409/D1/D2
PZ-11	Adjacent to existing wells MW-409D1/D2
BMW-104WBR	Located in Phase II overburden TTZ

Table 8-3: Solvent Release Area Monitoring Locations

Monitoring Location	
OMW-12S	Located in East Weathered Bedrock TTZ
BMW-12WBR	Located in East Weathered Bedrock TTZ
BMW-08WBR	Located in East Weathered Bedrock TTZ
MW10-501WBR	Located in East Weathered Bedrock TTZ
MW10-502S	Located in PRB #2
MW10-502WBR	Located in PRB #2
MW10-503S	Located in PRB #3
MW10-503WBR	Located in PRB #3
MW10-607WBR	Located in PRB #4
MW10-609WBR	Located in PRB #4
MW10-707WBR	Located in PRB #5
MW10-420S	Located in northern portion of EMD
MW10-420WBR	Located in northern portion of EMD
MW10-420BR1	Located in northern portion of EMD
MW10-420BR2	Located in northern portion of EMD
MW10-421S	Located in southern portion of EMD
MW10-421WBR	Located in southern portion of EMD
MW10-421BR1	Located in southern portion of EMD
MW10-421BR2	Located in southern portion of EMD
WBRIW-NWTTZ-01	Located in northwest TTZ
WBRIW-NWTTZ-02	Located in northwest TTZ
WBRIW-NWTTZ-03	Located in northwest TTZ
WBRIW-NWTTZ-04	Located in northwest TTZ
WBRIW-NWTTZ-05	Located in northwest TTZ
WBRIW-NWTTZ-06	Located in northwest TTZ
WBRIW-NWTTZ-07	Located in northwest TTZ
WBRIW-WWBR-08	West Weathered Bedrock TTZ
WBRIW-WWBR -09	West Weathered Bedrock TTZ
WBRIW-WWBR -10	West Weathered Bedrock TTZ
WBRIW-WWBR -11	West Weathered Bedrock TTZ
WBRIW-EWBR-12	East Weathered Bedrock TTZ
WBRIW-EWBR-13	East Weathered Bedrock TTZ
WBRIW-EWBR-14	East Weathered Bedrock TTZ
WBRIW-EWBR-15	East Weathered Bedrock TTZ
WBRIW-EWBR-16	East Weathered Bedrock TTZ
WBRIW-EWBR-17	East Weathered Bedrock TTZ
WBRIW-EWBR-18	East Weathered Bedrock TTZ
WBRIW-PRB4-51	Located in PRB #4
WBRIW-PRB4-19	Located in PRB #4
WBRIW-PRB4-20	Located in PRB #4
WBRIW-PRB4-21	Located in PRB #4
WBRIW-PRB4-22	Located in PRB #4
WBRIW-PRB4-23	Located in PRB #4
WBRIW-PRB4-24	Located in PRB #4
WBRIW-PRB4-25	Located in PRB #4
WBRIW-PRB4-26	Located in PRB #4
WBRIW-PRB4-27	Located in PRB #4

Table 8-3: Solvent Release Area Monitoring Locations

Monitoring Location	
WBRIW-PRB4-28	Located in PRB #4
WBRIW-PRB4-29	Located in PRB #4
WBRIW-PRB4-30	Located in PRB #4
WBRIW-PRB4-31	Located in PRB #4
WBRIW-PRB4-32	Located in PRB #4
WBRIW-PRB4-33	Located in PRB #4
WBRIW-PRB4-34	Located in PRB #4
WBRIW-PRB4-35	Located in PRB #4
WBRIW-PRB5-36	Located in PRB #5
WBRIW-PRB5-37	Located in PRB #5
WBRIW-PRB5-38	Located in PRB #5
WBRIW-PRB5-39	Located in PRB #5
WBRIW-PRB5-40	Located in PRB #5
WBRIW-PRB5-41	Located in PRB #5
WBRIW-PRB5-42	Located in PRB #5
WBRIW-PRB5-43	Located in PRB #5
WBRIW-PRB5-44	Located in PRB #5
WBRIW-PRB5-45	Located in PRB #5
WBRIW-PRB5-46	Located in PRB #5
WBRIW-PRB5-47	Located in PRB #5
WBRIW-PRB5-48	Located in PRB #5
WBRIW-PRB5-49	Located in PRB #5
WBRIW-PRB5-50	Located in PRB #5
OMW-102SS	Located in the Northwest TTZ
BMW-102WBR	Located in the Northwest TTZ
OMW-10S	Located in the Northwest TTZ
BMW-10WBR	Located in the Northwest TTZ
OMW-11S	Located in PRB #1
BMW-11WBR	Located in PRB #1
BWM-09WBR	Located in PRB #1
Surface Water/Sediment	
SW/SD-101	Upstream location
SW/SD-102	Upstream location
SW/SD-103	Located in East Drainage Ditch
SW/SD-104	Located in East Drainage Ditch
SW/SD-105	Located at confluence of surface flow in East Mat Ditch and East Drainage Ditch
SW/SD-106	Western portion of East Mat Ditch
SW/SD-107	Western portion of East Mat Ditch
SW/SD-108	Western portion of East Mat Ditch
SW/SD-109	Central portion of East Mat Ditch
SW/SD-110	Central portion of East Mat Ditch
SW/SD-111	East-central portion of East Mat Ditch
SW/SD-112	Central portion of East Mat Ditch

Notes:

1) Monitoring locations included in RI and RD.

Table 9-3: AOC Hangar 1 Monitoring Locations

Monitoring Location	
Groundwater	
H1-MW-01	Northeast of Hanger 1, upgradient
H1-MW-02	Southwest of Hanger 1, downgradient
H1-MW-02D	Southwest of Hanger 1, downgradient
H1-MW-101	Northwest of Hanger 1, cross gradient
H1-MW-101D	Northwest of Hanger 1, cross gradient
H1-MW-102	North of Hanger 1, upgradient
H1-MW-102D	North of Hanger 1, upgradient
H1-MW-103	West of Hanger 1, downgradient
H1-MW-103D	West of Hanger 1, downgradient
H1-MW-104	West of Hanger 1, downgradient
H1-MW-104D	West of Hanger 1, downgradient
H1-MW-105	East of Hanger 1, upgradient
H1-MW-105D	West of Hanger 1, downgradient
H1-MW-106	Southwest of Hanger 1, downgradient
H1-MW-106D	Southwest of Hanger 1, downgradient
H1-MW-107	South of Hanger 1, downgradient
H1-MW-107D	South of Hanger 1, downgradient
H1-MW-108	South of Hanger 1, downgradient
H1-MW-108D	South of Hanger 1, downgradient
H1-MW-109D	Southeast of Hanger 1, downgradient
H1-MW-110	South of Hanger 1, downgradient
H1-MW-110D	South of Hanger 1, downgradient
H1-MW-111D	West of Hanger 1, downgradient
H1-MW-112	Northwest corner of Hanger 1, former location of AFFF ASTs
H1-MW-113	Central portion of Hanger 1, vicinity of subsurface drain pipe
H1-MW-114	Central portion of Hanger 1, vicinity of floor trench
H1-MW-115D	North of Hanger 1, upgradient
H1-MW-116	Northwest of Hanger 1, cross gradient
H1-MW-116D	Northwest of Hanger 1, cross gradient
H1-MW-117	Northwest of Hanger 1, cross gradient
H1-MW-117D	Northwest of Hanger 1, cross gradient
H1-MW-118	West of Hanger 1, downgradient
H1-MW-118D	Southwest of Hanger 1, downgradient
H1-MW-119	Southwest of Hanger 1, downgradient
H1-MW-119D	Southwest of Hanger 1, downgradient
H1-MW-120	Southwest of Hanger 1, downgradient
H1-MW-120D	Southwest of Hanger 1, downgradient
H1-MW-121	South of Hanger 1, downgradient
H1-MW-121D	South of Hanger 1, downgradient
H1-MW-122	Southeast of Hanger 1, downgradient
H1-MW-122D	Southeast of Hanger 1, downgradient
H1-MW-123D	East of Hanger 1, upgradient

Table 9-3: AOC Hangar 1 Monitoring Locations

Monitoring Location	
H1-MW-124	South of Hanger 1, downgradient
H1-MW-124D	South of Hanger 1, downgradient
H1-MW-125	Southwest of Hanger 1, downgradient
H1-MW-125D	Southwest of Hanger 1, downgradient
H1-MW-126	Southwest of Hanger 1, downgradient
H1-MW-126D	Southwest of Hanger 1, downgradient
H1-MW-127	Southwest of Hanger 1, downgradient
H1-MW-127D	Southwest of Hanger 1, downgradient
H1-MW-128	West of Hanger 1, downgradient
H1-MW-128D	West of Hanger 1, downgradient
H1-MW-129	West of Hanger 1, downgradient
H1-MW-129D	West of Hanger 1, downgradient
H1-MW900	Southeast of the South Lean-to crash truck garage. Replaced MW05-306
H1-MW901	Southeast of the South Lean-to crash truck garage. Replaced MW05-307
H1-MW902	Southeast of the South Lean-to crash truck garage. Replaced MW05-308
H1-MW902D	Southeast of the South Lean-to crash truck garage. Replaced MW05-308
MW05-031	Downgradient of AFFF releases in Hangar 1
MW05-033	Downgradient of Hangar 1
MW05-033D	Downgradient of Hangar 1
MW05-034	West of Hangar 1
MW05-301	Upgradient of AFFF releases in Hangar 1
MW05-301D	Upgradient of AFFF releases in Hangar 1
MW05-302	Downgradient of AFFF releases in Hangar 1
MW-302D	Downgradient of AFFF releases in Hangar
MW05-303	Downgradient of AFFF AST in Hangar 1
MW05-303D	Downgradient of AFFF AST in Hangar 1
MW05-304	Downgradient of documented AFF spills/leaks in Hangar 1
MW05-304D	Downgradient of documented AFF spills/leaks in Hangar 1
MW05-306	Destroyed. Southeast of the South Lean-to crash truck garage
MW05-307	Destroyed. Southeast of the South Lean-to crash truck garage
MW05-308	Destroyed. Southeast of the South Lean-to crash truck garage
MW09-006	West of Hangar 1, downgradient
9AB-MW-05	Off-site well location, upgradient
AVG-MW-4	Off-site well location, cross gradient
MW06-301	Off-site well location, cross gradient
MW06-304	Off-site well location, upgradient
MW07-301	Off-site well location, upgradient
MW11-201	Off-site well location, upgradient
B14-MW-01	Off-site well location, upgradient
B82-MW-202D	Off-site well location, cross gradient
B82-MW-202S	Off-site well location, cross gradient

Table 9-3: AOC Hangar 1 Monitoring Locations

Monitoring Location	
Surface Soil	
AFFF-SB05-304	Southwest of Hanger 1
AFFF-SB26	Southeast area of Hanger 1, near former Crash Truck Barn
PX-DEL-EU44-01	Northwest of Hanger 1, near Building 96
PX-DEL-EU49-01	Northwest of Hanger 1, near Building 96
H1-SB-130	Eastern portion of Hanger 1
H1-SB-131	Eastern portion of Hanger 1
H1-SB-132	Eastern portion of Hanger 1
H1-SB-133	Western portion of Hanger 1
H1-SB-134	Western portion of Hanger 1
H1-SB-135	Western portion of Hanger 1
H1-SB-136	Western portion of Hanger 1
H1-SB-137	Northwest corner of Hanger 1, near former AFFF ASTs
H1-SB-138	Northwest corner of Hanger 1, near former AFFF ASTs
Subsurface Soil	
AFFF-SB03	South of Hanger 1, downgradient of former Crash Truck Barn
AFFF-SB04	Northwest corner of Hanger 1, near former AFFF ASTs
AFFF-SB05	Northwest corner of Hanger 1, near OWS
AFFF-SB05-301	East of Hanger 1
AFFF-SB05-302	West of Hanger 1
AFFF-SB05-303	West of Hanger 1
AFFF-SB05-304	Southwest of Hanger 1
AFFF-SB05-307	Southeast of Hanger 1, near former Crash Truck Barn
AFFF-SB05-308	Southeast of Hanger 1, near former Crash Truck Barn
AFFF-SB06	Hanger 1, subsurface AFFF supply line
AFFF-SB07	Hanger 1, subsurface drain pipe
AFFF-SB08	Hanger 1, subsurface AFFF supply line
AFFF-SB09	Hanger 1, eastern subsurface floor trench
AFFF-SB10	Northeast of Hanger 1, near OWS
AFFF-SB11	Hanger 1, western subsurface floor trench
AFFF-SB12	Hanger 1, south-central subsurface floor trench
AFFF-SB13	Hanger 1, south-central subsurface floor trench
AFFF-SB14	Hanger 1, southern subsurface drain pipe
AFFF-SB15	Hanger 1, subsurface AFFF supply line
AFFF-SB16	Hanger 1, subsurface AFFF supply line
AFFF-SB17	Hanger 1, subsurface AFFF supply line
AFFF-SB18	Hanger 1, southeast corner
AFFF-SB19	West of Hanger 1
AFFF-SB20	South of Hanger 1 and former Crash Truck Barn
AFFF-SB21	Southeast of Hanger 1
AFFF-SB22	South of Hanger 1 and west of former Crash Truck Barn
AFFF-SB23	Hanger 1, near former Crash Truck Barn
AFFF-SB24	South of Hanger 1 and east of former Crash Truck Barn

Table 9-3: AOC Hangar 1 Monitoring Locations

Monitoring Location	
AFFF-SB25	South of Hanger 1 and southwest of former Crash Truck Barn
AFFF-SB26	Hanger 1, near former Crash Truck Barn
AFFF-SB27	South of Hanger 1 and east of former Crash Truck Barn
AFFF-SBH1	Northeast of Hanger 1 (location of H1-MW-1 monitoring well)
H1-MW-110D	South of Hanger 1 and south of former Crash Truck Barn
H1-MW-112	Northwest corner of Hanger 1, near former AFFF ASTs
H1-MW-113	Central portion of Hanger 1
H1-MW-114	Central portion of Hanger 1
H1-MW-902D	South of Hanger 1
H1-SB-101	West of Hanger 1, near subsurface floor trench and storm sewer piping
H1-SB-102	North of Hanger 1
H1-SB-103	West of Hanger 1, near subsurface OWS line
MW05-302D	West of Hanger 1, near subsurface OWS line
MW05-303D	West of Hanger 1, near subsurface OWS line
MW05-304D	South of Hanger 1
Surface Water/Sediment	
AFFF-SW/SED01	South of Hanger 1, in TACAN Outfall
H1-SW/SED-01	Southeast of Hanger 1, in French Stream
H1-SW/SED-02	Southeast of Hanger 1, in French Stream
H1-SW/SED-03	Southeast of Hanger 1, in French Stream
PFAS-SW/SED05	Southeast of Hanger 1, in French Stream
PFAS-SW/SED06	South of Hanger 1, in French Stream
PFAS-SW/SED07	South of Hanger 1, in French Stream
PFAS-SW/SED08	South of Hanger 1, in French Stream
PFAS-SW/SED33	South of Hanger 1, in TACAN Outfall
PFAS-SW/SED34	South of Hanger 1, in TACAN Outfall

Notes:

1) Monitoring locations included in the Hanger 1 RI.

FIGURES

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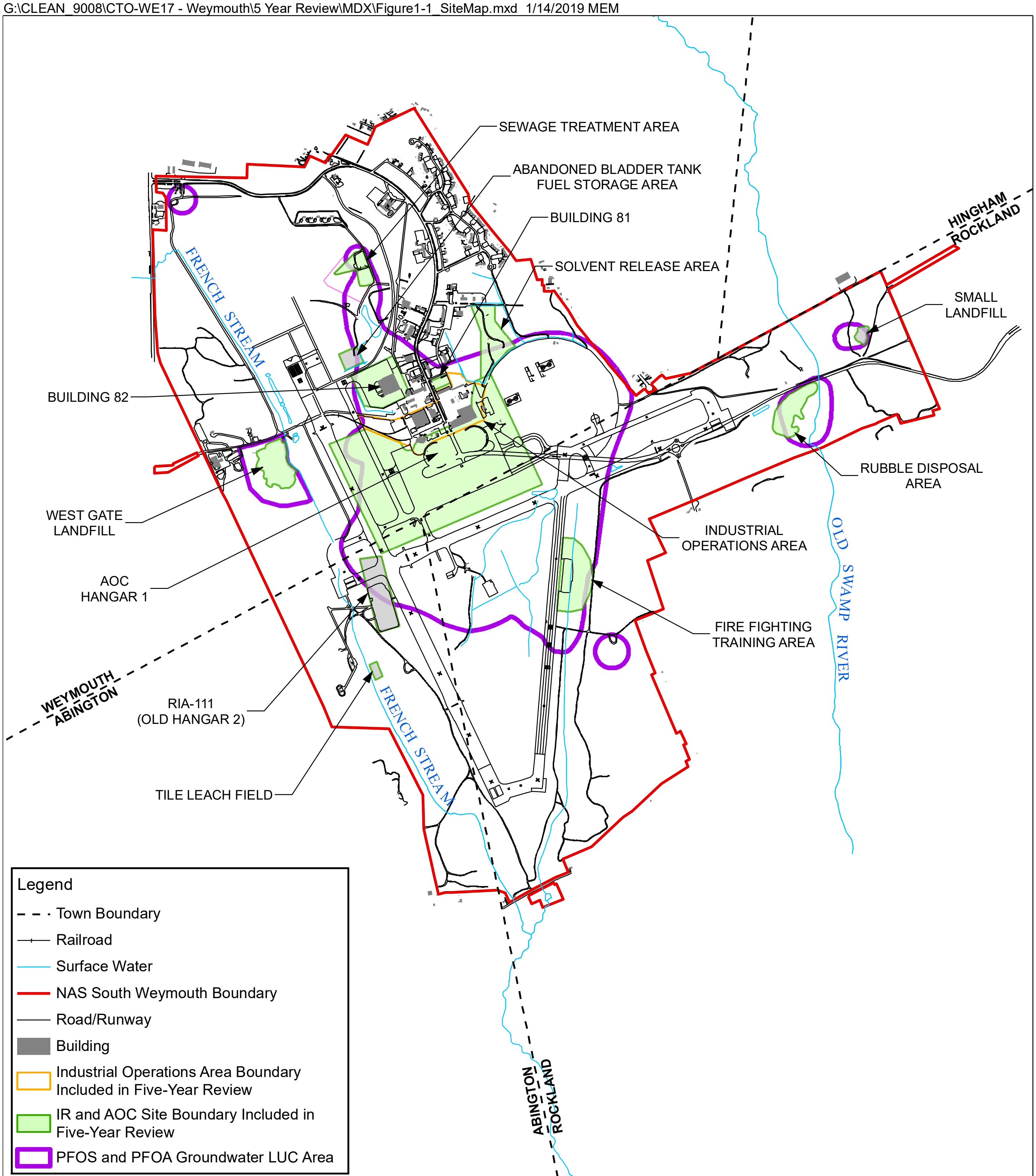

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Drawn:	MEM	1/14/2019
Approved:	JC	1/14/2019
Project #:	112G08005-WE17	

NOTE:
Figure adapted from Site Management Plan - Annual Update #18 Former NAS South Weymouth (Resolution Consultants, June 18, 2018)

FIGURE 1-1
BASE LOCATION MAP
IR AND AOC SITES
THIRD FIVE-YEAR REVIEW

FORMER NAVAL AIR STATION
SOUTH WEYMOUTH

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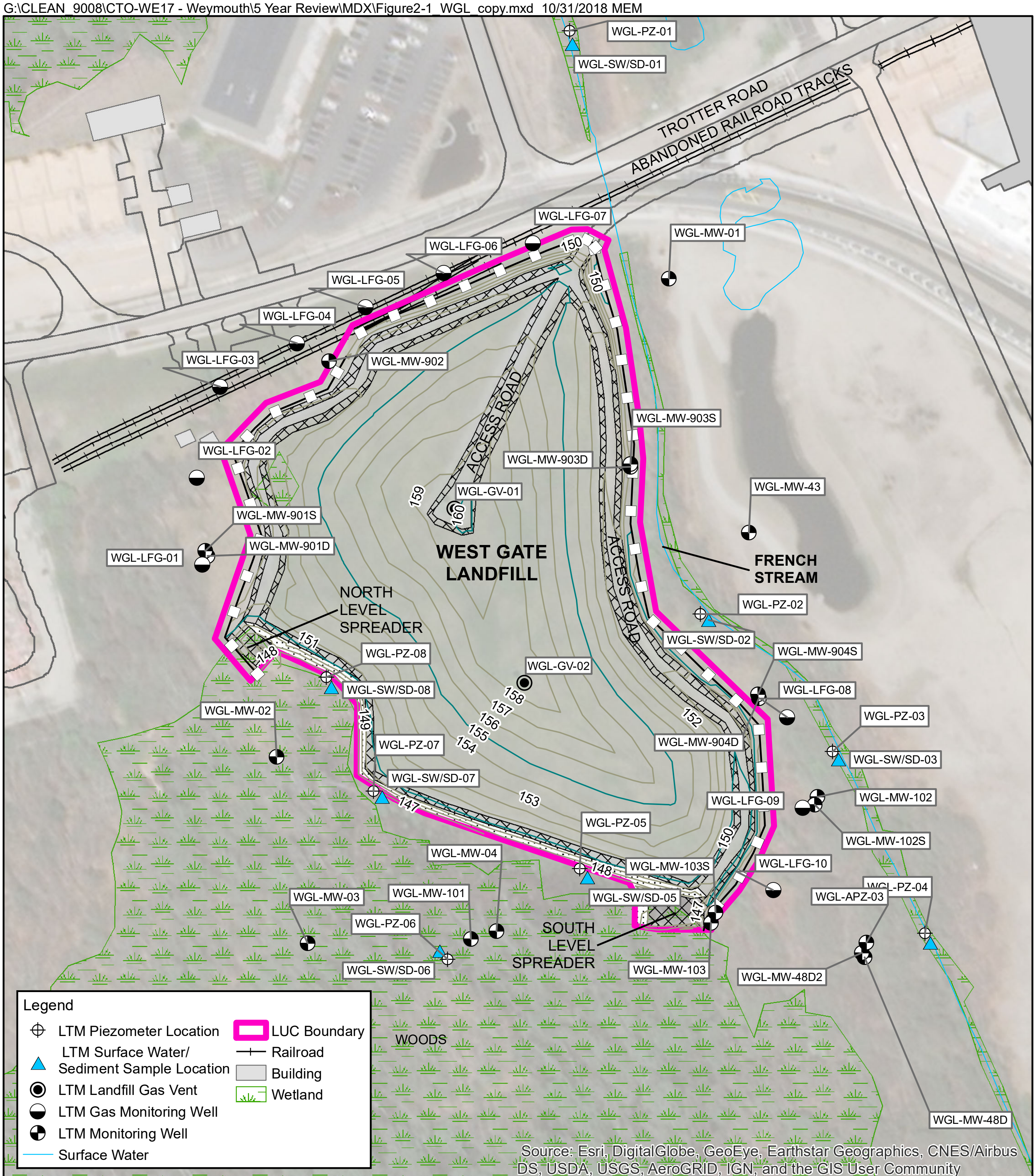

NAVFAC

Drawn:	MEM	10/31/2018
Approved:	JC	10/31/2018
Project #:	112G08005-WE17	

FIGURE 2-1
IR PROGRAM SITE 1
WEST GATE LANDFILL
THIRD FIVE-YEAR REVIEW

FORMER NAVAL AIR STATION
SOUTH WEYMOUTH

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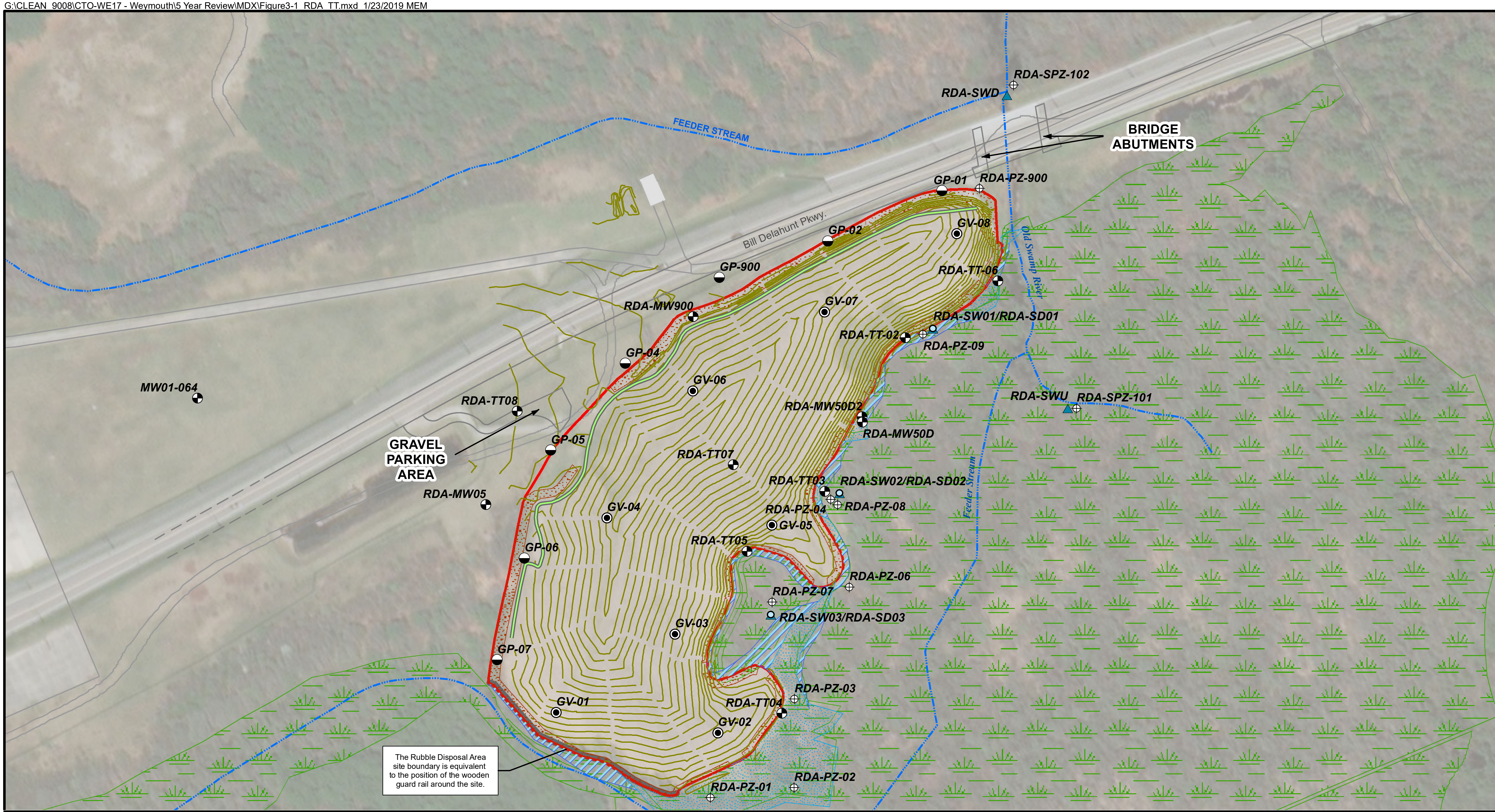

Legend	
Surface Water Location	LGMS
GasProbe	Gabion Wall
Gas Vent	Wetland
Piezometer	Approximate Site and Permanent LUC Boundary
Monitoring Well	Approximate Location of Rip Rap (Based on Tt EC Drawing, 2007)
Sediment Locations	

Approximate Restored Wetland Location (Based on Tt EC Drawing, 2007)

Approximate New Wetlands Created Location (Based on Tt EC Drawing, 2007)

N

0 50 100 200 Feet

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Drawn: MEM 1/23/2019

Approved: JC 1/23/2019

Project #: 112G08005-WE17

FIGURE 3-1
IR PROGRAM SITE 2
RUBBLE DISPOSAL AREA
THIRD FIVE-YEAR REVIEW

FORMER NAVAL AIR STATION
SOUTH WEYMOUTH

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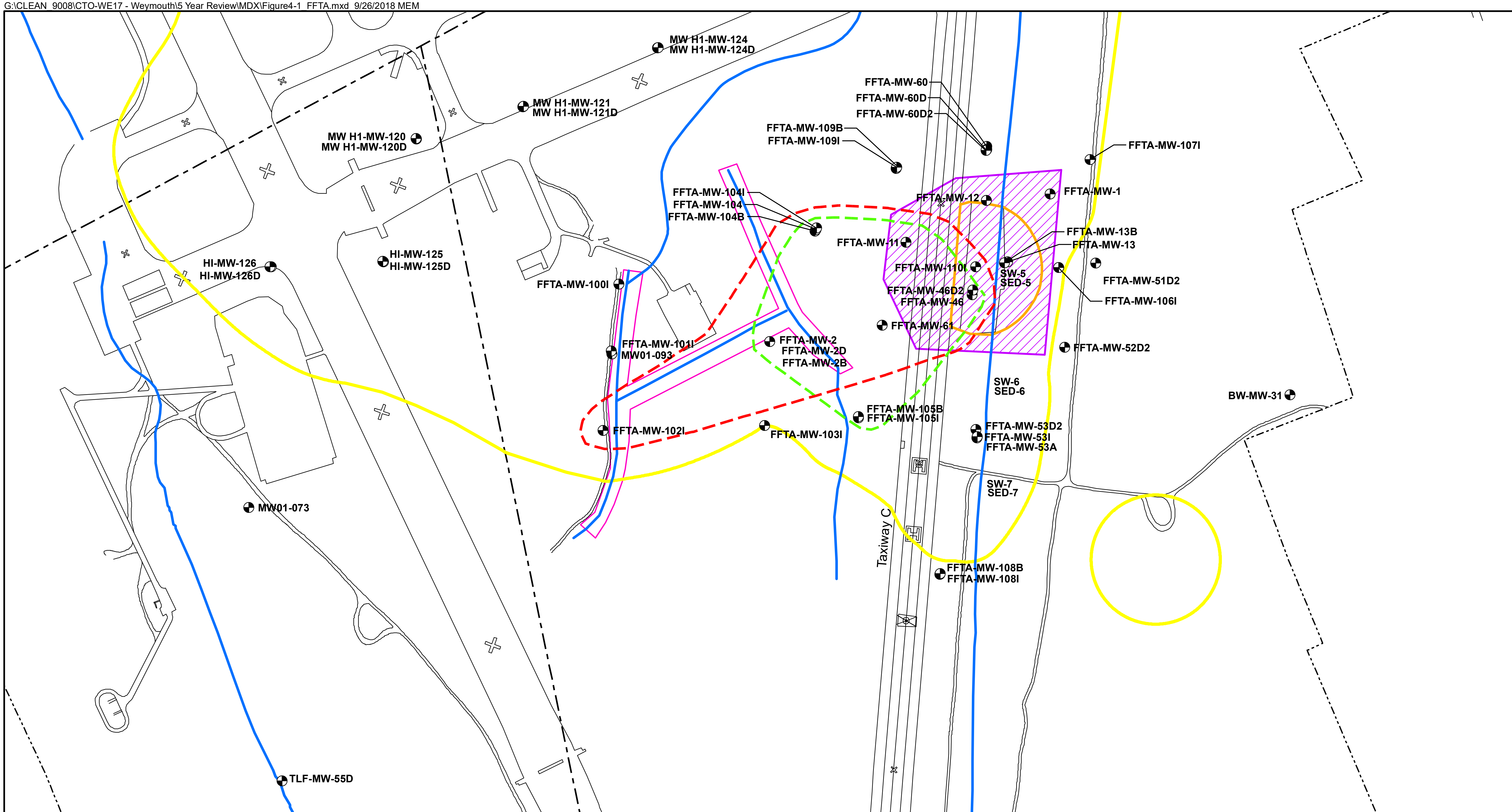

Legend

- Approximate Overburden Groundwater Extent of Combined PFOS and PFOA in Above LHA (Dashed where Inferred)
- Approximate Bedrock Groundwater Extent of Combined PFOS and PFOA in Above LHA (Dashed where Inferred)
- Monitoring Well Location
- Surface Water and Sediment Sample Location
- Groundwater Restriction Boundary
- PFAS LUCIP
- Surface Water
- Road/Pavement
- NAS South Weymouth Boundary
- Fire Fighting Training Area
- TACAN Drainage Ditch
- Town Boundary

N

0 180 360

Scale in Feet

Notes
1. PFOA = Perfluorooctanoic Acid.
2. PFOS = Perfluorooctane Sulfonate.
3. LHA = U.S. EPA Lifetime Health Advisory Screening Level (0.07 micrograms per liter [ug/l]).
4. Figure adapted from Site Management Plan - Annual Update #18 Former NAS South Weymouth (Resolution Consultants, June 18, 2018)

Drawn: MEM	9/26/2018
Approved: JC	9/26/2018
Project #: 112G08005-WE17	

FIGURE 4-1
FORMER FIRE FIGHTING TRAINING AREA
THIRD FIVE-YEAR REVIEW

FORMER NAVAL AIR STATION
SOUTH WEYMOUTH

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Notes:

1. The final depiction of site data and conditions will be presented in a forthcoming remedial action completion report.

2. Figure adapted from Site Management Plan - Annual Update #18 Former NAS South Weymouth (Resolution Consultants, June 18, 2018)

Legend

- Soil Sample Does Not Exceed Revised Remedial Goals
- Soil Sample Exceeds Revised Non-Residential Remedial Goals
- Soil Sample Exceeds Revised Residential Remedial Goals
- Monitoring Well in Long-Term Monitoring Plan
- Sediment Sample in Long-Term Monitoring Plan
- Treeline
- Proposed Land Use Control Boundary (Below 2 Feet)
- Proposed Land Use Control Boundary (Below 9 Feet)
- Catch Basin
- Former Structures
- Gravel/Cobble Backfill
- Current Wetland Boundary
- ROD Wetland Boundary
- Test Pit Locations
- Ditch Excavation
- Pipe Excavated (2014/2015 Mobilization)
- Extent of Excavation (2009 Mobilization)
- Extent of Excavation (2014/2015 Mobilization)

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Project #:	112G08005-WE17	

N

0 8 16
Scale in Feet

FIGURE 5-1
SITE 7, FORMER SEWAGE TREATMENT PLANT
THIRD FIVE-YEAR REVIEW

FORMER NAVAL AIR STATION SOUTH WEYMOUTH

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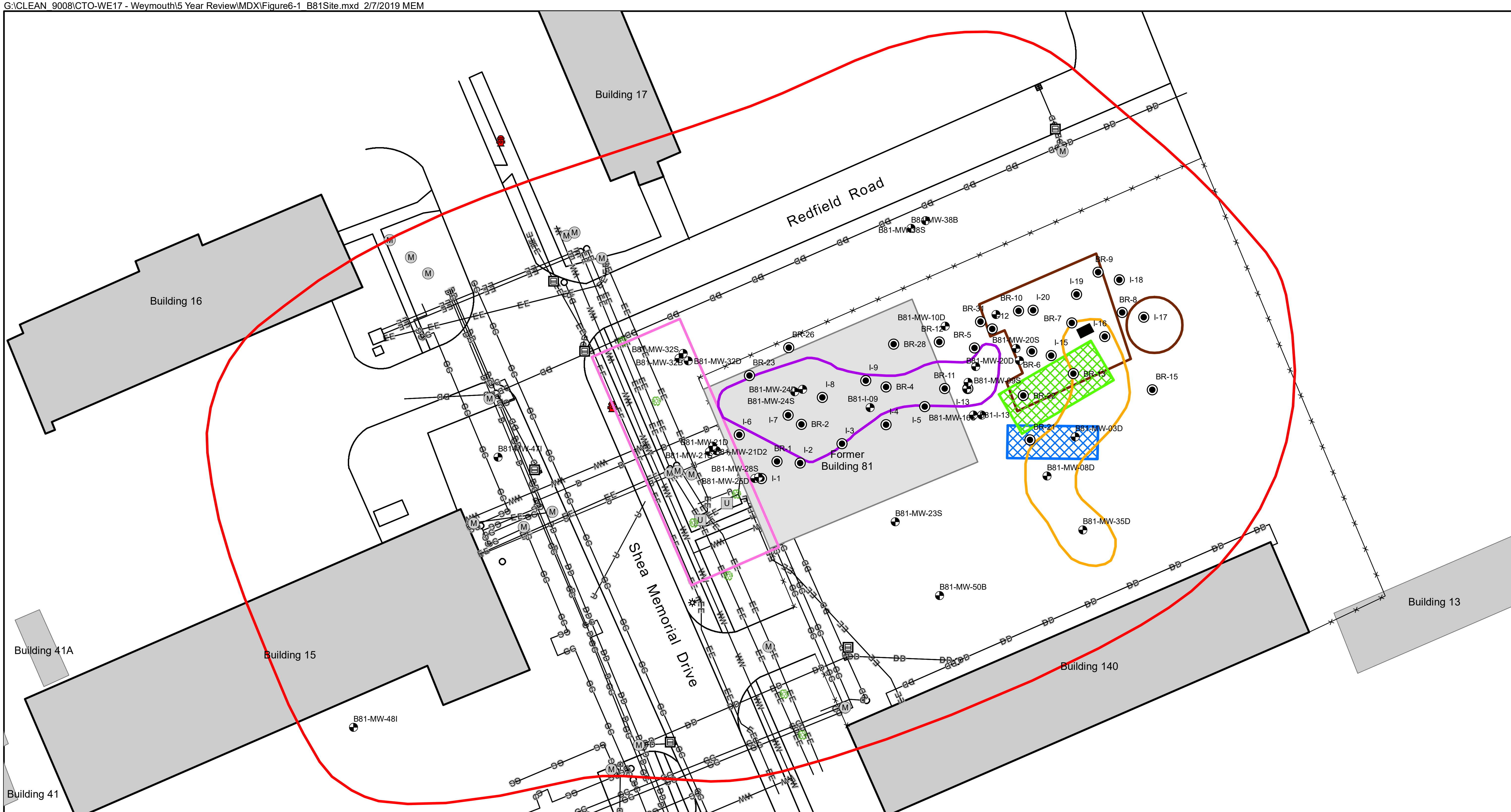

Drawn: MEM	2/7/2019
Approved: JC	2/7/2019
Project #: 112G08005-WE17	

Legend

- Monitoring Well
- Historic ISCO Injection Well
- Building
- Extent of VOCs in Groundwater
- Source UST
- Previous Excavation Areas
- Catch Basin
- Fire Hydrant
- Manhole
- Tree
- Utility Box
- -E- Electric Line
- -W- Water Line
- -G- Natural Gas Line
- -D- Drain Line
- -x- Fence
- West Bedrock Plume Area (Groundwater 55 ug/L PCE Contour - 2014-2016)
- South Bedrock Plume Area (Groundwater 55 ug/L PCE Contour - 2014-2016)
- ROD Area of Bio-Barrier
- ROD Deep Bedrock Treatment Zone
- ROD Shallow Bedrock Treatment Zone

NOTE:
Figure adapted from Site Management Plan - Annual Update #18 Former NAS South Weymouth.
(Resolution Consultants, June 18, 2018)

N

0 20 40
Scale in Feet

FIGURE 6-1
IR PROGRAM SITE 9
BUILDING 81
THIRD FIVE-YEAR REVIEW

FORMER NAVAL AIR STATION SOUTH WEYMOUTH

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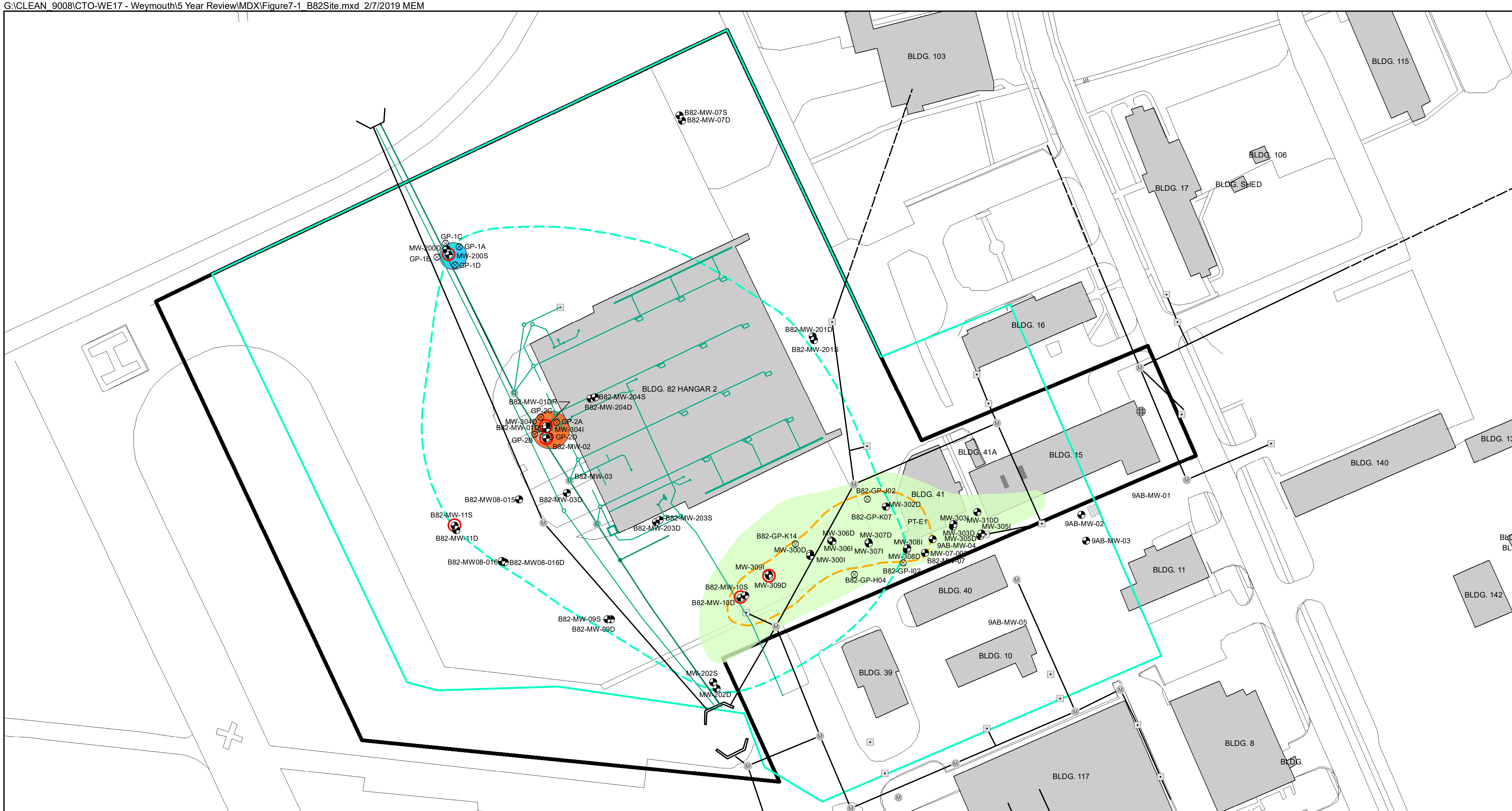

Overburden Monitoring Well	Catch Basin	Former Hydraulic Lifts
Groundwater Profile Location	Storm Line	2016 Groundwater LUC Area
Manganese Concentration Above Remedial Goal of 300 ug/L (February 2017)	Floor Drain System	Manganese Area Impacted Above
	Road/Pavement	TCE Area Impacted Above
Oil-Water Separator	Building 82 Investigation Area	ROD Estimated Extent of 1,1-DCA Area
Manhole	Building	ROD Estimated Extent of NNPA Area
	UST	ROD Estimated Extent of TCE

NOTE
1. The shallow overburden is defined as between 0-10' BGS.
2. The deep overburden is defined as between 10' BGS and bedrock.
3. Figure adapted from Site Management Plan - Annual Update #18 Former NAS South Weymouth (Resolution Consultants, June 18, 2018)

N

0 55 110

Scale in Feet

NAVFAC

Drawn: MEM 2/7/2019

Approved: JC 2/7/2019

Project #: 112G08005-WE17

FIGURE 7-1
IR PROGRAM SITE 10
BUILDING 82
THIRD FIVE-YEAR REVIEW

FORMER NAVAL AIR STATION
SOUTH WEYMOUTH

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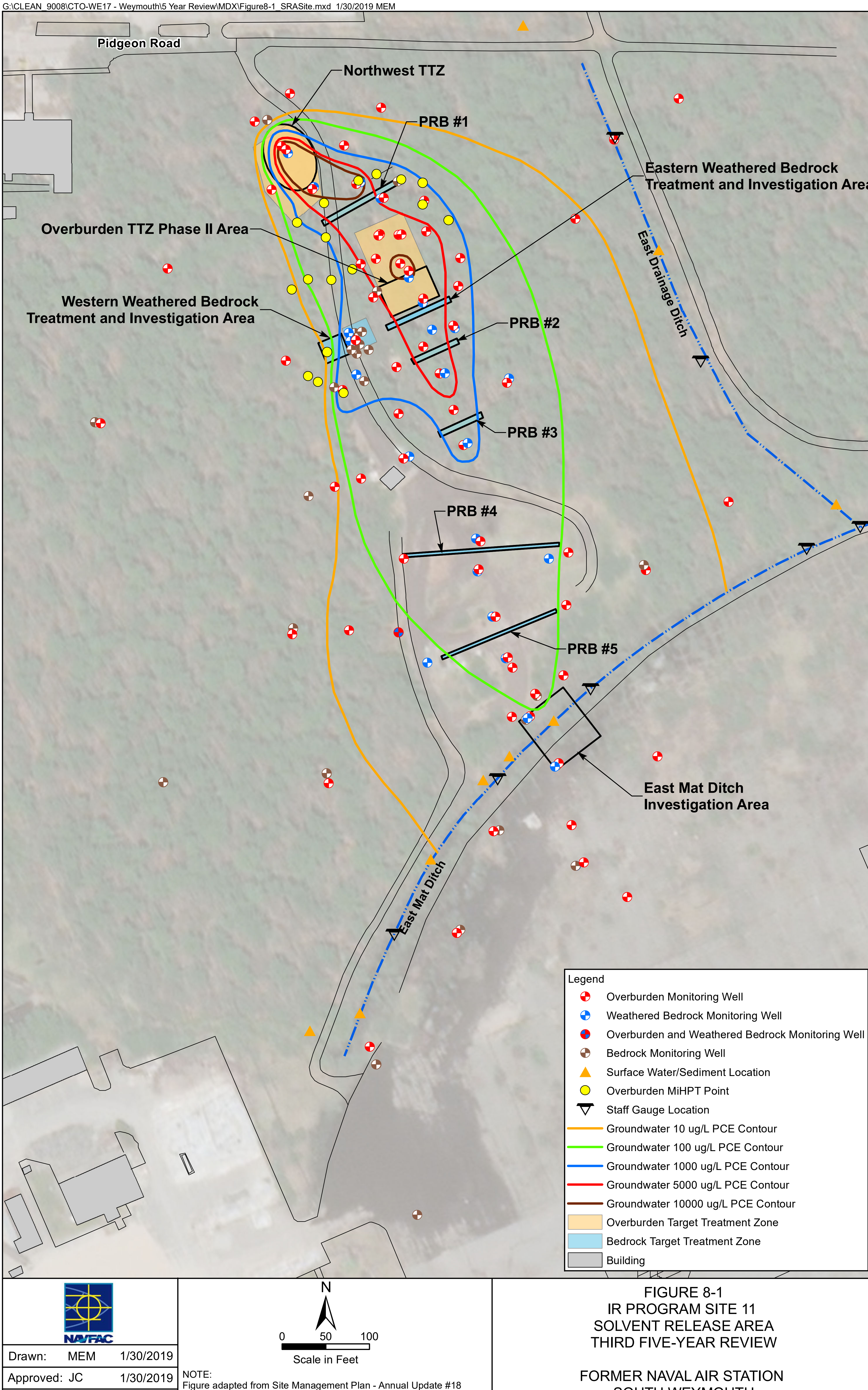

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Drawn:	MEM	1/30/2019
Approved:	JC	1/30/2019
Project #:	112G08005-WE17	

NOTE:
Figure adapted from Site Management Plan - Annual Update #18
Former NAS South Weymouth (Resolution Consultants, June 18, 2018)

FIGURE 8-1
IR PROGRAM SITE 11
SOLVENT RELEASE AREA
THIRD FIVE-YEAR REVIEW

FORMER NAVAL AIR STATION
SOUTH WEYMOUTH

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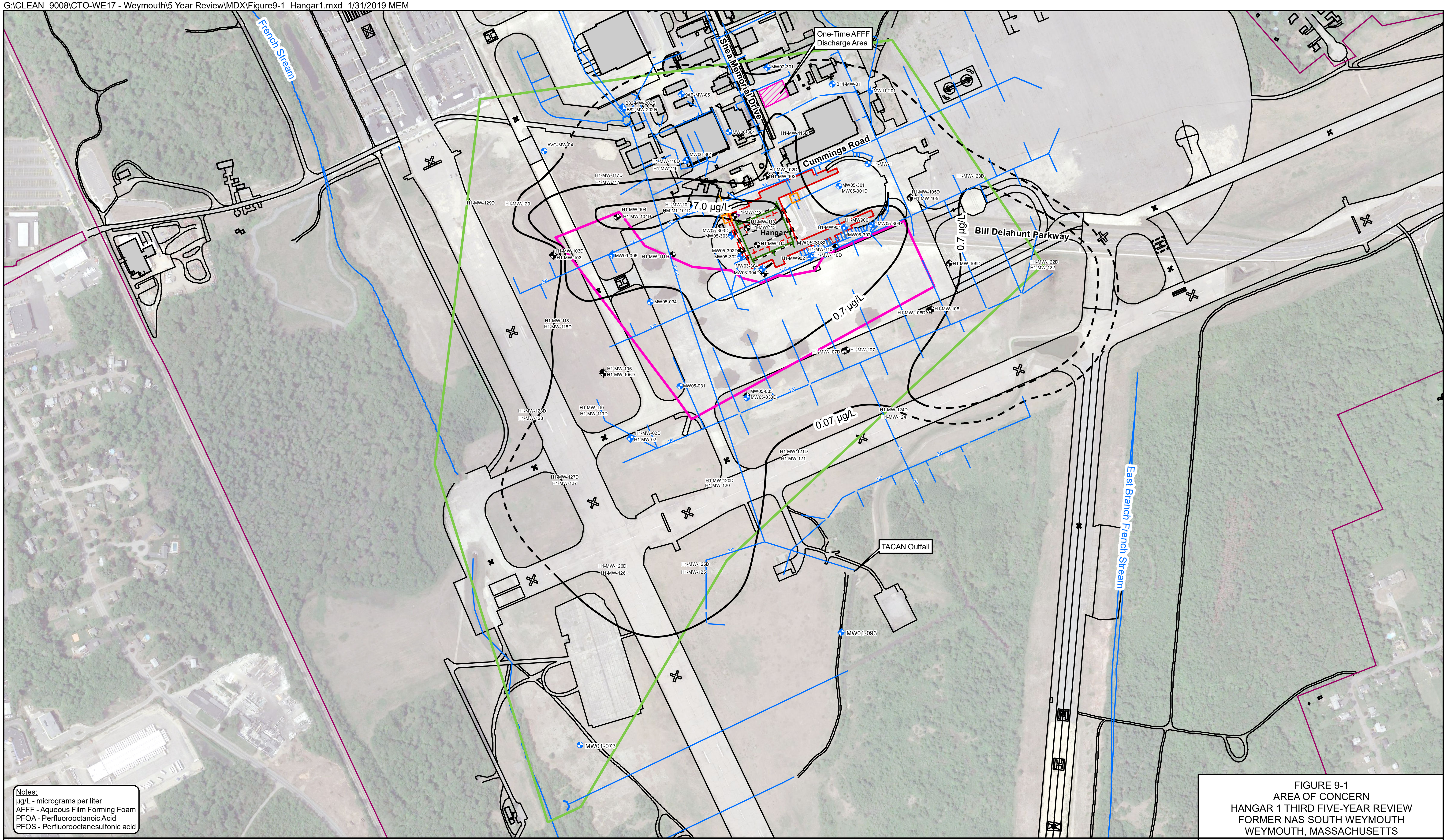

Notes:
µg/L - micrograms per liter
AFFF - Aqueous Film Forming Foam
PFOA - Perfluorooctanoic Acid
PFOS - Perfluorooctanesulfonic acid

FIGURE 9-1
AREA OF CONCERN
HANGAR 1 THIRD FIVE-YEAR REVIEW
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

Legend

- Remedial Investigation Monitoring Well
- Existing Monitoring Well Location (wells in grey are destroyed)
- Oil-Water Separator
- AFFF Pipe
- Subsurface Drain Pipes
- Floor Trenches
- Subsurface Sanitary Sewer
- Subsurface Storm Sewer
- Subsurface OWS Line
- Naval Air Station South Weymouth Boundary
- Total PFOS and PFOA Isocontour (dashed where inferred)
- Approximate Hangar 1 RI Study Area
- Groundwater Restriction Boundary
- Former Location of Hangar 1
- Building

N

0 460 920 Feet

NAVFAC Naval Facilities Engineering Command

REQUESTED BY: J. Connet	DATE: 1/31/2019
DRAWN BY: M. Mason	TASK ORDER NUMBER: WE17

Service Layer Credits: Google Earth Pro

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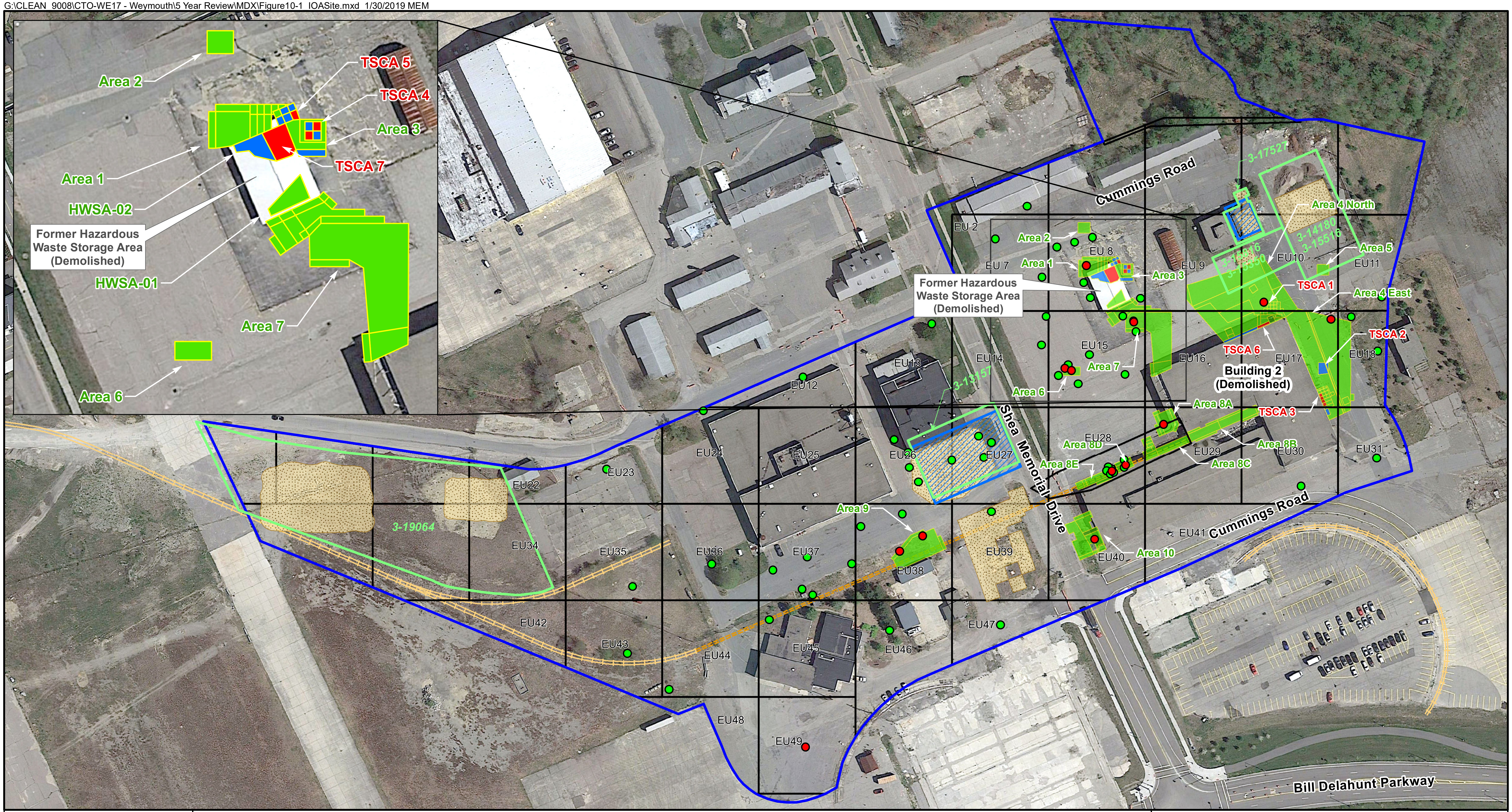

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Drawn:	MEM	1/30/2019
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Project #:	112G08005-WE17	

Historical IOA Surface Soil Sample (Exceedance)
Existing Surface Soil Sample (No Exceedance)
Industrial Area Boundary
Railroad Spur (Portions Removed)
Previously Excavated Area

Excavation Status (09/28/18):
Clean
Non-TSCA Exceedance (awaiting excavation)
TSCA (PCB levels still present)
Utilities Obstruction

Activity And Use Limitation Area Boundary
RTN Site Boundary

Note:
1. Historical information suggests SB06-001 and SB06-002 locations are uncertain.
2. Figure adapted from IOA Remedial Action Excavation Status (9/28/18) figure (Tetra Tech EC, 2018)

N
0 75 150
Scale in Feet

FIGURE 10-1
INDUSTRIAL OPERATIONS AREA
THIRD FIVE-YEAR REVIEW

FORMER NAVAL AIR STATION
SOUTH WEYMOUTH

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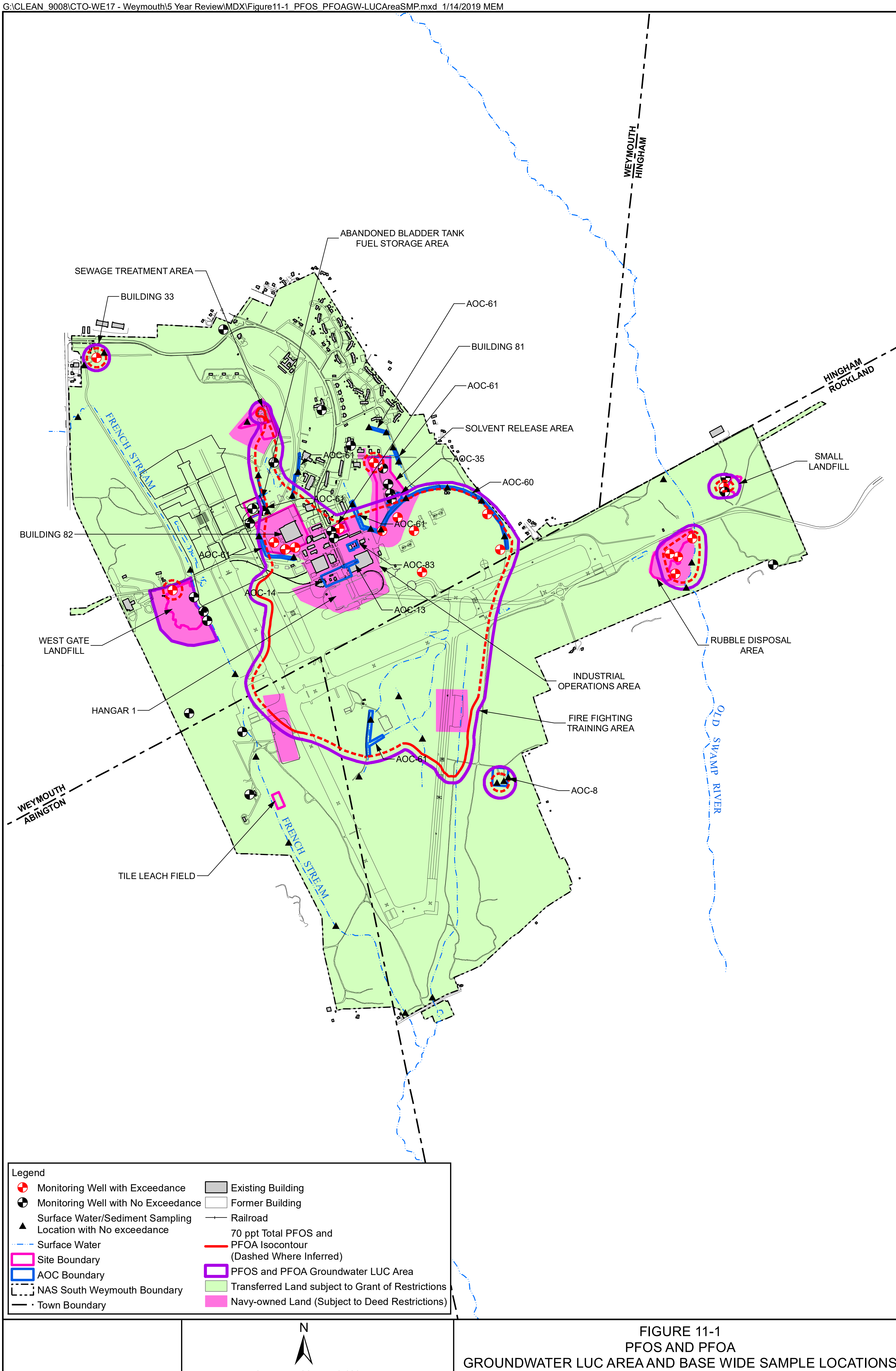

Drawn: MEM	1/14/2019
Approved: JC	1/14/2019
Project #: 112G08005-WE17	

NOTE:
Figure adapted from Site Management Plan - Annual Update #18 Former NAS South Weymouth (Resolution Consultants, June 18, 2018)

FIGURE 11-1
PFOS AND PFOA
GROUNDWATER LUC AREA AND BASE WIDE SAMPLE LOCATIONS
THIRD FIVE-YEAR REVIEW

FORMER NAVAL AIR STATION
SOUTH WEYMOUTH

EXHIBITS

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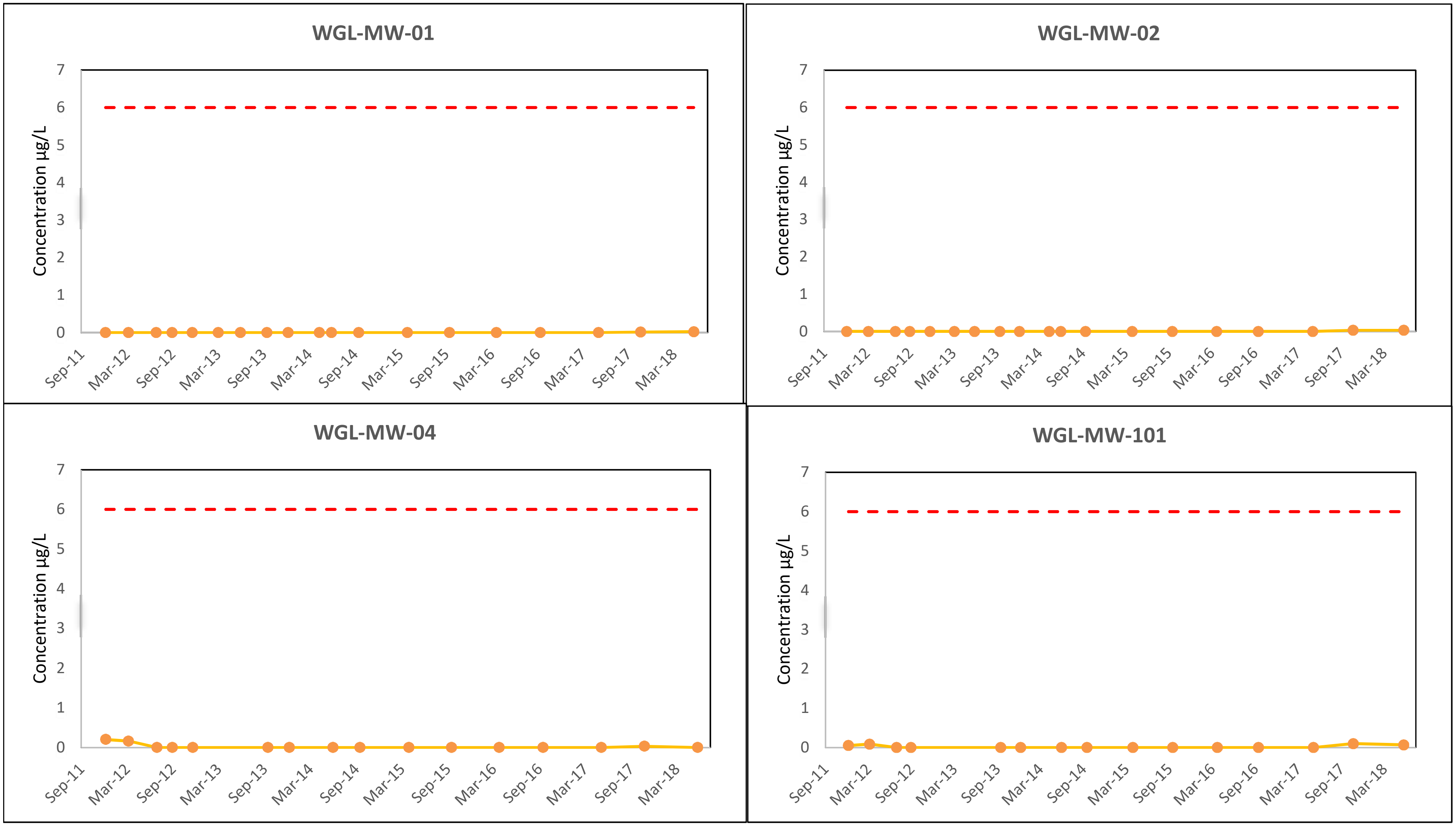
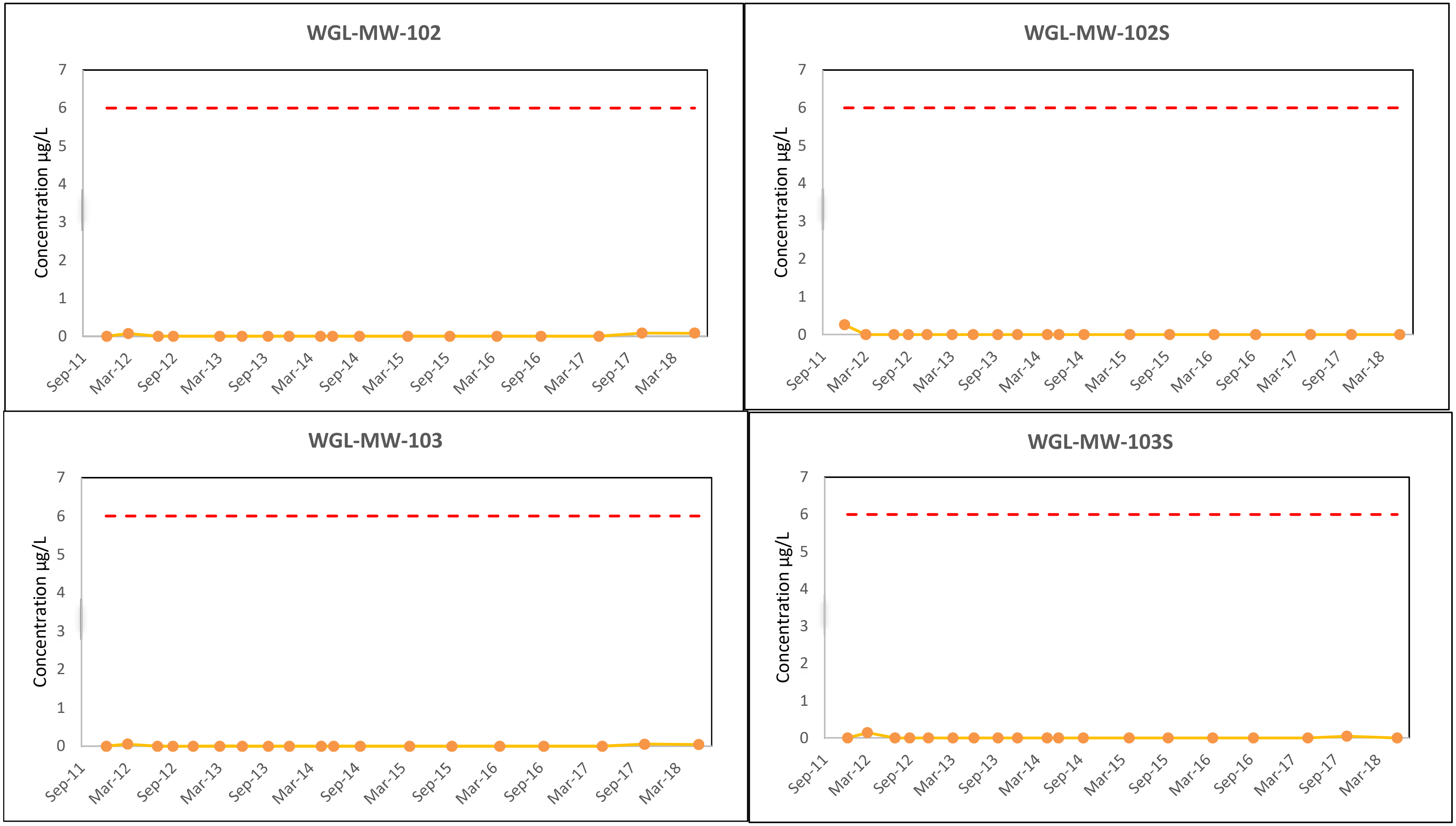
Exhibit 2-1
1,4-Dioxane Trends in Groundwater - 2011 - 2018
West Gate Landfill
NAS South Weymouth



Notes: 1,4-Dioxane Concentration — Project Action Limit = 6 µg/L
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

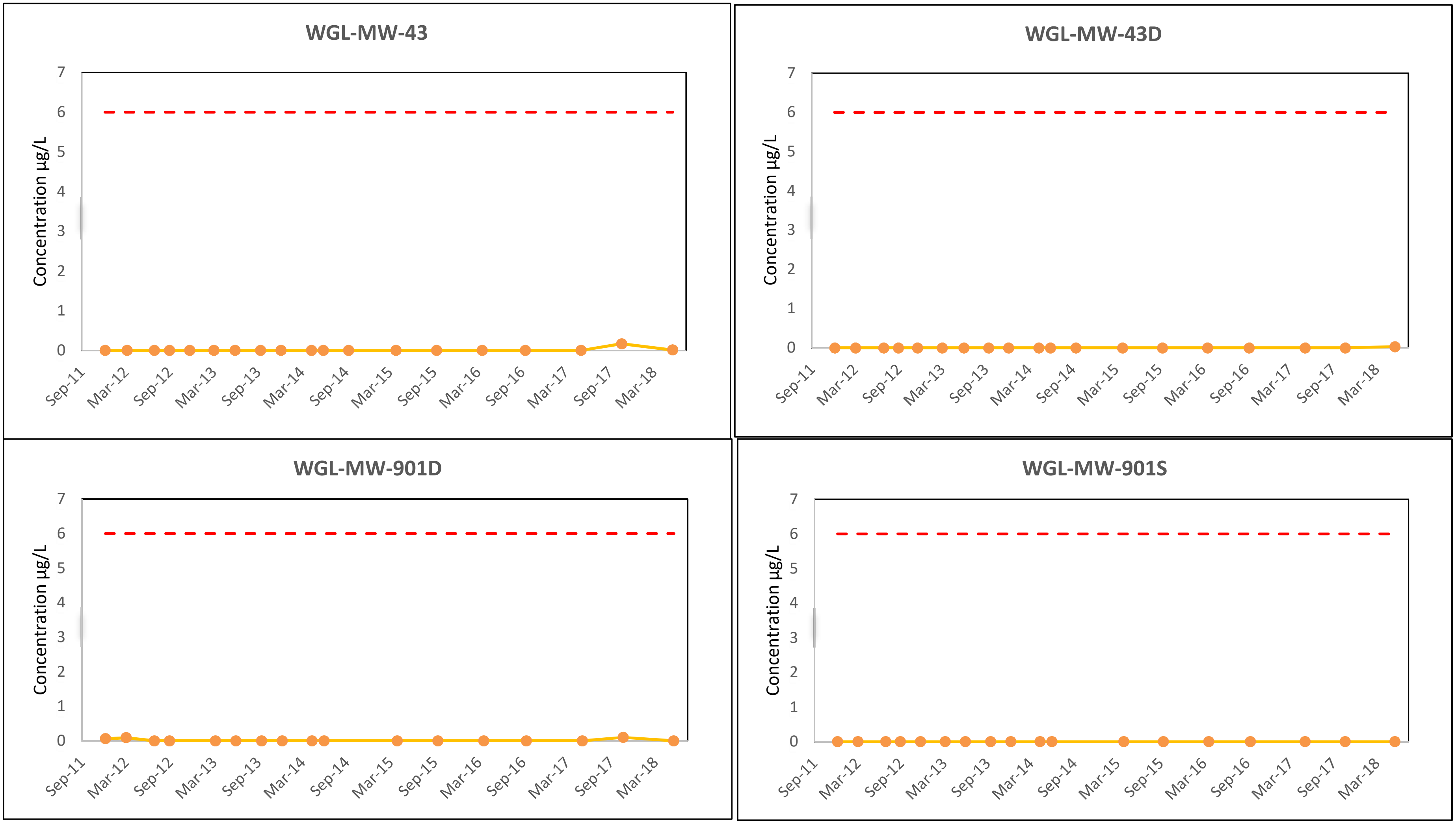
Exhibit 2-1
1,4-Dioxane Trends in Groundwater - 2011 - 2018
West Gate Landfill
NAS South Weymouth



Notes: 1,4-Dioxane Concentration Project Action Limit = 6 µg/L

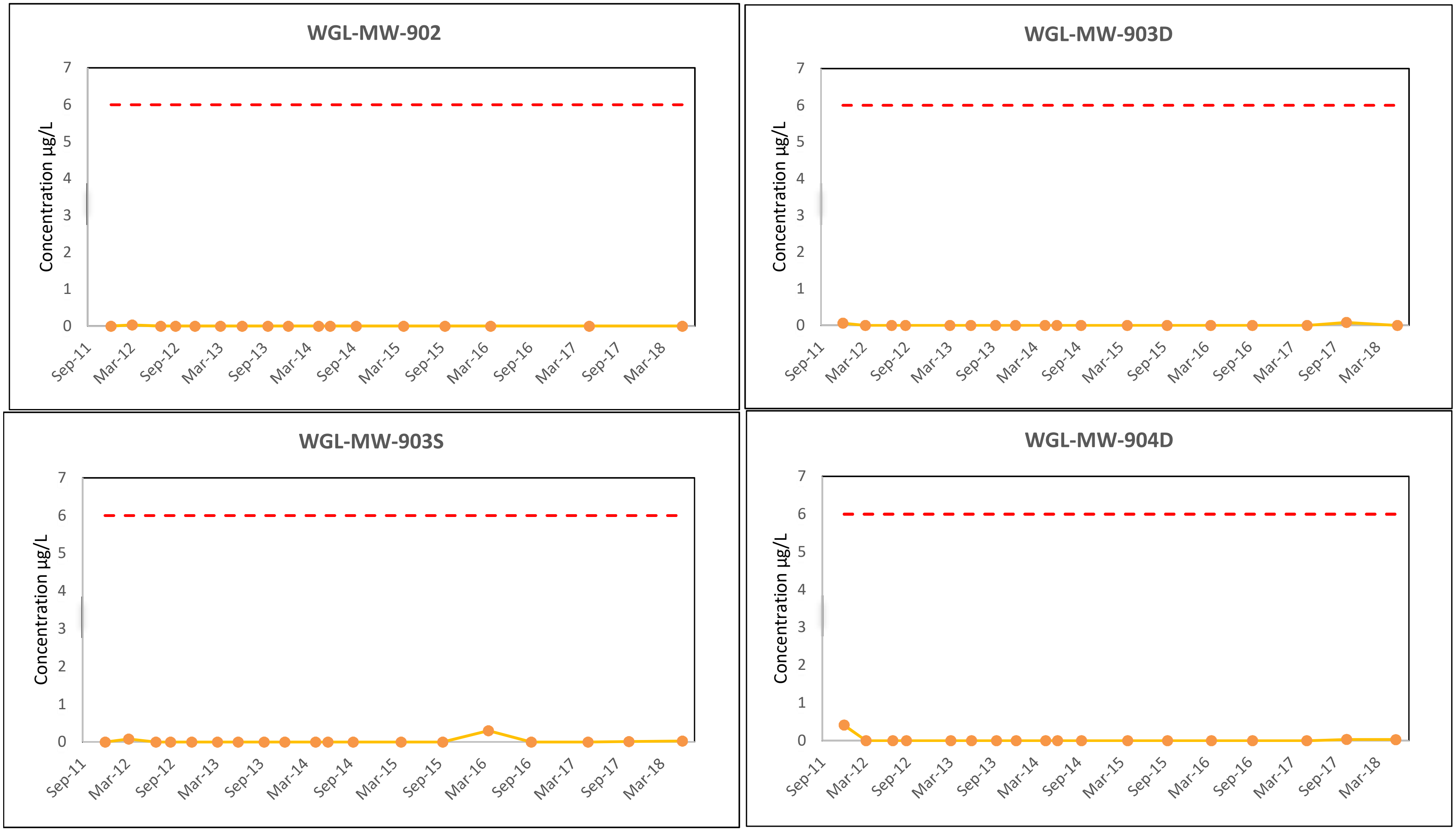
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

Exhibit 2-1
1,4-Dioxane Trends in Groundwater - 2011 - 2018
West Gate Landfill
NAS South Weymouth



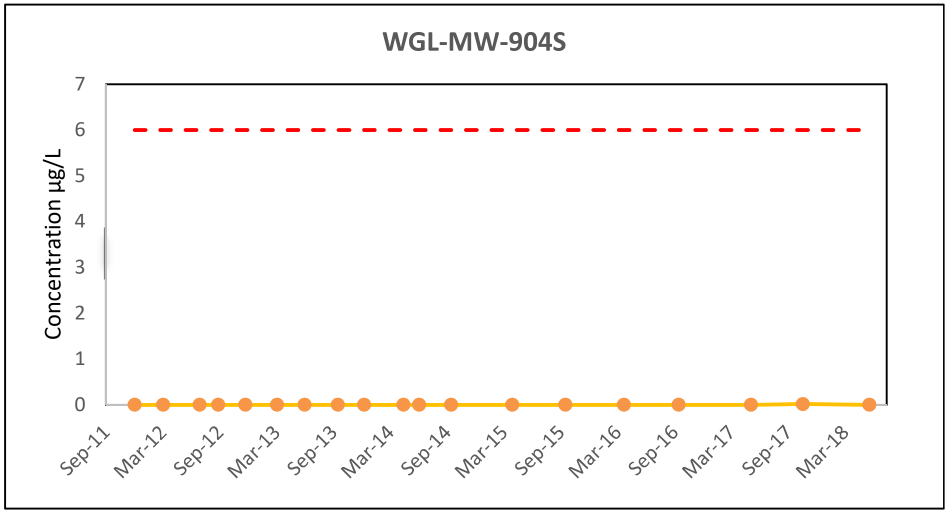
Notes: 1,4-Dioxane Concentration Project Action Limit = 6 µg/L
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

Exhibit 2-1
1,4-Dioxane Trends in Groundwater - 2011 - 2018
West Gate Landfill
NAS South Weymouth



Notes: 1,4-Dioxane Concentration — Project Action Limit = 6 µg/L
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

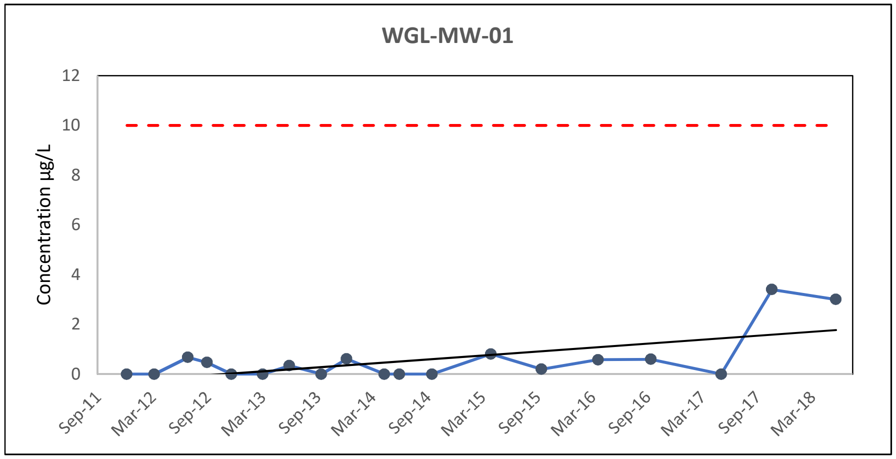
Exhibit 2-1
1,4-Dioxane Trends in Groundwater - 2011 - 2018
West Gate Landfill
NAS South Weymouth

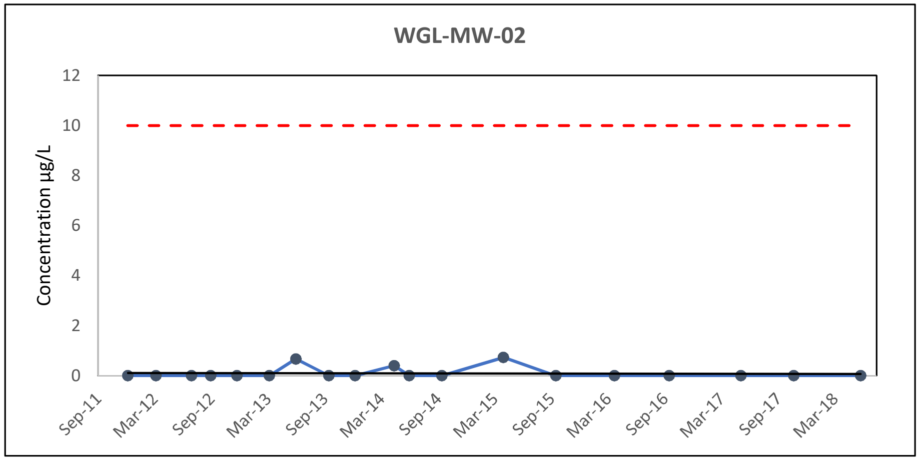


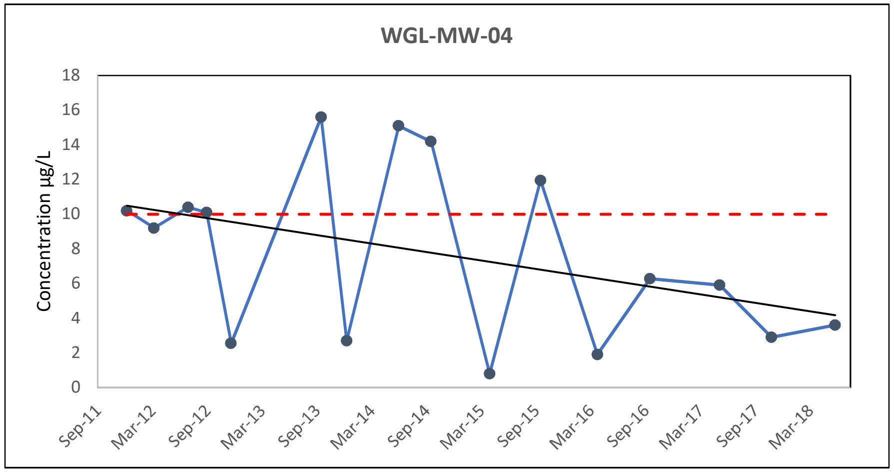
Notes: 1,4-Dioxane Concentration — Project Action Limit = 6 µg/L

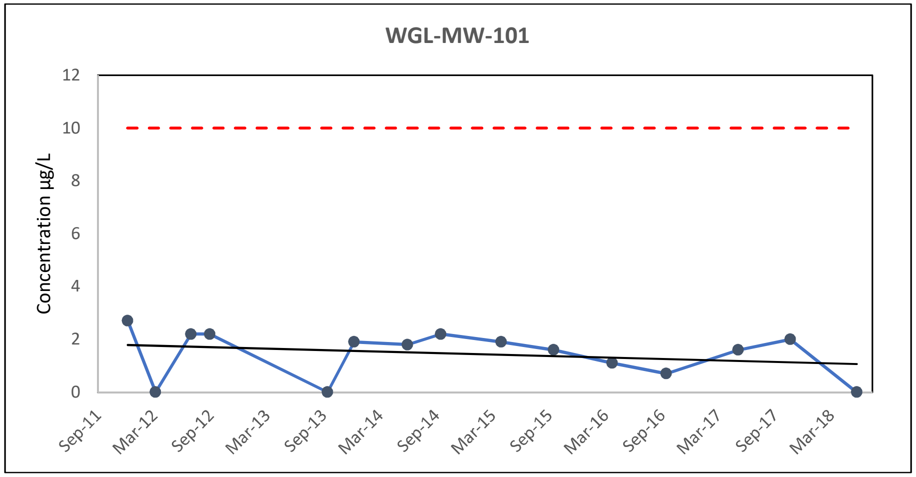
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

Exhibit 2-2
Arsenic Trend in Groundwater - 2011 - 2018
West Gate Landfill
NAS South Weymouth



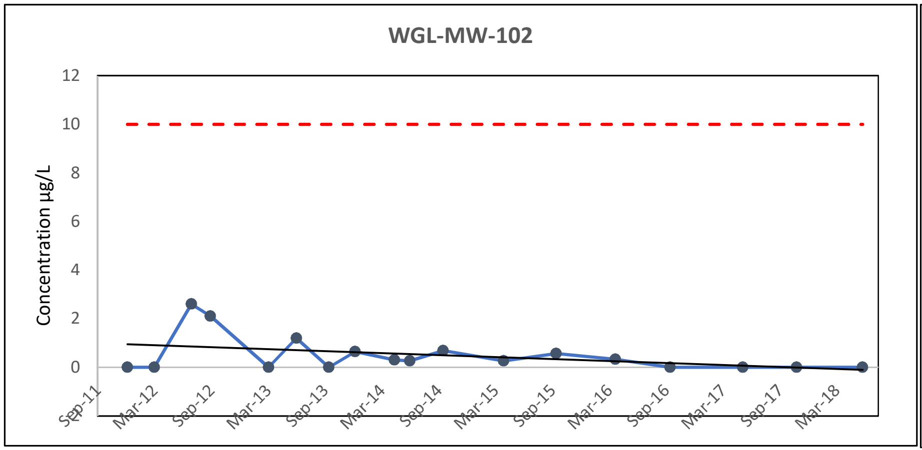


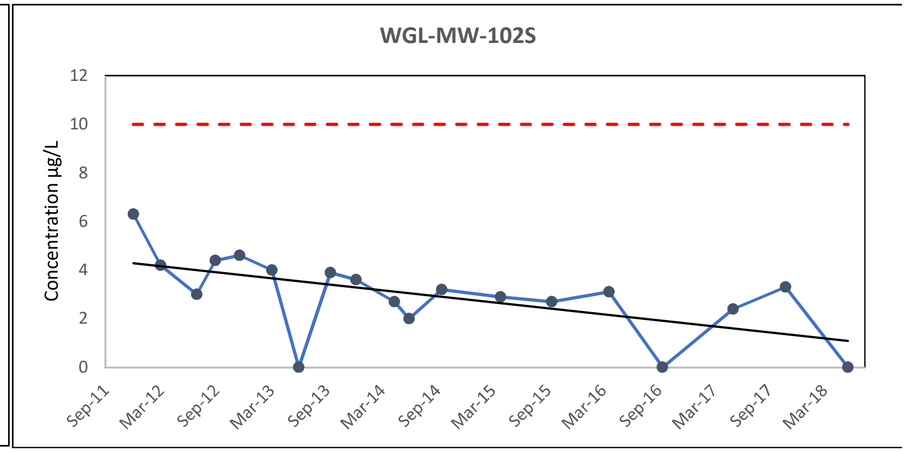


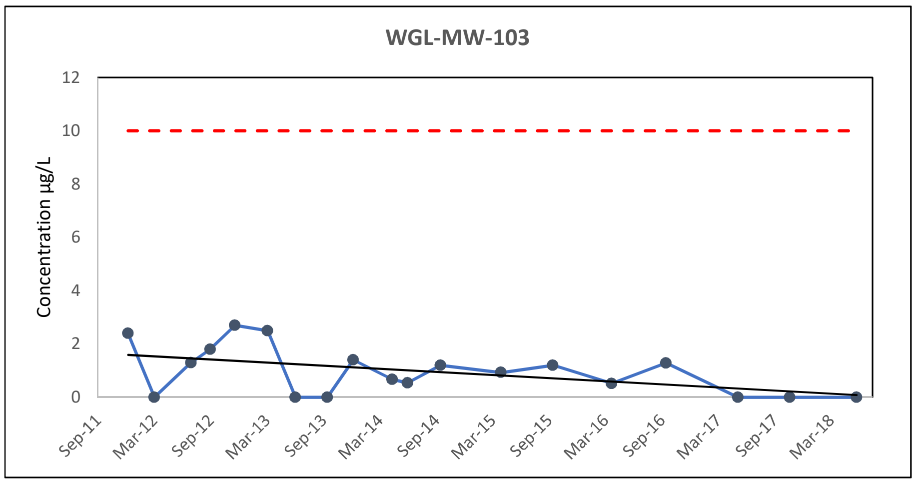


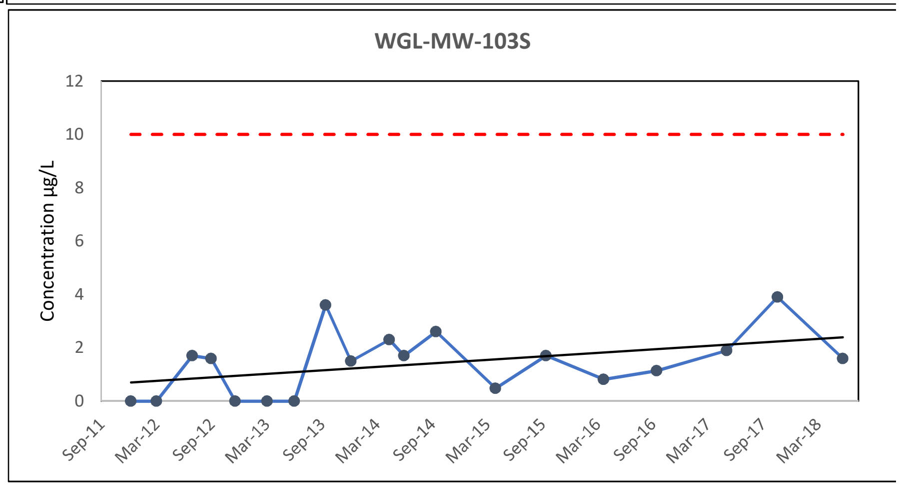
Notes: Arsenic Concentration — Project Action Limit = 10 µg/L
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

Exhibit 2-2
Arsenic Trend in Groundwater - 2011 - 2018
West Gate Landfill
NAS South Weymouth



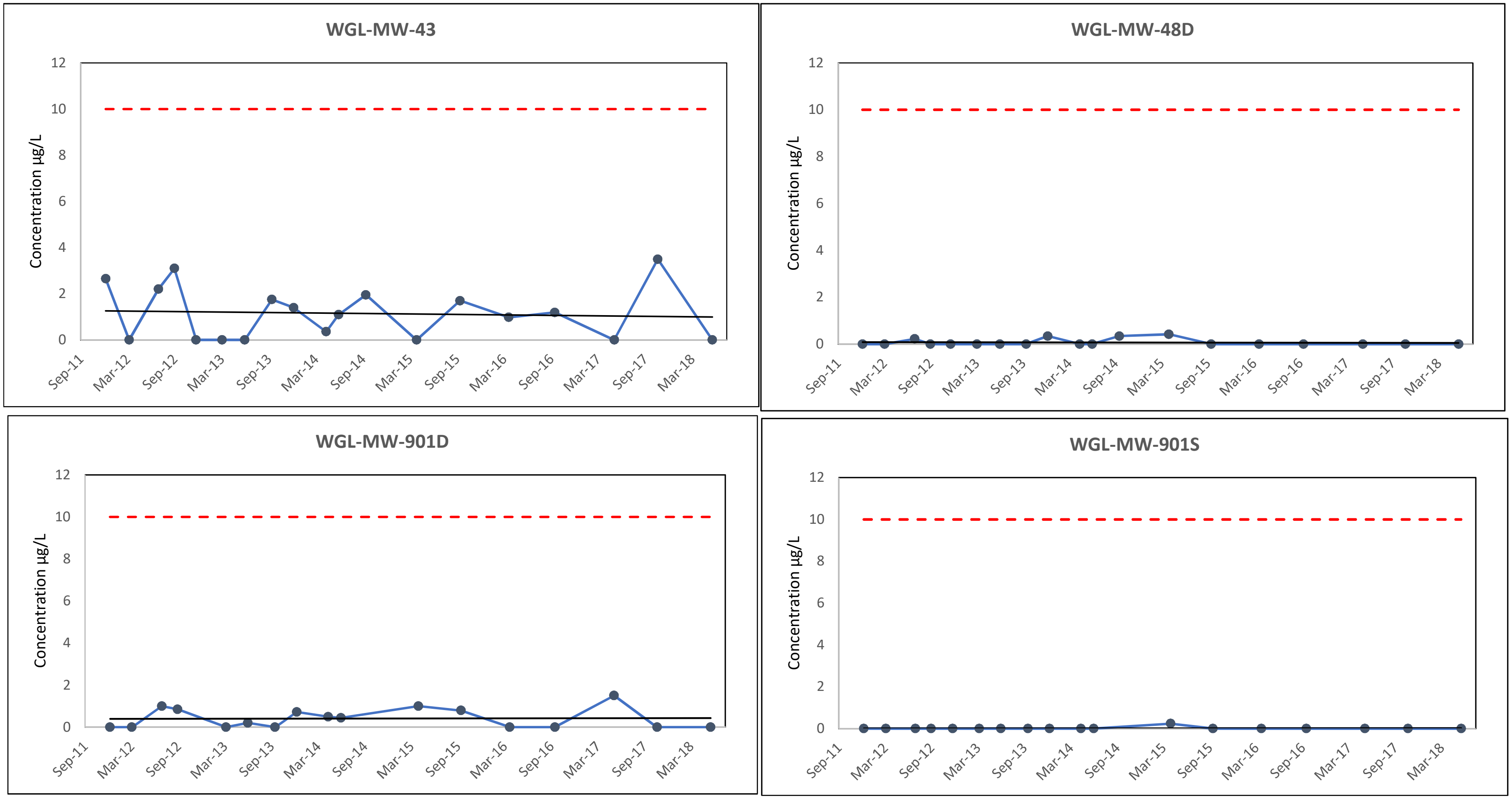






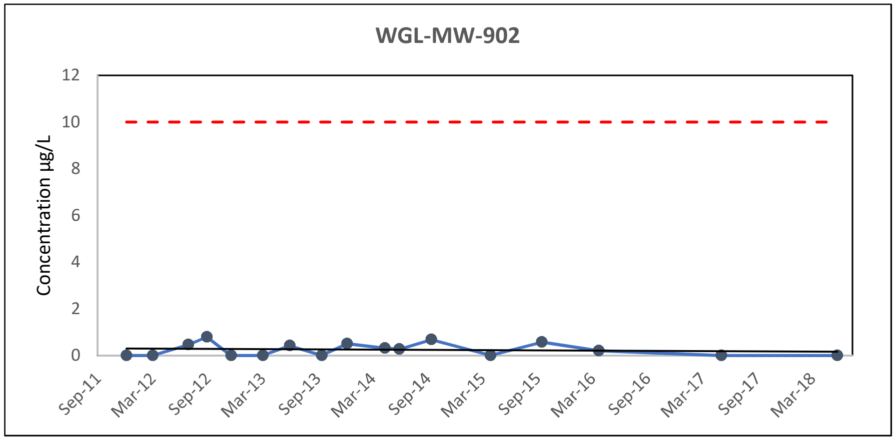
Notes: Arsenic Concentration Project Action Limit = 10 µg/L
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

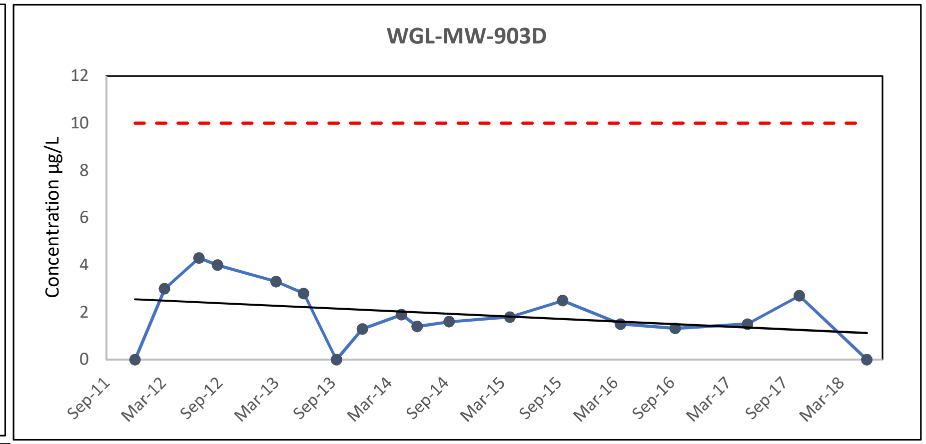
Exhibit 2-2
Arsenic Trend in Groundwater - 2011 - 2018
West Gate Landfill
NAS South Weymouth

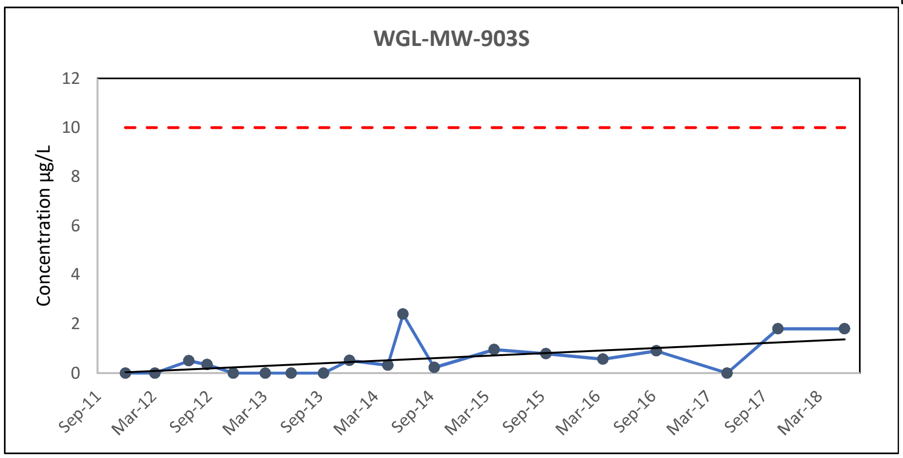


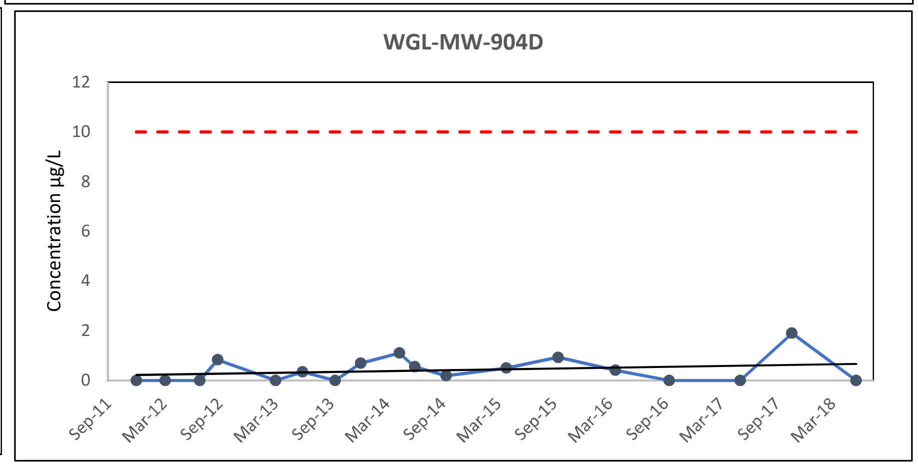
Notes: Arsenic Concentration — Project Action Limit = 10 µg/L
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

Exhibit 2-2
Arsenic Trend in Groundwater - 2011 - 2018
West Gate Landfill
NAS South Weymouth



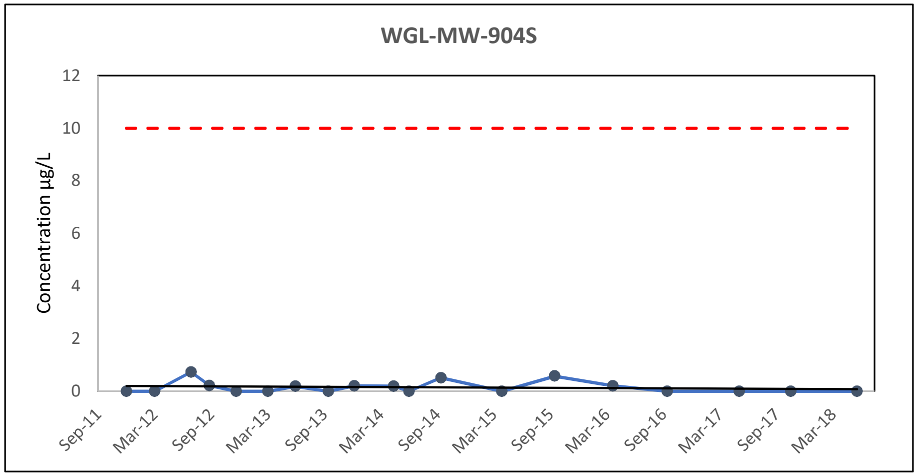






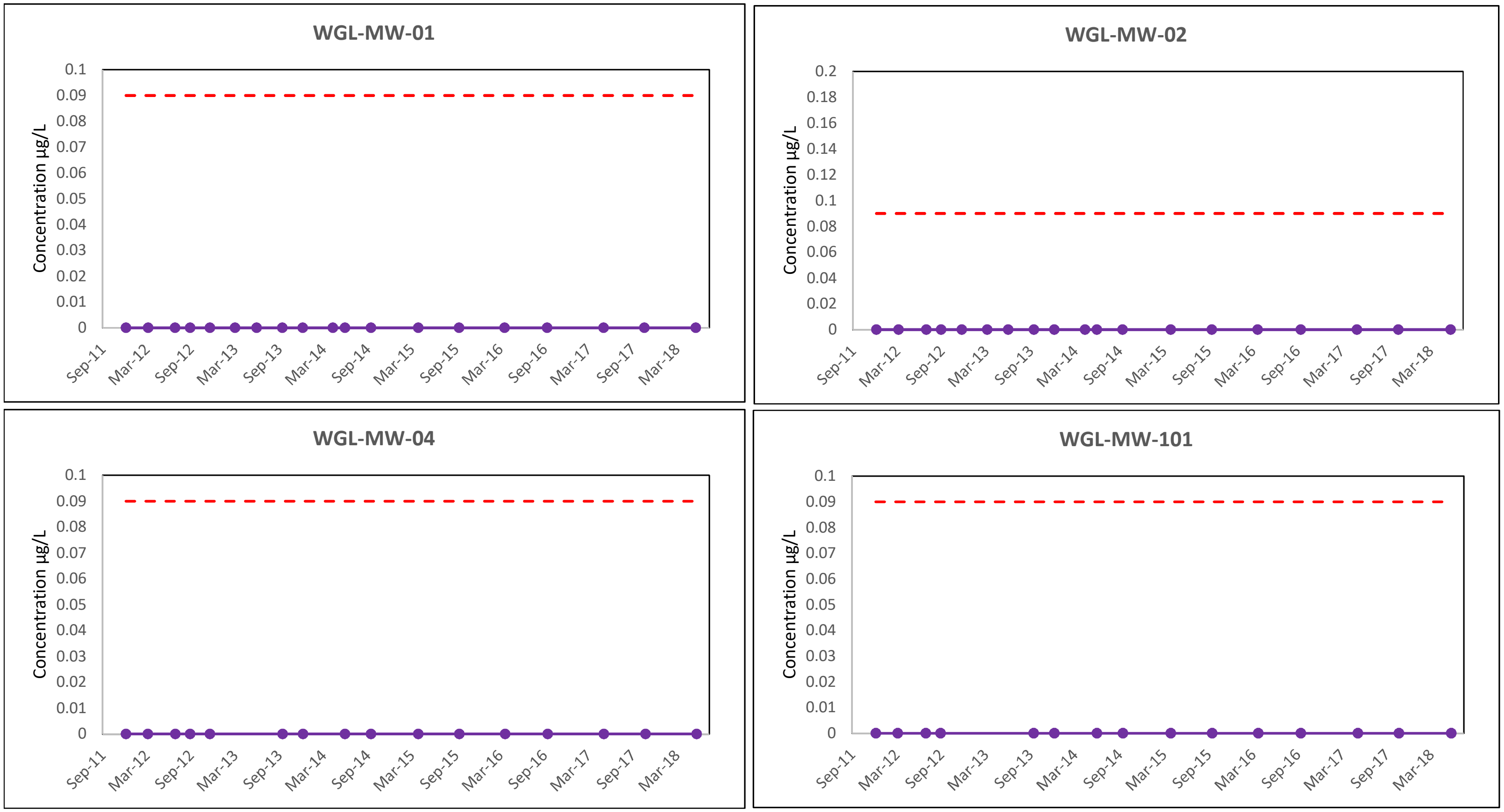
Notes: Arsenic Concentration   Project Action Limit = 10 µg/L
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

Exhibit 2-2
Arsenic Trend in Groundwater - 2011 - 2018
West Gate Landfill
NAS South Weymouth



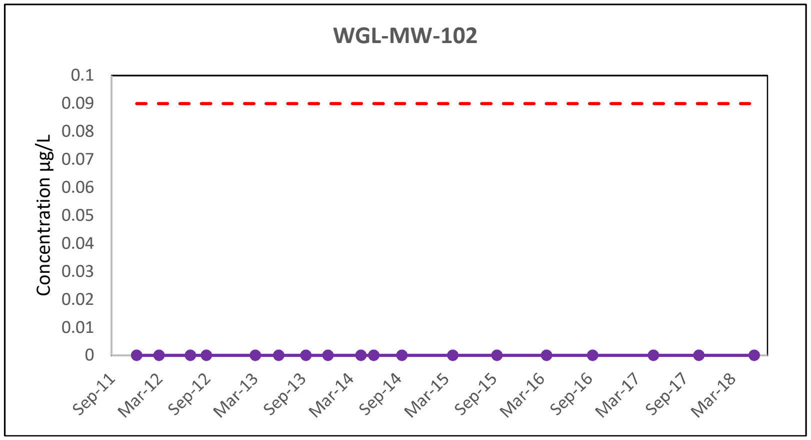
Notes: Arsenic Concentration — Project Action Limit = 10 µg/L
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

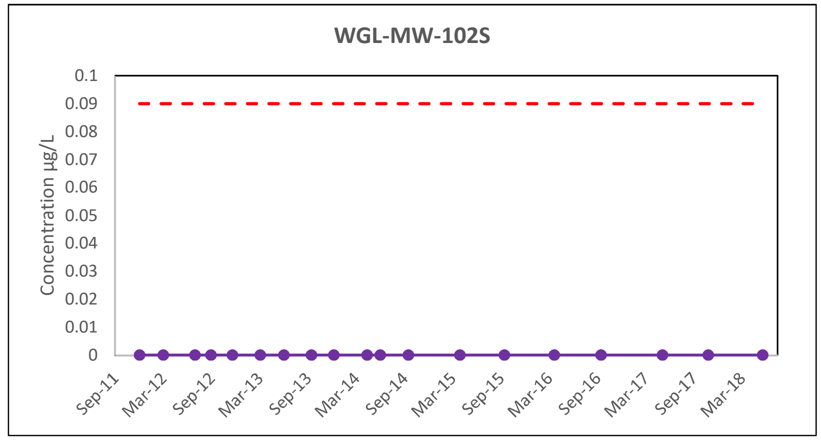
Exhibit 2-3
Benzo(a)anthracene Trends in Groundwater - 2011 - 2018
West Gate Landfill
NAS South Weymouth

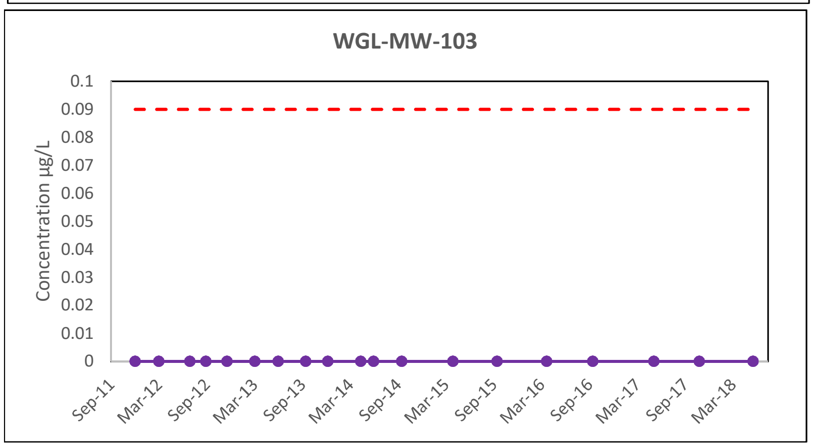


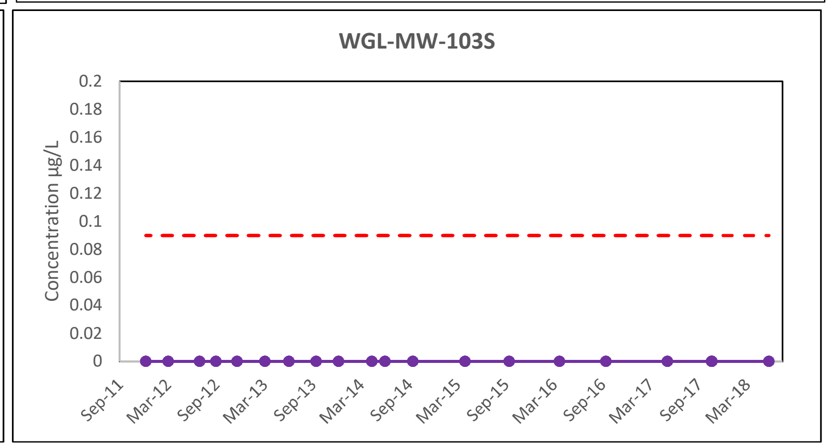
Notes: Benzo(a)anthracene Concentration Project Action Limit = 0.09 µg/L
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

Exhibit 2-3
Benzo(a)anthracene Trends in Groundwater - 2011 - 2018
West Gate Landfill
NAS South Weymouth



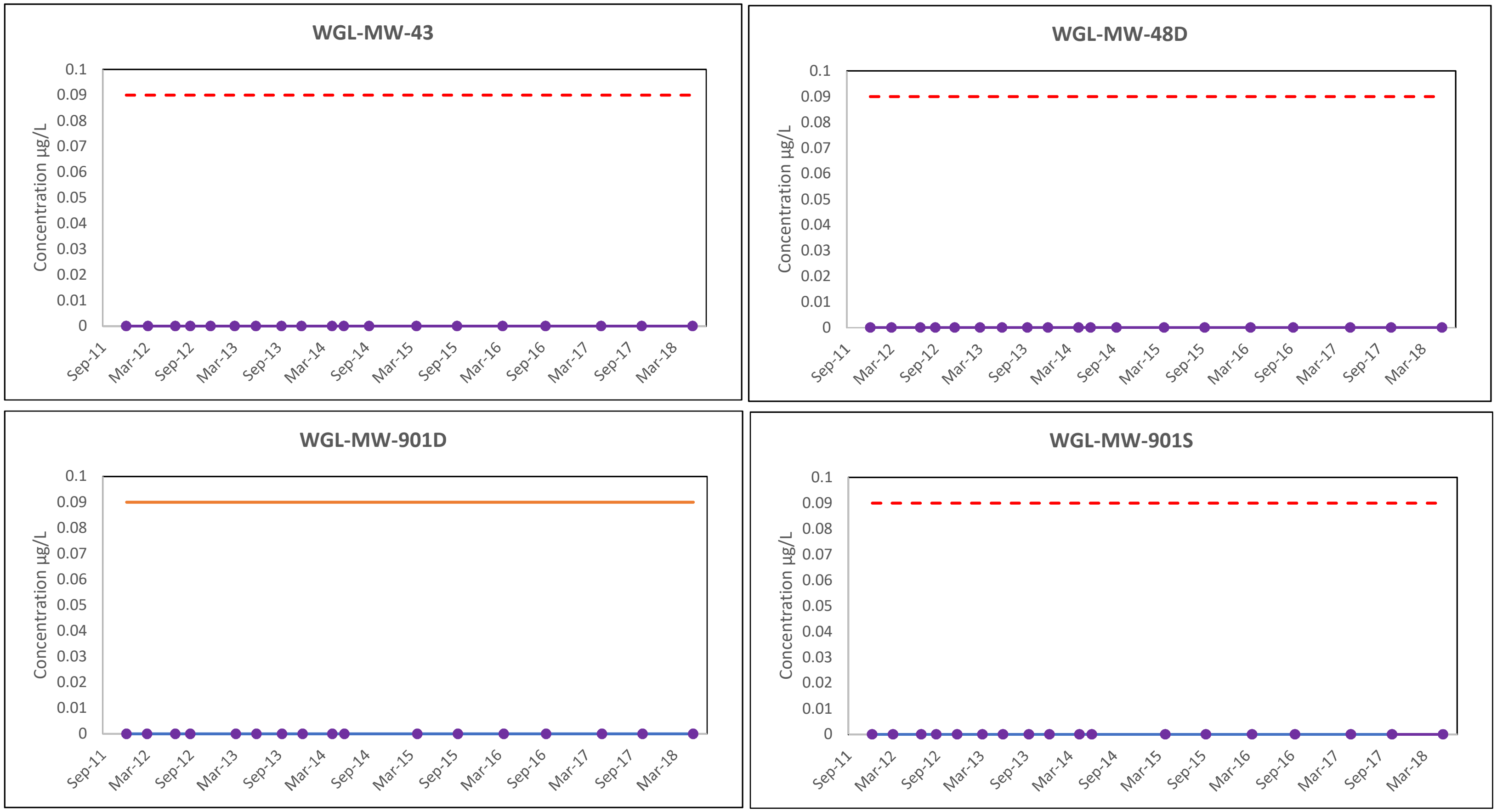






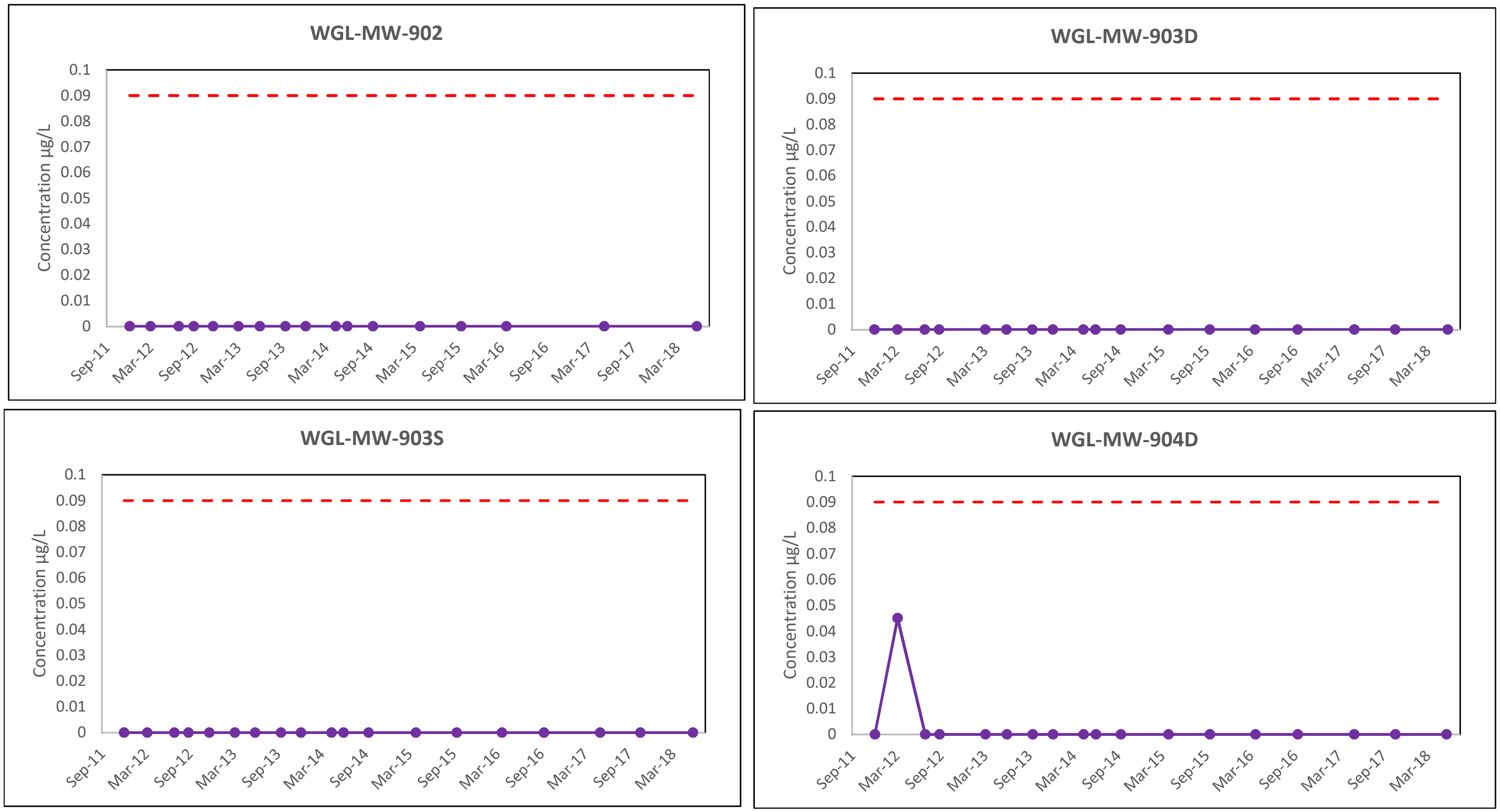
Notes: Benzo(a)anthracene Concentration Project Action Limit = 0.09 µg/L
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

Exhibit 2-3
Benzo(a)anthracene Trends in Groundwater - 2011 - 2018
West Gate Landfill
NAS South Weymouth



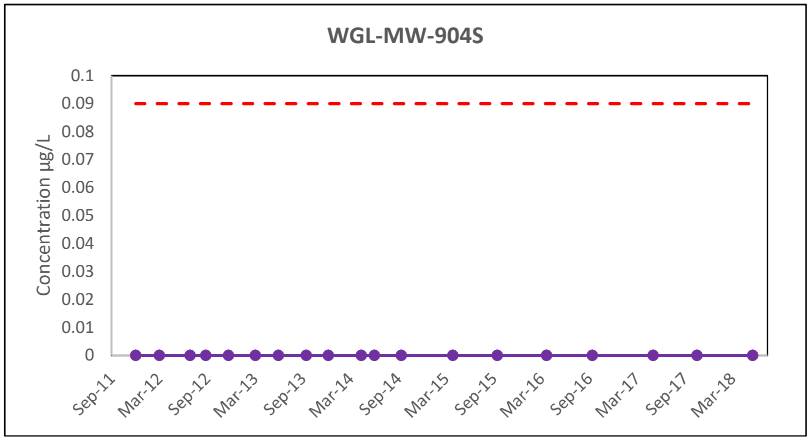
Notes: Benzo(a)anthracene Concentration Project Action Limit = 0.09 µg/L
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

Exhibit 2-3
Benzo(a)anthracene Trends in Groundwater - 2011 - 2018
West Gate Landfill
NAS South Weymouth



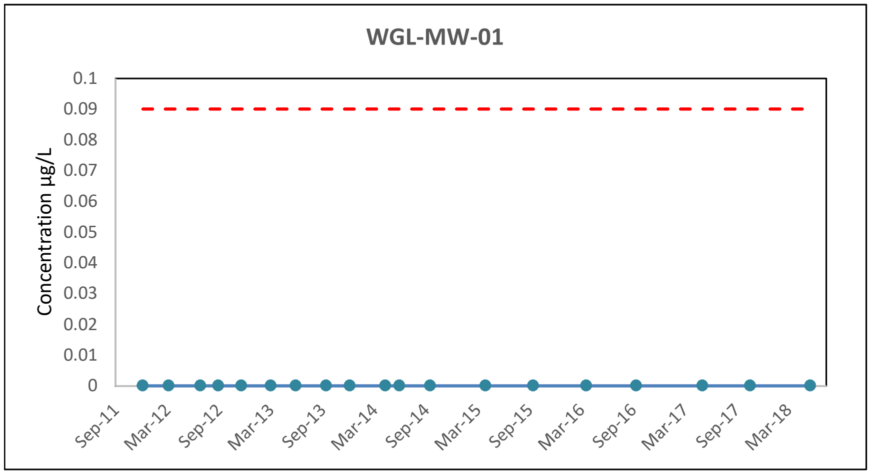
Notes: Benzo(a)anthracene Concentration Project Action Limit = 0.09 µg/L
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

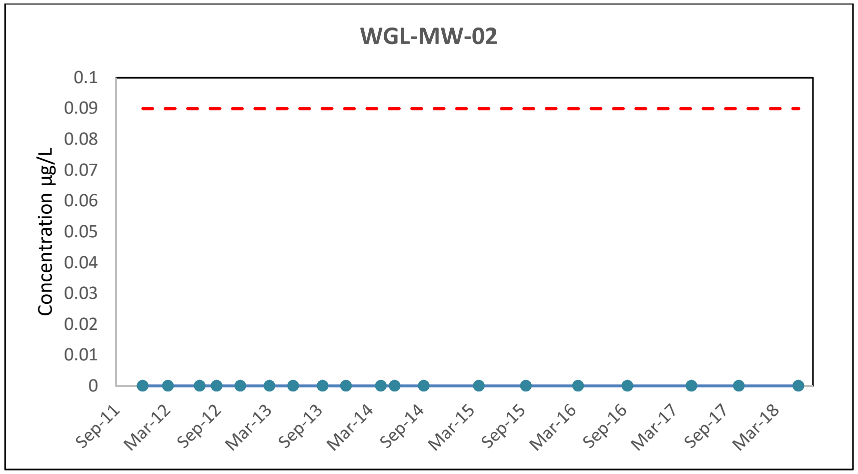
Exhibit 2-3
Benzo(a)anthracene Trends in Groundwater - 2011 - 2018
West Gate Landfill
NAS South Weymouth

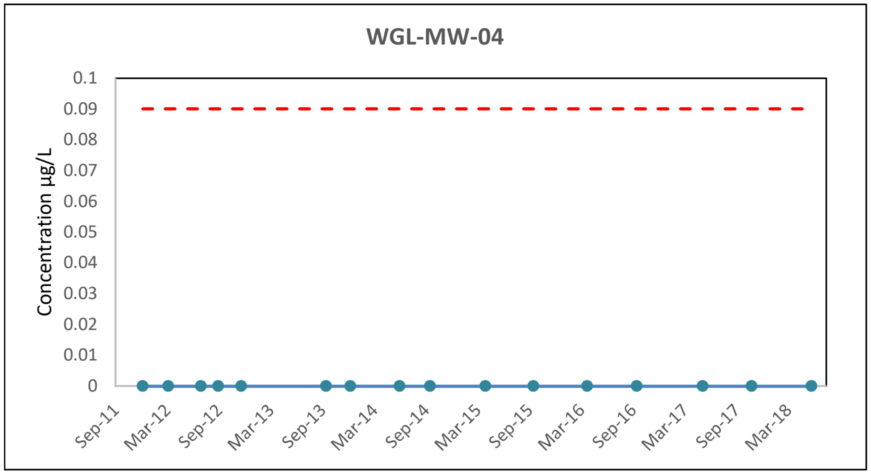


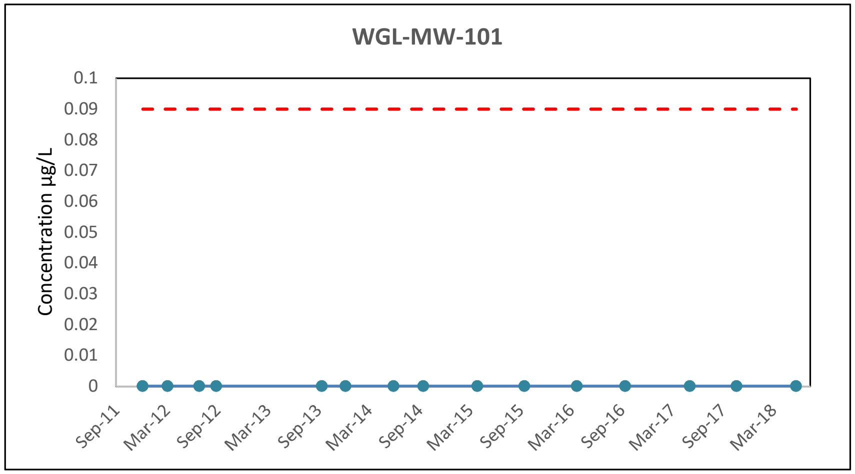
Notes: Benzo(a)anthracene Concentration Project Action Limit = 0.09 µg/L
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

Exhibit 2-4
Benzo(b)fluoroanthene Trends in Groundwater - 2011 - 2018
West Gate Landfill
NAS South Weymouth





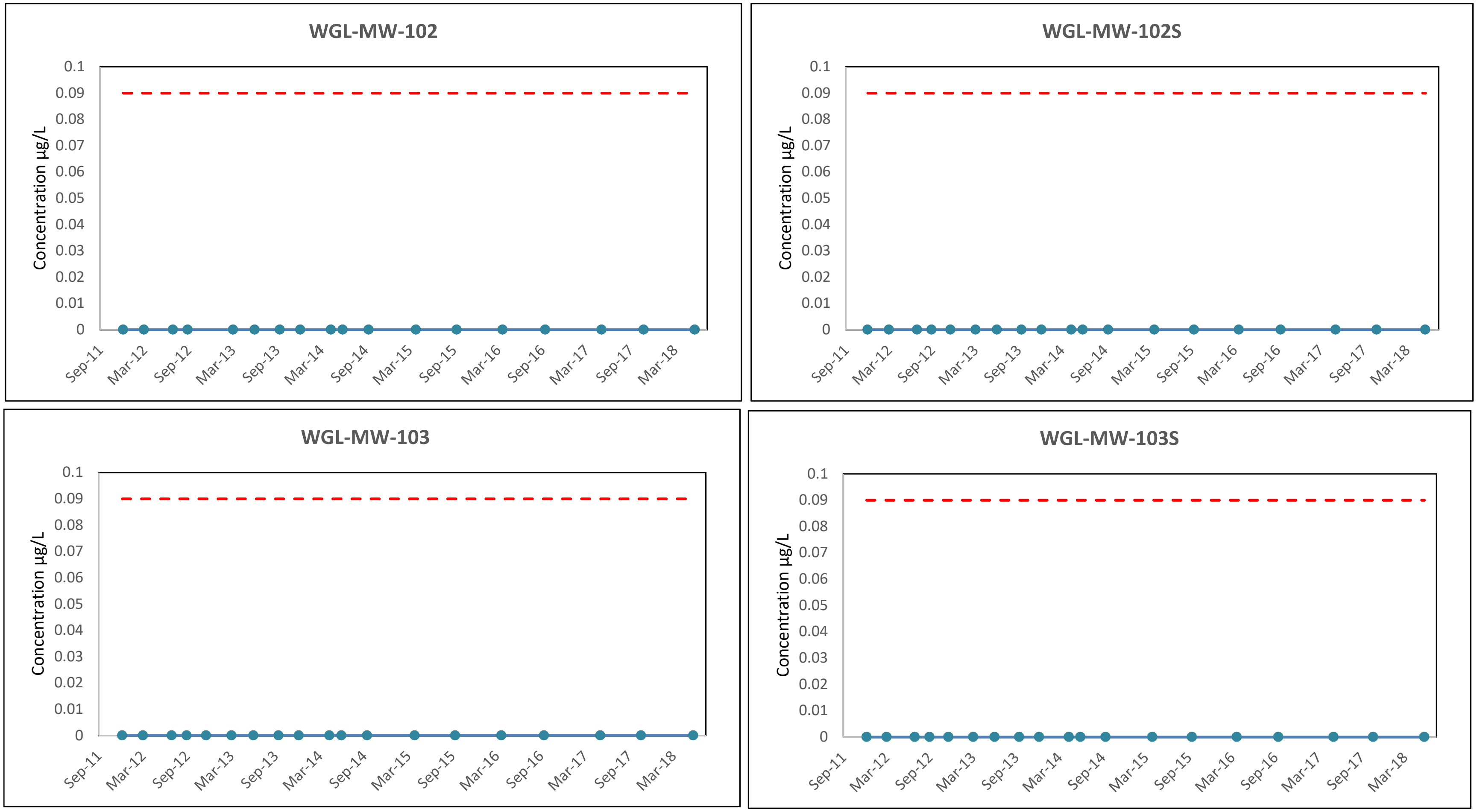




Notes: Benzo(b)fluoroanthene Concentration — Project Action Limit = 0.09 µg/L

A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

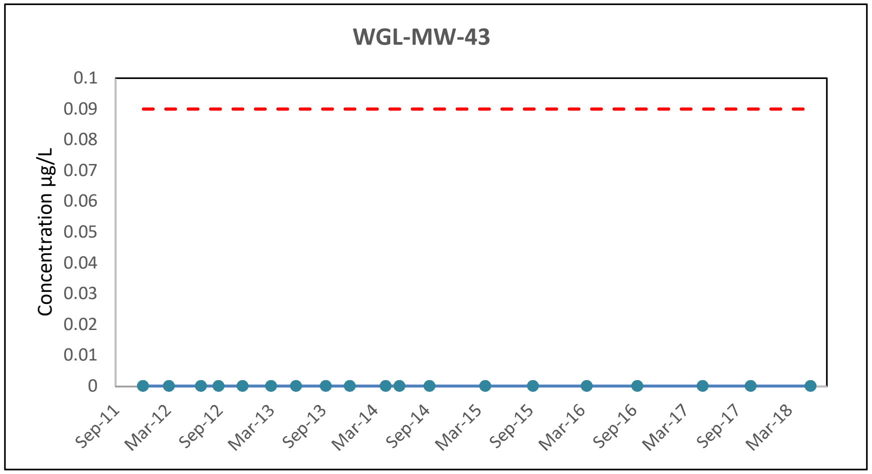
Exhibit 2-4
Benzo(b)fluoroanthene Trends in Groundwater - 2011 - 2018
West Gate Landfill
NAS South Weymouth

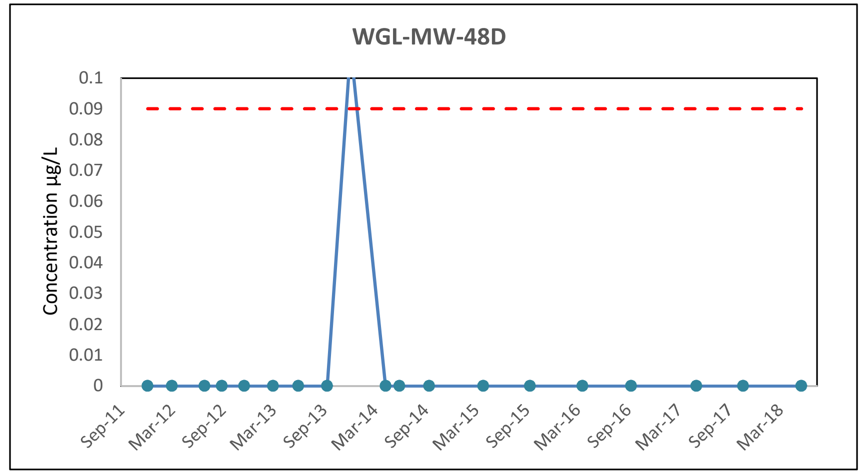


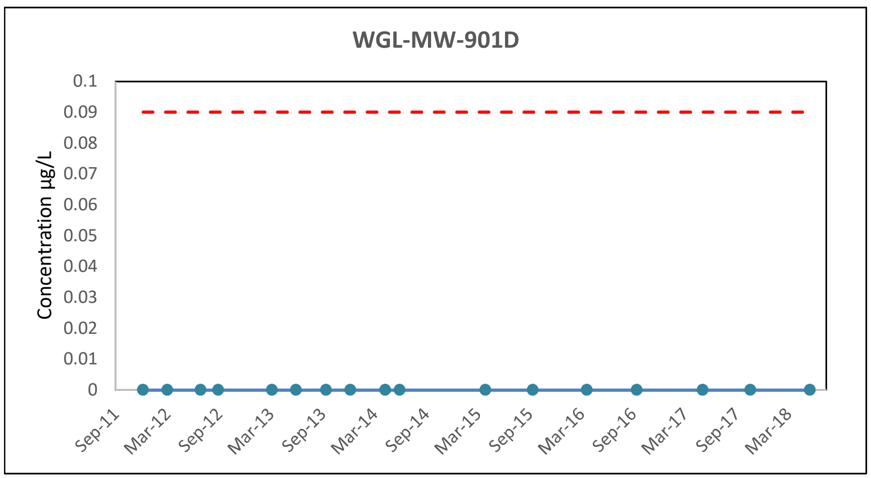
Notes: Benzo(b)fluoroanthene Concentration ---- Project Action Limit = 0.09 µg/L

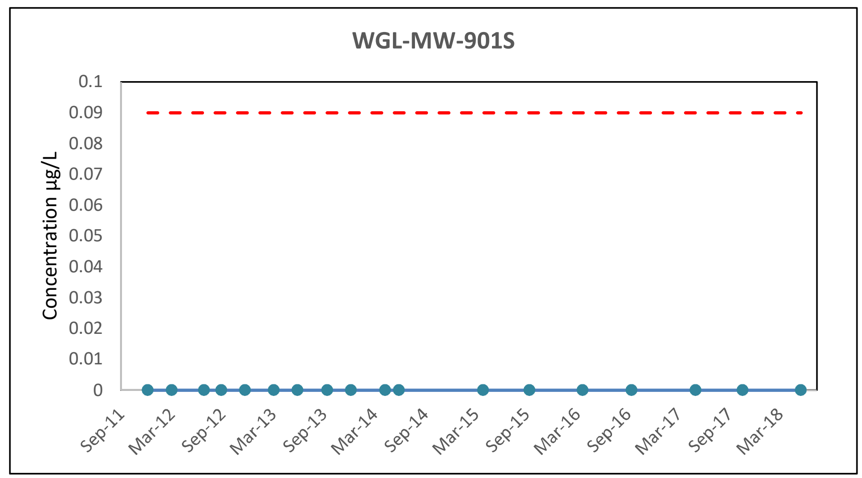
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

Exhibit 2-4
Benzo(b)fluoroanthene Trends in Groundwater - 2011 - 2018
West Gate Landfill
NAS South Weymouth



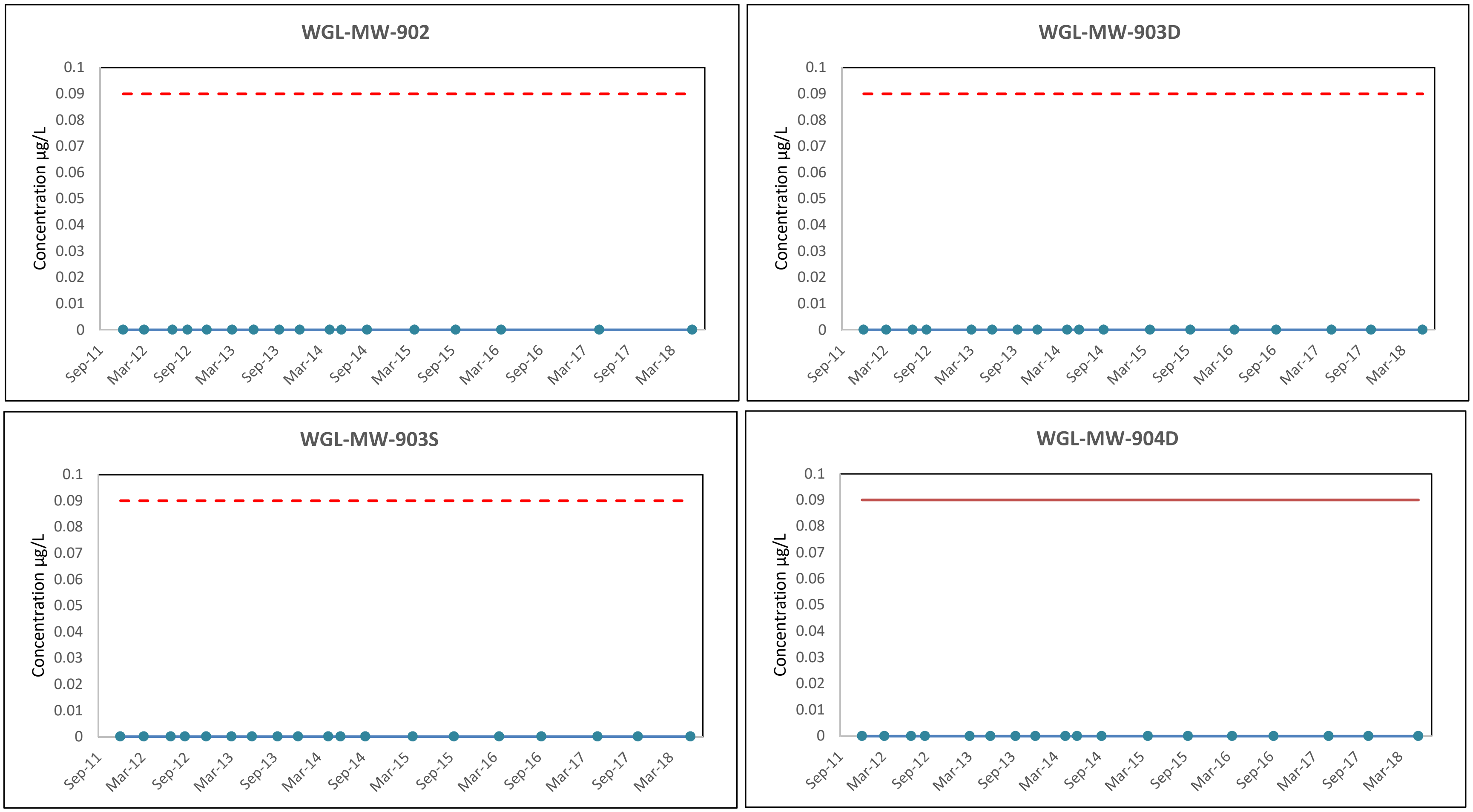






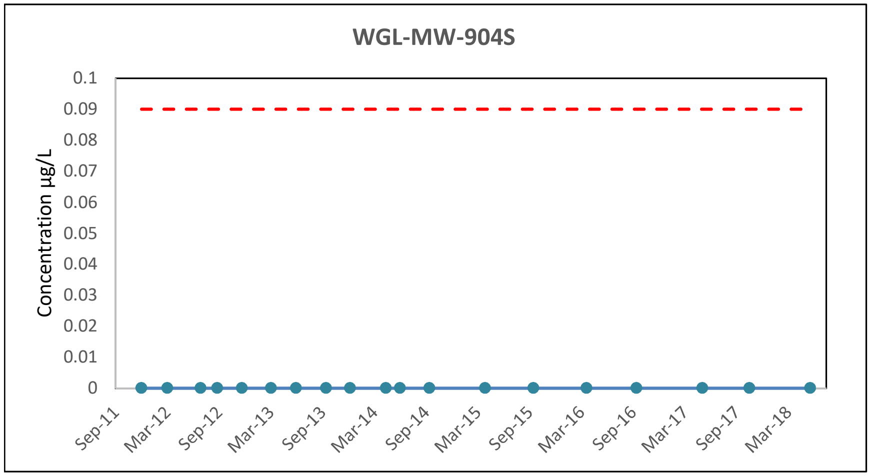
Notes: Benzo(b)fluoroanthene Concentration Project Action Limit = 0.09 µg/L
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

Exhibit 2-4
Benzo(b)fluoroanthene Trends in Groundwater - 2011 - 2018
West Gate Landfill
NAS South Weymouth



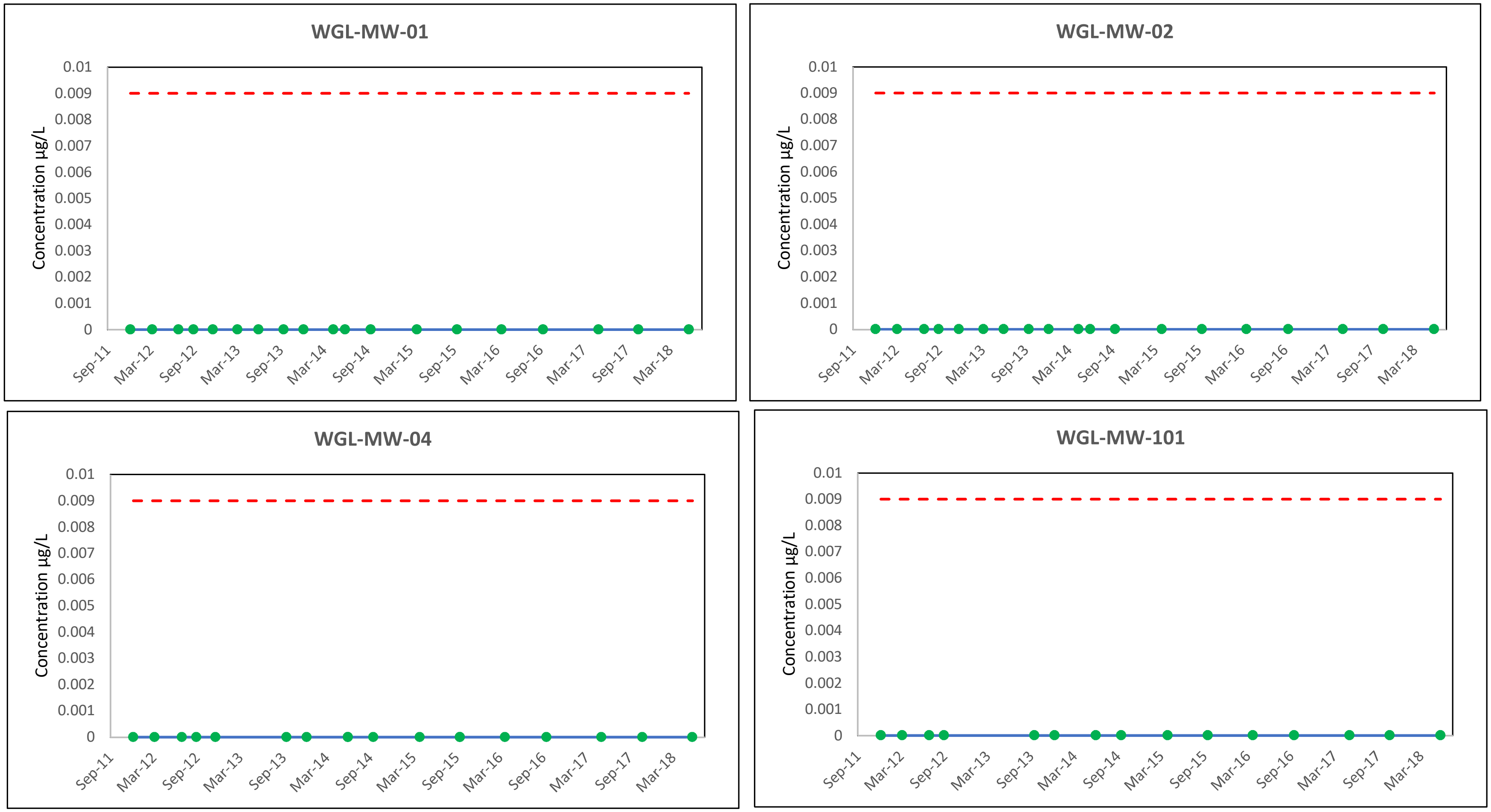
Notes: Benzo(b)fluoroanthene Concentration   Project Action Limit = 0.09 µg/L
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

Exhibit 2-4
Benzo(b)fluoroanthene Trends in Groundwater - 2011 - 2018
West Gate Landfill
NAS South Weymouth



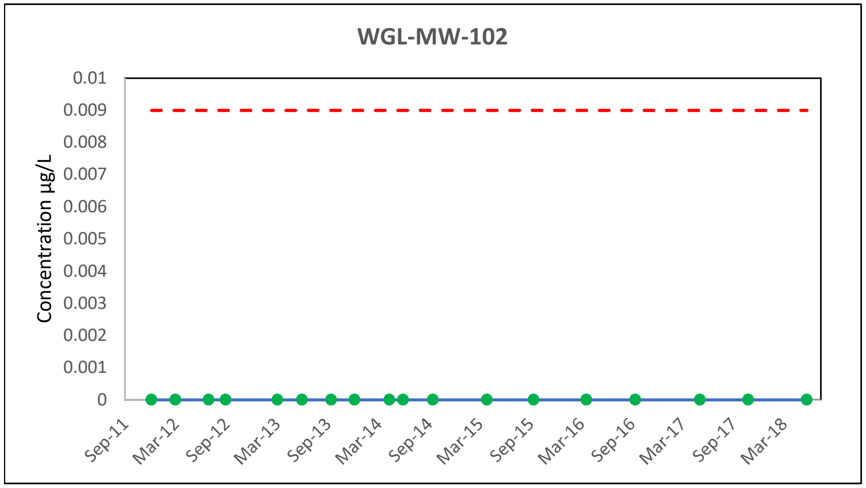
Notes: Benzo(b)fluoroanthene Concentration Project Action Limit = 0.09 µg/L
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

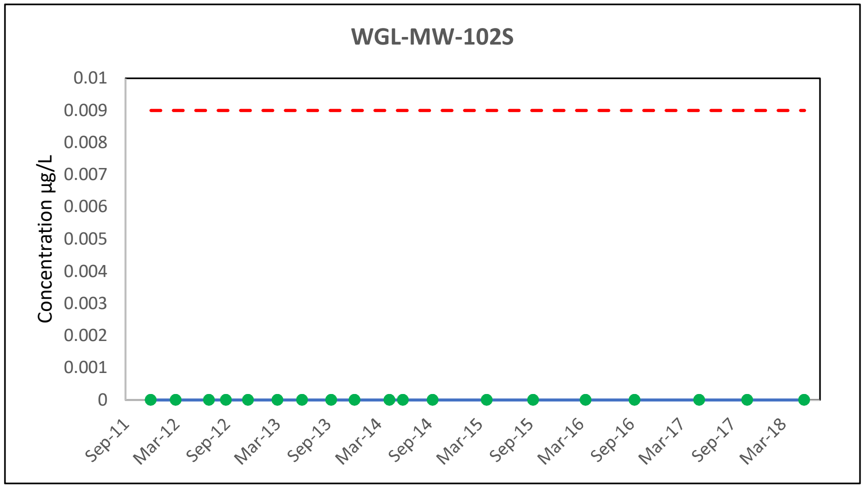
Exhibit 2-5
Dibenzo(a,h)anthracene Trends in Groundwater - 2011 - 2018
West Gate Landfill
NAS South Weymouth

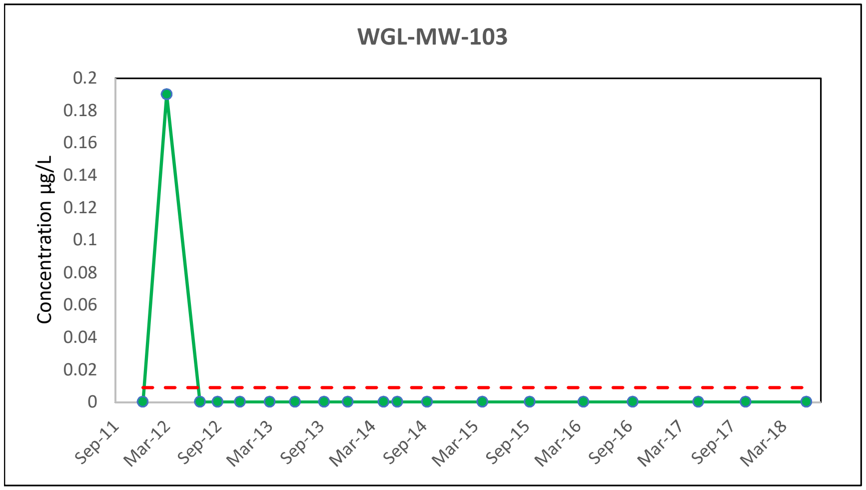


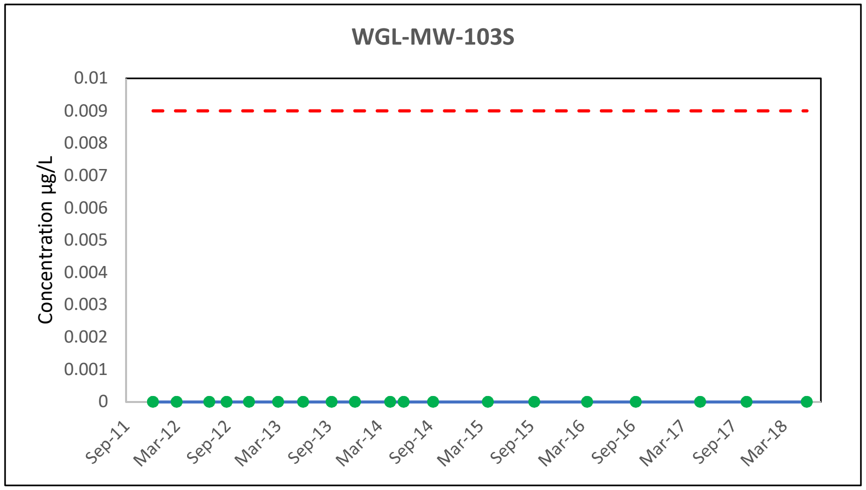
Notes: Dibenzo(a,h)anthracene Concentration Project Action Limit = 0.009 µg/L
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

Exhibit 2-5
Dibenzo(a,h)anthracene Trends in Groundwater - 2011 - 2018
West Gate Landfill
NAS South Weymouth



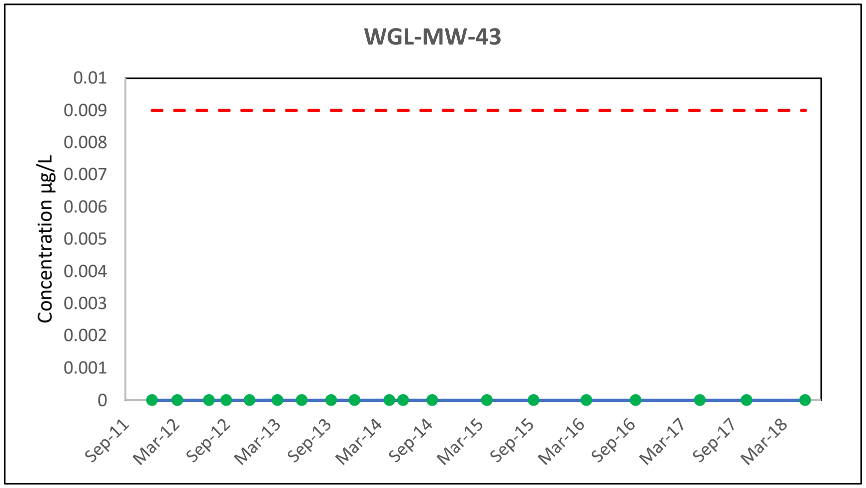


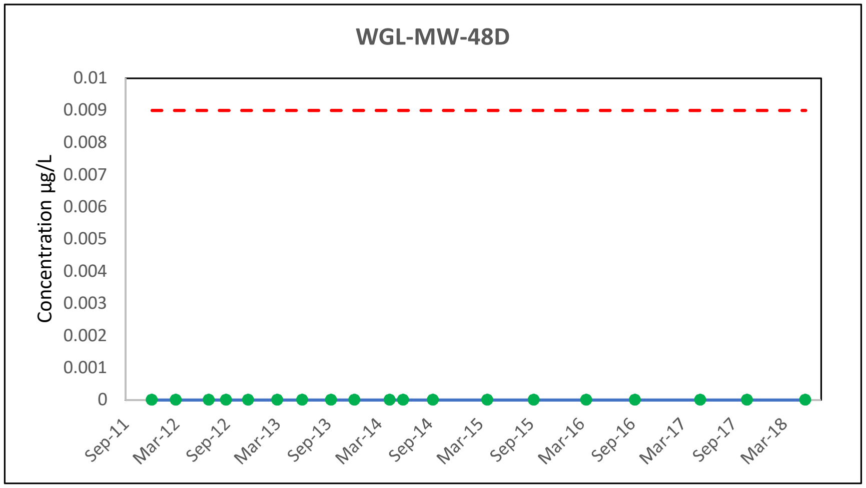


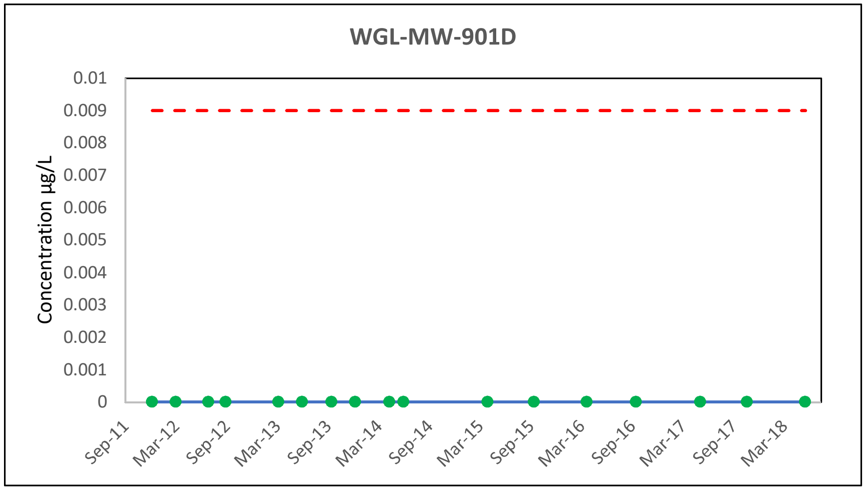


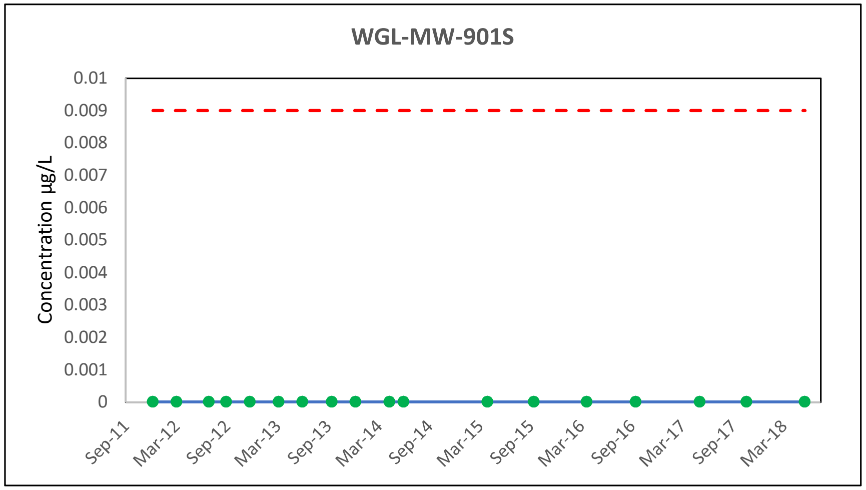
Notes: Dibenzo(a,h)anthracene Concentration — Project Action Limit = 0.009 µg/L
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

Exhibit 2-5
Dibenzo(a,h)anthracene Trends in Groundwater - 2011 - 2018
West Gate Landfill
NAS South Weymouth



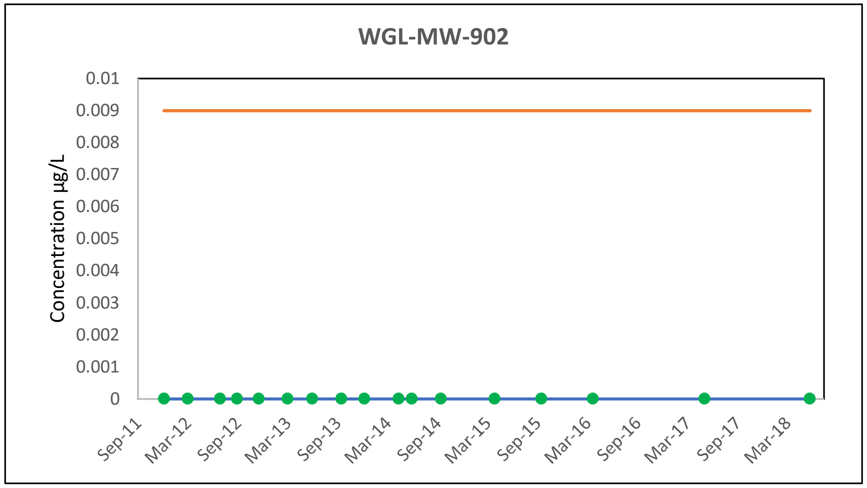


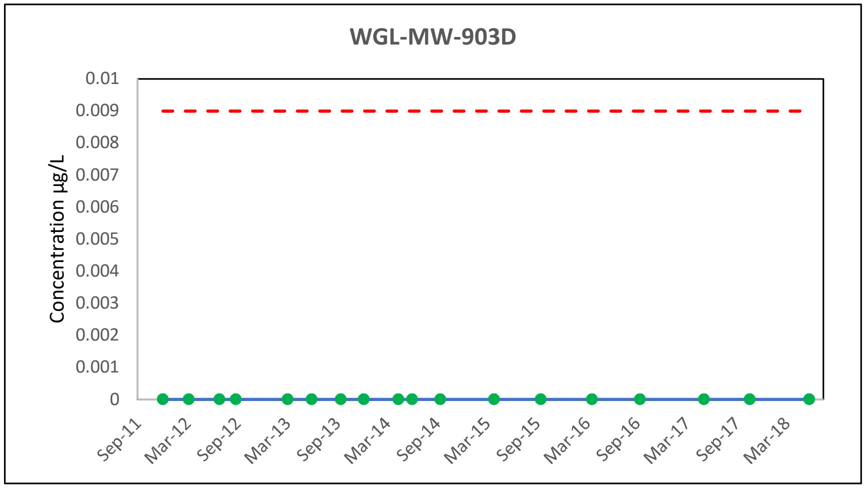


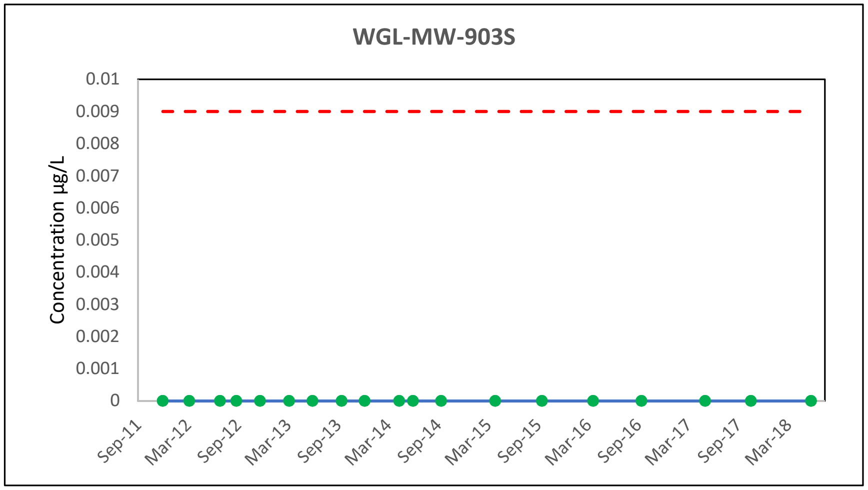


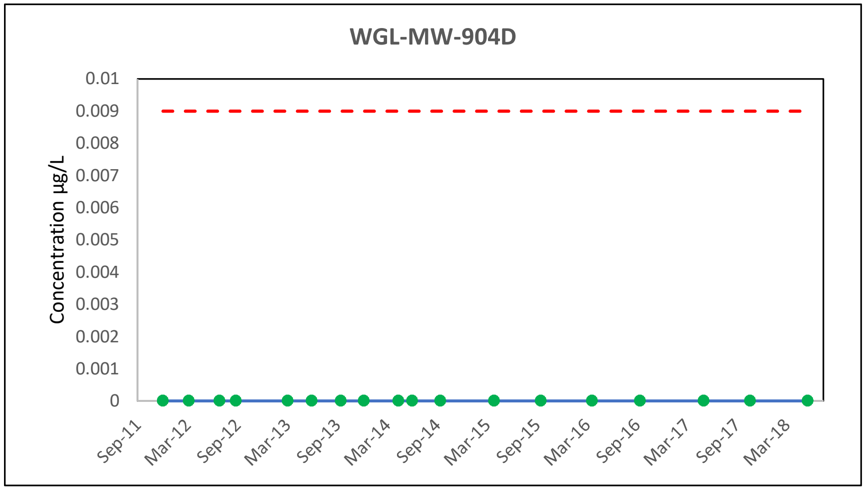
Notes: Dibenzo(a,h)anthracene Concentration   Project Action Limit = 0.009 µg/L
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

Exhibit 2-5
Dibenzo(a,h)anthracene Trends in Groundwater - 2011 - 2018
West Gate Landfill
NAS South Weymouth



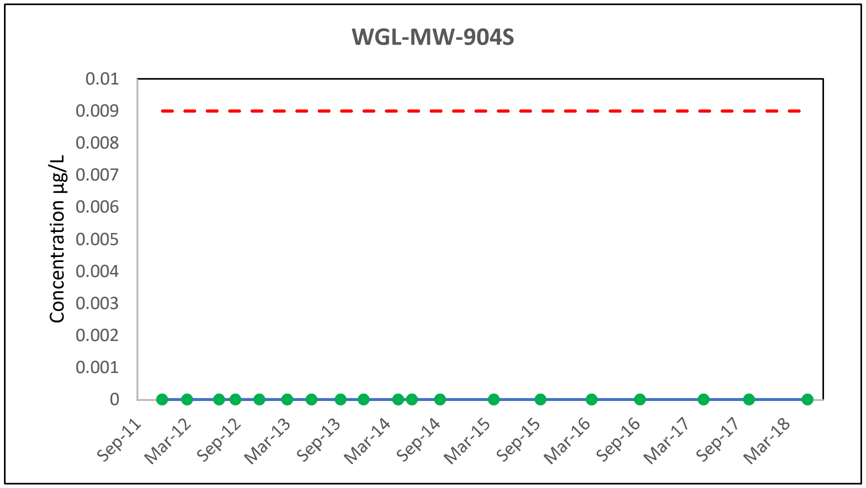






Notes: Dibenzo(a,h)anthracene Concentration   Project Action Limit = 0.009 µg/L
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

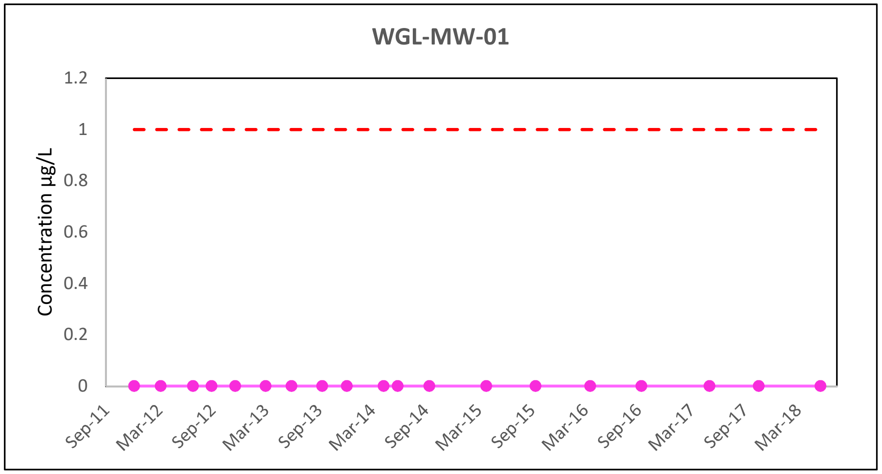
Exhibit 2-5
Dibenzo(a,h)anthracene Trends in Groundwater - 2011 - 2018
West Gate Landfill
NAS South Weymouth

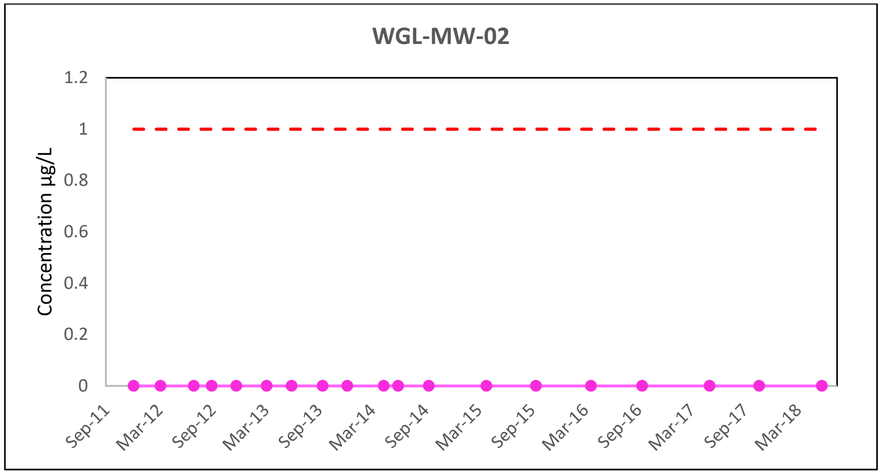


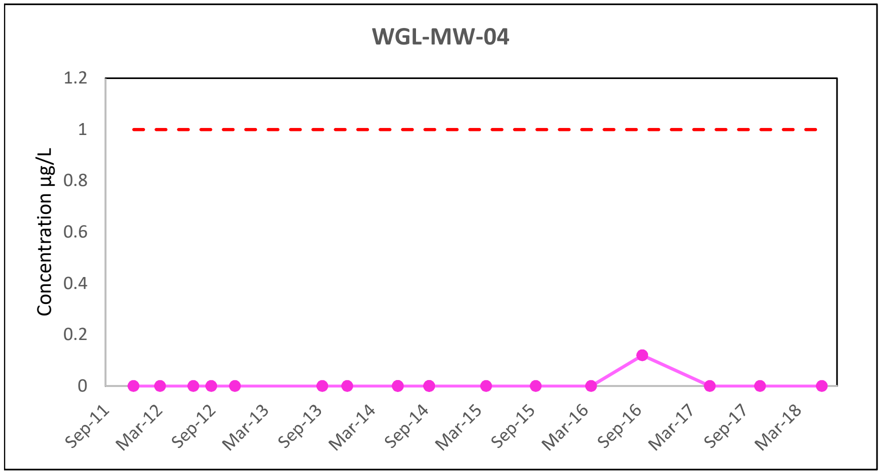
Notes: Dibenzo(a,h)anthracene Concentration Project Action Limit = 0.009 µg/L

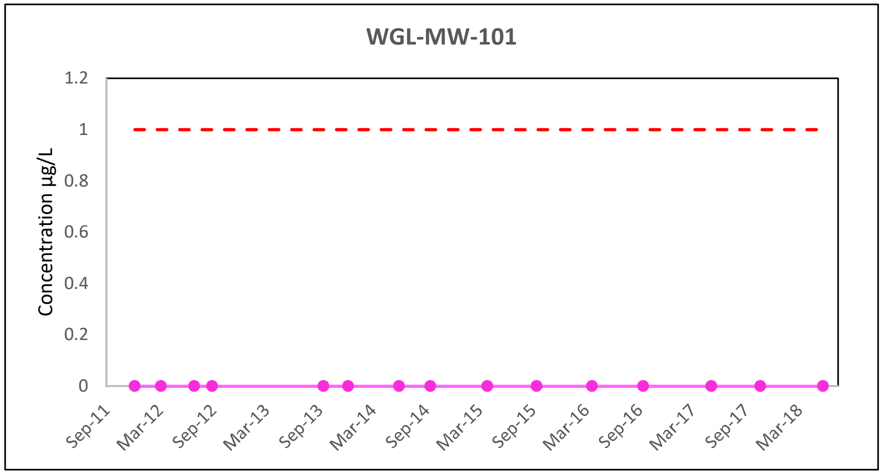
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

Exhibit 2-6
Hexachlorobenzene Trends in Groundwater - 2011 - 2018
West Gate Landfill
NAS South Weymouth



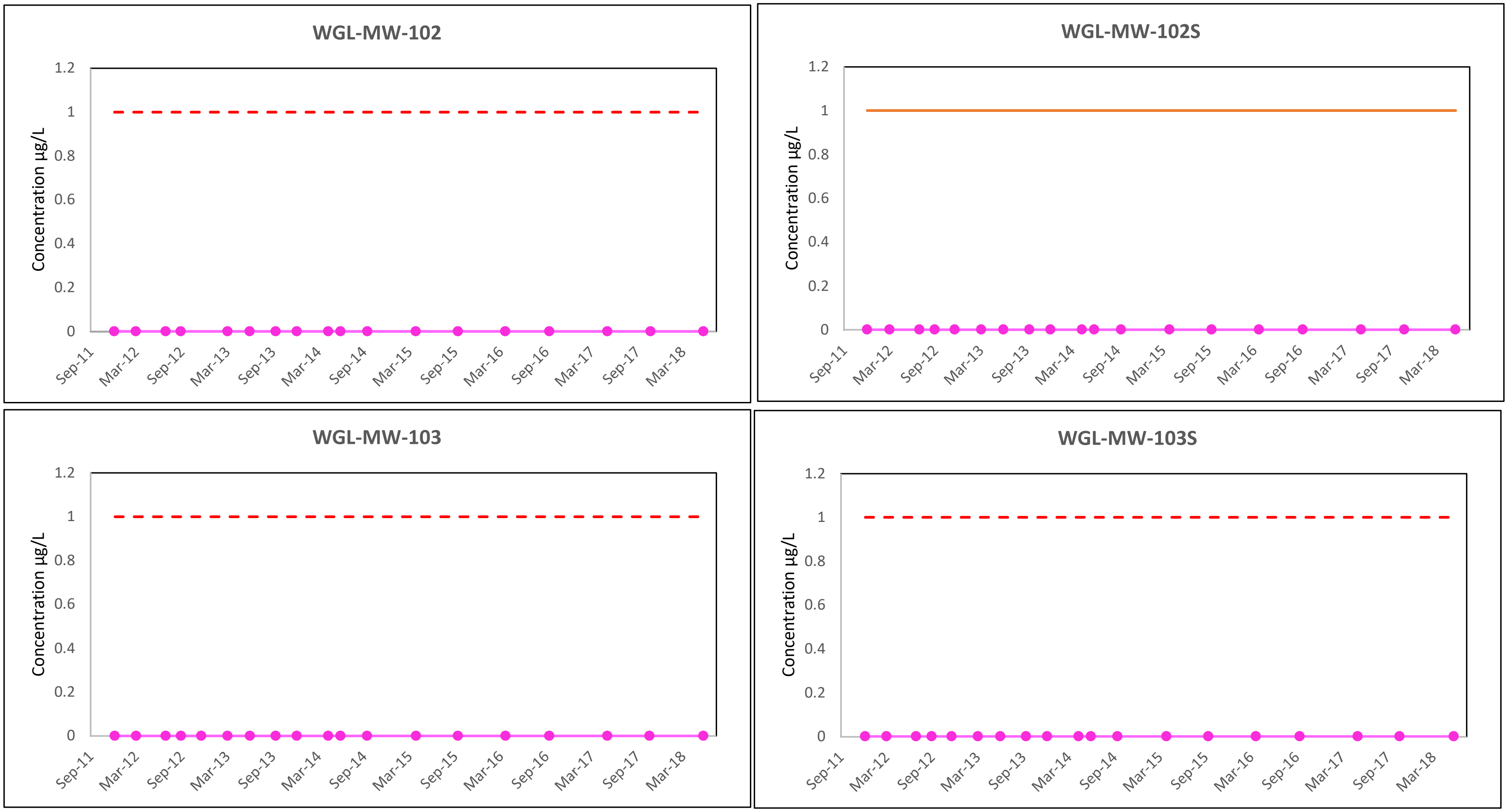






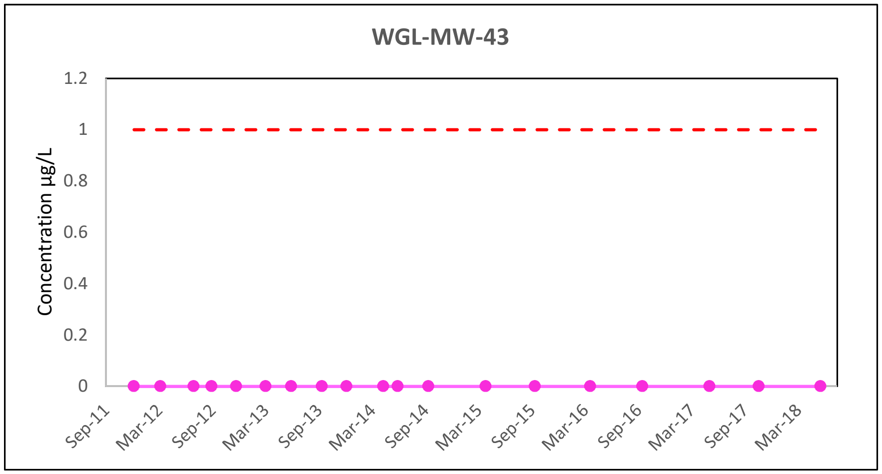
Notes: Hexachlorobenzene Concentration   Project Action Limit = 1 µg/L
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

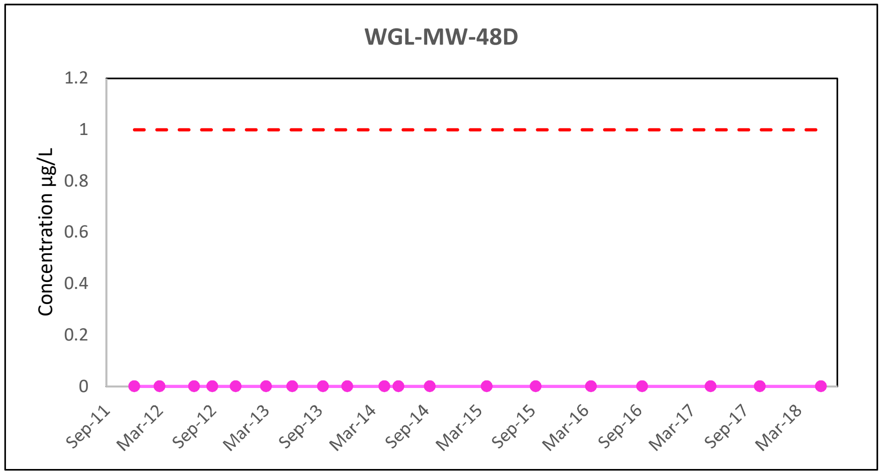
Exhibit 2-6
Hexachlorobenzene Trends in Groundwater - 2011 - 2018
West Gate Landfill
NAS South Weymouth

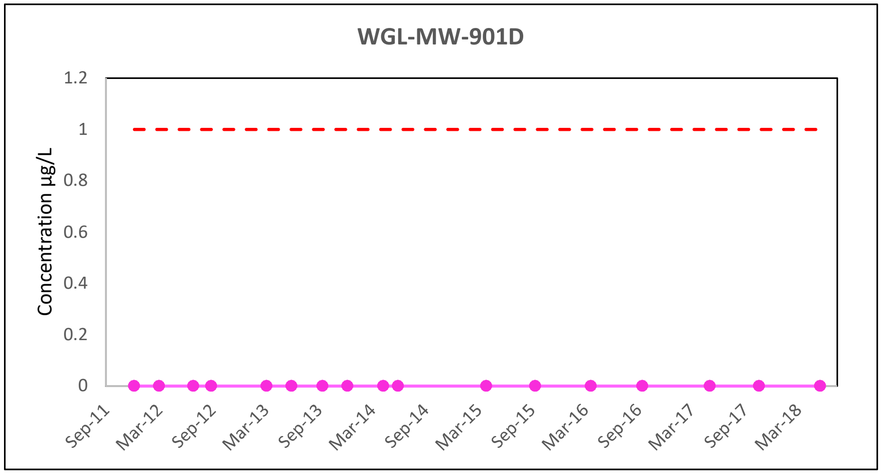


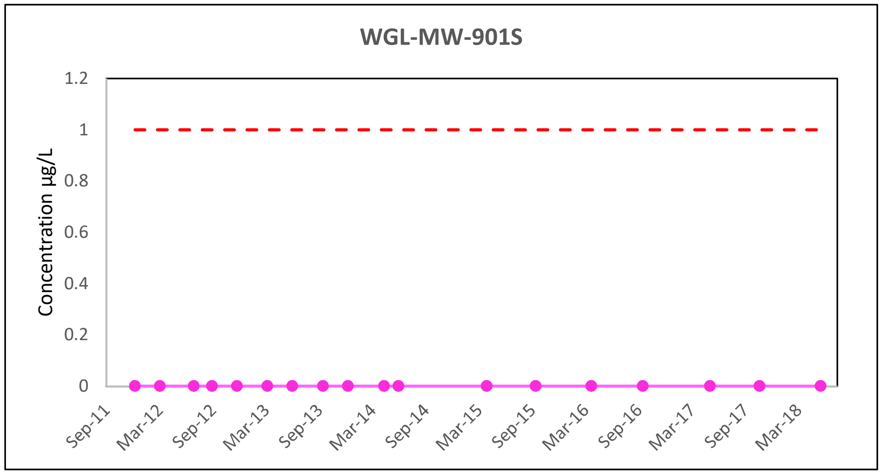
Notes: Hexachlorobenzene Concentration   Project Action Limit = 1 µg/L
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

Exhibit 2-6
Hexachlorobenzene Trends in Groundwater - 2011 - 2018
West Gate Landfill
NAS South Weymouth



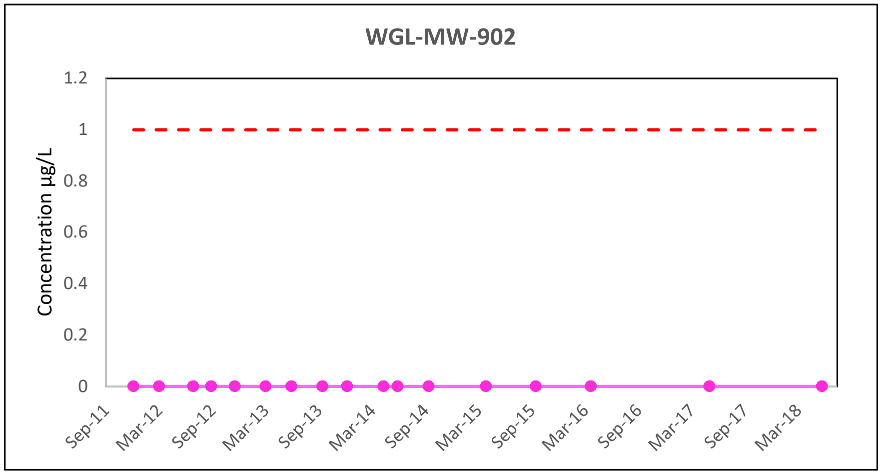


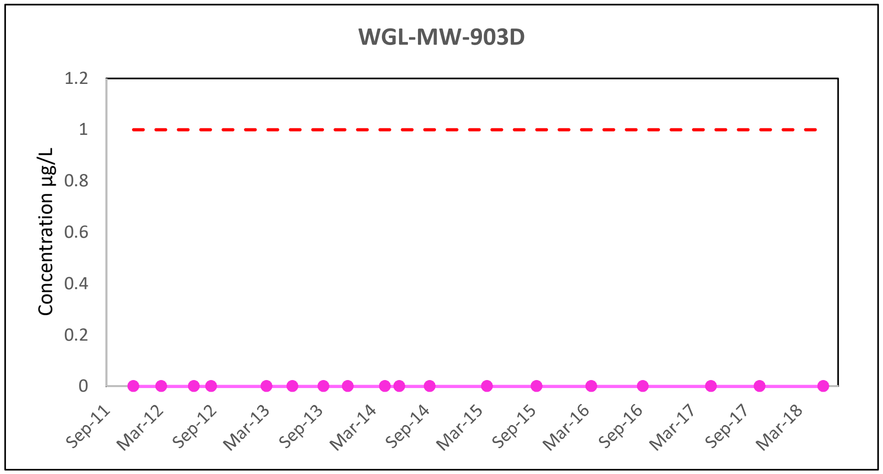


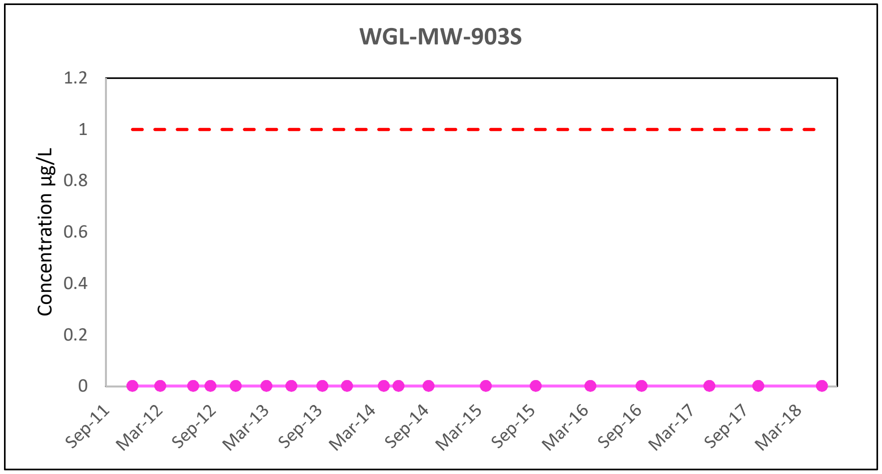


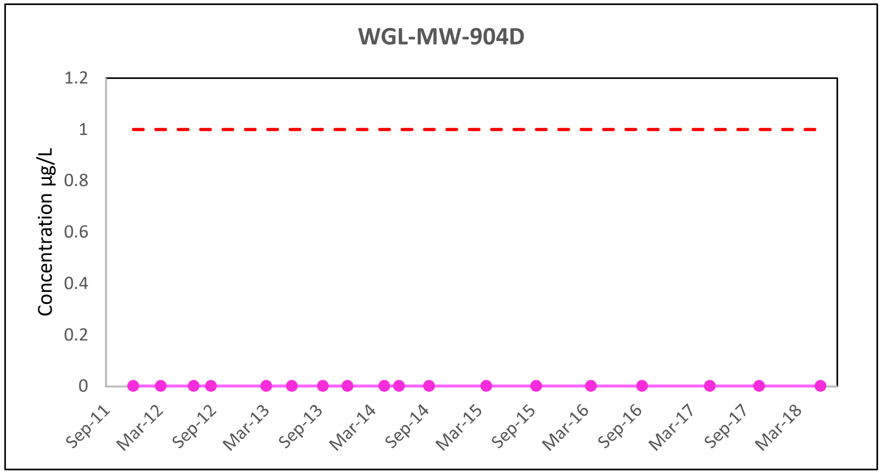
Notes: Hexachlorobenzene Concentration — Project Action Limit = 1 µg/L
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

Exhibit 2-6
Hexachlorobenzene Trends in Groundwater - 2011 - 2018
West Gate Landfill
NAS South Weymouth



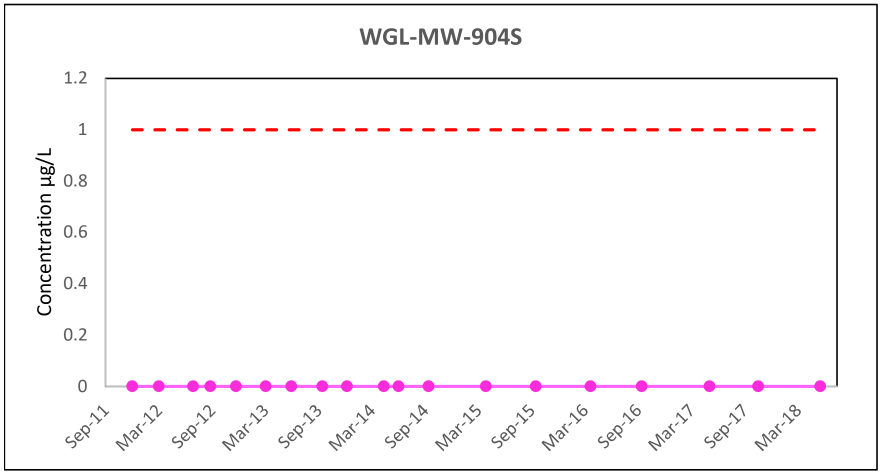






Notes: Hexachlorobenzene Concentration   Project Action Limit = 1 µg/L
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

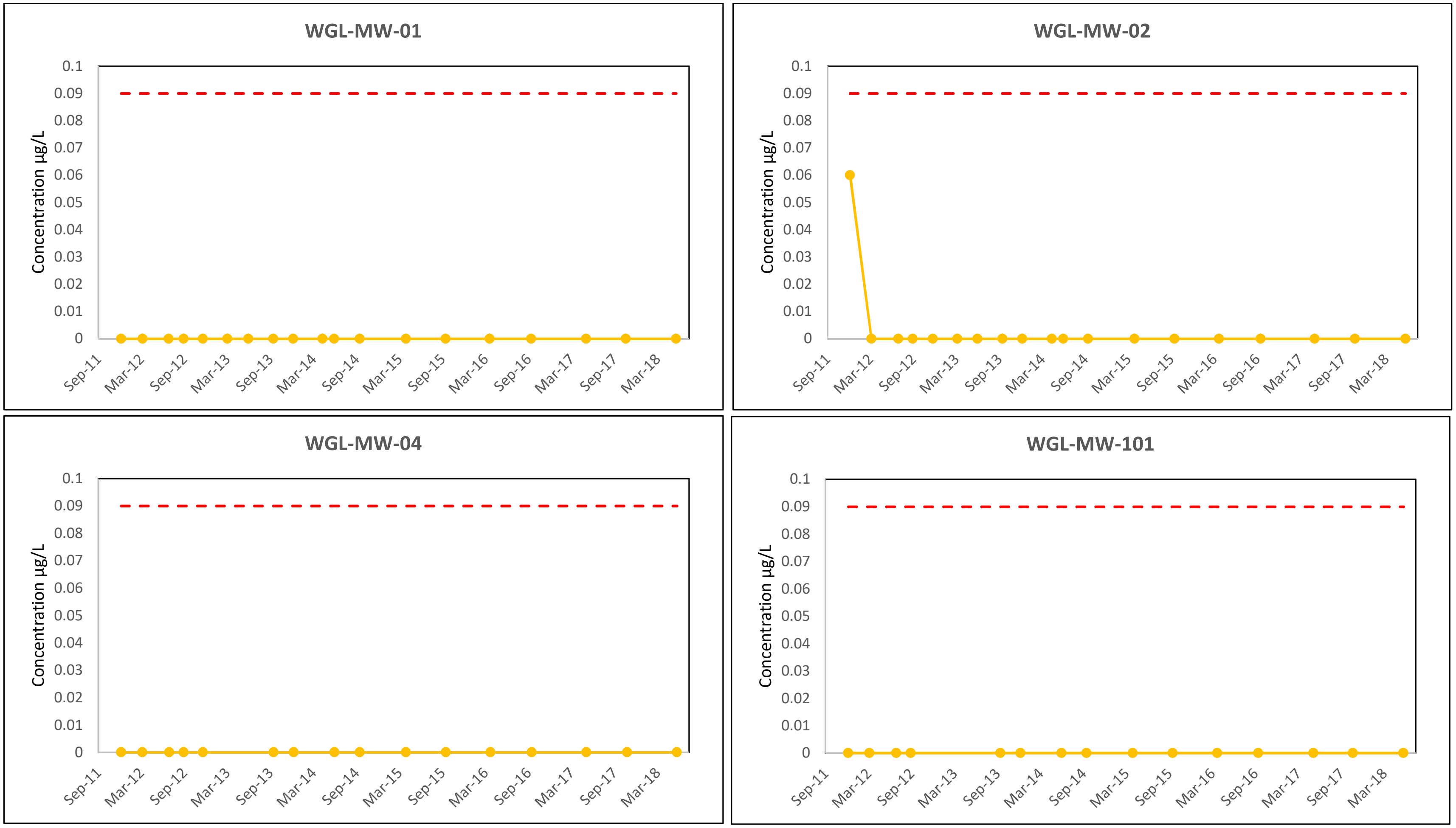
Exhibit 2-6
Hexachlorobenzene Trends in Groundwater - 2011 - 2018
West Gate Landfill
NAS South Weymouth



Notes: Hexachlorobenzene Concentration   Project Action Limit = 1 µg/L

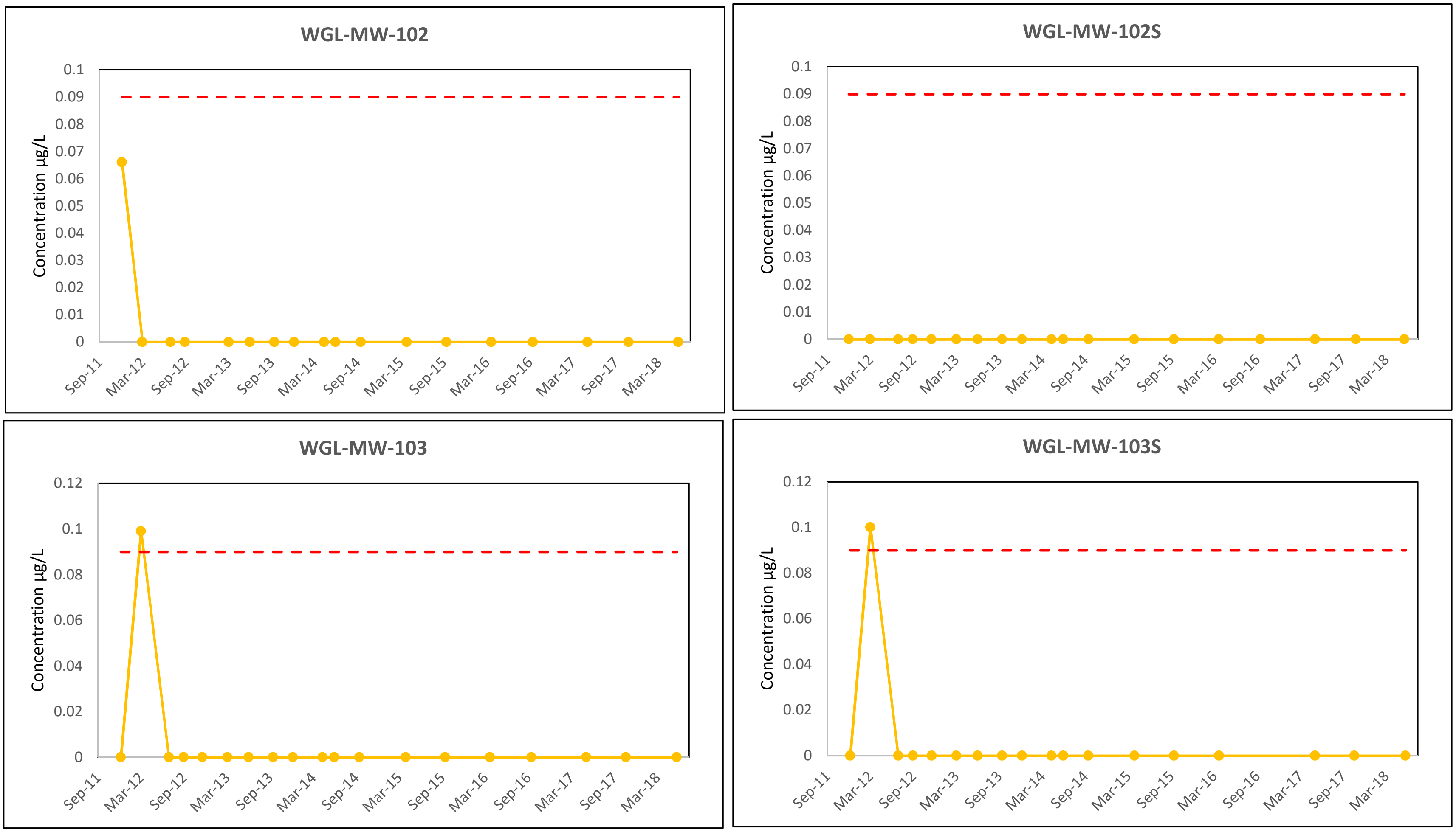
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

Exhibit 2-7
Indeno(1,2,3-cd)pyrene Trends in Groundwater - 2011 - 2018
West Gate Landfill
NAS South Weymouth



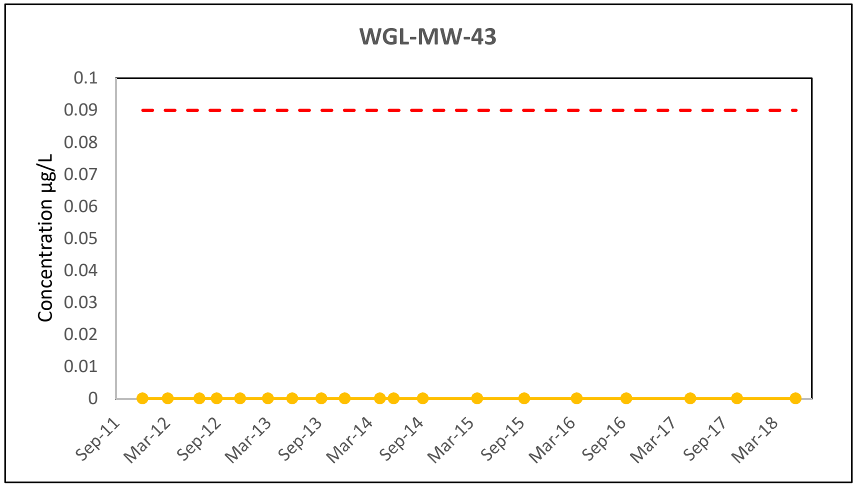
Notes: Indeno(1,2,3-cd)pyrene Concentration — Project Action Limit = 0.09 µg/L
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

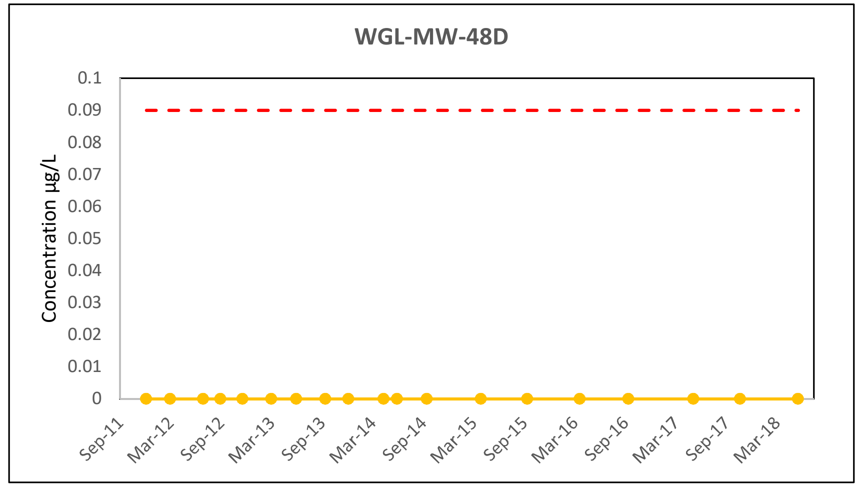
Exhibit 2-7
Indeno(1,2,3-cd)pyrene Trends in Groundwater - 2011 - 2018
West Gate Landfill
NAS South Weymouth

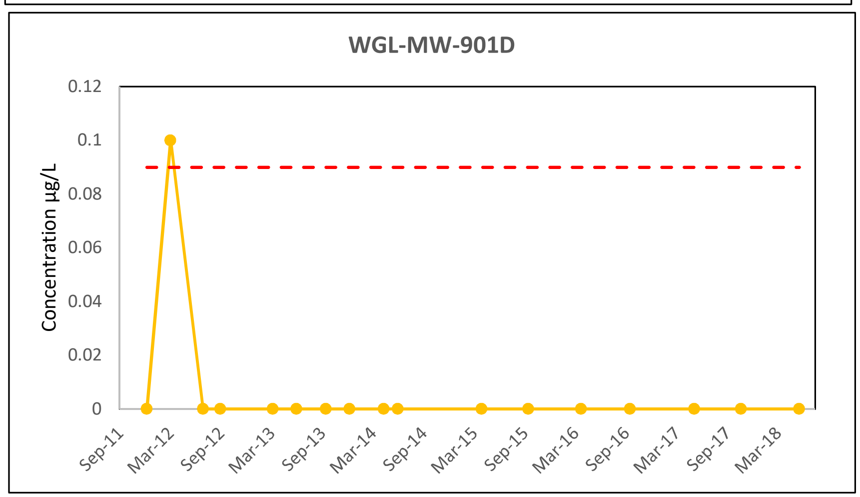


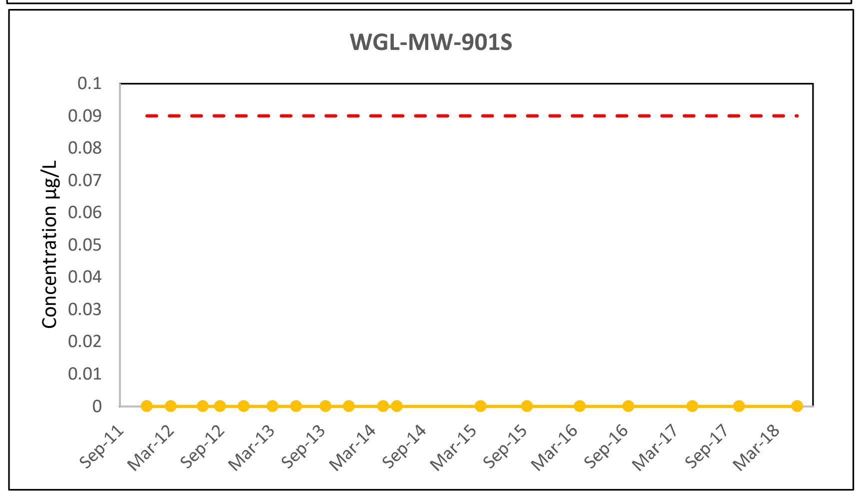
Notes: Indeno(1,2,3-cd)pyrene Concentration   Project Action Limit = 0.09 µg/L
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

Exhibit 2-7
Indeno(1,2,3-cd)pyrene Trends in Groundwater - 2011 - 2018
West Gate Landfill
NAS South Weymouth



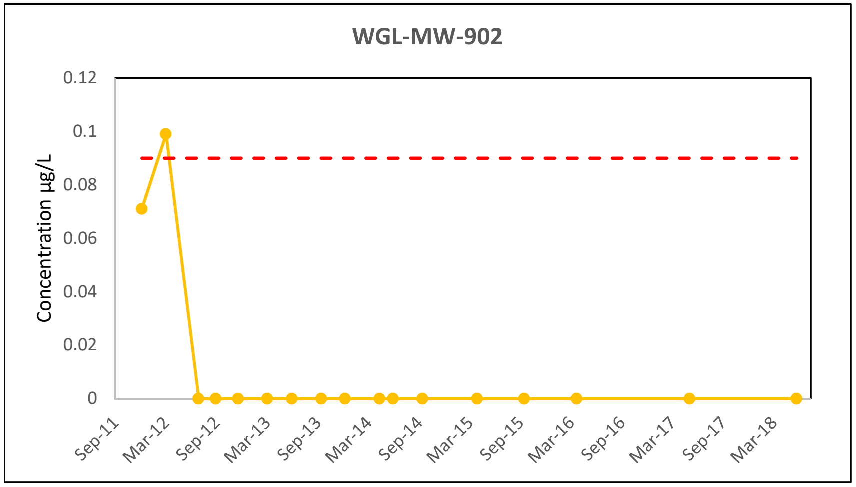


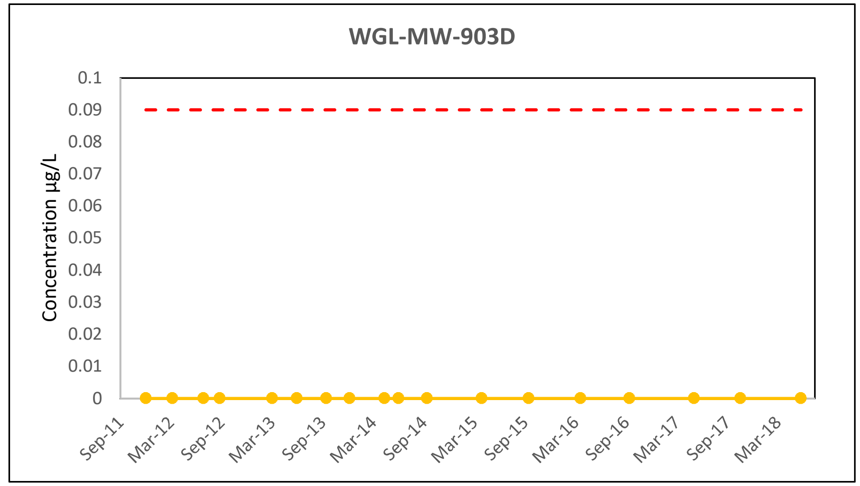


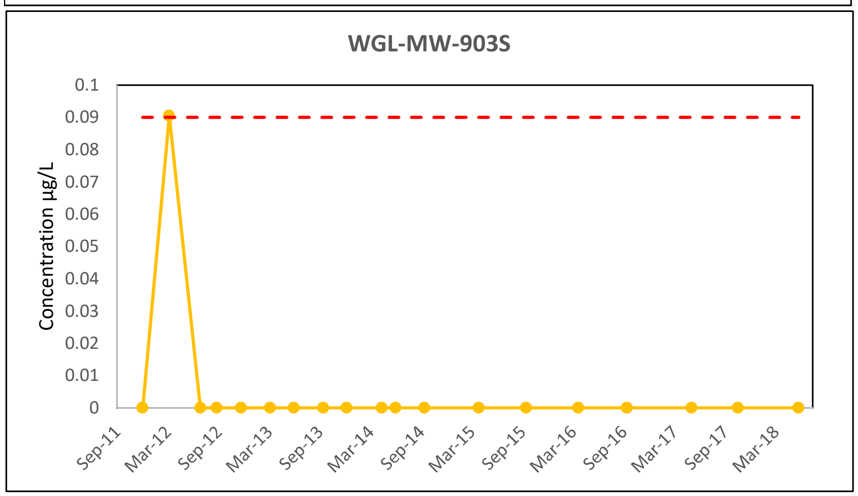


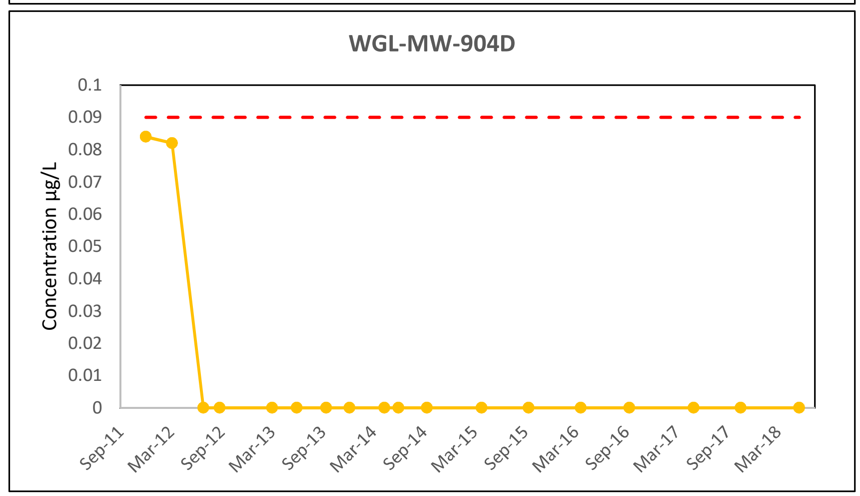
Notes: Indeno(1,2,3-cd)pyrene Concentration Project Action Limit = 0.09 µg/L
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

Exhibit 2-7
Indeno(1,2,3-cd)pyrene Trends in Groundwater - 2011 - 2018
West Gate Landfill
NAS South Weymouth



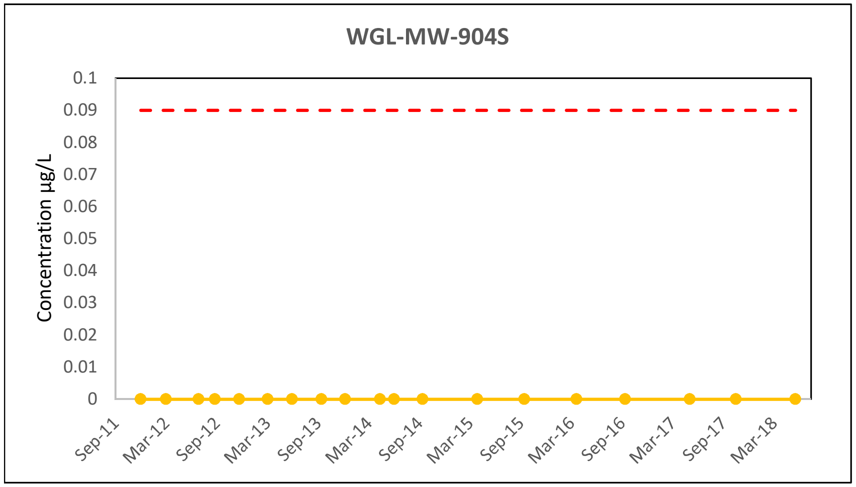






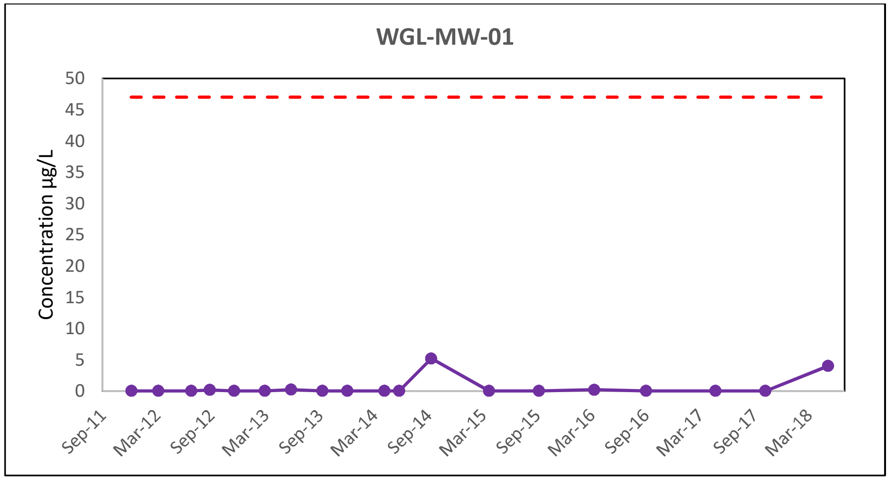
Notes: Indeno(1,2,3-cd)pyrene Concentration Project Action Limit = 0.09 µg/L
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

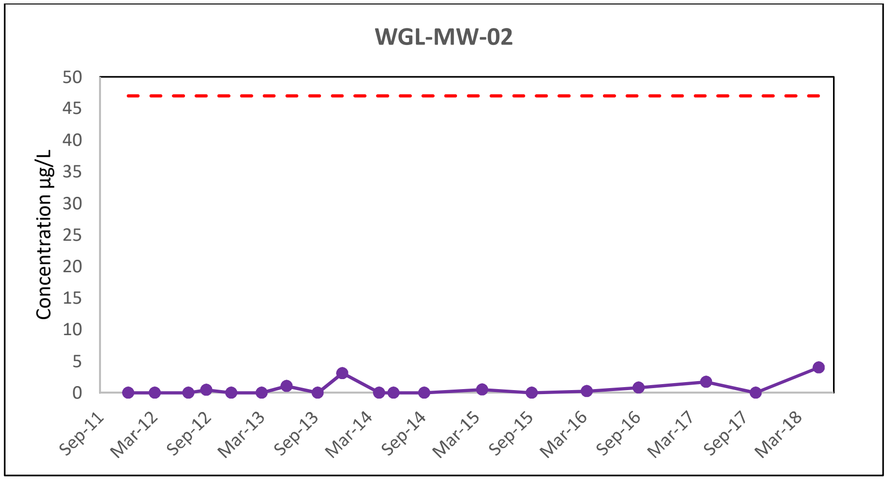
Exhibit 2-7
Indeno(1,2,3-cd)pyrene Trends in Groundwater - 2011 - 2018
West Gate Landfill
NAS South Weymouth

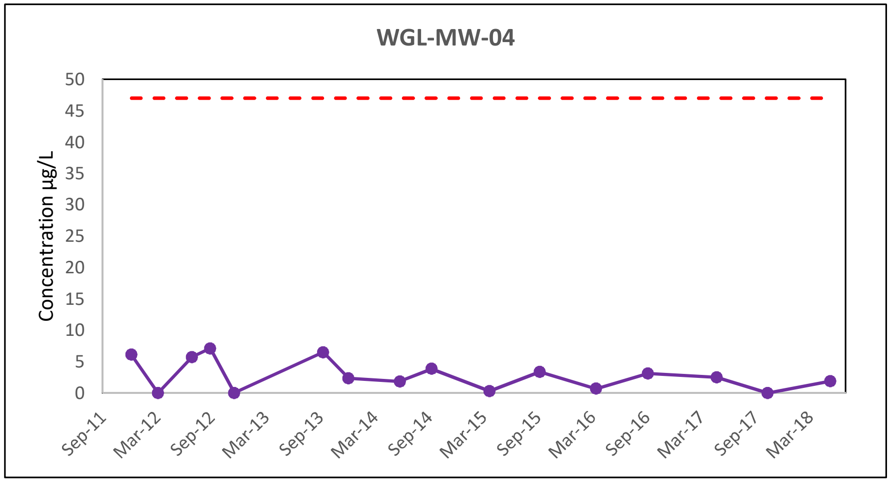


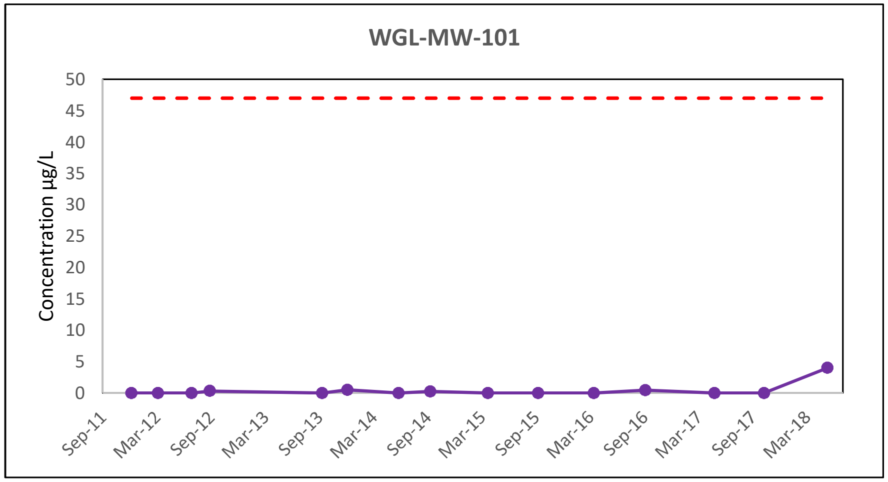
Notes: Indeno(1,2,3-cd)pyrene Concentration — Project Action Limit = 0.09 µg/L
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

Exhibit 2-8
Chromium Trends in Groundwater 2011 - 2018
West Gate Landfill
NAS South Weymouth



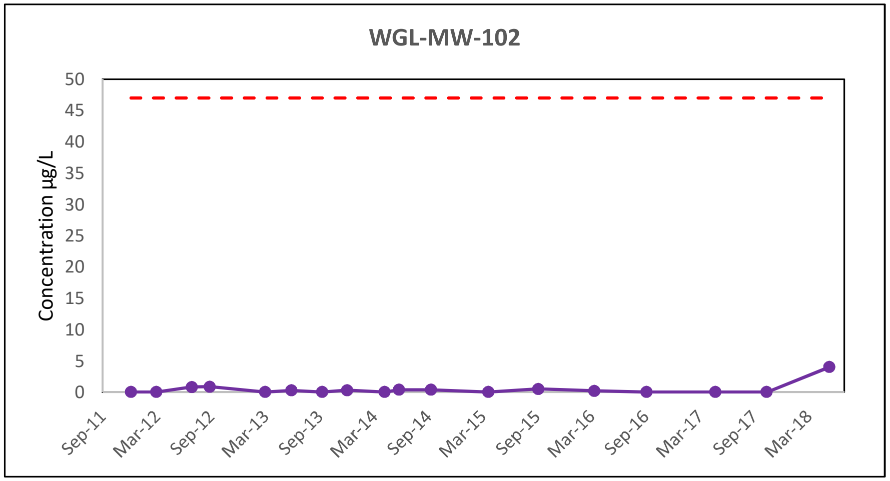


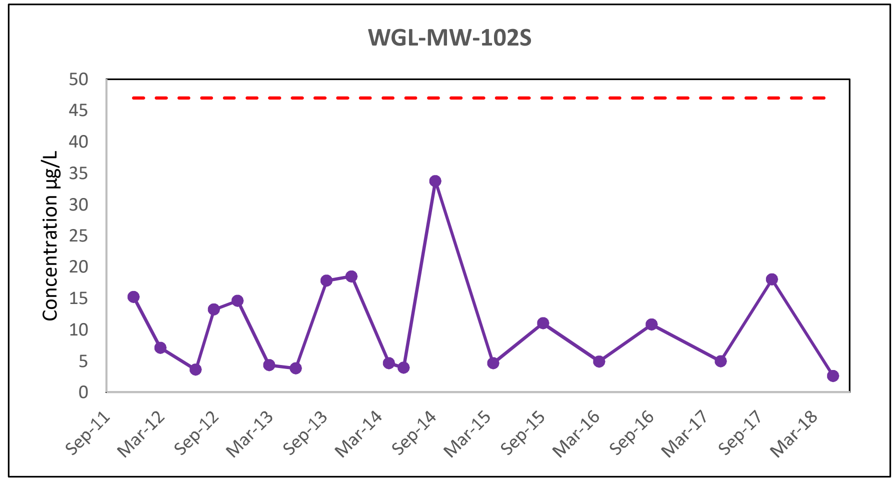


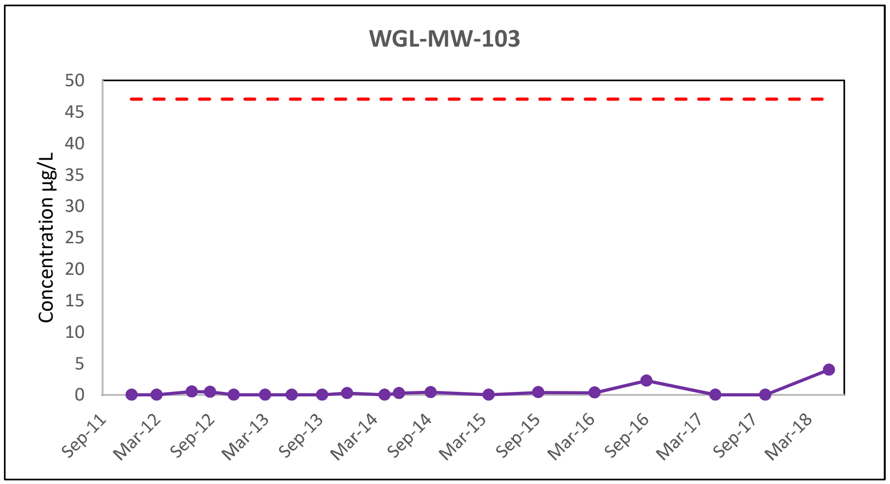


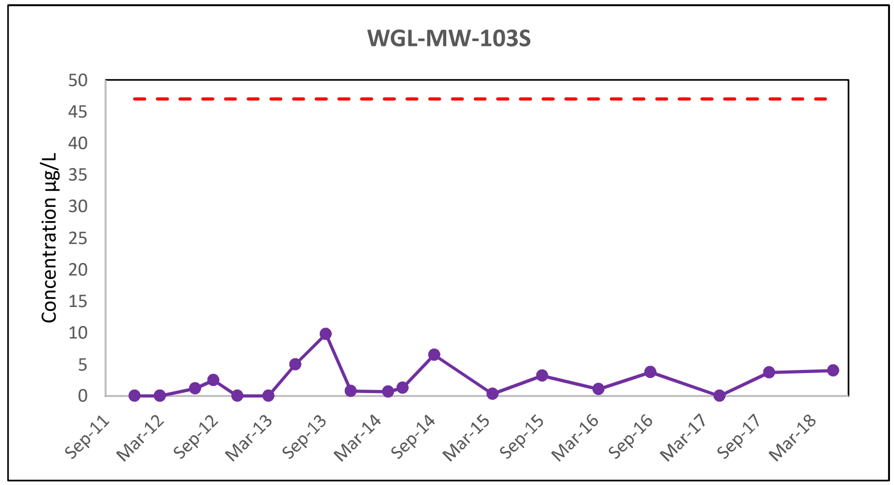
Notes: Chromium Concentration   Project Action Limit = 47 µg/L
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

Exhibit 2-8
Chromium Trends in Groundwater 2011 - 2018
West Gate Landfill
NAS South Weymouth



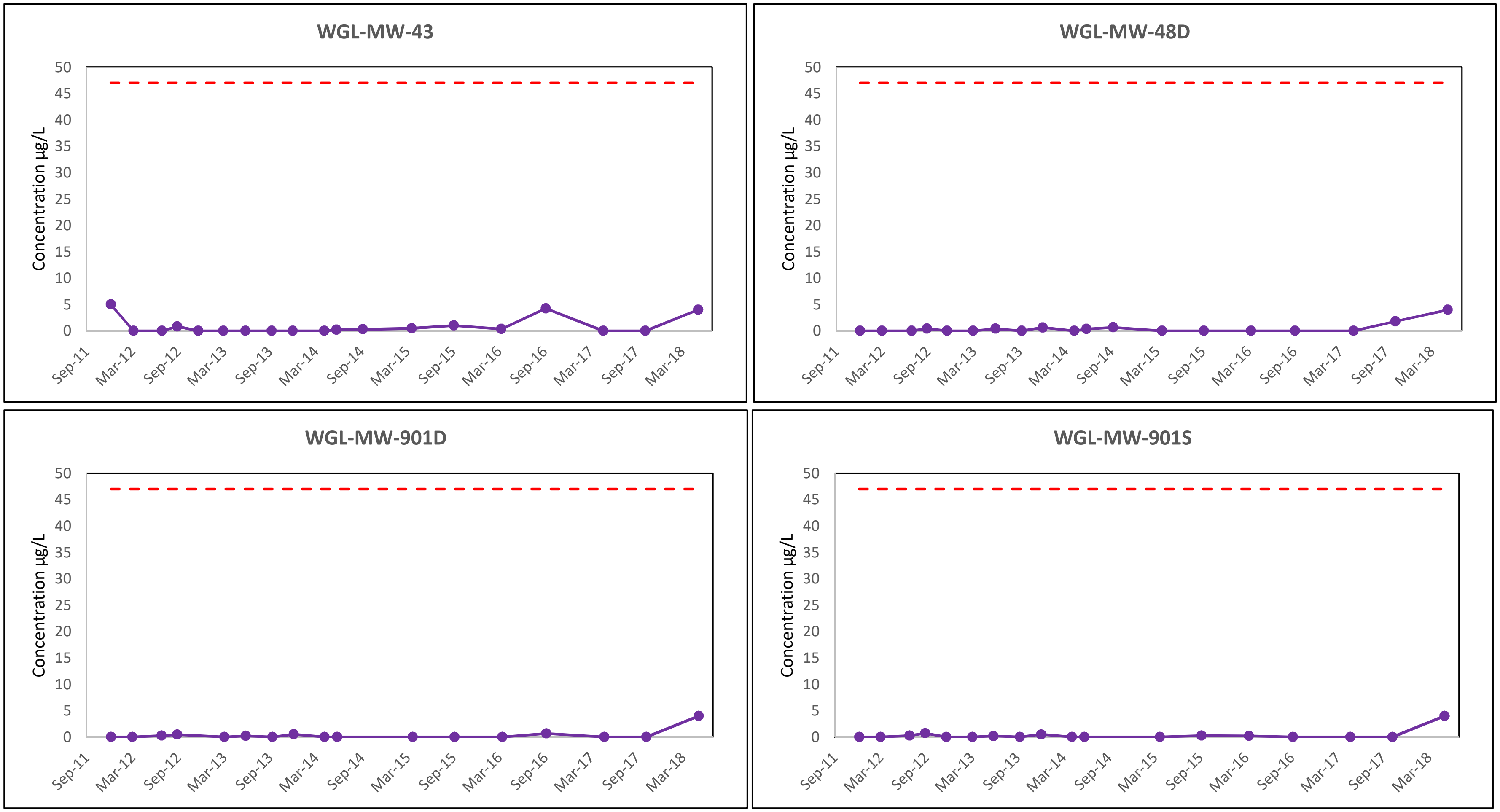






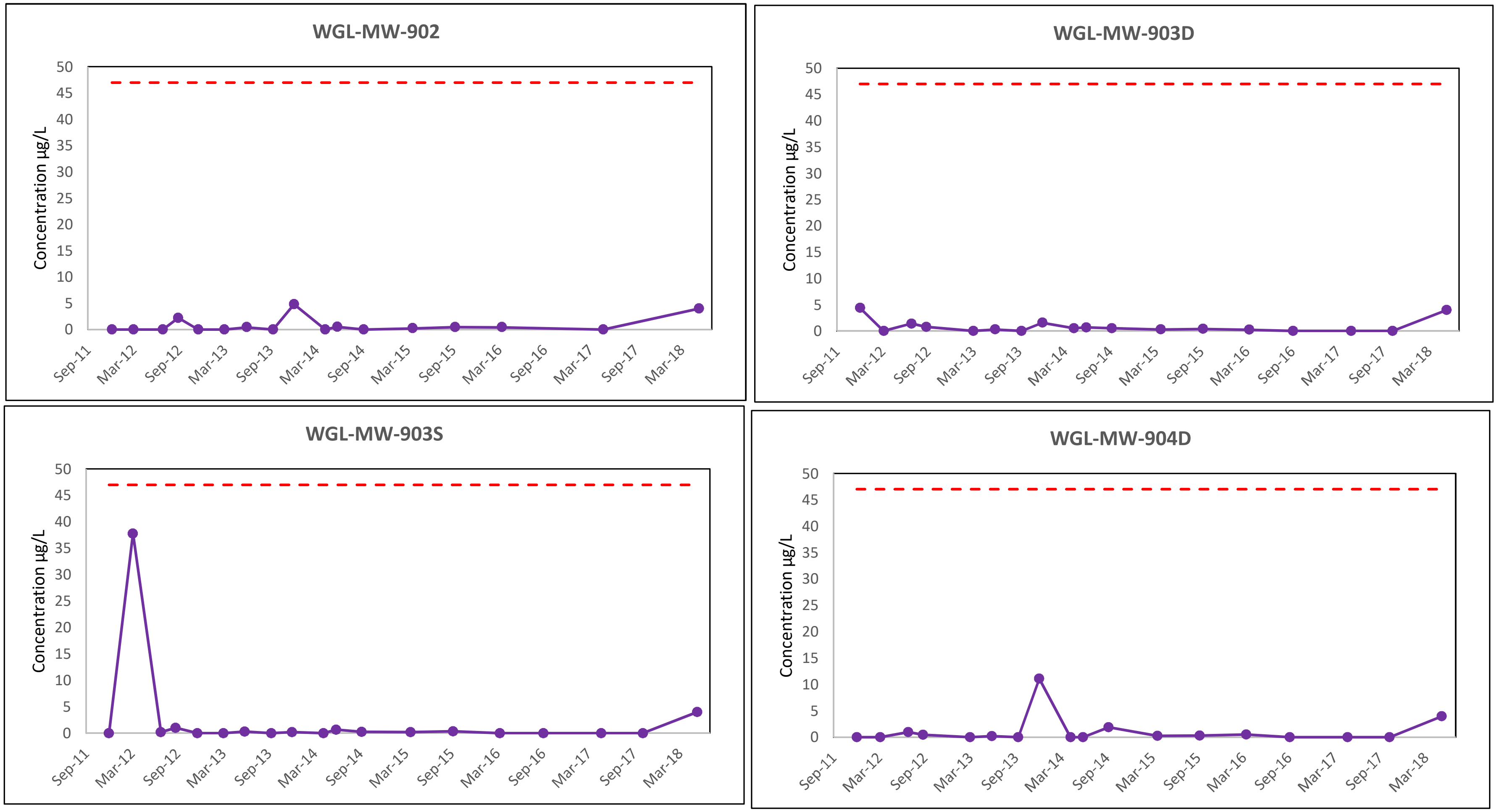
Notes: Chromium Concentration Project Action Limit = 47 µg/L
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

Exhibit 2-8
Chromium Trends in Groundwater 2011 - 2018
West Gate Landfill
NAS South Weymouth



Notes: Chromium Concentration   Project Action Limit = 47 µg/L
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

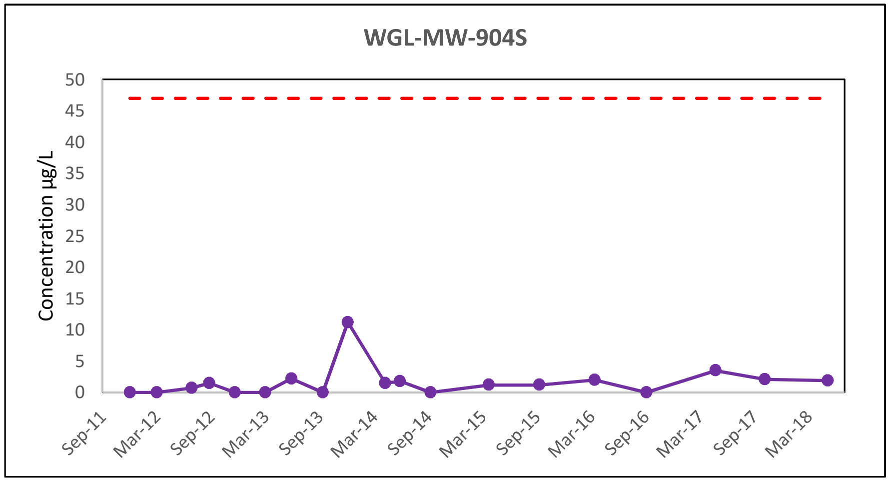
Exhibit 2-8
Chromium Trends in Groundwater 2011 - 2018
West Gate Landfill
NAS South Weymouth



Notes: Chromium Concentration Project Action Limit = 47 µg/L

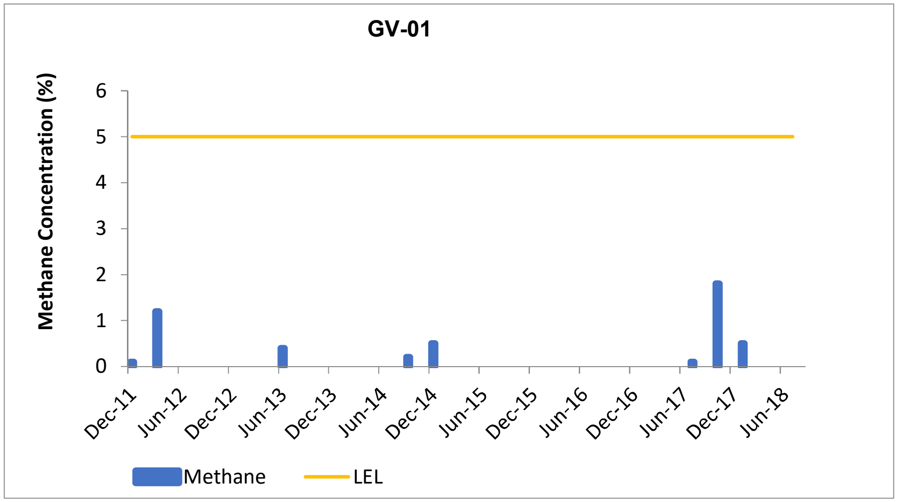
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

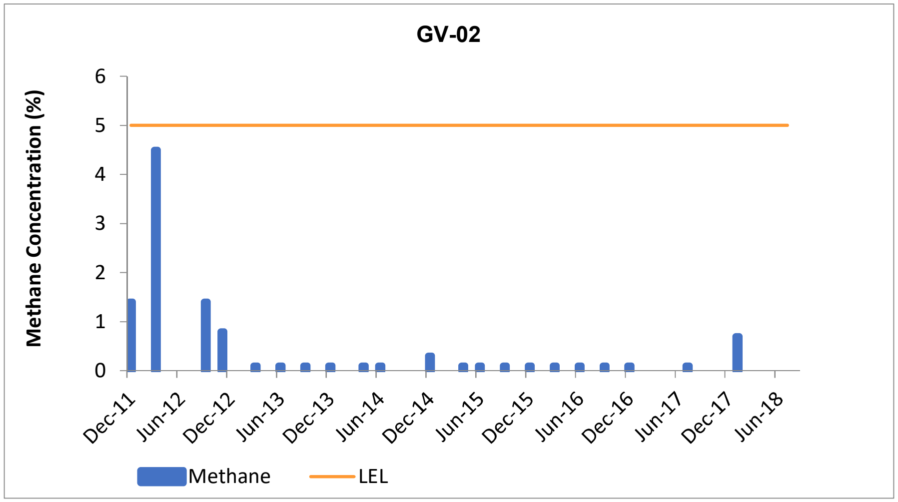
Exhibit 2-8
Chromium Trends in Groundwater 2011 - 2018
West Gate Landfill
NAS South Weymouth

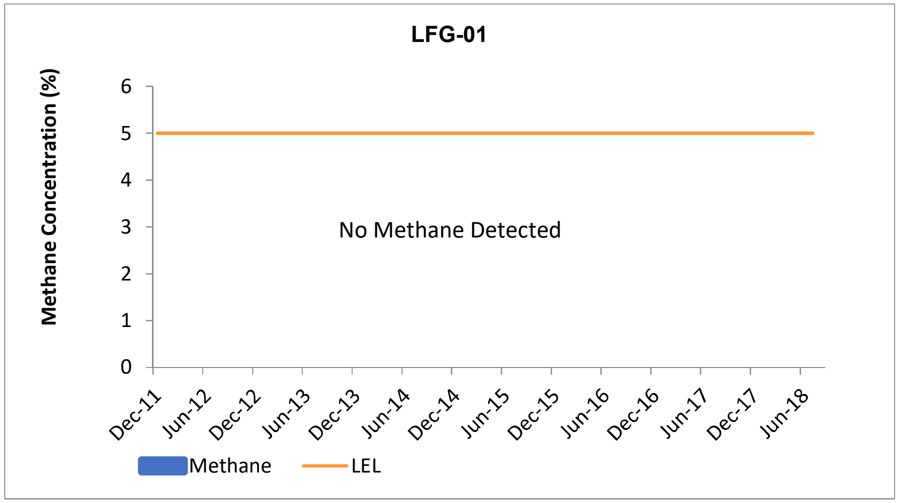


Notes: Chromium Concentration Project Action Limit = 47 µg/L
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged.

Exhibit 2-9
Methane Trends in Landfill Gas - 2011 - 2018
West Gate Landfill
NAS South Weymouth







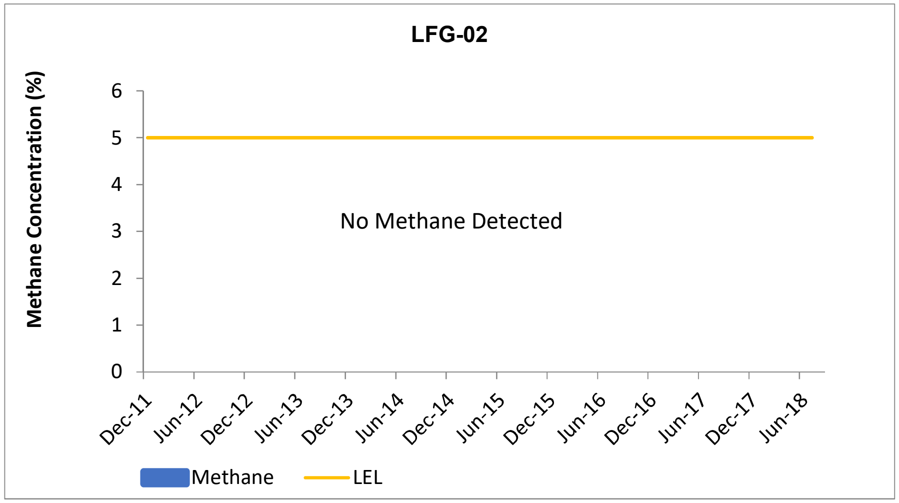
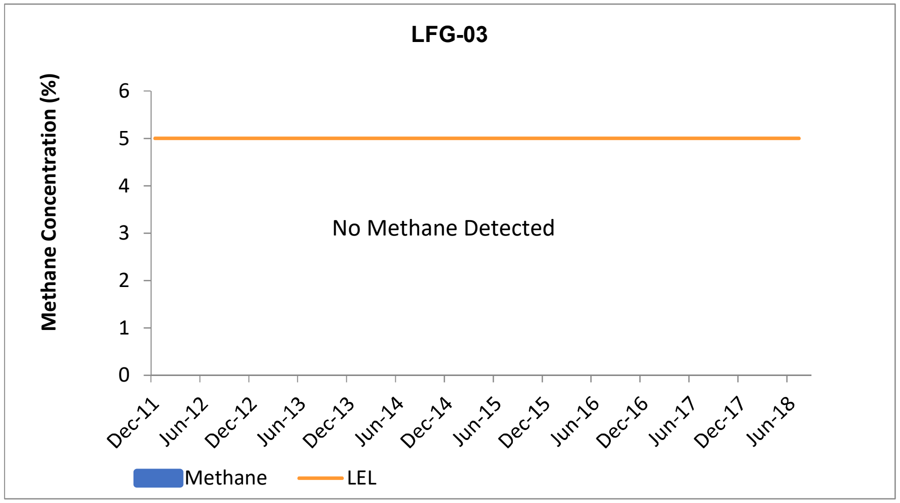
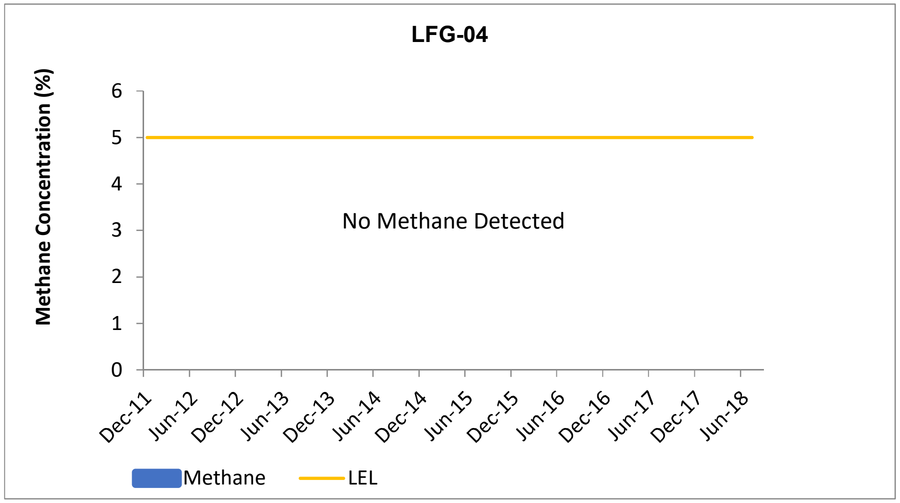
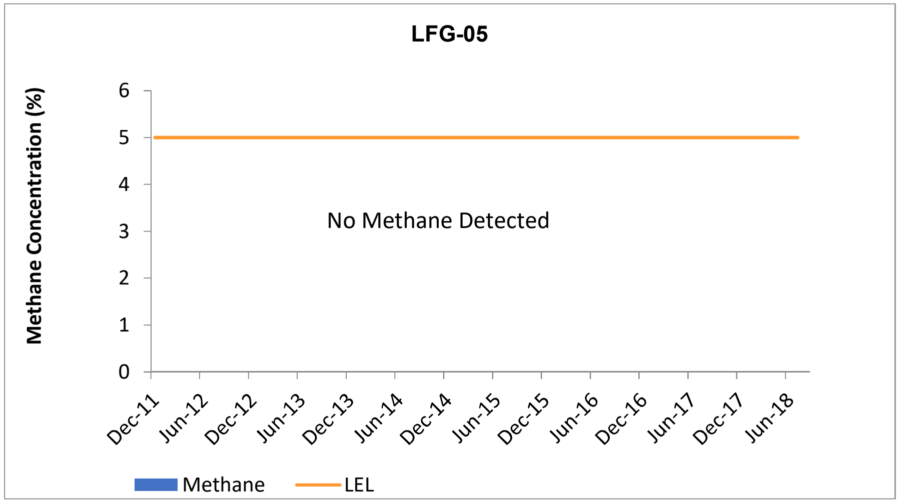


Exhibit 2-9
Methane Trends in Landfill Gas - 2011 - 2018
West Gate Landfill
NAS South Weymouth







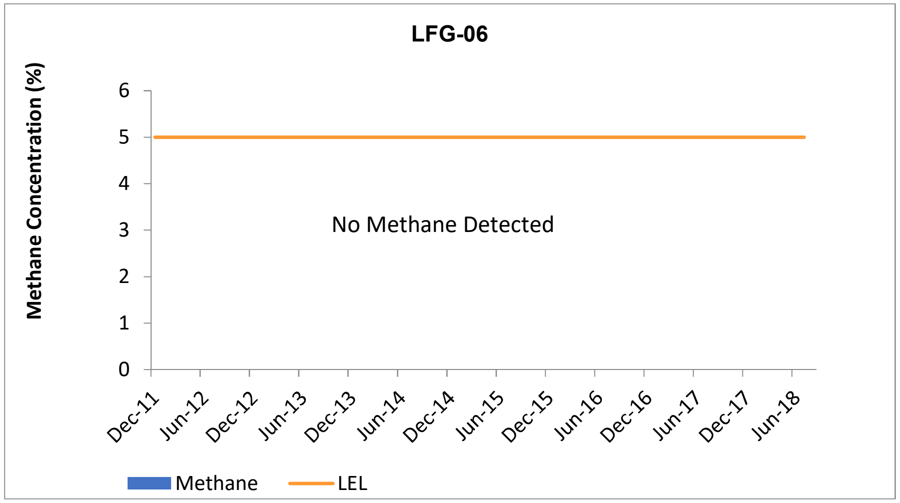
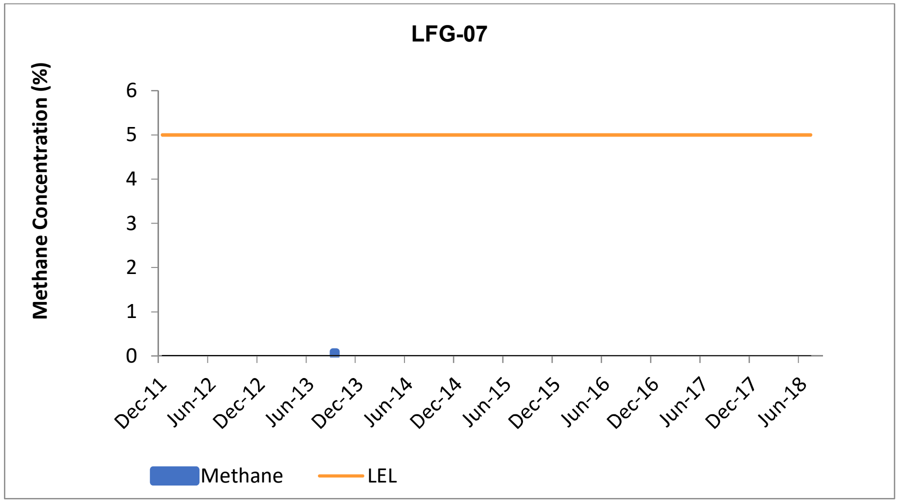
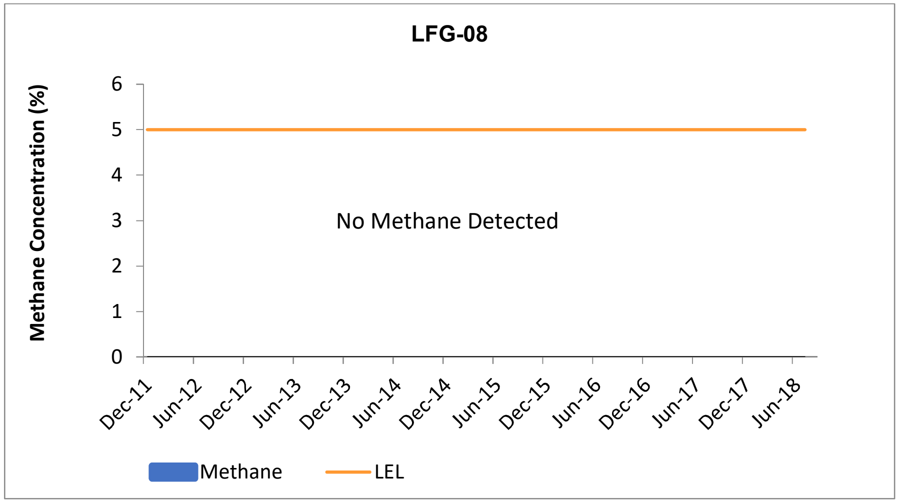
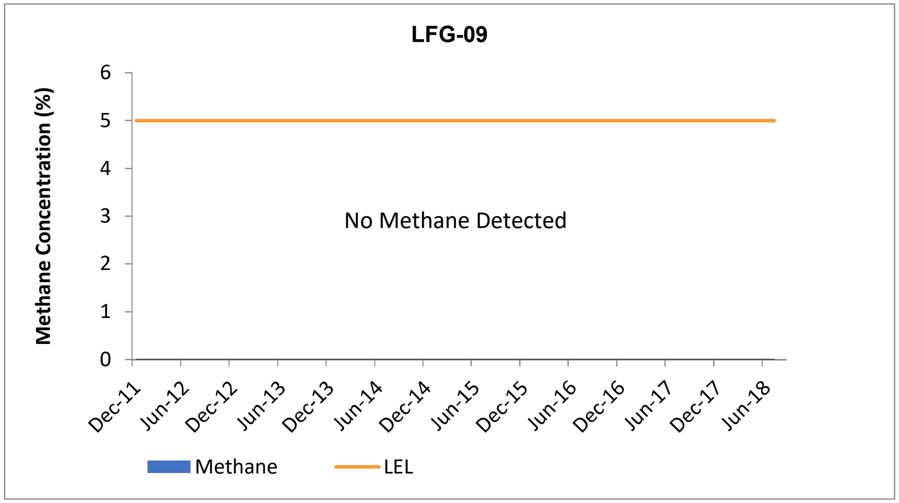


Exhibit 2-9
Methane Trends in Landfill Gas - 2011 - 2018
West Gate Landfill
NAS South Weymouth







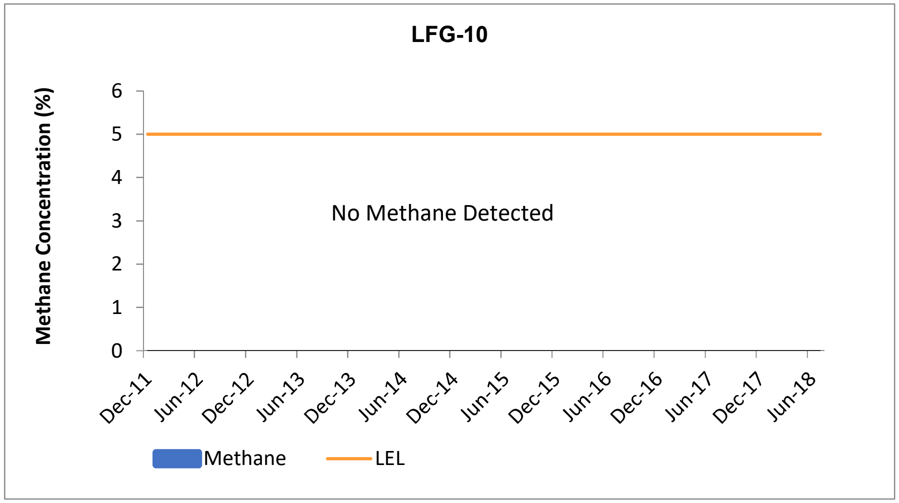
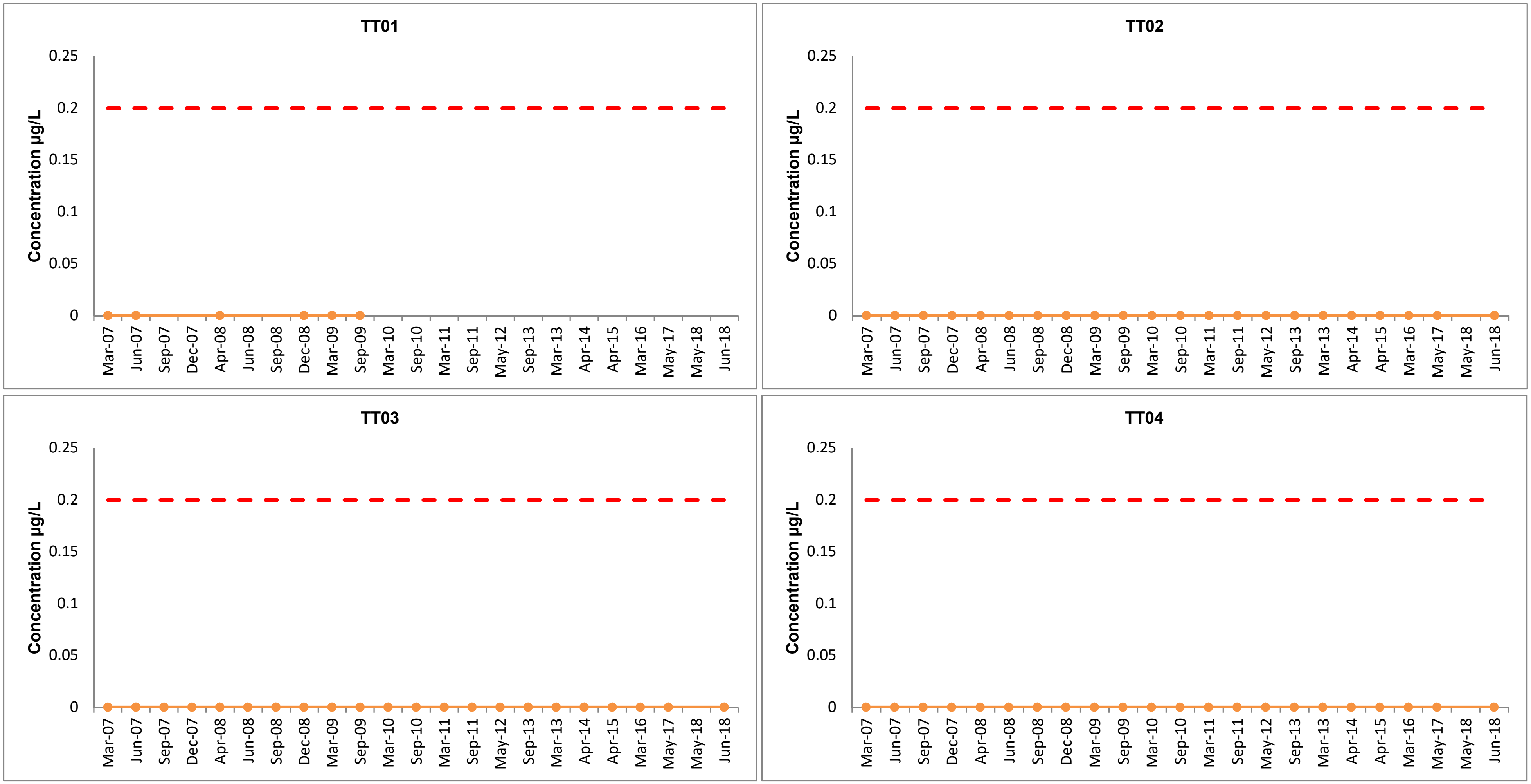


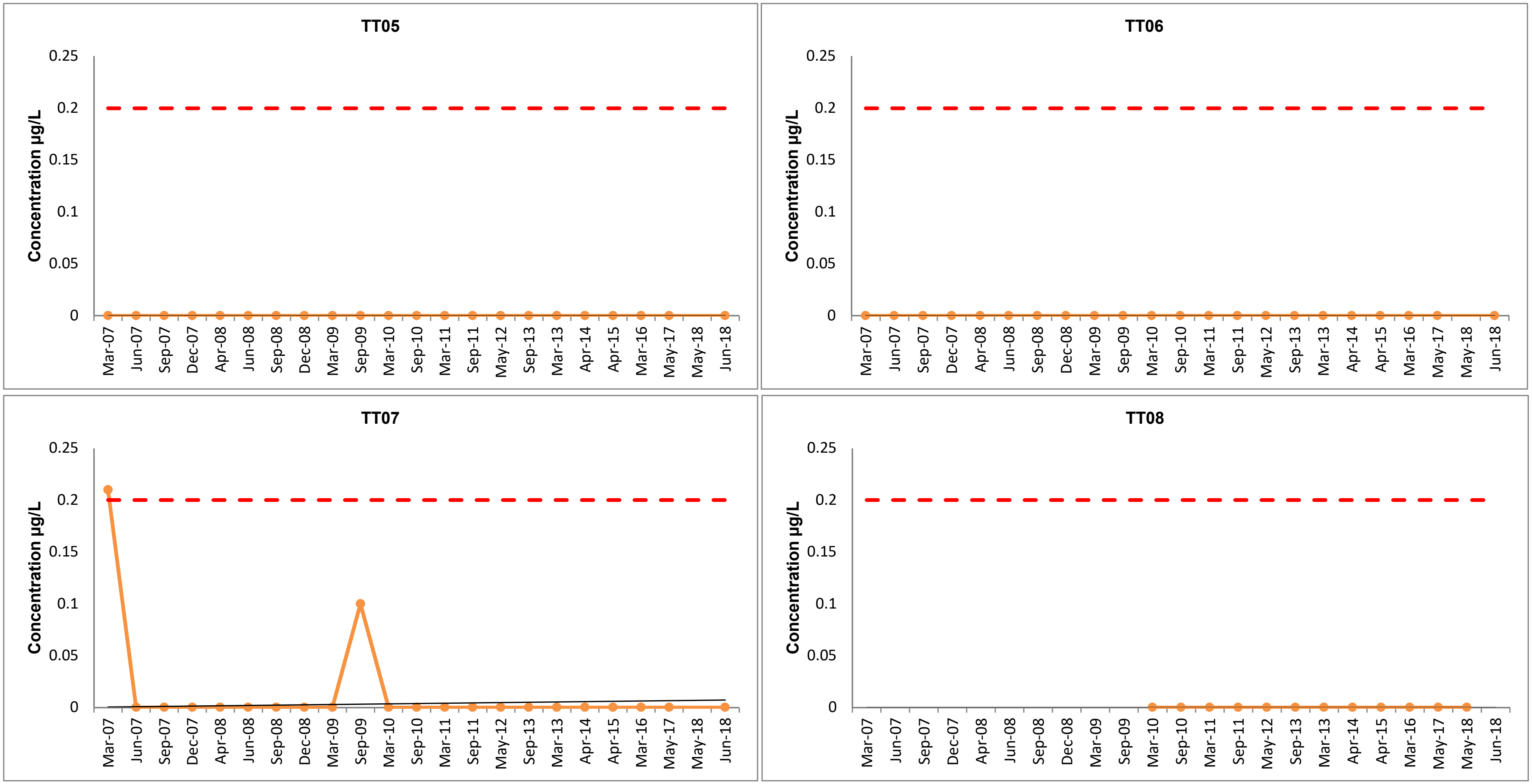
Exhibit 3-1
Benzo(a)pyrene Trends in Groundwater: 2007 – 2018
Rubble Disposal Area
NAS South Weymouth



Notes: Benzo(a)pyrene Concentration PAL = 0.2 μg/L (RG) Regression Line

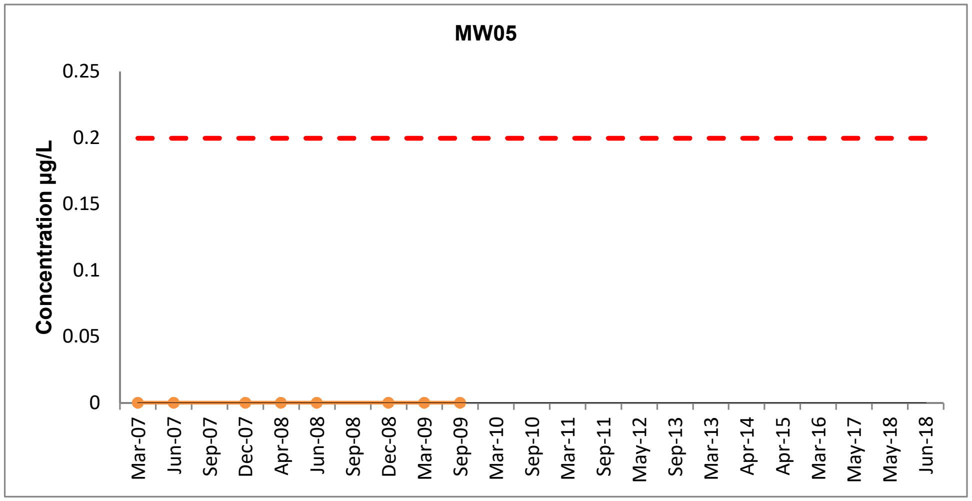
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged. As of March 2013, analysis of benzo(a)pyrene was reduced to an annual frequency during the spring event.

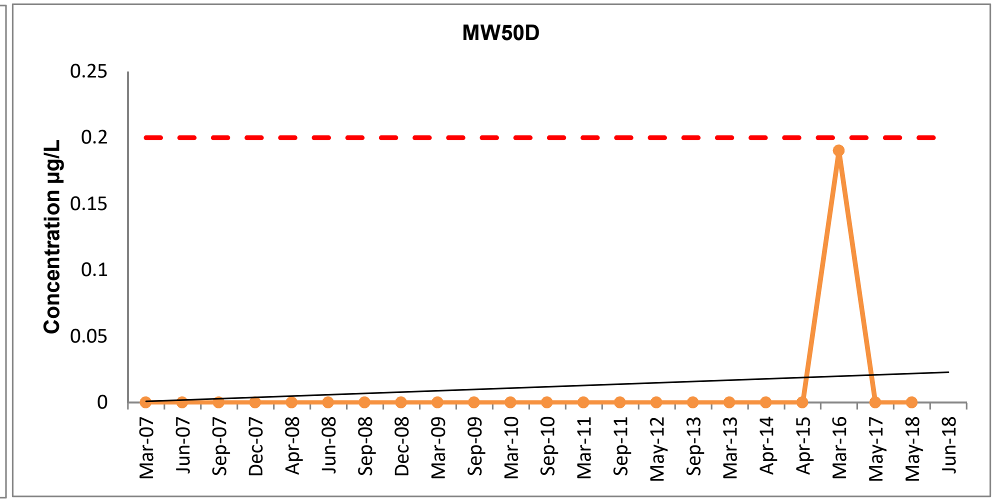
Exhibit 3-1
Benzo(a)pyrene Trends in Groundwater: 2007 – 2018
Rubble Disposal Area
NAS South Weymouth

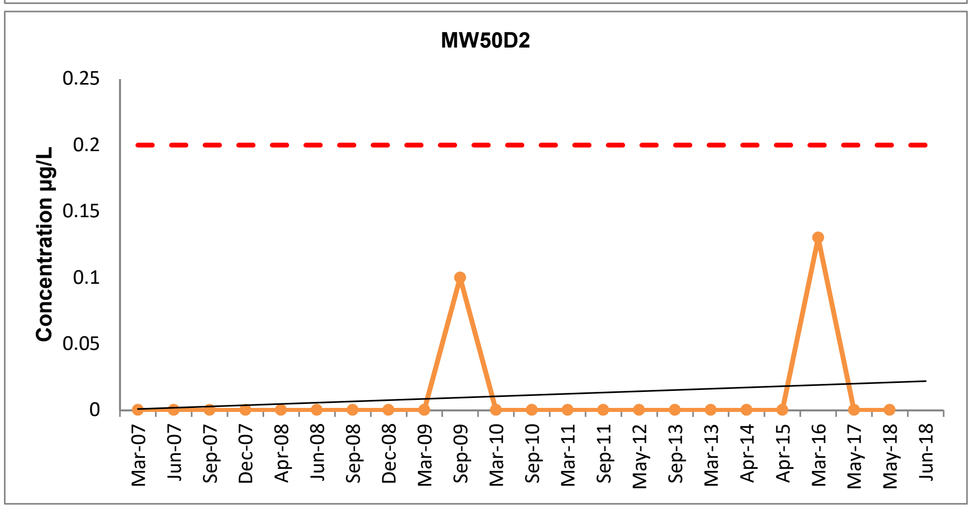


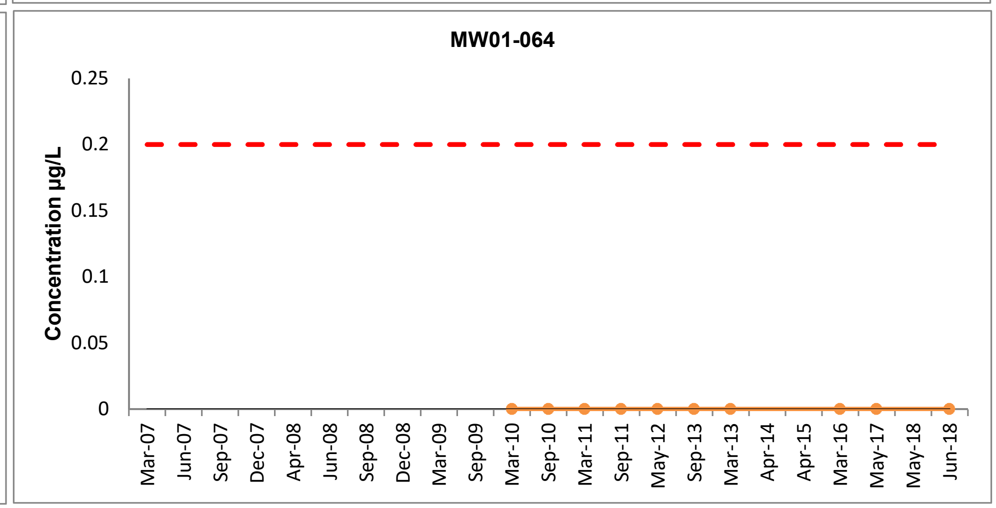
Notes: Benzo(a)pyrene Concentration PAL = 0.2 µg/L (RG) Regression Line
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged. As of March 2013, analysis of benzo(a)pyrene was reduced to an annual frequency during the spring event.

Exhibit 3-1
Benzo(a)pyrene Trends in Groundwater: 2007 – 2018
Rubble Disposal Area
NAS South Weymouth





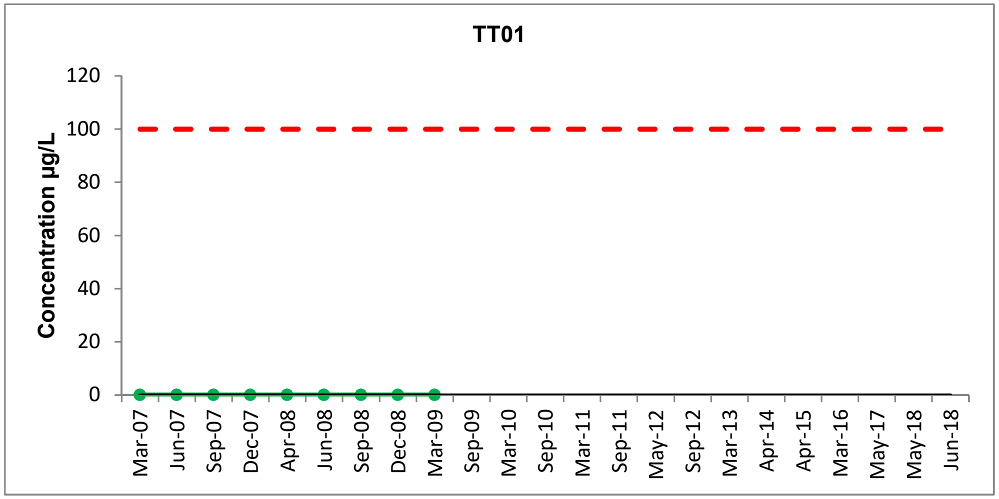


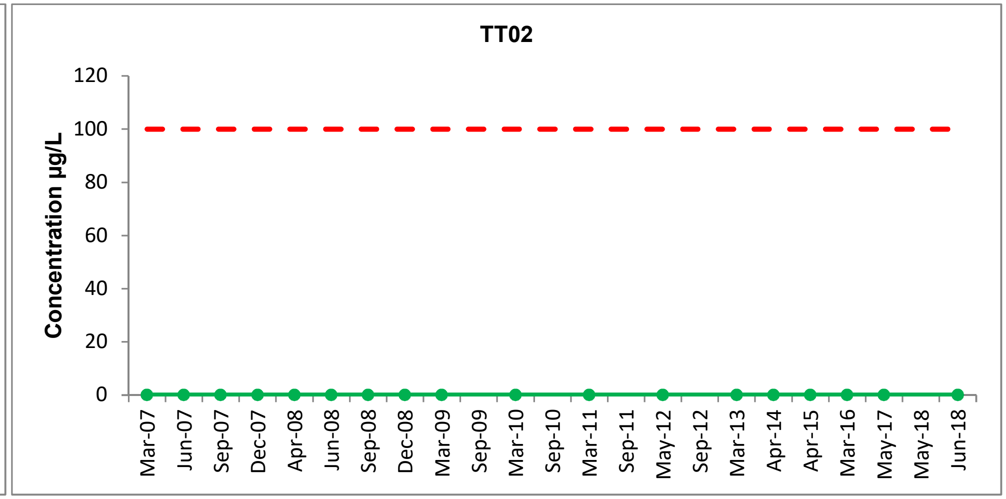


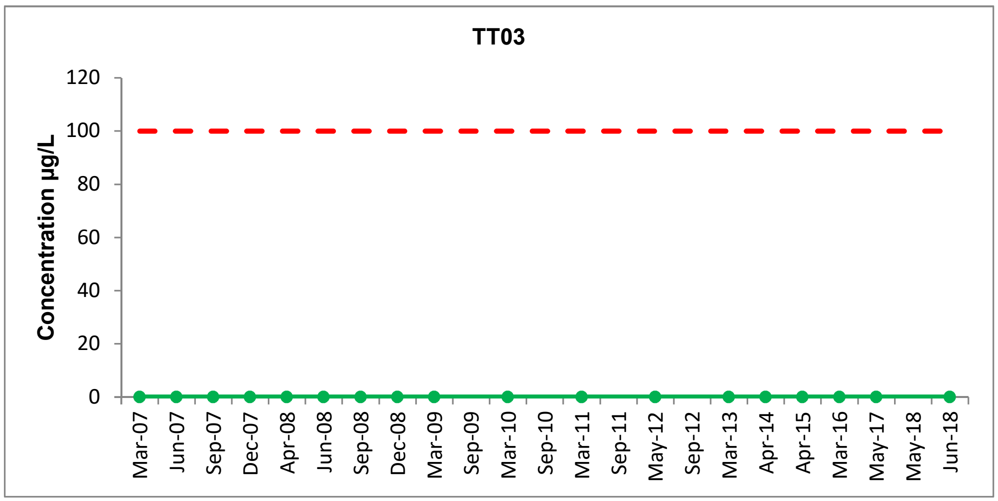
Notes: Benzo(a)pyrene Concentration PAL = 0.2 µg/L (RG) Regression Line

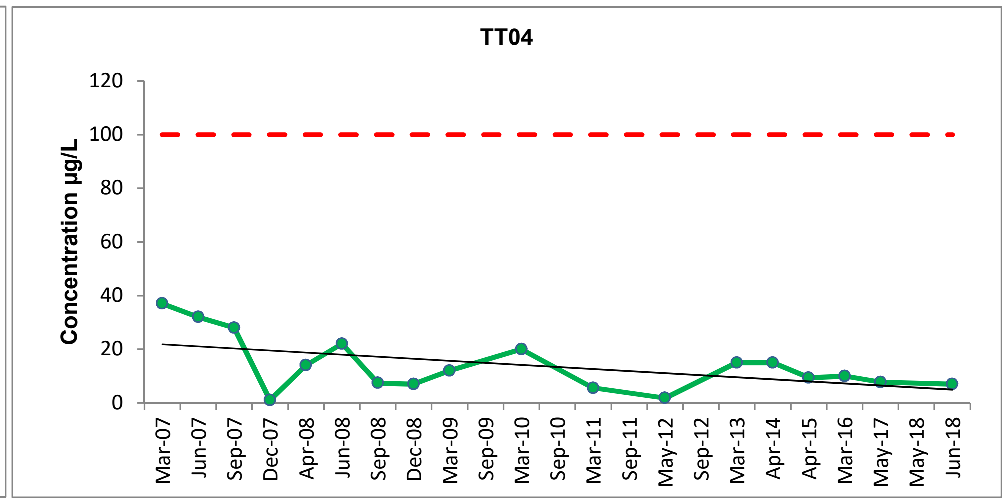
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged. As of March 2013, analysis of benzo(a)pyrene was reduced to an annual frequency during the spring event.

Exhibit 3-2
Chlorobenzene Trends in Groundwater: 2007 – 2018
Rubble Disposal Area
NAS South Weymouth





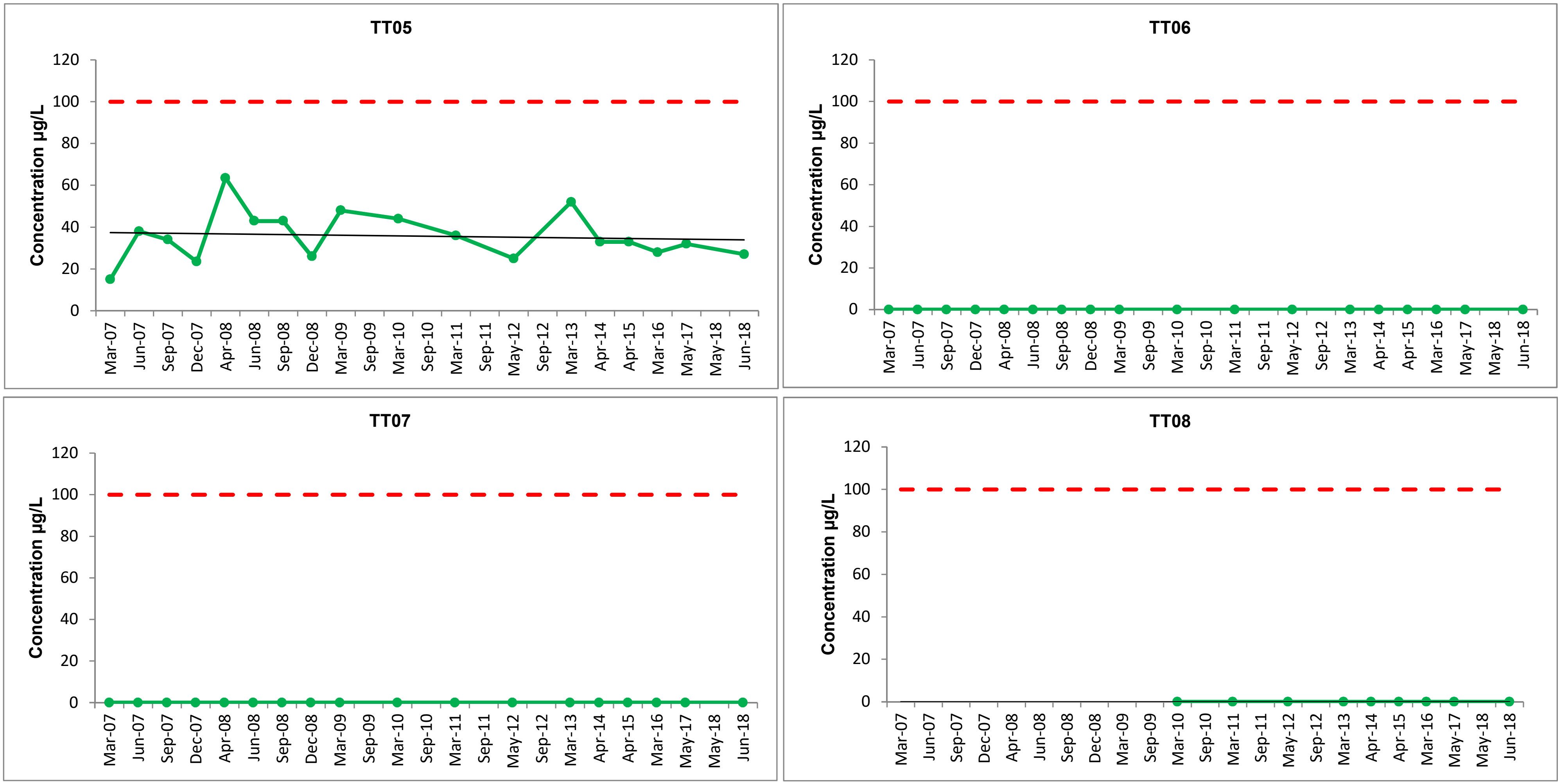




Notes: Chlorobenzene Concentration PAL = 100 µg/l Regression line

A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged. As of March 2009, analysis of chlorobenzene was reduced to an annual frequency during the spring event.

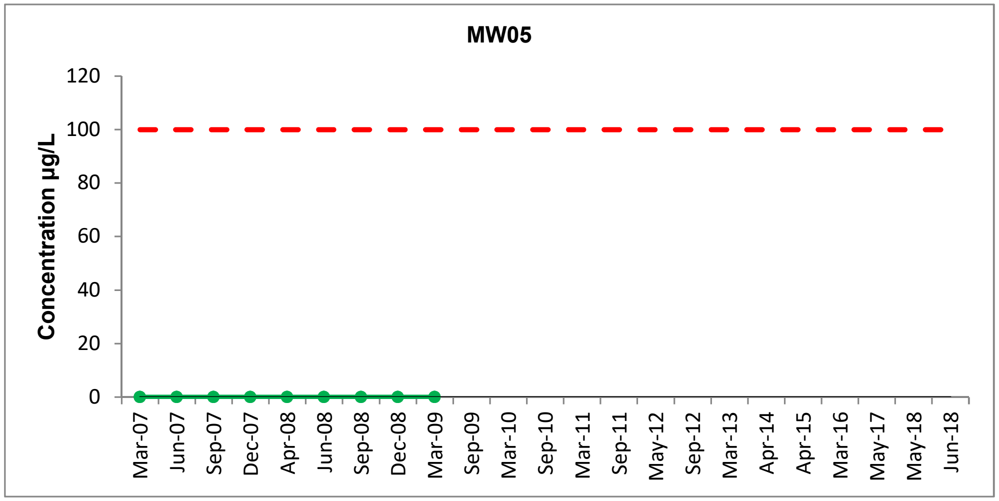
Exhibit 3-2
Chlorobenzene Trends in Groundwater: 2007 – 2018
Rubble Disposal Area
NAS South Weymouth

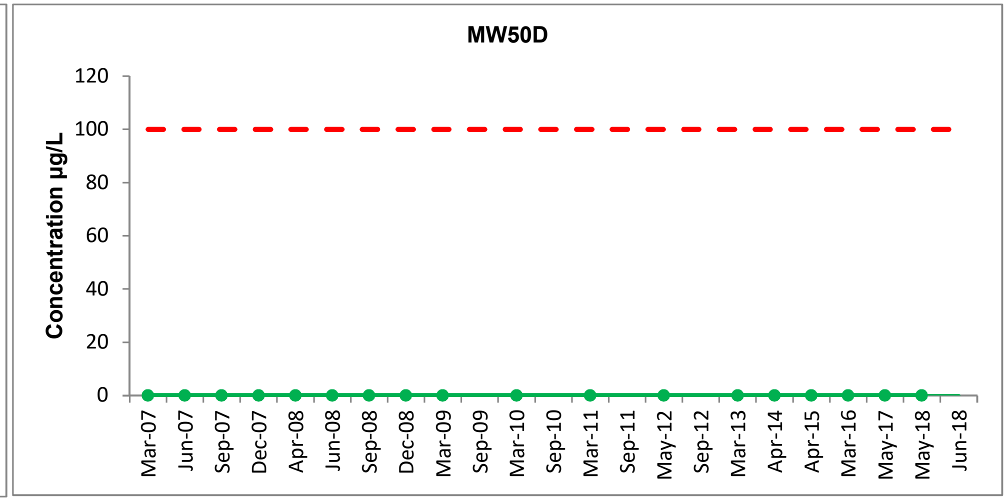


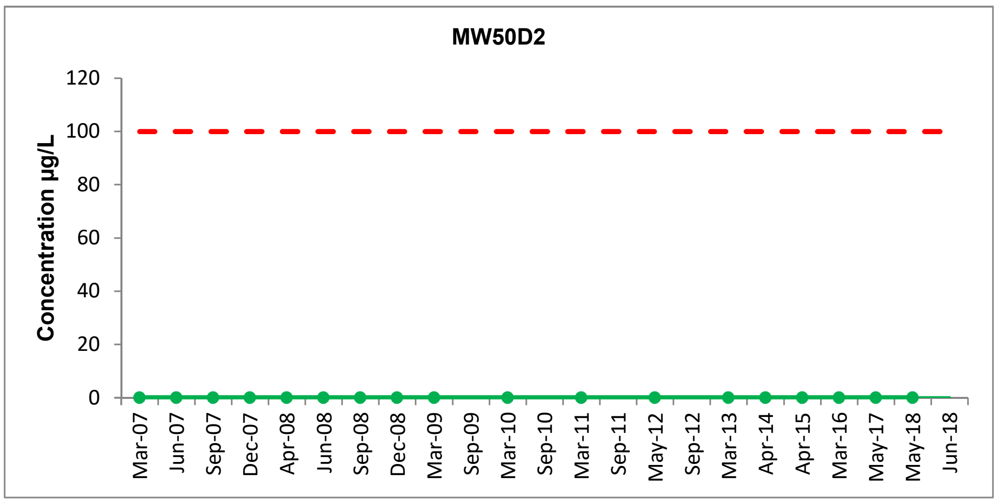
Notes: Chlorobenzene Concentration PAL = 100 µg/l Regression line

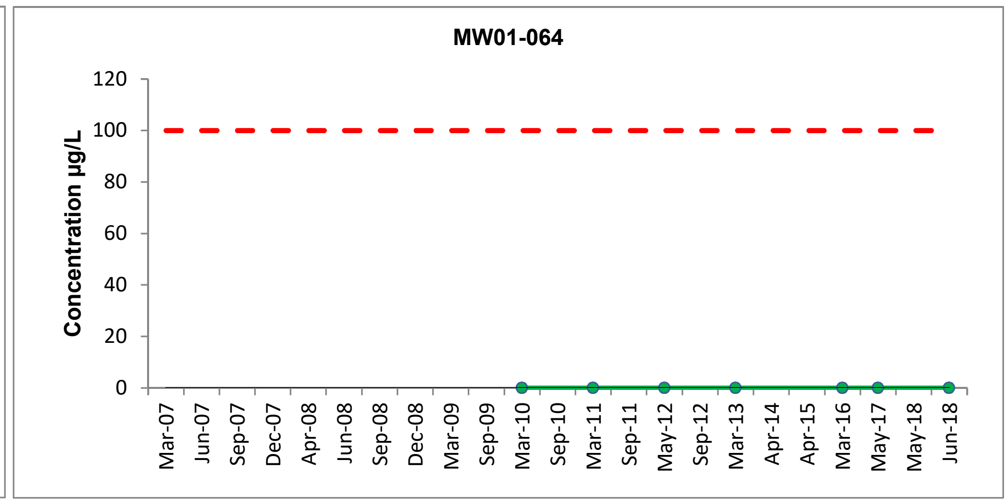
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged. As of March 2009, analysis of chlorobenzene was reduced to an annual frequency during the spring event.

Exhibit 3-2
Chlorobenzene Trends in Groundwater: 2007 – 2018
Rubble Disposal Area
NAS South Weymouth





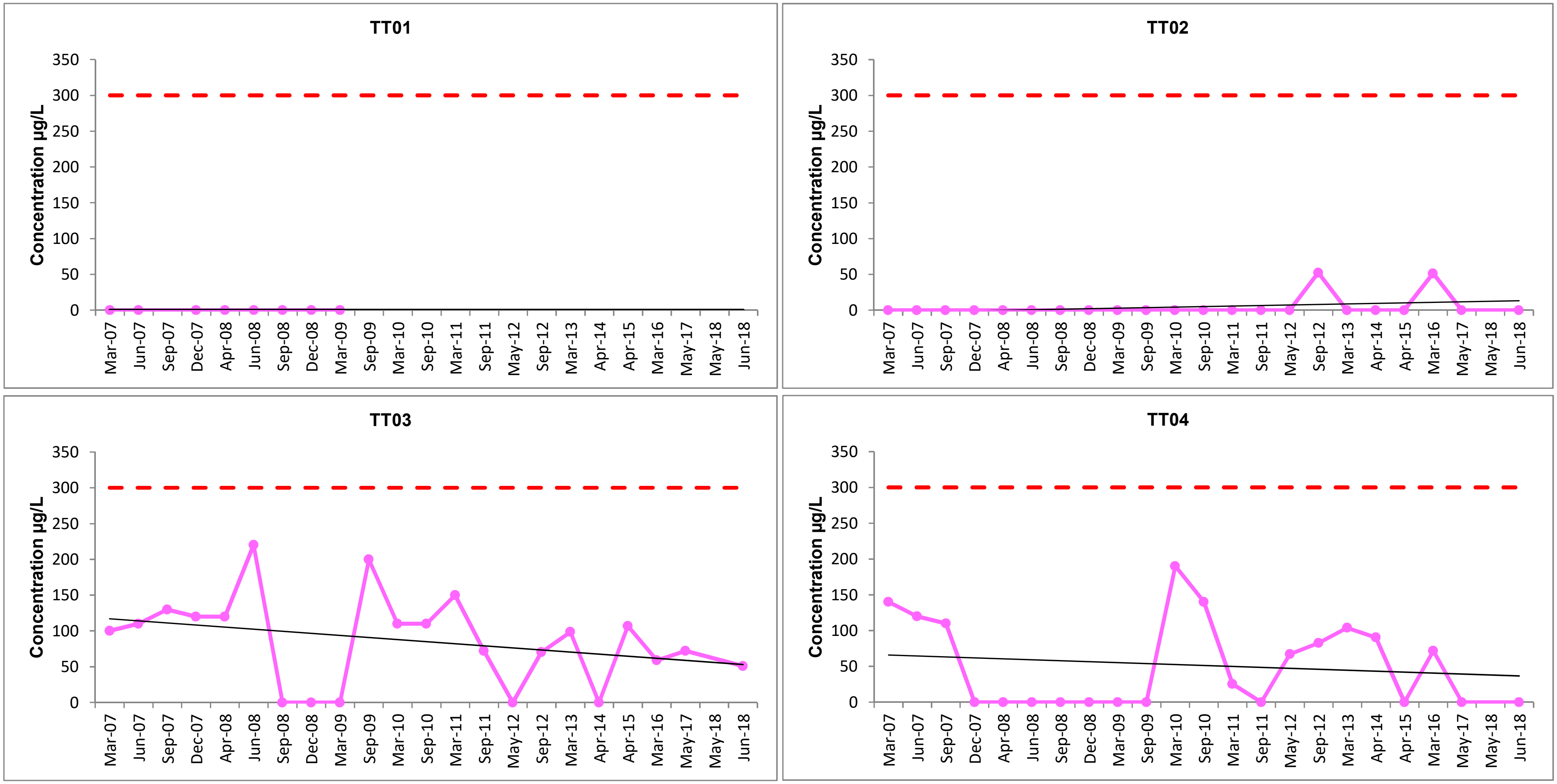




Notes: Chlorobenzene Concentration PAL = 100 μg/l Regression line

A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged. As of March 2009, analysis of chlorobenzene was reduced to an annual frequency during the spring event.

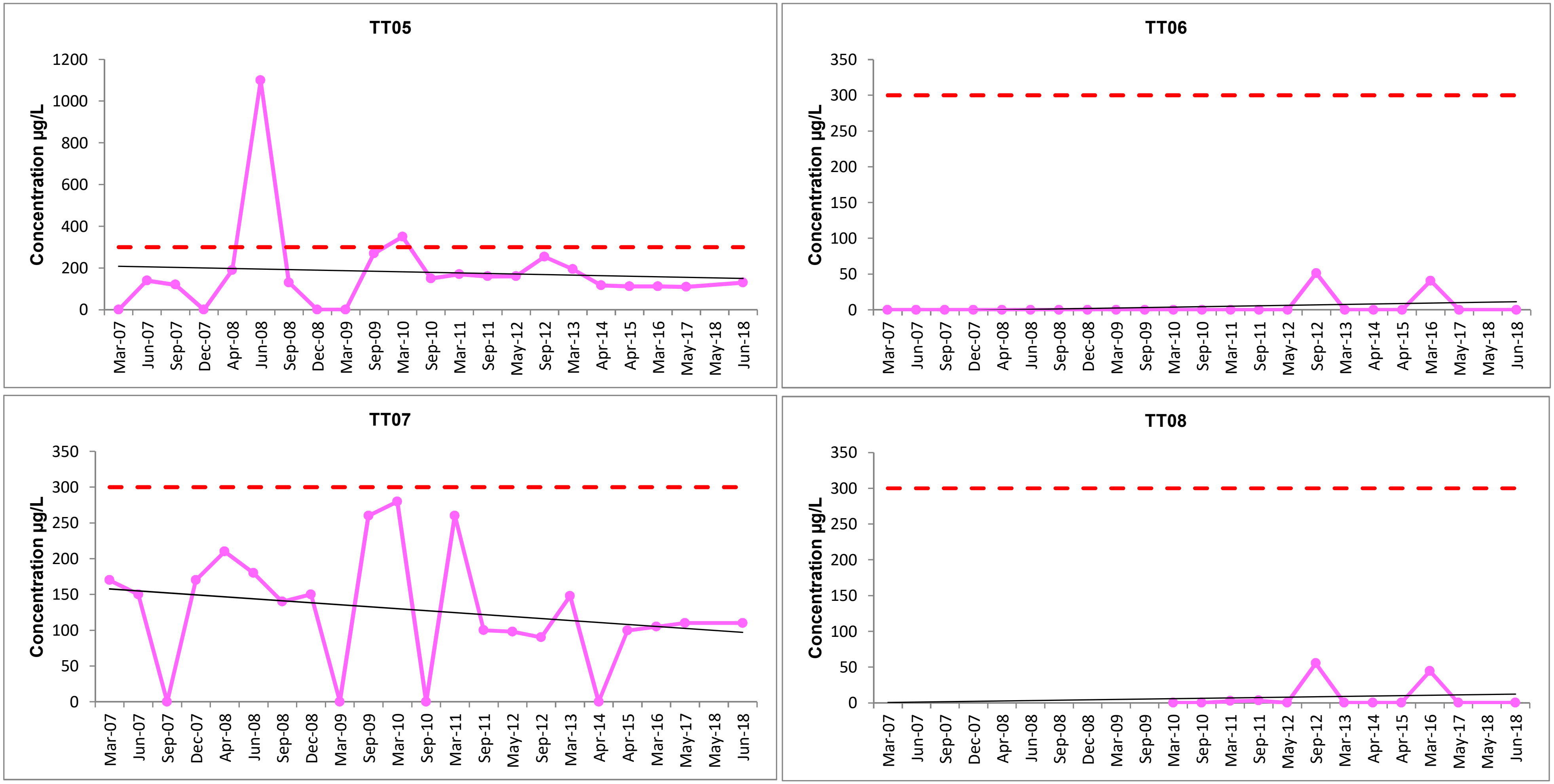
Exhibit 3-3
VPH (C5-C8 Aliphatics) Trends in Groundwater: 2007 – 2018
Rubble Disposal Area
NAS South Weymouth



Notes: VPH (C_5-C_8) Concentration PAL = 300 µg/l Regression line

A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged. As of March 2013, analysis of VPH was reduced to an annual frequency during the spring event.

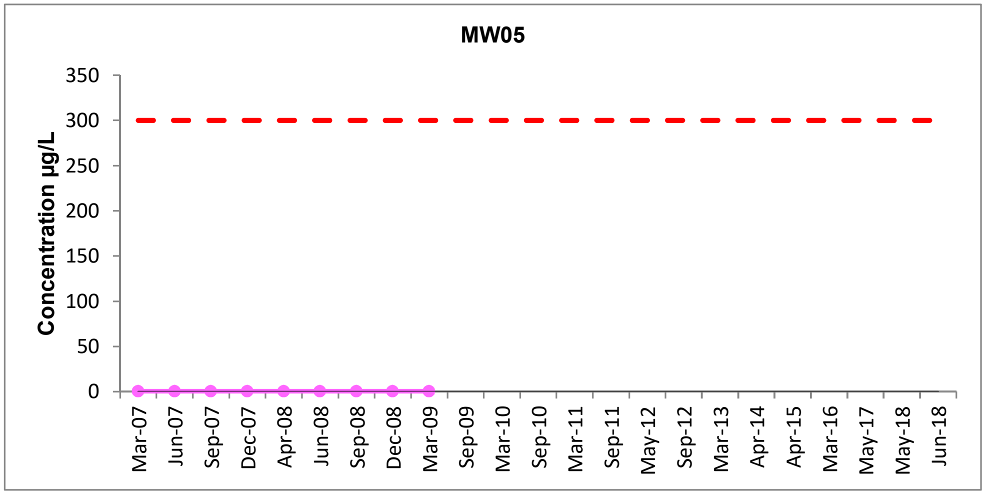
Exhibit 3-3
VPH (C5-C8 Aliphatics) Trends in Groundwater: 2007 – 2018
Rubble Disposal Area
NAS South Weymouth

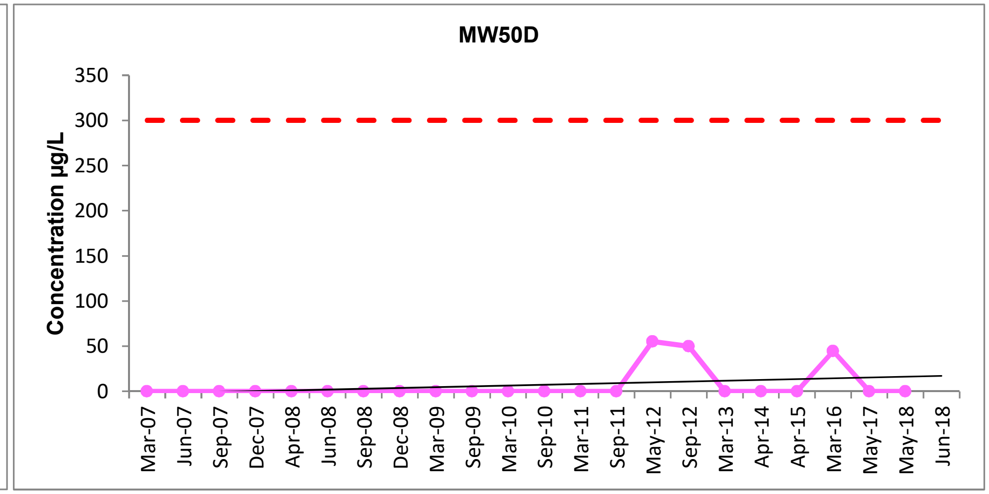


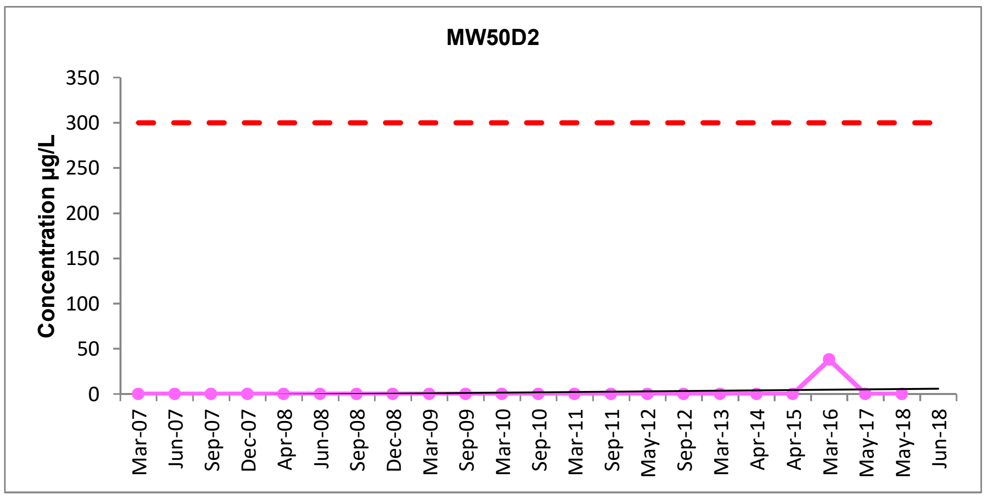
Notes: VPH (C_5-C_8) Concentration PAL = 300 µg/l Regression line

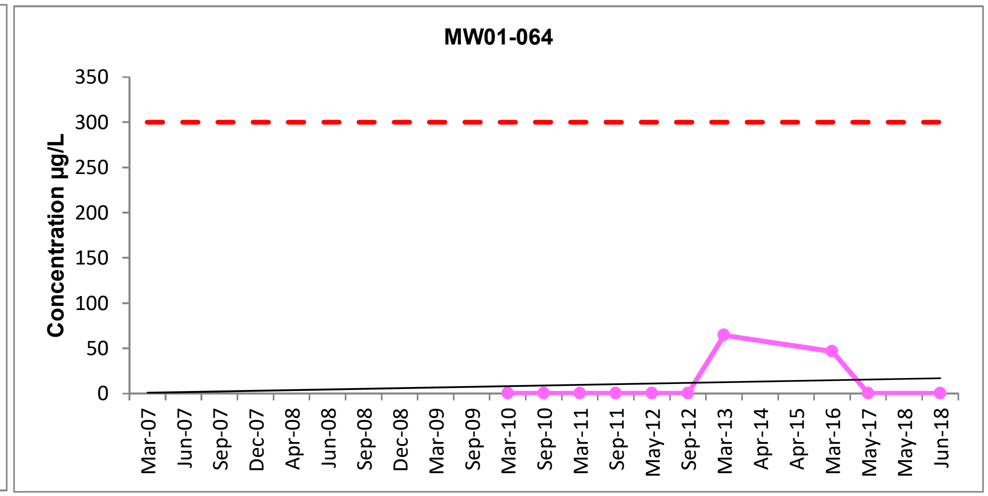
A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged. As of March 2013, analysis of VPH was reduced to an annual frequency during the spring event.

Exhibit 3-3
VPH (C5-C8 Aliphatics) Trends in Groundwater: 2007 – 2018
Rubble Disposal Area
NAS South Weymouth





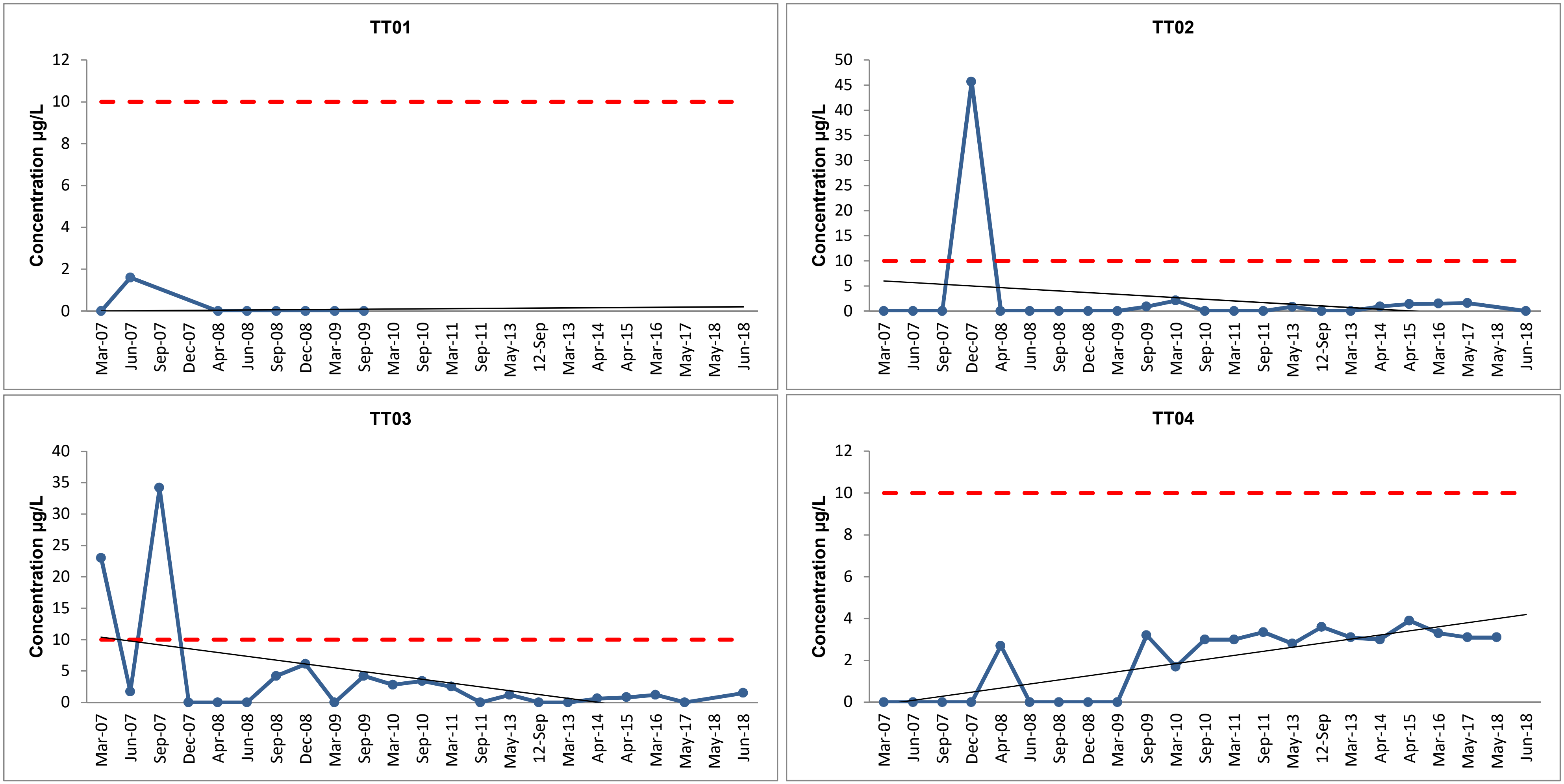




Notes: VPH (C_5-C_8) Concentration — PAL = 300 µg/l — Regression line

A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged. As of March 2013, analysis of VPH was reduced to an annual frequency during the spring event.

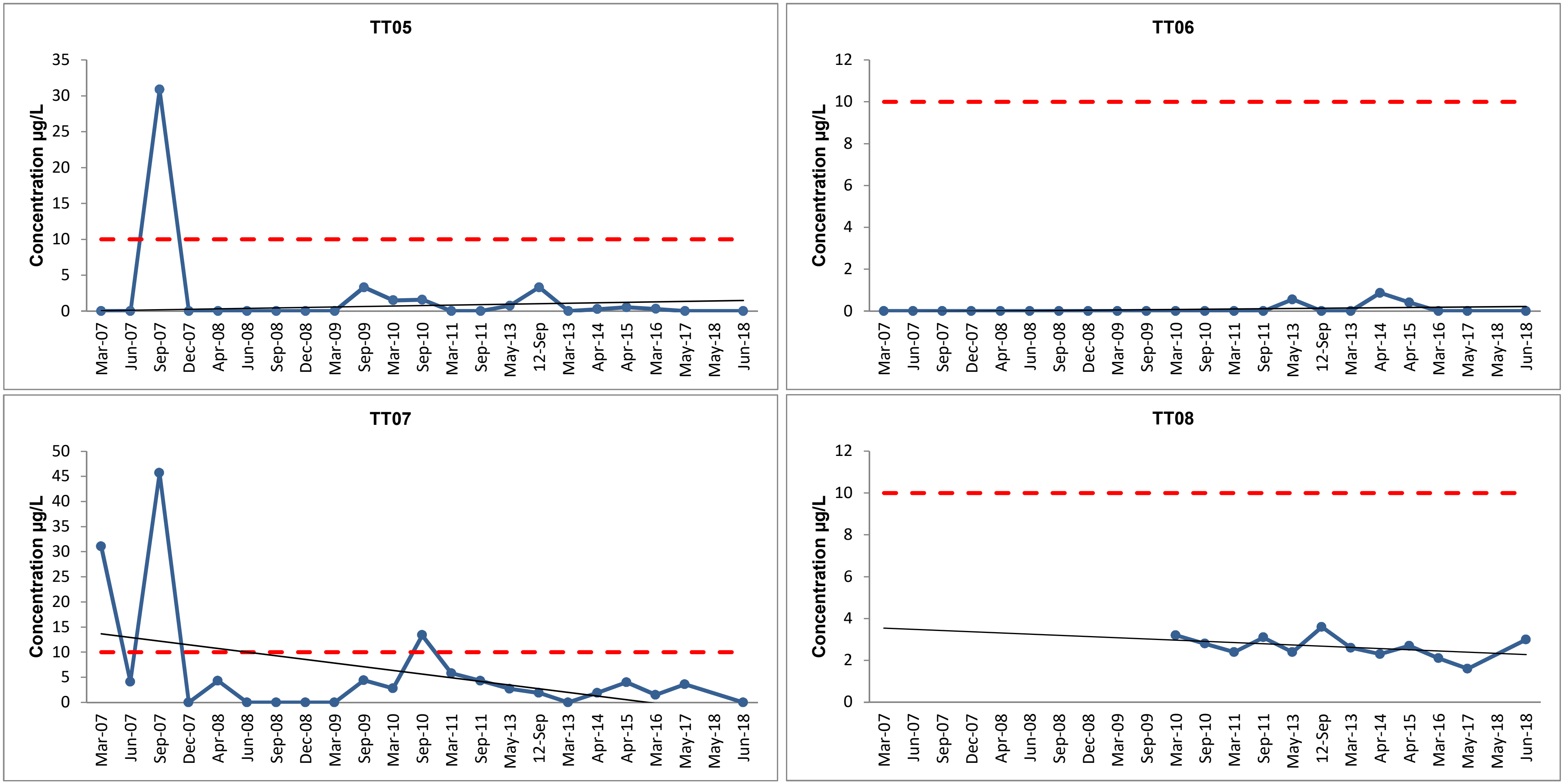
Exhibit 3-4
Total Arsenic Trends in Groundwater: 2007 – 2018
Rubble Disposal Area
NAS South Weymouth



Notes: Total Arsenic Concentration PAL = 10 µg/l Regression line

A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged. As of March 2013, analysis of metals was reduced to an annual frequency during the spring event.

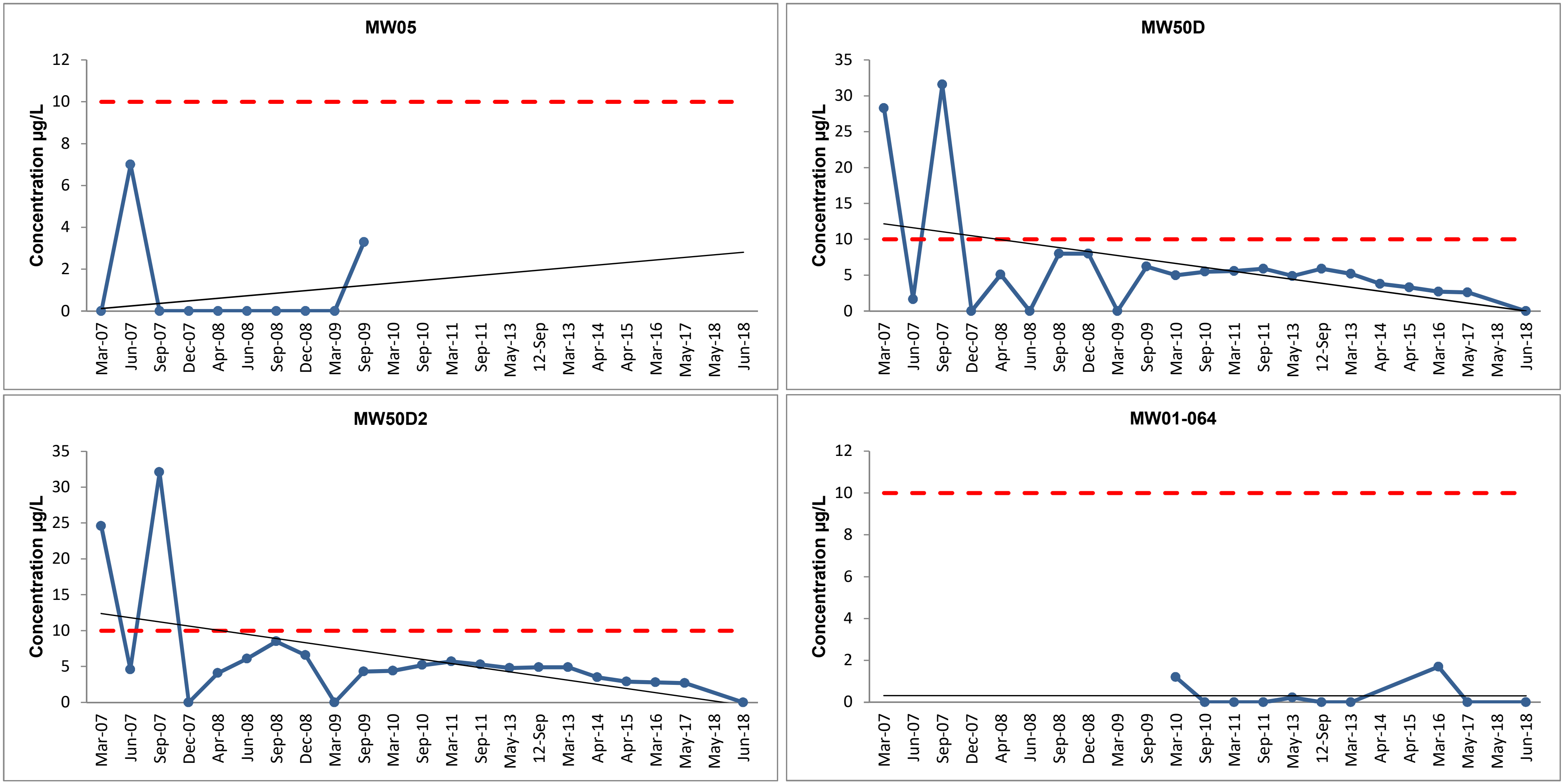
Exhibit 3-4
Total Arsenic Trends in Groundwater: 2007 – 2018
Rubble Disposal Area
NAS South Weymouth



Notes: Total Arsenic Concentration PAL = 10 µg/l Regression line

A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged. As of March 2013, analysis of metals was reduced to an annual frequency during the spring event.

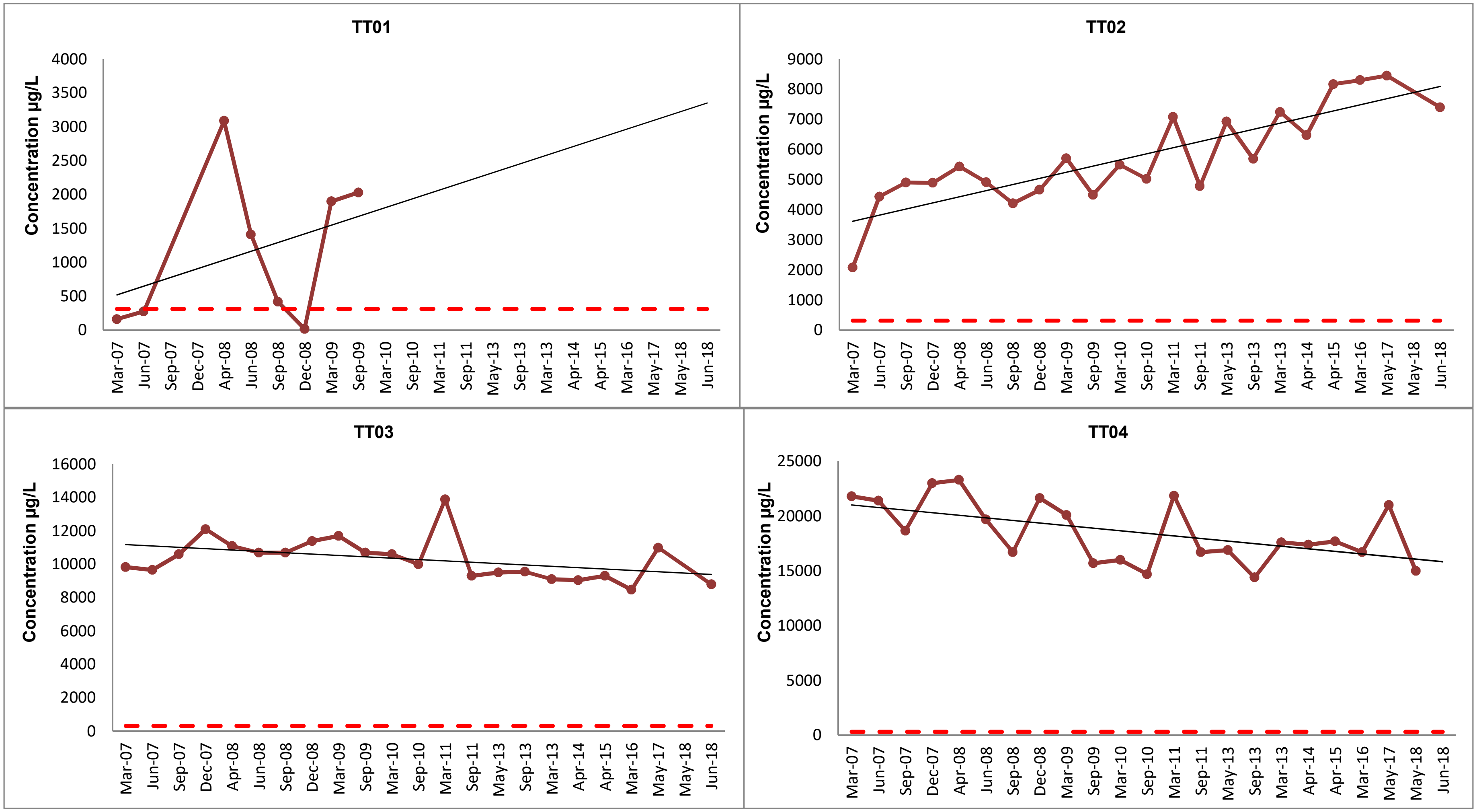
Exhibit 3-4
Total Arsenic Trends in Groundwater: 2007 – 2018
Rubble Disposal Area
NAS South Weymouth



Notes: Total Arsenic Concentration PAL = 10 µg/l Regression line

A value of zero was used as a surrogate for a non-detect result for graphing purposes. Field duplicate results were averaged. As of March 2013, analysis of metals was reduced to an annual frequency during the spring event.

Exhibit 3-5
Total Manganese Trends In Groundwater: 2007 - 2018
Rubble Disposal Area
NAS South Weymouth

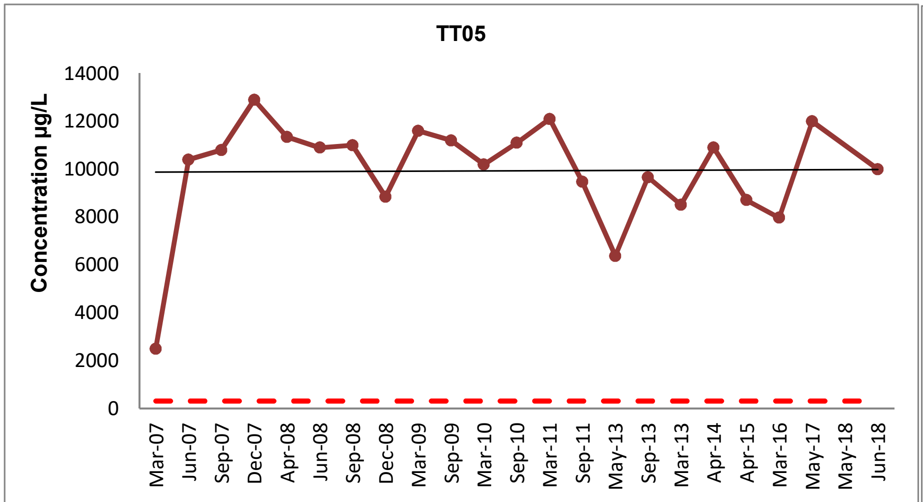


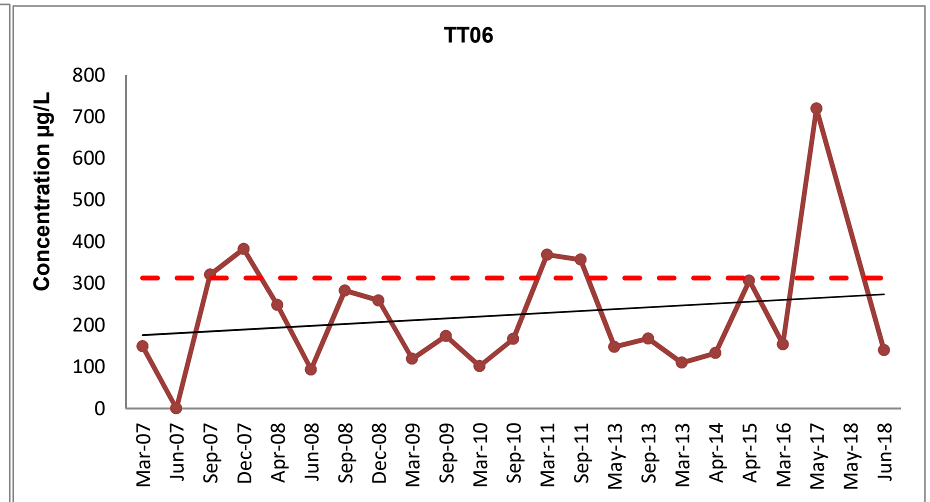
Notes: Manganese Concentration PAL = 313 µg/l Regression line

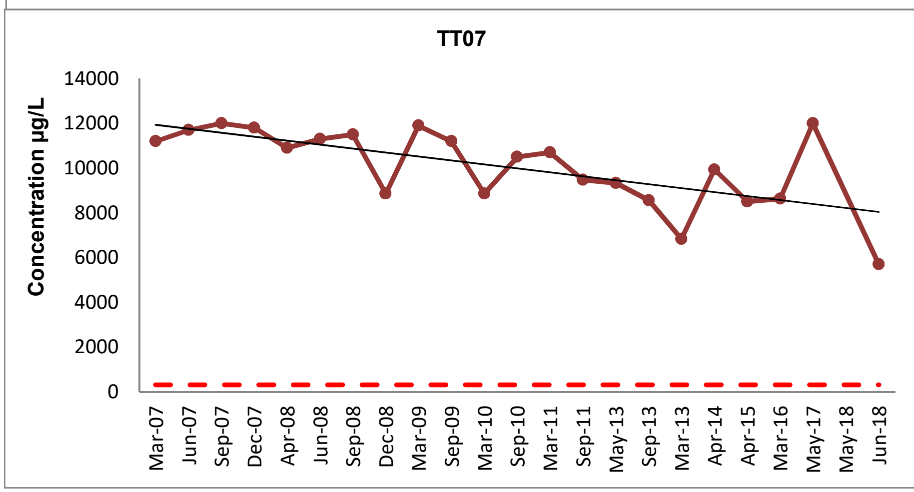
A value of zero was used as a surrogate for a non-detect result for graphing purposes.

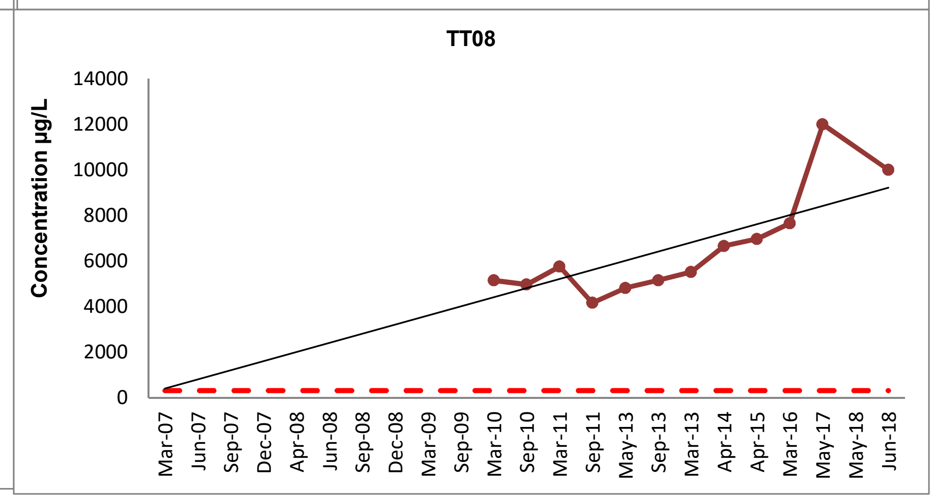
Field duplicate results were averaged. As of March 2013, analysis of metals was reduced to an annual frequency during the spring event.

Exhibit 3-5
Total Manganese Trends In Groundwater: 2007 - 2018
Rubble Disposal Area
NAS South Weymouth







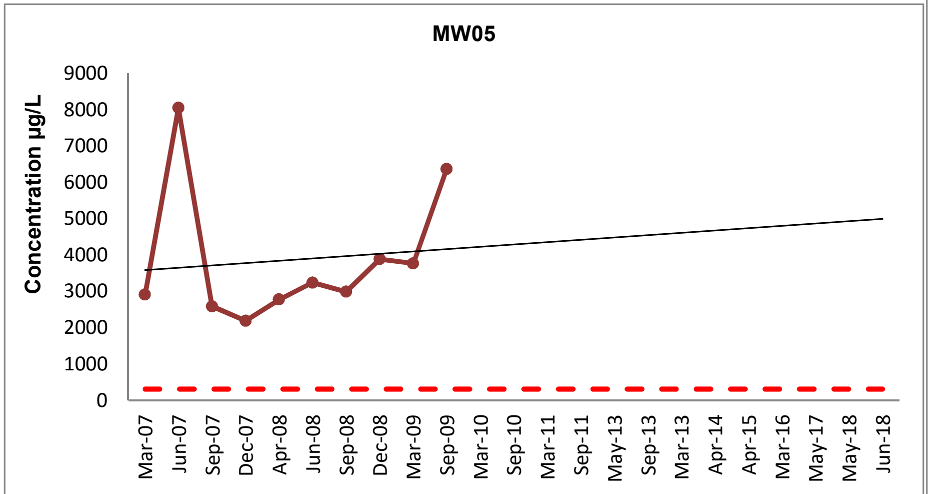


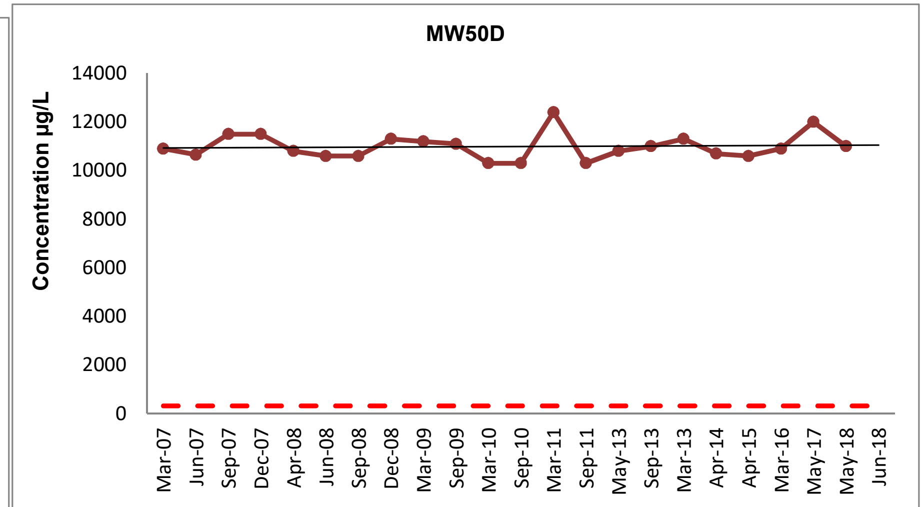
Notes: Manganese Concentration PAL = 313 µg/l Regression line

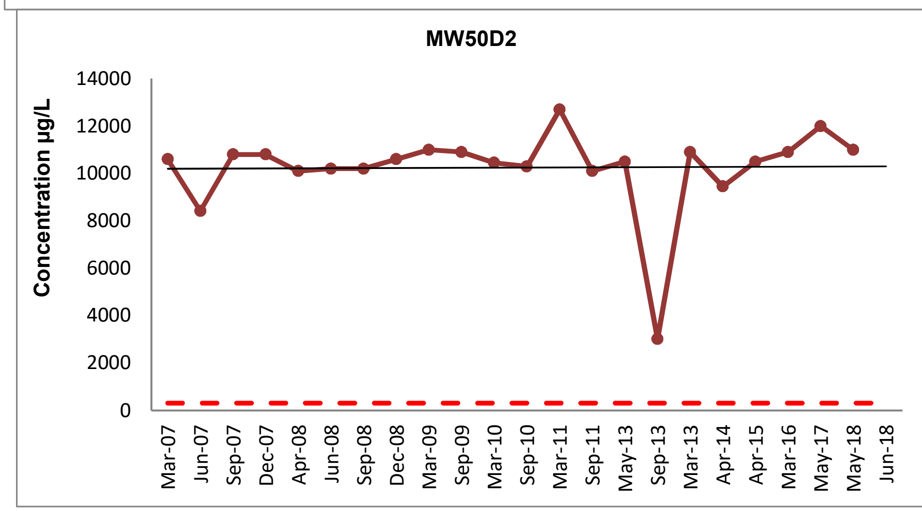
A value of zero was used as a surrogate for a non-detect result for graphing purposes.

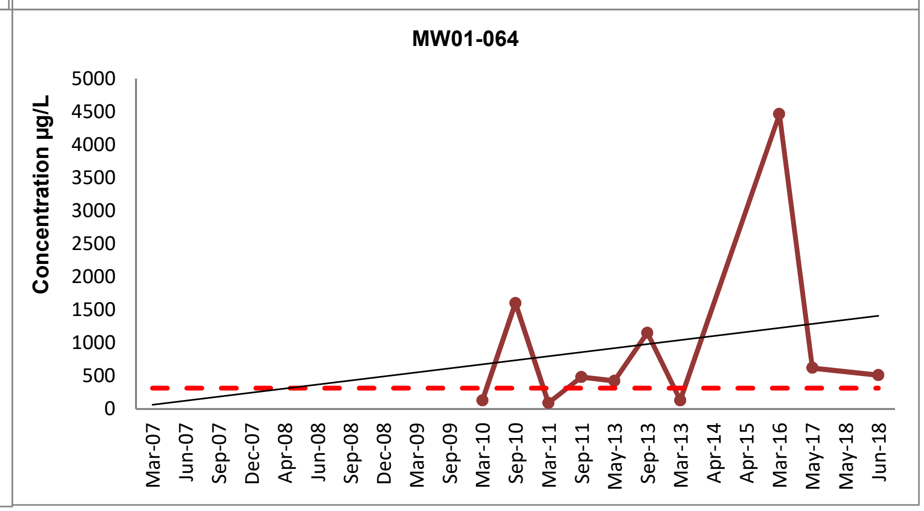
Field duplicate results were averaged. As of March 2013, analysis of metals was reduced to an annual frequency during the spring event.

Exhibit 3-5
Total Manganese Trends In Groundwater: 2007 - 2018
Rubble Disposal Area
NAS South Weymouth







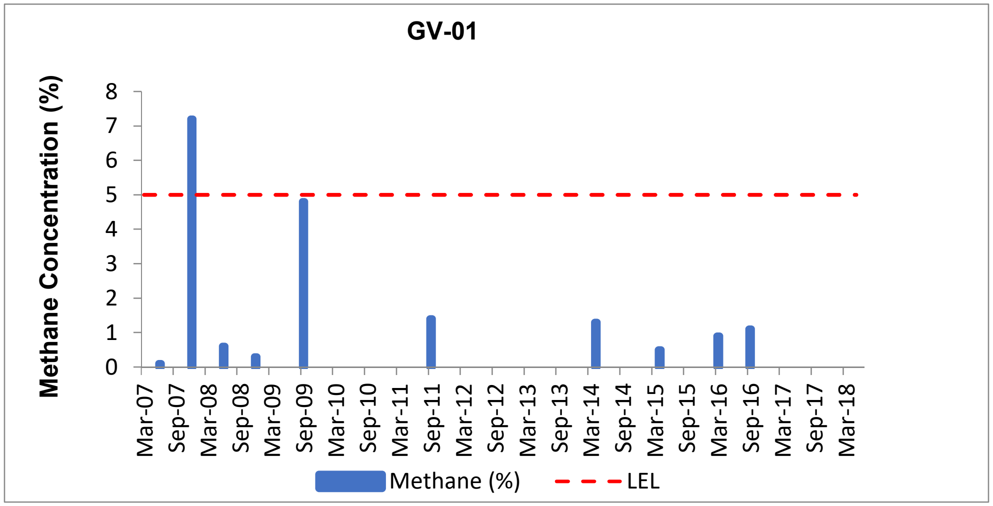


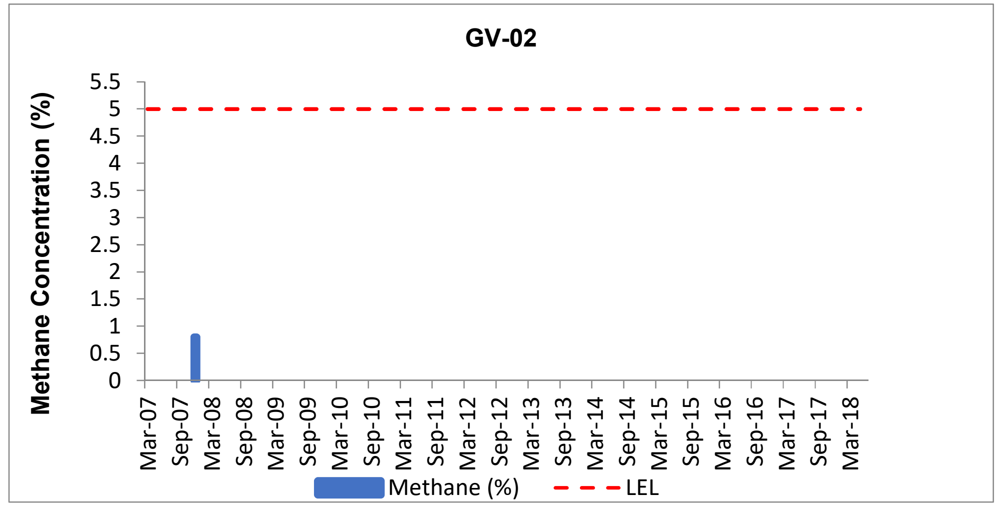
Notes: Manganese Concentration — PAL = 313 µg/l — Regression line

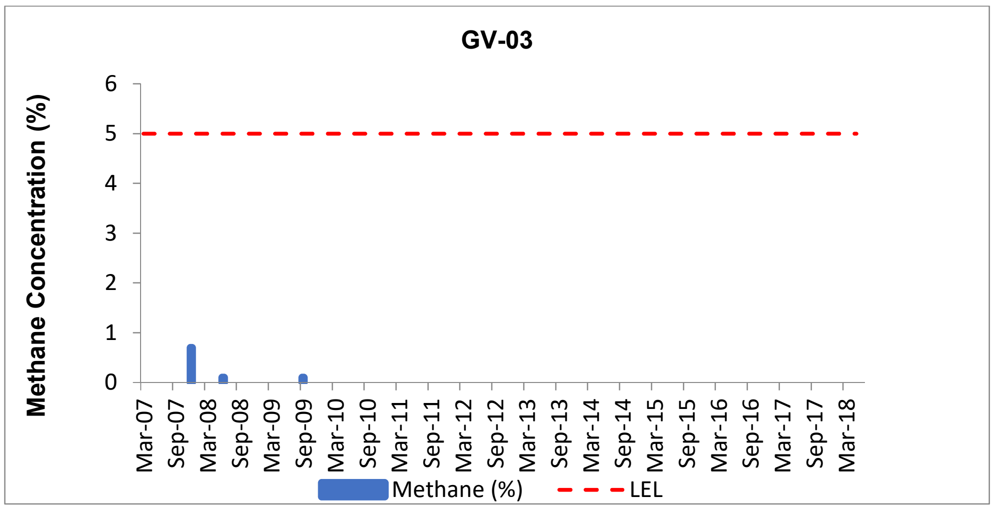
A value of zero was used as a surrogate for a non-detect result for graphing purposes.

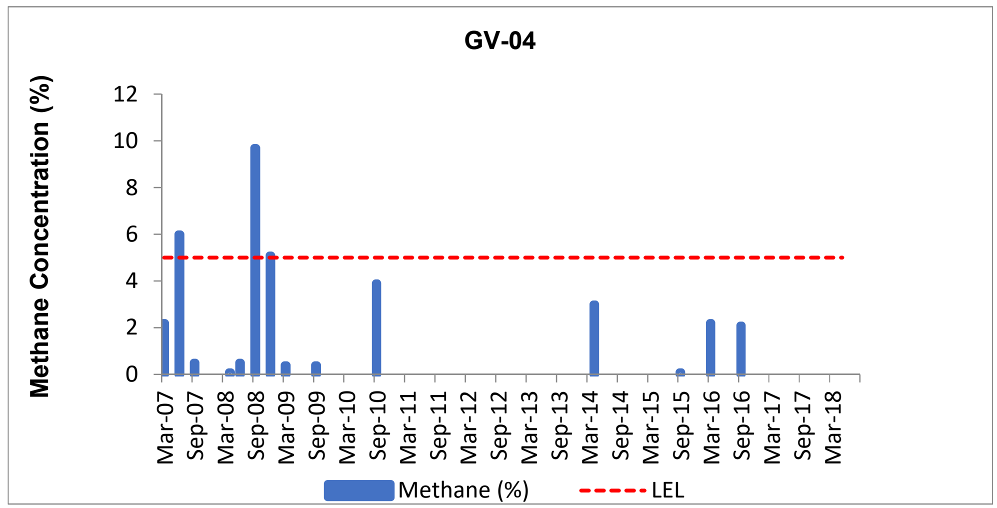
Field duplicate results were averaged. As of March 2013, analysis of metals was reduced to an annual frequency during the spring event.

Exhibit 3-6
Landfill Gas Monitoring Trends at Gas Vents and Gas Probes: 2007 – 2018
Rubble Disposal Area
NAS South Weymouth



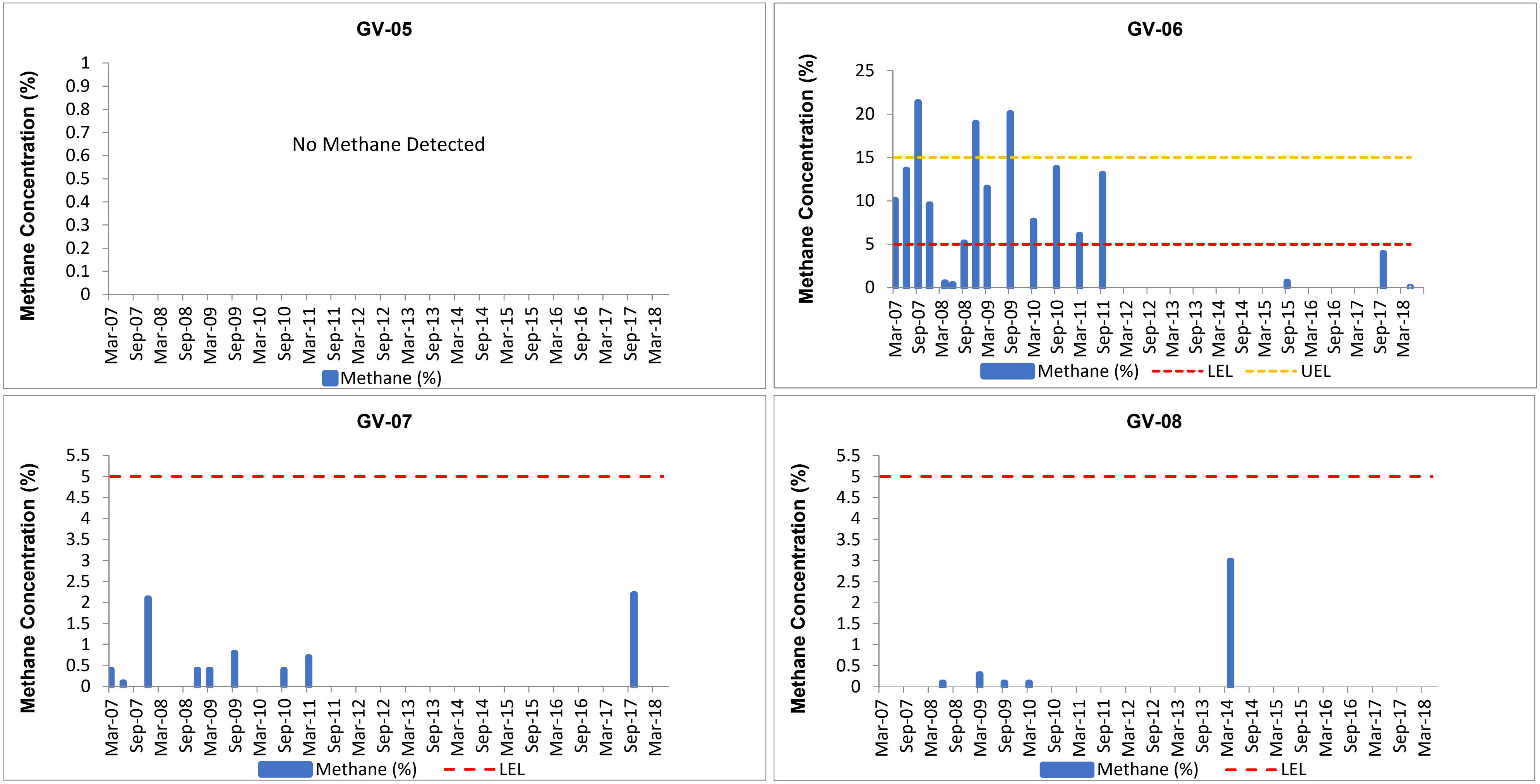






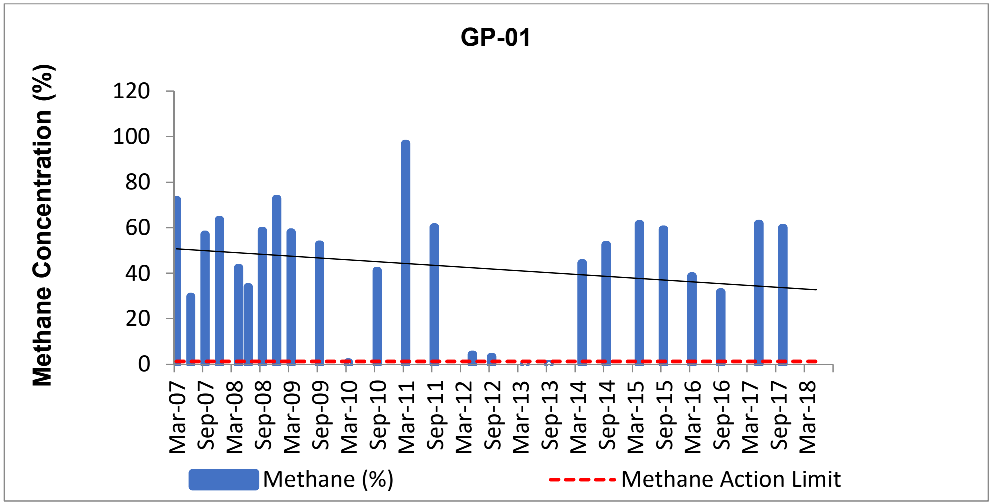
Notes: Mar-07 = LTM Event; LEL = Lower Explosive Limit (Methane = 5%); UEL = Upper Explosive Limit (Methane = 15%)

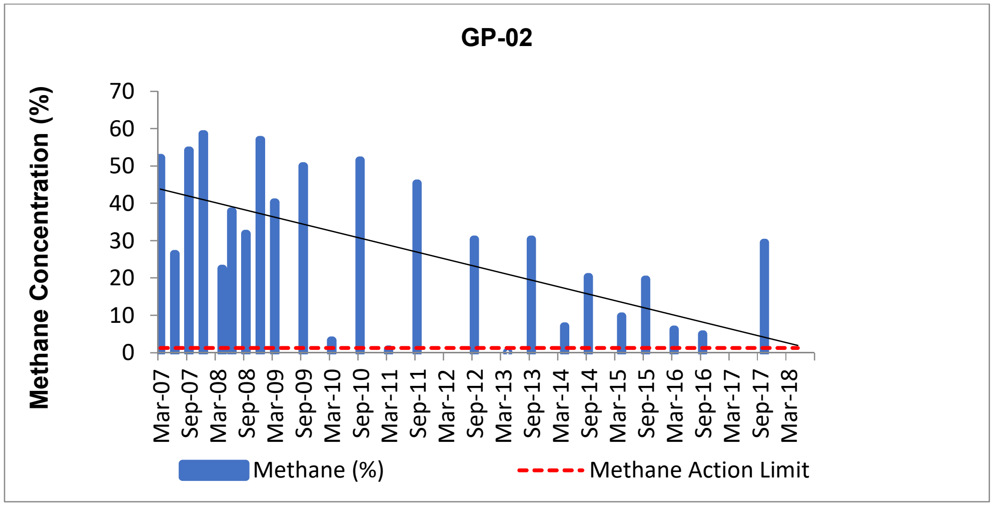
Exhibit 3-6
Landfill Gas Monitoring Trends at Gas Vents and Gas Probes: 2007 – 2018
Rubble Disposal Area
NAS South Weymouth

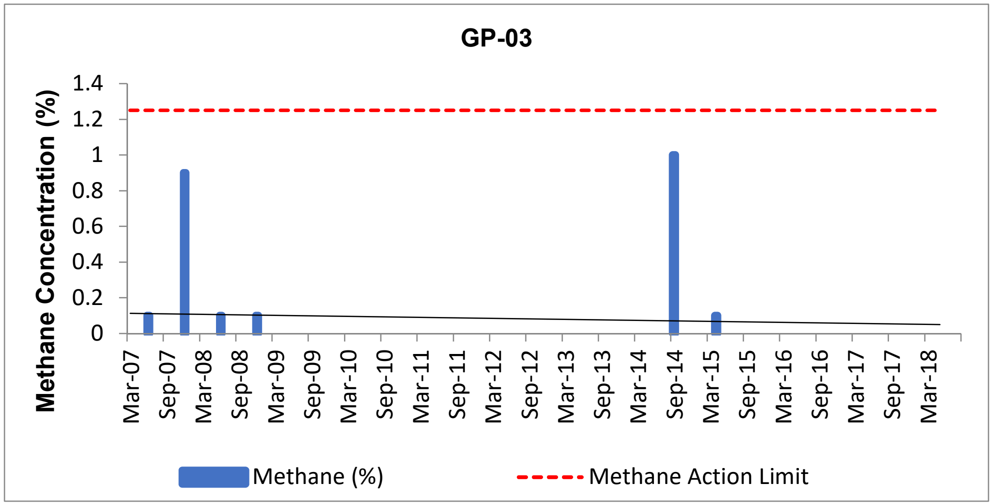


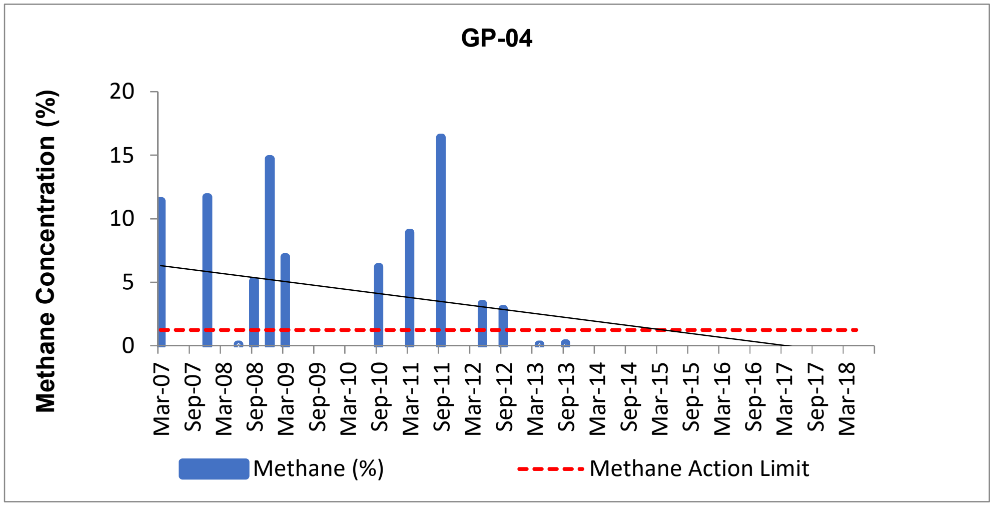
Notes: Mar-07 = LTM Event; LEL = Lower Explosive Limit (Methane = 5%); UEL = Upper Explosive Limit (Methane = 15%)

Exhibit 3-6
Landfill Gas Monitoring Trends at Gas Vents and Gas Probes: 2007 – 2018
Rubble Disposal Area
NAS South Weymouth



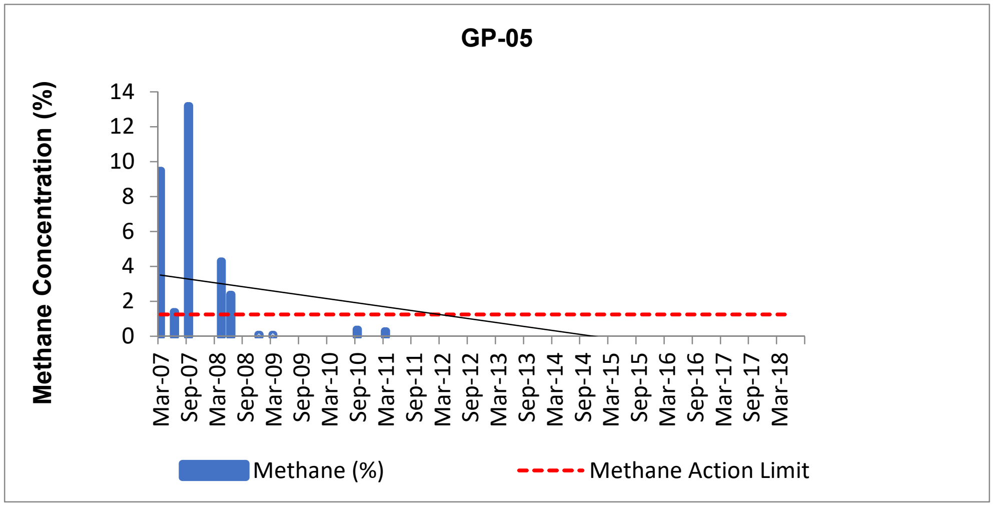


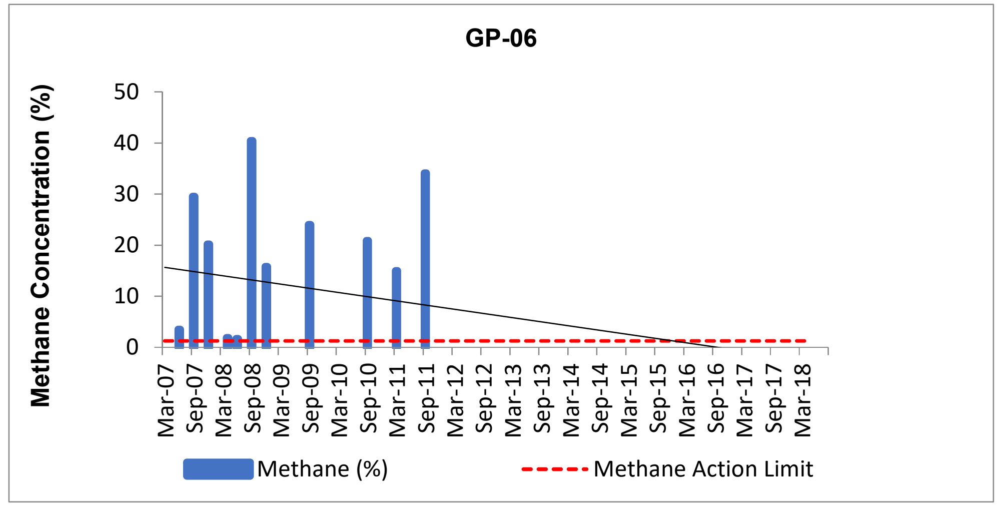


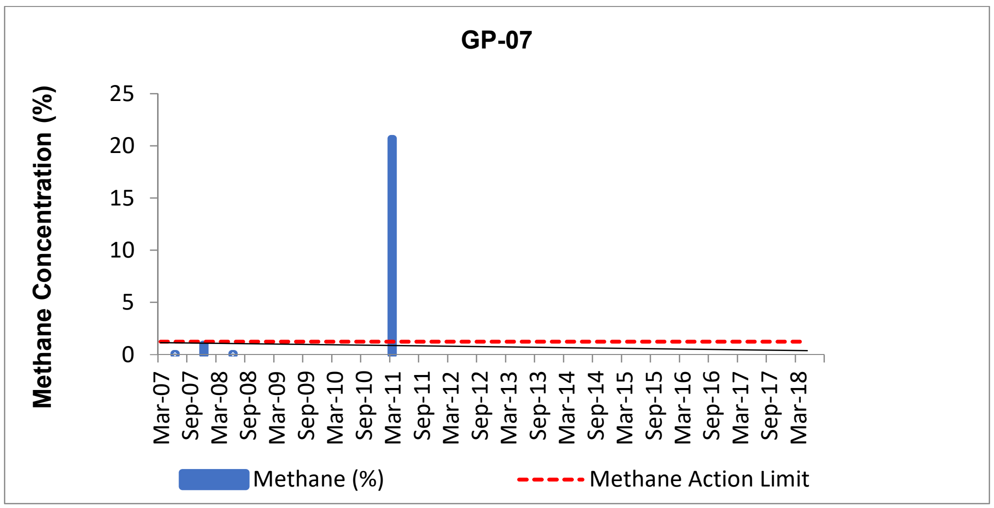


Notes: ——— Regression Line; Mar-07 = LTM Event
Methane Action Limit = The state action limit for explosive gases (e.g., landfill methane) is 25 percent of the LEL at or beyond the property boundary (i.e., 1.25%)

Exhibit 3-6
Landfill Gas Monitoring Trends at Gas Vents and Gas Probes: 2007 – 2018
Rubble Disposal Area
NAS South Weymouth

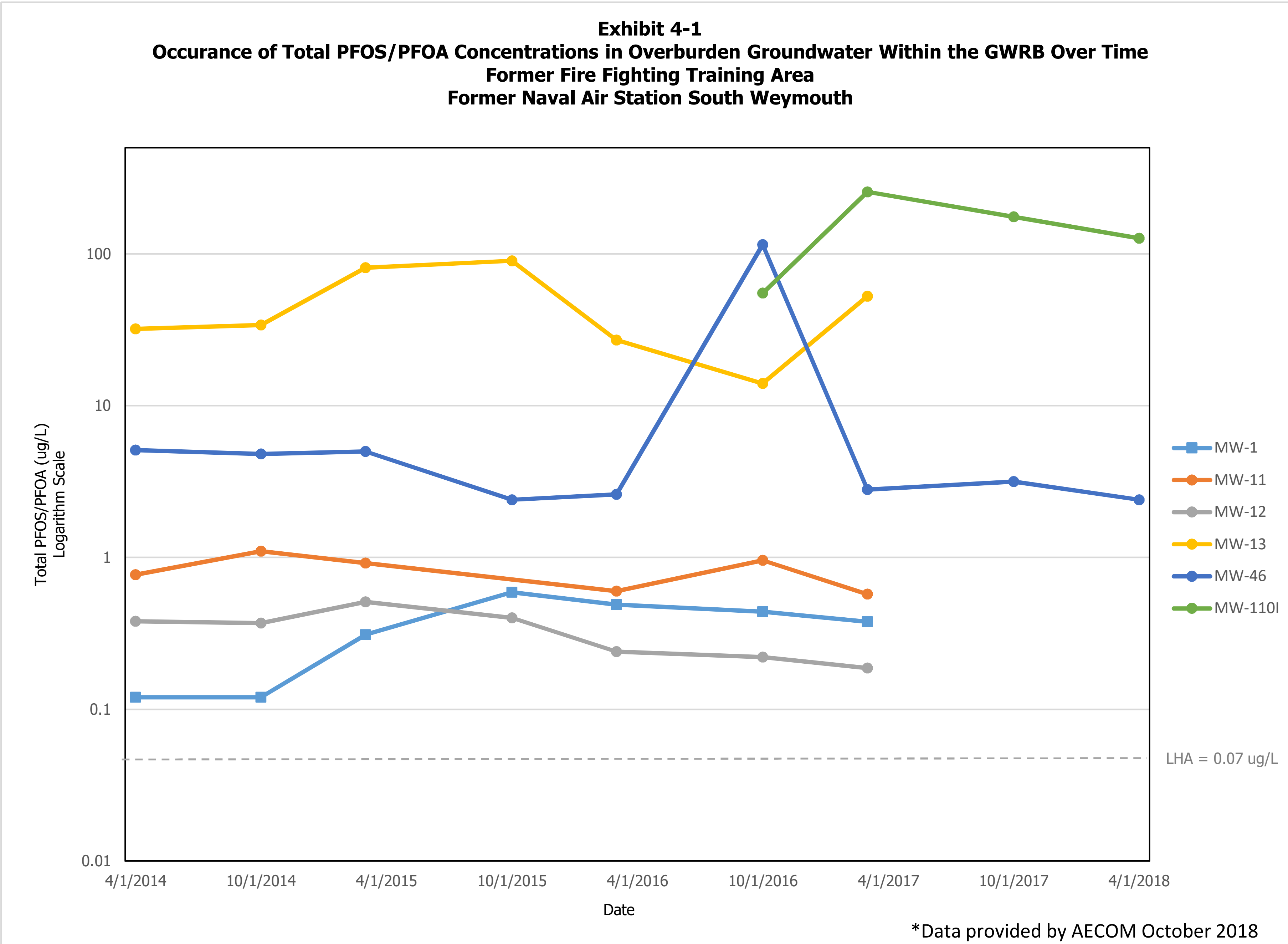






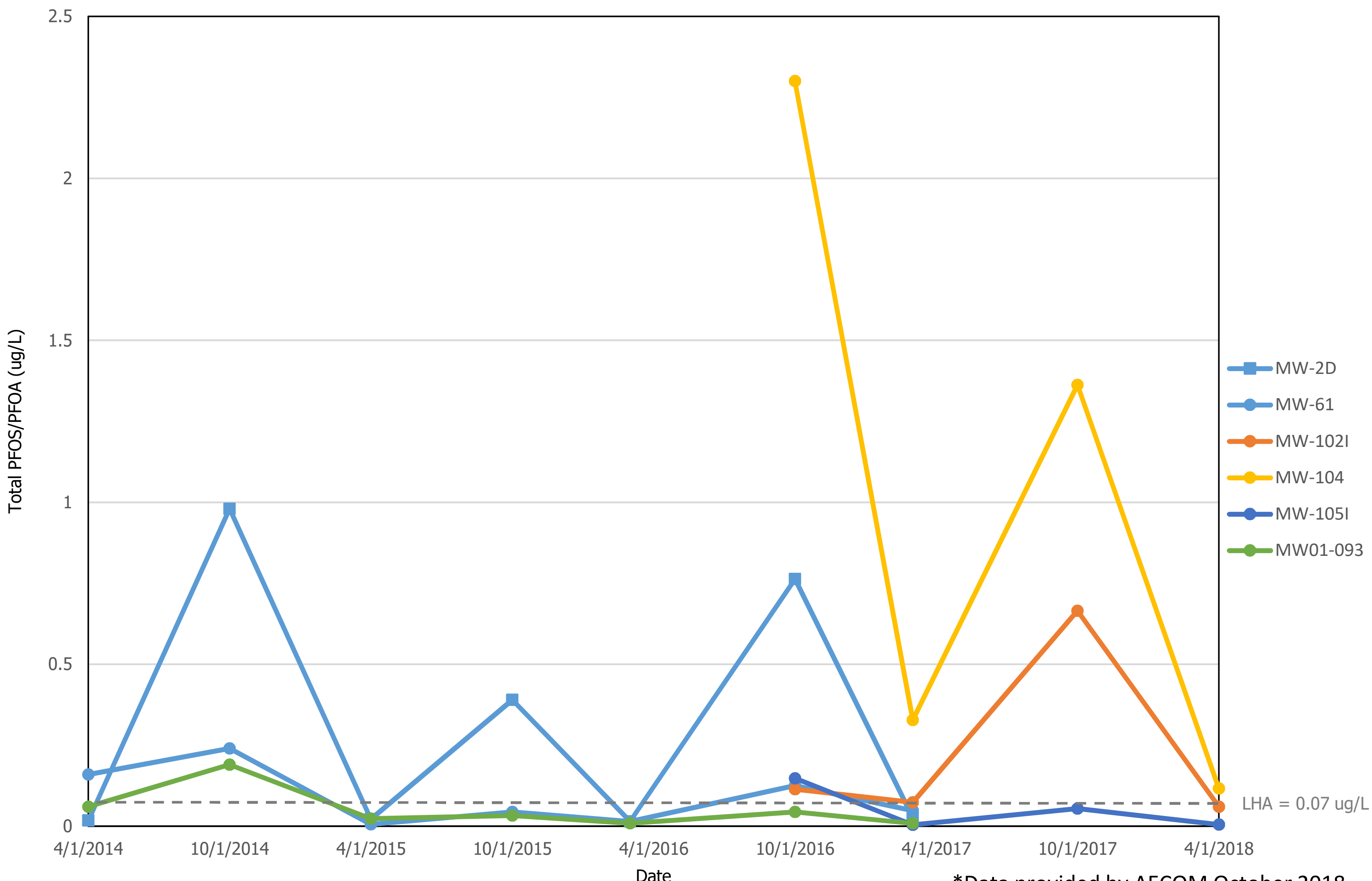
Notes: ——— Regression Line; Mar-07 = LTM Event

Methane Action Limit = The state action limit for explosive gases (e.g., landfill methane) is 25 percent of the LEL at or beyond the property boundary (i.e., 1.25%)



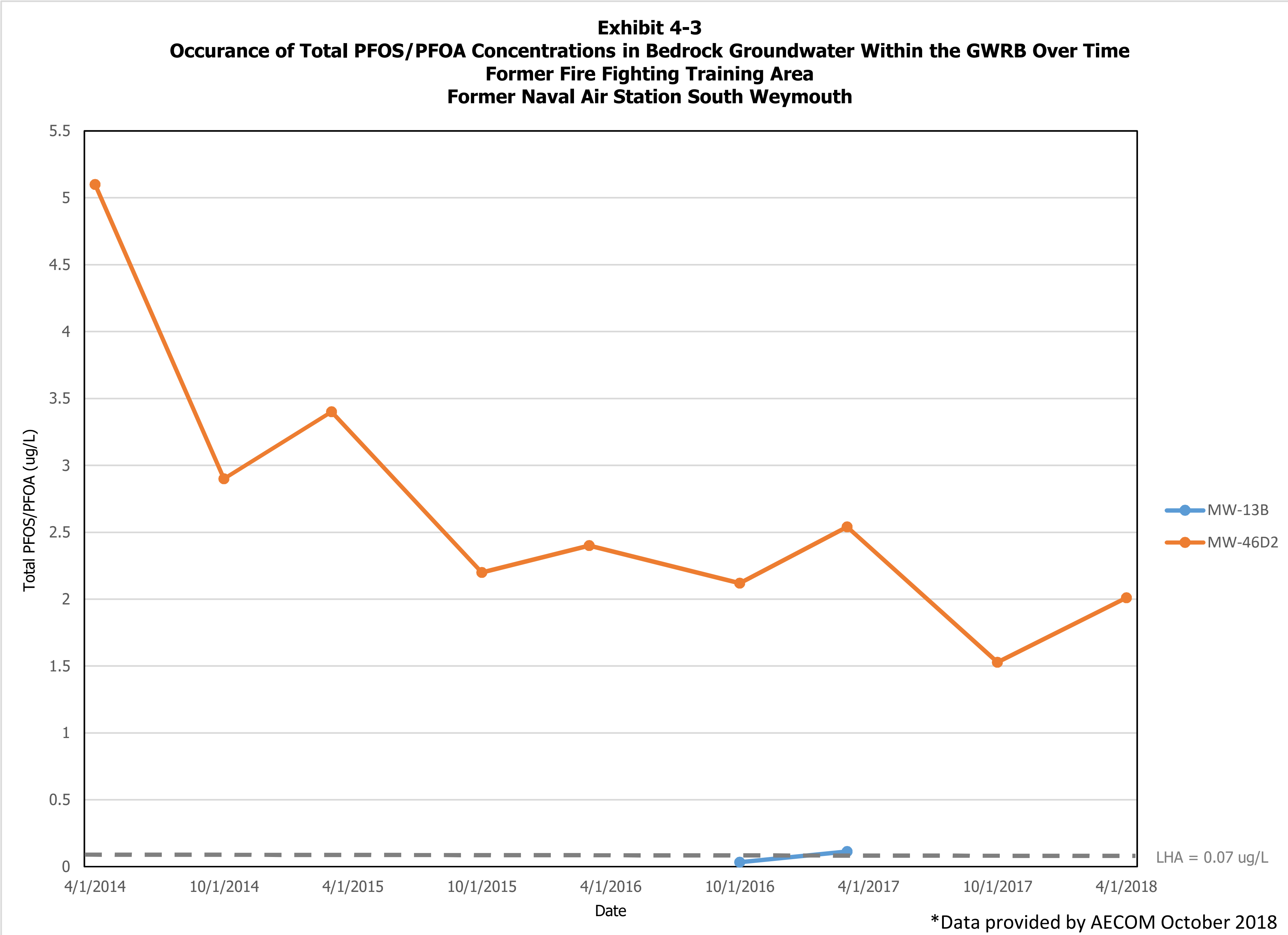
Graph adapted from Fall 2017 LTM Report FFTA (Resolution, 2018)

Exhibit 4-2
Occurence of Total PFOS/PFOA Concentrations in Overburden Groundwater West of the GWRB Over Time
Former Fire Fighting Training Area
Former Naval Air Statoin South Weymouth



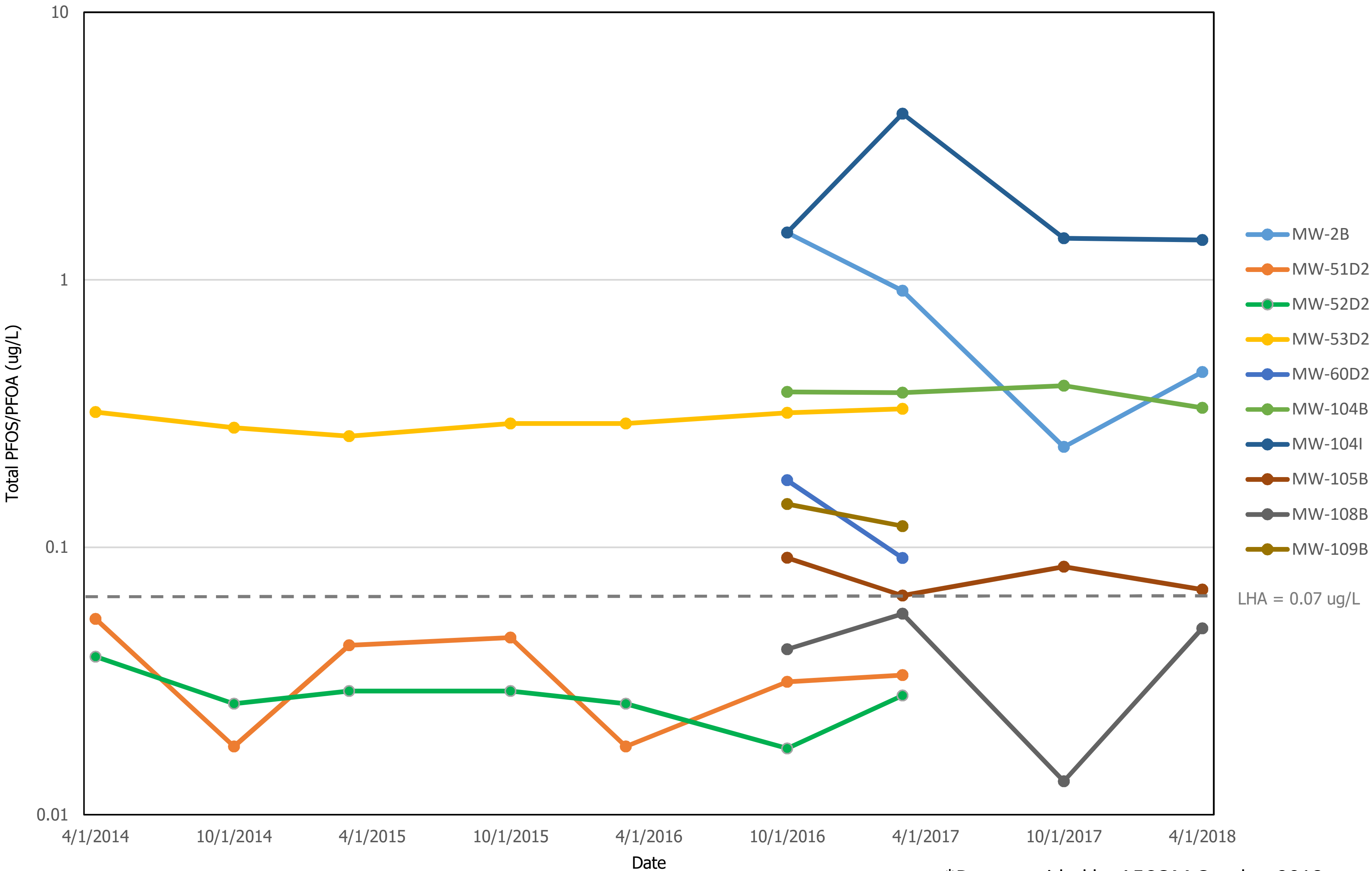
*Data provided by AECOM October 2018

Graph adapted from Fall 2017 LTM Report FFTA (Resolution, 2018)



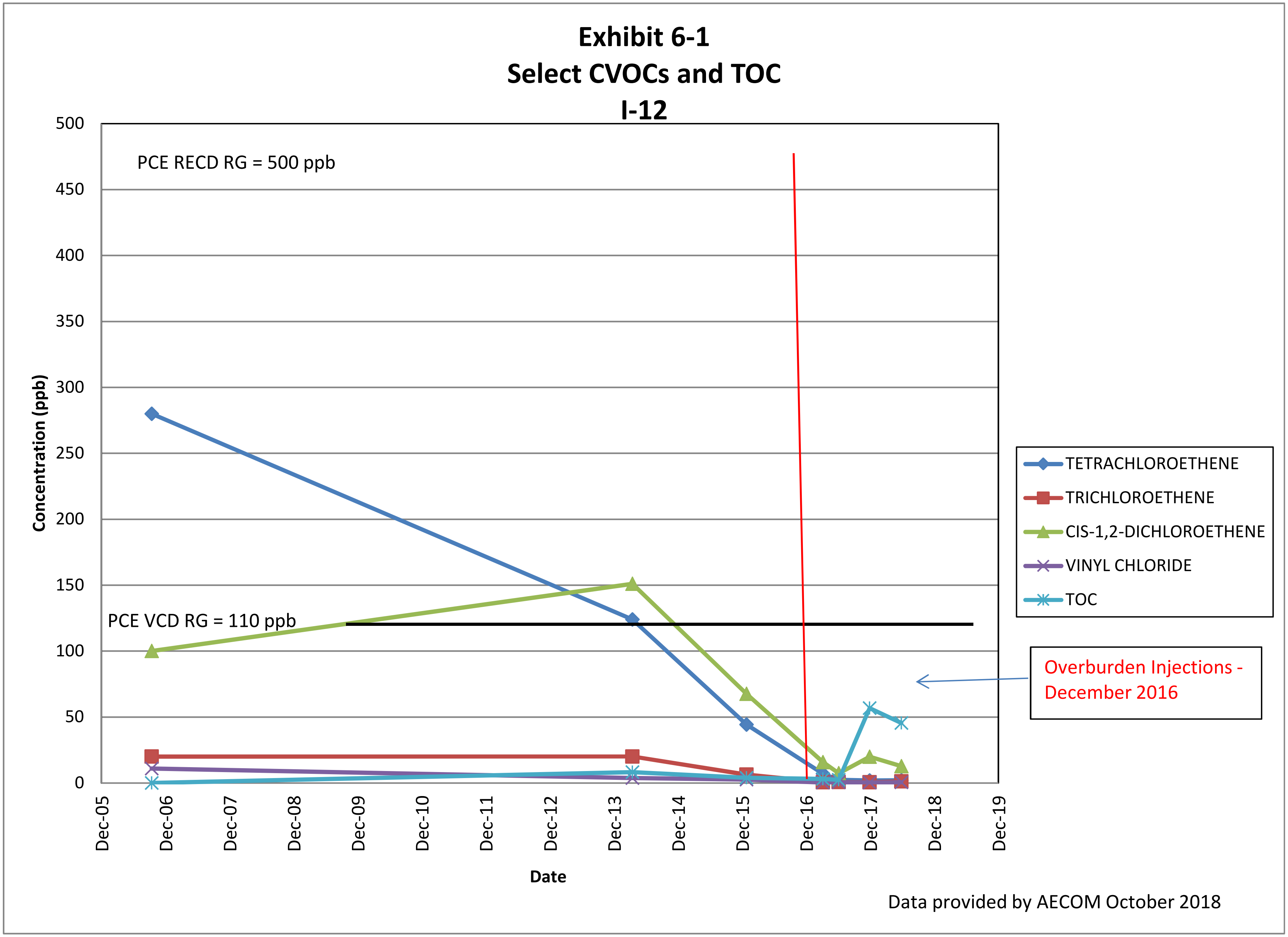
Graph adapted from Fall 2017 LTM Report FFTA (Resolution, 2018)

Exhibit 4-4
Occurance of Total PFOS/PFOA Concentrations in Bedrock Groundwater Outside the GWRB Over Time
Former Fire Fighting Training Area
Former Naval Air Station South Weymouth

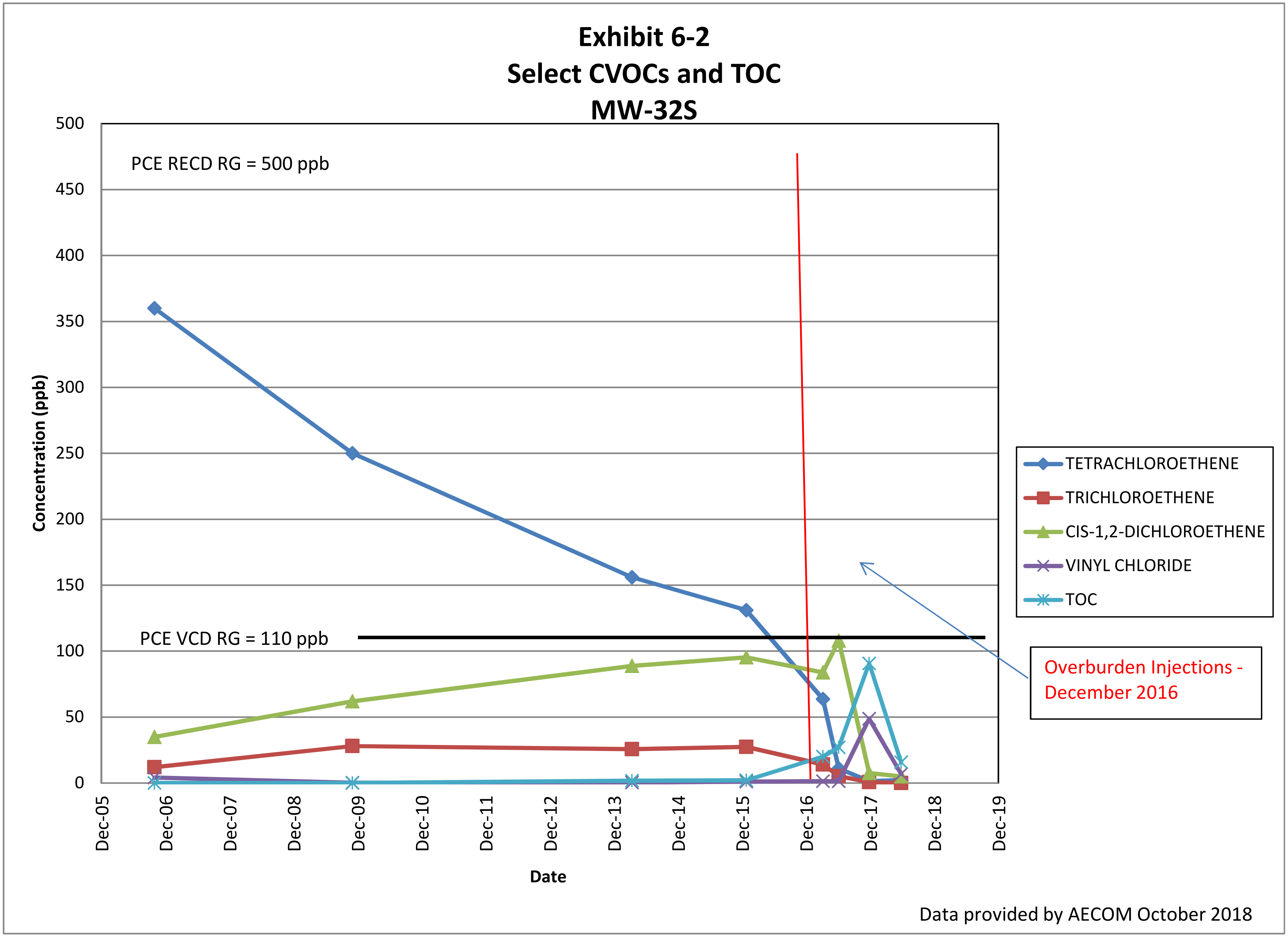


*Data provided by AECOM October 2018

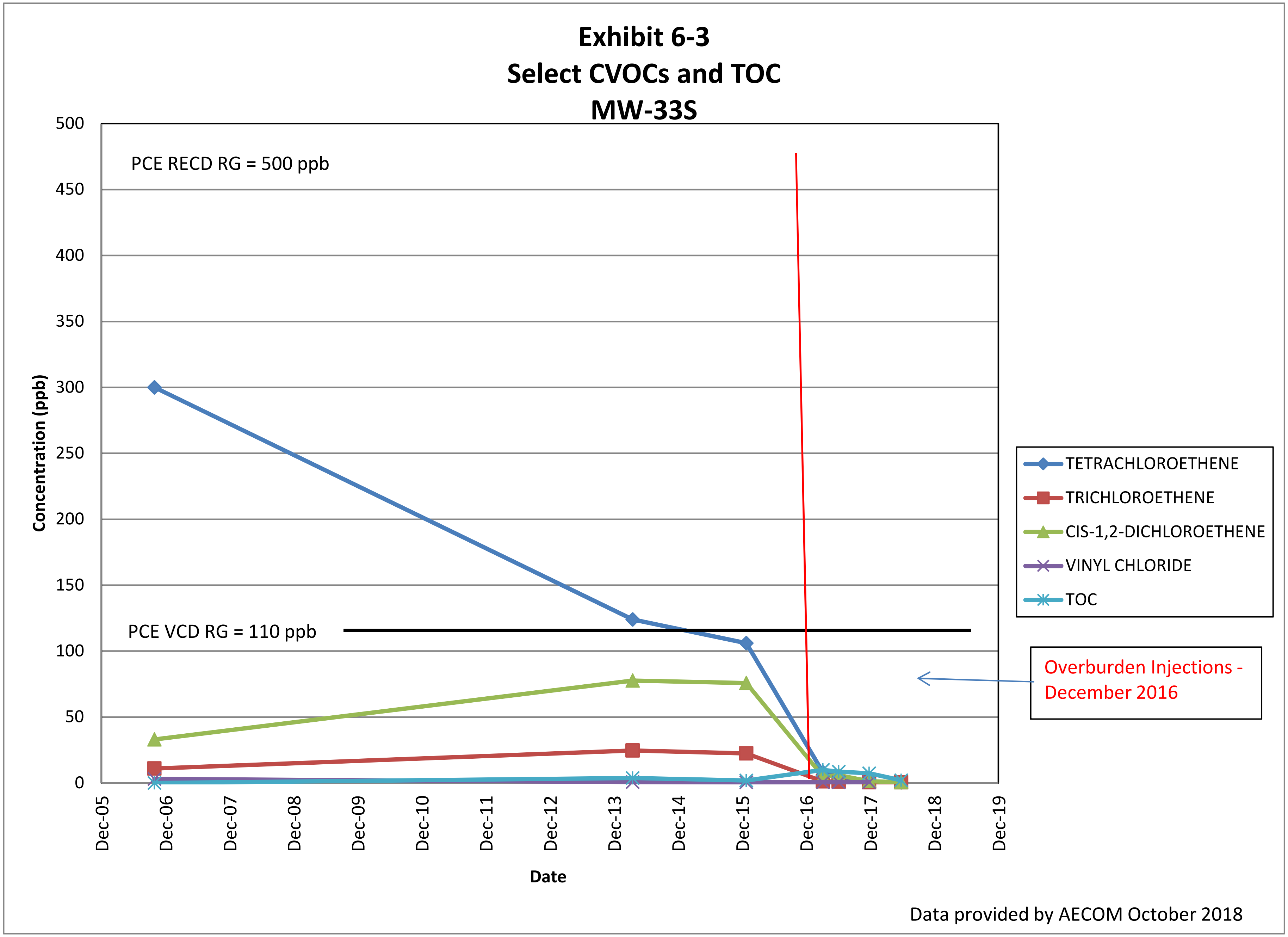
Graph adapted from Fall 2017 LTM Report FFTA (Resolution, 2018)



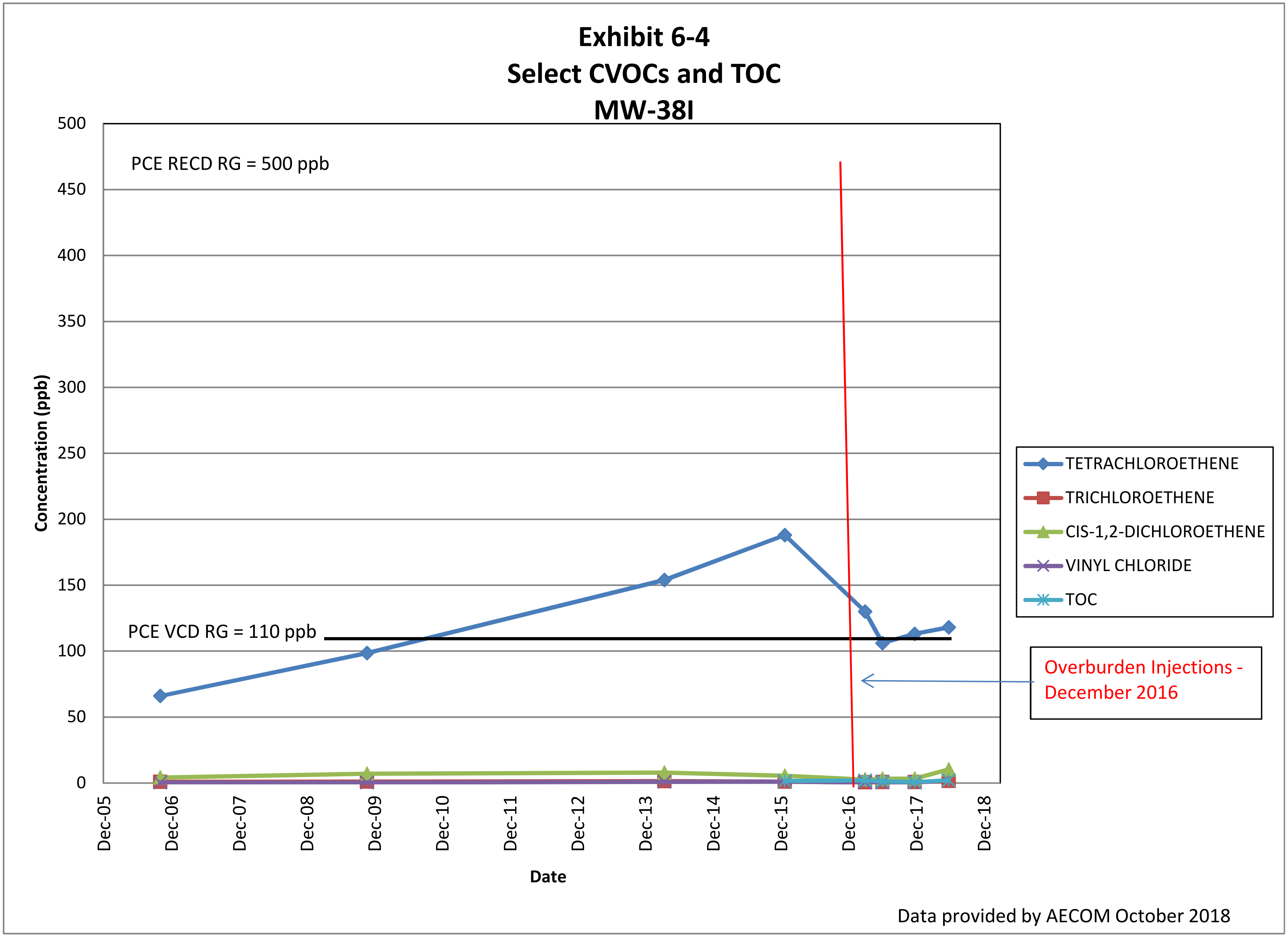
Data provided by AECOM, October 2018



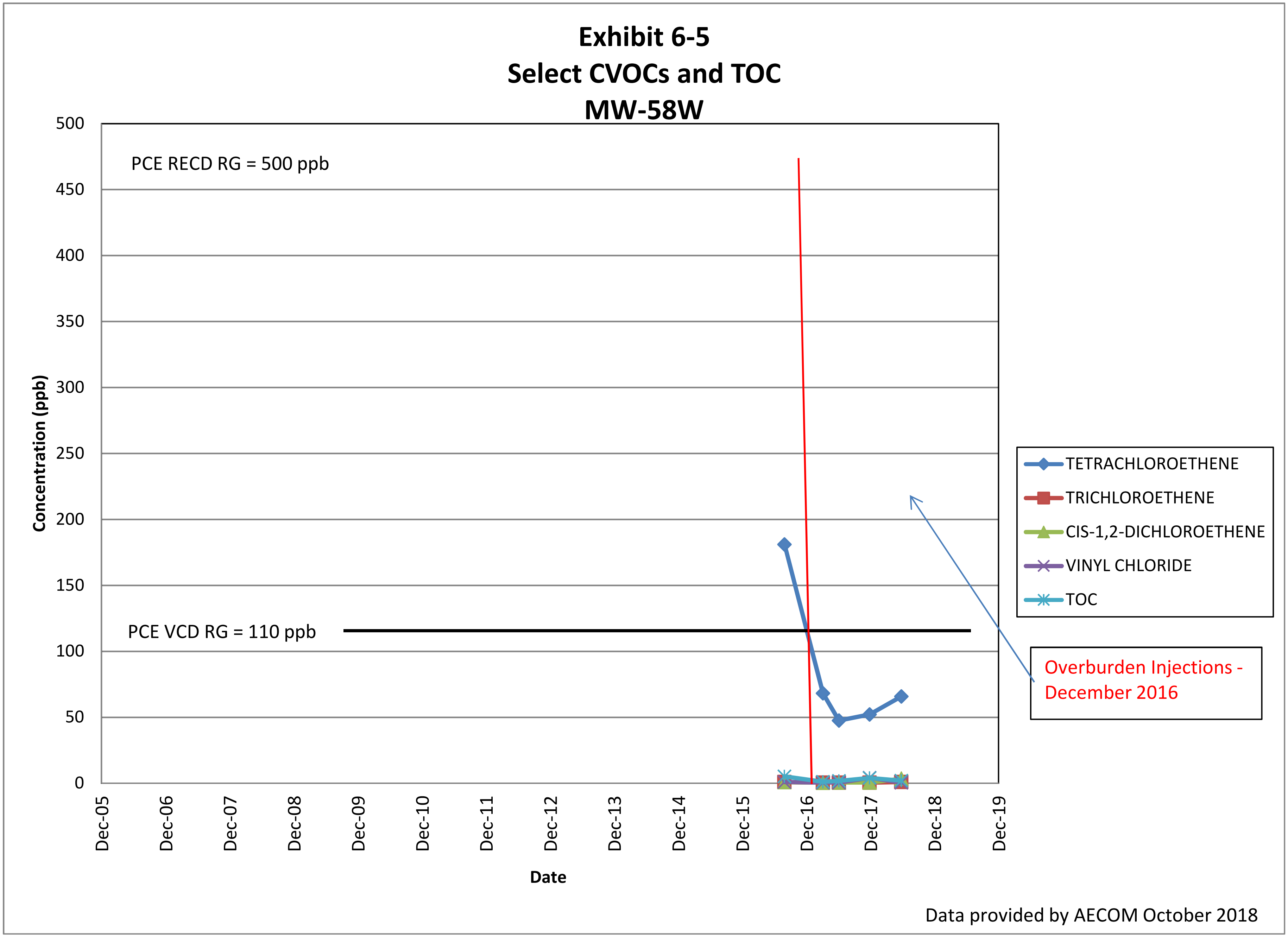
Data provided by AECOM, October 2018



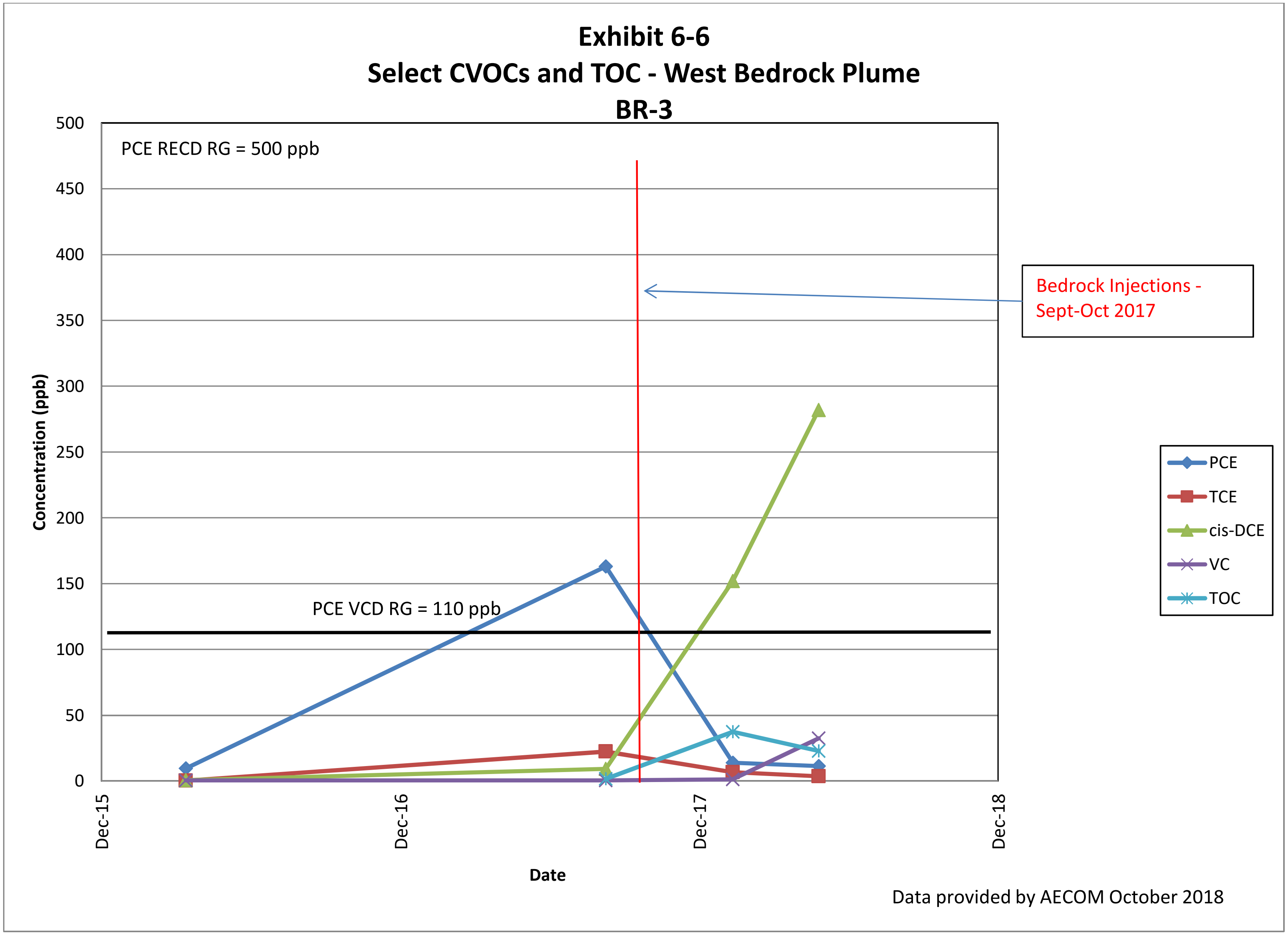
Data provided by AECOM, October 2018



Data provided by AECOM, October 2018

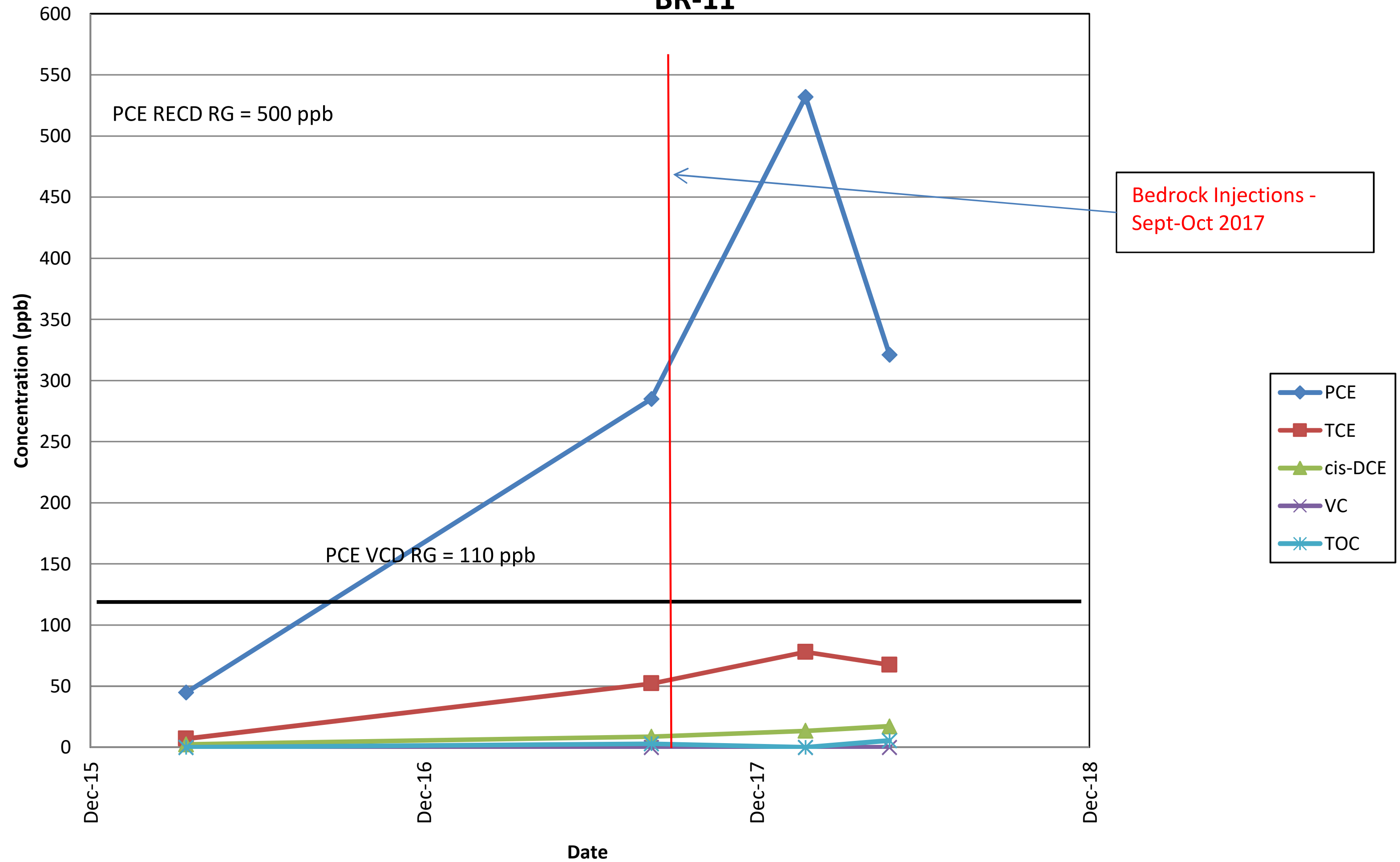


Data provided by AECOM, October 2018



Data provided by AECOM, October 2018

Exhibit 6-7
Select CVOCs and TOC - West Bedrock Plume
BR-11



Data provided by AECOM October 2018

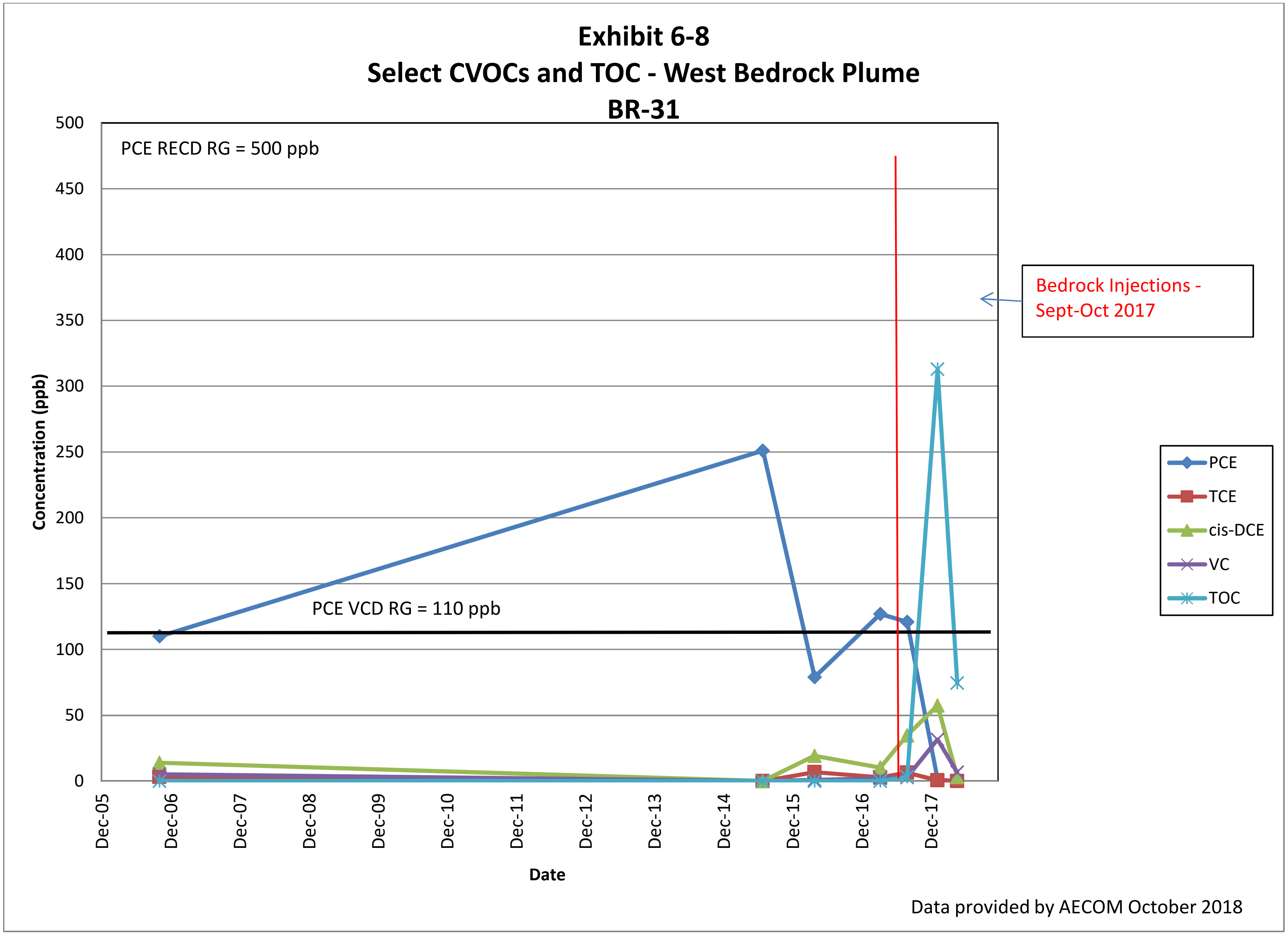


Exhibit 6-8
Select CVOCs and TOC - West Bedrock Plume
BR-31
PCE RECD RG = 500 ppb
PCE VCD RG = 110 ppb
Bedrock Injections -
Sept-Oct 2017
Concentration (ppb)
500
450
400
350
300
250
200
150
100
50
0
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Date
PCE
TCE
cis-DCE
VC
TOC
Data provided by AECOM October 2018

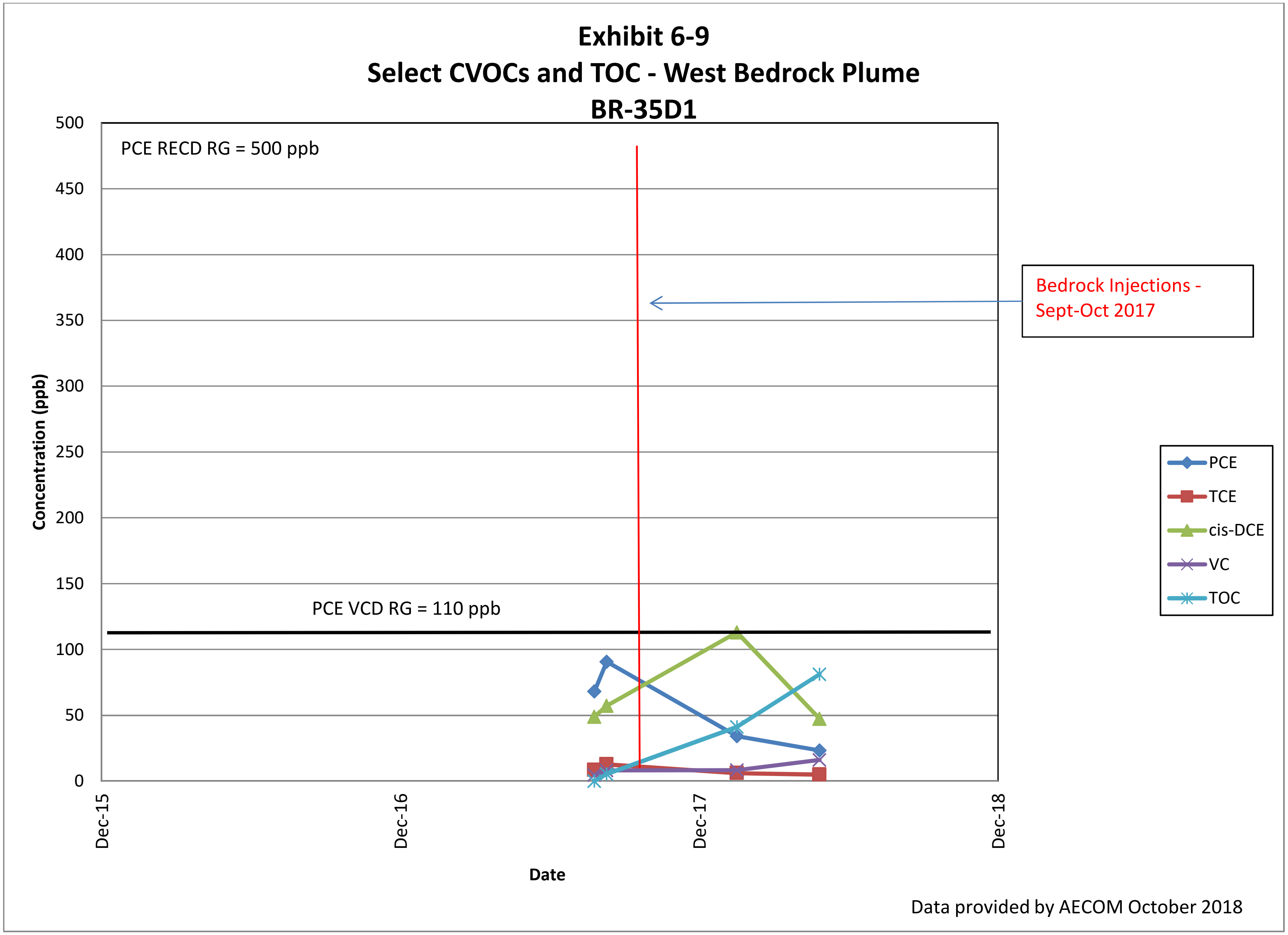


Exhibit 6-9
Select CVOCs and TOC - West Bedrock Plume
BR-35D1
PCE RECD RG = 500 ppb
PCE VCD RG = 110 ppb
Bedrock Injections - Sept-Oct 2017
Concentration (ppb)
500
450
400
350
300
250
200
150
100
50
0
Dec-15
Dec-16
Dec-17
Dec-18
Date
PCE
TCE
cis-DCE
VC
TOC
Data provided by AECOM October 2018

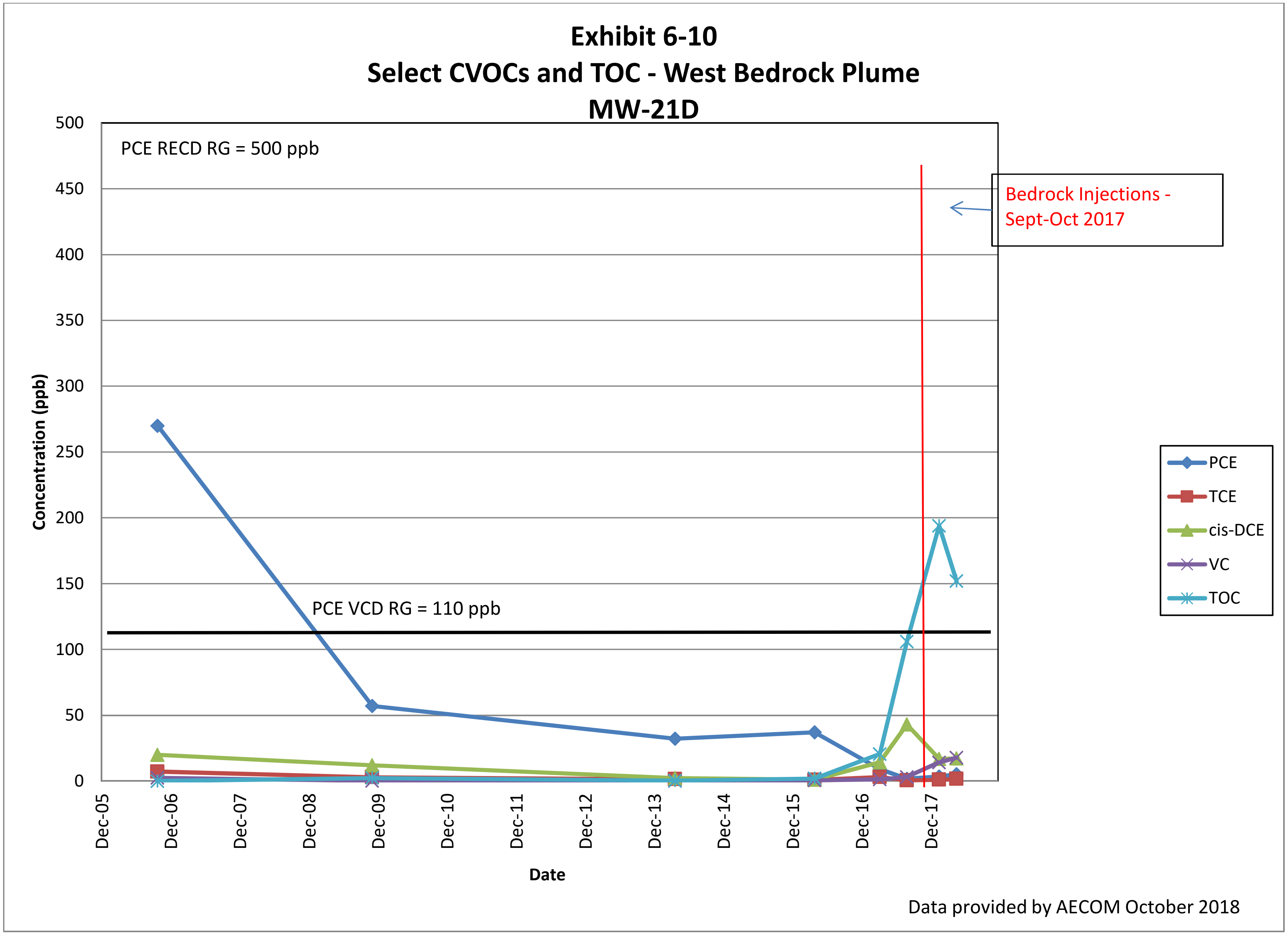


Exhibit 6-10
Select CVOCs and TOC - West Bedrock Plume
MW-21D
PCE RECD RG = 500 ppb
Bedrock Injections - Sept-Oct 2017
PCE VCD RG = 110 ppb
Concentration (ppb)
500
450
400
350
300
250
200
150
100
50
0
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Date
PCE
TCE
cis-DCE
VC
TOC
Data provided by AECOM October 2018

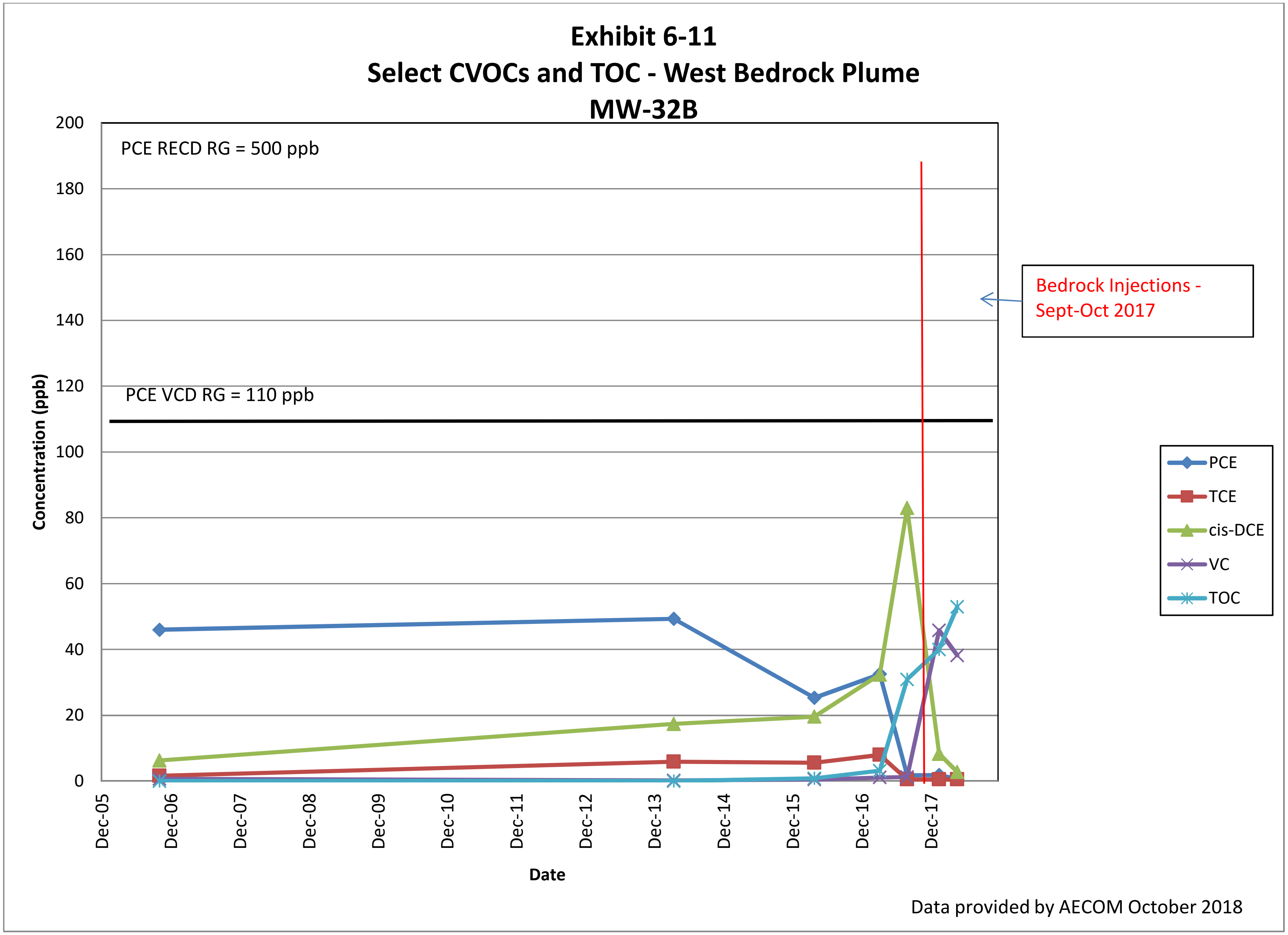


Exhibit 6-11
Select CVOCs and TOC - West Bedrock Plume
MW-32B
PCE RECD RG = 500 ppb
PCE VCD RG = 110 ppb
Bedrock Injections - Sept-Oct 2017
Concentration (ppb)
200
180
160
140
120
100
80
60
40
20
0
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Date
PCE
TCE
cis-DCE
VC
TOC
Data provided by AECOM October 2018

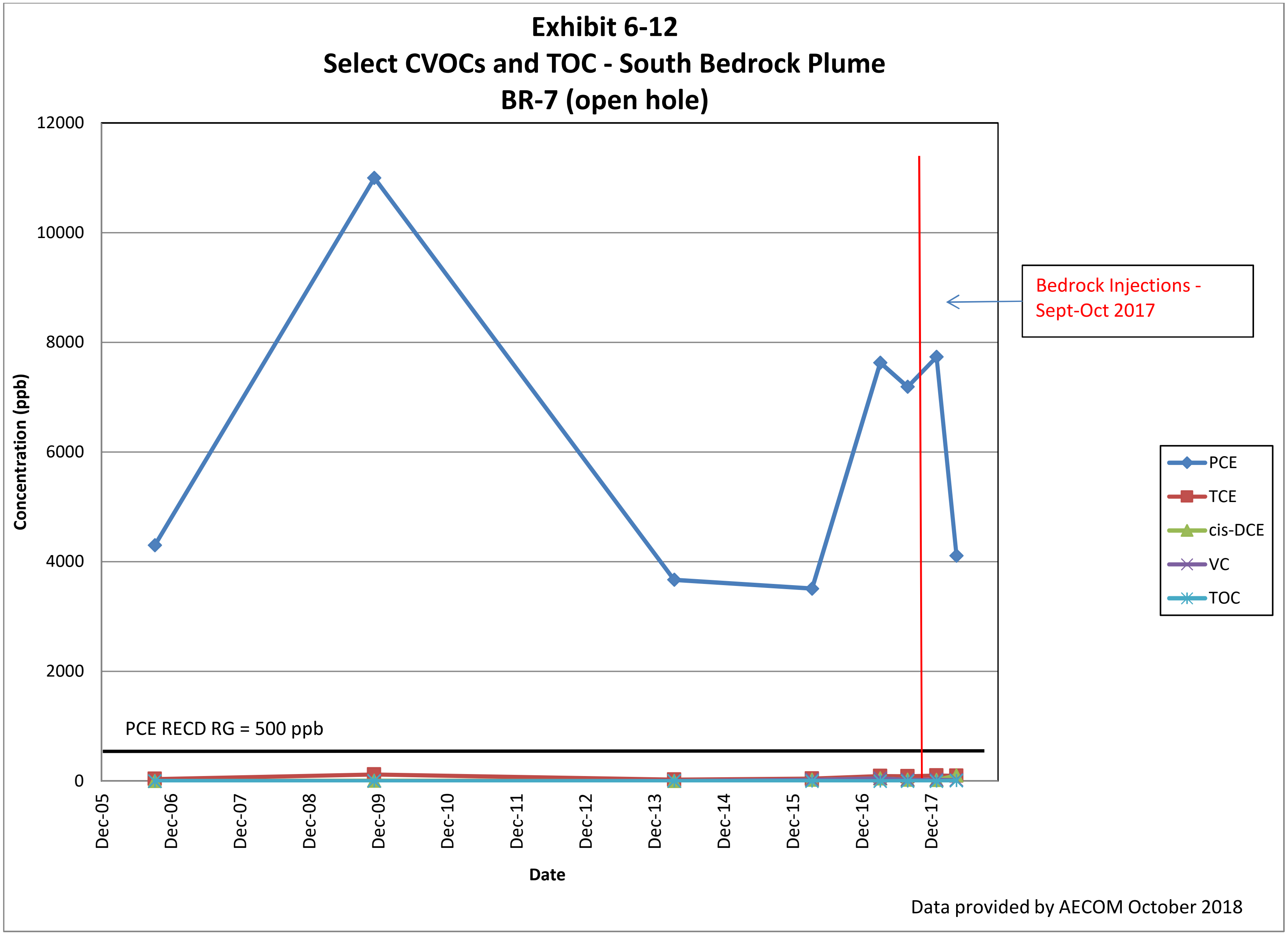
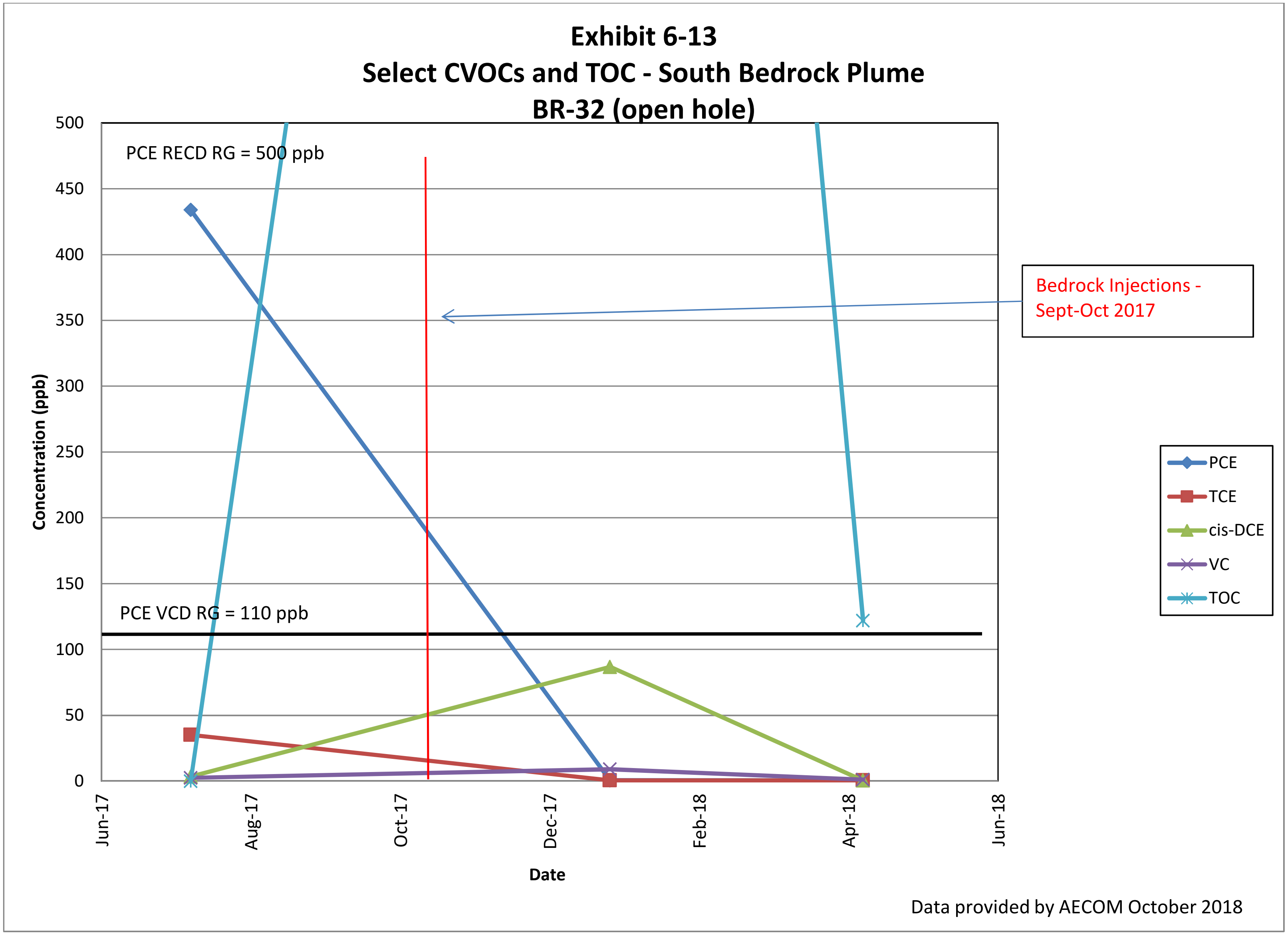
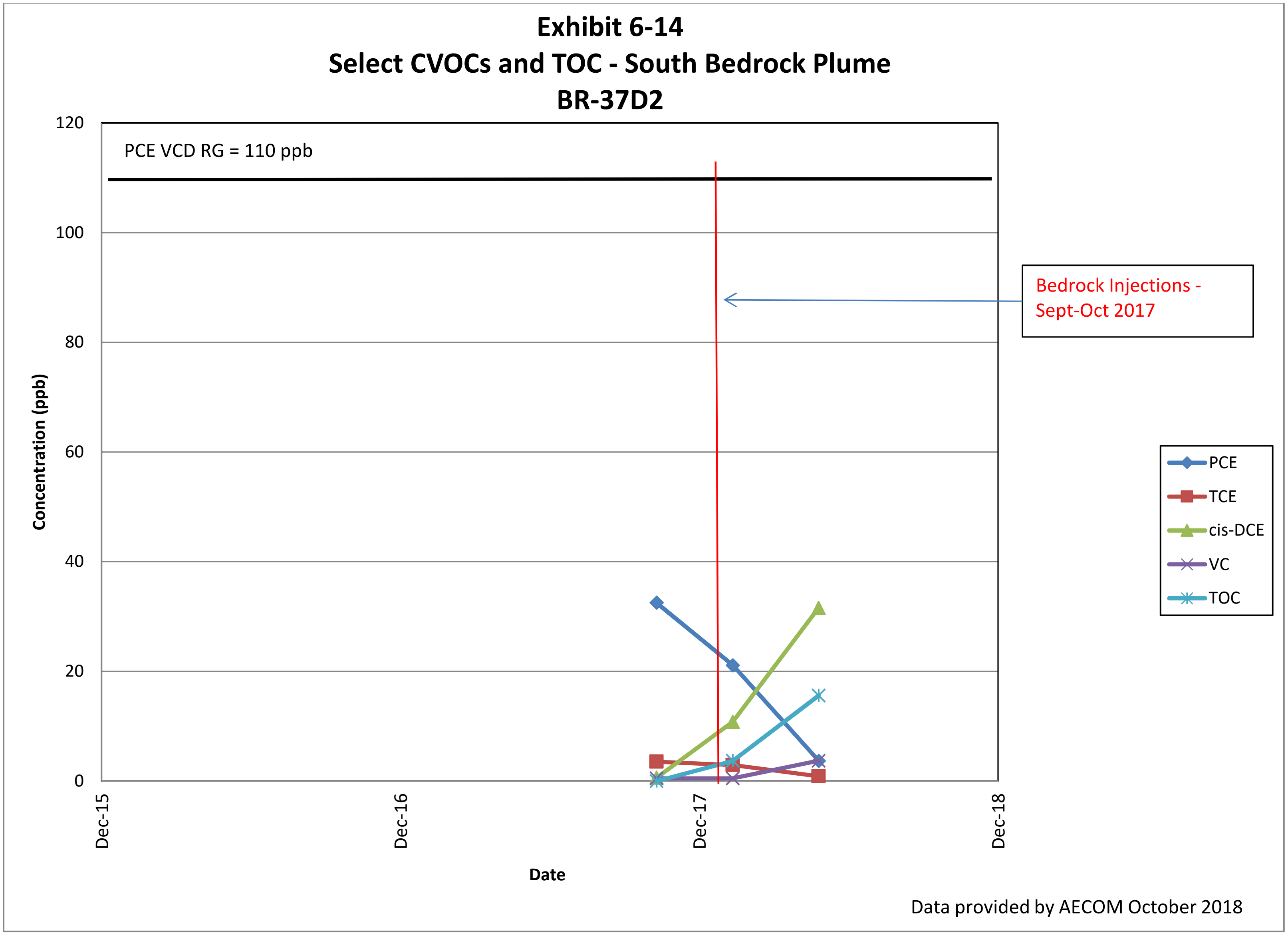


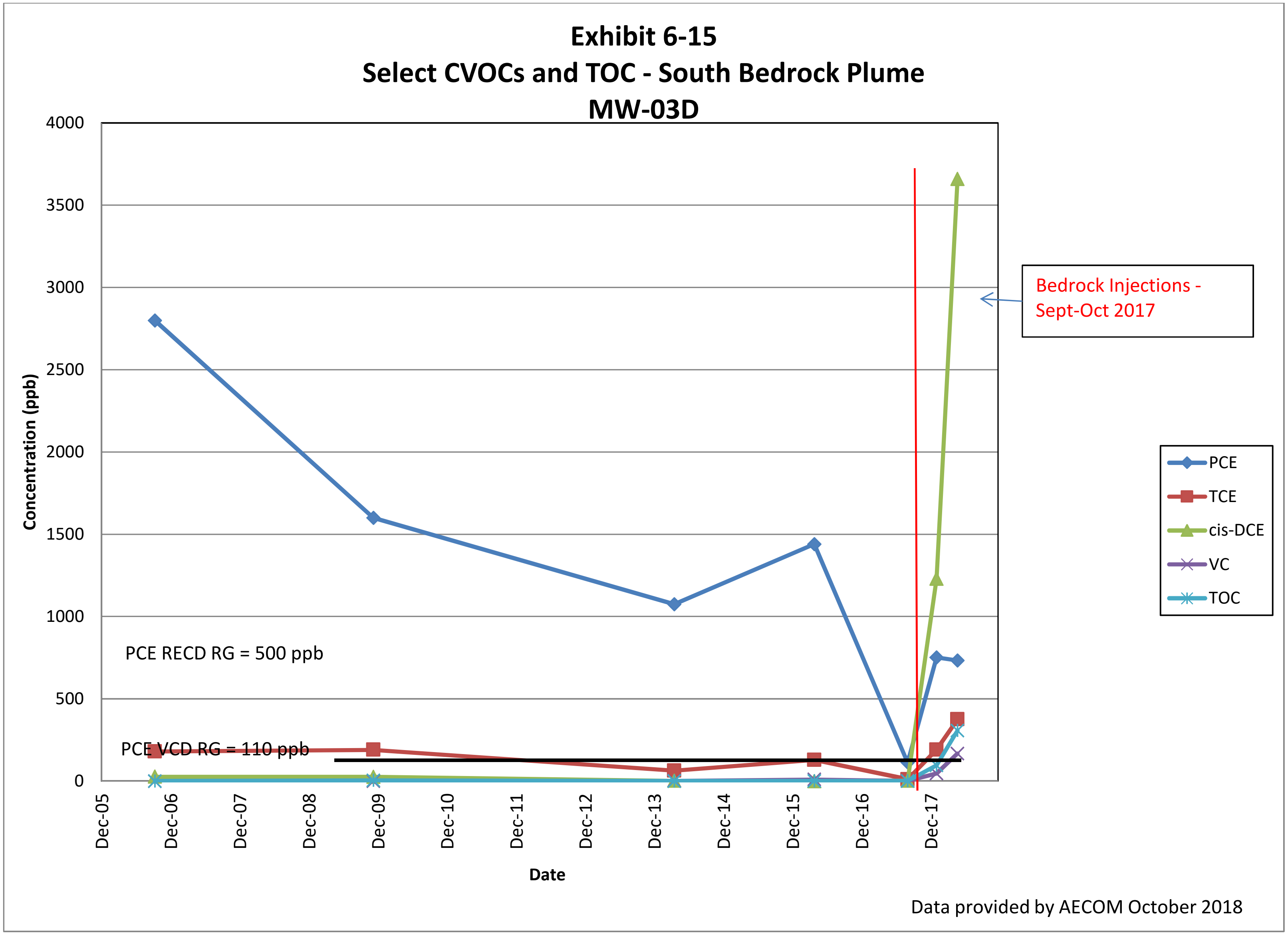
Exhibit 6-12
Select CVOCs and TOC - South Bedrock Plume
BR-7 (open hole)
Concentration (ppb)
12000
10000
8000
6000
4000
2000
0
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Date
PCE RECD RG = 500 ppb
Bedrock Injections - Sept-Oct 2017
PCE
TCE
cis-DCE
VC
TOC
Data provided by AECOM October 2018



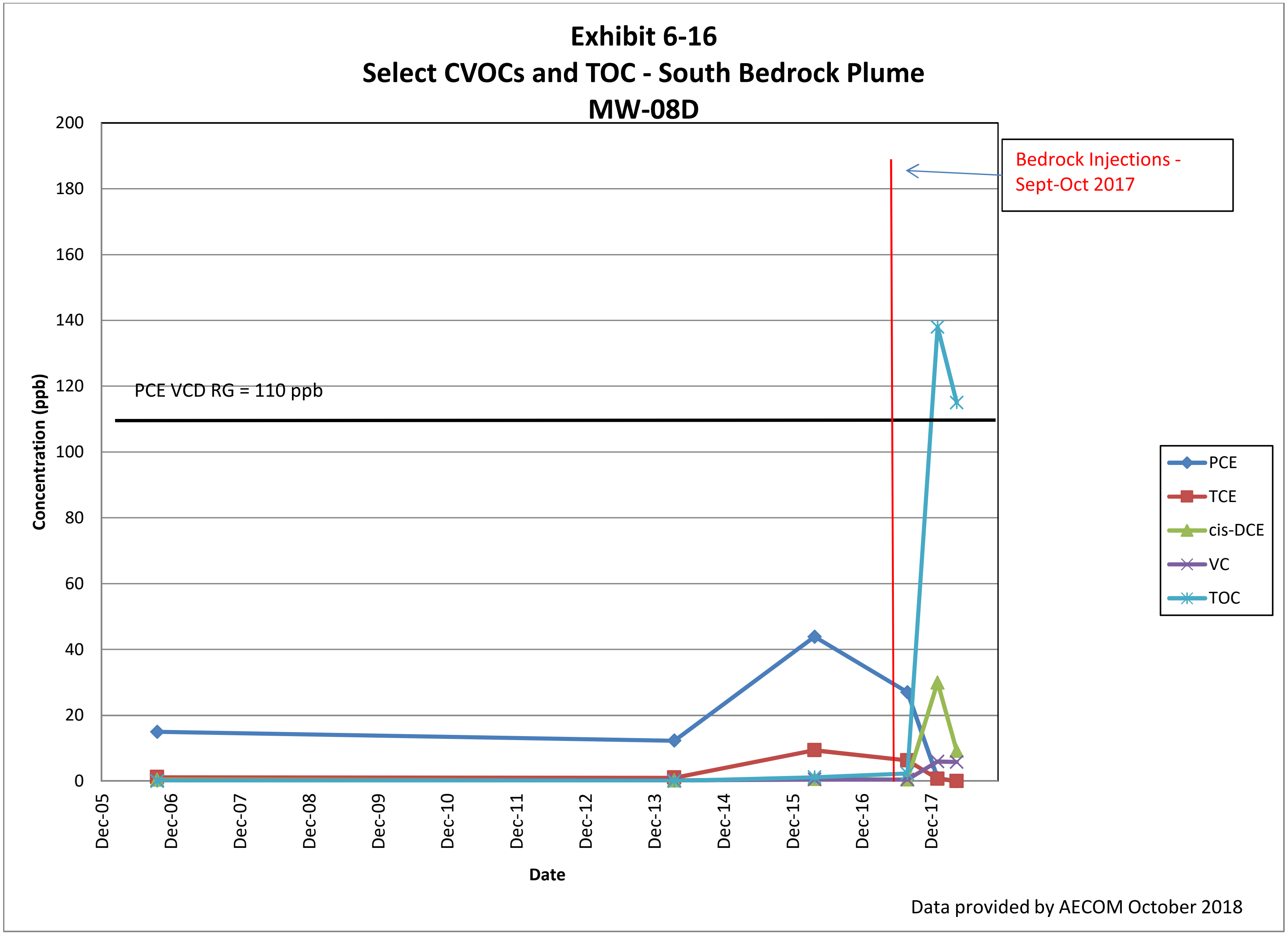
Data provided by AECOM, October 2018



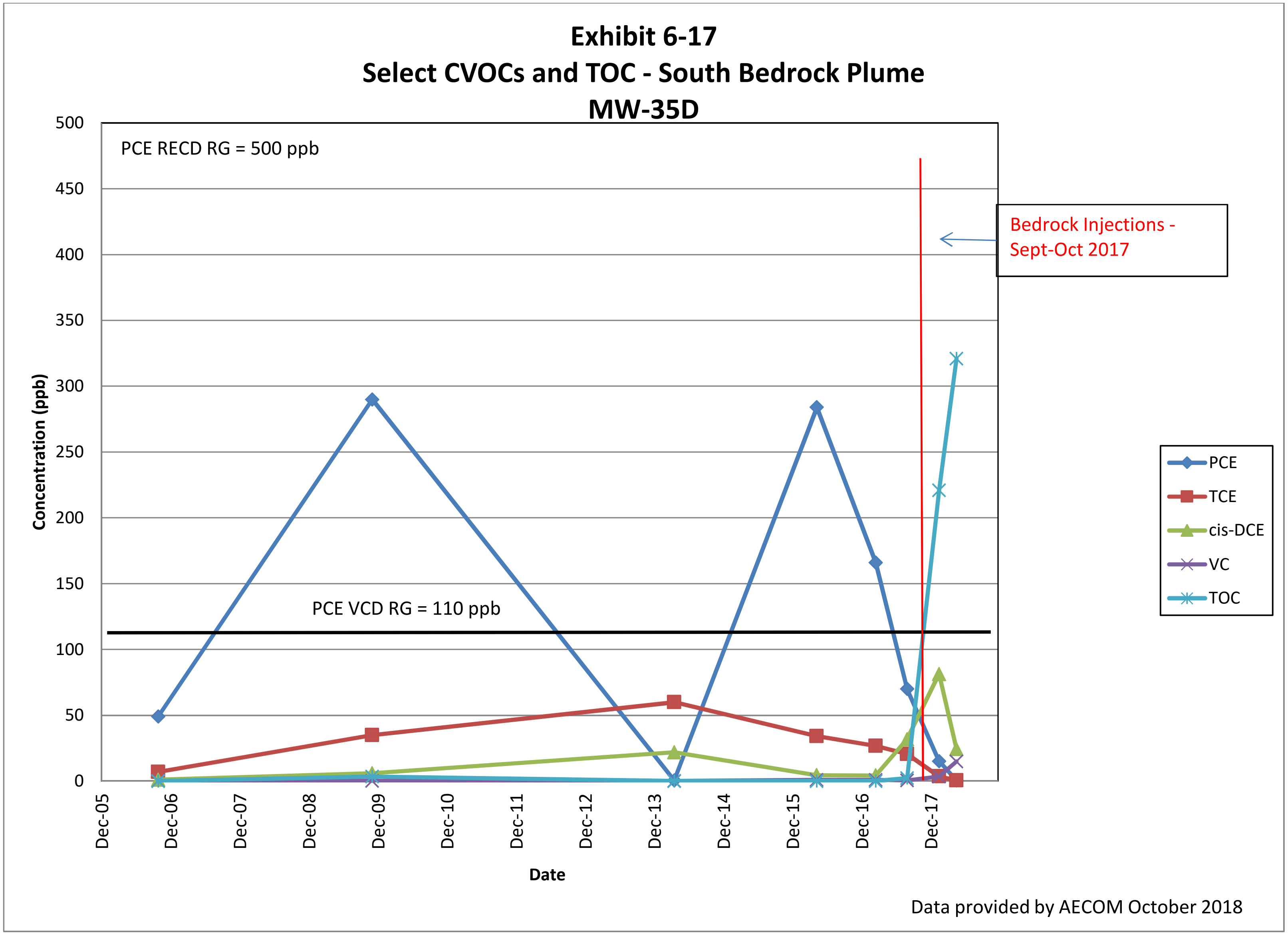
Data provided by AECOM, October 2018



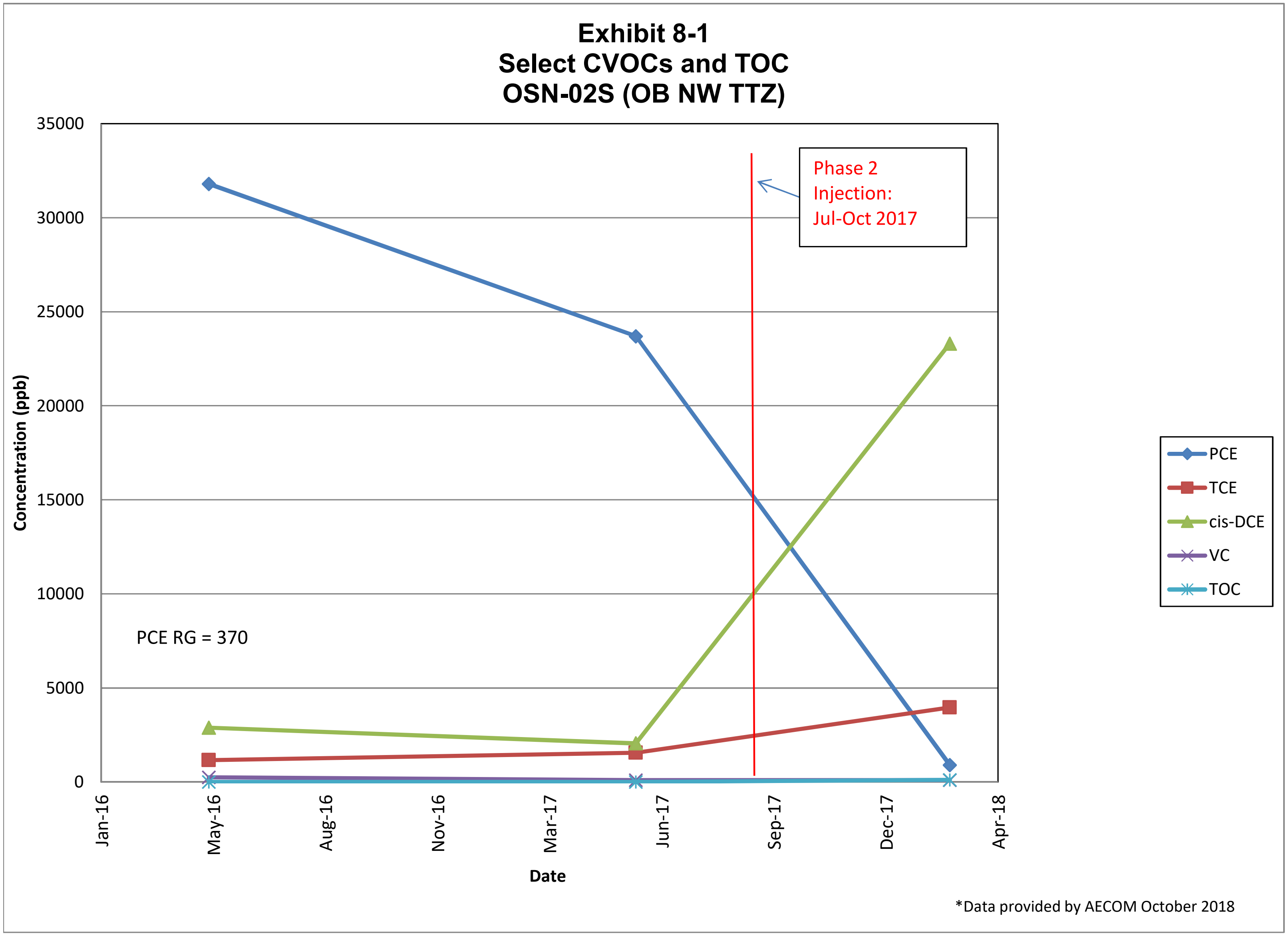
Data provided by AECOM, October 2018



Data provided by AECOM, October 2018



Data provided by AECOM, October 2018



Data provided by AECOM, October 2018

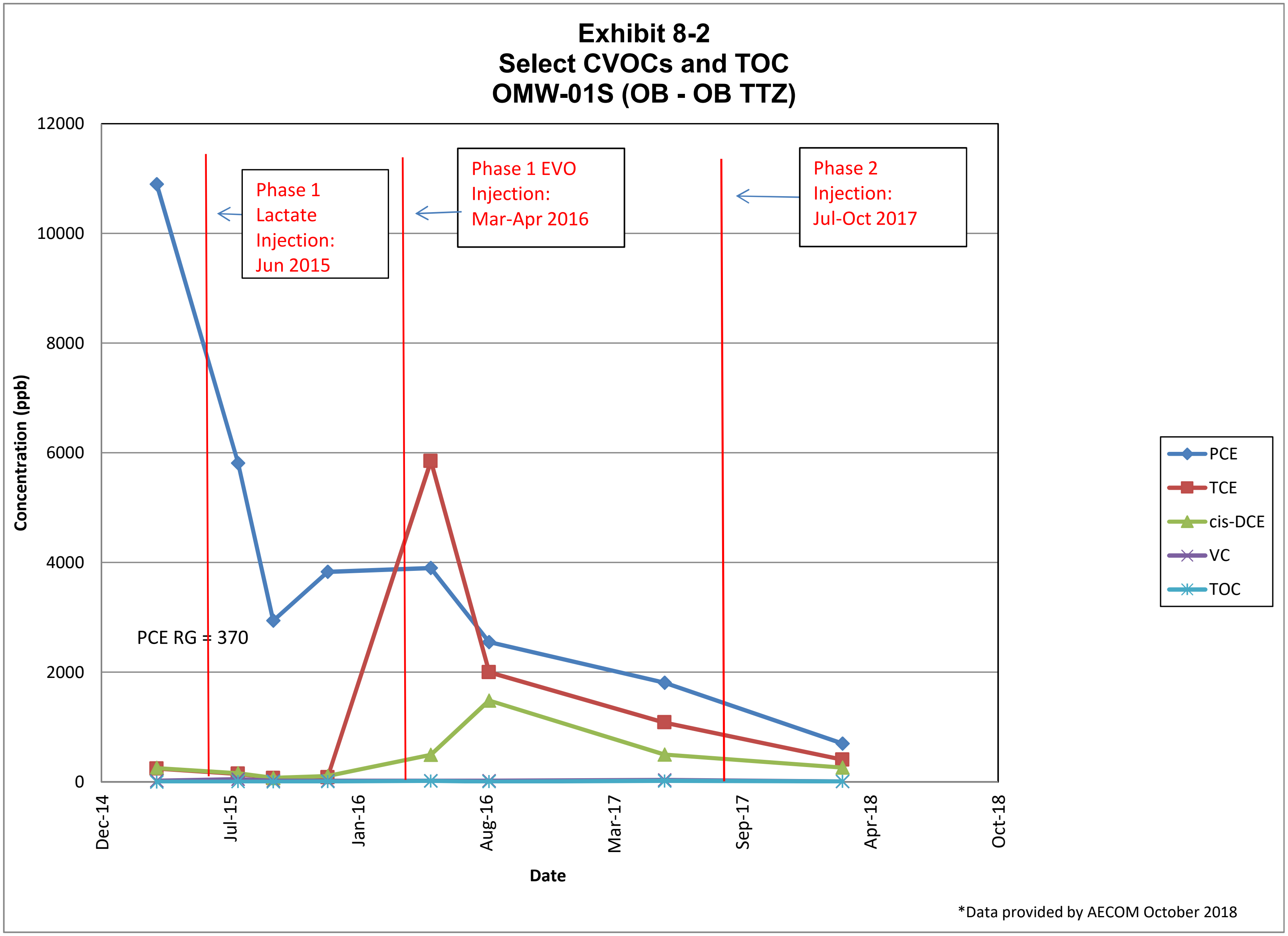
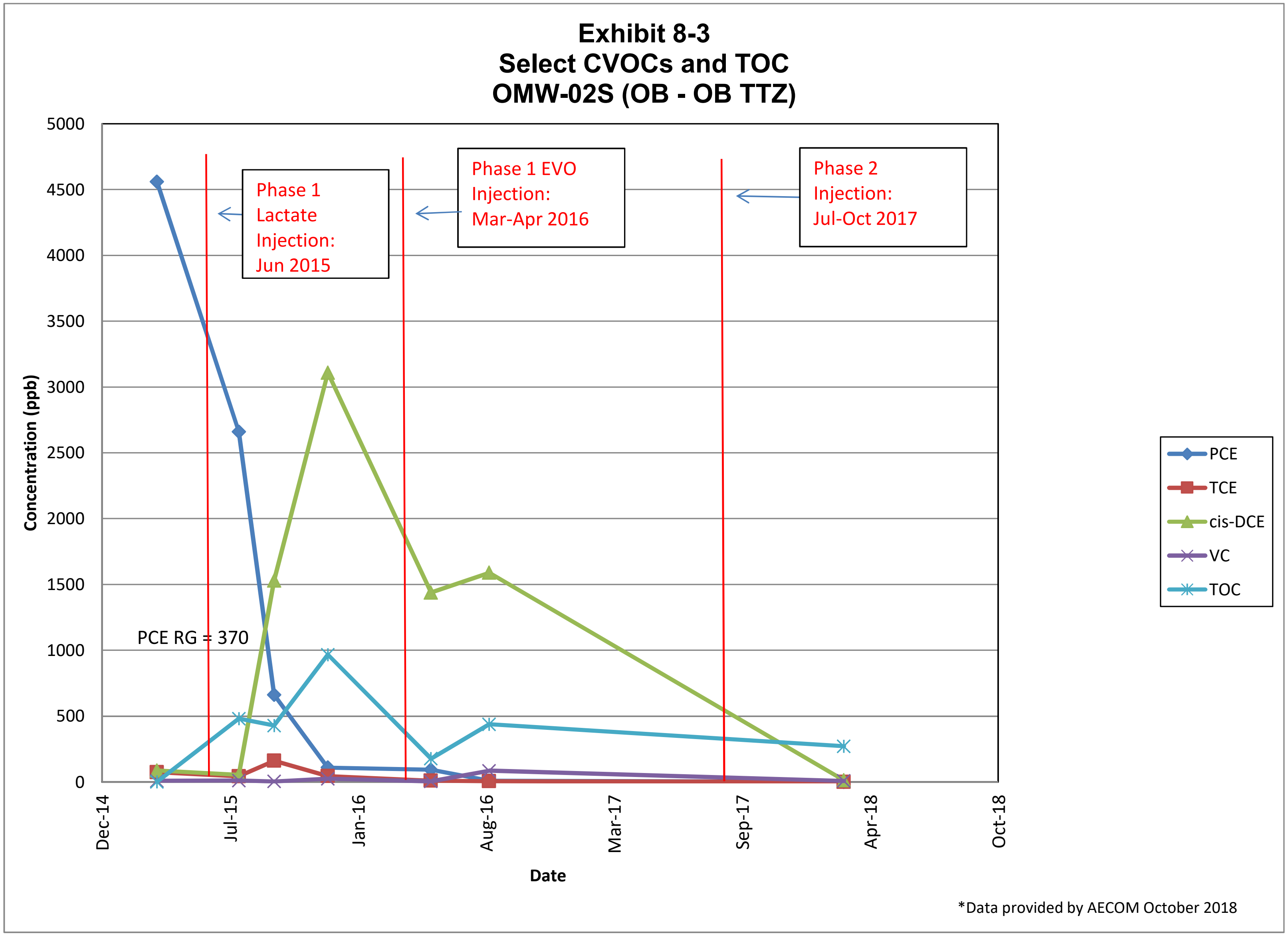
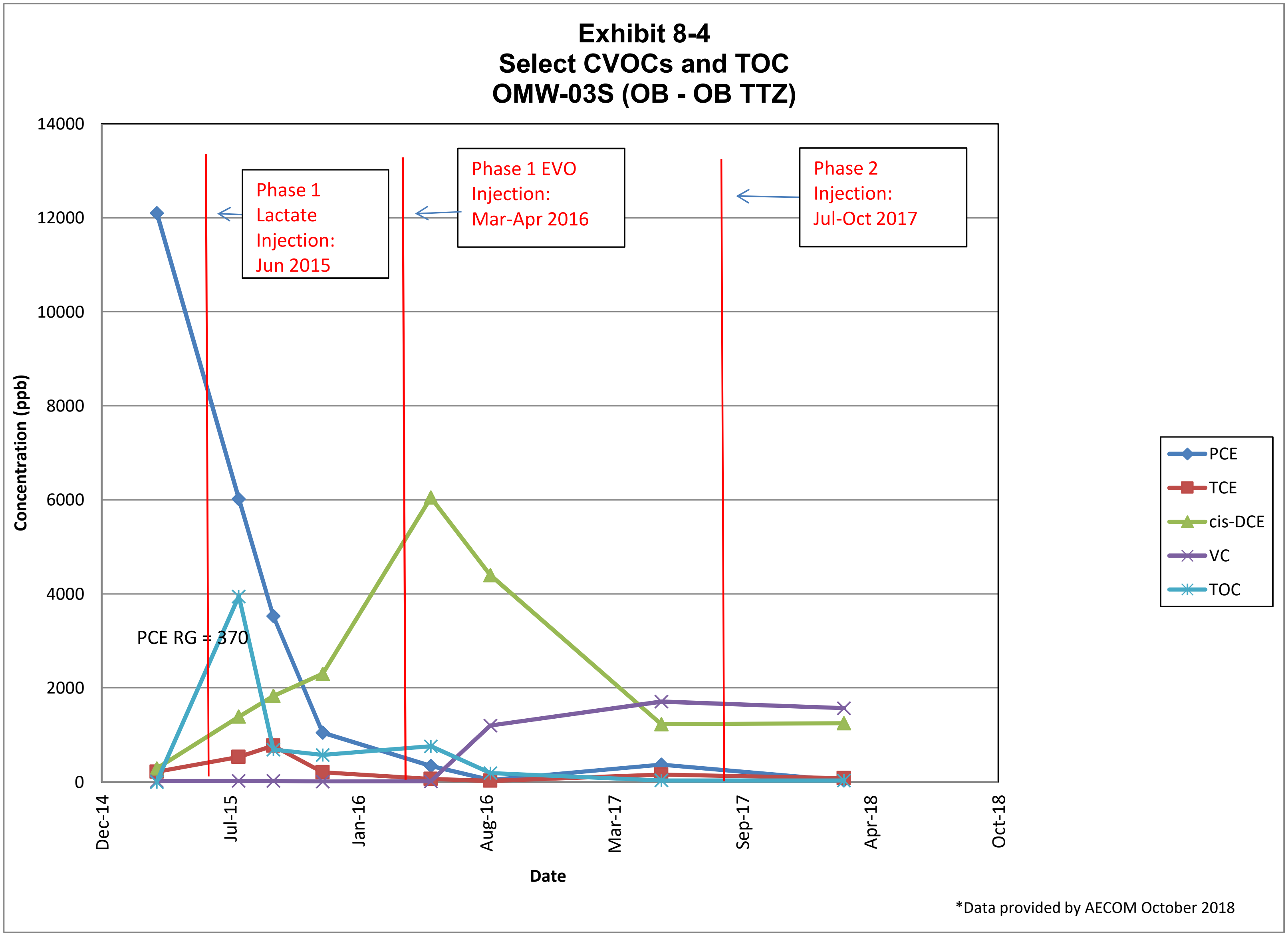


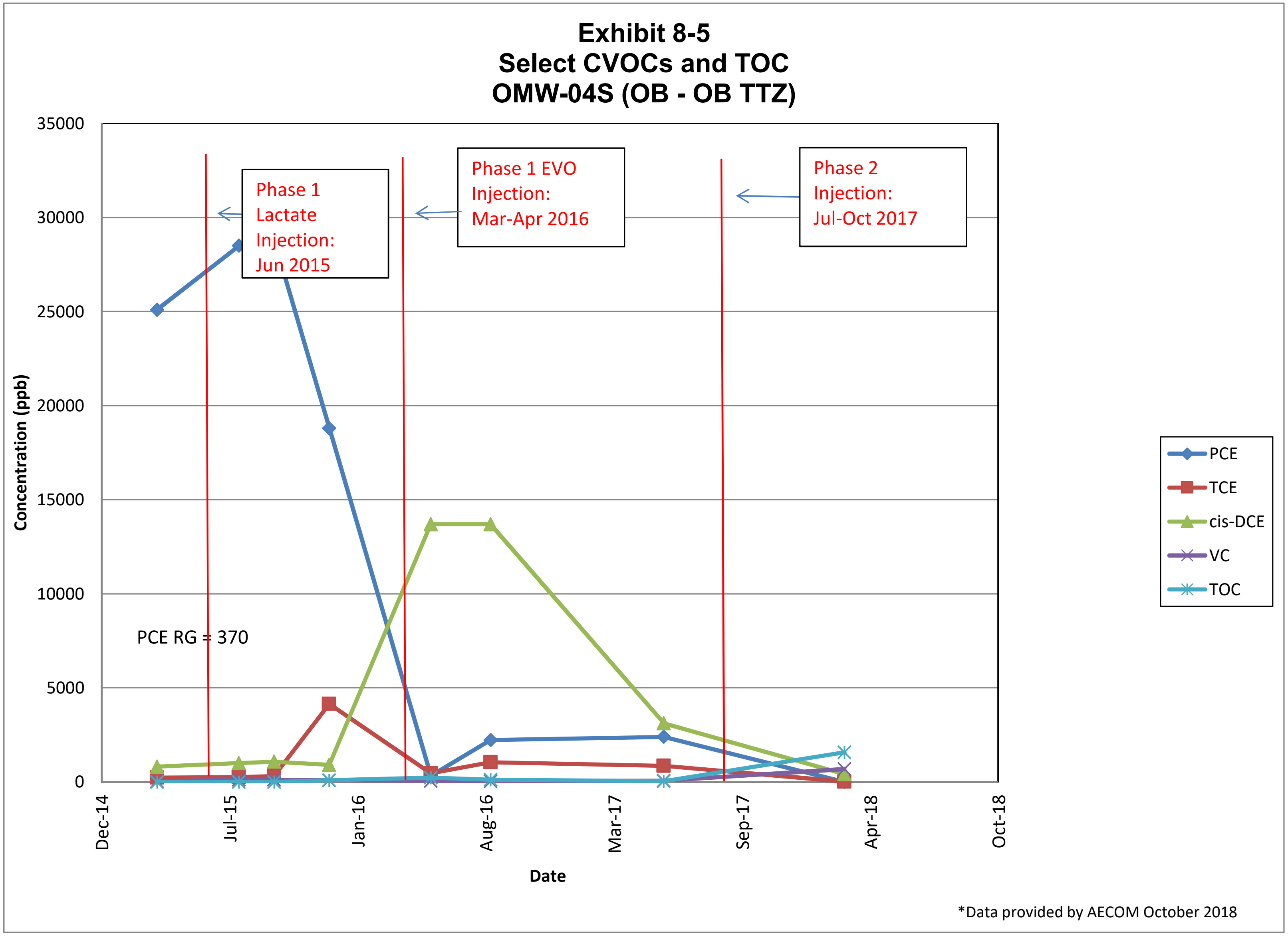
Exhibit 8-2
Select CVOCs and TOC
OMW-01S (OB - OB TTZ)
12000
10000
8000
6000
4000
2000
0
Concentration (ppb)
Phase 1
Lactate
Injection:
Jun 2015
Phase 1 EVO
Injection:
Mar-Apr 2016
Phase 2
Injection:
Jul-Oct 2017
PCE RG = 370
Dec-14
Jul-15
Jan-16
Aug-16
Mar-17
Sep-17
Apr-18
Oct-18
Date
PCE
TCE
cis-DCE
VC
TOC
*Data provided by AECOM October 2018



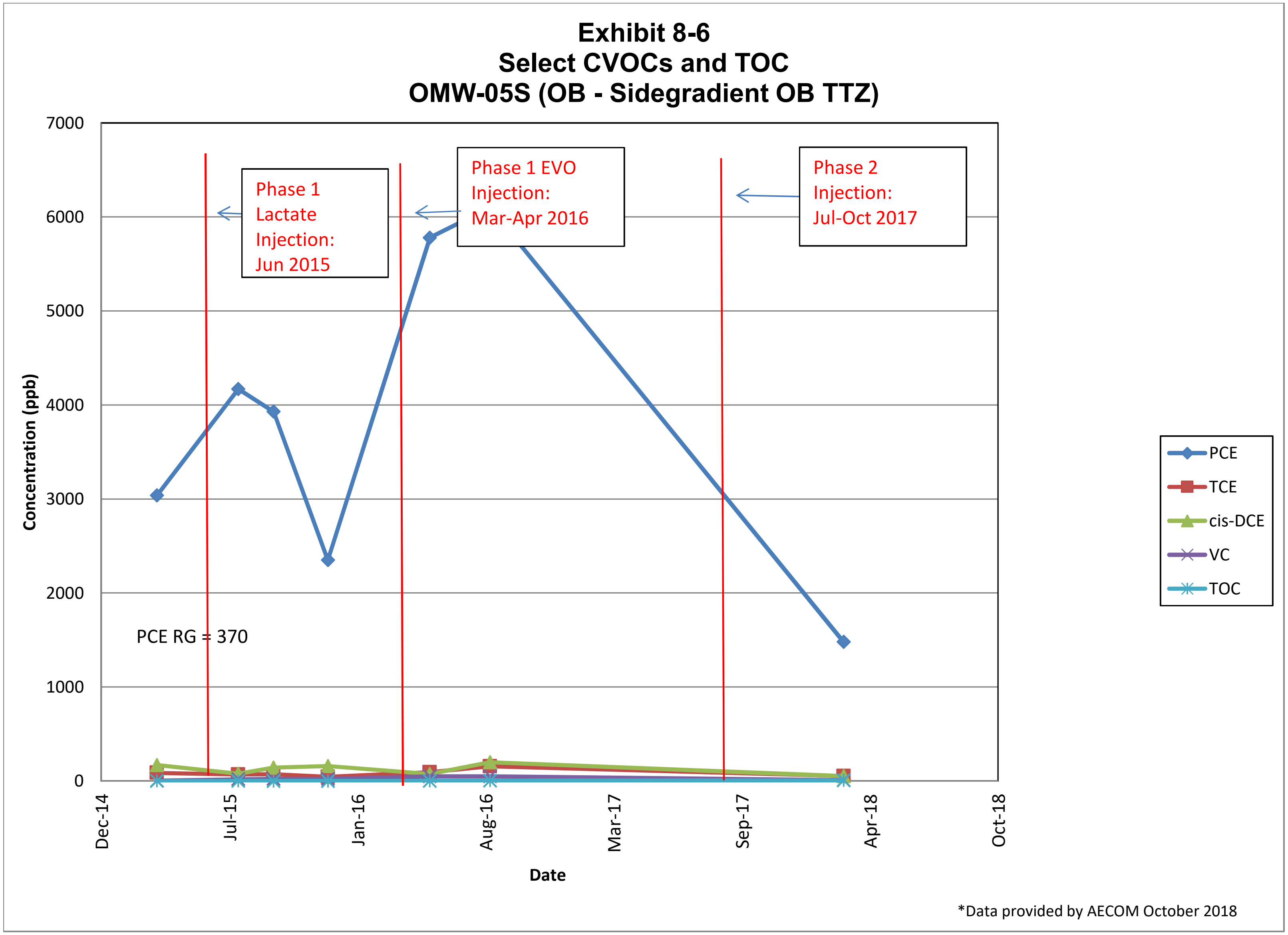
Data provided by AECOM, October 2018



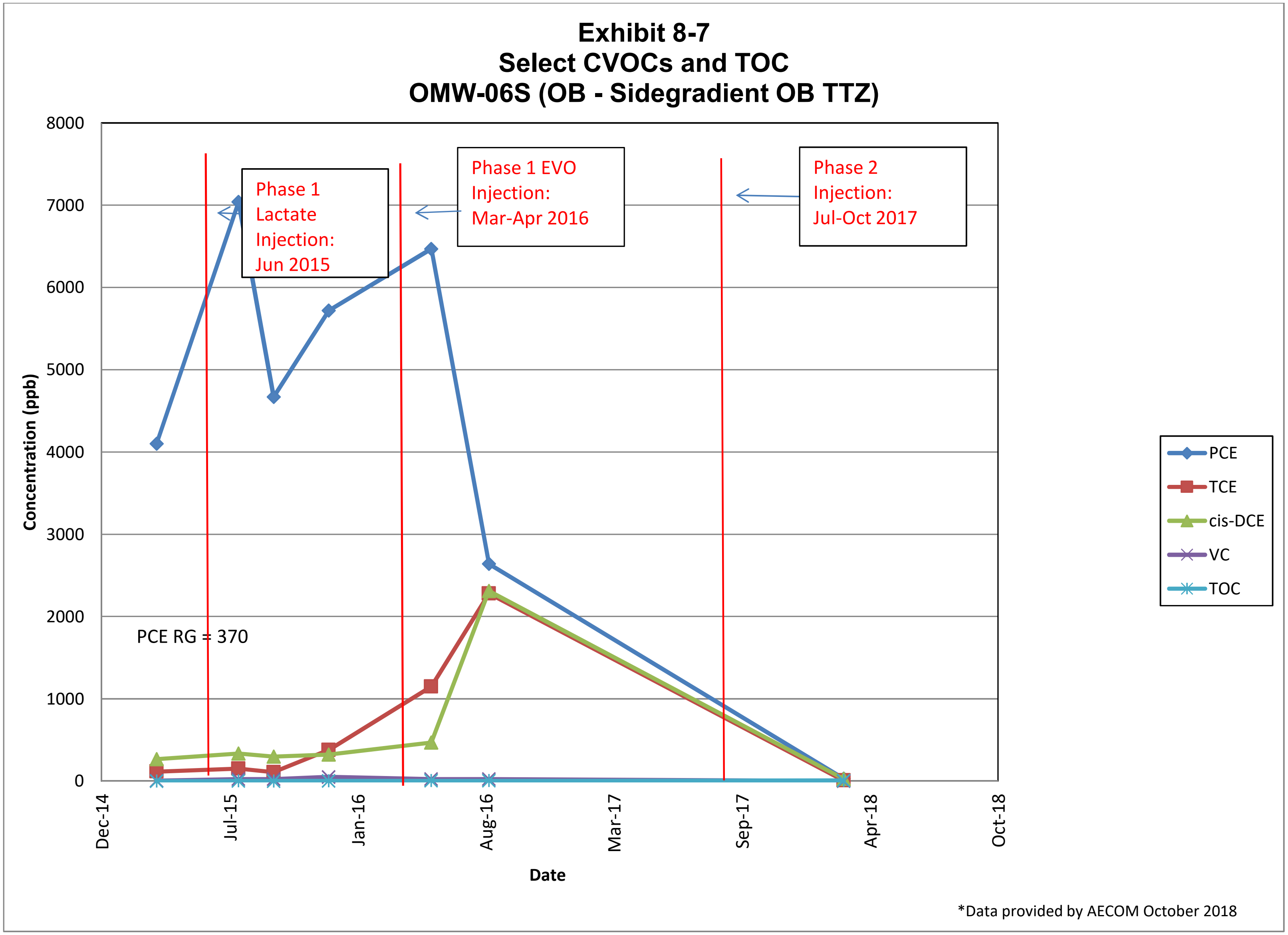
Data provided by AECOM, October 2018



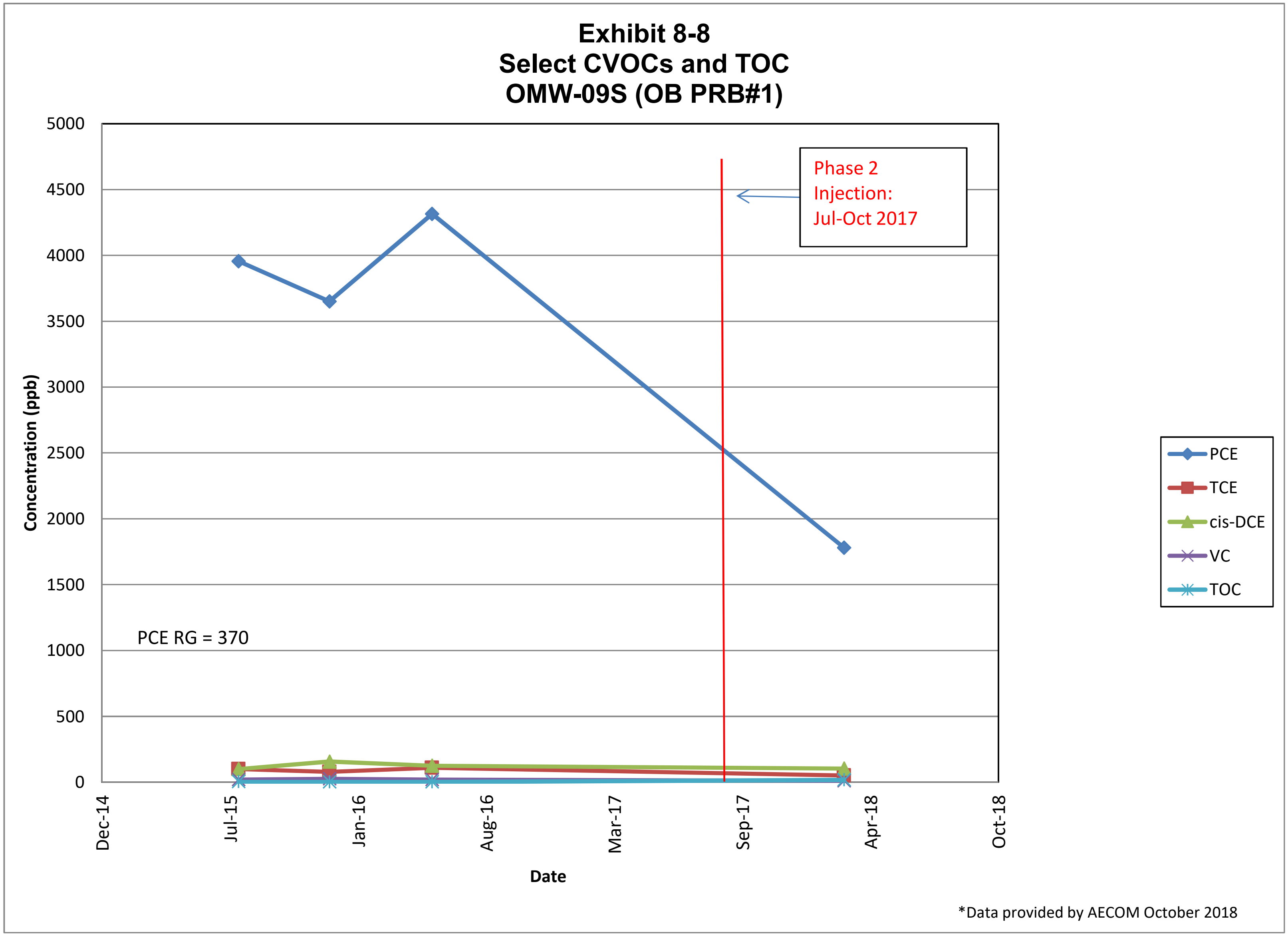
Data provided by AECOM, October 2018



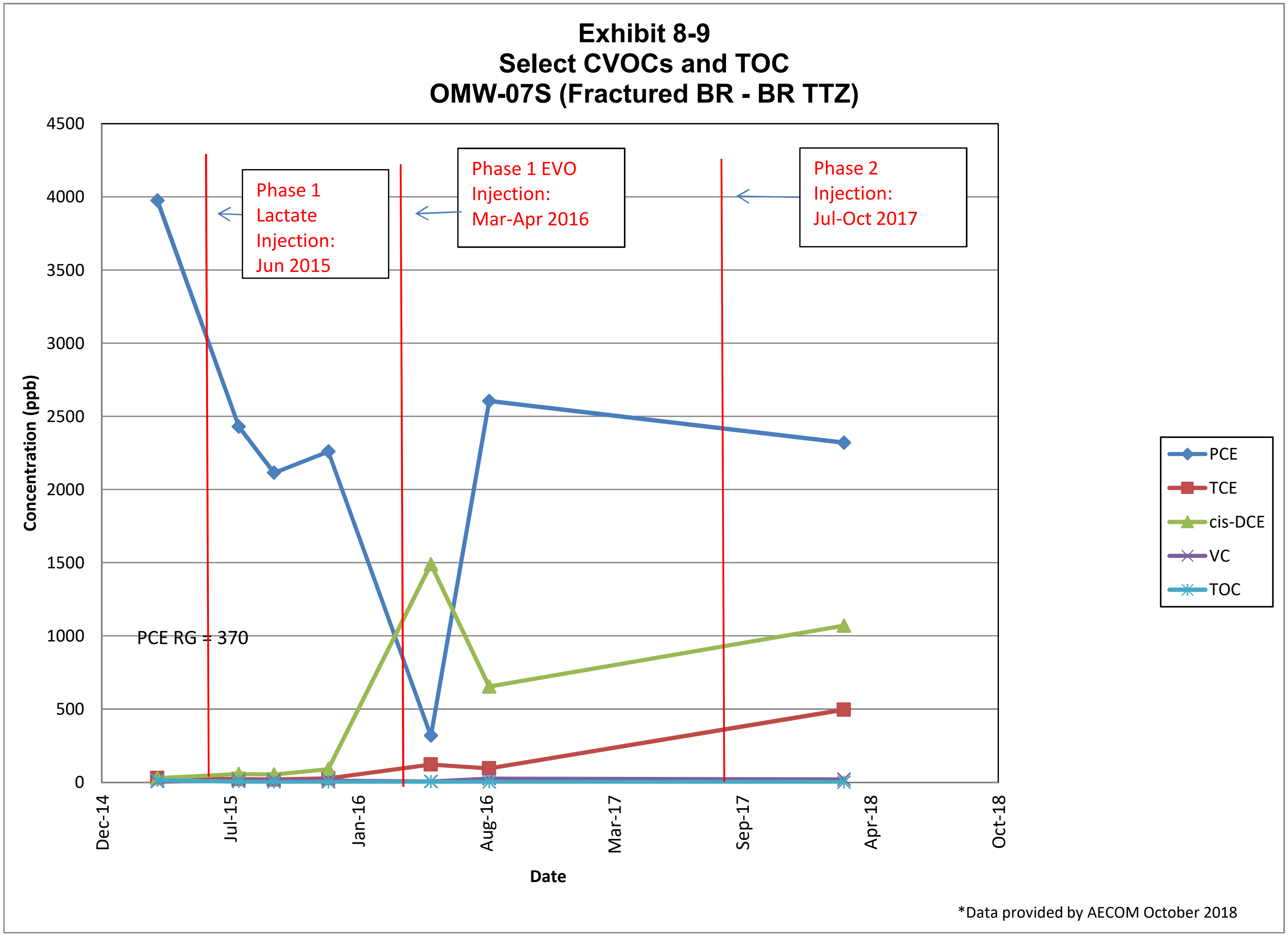
Data provided by AECOM, October 2018



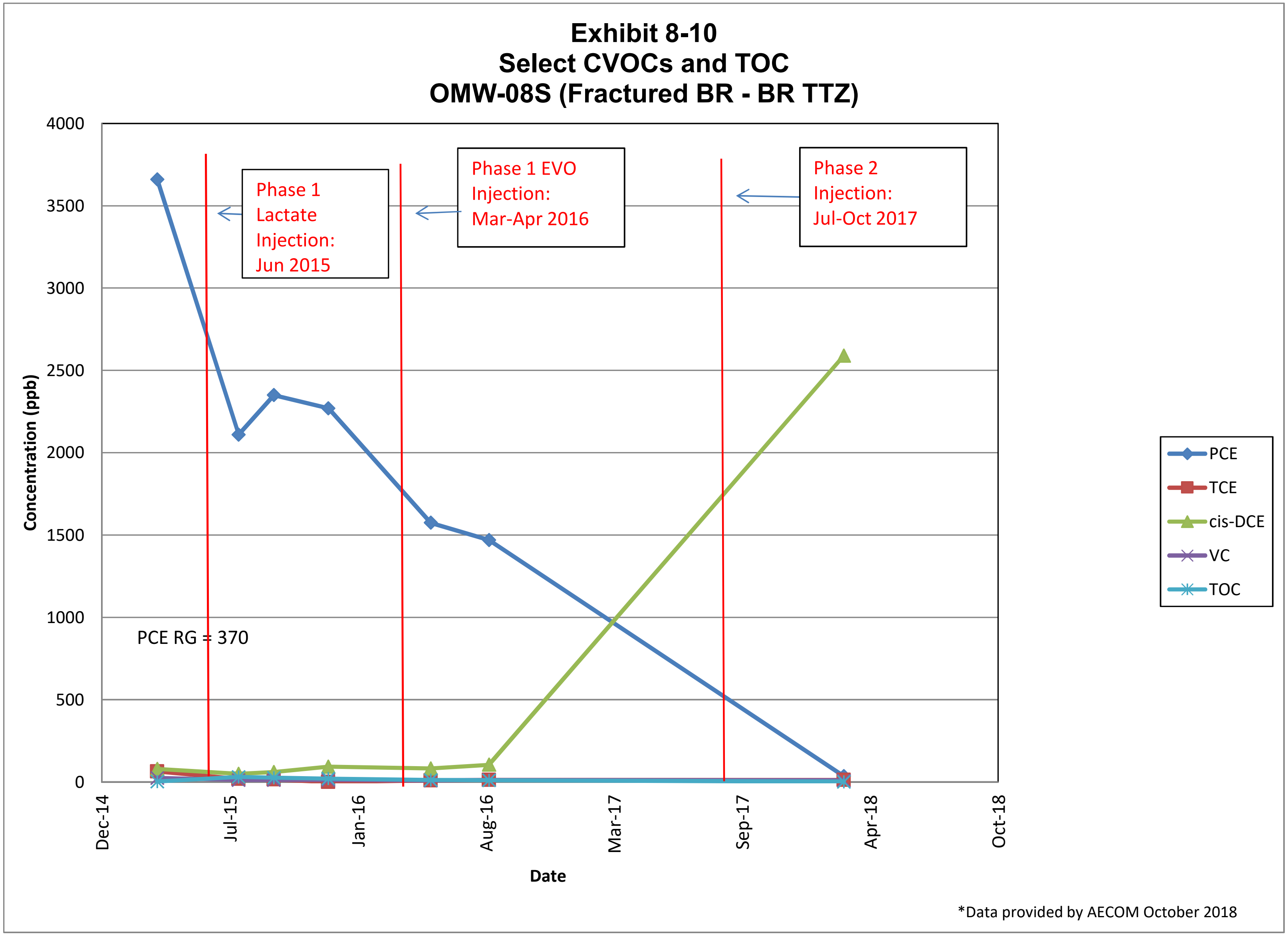
Data provided by AECOM, October 2018



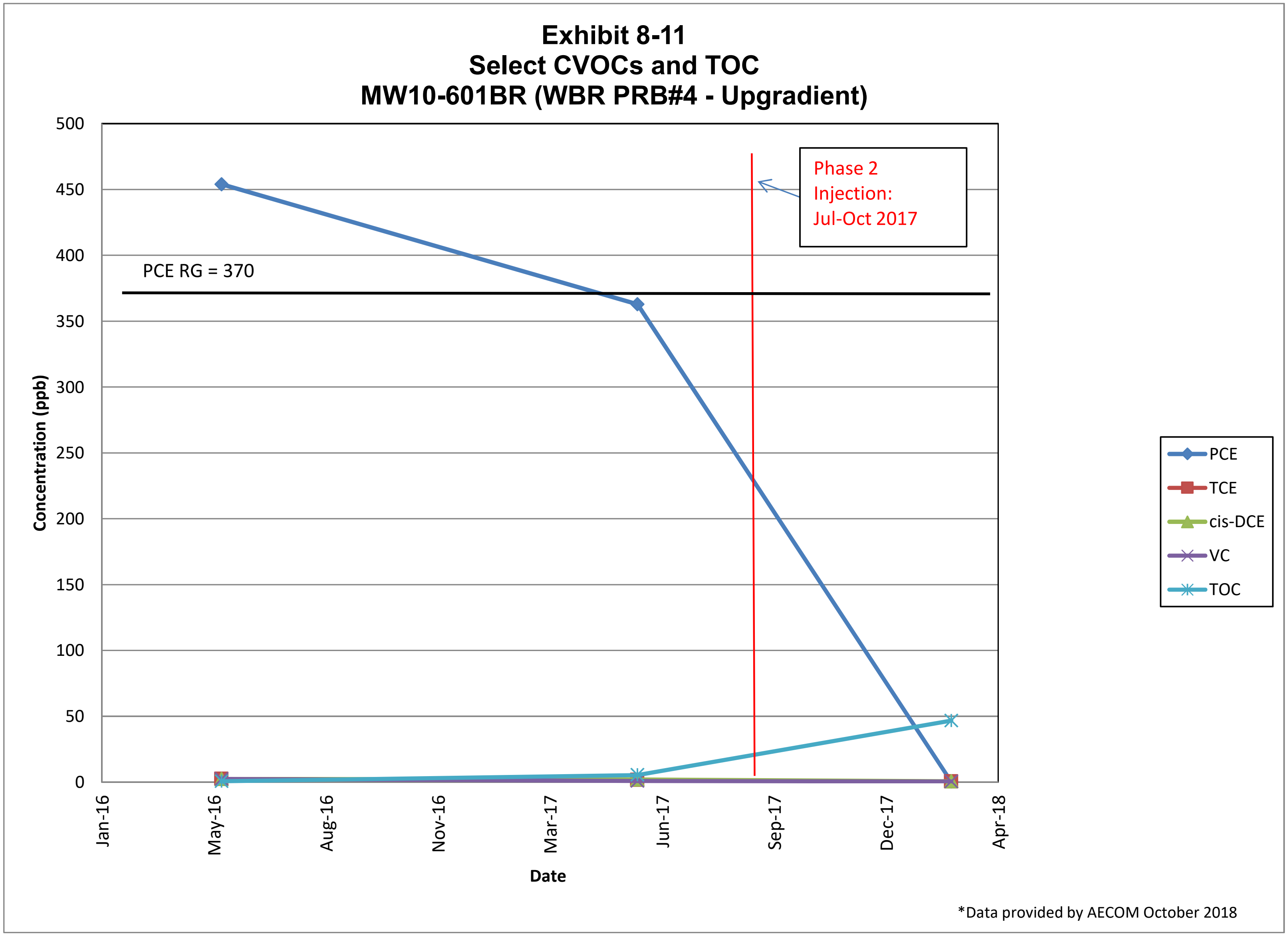
Data provided by AECOM, October 2018



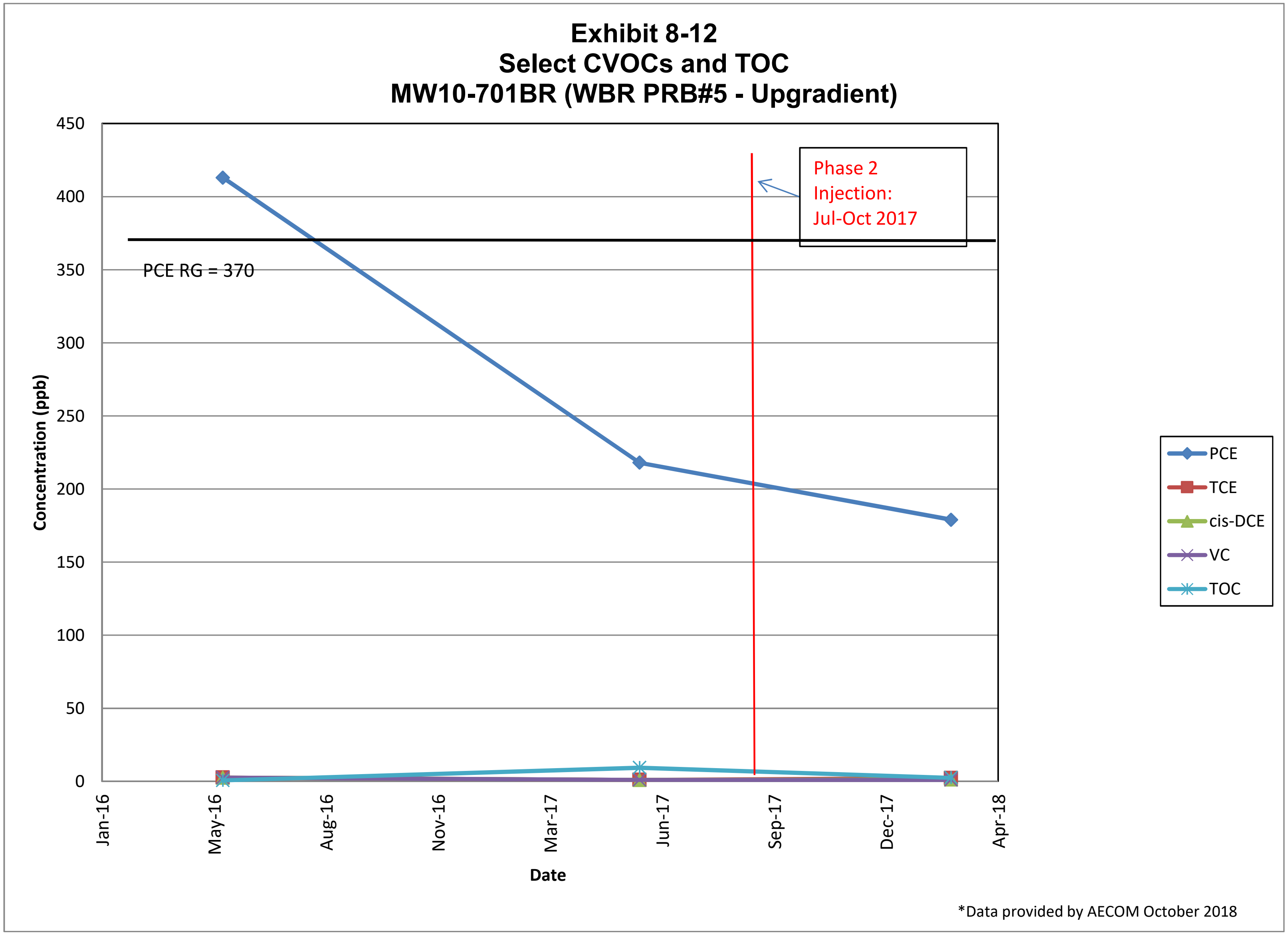
Data provided by AECOM, October 2018



Data provided by AECOM, October 2018



Data provided by AECOM, October 2018



Data provided by AECOM, October 2018

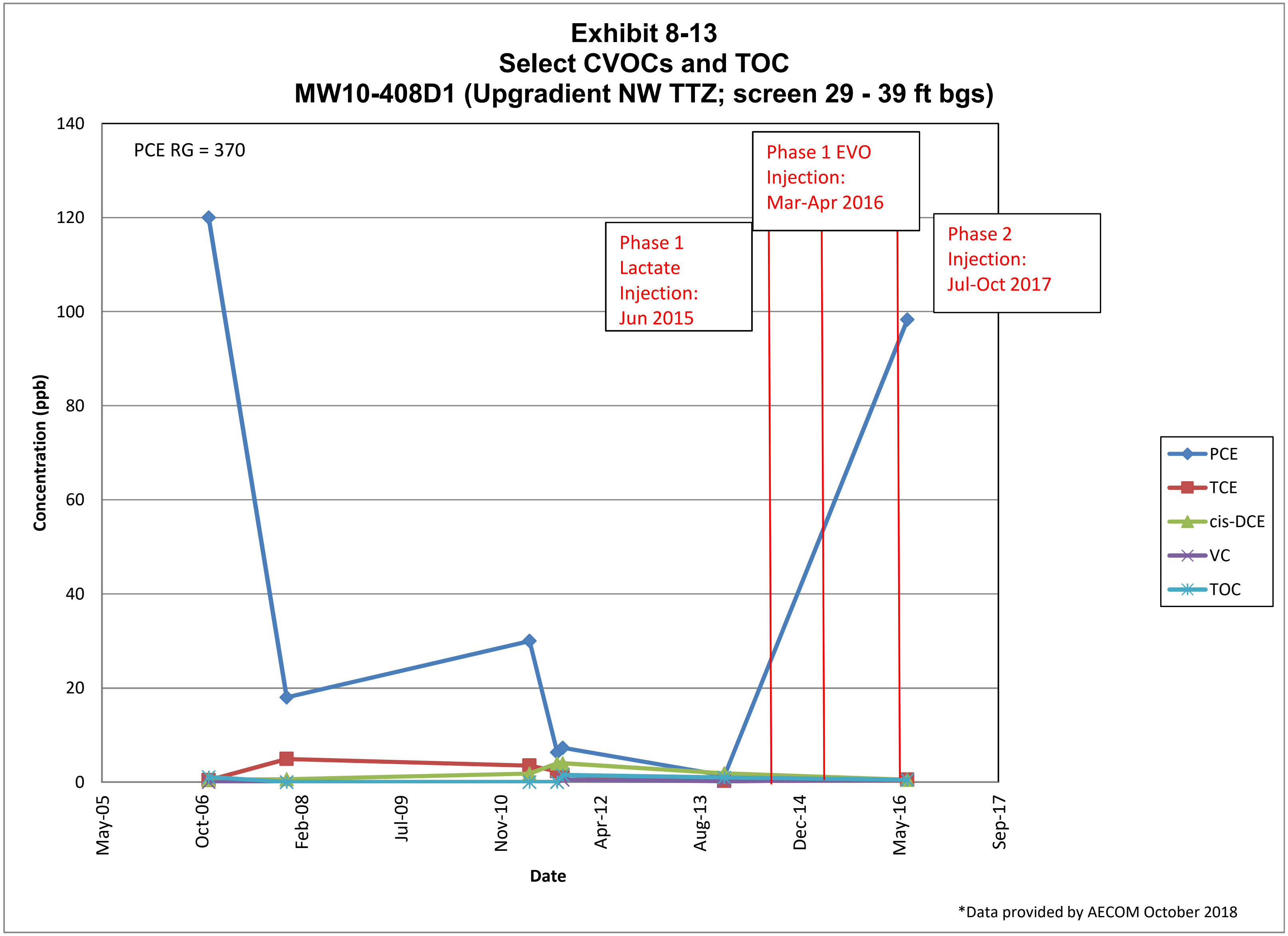


Exhibit 8-13
Select CVOCs and TOC
MW10-408D1 (Upgradient NW TTZ; screen 29 - 39 ft bgs)
PCE RG = 370
Phase 1 Lactate Injection: Jun 2015
Phase 1 EVO Injection: Mar-Apr 2016
Phase 2 Injection: Jul-Oct 2017
Concentration (ppb)
0
20
40
60
80
100
120
140
May-05
Oct-06
Feb-08
Jul-09
Nov-10
Apr-12
Aug-13
Dec-14
May-16
Sep-17
Date
PCE
TCE
cis-DCE
VC
TOC
*Data provided by AECOM October 2018

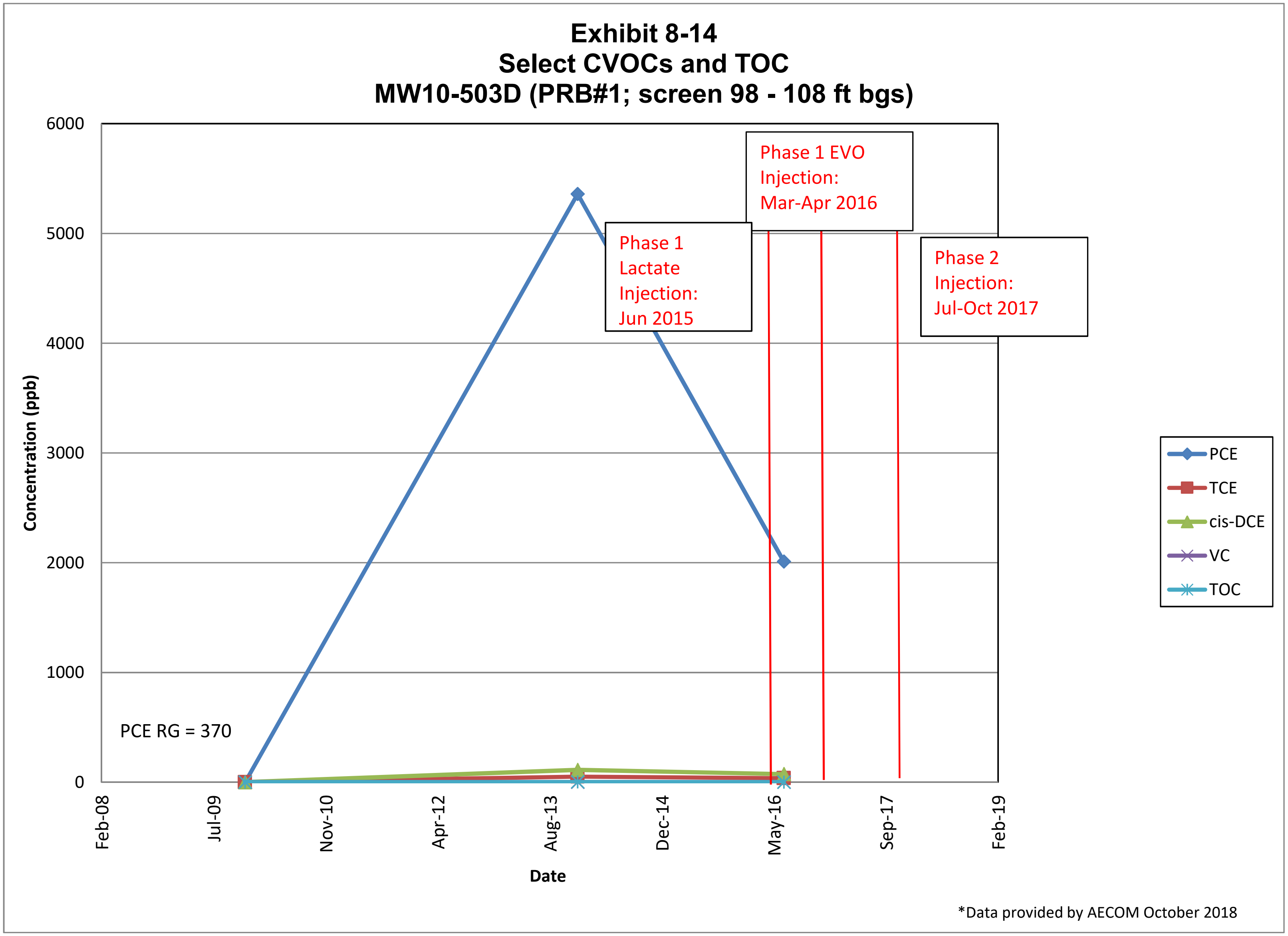


Exhibit 8-14
Select CVOCs and TOC
MW10-503D (PRB#1; screen 98 - 108 ft bgs)
6000
5000
4000
3000
2000
1000
0
Concentration (ppb)
Phase 1 EVO Injection: Mar-Apr 2016
Phase 1 Lactate Injection: Jun 2015
Phase 2 Injection: Jul-Oct 2017
PCE RG = 370
Feb-08
Jul-09
Nov-10
Apr-12
Aug-13
Dec-14
May-16
Sep-17
Feb-19
Date
PCE
TCE
cis-DCE
VC
TOC
*Data provided by AECOM October 2018

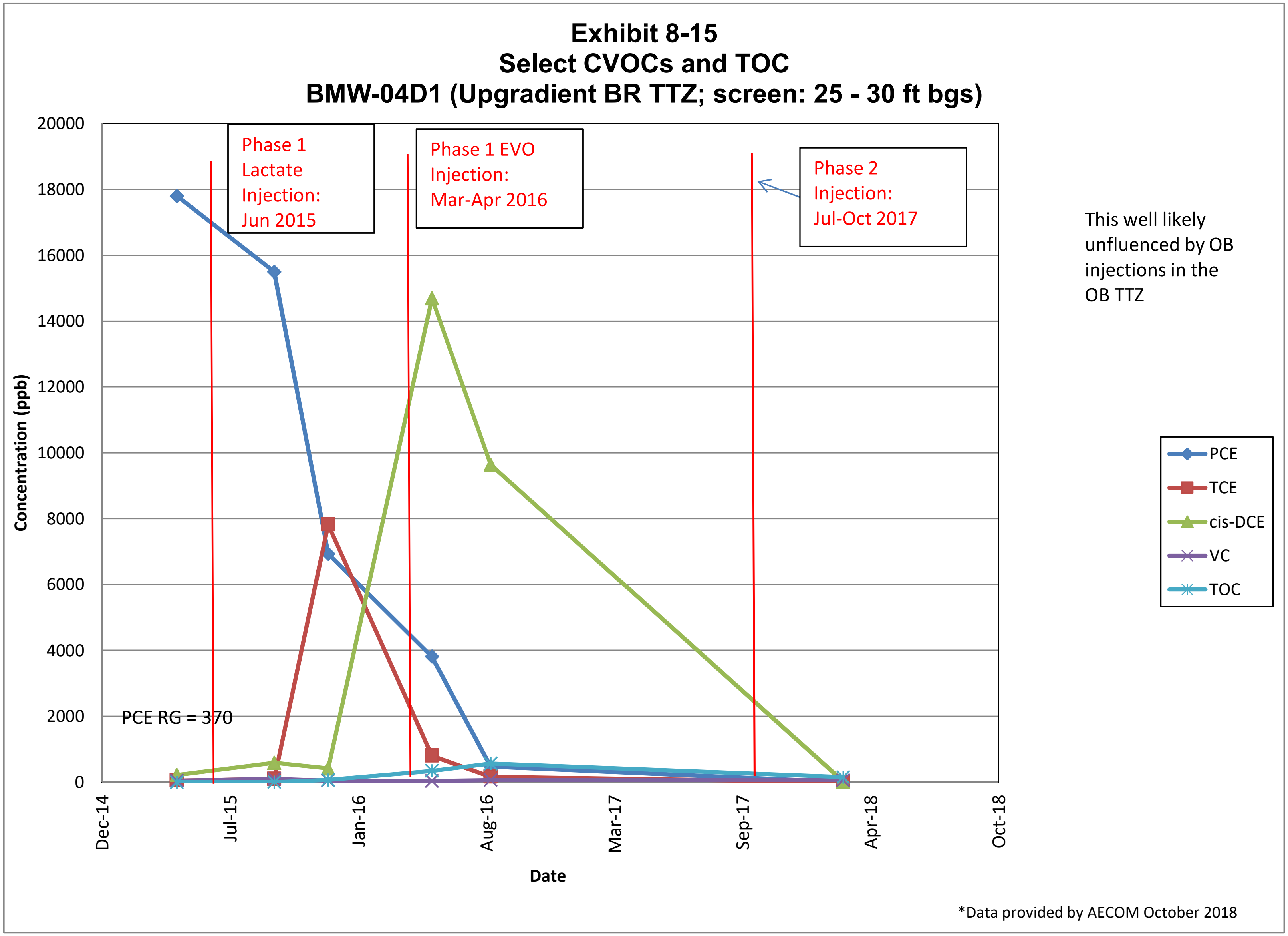
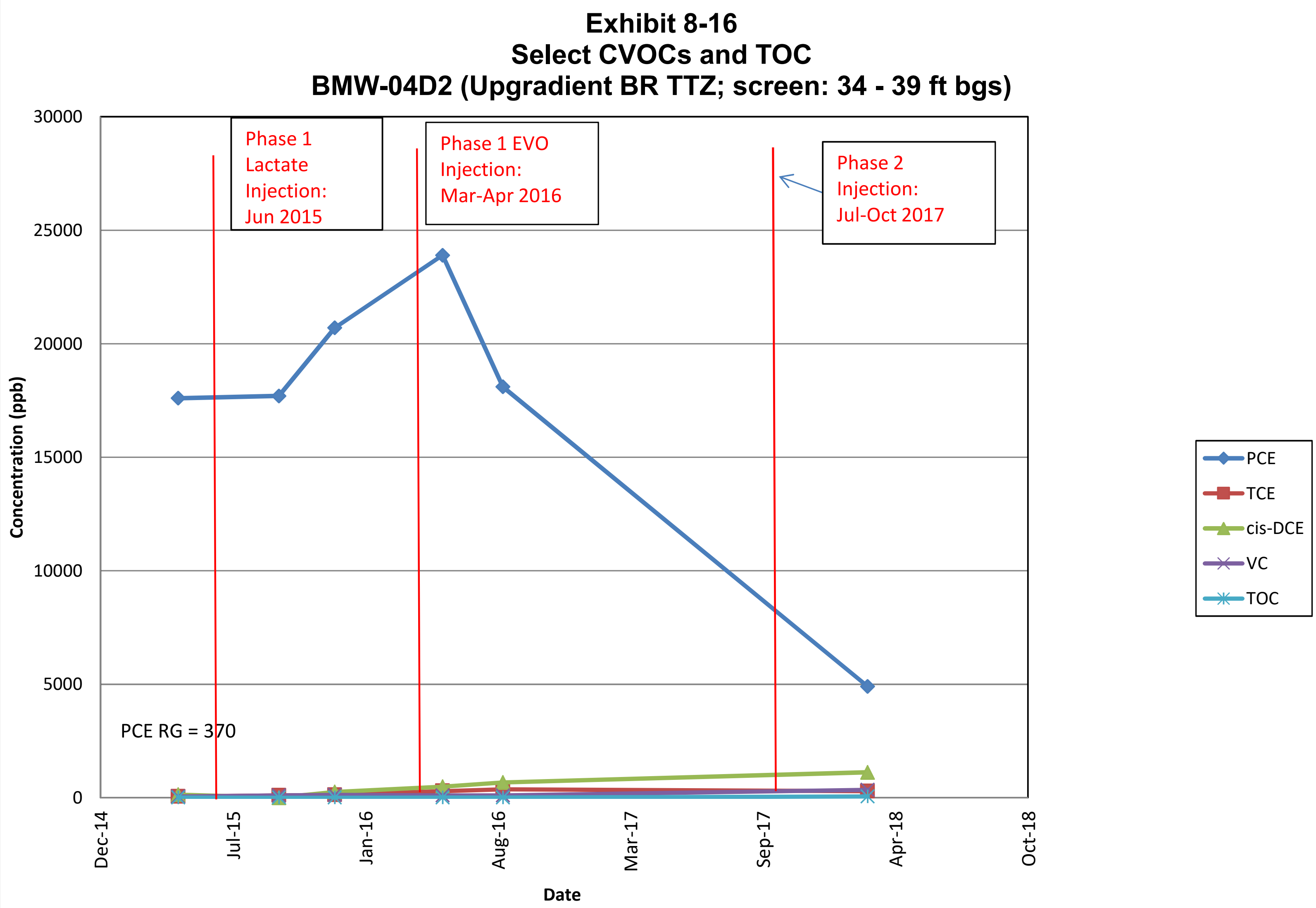


Exhibit 8-15
Select CVOCs and TOC
BMW-04D1 (Upgradient BR TTZ; screen: 25 - 30 ft bgs)
Concentration (ppb)
20000
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
Phase 1 Lactate Injection: Jun 2015
Phase 1 EVO Injection: Mar-Apr 2016
Phase 2 Injection: Jul-Oct 2017
PCE RG = 370
Dec-14
Jul-15
Jan-16
Aug-16
Mar-17
Sep-17
Apr-18
Oct-18
Date
This well likely unfluenced by OB injections in the OB TTZ
PCE
TCE
cis-DCE
VC
TOC
*Data provided by AECOM October 2018



*Data provided by AECOM October 2018

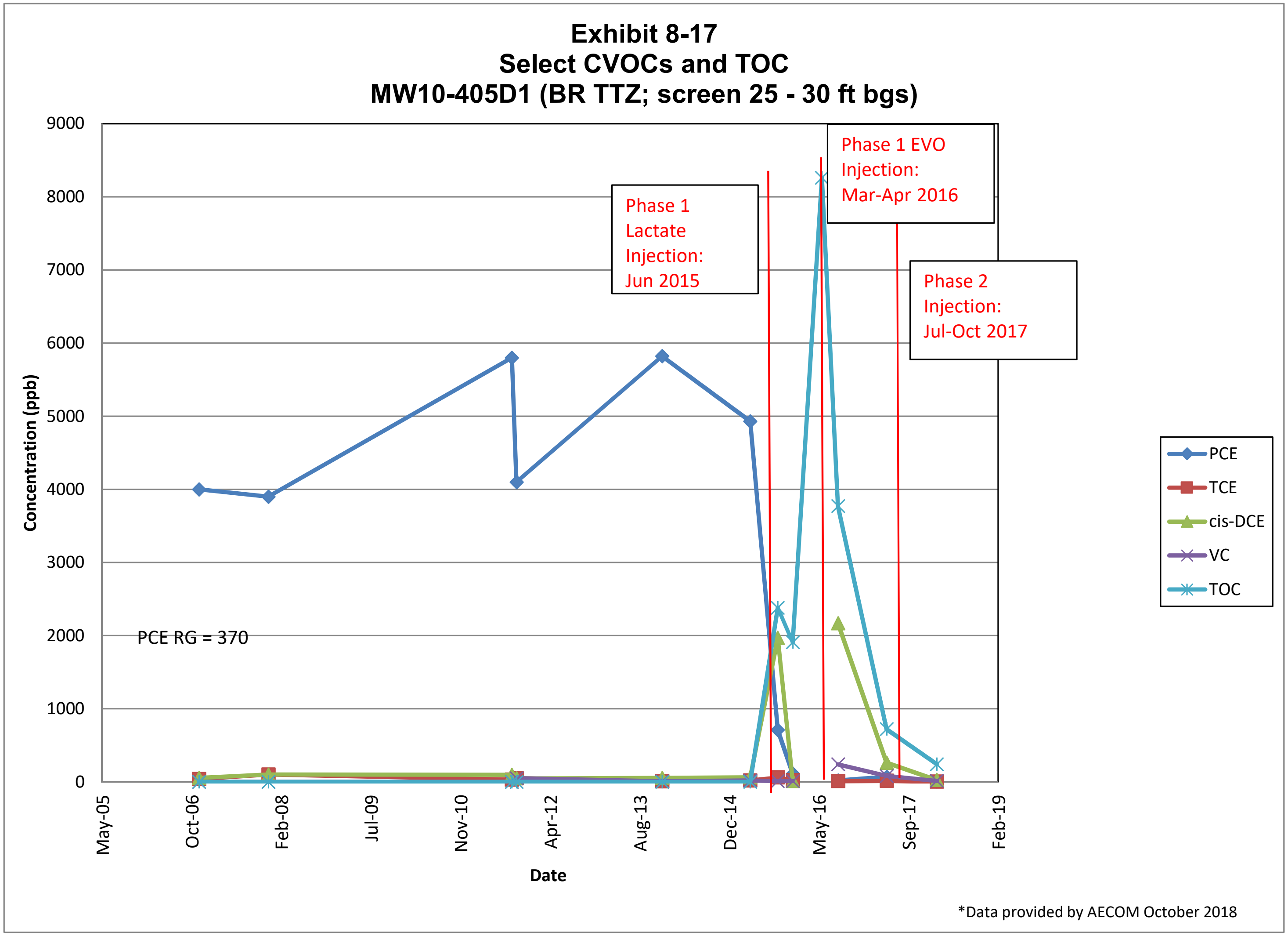
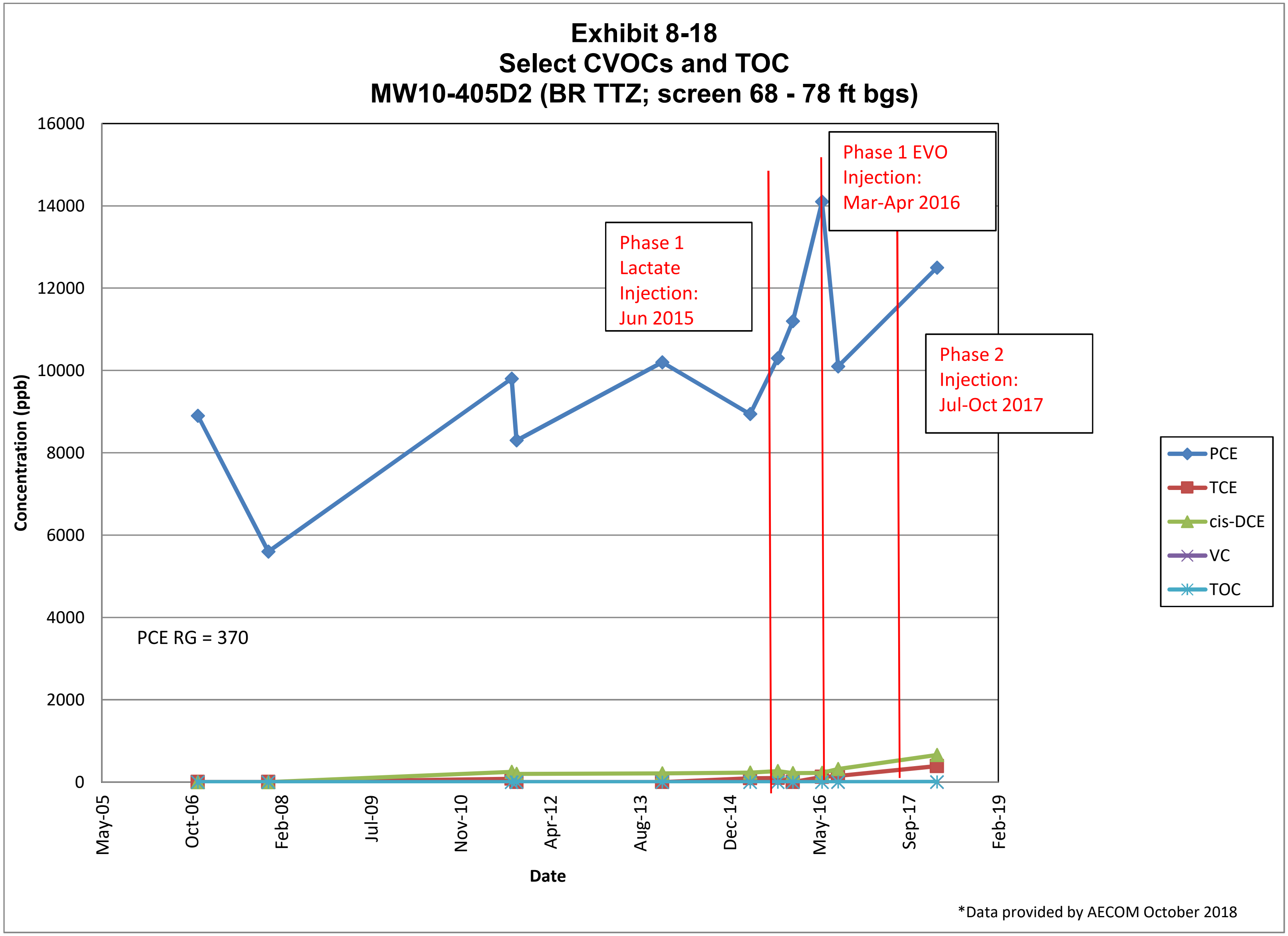


Exhibit 8-17
Select CVOCs and TOC
MW10-405D1 (BR TTZ; screen 25 - 30 ft bgs)
Concentration (ppb)
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
Phase 1 Lactate Injection: Jun 2015
Phase 1 EVO Injection: Mar-Apr 2016
Phase 2 Injection: Jul-Oct 2017
PCE RG = 370
May-05
Oct-06
Feb-08
Jul-09
Nov-10
Apr-12
Aug-13
Dec-14
May-16
Sep-17
Feb-19
Date
PCE
TCE
cis-DCE
VC
TOC
*Data provided by AECOM October 2018



Data provided by AECOM, October 2018

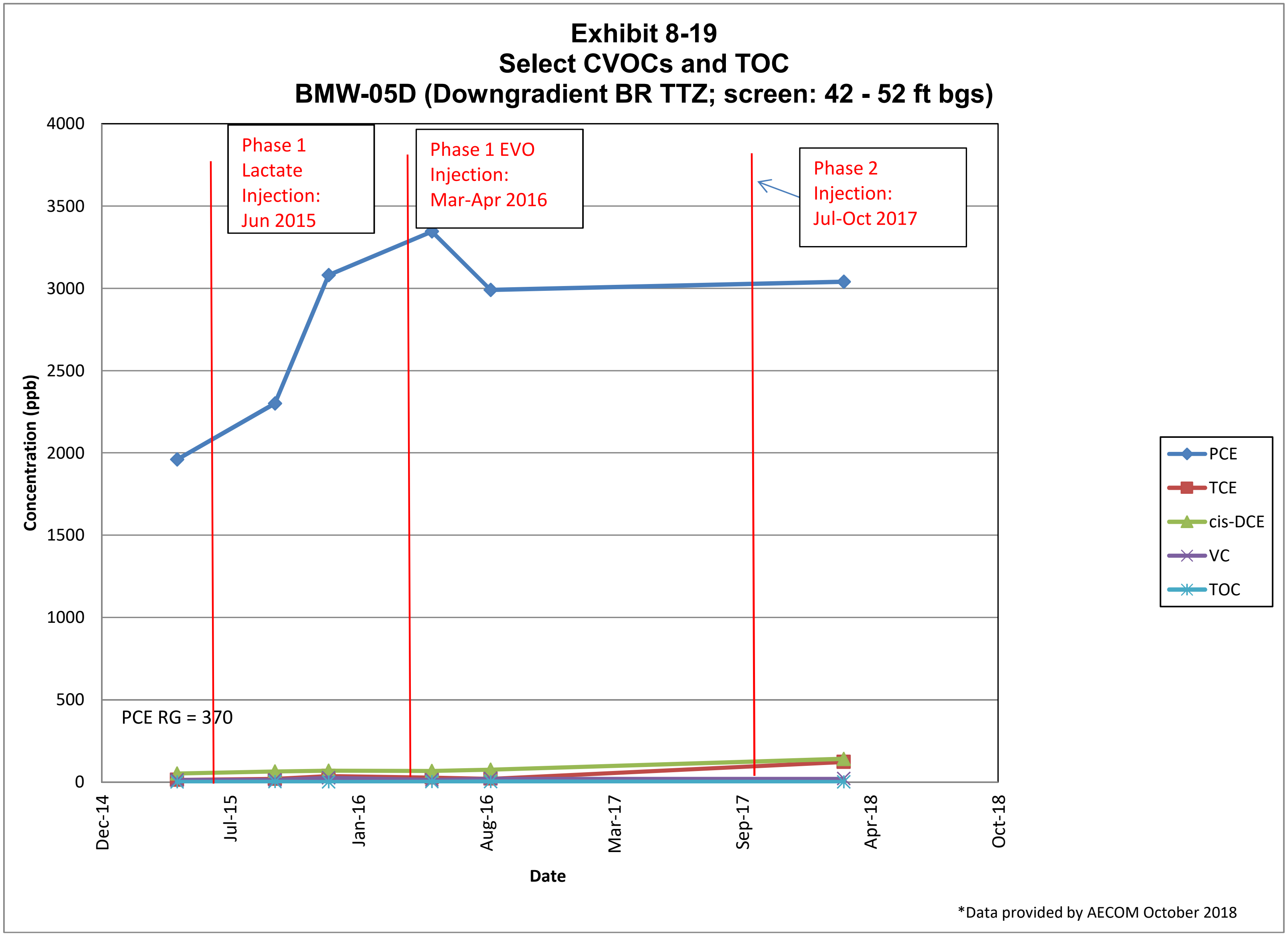


Exhibit 8-19
Select CVOCs and TOC
BMW-05D (Downgradient BR TTZ; screen: 42 - 52 ft bgs)
Phase 1 Lactate Injection: Jun 2015
Phase 1 EVO Injection: Mar-Apr 2016
Phase 2 Injection: Jul-Oct 2017
Concentration (ppb)
4000
3500
3000
2500
2000
1500
1000
500
0
PCE RG = 370
Dec-14
Jul-15
Jan-16
Aug-16
Mar-17
Sep-17
Apr-18
Oct-18
Date
PCE
TCE
cis-DCE
VC
TOC
*Data provided by AECOM October 2018

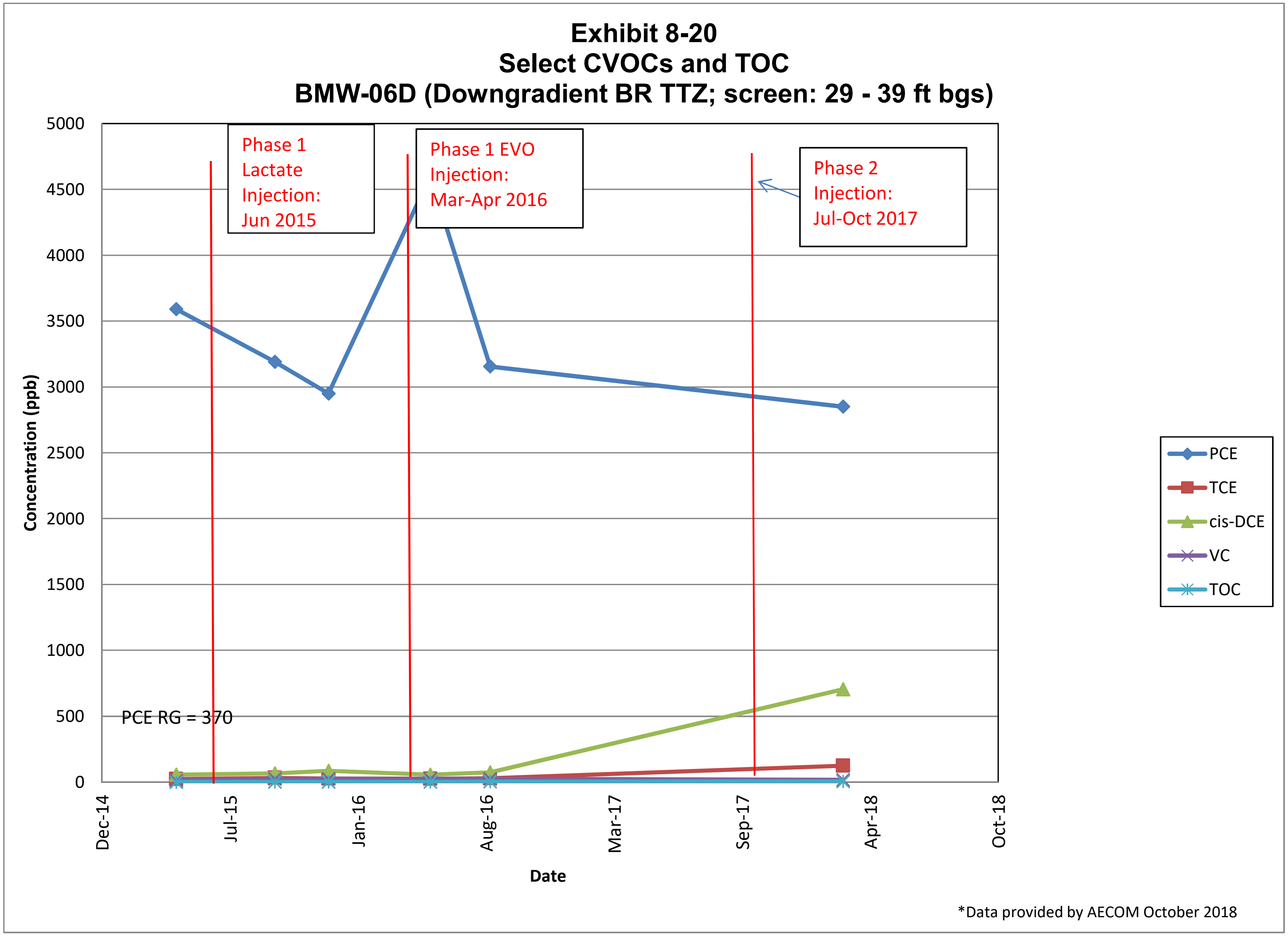


Exhibit 8-20
Select CVOCs and TOC
BMW-06D (Downgradient BR TTZ; screen: 29 - 39 ft bgs)
Concentration (ppb)
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Phase 1
Lactate
Injection:
Jun 2015
Phase 1 EVO
Injection:
Mar-Apr 2016
Phase 2
Injection:
Jul-Oct 2017
PCE RG = 370
Dec-14
Jul-15
Jan-16
Aug-16
Mar-17
Sep-17
Apr-18
Oct-18
Date
PCE
TCE
cis-DCE
VC
TOC
*Data provided by AECOM October 2018

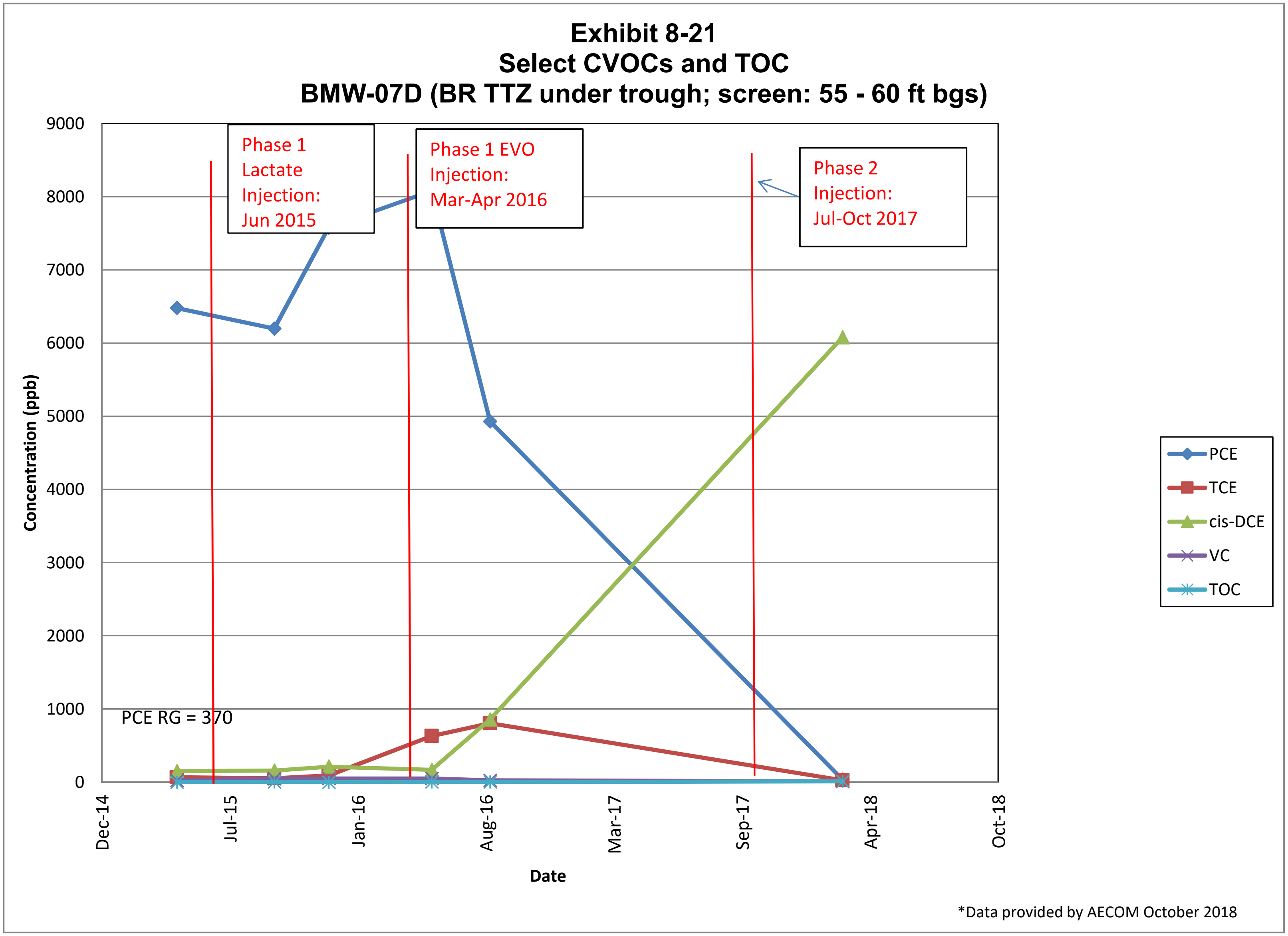


Exhibit 8-21
Select CVOCs and TOC
BMW-07D (BR TTZ under trough; screen: 55 - 60 ft bgs)
Phase 1 Lactate Injection: Jun 2015
Phase 1 EVO Injection: Mar-Apr 2016
Phase 2 Injection: Jul-Oct 2017
PCE RG = 370
Concentration (ppb)
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
Dec-14
Jul-15
Jan-16
Aug-16
Mar-17
Sep-17
Apr-18
Oct-18
Date
PCE
TCE
cis-DCE
VC
TOC
*Data provided by AECOM October 2018

APPENDIX A
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APPENDIX B
WEST GATE LANDFILL

B-1 SITE CHRONOLOGY
B-2 BACKGROUND
B-3 SURFACE WATER AND SEDIMENT RESULTS
B-4 SITE INSPECTION REPORT AND PHOTOGRAPHS
B-5 ARAR TABLES

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APPENDIX B-1
SITE CHRONOLOGY

APPENDIX B-1

TABLE B-1: CHRONOLOGY OF SITE EVENTS, IR PROGRAM SITE 1 – WEST GATE LANDFILL

WGL Event	Date
WGL is used as a domestic waste landfill	1940 – 1972
PA performed by Argonne National Laboratory	March 1988
SI completed by Baker Environmental, Inc.	December 1991
NAS South Weymouth is placed on the NPL	May 1994
WGL Phase I RI Study completed by Brown & Root Environmental and ENSR	May 1996
WGL Phase II RI completed by Tetra Tech NUS and ENSR	April 2002
Final RI completed	April 2002
FS completed by Tetra Tech NUS and ENSR	January 2003
Proposed Plan	May 2007
ROD signed	September 2007
Pre-Design Investigation (PDI) Quality Assurance Project Plan (QAPP)	February 2009
PDI completed	September 2010
Memorandum for the Record – Minor design change to the landfill cover materials	May 2010
Explanation of Significant Differences (ESD)	September 2010
Final 100% Remedial Design Work Plan (RDWP), WGL	September 2010
Landfill cap construction complete	July 2011
Land Use Controls Implementation Plan (LUCIP), WGL	August 2011
Post Closure Maintenance and Environmental Monitoring Plan (PCMEMP), Rev. 1	December 2011
Final Sampling and Analysis Plan (SAP)	January 2012
Revised SAP	May 2012
Operations and Maintenance (O&M) activities (facility inspections)	On-going (quarterly for first year)
Fall 2011 Post-Remediation Wetland Inspection	September 2011
Land Use Control (LUC) Inspection, 2011	November 2011
Long-term monitoring (LTM) First Round, 2011	December 2011
LTM Second Round, 2012	March 2012
Spring 2012 Post-Remediation Wetland Inspection	March 2012
LTM Third Round, 2012	July 2012
LTM Fourth Round, 2012	September 2012
Fall 2012 Post-Remediation Wetland Inspection	September 2012
Annual LUC Inspection, 2012	November 2012
LTM First Round, 2013	December 2012

APPENDIX B-1

TABLE B-1: CHRONOLOGY OF SITE EVENTS, IR PROGRAM SITE 1 – WEST GATE LANDFILL

WGL Event	Date
LTM Second Round, 2013	March 2013
Spring 2013 Post-Remediation Wetland Inspection	June 2013
LTM Third Round, 2013	June 2013
Fall 2013 Post-Remediation Wetland Inspection	September 2013
LTM Fourth Round, 2013	September 2013
Annual LUC Inspection, 2013	November 2013
LTM First Round, 2014	December 2013
LTM Second Round, 2014	April 2014
Spring 2014 Post-Remediation Wetland Inspection	June 2014
LTM Third Round, 2014	June 2014
LTM Fourth Round, 2014	September 2014
Fall 2014 Post-Remediation Wetland Inspection	October 2014
Annual LUC Inspection, 2014	November 2014
LTM First Round, 2015	December 2014
LTM Second Round, 2015	April 2015
LTM Third Round, 2015	June 2015
LTM Fourth Round, 2015	September 2015
Annual LUC Inspection, 2015	September 2015
LTM First Round, 2016	December 2015
LTM Second Round, 2016	March 2016
Spring 2016 Post-Remediation Wetland Inspection	April 2016
LTM Third Round, 2016	June 2016
Memo for the Record Documentation of Administrative Change to the LTM Facility Inspection, LUC Inspection and Mowing Schedules for WGL and RDA	July 2016
Fall 2016 Post-Remediation Wetland Inspection	September 2016
LTM Fourth Round, 2016	September 2016
Annual LUC Inspection, 2016	November 2016
LTM First Round, 2017	December 2016
LTM Second Round, 2017	May 2017
LTM Third Round, 2017	July 2017
LTM Fourth Round, 2017	October 2017
Final SAP for WGL, RDA and Small Landfill	October 2017
Annual LUC Inspection, 2017	November 2017
LTM First Round, 2018	January 2018

APPENDIX B-1

TABLE B-1: CHRONOLOGY OF SITE EVENTS, IR PROGRAM SITE 1 – WEST GATE LANDFILL

WGL Event	Date
LTM Second Round, 2018	May 2018
LTM Third Round, 2018	July 2018
LTM Fourth Round, 2018	October 2018
First Annual Basewide PFOS and PFOA LUC Inspection, 2018	December 2018
Annual LUC Inspection, 2018	January 2019

APPENDIX B-2
BACKGROUND

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APPENDIX B-2
SITE BACKGROUND
IR PROGRAM SITE 1 – WEST GATE LANDFILL

Physical Characteristics

The WGL is a closed and capped landfill covering approximately 5 acres in the western portion of the Former NAS South Weymouth property, immediately south of Trotter Road and west of the abandoned north-south runway (Figure 2-1). The WGL is bounded on the northeast by wetlands along the west branch of French Stream and an adjoining drainage channel; on the south and southwest by forested, palustrine wetlands; on the northwest by woods; and on the north by an access road (Trotter Road) (Figure 2-1). The landfill is located within a cleared area in an otherwise wooded portion of the former NAS South Weymouth property.

Sand and gravel underlies the entire site and contains zones of fine-grained sand and silt. This sand and gravel unit corresponds to a mapped aquifer and is directly underlain by glacial till or bedrock (Tetra Tech NUS, 2002a). Groundwater flow throughout the WGL area is generally to the east from the upgradient western areas towards French Stream. Bedrock flow is also toward the east and French Stream.

There are no surface water bodies within the limits of the Site. Prior to capping, surface water from the WGL flowed to the east into French Stream and to the west and south into the adjacent wetlands. The design of the landfill cap included a low permeable liner over the waste material and grading of the cap materials such that surface water flows into the wetlands to the south and west of the landfill and not towards French Stream.

A locked, metal swing gate is located at the landfill entrance to the northeast. A 3.5 foot high wooden post and rail fence and storm water controls consisting of drainage swales and slope protection rip-rap enclose the landfill. A monitoring network, completed in June 2009 during the PDI, was established in and adjacent to the landfill.

Land and Resource Use

The reuse zoning for the WGL area is a combination of open space and mixed use which could allow a range of uses from residential, commercial, and retail uses such as convenience stores, restaurants, and shops to open space (SSTTDC, 2005).

History of Contamination

The WGL was active for approximately 30 years, from 1940s through 1972. The landfill was used primarily for domestic wastes, and occasionally other wastes generated onsite. Material observed within the landfill includes metal scraps, asphalt, bricks, concrete, plastic sheeting, wires, bottles, cans, metal wheel rims, rubber pieces, tubing, hoses, glass, and other general debris. There are no records of hazardous wastes, regulated under Subtitle C of the Resource Conservation and Recovery Act (RCRA), being disposed of at the WGL (Navy, 2003a).

Initial Response

The Navy has been conducting environmental investigations at the NAS South Weymouth property since 1988 through its IR Program (Brown & Root [B&R] Environmental, 1998). A PA, performed by Argonne National Laboratory in 1988 (Argonne, 1988), was followed by an SI which was completed in 1991 (Baker Environmental, 1991). The SI recommended that the WGL be further studied under the IR program as part of an RI. The Phase I RI was completed by B&R Environmental in 1998. Additional investigation was deemed necessary following completion of the Phase I RI, so a Phase II RI was conducted in 2002.

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APPENDIX B-3
SURFACE WATER AND SEDIMENT RESULTS

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Table B-3a: West Gate Landfill Surface Water Results

Sample ID	Location ID	Sample Date	DISSOLVED METALS (UG/L)																		
			ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	BORON	CADMIUM	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE	MERCURY	NICKEL	POTASSIUM	SELENIUM
PALs			87	NC	150	NC	NC	NC	0.25	NC	11	NC	9	1000	2.5	NC	NC	0.77	52	NC	5
WGL-SW-SW01-1211	WGL-SW-01	20111215	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW01-1211-F	WGL-SW-01	20111215	334	0.5 U	4 U	28.3	0.21 J	18 J	0.2 U	10300	4 U	1.1	2.8 U	4990	0.82 J	3180	550	0.1 U	1.8 U	1530 J	3 U
WGL-SW-SW01-0312	WGL-SW-01	20120314	264	0.5 U	4 U	31.2	0.18 J	--	0.2 UJ	11500	4 U	1.2	2.9 J	4770	0.62 J	3700	608	0.1 UJ	2.1	1430	0.37 J
WGL-SW-SW01-0712	WGL-SW-01	20120709	247	0.2 U	0.5 J	42	0.18 J	--	0.084 U	16200	0.64 J	1.3	1 J	9150	0.28 J	4950	1240	0.028 U	1.3	1510	0.28 J
WGL-SW-SW01-0912	WGL-SW-01	20120907	259 J	0.2 U	0.61 J	40	0.21 J	--	0.084 U	14300	1.3 J	1.4	1.7 J	8070 J	0.63 J	4300	1050	0.028 U	1.6	1560	0.35 J
WGL-SW-SW01-0912-D	WGL-SW-01	20120907	253	0.2 U	0.59 J	40.6	0.21 J	--	0.084 U	14900	0.94 J	1.5	1.5 J	8010	0.5 J	4260	1050	0.028 U	1.7	1560	0.32 J
WGL-SW-SW01-1212	WGL-SW-01	20121203	288	0.48 U	0.42 U	43.2	0.23 U	--	0.086 U	14000	0.9 U	1.5 J	1.6 U	6430 J	0.39 U	4600	799	0.028 U	2	1640	0.94 U
WGL-SW-SW01-1212-D	WGL-SW-01	20121203	300	0.53 U	0.5 U	43.6	0.23 U	--	0.084 U	13600	0.9 U	1.5 J	1.5 U	6300	0.42 U	4490	777	0.028 U	1.7	1600	0.87 U
WGL-SW-SW01-0313	WGL-SW-01	20130318	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW01-0313-D	WGL-SW-01	20130318	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW01-0613	WGL-SW-01	20130612	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW01-0613-D	WGL-SW-01	20130612	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW01-0913	WGL-SW-01	20130924	580	0.2 U	0.73 J	57.9	0.44 J	--	0.15 J	17200	1.4 J	1.7	5.5	8600	1.3	4880	989	0.028 U	2.5	1970	0.15 U
WGL-SW-SW01-0913-D	WGL-SW-01	20130924	432	0.2 U	0.65 J	54.5	0.38 J	--	0.14 J	16400	1.2 J	1.6	3.3	7380	0.5 J	4680	940	0.028 U	3.7	1910	0.15 U
WGL-SW-SW01-1213	WGL-SW-01	20131217	411	0.2 U	0.48 J	40.7	0.24 J	--	0.68 J	12000	0.99 J	1.8	0.23 U	4000	0.52 J	3980	573	0.028 U	2.5	1530	0.39 J
WGL-SW-SW01-1213-D	WGL-SW-01	20131217	414	0.2 U	0.4 J	42	0.24 J	--	0.51 J	12300	0.87 J	1.9	0.23 U	4030	0.53 J	4050	586	0.028 U	3.8	1570	0.38 J
WGL-SW-SW01-0414	WGL-SW-01	20140423	211	0.2 U	0.24 J	40.9	0.16 J	--	0.095 J	11300	0.16 U	1.3	2.3	3940	0.53 J	3600	496	0.028 U	1.6	1390	0.36 J
WGL-SW-SW01-0414-D	WGL-SW-01	20140423	218	0.27 J	0.22 J	41.6	0.16 J	--	0.11 J	11300	0.16 U	1.3	2.2	4000	0.54 J	3600	500	0.028 U	1.6	1370	0.33 J
WGL-SW-SW01-0614	WGL-SW-01	20140611	209	0.2 U	0.34 J	48.6	0.16 J	--	0.084 U	16100	0.64 J	1.5	1.1 J	8620	0.4 J	4800	1040	0.028 U	1.5	1670	0.15 U
WGL-SW-SW01-0614-D	WGL-SW-01	20140611	209	0.2 U	0.34 J	50.7	0.15 J	--	0.084 U	16200	0.96 J	1.6	1.8 J	8540	0.43 J	4870	1030	0.028 U	5.2	1750	0.15 U
WGL-SW-SW01-0914	WGL-SW-01	20140924	208	0.2 U	0.72 J	73.9	0.2 J	--	0.11 J	21300	0.16 U	2.4	1.1 J	10100	0.33 J	6000	1380	0.028 UN	2.4	2070	0.15 U
WGL-SW-SW01-0914-D	WGL-SW-01	20140924	213	0.2 U	0.53 J	75.3	0.2 J	--	0.084 U	22000	0.16 U	2.5	1.1 J	10400	0.21 J	6180	1420	0.028 UN	2.4	2130	0.15 U
WGL-SW-SW01-0415	WGL-SW-01	20150407	206 J	0.2 U	0.32 J	33.4 J	0.11 J	--	0.12 J	9670 J	0.21 J	0.95 J	2.7 J	2250 J	0.77 J	2680 J	357 J	0.028 U	1.3 J	1510 J	0.3 J
WGL-SW-SW01-0415-D	WGL-SW-01	20150407	210 J	0.2 U	0.26 J	34.1 J	0.12 J	--	0.13 J	9840 J	0.34 J	1.2 J	5.9 J	2380 J	1.1 J	2730 J	364 J	0.028 U	2 J	1560 J	0.32 J
WGL-SW-SW01-0915	WGL-SW-01	20150923	90.1 J	0.2 U	0.98 J	65.3 J	0.13 J	--	0.084 U	23400 J	0.42 J	0.76 J	0.78 J	7290 J	0.081 J	5880 J	785 J	0.028 U	1.4 J	2460 J	0.26 J
WGL-SW-SW01-0915-D	WGL-SW-01	20150923	93.5 UB	0.2 U	0.93 J	65.3 J	0.13 J	--	0.084 U	23200 J	0.41 J	0.78 J	0.61 J	7300 J	0.075 J	5830 J	786 J	0.028 U	1.1 J	2420 J	0.33 J
WGL-SW-SW01-0316	WGL-SW-01	20160330	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW01-0916	WGL-SW-01	20160921	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW01-0916-D	WGL-SW-01	20160921	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW01-0517	WGL-SW-01	20170505	240	1.5 U	3 U	66	0.4 U	--	0.4 U	16000	4 U	2.3	3.3 J	4600	2.5 U	5400	810	0.2 U	2.6 J	1900	2.5 U
WGL-SW-SW01-1017	WGL-SW-01	20171024	210	1.5 U	3 U	110	0.4 U	--	0.4 U	28000	4 U	2.6	4 U	19000	2.5 U	7600	1900	0.2 U	5 U	2900	2.5 U
WGL-SW01-052218	WGL-SW-01	20180522	290	1.5 U	3 U	46	0.4 U	--	0.4 U	12000	4 U	1.7	3 J	4100	1.2 J	4200	630	0.2 U	2.1 J	1800	2.5 U

Table B-3a: West Gate Landfill Surface Water Results

Sample ID	Location ID	Sample Date	DISSOLVED METALS (UG/L)																				
			ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	BORON	CADMIUM	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE	MERCURY	NICKEL	POTASSIUM	SELENIUM
PALs			87	NC	150	NC	NC	NC	0.25	NC	11	NC	9	1000	2.5	NC	NC	0.77	52	NC	5
WGL-SW-SW02-1211	WGL-SW-02	20111215	**229**	0.5 U	4 U	**49.4**	**0.36 J**	**25.2 J**	**0.26 J**	**13500**	4 U	**2.2**	**6.2**	**2450**	**0.65 J**	**3140**	**433**	0.1 U	**4**	**3000 J**	**0.43 J**
WGL-SW-SW02-1211-D		20111215	**237**	0.5 U	4 U	**49.2**	**0.39 J**	**23.2 J**	**0.28 J**	**13000**	4 U	**2**	**7.6**	**2590**	**0.67 J**	**3090**	**434**	0.1 U	**3.5**	**2890 J**	**0.45 J**
WGL-SW-SW02-0312		20120313	**146**	0.5 U	4 U	**43.2**	**0.23 J**	--	**0.1 J**	**11300**	4 U	**1.3**	**4**	**2500**	**1.2**	**3120**	**453**	0.1 UJ	**2.4**	**2240**	**0.76 J**
WGL-SW-SW02-0712		20120710	**111 J**	0.2 U	0.19 U	**35.3 J**	**0.37 J**	--	**0.16 J**	**10800 J**	**0.72 J**	**1.6 J**	**7 J**	**857 J**	**0.25 J**	**2350 J**	**209 J**	0.028 U	**2.6 J**	**2490**	**0.34 J**
WGL-SW-SW02-0712-D		20120710	**104**	0.2 U	0.19 U	**31.9**	**0.36 J**	--	**0.17 J**	**10300**	**0.56 J**	**1.4**	**7**	**594**	**0.34 J**	**2190**	**148**	0.028 U	**2.5**	**2540**	**0.31 J**
WGL-SW-SW02-0912		20120907	**128**	0.2 U	**0.27 J**	**34.9**	**0.43 J**	**34.3 J**	**0.18 J**	**11700**	**1.5 J**	**1.9**	**7.2**	**1040**	**0.27 J**	**2380**	**296**	**0.03 J**	**3.3**	**2550**	**0.4 J**
WGL-SW-SW02-1212		20121203	**174**	0.74 U	0.34 U	**49.8**	0.55 U	--	0.21 U	**17200**	2 U	**2.8 J**	**10.5**	**1320**	0.29 U	**3590**	**418**	0.028 U	**9.6**	**3020**	0.95 U
WGL-SW-SW02-0313		20130318	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW02-0613		20130612	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW02-0913		20130924	**105**	0.2 U	**0.22 J**	**67.4**	**0.5 J**	--	**0.3 J**	**28500**	**0.93 J**	**4.7**	**3.1**	**1420**	**0.2 J**	**5550**	**405**	0.028 U	**7.8**	**3930**	0.15 U
WGL-SW-SW02-1213		20131217	**158**	**0.25 J**	**0.52 J**	**50.4**	**0.43 J**	--	**0.15 J**	**22400**	**2**	**5.1**	0.23 U	**1150**	**0.38 J**	**3790**	**463**	0.028 U	**8.2**	**3630**	**0.52 J**
WGL-SW-SW02-0414		20140423	**131**	0.2 U	**0.35 J**	**42.5**	**0.23 J**	--	**0.15 J**	**13300**	**0.24 J**	**1.5**	**4.2**	**1540**	**0.33 J**	**3230**	**362**	0.028 U	**2.5**	**2130**	0.15 U
WGL-SW-SW02-0614		20140611	**112**	0.2 U	**0.27 J**	**52.9**	**0.22 J**	--	**0.1 J**	**16000**	**0.97 J**	**3.3**	**2.6**	**3670**	**0.24 J**	**3660**	**644**	0.028 U	**5.4**	**2420**	0.15 U
WGL-SW-SW02-0914		20140924	**137**	0.2 U	**0.49 J**	**81.8**	**0.13 J**	--	**0.13 J**	**22400**	0.16 U	**2.5**	**2.1**	**5400**	**0.32 J**	**5560**	**1210**	0.028 UN	**2.8**	**2920**	0.15 U
WGL-SW-SW02-0415		20150407	**166 J**	0.2 U	**0.41 J**	**41.7 J**	**0.11 J**	--	**0.13 J**	**11600 J**	**0.2 J**	**1.2 J**	**2.2 J**	**2130 J**	**0.38 J**	**2960 J**	**405 J**	0.028 U	**1.4 J**	**1760 J**	**1.1 J**
WGL-SW-SW02-0915		20150923	45.4 UB	0.2 U	**0.72 J**	**74.9 J**	**0.13 J**	--	0.084 U	**20800 J**	**0.34 J**	**1.9 J**	**1.1 J**	**4350 J**	**0.068 J**	**5280 J**	**838 J**	0.028 U	**1.8 J**	**2500 J**	**0.24 J**
WGL-SW-SW02-0316		20160330	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW02-0916		20160921	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW02-0517		20170508	**200**	1.5 U	3 U	**72**	0.4 U	--	**0.16 J**	**16000**	4 U	**2.1**	**3.3 J**	**3500**	2.5 U	**4700**	**700**	0.2 U	**2.6 J**	**2300**	2.5 U
WGL-SW-SW02-1017		20171024	**110**	1.5 U	3 U	**120**	0.4 U	--	0.4 U	**25000**	4 U	**3.2**	4 U	**9300**	2.5 U	**6400**	**1400**	0.2 U	**2.1 J**	**3300**	2.5 U
WGL-SW02-052118		20180521	**290**	1.5 U	3 U	**78**	0.4 U	--	0.4 U	**16000 J**	**1.7 J**	**3**	**3.7 J**	**4500**	**1 J**	**5200**	**780**	0.2 U	**2.2 J**	**2400**	2.5 U
WGL-SW02-052118-D		20180521	**260**	1.5 U	3 U	**69**	0.4 U	--	0.4 U	**14000 J**	4 U	**2.7**	**5.4**	**4000**	**1.2 J**	**4600**	**720**	0.2 U	**2.2 J**	**2200**	2.5 U

Sample ID	Location ID	Sample Date	DISSOLVED METALS (UG/L)																		
			ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	BORON	CADMIUM	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE	MERCURY	NICKEL	POTASSIUM	SELENIUM
PALs			87	NC	150	NC	NC	NC	0.25	NC	11	NC	9	1000	2.5	NC	NC	0.77	52	NC	5
WGL-SW-SW03-1211	WGL-SW-03	20111215	263	0.5 U	4 U	47.6	0.27 J	21.7 J	0.22 U	12200	4 U	1.8	2.7 U	3480	0.62 U	3370	525	0.1 U	2.8	2100 J	0.45 J
WGL-SW-SW03-0312		20120313	200	0.5 U	4 U	52.4	0.32 J	--	0.09 J	12800	4 U	3.4	3.5	3010	0.45 J	3580	483	0.1 UJ	4.1	2300	0.71 J
WGL-SW-SW03-0712		20120710	103	0.35 J	0.32 J	84.9	0.22 J	--	0.2 J	23700	0.89 J	5.7	4.9	949	0.35 J	4510	94.2	0.028 U	3.8	3990	0.22 J
WGL-SW-SW03-0912		20120907	121	0.2 U	0.31 J	55	0.26 J	35 J	0.1 J	16100	0.93 J	3.4	2.3	4160	0.16 J	3270	389	0.19 J	5.8	2980	0.24 J
WGL-SW-SW03-1212		20121203	275	0.58 U	0.42 U	81.2	0.89 U	--	0.29 U	15400	2 U	14.8 J	6.1	3230	0.52 U	4210	135	0.13 U	11.5	4000	0.87 U
WGL-SW-SW03-1212-D		20121203	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW03-0313		20130318	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW05-0313		20130318	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW03-0613		20130612	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW03-0913		20130924	272	0.2 U	0.47 J	57.3	0.76 J	--	0.084 U	12600	1.8 J	6.3	4	4980	0.32 J	3290	539	0.028 U	7.1	2230	0.15 U
WGL-SW-SW03-1213		20131217	151	0.22 J	0.55 J	49.6	0.43 J	--	0.12 J	21900	2	4.7	0.23 U	1100	0.34 J	3700	452	0.028 U	5.1	3430	0.5 J
WGL-SW-SW03-0414		20140423	187	0.2 U	0.4 J	44.3	0.33 J	--	0.16 J	11700	0.49 J	4.1	4.3	2120	0.6 J	3060	287	0.028 U	3.3	1990	0.15 U
WGL-SW-SW03-0614		20140611	372	0.2 U	0.56 J	72.2	1	--	0.084 U	12500	2.5	14.1	3.8	4970	0.65 J	3230	190	0.028 U	14.3	3210	0.15 U
WGL-SW-SW03-0914		20140924	313	0.2 U	0.51 J	71.1	1.3	--	0.084 U	10800	3.2	13.4	2.8	3830	0.36 J	2730	188	0.028 UN	12.3	2920	0.15 U
WGL-SW-SW03-0415		20150407	168 J	0.2 U	0.48 J	47.4 J	0.2 J	--	0.12 J	11800 J	0.24 J	3.3 J	1.9 J	2170 J	0.29 J	3020 J	380 J	0.028 U	2.5 J	1910 J	1.1 J
WGL-SW-SW03-0915		20150923	43.8 UB	0.2 U	0.46 J	74.5 J	0.13 J	--	0.098 J	20600 J	0.49 J	2.2 J	1.5 J	3760 J	0.09 J	5190 J	786 J	0.028 U	1.8 J	2560 J	0.35 J
WGL-SW-SW03-0316		20160330	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW03-0916		20160921	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW03-0517		20170508	230	1.5 U	3 U	75	0.4 U	--	0.4 U	17000	4 U	2.4	3.2 J	3900	2.5 U	5100	730	0.2 U	2.4 J	2200	2.5 U
WGL-SW03-0517-D		20170508	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW03-0517-F-D		20170508	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW03-1017		20171024	410	1.5 U	2.3 J	130	0.35 J	--	0.4 U	26000	1.7 J	4.2	4.2 J	16000	2.5	6300	1300 J	0.2 U	3 J	3500	1.3 J
WGL-SW-SW03-1017-D		20171024	450	1.5 U	2.5 J	120	0.33 J	--	0.4 U	25000	1.9 J	4	4.1 J	16000	2.5	5900	1300 J	0.2 U	2.9 J	3400	2.5 U
WGL-SW03-052118		20180521	210	1.5 U	3 U	66	0.4 U	--	0.4 U	14000 J	4 U	2.7	2.9 J	3300	2.5 U	4500	700	0.2 U	2.1 J	2200	2.5 U

Sample ID	Location ID	Sample Date	DISSOLVED METALS (UG/L) ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	BORON	CADMIUM	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE	MERCURY	NICKEL	POTASSIUM	SELENIUM
PALs			87	NC	150	NC	NC	NC	0.25	NC	11	NC	9	1000	2.5	NC	NC	0.77	52	NC	5
WGL-SW-SW04-1211	WGL-SW-04	20111213	**373**	0.5 U	4 U	**55.8**	**0.5 J**	**22 J**	**0.18 J**	**12000**	4 U	**4.2**	**3.2**	**4810**	**0.68 J**	**3010**	**356**	0.1 U	**3.1**	**2330**	**0.94 J**
WGL-SW-SW04-0312		20120313	**198**	0.5 U	4 U	**48**	**0.2 J**	--	**0.09 J**	**13300**	4 U	**1.9**	2.2 U	**3990**	**0.49 J**	**3760**	**557**	0.1 UJ	**2.9**	**2130**	**0.59 J**
WGL-SW-SW04-0312-D		20120313	**200**	0.5 U	4 U	**47.2**	**0.22 J**	--	**0.1 J**	**12600**	4 U	**1.8**	2.1 U	**3850**	**0.44 J**	**3630**	**530**	0.1 UJ	**2.4**	**2060**	**0.71 J**
WGL-SW-SW04-0712		20120711	**150**	0.2 U	**0.33 J**	**54.8**	**0.19 J**	--	**0.14 J**	**14200**	**0.54 J**	**2**	**1.5 J**	**3860**	**0.16 J**	**3780**	**743**	0.028 U	**1.9**	**2100**	**0.26 J**
WGL-SW-SW04-0912		20120907	**304**	0.2 U	**0.49 J**	**51.8**	**0.47 J**	--	**0.1 J**	**13700**	**1.7 J**	**4**	**3.1**	**4830**	**0.43 J**	**3420**	**568**	**0.74**	**2.8**	**2320**	**0.38 J**
WGL-SW-SW04-1212		20121203	**669**	0.98 U	0.9 U	**67.6**	0.86 U	--	0.18 U	**13700**	**3**	**5.4**	**5.1**	**9610**	**3**	**3950**	**461**	0.028 U	**3.9**	**2550**	0.97 U
WGL-SW-SW04-0313		20130318	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW06-0313		20130318	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW04-0613		20130612	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW04-0913		20130924	**797**	0.2 U	**1.2 J**	**48**	**1.5**	--	**0.17 J**	**8900**	**4.7**	**5.6**	**7.4**	**10200**	**1**	**1980**	**124**	0.028 U	**4.1**	**2340**	0.15 U
WGL-SW-SW04-1213		20131217	**719**	0.2 U	**0.97 J**	**51.3**	**1.2**	--	**0.12 J**	**12100**	**4.9**	**6.3**	0.23 U	**6390**	**1.2**	**3050**	**216**	0.028 U	**6.7**	**2230**	**0.84 J**
WGL-SW-SW04-0414		20140423	**209**	0.2 U	**0.55 J**	**42**	**0.29 J**	--	**0.097 J**	**12400**	**0.66 J**	**2.1**	**1.9 J**	**3120**	**0.31 J**	**3200**	**338**	0.028 U	**2.1**	**1840**	0.15 U
WGL-SW-SW04-0614		20140611	**148**	0.2 U	**0.42 J**	**55.1**	**0.2 J**	--	0.084 U	**14700**	**0.81 J**	**2.4**	**1.8 J**	**5440**	**0.29 J**	**3970**	**737**	0.028 U	**3.9**	**2200**	0.15 U
WGL-SW-SW04-0914		20140924	**108**	0.2 U	**0.53 J**	**77.3**	**0.18 J**	--	**0.13 J**	**21100**	0.16 U	**2.9**	**1.8 J**	**5350**	**0.22 J**	**5300**	**1040**	0.028 UN	**2.9**	**3070**	0.15 U
WGL-SW-SW04-0415		20150407	**179 J**	0.2 U	**0.58 J**	**45.8 J**	**0.15 J**	--	**0.15 J**	**12200 J**	**0.35 J**	**2.3 J**	**2.3 J**	**2250 J**	**0.35 J**	**3110 J**	**393 J**	0.028 U	**2.2 J**	**2030 J**	**1.1 J**
WGL-SW-SW04-0915		20150923	87.7 UB	0.2 U	**0.58 J**	**71.2 J**	**0.15 J**	--	**0.09 J**	**19700 J**	**0.72 J**	**2.5 J**	**1.2 J**	**3920 J**	**0.12 J**	**4950 J**	**702 J**	0.028 U	**2.2 J**	**2610 J**	**0.31 J**
WGL-SW-SW04-0316		20160330	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW04-0916		20160921	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW04-0517		20170508	**200**	1.5 U	3 U	**72**	0.4 U	--	0.4 U	**16000**	4 U	**2.8**	**2.8 J**	**3700**	2.5 U	**4700**	**630**	0.2 U	**2.5 J**	**2200**	2.5 U
WGL-SW-SW04-1017		20171023	**120**	1.5 U	3 U	**100**	**0.31 J**	--	0.4 U	**24000**	4 U	**3.9**	4 U	**6400**	2.5 U	**5800**	**1100 J**	0.2 U	**2.3 J**	**3600**	2.5 U
WGL-SW04-052118		20180521	**200**	1.5 U	3 U	**60**	0.4 U	--	0.4 U	**13000 J**	**2 J**	**2.6**	**2.8 J**	**3300**	2.5 U	**4200**	**630**	0.2 U	**2 J**	**2200**	2.5 U
WGL-SW-SW05-1211	WGL-SW-05	20111213	**72.8**	0.5 U	4 U	**19.5**	0.2 U	**13.8 J**	0.2 U	**12700**	4 U	**0.09 J**	**13.1**	**364**	**0.95 J**	**2390**	**33.9**	0.1 U	**1.2 J**	**6100**	**0.46 J**
WGL-SW-SW05-0613		20130612	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW05-0414		20140423	**94.5**	**0.23 J**	--	**14.2**	0.072 U	--	0.084 U	**11700**	0.16 U	**0.11 J**	--	**182 J**	**0.55 J**	--	**8.5**	0.028 U	**0.98 J**	**3590**	**0.36 J**
WGL-SW-SW05-0415		20150407	**93.4 J**	0.2 U	**0.37 J**	**7.1 J**	**0.18 J**	--	0.084 U	**13300 J**	**0.3 J**	**0.29 J**	**3.6 J**	**51.5 J**	**0.33 J**	**2770 J**	**82.5 J**	0.028 U	**3.4 J**	**2990 J**	**0.26 J**
WGL-SW05-0517		20170508	**91 J**	1.5 U	3 U	**23**	0.4 U	--	0.4 U	**15000**	4 U	0.3 U	**9.5**	**310**	2.5 U	**2400**	**17**	0.2 U	5 U	**3800**	2.5 U
WGL-SW-SW06-1211	WGL-SW-06	20111214	**161**	0.5 U	4 U	**27**	**0.13 J**	**15.8 J**	**0.07 J**	**11000**	4 U	**0.43 J**	**14 J**	**512**	**1.9**	**1890**	**123**	**0.01 J**	1.2 U	**3160 J**	**0.35 J**
WGL-SW-SW06-0312		20120314	**268**	0.5 U	4 U	**24.3**	**0.12 J**	--	0.2 UJ	**12700**	4 U	**1.2**	**5.1**	**1500**	**2.1**	**2350**	**65**	0.1 UJ	**2**	**3560**	**0.59 J**
WGL-SW-SW06-0613		20130612	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW06-0614		20140611	**125**	**0.25 J**	**1.2 J**	**39.7**	0.072 U	--	**0.31 J**	**19500**	**0.48 J**	**1**	**4.4**	**733**	**1.2**	**3570**	**68.4**	0.028 U	**2.3**	**4190**	0.15 U
WGL-SW-SW06-0415		20150407	**69.5 J**	0.2 U	**0.35 J**	**5.7 J**	**0.11 J**	--	0.084 U	**12600 J**	**0.33 J**	**0.25 J**	**2.9 J**	**60 J**	**0.15 J**	**2660 J**	**96.5 J**	0.028 U	**1.6 J**	**2920 J**	**0.26 J**
WGL-SW-SW06-0316		20160330	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW06-0517		20170509	**130**	1.5 U	3 U	**31**	0.4 U	--	0.4 U	**17000**	4 U	**0.33 J**	**17**	**650**	**1.6 J**	**2800**	**68**	0.2 U	5 U	**4000**	2.5 U
WGL-SW06-052218		20180522	**180**	1.5 U	3 U	**37**	0.4 U	--	0.4 U	**16000**	4 U	**0.96**	**9.1**	**1100**	**2.1 J**	**2700**	**210**	0.2 U	5 U	**3500**	2.5 U

Sample ID	Location ID	Sample Date	DISSOLVED METALS (UG/L)																		
			ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	BORON	CADMIUM	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE	MERCURY	NICKEL	POTASSIUM	SELENIUM
PALs			87	NC	150	NC	NC	NC	0.25	NC	11	NC	9	1000	2.5	NC	NC	0.77	52	NC	5
WGL-SW-SW07-1211	WGL-SW-07	20111213	40 U	0.5 U	4 U	**9.1**	0.2 U	**10.2 J**	0.2 U	**13100**	4 U	**0.21 J**	**7.9**	**246**	**0.45 J**	**2210**	**86.4**	0.1 U	**2.2 J**	**4020**	**0.35 J**
WGL-SW-SW07-0312	WGL-SW-07	20120313	53.3 U	0.5 U	4 U	**12.4**	0.2 U	--	0.2 UJ	**38000**	4 U	**0.5 J**	**2.5 J**	**269**	**0.41 J**	**6770**	**129**	0.1 UJ	1.5 U	**8200**	**0.2 J**
WGL-SW-SW07-0912	WGL-SW-07	20120911	**9.8 J**	0.2 U	**1.4 J**	**26.4**	0.072 U	--	**0.11 J**	**38000**	**0.28 J**	**0.18 J**	**4.1**	14 U	**0.085 J**	**6010**	**12.4**	0.028 U	**1.3**	**11000**	**0.25 J**
WGL-SW-SW07-1212	WGL-SW-07	20121203	15.3 U	1 U	7.7 U	**62.3**	0.36 U	--	0.42 U	**169000**	0.8 U	2.8 U	1.9 U	**1570**	0.34 U	**36200**	**825**	0.083 U	2.8 U	**21600**	2.4 U
WGL-SW-SW07-0313	WGL-SW-07	20130318	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW07-0613	WGL-SW-07	20130612	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW07-0414	WGL-SW-07	20140423	**50.7**	**0.22 J**	**1.5 J**	**15.7**	0.072 U	--	0.084 U	**23100**	0.16 U	**0.46 J**	**12.7**	**351**	**0.54 J**	**4600**	**94.4**	0.028 U	**1.1**	**6290**	**0.32 J**
WGL-SW-SW07-0614	WGL-SW-07	20140611	**12.9 J**	**0.32 J**	**2.4**	**14.2**	0.072 U	--	**0.17 J**	**36500**	**0.32 J**	**0.43 J**	**3.1**	**168 J**	**0.53 J**	**6140**	**35.5**	0.028 U	**5.1**	**770**	0.15 U
WGL-SW-SW07-0415	WGL-SW-07	20150407	**63.4 J**	0.2 U	**0.51 J**	**5.6 J**	**0.12 J**	--	0.084 U	**13300 J**	**0.33 J**	**0.39 J**	**2.6 J**	**44 J**	**0.16 J**	**2820 J**	**117 J**	0.028 U	**1.7 J**	**3020 J**	**0.32 J**
WGL-SW-DUP01-0316	WGL-SW-07	20160330	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW07-0316	WGL-SW-07	20160330	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW07-0517	WGL-SW-07	20170509	**24 J**	1.5 U	**2.2 J**	**17**	0.4 U	--	0.4 U	**51000**	4 U	**0.25 J**	**4.2 J**	**130**	2.5 U	**10000**	**66**	0.2 U	5 U	**7300**	2.5 U
WGL-SW07-052218	WGL-SW-07	20180522	**23 J**	1.5 U	**2 J**	**9.6**	0.4 U	--	0.4 U	**26000**	4 U	**0.27 J**	**3.8 J**	**220**	2.5 U	**5100**	**51**	0.2 U	5 U	**3400**	2.5 U
WGL-SW-SW08-1211	WGL-SW-08	20111213	40 U	0.5 U	4 U	**4.6**	0.2 U	**7.4 J**	0.2 U	**8820**	4 U	**0.05 J**	**2.4 J**	**57.1 J**	**0.14 J**	**1700**	**5.9**	0.1 U	**1.2 J**	**3070**	**0.42 J**
WGL-SW-SW08-0312	WGL-SW-08	20120314	**80.6**	0.5 U	**3.8 J**	**90.8**	0.2 UJ	--	0.2 U	**180000**	4 U	**2.2**	**2.5 J**	**243**	**0.6 J**	**45800**	**1350**	0.1 UJ	**4.2**	**21100 J**	3 U
WGL-SW-SW08-0313	WGL-SW-08	20130318	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW08-0613	WGL-SW-08	20130612	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW08-0414	WGL-SW-08	20140423	**19.8 J**	**0.22 J**	**1.7 J**	**15.2**	0.072 U	--	0.084 U	**47300**	0.16 U	**0.4 J**	**4.6**	**203**	**0.27 J**	**10200**	**88.5**	0.028 U	**1.6**	**9660**	**0.33 J**
WGL-SW-SW08-0415	WGL-SW-08	20150407	**56.6 J**	0.2 U	**0.27 J**	**4.7 J**	**0.08 J**	--	0.084 U	**11800 J**	**0.31 J**	**0.23 J**	**2.7 J**	**38.1 J**	**0.25 J**	**2520 J**	**99.8 J**	0.028 U	**1.3 J**	**2870 J**	0.15 U
WGL-SW-SW08-0316	WGL-SW-08	20160330	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW08-0517	WGL-SW-08	20170509	**22 J**	1.5 U	3 U	**13**	0.4 U	--	0.4 U	**93000**	4 U	0.3 U	**6.7**	**50 J**	2.5 U	**20000**	**14**	0.2 U	**1.9 J**	**9200**	2.5 U
WGL-SW08-052218	WGL-SW-08	20180522	**20 J**	1.5 U	**2 J**	**5.4**	0.4 U	--	0.4 U	**34000**	4 U	**0.22 J**	**2.2 J**	**160**	2.5 U	**6700**	**47**	0.2 U	5 U	**550 J**	2.5 U

Sample ID	Location ID	Sample Date	DISSOLVED METALS (UG/L) SILVER	DISSOLVED METALS (UG/L) SODIUM	DISSOLVED METALS (UG/L) THALLIUM	DISSOLVED METALS (UG/L) VANADIUM	DISSOLVED METALS (UG/L) ZINC	FIELD (C) TEMPERATURE	FIELD (MG/L) DISSOLVED OXYGEN	FIELD (MG/L) FERROUS IRON	FIELD (MV) OXIDATION REDUCTION POTENTIA	FIELD (NTU) TURBIDITY	FIELD (S.U.) PH	FIELD (US/CM) SPECIFIC CONDUCTANCE	HERBICIDES (UG/L) 2,4-D	HERBICIDES (UG/L) MCPA
PALs			NC	NC	NC	NC	120	NC	NC	NC	NC	NC	NC	NC	NC	NC
WGL-SW-SW01-1211	WGL-SW-01	20111215	--	--	--	--	--	--	--	--	--	--	--	--	1.5 U	50 U
WGL-SW-SW01-1211-F		20111215	0.4 U	**25000**	0.4 U	**2.5 J**	**36**	--	--	--	--	--	--	--	--	--
WGL-SW-SW01-0312		20120314	0.4 U	**26000**	0.4 U	**1.8 J**	**26**	--	--	--	--	--	--	--	1.4 U	48 U
WGL-SW-SW01-0712		20120709	0.022 U	**21700**	0.048 U	**1.9 J**	**9.7**	--	--	--	--	--	--	--	0.67 U	55 U
WGL-SW-SW01-0912		20120907	**0.041 J**	**22700**	0.048 U	**2.3 J**	**13.1**	--	--	--	--	--	--	--	--	--
WGL-SW-SW01-0912-D		20120907	0.022 U	**22500**	0.048 U	**2.1 J**	**12.2**	--	--	--	--	--	--	--	0.67 UJ	55 UJ
WGL-SW-SW01-1212		20121203	0.022 U	**33900**	0.048 U	2.6 U	**19.7**	--	--	--	--	--	--	--	1 U	100 U
WGL-SW-SW01-1212-D		20121203	0.13 U	**33800**	0.048 U	2.6 U	**17**	--	--	--	--	--	--	--	1 U	100 U
WGL-SW-SW01-0313		20130318	--	--	--	--	--	--	--	--	--	--	--	--	0.67 UJ	55 UJ
WGL-SW-SW01-0313-D		20130318	--	--	--	--	--	--	--	--	--	--	--	--	0.67 UJ	55 UJ
WGL-SW-SW01-0613		20130612	--	--	--	--	--	--	--	--	--	--	--	--	0.67 R	55 R
WGL-SW-SW01-0613-D		20130612	--	--	--	--	--	--	--	--	--	--	--	--	0.67 UJ	55 UJ
WGL-SW-SW01-0913		20130924	**0.032 J**	**31500**	0.048 U	**4.2 J**	**14.5**	--	--	--	--	--	--	--	0.67 R	55 R
WGL-SW-SW01-0913-D		20130924	**0.026 J**	**30200**	0.048 U	**3.2 J**	**15.7**	--	--	--	--	--	--	--	0.67 R	55 R
WGL-SW-SW01-1213		20131217	0.022 U	**45200**	**0.053 J**	**2 J**	**32.8**	--	--	--	--	--	--	--	0.67 R	55 R
WGL-SW-SW01-1213-D		20131217	0.022 U	**46200**	0.048 U	**2.2 J**	**35.1**	--	--	--	--	--	--	--	0.67 R	55 R
WGL-SW-SW01-0414		20140423	**0.029 J**	**39700**	**0.084 J**	**1.3 J**	**25.5**	--	--	--	--	--	--	--	0.13 R	14 R
WGL-SW-SW01-0414-D		20140423	**0.025 J**	**40000**	0.048 U	**1.3 J**	**25.2**	--	--	--	--	--	--	--	0.13 R	14 R
WGL-SW-SW01-0614		20140611	0.022 U	**35200**	0.048 U	**1.6 J**	**13.6**	--	--	--	--	--	--	--	0.13 R	14 R
WGL-SW-SW01-0614-D		20140611	0.022 U	**36400**	**0.073 J**	**1.7 J**	**20.9**	--	--	--	--	--	--	--	0.13 R	14 R
WGL-SW-SW01-0914		20140924	0.022 U	**45400**	**0.22 J**	**1.6 J**	**13.8**	--	--	--	--	--	--	--	0.13 UJ	14 R
WGL-SW-SW01-0914-D		20140924	0.022 U	**46800**	**0.068 J**	**1.6 J**	**13.2**	--	--	--	--	--	--	--	0.13 U	14 R
WGL-SW-SW01-0415		20150407	0.022 U	**39000 J**	0.048 U	**1.8 J**	**33 J**	--	--	--	--	--	--	--	0.13 R	14 R
WGL-SW-SW01-0415-D		20150407	**0.038 J**	**39700 J**	**0.081 J**	**1.8 J**	**34.9 J**	--	--	--	--	--	--	--	0.13 R	14 R
WGL-SW-SW01-0915		20150923	0.022 U	**34000 J**	0.047 U	**1.7 J**	**7 J**	--	--	--	--	--	--	--	0.13 U	**98 J**
WGL-SW-SW01-0915-D		20150923	0.022 U	**33600 J**	**0.08 J**	**1.6 J**	**8.4 J**	--	--	--	--	--	--	--	0.13 U	**100 J**
WGL-SW-SW01-0316		20160330	--	--	--	--	--	--	--	--	--	--	--	--	0.0639 U	13.3 U
WGL-SW-SW01-0916		20160921	--	--	--	--	--	--	--	--	--	--	--	--	0.0618 R	12.9 R
WGL-SW-SW01-0916-D		20160921	--	--	--	--	--	--	--	--	--	--	--	--	0.0632 R	13.2 R
WGL-SW01-0517		20170505	0.3 U	**64000**	1 U	10 U	**39**	**10.24**	**7.62**	**3.7**	**55.6**	**1.71**	**7.44**	**598**	**0.38 J**	4.6 U
WGL-SW-SW01-1017		20171024	0.3 U	**73000**	1 U	10 U	20 U	**15.08**	**0.85**	**-99**	**3.6**	**34.6**	**6.06**	**512**	0.012 U	4.5 U
WGL-SW01-052218		20180522	0.3 U	**61000**	1 U	10 U	**26**	--	--	--	--	--	--	--	0.012 U	4.4 U

Sample ID	Location ID	Sample Date	DISSOLVED METALS (UG/L)					FIELD (C)	FIELD (MG/L)		FIELD (MV)	FIELD (NTU)	FIELD (S.U.)	FIELD (US/CM)	HERBICIDES (UG/L)	
			SILVER	SODIUM	THALLIUM	VANADIUM	ZINC	TEMPERATURE	DISSOLVED OXYGEN	FERROUS IRON	OXIDATION REDUCTION POTENTIA	TURBIDITY	PH	SPECIFIC CONDUCTANCE	2,4-D	MCPA
PALs			NC	NC	NC	NC	120	NC	NC	NC	NC	NC	NC	NC	NC	NC
WGL-SW-SW02-1211	WGL-SW-02	20111215	0.4 U	**55100**	0.4 U	**1.9 J**	**35.1**	--	--	--	--	--	--	--	1.5 UJ	50 UJ
WGL-SW-SW02-1211-D	WGL-SW-02	20111215	0.4 U	**54600**	0.4 U	**2.1 J**	**41.7**	--	--	--	--	--	--	--	1.5 U	50 U
WGL-SW-SW02-0312	WGL-SW-02	20120313	0.4 U	**47000**	0.4 U	**1.3 J**	**26.9**	--	--	--	--	--	--	--	1.5 U	49 U
WGL-SW-SW02-0712	WGL-SW-02	20120710	**0.047 J**	**56000**	0.048 U	0.61 UJ	**9.3 J**	--	--	--	--	--	--	--	0.67 U	55 U
WGL-SW-SW02-0712-D	WGL-SW-02	20120710	**0.049 J**	**59200**	0.048 U	0.61 U	**9.7**	--	--	--	--	--	--	--	0.67 U	55 U
WGL-SW-SW02-0912	WGL-SW-02	20120907	**0.082 J**	**47100**	0.048 U	**0.72 J**	**12.5**	--	--	--	--	--	--	--	0.67 UJ	55 UJ
WGL-SW-SW02-1212	WGL-SW-02	20121203	0.2 U	**54200**	0.048 U	1.4 U	**16.2**	--	--	--	--	--	--	--	1 U	100 U
WGL-SW-SW02-0313	WGL-SW-02	20130318	--	--	--	--	--	--	--	--	--	--	--	--	0.67 UJ	55 UJ
WGL-SW-SW02-0613	WGL-SW-02	20130612	--	--	--	--	--	--	--	--	--	--	--	--	0.67 UJ	55 UJ
WGL-SW-SW02-0913	WGL-SW-02	20130924	0.022 U	**82600**	0.048 U	**1.2 J**	**19.2**	--	--	--	--	--	--	--	0.67 R	55 R
WGL-SW-SW02-1213	WGL-SW-02	20131217	0.022 U	**68500**	0.048 U	**2.4 J**	**13.7**	--	--	--	--	--	--	--	0.67 R	55 R
WGL-SW-SW02-0414	WGL-SW-02	20140423	0.022 U	**47600**	0.048 U	**0.94 J**	**20.6**	--	--	--	--	--	--	--	0.13 R	14 R
WGL-SW-SW02-0614	WGL-SW-02	20140611	0.022 U	**50800**	0.048 U	**1.1 J**	**18.8**	--	--	--	--	--	--	--	0.13 R	14 R
WGL-SW-SW02-0914	WGL-SW-02	20140924	0.022 U	**62900**	0.048 U	0.61 U	**16.1**	--	--	--	--	--	--	--	0.13 UJ	14 R
WGL-SW-SW02-0415	WGL-SW-02	20150407	0.022 U	**43400 J**	0.048 U	**1.5 J**	**26.1 J**	--	--	--	--	--	--	--	0.13 R	14 R
WGL-SW-SW02-0915	WGL-SW-02	20150923	0.022 U	**47200 J**	**0.047 J**	**0.72 J**	**9.3 J**	--	--	--	--	--	--	--	0.13 U	**140 J**
WGL-SW-SW02-0316	WGL-SW-02	20160330	--	--	--	--	--	--	--	--	--	--	--	--	0.0618 U	12.9 U
WGL-SW-SW02-0916	WGL-SW-02	20160921	--	--	--	--	--	--	--	--	--	--	--	--	0.0654 R	13.7 R
WGL-SW02-0517	WGL-SW-02	20170508	0.3 U	**81000 J**	1 U	10 U	**32**	**10.13**	**5.69**	**3.09**	**205.1**	**1.37**	**5.86**	**371**	0.011 U	4.3 U
WGL-SW-SW02-1017	WGL-SW-02	20171024	0.3 U	**95000**	1 U	10 U	**11 J**	**13.89**	**2.6**	**-99**	**50.5**	**26.4**	**6**	**588**	0.012 U	4.6 U
WGL-SW02-052118	WGL-SW-02	20180521	0.3 U	**83000**	1 U	10 U	**31**	--	--	--	--	--	--	--	0.011 U	4.2 U
WGL-SW02-052118-D	WGL-SW-02	20180521	0.3 U	**74000**	1 U	10 U	**29**	--	--	--	--	--	--	--	0.011 U	4.3 U

Sample ID	Location ID	Sample Date	DISSOLVED METALS (UG/L)					FIELD (C)	FIELD (MG/L)		FIELD (MV)	FIELD (NTU)	FIELD (S.U.)	FIELD (US/CM)	HERBICIDES (UG/L)	
			SILVER	SODIUM	THALLIUM	VANADIUM	ZINC	TEMPERATURE	DISSOLVED OXYGEN	FERROUS IRON	OXIDATION REDUCTION POTENTIA	TURBIDITY	PH	SPECIFIC CONDUCTANCE	2,4-D	MCPA
PALs			NC	NC	NC	NC	120	NC	NC	NC	NC	NC	NC	NC	NC	NC
WGL-SW-SW03-1211	WGL-SW-03	20111215	0.4 U	**38400**	0.4 U	**1.9 J**	**38.8**	--	--	--	--	--	--	--	1.4 U	47 U
WGL-SW-SW03-0312		20120313	0.4 U	**43700**	0.4 U	**1.5 J**	**38**	--	--	--	--	--	--	--	1.4 U	48 U
WGL-SW-SW03-0712		20120710	0.022 U	**74300**	0.048 U	0.61 U	**20.6**	--	--	--	--	--	--	--	0.67 U	55 U
WGL-SW-SW03-0912		20120907	0.022 U	**50100**	0.048 U	**0.72 J**	**23.7**	--	--	--	--	--	--	--	0.67 UJ	55 UJ
WGL-SW-SW03-1212		20121203	0.17 U	**72800**	0.048 U	1.6 U	**48.8**	--	--	--	--	--	--	--	1 U	100 U
WGL-SW-SW03-1212-D		20121203	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW03-0313		20130318	--	--	--	--	--	--	--	--	--	--	--	--	0.67 UJ	55 UJ
WGL-SW-SW05-0313		20130318	--	--	--	--	--	--	--	--	--	--	--	--	0.67 UJ	55 UJ
WGL-SW-SW03-0613		20130612	--	--	--	--	--	--	--	--	--	--	--	--	0.67 UJ	55 UJ
WGL-SW-SW03-0913		20130924	0.022 U	**41500**	0.048 U	**1.6 J**	**20.4**	--	--	--	--	--	--	--	0.67 R	55 R
WGL-SW-SW03-1213		20131217	0.022 U	**67200**	0.048 U	**2 J**	**10.1**	--	--	--	--	--	--	--	0.67 R	55 R
WGL-SW-SW03-0414		20140423	0.022 U	**39100**	0.048 U	**0.96 J**	**26.1**	--	--	--	--	--	--	--	0.13 R	14 R
WGL-SW-SW03-0614		20140611	0.022 U	**59900**	0.048 U	**2 J**	**37.1**	--	--	--	--	--	--	--	0.13 R	14 R
WGL-SW-SW03-0914		20140924	0.022 U	**57500**	0.048 U	**1.3 J**	**26.4**	--	--	--	--	--	--	--	0.13 UJ	14 R
WGL-SW-SW03-0415		20150407	0.022 U	**45600 J**	**0.088 J**	**1.3 J**	**30.3 J**	--	--	--	--	--	--	--	0.13 R	14 R
WGL-SW-SW03-0915		20150923	0.022 U	**50600 J**	**0.25 J**	0.61 U	**13.2 J**	--	--	--	--	--	--	--	0.13 U	**140 J**
WGL-SW-SW03-0316		20160330	--	--	--	--	--	--	--	--	--	--	--	--	0.0612 U	12.8 U
WGL-SW-SW03-0916		20160921	--	--	--	--	--	--	--	--	--	--	--	--	0.0618 R	12.9 R
WGL-SW03-0517		20170508	0.3 U	**75000**	1 U	10 U	**37**	**10.8**	**6.32**	**2.94**	**128.5**	**1.76**	**5.83**	**376**	0.011 U	4.3 U
WGL-SW03-0517-D		20170508	--	--	--	--	--	--	--	--	--	--	--	--	0.012 U	4.4 U
WGL-SW03-0517-F-D		20170508	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW03-1017		20171024	0.3 U	**91000**	1 U	10 U	**18 J**	**13.56**	**2.87**	**-99**	**17.6**	**36.56**	**13.56**	**547**	0.012 U	4.4 U
WGL-SW-SW03-1017-D		20171024	0.3 U	**87000**	1 U	10 U	**17 J**	--	--	--	--	--	--	--	0.012 U	4.4 U
WGL-SW03-052118		20180521	0.3 U	**73000**	1 U	10 U	**27**	--	--	--	--	--	--	--	0.012 U	4.4 U

Sample ID	Location ID	Sample Date	DISSOLVED METALS (UG/L)					FIELD (C)	FIELD (MG/L)		FIELD (MV)	FIELD (NTU)	FIELD (S.U.)	FIELD (US/CM)	HERBICIDES (UG/L)	
			SILVER	SODIUM	THALLIUM	VANADIUM	ZINC	TEMPERATURE	DISSOLVED OXYGEN	FERROUS IRON	OXIDATION REDUCTION POTENTIA	TURBIDITY	PH	SPECIFIC CONDUCTANCE	2,4-D	MCPA
PALs			NC	NC	NC	NC	120	NC	NC	NC	NC	NC	NC	NC	NC	NC
WGL-SW-SW04-1211	WGL-SW-04	20111213	0.4 U	**40700**	0.4 U	4.7 U	**34.8**	--	--	--	--	--	--	--	1.4 U	47 U
WGL-SW-SW04-0312	WGL-SW-04	20120313	0.4 U	**42200**	0.4 U	**2 J**	**28.6**	--	--	--	--	--	--	--	1.4 U	48 U
WGL-SW-SW04-0312-D	WGL-SW-04	20120313	0.4 U	**40000**	0.4 U	**1.7 J**	**28.7**	--	--	--	--	--	--	--	1.5 U	50 U
WGL-SW-SW04-0712	WGL-SW-04	20120711	0.022 U	**40100**	0.048 U	**1.4 J**	**13.3**	--	--	--	--	--	--	--	0.67 U	55 U
WGL-SW-SW04-0912	WGL-SW-04	20120907	0.022 U	**38200**	0.048 U	**3.6 J**	**14.2**	--	--	--	--	--	--	--	0.67 UJ	55 UJ
WGL-SW-SW04-1212	WGL-SW-04	20121203	0.19 U	**45700**	0.1 U	**10.6**	**21.1**	--	--	--	--	--	--	--	1 U	100 U
WGL-SW-SW04-0313	WGL-SW-04	20130318	--	--	--	--	--	--	--	--	--	--	--	--	0.67 UJ	55 UJ
WGL-SW-SW06-0313	WGL-SW-04	20130318	--	--	--	--	--	--	--	--	--	--	--	--	0.67 UJ	55 UJ
WGL-SW-SW04-0613	WGL-SW-04	20130612	--	--	--	--	--	--	--	--	--	--	--	--	0.67 UJ	55 UJ
WGL-SW-SW04-0913	WGL-SW-04	20130924	**0.041 J**	**40500**	0.048 U	**13**	**13**	--	--	--	--	--	--	--	0.67 R	55 R
WGL-SW-SW04-1213	WGL-SW-04	20131217	0.022 U	**42400**	0.048 U	**9.6**	**23.9**	--	--	--	--	--	--	--	0.67 R	55 R
WGL-SW-SW04-0414	WGL-SW-04	20140423	0.022 U	**37700**	0.048 U	**2.9 J**	**20.6**	--	--	--	--	--	--	--	0.13 R	14 R
WGL-SW-SW04-0614	WGL-SW-04	20140611	0.022 U	**45100**	0.048 U	**1.9 J**	**19.9**	--	--	--	--	--	--	--	0.13 R	14 R
WGL-SW-SW04-0914	WGL-SW-04	20140924	0.022 U	**61700**	0.048 U	**2.5 J**	**15.4**	--	--	--	--	--	--	--	0.13 UJ	**190 J**
WGL-SW-SW04-0415	WGL-SW-04	20150407	**0.023 J**	**45500 J**	**0.065 J**	**1.6 J**	**35 J**	--	--	--	--	--	--	--	0.13 R	14 R
WGL-SW-SW04-0915	WGL-SW-04	20150923	0.022 U	**50100 J**	**0.11 J**	**2.4 J**	**11.7 J**	--	--	--	--	--	--	--	0.13 U	**120 J**
WGL-SW-SW04-0316	WGL-SW-04	20160330	--	--	--	--	--	--	--	--	--	--	--	--	0.0599 U	12.5 U
WGL-SW-SW04-0916	WGL-SW-04	20160921	--	--	--	--	--	--	--	--	--	--	--	--	0.0605 R	12.6 R
WGL-SW04-0517	WGL-SW-04	20170508	0.3 U	**69000**	1 U	10 U	**34**	**11.24**	**6.24**	**2.97**	**115.3**	**2.16**	**5.86**	**369**	**0.053 J**	4.4 U
WGL-SW-SW04-1017	WGL-SW-04	20171023	0.3 U	**89000**	1 U	**5.4 J**	**14 J**	**14.93**	**5.62**	**-99**	**760**	**26.4**	**2.6**	**662**	0.013 U	5 U
WGL-SW04-052118	WGL-SW-04	20180521	0.3 U	**67000**	1 U	10 U	**24**	--	--	--	--	--	--	--	0.012 U	4.4 U
WGL-SW-SW05-1211	WGL-SW-05	20111213	0.4 U	**37900**	0.4 U	4 U	**31.2**	--	--	--	--	--	--	--	1.4 U	47 U
WGL-SW-SW05-0613	WGL-SW-05	20130612	--	--	--	--	--	--	--	--	--	--	--	--	0.67 UJ	55 UJ
WGL-SW-SW05-0414	WGL-SW-05	20140423	**0.042 J**	--	0.048 U	**0.64 J**	--	--	--	--	--	--	--	--	0.13 R	14 R
WGL-SW-SW05-0415	WGL-SW-05	20150407	0.022 U	**9290 J**	0.048 U	**1.1 J**	**11.4 J**	--	--	--	--	--	--	--	0.13 R	14 R
WGL-SW05-0517	WGL-SW-05	20170508	0.3 U	**69000**	1 U	10 U	**14 J**	**18.93**	**9.76**	**0.38**	**267.9**	**0.25**	**6.8**	**414**	0.012 U	4.3 U
WGL-SW-SW06-1211	WGL-SW-06	20111214	0.4 U	**37500**	0.4 U	4 U	**31.3**	--	--	--	--	--	--	--	1.4 U	48 U
WGL-SW-SW06-0312	WGL-SW-06	20120314	0.4 U	**48800**	0.4 U	**1.4 J**	**24.1**	--	--	--	--	--	--	--	1.5 U	50 U
WGL-SW-SW06-0613	WGL-SW-06	20130612	--	--	--	--	--	--	--	--	--	--	--	--	0.67 UJ	55 UJ
WGL-SW-SW06-0614	WGL-SW-06	20140611	0.022 U	**63100**	0.048 U	**1.1 J**	**18.4**	--	--	--	--	--	--	--	0.13 R	14 R
WGL-SW-SW06-0415	WGL-SW-06	20150407	0.022 U	**8390 J**	0.048 U	0.61 U	**7.3 J**	--	--	--	--	--	--	--	0.13 R	14 R
WGL-SW-SW06-0316	WGL-SW-06	20160330	--	--	--	--	--	--	--	--	--	--	--	--	0.0662 U	13.8 U
WGL-SW06-0517	WGL-SW-06	20170509	0.3 U	**67000**	1 U	10 U	**11 J**	**10.84**	**3.64**	**0.47**	**57.4**	**1.16**	**6.35**	**322**	0.012 U	4.3 U
WGL-SW06-052218	WGL-SW-06	20180522	0.3 U	**56000**	1 U	10 U	20 U	--	--	--	--	--	--	--	**0.2 J**	4.3 U

Sample ID	Location ID	Sample Date	DISSOLVED METALS (UG/L)					FIELD (C)	FIELD (MG/L)		FIELD (MV)	FIELD (NTU)	FIELD (S.U.)	FIELD (US/CM)	HERBICIDES (UG/L)	
			SILVER	SODIUM	THALLIUM	VANADIUM	ZINC	TEMPERATURE	DISSOLVED OXYGEN	FERROUS IRON	OXIDATION REDUCTION POTENTIA	TURBIDITY	PH	SPECIFIC CONDUCTANCE	2,4-D	MCPA
PALs			NC	NC	NC	NC	120	NC	NC	NC	NC	NC	NC	NC	NC	NC
WGL-SW-SW07-1211		20111213	0.4 U	**27200**	0.4 U	4 U	**24.3**	--	--	--	--	--	--	--	1.4 U	47 U
WGL-SW-SW07-0312		20120313	0.4 U	**62900**	0.4 U	4 U	**11.5**	--	--	--	--	--	--	--	1.4 U	48 U
WGL-SW-SW07-0912		20120911	0.022 U	**71900**	0.048 U	0.61 U	0.73 U	--	--	--	--	--	--	--	0.67 R	55 UJ
WGL-SW-SW07-1212		20121203	0.11 U	**301000**	0.24 U	3.1 U	**29**	--	--	--	--	--	--	--	1 U	100 U
WGL-SW-SW07-0313		20130318	--	--	--	--	--	--	--	--	--	--	--	--	0.67 UJ	55 UJ
WGL-SW-SW07-0613		20130612	--	--	--	--	--	--	--	--	--	--	--	--	0.67 UJ	55 UJ
WGL-SW-SW07-0414	WGL-SW-07	20140423	**0.031 J**	**32800**	0.048 U	**0.65 J**	0.73 U	--	--	--	--	--	--	--	0.13 R	14 R
WGL-SW-SW07-0614		20140611	0.022 U	**54300**	0.048 U	0.61 U	**9.3**	--	--	--	--	--	--	--	0.13 R	14 R
WGL-SW-SW07-0415		20150407	0.022 U	**8770 J**	**0.11 J**	**0.62 J**	**7.4 J**	--	--	--	--	--	--	--	0.13 R	14 R
WGL-SW-DUP01-0316		20160330	--	--	--	--	--	--	--	--	--	--	--	--	0.0654 U	13.7 U
WGL-SW-SW07-0316		20160330	--	--	--	--	--	--	--	--	--	--	--	--	0.0639 U	13.3 U
WGL-SW07-0517		20170509	0.3 U	**31000**	1 U	10 U	20 U	**10.76**	**2.78**	**0.08**	**132.9**	**0.45**	**7.11**	**317**	**0.092 J**	4.3 U
WGL-SW07-052218		20180522	0.3 U	**19000**	1 U	10 U	20 U	--	--	--	--	--	--	--	0.012 U	4.4 U
WGL-SW-SW08-1211		20111213	0.4 U	**22000**	0.4 U	4 U	**18.9**	--	--	--	--	--	--	--	1.5 U	49 U
WGL-SW-SW08-0312		20120314	0.4 U	**558000**	0.4 UJ	**0.75 J**	**18.2**	--	--	--	--	--	--	--	1.6 U	53 U
WGL-SW-SW08-0313		20130318	--	--	--	--	--	--	--	--	--	--	--	--	0.67 UJ	55 UJ
WGL-SW-SW08-0613		20130612	--	--	--	--	--	--	--	--	--	--	--	--	0.67 UJ	55 UJ
WGL-SW-SW08-0414	WGL-SW-08	20140423	**0.022 J**	**44900**	0.048 U	0.61 U	0.73 U	--	--	--	--	--	--	--	0.13 R	14 R
WGL-SW-SW08-0415		20150407	0.022 U	**7710 J**	**0.05 J**	0.61 U	**5.3 J**	--	--	--	--	--	--	--	0.13 R	14 R
WGL-SW-SW08-0316		20160330	--	--	--	--	--	--	--	--	--	--	--	--	0.0625 U	13.1 U
WGL-SW08-0517		20170509	0.3 U	**34000**	1 U	10 U	20 U	**10.8**	**6.94**	**0.01**	**158**	**0.24**	**7.34**	**516**	**0.15 J**	4.4 U
WGL-SW08-052218		20180522	0.3 U	**8300**	1 U	10 U	20 U	--	--	--	--	--	--	--	0.012 U	4.6 U

Table B-3a: West Gate Landfill Surface Water Results

Sample ID	Location ID	Sample Date	METALS (UG/L) ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	BORON	CADMIUM	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE	MERCURY	NICKEL	POTASSIUM	SELENIUM
PALs			87	NC	150	NC	NC	NC	0.25	NC	11	NC	9	1000	2.5	NC	NC	0.77	52	NC	5
WGL-SW-SW01-1211		20111215	378	0.5 U	4 U	28.1	0.22 J	18.1 J	0.2 U	10300	4 U	1.1	4 U	5620	1.4	3200	557	0.1 U	1.9 U	1560 J	0.54 J
WGL-SW-SW01-1211-F		20111215	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW01-0312		20120314	301	0.5 U	4 U	31.5	0.21 J	--	0.2 UJ	11900	4 U	1.1 U	3.8	6070	1	3810	651	0.1 UJ	2.1	1500	0.34 J
WGL-SW-SW01-0712		20120709	461	0.2 U	0.78 J	46.7	0.3 J	26.6 J	0.084 U	16100	1 J	1.6	3.9	12900	1.7	4850	1210	0.028 U	1.7	1500	0.38 J
WGL-SW-SW01-0912		20120907	353 J	0.2 U	0.89 J	41.1	0.25 J	29.3 J	0.1 J	15000	1.5 J	1.4	2.8	11000 J	1.6	4540	1110	0.028 U	1.7	1630	0.35 J
WGL-SW-SW01-0912-D		20120907	365	0.2 J	0.68 J	41.9	0.26 J	30.7 J	0.086 J	14900	1.2 J	1.4	2.8	10100	1.3	4550	1100	0.028 U	1.7	1620	0.33 J
WGL-SW-SW01-1212		20121203	383	0.34 U	0.69 U	48.1	0.29 U	24 U	0.15 U	13800	1.1 U	1.7 J	3.6	7010 J	0.94 U	4550	770	0.028 U	1.9	1630	1 U
WGL-SW-SW01-1212-D		20121203	350	0.51 U	0.53 U	45.6	0.26 U	22.3 U	0.21 U	13800	1 U	1.6 J	3.2	7010	0.81 U	4530	785	0.028 U	1.9	1630	0.79 U
WGL-SW-SW01-0313		20130318	1890	0.2 U	0.78 J	53.9	0.91 J	15.8 J	0.38 J	8350	3.9	2.8	26.2	4660	8.3	2300	289	0.08 J	4.1	1080	0.41 J
WGL-SW-SW01-0313-D		20130318	1650	0.2 U	0.65 J	48.4	0.76 J	19.2 J	0.32 J	8080	2.5	2.6	22.6	4150	6.9	2270	280	0.065 J	3.7	1060	0.36 J
WGL-SW-SW01-0613		20130612	579	0.2 U	0.59 J	25.9	0.2 J	15.4 J	0.14 J	6620	1.1 J	1.1	4.7	2210	2.7	1820	259	0.048 J	2.5	1200	0.34 J
WGL-SW-SW01-0613-D		20130612	594	0.21 J	0.66 J	36.2	0.26 J	17 J	0.25 J	7020	1.2 J	1.7	6.6	1990	2.6	1930	255	0.028 U	2.8	1550	0.39 J
WGL-SW-SW01-0913		20130924	988	0.2 U	0.75 J	58.9	0.65 J	35.9 J	0.23 J	15400	1.9 J	1.8	15.3	9140	2.9	4410	830	0.028 U	2.9	1870	0.15 U
WGL-SW-SW01-0913-D		20130924	1090	0.2 U	0.54 J	63.5	0.67 J	29.6 J	0.25 J	14100	2.1	2.1	21.3	6770	2.6	4010	675	0.028 U	3.3	1780	0.15 U
WGL-SW-SW01-1213		20131217	1630	0.2 U	1.1 J	63.1	0.77 J	22.7 J	0.87 J	10500	2.7	3.1	24.6	10400	5	3230	363	0.028 U	4.5	1490	0.4 J
WGL-SW-SW01-1213-D	WGL-SW-01	20131217	1200	--	0.92 J	62.2	0.65 J	22.7 J	5.1	10900	2.4	3.1	23.6	9770	3.2	3360	376	0.028 U	4.6	1980	0.37 J
WGL-SW-SW01-0414		20140423	478	0.2 U	0.44 J	44.6	0.27 J	16.3 J	0.15 J	11800	0.28 J	1.4	5.4	4800	2.3	3670	498	0.036 J	2.1	1440	0.15 U
WGL-SW-SW01-0414-D		20140423	444	0.44 J	0.21 J	45.6	0.29 J	17.1 J	0.11 J	11500	0.16 U	1.6	5.1	4710	1.9	3640	490	0.028 U	2	1390	0.18 J
WGL-SW-SW01-0614		20140611	337	0.2 U	0.75 J	51.8	0.21 J	16.6 J	0.084 U	16300	0.88 J	1.5	3.1	10400	1.4	4940	1050	0.028 U	1.5	1710	0.15 U
WGL-SW-SW01-0614-D		20140611	480	0.2 U	0.73 J	52.5	0.28 J	21.4 J	0.12 J	16000	1 J	1.6	7	10700	2.2	4820	1030	0.028 U	1.8	1680	0.15 U
WGL-SW-SW01-0914		20140924	864	0.2 U	0.63 J	68.9	0.27 J	24.4 J	0.084 U	23100	0.16 U	1.6	4.1	16600	1.5	6650	1660	0.028 UN	2.2	2010	0.15 U
WGL-SW-SW01-0914-D		20140924	344	0.2 U	0.68 J	68.2	0.24 J	26.8 J	0.084 U	23800	0.16 U	1.6	3.3	15800	1.3	6860	1720	0.028 UN	1.6	2010	0.15 U
WGL-SW-SW01-0415		20150407	260 J	0.2 U	0.2 J	33.3 J	0.12 J	--	0.12 J	9850 J	0.22 J	0.94 J	2.4 J	3000 J	1.4 J	2720 J	361 J	0.028 U	1.8 J	1570 J	0.19 J
WGL-SW-SW01-0415-D		20150407	451 J	0.2 U	0.38 J	37.4 J	0.18 J	--	0.21 J	10300 J	0.77 J	1.2 J	6.9 J	4700 J	2.8 J	2820 J	381 J	0.053 J	2.2 J	1640 J	0.36 J
WGL-SW-SW01-0915		20150923	109 J	0.2 U	1.1 J	64.6 J	0.14 J	--	0.084 U	23400 J	0.56 J	0.75 J	0.79 J	7800 J	0.19 J	5850 J	764 J	0.028 U	0.88 J	2400 J	0.25 J
WGL-SW-SW01-0915-D		20150923	112 UB	0.2 U	1 J	64.5 J	0.16 J	--	0.084 U	23000 J	0.5 J	0.79 J	0.85 J	7650 J	0.24 J	5790 J	743 J	0.028 U	0.89 J	2340 J	0.27 J
WGL-SW-SW01-0316		20160330	359	0.2 U	0.39 J	49.7	0.26 J	--	0.22 J	13600	0.48 J	2.1 UB	2.7	2480	0.76 J	4480	537	0.028 U	2.2	1630	0.21 J
WGL-SW-SW01-0916		20160921	--	0.027 U	0.25 UJ	68.8 J	0.49	--	0.007 U	--	--	--	8.38 J	--	3.82	--	--	0.09 U	2.37 J	--	1.77 UJ
WGL-SW-SW01-0916-D		20160921	--	--	0.25 UJ	90.3 J	--	--	--	--	--	--	7.73 J	--	--	--	1220	0.09 U	2.38 J	--	1.77 UJ
WGL-SW01-0517		20170505	320	1.5 U	3 U	63	0.26 J	--	0.15 J	15000	4 U	2.3	3.5 J	5200	1.6 J	5400	780	0.2 U	2.3 J	1900	2.5 U
WGL-SW-SW01-1017		20171024	390	1.5 U	2.4 J	150	0.27 J	--	0.4 U	33000	2.1 J	3.2	4 U	34000	2.5 U	8800	2300	0.2 U	5 U	3500	2.5 U
WGL-SW01-052218		20180522	330	1.5 U	3 U	48	0.4 U	--	0.4 U	12000	1.6 J	1.6	3.9 J	4700	1.7 J	4000	620	0.2 U	1.9 J	1800	2.5 U

Sample ID	Location ID	Sample Date	METALS (UG/L)																		
			ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	BORON	CADMIUM	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE	MERCURY	NICKEL	POTASSIUM	SELENIUM
PALs			87	NC	150	NC	NC	NC	0.25	NC	11	NC	9	1000	2.5	NC	NC	0.77	52	NC	5
WGL-SW-SW02-1211	WGL-SW-02	20111215	**249**	0.5 U	4 U	**49.7**	**0.39 J**	**23.6 J**	**0.26 J**	**12900**	4 U	**2**	**6.4**	**2800**	**0.76 J**	**3050**	**428**	0.1 U	**3.5**	**2840 J**	3 U
WGL-SW-SW02-1211-D		20111215	**254**	0.5 U	4 U	**50.9**	**0.38 J**	**24.8 J**	**0.25 J**	**13400**	4 U	**2.3**	**7.2**	**2630**	**0.81 J**	**3060**	**422**	0.1 U	**4.2**	**2960 J**	**0.67 J**
WGL-SW-SW02-0312		20120313	**180**	0.5 U	4 U	**43.1**	**0.26 J**	--	**0.1 J**	**11100**	4 U	1.4 U	**3.5**	**3210**	**0.64 J**	**3020**	**444**	0.1 UJ	**2.3**	**2200**	**0.23 J**
WGL-SW-SW02-0712		20120710	**954 J**	**0.3 J**	**1.4 J**	**58.5 J**	**1.2**	**26.8 J**	**0.34 J**	**14500 J**	**2.9 J**	**4.8 J**	**20.2 J**	**11000 J**	**7.8 J**	**3080 J**	**457 J**	0.028 U	**6.2 J**	**2670**	**0.64 J**
WGL-SW-SW02-0712-D		20120710	**175**	**0.22 J**	**0.26 J**	**47.7**	**0.33 J**	**26.6 J**	**0.15 J**	**12700**	**0.83 J**	**1.8**	**5.2**	**3650**	**0.67 J**	**3190**	**542**	0.028 U	**2.3**	**2280**	**0.31 J**
WGL-SW-SW02-0912		20120907	**173**	**0.61 J**	**0.44 J**	**45.4**	**0.3 J**	--	**0.21 J**	**12400**	**1.1 J**	**1.9**	**3.8**	**4430**	**0.64 J**	**3300**	**629**	0.028 U	**2.2**	**2330**	**0.31 J**
WGL-SW-SW02-1212		20121203	**438**	0.45 U	0.85 U	**50.2**	0.68 U	28.1 U	0.25 U	**12800**	1.9 U	**2.8 J**	**9**	**9280**	**3**	**3150**	**479**	0.028 U	**3.8**	**2620**	0.88 U
WGL-SW-SW02-0313		20130318	**164**	0.2 U	**0.41 J**	**37.6**	**0.18 J**	**23.5 J**	**0.16 J**	**11700**	**0.48 J**	**1.2**	**3.2**	**2950**	**0.65 J**	**3110**	**461**	0.028 U	**1.7**	**2100**	0.15 U
WGL-SW-SW02-0613		20130612	**415**	0.2 U	**1.5 J**	**26.4**	**0.18 J**	**20.6 J**	**0.18 J**	**7300**	**0.92 J**	0.024 U	**3.7**	**2250**	**2**	**2260**	**276**	0.028 U	**1.9**	**1410**	**3.4 J**
WGL-SW-SW02-0913		20130924	**21800**	**2.2 J**	**34**	**470**	**23.8**	50 U	**7.9**	**58300**	**43.6**	**31.4**	**264**	**309000**	**232**	**10000**	**1470**	**0.71**	**69.6**	**5490**	0.75 U
WGL-SW-SW02-1213		20131217	**1220**	--	**1.7 J**	**70.9**	**1.5**	**35.9 J**	**0.75 J**	**21700**	**3.8**	**5.8**	**24.7**	**10000**	**10**	**3920**	**485**	0.028 U	**7.7**	**3350**	**0.62 J**
WGL-SW-SW02-0414		20140423	**1580**	0.2 U	**1.6 J**	**67.1**	**1.4**	**25.5 J**	**0.58 J**	**14400**	**3.4**	**4.1**	**26.9**	**12100**	**11.8**	**3430**	**426**	**0.074 J**	**6.9**	**2120**	**0.62 J**
WGL-SW-SW02-0614		20140611	**346**	0.2 U	**0.73 J**	**55.3**	**0.46 J**	**20.7 J**	**0.17 J**	**14300**	**1.4 J**	**3.1**	**5**	**10300**	**2**	**3490**	**736**	0.028 U	**2.8**	**2250**	0.15 U
WGL-SW-SW02-0914		20140924	**125000**	25 U	**81.2**	**3430**	**161**	250 U	**32.7**	**255000**	**202**	**230**	**1560**	**1110000**	**942**	**29900**	**8400**	**4.8 J**	**382**	**9450 J**	3.8 U
WGL-SW-SW02-0415		20150407	**199 J**	0.2 U	**0.97 J**	**43.5 J**	**0.11 J**	--	**0.16 J**	**11700 J**	**0.85 J**	**1.2 J**	**3 J**	**2480 J**	**0.62 J**	**3000 J**	**425 J**	0.028 U	**1.6 J**	**1790 J**	**1.3 J**
WGL-SW-SW02-0915		20150923	69.6 UB	0.2 U	**0.51 J**	**76.3 J**	**0.15 J**	--	0.084 U	**21100 J**	**0.34 J**	**1.9 J**	**0.74 J**	**6050 J**	**0.16 J**	**5360 J**	**849 J**	0.028 U	**1.1 J**	**2510 J**	**0.23 J**
WGL-SW-SW02-0316		20160330	**402**	0.2 U	**0.43 J**	**68**	**0.32 J**	--	**0.3 J**	**16400**	**1.3 J**	**2.2**	**4.2**	**4170**	**1.2**	**4590**	**599**	0.028 U	**2.3**	**2590**	**0.25 J**
WGL-SW-SW02-0916		20160921	--	--	**0.67 J**	--	--	--	0.007 U	--	--	--	**3.17 J**	--	**1.41**	--	--	0.09 U	**2.04 J**	--	0.18 UJ
WGL-SW02-0517		20170508	**250**	1.5 U	3 U	**76**	**0.25 J**	--	**0.19 J**	**16000 J**	4 U	**2.2**	**2.7 J**	**4600**	**1.2 J**	**5100**	**750**	0.2 U	**2.5 J**	**2300**	2.5 U
WGL-SW-SW02-1017		20171024	**130**	1.5 U	3 U	**120**	0.4 U	--	0.4 U	**26000**	4 U	**3.1**	4 U	**12000**	2.5 U	**6500**	**1500**	0.2 U	5 U	**3600**	2.5 U
WGL-SW02-052118		20180521	**290**	1.5 U	3 U	**73**	0.39 U	--	**0.15 J**	**15000**	4 U	**2.8**	**3.6 J**	**4700**	**1.6 J**	**4400**	**730**	0.2 U	**2.1 J**	**2200**	2.5 U
WGL-SW02-052118-D		20180521	**330**	1.5 U	3 U	**78**	0.32 U	--	0.4 U	**16000**	**2.2 J**	**2.9**	**3.9 J**	**5100**	**1.6 J**	**4800**	**780**	0.2 U	**2.3 J**	**2300**	2.5 U

Table B-3a: West Gate Landfill Surface Water Results

Sample ID	Location ID	Sample Date	METALS (UG/L) ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	BORON	CADMIUM	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE	MERCURY	NICKEL	POTASSIUM	SELENIUM
PALs			87	NC	150	NC	NC	NC	0.25	NC	11	NC	9	1000	2.5	NC	NC	0.77	52	NC	5
WGL-SW-SW03-1211	WGL-SW-03	20111215	291	0.5 U	4 U	47.7	0.22 J	20.6 J	0.24 J	12000	4 U	1.9	3.7 U	4120	0.87 J	3320	519	0.1 U	2.6	2060 J	3 U
WGL-SW-SW03-0312		20120313	501	0.5 U	4 U	56.1	0.59 J	--	0.17 J	12600	4 U	3.6	8.3	10100	2.5	3530	497	0.1 UJ	4.2	2180	0.56 J
WGL-SW-SW03-0712		20120710	33600	2.7 J	34.1	779	20.1	41.9 J	9	46800	55.2	58.6	438	110000	408	11600	623	1	127	4950	8.1
WGL-SW-SW03-0912		20120907	7330	0.75 J	11	197	4.5	--	1.6	21200	15.7	13.4	74.8	95700	66	4350	434	0.028 U	20.6	3780	1.8 J
WGL-SW-SW03-1212		20121203	2750	1 U	2.5	128	4.5	27.2 U	1.1	15200	6.6 U	17.8 J	31.9	14200	21.6	4490	279	0.11 U	20.5	3470	0.9 U
WGL-SW-SW03-1212-D		20121203	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW03-0313		20130318	258	0.2 U	0.48 J	43.4	0.25 J	19.4 J	0.19 J	11900	1 J	2.4	4.6	3610	2.4	3210	459	0.028 U	2.4	1920	0.16 J
WGL-SW-SW05-0313		20130318	391	0.2 U	1.4 J	11.9	0.072 U	--	0.19 J	14600	0.66 J	0.32 J	9.4	498	1.9	3120	61.1	0.031 J	1.1	4580	0.15 U
WGL-SW-SW03-0613		20130612	991	0.2 U	2.6	34.8	0.45 J	17.4 J	0.34 J	6930	2.2	1.9	8.4	6770	10.5	2090	273	0.11 J	3.2	1400	3.4 J
WGL-SW-SW03-0913		20130924	3520	0.31 J	3.6	106	5.8	33.5 J	1.5	15100	6.9	10.7	40.7	14000	31.1	4370	667	0.17 J	18.4	2600	0.15 U
WGL-SW-SW03-1213		20131217	1790	--	2.3	94.7	2.9	27.7 J	1.2	14100	4.8	14.3	29.1	14300	12.6	3920	271	0.028 U	14.4	3470	0.68 J
WGL-SW-SW03-0414		20140423	459	0.2 U	1.5 J	46.3	0.57 J	17.5 J	0.21 J	11300	1.5 J	4.8	7.1	6970	2.6	2900	262	0.028 U	4.1	1940	0.2 J
WGL-SW-SW03-0614		20140611	670	0.2 U	0.93 J	73.6	1.4	18.4 J	0.18 J	12200	3.3	13	11	7200	3.4	3140	207	0.028 U	11.2	3240	0.15 U
WGL-SW-SW03-0914		20140924	3120	1 U	5	154	5.1	24 J	0.75 J	16300	8	10.7	27.4	53800	20	4110	729	0.085 J	13.4	2600	0.15 U
WGL-SW-SW03-0415		20150407	846 J	0.2 U	2.8 J	63.8 J	0.88 J	--	0.46 J	12300 J	3.3 J	4.8 J	7.5 J	16800 J	6.2 J	3050 J	398 J	0.028 U	5.2 J	2010 J	1.3 J
WGL-SW-SW03-0915		20150923	76.8 UB	0.2 U	0.42 J	74.7 J	0.18 J	--	0.13 J	20600 J	0.36 J	2.2 J	1.3 J	5880 J	0.24 J	5180 J	779 J	0.028 U	1.6 J	2550 J	0.29 J
WGL-SW-SW03-0316		20160330	337	0.2 U	0.43 J	81	0.38 J	--	0.32 J	17600	0.78 J	4.4	5	3720	1.1	5110	547	0.028 U	3.2	2550	0.19 U
WGL-SW-SW03-0916		20160921	--	--	0.5 J	--	--	--	0.007 U	--	--	--	3.23 J	--	0.5	--	--	0.09 U	2.21 J	--	0.18 UJ
WGL-SW03-0517		20170508	250	1.5 U	1.9 J	68	0.2 J	--	0.15 J	15000	4 U	2.2	3.3 J	4200	1.3 J	4900	650	0.2 U	2.1 J	2100	2.5 U
WGL-SW03-0517-D		20170508	280	1.5 U	1.8 J	78	0.24 J	--	0.21 J	17000	4 U	2.5	3.4 J	4600	1.3 J	5500	760	0.2 U	2.5 J	2400	2.5 U
WGL-SW03-0517-F-D		20170508	220	1.5 U	3 U	72	0.4 U	--	0.4 U	16000	4 U	2.3	3.2 J	3800	2.5 U	4900	700	0.2 U	2.5 J	2000	2.5 U
WGL-SW-SW03-1017		20171024	140	1.5 U	3 U	140	0.4 U	--	0.4 U	31000	1.7 J	4.3	4 U	11000	2.5 U	7600	1700	0.2 U	2.1 J	4300	2.5 U
WGL-SW-SW03-1017-D		20171024	130	1.5 U	1.6 J	130	0.4 U	--	0.4 U	29000	4 U	4.1	4 U	11000	2.5 U	7200	1600	0.2 U	5 U	4100	2.5 U
WGL-SW03-052118		20180521	330	1.5 U	3 U	73 J	0.4 U	--	0.4 U	15000 J+	2 J	2.8	4.4 J	5100 J	1.6 J	4800	740 J	0.2 U	2.2 J	2300	2.5 U

Sample ID	Location ID	Sample Date	METALS (UG/L)																		
			ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	BORON	CADMIUM	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE	MERCURY	NICKEL	POTASSIUM	SELENIUM
PALs			87	NC	150	NC	NC	NC	0.25	NC	11	NC	9	1000	2.5	NC	NC	0.77	52	NC	5
WGL-SW-SW04-1211		20111213	**1290**	0.5 U	4 U	**58.6**	**0.58 J**	**21.2 J**	**0.21 J**	**12000**	4 U	**4.2**	**5.7**	**7750**	**3**	**3060**	**379**	0.1 U	**3.5**	**2370**	3 U
WGL-SW-SW04-0312		20120313	**229**	0.5 U	4 U	**48.3**	**0.22 J**	--	**0.08 J**	**12700**	4 U	1.8 U	**2.7 J**	**4540**	**0.69 J**	**3670**	**544**	0.1 UJ	**2.2**	**2030**	**0.58 J**
WGL-SW-SW04-0312-D		20120313	**223**	0.5 U	4 U	**48**	**0.25 J**	--	**0.1 J**	**12600**	4 U	2 U	**2.8 J**	**4480**	**0.67 J**	**3580**	**531**	0.1 UJ	**2.5**	**2050**	**0.52 J**
WGL-SW-SW04-0712		20120711	**241**	0.2 U	**0.63 J**	**56.8**	**0.27 J**	--	**0.3 J**	**14300**	**0.91 J**	**2.2**	**2.6**	**7280**	**0.74 J**	**3760**	**757**	0.028 U	**1.9**	**2060**	**0.27 J**
WGL-SW-SW04-0912		20120907	**34500**	3 U	**45.7**	**748**	**32.8**	--	**8.4**	**46800**	**93**	**79.4**	**428**	**514000**	**224**	**9670**	**1760**	0.028 U	**75.2**	**4470 J**	**19.1 J**
WGL-SW-SW04-1212		20121203	**3940**	1 U	**3.9**	**144**	**3.9**	--	0.84 U	**15400**	**10.7**	**9.6 J**	**33.3**	**27200**	**30.6**	**4340**	**484**	**0.44**	**10**	**2520**	1.3 U
WGL-SW-SW04-0313		20130318	**255**	0.2 U	**0.46 J**	**43.4**	**0.24 J**	--	**0.19 J**	**12200**	**1.1 J**	**2.6**	**5.1**	**2860**	**0.81 J**	**3260**	**458**	0.028 U	**2.6**	**1990**	**0.15 J**
WGL-SW-SW06-0313		20130318	**201**	0.2 U	**0.73 J**	**8.5 J**	**0.17 J**	--	**0.088 J**	**17900**	**0.71 J**	**0.23 J**	**5**	**210**	**0.58 J**	**3790**	**23.9**	0.028 U	**1.1**	**3920**	**0.15 J**
WGL-SW-SW04-0613		20130612	**536**	0.2 U	**2**	**29.9**	**0.32 J**	--	**2.1**	**6390**	**1.4 J**	**1.5**	**4.5**	**3940**	**5.2**	**2030**	**229**	0.028 U	**2**	**1220**	**3.2 J**
WGL-SW-SW04-0913		20130924	**2810**	**0.29 J**	**3.3**	**87.7**	**3.5**	--	**3.4**	**11500**	**9**	**9.6**	**42.3**	**15300**	**19**	**2710**	**165**	**0.12 J**	**9.2**	**2810**	0.15 U
WGL-SW-SW04-1213	WGL-SW-04	20131217	**887**	--	**1.4 J**	**59.5**	**1.4**	--	**0.3 J**	**12900**	**4.7**	**6.3**	**12.1**	**8970**	**3.3**	**3310**	**275**	0.028 U	**4.4**	**2230**	**0.87 J**
WGL-SW-SW04-0414		20140423	**1140**	0.2 U	**2.3**	**61.4**	**1.1**	--	**0.19 J**	**11400**	**3.5**	**3.7**	**6.4**	**12400**	**7.8**	**3110**	**304**	**0.048 J**	**3.6**	**1750**	**0.46 J**
WGL-SW-SW04-0614		20140611	**6830**	1 U	**18.6**	**242**	**7.1**	--	**1.3**	**24300**	**21**	**14.1**	**52.9**	**333000**	**42.2**	**4670**	**1540**	**0.2**	**15.4**	**2490**	**2.2 J**
WGL-SW-SW04-0914		20140924	**233**	0.2 U	**1.8 J**	**82.8**	**0.35 J**	**26 J**	**0.36 J**	**20900**	**3.1**	**3**	**2.5**	**13300**	**1.5**	**5230**	**1040**	0.028 UN	**2.8**	**2990**	0.15 U
WGL-SW-SW04-0415		20150407	**326 J**	0.2 U	**2.1 J**	**46.2 J**	**0.2 J**	--	**0.16 J**	**12000 J**	**2.4 J**	**1.5 J**	**3.7 J**	**4940 J**	**1.7 J**	**3030 J**	**406 J**	0.028 U	**2 J**	**1940 J**	**1.2 J**
WGL-SW-SW04-0915		20150923	**394 J**	0.2 U	**2.7 J**	**79.3 J**	**0.49 J**	--	**0.13 J**	**20300 J**	**2.6 J**	**2.9 J**	**2.9 J**	**13000 J**	**1.9 J**	**5080 J**	**699 J**	0.028 U	**2.2 J**	**2720 J**	**0.38 J**
WGL-SW-SW04-0316		20160330	**1100**	0.2 U	**1.6 J**	**105**	**1**	--	**0.64 J**	**18500**	**2.1**	**5.8**	**12.6**	**22700**	**6**	**5110**	**580**	0.028 U	**5.1**	**3110**	0.19 U
WGL-SW-SW04-0916		20160921	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**877**	0.09 U	--	--	0.09 UJ
WGL-SW04-0517		20170508	**270**	1.5 U	**2 J**	**75**	**0.4 J**	--	**0.32 J**	**16000**	4 U	**2.5**	**3.1 J**	**4600**	**1.2 J**	**5200**	**690**	0.2 U	**2.6 J**	**2500**	2.5 U
WGL-SW-SW04-1017		20171023	**210**	1.5 U	**2.6 J**	**120**	**0.37 J**	--	0.4 U	**26000**	**2.3 J**	**4.3**	4 U	**11000**	2.5 U	**6500**	**1200**	0.2 U	**1.9 J**	**3900**	2.5 U
WGL-SW04-052118		20180521	**250**	1.5 U	3 U	**61 J**	0.2 U	--	0.4 U	**13000 J+**	**2 J**	**2.5**	**3.8 J**	**4300 J**	**1.4 J**	**4000**	**600 J**	0.2 U	**2 J**	**2100**	2.5 U
WGL-SW-SW05-1211		20111213	**139**	0.5 U	**3 J**	**20**	**0.04 J**	**14.2 J**	**0.05 J**	**12600**	4 U	**0.14 J**	**17.2**	**512**	**1.9**	**2390**	**35.3**	0.1 U	**1.2 J**	**6040**	**0.8 J**
WGL-SW-SW05-0613		20130612	**263**	**0.22 J**	**1.6 J**	**12.5**	0.072 U	--	**0.094 J**	**10100**	**0.7 J**	**0.2 J**	**18.2**	**475**	**2**	**1610**	**24.2**	0.028 U	**1**	**2900**	**0.24 J**
WGL-SW-SW05-0414	WGL-SW-05	20140423	**99.1**	**0.3 J**	**0.81 J**	--	0.072 U	--	0.084 U	--	0.16 U	**0.11 J**	--	**217**	**0.62 J**	--	**8.9**	0.028 U	**0.89 J**	**3720**	--
WGL-SW-SW05-0415		20150407	**149 J**	0.2 U	**0.55 J**	**8.2 J**	**0.2 J**	--	0.084 U	**13900 J**	**0.41 J**	**0.28 J**	**4.3 J**	**161 J**	**0.58 J**	**2880 J**	**87.6 J**	0.028 U	**2.9 J**	**3190 J**	**0.27 J**
WGL-SW05-0517		20170508	**220**	1.5 U	**1.8 J**	**41**	0.4 U	--	**0.17 J**	**15000**	4 U	**1.4**	**18**	**890**	**5.7**	**2500**	**620**	0.2 U	5 U	**4100**	2.5 U
WGL-SW-SW06-1211		20111214	**266**	0.5 U	4 U	**28.2**	**0.11 J**	**15 J**	**0.11 J**	**10600**	4 U	**0.49 J**	**36.4 J**	**642**	**6.1**	**1800**	**111**	**0.03 J**	1.3 U	**3140 J**	**0.24 J**
WGL-SW-SW06-0312		20120314	**1340**	0.5 U	4 U	**69.8**	**0.54 J**	--	**0.38 J**	**18300**	4 U	**3.6**	**18.5**	**5720**	**17.7**	**2880**	**160**	**0.06 J**	**4.4**	**4910**	**0.64 J**
WGL-SW-SW06-0613		20130612	**135**	0.2 U	**1.9 J**	**11.5**	0.072 U	--	**0.18 J**	**9510**	**0.58 J**	0.024 U	**17.4**	**384**	**1.6**	**1880**	**22.5**	0.028 U	0.17 U	**2790**	**0.24 J**
WGL-SW-SW06-0614	WGL-SW-06	20140611	**4930**	**1.2 J**	**7.6**	**156**	**1.1**	--	**1.5**	**32100**	**7**	**4.9**	**76**	**11500**	**63.4**	**4940**	**208**	**0.3**	**8.3**	**5710**	**1.9 J**
WGL-SW-SW06-0415		20150407	**89.4 J**	0.2 U	**0.37 J**	**5.5 J**	**0.12 J**	--	0.084 U	**12200 J**	**0.19 J**	**0.29 J**	**2.6 J**	**92.5 J**	**0.3 J**	**2600 J**	**100 J**	0.028 U	**1.6 J**	**2860 J**	**0.26 J**
WGL-SW-SW06-0316		20160330	**798**	0.2 U	**1.9 J**	**41.7**	**0.077 J**	--	**0.4 J**	**22200**	**1.4 J**	1.2 UB	**30.9**	**1650**	**7.7**	**4460**	**415**	0.028 U	**2**	**7440**	**0.29 J**
WGL-SW06-0517		20170509	**250**	1.5 U	**1.5 J**	**37**	0.4 U	--	0.4 U	**16000**	4 U	**0.54**	**30**	**1000**	**4**	**2800**	**85**	0.2 U	**2.1 J**	**4300**	2.5 U
WGL-SW06-052218		20180522	**760**	1.5 U	**1.5 J**	**49**	0.24 U	--	0.4 U	**18000**	**2.4 J**	**1.5**	**21**	**1900**	**8.7**	**2900**	**270**	0.2 U	**2 J**	**3800**	2.5 U

Table B-3a: West Gate Landfill Surface Water Results

Sample ID	Location ID	Sample Date	METALS (UG/L)																		
			ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	BORON	CADMIUM	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE	MERCURY	NICKEL	POTASSIUM	SELENIUM
PALs			87	NC	150	NC	NC	NC	0.25	NC	11	NC	9	1000	2.5	NC	NC	0.77	52	NC	5
WGL-SW-SW07-1211		20111213	**384**	0.5 U	4 U	**11.6**	**0.05 J**	**9.1 J**	0.2 U	**13500**	4 U	**0.38 J**	**8.7**	**692**	**1.5**	**2350**	**95**	0.1 U	**1.2 J**	**4140**	**0.21 J**
WGL-SW-SW07-0312		20120313	**190**	0.5 U	4 U	**14.9**	0.2 U	--	0.2 UJ	**36600**	4 U	0.44 U	**3.2**	**650**	**1.1**	**6640**	**111**	0.1 UJ	1.5 U	**7980**	**0.42 J**
WGL-SW-SW07-0912		20120911	**284**	0.2 U	**2.4**	**29.1**	0.072 U	--	**0.096 J**	**38700**	**0.61 J**	**0.42 J**	**4.7**	**934**	**1**	**6150**	**24**	0.028 U	**1.3**	**11200**	**0.3 J**
WGL-SW-SW07-1212		20121203	**17700**	1.1 U	**22.2**	**180**	0.81 U	--	0.32 U	**190000**	**20.5**	**13.6**	**48.6**	**35700**	**48.3**	**45000**	**1060**	**0.42**	**22.4**	**22200**	2.6 U
WGL-SW-SW07-0313		20130318	**824**	0.2 U	**2**	**16.4**	**0.1 J**	--	**0.61 J**	**16200**	**1.6 J**	**1.5**	**10.4**	**1660**	**3.4**	**3010**	**106**	0.028 U	**2.3**	**4970**	0.15 U
WGL-SW-SW07-0613		20130612	**142**	0.2 U	**2**	**10.8**	0.072 U	--	**0.61 J**	**14400**	**0.69 J**	0.024 U	**19.2**	**428**	**2.1**	**2400**	**24.4**	0.028 U	**1.2**	**2980**	**0.2 J**
WGL-SW-SW07-0414	WGL-SW-07	20140423	**60.5**	**0.29 J**	**1.7 J**	**16.1**	0.072 U	--	0.084 U	**24300**	0.16 U	**0.46 J**	**14.8**	**418**	**0.7 J**	**4740**	**97.3**	0.028 U	**1.2**	**6500**	**0.24 J**
WGL-SW-SW07-0614		20140611	**625**	**0.2 J**	**4**	**18.9**	0.072 U	--	0.084 U	**36900**	**1.2 J**	**0.82 J**	**5.5**	**1880**	**2.4**	**6330**	**74.8**	0.028 U	**2.1**	**937**	0.15 U
WGL-SW-SW07-0415		20150407	**116 J**	0.2 U	**0.48 J**	**5.7 J**	**0.12 J**	--	0.084 U	**13400 J**	**0.33 J**	**0.28 J**	**3 J**	**141 J**	**0.35 J**	**2850 J**	**125 J**	0.028 U	**1.5 J**	**3060 J**	**0.21 J**
WGL-SW-DUP01-0316		20160330	**382**	0.2 U	**0.44 J**	**52.9**	**0.29 J**	--	**0.33 J**	**13900**	**0.59 J**	**2.3**	**4.8**	**2620**	**0.88 J**	**4680**	**558**	0.028 U	**2.7**	**1880**	0.19 U
WGL-SW-SW07-0316		20160330	**185**	**0.23 J**	**1.2 J**	**23.1**	0.072 U	--	0.084 U	**99500**	**0.39 J**	**0.24 J**	**6.9**	**316**	**0.77 J**	**20400**	**22.5**	0.028 U	**2.3**	**9890**	**0.28 J**
WGL-SW07-0517		20170509	**43 J**	1.5 U	**3.3**	**27**	0.4 U	--	0.4 U	**49000**	4 U	**0.83**	**6.3**	**410**	2.5 U	**10000**	**570**	0.2 U	5 U	**7700**	2.5 U
WGL-SW07-052218		20180522	48 U	1.5 U	**2.3 J**	**12**	0.4 U	--	0.4 U	**31000**	4 U	**0.45 J**	**6.2**	**450**	2.5 U	**5600**	**89**	0.2 U	5 U	**4000**	2.5 U
WGL-SW-SW08-1211		20111213	**399**	0.5 U	4 U	**8**	**0.04 J**	**7.6 J**	0.2 U	**10000**	4 U	**0.37 J**	**5**	**415**	**1**	**1940**	**16**	**0.01 J**	**1.2 J**	**3330**	3 U
WGL-SW-SW08-0312		20120314	**120**	0.5 U	**4.6 J**	**86.9**	0.2 UJ	--	0.2 U	**172000**	4 U	**2.4**	**3**	**750**	**0.62 J**	**42600**	**1460**	**0.01 J**	**3.5**	**19400**	3 U
WGL-SW-SW08-0313		20130318	**404**	0.2 U	**1.1 J**	**9.1 J**	**0.17 J**	--	**0.38 J**	**16400**	**0.84 J**	**0.44 J**	**7.9**	**611**	**3.9**	**3550**	**35.4**	0.028 U	**1.4**	**4660**	0.15 U
WGL-SW-SW08-0613		20130612	**205**	0.2 U	**1.7 J**	**7.7 J**	0.072 U	--	**3.5**	**15800**	**0.71 J**	0.024 U	**6.8**	**521**	**10**	**3070**	**40.7**	0.028 U	**1.3**	**3310**	**0.18 J**
WGL-SW-SW08-0414	WGL-SW-08	20140423	**38.5**	**0.24 J**	**1.8 J**	**14.9**	0.072 U	--	0.084 U	**46900**	0.16 U	**0.37 J**	**4.8**	**359**	**0.41 J**	**10100**	**84.3**	0.028 U	**1.5**	**9720**	**0.22 J**
WGL-SW-SW08-0415		20150407	**97.8 J**	0.2 U	**0.32 J**	**5 J**	**0.096 J**	--	0.084 U	**12200 J**	**0.44 J**	**0.57 J**	**2.8 J**	**129 J**	**0.28 J**	**2600 J**	**113 J**	0.028 U	**2.1 J**	**2970 J**	**0.22 J**
WGL-SW-SW08-0316		20160330	103 UB	**0.23 J**	**0.46 J**	**20.3**	0.072 U	--	**0.16 J**	**162000**	0.16 U	**0.25 J**	**4.7**	**255**	**0.33 J**	**36200**	**46.2**	0.028 U	**2.3**	**14900**	**0.22 J**
WGL-SW08-0517		20170509	**160**	1.5 U	**3**	**16**	0.4 U	--	0.4 U	**94000**	4 U	**0.5**	**8.8**	**360**	2.5 U	**21000**	**150**	0.2 U	**1.9 J**	**10000**	2.5 U
WGL-SW08-052218		20180522	83 U	1.5 U	**2.4 J**	**6.8**	0.4 U	--	0.4 U	**39000**	4 U	**0.34 J**	**3.2 J**	**390**	2.5 U	**7200**	**67**	0.2 U	5 U	**720 J**	2.5 U

Table B-3a: West Gate Landfill Surface Water Results

Sample ID	Location ID	Sample Date	METALS (UG/L)					MISCELLANEOUS PARAMETERS (CFU/100)	MISCELLANEOUS PARAMETERS (MG/L)							PESTICIDES/PCBS (UG/L)					
			SILVER	SODIUM	THALLIUM	VANADIUM	ZINC	TOTAL COLIFORM	ALKALINITY	CHEMICAL OXYGEN DEMAND	CHLORIDE	CYANIDE	NITRATE-N	SULFATE	TOTAL DISSOLVED SOLIDS	4,4'-DDD	4,4'-DDE	4,4'-DDT	BETA-BHC	DELTA-BHC	DIELDRIN
PALs			NC	NC	NC	NC	120	NC	20	NC	230	0.0052	NC	NC	NC	0.001	0.001	0.001	NC	NC	0.056
WGL-SW-SW01-1211	WGL-SW-01	20111215	0.4 U	**24900**	0.4 U	**3.1 J**	**33.4**	**100 J**	**15 J**	**50**	**54**	0.008 U	**0.53 J**	**13**	**200**	0.0094 UJ	0.0094 UJ	0.0094 UJ	0.0047 UJ	0.0047 UJ	0.0094 UJ
WGL-SW-SW01-1211-F		20111215	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW01-0312		20120314	0.4 U	**26600**	0.4 U	**2.7 J**	**31**	--	**19**	**54**	**43**	0.008 U	**0.35**	**15**	**160**	0.0095 UJ	0.0095 UJ	0.0095 UJ	0.0048 UJ	0.0048 UJ	**0.0028 J**
WGL-SW-SW01-0712		20120709	**0.034 J**	**22500**	0.048 U	**3.9 J**	**11.4**	--	**31**	**45**	**42**	0.0075 U	**0.34**	**23**	**160**	0.0013 U	0.0011 U	0.0014 U	0.0004 UJ	0.00054 UJ	0.0011 UJ
WGL-SW-SW01-0912		20120907	**0.061 J**	**22800**	0.048 U	**3.7 J**	**14.2**	--	**33**	**62**	**41**	0.0075 U	**0.3**	**22**	**170**	0.0064 U	0.0056 U	0.007 U	0.002 UJ	0.0027 UJ	0.0056 UJ
WGL-SW-SW01-0912-D		20120907	**0.033 J**	**23700**	**0.063 J**	**3.5 J**	**12.5**	--	**31**	**48**	**41**	0.0075 U	**0.28**	**22**	**180**	0.0064 U	0.0056 U	0.007 U	0.002 UJ	0.0027 UJ	0.0056 UJ
WGL-SW-SW01-1212		20121203	0.022 U	**35500**	0.06 U	3.3 U	**19.1 J**	--	**20**	**50**	47 U	0.0075 U	0.3 U	17 U	**160**	0.1 UJ	0.1 UJ	0.1 UJ	0.05 UJ	0.05 UJ	0.1 UJ
WGL-SW-SW01-1212-D		20121203	0.21 U	**34400**	0.048 U	3.1 U	**59.6 J**	--	**24 J**	**39**	47 UJ	0.0075 U	0.31 U	17 U	**250 J**	0.1 UJ	0.1 UJ	0.1 UJ	0.05 UJ	0.05 UJ	0.1 UJ
WGL-SW-SW01-0313		20130318	**0.32 J**	**26900**	0.048 U	**5**	**57.4**	--	20 U	**55**	**49.8**	0.0075 U	**12.2**	**29.6**	**170**	0.0064 U	0.0056 U	0.007 U	0.002 U	0.0027 U	0.0056 U
WGL-SW-SW01-0313-D		20130318	**0.28 J**	**26600**	**0.058 J**	**4.6 J**	**45.4**	--	20 U	**42**	**55.6**	0.0075 U	0.075 U	**30.3**	**170**	0.0064 U	0.0056 U	0.007 U	0.002 U	0.0027 U	0.0056 U
WGL-SW-SW01-0613		20130612	0.022 U	**20700**	0.048 U	**2.8 J**	**25.1**	--	20 U	**56**	**36.6**	0.0075 U	**0.322**	**5.84**	**170**	0.0064 U	0.0056 U	0.007 U	0.002 UJ	0.0027 UJ	0.0056 U
WGL-SW-SW01-0613-D		20130612	0.022 U	**23700**	0.048 U	**2.7 J**	**31.9**	--	20 U	**63**	**40.4**	0.0075 U	**0.252**	**10.6**	**170**	0.0064 U	0.0056 U	0.007 U	0.002 UJ	0.0027 UJ	0.0056 U
WGL-SW-SW01-0913		20130924	**0.13 J**	**32500**	0.048 U	**5.7**	**16.8**	--	**30**	**57**	**58.1**	0.0075 U	**4.9 J**	**16.6**	**230**	0.0013 U	0.0011 U	0.0014 U	0.0004 U	0.00054 U	0.0011 U
WGL-SW-SW01-0913-D		20130924	**0.13 J**	**37200**	0.048 U	**4.8 J**	**19.6**	--	**29**	**47**	**62.6**	0.0075 U	**12.9 J**	**17.8**	**250**	0.0013 U	0.0011 U	0.0014 U	0.0004 U	0.00054 U	0.0011 U
WGL-SW-SW01-1213		20131217	0.022 U	**46900**	**0.059 J**	**8.9**	**36.6**	--	20 U	**120**	**81.9**	0.0075 U	**0.945**	**19.9**	**240**	0.0013 UJ	0.0011 U	0.0014 U	0.0004 UJ	0.00054 UJ	0.0011 UJ
WGL-SW-SW01-1213-D		20131217	--	**48900**	0.048 U	**7.7**	**41.5**	--	20 U	**61**	--	0.0075 U	**0.174**	**17**	**250**	0.0013 UJ	0.0011 U	0.0014 U	0.0004 UJ	0.00054 UJ	0.0011 UJ
WGL-SW-SW01-0414		20140423	**0.1 J**	**39800**	0.048 U	**2.2 J**	**31**	--	**23**	**34**	**78.1**	0.0075 U	**1.76**	**11.2 J**	**220**	0.0013 UJ	0.0011 U	0.0014 U	0.0004 UJ	0.00054 UJ	0.0011 U
WGL-SW-SW01-0414-D		20140423	**0.069 J**	**39800**	0.048 U	**2.1 J**	**28.7**	--	**45**	**30**	**78.4**	0.0075 U	**1.34**	**29.3 J**	**230**	0.0013 UJ	0.0011 U	0.0014 U	0.0004 UJ	0.00054 UJ	0.0011 U
WGL-SW-SW01-0614		20140611	0.022 U	**36500**	0.048 U	**2.5 J**	**14.6**	--	**25**	**33**	**73.2 J**	0.0075 U	**0.34 J**	**16.3 J**	**240**	0.0013 UJ	0.0011 U	0.0014 U	0.0004 UJ	0.00054 U	0.0011 U
WGL-SW-SW01-0614-D		20140611	**0.032 J**	**35800**	**0.082 J**	**3.3 J**	**22.1**	--	**24**	**34**	**79.1 J**	0.0075 U	**0.219 J**	**15.6 J**	**230**	0.0013 UJ	0.0011 U	0.0014 U	0.0004 UJ	0.00054 U	0.0011 U
WGL-SW-SW01-0914		20140924	0.022 U	**37500**	0.048 U	**3.3 J**	0.73 U	--	**39**	**30**	**101**	0.0075 U	**0.68 J**	**21.4**	**276**	0.0013 UJ	0.0011 U	0.0014 U	0.0004 UJ	0.00054 U	0.0011 U
WGL-SW-SW01-0914-D		20140924	0.022 U	**35900**	0.048 U	**3.2 J**	0.73 U	--	**42**	**40**	**78**	0.0075 U	**0.163**	**20.3**	**275**	0.0013 UJ	0.0011 U	0.0014 U	0.0004 UJ	0.00054 U	0.0011 U
WGL-SW-SW01-0415		20150407	**0.028 J**	**39200 J**	0.048 U	**2.4 J**	**25.8 J**	--	20 U	**37 J**	**72.2 J**	0.00442 U	**6.11 J**	**9.73 J**	**180 J**	0.0013 UJ	0.0011 U	0.0014 U	0.0004 UJ	0.00054 UJ	0.0011 UJ
WGL-SW-SW01-0415-D		20150407	**0.069 J**	**40700 J**	0.048 U	**3.7 J**	**44.5 J**	--	20 U	**41 J**	**83.7 J**	0.00442 U	**1.51 J**	**12.2 J**	**193 J**	0.0013 UJ	0.0011 U	0.0014 U	0.0004 UJ	0.00054 UJ	0.0011 UJ
WGL-SW-SW01-0915		20150923	0.022 U	**33300 J**	0.047 U	**2.2 J**	**4.9 J**	--	**33 J**	**26 J**	**90.3 J**	0.0048 U	**0.018 J**	**14.1 J**	**311 J**	0.0013 UJ	0.0011 UJ	0.0014 UJ	0.0004 UJ	0.00054 UJ	0.0011 UJ
WGL-SW-SW01-0915-D		20150923	0.022 U	**33000 J**	**0.1 J**	**1.8 J**	**5.8 J**	--	**35 J**	**29 J**	**86 J**	0.0048 U	**0.017 J**	**14.6 J**	**316 J**	0.0013 UJ	0.0011 UJ	0.0014 UJ	0.0004 UJ	0.00054 UJ	0.0011 UJ
WGL-SW-SW01-0316		20160330	0.022 U	**46300**	0.047 U	**1.2 J**	**41.1**	--	20 U	**35**	**94.4**	0.0023 U	**2.52**	**19.2**	**227**	0.0064 U	0.0056 U	0.007 U	0.002 U	0.0027 U	0.0056 U
WGL-SW-SW01-0916		20160921	0.008 U	--	**0.01 J**	**7.42 J**	**54.2 J**	--	**28**	**65**	**126**	**0.0025 J**	--	--	**385**	0.0064 UJ	0.0056 UJ	0.007 UJ	0.002 UJ	0.0027 UJ	0.0056 UJ
WGL-SW-SW01-0916-D		20160921	--	--	--	**8.2 J**	**35 J**	--	**22**	**46**	**126**	0.0023 U	--	--	**379**	0.0064 UJ	0.0056 UJ	0.007 UJ	0.002 UJ	0.0027 UJ	0.0056 UJ
WGL-SW01-0517		20170505	0.3 U	**62000**	1 U	10 U	**43**	--	**8**	**54**	**130**	0.005 U	**0.24**	**11**	**310**	0.0098 UJ	0.0098 UJ	0.018 UJ	0.018 UJ	0.018 UJ	0.0098 UJ
WGL-SW-SW01-1017		20171024	0.3 U	**86000**	1 U	**6.4 J**	20 U	--	**33**	**78**	**160**	**0.0034 J**	0.05 UJ	**13**	**370**	0.01 U	0.01 U	0.019 U	0.019 U	0.019 U	0.01 U
WGL-SW01-052218		20180522	0.3 U	**62000**	1 U	10 U	**27**	--	**10**	**140**	**130**	**0.0051 J**	**0.021**	**7.3**	**280**	0.0097 UJ	0.0097 UJ	0.018 UJ	0.018 UJ	0.018 UJ	0.0097 UJ

Sample ID	Location ID	Sample Date	METALS (UG/L)					MISCELLANEOUS PARAMETERS (CFU/100)	MISCELLANEOUS PARAMETERS (MG/L)							PESTICIDES/PCBS (UG/L)					
			SILVER	SODIUM	THALLIUM	VANADIUM	ZINC	TOTAL COLIFORM	ALKALINITY	CHEMICAL OXYGEN DEMAND	CHLORIDE	CYANIDE	NITRATE-N	SULFATE	TOTAL DISSOLVED SOLIDS	4,4'-DDD	4,4'-DDE	4,4'-DDT	BETA-BHC	DELTA-BHC	DIELDRIN
PALs			NC	NC	NC	NC	120	NC	20	NC	230	0.0052	NC	NC	NC	0.001	0.001	0.001	NC	NC	0.056
WGL-SW-SW02-1211	WGL-SW-02	20111215	**0.06 J**	**53900**	0.4 U	**1.9 J**	**27.1**	1 UJ	**36 J**	**34**	**97**	0.008 U	**0.81 J**	**11**	**270**	0.01 UJ	0.01 UJ	0.01 UJ	0.005 UJ	0.005 UJ	0.01 UJ
WGL-SW-SW02-1211-D		20111215	**0.06 J**	**54200**	0.4 U	**2.6 J**	**26.8**	**200 J**	**24 J**	**31**	**95**	0.008 U	**0.94 J**	**12**	**240**	0.01 UJ	0.01 UJ	0.01 UJ	0.0052 UJ	0.0052 UJ	0.01 UJ
WGL-SW-SW02-0312		20120313	0.4 U	**46200**	0.4 U	**1.4 J**	**30.7**	--	**21**	**30**	**73**	0.008 U	**0.65**	**16**	**190**	0.0095 UJ	0.0095 UJ	0.0095 U	0.0048 UJ	0.0048 U	0.0095 UJ
WGL-SW-SW02-0712		20120710	**0.42 J**	**48800**	**0.19 J**	**10.5 J**	**17 J**	--	**29**	**25**	**79**	0.0075 U	**2.1**	**18**	**150**	0.0013 U	0.0011 U	0.0014 U	0.0004 UJ	0.00054 UJ	0.0011 UJ
WGL-SW-SW02-0712-D		20120710	**0.076 J**	**47600**	**0.087 J**	**1.3 J**	**10.9**	--	**27**	**28**	**76**	0.0075 U	**1.1**	**20**	**190**	0.0013 U	0.0011 U	0.0014 U	0.0004 UJ	0.00054 UJ	0.0011 UJ
WGL-SW-SW02-0912		20120907	**0.051 J**	**43500**	**0.16 J**	**1.7 J**	**13.7**	--	**27**	**31**	**75**	0.0075 U	**0.95**	**18**	**190**	0.0064 U	0.0056 U	0.007 U	0.002 UJ	0.0027 UJ	0.0056 UJ
WGL-SW-SW02-1212		20121203	0.26 U	**54000**	0.069 U	**6.2**	**15.9**	--	**20**	**32**	73 U	0.0075 U	1.1 U	19 U	**300**	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.1 U
WGL-SW-SW02-0313		20130318	**0.023 J**	**41600**	**0.12 J**	**1.5 J**	**25.2**	--	**23**	**21**	**63.5**	0.0075 U	**0.57**	**21**	**180**	0.0064 U	0.0056 U	0.007 U	0.002 U	0.0027 U	0.0056 U
WGL-SW-SW02-0613		20130612	0.022 U	**25100**	0.048 U	**2.5 J**	**20.3**	--	20 U	**46**	**43.6**	0.0075 U	**0.65**	--	**170**	0.0064 U	0.0056 U	0.007 U	0.002 U	0.0027 U	0.0056 U
WGL-SW-SW02-0913		20130924	**3.7**	**79400**	0.24 U	**272**	**290**	--	20 U	**270**	**83.5**	0.0075 U	**1.38**	**10.6**	**550**	0.0013 U	0.0011 U	0.0014 U	0.0004 U	0.00054 U	0.0011 U
WGL-SW-SW02-1213		20131217	--	**69300**	**0.056 J**	**14.2**	**35.4**	--	**43**	**56**	--	0.0075 U	**0.808**	**11.4**	**300**	0.0013 UJ	0.0011 U	0.0014 U	0.0004 UJ	0.00054 UJ	0.0011 UJ
WGL-SW-SW02-0414		20140423	**0.42 J**	**45900**	**0.18 J**	**14.6**	**36.3**	--	20 U	**52**	**76.9**	0.0075 U	**0.966 J**	**22.9**	**200**	0.0013 U	0.0011 U	0.0014 U	0.0004 U	0.00054 U	0.0011 U
WGL-SW-SW02-0614		20140611	**0.058 J**	**51500**	0.048 U	**4.4 J**	**18.6**	--	**27**	**40**	**92.4 J**	0.0075 U	**2.48 J**	**23.9 J**	**212**	0.0013 UJ	0.0011 U	0.0014 U	0.0004 UJ	0.00054 U	0.0011 U
WGL-SW-SW02-0914		20140924	**15.7**	**97700**	**0.77 J**	**1510**	**1260**	--	20 U	**240**	**226**	0.0075 U	**0.137**	**14.4**	**572**	0.0013 UJ	0.0011 U	0.0014 U	0.0004 UJ	0.00054 U	0.0011 U
WGL-SW-SW02-0415		20150407	0.022 U	**44400 J**	**0.097 J**	**1.7 J**	**38.1 J**	--	20 U	**30 J**	**84.3 J**	0.00442 U	--	**10.2 J**	**191 J**	0.0013 UJ	0.0011 U	0.0014 U	0.0004 UJ	0.00054 UJ	0.0011 UJ
WGL-SW-SW02-0915		20150923	0.022 U	**48200 J**	**0.066 J**	**1.3 J**	**9.6 J**	--	**31 J**	**25 J**	**106 J**	0.0048 U	**0.253 J**	**14.3 J**	**337 J**	0.0013 UJ	0.0011 UJ	0.0014 UJ	0.0004 UJ	0.00054 UJ	0.0011 UJ
WGL-SW-SW02-0316		20160330	0.022 U	**70100**	0.047 U	**2.4 J**	**35**	--	**20**	**35**	**119**	0.0023 U	**1**	**18.5**	**272**	0.0064 U	0.0056 U	0.007 U	0.002 U	0.0027 U	0.0056 U
WGL-SW-SW02-0916		20160921	0.008 U	--	0.007 U	**1.99**	**26.2 J**	--	**35**	**25**	**160**	0.0023 U	--	--	**363**	0.0064 UJ	0.0056 UJ	0.007 UJ	0.002 UJ	0.0027 UJ	0.0056 UJ
WGL-SW02-0517		20170508	0.3 U	**78000 J**	1 U	10 U	**31**	--	**12**	**37**	**140**	0.005 U	**0.66**	**12**	**330**	0.0097 UJ	0.0097 UJ	0.017 UJ	0.017 UJ	0.017 UJ	0.0097 UJ
WGL-SW-SW02-1017		20171024	0.3 U	**97000**	1 U	10 U	20 U	--	**30**	**38**	**190**	**0.017**	**0.23 J**	**16**	**390**	0.01 U	0.01 U	0.018 U	0.018 U	0.018 U	0.01 U
WGL-SW02-052118		20180521	0.3 U	**76000**	1 U	10 U	**28**	--	**13**	**61**	**140 J+**	**0.0029 J**	**0.28**	**12**	**310**	0.0095 U	0.0095 U	0.017 U	0.017 U	0.017 U	0.0095 U
WGL-SW02-052118-D		20180521	0.3 U	**82000**	1 U	10 U	**29**	--	**13**	**58**	**140 J+**	**0.0036 J**	**0.29**	**12**	**310**	0.0095 U	0.0095 U	0.017 U	0.017 U	0.017 U	0.0095 U

Sample ID	Location ID	Sample Date	METALS (UG/L)					MISCELLANEOUS PARAMETERS (CFU/100)	MISCELLANEOUS PARAMETERS (MG/L)								PESTICIDES/PCBS (UG/L)					
			SILVER	SODIUM	THALLIUM	VANADIUM	ZINC	TOTAL COLIFORM	ALKALINITY	CHEMICAL OXYGEN DEMAND	CHLORIDE	CYANIDE	NITRATE-N	SULFATE	TOTAL DISSOLVED SOLIDS	4,4'-DDD	4,4'-DDE	4,4'-DDT	BETA-BHC	DELTA-BHC	DIELDRIN
PALs			NC	NC	NC	NC	120	NC	20	NC	230	0.0052	NC	NC	NC	0.001	0.001	0.001	NC	NC	0.056
WGL-SW-SW03-1211		20111215	0.4 U	38400	0.4 U	2 J	31.5	200 J	17 J	39	66	0.008 U	0.65 J	13	200	0.0098 UJ	0.0098 UJ	0.0098 UJ	0.0049 UJ	0.0049 UJ	0.0098 UJ
WGL-SW-SW03-0312		20120313	0.4 U	41400	0.4 U	4.6 J	35.2	--	17	38	72	0.008 U	0.49	16	200	0.0095 UJ	0.0095 UJ	0.0095 UJ	0.0048 UJ	0.0048 UJ	0.0018 J
WGL-SW-SW03-0712		20120710	5.6	63200	0.59 J	247	736	--	20 U	65	140	0.0075 U	0.08 J	25	280	0.0013 U	0.0011 U	0.0014 U	0.0004 UJ	0.00054 UJ	0.0011 UJ
WGL-SW-SW03-0912		20120907	0.68 J	60700	0.13 J	77.5	130	--	20 U	190	110	0.0075 U	0.38	25	250	0.0064 U	0.0056 U	0.007 U	0.002 UJ	0.0027 UJ	0.0056 UJ
WGL-SW-SW03-1212		20121203	0.5 U	65400	0.048 U	19.9	173	--	20 U	32	110 UJ	0.0075 U	14 U	21 U	370 J	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.1 U
WGL-SW-SW03-1212-D		20121203	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW03-0313		20130318	0.022 U	39300	0.048 U	1.8 J	41.5	--	20 U	28	84.4	0.0075 U	0.88	26.9	190	0.0064 U	0.0056 U	0.007 U	0.002 U	0.0027 U	0.0056 U
WGL-SW-SW05-0313		20130318	0.022 U	26200	0.048 U	1 J	21.3	--	20 U	26	48.2	0.0075 U	0.14	25.2	140	0.0064 U	0.0056 U	0.007 U	0.002 U	0.0027 U	0.0056 U
WGL-SW-SW03-0613		20130612	0.25 J	24800	0.048 U	7.9	29	--	20 U	47	48.8	0.0075 U	1.1	--	190	0.0064 U	0.0056 U	0.007 U	0.002 U	0.0027 U	0.0056 U
WGL-SW-SW03-0913		20130924	0.45 J	43700	0.048 J	23.8	321	--	22	42	74.9	0.0075 U	1.41	19.4	250	0.0013 U	0.0011 U	0.0014 U	0.0004 U	0.00054 U	0.0011 U
WGL-SW-SW03-1213		20131217	--	67500	0.053 J	12.8	164	--	22	33	--	0.0075 U	0.555	21	300	0.0013 UJ	0.0011 U	0.0014 U	0.0004 UJ	0.00054 UJ	0.0011 UJ
WGL-SW-SW03-0414	WGL-SW-03	20140423	0.054 J	37500	0.061 J	4.3 J	34.2	--	39	30	74.8	0.0075 U	0.356 J	22.8	200	0.0013 U	0.0011 U	0.0014 U	0.0004 U	0.00054 U	0.0011 U
WGL-SW-SW03-0614		20140611	0.06 J	56700	0.048 U	4.9 J	46	--	30	25	92.4 J	0.0075 U	0.08 J	25.4 J	232	0.0013 UJ	0.0011 U	0.0014 U	0.0004 UJ	0.00054 U	0.0011 U
WGL-SW-SW03-0914		20140924	0.022 U	53800	0.24 U	28.1	80.2	--	22	37	104	0.0075 U	0.271	18.3	264	0.0013 UJ	0.0011 U	0.0014 U	0.0004 UJ	0.00054 U	0.0011 U
WGL-SW-SW03-0415		20150407	0.11 J	45100 J	0.06 J	11 J	54.9 J	--	20 U	53 J	94.9 J	0.00442 U	2.74 J	13.2 J	196 J	0.0013 UJ	0.0011 U	0.0014 U	0.013 J	0.00054 UJ	0.0011 UJ
WGL-SW-SW03-0915		20150923	0.022 U	50100 J	0.054 J	1.2 J	10.1 J	--	30 J	34 J	110 J	0.0048 U	0.537 J	14.3 J	316 J	0.0013 UJ	0.0011 UJ	0.0014 UJ	0.0004 UJ	0.00054 UJ	0.0011 UJ
WGL-SW-SW03-0316		20160330	0.028 J	68000	0.047 U	1.7 J	43	--	21	30	120	0.0023 U	0.577	17.5 J	229	0.0064 U	0.0056 U	0.007 U	0.002 U	0.0027 U	0.0056 U
WGL-SW-SW03-0916		20160921	0.008 U	--	0.007 U	0.61 J	23.9 J	--	44	30	161	0.0023 U	--	--	377	0.0064 UJ	0.0056 UJ	0.007 UJ	0.002 UJ	0.0027 UJ	0.0056 UJ
WGL-SW03-0517		20170508	0.3 U	68000	1 U	10 U	33	--	11	38	130	0.005 U	0.4 J	14	330	0.0096 U	0.0096 U	0.017 U	0.017 U	0.017 U	0.0096 U
WGL-SW03-0517-D		20170508	0.3 U	76000	1 U	10 U	37	--	12	37	130	0.005 U	0.41 J	14	330	0.0096 U	0.0096 U	0.017 U	0.017 U	0.017 U	0.0096 U
WGL-SW03-0517-F-D		20170508	0.3 U	71000	1 U	10 U	36	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW03-1017		20171024	0.3 U	110000	1 U	10 U	20 U	--	29	39	190	0.005 U	0.26 J	17	400	0.0097 U	0.0097 U	0.017 U	0.017 U	0.017 U	0.0097 U
WGL-SW-SW03-1017-D		20171024	0.3 U	110000	1 U	10 U	20 U	--	30	32	190	0.005 U	0.26 J	17	410	0.0097 U	0.0097 U	0.018 U	0.018 U	0.018 U	0.0097 U
WGL-SW03-052118		20180521	0.3 U	81000	1 U	6.2 J	30	--	13	53	140 J+	0.0051 J	0.35	12	310	0.0097 U	0.0097 U	0.018 U	0.018 U	0.018 U	0.0097 U

Table B-3a: West Gate Landfill Surface Water Results

Sample ID	Location ID	Sample Date	METALS (UG/L)					MISCELLANEOUS PARAMETERS (CFU/100)	MISCELLANEOUS PARAMETERS (MG/L)							PESTICIDES/PCBS (UG/L)					
			SILVER	SODIUM	THALLIUM	VANADIUM	ZINC	TOTAL COLIFORM	ALKALINITY	CHEMICAL OXYGEN DEMAND	CHLORIDE	CYANIDE	NITRATE-N	SULFATE	TOTAL DISSOLVED SOLIDS	4,4'-DDD	4,4'-DDE	4,4'-DDT	BETA-BHC	DELTA-BHC	DIELDRIN
PALs			NC	NC	NC	NC	120	NC	20	NC	230	0.0052	NC	NC	NC	0.001	0.001	0.001	NC	NC	0.056
WGL-SW-SW04-1211		20111213	0.4 U	**39800**	0.4 U	8 U	**43.4**	--	**15**	**59**	**77**	0.008 U	**0.33**	**15**	**250 J**	**0.0078 J**	0.0094 UJ	0.0094 UJ	0.0047 UJ	0.0047 UJ	0.0094 UJ
WGL-SW-SW04-0312		20120313	0.4 U	**40800**	0.4 U	**2.7 J**	**29.1**	--	**18**	**37**	**68**	0.008 U	**0.47**	**15**	**200**	0.0095 UJ	0.0095 UJ	0.0095 U	0.0048 UJ	0.0048 U	0.0095 UJ
WGL-SW-SW04-0312-D		20120313	0.4 U	**39900**	0.4 U	**2.6 J**	**33.8**	--	**20**	**36**	**67**	0.008 U	**0.48**	**16**	**250**	0.0094 UJ	0.0094 UJ	0.0094 U	0.0047 UJ	0.0047 U	**0.0016 J**
WGL-SW-SW04-0712		20120711	0.022 U	**39700**	0.048 U	**3.3 J**	**17.3**	--	**27**	**32**	**70**	0.0075 U	**0.62**	**18**	**160**	0.0013 U	0.0011 U	0.0014 U	0.0004 UJ	0.00054 UJ	0.0011 UJ
WGL-SW-SW04-0912		20120907	**2.8 J**	**45800**	0.72 U	**468**	**683**	--	20 U	**1800**	**83**	0.0075 U	**9.8**	**19**	**300**	0.0064 U	0.0056 U	0.007 U	0.002 UJ	0.0027 UJ	0.0056 UJ
WGL-SW-SW04-1212		20121203	0.59 U	**47600**	0.048 U	**51.4**	**82.2**	--	20 U	**85**	75 U	0.0075 U	0.2 U	21 U	**280**	0.1 UJ	0.1 UJ	0.1 UJ	0.05 UJ	0.05 UJ	0.1 UJ
WGL-SW-SW04-0313		20130318	0.022 U	**40100**	0.048 U	**1.3 J**	**42.5**	--	20 U	**31**	**80.1**	0.0075 U	**1.56**	**28.3**	**200**	0.0064 U	0.0056 U	0.007 U	0.002 U	0.0027 U	0.0056 U
WGL-SW-SW06-0313		20130318	0.022 U	**21500**	**0.078 J**	**0.84 J**	**13.8**	--	**41**	**21**	**34**	0.0075 U	**0.1**	**27.7**	**150**	0.0064 U	0.0056 U	0.007 U	0.002 U	0.0027 U	0.0056 U
WGL-SW-SW04-0613		20130612	**0.039 J**	**20800**	0.048 U	**6.9**	**25.6**	--	20 U	**51**	**40.1**	0.0075 U	**0.65**	--	**170**	0.0064 U	0.0056 U	0.007 U	0.002 U	0.0027 U	0.0056 U
WGL-SW-SW04-0913		20130924	**0.36 J**	**42900**	0.048 U	**35.8**	**83.3**	--	**31**	**94**	**61.7**	0.0075 U	**0.614**	**13.5**	**280**	0.0013 U	0.0011 U	0.0014 U	0.0004 U	0.00054 U	0.0011 U
WGL-SW-SW04-1213	WGL-SW-04	20131217	--	**43100**	**0.083 J**	**15.9**	**30.6**	--	**26**	**75**	--	0.0075 U	**4.5**	**16.8**	**280**	0.0013 UJ	0.0011 U	0.0014 U	0.0004 UJ	0.00054 UJ	0.0011 UJ
WGL-SW-SW04-0414		20140423	**0.13 J**	**34900**	0.048 U	**17.9**	**30.2**	--	**36**	**38**	**65.1**	0.0075 U	**0.418 J**	**22.4**	**190**	0.0013 U	0.0011 U	0.0014 U	0.0004 U	0.00054 U	0.0011 U
WGL-SW-SW04-0614		20140611	**0.5 J**	**41000**	0.048 U	**129**	**99.2**	--	**40**	**22**	**97.6 J**	0.0075 U	**0.91 J**	**20.7 J**	**215**	0.0013 UJ	0.0011 U	0.0014 U	0.0004 UJ	0.00054 U	0.0011 U
WGL-SW-SW04-0914		20140924	0.022 U	**60500**	**0.41 J**	**6.2**	**19.7**	--	**30**	**34**	**107**	0.0075 U	**0.465**	**15.5**	**271**	0.0013 UJ	0.0011 U	0.0014 U	0.0004 UJ	0.00054 U	0.0011 U
WGL-SW-SW04-0415		20150407	**0.027 J**	**43400 J**	0.048 U	**4.2 J**	**38.5 J**	--	20 U	**34 J**	**87.4 J**	0.00442 U	**0.636 J**	**11.7 J**	**200 J**	0.0013 UJ	0.0011 U	0.0014 U	0.0004 UJ	0.00054 UJ	0.0011 UJ
WGL-SW-SW04-0915		20150923	**0.029 J**	**51900 J**	0.047 U	**13.9 J**	**13.9 J**	--	**34 J**	**38 J**	**107 J**	0.0048 U	**0.326 J**	**13.5 J**	**261 J**	0.0013 UJ	0.0011 UJ	0.0014 UJ	0.0004 UJ	0.00054 UJ	0.0011 UJ
WGL-SW-SW04-0316		20160330	**0.074 J**	**67300**	0.047 U	**9.6**	**63.3**	--	20 U	**54**	**127**	**0.0049 J**	**3.09**	**23 J**	**228**	0.0064 U	0.0056 U	0.007 U	0.002 U	0.0027 U	0.0056 U
WGL-SW-SW04-0916		20160921	--	--	--	**1.18**	**26.2 J**	--	20 U	**36**	**162**	0.0023 U	--	--	**403**	0.0064 UJ	0.0056 UJ	0.007 UJ	0.002 UJ	0.0027 UJ	0.0056 UJ
WGL-SW04-0517		20170508	0.3 U	**73000**	1 U	10 U	**36**	--	**10**	**27**	**120**	0.005 U	**0.38 J**	**15**	**330**	0.0097 UJ	0.0097 UJ	0.017 UJ	0.017 UJ	0.017 UJ	0.0097 UJ
WGL-SW-SW04-1017		20171023	0.3 U	**99000**	1 U	**7.5 J**	20 U	--	**30**	**39**	**180**	0.005 U	**0.23 J**	**16**	**390**	0.011 U	0.011 UJ	0.02 U	0.02 U	0.02 U	0.011 U
WGL-SW04-052118		20180521	0.3 U	**68000**	1 U	**6.3 J**	**24**	--	**15**	**50**	**130 J+**	0.005 U	**0.43**	**13**	**310**	0.01 U	0.01 UJ	0.018 U	0.018 U	0.018 U	0.01 U
WGL-SW-SW05-1211		20111213	0.4 U	**37800**	0.4 U	4 U	**24.1**	--	**21**	**32**	**78**	0.008 U	0.025 U	**5.6**	**200 J**	0.0094 UJ	0.0094 UJ	0.0094 UJ	0.0047 UJ	**0.0044 J**	0.0094 UJ
WGL-SW-SW05-0613		20130612	0.022 U	**19300**	0.048 U	**1.1 J**	**11.4**	--	20 U	**52**	**26.6**	0.0075 U	**4.87**	**6.24**	**140**	0.0064 U	0.0056 U	0.007 U	0.002 UJ	0.0027 UJ	0.0056 U
WGL-SW-SW05-0414	WGL-SW-05	20140423	**0.047 J**	**37900**	--	**0.62 J**	**39.8**	--	**35**	**47**	**61.8**	0.0075 U	0.0336 U	**16.8 J**	**190**	0.0013 UJ	0.0011 U	0.0014 U	0.0004 UJ	0.00054 UJ	0.0011 U
WGL-SW-SW05-0415		20150407	0.022 U	**9620 J**	**0.064 J**	**1.4 J**	**16.5 J**	--	20 U	**26 J**	**12.3 J**	0.00442 U	**0.43 J**	**19.8 J**	**111 J**	0.0013 UJ	0.0011 U	0.0014 U	0.0004 UJ	0.00054 UJ	0.0011 UJ
WGL-SW05-0517		20170508	0.3 U	**68000**	1 U	10 U	**27**	--	**18**	**82**	**120**	**0.0025 J**	0.05 UJ	**9**	**310**	0.0096 UR	0.0096 UR	0.017 UR	0.017 UR	0.017 UR	0.0096 UR
WGL-SW-SW06-1211		20111214	0.4 U	**33800**	0.4 U	4 U	**36.4**	--	**12**	**78**	**72**	0.008 U	**0.23**	0.5 U	**190 J**	0.0094 UJ	0.0094 UJ	0.0094 UJ	0.0047 UJ	0.0047 UJ	0.0094 UJ
WGL-SW-SW06-0312		20120314	**0.08 J**	**45900**	0.4 U	**9.2**	**64.6**	--	**11**	**280**	**83**	0.008 U	0.025 U	**19**	**220**	0.0095 UJ	**0.015 J**	**0.032 J**	0.0048 UJ	0.0048 U	0.0095 UJ
WGL-SW-SW06-0613		20130612	**0.028 J**	**19700**	**0.079 J**	**1.1 J**	**9.5**	--	**22**	**49**	**26.3**	0.0075 U	0.075 U	**6.01**	**120**	0.0064 U	0.0056 U	0.007 U	0.002 UJ	0.0027 UJ	0.0056 U
WGL-SW-SW06-0614	WGL-SW-06	20140611	**0.44 J**	**61600**	**0.19 J**	**22.8**	**119**	--	20 U	**35**	**115**	0.0075 U	**0.069 J**	**11.8**	**328**	0.0013 U	0.0011 U	0.0014 U	0.0004 U	0.00054 U	0.0011 U
WGL-SW-SW06-0415		20150407	0.022 U	**8050 J**	**0.078 J**	**1 J**	**7 J**	--	**33 J**	**23 J**	**10.4 J**	0.00442 U	**0.241 J**	**18.2 J**	**70 J**	0.0013 UJ	0.0011 U	0.0014 U	0.0004 UJ	0.00054 UJ	0.0011 UJ
WGL-SW-SW06-0316		20160330	**0.079 J**	**60400**	0.047 U	**1.4 J**	**54.3**	--	**22**	**61**	--	0.0023 U	**0.033 J**	**14.2**	**264**	0.0064 U	0.0056 U	0.007 U	0.002 U	0.0027 U	0.0056 U
WGL-SW06-0517		20170509	0.3 U	**66000**	1 U	10 U	**20**	--	**28**	**87**	**110**	**0.0026 J**	0.05 U	**10**	**300**	0.0098 UJ	0.0098 UJ	0.018 UJ	0.018 UJ	0.018 UJ	0.0098 UJ
WGL-SW06-052218		20180522	0.3 U	**61000**	1 U	10 U	**17 J**	--	**27**	200 U	**23**	**0.0076 J**	0.05 U	**1.2**	**300**	0.0096 UX	0.0096 UX	0.017 UX	0.017 UX	0.017 UX	0.0096 UX

Sample ID	Location ID	Sample Date	METALS (UG/L) SILVER	METALS (UG/L) SODIUM	METALS (UG/L) THALLIUM	METALS (UG/L) VANADIUM	METALS (UG/L) ZINC	MISCELLANEOUS PARAMETERS (CFU/100) TOTAL COLIFORM	MISCELLANEOUS PARAMETERS (MG/L) ALKALINITY	CHEMICAL OXYGEN DEMAND	CHLORIDE	CYANIDE	NITRATE-N	SULFATE	TOTAL DISSOLVED SOLIDS	PESTICIDES/PCBS (UG/L) 4,4'-DDD	4,4'-DDE	4,4'-DDT	BETA-BHC	DELTA-BHC	DIELDRIN
PALs			NC	NC	NC	NC	120	NC	20	NC	230	0.0052	NC	NC	NC	0.001	0.001	0.001	NC	NC	0.056
WGL-SW-SW07-1211		20111213	0.4 U	26800	0.4 U	4 U	19	--	22	10 J	43	0.008 U	0.025 U	11	150 J	0.0094 UJ	0.0094 UJ	0.0094 UJ	0.0047 UJ	0.0047 UJ	0.0094 UJ
WGL-SW-SW07-0312		20120313	0.4 U	62800	0.4 U	0.99 J	12.5	--	51	30	120	0.008 U	0.025 U	38	350	0.0095 UJ	0.0095 UJ	0.0095 U	0.0048 UJ	0.0048 U	0.0095 UJ
WGL-SW-SW07-0912		20120911	0.022 U	72600	0.1 J	0.71 J	6.2	--	20 U	20 U	140	0.0075 U	13	41 J	470	0.0064 U	0.0056 U	0.007 U	0.002 UJ	0.0027 UJ	0.0056 U
WGL-SW-SW07-1212		20121203	0.12 U	321000	0.24 U	29.9	91.4	--	170	72	490 U	0.0075 U	0.13 U	280 U	1400	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.1 U
WGL-SW-SW07-0313		20130318	0.022 U	15300	0.048 U	1.4 J	26.2	--	20 U	23	28.9	0.0075 U	0.21	30.4	120	0.0064 U	0.0056 U	0.007 U	0.002 U	0.0027 U	0.0056 U
WGL-SW-SW07-0613		20130612	0.022 U	16200	0.048 U	0.68 J	9.7	--	39	43	22.6	0.0075 U	0.075 U	14.5	150	0.0064 U	0.0056 U	0.007 U	0.002 UJ	0.0027 UJ	0.0056 U
WGL-SW-SW07-0414	WGL-SW-07	20140423	0.038 J	33500	0.048 U	0.66 J	0.73 U	--	110	40	49.3	0.0075 U	0.0336 U	35.6 J	210	0.0013 UJ	0.0011 U	0.0014 U	0.0004 UJ	0.00054 UJ	0.0011 U
WGL-SW-SW07-0614		20140611	0.022 U	53700	0.048 U	1.7 J	8.6	--	110	40	57.9	0.0075 U	0.062 J	32.1	287	0.0013 U	0.0011 U	0.0014 U	0.0004 U	0.00054 U	0.0011 U
WGL-SW-SW07-0415		20150407	0.024 J	8880 J	0.048 U	0.78 J	7.4 J	--	20 U	22 J	11.1 J	0.00442 U	0.526 J	20.4 J	75 J	0.0013 UJ	0.0011 U	0.0014 U	0.0004 UJ	0.00054 UJ	0.0011 UJ
WGL-SW-DUP01-0316		20160330	0.022 U	48500	0.047 U	1.4 J	43.9	--	150	41	93.9	0.0023 U	4.68	14.7	224	0.0064 U	0.0056 U	0.007 U	0.002 U	0.0027 U	0.0056 U
WGL-SW-SW07-0316		20160330	0.022 U	92200	0.047 U	0.64 J	9.7	--	37	38	83.2	0.0023 U	0.078 J	160	603	0.0064 U	0.0056 U	0.007 U	0.002 U	0.0027 U	0.0056 U
WGL-SW07-0517		20170509	0.3 U	31000	1 U	10 U	20 U	--	140	60	25	0.005 U	0.05 U	44	300	0.0097 UJ	0.0097 UJ	0.017 UJ	0.017 UJ	0.017 UJ	0.0097 UJ
WGL-SW07-052218		20180522	0.3 U	22000	1 U	10 U	20 U	--	100	50 U	21	0.004 J	0.05 U	9.5	200	0.0097 UJ	0.0097 UJ	0.018 UJ	0.018 UJ	0.018 UJ	0.0097 UJ
WGL-SW-SW08-1211		20111213	0.4 U	26100	0.4 U	4 U	17.4	--	20	4.7 J	47	0.008 U	0.025 U	11	120 J	0.0095 UJ	0.0095 UJ	0.0095 UJ	0.0048 UJ	0.0048 UJ	0.0095 UJ
WGL-SW-SW08-0312		20120314	0.4 U	532000	0.4 UJ	1 J	15.8	--	130	52	740	0.008 U	0.025 U	260	1700	0.0095 UJ	0.0095 UJ	0.0095 UJ	0.0048 UJ	0.0048 UJ	0.0095 UJ
WGL-SW-SW08-0313		20130318	0.022 U	19100	0.048 U	1 J	27.7	--	27	20	33.1	0.0075 U	0.16	26.1	140	0.0064 U	0.0056 U	0.007 U	0.002 U	0.0027 U	0.0056 U
WGL-SW-SW08-0613		20130612	0.044 J	22500	0.048 U	0.61 U	6.4	--	48	44	27.1	0.0075 U	0.075 U	15.7	160	0.0064 U	0.0056 U	0.007 U	0.002 UJ	0.0027 UJ	0.0056 U
WGL-SW-SW08-0414	WGL-SW-08	20140423	0.025 J	43900	0.048 U	0.61 U	0.73 U	--	34	40	60.2	0.0075 U	3.45	91.5 J	350	0.0013 UJ	0.0011 U	0.0014 U	0.0004 UJ	0.00054 UJ	0.0011 U
WGL-SW-SW08-0415		20150407	0.022 U	7940 J	0.048 U	0.61 U	6.5 J	--	33 J	23 J	9.58 J	0.00442 U	0.176 J	17.4 J	72 J	0.0013 UJ	0.0011 U	0.0014 U	0.0004 UJ	0.00054 UJ	0.0011 UJ
WGL-SW-SW08-0316		20160330	0.022 U	89600	0.047 U	0.65 J	5.1	--	20 U	31	69.5	0.0023 U	0.09 J	293	849	0.0064 U	0.0056 U	0.007 U	0.002 U	0.0027 U	0.0056 U
WGL-SW08-0517		20170509	0.3 U	36000	1 U	10 U	20 U	--	220	44	17	0.005 U	0.05 U	130	490	0.0098 U	0.0098 U	0.018 U	0.018 U	0.018 U	0.0098 U
WGL-SW08-052218		20180522	0.3 U	9600	1 U	10 U	20 U	--	110	78	0.55	0.0059 J	0.03 J	20	170	0.011 U	0.011 U	0.019 U	0.019 U	0.019 U	0.011 U

Table B-3a: West Gate Landfill Surface Water Results

Sample ID	Location ID	Sample Date	PESTICIDES/PCBS (UG/L)					SEMIVOLATILES (UG/L)													
			ENDOSULFAN I	ENDRIN ALDEHYDE	ENDRIN KETONE	GAMMA-CHLORDANE	METHOXYCHLOR	1,1-BIPHENYL	1,4-DIOXANE	2,2'-OXYBIS(1-CHLOROPROPANE)	2,4,5-TRICHLOROPHENOL	2,4,6-TRICHLOROPHENOL	2,4-DICHLOROPHENOL	2,4-DIMETHYLPHENOL	2,4-DINITROPHENOL	2,4-DINITROTOLUENE	2,6-DINITROTOLUENE	2-CHLORONAPHTHALENE	2-CHLOROPHENOL	2-METHYLNAPHTHALENE
PALs			0.056	0.036	0.036	0.0043	0.03	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
WGL-SW-SW01-1211	WGL-SW-01	20111215	0.0047 UJ	0.0094 UJ	0.0094 UJ	0.0047 UJ	0.047 UJ	7.1 U	0.47 UJ	7.1 U	18 U	7.1 U	7.1 U	7.1 U	18 U	7.1 U	7.1 U	7.1 U	7.1 U	0.094 U
WGL-SW-SW01-1211-F		20111215	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW01-0312		20120314	0.0048 UJ	0.0095 UJ	0.0095 UJ	0.0048 UJ	0.048 UJ	7.1 U	**0.054 J**	7.1 U	18 U	7.1 U	7.1 U	7.1 UJ	18 U	7.1 U	7.1 U	7.1 UJ	7.1 U	0.095 U
WGL-SW-SW01-0712		20120709	0.00058 UJ	0.003 UJ	0.00092 UJ	0.00052 U	0.0062 UJ	0.65 U	0.07 U	0.78 U	0.26 U	0.53 U	0.57 U	1.8 U	3.5 U	0.41 U	0.52 U	0.81 U	0.61 U	0.018 U
WGL-SW-SW01-0912		20120907	0.0029 UJ	0.015 UJ	0.0046 UJ	0.0026 U	0.031 UJ	0.65 U	0.07 U	0.78 U	0.26 R	0.53 R	0.57 R	1.8 R	3.5 R	0.41 R	0.52 R	0.81 R	0.61 R	0.018 U
WGL-SW-SW01-0912-D		20120907	0.0029 UJ	0.015 UJ	0.0046 UJ	0.0026 U	0.031 UJ	0.65 U	0.07 U	0.78 U	0.26 R	0.53 R	0.57 R	1.8 R	3.5 R	0.41 R	0.52 R	0.81 R	0.61 R	0.018 U
WGL-SW-SW01-1212		20121203	0.05 UJ	0.1 UJ	0.1 UJ	0.05 UJ	0.5 UJ	10 R	0.1 UJ	10 R	20 R	10 R	10 R	10 R	20 R	10 R	10 R	10 R	10 R	0.1 U
WGL-SW-SW01-1212-D		20121203	0.05 UJ	0.1 UJ	0.1 UJ	0.05 UJ	0.5 UJ	10 UJ	0.1 UJ	10 UJ	20 UJ	10 UJ	10 UJ	10 UJ	20 UJ	10 UJ	10 UJ	10 UJ	10 UJ	0.1 U
WGL-SW-SW01-0313		20130318	0.0029 UJ	0.015 U	0.0046 U	0.0026 U	0.031 U	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 R	1.8 R	3.5 R	0.41 UJ	0.52 UJ	0.81 UJ	0.61 R	0.018 U
WGL-SW-SW01-0313-D		20130318	0.0029 UJ	0.015 U	0.0046 U	0.0026 U	0.031 U	0.65 U	0.07 U	0.78 U	0.26 R	0.53 R	0.57 R	1.8 R	3.5 R	0.41 R	0.52 R	0.81 R	0.61 R	0.018 U
WGL-SW-SW01-0613		20130612	0.0029 UJ	0.015 UJ	0.0046 UJ	0.0026 U	0.031 UJ	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 UJ	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW-SW01-0613-D		20130612	0.0029 UJ	0.015 UJ	0.0046 UJ	0.0026 U	0.031 UJ	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 UJ	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW-SW01-0913		20130924	0.00058 U	**0.024 J**	0.00092 U	0.00052 U	0.0062 U	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 UJ	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW-SW01-0913-D		20130924	0.00058 U	**0.022 J**	0.00092 U	0.00052 U	0.0062 U	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 UJ	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW-SW01-1213		20131217	0.00058 UJ	**0.017 J**	0.00092 UJ	0.00052 U	0.0062 UJ	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 UJ	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW-SW01-1213-D		20131217	0.00058 UJ	0.003 UJ	0.00092 UJ	0.00052 U	0.0062 UJ	0.65 U	0.07 U	0.78 U	0.26 R	0.53 R	0.57 R	1.8 R	3.5 R	0.41 R	0.52 R	0.81 R	0.61 R	0.018 U
WGL-SW-SW01-0414		20140423	0.00058 UJ	0.003 UJ	0.00092 UJ	0.00052 U	0.0062 UJ	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 R	1.8 R	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 R	0.018 U
WGL-SW-SW01-0414-D		20140423	0.00058 UJ	0.003 UJ	0.00092 UJ	0.00052 U	0.0062 UJ	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 R	1.8 R	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 R	0.018 U
WGL-SW-SW01-0614		20140611	0.00058 UJ	0.003 UJ	0.00092 U	0.00052 U	0.0062 U	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 R	1.8 R	3.5 R	0.41 UJ	0.52 UJ	0.81 UJ	0.61 R	0.018 U
WGL-SW-SW01-0614-D		20140611	0.00058 UJ	0.003 UJ	0.00092 U	0.00052 U	0.0062 U	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 R	1.8 R	3.5 R	0.41 UJ	0.52 UJ	0.81 UJ	0.61 R	0.018 U
WGL-SW-SW01-0914		20140924	0.00058 UJ	0.003 UJ	0.00092 U	0.00052 U	0.0062 U	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 R	3.5 R	0.41 UJ	0.52 UJ	0.81 UJ	0.61 R	0.018 U
WGL-SW-SW01-0914-D		20140924	0.00058 UJ	0.003 UJ	0.00092 U	0.00052 U	0.0062 U	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 R	3.5 R	0.41 UJ	0.52 UJ	0.81 UJ	0.61 R	0.018 U
WGL-SW-SW01-0415		20150407	0.00058 UJ	0.003 U	0.00092 UJ	0.00052 U	0.0062 UJ	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 UJ	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW-SW01-0415-D		20150407	0.00058 UJ	0.003 U	0.00092 UJ	0.00052 U	0.0062 UJ	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 UJ	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW-SW01-0915		20150923	0.00058 UJ	0.003 UJ	0.00092 UJ	0.00052 UJ	0.0062 UJ	0.65 U	0.07 UJ	0.78 U	0.26 U	0.53 U	0.57 U	1.8 U	3.5 UJ	0.41 U	0.52 U	0.81 U	0.61 U	0.018 U
WGL-SW-SW01-0915-D		20150923	0.00058 UJ	0.003 UJ	0.00092 UJ	0.00052 UJ	0.0062 UJ	0.65 U	0.07 UJ	0.78 U	0.26 U	0.53 U	0.57 U	1.8 U	3.5 UJ	0.41 U	0.52 U	0.81 U	0.61 U	0.018 U
WGL-SW-SW01-0316		20160330	0.0029 U	0.015 U	0.0046 U	0.0026 U	0.031 U	0.65 U	**0.14**	0.78 U	0.26 U	0.53 U	0.57 U	1.8 U	3.5 UJ	0.41 U	0.52 U	0.81 U	0.61 U	0.018 U
WGL-SW-SW01-0916		20160921	0.0029 UJ	0.0032 UJ	0.0046 UJ	0.0026 UJ	0.031 UJ	0.65 UJ	0.07 UJ	0.78 UJ	0.26 UJ	0.53 UJ	0.57 UJ	1.8 UJ	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW-SW01-0916-D		20160921	0.0029 UJ	0.0032 UJ	0.0046 UJ	0.0026 UJ	0.031 UJ	0.65 U	0.07 UJ	0.78 R	0.26 R	0.53 R	0.57 R	1.8 R	3.5 R	0.41 R	0.52 R	0.81 R	0.61 R	0.018 U
WGL-SW01-0517		20170505	0.0098 UJ	0.0098 UJ	0.0098 UJ	--	0.018 UJ	1.9 UJ	9.6 UJ	2.2 UJ	2.2 U	2.2 U	2.2 U	11 U	22 U	2.2 UJ	2.2 UJ	2.2 UJ	2.2 U	0.19 U
WGL-SW-SW01-1017		20171024	0.01 U	0.01 U	0.01 U	0.01 U	0.019 U	2 UJ	**0.029 J**	2 UJ	2 U	2 U	2 U	9.9 U	20 U	2 UJ	2 UJ	2 UJ	2 U	2 UJ
WGL-SW01-052218		20180522	0.0097 UJ	0.0097 UJ	0.0097 UJ	0.0097 UJ	0.018 UJ	1.9 UJ	--	1.9 UJ	1.9 U	1.9 U	1.9 U	9.7 U	19 U	1.9 UJ	1.9 UJ	1.9 UJ	1.9 U	0.19 UJ

Sample ID	Location ID	Sample Date	PESTICIDES/PCBS (UG/L)					SEMIVOLATILES (UG/L)												
			ENDOSULFAN I	ENDRIN ALDEHYDE	ENDRIN KETONE	GAMMA-CHLORDANE	METHOXYCHLOR	1,1-BIPHENYL	1,4-DIOXANE	2,2'-OXYBIS(1-CHLOROPROPANE)	2,4,5-TRICHLOROPHENOL	2,4,6-TRICHLOROPHENOL	2,4-DICHLOROPHENOL	2,4-DIMETHYLPHENOL	2,4-DINITROPHENOL	2,4-DINITROTOLUENE	2,6-DINITROTOLUENE	2-CHLORONAPHTHALENE	2-CHLOROPHENOL	2-METHYLNAPHTHALENE
PALs			0.056	0.036	0.036	0.0043	0.03	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
WGL-SW-SW02-1211	WGL-SW-02	20111215	0.005 UJ	0.01 UJ	0.01 UJ	0.005 UJ	0.05 UJ	7.9 U	**0.43 J**	7.9 U	20 U	7.9 U	7.9 U	7.9 U	20 U	7.9 U	7.9 U	7.9 U	7.9 U	0.1 UJ
WGL-SW-SW02-1211-D		20111215	0.0052 UJ	0.01 UJ	0.01 UJ	0.0052 UJ	0.052 UJ	7.5 U	0.5 UJ	7.5 U	19 U	7.5 U	7.5 U	7.5 U	19 U	7.5 U	7.5 U	7.5 U	7.5 U	0.1 U
WGL-SW-SW02-0312		20120313	0.0048 UJ	0.0095 UJ	0.0095 U	0.0048 UJ	0.048 U	7.1 U	0.48 U	7.1 U	18 UJ	7.1 UJ	7.1 UJ	7.1 UJ	18 UJ	7.1 U	7.1 U	7.1 UJ	7.1 UJ	0.095 U
WGL-SW-SW02-0712		20120710	0.00058 UJ	0.003 UJ	0.00092 UJ	**0.011**	0.0062 UJ	0.65 U	0.07 U	0.78 U	0.26 U	0.53 U	0.57 U	1.8 U	3.5 U	0.41 U	0.52 U	0.81 U	0.61 U	0.018 U
WGL-SW-SW02-0712-D		20120710	0.00058 UJ	0.003 UJ	0.00092 UJ	0.00052 U	0.0062 UJ	0.65 U	0.07 U	0.78 U	0.26 U	0.53 U	0.57 U	1.8 U	3.5 U	0.41 U	0.52 U	0.81 U	0.61 U	0.018 U
WGL-SW-SW02-0912		20120907	0.0029 UJ	0.015 UJ	0.0046 UJ	0.0026 U	0.031 UJ	0.65 U	0.07 U	0.78 U	0.26 R	0.53 R	0.57 R	1.8 R	3.5 R	0.41 R	0.52 R	0.81 R	0.61 R	0.018 U
WGL-SW-SW02-1212		20121203	0.05 U	0.1 U	0.1 U	0.05 U	0.5 U	10 UJ	0.1 UJ	10 UJ	20 UJ	10 UJ	10 UJ	10 UJ	20 UJ	10 UJ	10 UJ	10 UJ	10 UJ	0.1 U
WGL-SW-SW02-0313		20130318	0.0029 U	0.015 U	0.0046 U	0.0026 U	0.031 U	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 R	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW-SW02-0613		20130612	0.0029 U	0.015 U	0.0046 U	0.0026 U	0.031 U	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 UJ	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW-SW02-0913		20130924	0.00058 U	**0.034 J**	0.00092 U	0.00052 U	0.0062 U	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 UJ	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW-SW02-1213		20131217	0.00058 UJ	0.003 UJ	0.00092 UJ	0.00052 U	0.0062 UJ	0.65 U	0.07 U	0.78 U	0.26 R	0.53 R	0.57 R	1.8 R	3.5 R	0.41 R	0.52 R	0.81 R	0.61 R	0.018 U
WGL-SW-SW02-0414		20140423	0.00058 U	0.003 U	0.00092 U	0.00052 U	0.0062 U	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	--	--	--	--	--	0.61 UJ	**0.12**
WGL-SW-SW02-0614		20140611	0.00058 UJ	0.003 UJ	0.00092 U	0.00052 U	0.0062 U	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 R	1.8 R	3.5 R	0.41 UJ	0.52 UJ	0.81 UJ	0.61 R	0.018 U
WGL-SW-SW02-0914		20140924	**0.014 J**	0.003 UJ	0.00092 U	0.00052 U	0.0062 U	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 R	3.5 R	0.41 UJ	0.52 UJ	0.81 UJ	0.61 R	0.018 U
WGL-SW-SW02-0415		20150407	0.00058 UJ	0.003 U	0.00092 UJ	0.00052 U	0.0062 UJ	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 UJ	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW-SW02-0915		20150923	0.00058 UJ	0.003 UJ	0.00092 UJ	0.00052 UJ	0.0062 UJ	0.65 U	0.07 UJ	0.78 U	0.26 U	0.53 U	0.57 U	1.8 U	**9.8 J**	0.41 U	0.52 U	0.81 U	0.61 U	0.018 U
WGL-SW-SW02-0316		20160330	0.0029 U	0.015 U	0.0046 U	0.0026 U	0.031 U	0.65 U	**0.16**	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 UJ	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW-SW02-0916		20160921	0.0029 UJ	0.0032 UJ	0.0046 UJ	0.0026 UJ	0.031 UJ	0.65 UJ	0.07 UJ	0.78 UJ	0.26 UJ	0.53 UJ	0.57 UJ	1.8 UJ	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW02-0517		20170508	0.0097 UJ	0.0097 UJ	0.0097 UJ	--	0.017 UJ	1.9 UJ	9.6 UJ	1.9 UJ	1.9 U	1.9 U	1.9 U	9.6 U	19 U	1.9 UJ	1.9 UJ	1.9 UJ	1.9 U	0.19 U
WGL-SW-SW02-1017		20171024	0.01 U	0.01 U	0.01 U	0.01 U	0.018 U	1.9 UJ	**0.055 J**	1.9 UJ	1.9 U	1.9 U	1.9 U	9.6 U	19 U	1.9 UJ	1.9 UJ	1.9 UJ	1.9 U	1.9 UJ
WGL-SW02-052118		20180521	0.0095 U	0.0095 U	0.0095 U	0.0095 U	0.017 U	1.9 UJ	--	1.9 UJ	1.9 U	1.9 U	1.9 U	9.5 U	19 U	1.9 UJ	1.9 UJ	1.9 UJ	1.9 U	0.19 U
WGL-SW02-052118-D		20180521	0.0095 U	0.0095 U	0.0095 U	0.0095 U	0.017 U	1.9 UJ	--	1.9 UJ	1.9 U	1.9 U	1.9 U	9.5 U	19 U	1.9 UJ	1.9 UJ	1.9 UJ	1.9 U	0.19 U

Table B-3a: West Gate Landfill Surface Water Results

Sample ID	Location ID	Sample Date	PESTICIDES/PCBS (UG/L)					SEMIVOLATILES (UG/L)												
			ENDOSULFAN I	ENDRIN ALDEHYDE	ENDRIN KETONE	GAMMA-CHLORDANE	METHOXYCHLOR	1,1-BIPHENYL	1,4-DIOXANE	2,2'-OXYBIS(1-CHLOROPROPANE)	2,4,5-TRICHLOROPHENOL	2,4,6-TRICHLOROPHENOL	2,4-DICHLOROPHENOL	2,4-DIMETHYLPHENOL	2,4-DINITROPHENOL	2,4-DINITROTOLUENE	2,6-DINITROTOLUENE	2-CHLORONAPHTHALENE	2-CHLOROPHENOL	2-METHYLNAPHTHALENE
PALs			0.056	0.036	0.036	0.0043	0.03	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
WGL-SW-SW03-1211	WGL-SW-03	20111215	0.0049 UJ	0.0098 UJ	0.0098 UJ	0.0049 UJ	0.049 UJ	7.1 U	0.47 UJ	7.1 U	18 U	7.1 U	7.1 U	7.1 U	18 U	7.1 U	7.1 U	7.1 U	7.1 U	0.094 U
WGL-SW-SW03-0312		20120313	0.0048 UJ	0.0095 UJ	0.0095 UJ	0.0048 UJ	0.048 UJ	7.1 U	**0.065 J**	7.1 U	18 U	7.1 U	7.1 U	7.1 UJ	18 U	7.1 U	7.1 U	7.1 UJ	7.1 U	0.094 U
WGL-SW-SW03-0712		20120710	0.00058 UJ	0.003 UJ	0.00092 UJ	**0.012**	0.0062 UJ	0.65 U	0.07 U	0.78 U	0.26 U	0.53 U	0.57 U	1.8 U	3.5 U	0.41 U	0.52 U	0.81 U	0.61 U	0.018 U
WGL-SW-SW03-0912		20120907	0.0029 UJ	0.015 UJ	0.0046 UJ	0.0026 U	0.031 UJ	0.65 U	0.07 U	0.78 U	0.26 R	0.53 R	0.57 R	1.8 R	3.5 R	0.41 R	0.52 R	0.81 R	0.61 R	0.018 U
WGL-SW-SW03-1212		20121203	0.05 U	0.1 U	0.1 U	0.05 U	0.5 U	**10**	0.1 UJ	**10**	**20 J**	**10 J**	**10 J**	**10 J**	**20**	**10 J**	**10 J**	**10**	**10**	0.1 U
WGL-SW-SW03-1212-D		20121203	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW03-0313		20130318	0.0029 UJ	0.015 U	0.0046 U	0.0026 U	0.031 U	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 R	1.8 R	3.5 R	0.41 UJ	0.52 UJ	0.81 UJ	0.61 R	0.018 U
WGL-SW-SW05-0313		20130318	0.0029 U	0.015 U	0.0046 U	0.0026 U	0.031 U	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 R	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW-SW03-0613		20130612	0.0029 U	0.015 U	0.0046 U	0.0026 U	0.031 U	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 UJ	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW-SW03-0913		20130924	0.00058 U	0.003 UJ	0.00092 U	0.00052 U	0.0062 U	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 UJ	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW-SW03-1213		20131217	0.00058 UJ	**0.022 J**	0.00092 UJ	0.00052 U	0.0062 UJ	0.65 U	0.07 U	0.78 U	0.26 R	0.53 R	0.57 R	1.8 R	3.5 R	0.41 R	0.52 R	0.81 R	0.61 R	0.018 U
WGL-SW-SW03-0414		20140423	0.00058 U	0.003 U	0.00092 U	0.00052 U	0.0062 U	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	--	1.8 UJ	3.5 UJ	0.41 UJ	--	--	0.61 UJ	0.018 U
WGL-SW-SW03-0614		20140611	0.00058 UJ	0.003 UJ	0.00092 U	0.00052 U	0.0062 U	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 R	1.8 R	3.5 R	0.41 UJ	0.52 UJ	0.81 UJ	0.61 R	0.018 U
WGL-SW-SW03-0914		20140924	0.00058 UJ	0.003 UJ	0.00092 U	0.00052 U	0.0062 U	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 R	3.5 R	0.41 UJ	0.52 UJ	0.81 UJ	0.61 R	0.018 U
WGL-SW-SW03-0415		20150407	0.00058 UJ	0.003 U	0.00092 UJ	0.00052 U	0.0062 UJ	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 UJ	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW-SW03-0915		20150923	0.00058 UJ	0.003 UJ	0.00092 UJ	0.00052 UJ	0.0062 UJ	0.65 U	0.07 UJ	0.78 U	0.26 U	0.53 U	0.57 U	1.8 U	3.5 UJ	0.41 U	0.52 U	0.81 U	0.61 U	0.018 U
WGL-SW-SW03-0316		20160330	0.0029 U	0.015 U	0.0046 U	0.0026 U	0.031 U	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 UJ	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW-SW03-0916		20160921	0.0029 UJ	0.0032 UJ	0.0046 UJ	0.0026 UJ	0.031 UJ	0.65 U	0.07 UJ	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 UJ	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW03-0517		20170508	0.0096 U	0.0096 U	0.0096 U	--	0.017 U	1.9 UJ	9.7 UJ	1.9 UJ	1.9 U	1.9 U	1.9 U	9.7 U	19 U	1.9 UJ	1.9 UJ	1.9 UJ	1.9 U	0.2 U
WGL-SW03-0517-D		20170508	0.0096 U	0.0096 U	0.0096 U	--	0.017 U	1.9 UJ	9.6 UJ	1.9 UJ	1.9 U	1.9 U	1.9 U	9.6 U	19 U	1.9 UJ	1.9 UJ	1.9 UJ	1.9 U	0.19 U
WGL-SW03-0517-F-D		20170508	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW03-1017		20171024	0.0097 U	0.0097 U	0.0097 U	0.0097 U	0.017 U	1.9 UJ	**0.075 J**	1.9 UJ	1.9 U	1.9 U	1.9 U	9.7 U	19 U	1.9 UJ	1.9 UJ	1.9 UJ	1.9 U	1.9 UJ
WGL-SW-SW03-1017-D		20171024	0.0097 U	0.0097 U	0.0097 U	0.0097 U	0.018 U	1.9 UJ	**0.077 J**	1.9 UJ	1.9 U	1.9 U	1.9 U	9.7 U	19 U	1.9 UJ	1.9 UJ	1.9 UJ	1.9 U	1.9 UJ
WGL-SW03-052118		20180521	0.0097 U	0.0097 U	0.0097 U	0.0097 U	0.018 U	1.9 UJ	--	1.9 UJ	1.9 U	1.9 U	1.9 U	9.6 U	19 U	1.9 UJ	1.9 UJ	1.9 UJ	1.9 U	0.19 U

Sample ID	Location ID	Sample Date	PESTICIDES/PCBS (UG/L)					SEMIVOLATILES (UG/L)												
			ENDOSULFAN I	ENDRIN ALDEHYDE	ENDRIN KETONE	GAMMA-CHLORDANE	METHOXYCHLOR	1,1-BIPHENYL	1,4-DIOXANE	2,2'-OXYBIS(1-CHLOROPROPANE)	2,4,5-TRICHLOROPHENOL	2,4,6-TRICHLOROPHENOL	2,4-DICHLOROPHENOL	2,4-DIMETHYLPHENOL	2,4-DINITROPHENOL	2,4-DINITROTOLUENE	2,6-DINITROTOLUENE	2-CHLORONAPHTHALENE	2-CHLOROPHENOL	2-METHYLNAPHTHALENE
PALs			0.056	0.036	0.036	0.0043	0.03	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
WGL-SW-SW04-1211		20111213	0.0047 UJ	0.0094 UJ	0.0094 UJ	0.0047 UJ	0.047 UJ	7.1 UJ	**0.069 J**	7.1 UJ	18 UJ	7.1 UJ	7.1 UJ	7.1 UJ	18 UJ	7.1 UJ	7.1 UJ	7.1 UJ	7.1 UJ	0.094 U
WGL-SW-SW04-0312		20120313	0.0048 UJ	0.0095 UJ	0.0095 U	0.0048 UJ	0.048 U	7.1 UJ	**0.052 J**	7.1 UJ	18 UJ	7.1 UJ	7.1 UJ	7.1 UJ	18 UJ	7.1 UJ	7.1 UJ	7.1 UJ	7.1 UJ	0.094 U
WGL-SW-SW04-0312-D		20120313	0.0047 UJ	0.0094 UJ	0.0094 U	0.0047 UJ	0.047 U	7.1 U	**0.11 J**	7.1 U	18 U	7.1 U	7.1 U	7.1 UJ	18 U	7.1 U	7.1 U	7.1 UJ	7.1 U	0.094 U
WGL-SW-SW04-0712		20120711	0.00058 UJ	0.003 UJ	0.00092 UJ	**0.016**	0.0062 UJ	0.65 U	0.07 U	0.78 U	0.26 U	0.53 U	0.57 U	1.8 U	3.5 U	0.41 U	0.52 U	0.81 U	0.61 U	0.018 U
WGL-SW-SW04-0912		20120907	0.0029 UJ	0.015 UJ	0.0046 UJ	0.0026 U	0.031 UJ	0.65 U	0.07 U	0.78 U	0.26 R	0.53 R	0.57 R	1.8 R	3.5 R	0.41 R	0.52 R	0.81 R	0.61 R	0.018 U
WGL-SW-SW04-1212		20121203	0.05 UJ	0.1 UJ	0.1 UJ	0.05 UJ	0.5 UJ	10 R	0.1 UJ	10 R	20 R	10 R	10 R	10 R	20 R	10 R	10 R	10 R	10 R	0.1 U
WGL-SW-SW04-0313		20130318	0.0029 UJ	0.015 UJ	0.0046 U	0.0026 U	0.031 U	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 R	1.8 R	3.5 R	0.41 UJ	0.52 UJ	0.81 UJ	0.61 R	0.018 U
WGL-SW-SW06-0313		20130318	0.0029 UJ	0.015 U	0.0046 U	0.0026 U	0.031 U	0.65 U	0.07 U	0.78 U	0.26 R	0.53 R	0.57 R	1.8 R	3.5 R	0.41 R	0.52 R	0.81 R	0.61 R	0.018 U
WGL-SW-SW04-0613		20130612	0.0029 U	0.015 U	0.0046 U	0.0026 U	0.031 U	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 UJ	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW-SW04-0913		20130924	0.00058 U	0.003 UJ	0.00092 U	0.00052 U	0.0062 U	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 UJ	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW-SW04-1213	WGL-SW-04	20131217	0.00058 UJ	0.003 UJ	0.00092 UJ	0.00052 U	0.0062 UJ	0.65 U	0.07 U	0.78 U	0.26 R	0.53 R	0.57 R	1.8 R	3.5 R	0.41 R	0.52 R	0.81 R	0.61 R	0.018 U
WGL-SW-SW04-0414		20140423	0.00058 U	0.003 U	0.00092 U	0.00052 U	0.0062 U	--	0.07 U	--	0.26 UJ	--	0.57 UJ	1.8 UJ	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW-SW04-0614		20140611	0.00058 UJ	0.003 UJ	0.00092 U	0.00052 U	0.0062 U	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 R	1.8 R	3.5 R	0.41 UJ	0.52 UJ	0.81 UJ	0.61 R	0.018 U
WGL-SW-SW04-0914		20140924	0.00058 UJ	0.003 UJ	0.00092 U	0.00052 U	0.0062 U	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 R	3.5 R	0.41 UJ	0.52 UJ	0.81 UJ	0.61 R	0.018 U
WGL-SW-SW04-0415		20150407	0.00058 UJ	0.003 U	0.00092 UJ	0.00052 U	0.0062 UJ	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 UJ	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW-SW04-0915		20150923	0.00058 UJ	0.003 UJ	0.00092 UJ	0.00052 UJ	0.0062 UJ	0.65 U	0.07 UJ	0.78 U	0.26 U	0.53 U	0.57 U	1.8 U	3.5 UJ	0.41 U	0.52 U	0.81 U	0.61 U	0.018 U
WGL-SW-SW04-0316		20160330	0.0029 U	0.015 U	0.0046 U	0.0026 U	0.031 U	0.65 U	**0.31**	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 UJ	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW-SW04-0916		20160921	0.0029 UJ	0.0032 UJ	0.0046 UJ	0.0026 UJ	0.031 UJ	0.65 U	**0.1 J**	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 UJ	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW04-0517		20170508	0.0097 UJ	0.0097 UJ	0.0097 UJ	--	0.017 UJ	1.9 UJ	9.7 UJ	1.9 UJ	1.9 U	1.9 U	1.9 U	9.7 U	19 U	1.9 UJ	1.9 UJ	1.9 UJ	1.9 U	0.2 U
WGL-SW-SW04-1017		20171023	0.011 UJ	0.011 U	0.011 U	0.011 U	0.02 U	2.1 UJ	**0.053 J**	2.1 UJ	2.1 U	2.1 U	2.1 U	11 U	21 U	2.1 UJ	2.1 UJ	2.1 UJ	2.1 U	2.1 UJ
WGL-SW04-052118		20180521	0.01 U	0.01 U	0.01 U	0.01 U	0.018 U	1.9 UJ	--	1.9 UJ	1.9 U	1.9 U	1.9 U	9.7 U	19 U	1.9 UJ	1.9 UJ	1.9 UJ	1.9 U	0.19 U
WGL-SW-SW05-1211		20111213	0.0047 UJ	0.0094 UJ	0.0094 UJ	0.0047 UJ	0.047 UJ	7.1 U	**0.21 J**	7.1 U	18 UJ	7.1 UJ	7.1 UJ	7.1 UJ	18 UJ	7.1 U	7.1 U	7.1 U	7.1 UR	0.094 U
WGL-SW-SW05-0613		20130612	0.0029 UJ	0.015 UJ	0.0046 UJ	0.0026 U	0.031 UJ	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 UJ	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW-SW05-0414	WGL-SW-05	20140423	0.00058 UJ	0.003 UJ	0.00092 UJ	0.00052 U	0.0062 UJ	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 R	--	3.5 UJ	--	0.52 UJ	--	0.61 R	0.018 U
WGL-SW-SW05-0415		20150407	0.00058 UJ	0.003 U	0.00092 UJ	0.00052 U	0.0062 UJ	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 UJ	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW05-0517		20170508	0.0096 UR	0.0096 UR	0.0096 UR	--	0.017 UR	2 UJ	9.6 UJ	1.9 UJ	1.9 U	1.9 U	1.9 U	9.6 U	19 U	1.9 UJ	1.9 UJ	1.9 UJ	1.9 U	0.19 UJ
WGL-SW-SW06-1211		20111214	0.0047 UJ	0.0094 UJ	0.0094 UJ	0.0047 UJ	0.047 UJ	7.1 U	**0.13 J**	7.1 U	18 UJ	7.1 UJ	7.1 UJ	7.1 UJ	18 UJ	7.1 U	7.1 U	7.1 U	7.1 UR	0.094 U
WGL-SW-SW06-0312		20120314	0.0048 UJ	0.0095 UJ	0.0095 U	**0.03 J**	**0.068 J**	7.1 U	**0.56 J**	7.1 U	18 U	7.1 U	7.1 U	7.1 UJ	18 U	7.1 U	7.1 U	7.1 UJ	7.1 U	0.095 U
WGL-SW-SW06-0613		20130612	0.0029 UJ	0.015 UJ	0.0046 UJ	0.0026 U	0.031 UJ	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 UJ	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW-SW06-0614	WGL-SW-06	20140611	0.00058 U	**0.035**	0.00092 U	0.00052 U	0.0062 U	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 UJ	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW-SW06-0415		20150407	0.00058 UJ	0.003 U	0.00092 UJ	0.00052 U	0.0062 UJ	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 UJ	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW-SW06-0316		20160330	0.0029 U	0.015 U	0.0046 U	0.0026 U	0.031 U	0.65 U	**1.5**	0.78 U	0.26 U	0.53 U	0.57 U	1.8 U	3.5 UJ	0.41 U	0.52 U	0.81 U	0.61 U	0.018 U
WGL-SW06-0517		20170509	0.0098 UJ	0.0098 UJ	0.0098 UJ	--	0.018 UJ	1.9 UJ	9.7 UJ	1.9 UJ	1.9 U	1.9 U	1.9 U	9.7 U	19 U	1.9 UJ	1.9 UJ	1.9 UJ	1.9 U	0.2 U
WGL-SW06-052218		20180522	0.0096 UX	0.0096 UX	0.0096 UX	0.0096 UX	0.017 UX	1.9 UJ	--	1.9 UJ	1.9 U	1.9 U	1.9 U	9.7 U	19 U	1.9 UJ	1.9 UJ	1.9 UJ	1.9 U	0.19 UJ

Sample ID	Location ID	Sample Date	PESTICIDES/PCBS (UG/L)					SEMIVOLATILES (UG/L)												
			ENDOSULFAN I	ENDRIN ALDEHYDE	ENDRIN KETONE	GAMMA-CHLORDANE	METHOXYCHLOR	1,1-BIPHENYL	1,4-DIOXANE	2,2'-OXYBIS(1-CHLOROPROPANE)	2,4,5-TRICHLOROPHENOL	2,4,6-TRICHLOROPHENOL	2,4-DICHLOROPHENOL	2,4-DIMETHYLPHENOL	2,4-DINITROPHENOL	2,4-DINITROTOLUENE	2,6-DINITROTOLUENE	2-CHLORONAPHTHALENE	2-CHLOROPHENOL	2-METHYLNAPHTHALENE
PALs			0.056	0.036	0.036	0.0043	0.03	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
WGL-SW-SW07-1211		20111213	0.0047 UJ	0.0094 UJ	0.0094 UJ	0.0047 UJ	0.047 UJ	7.1 UJ	**0.09 J**	7.1 UJ	18 UJ	7.1 UJ	7.1 UJ	7.1 UJ	18 UJ	7.1 UJ	7.1 UJ	7.1 UJ	7.1 UJ	0.094 U
WGL-SW-SW07-0312		20120313	0.0048 UJ	0.0095 UJ	**0.0069 J**	0.0048 UJ	0.048 U	7.1 U	**0.19 J**	7.1 U	18 U	7.1 U	7.1 U	7.1 UJ	18 U	7.1 U	7.1 U	7.1 UJ	7.1 U	0.094 U
WGL-SW-SW07-0912		20120911	0.0029 UJ	0.015 UJ	0.0046 UJ	0.0026 U	0.031 U	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 R	0.57 R	1.8 R	3.5 UJ	0.41 UJ	0.52 UJ	0.81 R	0.61 R	0.018 U
WGL-SW-SW07-1212		20121203	0.05 U	0.1 U	0.1 U	0.05 U	0.5 U	10 UJ	0.1 UJ	10 U	20 U	10 U	10 U	10 UJ	20 UJ	10 U	10 U	10 UJ	10 U	0.1 U
WGL-SW-SW07-0313		20130318	0.0029 U	0.015 U	0.0046 U	0.0026 U	0.031 U	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 R	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW-SW07-0613		20130612	0.0029 UJ	0.015 UJ	0.0046 UJ	0.0026 U	0.031 UJ	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 UJ	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW-SW07-0414	WGL-SW-07	20140423	0.00058 UJ	0.003 UJ	0.00092 UJ	0.00052 U	0.0062 UJ	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 R	1.8 R	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 R	0.018 U
WGL-SW-SW07-0614		20140611	0.00058 U	**0.036**	0.00092 U	0.00052 U	0.0062 U	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 UJ	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW-SW07-0415		20150407	0.00058 UJ	0.003 U	0.00092 UJ	0.00052 U	0.0062 UJ	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 UJ	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW-DUP01-0316		20160330	0.0029 U	0.015 U	0.0046 U	0.0026 U	0.031 U	0.65 U	0.07 U	0.78 U	0.26 U	0.53 U	0.57 U	1.8 U	3.5 UJ	0.41 U	0.52 U	0.81 U	0.61 U	0.018 U
WGL-SW-SW07-0316		20160330	0.0029 U	0.015 U	0.0046 U	0.0026 U	0.031 U	0.65 U	0.07 U	0.78 U	0.26 U	0.53 U	0.57 U	1.8 U	3.5 UJ	0.41 U	0.52 U	0.81 U	0.61 U	0.018 U
WGL-SW07-0517		20170509	0.0097 UJ	0.0097 UJ	0.0097 UJ	--	0.017 UJ	1.9 UJ	9.7 UJ	1.9 UJ	1.9 U	1.9 U	1.9 U	9.7 U	19 U	1.9 UJ	1.9 UJ	1.9 UJ	1.9 U	0.19 U
WGL-SW07-052218		20180522	0.0097 UJ	0.0097 UJ	0.0097 UJ	0.0097 UJ	0.018 UJ	2 UJ	--	2 UJ	2 U	2 U	2 U	9.8 U	20 U	2 UJ	2 UJ	2 UJ	2 U	0.2 UJ
WGL-SW-SW08-1211		20111213	0.0048 UJ	0.0095 UJ	0.0095 UJ	0.0048 UJ	0.048 UJ	7.1 UJ	**0.097 J**	7.1 UJ	18 UJ	7.1 UJ	7.1 UJ	7.1 UJ	18 UJ	7.1 UJ	7.1 UJ	7.1 UJ	7.1 UJ	0.096 U
WGL-SW-SW08-0312		20120314	0.0048 UJ	0.0095 UJ	0.0095 UJ	**0.01 J**	0.048 UJ	7.1 U	**0.41 J**	7.1 U	18 UJ	7.1 UJ	7.1 UJ	7.1 UJ	18 UR	7.1 U	7.1 U	7.1 UJ	7.1 UJ	0.094 U
WGL-SW-SW08-0313		20130318	0.0029 U	0.015 U	0.0046 U	0.0026 U	0.031 U	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 R	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW-SW08-0613		20130612	0.0029 UJ	0.015 UJ	0.0046 UJ	0.0026 U	0.031 UJ	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 UJ	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW-SW08-0414	WGL-SW-08	20140423	0.00058 UJ	0.003 UJ	0.00092 UJ	0.00052 U	0.0062 UJ	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 R	1.8 R	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 R	0.018 U
WGL-SW-SW08-0415		20150407	0.00058 UJ	0.003 U	0.00092 UJ	0.00052 U	0.0062 UJ	0.65 U	0.07 U	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 UJ	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW-SW08-0316		20160330	0.0029 U	0.015 U	0.0046 U	0.0026 U	0.031 U	0.65 U	**0.35**	0.78 U	0.26 UJ	0.53 UJ	0.57 UJ	1.8 UJ	3.5 UJ	0.41 UJ	0.52 UJ	0.81 UJ	0.61 UJ	0.018 U
WGL-SW08-0517		20170509	0.0098 U	0.0098 U	0.0098 U	--	0.018 U	1.9 UJ	9.7 UJ	1.9 UJ	1.9 U	1.9 U	1.9 U	9.7 U	19 U	1.9 UJ	1.9 UJ	1.9 UJ	1.9 U	0.19 U
WGL-SW08-052218		20180522	0.011 U	0.011 U	0.011 U	0.011 U	0.019 U	2.1 UJ	--	2.1 UJ	2.1 U	2.1 U	2.1 U	10 U	21 U	2.1 UJ	2.1 UJ	2.1 UJ	2.1 U	0.2 UJ

Table B-3a: West Gate Landfill Surface Water Results

Sample ID	Location ID	Sample Date	SEMIVOLATILES (UG/L)																	
			2-METHYLPHENOL	2-NITROANILINE	2-NITROPHENOL	3&4-METHYLPHENOL	3,3'-DICHLOROBENZIDINE	3-NITROANILINE	ACENAPHTHENE	ATRAZINE	BENZALDEHYDE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H,I)PERYLENE	BENZO(K)FLUORANTHENE	BIS(2-ETHYLHEXYL)PHTHALATE	BUTYL BENZYL PHTHALATE	CAPROLACTAM	CHRYSENE
PALs			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
WGL-SW-SW01-1211	WGL-SW-01	20111215	7.1 U	18 U	7.1 U	7.1 U	18 U	18 U	0.094 U	0.094 U	7.1 UJ	0.094 UJ	0.094 U	0.094 UJ	0.094 U	0.094 U	13 U	7.1 U	7.1 U	0.094 U
WGL-SW-SW01-1211-F		20111215	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW01-0312		20120314	7.1 U	18 U	7.1 U	7.1 UJ	18 U	18 U	0.095 U	0.095 U	7.1 UJ	**0.045 J**	0.095 U	0.095 U	0.095 U	0.095 U	**2.3 J**	7.1 U	7.1 U	0.095 U
WGL-SW-SW01-0712		20120709	0.96 U	0.71 U	0.6 U	--	1.7 U	0.97 U	0.019 U	0.019 U	0.51 U	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	**2.3 J**	0.32 U	1.1 U	0.073 U
WGL-SW-SW01-0912		20120907	0.96 R	0.71 R	0.6 R	--	1.7 R	0.97 UJ	0.019 R	0.019 U	0.51 U	0.042 R	0.017 R	0.056 R	0.021 R	0.02 R	**1.9 J**	0.32 UJ	1.1 U	0.073 R
WGL-SW-SW01-0912-D		20120907	0.96 R	0.71 R	0.6 R	--	1.7 R	0.97 UJ	0.019 R	0.019 U	0.51 U	0.042 R	0.017 R	0.056 R	0.021 R	0.02 R	**2.1 J**	0.32 UJ	1.1 U	0.073 R
WGL-SW-SW01-1212		20121203	10 R	20 R	10 R	--	10 R	20 R	0.1 U	0.5 UJ	10 R	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	10 R	10 R	10 R	0.1 U
WGL-SW-SW01-1212-D		20121203	10 UJ	20 UJ	10 UJ	--	10 UJ	20 UJ	0.1 U	0.5 UJ	10 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	5.4 UJ	1.9 UJ	10 UJ	0.1 U
WGL-SW-SW01-0313		20130318	0.96 R	0.71 R	0.6 R	--	1.7 R	0.97 UJ	0.019 U	0.019 U	0.51 U	0.042 R	0.017 R	0.056 R	0.021 R	0.02 R	1.3 UJ	0.32 UJ	1.1 U	0.073 R
WGL-SW-SW01-0313-D		20130318	0.96 R	0.71 R	0.6 R	--	1.7 R	0.97 R	0.019 U	0.019 U	0.51 U	0.042 R	0.017 R	0.056 R	0.021 R	0.02 R	1.3 R	0.32 R	1.1 U	0.073 R
WGL-SW-SW01-0613		20130612	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 R	0.019 U	0.51 U	0.042 R	0.017 R	0.056 R	0.021 R	0.02 R	1.3 UJ	0.32 UJ	1.1 U	0.073 R
WGL-SW-SW01-0613-D		20130612	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 R	0.019 U	0.51 U	0.042 R	0.017 R	0.056 R	0.021 R	0.02 R	1.3 UJ	0.32 UJ	1.1 U	0.073 R
WGL-SW-SW01-0913		20130924	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 U	0.019 U	0.51 U	0.042 U	0.017 U	0.056 R	0.021 U	0.02 R	1.3 UJ	0.32 UJ	1.1 U	0.073 U
WGL-SW-SW01-0913-D		20130924	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 U	0.019 U	0.51 U	0.042 U	0.017 U	0.056 R	0.021 U	0.02 R	1.3 UJ	0.32 UJ	1.1 U	0.073 U
WGL-SW-SW01-1213		20131217	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 U	0.019 U	0.51 U	0.042 R	0.017 R	0.056 R	0.021 R	0.02 R	1.3 UJ	0.32 UJ	1.1 U	0.073 R
WGL-SW-SW01-1213-D		20131217	0.96 R	0.71 R	0.6 R	--	1.7 R	0.97 R	0.019 U	0.019 U	0.51 U	0.042 R	0.017 R	0.056 R	0.021 R	0.02 R	**1.6 J**	0.32 R	1.1 U	0.073 R
WGL-SW-SW01-0414		20140423	0.96 R	0.71 UJ	0.6 UJ	--	1.7 R	0.97 R	0.019 R	0.019 U	0.51 U	0.042 R	0.017 R	0.056 R	0.021 R	0.02 R	--	0.32 R	1.1 U	0.073 R
WGL-SW-SW01-0414-D		20140423	0.96 R	0.71 UJ	0.6 UJ	--	1.7 R	0.97 R	0.019 R	0.019 U	0.51 U	0.042 R	0.017 R	0.056 R	0.021 R	0.02 R	1.3 R	0.32 R	1.1 U	0.073 R
WGL-SW-SW01-0614		20140611	0.96 R	0.71 UJ	0.6 R	--	1.7 R	0.97 UJ	0.019 R	0.019 U	0.51 U	0.042 U	0.017 R	0.056 R	0.021 R	0.02 R	1.3 UJ	0.32 UJ	1.1 U	0.073 R
WGL-SW-SW01-0614-D		20140611	0.96 R	0.71 UJ	0.6 R	--	1.7 R	0.97 UJ	0.019 R	0.019 U	0.51 U	0.042 U	0.017 R	0.056 R	0.021 R	0.02 R	1.3 UJ	0.32 UJ	1.1 U	0.073 R
WGL-SW-SW01-0914		20140924	0.96 R	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 U	0.019 U	0.51 U	0.042 U	0.017 R	0.056 R	0.021 R	0.02 U	1.3 UJ	0.32 UJ	1.1 U	0.073 U
WGL-SW-SW01-0914-D		20140924	0.96 R	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 U	0.019 U	0.51 U	0.042 U	0.017 R	0.056 R	0.021 R	0.02 U	1.3 UJ	0.32 UJ	1.1 U	0.073 U
WGL-SW-SW01-0415		20150407	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 R	0.019 U	0.51 U	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	**1.5 J**	0.32 UJ	1.1 U	0.073 U
WGL-SW-SW01-0415-D		20150407	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 R	0.019 U	0.51 U	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	**2.8 J**	0.32 UJ	1.1 U	0.073 U
WGL-SW-SW01-0915		20150923	0.96 U	0.71 U	0.6 U	--	1.7 U	0.97 U	0.019 U	**0.59 J**	0.51 UJ	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	1.3 U	0.32 U	1.1 U	0.073 U
WGL-SW-SW01-0915-D		20150923	0.96 U	0.71 U	0.6 U	--	1.7 U	0.97 U	0.019 U	0.019 UJ	0.51 UJ	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	**3.2 J**	0.32 U	1.1 UJ	0.073 U
WGL-SW-SW01-0316		20160330	0.96 UJ	0.71 U	0.6 U	--	1.7 U	0.97 U	0.019 UJ	0.019 U	0.51 UJ	0.042 U	0.017 UJ	0.056 UJ	0.021 UJ	0.02 UJ	1.3 U	0.32 U	1.1 R	0.073 U
WGL-SW-SW01-0916		20160921	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 U	0.019 U	0.51 UJ	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	1.3 UJ	0.32 UJ	1.1 UJ	0.073 U
WGL-SW-SW01-0916-D		20160921	0.96 R	0.71 R	0.6 R	--	1.7 R	0.97 R	0.019 U	0.019 U	0.51 U	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	1.3 R	0.32 R	1.1 U	0.073 U
WGL-SW01-0517		20170505	2.2 U	2.2 UJ	2.2 U	2.2 U	66 UJ	11 UJ	0.19 U	1.9 UJ	1.9 UJ	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	2.8 UJ	2.2 UJ	**4.3 J**	0.096 U
WGL-SW-SW01-1017		20171024	2 U	2 UJ	2 U	2 U	59 UJ	9.9 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	5 UJ	2 UJ	2 UJ	2.5 UJ	2 UJ	2 UJ	2 UJ
WGL-SW01-052218		20180522	1.9 U	1.9 UJ	1.9 U	1.9 U	58 UJ	9.7 UJ	0.19 UJ	1.9 UJ	1.9 UJ	0.19 U	0.19 UJ	0.19 UJ	0.19 UJ	0.19 UJ	2.4 UJ	1.9 UJ	1.9 UJ	0.097 UJ

Sample ID	Location ID	Sample Date	SEMIVOLATILES (UG/L)																	
			2-METHYLPHENOL	2-NITROANILINE	2-NITROPHENOL	3&4-METHYLPHENOL	3,3'-DICHLOROBENZIDINE	3-NITROANILINE	ACENAPHTHENE	ATRAZINE	BENZALDEHYDE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H,I)PERYLENE	BENZO(K)FLUORANTHENE	BIS(2-ETHYLHEXYL)PHTHALATE	BUTYL BENZYL PHTHALATE	CAPROLACTAM	CHRYSENE
PALs			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
WGL-SW-SW02-1211	WGL-SW-02	20111215	7.9 U	20 U	7.9 U	7.9 U	20 U	20 U	0.1 UJ	0.1 UJ	7.9 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	17 U	7.9 U	7.9 U	0.1 UJ
WGL-SW-SW02-1211-D	WGL-SW-02	20111215	7.5 U	19 U	7.5 U	7.5 U	19 U	19 U	0.1 U	0.1 U	7.5 UJ	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 U	14 U	7.5 U	7.5 U	0.1 U
WGL-SW-SW02-0312	WGL-SW-02	20120313	7.1 UJ	18 U	7.1 UJ	7.1 UJ	18 U	18 U	0.095 U	0.095 U	7.1 UJ	**0.056 J**	0.095 U	0.095 U	0.095 U	0.095 U	7.1 U	7.1 U	7.1 U	0.095 U
WGL-SW-SW02-0712	WGL-SW-02	20120710	0.96 U	0.71 U	0.6 U	--	1.7 U	0.97 U	0.019 U	0.019 U	0.51 U	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	**2.3 J**	0.32 U	1.1 U	0.073 U
WGL-SW-SW02-0712-D	WGL-SW-02	20120710	0.96 U	0.71 U	0.6 U	--	1.7 U	0.97 U	0.019 U	0.019 U	0.51 U	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	**1.4 J**	0.32 U	1.1 U	0.073 U
WGL-SW-SW02-0912	WGL-SW-02	20120907	0.96 R	0.71 R	0.6 R	--	1.7 R	0.97 UJ	0.019 R	0.019 U	0.51 U	0.042 R	0.017 R	0.056 R	0.021 R	0.02 R	**1.5 J**	0.32 UJ	1.1 U	0.073 R
WGL-SW-SW02-1212	WGL-SW-02	20121203	10 UJ	20 UJ	10 UJ	--	10 UJ	20 UJ	0.1 U	0.5 UJ	10 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	**3.1 J**	**1.9 J**	10 UJ	0.1 U
WGL-SW-SW02-0313	WGL-SW-02	20130318	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 U	0.019 U	0.51 U	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	1.3 UJ	0.32 UJ	1.1 U	0.073 U
WGL-SW-SW02-0613	WGL-SW-02	20130612	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 U	0.019 U	0.51 U	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	1.3 UJ	0.32 UJ	1.1 U	0.073 U
WGL-SW-SW02-0913	WGL-SW-02	20130924	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 U	0.019 U	0.51 U	0.042 U	0.017 U	0.056 R	0.021 U	0.02 R	1.3 UJ	0.32 UJ	1.1 U	0.073 U
WGL-SW-SW02-1213	WGL-SW-02	20131217	0.96 R	0.71 R	0.6 R	--	1.7 R	0.97 R	0.019 U	0.019 U	0.51 U	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	1.3 R	0.32 R	1.1 U	0.073 U
WGL-SW-SW02-0414	WGL-SW-02	20140423	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	**0.11**	**0.14 J**	0.51 U	**0.1**	0.017 R	**0.1**	0.021 U	**0.11 J**	**2.2 J**	0.32 UJ	--	**0.1**
WGL-SW-SW02-0614	WGL-SW-02	20140611	0.96 R	0.71 UJ	0.6 R	--	1.7 R	0.97 UJ	0.019 R	0.019 U	0.51 U	0.042 U	0.017 R	0.056 R	0.021 R	0.02 R	1.3 UJ	0.32 UJ	1.1 U	0.073 R
WGL-SW-SW02-0914	WGL-SW-02	20140924	0.96 R	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 U	0.019 U	0.51 U	0.042 U	0.017 R	0.056 R	0.021 R	0.02 U	1.3 UJ	0.32 UJ	1.1 U	0.073 U
WGL-SW-SW02-0415	WGL-SW-02	20150407	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 R	0.019 U	0.51 U	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	**2.1 J**	0.32 UJ	1.1 U	0.073 U
WGL-SW-SW02-0915	WGL-SW-02	20150923	0.96 U	0.71 U	0.6 U	--	1.7 U	0.97 U	0.019 U	0.019 UJ	0.51 UJ	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	1.3 U	0.32 U	1.1 UJ	0.073 U
WGL-SW-SW02-0316	WGL-SW-02	20160330	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 UJ	**0.23 J**	0.51 UJ	0.042 U	0.017 UJ	0.056 UJ	0.021 UJ	0.02 UJ	1.3 UJ	0.32 UJ	1.1 U	0.073 U
WGL-SW-SW02-0916	WGL-SW-02	20160921	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 U	0.019 U	0.51 UJ	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	1.3 UJ	0.32 UJ	1.1 UJ	0.073 U
WGL-SW02-0517	WGL-SW-02	20170508	1.9 U	1.9 UJ	1.9 U	1.9 U	57 UJ	9.6 UJ	0.19 U	1.9 UJ	1.9 UJ	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	2.4 UJ	1.9 UJ	1.9 UJ	0.096 U
WGL-SW-SW02-1017	WGL-SW-02	20171024	1.9 U	1.9 UJ	1.9 U	1.9 U	58 UJ	9.6 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	4.8 UJ	1.9 UJ	1.9 UJ	2.4 UJ	1.9 UJ	1.9 UJ	1.9 UJ
WGL-SW02-052118	WGL-SW-02	20180521	1.9 U	1.9 UJ	1.9 U	1.9 U	57 UJ	9.5 UJ	0.19 U	1.9 UJ	1.9 UJ	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	2.4 UJ	1.9 UJ	1.9 UJ	0.096 U
WGL-SW02-052118-D	WGL-SW-02	20180521	1.9 U	1.9 UJ	1.9 U	1.9 U	57 UJ	9.5 UJ	0.19 U	1.9 UJ	1.9 UJ	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	2.4 UJ	1.9 UJ	1.9 UJ	0.096 U

Table B-3a: West Gate Landfill Surface Water Results

Sample ID	Location ID	Sample Date	SEMIVOLATILES (UG/L)																	
			2-METHYLPHENOL	2-NITROANILINE	2-NITROPHENOL	3&4-METHYLPHENOL	3,3'-DICHLOROBENZIDINE	3-NITROANILINE	ACENAPHTHENE	ATRAZINE	BENZALDEHYDE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H,I)PERYLENE	BENZO(K)FLUORANTHENE	BIS(2-ETHYLHEXYL)PHTHALATE	BUTYL BENZYL PHTHALATE	CAPROLACTAM	CHRYSENE
PALs			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
WGL-SW-SW03-1211	WGL-SW-03	20111215	7.1 U	18 U	7.1 U	7.1 U	18 UR	18 UJ	0.094 U	0.094 U	7.1 UJ	0.094 UJ	0.094 U	0.094 UJ	0.094 U	0.094 U	14 U	7.1 U	7.1 U	0.094 U
WGL-SW-SW03-0312		20120313	7.1 U	18 U	7.1 U	7.1 UJ	18 U	18 U	0.094 U	0.094 U	7.1 UJ	**0.071 J**	0.094 U	0.094 U	0.094 U	0.094 U	7.1 U	7.1 U	7.1 U	0.094 U
WGL-SW-SW03-0712		20120710	0.96 U	0.71 U	0.6 U	--	1.7 U	0.97 U	0.019 U	0.019 U	0.51 U	**0.47**	**0.58**	**1**	**0.55**	**0.41**	**2.4 J**	0.32 U	1.1 U	**0.83**
WGL-SW-SW03-0912		20120907	0.96 R	0.71 R	0.6 R	--	1.7 R	0.97 UJ	0.019 R	0.019 U	0.51 U	0.042 R	0.017 R	0.056 R	0.021 R	0.02 R	**1.4 J**	0.32 UJ	1.1 U	0.073 R
WGL-SW-SW03-1212		20121203	**10 J**	**20 J**	**10**	--	**10 J**	**20 J**	0.1 U	0.5 UJ	10 UJ	0.1 U	0.1 U	**0.1**	0.1 U	0.1 U	**3.3 J**	**1.8 J**	10 U	0.1 U
WGL-SW-SW03-1212-D		20121203	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW03-0313		20130318	0.96 R	0.71 R	0.6 R	--	1.7 R	0.97 UJ	0.019 U	0.019 U	0.51 U	0.042 R	0.017 R	0.056 R	0.021 R	0.02 R	1.3 UJ	0.32 UJ	1.1 U	0.073 R
WGL-SW-SW05-0313		20130318	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 U	0.019 U	0.51 U	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	1.3 UJ	0.32 UJ	1.1 U	0.073 U
WGL-SW-SW03-0613		20130612	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 U	0.019 U	0.51 U	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	1.3 UJ	0.32 UJ	1.1 U	0.073 U
WGL-SW-SW03-0913		20130924	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 U	0.019 U	0.51 U	0.042 U	0.017 U	0.056 R	0.021 U	0.02 R	1.3 UJ	0.32 UJ	1.1 U	0.073 U
WGL-SW-SW03-1213		20131217	0.96 R	0.71 R	0.6 R	--	1.7 R	0.97 R	0.019 U	0.019 U	0.51 U	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	1.3 R	0.32 R	1.1 U	0.073 U
WGL-SW-SW03-0414		20140423	--	0.71 UJ	--	--	1.7 UJ	0.97 UJ	0.019 U	0.019 U	--	0.042 U	0.017 R	0.056 U	0.021 U	0.02 U	**1.8 J**	--	1.1 U	0.073 U
WGL-SW-SW03-0614		20140611	0.96 R	0.71 UJ	0.6 R	--	1.7 R	0.97 UJ	0.019 R	0.019 U	0.51 U	0.042 U	0.017 R	0.056 R	0.021 R	0.02 R	1.3 UJ	0.32 UJ	1.1 U	0.073 R
WGL-SW-SW03-0914		20140924	0.96 R	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 U	0.019 U	0.51 U	0.042 U	0.017 R	0.056 R	0.021 R	0.02 U	1.3 UJ	0.32 UJ	1.1 U	0.073 U
WGL-SW-SW03-0415		20150407	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 R	0.019 U	0.51 U	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	1.3 UJ	0.32 UJ	1.1 U	0.073 U
WGL-SW-SW03-0915		20150923	0.96 U	0.71 U	0.6 U	--	1.7 U	0.97 U	0.019 U	0.019 UJ	0.51 UJ	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	1.3 U	0.32 U	1.1 UJ	0.073 U
WGL-SW-SW03-0316		20160330	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 UJ	0.019 U	0.51 UJ	0.042 U	0.017 UJ	0.056 UJ	0.021 UJ	0.02 UJ	1.3 UJ	0.32 UJ	1.1 U	0.073 U
WGL-SW-SW03-0916		20160921	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 U	0.019 U	0.51 U	**0.11 J**	0.017 U	**0.11 J**	0.021 U	0.02 U	1.3 UJ	0.32 UJ	1.1 U	0.073 U
WGL-SW03-0517		20170508	1.9 U	1.9 UJ	1.9 U	1.9 U	58 UJ	9.7 UJ	0.2 U	1.9 UJ	1.9 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.4 UJ	1.9 UJ	1.9 UJ	0.099 U
WGL-SW03-0517-D		20170508	1.9 U	1.9 UJ	1.9 U	1.9 U	58 UJ	9.6 UJ	0.19 U	1.9 UJ	1.9 UJ	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	2.4 UJ	1.9 UJ	1.9 UJ	0.096 U
WGL-SW03-0517-F-D		20170508	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW03-1017		20171024	1.9 U	1.9 UJ	1.9 U	1.9 U	58 UJ	9.7 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	4.9 UJ	1.9 UJ	1.9 UJ	2.4 UJ	1.9 UJ	1.9 UJ	1.9 UJ
WGL-SW-SW03-1017-D		20171024	1.9 U	1.9 UJ	1.9 U	1.9 U	58 UJ	9.7 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	4.9 UJ	1.9 UJ	1.9 UJ	2.4 UJ	1.9 UJ	1.9 UJ	1.9 UJ
WGL-SW03-052118		20180521	1.9 U	1.9 UJ	1.9 U	1.9 U	58 UJ	**9.6 J**	0.19 U	1.9 UJ	1.9 UJ	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	2.4 UJ	1.9 UJ	1.9 UJ	0.097 U

Table B-3a: West Gate Landfill Surface Water Results

Sample ID	Location ID	Sample Date	SEMIVOLATILES (UG/L)																	
			2-METHYLPHENOL	2-NITROANILINE	2-NITROPHENOL	3&4-METHYLPHENOL	3,3'-DICHLOROBENZIDINE	3-NITROANILINE	ACENAPHTHENE	ATRAZINE	BENZALDEHYDE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H,I)PERYLENE	BENZO(K)FLUORANTHENE	BIS(2-ETHYLHEXYL)PHTHALATE	BUTYL BENZYL PHTHALATE	CAPROLACTAM	CHRYSENE
PALs			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
WGL-SW-SW04-1211		20111213	7.1 UJ	18 UJ	7.1 UJ	7.1 UJ	18 UJ	18 UJ	0.094 U	0.094 U	7.1 UJ	0.094 U	0.094 U	0.092 U	0.094 U	0.094 U	13 U	7.1 UJ	7.1 UJ	**0.062 J**
WGL-SW-SW04-0312		20120313	7.1 UJ	18 UJ	7.1 UJ	7.1 UJ	18 UJ	18 UJ	0.094 U	0.094 U	7.1 UJ	**0.062 J**	0.094 U	0.094 U	0.094 U	0.094 U	7.1 U	7.1 UJ	7.1 UR	0.094 U
WGL-SW-SW04-0312-D		20120313	7.1 U	18 U	7.1 U	7.1 UJ	18 U	18 U	0.094 U	0.094 U	7.1 UJ	**0.092 J**	**0.091 J**	**0.12 J**	0.094 U	0.094 U	7.1 U	7.1 U	7.1 U	0.094 U
WGL-SW-SW04-0712		20120711	0.96 U	0.71 U	0.6 U	--	1.7 U	0.97 U	0.019 U	0.019 U	0.51 U	0.042 U	0.017 U	**0.11**	0.021 U	0.02 U	**1.7 J**	0.32 U	1.1 U	0.073 U
WGL-SW-SW04-0912		20120907	0.96 R	0.71 R	0.6 R	--	1.7 R	0.97 UJ	0.019 R	0.019 U	0.51 U	0.042 R	0.017 R	0.056 R	0.021 R	0.02 R	**2.3 J**	0.32 UJ	1.1 U	0.073 R
WGL-SW-SW04-1212		20121203	10 R	20 R	10 R	--	10 R	20 R	0.1 U	0.5 UJ	10 R	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	10 R	10 R	10 R	0.1 U
WGL-SW-SW04-0313		20130318	0.96 R	0.71 R	0.6 R	--	1.7 R	0.97 UJ	0.019 U	0.019 U	0.51 U	0.042 R	0.017 R	0.056 R	0.021 R	0.02 R	1.3 UJ	0.32 UJ	1.1 U	0.073 R
WGL-SW-SW06-0313		20130318	0.96 R	0.71 R	0.6 R	--	1.7 R	0.97 R	0.019 U	0.019 U	0.51 U	0.042 R	0.017 R	0.056 R	0.021 R	0.02 R	1.3 R	0.32 R	1.1 U	0.073 R
WGL-SW-SW04-0613		20130612	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 U	0.019 U	0.51 U	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	1.3 UJ	0.32 UJ	1.1 U	0.073 U
WGL-SW-SW04-0913		20130924	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 U	0.019 U	0.51 U	0.042 U	0.017 U	0.056 R	0.021 U	0.02 R	1.3 UJ	0.32 UJ	1.1 U	0.073 U
WGL-SW-SW04-1213	WGL-SW-04	20131217	0.96 R	0.71 R	0.6 R	--	1.7 R	0.97 R	0.019 UJ	0.019 U	0.51 U	0.042 UJ	0.017 UJ	0.056 UJ	0.021 UJ	0.02 UJ	1.3 R	0.32 R	1.1 U	0.073 UJ
WGL-SW-SW04-0414		20140423	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 U	0.019 U	0.51 U	0.042 U	0.017 R	0.056 U	0.021 U	0.02 U	1.3 UJ	0.32 UJ	--	0.073 U
WGL-SW-SW04-0614		20140611	0.96 R	0.71 UJ	0.6 R	--	1.7 R	0.97 UJ	0.019 R	0.019 U	0.51 U	0.042 U	0.017 R	0.056 R	0.021 R	0.02 R	1.3 UJ	0.32 UJ	1.1 U	0.073 R
WGL-SW-SW04-0914		20140924	0.96 R	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 U	0.019 U	0.51 U	0.042 U	0.017 R	0.056 R	0.021 R	0.02 U	1.3 UJ	0.32 UJ	1.1 U	0.073 U
WGL-SW-SW04-0415		20150407	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 R	0.019 U	0.51 U	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	**1.4 J**	0.32 UJ	1.1 U	0.073 U
WGL-SW-SW04-0915		20150923	0.96 U	0.71 U	0.6 U	--	1.7 U	0.97 U	0.019 U	0.019 UJ	0.51 UJ	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	1.3 U	0.32 U	1.1 UJ	0.073 U
WGL-SW-SW04-0316		20160330	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 UJ	0.019 U	0.51 UJ	0.042 U	0.017 UJ	0.056 UJ	0.021 UJ	0.02 UJ	1.3 UJ	0.32 UJ	1.1 U	0.073 U
WGL-SW-SW04-0916		20160921	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 U	0.019 U	0.51 U	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	1.3 UJ	0.32 UJ	1.1 U	0.073 U
WGL-SW04-0517		20170508	1.9 U	1.9 UJ	1.9 U	1.9 U	58 UJ	9.7 UJ	0.2 U	1.9 UJ	1.9 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.4 UJ	1.9 UJ	1.9 UJ	0.098 U
WGL-SW-SW04-1017		20171023	2.1 U	2.1 UJ	2.1 U	2.1 U	64 UR	11 UJ	2.1 UJ	2.1 UJ	2.1 UJ	2.1 UJ	2.1 UJ	5.3 UJ	2.1 UJ	2.1 UJ	2.6 UJ	2.1 UJ	2.1 UJ	2.1 UJ
WGL-SW04-052118		20180521	1.9 U	1.9 UJ	1.9 U	1.9 U	58 UX	9.7 UJ	0.19 U	1.9 UJ	1.9 UJ	0.19 UJ	0.19 UJ	0.19 UJ	0.19 UJ	0.19 UJ	2.4 UJ	1.9 UJ	1.9 UJ	0.097 UJ
WGL-SW-SW05-1211		20111213	7.1 UJ	18 U	7.1 UR	7.1 UJ	18 UJ	18 U	0.094 U	0.094 U	7.1 UJ	0.094 U	0.094 U	0.15 U	0.082 U	0.094 UJ	28 U	7.1 U	7.1 U	0.094 U
WGL-SW-SW05-0613		20130612	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 R	0.019 U	0.51 U	0.042 R	0.017 R	0.056 R	0.021 R	0.02 R	1.3 UJ	0.32 UJ	1.1 U	0.073 R
WGL-SW-SW05-0414	WGL-SW-05	20140423	0.96 R	0.71 UJ	0.6 UJ	--	1.7 R	0.97 R	0.019 R	0.019 U	0.51 U	0.042 R	0.017 R	0.056 R	0.021 R	0.02 R	1.3 R	--	1.1 U	0.073 R
WGL-SW-SW05-0415		20150407	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 R	0.019 U	0.51 U	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	**2 J**	0.32 UJ	1.1 U	0.073 U
WGL-SW05-0517		20170508	1.9 U	1.9 UJ	1.9 U	1.9 U	58 UJ	9.6 UJ	0.19 UJ	1.9 UJ	1.9 UJ	0.19 UJ	0.19 UJ	**0.1 J**	0.19 UJ	0.19 UJ	2.4 UJ	1.9 UJ	1.9 UJ	**0.072 J**
WGL-SW-SW06-1211		20111214	7.1 UJ	18 U	7.1 UR	7.1 UJ	18 UJ	18 U	0.094 U	0.094 U	7.1 UJ	0.094 U	0.094 U	0.089 U	0.094 U	0.094 U	20 U	7.1 U	7.1 U	**0.043 J**
WGL-SW-SW06-0312		20120314	7.1 U	18 U	7.1 U	7.1 UJ	18 UJ	18 U	0.095 U	**0.069 J**	**5 J**	**0.084 J**	**0.091 J**	**0.15 J**	0.095 U	0.095 U	**2.9 J**	7.1 UJ	7.1 U	**0.037 J**
WGL-SW-SW06-0613		20130612	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 R	0.019 U	0.51 U	0.042 R	0.017 R	0.056 R	0.021 R	0.02 R	1.3 UJ	0.32 UJ	1.1 U	0.073 R
WGL-SW-SW06-0614	WGL-SW-06	20140611	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 R	0.019 U	0.51 U	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	1.3 UJ	0.32 UJ	1.1 U	0.073 R
WGL-SW-SW06-0415		20150407	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 R	0.019 U	0.51 U	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	**1.8 J**	0.32 UJ	1.1 U	0.073 U
WGL-SW-SW06-0316		20160330	0.96 U	0.71 U	0.6 U	--	1.7 U	0.97 U	0.019 UJ	0.019 U	0.51 UJ	0.042 U	**2.2 J**	**2.4 J**	**5.8 J**	**0.54 J**	1.3 U	0.32 U	1.1 U	0.073 U
WGL-SW06-0517		20170509	1.9 U	1.9 UJ	1.9 U	1.9 U	58 UJ	9.7 UJ	0.2 U	1.9 UJ	1.9 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.4 UJ	1.9 UJ	1.9 UJ	0.098 U
WGL-SW06-052218		20180522	1.9 U	1.9 UJ	1.9 U	**5.4 J**	58 UJ	9.7 UJ	0.19 UJ	1.9 UJ	1.9 UJ	0.19 UJ	0.19 UJ	0.19 UJ	0.19 UJ	0.19 UJ	2.4 UJ	1.9 UJ	1.9 UJ	0.096 UJ

Sample ID	Location ID	Sample Date	SEMIVOLATILES (UG/L)																	
			2-METHYLPHENOL	2-NITROANILINE	2-NITROPHENOL	3&4-METHYLPHENOL	3,3'-DICHLOROBENZIDINE	3-NITROANILINE	ACENAPHTHENE	ATRAZINE	BENZALDEHYDE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H,I)PERYLENE	BENZO(K)FLUORANTHENE	BIS(2-ETHYLHEXYL)PHTHALATE	BUTYL BENZYL PHTHALATE	CAPROLACTAM	CHRYSENE
PALs			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
WGL-SW-SW07-1211	WGL-SW-07	20111213	7.1 UJ	18 UJ	7.1 UJ	7.1 UJ	18 UJ	18 UJ	0.094 U	0.094 U	7.1 UJ	0.094 U	0.094 U	0.13 U	0.078 U	0.094 UJ	13 U	7.1 UJ	7.1 UJ	0.094 U
WGL-SW-SW07-0312	WGL-SW-07	20120313	7.1 U	18 U	7.1 U	7.1 UJ	18 U	18 U	0.094 U	0.094 U	7.1 UJ	**0.058 J**	0.094 U	0.094 U	0.094 U	0.094 U	**1.9 J**	7.1 U	7.1 U	0.094 U
WGL-SW-SW07-0912	WGL-SW-07	20120911	0.96 R	0.71 UJ	0.6 R	--	1.7 R	0.97 UJ	0.019 R	0.019 U	0.51 U	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	**2.2 J**	0.32 UJ	1.1 U	0.073 U
WGL-SW-SW07-1212	WGL-SW-07	20121203	10 U	20 U	10 U	--	10 U	20 U	0.1 U	0.5 UJ	10 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	10 UJ	10 U	10 U	0.1 U
WGL-SW-SW07-0313	WGL-SW-07	20130318	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 U	0.019 U	0.51 U	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	1.3 UJ	0.32 UJ	1.1 U	0.073 U
WGL-SW-SW07-0613	WGL-SW-07	20130612	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 R	0.019 U	0.51 U	0.042 R	0.017 R	0.056 R	0.021 R	0.02 R	1.3 UJ	0.32 UJ	1.1 U	0.073 R
WGL-SW-SW07-0414	WGL-SW-07	20140423	0.96 R	0.71 UJ	0.6 UJ	--	1.7 R	0.97 R	0.019 R	0.019 U	0.51 U	0.042 R	0.017 R	0.056 R	0.021 R	0.02 R	1.3 R	0.32 R	1.1 U	0.073 R
WGL-SW-SW07-0614	WGL-SW-07	20140611	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 R	0.019 U	0.51 U	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	1.3 UJ	0.32 UJ	1.1 U	0.073 R
WGL-SW-SW07-0415	WGL-SW-07	20150407	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 R	0.019 U	0.51 U	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	1.3 UJ	**1.5 J**	1.1 U	0.073 U
WGL-SW-DUP01-0316	WGL-SW-07	20160330	0.96 U	0.71 U	0.6 U	--	1.7 U	0.97 U	0.019 UJ	0.019 U	0.51 UJ	0.042 U	0.017 UJ	0.056 UJ	0.021 UJ	0.02 UJ	1.3 U	0.32 U	1.1 U	0.073 U
WGL-SW-SW07-0316	WGL-SW-07	20160330	0.96 U	0.71 U	0.6 U	--	1.7 U	0.97 U	0.019 UJ	**0.24 J**	0.51 UJ	0.042 U	0.017 UJ	0.056 UJ	0.021 UJ	0.02 UJ	1.3 U	0.32 U	1.1 U	0.073 U
WGL-SW07-0517	WGL-SW-07	20170509	1.9 U	1.9 UJ	1.9 U	1.9 U	58 UJ	9.7 UJ	0.19 U	1.9 UJ	1.9 UJ	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	2.4 UJ	1.9 UJ	1.9 UJ	0.097 U
WGL-SW07-052218	WGL-SW-07	20180522	2 U	2 UJ	2 U	2 U	59 UJ	9.8 UJ	0.2 UJ	2 UJ	2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.4 UJ	2 UJ	2 UJ	0.1 U
WGL-SW-SW08-1211	WGL-SW-08	20111213	7.1 UJ	18 UJ	7.1 UJ	7.1 UJ	18 UJ	18 UJ	0.096 U	0.096 U	7.1 UJ	0.096 U	0.096 U	0.096 U	0.096 U	0.096 U	15 U	7.1 UJ	7.1 UJ	0.096 U
WGL-SW-SW08-0312	WGL-SW-08	20120314	7.1 UJ	18 U	7.1 UJ	7.1 UJ	18 UR	18 U	0.094 U	0.094 U	7.1 UJ	**0.072 J**	**0.077 J**	**0.11 J**	0.094 UJ	0.094 UJ	**2.6 J**	7.1 U	7.1 U	0.094 UJ
WGL-SW-SW08-0313	WGL-SW-08	20130318	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 U	0.019 U	0.51 U	0.042 U	0.017 U	**0.13**	0.021 U	0.02 U	1.3 UJ	0.32 UJ	1.1 U	**0.11**
WGL-SW-SW08-0613	WGL-SW-08	20130612	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 R	0.019 U	0.51 U	0.042 R	0.017 R	0.056 R	0.021 R	0.02 R	1.3 UJ	0.32 UJ	1.1 U	0.073 R
WGL-SW-SW08-0414	WGL-SW-08	20140423	0.96 R	0.71 UJ	0.6 UJ	--	1.7 R	0.97 R	0.019 R	0.019 U	0.51 U	0.042 R	0.017 R	0.056 R	0.021 R	0.02 R	1.3 R	0.32 R	1.1 U	0.073 R
WGL-SW-SW08-0415	WGL-SW-08	20150407	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 R	0.019 U	0.51 U	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	1.3 UJ	**1.4 J**	1.1 U	0.073 U
WGL-SW-SW08-0316	WGL-SW-08	20160330	0.96 UJ	0.71 UJ	0.6 UJ	--	1.7 UJ	0.97 UJ	0.019 UJ	**0.24 J**	0.51 UJ	0.042 U	0.017 UJ	0.056 UJ	0.021 UJ	0.02 UJ	1.3 UJ	0.32 UJ	1.1 U	0.073 U
WGL-SW08-0517	WGL-SW-08	20170509	1.9 U	1.9 UJ	1.9 U	1.9 U	58 UJ	9.7 UJ	0.19 U	1.9 UJ	1.9 UJ	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	2.4 UJ	1.9 UJ	1.9 UJ	**0.05 J**
WGL-SW08-052218	WGL-SW-08	20180522	2.1 U	2.1 UJ	2.1 U	2.1 U	62 UX	10 UJ	0.2 UJ	2.1 UJ	2.1 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.6 UJ	2.1 UJ	2.1 UJ	0.099 U

Sample ID	Location ID	Sample Date	SEMIVOLATILES (UG/L)											VOLATILES (UG/L)			
			DIBENZO(A,H)ANTHRACENE	DIMETHYL PHTHALATE	DI-N-BUTYL PHTHALATE	FLUORANTHENE	FLUORENE	HEXACHLOROBENZENE	INDENO(1,2,3-CD)PYRENE	PENTACHLOROPHENOL	PHENANTHRENE	PHENOL	PYRENE	ACETONE	CARBON DISULFIDE	METHYL TERT-BUTYL ETHER	TOLUENE
PALs			NC	NC	NC	NC	NC	NC	NC	15	NC	NC	NC	NC	NC	NC	NC
WGL-SW-SW01-1211	WGL-SW-01	20111215	0.094 U	7.1 U	7.1 U	0.094 U	0.094 U	0.094 UJ	0.094 U	0.47 UJ	0.094 U	7.1 U	0.094 UJ	2.5 U	0.5 U	0.5 U	0.5 U
WGL-SW-SW01-1211-F		20111215	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW01-0312		20120314	0.095 U	7.1 UJ	7.1 U	0.095 U	0.095 U	0.095 U	**0.22 J**	0.48 UJ	0.095 U	7.1 U	0.095 U	2.5 U	0.5 U	0.5 U	0.5 U
WGL-SW-SW01-0712		20120709	0.018 U	0.37 U	**1.9 J**	**0.13**	0.017 U	0.014 U	0.019 U	0.055 U	**0.32**	0.75 U	0.016 U	2.2 UJ	0.34 U	0.24 U	0.32 U
WGL-SW-SW01-0912		20120907	0.018 R	0.37 R	**3 J**	0.019 R	0.017 R	0.014 U	0.019 R	0.055 U	0.019 R	0.75 R	0.016 R	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW01-0912-D		20120907	0.018 R	0.37 R	**3 J**	0.019 R	0.017 R	0.014 U	0.019 R	0.055 U	0.019 R	0.75 R	0.016 R	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW01-1212		20121203	0.1 U	10 R	2.4 UJ	0.1 U	0.1 U	0.5 U	0.1 U	1 UJ	0.1 U	10 R	0.1 U	5 U	1 U	1 U	1 U
WGL-SW-SW01-1212-D		20121203	0.1 U	10 UJ	2.6 UJ	0.1 U	0.1 U	0.5 U	0.1 U	1 UJ	0.1 U	10 UJ	0.1 U	5 U	**2.2**	1 U	1 U
WGL-SW-SW01-0313		20130318	0.018 R	0.37 UJ	0.48 UJ	0.019 R	0.017 R	0.014 U	0.019 R	0.055 U	0.019 R	0.75 R	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW01-0313-D		20130318	0.018 R	0.37 R	0.48 R	0.019 R	0.017 R	0.014 U	0.019 R	0.055 U	0.019 R	0.75 R	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW01-0613		20130612	0.018 R	0.37 UJ	0.48 UJ	0.019 U	0.017 R	0.014 U	0.019 R	0.055 U	0.019 R	0.75 UJ	0.016 R	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW01-0613-D		20130612	0.018 R	0.37 UJ	0.48 UJ	0.019 U	0.017 R	0.014 U	0.019 R	0.055 U	0.019 R	0.75 UJ	0.016 R	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW01-0913		20130924	0.018 U	0.37 UJ	**2.5 J**	0.019 U	0.017 U	0.014 U	0.019 U	0.055 U	0.019 U	0.75 UJ	0.016 U	2.2 UJ	0.34 U	0.24 U	0.32 U
WGL-SW-SW01-0913-D		20130924	0.018 U	0.37 UJ	**2.2 J**	0.019 U	0.017 U	0.014 U	0.019 U	0.055 U	0.019 U	0.75 UJ	0.016 U	2.2 UJ	0.34 U	0.24 U	0.32 U
WGL-SW-SW01-1213		20131217	0.018 R	0.37 UJ	0.48 UJ	0.019 R	0.017 U	0.014 U	0.019 R	0.055 U	0.019 R	0.75 UJ	0.016 R	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW01-1213-D		20131217	0.018 R	0.37 R	0.48 R	0.019 R	0.017 U	0.014 U	0.019 R	0.055 U	0.019 R	0.75 R	0.016 R	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW01-0414		20140423	0.018 R	0.37 UJ	**7.8 J**	0.019 R	0.017 R	0.014 U	0.019 R	0.055 U	0.019 R	0.75 R	0.016 R	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW01-0414-D		20140423	0.018 R	0.37 UJ	**8.7 J**	0.019 R	0.017 R	0.014 U	0.019 R	0.055 U	0.019 R	0.75 R	0.016 R	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW01-0614		20140611	0.018 R	0.37 UJ	0.48 UJ	0.019 U	0.017 U	0.014 U	0.019 R	0.055 U	0.019 U	0.75 R	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW01-0614-D		20140611	0.018 R	0.37 UJ	0.48 UJ	0.019 U	0.017 U	0.014 U	0.019 R	0.055 U	0.019 U	0.75 R	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW01-0914		20140924	0.018 R	0.37 UJ	0.48 UJ	0.019 U	0.017 U	0.014 U	0.019 R	0.055 U	0.019 U	0.75 R	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW01-0914-D		20140924	0.018 R	0.37 UJ	0.48 UJ	0.019 U	0.017 U	0.014 U	0.019 R	0.055 U	0.019 U	0.75 R	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW01-0415		20150407	0.018 U	0.37 UJ	**7.9 J**	0.019 U	0.017 R	0.014 U	0.019 U	0.055 U	0.019 U	0.75 UJ	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW01-0415-D		20150407	0.018 U	0.37 UJ	**5.6 J**	0.019 U	0.017 R	0.014 U	0.019 U	0.055 U	0.019 U	0.75 UJ	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW01-0915		20150923	0.018 U	**3.4 J**	0.48 U	0.019 U	0.017 U	0.014 U	0.019 U	0.055 U	0.019 U	**1.2 J**	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW01-0915-D		20150923	0.018 U	**3 J**	0.48 U	0.019 U	0.017 U	0.014 U	0.019 U	0.055 U	0.019 U	0.75 U	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW01-0316		20160330	0.018 UJ	0.37 U	0.48 U	0.019 UJ	0.017 U	0.014 U	0.019 UJ	0.055 UJ	0.019 U	0.75 U	0.016 UJ	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW01-0916		20160921	0.018 U	0.37 UJ	0.48 UJ	0.019 U	0.017 U	0.014 U	0.019 U	0.055 R	0.019 U	0.75 UJ	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW01-0916-D		20160921	0.018 U	0.37 R	0.48 R	0.019 U	0.017 U	0.014 U	0.019 U	0.055 UJ	0.019 U	0.75 R	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW01-0517		20170505	0.19 U	2.2 UJ	2.2 UJ	0.19 U	0.19 U	2.2 UJ	0.19 U	4.4 U	0.19 U	1.9 U	0.19 U	10 U	2 U	0.5 U	1 U
WGL-SW-SW01-1017		20171024	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	4 U	2 UJ	2 U	2 UJ	**7.1 J**	2 UJ	0.5 UJ	1 UJ
WGL-SW01-052218		20180522	0.19 UJ	1.9 UJ	1.9 UJ	0.19 U	0.19 UJ	1.9 UJ	0.19 UJ	3.9 U	0.19 U	1.9 U	0.19 U	10 U	2 U	0.36 U	1 U

Sample ID	Location ID	Sample Date	SEMIVOLATILES (UG/L)											VOLATILES (UG/L)			
			DIBENZO(A,H)ANTHRACENE	DIMETHYL PHTHALATE	DI-N-BUTYL PHTHALATE	FLUORANTHENE	FLUORENE	HEXACHLOROBENZENE	INDENO(1,2,3-CD)PYRENE	PENTACHLOROPHENOL	PHENANTHRENE	PHENOL	PYRENE	ACETONE	CARBON DISULFIDE	METHYL TERT-BUTYL ETHER	TOLUENE
PALs			NC	NC	NC	NC	NC	NC	NC	15	NC	NC	NC	NC	NC	NC	NC
WGL-SW-SW02-1211	WGL-SW-02	20111215	0.1 UJ	7.9 U	7.9 U	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.53 UJ	0.1 UJ	7.9 U	0.1 UJ	2.5 U	0.5 U	0.5 U	0.5 U
WGL-SW-SW02-1211-D		20111215	0.1 U	7.5 U	7.5 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.5 UJ	0.1 U	7.5 U	0.1 UJ	2.5 U	0.5 U	0.5 U	0.5 U
WGL-SW-SW02-0312		20120313	0.095 U	7.1 UJ	7.1 U	0.095 U	0.095 U	0.095 U	0.095 U	0.48 UJ	0.095 U	7.1 UJ	0.095 U	**2.3 J**	0.5 U	0.5 U	0.5 U
WGL-SW-SW02-0712		20120710	0.018 U	0.37 U	**2 J**	**0.12**	0.017 U	0.014 U	0.019 U	0.055 U	**0.31**	0.75 U	0.016 U	2.2 UJ	0.34 U	0.24 U	0.32 U
WGL-SW-SW02-0712-D		20120710	0.018 U	0.37 U	**1.3 J**	0.019 U	0.017 U	0.014 U	0.019 U	0.055 U	0.019 U	0.75 U	0.016 U	2.2 UJ	0.34 U	0.24 U	0.32 U
WGL-SW-SW02-0912		20120907	0.018 R	0.37 R	**2.3 J**	0.019 R	0.017 R	0.014 U	0.019 R	0.055 U	0.019 R	0.75 R	0.016 R	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW02-1212		20121203	0.1 U	10 UJ	**2.6 J**	0.1 U	0.1 U	0.5 U	0.1 U	1 UJ	0.1 U	10 U	0.1 U	5 U	1 U	1 U	1 U
WGL-SW-SW02-0313		20130318	0.018 U	0.37 UJ	0.48 UJ	0.019 U	0.017 U	0.014 U	0.019 U	0.055 U	0.019 U	0.75 UJ	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW02-0613		20130612	0.018 U	0.37 UJ	0.48 UJ	0.019 U	0.017 U	0.014 U	0.019 U	0.055 U	0.019 U	0.75 UJ	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW02-0913		20130924	0.018 U	0.37 UJ	**2.3 J**	0.019 U	0.017 U	0.014 U	0.019 U	0.055 U	0.019 U	0.75 UJ	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW02-1213		20131217	0.018 U	0.37 R	0.48 R	0.019 U	0.017 U	0.014 U	0.019 U	0.055 U	0.019 U	0.75 R	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW02-0414		20140423	0.018 U	0.37 UJ	**28 J**	**0.12**	**0.11**	0.014 U	**0.1 J**	0.055 U	**0.11**	--	**0.11**	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW02-0614		20140611	0.018 R	0.37 UJ	0.48 UJ	0.019 U	0.017 U	0.014 U	0.019 R	0.055 U	0.019 U	0.75 R	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW02-0914		20140924	0.018 R	0.37 UJ	0.48 UJ	0.019 U	0.017 U	0.014 U	0.019 R	0.055 U	0.019 U	0.75 R	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW02-0415		20150407	0.018 U	0.37 UJ	**4.4 J**	0.019 U	0.017 R	0.014 U	0.019 U	0.055 U	0.019 U	0.75 UJ	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW02-0915		20150923	0.018 U	**3.4 J**	0.48 U	0.019 U	0.017 U	0.014 U	0.019 U	0.055 U	0.019 U	0.75 U	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW02-0316		20160330	0.018 UJ	0.37 UJ	0.48 UJ	0.019 UJ	0.017 U	**0.24**	0.019 UJ	**1 J**	0.019 U	0.75 UJ	0.016 UJ	**5.7**	0.34 U	0.24 U	0.32 U
WGL-SW-SW02-0916		20160921	0.018 U	0.37 UJ	0.48 UJ	0.019 U	0.017 U	0.014 U	0.019 U	0.055 UJ	0.019 U	0.75 UJ	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW02-0517		20170508	0.19 U	1.9 UJ	1.9 UJ	0.19 U	0.19 U	1.9 UJ	0.19 U	3.8 U	0.19 U	1.9 U	0.19 U	10 U	2 U	0.5 U	1 U
WGL-SW-SW02-1017		20171024	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	3.9 U	1.9 UJ	1.9 U	1.9 UJ	10 UJ	2 UJ	0.5 UJ	1 UJ
WGL-SW02-052118		20180521	0.19 U	1.9 UJ	1.9 UJ	0.19 U	0.19 U	1.9 UJ	0.19 U	3.8 U	0.19 U	1.9 U	0.19 U	10 U	2 U	0.5 U	1 U
WGL-SW02-052118-D		20180521	0.19 U	1.9 UJ	1.9 UJ	0.19 U	0.19 U	1.9 UJ	0.19 U	3.8 U	0.19 U	1.9 U	0.19 U	10 U	2 U	0.5 U	1 U

Sample ID	Location ID	Sample Date	SEMIVOLATILES (UG/L)											VOLATILES (UG/L)			
			DIBENZO(A,H)ANTHRACENE	DIMETHYL PHTHALATE	DI-N-BUTYL PHTHALATE	FLUORANTHENE	FLUORENE	HEXACHLOROBENZENE	INDENO(1,2,3-CD)PYRENE	PENTACHLOROPHENOL	PHENANTHRENE	PHENOL	PYRENE	ACETONE	CARBON DISULFIDE	METHYL TERT-BUTYL ETHER	TOLUENE
PALs			NC	NC	NC	NC	NC	NC	NC	15	NC	NC	NC	NC	NC	NC	NC
WGL-SW-SW03-1211	WGL-SW-03	20111215	0.094 U	7.1 U	7.1 U	0.094 U	0.094 U	0.094 UJ	0.094 UJ	0.47 UJ	0.094 U	7.1 U	0.094 UJ	2.5 U	0.5 U	0.5 U	0.5 U
WGL-SW-SW03-0312	WGL-SW-03	20120313	0.094 U	7.1 UJ	7.1 U	0.094 U	0.094 U	0.094 U	0.094 U	0.47 UJ	0.094 U	7.1 U	0.094 U	2.5 U	0.5 U	0.5 U	0.5 U
WGL-SW-SW03-0712	WGL-SW-03	20120710	**0.11**	0.37 U	**1.8 J**	**1.4**	0.017 U	0.014 U	**0.47**	0.055 U	**0.47**	0.75 U	**1.2**	2.2 UJ	0.34 U	0.24 U	0.32 U
WGL-SW-SW03-0912	WGL-SW-03	20120907	0.018 R	0.37 R	**2.1 J**	0.019 R	0.017 R	0.014 U	0.019 R	0.055 U	0.019 R	0.75 R	0.016 R	2.2 U	**2**	0.24 U	0.32 U
WGL-SW-SW03-1212	WGL-SW-03	20121203	0.1 U	10 U	**2.6 J**	**0.12**	0.1 U	0.5 U	0.1 U	1 UJ	0.1 U	10 U	**0.1**	5 U	**2.2**	1 U	1 U
WGL-SW-SW03-1212-D	WGL-SW-03	20121203	--	--	--	--	--	--	--	--	--	--	--	--	**2.2**	--	--
WGL-SW-SW03-0313	WGL-SW-03	20130318	0.018 R	0.37 UJ	0.48 UJ	0.019 R	0.017 R	0.014 U	0.019 R	0.055 U	0.019 R	0.75 R	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW05-0313	WGL-SW-03	20130318	0.018 U	0.37 UJ	0.48 UJ	0.019 U	0.017 U	0.014 U	0.019 U	0.055 U	0.019 U	0.75 UJ	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW03-0613	WGL-SW-03	20130612	0.018 U	0.37 UJ	0.48 UJ	0.019 U	0.017 U	0.014 U	0.019 U	0.055 U	0.019 U	0.75 UJ	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW03-0913	WGL-SW-03	20130924	0.018 U	0.37 UJ	**2 J**	0.019 U	0.017 U	0.014 U	0.019 U	0.055 U	0.019 U	0.75 UJ	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW03-1213	WGL-SW-03	20131217	0.018 U	0.37 R	0.48 R	0.019 U	0.017 U	0.014 U	0.019 U	0.055 U	0.019 U	0.75 R	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW03-0414	WGL-SW-03	20140423	0.018 U	0.37 UJ	**25 J**	0.019 U	0.017 U	0.014 U	0.019 U	0.055 U	0.019 U	0.75 UJ	0.016 U	--	--	--	--
WGL-SW-SW03-0614	WGL-SW-03	20140611	0.018 R	0.37 UJ	0.48 UJ	0.019 U	0.017 U	0.014 U	0.019 R	0.055 U	0.019 U	0.75 R	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW03-0914	WGL-SW-03	20140924	0.018 R	0.37 UJ	0.48 UJ	0.019 U	0.017 U	0.014 U	0.019 R	0.055 U	0.019 U	0.75 R	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW03-0415	WGL-SW-03	20150407	0.018 U	0.37 UJ	**4.5 J**	0.019 U	0.017 R	0.014 U	0.019 U	0.055 U	0.019 U	0.75 UJ	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW03-0915	WGL-SW-03	20150923	0.018 U	**3.9 J**	0.48 U	0.019 U	0.017 U	0.014 U	0.019 U	0.055 U	0.019 U	0.75 U	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW03-0316	WGL-SW-03	20160330	0.018 UJ	0.37 UJ	0.48 UJ	0.019 UJ	0.017 U	0.014 U	0.019 UJ	0.055 UJ	0.019 U	0.75 UJ	0.016 UJ	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW03-0916	WGL-SW-03	20160921	0.018 U	0.37 UJ	0.48 UJ	**0.11 J**	0.017 U	0.014 U	0.019 U	0.055 UJ	0.019 U	0.75 UJ	**0.11 J**	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW03-0517	WGL-SW-03	20170508	0.2 U	1.9 UJ	1.9 UJ	0.2 U	0.2 U	1.9 UJ	0.2 U	3.9 U	0.2 U	1.9 U	0.2 U	10 U	2 U	0.5 U	1 U
WGL-SW03-0517-D	WGL-SW-03	20170508	0.19 U	1.9 UJ	1.9 UJ	0.19 U	0.19 U	1.9 UJ	0.19 U	3.8 U	0.19 U	1.9 U	0.19 U	10 U	2 U	0.5 U	1 U
WGL-SW03-0517-F-D	WGL-SW-03	20170508	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SW-SW03-1017	WGL-SW-03	20171024	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	3.9 U	1.9 UJ	1.9 U	1.9 UJ	10 U	2 U	0.5 U	1 U
WGL-SW-SW03-1017-D	WGL-SW-03	20171024	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	3.9 U	1.9 UJ	1.9 U	1.9 UJ	10 U	2 U	0.5 U	1 U
WGL-SW03-052118	WGL-SW-03	20180521	0.19 U	1.9 UJ	1.9 UJ	0.19 U	0.19 U	1.9 UJ	0.19 U	3.8 U	0.19 U	1.9 U	0.19 U	10 U	2 U	0.5 U	1 U

Sample ID	Location ID	Sample Date	SEMIVOLATILES (UG/L) DIBENZO(A,H)ANTHRACENE	DIMETHYL PHTHALATE	DI-N-BUTYL PHTHALATE	FLUORANTHENE	FLUORENE	HEXACHLOROBENZENE	INDENO(1,2,3-CD)PYRENE	PENTACHLOROPHENOL	PHENANTHRENE	PHENOL	PYRENE	VOLATILES (UG/L) ACETONE	CARBON DISULFIDE	METHYL TERT-BUTYL ETHER	TOLUENE
PALs			NC	NC	NC	NC	NC	NC	NC	15	NC	NC	NC	NC	NC	NC	NC
WGL-SW-SW04-1211		20111213	0.094 U	7.1 UJ	7.1 UJ	0.094 UJ	0.094 U	0.094 U	0.094 U	0.47 U	0.094 U	7.1 UJ	0.094 U	2.5 U	0.5 U	0.5 U	0.5 U
WGL-SW-SW04-0312		20120313	0.094 U	7.1 UJ	7.1 UJ	0.094 U	0.094 U	0.094 U	0.094 U	0.48 UJ	0.094 U	7.1 UJ	0.094 U	2.5 U	0.5 U	0.5 U	0.5 U
WGL-SW-SW04-0312-D		20120313	0.094 U	7.1 UJ	7.1 U	**0.11 J**	0.094 U	0.094 U	**0.23 J**	0.47 UJ	**0.12 J**	7.1 U	**0.11 J**	2.5 U	0.5 U	0.5 U	0.5 U
WGL-SW-SW04-0712		20120711	0.018 U	0.37 U	**1.9 J**	**0.18**	0.017 U	0.014 U	0.019 U	0.055 U	0.019 U	0.75 U	**0.15**	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW04-0912		20120907	0.018 R	0.37 R	**3.3 J**	0.019 R	0.017 R	0.014 U	0.019 R	0.055 U	0.019 R	0.75 R	0.016 R	**12 J**	0.34 U	0.24 U	0.32 U
WGL-SW-SW04-1212		20121203	0.1 U	10 R	**1.8 J**	0.1 U	0.1 U	0.5 U	0.1 U	1 UJ	0.1 U	10 R	0.1 U	5 U	1 U	1 U	1 U
WGL-SW-SW04-0313		20130318	0.018 R	0.37 UJ	0.48 UJ	0.019 R	0.017 R	0.014 U	0.019 R	0.055 U	0.019 R	0.75 R	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW06-0313		20130318	0.018 R	0.37 R	0.48 R	0.019 R	0.017 R	0.014 U	0.019 R	0.055 U	0.019 R	0.75 R	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW04-0613		20130612	0.018 U	0.37 UJ	0.48 UJ	0.019 U	0.017 U	0.014 U	0.019 U	0.055 U	0.019 U	0.75 UJ	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW04-0913		20130924	0.018 U	0.37 UJ	**2.2 J**	0.019 U	0.017 U	0.014 U	0.019 U	0.055 U	0.019 U	0.75 UJ	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW04-1213	WGL-SW-04	20131217	0.018 UJ	0.37 R	0.48 R	0.019 UJ	0.017 UJ	0.014 U	0.019 UJ	0.055 U	0.019 UJ	0.75 R	0.016 UJ	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW04-0414		20140423	0.018 U	0.37 UJ	**5 J**	0.019 U	0.017 U	0.014 U	0.019 U	0.055 U	0.019 U	0.75 UJ	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW04-0614		20140611	0.018 R	0.37 UJ	0.48 UJ	0.019 U	0.017 U	0.014 U	0.019 R	0.055 U	0.019 U	0.75 R	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW04-0914		20140924	0.018 R	0.37 UJ	0.48 UJ	0.019 U	0.017 U	0.014 U	0.019 R	0.055 U	0.019 U	0.75 R	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW04-0415		20150407	0.018 U	0.37 UJ	**2.1 J**	0.019 U	0.017 R	0.014 U	0.019 U	0.055 U	0.019 U	0.75 UJ	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW04-0915		20150923	0.018 U	**3.3 J**	0.48 U	0.019 U	0.017 U	0.014 U	0.019 U	0.055 U	0.019 U	**1.2 J**	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW04-0316		20160330	0.018 UJ	0.37 UJ	0.48 UJ	0.019 UJ	0.017 U	0.014 U	0.019 UJ	**1 J**	0.019 U	0.75 UJ	0.016 UJ	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW04-0916		20160921	0.018 U	0.37 UJ	0.48 UJ	0.019 U	0.017 U	0.014 U	0.019 U	0.055 UJ	0.019 U	0.75 UJ	0.016 U	**7.4**	0.34 U	0.24 U	0.32 U
WGL-SW04-0517		20170508	0.2 U	1.9 UJ	1.9 UJ	0.2 U	0.2 U	1.9 UJ	0.2 U	3.9 U	0.2 U	1.9 U	0.2 U	10 U	2 U	0.5 U	1 U
WGL-SW-SW04-1017		20171023	2.1 UJ	2.1 UJ	2.1 UJ	2.1 UJ	2.1 UJ	2.1 UJ	2.1 UJ	4.2 U	2.1 UJ	2.1 U	2.1 UJ	10 U	2 U	0.5 U	1 U
WGL-SW04-052118		20180521	0.19 UJ	1.9 UJ	1.9 UJ	0.19 U	0.19 U	1.9 UJ	0.19 UJ	3.9 U	0.19 U	1.9 U	0.19 U	10 U	2 U	**0.3 J**	1 U
WGL-SW-SW05-1211		20111213	0.09 U	7.1 U	7.1 U	0.094 UJ	0.094 U	0.094 U	0.14 U	0.47 U	0.094 U	7.1 U	0.094 UJ	2.5 U	0.5 U	0.5 U	0.5 U
WGL-SW-SW05-0613		20130612	0.018 R	0.37 UJ	0.48 UJ	0.019 U	0.017 R	0.014 U	0.019 R	0.055 U	0.019 R	0.75 UJ	0.016 R	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW05-0414	WGL-SW-05	20140423	0.018 R	0.37 UJ	**8.4 J**	--	0.017 R	0.014 U	0.019 R	0.055 U	0.019 R	--	0.016 R	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW05-0415		20150407	0.018 U	0.37 UJ	**3.6 J**	0.019 U	0.017 R	0.014 U	0.019 U	0.055 U	0.019 U	0.75 UJ	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW05-0517		20170508	0.19 UJ	1.9 UJ	1.9 UJ	**0.18 J**	0.19 UJ	1.9 UJ	0.19 UJ	3.8 U	**0.12 J**	1.9 U	**0.12 J**	10 U	2 U	0.5 U	1 U
WGL-SW-SW06-1211		20111214	0.08 U	7.1 U	7.1 U	0.094 UJ	0.094 U	0.094 U	0.094 U	**0.32 J**	**0.057 J**	7.1 U	0.094 U	2.7 U	0.64 U	0.5 U	0.5 U
WGL-SW-SW06-0312		20120314	0.095 U	7.1 UJ	7.1 U	**0.18 J**	0.095 U	0.095 U	**0.18 J**	0.48 UJ	**0.13 J**	7.1 U	**0.2**	2.5 U	0.5 U	0.5 U	**0.81 J**
WGL-SW-SW06-0613		20130612	0.018 R	0.37 UJ	0.48 UJ	0.019 U	0.017 R	0.014 U	0.019 R	0.055 U	0.019 R	0.75 UJ	0.016 R	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW06-0614	WGL-SW-06	20140611	0.018 U	0.37 UJ	0.48 UJ	0.019 U	0.017 U	0.014 U	0.019 U	0.055 U	0.019 U	0.75 UJ	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW06-0415		20150407	0.018 U	0.37 UJ	**1.2 J**	0.019 U	0.017 R	0.014 U	0.019 U	0.055 U	0.019 U	0.75 UJ	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW06-0316		20160330	**1.1 J**	0.37 U	0.48 U	0.019 UJ	0.017 U	0.014 U	**4.3 J**	0.055 UJ	0.019 U	0.75 U	0.016 UJ	**13 J**	0.34 U	0.24 U	0.32 U
WGL-SW06-0517		20170509	0.2 U	1.9 UJ	1.9 UJ	0.2 U	0.2 U	1.9 UJ	0.2 U	3.9 U	0.2 U	1.9 U	0.2 U	10 U	2 U	0.5 U	**0.65 J**
WGL-SW06-052218		20180522	0.19 UJ	1.9 UJ	**1.7 J**	0.19 UJ	0.19 UJ	1.9 UJ	0.19 UJ	3.9 U	0.19 UJ	1.9 U	0.19 UJ	10 U	2 U	0.33 U	**1.9**

Table B-3a: West Gate Landfill Surface Water Results

Sample ID	Location ID	Sample Date	SEMIVOLATILES (UG/L)											VOLATILES (UG/L)			
			DIBENZO(A,H)ANTHRACENE	DIMETHYL PHTHALATE	DI-N-BUTYL PHTHALATE	FLUORANTHENE	FLUORENE	HEXACHLOROBENZENE	INDENO(1,2,3-CD)PYRENE	PENTACHLOROPHENOL	PHENANTHRENE	PHENOL	PYRENE	ACETONE	CARBON DISULFIDE	METHYL TERT-BUTYL ETHER	TOLUENE
PALs			NC	NC	NC	NC	NC	NC	NC	15	NC	NC	NC	NC	NC	NC	NC
WGL-SW-SW07-1211	WGL-SW-07	20111213	0.092 U	7.1 UJ	7.1 UJ	0.094 UJ	0.094 U	0.094 U	0.14 U	0.47 U	0.094 U	7.1 UJ	0.094 UJ	2.5 U	0.5 U	0.5 U	0.5 U
WGL-SW-SW07-0312		20120313	0.094 U	7.1 UJ	7.1 U	0.094 U	0.094 U	0.094 U	0.094 U	0.47 UJ	0.094 U	7.1 U	0.094 U	**3.5 J**	0.5 U	0.5 U	**0.38 J**
WGL-SW-SW07-0912		20120911	0.018 U	0.37 UJ	**2.3 J**	0.019 U	0.017 R	0.014 U	0.019 R	0.055 U	0.019 R	0.75 R	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW07-1212		20121203	0.1 U	10 U	**1.6 J**	0.1 U	0.1 U	0.5 U	0.1 U	1 UJ	0.1 U	10 U	0.1 U	5 U	1 U	1 U	1 U
WGL-SW-SW07-0313		20130318	0.018 U	0.37 UJ	0.48 UJ	0.019 U	0.017 U	0.014 U	0.019 U	0.055 U	0.019 U	0.75 UJ	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW07-0613		20130612	0.018 R	0.37 UJ	0.48 UJ	0.019 U	0.017 R	0.014 U	0.019 R	0.055 U	0.019 R	0.75 UJ	0.016 R	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW07-0414		20140423	0.018 R	0.37 UJ	**8.8 J**	0.019 R	0.017 R	0.014 U	0.019 R	0.055 U	0.019 R	0.75 R	0.016 R	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW07-0614		20140611	0.018 U	0.37 UJ	0.48 UJ	0.019 U	0.017 U	0.014 U	0.019 U	0.055 U	0.019 U	0.75 UJ	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW07-0415		20150407	0.018 U	0.37 UJ	**2.4 J**	0.019 U	0.017 R	0.014 U	0.019 U	0.055 U	0.019 U	0.75 UJ	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-DUP01-0316		20160330	0.018 UJ	0.37 U	0.48 U	0.019 UJ	0.017 U	0.014 U	0.019 UJ	0.055 UJ	0.019 U	0.75 U	0.016 UJ	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW07-0316		20160330	0.018 UJ	0.37 U	0.48 U	**0.13 J**	0.017 U	0.014 U	0.019 UJ	0.055 UJ	0.019 U	0.75 U	0.016 UJ	**6.2 J**	0.34 U	0.24 U	0.32 U
WGL-SW07-0517		20170509	0.19 U	1.9 UJ	1.9 UJ	0.19 U	0.19 U	1.9 UJ	0.19 U	3.9 U	0.19 U	1.9 U	0.19 U	10 U	2 U	0.5 U	1 U
WGL-SW07-052218		20180522	0.2 U	2 UJ	**1.8 J**	0.2 U	0.2 UJ	2 UJ	0.2 U	3.9 U	0.2 U	2 U	0.2 U	10 U	2 U	0.5 U	1 U
WGL-SW-SW08-1211	WGL-SW-08	20111213	0.072 U	7.1 UJ	7.1 UJ	0.096 UJ	0.096 U	0.096 U	0.096 U	0.48 U	0.096 U	7.1 UJ	0.096 U	2.5 U	0.5 U	0.5 U	0.5 U
WGL-SW-SW08-0312		20120314	0.094 UJ	7.1 UJ	7.1 U	0.094 UJ	0.094 U	0.094 UJ	**0.23 J**	0.47 UJ	0.094 U	7.1 UJ	**0.074 J**	**2.2 J**	0.5 U	0.5 U	0.5 U
WGL-SW-SW08-0313		20130318	0.018 U	0.37 UJ	0.48 UJ	**0.27**	0.017 U	0.014 U	0.019 U	0.055 U	**0.17**	0.75 UJ	**0.22**	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW08-0613		20130612	0.018 R	0.37 UJ	0.48 UJ	0.019 U	0.017 R	0.014 U	0.019 R	0.055 U	0.019 R	0.75 UJ	0.016 R	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW08-0414		20140423	0.018 R	0.37 UJ	**8.3 J**	0.019 R	0.017 R	0.014 U	0.019 R	0.055 U	0.019 R	0.75 R	0.016 R	2.2 U	--	--	--
WGL-SW-SW08-0415		20150407	0.018 U	0.37 UJ	**2.2 J**	0.019 U	0.017 R	0.014 U	0.019 U	0.055 U	0.019 U	0.75 UJ	0.016 U	2.2 U	0.34 U	0.24 U	0.32 U
WGL-SW-SW08-0316		20160330	0.018 UJ	0.37 UJ	0.48 UJ	0.019 UJ	0.017 U	0.014 U	0.019 UJ	**1 J**	0.019 U	0.75 UJ	0.016 UJ	**6.3**	0.34 U	0.24 U	0.32 U
WGL-SW08-0517		20170509	0.19 U	1.9 UJ	1.9 UJ	**0.098 J**	0.19 U	1.9 UJ	0.19 U	3.9 U	0.19 U	1.9 U	0.19 U	10 U	2 U	0.5 U	1 U
WGL-SW08-052218		20180522	0.2 U	2.1 UJ	2.1 UJ	0.2 U	0.2 UJ	2.1 UJ	0.2 U	4.1 U	0.2 U	2.1 U	0.2 U	10 U	2 U	0.32 U	1 U

Notes:
PAL - Project Action Limit
PCBs - polychlorinated biphenyls
NRWQC - National Recommended Water Quality Criteria
NC - No Criteria
MG/L - milligram per liter
U - Undetected at the stated limit
UJ - Undetected at approximated reported limit.
NA - not analyzed
UG/L - microgram per liter
J - Concentration reported is approximate
1. - 1,4-Dioxane was analyzed in Spring 2017 samples using Method 8270D with higher detection limits per Draft SAP. Samples were all non-detect at the stated limit (U) or at the approximated reported limit (UJ, ranging from 9.6 to 11 UG). The DL for 1,4-dioxane was 3.4 UG. In Fall 2017 samples were analyzed with Method 8270D SIM with lower detection limits, per the Final SAP.

Sample ID	Location ID	Sample Date	METALS (MG/KG)																						
			ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE	MERCURY	NICKEL	POTASSIUM	SELENIUM	SILVER	SODIUM
PALs			8767.37	NC	9.8	202.48	3.2	1.95	13900	43.4	25.7	53.3	2400	200.86	1683.03	3690	0.28	22.7	603.24	1	0.5	2180
WGL-SD-SD01-1211		20111219	**5450**	**0.66**	**3**	**80.7**	**14.4**	**5**	**2560**	**11**	**22.9**	**198**	**2150**	**78.9**	**727**	**59.7**	**0.34**	**41.7**	**169 J**	**5**	**1**	**350**
WGL-SD-SD01-0312		20120314	**5720 J**	0.052 UJ	0.42 U	0.1 U	0.021 U	0.021 UJ	**1140**	0.42 UJ	0.032 U	0.21 U	**7440**	0.052 U	**1620 J**	**93.8**	**0.03 J**	0.13 U	**215**	0.32 U	0.042 U	**89.8 J**
WGL-SD-SD01-0712		20120709	**12800**	**0.73 J**	**17.1**	**133**	**6.8**	**1.2**	**3520**	**14.6**	**8.1**	**188**	**10700**	**104**	**1250**	**158**	**0.6**	**20.1**	**333**	**1.6 J**	0.1 U	**461**
WGL-SD-SD01-0712-RE		20120709	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD-SD01-0912		20120907	**9270**	0.21 U	**4.3**	**32.4**	**1.8**	**0.2**	**506**	**8.7**	**2.3**	**77.2**	**6350**	**16.9**	**1140**	**62.7**	**0.13**	**6.8**	**180**	0.35 U	0.035 U	**107**
WGL-SD-SD01-1212		20121203	**14000**	0.45 U	**3.7**	**35**	**2.2**	0.042 U	**697**	**12.4**	**4.4**	**56.1**	**9470**	**18.7 J**	**1940**	**107**	**0.12**	**10**	**250**	**1.5**	0.035 U	97.3 U
WGL-SD-SD01-0313		20130318	**22400**	0.52 U	**12.2**	**72.8**	**5**	**0.22 J**	**1720**	**20.5**	**6.4**	**156**	**14500**	**56.8**	**2940**	**161**	**0.39**	**18.7**	**435**	**1.9 J**	0.087 U	**144**
WGL-SD-SD01-0613		20130612	**3410**	0.29 U	**3.6**	**24.7**	**1.4**	**0.11 J**	**581**	**3.9**	**1.7 J**	**58**	**2010**	**21.3**	**341**	**27.6**	**0.66**	**4.8**	**86.4**	**0.72 J**	**0.98 J**	**114**
WGL-SD-SD01-0913		20130924	**8700**	0.47 U	**3.5**	**26.2**	**1.3**	0.018 U	**742**	**9.3**	**3.3**	**35.7**	**8490**	**13.1**	**1840**	**97.9**	**0.11**	**7.4**	**243**	0.78 U	0.078 U	**81.6**
WGL-SD-SD01-1213		20131217	**6390**	0.18 U	**2**	**17.4**	**1.5**	0.0071 U	**330**	**6.5**	**1.7**	**25**	**5630**	**9.1**	**974**	**53.9**	**0.036 J**	**4.6**	**139**	**0.33 J**	0.03 U	**56.7**
WGL-SD-SD01-0414		20140423	**8440**	0.5 U	**7.9**	**70.7**	**3.5**	**0.43**	**1770**	**10.2**	**5.3**	**96.5**	**9090**	**62.8**	**1050**	**80.7**	**0.44**	**13.5**	**295**	**0.91 J**	0.084 U	**311**
WGL-SD-SD01-0614	WGL-SD-01	20140611	**7400**	0.41 U	**6.4**	**49.5**	**3.9**	**1.2**	**1880**	**10.4**	**2.7**	**297**	**3450**	**35**	**739**	**59.3**	**0.25**	**11.4**	**155**	**1.4 J**	**5**	**315**
WGL-SD-SD01-0914		20140924	**8680**	0.24 U	**5**	**30.8**	**1.9**	**0.16**	**796**	**8.8**	**2.2**	**76.9**	**5640**	**18.9**	**1280**	**63.4**	**0.14**	**6.6**	**163**	**0.88 J**	0.04 U	**183**
WGL-SD-SD01-0415		20150407	**8250 J**	**0.99 J**	**9.5 J**	**74.5 J**	**3.4 J**	**0.87 J**	**1500 J**	**11.3 J**	**6.2 J**	**106 J**	**17700 J**	**82.6 J**	**1010 J**	**104 J**	**0.45 J**	**11.7 J**	**386 J**	**1.7 J**	**1.6 J**	**314 J**
WGL-SD-SD01-0915		20150923	**5350 J**	**0.48 J**	**1.2 J**	**13.9 J**	**0.64 J**	**0.27 J**	**953 J**	**10.4 J**	**4.2 J**	**14.2 J**	**9020 J**	**5.6 J**	**2530 J**	**138 J**	**0.0097 J**	**9.9 J**	**161 J**	0.27 U	0.027 U	**69.7 J**
WGL-SD-SD01-0316		20160330	**7940**	**0.54 J**	**3.9**	**19.5**	**1**	**0.43**	**1700**	**7.7**	**3.9**	**42.9**	**10300**	**12.5**	**1930**	**108**	**0.083**	**6.4**	**130**	**0.93**	**0.096 J**	**94.6**
WGL-SD-SD01-0316-D		20160330	**5430**	**0.43 J**	**4.2**	**25.2**	**0.15**	**0.28**	**1350**	**8.1**	**2.1**	**17.5**	**6650**	**14.9**	**1140**	**79.4**	**0.021 J**	**6.4**	**419**	**0.51 J**	**0.29 J**	**149**
WGL-SD-SD01-0916		20160921	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD-SD01-0916-D		20160921	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD01-0517		20170505	**13000 J**	**0.85 J**	**4.4 J**	**93 J**	**7.8 J**	**5.2 J**	**3400 J**	**25 J**	**3.4 J**	**440 J**	**10000 J**	**50 J**	**1200 J**	**110 J**	**0.78 J**	**14 J**	**210 J**	**8.3 J**	**5.8 J**	**720 J**
WGL-SD-SD01-1017		20171024	**56000 J**	3.1 UJ	**7.4 J**	**170 J**	**8.5 J**	**5.9 J**	**9500 J**	**57 J**	**29 J**	**390 J**	**82000 J**	**73 J**	**21000 J**	**1000 J**	**0.4 J**	**64 J**	**1900 J**	**19 J**	**1.7 J**	**820 J**
WGL-SD-SD01-1017-R		20171030	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD01-052218		20180522	**7900**	0.36 U	**1.8**	**20**	**1.2**	**0.058 J**	**650**	**8.4**	**2.5**	**33**	**7700**	**11**	**1500**	**88**	**0.13**	**5.8**	**190**	**1.7**	**0.21**	**120**
WGL-SD-SD02-1211		20111219	**6740**	**0.08**	**1**	**26.9**	**2**	**0.47**	**1120**	**10.5**	**3**	**39.1**	**9300**	**9.4**	**1620**	**118**	**0.04**	**7.2**	**207**	**0.98**	**0.13**	**92.1**
WGL-SD-SD02-0312		20120313	**8330 J**	**0.21 J**	**1.8**	**34.5**	**3.2**	**0.34 J**	**1880**	**13.5**	**4.8**	**67.7**	**11800**	**19.7**	**2070 J**	**131**	**0.14**	**11.7**	**275**	**2**	**1.1**	**202**
WGL-SD-SD02-0712		20120710	**5550**	**0.47 J**	**4.1**	**31.8**	**2.2**	**0.24**	**3170**	**8.1**	**5.9**	**30.6**	**10100**	**18.8**	**1980**	**220**	**0.1**	**10.3**	**188**	0.4 U	**0.074 J**	**129**
WGL-SD-SD02-0912		20120907	**3960**	0.2 U	**3.6**	**38.1**	**1.7**	**0.46**	**3630**	**5.9**	**3.7**	**33.5**	**6920**	**21.3**	**1380**	**136**	**0.12**	**9.3**	**190**	0.34 U	**0.25 J**	**161**
WGL-SD-SD02-1212		20121203	**6960**	0.45 U	**2.9**	**35.1**	**0.78**	0.068 U	**2330**	**8.5**	**6.6**	18.5 U	**10600**	**20.5 J**	**2480**	**242**	**0.13**	**9**	**323**	**0.79**	0.04 U	94.4 U
WGL-SD-SD02-0313		20130318	**8020**	**0.35 J**	**2.7**	**33**	**0.92**	**0.18**	**2940**	**8.6**	**5.4**	**21.6**	**12900**	**18.2**	**3190**	**189**	**0.1**	**9.9**	**269**	**0.79 J**	0.034 U	**149**
WGL-SD-SD02-0613		20130612	**4800**	0.19 U	**2.9**	**18.5**	**0.66**	0.0074 U	**1580**	**5.4**	**3.9**	**11.4**	**7520**	**11.1**	**1860**	**138**	**0.067**	**5.6**	**189**	**0.66 J**	**0.18 J**	**57.3**
WGL-SD-SD02-0913		20130924	**6540**	0.51 U	**4.2**	**32.4**	**2.7**	**0.64**	**3370**	**9.7**	**6.8**	**62.1**	**9230**	**18**	**2530**	**213**	**0.086**	**14.6**	**273**	0.86 U	**0.48 J**	**118**
WGL-SD-SD02-1213		20131217	**6400**	0.51 U	**7.5**	**105**	**6.5**	**2.1**	**5380**	**11.8**	**30.7**	**118**	**5770**	**75.2**	**1690**	**128**	**0.4**	**51.5**	**245**	**1.9 J**	0.086 U	**525**
WGL-SD-SD02-0414		20140423	**5180**	0.25 U	**3.8**	**41.8**	**2**	**0.45**	**5020**	**7.6**	**5.3**	**39.4**	**11100**	**22.4**	**1950**	**282**	**0.075**	**13.8**	**250**	**0.53 J**	0.043 U	**179**
WGL-SD-SD02-0614	WGL-SD-02	20140611	**3940**	0.32 U	**6.6**	**50.3**	**4.4**	**1.2**	**3620**	**7.3**	**5.9**	**139**	**7160**	**24.4**	**1000**	**178**	**0.14**	**11.3**	**143**	**1.4**	**0.38 J**	**275**
WGL-SD-SD02-0914		20140924	**2850**	0.17 U	**6**	**33.2**	**1.4**	**0.33**	**1770**	**4**	**4**	**18**	**25700**	**20.7**	**945**	**216**	**0.037 J**	**5.2**	**131**	0.28 U	0.028 U	**217**
WGL-SD-SD02-0415		20150407	**4990 J**	**0.2 J**	**10.8 J**	**19.2 J**	**1.1 J**	**0.41 J**	**4810 J**	**7.5 J**	**5.4 J**	**16.9 J**	**7170 J**	**14.1 J**	**2970 J**	**182 J**	**0.068 J**	**9.1 J**	**179 J**	**0.39 J**	**0.18 J**	**79.1 J**
WGL-SD-SD02-0915		20150923	**2090 J**	**0.37 J**	**5.4 J**	**36.6 J**	**2.7 J**	**1.8 J**	**2730 J**	**5.7 J**	**4.1 J**	**142 J**	**17500 J**	**16.8 J**	**554 J**	**168 J**	**0.096 J**	**5.6 J**	**143 J**	0.54 U	**1.7 J**	**373 J**
WGL-SD-SD02-0316		20160330	**5110**	**0.62**	**4.1**	**40.7**	**1.7**	**1.2**	**3410**	**8.4**	**8.1**	**39.3**	**10800**	**17.4**	**2140**	**358**	**0.073**	**12.6**	**209**	**0.75**	**0.37 J**	**155**
WGL-SD-SD02-0916		20160921	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD02-0517		20170508	**5100**	**0.84 J**	**13**	**70**	**3**	**2.4**	**4100**	**23**	**8.3**	**71**	**33000**	**19**	**2100**	**290**	**0.091**	**12**	**280**	**3.3**	**1.1**	**430**
WGL-SD-SD02-1017		20171024	**39000 J**	**1.1 J**	**39 J**	**160 J**	**8.2 J**	**1.6 J**	**9900 J**	**75 J**	**26 J**	**110 J**	**190000 J**	**100 J**	**15000 J**	**1500 J**	**0.19 J**	**59 J**	**1100 J**	**11 J**	**0.65 J**	**1100 J**
WGL-SD-SD02-1017-R		20171030	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD02-052118		20180521	**2200 J**	**1.2 J**	**3.5 J**	**30 J**	**2.5 J**	**0.51 J**	**2100 J**	**4.9 J**	**1.2 J**	**19 J**	**12000 J**	**32 J**	**560 J**	**170 J**	**0.14 J**	**5.8 J**	**120 J**	**4.2 J**	**0.53 J**	**290 J**
WGL-SD02-052118-D		20180521	**5000 J**	**1.1 J**	**8.2 J**	**62 J**	**4.7 J**	**1.2 J**	**4400 J**	**11 J**	**2.8 J**	**40 J**	**28000 J**	**70 J**	**1300 J**	**340 J**	**0.45 J**	**13 J**	**270 J**	**9.1 J**	**1.3 J**	**590 J**

Sample ID	Location ID	Sample Date	METALS (MG/KG)																			
			ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE	MERCURY	NICKEL	POTASSIUM	SELENIUM	SILVER	SODIUM
PALs			8767.37	NC	9.8	202.48	3.2	1.95	13900	43.4	25.7	53.3	2400	200.86	1683.03	3690	0.28	22.7	603.24	1	0.5	2180
WGL-SD-SD03-1211		20111219	10400	0.06 J	1.9	22.8	1.7	0.13	977	12.8	4.3	27.1	10000	11.5	1740	108	0.05	8.8	254	1.1	0.32	140
WGL-SD-SD03-0312		20120313	2090 J	0.09 J	0.88	14.9	1.3	1.3 J	723	4.4	2.8	83.2	4420	8.8	603 J	36.9	0.06	5.5	136	0.87	0.24	142
WGL-SD-SD03-0712		20120710	7520	1.6 J	10.6	135	2.7	1.1	8040	14.5	9.6	66.5	27700	72.8	1700	364	0.35	13.6	457	1.1 U	0.49 J	883
WGL-SD-SD03-0912		20120907	5090	0.28 U	4.3	54	3.8	1.1	2880	7.8	5.7	126	4490	59.3	1300	67.6	0.59	17.7	199	0.66 J	1.8	246
WGL-SD-SD03-1212		20121203	4650	0.47 U	7.4	60.1	2.4	0.56	2670	8	12.4	43.7	6390	43.8 J	1350	80.7	0.27	21.4	200	0.91 U	0.68 U	264 U
WGL-SD-SD03-0313		20130318	4860	0.58 J	7.7	48.3	0.93	0.33	2040	8.9	4.4	32.5	--	70.6	1120	140	0.64	7.2	245	1.5	2.9	197
WGL-SD-SD03-0613		20130612	4300	0.41 U	9.7	48.3	1.2	0.12 J	1710	9.1	3.7	35.4	21700	65.6	832	82.2	0.51	6.2	179	2.1	1.8	212
WGL-SD-SD03-0913		20130924	5260	0.65 U	10	37.9	2.1	0.41 J	1790	8.8	6.1	29.7	9650	24.3	1940	85.2	0.1	10.9	204	1.1 U	0.11 U	147
WGL-SD-SD03-1213		20131217	9230	0.51 U	8.1	95.7	6.3	1.8	4600	19.6	31	110	10300	70.3	2950	192	0.53	53	388	1.6 J	0.086 U	455
WGL-SD-SD03-0414		20140423	5480	0.33 U	5.3	23	0.54	0.047 J	1240	5.5	4.2	10.5	9660	33.1	3060	176	0.28	5.1	135	0.56 U	0.056 U	133
WGL-SD-SD03-0614	WGL-SD-03	20140611	6750	0.23 U	5.8	31.3	0.85	0.16	1420	9.9	4.6	13.6	11500	22	2430	188	0.11	9.2	186	0.95	0.26 J	96.6
WGL-SD-SD03-0914		20140924	6220	0.28 U	4.7	42.3	2.6	0.47	1910	9.4	8	24.8	8320	22.7	2390	136	0.16	13.1	238	0.48 U	0.048 U	160
WGL-SD-SD03-0415		20150407	5490 J	0.41 J	2.6 J	17 J	0.33 J	0.56 J	1060 J	8.7 J	3.4 J	8.7 J	--	21.5 J	2060 J	261 J	0.062 J	5.4 J	170 J	0.27 U	0.42 J	26.2 J
WGL-SD-SD03-0915		20150923	3880 J	0.34 J	4.1 J	31.1 J	2.5 J	1.3 J	1510 J	6.6 J	7.2 J	37.4 J	6380 J	18.5 J	1470 J	102 J	0.072 J	11.9 J	148 J	0.41 U	0.041 U	161 J
WGL-SD-SD03-0316		20160330	6840	1.3 J	26.2	108	8.9	2.3	5500	15.6	15.9	111	7940	93	1200	212	0.41	38.4	238	3.6	0.11 U	781
WGL-SD-SD03-0916		20160921	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD03-0517		20170508	2900	0.73 U	5	38	2.6	1.7	2100	5.3	6.5	32	15000	25	780	120	0.15	10	220	3.7	0.56	420
WGL-SD-SD03-1017		20171024	3800000 R	240 UR	2100 R	18000 R	640 R	52 R	760000 R	5000 R	2800 R	5500 R	12000000 R	8100 R	1500000 R	140000 R	20 R	5300 R	140000 R	980 R	33 R	64000 R
WGL-SD-SD03-1017-D		20171024	250000 R	5.2 R	130 R	1300 R	51 R	9.1 R	64000 R	400 R	200 R	520 R	780000 R	480 R	100000 R	12000 R	1 R	1100 R	7200 R	83 R	2.7 R	5100 R
WGL-SD-SD03-1017-R		20171030	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD-SD03-1017-R-D		20171030	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD03-052118		20180521	9600 J	0.71 U	1.9 J	23 J	1 J	0.11 J	1900 J	13 J	6.5 J	31 J	19000 J	14 J	4200 J	290 J	0.034 J	12 J	430 J	2.3 J	0.22 J	170 J
WGL-SD-SD04-1211		20111214	6440	0.046 U	1.9 J	21.4	0.76	0.09 J	1000	9.2	4.9	14.6 J	14200	8.7	2350	178	0.01 J	9.2	203 U	0.39 J	0.03 J	46 U
WGL-SD-SD04-1211-D		20111214	5400	0.051 U	2 J	21.5	1	0.09 J	774	6.8	3.7	14.3 J	11800	7.7	1650	137	0.02 J	8.7	269 J	0.4 J	0.05 J	51 U
WGL-SD-SD04-0312		20120313	3320 J	0.15 J	2.7	41.7	2.2	1.7 J	1610	6	4.4	93.1	9750	17.8	840 J	137	0.07	5.9	164	1.3	0.3	162
WGL-SD-SD04-0312-D		20120313	3720 J	0.16 J	2.4	38.3	2.4	0.9 J	1680	6.4	4.1	80.6	12200	18.3	1040 J	141	0.02 J	8	195	1.5	0.26	153 J
WGL-SD-SD04-0712		20120711	5190	0.46 J	1.7	9.8	0.4	0.073 J	954	6.1	2.6	7.2	8470	9.6	2020	94.7	0.062	4.9	150	0.31 U	0.054 J	24.4
WGL-SD-SD04-0912		20120907	4870	0.4 U	6.7	70.6	1.7	0.58	2420	9.1	4	27.8	10400	60.5	1120	107	0.38	8.8	184	0.68 U	0.8 J	122
WGL-SD-SD04-1212		20121203	4350	0.84 U	3.9	60.6	0.64	0.3 U	2450	6.2	3 U	21.4	14700	55.9 J	1040	119	0.39	5.5	235	2.6	0.49 U	138 U
WGL-SD-SD04-0313		20130318	7200	0.55 J	10.8	57	1.2	0.23 J	2200	13.7	6.1	54.8	18400	174	1430	118	1.1	9.6	216	2	5	210
WGL-SD-SD04-0613		20130612	3740	0.52 U	4.3	68.8	0.99	0.29 J	2940	4.6	2.8 J	16.5	13400	37.9	853	150	0.23	4.9	221	2.6	0.6 J	132
WGL-SD-SD04-0913		20130924	6010	2.2 U	6.6	93.2	0.0088 U	0.19 J	4580	0.11 U	5.4 J	15.9	27700	32.7	2080	213	0.12 J	7.4 J	352	3.7 U	0.37 U	168 J
WGL-SD-SD04-1213	WGL-SD-04	20131217	9930	0.82 J	12.9	209	11.9	1.8	11000	19.7	51	151	6180	145	2120	178	0.3	97.2	355	3.2	0.14 J	1030
WGL-SD-SD04-0414		20140423	3840	0.45 U	7.1	48.2	0.84	0.018 U	2390	9.7	3.9	13.4	13000	20.4	954	90.8	0.028 J	7.2	144	0.75 U	0.075 U	221
WGL-SD-SD04-0614		20140611	5810	0.71 U	13.3	120	5.1	0.5	5380	15.1	22.4	46.9	11900	47.4	1230	107	0.14 J	23.1	303	2.1 J	0.12 U	650
WGL-SD-SD04-0914		20140924	5670	0.37 U	12.8	82.7	5.9	1	3760	13	20.7	71.6	10400	41.2	1420	111	0.27	24.1	218	1.5	0.063 U	307
WGL-SD-SD04-0415		20150407	4210 J	0.68 J	14.7 J	54 J	1.4 J	1.4 J	2080 J	8.7 J	3.8 J	13.1 J	--	24.5 J	923 J	263 J	0.13 J	4.5 J	219 J	0.58 U	1.4 J	162 J
WGL-SD-SD04-0915		20150923	7860 J	0.66 UJ	46.8 J	140 J	8.7 J	0.68 J	6680 J	25.3 J	22.5 J	56.8 J	22400 J	48.2 J	1200 J	105 J	0.3 J	25.2 J	407 J	5.6 J	0.11 UJ	633 J
WGL-SD-SD04-0316		20160330	4020	0.78 J	15	58	4.3	1.4	3290	8.3	9.6	58.6	5220	47.8	758	124	0.21	19.3	153	2.1	0.064 U	445
WGL-SD-SD04-0916		20160921	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD04-0517		20170508	21000 J	1.4 UJ	7.5 J	110 J	3.1 J	0.74 J	5700 J	77 J	13 J	50 J	30000 J	47 J	7200 J	270 J	0.36 J	29 J	450 J	4 J	0.87 J	640 J
WGL-SD-SD04-1017		20171023	9100 J	0.88 UJ	5.4 J	51 J	1.8 J	0.42 J	2500 J	15 J	7.7 J	45 J	28000 J	20 J	3300 J	590 J	0.093 J	15 J	640 J	7.7 J	0.23 J	140 J
WGL-SD04-052118		20180521	7900 J	0.29 J	9.9 J	66 J	1.4 J	0.21 J	2600 J	16 J	6.6 J	20 J	15000 J	30 J	2000 J	140 J	0.16 J-	12 J	360 J	4.9 J	0.87 J	390 J

Table B-3b: West Gate Landfill Sediment Results

Sample ID	Location ID	Sample Date	METALS (MG/KG)																			
			ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE	MERCURY	NICKEL	POTASSIUM	SELENIUM	SILVER	SODIUM
	PALs		8767.37	NC	9.8	202.48	3.2	1.95	13900	43.4	25.7	53.3	2400	200.86	1683.03	3690	0.28	22.7	603.24	1	0.5	2180
WGL-SD-SD05-1211		20111214	1900	0.041 U	1.8 J	8.4	0.11	0.02 J	282	3	1.2	3.4 J	4660	3.4	586	58.8	0.016 U	2.8	348 J	0.06 J	0.02 J	72.6 U
WGL-SD-SD05-0312		20120313	3790 J	0.08 J	3.2	22.6	0.22	0.06 J	729	6.4	2.2	10.1	8170	8.8	1090 J	106	0.02 J	5.4	693	0.2 J	0.09	92.2
WGL-SD-SD05-0712		20120710	3440 J	0.36 J	3.3	14.2	0.15	0.067 J	976 J	4.7 J	1.6	7.2 J	6340	7.3 J	1040	87.5 J	0.0025 U	4	367	0.24 U	0.024 U	1190 J
WGL-SD-SD05-0712-D		20120710	4140 J	0.43 J	3.4	16.6	0.18	0.09	838 J	5.3 J	1.9	7.8 J	6600	9.3 J	1140	98.4 J	0.012 J	4.9	402	0.23 U	0.023 U	508 J
WGL-SD-SD05-0912		20120910	2780	0.13 R	2.8	9.3	0.046 J	0.073 J	143 J	4.1	1.8	5.4	6150	5	1110	85.9	0.011 J	4	314	0.22 U	0.022 U	192
WGL-SD-SD05-0912-D		20120910	2480	0.13 U	2.7	7.8	0.026 J	0.059 J	75.8	5.2	1.6	4.7	6030	4.1	1060	87.8	0.0023 U	4.1	276	0.23 U	0.023 U	157
WGL-SD-SD05-1212		20121203	17800	1.2 J	10.8	76.8	0.97	0.34 J	3030	23.5	17.6	32.9	39400	33.7 J	5770	762	0.087	29.8	2210	0.28 U	0.028 U	1060
WGL-SD-SD05-0313		20130318	5980	0.16 J	5	19.5	0.2	0.063 J	1200	8.5	1.6	11.1	4990	15.5	898	76.9	0.044	5.6	354	0.33 J	0.026 U	78.4
WGL-SD-SD05-0313-D		20130318	6580	0.23 J	5.3	25.4	0.21	0.081 J	1300	9.9	1.6	18	5000	17.4	917	63.5	0.064	6.3	386	0.52 J	0.026 U	108
WGL-SD-SD05-0613		20130612	7140	0.15 R	5.5	29.1	0.24	0.0059 U	1370	16 J	1.7	15.7	5550	17 J	1320	76.6	0.045 J	7	420	0.44 J	0.4 J	86.5
WGL-SD-SD05-0613-D		20130612	6700	0.16 U	5.4	28.4	0.24	0.017 J	1320	8.5	1.5	16.8	5110	17.7	909	62.3	0.037 J	5.7	371	0.77	0.43 J	78.1
WGL-SD-SD05-0913		20130924	7140	0.29 R	4.7	38.4	0.29	0.012 U	1310	9.2	2.8	17.6	7220	17.3	1300	111	0.003 U	7.4	701	0.5 U	0.05 U	201
WGL-SD-SD05-0913-D		20130924	9490	0.29 U	5.5	50.3	0.37	0.012 U	1460	13.5	4.2	17.1	10100	20.5	2040	146	0.003 U	9.9	1030	0.5 U	0.05 U	253
WGL-SD-SD05-1213		20131217	2810	0.13 R	2.3	9.1	0.12	0.012 J	363	3.9	1.4	5	5860	5.1	875	70.9	0.0051 J	3.3	286	0.21 U	0.021 U	109
WGL-SD-SD05-1213-D		20131217	2390	0.11 U	1.7	7.7	0.1	0.029 J	411	3.6	1.5	4.4	4660	5.1	991	67	0.0098 J	3.4	231	0.3 J	0.019 U	98.2
WGL-SD-SD05-0414	WGL-SD-05	20140423	6480	0.42 UN	17.7	43.7	4.3	0.59	828	11.8	0.7 J	34.1	10200	29.5	85.9	17.6	0.18	4.9	156	4.4	0.071 U	1.2 U
WGL-SD-SD05-0414-D		20140423	6580	0.44 U	17.3	42.5	4.5	0.66	896	9.3	0.77 J	31.8	11400	25.5	75.6	18.2	0.24	5.2	152	4.3	0.074 U	1.3 U
WGL-SD-SD05-0614		20140611	7750	0.14 R	6.3	32.7	0.28	0.12	1270	10.5	2.1	17.6 J	6680	19.4	1380	67.3	0.042 J	6.9	428	0.6	0.18 J	88.1
WGL-SD-SD05-0614-D		20140611	7700	0.15 U	4.6	37.7	0.26	0.12	1400	10.2	1.9	18.9	5670	18.9	1260	61.4	0.036 J	6.5	545	0.56 J	0.25 J	96.1
WGL-SD-SD05-0914		20140924	3060	0.11 UJ	2.3	11.7	0.13	0.0044 U	452	4.4	1.5	6.3	5250	6.7	860	67.3	0.011 J	3.4	272	0.19 U	0.019 U	111
WGL-SD-SD05-0914-D		20140924	6680	0.13 U	4.7	26.6	0.21	0.054 J	1070	10.1	1.5	14	4500	22.2	907	47	0.031 J	5.4	370	0.39 J	0.021 U	289
WGL-SD-SD05-0415		20150407	6910 J	0.53 R	22.3 J	41.1 J	5.4 J	0.99 J	996 J	17.5 J	1.4 J	36 J	12600 J	64.5 J	279 J	55.1 J	0.26 J	4.8 J	232 J	6.6 J	0.089 U	67.1 J
WGL-SD-SD05-0415-D		20150407	9320 J	0.55 U	32.1 J	47.8 J	9.7 J	1.5 J	782 J	22.4 J	1.5 J	36.6 J	19000 J	47.4 J	157 J	40 J	0.31 J	4.8 J	187 J	8.4 J	0.092 U	80.4 J
WGL-SD-SD05-0915		20150923	5500 J	0.51 J	3.4 J	27.5 J	0.23 J	0.12 J	975 J	7.4 J	2 J	14.3 J	6240 J	14 J	1090 J	80.9 J	0.022 J	5.7 J	456 J	0.24 U	0.024 UJ	140 J
WGL-SD-SD05-0915-D		20150923	3040 J	0.24 J	1.9 J	13.7 J	0.13 J	0.065 J	448 J	4.2 J	1.4 J	6.7 J	5000 J	7.2 J	875 J	65.6 J	0.0075 J	3.5 J	307 J	0.23 U	0.023 UJ	70.9 J
WGL-SD-SD05-0316		20160330	6210	0.81 J	4.7	36.9	0.25	0.49	2400	10.5 J	3	28.6	9090	19.7	1440	147	0.067	8	612	0.85	0.35 J	196
WGL-SD-SD05-0916		20160921	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD05-0517		20170508	7900	0.33 J	5.1	31	0.27	0.13	1300	10	1.6	15	7600	18	1200	66	0.045	6.5	430	0.5 J	0.25	130
WGL-SD05-0517-D		20170508	8300	0.14 J	4.3	35	0.29	0.16	1500	11	1.7	17	6200	22	1200	68	0.032	7	520	0.36 J	0.26	150
WGL-SD-SD05-1017		20171024	6000	0.11 J	2.7	29	0.32	0.11	1200	8.9	1.9	14	5700	15	1100	75	0.027	6.1	450	0.61	0.18	75
WGL-SD05-052218		20180522	5700	0.13 J	2.9	30	0.26	0.089	1100	8.8	2.2	16	6800	16	1200	82	0.045	6.8	640	0.72	0.16	130
WGL-SD-SD06-1211		20111214	1590 J	0.54 J	2.7 J	70.3 J	0.82 J	0.44 J	10200 J	4.4	1.4 J	14.4 J	4910 J	18.9 J	580 J	19.9 J	0.41 J	3.4 J	200 U	2 J	0.1 J	623 J
WGL-SD-SD06-0312		20120314	773 J	0.077 UJ	0.62 UJ	0.15 UJ	0.031 UJ	0.031 UJ	5420 J	0.62 UJ	0.046 UJ	0.31 UJ	3500 J	0.077 UJ	350 J	15.8 J	0.18 J	0.18 UJ	152 J	0.46 UJ	0.062 UJ	321 J
WGL-SD-SD06-0712		20120710	2600	0.82 J	4.3	83.1	1.1	0.57	12500	4.7	2.7 J	30.9	7350	35.2	1010	69.1	0.23	5.5	285	2.6	0.11 U	893
WGL-SD-SD06-0712-RE		20120710	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD-SD06-0912		20120910	2260	0.48 U	3	132	1.4	0.43	16600	2.8	1.6 J	19.3	7450	29.1	1050	42.4	0.27	3.7	226	1.5 J	0.081 U	564
WGL-SD-SD06-1212		20121203	2340	0.78 U	4.9	173	1.9	0.51	18800	3.6	2.2 U	22	9760	39 J	1070	40.2	0.3	4.3	430	2.9	0.085 U	592
WGL-SD-SD06-0313		20130318	7460	0.22 J	5.7	31.1	0.29	0.081 J	1690	10.2	3.4	16.4	8040	18.1	1570	129	0.029 J	8.2	723	0.51 J	0.027 U	223
WGL-SD-SD06-0613		20130612	7190	0.17 J	5.3	29.7	0.25	0.0059 U	1320	9.6	1.6	14.8	5390	16.9	1030	81.1	0.046 J	6.2	413	0.45 J	0.38 J	89.9
WGL-SD-SD06-0913		20130924	1900	1.1 J	3.5	110	1.2	0.36 J	13200	3.5	1.7 J	20.3	8160	30.7	863	46.4	0.29	3.7 J	282	2.8 J	0.19 U	581
WGL-SD-SD06-1213	WGL-SD-06	20131217	1600	0.47 U	2.9	93.2	0.96	0.49	13200	2.9	1.3 J	18.2	8220	21.2	748	19.1	0.23	3.6	127	4.1	0.079 U	413
WGL-SD-SD06-0614		20140611	2350	0.58 U	2.9	92.9	1.1	0.52	13400	4.3	2.3 J	36.1	6950	29.7	957	146	0.24	4.6	361	4	0.098 U	586
WGL-SD-SD06-0914		20140924	1870	0.48 J	3	91.8	1	0.43	11900	3.4	1.6 J	20.8	7050	31.4	799	40.4	0.22	3.3	144	4.3	0.07 U	550
WGL-SD-SD06-0415		20150407	6870 J	0.41 U	22 J	54.2 J	8.5 J	2.3 J	653 J	15.4 J	1.6 J	29.5 J	19100 J	27.1 J	97.4 J	20.8 J	0.16 J	4.9 J	123 J	4.9 J	0.069 U	64.3 J
WGL-SD-SD06-0915		20150923	1270 J	0.45 UJ	1.8 J	67.7 J	0.78 J	0.38 J	9440 J	2.5 J	1 J	13.4 J	5800 J	17.3 J	598 J	28 J	0.29 J	2.3 J	84.9 J	5.6 J	0.076 UJ	443 J
WGL-SD-SD06-0316		20160330	6520	0.45 J	5.2	24.9	0.092 J	0.25	1720	9.8	1.8	20	5420	16.1	1080	134	0.042 J	6	458	0.84	0.23 J	38.6
WGL-SD-SD06-0916		20160921	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD06-0517		20170509	2400 J	0.61 J	3.3 J	130 J	1.3 J	0.8 J	18000 J	4.6 U	2.1 J	29 J	10000 J	41 J	1000 J	47 J	0.38 J	5.3 J	280 J	4.5 J	0.17 J	950 J
WGL-SD-SD06-1017		20171024	2700 J	0.7 J	3.8 J	110 J	1.1 J	0.73 J	16000 J	5.5 J	2.3 J	41 J	7600 J	48 J	930 J	90 J	0.41 J	5.6 J	280 J	4 J	0.22 J	480 J
WGL-SD06-053018		20180530	1600 J	0.48 J	3.5 J	84 J	0.86 J	0.51 J	12000 J	4 J	1.7 J	24 J	9300 J	42 J	750 J	30 J	0.066 U	4.1 J	230 J	4 J	0.15 J	700 J

Sample ID	Location ID	Sample Date	METALS (MG/KG)																					
			ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE	MERCURY	NICKEL	POTASSIUM	SELENIUM	SILVER	SODIUM
PALs			8767.37	NC	9.8	202.48	3.2	1.95	13900	43.4	25.7	53.3	2400	200.86	1683.03	3690	0.28	22.7	603.24	1	0.5	2180
WGL-SD-SD07-1211		20111214	**2180**	**0.06 J**	**2 J**	**10.9**	**0.16**	**0.04 J**	**548**	**3.7**	**1.5**	**4 J**	**5600**	**4**	**693**	**74.1**	**0.009 J**	**3**	**393 J**	**0.05 J**	**0.02 J**	74.9 U
WGL-SD-SD07-0312		20120313	**2000 J**	**0.05 J**	**1.9**	**10.1**	**0.12**	**0.02 J**	**396**	**3.3**	**1.5**	**3.8**	**5540**	**4.1**	**723 J**	**76.6**	**0.01 J**	**2.8**	**406**	**0.14 J**	**0.01 J**	47.3 U
WGL-SD-SD07-0712		20120710	**3660**	**0.49 J**	**3.4**	**24.4**	**0.18**	**0.067 J**	**600**	**5.2**	**2.5**	**8.8**	**7000**	**7.9**	**1190**	**110**	0.0026 U	**4.9**	**517**	0.24 U	0.024 U	**58.5**
WGL-SD-SD07-0912		20120910	**2230**	0.15 U	**2.3**	**8.1**	**0.01 J**	**0.049 J**	**71.9**	**3.3**	**1.9**	**4.9**	**5590**	**4**	**947**	**78**	**0.0042 J**	**3.3**	**301**	0.25 U	0.025 U	**54.1**
WGL-SD-SD07-1212		20121203	**2670**	0.23 U	**2.9**	**11.3**	0.1 U	0.0065 U	**519**	**4.3**	**2.8**	6.1 U	**7360**	5.1 U	**1110**	**93.9**	0.061 U	**4.3**	**389**	0.41 U	0.028 U	236 U
WGL-SD-SD07-0313		20130318	--	**0.75**	**11.4**	**84.4**	**0.94**	**0.41**	**2200**	**23.5**	**14.8**	**33.3**	--	**37.4**	**5010**	**484**	**0.036 J**	**25.8**	**2190**	0.34 U	0.034 U	**593**
WGL-SD-SD07-0613		20130612	**6240**	0.45 U	**19.1**	**22.5**	**4.2**	**0.17 J**	**576**	**14.5**	**0.76 J**	**20.6**	**8910**	**23.6**	**237**	**28.9**	**0.23**	**3.5**	**216**	**5.8**	0.076 U	**54.7 J**
WGL-SD-SD07-0913		20130924	**2230**	0.33 U	**2.5**	**11.2**	0.0013 U	0.013 U	**1010**	**3.5**	**1.8 J**	**5.3**	**5420**	**5.2**	**828**	**74.3**	0.0031 U	**3.1**	**337**	0.55 U	**24.7**	**172**
WGL-SD-SD07-1213		20131217	**1700**	0.47 U	**2.3**	**83.4**	**0.93**	**0.43**	**12200**	**2.6**	**1.2 J**	**16.6**	**6240**	**20.6**	**742**	**29.1**	**0.23**	**3.2**	**206**	**3.3**	0.079 U	**377**
WGL-SD-SD07-0414	WGL-SD-07	20140423	**6010**	0.41 U	**23**	**22.6**	**3.1**	0.016 U	**688**	**13**	**0.39 J**	**27.7**	**10800**	**24.8**	**111**	**22.8**	**0.21**	**3.1**	**150**	**4.2**	0.07 U	1.2 U
WGL-SD-SD07-0614		20140611	**1810**	0.16 U	**1.9**	**7.8**	**0.11**	**0.011 J**	**396**	**3**	**1.5**	**3.4**	**5180**	**3.2**	**700**	**62.3**	0.0033 U	**2.6**	**233**	0.26 U	0.026 U	**47.7**
WGL-SD-SD07-0914		20140924	**1850**	0.12 U	**2.2**	**8.9**	**0.1**	0.0045 U	**519**	**2.9**	**1.5**	**5.4**	**4720**	**4.1**	**686**	**60.7**	**0.0028 J**	**2.7**	**235**	0.19 U	0.019 U	**86.5**
WGL-SD-SD07-0415		20150407	**8110 J**	0.48 U	**25.1 J**	**56.5 J**	**9.2 J**	**2.5 J**	**741 J**	**16.6 J**	**1.5 J**	**35.2 J**	**21500 J**	**34.1 J**	**103 J**	**26.7 J**	**0.21 J**	**5.6 J**	**129 J**	**6.2 J**	0.08 U	**73.5 J**
WGL-SD-SD07-0915		20150923	**6690 J**	**0.62 J**	**5.5 J**	**34.5 J**	**0.35 J**	**0.23 J**	**1210 J**	**9.7 J**	**5.1 J**	**16.2 J**	**12700 J**	**16.3 J**	**2000 J**	**165 J**	**0.014 J**	**9.4 J**	**842 J**	0.37 U	0.037 U	**154 J**
WGL-SD-SD07-0316		20160330	**7310**	**0.58**	**6.1**	**26.9**	**0.13**	**0.29**	**1780**	**10.3**	**2**	**23.1**	**6810**	**18.8**	**1070**	**123**	**0.049 J**	**6.6**	**436**	**0.82**	**0.28 J**	**38.4**
WGL-SD-SD07-0916		20160921	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD07-0517		20170509	**5400**	**0.14 J**	**3.7**	**18**	**0.21**	**0.095**	**1300**	**8**	**1.8**	**14**	**5500**	**13**	**1100**	**69**	**0.026**	**5.2**	**420**	**0.34 J**	**0.076 J**	**110**
WGL-SD-SD07-1017		20171024	**2400**	**0.11 J**	**2.2**	**11**	**0.19**	**0.049 J**	**820**	**4**	**1.7**	**6**	**6000**	**5.3**	**850**	**82**	**0.012 J**	**3.5**	**370**	**0.47 J**	**0.02 J**	**58**
WGL-SD07-052218		20180522	**6100**	**0.13 J**	**4.8**	**23**	**0.28**	**0.068**	**1500**	**8.6**	**1.8**	**13**	**5500**	**17**	**910**	**92**	**0.037**	**5.9**	**370**	**0.62**	**0.1 J**	**66**
WGL-SD-SD08-1211		20111214	**5980**	**0.11 J**	**4.9 J**	**22.7**	**0.24**	**0.11**	**1510**	**8.6**	**1.8**	**16 J**	**5350**	**17.5**	**881**	**100**	**0.05**	**5.7**	**495 J**	**0.22 J**	**0.17**	**231**
WGL-SD-SD08-0312		20120314	**6420 J**	**0.1 J**	**4.3**	**26.6**	**0.26**	**0.09 J**	**1490**	**10.9**	**2.4**	**13**	**6870**	**15.4**	**1340 J**	**112**	**0.04**	**7.4**	**725**	**0.24 J**	**0.13**	**320**
WGL-SD-SD08-0712		20120710	**8080**	**0.57 J**	**5.7**	**31.7**	**0.34**	**0.13**	**1860**	**10.8**	**4.2**	**14.4**	**10100**	**17.3**	**1890**	**189**	**0.036 J**	**10.1**	**869**	0.3 U	0.03 U	**388**
WGL-SD-SD08-0912		20120910	**7300**	0.16 U	**5.3**	**28.4**	**0.13**	**0.15**	**1170**	**9.8**	**3.1**	**14**	**7810**	**15.5**	**1490**	**145**	**0.031 J**	**7.8**	**702**	0.27 U	0.027 U	**516**
WGL-SD-SD08-1212		20121203	**11300**	**0.68 J**	**8.6**	**44.8**	**0.47**	0.044 U	**2420**	**14.5**	**8**	**20.9**	**18400**	**24.7 J**	**2930**	**409**	0.064 U	**14.3**	**1300**	**0.97**	0.03 U	**507**
WGL-SD-SD08-0313		20130318	--	**0.46**	**7.4**	**46.1**	**0.53**	**0.17**	**2010**	**15.1**	**8.1**	**21.4**	--	**28.4**	**3060**	**335**	**0.048 J**	**15**	**1320**	0.27 U	0.027 U	**297**
WGL-SD-SD08-0613		20130612	**6810**	0.47 U	**23.4**	**22.2**	**5.8**	**0.12 J**	**384**	**18.3**	**0.54 J**	**23.2**	**12800**	**23**	**111**	**14.8**	**0.18**	0.053 U	**142**	**7.3**	0.079 U	**38.3 J**
WGL-SD-SD08-0913		20130924	**10400**	**0.53 J**	**6.6**	**47.5**	**0.45**	0.018 U	**1850**	**13.9**	**5.2**	**20.9**	**13000**	**23.8**	**2290**	**186**	0.0035 U	**11.8**	**1200**	0.76 U	0.076 U	**435**
WGL-SD-SD08-1213		20131217	**1690**	0.46 U	**2.7**	**86.3**	**0.94**	**0.48**	**12500**	**3.4**	**1.2 J**	**16.6**	**8610**	**20.6**	**724**	**26.7**	**0.3**	**3.4**	**208**	**4.4**	0.078 U	**382**
WGL-SD-SD08-0414	WGL-SD-08	20140423	**7630**	0.46 U	**25.9**	**30.3**	**4.9**	0.018 U	**1010**	**13.6**	**0.38 J**	**34**	**10400**	**27.9**	**159**	**60.6**	**0.2**	**3.6**	**192**	**6.4**	0.078 U	1.3 U
WGL-SD-SD08-0614		20140611	**10100**	0.2 U	**6.9**	**37.8**	**0.42**	**0.15**	**1880**	**13**	**5.5**	**21.9**	**13000**	**22.5**	**2410**	**211**	**0.039 J**	**12.5**	**1050**	**0.51 J**	0.033 U	**161**
WGL-SD-SD08-0914		20140924	**7720**	0.13 U	**6.1**	**30.5**	**0.32**	**0.029 J**	**1450**	**10.4**	**4.4**	**16.1**	**11300**	**17.2**	**1760**	**173**	**0.021 J**	**9.5**	**722**	**0.36 J**	0.022 U	**182**
WGL-SD-SD08-0415		20150407	**8990 J**	0.47 U	**26 J**	**66.8 J**	**11 J**	**3.1 J**	**764 J**	**17.8 J**	**1.7 J**	**40.8 J**	**23900 J**	**36.3 J**	**102 J**	**24.2 J**	**0.23 J**	**6.6 J**	**139 J**	**7.2 J**	0.079 U	**74.7 J**
WGL-SD-SD08-0915		20150923	**13100 J**	**2.5 J**	**8.4 J**	**91 J**	**0.29 J**	**0.32 J**	**1830 J**	**63 J**	**6.2 J**	**18.8 J**	**17200 J**	**18.8 J**	**5500 J**	**272 J**	**0.03 J**	**21.2 J**	**4260 J**	0.25 U	0.025 U	**135 J**
WGL-SD-SD08-0316		20160330	**5980**	**0.43 J**	**5**	**23**	**0.09 J**	**0.2**	**1540**	**8.6**	**1.6**	**18.2**	**4930**	**15.7**	**910**	**109**	**0.048 J**	**5.4**	**360**	**0.8 J**	**0.21 J**	**36.8**
WGL-SD-SD08-0916		20160921	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD08-0517		20170509	**6900**	**0.15 J**	**5.1**	**25**	**0.21**	**0.1**	**1700**	**9.2**	**1.9**	**13**	**5600**	**18**	**1100**	**90**	**0.047**	**6.1**	**520**	**0.25 J**	**0.17**	**81**
WGL-SD-SD08-1017		20171024	**9300**	**0.15 J**	**5.7**	**37**	**0.38**	**0.11**	**1800**	**17**	**3.5**	**14**	**9300**	**18**	**2100**	**180**	**0.042**	**11**	**1200**	**0.95**	**0.11**	**100**
WGL-SD08-052218		20180522	**5100**	0.36 U	**3.6**	**19**	**0.2**	**0.043 J**	**1000**	**7.8**	**1.9**	**9**	**5300**	**12**	**960**	**77**	**0.029**	**5.5**	**550**	**0.5 J**	**0.068 J**	**71**

Sample ID	Location ID	Sample Date	METALS (MG/KG)			MISCELLANEOUS PARAMETERS (%)		PESTICIDES/PCBS (MG/KG)																
			THALLIUM	VANADIUM	ZINC	PERCENT MOISTURE	TOTAL SOLIDS	4,4'-DDD	4,4'-DDE	4,4'-DDT	ALDRIN	ALPHA-BHC	ALPHA-CHLORDANE	AROCLOR-1248	AROCLOR-1254	AROCLOR-1260	BETA-BHC	CHLORDANE (TECHNICAL)	DELTA-BHC	DIELDRIN	ENDOSULFAN I	ENDOSULFAN II	ENDOSULFAN SULFATE	ENDRIN
PALs			NC	38.18	549	NC	NC	0.73	0.23428	0.29	NC	NC	0.012	0.23	NC	0.23	0.0049	NC	0.0049	0.017	0.0049	0.0049	NC	NC
WGL-SD-SD01-1211		20111219	**0.1 J**	**27.7**	**1210**	--	**24**	**0.022 J**	**0.0038 J**	**0.0057 J**	0.003 UJ	0.003 UJ	**0.0011 J**	0.03 UJ	0.03 UJ	0.03 UJ	0.003 UJ	--	0.003 UJ	**0.014 J**	0.003 UJ	0.0058 UJ	0.0058 UJ	0.0058 UJ
WGL-SD-SD01-0312		20120314	0.042 U	0.42 U	0.84 U	--	**77**	**0.0074**	**0.0011 J**	**0.0015 J**	0.00098 UJ	0.00098 UJ	0.00098 U	0.0098 U	0.0098 U	0.0098 U	0.00098 U	--	0.00098 UJ	**0.0038 J**	0.00098 U	0.0019 U	0.0019 U	0.0019 U
WGL-SD-SD01-0712		20120709	**1.1 J**	**28.2**	**62.4**	--	--	**0.22**	**0.064**	**0.14**	0.0013 U	0.00067 U	0.001 U	0.0045 U	0.0053 U	0.0022 U	0.00075 U	--	0.0014 U	**0.2**	0.00072 U	0.0018 U	0.0016 U	0.0017 U
WGL-SD-SD01-0712-RE		20120709	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD-SD01-0912		20120907	**0.64**	**13.2**	**31.3**	--	--	**0.023**	**0.007**	**0.0044**	5.5E-05 UJ	2.8E-05 UJ	4.3E-05 UJ	0.0019 U	0.0022 U	0.0009 U	3.1E-05 UJ	--	0.00006 U	**0.016**	0.00003 UJ	7.5E-05 UJ	6.5E-05 U	0.00007 U
WGL-SD-SD01-1212		20121203	0.2 U	**20.6**	**53.5**	**44**	--	**0.018 J**	**0.0047 J**	**0.0041 J**	0.0017 UJ	0.0017 UJ	0.0017 UJ	0.033 U	0.033 U	0.033 U	0.0017 UJ	--	0.0017 UJ	**0.0087 J**	0.0017 UJ	0.0033 UJ	0.0033 UJ	0.0033 UJ
WGL-SD-SD01-0313		20130318	0.3 U	**35.7**	**74.2**	--	--	**0.0063**	**0.0059**	**0.0038**	0.00012 U	5.9E-05 U	9.2E-05 U	0.004 U	0.0047 U	0.0019 U	**0.0039**	--	0.00013 U	**0.011**	6.4E-05 U	0.00016 U	0.00014 U	0.00015 U
WGL-SD-SD01-0613		20130612	0.17 U	**4.9**	**13.3**	--	--	**0.0073**	**0.0049**	**0.023**	7.4E-05 U	3.8E-05 U	5.9E-05 U	0.0026 U	0.003 U	0.0012 U	4.2E-05 U	--	8.1E-05 U	**0.011**	0.00004 U	0.0001 U	8.8E-05 U	9.4E-05 U
WGL-SD-SD01-0913		20130924	0.27 U	**14.9**	**31.4**	--	--	**0.026**	0.0013 U	**0.064**	0.00056 U	0.00028 U	0.00044 U	0.0019 U	0.0022 U	0.00089 U	0.00032 U	--	0.00061 U	**0.017**	0.0003 U	0.00076 U	0.00066 U	0.00071 U
WGL-SD-SD01-1213		20131217	0.1 U	**10.3**	**22.7**	--	--	**0.065**	**0.026**	**0.035**	0.00055 U	0.00028 U	0.00043 U	0.0019 U	0.0022 U	0.00089 U	0.00031 U	--	0.0006 U	0.00079 U	0.0003 U	0.00074 U	0.00065 U	0.00069 U
WGL-SD-SD01-0414		20140423	0.29 U	**22.1**	**41.5**	--	--	0.00022 U	0.00025 U	0.00033 U	**0.0035**	5.5E-05 U	8.6E-05 U	0.0038 U	0.0043 U	0.0018 U	6.2E-05 U	--	0.00012 U	**0.005**	5.9E-05 U	0.00015 U	0.00013 U	0.00014 U
WGL-SD-SD01-0614	WGL-SD-01	20140611	0.24 U	**9.3**	**50.9**	--	--	**0.32**	**0.03**	0.0027 U	0.0009 U	0.00046 UJ	**0.018**	0.0031 U	0.0036 U	0.0015 U	0.00052 U	--	0.00099 U	**0.21**	0.00049 U	0.0012 U	0.0011 U	0.0012 U
WGL-SD-SD01-0914		20140924	0.14 U	**11.6**	**31.2**	--	--	0.00058 U	0.00066 U	**0.04**	0.00029 U	0.00015 U	0.00023 U	0.002 U	0.0023 U	0.00095 U	0.00017 U	--	0.00032 U	0.00042 U	0.00016 U	0.00039 U	0.00034 U	0.00037 U
WGL-SD-SD01-0415		20150407	0.31 U	**31 J**	**43.9 J**	--	--	**0.052 J**	**0.044 J**	**0.066 J**	0.0012 U	0.0006 U	0.00093 U	0.0041 U	0.0047 U	0.0019 U	0.00067 U	--	0.0013 U	**0.13 J**	0.00064 U	0.0016 U	0.0014 U	0.0015 U
WGL-SD-SD01-0915		20150923	0.093 U	**12.1 J**	**40.6 J**	--	--	**0.0032 J**	0.00013 UJ	0.00017 UJ	5.5E-05 UJ	2.8E-05 UJ	4.4E-05 UJ	0.0019 U	0.0022 U	0.0009 U	3.2E-05 UJ	--	0.00006 UJ	**0.002 J**	0.00003 UJ	7.5E-05 UJ	6.5E-05 UJ	0.00007 UJ
WGL-SD-SD01-0316		20160330	**0.59 J**	**15.5**	**34.9**	--	--	**0.006 J**	**0.0059 J**	**0.0086 J**	5.5E-05 UJ	2.8E-05 UJ	4.4E-05 UJ	0.0019 U	0.0022 U	0.0009 U	3.2E-05 UJ	--	0.00006 UJ	**0.0047 J**	0.00003 UJ	7.5E-05 UJ	6.5E-05 UJ	0.00007 UJ
WGL-SD-SD01-0316-D		20160330	**0.3 J**	**7.6**	**33.7**	--	--	0.00011 UJ	0.00013 UJ	**0.0018 J**	5.5E-05 UJ	2.8E-05 UJ	4.4E-05 UJ	0.0019 U	0.0022 U	0.0009 U	3.2E-05 UJ	--	0.00006 UJ	0.00008 UJ	0.00003 UJ	7.5E-05 UJ	6.5E-05 UJ	0.00007 UJ
WGL-SD-SD01-0916		20160921	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD-SD01-0916-D		20160921	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD01-0517		20170505	0.48 UJ	**43 J**	**180 J**	--	--	**0.12 J**	**0.024 J**	**0.013 J**	0.0022 UJ	0.0022 UJ	--	0.053 UJ	**0.018 J**	0.037 UJ	0.0033 UJ	0.036 UJ	0.0022 UJ	**0.013 J**	0.0022 UJ	0.0022 UJ	0.0022 UJ	0.0022 UJ
WGL-SD-SD01-1017		20171024	1 UJ	**120 J**	**450 J**	--	--	0.019 UJ	**0.09 J**	**0.046 J**	0.019 UJ	0.019 UJ	**0.051 J**	0.11 UJ	0.057 UJ	0.08 UJ	0.029 UJ	**1 J**	0.019 UJ	**0.39 J**	0.019 UJ	0.019 UJ	0.019 UJ	0.019 UJ
WGL-SD-SD01-1017-R		20171030	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD01-052218		20180522	0.12 U	**15**	**26**	--	--	**0.081 J**	**0.016**	**0.02**	**0.00079 J**	0.00055 U	**0.0027**	--	--	--	0.00082 U	0.0092 U	0.00055 U	**0.016 J**	0.00055 U	0.00055 U	0.00055 U	0.00055 U
WGL-SD-SD02-1211		20111219	**0.03 J**	**18.5**	**36.9**	--	**70**	**0.021 J**	**0.0032 J**	**0.0054**	0.0012 U	0.0012 U	**0.0009 J**	0.012 U	0.012 U	0.012 U	0.0012 U	--	0.0012 U	**0.014**	0.0012 U	0.0023 U	0.0023 U	0.0023 U
WGL-SD-SD02-0312		20120313	**0.05 J**	**28.4**	**37.2**	--	**48**	**0.11 J**	**0.01**	**0.032 J**	0.0015 UJ	0.0015 UJ	**0.0013 J**	0.015 U	0.015 U	0.015 U	0.0015 U	--	0.0015 UJ	**0.029 J**	0.0015 U	0.003 U	0.003 U	0.003 U
WGL-SD-SD02-0712		20120710	**0.51 J**	**20.5**	**34.4**	--	--	**0.022**	**0.0089**	**0.012**	5.4E-05 U	2.8E-05 U	**0.0015**	0.0019 U	0.0022 U	0.00088 U	3.1E-05 U	--	**0.0018**	**0.013**	2.9E-05 U	7.4E-05 U	**0.0029**	6.9E-05 U
WGL-SD-SD02-0912		20120907	**0.37 J**	**18**	**34.6**	--	--	**0.0088**	**0.0029**	**0.0065**	5.5E-05 UJ	2.8E-05 UJ	4.3E-05 UJ	0.0019 U	0.0022 U	0.0009 U	3.1E-05 UJ	--	0.00006 U	**0.0041**	0.00003 UJ	7.5E-05 UJ	6.5E-05 U	0.00007 U
WGL-SD-SD02-1212		20121203	0.18 U	**24**	**41.6**	**36**	--	**0.012 J**	**0.0072 J**	**0.0087 J**	0.0017 UJ	0.0017 UJ	0.0017 UJ	0.033 U	0.033 U	0.033 U	0.0017 UJ	--	0.0017 UJ	**0.0079 J**	0.0017 UJ	0.0033 UJ	0.0033 UJ	0.0033 UJ
WGL-SD-SD02-0313		20130318	0.12 U	**28**	**40.9**	--	--	**0.0057**	**0.0034**	**0.0036**	5.5E-05 U	2.8E-05 U	4.3E-05 U	0.0019 U	0.0022 U	0.0009 U	**0.0014**	--	**0.00085**	**0.0057**	0.00003 U	7.5E-05 U	6.5E-05 U	0.00007 U
WGL-SD-SD02-0613		20130612	0.11 U	**13.4**	**25.5**	--	--	0.00011 U	**0.0012 J**	**0.003**	5.4E-05 U	2.8E-05 U	4.3E-05 U	0.0019 U	0.0022 U	0.00089 U	3.1E-05 U	--	5.9E-05 U	**0.0016**	0.00003 U	7.4E-05 U	6.4E-05 U	6.9E-05 U
WGL-SD-SD02-0913		20130924	0.3 U	**20.5**	**47.7**	--	--	**0.016**	**0.0098**	**0.0057**	5.5E-05 U	2.8E-05 U	4.3E-05 U	0.0019 U	0.0022 U	0.0009 U	3.1E-05 U	--	0.00006 U	**0.0063**	0.00003 U	7.5E-05 U	6.5E-05 U	0.00007 U
WGL-SD-SD02-1213		20131217	0.29 U	**34.3**	**353**	--	--	**0.21**	**0.089**	**0.049**	0.0011 U	0.00056 U	0.00088 U	0.0038 U	0.0044 U	0.0018 U	0.00063 U	--	0.0012 U	**0.14**	0.0006 U	0.0015 U	0.0013 U	0.0014 U
WGL-SD-SD02-0414		20140423	0.15 U	**23.3**	**48**	--	--	**0.0033**	0.00013 U	0.00017 U	5.6E-05 U	2.8E-05 U	4.4E-05 U	0.0019 U	0.0022 U	0.00091 U	3.2E-05 U	--	6.1E-05 U	**0.0021**	0.00003 U	7.6E-05 U	6.6E-05 U	7.1E-05 U
WGL-SD-SD02-0614	WGL-SD-02	20140611	0.19 U	**24.4**	**34.7**	--	--	**0.018**	**0.0052**	**0.008**	**0.0031**	3.8E-05 UJ	5.8E-05 U	0.0026 U	0.003 U	0.0012 U	4.2E-05 U	--	8.1E-05 U	**0.0075**	0.00004 U	0.0001 U	**0.0024**	9.4E-05 U
WGL-SD-SD02-0914		20140924	**0.57**	**21.2**	**18.8**	--	--	**0.0024**	0.00013 U	**0.0022**	5.5E-05 U	2.8E-05 U	4.4E-05 U	0.0019 U	0.0022 U	0.0009 U	3.2E-05 U	--	0.00006 U	0.00008 U	0.00003 U	7.5E-05 U	6.5E-05 U	0.00007 U
WGL-SD-SD02-0415		20150407	0.1 U	**13.8 J**	**29.7 J**	--	--	0.00011 U	**0.0021 J**	**0.0023 J**	5.5E-05 U	2.8E-05 U	4.4E-05 U	0.0019 U	0.0022 U	0.0009 U	3.2E-05 U	--	0.00006 U	**0.002 J**	0.00003 U	7.5E-05 U	6.5E-05 U	0.00007 U
WGL-SD-SD02-0915		20150923	0.19 U	**26.6 J**	**53.2 J**	--	--	**0.023 J**	**0.0061 J**	**0.0059 J**	7.5E-05 UJ	3.8E-05 UJ	**0.0011 J**	0.0026 U	0.003 U	0.0012 U	4.3E-05 UJ	--	8.2E-05 UJ	**0.013 J**	4.1E-05 UJ	**0.0014 J**	8.9E-05 UJ	9.5E-05 UJ
WGL-SD-SD02-0316		20160330	**0.36 J**	**20**	**49.7**	--	--	**0.0022 J**	**0.0021 J**	**0.0022 J**	5.5E-05 UJ	2.8E-05 UJ	4.3E-05 UJ	0.0019 UJ	0.0022 UJ	0.0009 UJ	3.1E-05 UJ	--	0.00006 UJ	**0.0019 J**	0.00003 UJ	7.5E-05 UJ	6.5E-05 UJ	0.00007 UJ
WGL-SD-SD02-0916		20160921	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD02-0517		20170508	0.25 U	**60**	**88**	--	--	**0.013 J-**	**0.0063 J-**	**0.0035 J**	0.0011 UJ	0.0011 UJ	--	0.026 U	**0.013 J**	**0.013 J**	0.0016 UJ	0.018 UJ	0.0011 UJ	**0.0059 J-**	0.0011 UJ	0.0011 UJ	0.0011 UJ	0.0011 UJ
WGL-SD-SD02-1017		20171024	0.93 UJ	**140 J**	**240 J**	--	--	**0.084 J**	**0.02 J**	**0.0066 J**	**0.0078 J**	0.0042 UJ	**0.0085 J**	0.11 UJ	0.053 UJ	0.074 UJ	0.0063 UJ	0.071 UJ	0.0042 UJ	**0.047 J**	0.0042 UJ	0.0042 UJ	0.0042 UJ	0.0042 UJ
WGL-SD-SD02-1017-R		20171030	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD02-052118		20180521	0.2 U	**7.3 J**	**16 J**	--	--	**0.075 J**	**0.032 J**	**0.011 J**	0.00092 U	0.00092 U	**0.0047 J**	--	--	--	0.0014 U	0.015 U	0.00092 U	**0.031 J**	0.00092 U	0.00092 U	0.00092 U	0.00092 U
WGL-SD02-052118-D		20180521	0.44 UJ	**16 J**	**35 J**	--	--	**0.18 J**	**0.075 J**	**0.027 J**	0.0021 UJ	0.0021 UJ	**0.012 J**	--	--	--	0.0031 UJ	0.035 UJ	0.0021 UJ	**0.076 J**	0.0021 UJ	0.0021 UJ	0.0021 UJ	0.0021 UJ

Table B-3b: West Gate Landfill Sediment Results

Sample ID	Location ID	Sample Date	METALS (MG/KG)			MISCELLANEOUS PARAMETERS (%)		PESTICIDES/PCBS (MG/KG)																
			THALLIUM	VANADIUM	ZINC	PERCENT MOISTURE	TOTAL SOLIDS	4,4'-DDD	4,4'-DDE	4,4'-DDT	ALDRIN	ALPHA-BHC	ALPHA-CHLORDANE	AROCLOR-1248	AROCLOR-1254	AROCLOR-1260	BETA-BHC	CHLORDANE (TECHNICAL)	DELTA-BHC	DIELDRIN	ENDOSULFAN I	ENDOSULFAN II	ENDOSULFAN SULFATE	ENDRIN
PALs			NC	38.18	549	NC	NC	0.73	0.23428	0.29	NC	NC	0.012	0.23	NC	0.23	0.0049	NC	0.0049	0.017	0.0049	0.0049	NC	NC
WGL-SD-SD03-1211		20111219	0.07 J	22.5	36.1	--	73	0.099 J	0.017	0.021	0.0007 J	0.0011 U	0.0043	0.011 UJ	0.011 UJ	0.011 UJ	0.0011 U	--	0.0011 U	0.06	0.0011 U	0.0021 U	0.0021 U	0.0021 U
WGL-SD-SD03-0312		20120313	0.02 J	8.9	65.7	--	53	0.05	0.0066	0.026 J	0.0014 UJ	0.0014 UJ	0.0012 J	0.014 UJ	0.014 UJ	0.014 UJ	0.0014 U	--	0.0014 UJ	0.021 J	0.0014 U	0.0028 U	0.0028 U	0.0028 U
WGL-SD-SD03-0712		20120710	1.1 J	53.5	93.3	--	--	0.066	0.025	0.032	0.00056 U	0.00028 U	0.00044 U	0.0048 U	0.0056 U	0.0023 U	0.00032 U	--	0.00061 U	0.061	0.0003 U	0.00076 U	0.00066 U	0.00071 U
WGL-SD-SD03-0912		20120907	0.42 J	25.3	79.2	--	--	0.067	0.023 J	0.034	0.00082 UJ	0.00042 UJ	0.00065 UJ	0.0019 U	0.0022 U	0.0009 U	0.00047 UJ	--	0.0009 U	0.11	0.00045 UJ	0.0011 UJ	0.00097 U	0.001 U
WGL-SD-SD03-1212		20121203	0.15 U	29.5	87.1	55	--	0.055 J	0.028 J	0.02 J	0.0019 UJ	0.0019 UJ	0.0022 J	0.036 U	0.036 U	0.036 U	0.0019 UJ	--	0.0019 UJ	0.048 J	0.0019 UJ	0.0036 UJ	0.0036 UJ	0.0036 UJ
WGL-SD-SD03-0313		20130318	0.2 U	44	41.1	--	--	0.068	0.05	0.025	7.5E-05 U	3.8E-05 U	0.00006 U	0.0026 U	0.003 U	0.0012 U	4.3E-05 U	--	8.2E-05 U	0.12	4.1E-05 U	0.0001 U	8.9E-05 U	9.6E-05 U
WGL-SD-SD03-0613		20130612	0.24 U	39.9	33.4	--	--	0.044	0.035	0.0014 U	0.00045 U	0.00023 U	0.00036 U	0.0031 U	0.0036 U	0.0015 U	0.00026 U	--	0.00049 U	0.047	0.00025 U	0.00061 U	0.00053 U	0.00057 U
WGL-SD-SD03-0913		20130924	0.38 U	23.6	98.7	--	--	0.031	0.034	0.016	0.00028 U	0.00014 U	0.00022 U	0.002 U	0.0023 U	0.00093 U	0.00016 U	--	0.00031 U	0.024	0.00015 U	0.00039 U	0.00034 U	0.00036 U
WGL-SD-SD03-1213		20131217	0.29 U	36	433	--	--	0.21	0.087	0.077	0.0012 U	0.00061 U	0.00094 U	0.0041 U	0.0048 U	0.002 U	0.00068 U	--	0.0013 U	0.15	0.00065 U	0.0016 U	0.0014 U	0.0015 U
WGL-SD-SD03-0414		20140423	0.19 U	23.4	46.9	--	--	0.011	0.011	0.0069	7.2E-05 U	3.7E-05 U	5.7E-05 U	0.0025 U	0.0029 U	0.0012 U	4.1E-05 U	--	7.9E-05 U	0.012	3.9E-05 U	9.9E-05 U	8.5E-05 U	9.2E-05 U
WGL-SD-SD03-0614	WGL-SD-03	20140611	0.13 U	25.5	47.6	--	--	0.016	0.019	0.014	0.0021	2.8E-05 UJ	4.4E-05 U	0.0019 U	0.0022 U	0.0009 U	3.2E-05 U	--	0.00006 U	0.018	0.00003 U	7.5E-05 U	0.0049	0.00007 U
WGL-SD-SD03-0914		20140924	0.16 U	17.9	122	--	--	0.0063	0.0038	0.0032	6.2E-05 U	3.1E-05 U	4.9E-05 U	0.0021 U	0.0025 U	0.001 U	3.5E-05 U	--	6.7E-05 U	0.0047	3.4E-05 U	8.4E-05 U	7.3E-05 U	7.8E-05 U
WGL-SD-SD03-0415		20150407	0.094 U	25.7 J	27.6 J	--	--	0.00011 U	0.0052 J	0.0064 J	5.5E-05 U	2.8E-05 U	4.4E-05 U	0.0019 U	0.0022 U	0.0009 U	3.2E-05 U	--	0.00006 U	0.00008 U	0.00003 U	7.5E-05 U	6.5E-05 U	0.00007 U
WGL-SD-SD03-0915		20150923	0.14 U	13 J	422 J	--	--	0.027 J	0.011 J	0.021 J	5.6E-05 UJ	2.8E-05 UJ	0.0014 J	0.0019 U	0.0022 U	0.00091 U	3.2E-05 UJ	--	6.1E-05 UJ	0.016 J	0.00003 UJ	0.0011 J	6.6E-05 UJ	7.1E-05 UJ
WGL-SD-SD03-0316		20160330	0.39 U	68.2	264	--	--	0.0094 J	0.0045 J	0.0017 J	5.5E-05 UJ	2.8E-05 UJ	4.3E-05 UJ	0.0019 U	0.0022 U	0.0009 U	3.1E-05 UJ	--	0.00006 UJ	0.0089 J	0.00003 UJ	7.5E-05 UJ	6.5E-05 UJ	0.00007 UJ
WGL-SD-SD03-0916		20160921	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD03-0517		20170508	0.24 U	16	78	--	--	0.025 J-	0.018 J-	0.018 J-	0.0011 UJ	0.0011 UJ	--	0.025 U	0.012 U	0.019 J	0.0016 UJ	0.018 UJ	0.0011 UJ	0.015 J-	0.0011 UJ	0.0011 UJ	0.0011 UJ	0.0011 UJ
WGL-SD-SD03-1017		20171024	78 UR	10000 R	26000 R	--	--	13 R	2.2 R	1.8 R	0.36 UR	0.36 UR	1.1 R	8.3 UR	4.2 UR	5.8 UR	0.54 UR	6 UR	0.36 UR	14 R	0.36 UR	0.36 UR	0.36 UR	0.36 UR
WGL-SD-SD03-1017-D		20171024	4.9 UR	620 R	1500 R	--	--	1.1 R	0.15 R	0.13 R	0.022 UR	0.022 UR	0.083 R	0.52 UR	0.26 UR	0.36 UR	0.033 UR	0.37 UR	0.022 UR	0.96 R	0.022 UR	0.022 UR	0.022 UR	0.022 UR
WGL-SD-SD03-1017-R		20171030	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD-SD03-1017-R-D		20171030	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD03-052118		20180521	0.24 U	27 J	60 J	--	--	0.091	0.0083	0.017	0.0011 U	0.0011 U	0.0017 J	--	--	--	0.0017 U	0.018 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U
WGL-SD-SD04-1211		20111214	0.01 J	17.3	35.5	--	71	0.01 J	0.0017 J	0.0019 J	0.001 U	0.001 U	0.00066 J	0.01 U	0.01 U	0.01 U	0.001 U	--	0.001 U	0.0098	0.001 U	0.002 U	0.002 U	0.002 U
WGL-SD-SD04-1211-D		20111214	0.02 J	13.3	29.4	--	72	0.013 J	0.002 J	0.003 J	0.0011 U	0.0011 U	0.00081 J	0.011 U	0.011 U	0.011 U	0.0011 U	--	0.0011 U	0.011	0.0011 U	0.0021 U	0.0021 U	0.0021 U
WGL-SD-SD04-0312		20120313	0.04 J	16.2	54.2	--	48	0.052	0.0076	0.013 J	0.0016 UJ	0.0016 UJ	0.0026 J	0.016 UJ	0.016 UJ	0.016 UJ	0.0016 U	--	0.0016 UJ	0.043 J	0.0016 U	0.0032 U	0.0032 U	0.0032 U
WGL-SD-SD04-0312-D		20120313	0.03 J	15.8	37.9	--	50	0.058	0.008	0.011 J	0.0016 UJ	0.0016 UJ	0.0048 J	0.016 UJ	0.016 UJ	0.016 UJ	0.0016 U	--	0.0016 UJ	0.048 J	0.0016 U	0.0032 U	0.0032 U	0.0032 U
WGL-SD-SD04-0712		20120711	0.43 J	13.5	24.5	--	--	0.0053	0.0063	0.0041	5.4E-05 U	2.8E-05 U	4.3E-05 U	0.0019 U	0.0022 U	0.00089 U	3.1E-05 U	--	5.9E-05 U	0.014	0.00003 U	7.4E-05 U	0.0034	6.9E-05 U
WGL-SD-SD04-0912		20120907	0.23 U	38	36.6	--	--	0.036	0.013	0.0098	9.7E-05 UJ	4.9E-05 UJ	7.7E-05 UJ	0.14	0.0039 U	0.0016 U	5.5E-05 UJ	--	0.00011 U	0.017	5.3E-05 UJ	0.00013 UJ	0.00011 U	0.00012 U
WGL-SD-SD04-1212		20121203	0.37 U	34.5	44.5	78	--	0.018	0.068	0.097	0.0038 U	0.0038 U	0.0038 U	0.073 U	0.073 U	0.073 U	0.0038 U	--	0.0038 U	0.024 J	0.0038 U	0.0073 U	0.0076 J	0.0073 U
WGL-SD-SD04-0313		20130318	0.21 U	64.8	44.6	--	--	0.029	0.024	0.013	0.0013	4.4E-05 U	0.0027	0.003 U	0.0034 U	0.0014 U	0.0016	--	9.3E-05 U	0.035	4.7E-05 U	0.00012 U	0.0001 U	0.00011 U
WGL-SD-SD04-0613		20130612	0.3 U	24.1	41.9	--	--	0.0041	0.024	0.04	0.00012 U	6.1E-05 U	9.5E-05 U	0.0042 U	0.0048 U	0.002 U	6.9E-05 U	--	0.00013 U	0.0063	6.6E-05 U	0.00016 U	0.0064	0.0067
WGL-SD-SD04-0913		20130924	1.3 U	35	58.6	--	--	0.00033 U	0.022	0.023	0.00017 U	8.5E-05 U	0.00013 U	0.0058 U	0.0067 U	0.0027 U	9.6E-05 U	--	0.00018 U	0.00024 U	9.1E-05 U	0.00023 U	0.0002 U	0.00021 U
WGL-SD-SD04-1213	WGL-SD-04	20131217	0.45 U	69	365	--	--	0.33	0.13	0.17	0.0018 U	0.00092 U	0.0014 U	0.0062 U	0.0072 U	0.003 U	0.001 U	--	0.002 U	0.22	0.00098 U	0.0025 U	0.0021 U	0.0023 U
WGL-SD-SD04-0414		20140423	0.26 U	28.3	16.3	--	--	0.0053	0.0035	0.0003 U	9.9E-05 U	5.1E-05 U	7.9E-05 U	0.0034 U	0.004 U	0.0016 U	5.7E-05 U	--	0.00011 U	0.0065	5.4E-05 U	0.00014 U	0.0032	0.00013 U
WGL-SD-SD04-0614		20140611	0.41 U	76.3	99.9	--	--	0.035	0.0066	0.007	0.00017 U	8.8E-05 UJ	0.0039	0.006 U	0.0069 U	0.0028 U	9.9E-05 U	--	0.00019 U	0.012	9.4E-05 U	0.00024 U	0.0002 U	0.00022 U
WGL-SD-SD04-0914		20140924	0.22 U	68.8	383	--	--	0.011	0.0029	0.0034	8.9E-05 U	4.5E-05 U	7.1E-05 U	0.0031 U	0.0036 U	0.0015 U	5.1E-05 U	--	9.7E-05 U	0.0049	4.9E-05 U	0.00012 U	0.00011 U	0.00011 U
WGL-SD-SD04-0415		20150407	1.5 J	57.9 J	26.8 J	--	--	0.0043 J	0.0065 J	0.0071 J	7.7E-05 U	3.9E-05 U	6.1E-05 U	0.0027 U	0.0031 U	0.0013 U	4.4E-05 U	--	8.4E-05 U	0.0063 J	4.2E-05 U	0.0001 U	9.1E-05 U	9.8E-05 U
WGL-SD-SD04-0915		20150923	0.38 UJ	243 J	97.5 J	--	--	0.091 J	0.024 J	0.15 J	0.00082 UJ	0.00042 UJ	0.00064 UJ	0.0056 UJ	0.0065 UJ	0.0027 UJ	0.00047 UJ	--	0.00089 UJ	0.041 J	0.00044 UJ	0.0011 UJ	0.00096 UJ	0.001 UJ
WGL-SD-SD04-0316		20160330	0.22 U	41.5	182	--	--	0.012 J	0.0055 J	0.0022 J	5.5E-05 UJ	2.8E-05 UJ	0.00099 J	0.0019 U	0.0022 U	0.0009 U	3.1E-05 UJ	--	0.00006 UJ	0.012 J	0.00003 UJ	7.5E-05 UJ	6.5E-05 UJ	0.00007 UJ
WGL-SD-SD04-0916		20160921	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD04-0517		20170508	0.46 UJ	67 J	63 J	--	--	0.084 J	0.033 J	0.013 J	0.0022 UJ	0.0022 UJ	--	0.05 UJ	0.021 J	0.035 UJ	0.0033 UJ	0.037 UJ	0.0022 UJ	0.049 J	0.0022 UJ	0.0022 UJ	0.0022 UJ	0.0022 UJ
WGL-SD-SD04-1017		20171023	0.29 UJ	29 J	56 J	--	--	0.14 J	0.028 J	0.0097 J	0.0036 J	0.0013 UJ	0.013 J	0.033 UJ	0.016 UJ	0.023 UJ	0.002 UJ	0.022 UJ	0.0013 UJ	0.058 J	0.0013 UJ	0.0013 UJ	0.0013 UJ	0.0013 UJ
WGL-SD04-052118		20180521	0.28 U	43 J	42 J	--	--	0.051 J	0.02 J	0.0077 J	0.0013 U	0.0013 U	0.0029 J	--	--	--	0.0019 U	0.022 U	0.0013 U	0.0013 UJ	0.0013 U	0.0013 U	0.0013 U	0.0013 U

Sample ID	Location ID	Sample Date	METALS (MG/KG)			MISCELLANEOUS PARAMETERS (%)		PESTICIDES/PCBS (MG/KG)																
			THALLIUM	VANADIUM	ZINC	PERCENT MOISTURE	TOTAL SOLIDS	4,4'-DDD	4,4'-DDE	4,4'-DDT	ALDRIN	ALPHA-BHC	ALPHA-CHLORDANE	AROCLOR-1248	AROCLOR-1254	AROCLOR-1260	BETA-BHC	CHLORDANE (TECHNICAL)	DELTA-BHC	DIELDRIN	ENDOSULFAN I	ENDOSULFAN II	ENDOSULFAN SULFATE	ENDRIN
PALs			NC	38.18	549	NC	NC	0.73	0.23428	0.29	NC	NC	0.012	0.23	NC	0.23	0.0049	NC	0.0049	0.017	0.0049	0.0049	NC	NC
WGL-SD-SD05-1211		20111214	**0.01 J**	**4.2**	**8.8**	--	**85**	0.0017 U	**0.0003 J**	**0.001 J**	0.00087 U	0.00087 U	0.00087 U	0.0087 UJ	0.0087 UJ	0.0087 UJ	0.00087 U	--	0.00087 U	0.0017 U	0.00087 U	0.0017 U	0.0017 U	0.0017 U
WGL-SD-SD05-0312		20120313	**0.04 J**	**8.2**	**21.9**	--	**85**	**0.00091 J**	**0.0012 J**	**0.0019 J**	0.00093 UJ	0.00093 UJ	0.00093 U	0.0093 U	0.0093 U	0.0093 U	0.00093 U	--	0.00093 UJ	0.0018 UJ	0.00093 U	0.0018 U	0.0018 U	0.0018 U
WGL-SD-SD05-0712		20120710	**0.28 J**	**6.7**	**17.4 J**	--	--	0.00011 U	0.00013 U	**0.0027**	5.5E-05 U	2.8E-05 U	4.4E-05 U	0.0019 U	0.0022 U	0.00091 U	3.2E-05 U	--	6.1E-05 U	8.1E-05 U	0.00003 U	7.6E-05 U	6.6E-05 U	7.1E-05 U
WGL-SD-SD05-0712-D		20120710	**0.37**	**6.7**	**21.4 J**	--	--	0.00011 U	0.00012 U	**0.0021**	5.5E-05 U	2.8E-05 U	4.3E-05 U	0.0019 U	0.0022 U	0.0009 U	3.1E-05 U	--	0.00006 U	0.00008 U	0.00003 U	7.5E-05 U	6.5E-05 U	0.00007 U
WGL-SD-SD05-0912		20120910	**0.23 J**	**5.4**	**13.9**	--	--	0.00011 U	0.00013 U	0.00017 U	5.6E-05 UJ	2.8E-05 UJ	4.4E-05 UJ	0.0019 U	0.0022 U	0.00091 U	3.2E-05 UJ	--	6.1E-05 UJ	8.1E-05 U	0.00003 UJ	7.6E-05 UJ	6.6E-05 UJ	7.1E-05 U
WGL-SD-SD05-0912-D		20120910	**0.23 J**	**5.1**	**12.8**	--	--	0.00011 U	0.00013 U	0.00017 U	5.5E-05 UJ	2.8E-05 UJ	4.4E-05 UJ	0.0019 U	0.0022 U	0.00091 U	3.2E-05 UJ	--	0.00006 U	0.00008 U	0.00003 UJ	7.5E-05 UJ	6.5E-05 U	0.00007 U
WGL-SD-SD05-1212		20121203	**0.27 J**	**22.9**	**97.7**	**26**	--	0.0033 UJ	0.0033 UJ	0.0033 UJ	0.0017 UJ	0.0017 UJ	0.0017 UJ	0.033 U	0.033 U	0.033 U	0.0017 UJ	--	0.0017 UJ	0.0033 UJ	0.0017 UJ	0.0033 UJ	0.0033 UJ	0.0033 UJ
WGL-SD-SD05-0313		20130318	0.09 U	**7.7**	**29.7**	--	--	0.00011 U	**0.0019**	**0.0022**	5.4E-05 U	2.8E-05 UJ	4.3E-05 UJ	0.0019 U	0.0022 U	0.00089 U	**0.0022 J**	--	5.9E-05 UJ	7.9E-05 U	0.00003 UJ	7.4E-05 UJ	6.4E-05 UJ	6.9E-05 UJ
WGL-SD-SD05-0313-D		20130318	0.09 U	**7.8**	**33.8**	--	--	0.00011 U	**0.0015 J**	**0.0014 J**	5.4E-05 U	2.7E-05 U	4.3E-05 U	0.0019 U	0.0022 U	0.00088 U	3.1E-05 U	--	5.9E-05 U	7.8E-05 U	2.9E-05 U	7.3E-05 U	6.4E-05 U	6.9E-05 U
WGL-SD-SD05-0613		20130612	0.086 U	**8.7**	**35.1**	--	--	**0.0018**	**0.0037**	**0.0092**	5.5E-05 U	2.8E-05 UJ	4.3E-05 U	0.0019 U	**0.021**	0.0009 U	3.1E-05 U	--	0.00006 U	**0.00089 J**	0.00003 UJ	7.5E-05 UJ	6.5E-05 UJ	0.00007 U
WGL-SD-SD05-0613-D		20130612	0.09 U	**7.1**	**35.4**	--	--	0.00011 U	**0.0014 J**	**0.0047**	5.4E-05 U	2.8E-05 U	4.3E-05 U	0.0019 U	**0.013 J**	0.00089 U	3.1E-05 U	--	5.9E-05 U	7.9E-05 U	0.00003 U	7.4E-05 U	**0.002**	6.9E-05 U
WGL-SD-SD05-0913		20130924	0.17 U	**8.2**	**39.1**	--	--	**0.011 J**	**0.0042**	**0.023**	5.4E-05 U	2.8E-05 U	4.3E-05 U	0.0019 U	**0.12**	0.00089 U	3.1E-05 U	--	5.9E-05 U	**0.0056**	0.00003 U	7.4E-05 U	6.4E-05 U	6.9E-05 U
WGL-SD-SD05-0913-D		20130924	0.17 U	**12.5**	**47.4**	--	--	0.00011 U	**0.0041**	**0.0043**	5.5E-05 U	2.8E-05 U	4.3E-05 U	0.0019 U	**0.015 J**	0.0009 U	3.1E-05 U	--	0.00006 U	0.00008 U	0.00003 U	7.5E-05 U	6.5E-05 U	0.00007 U
WGL-SD-SD05-1213		20131217	0.073 U	**5.7**	**12.1**	--	--	0.00011 U	0.00013 U	0.00017 U	5.5E-05 U	2.8E-05 U	4.4E-05 UJ	0.0019 U	0.0022 U	0.0009 U	3.2E-05 U	--	0.00006 U	0.00008 U	0.00003 U	7.5E-05 U	6.5E-05 U	0.00007 U
WGL-SD-SD05-1213-D		20131217	0.066 U	**4.1**	**12.2**	--	--	0.00011 U	0.00012 U	0.00016 U	5.4E-05 U	2.7E-05 U	4.3E-05 U	0.0019 U	0.0022 U	0.00088 U	3.1E-05 U	--	5.9E-05 U	7.8E-05 U	2.9E-05 U	7.3E-05 U	6.4E-05 U	6.8E-05 U
WGL-SD-SD05-0414	WGL-SD-05	20140423	0.24 U	**66.4**	**13**	--	--	**0.011 J**	0.00022 U	0.00029 U	9.6E-05 U	4.9E-05 UJ	7.6E-05 UJ	0.0033 U	0.0039 U	0.0016 U	5.5E-05 UJ	--	0.00011 UJ	0.00014 U	5.3E-05 UJ	0.00013 UJ	**0.017 J**	**0.0086 J**
WGL-SD-SD05-0414-D		20140423	0.25 U	**68.5**	**13**	--	--	**0.0058**	0.00022 U	0.00029 U	9.8E-05 U	0.00005 U	7.8E-05 U	0.0034 U	0.0039 U	0.0016 U	5.6E-05 U	--	0.00011 U	0.00014 U	5.3E-05 U	0.00013 U	**0.0031**	**0.0058**
WGL-SD-SD05-0614		20140611	0.08 U	**9.8**	**39.4**	--	--	0.00011 UJ	**0.0031**	**0.0035**	5.4E-05 U	2.8E-05 UJ	4.3E-05 UJ	0.0019 U	0.0022 U	0.00089 U	3.1E-05 UJ	--	5.9E-05 UJ	**0.0023 J**	0.00003 UJ	7.4E-05 UJ	6.4E-05 UJ	6.9E-05 U
WGL-SD-SD05-0614-D		20140611	0.086 U	**9.5**	**40.4**	--	--	**0.0017**	**0.0034**	**0.0041**	5.5E-05 U	2.8E-05 UJ	4.3E-05 U	0.0019 U	0.0022 U	0.0009 U	3.1E-05 U	--	0.00006 U	**0.002**	0.00003 U	7.5E-05 U	**0.0019**	0.00007 U
WGL-SD-SD05-0914		20140924	**0.12 J**	**5.3**	**18**	--	--	0.00011 U	0.00012 U	**0.0063**	5.5E-05 U	2.8E-05 UJ	4.3E-05 UJ	0.0019 U	0.0022 U	0.0009 U	3.1E-05 UJ	--	0.00006 U	0.00008 U	0.00003 UJ	7.5E-05 UJ	6.5E-05 UJ	0.00007 U
WGL-SD-SD05-0914-D		20140924	0.072 U	**7.8**	**33.9**	--	--	0.00011 U	**0.0021**	**0.0033**	5.5E-05 U	2.8E-05 U	4.3E-05 U	0.0019 U	0.0022 U	0.0009 U	3.1E-05 U	--	0.00006 U	0.00008 U	0.00003 U	7.5E-05 U	6.5E-05 U	0.00007 U
WGL-SD-SD05-0415		20150407	0.31 U	**72.1 J**	**15 J**	--	--	0.00023 R	**0.0068 J**	**0.0082 J**	0.00012 U	5.9E-05 UJ	9.1E-05 UJ	0.004 U	0.0046 U	0.0019 U	**0.0019 J**	--	0.00013 UJ	0.00017 UJ	6.3E-05 UJ	0.00016 UJ	0.00014 UJ	0.00015 UJ
WGL-SD-SD05-0415-D		20150407	0.32 U	**104 J**	**10.8 J**	--	--	0.00024 UJ	0.00027 U	0.00036 U	0.00012 UJ	6.1E-05 UJ	9.4E-05 UJ	0.0041 U	0.0048 U	0.002 U	6.8E-05 UJ	--	0.00013 UJ	0.00017 UJ	6.5E-05 UJ	0.00016 UJ	0.00014 UJ	0.00015 UJ
WGL-SD-SD05-0915		20150923	0.081 U	**6.6 J**	**31.1 J**	--	--	0.00011 UJ	**0.00097 J**	**0.002 J**	5.5E-05 UJ	2.8E-05 UJ	4.3E-05 UJ	0.0019 U	0.0022 U	0.0009 U	3.1E-05 UJ	--	0.00006 UJ	0.00008 UJ	0.00003 UJ	7.5E-05 UJ	6.5E-05 UJ	0.00007 UJ
WGL-SD-SD05-0915-D		20150923	0.078 U	**4.6 J**	**17.7 J**	--	--	0.00011 UJ	0.00012 UJ	**0.0023 J**	5.5E-05 UJ	2.8E-05 UJ	4.3E-05 UJ	0.0019 U	0.0022 U	0.0009 U	3.1E-05 UJ	--	0.00006 UJ	0.00008 UJ	0.00003 UJ	7.5E-05 UJ	6.5E-05 UJ	0.00007 UJ
WGL-SD-SD05-0316		20160330	**0.24 J**	**8**	**51.7**	--	--	0.00011 UJ	0.00012 UJ	**0.0017 J**	5.5E-05 UJ	2.8E-05 UJ	4.3E-05 UJ	0.0019 UJ	0.0022 UJ	0.0009 UJ	3.1E-05 UJ	--	0.00006 UJ	0.00008 UJ	0.00003 UJ	7.5E-05 UJ	6.5E-05 UJ	0.00007 UJ
WGL-SD-SD05-0916		20160921	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD05-0517		20170508	0.13 U	**8.8**	**39**	--	--	**0.0035 J**	**0.0054 J**	**0.005 J**	0.0006 UJ	0.0006 UJ	--	0.014 U	**0.033 J**	0.0097 U	0.0009 UJ	0.01 UJ	0.0006 UJ	**0.00056 J**	0.0006 UJ	0.0006 UJ	0.0006 UJ	0.0006 UJ
WGL-SD05-0517-D		20170508	0.14 U	**9.7**	**43**	--	--	**0.0041 J**	**0.0062 J**	**0.005 J**	0.00064 UJ	0.00064 UJ	--	0.015 U	**0.038 J**	0.011 U	0.00096 UJ	0.011 UJ	0.00064 UJ	0.00064 UJ	0.00064 UJ	0.00064 UJ	0.00064 UJ	0.00064 UJ
WGL-SD-SD05-1017		20171024	0.093 U	**7.5**	**32**	--	--	**0.0053 J**	**0.0046 J**	**0.0037 J**	0.0017 U	0.0017 U	0.0017 U	0.01 U	**0.012**	0.0071 U	0.0026 U	0.029 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U
WGL-SD05-052218		20180522	0.13 U	**9.2**	**35**	--	--	0.00054 U	**0.021 J**	0.00054 U	0.00054 U	0.00054 U	0.00054 U	--	--	--	0.00082 U	0.0091 U	0.00054 U	0.00054 U	0.00054 U	0.00054 U	0.00054 U	0.00054 U
WGL-SD-SD06-1211		20111214	0.16 UJ	**16.2 J**	**16.9 J**	--	**19**	**0.012 J**	**0.068 J**	**0.16 J**	0.004 UJ	0.004 UJ	0.004 UJ	0.04 UJ	0.04 UJ	0.04 UJ	0.004 UJ	--	0.004 UJ	0.0077 UJ	0.004 UJ	0.0077 UJ	0.0077 UJ	0.0077 UJ
WGL-SD-SD06-0312		20120314	0.062 UJ	0.62 UJ	1.2 UJ	--	**14**	0.011 UJ	**0.027 J**	**0.16 J**	0.0056 UJ	0.0056 UJ	0.0056 UJ	0.056 UJ	0.056 UJ	0.056 UJ	0.0056 UJ	--	0.0056 UJ	**0.016 J**	0.0056 UJ	0.011 UJ	0.011 UJ	0.011 UJ
WGL-SD-SD06-0712		20120710	0.39 U	**14.8**	**44.9**	--	--	**0.0052**	**0.019**	**0.0097**	0.00014 U	7.3E-05 U	**0.0024**	0.005 U	0.0058 U	0.0024 U	8.3E-05 U	--	0.00016 U	0.00021 U	7.9E-05 U	0.0002 U	**0.012**	0.00018 U
WGL-SD-SD06-0712-RE		20120710	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD-SD06-0912		20120910	0.28 U	**16.7**	**22.1**	--	--	**0.0036**	**0.022**	**0.0081**	0.00011 UJ	5.5E-05 UJ	8.6E-05 UJ	0.0038 U	0.0043 U	0.0018 U	**0.0017 J**	--	0.00012 U	0.00016 U	5.9E-05 UJ	0.00015 UJ	0.00013 U	0.00014 U
WGL-SD-SD06-1212		20121203	0.29 U	**16.6**	**27.6**	**76**	--	0.007 UJ	**0.044 J**	**0.019 J**	0.0036 UJ	0.0036 UJ	0.0036 UJ	0.07 U	0.07 U	0.07 U	0.0036 UJ	--	0.0036 UJ	0.007 UJ	0.0036 UJ	0.007 UJ	**0.019 J**	0.007 UJ
WGL-SD-SD06-0313		20130318	0.094 U	**10**	**37.8**	--	--	**0.0011 J**	**0.0018**	**0.0016 J**	**0.0038**	2.8E-05 U	4.4E-05 U	0.0019 U	0.0022 U	0.00091 U	**0.0012**	--	**0.0016**	8.1E-05 U	0.00003 U	7.6E-05 U	6.6E-05 U	7.1E-05 U
WGL-SD-SD06-0613		20130612	0.086 U	**8**	**36**	--	--	0.00011 U	**0.0028**	**0.0091**	5.4E-05 U	2.8E-05 U	**0.00059 J**	0.0019 U	**0.02**	0.00089 U	3.1E-05 U	--	5.9E-05 U	7.9E-05 U	0.00003 U	7.4E-05 U	**0.0024**	6.9E-05 U
WGL-SD-SD06-0913		20130924	0.64 U	**12.4**	**25.2**	--	--	0.002 U	**0.056**	**0.099**	0.001 U	0.00051 U	0.00079 U	0.0035 U	0.004 U	0.0016 U	0.00057 U	--	0.0011 U	0.0015 U	0.00055 U	**0.1**	**0.1**	**0.051**
WGL-SD-SD06-1213	WGL-SD-06	20131217	--	**12.9**	**18.7**	--	--	0.001 U	0.0012 U	0.0015 U	0.00051 U	0.00026 U	0.0004 U	0.0035 U	0.0041 U	0.0017 U	0.00029 U	--	0.00056 U	0.00074 U	0.00028 U	0.0007 U	**0.082**	**0.02**
WGL-SD-SD06-0614		20140611	0.34 U	**14.5**	**42**	--	--	0.00025 U	**0.015**	**0.0088**	0.00013 U	6.5E-05 UJ	0.0001 U	0.0044 U	0.0051 U	0.0021 U	7.3E-05 U	--	**0.0032**	0.00018 U	6.9E-05 U	**0.014**	**0.036**	**0.0095**
WGL-SD-SD06-0914		20140924	**0.26 J**	**14.9**	**23.1**	--	--	0.00018 U	**0.015**	**0.0053**	9.2E-05 U	4.7E-05 U	7.3E-05 U	0.0032 U	0.0037 U	0.0015 U	5.3E-05 U	--	0.0001 U	0.00013 U	0.00005 U	0.00013 U	0.00011 U	**0.0043**
WGL-SD-SD06-0415		20150407	0.24 U	**76.9 J**	**9 J**	--	--	0.00018 U	0.00021 U	0.00028 U	9.2E-05 U	4.7E-05 U	7.3E-05 U	0.0032 U	0.0037 U	0.0015 U	**0.0016 J**	--	0.0001 U	0.00013 U	0.00005 U	0.00013 U	**0.0044 J**	0.00012 U
WGL-SD-SD06-0915		20150923	0.26 UJ	**9.9 J**	**14.7 J**	--	--	0.00099 UJ	**0.014 J**	**0.05 J**	0.00049 UJ	0.00025 UJ	0.00039 UJ	0.0034 UJ	0.004 UJ	0.0016 UJ	0.00028 UJ	--	0.00054 UJ	0.00072 UJ	**0.014 J**	**0.0089 J**	0.00058 UJ	**0.0098 J**
WGL-SD-SD06-0316		20160330	**0.44 J**	**8.2**	**43**	--	--	0.00011 UJ	**0.0021 J**	**0.0018 J**	5.5E-05 UJ	2.8E-05 UJ	4.3E-05 UJ	0.0019 U	0.0022 U	0.0009 U	3.1E-05 UJ	--	0.00006 UJ	0.00008 UJ	0.00003 UJ	7.5E-05 UJ	6.5E-05 UJ	0.00007 UJ
WGL-SD-SD06-0916		20160921	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD06-0517		20170509	0.51 UJ	**18 J**	**32 J**	--	--	0.0024 UJ	**0.12 J**	**0.04 J**	0.0024 UJ	**0.006 J**	--	0.056 UJ	0.028 UJ	0.039 UJ	0.0035 UJ	0.04 UJ	0.0024 UJ	0.0024 UJ	0.0024 UJ	0.0024 UJ	0.0024 UJ	0.0024 UJ
WGL-SD-SD06-1017		20171024	0.3 UJ	**18 J**	**42 J**	--	--	**0.011 J**	**0.13 J**	**0.015 J**	0.0055 UJ	0.0055 UJ	0.0055 UJ	0.033 UJ	0.017 UJ	**0.011 J**	0.0082 UJ	0.092 UJ	0.0055 UJ	0.0055 UJ	0.0055 UJ	0.0055 UJ	0.0055 UJ	0.0055 UJ
WGL-SD06-053018		20180530	0.41 UJ	**19 J**	**20 J**	--	--	0.0019 UJ	**0.13 J**	**0.026 J**	0.0019 UJ	0.0019 UJ	0.0019 UJ	--	--	--	0.0029 UJ	0.032 UJ	0.0019 UJ	0.0019 UJ	0.0019 UJ	0.0019 UJ	0.0019 UX	0.0019 UJ

Sample ID	Location ID	Sample Date	METALS (MG/KG)			MISCELLANEOUS PARAMETERS (%)		PESTICIDES/PCBS (MG/KG)																
			THALLIUM	VANADIUM	ZINC	PERCENT MOISTURE	TOTAL SOLIDS	4,4'-DDD	4,4'-DDE	4,4'-DDT	ALDRIN	ALPHA-BHC	ALPHA-CHLORDANE	AROCLOR-1248	AROCLOR-1254	AROCLOR-1260	BETA-BHC	CHLORDANE (TECHNICAL)	DELTA-BHC	DIELDRIN	ENDOSULFAN I	ENDOSULFAN II	ENDOSULFAN SULFATE	ENDRIN
PALs			NC	38.18	549	NC	NC	0.73	0.23428	0.29	NC	NC	0.012	0.23	NC	0.23	0.0049	NC	0.0049	0.017	0.0049	0.0049	NC	NC
WGL-SD-SD07-1211		20111214	**0.01 J**	**6.6**	**11.4**	--	**75**	**0.00098 J**	**0.00074 J**	**0.0015 J**	0.001 UJ	0.001 U	0.001 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.001 U	--	0.001 U	0.002 UJ	0.001 UJ	0.002 UJ	0.002 UJ	0.002 UJ
WGL-SD-SD07-0312		20120313	**0.02 J**	**5**	**9.2**	--	**82**	**0.00061 J**	**0.00035 J**	**0.00082 J**	0.00091 UJ	0.00091 UJ	**0.0004 J**	0.0091 U	0.0091 U	0.0091 U	0.00091 U	--	0.00091 UJ	0.0018 UJ	0.00091 U	0.0018 U	0.0018 U	0.0018 U
WGL-SD-SD07-0712		20120710	**0.26 J**	**7.1**	**20.1**	--	--	0.00011 U	0.00013 U	0.00017 U	5.5E-05 U	2.8E-05 U	4.4E-05 U	0.0019 U	0.0022 U	0.0009 U	3.2E-05 U	--	0.00006 U	0.00008 U	0.00003 U	7.5E-05 U	6.5E-05 U	0.00007 U
WGL-SD-SD07-0912		20120910	**0.21 J**	**4.5**	**11.4**	--	--	0.00011 U	0.00012 U	0.00016 U	5.4E-05 UJ	2.8E-05 UJ	4.3E-05 UJ	0.0019 U	0.0022 U	0.00089 U	3.1E-05 UJ	--	5.9E-05 U	7.9E-05 U	0.00003 UJ	7.4E-05 UJ	6.4E-05 U	6.9E-05 U
WGL-SD-SD07-1212		20121203	0.095 U	**6.9**	**16.2**	**38**	--	0.0033 UJ	0.0033 UJ	0.0033 UJ	0.0017 UJ	0.0017 UJ	0.0017 UJ	0.033 U	0.033 U	0.033 U	0.0017 UJ	--	0.0017 UJ	0.0033 UJ	0.0017 UJ	0.0033 UJ	0.0033 UJ	0.0033 UJ
WGL-SD-SD07-0313		20130318	0.12 U	**25.5**	**97.5**	--	--	0.00011 U	**0.001 J**	0.00017 U	**0.0016**	2.8E-05 U	4.4E-05 U	0.0019 U	0.0022 U	0.0009 U	3.2E-05 U	--	0.00006 U	0.00008 U	0.00003 U	7.5E-05 U	6.5E-05 U	0.00007 U
WGL-SD-SD07-0613		20130612	0.26 U	**53.6**	**7.6**	--	--	0.001 U	0.0011 U	0.0015 U	0.0005 U	0.00025 U	0.00039 U	0.0034 U	0.004 U	0.0016 U	0.00029 U	--	0.00054 U	0.00072 U	0.00027 U	0.00068 U	**0.024**	**0.017**
WGL-SD-SD07-0913		20130924	0.19 U	**6**	**14.4**	--	--	0.00011 U	0.00012 U	0.00016 U	5.4E-05 U	2.8E-05 U	4.3E-05 U	0.0019 U	0.0022 U	0.00089 U	3.1E-05 U	--	5.9E-05 U	7.9E-05 U	0.00003 U	7.4E-05 U	6.4E-05 U	6.9E-05 U
WGL-SD-SD07-1213		20131217	--	**12.4**	**17.8**	--	--	0.001 U	0.0012 U	0.0015 U	0.00051 U	0.00026 U	0.0004 U	0.0035 U	0.004 U	0.0017 U	0.00029 U	--	0.00055 U	0.00074 U	0.00028 U	0.00069 U	**0.073**	**0.02**
WGL-SD-SD07-0414	WGL-SD-07	20140423	**0.34 J**	**98**	**6.5**	--	--	**0.013 J**	0.0002 U	**0.0048**	0.00009 UJ	4.6E-05 UJ	7.1E-05 UJ	0.0031 U	0.0036 U	0.0015 U	5.1E-05 UJ	--	9.8E-05 UJ	0.00013 UJ	4.9E-05 UJ	**0.0061 J**	**0.0093 J**	**0.0061 J**
WGL-SD-SD07-0614		20140611	0.091 U	**4.7**	**10.4**	--	--	0.00011 U	0.00012 U	0.00016 U	5.4E-05 U	2.8E-05 UJ	4.3E-05 U	0.0019 U	0.0022 U	0.00088 U	3.1E-05 U	--	5.9E-05 U	7.9E-05 U	2.9E-05 U	7.4E-05 U	**0.0018**	6.9E-05 U
WGL-SD-SD07-0914		20140924	0.067 U	**5.1**	**10.3**	--	--	0.00011 UJ	0.00013 U	0.00017 U	5.5E-05 UJ	2.8E-05 UJ	4.4E-05 UJ	0.0019 U	0.0022 U	0.0009 U	3.2E-05 UJ	--	0.00006 UJ	0.00008 UJ	0.00003 UJ	7.5E-05 UJ	6.5E-05 UJ	0.00007 UJ
WGL-SD-SD07-0415		20150407	0.28 U	**87.4 J**	**10.3 J**	--	--	0.00021 UJ	0.00024 U	**0.005 J**	0.0001 UJ	5.3E-05 UJ	8.3E-05 UJ	0.0036 U	0.0042 U	0.0017 U	**0.0019 J**	--	0.00011 UJ	0.00015 UJ	5.7E-05 UJ	0.00014 UJ	0.00012 UJ	0.00013 UJ
WGL-SD-SD07-0915		20150923	0.13 U	**11.2 J**	**38.9 J**	--	--	0.00011 UJ	0.00013 UJ	0.00017 UJ	5.5E-05 UJ	2.8E-05 UJ	4.4E-05 UJ	0.0019 U	0.0022 U	0.0009 U	3.2E-05 UJ	--	0.00006 UJ	0.00008 UJ	0.00003 UJ	7.5E-05 UJ	6.5E-05 UJ	0.00007 UJ
WGL-SD-SD07-0316		20160330	**0.36 J**	**8.7**	**45.7**	--	--	0.00011 UJ	0.00013 UJ	0.00017 UJ	5.5E-05 UJ	2.8E-05 UJ	4.4E-05 UJ	0.0019 U	0.0022 U	0.0009 U	3.2E-05 UJ	--	0.00006 UJ	0.00008 UJ	0.00003 UJ	7.5E-05 UJ	6.5E-05 UJ	0.00007 UJ
WGL-SD-SD07-0916		20160921	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD07-0517		20170509	0.12 U	**8**	**25**	--	--	**0.0059**	**0.0067**	**0.0036**	0.00053 U	0.00053 U	--	0.013 U	**0.018 J**	0.0089 U	0.00079 U	0.0088 U	0.00053 U	0.00053 U	0.00053 U	0.00053 U	0.00053 U	0.00053 U
WGL-SD-SD07-1017		20171024	0.11 U	**6**	**14**	--	--	**0.0038 J**	**0.0026 J**	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.011 U	0.0056 U	0.0079 U	0.0032 U	0.035 U	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.0021 U
WGL-SD07-052218		20180522	0.12 U	**8.4**	**30**	--	--	**0.0075**	**0.0069**	**0.0021 J**	0.00057 U	0.00057 U	**0.0022 J**	--	--	--	0.00085 U	0.0095 U	0.00057 U	0.00057 U	0.00057 U	0.00057 U	0.00057 U	0.00057 U
WGL-SD-SD08-1211		20111214	**0.04 J**	**8**	**33.7**	--	**72**	**0.007 J**	**0.0091 J**	**0.01 J**	0.0011 U	0.0011 U	0.0011 U	0.011 UJ	0.011 UJ	0.011 UJ	0.0011 U	--	0.0011 U	0.0022 U	0.0011 U	0.0022 U	0.0022 U	0.0022 U
WGL-SD-SD08-0312		20120314	**0.05 J**	**8.9**	**30.5**	--	**73**	**0.0061 J**	**0.009**	**0.0098 J**	0.0011 UJ	0.0011 UJ	0.0011 U	0.011 U	0.011 U	0.011 U	0.0011 U	--	0.0011 UJ	**0.0028 J**	0.0011 U	0.0021 U	0.0021 U	0.0021 U
WGL-SD-SD08-0712		20120710	**0.44 J**	**11**	**38.1**	--	--	**0.0034**	**0.0033**	**0.002**	5.4E-05 U	2.8E-05 U	4.3E-05 U	0.0019 U	0.0022 U	0.00089 U	3.1E-05 U	--	5.9E-05 U	7.9E-05 U	0.00003 U	7.4E-05 U	6.4E-05 U	6.9E-05 U
WGL-SD-SD08-0912		20120910	**0.45**	**9**	**35.4**	--	--	**0.0035**	**0.0048**	**0.0047**	5.5E-05 UJ	2.8E-05 UJ	4.3E-05 UJ	0.0019 U	0.0022 U	0.00089 U	3.1E-05 UJ	--	5.9E-05 U	7.9E-05 U	0.00003 UJ	7.4E-05 UJ	6.4E-05 U	6.9E-05 U
WGL-SD-SD08-1212		20121203	0.31 U	**15.2**	**58.1**	**31**	--	0.0032 U	**0.0039**	0.0032 U	0.0017 U	0.0017 U	0.0017 U	0.032 U	0.032 U	0.032 U	0.0017 U	--	0.0017 U	0.0032 U	0.0017 U	0.0032 U	0.0032 U	0.0032 U
WGL-SD-SD08-0313		20130318	0.093 U	**15.8**	**57.3**	--	--	**0.0011 J**	**0.0022**	**0.003**	5.5E-05 U	2.8E-05 U	4.3E-05 U	0.0019 U	0.0022 U	0.0009 U	3.1E-05 U	--	0.00006 U	0.00008 U	0.00003 U	7.5E-05 U	6.5E-05 U	0.00007 U
WGL-SD-SD08-0613		20130612	**0.5 J**	**88.2**	**5.4**	--	--	0.00021 U	0.00024 U	**0.025**	0.0001 U	5.3E-05 U	8.2E-05 U	0.0036 U	0.0041 U	0.0017 U	5.9E-05 U	--	0.00011 U	0.00015 U	5.7E-05 U	0.00014 U	**0.019**	**0.015**
WGL-SD-SD08-0913		20130924	0.26 U	**12.7**	**46.7**	--	--	**0.0031**	**0.0062**	**0.0049**	5.4E-05 U	2.8E-05 U	**0.0017**	0.0015 U	0.0017 U	0.00071 U	3.1E-05 U	--	5.9E-05 U	7.9E-05 U	0.00003 U	7.4E-05 U	**0.0025**	6.9E-05 U
WGL-SD-SD08-1213		20131217	--	**12.9**	**18.5**	--	--	0.001 U	0.0012 U	0.0016 U	0.00052 U	0.00027 U	0.00041 U	0.0036 U	0.0042 U	0.0017 U	0.0003 U	--	0.00057 U	0.00076 U	0.00028 U	0.00071 U	**0.038**	**0.031**
WGL-SD-SD08-0414	WGL-SD-08	20140423	0.27 U	**83.8**	**8.8**	--	--	**0.012**	0.00023 U	**0.0077**	0.0001 U	5.1E-05 U	0.00008 U	0.0035 U	0.004 U	0.0016 U	5.8E-05 U	--	0.00011 U	0.00015 U	5.5E-05 U	0.00014 U	**0.035**	**0.0042**
WGL-SD-SD08-0614		20140611	0.11 U	**13.9**	**44.9**	--	--	0.00011 U	0.00012 U	0.00016 U	**0.0011**	2.8E-05 UJ	4.3E-05 U	0.0019 U	0.0022 U	0.00089 U	3.1E-05 U	--	5.9E-05 U	7.9E-05 U	0.00003 U	7.4E-05 U	6.4E-05 U	6.9E-05 U
WGL-SD-SD08-0914		20140924	**0.12 J**	**10**	**39.6**	--	--	**0.0018**	**0.0032**	**0.0025**	5.5E-05 U	2.8E-05 U	**0.00094**	0.0019 U	0.0022 U	0.0009 U	3.1E-05 U	--	0.00006 U	0.00008 U	0.00003 U	7.5E-05 U	6.5E-05 U	0.00007 U
WGL-SD-SD08-0415		20150407	0.27 U	**91.3 J**	**11.1 J**	--	--	0.00021 U	**0.006 J**	**0.004 J**	0.0001 U	5.3E-05 U	8.3E-05 U	0.0036 U	0.0042 U	0.0017 U	0.00006 U	--	0.00011 U	0.00015 U	5.7E-05 U	0.00014 U	0.00012 U	0.00013 U
WGL-SD-SD08-0915		20150923	0.088 U	**25.8 J**	**52.2 J**	--	--	0.00011 UJ	**0.00095 J**	**0.0017 J**	5.5E-05 UJ	2.8E-05 UJ	4.3E-05 UJ	0.0019 U	0.0022 U	0.0009 U	3.1E-05 UJ	--	0.00006 UJ	0.00008 UJ	0.00003 UJ	7.5E-05 UJ	6.5E-05 UJ	0.00007 UJ
WGL-SD-SD08-0316		20160330	**0.41 J**	**7.1**	**37.9**	--	--	**0.0017 J**	**0.0027 J**	**0.0031 J**	5.5E-05 UJ	2.8E-05 UJ	**0.0011 J**	0.0019 UJ	0.0022 UJ	0.0009 UJ	3.2E-05 UJ	--	0.00006 UJ	0.00008 UJ	0.00003 UJ	7.5E-05 UJ	6.5E-05 UJ	0.00007 UJ
WGL-SD-SD08-0916		20160921	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD08-0517		20170509	0.12 U	**8.5**	**34**	--	--	**0.0072**	**0.0092**	**0.0062**	0.00053 U	0.00053 U	--	0.012 U	**0.022 J**	**0.027 J**	0.0008 U	0.0089 U	0.00053 U	0.00053 U	0.00053 U	0.00053 U	0.00053 U	0.00053 U
WGL-SD-SD08-1017		20171024	**0.059 J**	**13**	**39**	--	--	**0.0068 J**	**0.011**	**0.0045 J**	0.0021 U	0.0021 U	0.0021 U	0.013 U	**0.0064 J**	0.0091 U	0.0032 U	0.035 U	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.0021 U
WGL-SD08-052218		20180522	0.12 U	**7.4**	**23**	--	--	**0.0067 J**	**0.0053**	**0.0023**	0.00053 U	0.00053 U	**0.0015 J**	--	--	--	0.00079 U	0.0089 U	0.00053 U	0.00053 U	0.00053 U	0.00053 U	0.00053 U	0.00053 U

Table B-3b: West Gate Landfill Sediment Results

Sample ID	Location ID	Sample Date	PESTICIDES/PCBS (MG/KG)							SEMIVOLATILES (MG/KG)														
			ENDRIN ALDEHYDE	ENDRIN KETONE	GAMMA-BHC (LINDANE)	GAMMA-CHLORDANE	HEPTACHLOR	HEPTACHLOR EPOXIDE	METHOXYCHLOR	1-METHYLNAPHTHALENE	2-METHYLNAPHTHALENE	2-METHYLPHENOL	ACENAPHTHENE	ACENAPHTHYLENE	ACETOPHENONE	ANTHRACENE	BENZALDEHYDE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H,I)PERYLENE	BENZO(K)FLUORANTHENE	BIS(2-ETHYLHEXYL)PHTHALATE	BUTYL BENZYL PHTHALATE
PALs			NC	NC	0.00237	0.014	NC	NC	NC	NC	0.07	NC	0.083	0.25792	NC	0.4356	NC	1.4	3.44652	2	0.37477	1.1	NC	NC
WGL-SD-SD01-1211		20111219	0.0058 UJ	0.0058 UJ	0.003 UJ	**0.0026 J**	0.003 UJ	0.003 UJ	0.03 UJ	--	0.039 UJ	--	0.039 UJ	0.039 UJ	--	0.039 UJ	**0.074 J**	**0.019 J**	**0.017 J**	**0.035 J**	0.039 UJ	0.039 UJ	--	--
WGL-SD-SD01-0312		20120314	0.0019 U	0.0019 U	0.00098 UJ	**0.0015 J**	0.00098 UJ	0.00098 U	**0.0034 J**	--	0.012 U	--	0.012 U	0.012 U	--	**0.0026 J**	**0.071**	0.012 U	**0.007 J**	**0.013 J**	**0.0039 J**	0.012 U	--	--
WGL-SD-SD01-0712		20120709	0.0027 U	0.0014 U	0.00066 U	0.0025 U	0.00086 U	0.0019 U	0.011 U	--	0.0024 U	0.0015 U	**0.008**	**0.03**	--	**0.034**	--	**0.14**	**0.17**	**0.33**	**0.16**	**0.12**	--	--
WGL-SD-SD01-0712-RE		20120709	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD-SD01-0912		20120907	0.00011 U	0.00006 U	2.7E-05 U	**0.00091**	3.6E-05 U	0.00008 U	0.00044 U	--	0.001 U	0.00063 U	0.0009 U	0.00088 U	--	**0.013**	--	**0.028**	**0.035**	**0.065**	**0.03**	**0.021**	--	--
WGL-SD-SD01-1212		20121203	0.0033 UJ	0.0033 UJ	0.0017 UJ	0.0017 UJ	0.0017 UJ	0.0017 UJ	0.017 UJ	--	0.0033 U	0.0033 UJ	0.0033 U	0.0033 U	--	**0.0047**	--	**0.032**	**0.035**	**0.06**	**0.032 J**	**0.025**	--	--
WGL-SD-SD01-0313		20130318	0.00024 U	0.00013 U	5.8E-05 U	0.00022 U	7.6E-05 U	0.00017 U	0.00093 U	--	0.0021 U	0.0013 U	0.0019 U	**0.0095**	--	**0.014**	**0.096**	**0.1**	**0.098**	**0.18**	**0.087**	**0.053**	--	--
WGL-SD-SD01-0613		20130612	**0.0027**	8.1E-05 U	3.7E-05 U	0.00014 U	4.9E-05 U	0.00011 U	0.00059 U	--	0.0014 U	0.00085 U	0.0012 U	0.0012 U	--	**0.0081**	**0.035**	**0.045**	**0.053**	**0.087**	**0.045**	**0.032**	--	--
WGL-SD-SD01-0913		20130924	0.0012 U	0.00061 U	0.00028 U	0.0011 U	0.00036 U	0.00081 U	0.0045 U	--	0.043 U	0.039 U	0.04 U	0.038 U	0.031 U	0.027 U	0.045 U	0.033 U	0.031 U	0.041 U	0.039 U	0.044 U	**0.11 J**	**0.075 J**
WGL-SD-SD01-1213		20131217	0.0011 U	0.0006 U	0.00027 U	0.001 U	0.00036 U	0.00079 U	0.0044 U	--	0.041 U	0.037 U	0.038 U	0.036 U	0.03 U	0.026 U	**0.075 J**	0.032 U	0.03 U	0.039 U	0.037 U	0.042 U	**0.08 J**	0.026 U
WGL-SD-SD01-0414		20140423	0.00023 U	0.00012 U	5.4E-05 U	0.00021 U	7.1E-05 U	0.00016 U	0.00087 U	--	0.002 U	0.0012 U	0.0018 U	0.0017 U	--	0.0019 U	**0.013**	**0.019**	**0.022**	**0.032 J**	**0.017**	**0.014**	--	--
WGL-SD-SD01-0614	WGL-SD-01	20140611	0.0019 U	0.00099 U	0.00045 U	**0.017**	0.00059 U	0.0013 U	0.0072 U	--	0.0017 U	0.001 U	0.0015 U	0.0015 U	--	**0.0067**	**0.032**	**0.027**	**0.027**	**0.043 J**	**0.019**	**0.017**	--	--
WGL-SD-SD01-0914		20140924	0.0006 U	0.00032 U	0.00014 U	0.00055 U	0.00019 U	0.00042 U	0.0023 U	--	0.0011 U	0.00066 U	0.00095 U	0.00092 U	--	0.001 U	**0.013**	**0.0083**	**0.0082**	**0.014**	**0.0061 J**	**0.0054 J**	--	--
WGL-SD-SD01-0415		20150407	0.0025 U	0.0013 U	0.00059 U	0.0022 U	0.00077 U	0.0017 U	0.0094 U	--	0.0021 U	0.0013 U	**0.0087 J**	**0.022 J**	--	**0.029 J**	**0.51 J**	**0.24 J**	**0.27 J**	**0.6 J**	**0.13 J**	**0.27 J**	--	--
WGL-SD-SD01-0915		20150923	0.00012 UJ	0.00006 UJ	2.8E-05 UJ	0.00011 UJ	3.6E-05 UJ	0.00008 UJ	0.00044 UJ	--	0.001 U	0.00063 U	0.0009 U	0.00088 U	--	0.00095 U	0.00063 U	**0.0073 J**	**0.0076 J**	**0.015 J**	**0.0088 J**	**0.0049 J**	--	--
WGL-SD-SD01-0316		20160330	0.00012 UJ	0.00006 UJ	2.8E-05 UJ	0.00011 UJ	3.6E-05 UJ	0.00008 UJ	0.00044 UJ	--	0.001 UJ	**0.0052 J**	0.0009 UJ	0.00088 UJ	--	0.00095 UJ	**0.0057 J**	0.0013 UJ	**0.0069 J**	**0.0064 J**	0.0011 UJ	0.0013 UJ	--	--
WGL-SD-SD01-0316-D		20160330	0.00012 UJ	0.00006 UJ	2.8E-05 UJ	0.00011 UJ	3.6E-05 UJ	0.00008 UJ	0.00044 UJ	--	0.001 U	0.00063 U	**0.005**	**0.017**	--	**0.046**	**0.027**	**0.2**	**0.15 J**	**0.23**	**0.1**	**0.1**	--	--
WGL-SD-SD01-0916		20160921	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD-SD01-0916-D		20160921	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD01-0517		20170505	0.0022 UJ	0.0022 UJ	0.0022 UJ	--	0.0022 UJ	0.0022 UJ	0.0033 UJ	0.018 UJ	0.036 UJ	--	0.036 UJ	0.036 UJ	--	0.036 UJ	--	**0.023 J**	**0.019 J**	**0.033 J**	0.036 UJ	**0.013 J**	--	--
WGL-SD-SD01-1017		20171024	0.019 UJ	0.019 UJ	0.019 UJ	**0.028 J**	0.019 UJ	0.019 UJ	0.029 UJ	--	0.08 UJ	--	0.08 UJ	0.08 UJ	--	**0.054 J**	--	**0.1 J**	**0.086 J**	**0.18 J**	**0.048 J**	**0.059 J**	--	--
WGL-SD-SD01-1017-R		20171030	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD01-052218		20180522	**0.00078 J**	0.00055 U	0.00055 U	**0.0027**	0.00055 U	0.00055 U	0.00082 U	--	0.019 U	--	0.019 U	0.019 U	--	0.019 U	--	**0.0091 J**	**0.0087 J**	**0.017 J**	0.019 U	**0.006 J**	--	--
WGL-SD-SD02-1211		20111219	0.0023 U	0.0023 U	0.0012 U	**0.0014 J**	0.0012 U	**0.0007 J**	0.012 U	--	**0.0062 J**	--	**0.045**	0.013 U	--	**0.087**	**0.015 J**	**0.16**	**0.098**	**0.17**	**0.044**	**0.066**	--	--
WGL-SD-SD02-0312		20120313	0.003 U	0.003 U	0.0015 U	**0.0035 J**	0.0015 U	**0.0017 J**	0.015 U	--	0.018 U	--	0.018 U	0.018 U	--	**0.0029 J**	**0.027 J**	**0.032 J**	**0.032 J**	**0.06**	**0.016 J**	**0.013 J**	--	--
WGL-SD-SD02-0712		20120710	0.00011 U	5.9E-05 U	2.7E-05 U	0.0001 U	3.5E-05 U	7.9E-05 U	0.00043 U	--	0.00098 U	**0.0049**	0.00088 U	**0.0064**	--	**0.011**	--	**0.056**	**0.066**	**0.14**	**0.06**	**0.037**	--	--
WGL-SD-SD02-0912		20120907	0.00011 U	0.00006 U	2.7E-05 U	0.0001 U	3.6E-05 U	0.00008 U	0.00044 U	--	0.001 U	**0.016**	0.0009 U	**0.0064**	--	**0.01**	--	**0.032**	**0.046**	**0.098**	**0.042**	**0.026**	--	--
WGL-SD-SD02-1212		20121203	0.0033 UJ	0.0033 UJ	0.0017 UJ	0.0017 UJ	0.0017 UJ	0.0017 UJ	0.017 UJ	--	0.0033 U	**0.0039 J**	0.0033 U	**0.0043**	--	**0.0078**	--	**0.047**	**0.059**	**0.11**	**0.059 J**	**0.039**	--	--
WGL-SD-SD02-0313		20130318	0.00011 U	0.00006 U	**0.001**	0.0001 U	3.6E-05 U	0.00008 U	0.00044 U	--	0.001 U	0.00063 U	0.0009 U	0.00088 U	--	**0.0047**	**0.021**	**0.027**	**0.033**	**0.062**	**0.028**	**0.021**	--	--
WGL-SD-SD02-0613		20130612	**0.0015 J**	5.9E-05 U	2.7E-05 U	0.0001 U	3.6E-05 U	7.9E-05 U	0.00043 U	--	0.00099 U	0.00062 U	0.00089 U	0.00087 U	--	**0.0048**	**0.029**	**0.024**	**0.03**	**0.047**	**0.027**	**0.018**	--	--
WGL-SD-SD02-0913		20130924	**0.0034**	0.00006 U	2.7E-05 U	0.0001 U	3.6E-05 U	0.00008 U	0.00044 U	--	0.042 U	0.038 U	0.039 U	0.037 U	0.031 U	0.027 U	0.044 U	0.033 U	0.031 U	0.04 U	0.038 U	0.043 U	**0.069 J**	0.026 U
WGL-SD-SD02-1213		20131217	0.0023 U	0.0012 U	0.00055 U	0.0021 U	0.00073 U	0.0016 U	0.0089 U	--	0.042 UJ	0.038 UJ	0.039 UJ	0.037 UJ	0.031 UJ	0.027 UJ	0.044 U	**0.085 J**	**0.095 J**	**0.2 J**	**0.092 J**	0.043 UJ	**0.14 J**	0.026 UJ
WGL-SD-SD02-0414		20140423	0.00012 U	6.1E-05 U	2.8E-05 U	0.00011 U	3.6E-05 U	8.1E-05 U	0.00045 U	--	0.001 U	0.00063 U	0.00091 U	0.00088 U	--	**0.0048**	**0.0079**	**0.018**	**0.022**	**0.031 J**	**0.017**	**0.011**	--	--
WGL-SD-SD02-0614	WGL-SD-02	20140611	0.00015 U	8.1E-05 U	3.7E-05 U	0.00014 U	4.8E-05 U	0.00011 U	0.00059 U	--	0.0013 U	0.00084 U	0.0012 U	**0.0054**	--	**0.011**	**0.022**	**0.049**	**0.051**	**0.086 J**	**0.035**	**0.032**	--	--
WGL-SD-SD02-0914		20140924	0.00012 U	0.00006 U	2.8E-05 U	0.00011 U	3.6E-05 U	0.00008 U	0.00044 U	--	0.001 U	0.00063 U	0.0009 U	0.00088 U	--	0.00095 U	**0.007**	**0.0045**	**0.0047**	**0.0084**	0.0011 R	0.0013 R	--	--
WGL-SD-SD02-0415		20150407	0.00012 U	0.00006 U	2.8E-05 U	0.00011 U	3.6E-05 U	0.00008 U	0.00044 U	--	0.001 U	0.00063 U	0.0009 U	0.00088 U	--	**0.0058 J**	**0.014 J**	**0.035 J**	**0.04 J**	**0.088 J**	**0.023 J**	**0.034 J**	--	--
WGL-SD-SD02-0915		20150923	0.00016 UJ	8.2E-05 UJ	3.7E-05 UJ	**0.0011 J**	4.9E-05 UJ	0.00011 UJ	0.0006 UJ	--	0.0014 U	0.00086 U	0.0012 U	**0.0071 J**	--	**0.01 J**	**0.04 J**	**0.045 J**	**0.054 J**	**0.1 J**	**0.043 J**	**0.045 J**	--	--
WGL-SD-SD02-0316		20160330	0.00011 UJ	0.00006 UJ	2.7E-05 UJ	0.0001 UJ	3.6E-05 UJ	0.00008 UJ	0.00044 UJ	--	0.001 U	0.00063 U	0.0009 R	**0.0039**	--	**0.0062 J**	0.00063 U	**0.036**	**0.042 J**	**0.082**	**0.037**	**0.033**	--	--
WGL-SD-SD02-0916		20160921	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD02-0517		20170508	0.0011 UJ	0.0011 UJ	0.0011 UJ	--	0.0011 UJ	0.0011 UJ	0.0016 UJ	0.009 U	0.018 U	--	0.018 U	0.018 U	--	**0.01 J**	--	**0.036**	**0.046**	**0.1**	**0.024**	**0.032**	--	--
WGL-SD-SD02-1017		20171024	0.0042 UJ	0.0042 UJ	0.0042 UJ	0.0042 UJ	0.0042 UJ	0.0042 UJ	0.0063 UJ	--	0.072 UJ	--	0.072 UJ	0.072 UJ	--	0.072 UJ	--	**0.046 J**	**0.052 J**	**0.12 J**	**0.038 J**	**0.034 J**	--	--
WGL-SD-SD02-1017-R		20171030	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD02-052118		20180521	0.00092 U	0.00092 U	0.00092 U	**0.0039 J**	0.00092 U	0.00092 U	0.0014 U	--	0.31 U	--	0.31 U	0.31 U	--	0.31 U	--	**0.19 J**	**0.24 J**	**0.54**	**0.16 J**	**0.17 J**	--	--
WGL-SD02-052118-D		20180521	0.0021 UJ	0.0021 UJ	0.0021 UJ	**0.011 J**	0.0021 UJ	0.0021 UJ	0.0031 UJ	--	0.68 UJ	--	0.68 UJ	0.68 UJ	--	0.68 UJ	--	**0.43 J**	**0.5 J**	**1.1 J**	**0.34 J**	**0.4 J**	--	--

Sample ID	Location ID	Sample Date	PESTICIDES/PCBS (MG/KG)							SEMIVOLATILES (MG/KG)														
			ENDRIN ALDEHYDE	ENDRIN KETONE	GAMMA-BHC (LINDANE)	GAMMA-CHLORDANE	HEPTACHLOR	HEPTACHLOR EPOXIDE	METHOXYCHLOR	1-METHYLNAPHTHALENE	2-METHYLNAPHTHALENE	2-METHYLPHENOL	ACENAPHTHENE	ACENAPHTHYLENE	ACETOPHENONE	ANTHRACENE	BENZALDEHYDE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H,I)PERYLENE	BENZO(K)FLUORANTHENE	BIS(2-ETHYLHEXYL)PHTHALATE	BUTYL BENZYL PHTHALATE
PALs			NC	NC	0.00237	0.014	NC	NC	NC	NC	0.07	NC	0.083	0.25792	NC	0.4356	NC	1.4	3.44652	2	0.37477	1.1	NC	NC
WGL-SD-SD03-1211	WGL-SD-03	20111219	0.0021 U	0.0021 UJ	0.0011 U	**0.0052**	0.0011 U	0.0011 U	0.011 U	--	0.013 U	--	**0.0062 J**	0.013 U	--	**0.016 J**	**0.021 J**	**0.08**	**0.042**	**0.1**	**0.02 J**	**0.032**	--	--
WGL-SD-SD03-0312		20120313	0.0028 U	0.0028 U	0.0014 UJ	**0.0027 J**	0.0014 UJ	0.0014 U	**0.0023 J**	--	0.016 U	--	0.016 U	0.016 U	--	**0.0032 J**	**0.022 J**	**0.031 J**	**0.035**	**0.069**	**0.02 J**	**0.015 J**	--	--
WGL-SD-SD03-0712		20120710	0.0012 U	0.00061 U	0.00028 U	0.0011 U	0.00036 U	0.00081 U	0.0045 U	--	0.0025 U	0.0016 U	0.0023 U	**0.023**	--	**0.034**	--	**0.16**	**0.2**	**0.4**	**0.19**	**0.13**	--	--
WGL-SD-SD03-0912		20120907	0.0017 U	0.0009 U	0.00041 U	0.0016 U	0.00054 U	0.0012 U	0.0066 U	--	0.0012 U	0.00074 U	0.0011 U	0.001 U	--	**0.015**	--	**0.043**	**0.054**	**0.12**	**0.045**	**0.034**	--	--
WGL-SD-SD03-1212		20121203	0.0036 UJ	0.0036 UJ	0.0019 UJ	0.0019 UJ	0.0019 UJ	0.0019 UJ	0.019 UJ	--	0.0036 U	**0.0052 J**	**0.0057**	**0.014**	--	**0.02**	--	**0.1**	**0.11**	**0.23**	**0.077 J**	**0.076**	--	--
WGL-SD-SD03-0313		20130318	0.00016 U	8.2E-05 U	3.8E-05 U	0.00014 U	4.9E-05 U	0.00011 U	0.0006 U	--	0.0014 U	0.00087 U	0.0012 U	0.0012 U	--	**0.016**	**0.056**	**0.056**	**0.064**	**0.11**	**0.057**	**0.038**	--	--
WGL-SD-SD03-0613		20130612	0.00094 U	0.00049 U	0.00023 U	0.00086 U	0.00029 U	0.00065 U	0.0036 U	--	0.0016 U	0.001 U	0.0015 U	0.0014 U	--	**0.012**	**0.059**	**0.05**	**0.054**	**0.097**	**0.048**	**0.033**	--	--
WGL-SD-SD03-0913		20130924	0.00059 U	0.00031 U	0.00014 U	0.00054 U	0.00019 U	0.00041 U	0.0023 U	--	0.042 U	0.038 U	0.039 U	0.037 U	0.031 U	0.027 U	0.044 U	0.033 U	0.031 U	**0.086 J**	0.038 U	0.043 U	**0.068 J**	0.026 U
WGL-SD-SD03-1213		20131217	0.0025 U	0.0013 U	0.0006 U	0.0023 U	0.00078 U	0.0017 U	0.0095 U	--	0.045 U	0.041 U	0.042 U	0.04 U	0.033 U	0.029 U	**0.15 J**	**0.28 J**	**0.33 J**	**0.69**	**0.31 J**	0.046 U	**0.38**	0.028 U
WGL-SD-SD03-0414		20140423	0.00015 U	7.9E-05 U	3.6E-05 U	0.00014 U	4.7E-05 U	0.00011 U	0.00058 U	--	0.0013 U	0.00083 U	0.0012 U	0.0012 U	--	0.0013 U	**0.016**	**0.008**	**0.0095**	**0.014 J**	**0.0082**	**0.0053**	--	--
WGL-SD-SD03-0614		20140611	0.00012 U	0.00006 U	2.8E-05 U	0.00011 U	3.6E-05 U	0.00008 U	0.00044 U	--	0.001 U	0.00063 U	0.00091 U	**0.0034**	--	**0.0078**	**0.014**	**0.03**	**0.03**	**0.05 J**	**0.021**	**0.018**	--	--
WGL-SD-SD03-0914		20140924	0.00013 U	6.7E-05 U	3.1E-05 U	0.00012 U	0.00004 U	8.9E-05 U	0.00049 U	--	0.0011 U	0.0007 U	0.001 U	0.00098 U	--	0.0011 U	0.0007 U	**0.014**	**0.016**	**0.029**	**0.012 J**	**0.0097 J**	--	--
WGL-SD-SD03-0415		20150407	0.00012 U	0.00006 U	2.8E-05 U	0.00011 U	3.6E-05 U	0.00008 U	0.00044 U	--	0.001 U	**0.014 J**	0.0009 U	0.00088 U	--	**0.0058 J**	**0.026 J**	**0.04 J**	**0.042 J**	**0.088 J**	**0.02 J**	**0.04 J**	--	--
WGL-SD-SD03-0915		20150923	0.00012 UJ	6.1E-05 UJ	2.8E-05 UJ	**0.00099 J**	3.7E-05 UJ	8.1E-05 UJ	0.00045 UJ	--	0.001 U	0.00063 U	0.00091 U	0.00089 U	--	**0.0065 J**	**0.028 J**	**0.023 J**	**0.028 J**	**0.06 J**	**0.023 J**	**0.017 J**	--	--
WGL-SD-SD03-0316		20160330	0.00011 UJ	0.00006 UJ	2.7E-05 UJ	0.0001 UJ	3.6E-05 UJ	0.00008 UJ	0.00044 UJ	--	0.001 U	0.00063 U	0.0009 R	**0.0046**	--	**0.0066 J**	0.00063 U	**0.045**	**0.051 J**	**0.12**	**0.048**	**0.04**	--	--
WGL-SD-SD03-0916		20160921	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD03-0517		20170508	0.0011 UJ	0.0011 UJ	0.0011 UJ	--	0.0011 UJ	0.0011 UJ	0.0016 UJ	0.0088 U	0.018 U	--	0.018 U	0.018 U	--	**0.0094 J**	--	**0.04**	**0.05**	**0.1**	**0.023**	**0.042**	--	--
WGL-SD-SD03-1017		20171024	0.36 UR	0.36 UR	0.36 UR	0.36 UR	0.36 UR	0.36 UR	0.54 UR	--	6 UR	--	6 UR	6 UR	--	6 UR	--	3 R	3.1 R	6.7 R	6 UR	1.8 R	--	--
WGL-SD-SD03-1017-D		20171024	0.022 UR	0.022 UR	0.022 UR	0.022 UR	0.022 UR	0.022 UR	0.033 UR	--	0.38 UR	--	0.38 UR	0.38 UR	--	0.38 UR	--	0.26 R	0.2 R	0.56 R	0.38 UR	0.13 R	--	--
WGL-SD-SD03-1017-R		20171030	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD-SD03-1017-R-D		20171030	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD03-052118		20180521	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0017 U	--	0.037 U	--	0.037 U	0.037 U	--	0.037 U	--	0.037 U	**0.0087 J**	0.037 U	0.037 U	0.018 U	--	--
WGL-SD-SD04-1211	WGL-SD-04	20111214	0.002 U	0.002 UJ	0.001 U	**0.0019 J**	0.001 U	0.001 U	0.01 U	--	**0.0037 J**	--	**0.0022 J**	**0.0044 J**	--	**0.0044 J**	0.012 U	**0.034**	0.025 U	0.012 U	**0.02 J**	0.012 U	--	--
WGL-SD-SD04-1211-D		20111214	0.0021 U	0.0021 UJ	0.0011 U	**0.0016 J**	0.0011 U	0.0011 U	0.011 U	--	**0.0034 J**	--	**0.0018 J**	**0.0043 J**	--	**0.0031 J**	**0.011 J**	**0.023 J**	0.021 U	0.011 U	**0.016 J**	0.011 U	--	--
WGL-SD-SD04-0312		20120313	0.0032 U	0.0032 U	0.0016 UJ	**0.0038 J**	0.0016 UJ	0.0016 U	**0.0022 J**	--	0.02 U	--	0.02 U	0.02 U	--	**0.0052 J**	**0.025 J**	**0.043**	**0.046**	**0.078**	**0.027 J**	**0.019 J**	--	--
WGL-SD-SD04-0312-D		20120313	0.0032 U	0.0032 U	0.0016 UJ	**0.0048 J**	0.0016 UJ	0.0016 U	**0.0047 J**	--	0.018 U	--	0.018 U	0.018 U	--	0.018 U	**0.024 J**	0.021 U	**0.021 J**	**0.041**	**0.012 J**	**0.0077 J**	--	--
WGL-SD-SD04-0712		20120711	**0.0022**	5.9E-05 U	2.7E-05 U	0.0001 U	3.6E-05 U	7.9E-05 U	0.00044 U	--	0.00099 U	0.00062 U	0.00089 U	**0.021**	--	**0.013**	--	**0.025**	**0.028**	**0.05**	**0.026**	**0.015**	--	--
WGL-SD-SD04-0912		20120907	**0.0033**	0.00011 U	4.8E-05 U	0.00018 U	6.3E-05 U	0.00014 U	0.00077 U	--	0.001 U	**0.063**	0.0009 U	0.00088 U	--	**0.015**	--	**0.05**	**0.06**	**0.12**	**0.047**	**0.037**	--	--
WGL-SD-SD04-1212		20121203	**0.021 J**	0.0073 U	0.0038 U	0.0038 U	0.0038 U	0.0038 U	0.038 U	--	0.0073 U	**0.04 J**	0.0073 U	**0.029**	--	**0.02**	--	**0.055**	**0.07**	**0.14**	**0.041 J**	**0.063**	--	--
WGL-SD-SD04-0313		20130318	**0.0042**	9.3E-05 U	4.3E-05 U	0.00016 U	5.6E-05 U	0.00012 U	0.00068 U	--	0.0015 U	0.00097 U	0.0014 U	0.0014 U	--	**0.017**	**0.068**	**0.11**	**0.1**	**0.19**	**0.1**	**0.07**	--	--
WGL-SD-SD04-0613		20130612	**0.0081**	**0.0043**	0.00006 U	0.00023 U	7.9E-05 U	0.00017 U	**0.056**	--	0.0022 U	**0.018**	0.002 U	0.0019 U	--	0.0021 U	**0.11**	**0.03**	**0.021**	**0.041**	**0.02**	**0.014**	--	--
WGL-SD-SD04-0913		20130924	0.00035 U	0.00018 U	8.3E-05 U	0.00032 U	0.00011 U	0.00024 U	0.0013 U	--	0.064 U	0.058 U	0.059 U	0.056 U	0.047 U	0.041 U	**0.11 J**	0.05 U	0.047 U	0.061 U	0.058 U	0.065 U	**0.15 J**	0.039 U
WGL-SD-SD04-1213		20131217	0.0038 U	0.002 U	0.0009 U	0.0034 U	0.0012 U	0.0026 U	0.014 U	--	0.069 U	0.062 U	0.064 U	0.061 U	0.051 U	0.044 U	**0.24 J**	**0.44 J**	**0.53 J**	**1.1**	**0.47 J**	0.071 U	**0.52 J**	0.043 U
WGL-SD-SD04-0414		20140423	0.00021 U	0.00011 U	0.00005 U	0.00019 U	6.5E-05 U	0.00014 U	**0.015**	--	0.0018 U	0.0011 U	0.0016 UJ	0.0016 UJ	--	0.0017 UJ	**0.01**	**0.013 J**	**0.015 J**	**0.021 J**	**0.013 J**	**0.0081 J**	--	--
WGL-SD-SD04-0614		20140611	0.00036 U	0.00019 U	**0.012**	0.00033 U	**0.0062**	0.00025 U	0.0014 U	--	0.0032 U	**0.025**	0.0028 U	0.0028 U	--	**0.02**	**0.086**	**0.069**	**0.078**	**0.12 J**	**0.055**	**0.045**	--	--
WGL-SD-SD04-0914		20140924	0.00019 U	9.7E-05 U	4.5E-05 U	0.00017 U	5.8E-05 U	0.00013 U	0.00071 U	--	0.0016 U	0.001 U	0.0015 U	0.0014 U	--	0.0015 U	**0.016**	**0.013**	**0.014**	**0.027**	**0.01 J**	**0.0082 J**	--	--
WGL-SD-SD04-0415		20150407	0.00016 U	8.4E-05 U	3.8E-05 U	0.00015 U	0.00005 U	0.00011 U	0.00061 U	--	0.0014 U	**0.013 J**	0.0013 U	0.0012 U	--	**0.015 J**	**0.05 J**	**0.099 J**	**0.1 J**	**0.22 J**	**0.054 J**	**0.09 J**	--	--
WGL-SD-SD04-0915		20150923	0.0017 UJ	0.00089 UJ	0.00041 UJ	0.0016 UJ	0.00053 UJ	0.0012 UJ	0.0065 UJ	--	0.015 UJ	0.0094 UJ	0.013 UJ	**0.078 J**	--	**0.11 J**	**0.35 J**	**0.48 J**	**0.6 J**	**1.1 J**	**0.58 J**	**0.44 J**	--	--
WGL-SD-SD04-0316		20160330	0.00011 UJ	0.00006 UJ	2.7E-05 UJ	0.0001 UJ	3.6E-05 UJ	0.00008 UJ	0.00044 UJ	--	0.001 U	0.00063 U	0.0009 R	**0.0048**	--	**0.0078 J**	0.00063 U	**0.045**	**0.05 J**	**0.11**	**0.046**	**0.044**	--	--
WGL-SD-SD04-0916		20160921	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD04-0517		20170508	0.0022 UJ	0.0022 UJ	0.0022 UJ	--	0.0022 UJ	0.0022 UJ	0.0033 UJ	**0.11 J**	**0.095 J**	--	**0.089 J**	**0.74 J**	--	**0.64 J**	--	**0.98 J**	**1.3 J**	**2.2 J**	**0.49 J**	**0.67 J**	--	--
WGL-SD-SD04-1017		20171023	0.0013 UJ	0.0013 UJ	0.0013 UJ	0.0013 UJ	0.0013 UJ	0.0013 UJ	0.002 UJ	--	0.023 UJ	--	0.023 UJ	0.023 UJ	--	**0.011 J**	--	**0.021 J**	**0.023 J**	**0.042 J**	**0.015 J**	**0.0085 J**	--	--
WGL-SD04-052118		20180521	0.0013 U	0.0013 UJ	0.0013 U	**0.0023 J**	0.0013 UJ	0.0013 U	**0.0012 J**	--	0.43 U	--	0.43 U	0.43 U	--	0.43 U	--	**0.43**	**0.47**	**0.75**	**0.33 J**	**0.29 J**	--	--

Sample ID	Location ID	Sample Date	PESTICIDES/PCBS (MG/KG)							SEMIVOLATILES (MG/KG)														
			ENDRIN ALDEHYDE	ENDRIN KETONE	GAMMA-BHC (LINDANE)	GAMMA-CHLORDANE	HEPTACHLOR	HEPTACHLOR EPOXIDE	METHOXYCHLOR	1-METHYLNAPHTHALENE	2-METHYLNAPHTHALENE	2-METHYLPHENOL	ACENAPHTHENE	ACENAPHTHYLENE	ACETOPHENONE	ANTHRACENE	BENZALDEHYDE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H,I)PERYLENE	BENZO(K)FLUORANTHENE	BIS(2-ETHYLHEXYL)PHTHALATE	BUTYL BENZYL PHTHALATE
PALs			NC	NC	0.00237	0.014	NC	NC	NC	NC	0.07	NC	0.083	0.25792	NC	0.4356	NC	1.4	3.44652	2	0.37477	1.1	NC	NC
WGL-SD-SD05-1211		20111214	0.0017 U	0.0017 UJ	0.00087 U	0.00087 U	0.00087 U	0.00087 U	0.0087 U	--	0.01 UJ	--	0.01 U	0.01 U	--	**0.0013 J**	0.01 U	**0.0052 J**	0.0044 U	0.012 U	0.0043 U	0.01 U	--	--
WGL-SD-SD05-0312		20120313	0.0018 U	0.0018 U	0.00093 UJ	0.00093 U	0.00093 UJ	0.00093 U	**0.00083 J**	--	0.011 U	--	0.011 U	0.011 U	--	0.011 U	**0.006 J**	0.014 U	**0.014 J**	**0.022 J**	**0.0086 J**	**0.0054 J**	--	--
WGL-SD-SD05-0712		20120710	0.00012 U	6.1E-05 U	2.8E-05 U	0.00011 U	3.6E-05 U	8.1E-05 U	0.00044 U	--	0.001 U	0.00063 U	0.0009 U	0.00088 U	--	**0.0034**	--	**0.012**	**0.011**	**0.018**	**0.0087**	**0.0068**	--	--
WGL-SD-SD05-0712-D		20120710	0.00011 U	0.00006 U	2.7E-05 U	0.0001 U	3.6E-05 U	0.00008 U	0.00044 U	--	0.001 U	0.00063 U	0.00091 U	0.00089 U	--	**0.0034**	--	**0.012**	**0.011**	**0.019**	**0.0091**	**0.0063**	--	--
WGL-SD-SD05-0912		20120910	0.00012 UJ	6.1E-05 UJ	2.8E-05 U	0.00011 U	3.6E-05 UJ	8.1E-05 U	0.00044 UJ	--	0.001 U	0.00064 U	0.00091 R	0.00089 R	--	0.00096 U	--	0.0013 U	0.00096 U	0.0016 U	0.0011 U	0.0013 U	--	--
WGL-SD-SD05-0912-D		20120910	0.00012 U	0.00006 U	2.8E-05 U	0.00011 U	3.6E-05 U	0.00008 U	0.00044 U	--	0.001 U	0.00063 U	0.00091 U	0.00089 U	--	0.00096 U	--	0.0013 U	0.00096 U	0.0016 U	0.0011 U	0.0013 U	--	--
WGL-SD-SD05-1212		20121203	0.0033 UJ	0.0033 UJ	0.0017 UJ	0.0017 UJ	0.0017 UJ	0.0017 UJ	0.017 UJ	--	**0.0052**	0.0033 UJ	0.0033 U	**0.0055**	--	**0.0054**	--	**0.02**	**0.024**	**0.047**	**0.016 J**	**0.014**	--	--
WGL-SD-SD05-0313		20130318	0.00011 UJ	5.9E-05 UJ	2.7E-05 U	**0.0012**	3.6E-05 UJ	7.9E-05 U	0.00043 UJ	--	**0.11**	0.00062 U	**0.047 J**	0.00086 R	--	**0.59 J**	**0.023**	**1.3 J**	**0.72 J**	**1.2 J**	**0.32 J**	**0.39 J**	--	--
WGL-SD-SD05-0313-D		20130318	0.00011 U	5.9E-05 U	2.7E-05 U	**0.001**	3.5E-05 U	7.8E-05 U	0.00043 U	--	0.00099 U	0.00062 U	0.00089 U	**0.027**	--	**0.055**	**0.022**	**0.3**	**0.38**	**0.57**	**0.27**	**0.17**	--	--
WGL-SD-SD05-0613		20130612	0.00011 UJ	0.00006 U	2.7E-05 U	**0.0014**	3.6E-05 U	0.00008 U	0.00044 U	--	**0.013**	0.00062 U	**0.0052 J**	**0.0091 J**	--	**0.13 J**	**0.024**	**0.21 J**	**0.12 J**	**0.18 J**	**0.055 J**	**0.068 J**	--	--
WGL-SD-SD05-0613-D		20130612	0.00011 U	5.9E-05 U	2.7E-05 U	0.0001 U	3.6E-05 U	7.9E-05 U	0.00044 U	--	0.00099 U	0.00062 U	0.00089 U	**0.0059**	--	**0.0066**	**0.031**	**0.019**	**0.02**	**0.034**	**0.017**	**0.011**	--	--
WGL-SD-SD05-0913		20130924	**0.0028 J**	**0.0018**	2.7E-05 U	**0.0019**	3.6E-05 U	**0.0041 J**	0.00043 U	--	0.042 U	0.038 U	0.039 U	0.037 U	0.031 U	0.027 U	0.044 U	0.033 U	0.031 U	0.04 U	0.038 U	0.043 U	**0.11 J**	0.026 U
WGL-SD-SD05-0913-D		20130924	0.00011 U	0.00006 U	2.7E-05 U	**0.0011**	3.6E-05 U	0.00008 U	0.00044 U	--	0.042 U	0.038 U	0.039 U	0.037 U	0.031 U	0.027 U	0.044 U	0.033 U	0.031 U	**0.068 J**	0.038 U	0.043 U	**0.19 J**	0.026 U
WGL-SD-SD05-1213		20131217	0.00012 U	0.00006 U	2.8E-05 U	0.00011 U	3.6E-05 U	0.00008 U	0.00044 U	--	0.042 U	0.038 U	0.039 U	0.037 U	0.031 U	0.027 U	0.044 U	0.033 U	0.031 U	0.04 U	0.038 U	0.043 U	0.029 U	0.026 U
WGL-SD-SD05-1213-D		20131217	**0.0019**	5.9E-05 U	2.7E-05 U	0.0001 U	3.5E-05 U	7.8E-05 U	0.00043 U	--	0.042 U	0.038 U	0.039 U	0.037 U	0.031 U	0.027 U	0.044 U	0.033 U	0.031 U	0.04 U	0.038 U	0.043 U	**0.092 J**	0.026 U
WGL-SD-SD05-0414	WGL-SD-05	20140423	**0.0091 J**	**0.0055 J**	4.8E-05 U	0.00018 U	6.3E-05 UJ	0.00014 U	**0.026 J**	--	0.0017 U	0.0011 U	0.0016 R	0.0015 R	--	0.0017 R	**0.21**	**0.015 J**	**0.011 J**	**0.018 J**	**0.0096 J**	**0.0074 J**	--	--
WGL-SD-SD05-0414-D		20140423	**0.0039**	0.00011 U	4.9E-05 U	0.00019 U	6.4E-05 U	0.00014 U	**0.015**	--	0.0018 U	0.0011 U	0.0016 U	0.0016 U	--	0.0017 U	**0.2**	**0.016**	**0.012**	**0.018 J**	0.002 U	**0.0078**	--	--
WGL-SD-SD05-0614		20140611	0.00011 UJ	5.9E-05 UJ	2.7E-05 U	0.0001 U	3.5E-05 UJ	**0.0011 J**	0.00043 UJ	--	0.00099 U	0.00062 U	0.00089 R	**0.012 J**	--	**0.01 J**	**0.025**	**0.025 J**	**0.028**	**0.046 J**	**0.02 J**	**0.016**	--	--
WGL-SD-SD05-0614-D		20140611	0.00011 U	0.00006 U	2.7E-05 U	0.0001 U	3.6E-05 U	0.00008 U	0.00044 U	--	0.001 U	**0.0044**	0.0009 U	**0.013**	--	**0.013**	**0.044**	**0.033**	**0.033**	**0.051 J**	**0.025**	**0.02**	--	--
WGL-SD-SD05-0914		20140924	0.00011 UJ	0.00006 UJ	2.7E-05 U	0.0001 U	3.6E-05 UJ	0.00008 U	0.00044 UJ	--	0.001 U	0.00063 U	0.0009 R	0.00088 R	--	0.00095 R	**0.012**	**0.01 J**	**0.0099 J**	**0.017 J**	**0.0083 J**	**0.0058 J**	--	--
WGL-SD-SD05-0914-D		20140924	0.00011 U	0.00006 U	2.7E-05 U	0.0001 U	3.6E-05 U	0.00008 U	0.00044 U	--	0.001 U	0.00063 U	0.0009 U	**0.0062**	--	**0.0084**	**0.018**	**0.031**	**0.033**	**0.051**	**0.022 J**	**0.019 J**	--	--
WGL-SD-SD05-0415		20150407	0.00024 R	0.00013 R	5.8E-05 U	0.00022 U	7.6E-05 UJ	0.00017 UJ	0.00092 UJ	--	0.0021 U	0.0013 U	0.0019 R	0.0018 U	--	**0.024 J**	--	**0.11 J**	**0.14 J**	**0.35 J**	**0.065 J**	**0.13 J**	--	--
WGL-SD-SD05-0415-D		20150407	0.00025 UJ	0.00013 UJ	0.00006 UJ	0.00023 U	7.8E-05 UJ	0.00017 UJ	0.00095 UJ	--	0.0022 U	0.0014 U	0.002 U	0.0019 U	--	0.0021 U	--	**0.046 J**	**0.042 J**	**0.098 J**	**0.026 J**	**0.038 J**	--	--
WGL-SD-SD05-0915		20150923	0.00011 UJ	0.00006 UJ	2.7E-05 UJ	**0.00053 J**	3.6E-05 UJ	0.00008 UJ	0.00044 UJ	--	0.001 U	0.00063 U	0.0009 U	**0.018 J**	--	**0.014 J**	**0.02 J**	**0.034 J**	**0.035 J**	**0.055 J**	**0.021 J**	**0.022 J**	--	--
WGL-SD-SD05-0915-D		20150923	0.00011 UJ	0.00006 UJ	2.7E-05 UJ	0.0001 UJ	3.6E-05 UJ	0.00008 UJ	0.00044 UJ	--	0.00099 U	0.00063 U	0.00089 U	0.00087 UJ	--	0.00094 UJ	0.00063 UJ	**0.0067 J**	**0.0071 J**	**0.0094 J**	**0.0072 J**	**0.004 J**	--	--
WGL-SD-SD05-0316		20160330	0.00011 UJ	0.00006 UJ	2.7E-05 UJ	0.0001 UJ	3.6E-05 UJ	0.00008 UJ	0.00044 UJ	--	0.001 U	0.00063 U	0.0009 U	**0.0064**	--	**0.0074**	**0.031**	**0.032**	**0.032 J**	**0.059**	**0.024**	**0.023**	--	--
WGL-SD-SD05-0916		20160921	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD05-0517		20170508	0.0006 UJ	0.0006 UJ	0.0006 UJ	--	0.0006 UJ	**0.0008 J**	0.0009 UJ	0.005 U	0.01 U	--	0.01 U	**0.0073 J**	--	**0.0065 J**	--	**0.017**	**0.019 J**	**0.039 J**	**0.009 J**	**0.013 J**	--	--
WGL-SD05-0517-D		20170508	0.00064 UJ	0.00064 UJ	0.00064 UJ	--	0.00064 UJ	**0.0014 J**	0.00096 UJ	0.0053 U	0.011 U	--	0.011 U	**0.011**	--	**0.0096 J**	--	**0.034**	**0.041 J**	**0.076 J**	**0.017**	**0.033**	--	--
WGL-SD-SD05-1017		20171024	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0026 U	--	0.071 U	--	0.071 U	0.071 U	--	0.071 U	--	**0.074**	**0.078**	**0.16**	**0.045 J**	**0.039 J**	--	--
WGL-SD05-052218		20180522	0.00054 U	0.00054 U	0.00054 U	0.00054 U	0.00054 U	0.00054 U	0.00082 U	--	0.018 U	--	**0.0098 J**	0.018 U	--	**0.017 J**	--	**0.065**	**0.065**	**0.11**	**0.025**	**0.043**	--	--
WGL-SD-SD06-1211		20111214	0.0077 UJ	0.0077 UJ	0.004 UJ	0.004 UJ	0.004 UJ	0.004 UJ	0.04 UJ	--	0.052 UJ	--	0.052 UJ	0.052 UJ	--	0.052 UJ	**0.48 J**	0.052 UJ	0.052 UJ	0.052 UJ	0.02 U	0.052 UJ	--	--
WGL-SD-SD06-0312		20120314	0.011 UJ	0.011 UJ	**0.01 J**	**0.0082 J**	0.0056 UJ	0.0056 UJ	0.056 UJ	--	0.068 UJ	--	0.068 UJ	0.068 UJ	--	0.068 UJ	**0.37 J**	0.068 UJ	**0.029 J**	**0.052 J**	**0.019 J**	0.068 UJ	--	--
WGL-SD-SD06-0712		20120710	**0.04**	**0.007**	7.2E-05 U	**0.0039**	9.4E-05 U	0.00021 U	0.0012 U	--	0.0026 U	0.0017 U	0.0024 U	0.0023 U	--	0.0025 U	--	0.0034 U	**0.038**	**0.064**	**0.029**	**0.032**	--	--
WGL-SD-SD06-0712-RE		20120710	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD-SD06-0912		20120910	0.00023 U	**0.0035**	5.4E-05 U	**0.0019**	7.1E-05 U	0.00016 U	0.00087 U	--	0.002 U	0.0012 U	0.0018 U	0.0017 U	--	0.0019 U	--	0.0026 U	**0.026**	**0.053**	**0.014**	**0.014**	--	--
WGL-SD-SD06-1212		20121203	**0.0073 J**	0.007 UJ	0.0036 UJ	0.0036 UJ	0.0036 UJ	0.0036 UJ	**0.071 J**	--	0.007 U	**0.053 J**	0.007 U	0.007 U	--	0.007 U	--	0.007 U	**0.037**	**0.067**	**0.022 J**	**0.022**	--	--
WGL-SD-SD06-0313		20130318	0.00012 U	6.1E-05 U	**0.0025**	**0.012**	3.6E-05 U	8.1E-05 U	0.00044 U	--	0.001 U	0.00063 U	0.0009 U	**0.0048**	--	**0.0043**	**0.02**	**0.019**	**0.018**	**0.033**	**0.014**	**0.012**	--	--
WGL-SD-SD06-0613		20130612	0.00011 U	5.9E-05 U	2.7E-05 U	**0.0019**	3.6E-05 U	7.9E-05 U	0.00043 U	--	0.00098 U	0.00062 U	0.00089 U	**0.0086**	--	**0.01**	**0.14**	**0.029**	**0.028**	**0.04**	**0.02**	**0.015**	--	--
WGL-SD-SD06-0913		20130924	**0.08**	**0.046**	0.0005 U	0.0019 U	0.00066 U	0.0015 U	**0.24**	--	0.21 U	0.19 U	0.19 U	0.18 U	0.15 U	0.13 U	**1.2 J**	0.16 U	0.15 U	0.2 U	0.19 U	0.21 U	0.14 U	0.13 U
WGL-SD-SD06-1213	WGL-SD-06	20131217	**0.04**	**0.031**	0.00026 U	0.00098 U	0.00033 U	0.00074 U	**0.15**	--	0.21 U	0.19 U	0.19 U	0.18 U	**0.34 J**	0.13 U	**1.3 J**	0.16 U	0.15 U	0.2 U	0.19 U	0.21 U	0.14 U	0.13 U
WGL-SD-SD06-0614		20140611	**0.0077**	**0.011**	6.3E-05 U	0.00024 U	**0.0059**	**0.0038**	0.001 U	--	0.0023 U	0.0015 U	0.0021 U	0.002 U	--	0.0022 U	**0.67**	0.003 U	**0.029**	**0.062 J**	**0.022**	**0.022**	--	--
WGL-SD-SD06-0914		20140924	0.00019 U	0.0001 U	**0.002**	0.00018 U	0.00006 U	0.00013 U	**0.034**	--	0.0017 U	**0.034**	0.0015 UJ	0.0015 UJ	--	0.0016 UJ	**0.5**	0.0022 UJ	0.0016 UJ	0.0027 UJ	0.0018 R	0.0022 R	--	--
WGL-SD-SD06-0415		20150407	0.00019 U	0.0001 U	4.6E-05 U	**0.0016 J**	0.00006 U	0.00013 U	0.00074 U	--	0.0017 U	**0.053 J**	0.0015 U	0.0015 U	--	0.0016 U	--	0.0022 U	0.0016 U	0.0027 U	0.0018 U	0.0022 U	--	--
WGL-SD-SD06-0915		20150923	0.001 UJ	0.00054 UJ	0.00025 UJ	**0.011 J**	0.00032 UJ	0.00072 UJ	**0.12 J**	--	0.009 UJ	**0.11 J**	0.0081 UJ	**0.17 J**	--	0.0086 UJ	**0.82 J**	0.012 UJ	**0.29 J**	**0.035 J**	0.0099 UJ	0.012 UJ	--	--
WGL-SD-SD06-0316		20160330	0.00011 UJ	0.00006 UJ	2.7E-05 UJ	0.0001 UJ	3.6E-05 UJ	0.00008 UJ	0.00044 UJ	--	0.001 U	0.00063 U	0.0009 R	**0.02**	--	**0.013**	**0.038**	**0.049**	**0.053 J**	**0.11**	**0.046**	**0.033**	--	--
WGL-SD-SD06-0916		20160921	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD06-0517		20170509	0.0024 UJ	0.0024 UJ	0.0024 UJ	--	0.0024 UJ	0.0024 UJ	0.0035 UJ	0.19 UJ	0.39 UJ	--	0.39 UJ	0.39 UJ	--	0.39 UJ	--	0.39 UJ	0.19 UJ	0.39 UJ	0.39 UJ	0.19 UJ	--	--
WGL-SD-SD06-1017		20171024	0.0055 UJ	0.0055 UJ	0.0055 UJ	0.0055 UJ	0.0055 UJ	0.0055 UJ	0.0082 UJ	--	0.23 UJ	--	0.23 UJ	0.23 UJ	--	0.23 UJ	--	0.23 UJ	**0.11 J**	**0.22 J**	0.23 UJ	**0.08 J**	--	--
WGL-SD06-053018		20180530	0.0019 UJ	0.0019 UJ	0.0019 UJ	0.0019 UJ	0.0019 UJ	0.0019 UJ	0.0029 UX	--	0.62 UJ	--	0.62 UJ	0.62 UJ	--	0.62 UJ	--	0.62 UJ	0.31 UJ	0.62 UJ	0.62 UJ	0.31 UJ	--	--

Sample ID	Location ID	Sample Date	PESTICIDES/PCBS (MG/KG)							SEMIVOLATILES (MG/KG)														
			ENDRIN ALDEHYDE	ENDRIN KETONE	GAMMA-BHC (LINDANE)	GAMMA-CHLORDANE	HEPTACHLOR	HEPTACHLOR EPOXIDE	METHOXYCHLOR	1-METHYLNAPHTHALENE	2-METHYLNAPHTHALENE	2-METHYLPHENOL	ACENAPHTHENE	ACENAPHTHYLENE	ACETOPHENONE	ANTHRACENE	BENZALDEHYDE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H,I)PERYLENE	BENZO(K)FLUORANTHENE	BIS(2-ETHYLHEXYL)PHTHALATE	BUTYL BENZYL PHTHALATE
PALs			NC	NC	0.00237	0.014	NC	NC	NC	NC	0.07	NC	0.083	0.25792	NC	0.4356	NC	1.4	3.44652	2	0.37477	1.1	NC	NC
WGL-SD-SD07-1211		20111214	0.002 UJ	0.002 UJ	0.001 U	0.001 UJ	0.001 U	0.001 UJ	0.01 UJ	--	0.013 UJ	--	**0.0024 J**	0.013 U	--	**0.0025 J**	**0.017 J**	**0.014 J**	0.0085 U	0.019 U	0.0081 U	0.013 U	--	--
WGL-SD-SD07-0312		20120313	0.0018 U	0.0018 U	0.00091 UJ	0.00091 U	0.00091 UJ	0.00091 U	0.0091 U	--	0.011 U	--	0.011 U	0.011 U	--	0.011 U	**0.0098 J**	0.011 U	**0.0038 J**	**0.0048 J**	0.011 U	0.011 U	--	--
WGL-SD-SD07-0712		20120710	0.00012 U	0.00006 U	2.8E-05 U	0.00011 U	3.6E-05 U	0.00008 U	0.00044 U	--	0.00099 U	0.00063 U	0.00089 U	0.00087 U	--	0.00094 U	--	0.0013 U	0.00094 U	0.0016 U	0.0011 U	0.0013 U	--	--
WGL-SD-SD07-0912		20120910	0.00011 U	5.9E-05 U	2.7E-05 U	0.0001 U	3.6E-05 U	7.9E-05 U	0.00043 U	--	0.00098 U	0.00062 U	0.00088 U	0.00086 U	--	0.00093 U	--	0.0013 U	0.00093 U	0.0016 U	0.0011 U	0.0013 U	--	--
WGL-SD-SD07-1212		20121203	0.0033 UJ	0.0033 UJ	0.0017 UJ	0.0017 UJ	0.0017 UJ	0.0017 UJ	0.017 UJ	--	0.0033 U	0.0033 UJ	0.0033 U	0.0033 U	--	0.0033 U	--	0.0033 U	0.0033 U	0.0033 U	0.0033 UJ	0.0033 U	--	--
WGL-SD-SD07-0313		20130318	0.00012 U	0.00006 U	**0.00093**	**0.0044**	**0.0038**	0.00008 U	0.00044 U	--	0.001 U	0.00063 U	0.0009 U	0.00088 U	--	**0.0044**	**0.028**	**0.022**	**0.018**	**0.041**	**0.014**	**0.011**	--	--
WGL-SD-SD07-0613		20130612	0.001 U	0.00054 U	0.00025 U	0.00095 U	0.00033 U	0.00072 U	**0.094**	--	0.0018 U	**0.03**	0.0016 U	0.0016 U	--	0.0017 U	**1.7**	0.0024 U	**0.035**	0.0029 U	**0.023**	0.0024 U	--	--
WGL-SD-SD07-0913		20130924	0.00011 U	5.9E-05 U	2.7E-05 U	0.0001 U	3.6E-05 U	7.9E-05 U	0.00043 U	--	0.042 U	0.038 U	0.039 U	0.037 U	0.031 U	0.027 U	0.044 U	0.033 U	0.031 U	0.04 U	0.038 U	0.043 U	0.029 U	0.026 U
WGL-SD-SD07-1213		20131217	**0.037**	**0.072**	0.00025 U	0.00097 U	0.00033 U	0.00074 U	**0.3**	--	0.21 U	0.19 U	0.2 U	0.19 U	0.16 U	0.14 U	**1 J**	0.17 U	0.16 U	0.2 U	0.19 U	0.22 U	0.15 U	0.13 U
WGL-SD-SD07-0414	WGL-SD-07	20140423	**0.0041 J**	9.8E-05 UJ	4.5E-05 UJ	0.00017 U	5.9E-05 UJ	0.00013 UJ	**0.051 J**	--	0.0016 U	**0.0062**	0.0015 U	0.0014 U	--	0.0016 U	**0.23**	0.0021 U	**0.0066**	**0.014 J**	0.0018 U	0.0021 U	--	--
WGL-SD-SD07-0614		20140611	0.00011 U	5.9E-05 U	2.7E-05 U	0.0001 U	**0.0011**	7.9E-05 U	0.00043 U	--	0.00099 U	0.00063 U	0.00089 U	0.00087 U	--	**0.0021 J**	**0.0051**	**0.0058**	**0.0055**	**0.0071 J**	**0.0036**	**0.0026 J**	--	--
WGL-SD-SD07-0914		20140924	0.00012 UJ	0.00006 UJ	2.8E-05 UJ	0.00011 U	3.6E-05 UJ	0.00008 UJ	0.00044 UJ	--	0.001 U	0.00063 U	0.0009 U	0.00088 U	--	0.00095 U	0.00063 U	0.0013 U	0.00095 U	0.0016 U	0.0011 R	0.0013 R	--	--
WGL-SD-SD07-0415		20150407	0.00022 UJ	0.00011 UJ	5.2E-05 UJ	0.0002 U	6.8E-05 UJ	0.00015 UJ	0.00084 UJ	--	0.0019 U	0.0012 U	0.0017 U	0.0017 U	--	0.0018 U	**0.56 J**	**0.031 J**	**0.023 J**	**0.073 J**	**0.013 J**	**0.027 J**	--	--
WGL-SD-SD07-0915		20150923	0.00012 UJ	0.00006 UJ	2.8E-05 UJ	0.00011 UJ	3.6E-05 UJ	0.00008 UJ	0.00044 UJ	--	0.001 U	0.00063 U	0.0009 U	**0.0058 J**	--	**0.0058 J**	**0.011 J**	**0.018 J**	**0.02 J**	**0.032 J**	**0.016 J**	**0.019 J**	--	--
WGL-SD-SD07-0316		20160330	0.00012 UJ	0.00006 UJ	2.8E-05 UJ	0.00011 UJ	3.6E-05 UJ	0.00008 UJ	0.00044 UJ	--	0.001 U	0.00063 U	0.0009 U	**0.016**	--	**0.011**	**0.049**	**0.05**	**0.054 J**	**0.11**	**0.046**	**0.035**	--	--
WGL-SD-SD07-0916		20160921	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD07-0517		20170509	0.00053 U	0.00053 U	0.00053 U	--	0.00053 U	0.00053 U	0.00079 U	0.0044 U	0.0089 U	--	0.0089 U	**0.0054 J**	--	**0.0057 J**	--	**0.014**	**0.015**	**0.029**	**0.007 J**	**0.011**	--	--
WGL-SD-SD07-1017		20171024	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.0032 U	--	0.0087 U	--	0.0087 U	0.0087 U	--	0.0087 U	--	**0.0099**	**0.012**	**0.02**	**0.0061 J**	**0.0073 J**	--	--
WGL-SD07-052218		20180522	0.00057 U	0.00057 U	0.00057 U	**0.0018 J**	0.00057 U	0.00057 U	0.00085 U	--	0.019 U	--	0.019 U	**0.019**	--	**0.011 J**	--	**0.063**	**0.073**	**0.12**	**0.031**	**0.043**	--	--
WGL-SD-SD08-1211		20111214	0.0022 U	0.0022 UJ	0.0011 U	0.0011 U	0.0011 U	**0.00077 J**	0.011 U	--	**0.0048 J**	--	**0.0031 J**	**0.0064 J**	--	**0.009 J**	**0.071**	**0.083 J**	**0.066 J**	**0.13 J**	**0.062 J**	**0.043 J**	--	--
WGL-SD-SD08-0312		20120314	0.0021 U	**0.0055 J**	0.0011 UJ	0.0011 U	0.0011 UJ	**0.0011 J**	**0.0038 J**	--	0.013 U	--	**0.0021 J**	**0.0019 J**	--	**0.0056 J**	**0.047**	**0.066**	**0.062**	**0.11 J**	**0.027 J**	**0.03**	--	--
WGL-SD-SD08-0712		20120710	0.00011 U	5.9E-05 U	2.7E-05 U	**0.0096**	3.5E-05 U	7.9E-05 U	0.00043 U	--	0.00098 U	0.00062 U	0.00088 U	**0.012**	--	**0.015**	--	**0.033**	**0.031**	**0.05**	**0.023**	**0.019**	--	--
WGL-SD-SD08-0912		20120910	0.00011 U	5.9E-05 U	2.7E-05 U	**0.01**	3.6E-05 U	7.9E-05 U	0.00044 U	--	0.00099 U	**0.0042**	**0.0049**	**0.019**	--	**0.03**	--	**0.068**	**0.076**	**0.12**	**0.05**	**0.036**	--	--
WGL-SD-SD08-1212		20121203	0.0032 U	0.0032 U	0.0017 U	**0.018 J**	0.0017 U	0.0017 U	0.017 U	--	**0.0052**	0.0033 UJ	0.0033 U	**0.014**	--	**0.015**	--	**0.042**	**0.051**	**0.087**	**0.045 J**	**0.031**	--	--
WGL-SD-SD08-0313		20130318	0.00011 U	0.00006 U	2.7E-05 U	**0.014**	3.6E-05 U	0.00008 U	0.00044 U	--	0.001 U	0.00063 U	0.0009 U	**0.008**	--	**0.0069**	**0.028**	**0.043**	**0.026**	**0.055**	**0.02**	**0.015**	--	--
WGL-SD-SD08-0613		20130612	**0.018**	**0.011**	5.2E-05 U	0.0002 U	6.8E-05 U	0.00015 U	**0.14**	--	0.0019 U	**0.049**	0.0017 U	0.0017 U	--	0.0018 U	**0.76**	0.0025 U	**0.013**	**0.026**	**0.025**	**0.012**	--	--
WGL-SD-SD08-0913		20130924	**0.0024**	5.9E-05 U	2.7E-05 U	**0.0039**	3.6E-05 U	7.9E-05 U	0.00043 U	--	0.042 U	0.038 U	0.039 U	0.037 U	0.031 U	0.027 U	0.044 U	0.033 U	0.031 U	0.04 U	0.038 U	0.043 U	**0.11 J**	0.026 U
WGL-SD-SD08-1213		20131217	**0.037**	**0.051**	0.00026 U	0.001 U	0.00034 U	0.00076 U	**0.39**	--	0.21 U	0.19 U	0.19 U	0.18 U	0.15 U	0.13 U	**0.73 J**	0.16 U	0.15 U	0.2 U	0.19 U	0.21 U	0.14 U	0.13 U
WGL-SD-SD08-0414	WGL-SD-08	20140423	**0.0059**	**0.0048**	0.00005 U	0.00019 U	6.6E-05 U	0.00015 U	**0.065**	--	0.0019 U	0.0012 U	0.0017 U	0.0016 U	--	0.0018 U	**0.18**	0.0024 U	**0.0081**	**0.012 J**	0.002 U	0.0024 U	--	--
WGL-SD-SD08-0614		20140611	0.00011 U	5.9E-05 U	**0.00092**	0.0001 U	3.5E-05 U	7.9E-05 U	0.00043 U	--	0.00099 U	0.00062 U	0.00089 U	**0.0057**	--	**0.0069**	**0.011**	**0.031**	**0.029**	**0.042 J**	**0.02**	**0.017**	--	--
WGL-SD-SD08-0914		20140924	0.00011 U	0.00006 U	2.7E-05 U	**0.0018**	3.6E-05 U	0.00008 U	0.00044 U	--	0.001 U	0.00063 U	0.0009 U	**0.013**	--	**0.008**	**0.013**	**0.02**	**0.023**	**0.039**	**0.016 J**	**0.011 J**	--	--
WGL-SD-SD08-0415		20150407	0.00022 U	0.00011 U	5.2E-05 U	0.0002 U	6.8E-05 U	0.00015 U	0.00084 U	--	0.0019 U	**0.024 J**	0.0017 U	0.0017 U	--	**0.0078 J**	**0.58 J**	**0.024 J**	**0.03 J**	**0.076 J**	**0.018 J**	**0.031 J**	--	--
WGL-SD-SD08-0915		20150923	0.00011 UJ	0.00006 UJ	2.7E-05 UJ	**0.00095 J**	3.6E-05 UJ	0.00008 UJ	0.00044 UJ	--	0.001 U	0.00064 U	**0.0036 J**	**0.027 J**	--	**0.023 J**	**0.039 J**	**0.056 J**	**0.066 J**	**0.1 J**	**0.047 J**	**0.061 J**	--	--
WGL-SD-SD08-0316		20160330	0.00012 UJ	0.00006 UJ	2.8E-05 UJ	**0.0012 J**	3.6E-05 UJ	0.00008 UJ	0.00044 UJ	--	0.001 U	0.00063 U	0.0009 U	**0.017**	--	**0.014 J**	**0.057**	**0.046**	**0.05 J**	**0.099**	**0.042**	**0.033**	--	--
WGL-SD-SD08-0916		20160921	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WGL-SD08-0517		20170509	0.00053 U	0.00053 U	0.00053 U	--	0.00053 U	0.00053 U	0.0008 U	0.0044 U	0.009 U	--	0.009 U	**0.0091**	--	**0.0093**	--	**0.031**	**0.036**	**0.071**	**0.014**	**0.024**	--	--
WGL-SD-SD08-1017		20171024	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.0021 U	**0.0029 J**	0.0032 U	--	0.087 U	--	0.087 U	0.087 U	--	0.087 U	--	**0.12**	**0.13**	**0.2**	**0.058 J**	**0.073 J**	--	--
WGL-SD08-052218		20180522	0.00053 U	0.00053 U	0.00053 U	0.00053 U	0.00053 U	0.00053 U	**0.0028**	--	0.018 U	--	0.018 U	0.018 U	--	0.018 U	--	**0.026**	**0.028**	**0.054**	**0.014 J**	**0.015 J**	--	--

Sample ID	Location ID	Sample Date	SEMIVOLATILES (MG/KG)										VOLATILES (MG/KG)											
			CHRYSENE	DIBENZO(A,H)ANTHRACENE	DI-N-BUTYL PHTHALATE	FLUORANTHENE	FLUORENE	INDENO(1,2,3-CD)PYRENE	NAPHTHALENE	PHENANTHRENE	PHENOL	PYRENE	1,2-DICHLOROETHANE	2-BUTANONE	ACETONE	CARBON DISULFIDE	ETHYLBENZENE	METHYL ACETATE	METHYL TERT-BUTYL ETHER	METHYLENE CHLORIDE	STYRENE	TETRACHLOROETHENE	TOLUENE
PALs			1.7	0.19	NC	3	0.13	0.49	0.176	1.4	NC	2.3	NC	0.33	0.41684	NC	NC	NC	NC	NC	NC	NC	NC
WGL-SD-SD01-1211		20111219	**0.027 J**	0.039 UJ	--	**0.037 J**	0.039 UJ	**0.024 J**	0.039 UJ	**0.018 J**	--	**0.054 J**	0.0055 UJ	0.028 UJ	0.028 U	0.0055 UJ	0.0055 UJ	0.0066 UJ	0.0055 UJ	0.028 UJ	0.0055 UJ	0.0055 UJ	0.0055 UJ
WGL-SD-SD01-0312		20120314	0.012 U	**0.0082 J**	--	**0.014 J**	0.012 U	**0.011 J**	0.012 U	**0.0062 J**	--	**0.017 J**	0.003 UJ	0.015 U	0.033 U	0.003 U	0.003 UJ	0.0036 U	0.003 U	0.015 U	0.003 UJ	0.003 UJ	0.003 UJ
WGL-SD-SD01-0712		20120709	**0.24**	**0.035**	--	**0.43**	**0.0092**	**0.14**	0.0024 U	**0.14**	**0.066**	**0.37**	0.0017 R	0.0064 R	0.0051 R	0.00096 R	0.0016 R	0.0045 U	0.0019 R	0.0041 R	0.0017 R	0.002 R	0.0015 R
WGL-SD-SD01-0712-RE		20120709	--	--	--	--	--	--	--	--	--	--	0.0026 U	0.0096 U	0.0076 U	0.0014 U	0.0024 U	0.0067 U	0.0029 U	0.0062 U	0.0025 U	0.003 U	0.0022 U
WGL-SD-SD01-0912		20120907	**0.042**	**0.007**	--	**0.08**	**0.0091**	**0.027**	0.001 U	**0.037**	**0.011**	**0.067**	0.001 U	0.0038 U	**0.012**	0.00057 U	0.00095 U	0.0026 U	0.0012 U	**0.0028 J**	0.00098 U	0.0012 U	0.00089 U
WGL-SD-SD01-1212		20121203	**0.045**	**0.0064**	--	**0.061**	**0.0041**	**0.03**	0.0033 U	**0.025**	**0.0039**	**0.052**	0.0043 U	0.0043 U	0.0043 U	0.0043 U	0.0043 U	0.0043 U	0.0043 U	0.0043 U	0.0043 U	0.0043 U	0.0043 U
WGL-SD-SD01-0313		20130318	**0.12**	**0.019**	--	**0.18**	0.0018 U	**0.081**	0.0021 U	**0.088**	**0.02**	**0.16**	0.00075 U	0.0028 U	**0.01**	0.00042 U	0.0007 U	0.002 U	0.00085 U	0.0018 U	0.00073 U	0.00087 U	0.00066 U
WGL-SD-SD01-0613		20130612	**0.059**	**0.0097**	--	**0.096**	**0.0047**	**0.052**	0.0014 U	**0.0075**	**0.0078**	**0.09**	0.00062 U	0.0023 U	**0.0053 J**	0.00034 U	0.00057 U	0.0016 U	0.0007 U	0.0015 U	0.0006 U	0.00071 U	0.00054 U
WGL-SD-SD01-0913		20130924	0.029 U	0.035 U	**0.23 J**	0.029 U	0.033 U	0.038 U	0.042 U	0.026 U	0.038 U	0.032 U	0.00025 UJ	0.00091 UJ	0.00073 UJ	0.00014 UJ	0.00023 UJ	0.00064 U	0.00028 UJ	0.00059 UJ	0.00024 UJ	0.00028 UJ	0.00021 UJ
WGL-SD-SD01-1213		20131217	0.028 U	0.034 U	0.027 U	0.028 U	0.032 U	0.036 U	0.04 U	0.026 U	0.036 U	0.031 U	0.00029 U	0.0011 U	0.00085 UJ	0.00016 U	0.00026 U	0.00074 U	0.00032 U	0.00069 U	0.00028 U	**0.067**	0.00025 U
WGL-SD-SD01-0414		20140423	**0.026**	0.0022 U	--	**0.046**	0.0017 U	**0.019**	0.002 U	**0.019**	0.0049 U	**0.036**	0.0014 U	0.0052 U	**0.11**	0.00078 U	0.0013 U	0.0036 U	0.0016 U	0.0034 U	0.0014 U	0.0016 U	0.0012 U
WGL-SD-SD01-0614	WGL-SD-01	20140611	**0.041**	0.0018 U	--	**0.067**	0.0014 U	**0.021 J**	0.0017 U	**0.027**	0.0041 U	**0.06**	0.0019 U	0.0069 U	0.0055 U	0.001 U	0.0017 U	0.0048 U	0.0021 U	0.0045 U	0.0018 U	0.0021 U	0.0016 U
WGL-SD-SD01-0914		20140924	**0.011**	0.0012 R	--	**0.018**	0.00091 U	**0.0061**	0.0011 U	**0.0087**	0.0026 U	**0.015**	0.0008 U	0.003 U	**0.039**	0.00044 U	0.00074 U	0.0021 U	0.0009 U	0.0019 U	0.00077 U	**0.002 J**	0.0007 U
WGL-SD-SD01-0415		20150407	**0.31 J**	**0.039 J**	--	**0.54 J**	**0.013 J**	**0.14 J**	0.0021 U	**0.23 J**	0.0054 U	**0.47 J**	0.0019 U	0.0069 U	**0.1 J**	0.001 U	0.0017 U	0.0048 U	0.0021 U	0.0045 U	0.0018 U	0.0021 U	0.0016 U
WGL-SD-SD01-0915		20150923	**0.013 J**	0.0011 U	--	**0.021 J**	0.00087 U	**0.0075 J**	0.001 U	**0.0094 J**	0.0025 U	0.0011 U	0.00051 U	**0.0032 J**	**0.014 J**	0.00028 U	0.00047 U	0.0013 U	0.00058 U	**0.0021 J**	0.00049 U	0.00058 U	0.00044 U
WGL-SD-SD01-0316		20160330	**0.0047 J**	0.0011 UJ	--	**0.0081 J**	0.00087 UJ	0.0011 UJ	0.001 UJ	0.00098 UJ	0.0025 UJ	**0.0064 J**	0.0003 U	0.0011 U	0.00088 U	0.00017 U	0.00028 U	0.00077 U	0.00034 U	0.00072 U	0.00029 U	0.00034 U	0.00026 U
WGL-SD-SD01-0316-D		20160330	**0.18**	**0.032**	--	--	**0.0075**	**0.096**	0.001 U	**0.15**	**0.016**	--	0.00026 U	0.00096 U	0.00077 U	0.00014 U	0.00024 U	0.00067 U	0.00029 U	0.00062 U	0.00025 U	0.0003 U	0.00022 U
WGL-SD-SD01-0916		20160921	--	--	--	--	--	--	--	--	--	--	0.0023 U	0.0122 U	**0.0814 J**	0.0044 U	0.0011 U	0.0064 U	0.0025 U	0.003 U	0.0014 U	0.0023 U	0.0022 U
WGL-SD-SD01-0916-D		20160921	--	--	--	--	--	--	--	--	--	--	0.0009 U	0.0049 U	**0.0333 J**	0.0018 U	0.0004 U	0.0026 U	0.001 U	0.0012 U	0.0006 U	0.0009 U	0.0009 U
WGL-SD01-0517		20170505	**0.035 J**	0.036 UJ	--	**0.063 J**	0.036 UJ	0.036 UJ	0.036 UJ	**0.022 J**	--	**0.053 J**	0.011 UJ	0.027 UJ	**0.28 J**	0.011 UJ	0.018 UJ	0.054 UJ	0.011 UJ	0.0054 UJ	0.0054 UJ	0.018 UJ	0.0054 UJ
WGL-SD-SD01-1017		20171024	**0.13 J**	0.08 UJ	--	**0.23 J**	0.08 UJ	**0.043 J**	0.08 UJ	**0.094 J**	--	**0.21 J**	0.04 UJ	**0.12 J**	**0.59 J**	0.04 UJ	0.066 UJ	0.2 UJ	0.04 UJ	0.02 UJ	0.02 UJ	0.066 UJ	**0.024 J**
WGL-SD-SD01-1017-R		20171030	--	--	--	--	--	--	--	--	--	--	0.014 U	0.034 U	0.11 U	0.014 U	0.023 U	0.068 U	0.014 U	0.0068 U	0.0068 U	0.023 U	0.0068 U
WGL-SD01-052218		20180522	**0.013 J**	0.019 U	--	**0.02**	0.019 U	0.019 U	0.019 U	**0.013 J**	--	**0.018 J**	0.0029 U	0.0073 U	**0.22 J+**	0.0029 U	0.0048 U	**0.0048 J**	0.0029 U	0.0015 U	0.0015 U	0.0048 U	0.0015 U
WGL-SD-SD02-1211		20111219	**0.16**	**0.016 J**	--	**0.42**	**0.059**	**0.078**	**0.011 J**	**0.41**	--	**0.32**	0.0015 UJ	0.0075 UJ	0.0075 U	0.0015 UJ	0.0015 UJ	0.0018 UJ	0.0015 UJ	0.0075 UJ	0.0015 UJ	0.0015 UJ	0.0015 UJ
WGL-SD-SD02-0312		20120313	**0.041**	**0.014 J**	--	**0.057**	0.018 U	**0.042**	0.018 U	**0.023 J**	--	**0.046**	0.0032 UJ	0.016 UJ	0.034 U	0.0032 UJ	0.0032 U	0.0039 UJ	0.0032 UJ	0.016 UJ	0.0032 UJ	0.0032 UJ	0.0032 UJ
WGL-SD-SD02-0712		20120710	**0.095**	**0.012**	--	**0.18**	**0.0041**	**0.052**	0.00098 U	**0.065**	**0.04**	**0.14**	0.00064 U	0.0024 U	0.0019 U	0.00036 U	0.0006 U	0.0017 U	0.00073 U	0.0016 U	0.00062 U	0.00074 U	0.00056 U
WGL-SD-SD02-0912		20120907	**0.061**	**0.0098**	--	**0.1**	**0.0095**	**0.038**	0.001 U	**0.031**	**0.018**	**0.079**	0.001 U	0.0037 U	0.003 U	0.00055 U	0.00092 U	0.0026 U	0.0011 U	**0.0055 J**	0.00096 U	0.0011 U	0.00087 U
WGL-SD-SD02-1212		20121203	**0.078**	**0.012**	--	**0.12**	**0.0071**	**0.055**	0.0033 U	**0.051**	**0.0049**	**0.096**	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U
WGL-SD-SD02-0313		20130318	**0.041**	**0.0063**	--	**0.069**	0.00087 U	**0.026**	0.001 U	**0.035**	**0.0064**	**0.056**	0.00046 U	**0.0019 J**	**0.01**	0.00026 U	0.00043 U	0.0012 U	0.00052 U	0.0011 U	0.00044 U	0.00053 U	0.0004 U
WGL-SD-SD02-0613		20130612	**0.036**	**0.0058**	--	**0.062**	**0.0039**	**0.03**	0.00099 U	**0.0044**	**0.0069**	**0.049**	0.00038 U	0.0014 U	**0.027**	0.00021 U	0.00035 U	0.00099 U	0.00043 U	**0.0016 J**	0.00037 U	0.00044 U	0.00033 U
WGL-SD-SD02-0913		20130924	0.029 U	0.035 U	**0.21 J**	**0.079 J**	0.033 U	0.037 U	0.041 U	0.026 U	0.037 U	**0.068 J**	0.00045 U	0.0017 U	**0.0057**	0.00025 U	0.00042 U	0.0012 U	0.00051 U	**0.0044**	0.00044 U	0.00052 U	0.0004 U
WGL-SD-SD02-1213		20131217	**0.15 J**	0.035 UJ	0.028 UJ	**0.21 J**	0.033 UJ	**0.1 J**	0.041 UJ	**0.083 J**	0.037 UJ	**0.21 J**	0.0012 UJ	**0.023 J**	**0.085 J**	0.00067 UJ	0.0011 UJ	0.0031 U	0.0014 UJ	0.0029 UJ	0.0012 UJ	**0.31 J**	0.001 UJ
WGL-SD-SD02-0414		20140423	**0.026**	**0.0036**	--	**0.046**	0.00087 U	**0.018**	0.001 U	**0.023**	**0.0035**	**0.037**	0.00036 UJ	0.0013 UJ	0.0011 UJ	0.0002 UJ	0.00033 UJ	0.00092 UJ	0.0004 UJ	0.00086 UJ	0.00034 UJ	0.00041 UJ	0.00031 UJ
WGL-SD-SD02-0614	WGL-SD-02	20140611	**0.082**	**0.0081**	--	**0.16**	**0.0069**	**0.04 J**	0.0013 U	**0.068**	0.0033 U	**0.11**	0.0016 U	**0.0086 J**	**0.043**	0.00088 U	0.0015 U	0.0041 U	0.0018 U	0.0038 U	0.0015 U	0.0018 U	0.0014 U
WGL-SD-SD02-0914		20140924	**0.0062**	0.0011 R	--	**0.011**	0.00087 U	0.0011 U	0.001 U	**0.0034**	0.0025 U	**0.0083**	0.00042 U	0.0016 U	**0.021**	0.00023 U	0.00039 U	0.0011 U	0.00047 U	0.001 U	0.0004 U	0.00048 U	0.00036 U
WGL-SD-SD02-0415		20150407	**0.048 J**	**0.0036 J**	--	**0.071 J**	0.00087 U	**0.02 J**	0.001 U	**0.046 J**	**0.011 J**	**0.05 J**	0.00025 UJ	0.00091 UJ	**0.023 J**	0.00014 UJ	0.00023 UJ	0.00064 U	0.00028 UJ	**0.002 J**	0.00024 UJ	0.00028 UJ	0.00021 UJ
WGL-SD-SD02-0915		20150923	**0.079 J**	**0.013 J**	--	**0.12 J**	**0.011 J**	**0.05 J**	0.0014 U	**0.042 J**	**0.019 J**	**0.1 J**	0.0014 U	0.0051 U	0.004 U	0.00076 U	0.0013 U	0.0035 U	0.0015 U	0.016 UB	0.0013 U	0.0016 U	0.0012 U
WGL-SD-SD02-0316		20160330	**0.055**	**0.0099**	--	**0.12**	0.00087 U	**0.033**	0.001 U	**0.035**	0.0025 U	**0.088**	0.00033 U	0.0012 UJ	0.00099 UJ	0.00019 U	0.00031 U	0.00087 U	0.00038 U	0.00081 U	0.00032 U	0.00038 U	0.00029 U
WGL-SD-SD02-0916		20160921	--	--	--	--	--	--	--	--	--	--	0.054 U	0.287 U	0.685 U	0.103 U	0.0252 U	**0.57**	0.0591 U	0.0715 U	0.0323 U	0.0549 U	0.0521 U
WGL-SD02-0517		20170508	**0.065**	0.018 U	--	**0.15**	0.018 U	**0.019**	0.018 U	**0.054**	--	**0.11**	0.0083 U	**0.017 J**	**0.13 J**	0.0083 U	0.014 U	0.041 U	0.0083 U	0.0041 U	0.0041 U	0.014 U	0.0041 U
WGL-SD-SD02-1017		20171024	**0.076 J**	0.072 UJ	--	**0.13 J**	0.072 UJ	0.072 UJ	0.072 UJ	**0.044 J**	--	**0.11 J**	0.021 UJ	**0.024 J**	**0.35 J**	0.021 UJ	0.035 UJ	0.1 UJ	0.021 UJ	0.01 UJ	0.01 UJ	0.035 UJ	0.01 UJ
WGL-SD-SD02-1017-R		20171030	--	--	--	--	--	--	--	--	--	--	0.024 U	0.061 U	0.2 U	0.024 U	0.04 U	0.12 U	0.024 U	0.012 U	0.012 U	0.04 U	0.012 U
WGL-SD02-052118		20180521	**0.37**	0.31 U	--	**0.52**	0.31 U	**0.17 J**	0.31 U	**0.17 J**	--	**0.4**	0.0074 UJ	0.019 UJ	**0.12 J**	0.0074 UJ	0.012 UJ	0.037 UJ	0.0074 UJ	0.0037 UJ	0.0037 UJ	0.012 UJ	0.0037 UJ
WGL-SD02-052118-D		20180521	**0.76 J**	0.68 UJ	--	**1.1 J**	0.68 UJ	0.68 UJ	0.68 UJ	**0.37 J**	--	**0.88 J**	0.015 UJ	0.038 UJ	**0.63 J**	0.015 UJ	0.026 UJ	0.077 UJ	0.015 UJ	0.0077 UJ	0.0077 UJ	0.026 UJ	0.0077 UJ

Sample ID	Location ID	Sample Date	SEMIVOLATILES (MG/KG)									
			CHRYSENE	DIBENZO(A,H)ANTHRACENE	DI-N-BUTYL PHTHALATE	FLUORANTHENE	FLUORENE	INDENO(1,2,3-CD)PYRENE	NAPHTHALENE	PHENANTHRENE	PHENOL	PYRENE
PALs			1.7	0.19	NC	3	0.13	0.49	0.176	1.4	NC	2.3
WGL-SD-SD03-1211	WGL-SD-03	20111219	**0.096**	**0.0082 J**	--	**0.17**	**0.0084 J**	**0.043**	**0.0042 J**	**0.089**	--	**0.16**
WGL-SD-SD03-0312		20120313	**0.048**	**0.0089 J**	--	**0.078**	0.016 U	**0.057**	0.016 U	**0.025 J**	--	**0.056**
WGL-SD-SD03-0712		20120710	**0.29**	**0.041**	--	**0.51**	**0.011**	**0.16**	0.0025 U	**0.16**	**0.1**	**0.43**
WGL-SD-SD03-0912		20120907	**0.07**	**0.011**	--	**0.12**	**0.014**	**0.043**	0.0012 U	**0.042**	**0.018**	**0.1**
WGL-SD-SD03-1212		20121203	**0.17**	**0.019**	--	**0.21**	**0.015**	**0.082**	0.0036 U	**0.09**	**0.0093**	**0.19**
WGL-SD-SD03-0313		20130318	**0.086**	**0.019**	--	**0.14**	0.0012 U	**0.051**	0.0014 U	**0.073**	**0.03**	**0.12**
WGL-SD-SD03-0613		20130612	**0.068**	**0.011**	--	**0.0062**	**0.0072**	**0.058**	0.0016 U	**0.011**	**0.018**	**0.1**
WGL-SD-SD03-0913		20130924	**0.074 J**	0.035 U	**0.14 J**	**0.097 J**	0.033 U	0.037 U	0.041 U	0.026 U	0.037 U	**0.097 J**
WGL-SD-SD03-1213		20131217	**0.49**	**0.094 J**	0.03 U	**0.76**	0.036 U	**0.35 J**	0.044 U	**0.27 J**	0.04 U	**0.61**
WGL-SD-SD03-0414		20140423	**0.012**	0.0014 U	--	**0.019**	0.0011 U	**0.0079**	0.0013 U	**0.01**	**0.006**	**0.015**
WGL-SD-SD03-0614		20140611	**0.042**	**0.0049**	--	**0.078**	**0.0046**	**0.024 J**	0.001 U	**0.032**	0.0025 U	**0.069**
WGL-SD-SD03-0914		20140924	**0.023**	0.0012 R	--	**0.035**	0.00097 U	**0.012**	0.0011 U	**0.015**	0.0028 U	**0.028**
WGL-SD-SD03-0415		20150407	**0.05 J**	**0.004 J**	--	**0.074 J**	0.00087 U	**0.022 J**	0.001 U	**0.051 J**	**0.0093 J**	**0.055 J**
WGL-SD-SD03-0915		20150923	**0.04 J**	**0.0062 J**	--	**0.065 J**	0.00088 U	**0.025 J**	0.001 U	**0.024 J**	**0.021 J**	**0.056 J**
WGL-SD-SD03-0316		20160330	**0.072**	**0.013**	--	**0.14**	**0.0033**	**0.043**	0.001 U	**0.039**	0.0025 U	**0.11**
WGL-SD-SD03-0916		20160921	--	--	--	--	--	--	--	--	--	--
WGL-SD03-0517		20170508	**0.065**	0.018 U	--	**0.12**	0.018 U	**0.015 J**	0.018 U	**0.044**	--	**0.09**
WGL-SD-SD03-1017		20171024	6 R	6 UR	--	14 R	6 UR	6 UR	6 UR	4 R	--	11 R
WGL-SD-SD03-1017-D		20171024	0.48 R	0.38 UR	--	0.98 R	0.38 UR	0.38 UR	0.38 UR	0.3 R	--	0.76 R
WGL-SD-SD03-1017-R		20171030	--	--	--	--	--	--	--	--	--	--
WGL-SD-SD03-1017-R-D		20171030	--	--	--	--	--	--	--	--	--	--
WGL-SD03-052118		20180521	0.037 U	0.037 U	--	**0.019 J**	0.037 U	0.037 U	0.037 U	0.018 U	--	0.037 U
WGL-SD-SD04-1211	WGL-SD-04	20111214	**0.038**	0.0068 U	--	**0.052**	**0.0041 J**	0.02 U	**0.0066 J**	**0.04**	--	**0.06**
WGL-SD-SD04-1211-D		20111214	**0.03**	0.0059 U	--	**0.04**	0.011 U	0.016 U	**0.0055 J**	**0.03**	--	**0.043**
WGL-SD-SD04-0312		20120313	**0.062**	**0.012 J**	--	**0.092 J**	0.02 U	**0.07**	0.02 U	**0.045**	--	**0.082 J**
WGL-SD-SD04-0312-D		20120313	**0.029 J**	**0.014 J**	--	**0.043 J**	0.018 U	**0.032 J**	0.018 U	**0.017 J**	--	**0.03 J**
WGL-SD-SD04-0712		20120711	**0.041**	**0.0057**	--	**0.064**	**0.0045**	**0.022**	0.00099 U	**0.034**	**0.046**	**0.064**
WGL-SD-SD04-0912		20120907	**0.073**	**0.012**	--	**0.14**	**0.0069**	**0.044**	0.001 U	**0.044**	**0.016**	**0.11**
WGL-SD-SD04-1212		20121203	**0.11**	**0.01**	--	**0.14**	**0.044**	**0.043**	0.0073 U	**0.066**	**0.034**	**0.13**
WGL-SD-SD04-0313		20130318	**0.16**	**0.03**	--	**0.2**	0.0013 U	**0.089**	0.0015 U	**0.092**	**0.033**	**0.17**
WGL-SD-SD04-0613		20130612	**0.03**	0.0024 U	--	**0.022**	0.0019 U	**0.025**	0.0022 U	**0.026**	**0.045**	**0.048**
WGL-SD-SD04-0913		20130924	0.044 U	0.053 U	**0.38 J**	0.044 U	0.05 U	0.056 U	0.062 U	0.039 U	0.056 U	0.049 U
WGL-SD-SD04-1213		20131217	**0.78**	0.057 U	0.046 U	**1.2**	0.054 U	**0.53 J**	0.067 U	**0.4 J**	0.061 U	**0.94**
WGL-SD-SD04-0414		20140423	**0.017 J**	0.002 UJ	--	**0.032 J**	0.0016 UJ	**0.013 J**	0.0018 UJ	**0.019 J**	**0.007**	**0.026 J**
WGL-SD-SD04-0614		20140611	**0.12**	**0.012**	--	**0.21**	**0.013**	**0.06 J**	0.0032 U	**0.084**	0.0079 U	**0.19**
WGL-SD-SD04-0914		20140924	**0.02**	0.0018 R	--	**0.032**	0.0014 U	**0.011**	0.0016 U	**0.013**	0.0041 U	**0.025**
WGL-SD-SD04-0415		20150407	**0.12 J**	**0.011 J**	--	**0.17 J**	0.0012 U	**0.053 J**	0.0014 U	**0.11 J**	**0.025 J**	**0.13 J**
WGL-SD-SD04-0915		20150923	**0.87 J**	**0.15 J**	--	**1.2 J**	0.013 UJ	**0.64 J**	0.015 UJ	**0.52 J**	**0.21 J**	**0.98 J**
WGL-SD-SD04-0316		20160330	**0.073**	**0.013**	--	**0.15**	0.00087 U	**0.042**	0.001 U	**0.045**	0.0025 U	**0.12**
WGL-SD-SD04-0916		20160921	--	--	--	--	--	--	--	--	--	--
WGL-SD04-0517		20170508	**1.4 J**	**0.15 J**	--	**2.6 J**	**0.23 J**	**0.25 J**	**0.16 J**	**1.7 J**	--	**1.9 J**
WGL-SD-SD04-1017		20171023	**0.032 J**	0.023 UJ	--	**0.045 J**	0.023 UJ	**0.02 J**	0.023 UJ	**0.021 J**	--	**0.038 J**
WGL-SD04-052118		20180521	**0.63**	0.43 U	--	**0.93 J**	0.43 U	**0.3 J**	0.43 U	**0.64**	--	**0.75**

Sample ID	VOLATILES (MG/KG)										
	1,2-DICHLOROETHANE	2-BUTANONE	ACETONE	CARBON DISULFIDE	ETHYLBENZENE	METHYL ACETATE	METHYL TERT-BUTYL ETHER	METHYLENE CHLORIDE	STYRENE	TETRACHLOROETHENE	TOLUENE
PALs	NC	0.33	0.41684	NC	NC	NC	NC	NC	NC	NC	NC
WGL-SD-SD03-1211	0.0024 U	0.012 U	0.022 U	0.0024 U	0.0024 U	0.0029 UJ	0.0024 U	0.012 U	0.0024 U	0.0024 U	0.0024 U
WGL-SD-SD03-0312	0.0032 U	0.016 U	0.018 U	0.0032 U	0.0032 U	0.0039 U	0.0032 U	0.016 U	0.0032 U	0.0032 U	0.0032 U
WGL-SD-SD03-0712	0.17 R	0.34 R	0.61 R	0.13 R	0.15 R	0.0052 U	0.21 R	0.21 R	0.0019 R	0.17 R	0.1 R
WGL-SD-SD03-0912	0.0014 U	0.0052 U	0.0042 U	0.00079 U	0.0013 U	0.0037 U	0.0016 U	**0.0047 J**	0.0014 U	0.0016 U	0.0012 U
WGL-SD-SD03-1212	0.0063 U	0.0063 U	**0.059**	0.0063 U	0.0063 U	0.0063 U	0.0063 U	0.0063 U	0.0063 U	0.0063 U	0.0063 U
WGL-SD-SD03-0313	0.0011 U	**0.031**	**0.12**	0.00062 U	0.001 U	0.0029 U	0.0013 U	0.0027 U	0.0011 U	0.0013 U	0.00096 U
WGL-SD-SD03-0613	0.0015 U	0.0056 U	**0.096**	0.00084 U	0.0014 U	0.0039 U	0.0017 U	0.0036 U	0.0014 U	0.0017 U	0.0013 U
WGL-SD-SD03-0913	0.00044 UJ	**0.0031 J**	**0.027 J**	0.00025 UJ	0.00041 UJ	0.0012 U	0.0005 UJ	0.0011 UJ	0.00043 UJ	0.00051 UJ	0.00039 UJ
WGL-SD-SD03-1213	0.002 U	**0.037**	**0.09 J**	0.0011 U	0.0018 U	0.0051 U	0.0022 U	0.0047 U	0.0019 U	**0.38**	0.0017 U
WGL-SD-SD03-0414	0.00069 U	**0.013**	**0.049**	0.00038 U	0.00063 U	0.0018 U	0.00077 U	0.0017 U	0.00066 U	0.00079 U	0.0006 U
WGL-SD-SD03-0614	0.0008 UJ	**0.027 J**	**0.088 J**	0.00045 UJ	0.00074 UJ	0.0021 UJ	0.00091 UJ	0.0019 UJ	0.00077 UJ	0.00092 UJ	0.0007 UJ
WGL-SD-SD03-0914	0.00077 U	**0.022**	**0.1**	0.00043 U	0.00072 U	0.002 U	0.00087 U	0.0019 U	0.00075 U	0.00089 U	0.00067 U
WGL-SD-SD03-0415	0.00032 UJ	0.0012 UJ	**0.0051 J**	0.00018 UJ	0.00029 UJ	0.00082 U	0.00036 UJ	0.00076 UJ	0.0003 UJ	0.00036 UJ	0.00027 UJ
WGL-SD-SD03-0915	0.00075 U	**0.0058 J**	**0.031 J**	0.00042 U	0.0007 U	0.0019 U	0.00085 U	0.0018 U	0.00072 U	0.00086 U	0.00065 U
WGL-SD-SD03-0316	0.0017 U	0.0064 UJ	0.0051 UJ	0.00096 UJ	0.0016 U	0.0045 U	0.002 U	0.0042 U	0.0017 U	0.002 U	0.0015 U
WGL-SD-SD03-0916	0.0394 U	0.21 U	0.5 U	0.0751 U	0.0184 U	**1.8**	0.0432 U	0.0522 U	0.0236 U	0.0401 U	0.038 U
WGL-SD03-0517	0.0058 U	0.014 U	0.048 U	0.0058 U	0.0096 U	0.029 U	0.0058 U	0.0029 U	0.0029 U	0.0096 U	0.0029 U
WGL-SD-SD03-1017	3 UR	7.4 UR	25 UR	3 UR	4.9 UR	15 UR	3 UR	1.5 UR	1.5 UR	4.9 UR	1.5 UR
WGL-SD-SD03-1017-D	0.13 UR	0.29 R	2.9 R	0.13 UR	0.22 UR	0.65 UR	0.13 UR	0.065 UR	0.065 UR	0.22 UR	0.065 UR
WGL-SD-SD03-1017-R	0.05 U	0.12 U	0.42 U	0.05 U	0.083 U	0.25 U	0.05 U	0.025 U	0.025 U	0.083 U	0.025 U
WGL-SD-SD03-1017-R-D	0.016 U	0.041 U	0.14 U	0.016 U	0.027 U	0.082 U	0.016 U	0.0082 U	0.0082 U	0.027 U	0.0082 U
WGL-SD03-052118	0.011 UJ	**0.34 J+**	**3.4 J+**	**0.0075 J**	0.019 UJ	0.056 UJ	0.011 UJ	0.0056 UJ	0.0056 UJ	0.019 UJ	**0.1 J+**
WGL-SD-SD04-1211	0.002 U	0.01 U	0.011 U	0.002 U	0.002 U	0.0024 U	0.002 U	0.01 U	0.002 U	0.002 U	0.002 U
WGL-SD-SD04-1211-D	0.0016 U	0.0081 U	0.0037 U	0.0016 U	0.0016 U	0.002 U	0.0016 U	0.0081 U	0.0016 U	0.0016 U	0.0016 U
WGL-SD-SD04-0312	0.0048 U	0.024 U	0.04 U	0.0048 U	0.0048 U	0.0057 U	0.0048 U	0.024 U	**0.0014 J**	0.0048 U	0.0048 U
WGL-SD-SD04-0312-D	0.0055 U	0.028 U	0.078 U	0.0055 U	0.0055 U	0.0066 U	0.0055 U	0.028 U	**0.0015 J**	0.0055 U	0.0055 U
WGL-SD-SD04-0712	0.00034 U	0.0013 U	0.001 U	0.00019 U	0.00032 U	0.00088 U	0.00038 U	0.00082 U	0.00033 U	0.00039 U	0.0003 U
WGL-SD-SD04-0912	0.001 UJ	0.0038 UJ	**0.049 J**	0.00056 UJ	0.00094 UJ	0.0026 U	0.0011 UJ	0.0024 UJ	0.00098 UJ	0.0012 UJ	0.00088 UJ
WGL-SD-SD04-1212	0.014 U	0.014 U	**0.16**	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	**0.013 J**
WGL-SD-SD04-0313	0.001 U	**0.036**	**0.13**	0.00056 U	0.00094 U	0.0026 U	0.0011 U	0.0024 U	0.00098 U	0.0012 U	0.00088 U
WGL-SD-SD04-0613	0.0011 U	0.004 U	**0.086**	0.00061 U	0.001 U	0.0028 U	0.0012 U	0.0026 U	0.0011 U	0.0013 U	**0.052**
WGL-SD-SD04-0913	0.0028 U	0.01 U	**0.16**	0.0016 U	0.0026 U	0.0073 U	0.0032 U	0.0068 U	0.0027 U	0.0032 U	**0.038**
WGL-SD-SD04-1213	0.0017 U	**0.029**	**0.12**	0.00092 U	0.0015 U	0.0043 U	0.0019 U	0.004 U	0.0016 U	**0.038**	0.0014 U
WGL-SD-SD04-0414	0.0011 UJ	**0.0088 J**	**0.095 J**	0.00061 UJ	0.001 UJ	0.0028 UJ	0.0012 UJ	0.0026 UJ	0.001 UJ	0.0013 UJ	0.00095 UJ
WGL-SD-SD04-0614	0.0035 U	**0.18**	**0.57**	0.0019 U	0.0032 U	0.009 U	0.0039 U	0.0084 U	0.0034 U	0.004 U	0.003 U
WGL-SD-SD04-0914	0.0012 U	**0.085**	**0.27**	**0.0097 J**	0.0011 U	0.0031 U	0.0014 U	0.0029 U	0.0012 U	0.0014 U	0.001 U
WGL-SD-SD04-0415	0.00058 UJ	0.0022 UJ	**0.023 J**	0.00032 UJ	0.00054 UJ	0.0015 U	0.00066 UJ	**0.002 J**	0.00056 UJ	0.00067 UJ	0.00051 UJ
WGL-SD-SD04-0915	0.0029 UJ	0.011 UJ	**0.18 J**	0.0016 UJ	0.0027 UJ	0.0076 UJ	0.0033 UJ	0.0071 UJ	0.0028 UJ	0.0034 UJ	0.0026 UJ
WGL-SD-SD04-0316	0.00068 U	0.0025 UJ	0.002 UJ	0.00038 UJ	0.00063 U	0.0018 U	0.00076 U	0.0016 U	0.00065 U	0.00078 U	0.00059 U
WGL-SD-SD04-0916	0.0304 U	0.162 U	0.386 U	0.058 U	0.0142 U	**0.506**	0.0333 U	0.0403 U	0.0182 U	0.031 U	0.0294 U
WGL-SD04-0517	0.02 UJ	0.051 UJ	0.17 UJ	0.02 UJ	0.034 UJ	0.1 UJ	0.02 UJ	0.01 UJ	0.01 UJ	0.034 UJ	0.01 UJ
WGL-SD-SD04-1017	0.0089 UJ	**0.022 J**	**0.21 J**	0.0089 UJ	0.015 UJ	0.044 UJ	0.0089 UJ	0.0044 UJ	0.0044 UJ	0.015 UJ	0.0044 UJ
WGL-SD04-052118	0.013 UJ	**0.3 J+**	**3.3 J+**	0.013 UJ	0.022 UJ	**0.062 J**	**0.0067 J**	0.0065 UJ	0.0065 UX	0.022 UJ	0.0065 UJ

Table B-3b: West Gate Landfill Sediment Results

Sample ID	Location ID	Sample Date	SEMIVOLATILES (MG/KG)										VOLATILES (MG/KG)										
			CHRYSENE	DIBENZO(A,H)ANTHRACENE	DI-N-BUTYL PHTHALATE	FLUORANTHENE	FLUORENE	INDENO(1,2,3-CD)PYRENE	NAPHTHALENE	PHENANTHRENE	PHENOL	PYRENE	1,2-DICHLOROETHANE	2-BUTANONE	ACETONE	CARBON DISULFIDE	ETHYLBENZENE	METHYL ACETATE	METHYL TERT-BUTYL ETHER	METHYLENE CHLORIDE	STYRENE	TETRACHLOROETHENE	TOLUENE
PALs			1.7	0.19	NC	3	0.13	0.49	0.176	1.4	NC	2.3	NC	0.33	0.41684	NC	NC	NC	NC	NC	NC	NC	NC
WGL-SD-SD05-1211		20111214	**0.0066 J**	0.0028 U	--	**0.012 J**	0.01 U	0.0026 U	0.01 U	**0.0092 J**	--	**0.012 J**	0.0016 U	0.0078 U	0.0033 U	0.0016 U	0.0016 U	0.0019 U	0.0016 U	0.0078 U	0.0016 U	0.0016 U	0.0016 U
WGL-SD-SD05-0312		20120313	**0.015 J**	**0.0083 J**	--	**0.024**	0.011 U	**0.021 J**	0.011 U	**0.0092 J**	--	**0.018 J**	0.0024 U	0.012 U	0.012 U	0.0024 U	0.0024 U	0.0029 U	0.0024 U	0.012 U	0.0024 U	0.0024 U	0.0024 U
WGL-SD-SD05-0712		20120710	**0.015**	0.0011 U	--	**0.026**	0.00087 U	**0.0077**	0.001 U	**0.011**	0.0025 U	**0.024**	0.00027 U	0.001 U	0.0008 U	0.00015 U	0.00025 U	0.0007 U	0.0003 U	--	0.00026 U	0.00031 U	0.00023 U
WGL-SD-SD05-0712-D		20120710	**0.016**	0.0011 U	--	**0.029**	0.00088 U	**0.0082**	0.001 U	**0.016**	**0.0047**	**0.027**	0.0003 U	0.0011 U	0.0009 U	0.00017 U	0.00028 U	0.00079 U	0.00034 U	0.00073 U	0.00029 U	0.00035 U	0.00026 U
WGL-SD-SD05-0912		20120910	0.0022 U	0.0011 U	--	0.0015 U	0.00088 R	0.0011 U	0.001 R	0.00099 R	0.0025 U	0.0011 U	0.00025 U	0.00094 U	0.00075 UJ	0.00014 U	0.00024 U	0.00066 U	0.00029 U	0.00061 U	0.00024 U	0.00029 U	0.00022 U
WGL-SD-SD05-0912-D		20120910	0.0022 U	0.0011 U	--	0.0015 U	0.00087 U	0.0011 U	0.001 U	0.00099 U	0.0025 U	0.0011 U	0.00023 U	0.00084 U	0.00067 U	0.00013 U	0.00021 U	0.00059 U	0.00026 U	0.00054 U	0.00022 U	0.00026 U	0.0002 U
WGL-SD-SD05-1212		20121203	**0.034**	**0.0041**	--	**0.053**	0.0033 UJ	**0.015**	**0.011**	**0.024**	**0.0044**	**0.05**	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U
WGL-SD-SD05-0313		20130318	**0.97 J**	**0.11 J**	--	**1.6 J**	**0.55 J**	**0.32 J**	**0.12 J**	**2 J**	**0.0059**	**1.5 J**	0.00026 U	0.00096 UJ	**0.0062 J**	0.00014 U	0.00024 UJ	0.00067 U	0.00029 U	**0.0079 J**	0.00025 UJ	0.0003 UJ	0.00023 UJ
WGL-SD-SD05-0313-D		20130318	**0.25**	**0.067**	--	**0.27**	**0.019**	**0.25**	0.00099 U	**0.13**	**0.0039**	**0.33**	0.00026 U	**0.001 J**	**0.0051**	0.00014 U	0.00024 U	0.00066 U	0.00029 U	0.00062 U	0.00025 U	0.00029 U	0.00022 U
WGL-SD-SD05-0613		20130612	**0.18 J**	**0.017 J**	--	**0.37 J**	**0.078 J**	**0.067 J**	**0.011 J**	**0.36**	**0.014**	**0.35 J**	0.00036 U	0.0013 U	**0.0026 J**	0.0002 U	0.00033 U	0.00093 U	0.00041 U	**0.0017 J**	0.00035 U	0.00041 U	0.00031 U
WGL-SD-SD05-0613-D		20130612	**0.024**	**0.0045**	--	**0.039**	**0.05**	**0.019**	0.00099 U	**0.006**	**0.0064**	**0.034**	0.00046 U	0.0017 U	**0.027**	0.00026 U	0.00043 U	0.0012 U	0.00052 U	0.0011 U	0.00045 U	0.00053 U	0.0004 U
WGL-SD-SD05-0913		20130924	0.029 U	0.035 U	**0.15 J**	0.029 U	0.033 U	0.037 U	0.041 U	0.026 U	0.037 U	0.032 U	0.00038 U	0.0014 U	0.0011 U	0.00021 U	0.00036 U	0.001 U	0.00043 U	0.00093 U	0.00037 U	0.00044 UJ	0.00033 U
WGL-SD-SD05-0913-D		20130924	0.029 U	0.035 U	**0.16 J**	**0.072 J**	0.033 U	0.037 U	0.041 U	0.026 U	0.037 U	**0.073 J**	0.00041 U	0.0015 U	0.0012 U	0.00023 U	0.00038 U	0.0011 U	0.00047 U	0.001 U	0.0004 U	0.00048 U	0.00036 U
WGL-SD-SD05-1213		20131217	0.029 R	0.035 U	0.028 U	0.029 R	0.033 U	0.037 U	0.041 U	0.026 U	0.037 U	0.032 U	0.00019 U	0.00069 U	0.00055 UJ	0.0001 U	0.00017 U	0.00048 U	0.00021 U	0.00045 U	0.00018 U	**0.019**	0.00016 U
WGL-SD-SD05-1213-D		20131217	0.029 U	0.035 U	0.028 U	0.029 U	0.033 U	0.037 U	0.041 U	0.026 U	0.037 U	0.032 U	0.00022 U	0.00081 U	0.00065 UJ	0.00012 U	0.0002 U	0.00056 U	0.00025 U	0.00052 U	0.00021 U	**0.02**	0.00019 U
WGL-SD-SD05-0414	WGL-SD-05	20140423	**0.019 J**	0.0019 R	--	**0.028 J**	**0.0089 J**	**0.0094 J**	0.0017 R	**0.014 J**	0.0044 U	**0.02 J**	0.0017 UJ	0.0063 UJ	**0.017 J**	0.00094 UJ	0.0016 UJ	0.0044 UJ	0.0019 R	0.0041 UJ	0.0016 UJ	0.0019 UJ	0.0015 UJ
WGL-SD-SD05-0414-D		20140423	**0.019**	0.002 U	--	**0.032**	**0.0093**	**0.0094**	0.0018 U	**0.016**	**0.025**	**0.021**	0.0018 U	0.0065 U	**0.014 J**	0.00098 U	0.0016 U	0.0046 U	0.002 U	0.0042 U	0.0017 U	0.002 U	0.0015 U
WGL-SD-SD05-0614		20140611	**0.04 J**	**0.005 J**	--	**0.058 J**	0.00086 R	**0.022 J**	0.00099 R	**0.02 J**	0.0025 U	**0.055 J**	0.00048 UJ	0.0018 UJ	0.0014 UJ	0.00027 UJ	0.00045 UJ	0.0012 U	0.00054 U	0.0012 U	0.00046 R	0.00055 UJ	0.00042 UJ
WGL-SD-SD05-0614-D		20140611	**0.038**	**0.0065**	--	**0.067**	**0.0035**	**0.026 J**	0.001 U	**0.029**	0.0025 U	**0.061**	0.00054 U	0.002 U	**0.0069**	0.0003 U	0.0005 U	0.0014 U	0.00061 U	**0.023**	0.00052 U	0.00062 U	0.00047 U
WGL-SD-SD05-0914		20140924	**0.012 J**	0.0011 R	--	**0.017 J**	0.00087 R	**0.0072 J**	0.001 R	**0.008 J**	0.0025 U	**0.016 J**	0.00054 U	0.002 U	**0.0067 J**	0.0003 U	0.0005 U	0.0014 U	0.00061 U	0.0013 U	0.00052 U	0.00062 UJ	0.00047 U
WGL-SD-SD05-0914-D		20140924	**0.044**	**0.0074 J**	--	**0.063**	0.00087 U	**0.021**	0.001 U	**0.029**	0.0025 U	**0.055**	0.00043 U	0.0016 U	**0.0051**	0.00024 U	0.0004 U	0.0011 U	0.00048 U	0.001 U	0.00041 U	0.00049 U	0.00037 U
WGL-SD-SD05-0415		20150407	**0.22 J**	**0.022 J**	--	**0.28 J**	**0.048 J**	**0.064 J**	**0.0074 J**	**0.18 J**	**0.073 J**	**0.21 J**	0.0013 R	0.0047 R	0.0037 R	0.0007 R	0.0012 R	0.0033 U	0.0014 R	0.003 R	0.0012 R	0.0014 R	0.0011 R
WGL-SD-SD05-0415-D		20150407	**0.08 J**	0.0024 U	--	**0.1 J**	0.0019 U	**0.022 J**	0.0022 U	**0.064 J**	**0.06 J**	**0.062 J**	--	--	--	--	--	--	--	--	--	--	--
WGL-SD-SD05-0915		20150923	**0.044 J**	**0.0051 J**	--	**0.069 J**	0.00087 U	**0.026 J**	0.001 U	**0.035 J**	**0.008 J**	**0.059 J**	0.00049 U	0.0018 U	0.0015 UJ	0.00027 U	0.00045 U	0.0013 U	0.00056 U	0.0012 UJ	0.00047 UJ	0.00056 U	0.00043 U
WGL-SD-SD05-0915-D		20150923	**0.0069 J**	0.0011 UJ	--	**0.011 J**	0.00086 U	**0.007 J**	0.00099 U	**0.0046 J**	**0.0057 J**	**0.01 J**	0.00043 U	0.0016 U	**0.0044 J**	0.00024 U	0.0004 U	0.0011 U	0.00049 U	**0.0021 J**	0.00042 U	0.0005 U	0.00038 U
WGL-SD-SD05-0316		20160330	**0.037**	**0.0062**	--	**0.076**	0.00087 U	**0.02**	0.001 U	**0.026 J**	0.0025 U	**0.062**	0.00025 U	0.00094 U	0.00075 U	0.00014 UJ	0.00023 U	0.00065 U	0.00029 U	0.00061 U	0.00024 U	0.00029 U	0.00022 U
WGL-SD-SD05-0916		20160921	--	--	--	--	--	--	--	--	--	--	0.0012 U	0.0062 U	0.0147 U	0.0022 U	0.0005 U	0.0032 U	0.0013 U	0.0015 U	0.0007 U	0.0012 U	0.0011 U
WGL-SD05-0517		20170508	**0.025 J**	0.01 UJ	--	**0.046 J**	0.01 U	**0.0076 J**	0.01 U	**0.02**	--	**0.038 J**	0.0037 U	0.0092 U	0.031 U	0.0037 U	0.0062 U	0.018 U	0.0037 U	0.0018 U	0.0018 U	0.0062 U	0.0018 U
WGL-SD05-0517-D		20170508	**0.049 J**	**0.006 J**	--	**0.08 J**	0.011 U	**0.012**	0.011 U	**0.034**	--	**0.072 J**	0.0039 U	0.0098 U	0.033 U	0.0039 U	0.0065 U	0.02 U	0.0039 U	0.002 U	0.002 U	0.0065 U	0.002 U
WGL-SD-SD05-1017		20171024	**0.09**	0.071 U	--	**0.13**	0.071 U	**0.037 J**	0.071 U	**0.061 J**	--	**0.12**	0.0027 U	0.0068 U	0.023 U	0.0027 U	0.0045 U	0.014 U	0.0027 U	0.0014 U	0.0014 U	0.0045 U	0.0014 U
WGL-SD05-052218		20180522	**0.077**	**0.013 J**	--	**0.13**	**0.0091 J**	**0.023**	0.018 U	**0.066**	--	**0.11**	0.0038 U	0.0096 U	0.032 U	0.0038 U	0.0064 UJ	0.019 U	**0.0013 J**	0.0019 U	0.0019 UJ	0.0064 U	0.0019 U
WGL-SD-SD06-1211		20111214	0.052 UJ	0.052 UJ	--	**0.075 J**	0.052 UJ	0.022 U	0.052 UJ	**0.075 J**	--	0.052 UJ	0.0095 UJ	**0.098 J**	**0.38 J**	0.0095 UJ	**0.0054 J**	0.011 UJ	0.0095 UJ	0.048 UJ	0.0095 UJ	**0.0049 J**	**0.18 J**
WGL-SD-SD06-0312		20120314	0.068 UJ	**0.044 J**	--	**0.061 J**	0.068 UJ	**0.05 J**	0.068 UJ	**0.029 J**	--	**0.046 J**	0.016 UJ	**0.28 J**	**1.3 J**	0.016 UJ	0.016 U	0.019 UJ	0.016 UJ	0.08 UJ	0.016 UJ	0.016 UJ	**3.6 J**
WGL-SD-SD06-0712		20120710	0.0058 U	0.0029 U	--	**0.14**	0.0023 U	**0.03**	0.0026 U	**0.086**	**0.24**	**0.13**	0.0024 U	0.0088 U	0.007 U	0.0013 U	0.0022 U	0.0061 U	0.0027 U	0.0057 U	0.0023 U	0.0027 U	**0.012 J**
WGL-SD-SD06-0712-RE		20120710	--	--	--	--	--	--	--	--	--	--	0.0024 U	**0.027**	**0.084**	--	0.0022 U	0.0061 U	0.0027 U	0.0057 U	0.0023 U	0.0027 U	0.0021 U
WGL-SD-SD06-0912		20120910	0.0043 U	0.0022 U	--	**0.066**	0.0017 U	**0.013**	0.002 U	**0.051**	**0.11**	**0.055**	0.0012 U	0.0046 U	0.0037 U	0.00069 U	0.0012 U	0.0032 U	0.0014 U	0.003 U	0.0012 U	0.0014 U	0.0011 U
WGL-SD-SD06-1212		20121203	0.007 U	0.007 U	--	**0.072**	**0.057**	**0.024**	0.007 U	**0.049**	**0.035**	**0.071**	0.027 U	0.027 U	**0.3**	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U
WGL-SD-SD06-0313		20130318	**0.024**	**0.0037**	--	**0.033**	0.00087 U	**0.013**	0.001 U	**0.017**	0.0025 U	**0.032**	0.00026 U	**0.0032**	**0.013**	0.00015 U	0.00024 U	0.00068 U	0.0003 U	0.00064 U	0.00025 U	0.0003 U	0.00023 U
WGL-SD-SD06-0613		20130612	**0.032**	**0.0054**	--	**0.06**	**0.13**	**0.023**	0.00098 U	**0.035**	**0.01**	**0.053**	0.00038 U	0.0014 U	**0.0037**	0.00021 U	0.00035 U	0.00098 U	0.00043 U	0.00091 U	0.00036 U	0.00043 U	0.00033 U
WGL-SD-SD06-0913		20130924	0.14 U	0.17 U	0.14 U	0.14 U	0.16 U	0.18 U	0.2 U	0.13 U	0.18 U	0.16 U	0.0015 UJ	0.0056 UJ	**0.054 J**	0.00084 UJ	0.0014 UJ	0.0039 U	0.0017 UJ	0.0037 UJ	0.0015 UJ	0.0017 UJ	0.0013 UJ
WGL-SD-SD06-1213	WGL-SD-06	20131217	0.14 U	0.17 U	0.14 U	0.14 U	0.16 U	0.18 U	0.2 U	0.13 U	0.18 U	0.16 U	0.0018 UJ	0.0065 UJ	**0.012 J**	0.00098 UJ	0.0016 UJ	0.0046 U	0.002 UJ	0.0042 UJ	0.0017 UJ	**0.44 J**	0.0015 UJ
WGL-SD-SD06-0614		20140611	0.0051 U	0.0025 U	--	**0.13**	**0.062**	**0.023 J**	0.0023 U	**0.092**	0.0058 U	**0.074**	0.0031 U	0.011 U	**0.2 J**	0.0017 U	0.0028 U	0.0079 U	0.0035 U	0.0074 U	0.0029 U	0.0035 U	**0.2 J**
WGL-SD-SD06-0914		20140924	0.0037 UJ	0.0018 R	--	**0.039 J**	0.0015 UJ	0.0018 UJ	0.0017 UJ	0.0016 UJ	0.0042 U	**0.049 J**	0.0022 UJ	0.0081 UJ	**0.074 J**	0.0012 UJ	0.002 UJ	0.0057 UJ	0.0025 UJ	0.0053 UJ	0.0021 UJ	0.0025 UJ	0.0019 UJ
WGL-SD-SD06-0415		20150407	0.0037 U	0.0018 U	--	**0.024 J**	0.0015 U	0.0018 U	0.0017 U	**0.017 J**	**0.052 J**	**0.013 J**	--	--	--	--	--	--	--	--	--	--	--
WGL-SD-SD06-0915		20150923	0.02 UJ	0.0099 UJ	--	**0.088 J**	**0.34 J**	0.0099 UJ	0.009 UJ	0.0088 UJ	**0.79 J**	0.0099 UJ	0.002 UJ	0.0074 UJ	0.0059 UJ	0.0011 UJ	0.0018 UJ	0.0052 UJ	0.0022 UJ	0.0048 UJ	0.0019 UJ	0.0023 UJ	0.0017 UJ
WGL-SD-SD06-0316		20160330	**0.066**	**0.013**	--	**0.1**	**0.0043**	**0.04**	0.001 U	**0.038**	**0.0048 J**	**0.096**	0.00036 U	0.0013 U	0.0011 U	0.0002 U	0.00033 U	0.00092 U	0.0004 U	0.00085 U	0.00034 U	0.00041 U	0.00031 U
WGL-SD-SD06-0916		20160921	--	--	--	--	--	--	--	--	--	--	0.109 UJ	0.582 UJ	1.39 UJ	0.208 UJ	0.0511 UJ	**2.04 J**	0.12 UJ	0.145 UJ	0.0654 UJ	0.111 UJ	0.105 UJ
WGL-SD06-0517		20170509	0.39 UJ	0.39 UJ	--	0.39 UJ	0.39 UJ	0.39 UJ	0.39 UJ	0.19 UJ	--	0.39 UJ	**0.01 J**	0.044 UJ	0.15 UJ	0.018 UJ	0.03 UJ	0.089 UJ	0.018 UJ	0.0089 UJ	0.0089 UJ	0.03 UJ	0.0089 UJ
WGL-SD-SD06-1017		20171024	**0.19 J**	0.23 UJ	--	**0.24 J**	0.23 UJ	0.23 UJ	0.23 UJ	**0.12 J**	--	**0.21 J**	0.015 UJ	**0.018 J**	**0.21 J**	0.015 UJ	0.025 UJ	0.076 UJ	0.015 UJ	0.0076 UJ	0.0076 UJ	0.025 UJ	0.0076 UJ
WGL-SD06-053018		20180530	0.62 UJ	0.62 UJ	--	0.62 UJ	0.62 UJ	0.62 UJ	0.62 UJ	0.31 UJ	--	0.62 UJ	0.018 UJ	0.046 UJ	**0.17 J**	0.018 UJ	0.031 UJ	0.092 UJ	0.018 UJ	0.0092 UJ	0.0092 UJ	0.031 UJ	0.0092 UJ

Sample ID	Location ID	Sample Date	SEMIVOLATILES (MG/KG)										VOLATILES (MG/KG)											
			CHRYSENE	DIBENZO(A,H)ANTHRACENE	DI-N-BUTYL PHTHALATE	FLUORANTHENE	FLUORENE	INDENO(1,2,3-CD)PYRENE	NAPHTHALENE	PHENANTHRENE	PHENOL	PYRENE	1,2-DICHLOROETHANE	2-BUTANONE	ACETONE	CARBON DISULFIDE	ETHYLBENZENE	METHYL ACETATE	METHYL TERT-BUTYL ETHER	METHYLENE CHLORIDE	STYRENE	TETRACHLOROETHENE	TOLUENE
PALs			1.7	0.19	NC	3	0.13	0.49	0.176	1.4	NC	2.3	NC	0.33	0.41684	NC	NC	NC	NC	NC	NC	NC	NC
WGL-SD-SD07-1211		20111214	**0.014 J**	0.0037 U	--	**0.03**	0.013 U	0.006 U	0.013 U	**0.021 J**	--	**0.028**	0.0017 U	**0.011 J**	0.036 U	0.0017 U	0.0017 U	0.0021 U	0.0017 U	0.0086 U	0.0017 U	0.0017 U	0.0017 U
WGL-SD-SD07-0312		20120313	0.011 U	0.011 U	--	**0.0046 J**	0.011 U	**0.0056 J**	0.011 U	**0.0022 J**	--	0.011 U	0.002 U	0.01 U	0.015 U	0.002 U	0.002 U	0.0024 U	0.002 U	0.01 U	0.002 U	0.002 U	0.002 U
WGL-SD-SD07-0712		20120710	0.0022 U	0.0011 U	--	**0.0053**	0.00086 U	0.0011 U	0.00099 U	0.00097 U	0.0025 U	**0.0042**	0.00031 U	0.0012 U	0.00093 U	0.00017 U	0.00029 U	0.00082 U	0.00036 U	0.00076 U	0.0003 U	0.00036 U	0.00027 U
WGL-SD-SD07-0912		20120910	0.0022 U	0.0011 U	--	**0.0038**	0.00085 U	0.0011 U	0.00098 U	0.00096 U	**0.0034**	0.0011 U	0.0002 U	0.00073 U	**0.004**	0.00011 U	0.00018 U	0.00051 U	0.00022 U	**0.0024**	0.00019 U	0.00023 U	0.00017 U
WGL-SD-SD07-1212		20121203	0.0033 U	0.0033 U	--	**0.0046**	0.0033 U	0.0033 U	0.0033 U	0.0033 U	**0.0049**	**0.0035**	0.0032 U	0.0032 U	**0.0073**	0.0032 U	0.0032 U	0.0032 U	0.0032 U	0.0032 U	0.0032 U	0.0032 UJ	0.0032 U
WGL-SD-SD07-0313		20130318	**0.021**	**0.0034**	--	**0.036**	0.00087 U	**0.014**	0.001 U	**0.018**	**0.014**	**0.034**	0.00019 UJ	**0.0095 J**	**0.029 J**	0.00011 UJ	0.00018 UJ	0.0005 U	0.00022 UJ	**0.0044 J**	0.00018 UJ	0.00022 UJ	0.00017 UJ
WGL-SD-SD07-0613		20130612	0.004 U	0.002 U	--	**0.15**	0.0016 U	**0.023**	0.0018 U	0.0018 U	**0.17**	**0.096**	0.0014 U	0.0054 U	0.0043 U	0.0008 U	0.0013 U	0.0037 U	0.0016 U	0.0035 U	0.0014 U	0.0017 U	0.0013 U
WGL-SD-SD07-0913		20130924	0.029 U	0.035 U	**0.17 J**	0.029 U	0.033 U	0.037 U	0.041 U	0.026 U	0.037 U	0.032 U	0.00034 U	**0.0017 J**	**0.0089**	0.00019 U	0.00031 U	0.00087 U	0.00038 U	0.00081 U	0.00032 U	0.00039 U	0.00029 U
WGL-SD-SD07-1213		20131217	0.15 U	0.18 U	0.14 U	0.15 U	0.17 U	0.19 U	0.21 U	0.13 U	0.19 U	0.16 U	0.0015 UJ	0.0054 UJ	**0.035 J**	0.00081 UJ	0.0014 UJ	0.0038 U	0.0017 UJ	0.0035 UJ	0.0014 UJ	**0.39 J**	0.0013 UJ
WGL-SD-SD07-0414	WGL-SD-07	20140423	0.0036 U	0.0018 U	--	**0.018**	**0.011**	0.0018 U	0.0016 U	**0.0088**	**0.034**	**0.012**	0.0016 UJ	0.006 UJ	**0.032 J**	0.0009 UJ	0.0015 UJ	0.0042 UJ	0.0018 UJ	0.0039 UJ	0.0016 UJ	0.0019 UJ	0.0014 UJ
WGL-SD-SD07-0614		20140611	**0.0055**	0.0011 U	--	**0.015**	0.00086 U	**0.0036 J**	0.00099 U	**0.008**	**0.0065**	**0.012**	0.00044 U	**0.0063**	**0.03**	0.00024 U	0.0004 U	0.0011 U	0.00049 U	**0.0048**	0.00042 U	0.0005 U	**0.0095**
WGL-SD-SD07-0914		20140924	0.0022 U	0.0011 R	--	**0.0034**	0.00087 U	0.0011 U	0.001 U	0.00098 U	0.0025 U	**0.0042**	0.00042 U	0.0016 U	0.0013 U	0.00023 U	0.00039 U	0.0011 U	0.00048 U	0.001 U	0.00041 U	0.00049 U	0.00037 U
WGL-SD-SD07-0415		20150407	**0.048 J**	**0.011 J**	--	**0.054 J**	0.0017 U	**0.012 J**	0.0019 U	**0.034 J**	0.0047 U	**0.036 J**	0.0013 UJ	0.0046 UJ	**0.086 J**	0.00069 UJ	0.0012 UJ	0.0032 U	0.0014 UJ	0.003 UJ	0.0012 UJ	0.0014 UJ	0.0011 UJ
WGL-SD-SD07-0915		20150923	**0.02 J**	**0.0044 J**	--	**0.057 J**	0.00087 U	**0.017 J**	0.001 U	**0.02 J**	**0.013 J**	**0.048 J**	0.00074 U	0.0027 U	**0.0052 J**	0.00041 U	0.00068 U	0.0019 U	0.00083 U	**0.0027 J**	0.00071 U	0.00084 U	0.00064 U
WGL-SD-SD07-0316		20160330	**0.062**	**0.014**	--	**0.098**	0.00087 U	**0.041**	0.001 U	**0.03**	**0.015 J**	**0.091**	0.00022 U	0.00083 U	0.00066 U	0.00012 U	0.00021 U	0.00058 U	0.00025 U	0.00054 U	0.00022 U	0.00026 U	0.00019 U
WGL-SD-SD07-0916		20160921	--	--	--	--	--	--	--	--	--	--	0.0014 U	0.0075 U	0.0179 U	0.0027 U	0.0007 U	0.0039 U	0.0015 U	0.0019 U	0.0008 U	0.0014 U	0.0014 U
WGL-SD07-0517		20170509	**0.019**	0.0089 U	--	**0.034**	0.0089 U	0.0089 U	0.0089 U	**0.014**	--	**0.03**	0.0031 U	0.0077 U	0.026 U	0.0031 U	0.0051 U	0.015 U	0.0031 U	0.0015 U	0.0015 U	0.0051 U	0.0015 U
WGL-SD-SD07-1017		20171024	**0.014**	0.0087 U	--	**0.028**	0.0087 U	**0.0044 J**	0.0087 U	**0.0097**	--	**0.022**	0.0036 UJ	0.0089 UJ	**0.024 J**	0.0036 UJ	0.0059 UJ	0.018 UJ	0.0036 UJ	0.0018 UJ	0.0018 UJ	0.0059 UJ	0.0018 UJ
WGL-SD07-052218		20180522	**0.079**	**0.014 J**	--	**0.11**	0.019 U	**0.029**	0.019 U	**0.044**	--	**0.11**	0.0034 U	**0.011 J**	**0.17 J+**	0.0034 U	0.0057 U	**0.0058 J**	0.0034 U	0.0017 U	0.0017 U	0.0057 U	**0.0021 J**
WGL-SD-SD08-1211		20111214	**0.096 J**	**0.019 J**	--	**0.12 J**	**0.0066 J**	**0.061 J**	**0.0078 J**	**0.07 J**	--	**0.2 J**	0.0016 UJ	**0.022 J**	**0.11**	0.0016 UJ	0.0016 UJ	0.002 UJ	0.0016 UJ	0.0082 U	0.0016 UJ	0.0016 UJ	0.0016 UJ
WGL-SD-SD08-0312		20120314	**0.078**	**0.018 J**	--	**0.12**	0.013 U	**0.068**	0.013 U	**0.037**	--	**0.1**	0.0016 UJ	**0.016 J**	**0.11 J**	0.0016 UJ	0.0016 U	0.0019 UJ	0.0016 UJ	0.0078 UJ	0.0016 UJ	0.0016 UJ	0.0016 UJ
WGL-SD-SD08-0712		20120710	**0.042**	**0.0055**	--	**0.088**	**0.006**	**0.022**	0.00098 U	**0.037**	**0.035**	**0.077**	0.00047 U	0.0017 U	0.0014 U	0.00026 U	0.00043 U	0.0012 U	0.00053 U	0.0011 U	0.00045 U	0.00054 U	0.00041 U
WGL-SD-SD08-0912		20120910	**0.097**	**0.014**	--	**0.15**	**0.0082**	**0.044**	0.00099 U	**0.084**	**0.0065**	**0.15**	0.00073 UJ	0.0027 UJ	0.0022 UJ	0.00041 UJ	0.00068 UJ	0.0019 U	0.00083 UJ	**0.0032 J**	0.00071 UJ	0.00084 UJ	0.00064 UJ
WGL-SD-SD08-1212		20121203	**0.064**	**0.0092**	--	**0.09**	**0.0061**	**0.035**	**0.011**	**0.04**	**0.0042**	**0.084**	0.0052 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U	0.0052 UJ	0.0052 U
WGL-SD-SD08-0313		20130318	**0.049**	**0.0046**	--	**0.051**	**0.0036**	**0.018**	0.001 U	**0.034**	**0.0042**	**0.052**	0.00022 U	**0.0042**	**0.01**	0.00012 U	0.00021 U	0.00058 U	0.00025 U	**0.0026 J**	0.00022 U	0.00026 U	0.00019 U
WGL-SD-SD08-0613		20130612	0.0042 U	**0.02**	--	**0.07**	0.0016 U	**0.019**	0.0019 U	**0.041**	**0.1**	**0.046**	0.0017 U	0.0063 U	0.005 U	0.00095 U	0.0016 U	0.0044 U	0.0019 U	0.0041 U	0.0016 U	0.002 U	0.0015 U
WGL-SD-SD08-0913		20130924	0.029 U	0.035 U	**0.19 J**	0.029 U	0.033 U	0.037 U	0.041 U	0.026 U	0.037 U	0.032 U	0.00042 U	0.0015 U	**0.0093**	0.00023 U	0.00039 U	0.0011 U	0.00047 U	0.001 U	0.0004 U	0.00048 U	0.00036 U
WGL-SD-SD08-1213		20131217	0.14 U	0.17 U	0.14 U	0.14 U	0.16 U	0.18 U	0.2 U	0.13 U	0.18 U	0.16 U	0.0019 UJ	0.0069 UJ	0.0055 UJ	0.001 UJ	0.0017 UJ	0.0048 U	0.0021 UJ	0.0045 UJ	0.0018 UJ	**0.48 J**	0.0016 UJ
WGL-SD-SD08-0414	WGL-SD-08	20140423	0.0041 U	0.002 U	--	**0.02**	**0.0084**	0.002 U	0.0019 U	**0.011**	**0.029**	**0.013**	0.0019 UJ	0.007 UJ	**0.11 J**	0.001 UJ	0.0017 UJ	0.0049 UJ	0.0021 UJ	0.0045 UJ	0.0018 UJ	0.0022 UJ	0.0016 UJ
WGL-SD-SD08-0614		20140611	**0.035**	**0.0049**	--	**0.076**	**0.0048**	**0.021 J**	0.00099 U	**0.024**	0.0025 U	**0.063**	0.00063 U	**0.011**	**0.043**	0.00035 U	0.00059 U	0.0016 U	0.00072 U	0.0015 U	0.00061 U	0.00073 U	0.00055 U
WGL-SD-SD08-0914		20140924	**0.03**	**0.0058 J**	--	**0.045**	0.00087 U	**0.015**	0.001 U	**0.025**	0.0025 U	**0.045**	0.00053 U	0.002 U	0.0016 U	0.0003 U	0.00049 U	0.0014 U	0.0006 U	0.0013 U	0.00051 U	0.00061 U	0.00046 U
WGL-SD-SD08-0415		20150407	**0.054 J**	**0.011 J**	--	**0.064 J**	0.0017 U	**0.013 J**	0.0019 U	**0.05 J**	**0.036 J**	**0.037 J**	--	--	--	--	--	--	--	--	--	--	--
WGL-SD-SD08-0915		20150923	**0.088 J**	**0.013 J**	--	**0.15 J**	**0.0051 J**	**0.048 J**	**0.0037 J**	**0.047 J**	**0.014 J**	**0.13 J**	0.00063 U	0.0023 U	0.0019 U	0.00035 U	0.00059 U	0.0016 U	0.00071 U	0.0015 U	0.00061 U	0.00073 U	0.00055 U
WGL-SD-SD08-0316		20160330	**0.063**	**0.012**	--	**0.11**	0.00087 U	**0.037**	0.001 U	**0.041**	**0.016 J**	**0.098**	0.00032 U	0.0012 U	0.00094 U	0.00018 U	0.00029 U	0.00082 U	0.00036 U	0.00077 U	0.00031 U	0.00036 U	0.00028 U
WGL-SD-SD08-0916		20160921	--	--	--	--	--	--	--	--	--	--	0.0017 U	0.0089 U	0.0212 U	0.0032 U	0.0008 U	0.0047 U	0.0018 U	0.0022 U	0.001 U	0.0017 U	0.0016 U
WGL-SD08-0517		20170509	**0.045**	**0.006 J**	--	**0.068**	0.009 U	**0.0096**	0.009 U	**0.026**	--	**0.06**	0.003 U	0.0076 U	0.025 U	0.003 U	0.0051 U	0.015 U	0.003 U	0.0015 U	0.0015 U	0.0051 U	0.0015 U
WGL-SD-SD08-1017		20171024	**0.13**	0.087 U	--	**0.2**	0.087 U	0.087 U	0.087 U	**0.069 J**	--	**0.19**	0.0031 U	0.0077 U	0.026 U	0.0031 U	0.0051 U	0.015 U	0.0031 U	0.0015 U	0.0015 U	0.0051 U	0.0015 U
WGL-SD08-052218		20180522	**0.035**	0.018 U	--	**0.047**	0.018 U	**0.013 J**	0.018 U	**0.02**	--	**0.048**	0.0036 U	0.0089 U	**0.28 J+**	0.0036 U	0.0059 U	**0.012 J**	0.0036 U	0.0018 U	0.0018 U	0.0059 U	0.0018 U

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APPENDIX B-4
SITE INSPECTION REPORT AND PHOTOGRAPHS

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Five-Year Review Site Inspection Checklist

I. SITE INFORMATION	
Site name: IR Site 1 – West Gate Landfill, OU 1	**Date of inspection: 12/4/18**
Location and Region: Former NAS South Weymouth, Weymouth, MA	**EPA ID: MA2170022022**
Agency, office, or company leading the five-year review: Tetra Tech	**Weather/temperature: Sunny, 38°F**
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_wetland restoration, post-closure LTM and O&M. ______	
Attachments: ☐ Inspection team roster attached X 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.

See Report.

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 onsite but the O&M manual and O&M facility inspection reports 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 — X 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____________________

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________ Date	To________ Date	________ Total cost	☐ Breakdown attached
From________ Date	To________ Date	________ Total cost	☐ Breakdown attached
From________ Date	To________ Date	________ Total cost	☐ Breakdown attached
From________ Date	To________ Date	________ Total cost	☐ Breakdown attached
From________ Date	To________ Date	________ Total cost	☐ Breakdown attached

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__

B. Other Access Restrictions

1. **Signs and other security measures** X Location shown on site map ☐ N/A
Remarks__Signage was present and in good condition. See attached site map.__________

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
___Annual LUC inspections have been conducted in accordance with the LUCIP and documented in annual LUC monitoring reports prepared by Navy contractors. The most recent inspection was performed by Tetra Tech on 1/4/19 and stated the Site is compliant with the LUC objectives._

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___Yes, the areas north and northeast of the WGL have been transferred from the Navy and consist of condominiums._

VI. GENERAL SITE CONDITIONS

A. Roads X Applicable ☐ N/A

1. **Roads damaged** ☐ Location shown on site map X Roads adequate ☐ N/A
Remarks____Access roads appeared in good/adequate condition. Some areas of ponded water in access road observed (see site map). The annual mowing event and maintenance were in progress at the time of the site inspection. Re-graveling of the access roads is to be completed as a maintenance action item.
______

B. Other Site Conditions

Remarks _Maintenance and annual mowing of landfill cover were in progress at the time of the inspection. The mowing had not yet started due to wet conditions but vegetation within 2 feet of the wood guard rail had been removed at the time of the inspection. Vegetation on cap is well established and was approximately 1 to 3 feet high at the time of the inspection. One small area of bare soil was observed on the southeastern portion of the cap (see site map). Minor erosion of rip rap along the southern perimeter was observed. All gas vents and gas probes observed to be in good condition and secured except LFG-08 needs to be modified so top of casing can be flush and secured/locked. Some ponding of water observed in access road but access road scheduled to be re-graveled as part of upcoming maintenance event. No ruts observed on landfill cap.

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 X Cover properly established X No signs of stress
☐ Trees/Shrubs (indicate size and locations on a diagram)
Remarks__1-3 ft high at time of inspection. Mowing event scheduled for following week due to wet conditions.

6. **Alternative Cover (armored rock, concrete, etc.)** ☐ N/A
Remarks____

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__Ponding of water observed on access road (see site map).

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 ☐ N/A or okay Remarks____
2.	**Bench Breached** ☐ Location shown on site map ☐ N/A or okay Remarks____
3.	**Bench Overtopped** ☐ Location shown on site map ☐ N/A or okay Remarks____
C. Letdown Channels	☐ Applicable X 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 ☐ No evidence of settlement Areal extent______________ Depth____________ Remarks____
2.	**Material Degradation** ☐ Location shown on site map ☐ No evidence of degradation Material type_______________ Areal extent_____________ Remarks____
3.	**Erosion** ☐ Location shown on site map ☐ No evidence of erosion Areal extent______________ Depth____________ Remarks____

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

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

6. **Excessive Vegetative Growth** Type____________________
☐ 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
X 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 X Needs Maintenance ☐ N/A
Remarks_LFG -08 needs to be modified so top of casing can be secured._________________

3. **Monitoring Wells** (within surface area of landfill)
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance X N/A
Remarks_There are no monitoring wells within the surface of the landfill.

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_Small area (2x2 ft) of bare soil observed in southeastern corner of landfill cap (see site map).

4. **Discharge Structure** X Functioning ☐ N/A
Remarks___Discharge structures include perimeter riprap and north and south level spreaders._____

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

E. Monitored Natural Attenuation
1. **Monitoring Wells** (natural attenuation remedy) ☐ Properly secured/locked X Functioning X Routinely sampled X Good condition ☐ All required wells located ☐ Needs Maintenance ☐ N/A Remarks__Could not locate monitoring wells located in the wetland area south of the site due to high surface water levels at the time of the site inspection.
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.
B. Adequacy of O&M
Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy. The landfill cap and other remedy components were observed to be in good condition and adequately maintained at the time of the inspection._The annual mowing event was in process at the time of the inspection.

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. __See Report.____
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. _See Report.____

Date: 12/4/2018 Picture No. 1 Location: WGL
Comment: Access road leading to access gate

Date: 12/4/2018 Picture No. 2 Location: WGL
Comment: Area north of site consists of Trotter Rd and Woodstone condominiums

Date: 12/4/2018 Picture No. 3 Location: WGL
Comment: Small area of bare soil located in southeast corner of WGL cap

Date: 12/4/2018 Picture No. 4 Location: WGL
Comment: GV-2 and warning sign

Date: 12/4/2018 **Picture No.** 5 **Location:** WGL
Comment: LFG-08 cannot lock, needs to be modified so top sits flush with casing

Date: 12/4/2018 **Picture No.** 6 **Location:** WGL
Comment: LFG-10 cap not secured to casing

Date: 12/4/2018 **Picture No.** 7 **Location:** WGL
Comment: Minor erosion of riprap and exposed geotextile observed along southern perimeter of WGL

Date: 12/4/2018 **Picture No.** 8 **Location:** WGL
Comment: View of MW-901S and 901D and LFG-01

Date: 12/4/2018 Picture No. 9 Location: WGL
Comment: View of MW-902

Date: 12/4/2018 Picture No. 10 Location: WGL
Comment: View of MW-903S and 903D

Date: 12/4/2018 Picture No. 11 Location: WGL
Comment: View of North Level Spreader

Date: 12/4/2018 Picture No. 12 Location: WGL
Comment: View of MW103 with wooden guard rail and surrounding vegetation (Japanese Knotweed)

Date: 12/4/2018 **Picture No.** 13 **Location:** WGL

Comment: Sign located on wooden guard rail along southeast portion of WGL

Date: 12/4/2018 **Picture No.** 14 **Location:** WGL

Comment: Signage located next to access gate

Date: 12/4/2018 **Picture No.** 15 **Location:** WGL

Comment: Some ponding of surface water observed along access road in southeast corner of perimeter

Date: 12/4/2018 **Picture No.** 16 **Location:** WGL

Comment: View of South Level Spreader, high surface water levels

Date: 12/4/2018 Picture No. 17 Location: WGL
Comment: South Level Spreader, looking south

Date: 12/4/2018 Picture No. 18 Location: WGL
Comment: Southwest portion of WGL perimeter and view of riprap and peastone, looking southeast

Date: 12/4/2018 Picture No. 19 Location: WGL
Comment: View of WGL cap area and vegetation, looking north

Date: 12/4/2018 Picture No. 20 Location: WGL
Comment: View of access path along northern perimeter of WGL, looking west

Date: 12/4/2018 Picture No. 21 Location: WGL
Comment: View of access road leading to GV01, looking southwest

Date: 12/4/2018 Picture No. 22 Location: WGL
Comment: View of access road on eastern perimeter of WGL, looking south

Date: 12/4/2018 Picture No. 23 Location: WGL
Comment: View of condominiums located northeast of WGL

Date: 12/4/2018 Picture No. 24 Location: WGL
Comment: View of French Stream and culvert

Date: 12/4/2018 Picture No. 25 Location: WGL
Comment: View of LFG-07

Date: 12/4/2018 Picture No. 26 Location: WGL
Comment: View of western access road and riprap, looking northeast

Date: 12/4/2018 Picture No. 27 Location: WGL
Comment: View of WGL cap area, looking northeast across cap

Date: 12/4/2018 Picture No. 28 Location: WGL
Comment: View of WGL cap from western perimeter, looking east

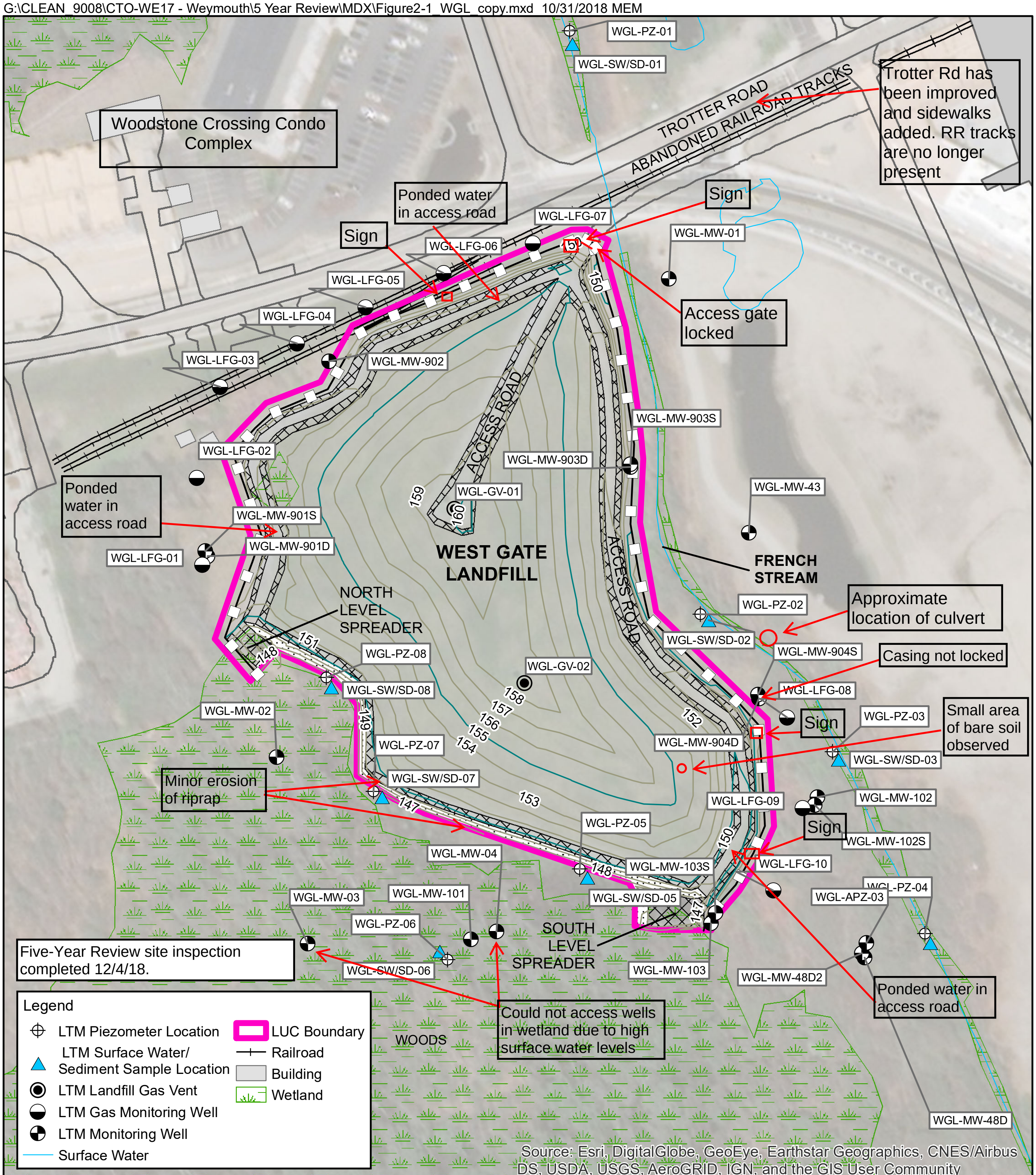
Date: 12/4/2018 Picture No. 29 Location: WGL
Comment: Wetland area along southwest perimeter of WGL

Date: 12/4/2018 Picture No. 30 Location: WGL
Comment: View of WGL Access Gate, locked

Date: 12/4/2018 Picture No. 31 Location: WGL
Comment: Wooden guard rail on northern perimeter of WGL, looking west

Date: 12/4/2018 Picture No. 32 Location: WGL
Comment: Wooded guard rail on eastern side of WGL

G:\CLEAN_9008\CTO-WE17 - Weymouth\5 Year Review\MDX\Figure2-1_WGL_copy.mxd 10/31/2018 MEM



NAVFAC

Drawn:	MEM	10/31/2018
Approved:	JC	10/31/2018
Project #:	112G08005-WE17	

N

0 75 150 Feet

FIGURE 2-1
IR PROGRAM SITE 1
WEST GATE LANDFILL
THIRD FIVE-YEAR REVIEW

FORMER NAVAL AIR STATION
SOUTH WEYMOUTH

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APPENDIX B-5
ARAR TABLES

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APPENDIX F – ARAR TABLES

Media	Requirement	Requirement Synopsis	Action to be Taken to Attain Requirement	Status
Federal – Location Specific				
Wetlands	National Environmental Policy Act (NEPA) Executive Order (EO) 11988, 40 CFR Part 6, Appendix A	These regulations contain the procedures for complying with the executive order on wetland protection (EO 11990). Under this order, federal agencies are required to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance natural and the beneficial values of wetlands. Requires that no remedial alternative adversely affect a wetland if another practicable alternative exists. If no such alternative exists, impacts from implementation must be mitigated.	Appropriate federal agencies would be contacted and allowed to review the proposed work plan for the remedial action prior to implementation of the action. Remedial activities would be scheduled and designed to minimize harm to the wetlands to the extent possible, and any adverse impacts would be mitigated through wetland restoration.	Applicable
Wetlands	Fish and Wildlife Coordination Act Regulations 33 CFR Part 320.3	Requires that the U.S. Fish and Wildlife Services and National Marine Fisheries Service be consulted prior to structural modification of any stream or other water body (i.e., wetland). It also requires adequate protection of fish and wildlife resources. Requires consultation with state agencies to develop measures to prevent, mitigate, or compensate for project-related losses to fish and wildlife.	Actions taken would minimize adverse impacts to fish and wildlife. Relevant federal and state agencies would be contacted and allowed to review the proposed work plan for the remedial action prior to implementation of the action.	Relevant and Appropriate
Wetlands	US Army Corps of Engineers, New England District (USACE-NAE) Mitigation Guidance	This guidance provides measures depicting *Mitigation Special Conditions, Sample Monitoring Report and Checklist for Review of Mitigation Plan*.	Because this action may cause wetland disruption, this guidance would be implemented during restoration efforts.	To Be Considered
Floodplains	NEPA Floodplain Management – EO 11988, 40 CFR Part 6, Appendix A	Appendix A sets forth policy for carrying out the executive order on Floodplain Management (EO 11988). EO 11988 requires that a cleanup in a floodplain not be performed unless a determination is made that no practicable alternative exists. If no practicable alternative exists, potential harm must be minimized and action taken to restore and preserve the natural and beneficial values of the floodplain.	If a remedial alternative consists of an action in the floodplains of the French Stream, these regulations would be triggered. Appropriate federal agencies would be contacted and allowed to review the proposed work plan for the remedial action prior to implementation of the action. Remedial activities would be scheduled and designed to minimize harm to the flood plains to the extent possible.	Applicable
Water	Clean Water Act (CWA) 404 (b) (1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material	Section 404 of the CWA regulates the discharge of dredged or fill material into U.S. waters, including wetlands. The purpose of section 404 is to ensure that proposed discharges are evaluated with respect to impacts on the aquatic ecosystem. No activity that adversely affects a wetland is permitted if a practicable alternative that has less effect is available. If there is no other practicable alternative, impacts must be mitigated.	Remedial activities could involve dredged or fill material discharge to wetlands. Under this alternative, there is no practical alternative to this discharge; however any adverse impacts would be mitigated.	Applicable

Media	Requirement	Requirement Synopsis	Action to be Taken to Attain Requirement	Status
Federal – Location Specific(cont.)				
Water	Rivers and Harbors Act Section 10, 33 U.S.C. 403, 33 CFR Parts 320- 323	Section 10 of the Rivers and Harbors Act is implemented through a federal regulatory program administered by the U.S. Army Corps of Engineers (USACOE). It covers dredging, filling, excavation and placement of structures in all wetlands, tidal waters and navigable freshwaters.	Actions taken would minimize adverse impacts to the nearby French Stream and comply with the environmental standards in 33 CFR Parts 320-323. Relevant federal and state agencies would be contacted and allowed to review the proposed work plan for the remedial action prior to implementation of any action that may impact the stream.	Relevant and Appropriate
State – Location Specific				
Wetlands	MA Wetland Protection Regulations 310 CMR 10.00	These regulations govern activities in freshwater wetlands, 100-year floodplains, and 100-foot buffer zones beyond such areas. Regulated activities include certain types of construction and excavation activities. Performance standards are provided and include evaluating the acceptability of various activities. The MA Wetland Protection program also is used to coordinate with the *Massachusetts Natural Heritage and Endangered Species Program* regarding the presence of rare wetlands wildlife, such as the spotted turtle (state-listed species of special concern). If a proposed project is determined to alter a resource area which is part of the habitat of a state-listed species, MAWPA regulations (310 CMR 10.59) state that this project “shall not be permitted to have any short or long term adverse effects on the habitat of the local population of this species.”	Because remedial activities may include construction in wetlands, they would be performed in compliance with the performance standards of these requirements. Any disturbance of a wetland would be restored.	Applicable
Endangered species	MA Endangered Species Act Regulations (MESA) 321 CMR 10.00	These regulations prohibit the "taking" of any rare plants or animals listed as Endangered, Threatened, or Special Concern by the MA Division of Fisheries & Wildlife. Northern Harrier, which is a threatened species, have been observed in the vicinity of the site. They also protect designated "significant habitats." "Significant habitat" can be designated for Endangered or Threatened species populations after a public hearing process.	Environmental surveys would be performed to identify habitats and evidence of endangered species. Precautions to prevent impacts to identified habitats and species would be imposed during site activities.	Applicable
Federal – Action Specific				
Waste	EPA OSWER Publication 9345.3 – 03 FS	Management of wastes generated during remedial activities must ensure protection of human health and the environment	Because this alternative involves groundwater monitoring, wastes that may be produced during groundwater sampling would be managed in accordance with this guidance.	To Be Considered
Landfill	Presumptive Remedy for CERCLA Municipal Landfill Sites PB93-963339, September 1993	Guidance for complying with federal and state closure requirements, including cover material options and other site controls.	Because landfill capping would be implemented, this TBC would be achieved.	To Be Considered

Media	Requirement	Requirement Synopsis	Action to be Taken to Attain Requirement	Status
Federal – Action Specific (cont.)				
Landfill	Application of the CERCLA Municipal Landfill Presumptive Remedy to Military Landfills PB96-963314, December 1996	Guidance for applying the municipal landfill presumptive remedy guidance (PB93- 963339) to military bases where domestic, industrial, and other types of wastes may have been disposed of in a designated area or landfill.	Because landfill capping would be implemented, this TBC would be achieved.	To Be Considered
Landfill	PCB Megarule and TSCA Regulations 40 CFR Part 761.61(a)(7)	Capping requirements that include permeability, sieve, liquid limit, and plasticity.	Cap would be designed to comply with this ARAR.	Applicable
Surface Water	Federal Ambient Water Quality Criteria (AWQC) 33 USC 1314(a); 40 CFR Part 122.44	Federal AWQCs include (1) criteria for protection of human health from toxic properties of contaminants ingested through drinking water and aquatic organisms, and (2) criteria for protection of aquatic life.	Contaminant concentrations in French Stream and the associated wetlands would be measured during monitoring to determine whether water quality is being impacted by site activities, and to ensure that AWQCs are being met.	Relevant and Appropriate
State – Action Specific				
Landfill	MA Solid Waste Management Landfill Final Cover Systems 310 CMR 19.112	These are requirements for landfill final cover systems, including the performance standards and design criteria for cover system components.	This remedial alternative would meet the design and performance standards and include the cover system components outlined in these requirements.	Applicable
Landfill	MA Solid Waste Management Storm Water Controls 310 CMR 19.115	These are requirements for storm water controls based on performance standards and design criteria.	This remedial alternative would meet the design and performance standards of these requirements.	Applicable
Landfill	MA Solid Waste Management Environmental Monitoring Requirements 310 CMR 19.132	These are regulations for surface water and groundwater monitoring, including frequency, quality, reporting, analytical parameters, and mitigation protocols. Also includes leak detection, and supplemental systems (e.g., gas and leachate control) as necessary.	This alternative includes long-term monitoring. Gas and leachate control are not considered practical since the refuse is located within the saturated zone. This remedial alternative would meet the surface and ground water monitoring requirements of these regulations.	Applicable
Landfill	MA Solid Waste Management Landfill Closure Requirements 310 CMR 19.140	These are regulations related to the closure of landfills.	This remedial alternative would meet the substantive closure requirements of these regulations.	Applicable
Landfill	MA Solid Waste Management Landfill Post-Closure Requirements 310 CMR 19.142	These are regulations for site maintenance and monitoring during the post-closure period to ensure the integrity of the closure measure as well as to detect and prevent any adverse affects to human health and the environment.	This remedial alternative would meet the substantive post-closure requirements of these regulations.	Applicable
Surface Water	MA Surface Water Quality Standards 314 CMR 4.00	These regulations limit or prohibit discharges of pollutants to surface waters to ensure that the surface water quality standards of the receiving waters are protected and maintained or attained.	Contaminant concentrations in French Stream and the associated wetlands would be measured during monitoring to determine whether or not water quality is being impacted site activities, and to ensure that state water quality standards are being met.	Relevant and Appropriate

Media	Requirement	Requirement Synopsis	Action to be Taken to Attain Requirement	Status
State – Action Specific (cont.)				
Water	MA Standards for Analytical Data for Remedial Response Action Bureau of Waste Site Cleanup Policy 300-89	This policy describes the minimum standards for analytical data submitted to the MADEP.	Because this remedial action includes a long-term monitoring, the analytical methods provided in this policy would be considered.	To Be Considered
Air	MA Air Pollution Control Regulations 310 CMR 7.09	These regulations establish the standards and requirements for air pollution control in the Commonwealth. Section 7.09 contains requirements relevant to dust, odor, construction and demolition.	Any emissions of fugitive dust will be managed through engineering and other controls during remedial activities.	Applicable
Federal – Chemical Specific				
Waste	PCB Megarule and TSCA Regulations 40 CFR Part 761.61	Regulations governing the management of PCB remediation waste. Applicability determined by the type of PCB-impacted material encountered, total PCB concentration, source, source concentration, and release date. Cleanup levels derived using a self-implementing, performance-based or risk-based approach.	This remedial alternative would meet the cleanup standards of this regulation.	Applicable

APPENDIX C
RUBBLE DISPOSAL AREA

C-1 SITE CHRONOLOGY
C-2 BACKGROUND
C-3 SURFACE WATER AND SEDIMENT RESULTS
C-4 SITE INSPECTION REPORT AND PHOTOGRAPHS
C-5 ARAR TABLES

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APPENDIX C-1
SITE CHRONOLOGY

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APPENDIX C-1

TABLE C-1: CHRONOLOGY OF SITE EVENTS, IR PROGRAM SITE 2 – RUBBLE DISPOSAL AREA

RDA Event	Date
RDA is used for the disposal of large natural debris (boulders, stumps)	1959 - 1962
Building debris from Building 21, destroyed by a fire, is placed in the RDA	1978
PA performed by Argonne National Laboratory	March 1988
SI completed by Baker Environmental, Inc.	December 1991
NAS South Weymouth is placed on the NPL	May 1994
Phase I RI conducted by Brown & Root Environmental	1995 - 1996
RDA Phase I RI Study completed by B&R Environmental and ENSR	1998
Additional assessment of PCBs in the northeastern portion of the RDA	2000
RDA Phase II RI completed by Tetra Tech NUS and ENSR	January 2001
FS completed by Tetra Tech NUS and ENSR	March 2002
Rare Turtle Oversight Monitoring Program	April 2003 - November 2004
PDI completed	June 2003
Final Design Analysis Report	July 2003
ROD signed	December 2003
Remedial construction activities, installation of landfill soil cap	April 8, 2004 - December 2, 2005
Removal of PCB impacted material from adjacent wetland area completed	June 9, 2004
Removal of PCB impacted material from upland area completed	August 12, 2004
Wetland restoration activities conducted	September 15 - October 22, 2004
Final inspection of original construction performed with EPA, MassDEP, and the Navy	October 28, 2004
Final inspection of PCB hotspot cap construction performed with EPA, MassDEP, and the Navy	December 8, 2005
O&M activities (facility inspections, settlement surveys, etc.)	On-going
LTM QAPP	March 2007
LTM First Round, 2007 conducted	March 2007
LTM Second Round, 2007 conducted	June 2007
LTM Third Round, 2007 conducted	September 2007
Fall 2007 Post-Remediation Wetland Inspection	November 2007
LTM Fourth Round, 2007 conducted	December 2007
LTM First Round, 2008 conducted	April 2008
Spring 2008 Post-Remediation Wetland Inspection	June 2008

APPENDIX C-1

TABLE C-1: CHRONOLOGY OF SITE EVENTS, IR PROGRAM SITE 2 – RUBBLE DISPOSAL AREA

RDA Event	Date
LTM Second Round, 2008 conducted	June 2008
LTM Third Round, 2008 conducted	September 2008
LTMP, Revision 2	October 2008
Fall 2008 Post-Remediation Wetland Inspection	November 2008
Small Mammal Sampling Event conducted	November 2008
LTM Fourth Round, 2008 conducted	December 2008
LTM Spring Semi-Annual Round, 2009 conducted	March 2009
Spring 2009 Post-Remediation Wetland Inspection	June 2009
Revision to LTMP and QAPP	July 2009
Fall 2009 Post-Remediation Wetland Inspection	September 2009
LTM Fall Semi-Annual Round, 2009 conducted	September 2009
LUCIP, finalized	October 2009
First Annual LUC Inspection, 2009 conducted	December 2009
LTM Spring Semi-Annual Round, 2010 conducted	March 2010
LTM Fall Semi-Annual Round, 2010 conducted	September 2010
Spring 2010 Post-Remediation Wetland Inspection	June 2010
Supplemental Landfill Gas Investigation conducted	June 2010 - September 2010
ESD, 2010 (Monitored Natural Attenuation [MNA] & Revised LUC Boundary)	August 2010
Fall 2010 Post-Remediation Wetland Inspection	September 2010
Addendum to LUCIP	September 2010
Second Annual LUC Inspection, 2010 conducted	September 2010
Revision to LTMP and QAPP	March 2011
LTM Spring Semi-Annual Round, 2011 conducted	March 2011
Spring 2011 Created Wetland Stem Count	June 2011
Supplemental Landfill Gas Investigation Report	December 2011
LTM Fall Semi-Annual Round, 2011 conducted	September 2011
Third Annual LUC Inspection, 2011 conducted	September 2011
ESD, 2012 (Parkway)	February 2012
LTM Spring Semi-Annual Round, 2012 conducted	May 2012
LTM Fall Semi-Annual Round, 2012 conducted	September 2012
Fourth Annual LUC Inspection, 2012 conducted	September 2012
Revision to Post Closure Maintenance and Environmental Monitoring Plan	April 2013

APPENDIX C-1

TABLE C-1: CHRONOLOGY OF SITE EVENTS, IR PROGRAM SITE 2 – RUBBLE DISPOSAL AREA

RDA Event	Date
LTM Spring Semi-Annual Round, 2013 conducted	May 2013
LTM Fall Semi-Annual Round, 2013 conducted	September 2013
Fifth Annual LUC Inspection, 2013 conducted	September 2013
Corrective Action – Landfill Gas (wick drain installation)	October - November 2013
LTM Spring Semi-Annual Round, 2014 conducted	May 2014
LTM Fall Semi-Annual Round, 2014 conducted	September 2014
Sixth Annual LUC Inspection, 2014 conducted	September 2014
LTM Spring Semi-Annual Round, 2015 conducted	May 2015
LTM Fall Semi-Annual Round, 2015 conducted	September 2015
Seventh Annual LUC Inspection, 2015 conducted	September 2015
Final Remedial Action Completion Report (RACR)	February 2016
LTM Spring Semi-Annual Round, 2016 conducted	May 2016
Memo for the Record Documentation of Administrative Change to the LTM Facility Inspection, LUC Inspection and Mowing Schedules for WGL and RDA	July 2016
LTM Fall Semi-Annual Round, 2016 conducted	September 2016
Eighth Annual LUC Inspection, 2016 conducted	November 2016
LTM Spring Semi-Annual Round, 2017 conducted	May 2017
LTM Fall Semi-Annual Round, 2017 conducted	September 2017
Ninth Annual LUC Inspection, 2017 conducted	November 2017
LTM Spring Semi-Annual Round, 2018 conducted	May 2018
LTM Fall Semi-Annual Round, 2018 conducted	October 2018
First Annual Basewide PFOS and PFOA LUC Inspection, 2018	December 2018
Annual LUC Inspection, 2018	January 2019

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APPENDIX C-2
BACKGROUND

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APPENDIX C-2
SITE BACKGROUND
IR PROGRAM SITE 2 – RUBBLE DISPOSAL AREA

Physical Characteristics

The RDA is a closed and capped landfill covering approximately 4 acres in the northeastern portion of the NAS South Weymouth property, east of Runway 8-26 (Figure 3-1). An access road and a parkway (Bill Delahunt Parkway) (constructed as part of the Base redevelopment efforts) are located to the north and west of the Site; forested uplands and palustrine wetlands border the Site to the south and east, respectively. Regional groundwater flow is generally east-southeast, towards the wetlands and Old Swamp River.

The wetlands border Old Swamp River which flows to the north along the north end of the landfill. A small intermittent stream, known as the Feeder Stream or the southern Downgradient Water Course, forms the south-southwestern boundary of the RDA. This stream enters the palustrine wetland and flows north along the Site prior to discharging into Old Swamp River (Tetra Tech NUS, 2007a).

The RDA is now covered by a vegetated soil cap. A locked, metal swing gate is located at the landfill entrance to the west. A 3.5 foot high wooden post and rail fence and storm water controls consisting of drainage swales and slope protection rip-rap enclose the landfill.

According to the Phase II RI report (Tetra Tech NUS, 2001a), the geology is relatively consistent throughout the Site, with fill material overlying glacial and post-glacial deposits. The fill material is underlain by varying quantities of shallow sediments, organic peat, fluvial sand and gravel, lacustrine delta/beach deposits, and glacial till. Tetra Tech NUS observed similar materials beneath the Site during installation of groundwater monitoring wells in 2007 as part of the long-term monitoring activities.

Land and Resource Use

The RDA has not been active since 1978, and the area adjacent to the RDA has not been used for any operational purposes since closure of the Base in 1997 (Navy, 2003b).

Currently, the majority of the RDA is zoned for Open Space – Rockland District (OS-R) with a small northern portion zoned as Mixed-Use Village District (MUVD). According to the Zoning and Land Use By-Laws for NAS South Weymouth (SSTTDC, 2005), this open space is intended for park land, active and passive recreation, reservations, community gardens, rivers and streams, and similar uses. The construction of the Bill Delahunt Parkway was completed in 2013. Alterations to the post and rail fence and perimeter drainage swale as well as removal and replacement of some monitoring wells and sampling locations were made to allow construction of a portion of the Parkway. These changes were documented in an ESD completed in 2012 (Navy, 2012).

The eastern box turtle has been found in the upland and wetland areas of the RDA as well as along the stream banks of Old Swamp River. The eastern box turtle is not a federally threatened or endangered species but is afforded protection under the Massachusetts Wetlands Protection Act (M.G.L. c. 131, s.40) and the Massachusetts Endangered Species Act (M.G.L. c. 131A) as Species of Special Concern.

History of Contamination

Between 1959 and 1962, the RDA was used for the disposal of large natural debris, such as boulders and tree stumps, that were unsuitable as base-material for construction of the nearby Old Swamp River bridge. In 1978, building debris from Building 21, which was destroyed by fire, was placed in the RDA. In addition, there have been unofficial reports that transformers, transformer components, or transformer fluids were disposed of at the RDA. Materials observed at the Site during environmental investigations included glass, insulation material, concrete, scrap metal, wire, asphalt, rubber, fabric, boulders, wood, arresting gear strapping, and metal drum fragments. There are no records of hazardous wastes, regulated under Subtitle C of the RCRA, being disposed of at the RDA (Navy, 2003b).

APPENDIX C-2
SITE BACKGROUND
IR PROGRAM SITE 2 – RUBBLE DISPOSAL AREA

Initial Response

The Navy has been conducting environmental investigations at the NAS South Weymouth property since 1988 through its IR Program (B&R Environmental, 1998). A PA was performed by Argonne National Laboratory in 1988 (Argonne, 1988). Due to the findings of the PA, Baker Environmental, Inc. conducted a SI of eight sites, including the RDA, which was completed in 1991. The SI recommended that the RDA be further studied under the IR program as part of an RI.

The Phase I RI was completed by B&R Environmental in 1996. Based on results of the Phase I RI, a Phase II RI was conducted in 2001. In 2002, the Navy prepared an FS to identify the remedial action objectives for the Site, and to identify and evaluate cleanup alternatives to achieve the objectives (Navy, 2003b).

APPENDIX C-3

SURFACE WATER AND SEDIMENT RESULTS

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Sample ID	Location ID	Sample Date	DISSOLVED METALS (UG/L)																	
			ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE	MERCURY	NICKEL	POTASSIUM	SELENIUM
PALs			87	NC	150	NC	NC	0.25	NC	11	NC	9	1000	2.5	NC	NC	0.77	52	NC	5
RDA-SW-SW01-0607	RDA-SW01	20070613	100 UJ	1 U	1 U	**183 J**	1 U	1 U	**167000**	3 UJ	1 U	1 U	**25100 J**	1 UJ	**10900**	**2920**	0.2 U	**3.1 J**	**10200 J**	1 U
RDA-SW-SW01-0907		20070913	100 U	1 U	1 U	**184**	1 U	1 U	**172000**	3 U	1 U	1 U	**17000**	1 U	**11400**	**3120**	0.2 U	**3.7**	**10400**	1 U
RDA-SW-SW01-1207		20071205	100 U	1 U	1 U	**179**	1 U	1 U	**268000**	3 U	1 U	1 U	**35900**	1 U	**18800**	**5710**	0.2 U	**4.3**	**13600**	1 UJ
RDA-SW-SW01-0408		20080408	**29.8 J**	0.26 UJ	0.181 U	**171**	0.073 U	0.052 U	**190000**	0.764 UJ	**0.398 J**	**0.501 J**	**26600**	**0.123 J**	**13800**	**3900**	0.03 U	**4.4**	**9420**	0.231 U
RDA-SW-SW01-0608		20080611	100 U	1 U	1 U	**200**	1 U	1 U	**199000**	2 U	1 U	1 U	**15500 J**	1 U	**14900**	**3900**	0.2 U	**3.2**	**11600**	2 U
RDA-SW-SW01-0908		20080908	65.2 U	0.256 UJ	0.311 U	**238**	0.021 U	0.027 UJ	**217000**	0.579 UJ	**0.427 J**	0.641 U	**17700**	0.052 UJ	**15400**	**4130**	0.027 U	**3.9**	**11800**	**0.154 J**
RDA-SW-SW01-1208		20081209	65.2 U	0.232 UJ	0.311 U	**204**	0.021 U	0.027 UJ	**232000**	0.354 UJ	0.358 UJ	0.641 U	**32800**	0.073 UJ	**17000**	**5030**	0.027 U	2.8 UJ	**11500**	**0.328 J**
RDA-SW-SW01-0309		20090310	7 UJ	1.3 UJ	**0.39**	**101 J**	0.011 UJ	0.027 U	**120000**	**0.4 J**	**0.29 J**	1.1 UJ	**12900 J**	0.049 UJ	**8780**	**2440**	0.016 UJ	0.59 UJ	**6560**	0.23 UJ
RDA-SW-SW01-0909		20090914	**111 J**	0.21 UJ	1.5 U	**230**	0.09 U	0.06 UJ	**216000**	0.86 UJ	0.4 UJ	0.97 UJ	**21600**	0.09 UJ	**16600**	**5420**	**0.03 J**	**0.35 J**	**12400**	2.4 UJ
RDA-SW-SW01-0310		20100318	**17.8 J**	5 U	5 UJ	**55 J**	0.5 U	3 U	**66300**	0.66 UJ	**0.31 J**	**0.82 J**	**6620 J**	0.22 UJ	**5710**	**1570 J**	0.1 UJ	**1.3 J**	**3970**	**0.94 J**
RDA-SW-SW01-0910		20100916	100 U	5 U	5 U	**223**	0.2 U	3 U	**239000**	2 UJ	**0.45 J**	2 UJ	**12000**	0.5 U	**19500**	**5240**	0.1 U	1.5 UJ	**13800**	3 UJ
RDA-SW-SW01-0311		20110314	40 UJ	0.5 UJ	**3.5 J**	**168**	0.2 U	**0.03 J**	**179000**	2 UJ	**0.82 J**	2 UJ	**27500**	**0.14 J**	**14800 J**	**4560**	0.1 UJ	**2.1 J**	**9530**	**1.8 J**
RDA-SW-SW01-0911		20110906	40 UJ	0.5 UJ	4 U	**196**	0.2 U	**0.35 J**	**213000**	4 UJ	**0.46 J**	**0.9 J**	**9760**	2.9 U	**17900**	**4470**	0.1 UJ	**1.7 J**	**12600**	3 UJ
RDA-SW-SW01-52012		20120501	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW01-0912		20120906	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW01-0313		20130319	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW01-0414		20140424	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW01-0415		20150409	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW01-0316		20160331	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW01-0517		20170515	29 U	1.5 U	3 U	**110**	0.4 U	0.4 U	**110000**	4 U	**0.35 J**	4 U	**20000**	2.5 U	**7200**	**3800**	0.2 U	5 U	**6900**	2.5 U
RDA-SW01-052318		20180523	50 U	1.5 U	3 U	**28**	0.4 U	0.4 U	**79000**	4 U	0.3 U	4 U	**340**	2.5 U	**9200**	**230**	0.2 U	5 U	**9000**	2.5 U
RDA-SW-SW02-0607	RDA-SW02	20070612	100 UJ	1 U	1 U	**65.2 J**	1 U	1 U	**53100**	3 UJ	1 U	**4.7**	**5120 J**	1 UJ	**6860**	**7410**	0.2 U	**2 J**	2000 UJ	1 U
RDA-SW-SW02-0907		20070912	100 U	1 U	1 U	**54.3**	1 U	1 U	**92100**	3 U	**2.7**	**1.4**	**577**	1 U	**11300**	**6890**	0.2 U	**3.9**	**6910**	1 U
RDA-SW-SW02-0907-D		20070912	100 U	1 U	1 U	**49.7**	1 U	1 U	**82400**	3 U	**2.4**	**1.7**	**528**	1 U	**10200**	**5860**	0.2 U	**4**	**6330**	1 U
RDA-SW-SW02-1207		20071205	100 U	1 U	1 U	**30.9**	1 U	1 U	**111000**	3 U	1 U	1 U	**190**	1 U	**17100**	**3720**	0.2 U	**3.5**	**8800**	1 UJ
RDA-SW-SW02-1207-D		20071205	100 U	1 U	1 U	**30.8**	1 U	1 U	**114000**	3 U	1 U	1 U	**268**	1 U	**17600**	**3370**	0.2 U	**3.4**	**8980**	1 UJ
RDA-SW-SW02-0408		20080408	26.2 U	0.098 UJ	0.181 U	**37.6**	0.073 U	0.052 U	**49500**	0.724 UJ	**1.4**	**0.467 J**	**7840**	**0.041 J**	**6490**	**6510**	0.03 U	**2.3**	**3220**	0.231 U
RDA-SW-SW02-0408-D		20080408	26.2 U	0.212 UJ	0.181 U	**42.5**	0.073 U	0.052 U	**54300**	0.822 UJ	**1.6**	**0.478 J**	**8270**	**0.224 J**	**7070**	**7180**	0.03 U	**2.7**	**3530**	0.231 U
RDA-SW-SW02-0608		20080611	100 U	1 U	1 U	**113**	1 U	1 U	**62000**	2 U	**2.2**	1 U	**1830 J**	1 U	**7560**	**27800**	0.2 U	**1.7**	2000 U	2 U
RDA-SW-SW02-0608-D		20080611	100 U	1 U	1 U	**112**	1 U	1 U	**59300**	2 U	**2.2**	1 U	**2980 J**	1 U	**7330**	**28100**	0.2 U	**1.8**	2000 U	2 U
RDA-SW-SW02-0908		20080908	65.2 U	0.188 UJ	0.311 U	**56.9**	0.021 U	0.027 UJ	**48500**	0.461 UJ	**1.5**	0.641 U	**3510**	0.05 UJ	**6640**	**13200**	0.027 U	**1.6**	**2380**	0.152 U
RDA-SW-SW02-0908-D		20080908	65.2 U	0.105 UJ	0.311 U	**52.3**	0.021 U	0.027 UJ	**50600**	0.519 UJ	**1.4**	0.641 U	**4030**	0.048 UJ	**7010**	**11500**	0.027 U	**1.5**	**2490**	0.152 U
RDA-SW-SW02-1208		20081209	65.2 U	0.084 U	0.311 U	**56.3**	0.021 U	0.027 UJ	**64100**	0.256 UJ	**1.3 J**	0.641 U	**21000**	0.157 UJ	**10800**	**9540**	0.027 U	1.3 UJ	**4310**	**0.202 J**
RDA-SW-SW02-1208-D		20081209	65.2 U	0.084 U	0.311 U	**50.9**	0.021 U	0.027 UJ	**56900**	0.198 U	**1.2 J**	0.641 U	**18700**	0.049 UJ	**9500**	**8430**	0.027 U	1.1 UJ	**3780**	**0.17 J**
RDA-SW-SW02-0309		20090310	6.5 UJ	1.5 UJ	0.3 U	**26.6 J**	0.004 U	0.027 U	**36700**	0.14 UJ	**0.52 J**	0.91 UJ	**4410 J**	0.091 UJ	**6290**	**3060**	0.016 UJ	0.66 UJ	**3190**	0.23 UJ
RDA-SW-SW02-0309-D		20090310	5.9 UJ	1.2 UJ	0.3 U	**30.9 J**	0.004 U	0.027 U	**37700**	0.14 UJ	**0.6 J**	0.88 UJ	**7800 J**	0.11 UJ	**6510**	**3750**	0.016 UJ	0.69 UJ	**3160**	0.23 UJ
RDA-SW-SW02-0909		20090915	**50.1 J**	0.15 U	1.5 U	**32.9**	0.09 U	0.05 U	**58700**	0.64 UJ	**0.52 J**	0.35 U	**1310**	0.05 U	**7940**	**6990**	**0.03 J**	**0.93 J**	**2340**	0.87 UJ

Sample ID	Location ID	Sample Date	DISSOLVED METALS (UG/L)																	
			ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE	MERCURY	NICKEL	POTASSIUM	SELENIUM
PALs			87	NC	150	NC	NC	0.25	NC	11	NC	9	1000	2.5	NC	NC	0.77	52	NC	5
RDA-SW-SW02-0310	RDA-SW02	20100318	19.6 J	1.5 J	5 UJ	38.3 J	0.5 U	3 U	30800	0.47 UJ	1.2	0.89 J	19000 J	0.09 UJ	6060	6620 J	0.1 UJ	1.6 J	2730	4 U
RDA-SW-SW02-0310-D		20100318	100 U	5 U	5 UJ	25.7 J	0.5 U	3 U	28700	0.52 UJ	0.65 J	0.91 J	8120 J	0.1 UJ	5250	4360 J	0.1 UJ	1.4 J	2950	4 U
RDA-SW-SW02-0910		20100915	21.3 J	5 U	5 U	73.8	0.2 U	3 U	91100	2 UJ	2.1	2 UJ	6630	0.5 U	14100	12100	0.1 U	2.3 J	7620	3 UJ
RDA-SW-SW02-0910-D		20100915	24.9 J	5 U	5 U	76.3	0.2 U	3 U	93800	2 UJ	2.2	2 UJ	6530	0.5 UJ	14700	12600	0.1 U	2.5 J	7920	3 U
RDA-SW-SW02-0311		20110314	40 UJ	0.5 UJ	4 U	50.4	0.2 U	0.04 J	55200	4 U	1.1	2 UJ	18000	0.5 U	8680 J	7900	0.1 UJ	1.5 J	4250	1.5 J
RDA-SW-SW02-0911		20110906	40 UJ	0.5 UJ	4 U	142	0.2 U	0.2 U	68200	4 UJ	0.57 J	0.66 J	57900	0.5 UJ	8930	13100	0.1 UJ	1.2 UJ	3980	3 UJ
RDA-SW-SW02-0911-D		20110906	40 UJ	0.5 UJ	4 U	154	0.2 U	0.08 J	71800	4 UJ	0.65 J	0.72 J	63600	0.53 UJ	9600	13200	0.1 UJ	1.3 UJ	4230	0.97 UJ
RDA-SW-SW02-52012		20120501	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW02-0313		20130319	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW02-0415		20150409	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW02-0414		20140424	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW02-0316		20160331	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW02-0517		20170515	50 U	1.5 U	3 U	42	0.4 U	0.4 U	46000	4 U	4.9	4 U	12000	2.5 U	6300	6600	0.2 U	2.5 J	3100	2.5 U
RDA-SW02-052318		20180523	50 U	1.5 U	3 U	90	0.4 U	0.4 U	59000	4 U	3.6	4 U	29000	2.5 U	8100	8100	0.2 U	5 U	3900	2.5 U
RDA-SW-SW03-0607	RDA-SW03	20070613	362 J	1 U	1 U	54.6 J	1 U	1 U	39000	24.9 J	1 U	1 U	14700 J	3.4 J	3520	14500	0.2 U	11.5 J	2000 UJ	1 U
RDA-SW-SW03-0607-D		20070613	5050 J	1 U	2.5	99.3 J	1 U	1 U	42900	4.3 J	1.5	8.4	23600 J	45.7 J	4070	15200	0.2 U	3 J	2140 J	1 U
RDA-SW-SW03-0907		20070912	100 U	1 U	1 U	26.5	1 U	1 U	52800	3 U	2.2	2.7	100 U	1 U	3650	7530	0.2 U	2.2	3700	1 U
RDA-SW-SW03-1207		20071205	100 U	1 U	1	62.1	1 U	1 U	45200	3 U	2.9	1 U	36100	1 U	4470	15700	0.2 U	1.9	3070	1 UJ
RDA-SW-SW03-0408		20080408	26.2 U	0.086 UJ	0.181 U	54.4	0.073 U	0.052 U	43300	0.742 UJ	1.4	0.409 J	19700	0.166 J	4880	13600	0.03 U	1.6	1930 J	0.231 U
RDA-SW-SW03-0608		20080611	349	1 U	1.3	109	1 U	1 U	51900	2 U	2.3	1.1	28800 J	3.2	5790	26700	0.2 U	2	7940	2 U
RDA-SW-SW03-0908		20080908	65.2 U	0.092 UJ	0.44 J	77.7	0.021 U	0.027 UJ	55000	0.407 UJ	2.8	0.641 U	49500	0.1 UJ	5730	18900	0.027 U	1.8	2330	0.152 U
RDA-SW-SW03-1208		20081209	65.2 U	0.084 U	1.1	69.4	0.021 U	0.027 UJ	61200	0.316 UJ	1.7 J	0.641 U	101000	0.123 UJ	7170	21600	0.027 U	1.1 UJ	2700	0.273 J
RDA-SW-SW03-0309		20090310	4.5 UJ	1.3 UJ	0.64 J	53.7 J	0.004 U	0.027 U	33500	0.14 UJ	0.99 J	0.39 UJ	21800 J	0.21 UJ	4190	10600	0.016 UJ	1.1	2020	0.23 UJ
RDA-SW-SW03-0909		20090915	55.7 J	0.15 U	1.5 U	95.2	0.09 U	0.05 U	48600	0.3 U	1.5	0.55 UJ	37500	0.09 UJ	6130	18600	0.03 J	0.57 J	2240	0.8 U
RDA-SW-SW03-0310		20100318	16.1 J	5 U	5 UJ	68.4 J	0.5 U	0.39 UJ	32400	7.5 U	0.99 J	0.58 J	41800 J	0.32 UJ	4700	9540 J	0.1 UJ	0.64 UJ	2120	4 U
RDA-SW-SW03-0311		20110314	40 UJ	0.5 UJ	4 U	80	0.2 U	0.2 U	45000	6 U	1.6	2 UJ	61600	0.12 J	6490 J	14200	0.1 UJ	1.1 J	2490	2.7 J
RDA-SW-SW03-0311-D		20110314	40 UJ	0.5 UJ	4 U	81	0.2 U	0.2 U	44900	6 U	1.7	2 UJ	63000	0.16 J	6600 J	13300	0.1 UJ	0.88 J	2490	2.1 J
RDA-SW-SW03-0911		20110906	40 UJ	0.5 UJ	4 U	24.1	0.2 U	0.2 U	45400	4 UJ	1	1 J	23000	0.5 UJ	6080	12400	0.1 UJ	1.2 UJ	792 J	3 UJ
RDA-SW-SW03-52012		20120501	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW03-52012-D		20120501	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW03-0912		20120906	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW03-0313		20130319	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW03-0414		20140424	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW03-0415		20150409	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW03-0316		20160331	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW03-0517		20170515	20 U	1.5 U	3 U	78	0.4 U	0.4 U	26000	4 U	1.9	4 U	24000	2.5 U	4200	8400	0.2 U	5 U	2100	2.5 U
RDA-SW03-0517-D		20170515	22 U	1.5 U	3 U	83	0.4 U	0.4 U	27000	4 U	2.1	4 U	28000	2.5 U	4400	8800	0.2 U	5 U	2300	2.5 U
RDA-SW03-052418		20180524	160	1.5 U	3 U	60	0.4 U	0.4 U	12000	4 U	1.9	4 U	2800	1.1 J	3400	1500	0.2 U	5 U	2700	2.5 U

Sample ID	Location ID	Sample Date	DISSOLVED METALS (UG/L)																	
			ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE	MERCURY	NICKEL	POTASSIUM	SELENIUM
PALs			87	NC	150	NC	NC	0.25	NC	11	NC	9	1000	2.5	NC	NC	0.77	52	NC	5
RDA-SW-SWD-0607	RDA-SWD	20070614	100 UJ	1 U	1 U	**45.1 J**	1 U	1 U	**13300**	3 UJ	1 U	**2.1**	**437 J**	1 UJ	**3410**	**866**	0.2 U	1 UJ	**2060 J**	1 U
RDA-SW-SWD-0907		20070912	100 U	1 U	1 U	**96.2**	1 U	1 U	**28700**	3 U	1 U	**2.3**	**136**	1 U	**6790**	**423**	0.2 U	**1.9**	**2690**	1 U
RDA-SW-SWD-1207		20071204	100 U	1 U	1 U	**33**	1 U	1 U	**11800**	3 U	1 U	**1.2**	**538**	1 U	**3470**	**525**	0.2 U	**1.4**	2000 U	1 UJ
RDA-SW-SWD-0408		20080408	**74 J**	0.172 UJ	0.181 U	**29.4**	0.073 U	0.052 U	**10700**	1.4 UJ	**0.187 J**	**1.4**	**174**	**0.284 J**	**2850**	**101**	0.03 U	**1.1**	**2230**	0.231 U
RDA-SW-SWD-0608		20080611	100 U	1 U	1 U	**60.7**	1 U	1 U	**14000**	2 U	**1**	1 U	**358 J**	1 U	**3490**	**2710**	0.2 U	**1.5**	**2180**	2 U
RDA-SW-SWD-0908		20080908	65.2 U	0.162 UJ	0.311 U	**39.3**	0.021 U	0.027 UJ	**10000**	0.723 UJ	**0.499 J**	**1.2**	**427**	**0.449 J**	**2370**	**755**	0.027 U	**1.2**	**2060**	0.152 U
RDA-SW-SWD-1208		20081208	65.2 U	0.106 UJ	0.311 U	**27.7**	0.021 U	0.027 UJ	**10000**	0.574 UJ	**0.267 J**	**1**	**215**	0.122 UJ	**2760**	**427**	0.027 U	**1.1 J**	**2060**	0.152 U
RDA-SW-SWD-0309		20090309	**89.6**	2.9 U	0.3 U	**17.4 J**	0.04 UJ	0.047 UJ	**6200**	**0.4 J**	**0.33 J**	2.1 U	**134 J**	0.41 UJ	**1500**	**94.1**	0.016 UJ	0.92 UJ	**1500**	0.23 UJ
RDA-SW-SWD-0909		20090914	**53.7 J**	0.16 UJ	1.5 U	**32.9**	0.09 U	0.05 U	**9180**	1.8 UJ	0.34 UJ	1.3 U	**327**	0.35 UJ	**2280**	**433**	0.02 UJ	**1.1 J**	**2260**	0.8 U
RDA-SW-SWD-0909-D		20090914	**61.1 J**	0.15 U	1.6 UJ	**34.6**	0.09 U	0.05 U	**9330**	0.67 UJ	0.35 UJ	1.2 U	**318**	0.31 UJ	**2330**	**444**	**0.03 J**	**0.82 J**	**2350**	0.8 U
RDA-SW-SWD-0310		20100317	**58.4 J**	5 U	5 UJ	**24.9 J**	0.5 U	3 U	**7220**	0.58 UJ	0.12 UJ	**1.4 J**	71.4 UJ	0.27 UJ	**1860**	**45.4 J**	0.1 UJ	0.97 UJ	**2460**	4 U
RDA-SW-SWD-0910		20100915	**28.7 J**	5 U	5 U	**65.2**	0.2 U	3 U	**15500**	2 UJ	**1.1**	2 UJ	**570**	0.5 UJ	**3990**	**2010**	0.1 U	1.4 UJ	**2580**	3 U
RDA-SW-SWD-0311		20110314	**36.4 J**	0.5 UJ	**2.3 J**	**40.3**	0.2 U	**0.08 J**	**11900**	2.4 UJ	**0.06 J**	2 UJ	93 UJ	**0.12 J**	**3400 J**	**80**	0.1 UJ	**0.97 J**	**3090**	**1 J**
RDA-SW-SWD-0911		20110906	40 UJ	0.5 UJ	4 U	**65.8**	0.2 U	0.2 U	**13400**	4 UJ	**0.91 J**	**1.9 J**	**982**	0.5 UJ	**3460**	**2080**	0.1 UJ	**1.5 J**	**3000**	3 UJ
RDA-SW-SWD-0911-D		20110906	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWD-52012		20120501	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWD-0912		20120906	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWD-0912-D		20120906	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWD-0313		20130319	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWD-0414		20140424	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWD-0414-D		20140424	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWD-0415		20150409	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWD-0415-D		20150409	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWD-0316		20160331	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWD-0316-D		20160331	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SWD-0517		20170516	**130**	1.5 U	3 U	**45**	0.4 U	0.4 U	**11000**	4 U	**0.48 J**	**2.5 J**	**580**	2.5 U	**2700**	**380**	0.2 U	5 U	**2400**	2.5 U
RDA-SWD-052318		20180523	**56 J**	1.5 U	3 U	**64**	0.4 U	0.4 U	**16000**	4 U	**0.79**	**8.3**	**710**	2.5 U	**4000**	**890**	**0.16 J**	5 U	**2900**	2.5 U
RDA-SWD-052318-D		20180523	**56 J**	1.5 U	3 U	**66**	0.4 U	0.4 U	**16000**	4 U	**0.77**	4 U	**730**	2.5 U	**4000**	**880**	**0.12 J**	5 U	**2900**	2.5 U

Table C-3a: Rubble Disposal Area Surface Water Results

Sample ID	Location ID	Sample Date	DISSOLVED METALS (UG/L)																	
			ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE	MERCURY	NICKEL	POTASSIUM	SELENIUM
PALs			87	NC	150	NC	NC	0.25	NC	11	NC	9	1000	2.5	NC	NC	0.77	52	NC	5
RDA-SW-SWU-0607	RDA-SWU	20070614	100 UJ	1 U	1 U	**48.9 J**	1 U	1 U	**13400**	3 UJ	1 U	**1.4**	**333 J**	1 UJ	**3410**	**1150**	0.2 U	**1.3 J**	**2070 J**	1 U
RDA-SW-SWU-0907		20070913	100 U	1 U	1 U	**110**	1 U	1 U	**31700**	3 U	**1.2**	**2.2**	100 U	1 U	**8200**	**1080**	0.2 U	**2.7**	**2750**	1 U
RDA-SW-SWU-1207		20071204	100 U	1 U	1 U	**44.1**	1 U	1 U	**13000**	3 U	1 U	**1.3**	**270**	1 U	**4070**	**498**	0.2 U	**1.5**	**2380**	1 UJ
RDA-SW-SWU-0408		20080408	**47.3 J**	0.26 UJ	0.181 U	**26.4**	0.073 U	0.052 U	**8510**	3.8 U	**0.182 J**	**1.1**	**78.9 J**	**0.395 J**	**2410**	**71.3**	0.03 U	**2.3**	**2000**	0.231 U
RDA-SW-SWU-0608		20080611	100 U	1 U	1 U	**85.2**	1 U	**5.6**	**15000**	2 U	**1.2**	1 U	**394 J**	1 U	**3740**	**3420**	0.2 U	**1.9**	**2540**	2 U
RDA-SW-SWU-0908		20080908	65.2 U	0.157 UJ	0.311 U	**56.7**	**0.021 J**	0.027 UJ	**12000**	1.1 UJ	**0.777 J**	**1.2**	**481**	**0.52 J**	**2930**	**1050**	0.027 U	**1.8**	**2460**	0.152 U
RDA-SW-SWU-1208		20081208	65.2 U	0.111 UJ	0.311 U	**35.9**	0.021 U	0.027 UJ	**10800**	0.629 UJ	**0.231 J**	**1.1**	**174**	0.149 UJ	**3020**	**308**	0.027 U	**1 J**	**2490**	0.152 U
RDA-SW-SWU-0309		20090309	**20.2**	2.4 U	0.3 U	**25.3 J**	0.014 UJ	0.028 UJ	**8700**	**0.37 J**	**0.21 J**	1.6 UJ	36.7 UJ	0.18 U	**2320**	**66.2**	0.016 UJ	0.81 UJ	**2470**	0.23 UJ
RDA-SW-SWU-0909		20090915	**67.1 J**	0.15 U	1.5 U	**50.9**	0.09 U	0.05 U	**12300**	1.1 UJ	**0.53 J**	0.88 UJ	**295**	0.21 UJ	**3070**	**893**	**0.02 J**	**1.1 J**	**2730**	0.94 UJ
RDA-SW-SWU-0310		20100317	**31.7 J**	5 U	5 UJ	**26.9 J**	0.5 U	3 U	**7210**	0.52 UJ	0.11 UJ	**1.3 J**	36.6 UJ	0.18 UJ	**1950**	**32 J**	0.1 UJ	**1 J**	**2730**	4 U
RDA-SW-SWU-0910		20100915	**108 J**	5 U	5 U	**86.8**	0.2 U	3 U	**17500**	2 UJ	**3.5**	2 UJ	**2160**	0.5 UJ	**4890**	**3360**	0.1 U	**2.4 J**	**2740**	3 U
RDA-SW-SWU-0311		20110314	**63.7 J**	0.5 UJ	**2.3 J**	**42.5**	0.2 U	**0.07 J**	**12100**	2.3 UJ	0.3 UJ	2 UJ	**149**	**0.12 J**	**3190 J**	**106**	0.1 UJ	**1.1 J**	**2960**	**1.1 J**
RDA-SW-SWU-0911		20110906	58.9 UJ	0.5 UJ	4 U	**92.4**	0.2 U	0.2 U	**14000**	4 UJ	**1**	**0.7 J**	**959**	0.5 UJ	**3850**	**1660**	0.1 UJ	**1.5 J**	**3130**	3 U
RDA-SW-SWU-52012		20120501	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWU-0912		20120906	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWU-0313		20130319	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWU-0313-D		20130319	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWU-0414		20140424	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWU-0415		20150409	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWU-0316		20160331	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SWU-0517		20170516	**110**	1.5 U	3 U	**40**	0.4 U	0.4 U	**9500**	4 U	**0.7**	4 U	**730**	2.5 U	**2700**	**420**	0.2 U	5 U	**2100**	2.5 U
RDA-SWU-052418		20180524	**73 J**	1.5 U	3 U	**59**	0.4 U	0.4 U	**16000**	4 U	**1**	4 U	**15000**	**2.2 J**	**2600**	**3500**	0.2 U	5 U	**3000**	2.5 U

Sample ID	Location ID	Sample Date	DISSOLVED METALS (UG/L)			EPH MADEP (UG/L)										FIELD (C)	FIELD (MG/L)		FIELD (MV)	FIELD (NTU)
			SODIUM	VANADIUM	ZINC	C11-C22 AROMATICS	C11-C22 AROMATICS-UNADJ	C19-C36 ALIPHATICS	C5-C8 ALIPHATICS	C5-C8 ALIPHATICS-UNADJ	C5-C8+C9-C12 ALIPHATICS	C9-C10 AROMATICS	C9-C12 ALIPHATICS	C9-C12 ALIPHATICS-UNADJ	C9-C18 ALIPHATICS	TEMPERATURE	DISSOLVED OXYGEN	FERROUS IRON	OXIDATION REDUCTION POTENTIAL	TURBIDITY
PALs			NC	NC	120	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
RDA-SW-SW01-0607	RDA-SW01	20070613	**15300**	1 UJ	**14.1 J**	100 U	--	200 U	100 U	--	--	100 U	100 U	--	200 U	--	--	--	--	--
RDA-SW-SW01-0907	RDA-SW01	20070913	**16900**	1 U	**28.3 J**	**120**	--	200 U	100 U	--	--	100 U	100 U	--	200 U	--	--	--	--	--
RDA-SW-SW01-1207	RDA-SW01	20071205	**21800**	1 U	20 U	130 U	--	200 U	100 U	--	--	100 U	100 U	--	200 U	--	--	--	--	--
RDA-SW-SW01-0408	RDA-SW01	20080408	**20400**	0.116 U	18.3 UJ	100 U	--	200 UJ	100 U	--	--	100 U	100 U	--	200 UJ	--	--	--	--	--
RDA-SW-SW01-0608	RDA-SW01	20080611	**22500**	1 U	20 U	100 U	--	200 UJ	100 UJ	--	--	100 U	100 UJ	--	200 UJ	--	--	--	--	--
RDA-SW-SW01-0908	RDA-SW01	20080908	**21700 J**	0.91 U	5.7 U	100 U	--	200 U	100 U	--	--	100 U	100 U	--	200 U	--	--	--	--	--
RDA-SW-SW01-1208	RDA-SW01	20081209	**22100**	0.91 U	**11.7 J**	100 U	--	200 U	100 U	--	--	--	100 U	--	200 U	--	--	--	--	--
RDA-SW-SW01-0309	RDA-SW01	20090310	**13300**	0.9 UJ	17 UJ	100 U	--	200 U	100 U	--	--	100 U	100 U	--	200 U	--	--	--	--	--
RDA-SW-SW01-0909	RDA-SW01	20090914	**23500**	1.4 UJ	1.9 UJ	94 UJ	94 UJ	94 U	100 U	100 U	--	100 U	100 U	100 U	94 UJ	--	--	**21.5**	--	--
RDA-SW-SW01-0310	RDA-SW01	20100318	**7990**	4 U	**7.8 J**	94 UJ	94 UJ	94 UJ	100 U	100 U	100 U	100 U	100 U	100 U	94 UJ	--	--	--	--	--
RDA-SW-SW01-0910	RDA-SW01	20100916	**25100**	4 UJ	**12.7**	79 UJ	79 UJ	71 U	75 U	75 U	75 U	75 U	75 U	75 U	71 U	--	--	--	--	--
RDA-SW-SW01-0311	RDA-SW01	20110314	**17600**	4 UJ	**6 J**	**95 J**	**95 J**	71 UJ	75 U	75 U	75 U	75 U	75 U	75 U	71 UJ	--	--	--	--	--
RDA-SW-SW01-0911	RDA-SW01	20110906	**22300**	**0.63 J**	**7.4 J**	71 U	71 U	71 UJ	75 U	75 U	75 U	75 U	75 U	75 U	71 UJ	--	--	**6.6**	--	--
RDA-SW-SW01-52012	RDA-SW01	20120501	--	--	--	27.6 U	--	86.9 U	5.55 U	--	--	**14.4 J**	1.12 R	--	60.6 U	--	--	--	--	--
RDA-SW-SW01-0912	RDA-SW01	20120906	--	--	--	26.7 R	--	84.1 U	5.55 U	--	--	**16.9 J**	**5.6 J**	--	58.7 U	--	--	--	--	--
RDA-SW-SW01-0313	RDA-SW01	20130319	--	--	--	111 U	--	111 U	50.1 U	--	--	7.92 U	**10.7 J**	--	111 U	--	--	--	--	--
RDA-SW-SW01-0414	RDA-SW01	20140424	--	--	--	--	--	--	6.62 R	--	--	**4.93 J**	**18.1 J**	--	--	--	--	--	--	--
RDA-SW-SW01-0415	RDA-SW01	20150409	--	--	--	--	--	--	0.645 R	--	--	**5.64 J**	**12.4 J**	--	--	--	--	--	--	--
RDA-SW-SW01-0316	RDA-SW01	20160331	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW01-0517	RDA-SW01	20170515	**10000**	10 U	20 U	--	--	--	--	--	--	--	--	--	--	**10.18**	**0.65**	**2.75**	**-110.7**	**17.2**
RDA-SW01-052318	RDA-SW01	20180523	**12000**	10 U	20 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW02-0607	RDA-SW02	20070612	**5600**	1 UJ	**13.3 J**	**130**	--	200 U	100 U	--	--	100 U	100 U	--	200 U	--	--	--	--	--
RDA-SW-SW02-0907	RDA-SW02	20070912	**9320**	1 U	**95.3**	100 U	--	200 U	100 U	--	--	100 U	100 U	--	200 U	--	--	--	--	--
RDA-SW-SW02-0907-D	RDA-SW02	20070912	**8430**	1 U	**81.5**	100 U	--	200 U	100 U	--	--	100 U	100 U	--	200 U	--	--	--	--	--
RDA-SW-SW02-1207	RDA-SW02	20071205	**21900**	1 U	**21.6**	100 U	--	200 U	100 U	--	--	100 U	100 U	--	200 U	--	--	--	--	--
RDA-SW-SW02-1207-D	RDA-SW02	20071205	**22300**	1 U	**21.1**	100 U	--	200 U	100 U	--	--	100 U	100 U	--	200 U	--	--	--	--	--
RDA-SW-SW02-0408	RDA-SW02	20080408	**5590**	0.116 U	15.1 UJ	100 U	--	200 U	100 U	--	--	100 U	100 U	--	200 U	--	--	--	--	--
RDA-SW-SW02-0408-D	RDA-SW02	20080408	**6040**	0.116 U	15.9 UJ	100 U	--	200 U	100 U	--	--	100 UJ	100 U	--	200 U	--	--	--	--	--
RDA-SW-SW02-0608	RDA-SW02	20080611	**6210**	1 U	20 U	100 UJ	--	200 UJ	100 U	--	--	100 U	100 U	--	200 UJ	--	--	--	--	--
RDA-SW-SW02-0608-D	RDA-SW02	20080611	**6060**	1 U	20 U	100 U	--	200 UJ	100 UJ	--	--	100 UJ	100 UJ	--	200 UJ	--	--	--	--	--
RDA-SW-SW02-0908	RDA-SW02	20080908	**6180 J**	0.91 U	**17.8 J**	100 U	--	200 U	100 U	--	--	100 U	100 U	--	200 U	--	--	--	--	--
RDA-SW-SW02-0908-D	RDA-SW02	20080908	**6560 J**	0.91 U	**9.7 J**	100 U	--	200 U	100 U	--	--	100 U	100 U	--	200 U	--	--	--	--	--
RDA-SW-SW02-1208	RDA-SW02	20081209	**11000**	0.91 U	**18.9 J**	100 U	--	200 U	100 U	--	--	--	100 U	--	200 U	--	--	--	--	--
RDA-SW-SW02-1208-D	RDA-SW02	20081209	**9660**	0.91 U	**17.8 J**	100 U	--	200 U	100 U	--	--	--	100 U	--	200 U	--	--	--	--	--
RDA-SW-SW02-0309	RDA-SW02	20090310	**7270**	0.28 UJ	13.2 UJ	100 U	--	200 U	100 U	--	--	100 U	100 U	--	200 U	--	--	--	--	--
RDA-SW-SW02-0309-D	RDA-SW02	20090310	**7460**	0.34 UJ	18.4 UJ	100 U	--	200 U	100 U	--	--	100 U	100 U	--	200 U	--	--	--	--	--
RDA-SW-SW02-0909	RDA-SW02	20090915	**7720**	0.7 U	1.73 U	94 UJ	94 UJ	94 UJ	100 U	100 U	--	100 U	100 U	100 U	94 UJ	--	--	**1.86**	--	--

Table C-3a: Rubble Disposal Area Surface Water Results

Sample ID	Location ID	Sample Date	DISSOLVED METALS (UG/L)			EPH MADEP (UG/L)										FIELD (C)	FIELD (MG/L)		FIELD (MV)	FIELD (NTU)
			SODIUM	VANADIUM	ZINC	C11-C22 AROMATICS	C11-C22 AROMATICS-UNADJ	C19-C36 ALIPHATICS	C5-C8 ALIPHATICS	C5-C8 ALIPHATICS-UNADJ	C5-C8+C9-C12 ALIPHATICS	C9-C10 AROMATICS	C9-C12 ALIPHATICS	C9-C12 ALIPHATICS-UNADJ	C9-C18 ALIPHATICS	TEMPERATURE	DISSOLVED OXYGEN	FERROUS IRON	OXIDATION REDUCTION POTENTIAL	TURBIDITY
PALs			NC	NC	120	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
RDA-SW-SW02-0310	RDA-SW02	20100318	**7760**	4 U	**10.6 J**	94 UJ	94 UJ	94 UJ	100 U	100 U	100 U	100 U	100 U	100 U	94 UJ	--	--	--	--	--
RDA-SW-SW02-0310-D		20100318	**8300**	4 U	**8.5 J**	94 U	94 U	94 UJ	100 U	100 U	100 U	100 U	100 U	100 U	94 UJ	--	--	--	--	--
RDA-SW-SW02-0910		20100915	**13700**	4 UJ	**3.4 J**	71 UJ	71 UJ	71 U	75 U	75 U	75 U	75 U	75 U	75 U	71 UJ	--	--	--	--	--
RDA-SW-SW02-0910-D		20100915	**14100**	4 U	**3.8 J**	71 U	71 U	71 U	75 U	75 U	75 U	75 U	75 U	75 U	71 U	--	--	--	--	--
RDA-SW-SW02-0311		20110314	**7880**	4 UJ	**64.7**	72 U	72 U	72 U	75 U	75 U	75 U	75 U	75 U	75 U	72 U	--	--	--	--	--
RDA-SW-SW02-0911		20110906	**7230**	4 U	8 U	71 U	71 U	71 UJ	75 U	75 U	75 U	75 U	75 U	75 U	71 UJ	--	--	**37**	--	--
RDA-SW-SW02-0911-D		20110906	**7810**	4 U	8 U	71 U	71 U	71 UJ	75 U	75 U	75 U	75 U	75 U	75 U	71 UJ	--	--	**50**	--	--
RDA-SW-SW02-52012		20120501	--	--	--	27.6 U	--	86.9 U	5.55 U	--	--	**7.44 J**	1.12 R	--	60.6 U	--	--	--	--	--
RDA-SW-SW02-0313		20130319	--	--	--	115 U	--	115 U	44.3 U	--	--	7.74 U	**13.2 J**	--	115 U	--	--	--	--	--
RDA-SW-SW02-0415		20150409	--	--	--	--	--	--	0.645 R	--	--	**5.82 J**	**6.61 J**	--	--	--	--	--	--	--
RDA-SW-SW02-0414		20140424	--	--	--	--	--	--	6.62 R	--	--	**5.76 J**	**18.2 J**	--	--	--	--	--	--	--
RDA-SW-SW02-0316		20160331	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW02-0517		20170515	**17000**	10 U	20 U	--	--	--	--	--	--	--	--	--	--	**10.1**	**0.29**	**1.24**	**-98.4**	**6.05**
RDA-SW02-052318		20180523	**34000**	10 U	20 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW03-0607	RDA-SW03	20070613	**4070**	1 UJ	**16.4 J**	**130 J**	--	200 U	**130**	--	--	100 U	100 U	--	200 U	--	--	--	--	--
RDA-SW-SW03-0607-D		20070613	**4410**	**5.9 J**	**59.2 J**	**240 J**	--	200 U	**130**	--	--	100 U	100 U	--	200 U	--	--	--	--	--
RDA-SW-SW03-0907		20070912	**6460**	1 U	**109**	100 U	--	200 U	100 U	--	--	100 U	100 U	--	200 U	--	--	--	--	--
RDA-SW-SW03-1207		20071205	**5720**	1 U	**20.4**	100 U	--	200 U	100 U	--	--	100 U	100 U	--	200 U	--	--	--	--	--
RDA-SW-SW03-0408		20080408	**6750**	0.116 U	16.1 UJ	100 U	--	200 U	**160 J**	--	--	100 U	100 U	--	200 U	--	--	--	--	--
RDA-SW-SW03-0608		20080611	**7490**	1 U	20 U	**170**	--	**210 J**	100 UJ	--	--	100 UJ	100 UJ	--	200 UJ	--	--	--	--	--
RDA-SW-SW03-0908		20080908	**7640 J**	0.91 U	**8.5 J**	100 U	--	200 U	100 U	--	--	100 U	100 U	--	200 U	--	--	--	--	--
RDA-SW-SW03-1208		20081209	**8220**	0.91 U	**15.9 J**	100 U	--	200 U	100 U	--	--	--	100 U	--	200 U	--	--	--	--	--
RDA-SW-SW03-0309		20090310	**5530**	0.37 UJ	13.1 UJ	100 U	--	200 U	100 U	--	--	100 U	100 U	--	200 U	--	--	--	--	--
RDA-SW-SW03-0909		20090915	**8730**	0.74 UJ	2 UJ	96 UJ	96 UJ	96 UJ	100 U	100 U	--	100 U	100 U	100 U	96 UJ	--	--	**23.3**	--	--
RDA-SW-SW03-0310		20100318	**6490**	4 U	10 U	94 U	94 U	94 UJ	**260**	**260**	**260**	100 U	100 U	100 U	94 UJ	--	--	--	--	--
RDA-SW-SW03-0311		20110314	**7640**	4 U	**18.2**	**83 J**	**83 J**	72 U	**120**	**120**	**180 J**	75 U	**60 J**	**60 J**	72 U	--	--	--	--	--
RDA-SW-SW03-0311-D		20110314	**7860**	4 U	**15.6**	**52 J**	**52 J**	71 U	**140**	**140**	**203 J**	75 U	**63 J**	**63 J**	71 U	--	--	--	--	--
RDA-SW-SW03-0911		20110906	**8400**	4 U	**6.1 J**	71 U	71 U	**400 J**	75 U	75 U	75 U	75 U	75 U	75 U	71 UJ	--	--	**20.6**	--	--
RDA-SW-SW03-52012		20120501	--	--	--	27.3 U	--	85.9 U	5.55 U	--	--	**6.34 J**	1.12 R	--	60 U	--	--	--	--	--
RDA-SW-SW03-52012-D		20120501	--	--	--	30.3 U	--	95.4 U	5.55 U	--	--	**6.84 J**	1.12 R	--	66.5 U	--	--	--	--	--
RDA-SW-SW03-0912		20120906	--	--	--	34 R	--	107 U	5.55 U	--	--	**18.7 J**	**4.4 J**	--	74.7 U	--	--	--	--	--
RDA-SW-SW03-0313		20130319	--	--	--	108 U	--	108 U	51.7 U	--	--	9.57 U	**12 J**	--	108 U	--	--	--	--	--
RDA-SW-SW03-0414		20140424	--	--	--	--	--	--	6.62 R	--	--	**6.04 J**	**17.2 J**	--	--	--	--	--	--	--
RDA-SW-SW03-0415		20150409	--	--	--	--	--	--	0.645 R	--	--	**5.8 J**	**13.4 J**	--	--	--	--	--	--	--
RDA-SW-SW03-0316		20160331	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW03-0517		20170515	**33000**	10 U	20 U	--	--	--	--	--	--	--	--	--	--	**9.2**	**4.35**	**21.1**	**-49.8**	**6.27**
RDA-SW03-0517-D		20170515	**35000**	10 U	20 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW03-052418		20180524	**69000**	10 U	20 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Sample ID	Location ID	Sample Date	DISSOLVED METALS (UG/L)			EPH MADEP (UG/L)										FIELD (C)	FIELD (MG/L)		FIELD (MV)	FIELD (NTU)
			SODIUM	VANADIUM	ZINC	C11-C22 AROMATICS	C11-C22 AROMATICS-UNADJ	C19-C36 ALIPHATICS	C5-C8 ALIPHATICS	C5-C8 ALIPHATICS-UNADJ	C5-C8+C9-C12 ALIPHATICS	C9-C10 AROMATICS	C9-C12 ALIPHATICS	C9-C12 ALIPHATICS-UNADJ	C9-C18 ALIPHATICS	TEMPERATURE	DISSOLVED OXYGEN	FERROUS IRON	OXIDATION REDUCTION POTENTIAL	TURBIDITY
PALs			NC	NC	120	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
RDA-SW-SWD-0607		20070614	**49600**	1 UJ	**22.8 J**	100 U	--	200 U	100 U	--	--	100 U	100 U	--	200 U	--	--	--	--	--
RDA-SW-SWD-0907		20070912	**60700**	**1.1**	**130**	100 U	--	200 U	100 U	--	--	100 U	100 U	--	200 U	--	--	--	--	--
RDA-SW-SWD-1207		20071204	**38900**	1 U	**93.1**	170 U	--	200 U	100 U	--	--	100 U	100 U	--	200 U	--	--	--	--	--
RDA-SW-SWD-0408		20080408	**42000**	0.116 U	**39**	100 U	--	200 U	100 U	--	--	100 U	100 U	--	200 U	--	--	--	--	--
RDA-SW-SWD-0608		20080611	**44800**	1 U	**21.2**	100 U	--	200 UJ	100 U	--	--	100 U	100 U	--	200 UJ	--	--	--	--	--
RDA-SW-SWD-0908		20080908	**29200 J**	0.91 U	**25.6**	100 U	--	200 U	100 U	--	--	100 U	100 U	--	200 U	--	--	--	--	--
RDA-SW-SWD-1208		20081208	**34000**	0.91 U	**114**	100 U	--	200 U	100 U	--	--	--	100 U	--	200 U	--	--	--	--	--
RDA-SW-SWD-0309		20090309	**25700**	0.79 UJ	**25.4**	100 U	--	200 U	100 U	--	--	100 U	100 U	--	200 U	--	--	--	--	--
RDA-SW-SWD-0909		20090914	**31800**	2.1 UJ	**20.6 J**	96 UJ	96 UJ	96 U	100 U	100 U	--	100 U	100 U	100 U	96 UJ	--	--	0.03 U	--	--
RDA-SW-SWD-0909-D		20090914	**32600**	0.71 UJ	**18.8 J**	94 UJ	94 UJ	94 U	100 U	100 U	--	100 U	100 U	100 U	94 UJ	--	--	**0.08**	--	--
RDA-SW-SWD-0310		20100317	**38800**	**0.76 J**	**13.6 J**	95 U	95 U	95 UJ	100 U	100 U	100 U	100 U	100 U	100 U	95 UJ	--	--	--	--	--
RDA-SW-SWD-0910		20100915	**49900**	4 UJ	**13.2**	71 UJ	71 UJ	71 U	75 U	75 U	75 U	75 U	75 U	75 U	71 U	--	--	--	--	--
RDA-SW-SWD-0311		20110314	**77000**	4 UJ	**11.6**	74 U	74 U	74 U	75 U	75 U	75 U	75 U	75 U	75 U	74 U	--	--	--	--	--
RDA-SW-SWD-0911	RDA-SWD	20110906	**49600**	4 U	**15.9**	71 U	71 U	**210**	75 U	75 U	75 UJ	75 U	75 UJ	75 UJ	71 U	--	--	**0.12**	--	--
RDA-SW-SWD-0911-D		20110906	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWD-52012		20120501	--	--	--	26.4 U	--	83.2 U	5.55 U	--	--	4.22 U	1.12 R	--	58 U	--	--	--	--	--
RDA-SW-SWD-0912		20120906	--	--	--	**63.5 J**	--	92 U	5.55 U	--	--	**16 J**	**8.08 J**	--	**541**	--	--	--	--	--
RDA-SW-SWD-0912-D		20120906	--	--	--	27 R	--	85 U	5.55 U	--	--	**14.3 J**	**7.75 J**	--	59.3 U	--	--	--	--	--
RDA-SW-SWD-0313		20130319	--	--	--	112 U	--	112 U	53.6 U	--	--	12.6 U	**9.15 J**	--	112 U	--	--	--	--	--
RDA-SW-SWD-0414		20140424	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWD-0414-D		20140424	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWD-0415		20150409	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWD-0415-D		20150409	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWD-0316		20160331	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWD-0316-D		20160331	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SWD-0517		20170516	**56000**	10 U	**20**	--	--	--	--	--	--	--	--	--	--	**10.51**	**7.82**	**0.16**	**77.8**	**1.07**
RDA-SWD-052318		20180523	**83000**	10 U	**12 J**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SWD-052318-D		20180523	**82000**	10 U	**11 J**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Sample ID	Location ID	Sample Date	DISSOLVED METALS (UG/L)			EPH MADEP (UG/L)										FIELD (C)	FIELD (MG/L)		FIELD (MV)	FIELD (NTU)
			SODIUM	VANADIUM	ZINC	C11-C22 AROMATICS	C11-C22 AROMATICS-UNADJ	C19-C36 ALIPHATICS	C5-C8 ALIPHATICS	C5-C8 ALIPHATICS-UNADJ	C5-C8+C9-C12 ALIPHATICS	C9-C10 AROMATICS	C9-C12 ALIPHATICS	C9-C12 ALIPHATICS-UNADJ	C9-C18 ALIPHATICS	TEMPERATURE	DISSOLVED OXYGEN	FERROUS IRON	OXIDATION REDUCTION POTENTIAL	TURBIDITY
PALs			NC	NC	120	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
RDA-SW-SWU-0607		20070614	**53700**	1 UJ	**18.2 J**	100 U	--	200 U	100 U	--	--	100 U	100 U	--	200 U	--	--	--	--	--
RDA-SW-SWU-0907		20070913	**66500**	**1.2**	**129**	100 U	--	200 U	100 U	--	--	100 U	100 U	--	200 U	--	--	--	--	--
RDA-SW-SWU-1207		20071204	**60400**	1 U	**33.5**	750 U	--	200 U	100 U	--	--	100 U	100 U	--	200 U	--	--	--	--	--
RDA-SW-SWU-0408		20080408	**41400**	0.116 U	21.7 U	100 U	--	200 UJ	100 U	--	--	100 U	100 U	--	200 UJ	--	--	--	--	--
RDA-SW-SWU-0608		20080611	**56900**	1 U	20 U	100 U	--	200 UJ	100 UJ	--	--	100 UJ	100 UJ	--	200 UJ	--	--	--	--	--
RDA-SW-SWU-0908		20080908	**41900 J**	0.91 U	**25.6**	100 U	--	200 U	100 U	--	--	100 U	100 U	--	200 U	--	--	--	--	--
RDA-SW-SWU-1208		20081208	**46800**	0.91 U	**22.5**	100 U	--	200 U	100 U	--	--	--	100 U	--	200 U	--	--	--	--	--
RDA-SW-SWU-0309		20090309	**47200**	0.34 UJ	16.8 U	100 U	--	200 U	100 U	--	--	100 U	100 U	--	200 U	--	--	--	--	--
RDA-SW-SWU-0909		20090915	**51600**	0.7 U	4.2 UJ	94 UJ	94 UJ	94 UJ	100 U	100 U	--	100 U	100 U	100 U	94 UJ	--	--	**0.16**	--	--
RDA-SW-SWU-0310		20100317	**42300**	4 U	**6 J**	96 UJ	96 UJ	96 UJ	100 U	100 U	100 U	100 U	100 U	100 U	96 UJ	--	--	--	--	--
RDA-SW-SWU-0910	RDA-SWU	20100915	**54800**	4 UJ	**17.1**	71 UJ	71 UJ	71 UJ	75 U	75 U	75 U	75 U	75 U	75 U	71 UJ	--	--	--	--	--
RDA-SW-SWU-0311		20110314	**70800**	4 UJ	**23.9**	71 U	71 U	71 U	75 U	75 U	75 U	75 U	75 U	75 U	71 U	--	--	--	--	--
RDA-SW-SWU-0911		20110906	**66400**	4 U	**6 J**	71 U	71 U	71 UJ	75 U	75 U	75 U	75 U	75 U	75 U	71 UJ	--	--	**0.31**	--	--
RDA-SW-SWU-52012		20120501	--	--	--	30.3 U	--	95.4 U	5.55 U	--	--	4.22 U	1.12 R	--	66.5 U	--	--	--	--	--
RDA-SW-SWU-0912		20120906	--	--	--	27.9 R	--	87.9 U	5.55 U	--	--	**9.28 J**	**5.83 J**	--	61.3 U	--	--	--	--	--
RDA-SW-SWU-0313		20130319	--	--	--	104 U	--	104 U	47.3 U	--	--	6.5 U	**12.6 J**	--	104 U	--	--	--	--	--
RDA-SW-SWU-0313-D		20130319	--	--	--	104 U	--	104 U	59.1 U	--	--	15 U	**6.36 J**	--	104 U	--	--	--	--	--
RDA-SW-SWU-0414		20140424	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWU-0415		20150409	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWU-0316		20160331	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SWU-0517		20170516	**56000**	10 U	**16 J**	--	--	--	--	--	--	--	--	--	--	**11.16**	**4.54**	**0.48**	**123.9**	**1.05**
RDA-SWU-052418		20180524	**37000**	10 U	20 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Sample ID	Location ID	Sample Date	FIELD (S.U.)	FIELD (US/CM)	HERBICIDES (UG/L)			METALS (UG/L)												
			PH	SPECIFIC CONDUCTANCE	DICAMBA	MCPA	MCPP	ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM
PALs			NC	NC	NC	NC	NC	87	NC	150	NC	NC	0.25	NC	11	NC	9	1000	2.5	NC
RDA-SW-SW01-0607		20070613	--	--	0.1 U	100 U	100 U	**23200**	1 U	**4.4**	**483**	**1.3**	**2.5**	**197000**	**13.2**	**5.9**	**24.6**	**66600**	**160**	**15100**
RDA-SW-SW01-0907		20070913	--	--	0.1 U	100 U	100 U	**346**	1 U	1 U	**215**	1 U	1 U	**190000**	3 U	1 U	**1.7**	**23000**	**3.7**	**12400**
RDA-SW-SW01-1207		20071205	--	--	0.1 UJ	100 U	100 U	**3330**	1 U	1 U	**272**	1 U	1 U	**256000**	3 U	**1.3**	**3**	**42600**	**5.9**	**18400**
RDA-SW-SW01-0408		20080408	--	--	1 U	100 U	100 U	**1710**	0.353 UJ	0.181 U	**231**	0.073 U	**0.072 J**	**227000**	1.8 UJ	**0.878 J**	**2**	**39000 J**	**4.3**	**16500**
RDA-SW-SW01-0608		20080611	--	--	1 U	100 U	100 U	**2480**	1 U	1 U	**285**	1 U	1 U	**217000**	**2.2**	1 U	**3.8 J**	**31000**	**8.6**	**16300**
RDA-SW-SW01-0908		20080908	--	--	1 U	100 U	100 U	**790**	0.304 UJ	0.311 U	**270 J**	**0.035 J**	0.027 UJ	**221000**	1.4 UJ	**0.632 J**	**1.4**	**27900**	**2.2**	**15700**
RDA-SW-SW01-1208		20081209	--	--	1 U	100 U	100 U	**345**	0.237 UJ	0.311 U	**222**	0.021 U	0.027 UJ	**228000**	0.643 UJ	0.418 UJ	**0.854 J**	**35200**	1.1 UJ	**16600**
RDA-SW-SW01-0309		20090310	--	--	1 U	100 U	100 U	**546**	1.2 UJ	**0.8 J**	**124 J**	0.048 UJ	0.042 UJ	**134000**	0.93 UJ	**0.48 J**	2.6 UJ	**18100**	**3 J**	**9780**
RDA-SW-SW01-0909		20090914	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW01-0310		20100318	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW01-0910	RDA-SW01	20100916	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW01-0311		20110314	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW01-0911		20110906	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW01-52012		20120501	--	--	--	--	--	**4.5 J**	**0.26 J**	**0.31 J**	**58**	0.072 U	0.084 U	**128000**	**0.18 J**	**0.14 J**	**0.98 J**	**59.8 J**	**0.084 J**	**9150**
RDA-SW-SW01-0912		20120906	--	--	--	--	--	2.9 UJ	0.2 UJ	**0.35 J**	**48.8 J**	0.072 UJ	0.084 UJ	**63500 J**	**0.37 J**	**0.12 J**	**0.97 J**	**2110**	**0.14 J**	**4400 J**
RDA-SW-SW01-0313		20130319	--	--	--	--	--	**164**	0.32 U	**7.4**	**186**	0.072 U	0.14 U	**108000**	1.3 U	0.67 U	**3.4**	**49200**	1.2 U	**8270**
RDA-SW-SW01-0414		20140424	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW01-0415		20150409	--	--	--	--	--	**10.8 J**	0.2 U	**0.61 J**	**87.1 J**	0.072 U	0.084 U	**126000 J**	0.16 U	**0.29 J**	**0.46 J**	**14400 J**	0.068 U	**8130 J**
RDA-SW-SW01-0316		20160331	--	--	--	--	--	**7.3 J**	0.2 U	**0.22 J**	**105**	0.072 U	0.084 U	**156000**	0.16 U	**0.29 J**	**1.1 J**	**5810**	0.068 U	**11000**
RDA-SW01-0517		20170515	**6.87**	**782**	0.022 U	4.3 U	4.3 U	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW01-052318		20180523	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW02-0607		20070612	--	--	0.1 U	100 U	100 U	100 U	1 U	1 U	**133**	1 U	1 U	**60800**	3 U	**1.1**	1 U	**45300**	1 U	**7670**
RDA-SW-SW02-0907		20070912	--	--	0.1 U	100 U	100 U	**232**	1 U	1 U	**59.1**	1 U	1 U	**90600**	3 U	**2.8**	**2.7**	**3050**	**1.4**	**11400**
RDA-SW-SW02-0907-D		20070912	--	--	0.1 U	100 U	100 U	**241**	1 U	1 U	**61.6**	1 U	1 U	**94400**	3 U	**3**	**3.3**	**3910**	**2.4**	**11800**
RDA-SW-SW02-1207		20071205	--	--	0.1 UJ	100 U	100 U	100 U	1 U	1 U	**37.4**	1 U	1 U	**119000**	3 U	1 U	1 U	**1880**	1 U	**18000**
RDA-SW-SW02-1207-D		20071205	--	--	0.1 UJ	100 U	100 U	100 U	1 U	1 U	**37.2**	1 U	1 U	**122000**	3 U	1 U	1 U	**2350**	1 U	**19000**
RDA-SW-SW02-0408		20080408	--	--	1 U	100 U	100 U	**306**	0.151 UJ	**0.559 J**	**85.2**	0.073 U	0.052 U	**64300**	1.2 UJ	**2.1**	**1.5**	**41800 J**	**2**	**8290**
RDA-SW-SW02-0408-D		20080408	--	--	1 U	100 U	100 U	**202**	0.12 UJ	**0.329 J**	**65**	0.073 U	0.052 U	**63200**	1.1 UJ	**2**	**1.1**	**26000 J**	**1.5**	**8110**
RDA-SW-SW02-0608	RDA-SW02	20080611	--	--	1 U	100 U	100 U	**1110**	1 U	1 U	**161**	1 U	1 U	**69000**	2 U	**3**	**2 J**	**27800**	**4.3**	**8300**
RDA-SW-SW02-0608-D		20080611	--	--	1 U	100 U	100 U	**1120**	1 U	1 U	**163**	1 U	1 U	**68300**	2 U	**2.9**	**2.3 J**	**27200**	**4.4**	**8390**
RDA-SW-SW02-0908		20080908	--	--	1 U	100 U	100 U	**86.4 J**	0.084 U	**0.34 J**	**60.8 J**	0.021 U	0.027 UJ	**53500**	0.425 UJ	**1.5**	0.641 U	**10300**	**0.389 J**	**7280**
RDA-SW-SW02-0908-D		20080908	--	--	1 U	100 U	100 U	**107**	0.127 UJ	0.311 U	**60.6 J**	0.021 U	0.027 UJ	**51900**	0.557 UJ	**1.5**	**0.672 J**	**10300**	**0.467 J**	**7110**
RDA-SW-SW02-1208		20081209	--	--	1 U	100 U	100 U	**155**	0.084 U	**0.384 J**	**62.1**	0.021 U	0.027 UJ	**61700**	0.382 UJ	**1.4 J**	**0.939 J**	**26400**	0.601 UJ	**10300**
RDA-SW-SW02-1208-D		20081209	--	--	1 U	100 U	100 U	**131**	0.084 U	0.311 U	**59**	0.021 U	0.027 UJ	**64100**	0.331 UJ	**1.3 J**	**0.733 J**	**26300**	0.535 UJ	**10700**
RDA-SW-SW02-0309		20090310	--	--	1 U	100 U	100 U	**87**	1.3 UJ	0.3 U	**30.3 J**	0.005 UJ	0.027 U	**38800**	0.14 UJ	**0.59 J**	1.1 UJ	**7840**	0.63 UJ	**6530**
RDA-SW-SW02-0309-D		20090310	--	--	1 U	100 U	100 U	**92.1**	1.3 UJ	0.3 U	**30.5 J**	0.0078 UJ	0.027 U	**38400**	0.14 UJ	**0.59 J**	1.1 UJ	**7780**	0.69 UJ	**6610**
RDA-SW-SW02-0909		20090915	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Sample ID	Location ID	Sample Date	FIELD (S.U.)	FIELD (US/CM)	HERBICIDES (UG/L)			METALS (UG/L)												
			PH	SPECIFIC CONDUCTANCE	DICAMBA	MCPA	MCPP	ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM
PALs			NC	NC	NC	NC	NC	87	NC	150	NC	NC	0.25	NC	11	NC	9	1000	2.5	NC
RDA-SW-SW02-0310		20100318	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW02-0310-D		20100318	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW02-0910		20100915	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW02-0910-D		20100915	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW02-0311		20110314	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW02-0911		20110906	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW02-0911-D		20110906	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW02-52012	RDA-SW02	20120501	--	--	--	--	--	6.9 J	0.21 J	0.19 U	23.3	0.072 U	0.084 U	27200	0.16 U	0.14 J	0.95 J	215	2.9	3840
RDA-SW-SW02-0313		20130319	--	--	--	--	--	542	0.22 U	0.96 U	44.9	0.072 U	0.16 U	39200	1.1 U	0.7 U	3.2	26800	4.4	5360
RDA-SW-SW02-0415		20150409	--	--	--	--	--	22.7 J	0.2 U	0.3 J	20.3 J	0.072 U	0.084 U	34800 J	0.16 U	0.68 J	1.8 J	1090 J	0.076 J	5270 J
RDA-SW-SW02-0414		20140424	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW02-0316		20160331	--	--	--	--	--	6.2 J	0.2 U	0.19 U	110	0.072 U	0.084 U	169000	0.16 U	0.25 J	1.1 J	2870	0.068 U	11800
RDA-SW02-0517		20170515	6.85	349	0.023 U	4.5 U	4.5 U	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW02-052318		20180523	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW03-0607		20070613	--	--	0.1 U	100 U	100 U	15600	1 U	6.2	248	1 U	1 U	51600	12.2	3.4	25	44900	169	5170
RDA-SW-SW03-0607-D		20070613	--	--	0.1 U	100 U	100 U	17200	1 U	6.6	285	1 U	1 U	54500	12.4	3.6	25.6	48300	180	5480
RDA-SW-SW03-0907		20070912	--	--	0.1 U	100 U	100 U	673	1 U	1 U	34.3	1 U	1 U	56100	3 U	2.5	3.8	1970	7.2	4050
RDA-SW-SW03-1207		20071205	--	--	0.1 UJ	100 U	100 U	2350	1 U	1 U	30.9	1 U	1 U	47900	3 U	1	5.6	43700	12.1	4980
RDA-SW-SW03-0408		20080408	--	--	1 U	100 U	100 U	3610	0.26 UJ	2.1	132	0.096 J	0.098 J	52500	4.1 U	2.5	6.7	35100 J	30.5	6190
RDA-SW-SW03-0608		20080611	--	--	1 U	100 U	100 U	24400	1 U	10.2	411	5 U	1 U	67800	23.7	7.5	42.4 J	82400	228	9040
RDA-SW-SW03-0908		20080908	--	--	1 U	100 U	100 U	441	0.115 UJ	1.5	116 J	0.021 U	0.027 UJ	54600	0.865 UJ	3.4	1.6	85400	3.5	5490
RDA-SW-SW03-1208		20081209	--	--	1 U	100 U	100 U	1690	0.104 UJ	3.4	168	0.05 J	0.057 J	62200	2 UJ	2.4	4.7	148000	11.9 J	7250
RDA-SW-SW03-0309		20090310	--	--	1 U	100 U	100 U	4850	0.98 UJ	3.7	183 J	0.22 UJ	0.31 UJ	39200	4.6 J	2.2	15.6	57200	97.8 J	4800
RDA-SW-SW03-0909		20090915	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW03-0310		20100318	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW03-0311	RDA-SW03	20110314	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW03-0311-D		20110314	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW03-0911		20110906	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW03-52012		20120501	--	--	--	--	--	14.6 J	0.33 J	0.19 U	3.1 J	0.072 U	0.084 U	19600	2.2	0.15 J	1.8 J	85.3 J	1.7	2640
RDA-SW-SW03-52012-D		20120501	--	--	--	--	--	9.1 J	0.26 J	0.19 U	45.4	0.072 U	0.084 U	31700	0.16 U	0.42 J	1.5 J	872	4.2	4770
RDA-SW-SW03-0912		20120906	--	--	--	--	--	8070 J	0.2 UJ	8.8 J	562 J	0.57 J	0.35 J	46000 J	8.1 J	7.2 J	23.3 J	269000	58.3 J	7150 J
RDA-SW-SW03-0313		20130319	--	--	--	--	--	168	0.27 U	0.21 U	34.3	0.072 U	0.084 U	41400	0.45 U	0.75 U	5.2	2590	1.2 U	5700
RDA-SW-SW03-0414		20140424	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SW03-0415		20150409	--	--	--	--	--	10.5 J	0.2 U	0.19 U	4.4 J	0.072 U	0.084 U	21800 J	0.16 U	0.33 J	1.8 J	342 J	0.087 J	3150 J
RDA-SW-SW03-0316		20160331	--	--	--	--	--	23.9	0.2 U	0.19 U	119	0.072 U	0.084 U	180000	0.16 U	0.27 J	1.8 J	1720	0.068 U	12400
RDA-SW03-0517		20170515	6.36	501	0.022 U	4.3 U	4.3 U	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW03-0517-D		20170515	--	--	0.022 U	4.3 U	4.3 U	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW03-052418		20180524	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Sample ID	Location ID	Sample Date	FIELD (S.U.)	FIELD (US/CM)	HERBICIDES (UG/L)			METALS (UG/L)												
			PH	SPECIFIC CONDUCTANCE	DICAMBA	MCPA	MCPP	ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM
PALs			NC	NC	NC	NC	NC	87	NC	150	NC	NC	0.25	NC	11	NC	9	1000	2.5	NC
RDA-SW-SWD-0607	RDA-SWD	20070614	--	--	0.1 U	100 U	100 U	100 U	1 U	1 U	**51.3**	1 U	1 U	**13300**	3 U	1 U	**1.4**	**2320**	**1**	**3360**
RDA-SW-SWD-0907		20070912	--	--	**0.46 J**	**1300 J**	**670 J**	**419**	1 U	1 U	**100**	1 U	1 U	**30300**	3 U	1 U	**2.9**	**567**	**2.1**	**7170**
RDA-SW-SWD-1207		20071204	--	--	0.1 UJ	100 U	100 U	100 U	1 U	1 U	**37.4**	1 U	1 U	**12700**	3 U	1 U	**1.5**	**653**	1 U	**3680**
RDA-SW-SWD-0408		20080408	--	--	1 U	100 UJ	100 UJ	**52.2 J**	0.201 UJ	0.181 U	**30.5**	0.073 U	0.052 U	**10400**	1.3 UJ	**0.201 J**	**1.6**	**256 J**	**0.45 J**	**2790**
RDA-SW-SWD-0608		20080611	--	--	1 UR	100 UJ	100 U	100 U	1 U	1 U	**72.1**	1 U	1 U	**14700**	2 U	**1.3**	**4 J**	**1570**	1 U	**3640**
RDA-SW-SWD-0908		20080908	--	--	1 U	100 UJ	100 UJ	65.2 U	0.132 UJ	0.311 U	**41.8 J**	**0.025 J**	0.027 UJ	**9910**	0.719 UJ	**0.547 J**	**1.6**	**909**	**1.1**	**2360**
RDA-SW-SWD-1208		20081208	--	--	1 U	100 U	100 U	65.2 U	0.084 U	0.311 U	**30.8**	0.021 U	0.027 UJ	**10300**	0.447 UJ	**0.256 J**	**1.7**	**499**	0.457 UJ	**2840**
RDA-SW-SWD-0309		20090309	--	--	1 U	100 U	100 U	**145**	2 UJ	0.3 U	**18.7 J**	0.04 UJ	0.035 UJ	**6530**	**0.4 J**	**0.25 J**	2.4 U	**348**	**1.3 J**	**1570**
RDA-SW-SWD-0909		20090914	--	--	2.8 U	140 U	94 U	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWD-0909-D		20090914	--	--	2.8 U	140 U	94 U	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWD-0310		20100317	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWD-0910		20100915	--	--	1.4 U	47 U	71 U	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWD-0311		20110314	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWD-0911		20110906	--	--	1.4 U	47 UJ	71 U	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWD-0911-D		20110906	--	--	1.4 U	48 U	71 U	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWD-52012		20120501	--	--	--	--	--	**60**	**0.22 J**	**0.19 J**	**25.2**	0.072 U	0.084 U	**9420**	**0.16 J**	**0.099 J**	**1.5 J**	**256**	**0.66 J**	**2190**
RDA-SW-SWD-0912		20120906	--	--	0.024 R	55 R	40 R	**2090 J**	0.2 UJ	**1.1 J**	**72.2 J**	**0.12 J**	**0.15 J**	**12900 J**	**2.1 J**	**1.5 J**	**3.9 J**	**9360**	**10.1 J**	**3210 J**
RDA-SW-SWD-0912-D		20120906	--	--	0.024 R	55 R	40 R	**1010 J**	0.2 UJ	**0.63 J**	**56.8 J**	0.072 UJ	**0.087 J**	**12400 J**	**1.4 J**	**0.91 J**	**2.3 J**	**4530**	**5.4 J**	**2930 J**
RDA-SW-SWD-0313		20130319	--	--	--	--	--	**53.1**	0.28 U	0.19 U	**30.7**	0.072 U	0.084 U	**10700**	**7.3 J**	0.14 U	1.7 U	**263 J**	0.38 U	**2460**
RDA-SW-SWD-0414		20140424	--	--	--	--	--	**94.1**	0.2 U	0.19 U	**28.9**	0.072 U	0.084 U	**9550**	0.16 U	**0.24 J**	**2.4**	**293**	**0.53 J**	**2400**
RDA-SW-SWD-0414-D		20140424	--	--	--	--	--	**96.3**	0.2 U	0.19 U	**29.9**	0.072 U	**0.085 J**	**9730**	0.16 U	**0.25 J**	**1.9 J**	**302**	**0.48 J**	**2460**
RDA-SW-SWD-0415		20150409	--	--	--	--	--	**1060 J**	0.2 U	**0.54 J**	**34 J**	0.072 U	**0.086 J**	**9900 J**	**1.3 J**	**0.59 J**	**4 J**	**1740 J**	**5.8 J**	**2000 J**
RDA-SW-SWD-0415-D		20150409	--	--	--	--	--	**116 J**	0.2 U	0.19 U	**21.4 J**	0.072 U	0.084 U	**9420 J**	0.16 U	**0.13 J**	**1.9 J**	**189 J**	**0.43 J**	**1860 J**
RDA-SW-SWD-0316		20160331	--	--	--	--	--	**43**	0.2 U	0.19 U	**46**	0.072 U	**0.11 J**	**13500**	**0.24 J**	**0.4 J**	**4.3**	**306**	0.068 U	**3430**
RDA-SW-SWD-0316-D		20160331	--	--	--	--	--	**47.4**	0.2 U	0.19 U	**47.9**	0.072 U	**0.088 J**	**13100**	**0.28 J**	**0.57 J**	**4.1**	**325**	0.068 U	**3330**
RDA-SWD-0517		20170516	**6.42**	**267**	0.022 U	4.3 U	4.3 U	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SWD-052318		20180523	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SWD-052318-D		20180523	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Sample ID	Location ID	Sample Date	FIELD (S.U.)	FIELD (US/CM)	HERBICIDES (UG/L)			METALS (UG/L)												
			PH	SPECIFIC CONDUCTANCE	DICAMBA	MCPA	MCPP	ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM
PALs			NC	NC	NC	NC	NC	87	NC	150	NC	NC	0.25	NC	11	NC	9	1000	2.5	NC
RDA-SW-SWU-0607	RDA-SWU	20070614	--	--	0.1 U	100 U	100 U	**105**	1 U	1 U	**51.8**	1 U	1 U	**13800**	3 U	1 U	**1.3**	**967**	**1.1**	**3550**
RDA-SW-SWU-0907		20070913	--	--	**0.23 J**	100 U	100 U	100 U	1 U	1 U	**111**	1 U	1 U	**31500**	3 U	**1.2**	**2.2**	**238**	1 U	**8110**
RDA-SW-SWU-1207		20071204	--	--	0.1 UJ	100 U	100 U	100 U	1 U	1 U	**48.2**	1 U	1 U	**13600**	3 U	1 U	**1.1**	**419**	1 U	**4250**
RDA-SW-SWU-0408		20080408	--	--	1 U	100 U	100 U	**96.5 J**	0.222 UJ	0.181 U	**33**	0.073 U	0.052 U	**10600**	3.2 U	**0.239 J**	**1.3**	**220 J**	**0.769 J**	**3020**
RDA-SW-SWU-0608		20080611	--	--	1 U	100 U	100 U	100 U	1 U	1 U	**97.3**	1 U	1 U	**16600**	2 U	**1.4**	**1.1 J**	**1450**	1 U	**4140**
RDA-SW-SWU-0908		20080908	--	--	1 U	100 U	100 U	**108**	0.191 UJ	0.311 U	**61.2 J**	**0.033 J**	0.027 UJ	**12100**	0.999 UJ	**0.896 J**	**1.7**	**1310**	**2.4**	**2910**
RDA-SW-SWU-1208		20081208	--	--	1 U	100 U	100 U	**66.1 J**	0.084 U	0.311 U	**36.7**	0.021 U	0.027 UJ	**10800**	0.945 UJ	**0.242 J**	**1.2**	**488**	0.499 UJ	**3000**
RDA-SW-SWU-0309		20090309	--	--	1 U	100 U	100 U	**78.6**	2.8 U	0.3 U	**28.5 J**	0.063 UJ	0.071 UJ	**8620**	**0.63 J**	**0.64 J**	2 U	**182 J**	0.74 UJ	**2340**
RDA-SW-SWU-0909		20090915	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWU-0310		20100317	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWU-0910		20100915	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWU-0311		20110314	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWU-0911		20110906	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWU-52012		20120501	--	--	--	--	--	**34.5**	0.2 U	**0.22 J**	**26.2**	0.072 U	0.084 U	**7940**	**0.33 J**	**0.11 J**	**0.5 J**	**131 J**	**0.26 J**	**2050**
RDA-SW-SWU-0912		20120906	--	--	--	--	--	**421 J**	0.2 UJ	**1.3 J**	**77.2 J**	0.072 UJ	**0.21 J**	**13300 J**	**2.3 J**	**0.82 J**	**6.1 J**	**5230**	**5.9 J**	**3110 J**
RDA-SW-SWU-0313		20130319	--	--	--	--	--	**47.4**	0.33 U	0.35 U	**31.4**	0.072 U	0.084 U	**10900**	0.21 U	0.13 U	1.2 U	136 U	**2.4**	**2510**
RDA-SW-SWU-0313-D		20130319	--	--	--	--	--	**48.1**	0.33 U	0.19 U	**31.3**	0.072 U	0.084 U	**10500**	0.29 U	0.15 U	1.4 U	143 U	0.4 U	**2440**
RDA-SW-SWU-0414		20140424	--	--	--	--	--	**44.3**	0.2 U	0.19 U	**27**	0.072 U	0.084 U	**8410**	0.16 U	**0.16 J**	**0.74 J**	**145 J**	**0.25 J**	**2480**
RDA-SW-SWU-0415		20150409	--	--	--	--	--	**72.7 J**	0.2 U	0.19 U	**18.2 J**	0.072 U	0.084 U	**17000 J**	0.16 U	**0.15 J**	**2.3 J**	**214 J**	**0.25 J**	**2460 J**
RDA-SW-SWU-0316		20160331	--	--	--	--	--	**38.7**	0.2 U	0.19 U	**46.1**	0.072 U	0.084 U	**13100**	**0.26 J**	**0.56 J**	**1.8 J**	**263**	**0.16 J**	**3380**
RDA-SWU-0517		20170516	**5.71**	**258**	0.022 U	4.3 U	4.3 U	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SWU-052418		20180524	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Sample ID	Location ID	Sample Date	METALS (UG/L)										MISCELLANEOUS PARAMETERS (MG/L)							
			MANGANESE	MERCURY	NICKEL	POTASSIUM	SELENIUM	SILVER	SODIUM	THALLIUM	VANADIUM	ZINC	ALKALINITY	CHEMICAL OXYGEN DEMAND	CHLORIDE	CYANIDE	FERROUS IRON	NITRATE-N	SULFATE	TOTAL DISSOLVED SOLIDS
PALs			NC	0.77	52	NC	5	NC	NC	NC	NC	120	20	NC	230	0.0052	NC	NC	NC	NC
RDA-SW-SW01-0607	RDA-SW01	20070613	**3950**	0.2 U	**13.3**	**14700**	1 U	1 U	**17500**	1 U	**59.3**	**383**	**550 J**	**82**	**8.9**	0.0091 U	**29**	0.13 U	5 U	**610**
RDA-SW-SW01-0907	RDA-SW01	20070913	**3390**	0.2 U	**4.3**	**11300**	1 U	1 U	**18000**	1 U	**2.6**	20 U	**510**	**37**	**11**	0.0043 U	**13**	0.061 U	**170**	**730**
RDA-SW-SW01-1207	RDA-SW01	20071205	**5490**	0.2 U	**5.7**	**13700**	1 U	1 U	**21100**	1 U	**3.1**	**25.4**	**820 J**	**64**	**14**	0.0043 U	**1.95**	0.13 U	5 U	**880**
RDA-SW-SW01-0408	RDA-SW01	20080408	**4710**	0.03 U	**5.3**	**11400**	0.231 U	0.032 U	**24500**	0.049 U	**3.3**	25.8 U	**730**	**43**	**12**	0.0024 U	**29.4 J**	0.13 U	**38**	**730**
RDA-SW-SW01-0608	RDA-SW01	20080611	**4290**	0.2 U	**4.4 J**	**12800**	2 U	1 U	**24100**	1 U	**4.3**	**29.7 J**	**690**	**65**	**13**	0.0024 U	**18.4**	0.13 U	5 U	**740**
RDA-SW-SW01-0908	RDA-SW01	20080908	**4220**	0.027 U	**4.1**	**12100**	**0.17 J**	0.015 UJ	**22100**	0.075 U	**1.8**	**17.1 J**	**720**	**59**	**13**	0.0024 U	**23.8**	0.13 U	5 U	**770**
RDA-SW-SW01-1208	RDA-SW01	20081209	**4920**	0.027 U	2.7 UJ	**11300**	**0.382 J**	0.013 U	**21700**	0.075 U	**1.1**	**13.7 J**	**660**	**61**	**11**	0.0024 U	**1.84**	**0.69**	5 U	**460**
RDA-SW-SW01-0309	RDA-SW01	20090310	**2730**	0.016 UJ	0.72 UJ	**7220**	**0.26 J**	0.045 UJ	**14800**	0.022 UJ	**2.7 J**	17.1 UJ	**330**	**45**	**7.3**	**0.0056 J**	**11.4**	0.13 U	**22**	**440**
RDA-SW-SW01-0909	RDA-SW01	20090914	--	--	--	--	--	--	--	--	--	--	**680**	**88**	**14**	**0.0056 J**	--	**0.016 J**	1 U	**700**
RDA-SW-SW01-0310	RDA-SW01	20100318	--	--	--	--	--	--	--	--	--	--	**450**	**58**	**10 J**	0.008 U	**7.13**	0.025 U	**23**	**440**
RDA-SW-SW01-0910	RDA-SW01	20100916	--	--	--	--	--	--	--	--	--	--	**630**	**55**	**11 J**	0.008 U	**15**	0.025 UJ	**4.8**	**900**
RDA-SW-SW01-0311	RDA-SW01	20110314	--	--	--	--	--	--	--	--	--	--	**480**	**50**	**9.4**	--	**15.8**	0.025 UJ	**38**	**580**
RDA-SW-SW01-0911	RDA-SW01	20110906	--	--	--	--	--	--	--	--	--	--	**630**	**61**	**12**	--	--	**0.025 J**	0.5 U	**770**
RDA-SW-SW01-52012	RDA-SW01	20120501	**70.4**	0.028 U	**0.85 J**	**7650**	**0.3 J**	**0.028 J**	**12400**	0.048 U	0.61 U	**1.4 J**	**400**	**48**	**5.4**	--	--	**0.024 J**	**3 J**	**380**
RDA-SW-SW01-0912	RDA-SW01	20120906	**402 J**	0.028 R	0.17 UJ	**6010 J**	**0.17 J**	0.022 UJ	**9850**	0.048 U	0.61 UJ	**11 J**	**140**	**35**	**11**	--	--	**0.21**	**14**	**280**
RDA-SW-SW01-0313	RDA-SW01	20130319	**2810**	0.028 U	0.81 U	**6450**	0.63 U	0.045 U	**36900**	0.048 U	**6.2**	**27.7**	**260**	**67**	**56.5 J**	--	--	**16.7 J**	**25.8**	**460**
RDA-SW-SW01-0414	RDA-SW01	20140424	--	--	--	--	--	--	--	--	--	--	**220**	**39**	**17 J**	--	--	0.168 UJ	1.44 U	**480**
RDA-SW-SW01-0415	RDA-SW01	20150409	**2890 J**	0.028 U	**0.3 J**	**7310 J**	0.15 U	0.022 U	**10800 J**	0.048 U	**1.2 J**	**4.3 J**	**360 J**	**47 J**	**7.14 J**	--	--	**0.012 J**	**10.5 J**	**421 J**
RDA-SW-SW01-0316	RDA-SW01	20160331	**3320**	0.028 U	**0.95 J**	**8270**	0.19 U	0.022 U	**22000**	0.047 U	0.61 U	**4.5 J**	**480**	**77**	**10.4**	--	--	0.0309 U	0.336 U	**527**
RDA-SW01-0517	RDA-SW01	20170515	--	--	--	--	--	--	--	--	--	--	**360 J**	**82 J**	**6.8 J**	--	--	0.05 U	1 U	**400 J**
RDA-SW01-052318	RDA-SW01	20180523	--	--	--	--	--	--	--	--	--	--	**250**	**75**	**9.4**	--	--	**0.033 J**	**2**	**320**
RDA-SW-SW02-0607	RDA-SW02	20070612	**10500**	0.2 U	**1.1**	2000 U	1 U	1 U	**6120**	1 U	1 U	**22.1**	**190 J**	**79**	**2.1**	0.0091 U	**8.8**	0.13 U	5 U	**260**
RDA-SW-SW02-0907	RDA-SW02	20070912	**6840**	0.2 U	**4.3**	**6980**	1 U	1 U	**9410**	1 U	**1**	**92.5**	**30**	**23**	**7.1**	0.0043 UJ	**0.67**	**0.14**	**250**	**480**
RDA-SW-SW02-0907-D	RDA-SW02	20070912	**7410**	0.2 U	**4.7**	**6870**	1 U	1 U	**9400**	1 U	**1.6**	**106**	**35**	**20**	**7**	0.0043 U	**0.56**	**0.13**	**260**	**480**
RDA-SW-SW02-1207	RDA-SW02	20071205	**4220**	0.2 U	**3.3**	**9410**	1 U	1 U	**23500**	1 U	1 U	20 U	**220 J**	**21**	**16**	0.0043 U	**0.29**	0.13 U	**300**	**630**
RDA-SW-SW02-1207-D	RDA-SW02	20071205	**4060**	0.2 U	**3.3**	**9690**	1 U	1 U	**23800**	1 U	1 U	20 U	**160 J**	**28**	**16**	0.0043 U	**0.36**	0.13 U	**290**	**630**
RDA-SW-SW02-0408	RDA-SW02	20080408	**9070**	0.03 U	**2.9**	**4310**	0.231 U	0.032 U	**7040**	0.049 U	**1.3**	28.3 U	**200**	**37**	**8.9**	0.0024 U	**12.4 J**	0.13 U	**7.1**	**250**
RDA-SW-SW02-0408-D	RDA-SW02	20080408	**8430**	0.03 U	**2.9**	**4130**	0.231 U	0.032 U	**6890**	0.049 U	**0.534 J**	20.8 U	**240**	**37**	**8.6**	0.0024 U	**18.9 J**	0.13 U	**6.5**	**250**
RDA-SW-SW02-0608	RDA-SW02	20080611	**32100**	0.2 U	**2.5 J**	2000 U	2 U	1 U	**6750**	1 U	**1.8**	**23.2 J**	**280**	**58**	**3.6**	0.0024 U	**4.85**	0.13 U	5 U	**320**
RDA-SW-SW02-0608-D	RDA-SW02	20080611	**31800**	0.2 U	**2.8 J**	2000 U	2 U	1 U	**6870**	1 U	**1.5**	**25.6 J**	**290**	**67**	**3.6**	**0.0027 J**	**6.5**	0.13 U	5 U	**330**
RDA-SW-SW02-0908	RDA-SW02	20080908	**14700**	0.027 U	**1.5**	**2610**	0.152 U	0.013 U	**6650**	0.075 U	0.91 U	**12.2 J**	**180**	**37**	**12**	0.0024 U	**5.3 J**	0.13 U	**5.2**	**270**
RDA-SW-SW02-0908-D	RDA-SW02	20080908	**11800**	0.027 U	**1.7**	**2590**	0.152 U	0.013 U	**6660**	0.075 U	0.91 U	**12.1 J**	**200**	**40**	**12**	0.0024 U	**2.8 J**	0.13 U	**5.2**	**270**
RDA-SW-SW02-1208	RDA-SW02	20081209	**9410**	0.027 U	**1.3**	**4150**	0.152 U	0.013 U	**10500**	0.075 U	0.91 U	**17.4 J**	**170**	**44**	**15**	0.0071 UJ	**2.27**	0.13 U	**64**	**340**
RDA-SW-SW02-1208-D	RDA-SW02	20081209	**9560**	0.027 U	1.2 UJ	**4270**	**0.158 J**	0.013 U	**10800**	0.075 U	0.91 U	**15.7 J**	**170**	**43**	**15**	0.0024 U	**2.3**	0.13 U	**63**	**310**
RDA-SW-SW02-0309	RDA-SW02	20090310	**3490**	0.016 UJ	0.53 UJ	**3370**	0.23 UJ	0.029 UJ	**7530**	0.032 UJ	0.7 UJ	12.9 U	**88**	**32**	**7.8**	**0.0061 J**	**5.5**	0.13 U	**41**	**190**
RDA-SW-SW02-0309-D	RDA-SW02	20090310	**3500**	0.016 UJ	0.5 UJ	**3290**	0.23 UJ	0.021 UJ	**7550**	0.0069 UJ	0.55 UJ	13.2 U	**87**	**34**	**8**	0.0024 U	**5.3**	0.13 U	**41**	**190**
RDA-SW-SW02-0909	RDA-SW02	20090915	--	--	--	--	--	--	--	--	--	--	**190**	**32**	**11**	**0.0059 J**	--	0.05 U	1 U	**220**

Sample ID	Location ID	Sample Date	METALS (UG/L)										MISCELLANEOUS PARAMETERS (MG/L)							
			MANGANESE	MERCURY	NICKEL	POTASSIUM	SELENIUM	SILVER	SODIUM	THALLIUM	VANADIUM	ZINC	ALKALINITY	CHEMICAL OXYGEN DEMAND	CHLORIDE	CYANIDE	FERROUS IRON	NITRATE-N	SULFATE	TOTAL DISSOLVED SOLIDS
PALs			NC	0.77	52	NC	5	NC	NC	NC	NC	120	20	NC	230	0.0052	NC	NC	NC	NC
RDA-SW-SW02-0310	RDA-SW02	20100318	--	--	--	--	--	--	--	--	--	--	**81**	**20**	**13 J**	0.008 U	**6.2**	0.025 U	**25**	**130**
RDA-SW-SW02-0310-D		20100318	--	--	--	--	--	--	--	--	--	--	**76**	**21**	**13 J**	0.008 U	**6.23**	0.025 U	**28**	**130**
RDA-SW-SW02-0910		20100915	--	--	--	--	--	--	--	--	--	--	**110**	**91**	**17 J**	0.008 U	**5.2**	0.025 UJ	**190**	**740**
RDA-SW-SW02-0910-D		20100915	--	--	--	--	--	--	--	--	--	--	**120**	**83**	**16 J**	0.008 U	**5.6**	0.025 UJ	**190**	**580**
RDA-SW-SW02-0311		20110314	--	--	--	--	--	--	--	--	--	--	**140**	**31**	**12**	--	**7.95**	0.025 UJ	**27**	**220**
RDA-SW-SW02-0911		20110906	--	--	--	--	--	--	--	--	--	--	**300**	**96**	**16**	--	--	0.05 UJ	1 U	**390**
RDA-SW-SW02-0911-D		20110906	--	--	--	--	--	--	--	--	--	--	**290**	**100**	**14**	--	--	0.025 UJ	0.5 U	**410**
RDA-SW-SW02-52012		20120501	**1700**	**0.11 J**	**0.35 J**	**2920**	0.15 U	0.022 U	**5190**	0.048 U	0.61 U	**1.6 J**	**90**	**33**	**7.6**	--	--	**0.02 J**	**4 J**	**140**
RDA-SW-SW02-0313		20130319	**4290**	0.028 U	1.5 U	**3080**	0.3 U	0.022 U	**6680**	0.048 U	2.5 U	**17**	**86**	**71**	**14.9**	--	--	0.18 U	**14.4**	**170**
RDA-SW-SW02-0415		20150409	**3020 J**	0.028 U	**0.84 J**	**3950 J**	0.15 U	0.022 U	**9770 J**	0.048 U	0.61 U	**6 J**	**96 J**	**18 J**	**16.6 J**	--	--	**0.029 J**	**15.1 J**	**162 J**
RDA-SW-SW02-0414		20140424	--	--	--	--	--	--	--	--	--	--	**130**	**51**	**51.3 J**	--	--	**0.38 J**	**8.21**	**200**
RDA-SW-SW02-0316		20160331	**3480**	0.028 U	**1.6**	**9050**	0.19 U	0.022 U	**16400**	0.047 U	0.61 U	**3.7 J**	**500**	**83**	**15.6**	--	--	0.0309 U	**3.61 J**	**516**
RDA-SW02-0517		20170515	--	--	--	--	--	--	--	--	--	--	**140 J**	**35 J**	**38 J**	--	--	0.05 U	**0.52 J**	**250 J**
RDA-SW02-052318		20180523	--	--	--	--	--	--	--	--	--	--	**160**	**430**	**64**	--	--	0.05 U	**2.1**	**320**
RDA-SW-SW03-0607	RDA-SW03	20070613	**18800**	0.2 U	**7.5**	**3910**	1 U	1 U	**5190**	1 U	**20.3**	**208**	**200 J**	**100**	**4.3**	0.0091 U	**22.2**	0.13 U	**6.4**	**200**
RDA-SW-SW03-0607-D		20070613	**18500**	0.2 U	**7.2**	**4490**	1 U	1 U	**5480**	1 U	**20.7**	**226**	**130 J**	**89**	**4.2**	0.0091 U	**23.1**	0.13 U	**6.1**	**200**
RDA-SW-SW03-0907		20070912	**7760**	0.2 U	**2.2**	**4090**	1 U	1 U	**6910**	1 U	**1.8**	**114**	**29**	**34**	**7.1**	0.0043 UJ	**0.57**	0.061 U	**150**	**320**
RDA-SW-SW03-1207		20071205	**17300**	0.2 U	**3.9**	**3890**	1 U	1 U	**6420**	1 U	1 U	**34.4**	**160 J**	**51**	**12**	0.0071 UJ	**5.95 J**	0.13 U	**45**	**240**
RDA-SW-SW03-0408		20080408	**18500**	0.03 U	**3.3**	**2740**	**0.404 J**	**0.044 J**	**8170**	0.049 U	**5.2**	**42.4**	**240**	**27**	**10**	0.0024 U	**21 J**	0.13 U	**22**	**230**
RDA-SW-SW03-0608		20080611	**34400**	0.2 U	**13.5 J**	**11100**	2 U	1 U	**9410**	1 U	**36.9**	**243 J**	**300**	**200**	**15**	**0.0102 J**	**23.6**	0.13 U	**5.6**	**340**
RDA-SW-SW03-0908		20080908	**21900**	0.027 U	**2**	**2390**	**0.25 J**	0.019 UJ	**7240**	0.075 U	**0.953 J**	**20.2**	**220**	**67**	**10**	**0.0036**	**15.2**	0.13 U	**7.7**	**250**
RDA-SW-SW03-1208		20081209	**21900**	0.027 U	2.3 UJ	**2920**	**0.462 J**	0.033 UJ	**8150**	0.075 U	**2.5**	**37.3**	**370**	**91**	**12**	0.0024 U	**27.1**	0.13 U	**15**	**250**
RDA-SW-SW03-0309		20090310	**11600**	0.016 UJ	**3.6**	**2390**	0.23 UJ	0.083 UJ	**5880**	0.033 UJ	**11.4**	**105**	**100**	**48**	**7.5**	**0.0069 J**	**25.9**	0.13 U	**16**	**160**
RDA-SW-SW03-0909		20090915	--	--	--	--	--	--	--	--	--	--	**160**	**14 J**	**9.6**	0.01 U	--	0.05 U	**12**	**220**
RDA-SW-SW03-0310		20100318	--	--	--	--	--	--	--	--	--	--	**130**	**52**	**11 J**	0.008 U	**26.9**	0.025 U	**7.9**	**120**
RDA-SW-SW03-0311		20110314	--	--	--	--	--	--	--	--	--	--	**130**	**70**	**13**	--	**16**	0.025 UJ	**20**	**200**
RDA-SW-SW03-0311-D		20110314	--	--	--	--	--	--	--	--	--	--	**120**	**66**	**13**	--	**18.2**	0.025 UJ	**20**	**220**
RDA-SW-SW03-0911		20110906	--	--	--	--	--	--	--	--	--	--	**150**	**68**	**7.2**	--	--	0.025 UJ	0.5 U	**220**
RDA-SW-SW03-52012		20120501	**405**	**0.47**	**0.45 J**	**1040**	0.15 U	0.022 U	**4550**	**0.1 J**	0.61 U	**3.8**	**56**	**22**	**8.2**	--	--	**1.2**	**4.2 J**	**38**
RDA-SW-SW03-52012-D		20120501	**6580**	**0.079 J**	**0.28 J**	**1250**	**0.16 J**	0.022 U	**7400**	0.048 U	0.61 U	**4.4**	**140**	**51**	**21**	--	--	**1.9**	**3.2 J**	**110**
RDA-SW-SW03-0912		20120906	**23300 J**	**0.045 J**	**7.4 J**	**7080 J**	**1.4 J**	**0.11 J**	**11300**	**0.064 J**	**15.2 J**	**131 J**	**79**	**73**	**15**	--	--	0.0078 U	**17**	**160**
RDA-SW-SW03-0313		20130319	**1120**	0.028 U	0.29 U	**4500**	0.15 U	0.022 U	**10300**	0.048 U	0.67 U	**19.1**	**50**	20 U	**26**	--	--	**0.94**	**80.8 J**	**200**
RDA-SW-SW03-0414		20140424	--	--	--	--	--	--	--	--	--	--	**130**	**55**	**52.9 J**	--	--	0.0672 UJ	**0.72 J**	**210**
RDA-SW-SW03-0415		20150409	**5900 J**	0.028 U	**0.66 J**	**1930 J**	0.15 U	0.022 U	**8580 J**	0.048 U	0.61 U	**6.2 J**	**86 J**	**39 J**	**15 J**	--	--	**0.012 J**	**1.4 J**	**100 J**
RDA-SW-SW03-0316		20160331	**3630**	0.028 U	**0.96 J**	**9890**	0.19 U	0.022 U	**17600**	0.047 U	0.61 U	**5.6 J**	**550**	**120 J**	**25**	--	--	0.0309 U	**15.2 J**	**176**
RDA-SW03-0517		20170515	--	--	--	--	--	--	--	--	--	--	**42 J**	**54 J**	**59 J**	--	--	0.05 UJ	**2.6**	**160 J**
RDA-SW03-0517-D		20170515	--	--	--	--	--	--	--	--	--	--	**12 J**	**30 J**	**20 J**	--	--	0.05 UJ	**4.2**	**72 J**
RDA-SW03-052418		20180524	--	--	--	--	--	--	--	--	--	--	**35**	**170**	**61**	--	--	0.05 U	**6.5**	**190**

Sample ID	Location ID	Sample Date	METALS (UG/L)										MISCELLANEOUS PARAMETERS (MG/L)							
			MANGANESE	MERCURY	NICKEL	POTASSIUM	SELENIUM	SILVER	SODIUM	THALLIUM	VANADIUM	ZINC	ALKALINITY	CHEMICAL OXYGEN DEMAND	CHLORIDE	CYANIDE	FERROUS IRON	NITRATE-N	SULFATE	TOTAL DISSOLVED SOLIDS
PALs			NC	0.77	52	NC	5	NC	NC	NC	NC	120	20	NC	230	0.0052	NC	NC	NC	NC
RDA-SW-SWD-0607	RDA-SWD	20070614	**976**	0.2 U	**1**	**2080**	1 U	1 U	**49100**	1 U	1 U	**22**	**40 J**	21 U	**83**	0.0091 U	**0.17**	**0.17**	**6.7**	**210**
RDA-SW-SWD-0907		20070912	**438**	0.2 U	**2.9**	**2820**	1 U	1 U	**63300**	1 U	**1.6**	**123**	20 U	21 U	**81**	0.0043 UJ	**0.19**	**0.15**	**110**	**360**
RDA-SW-SWD-1207		20071204	**474**	0.2 U	**1.1**	**2060**	1 U	1 U	**42800**	1 U	1 U	**68.7**	40 U	21 U	**72**	0.0043 U	**0.37**	**0.16**	**20**	**180**
RDA-SW-SWD-0408		20080408	**101**	0.03 U	**1.1**	**2280**	0.231 U	0.032 U	**41000**	**0.091 J**	0.116 U	**36.9**	40 U	21 U	**67**	0.0024 U	**0.03 J**	**0.27**	**11**	**140**
RDA-SW-SWD-0608		20080611	**2980**	0.2 U	**3.7 J**	**2300**	2 U	1 U	**47500**	1 U	1 U	**22.5 J**	**55**	**31**	**80**	0.0024 U	**0.1**	**0.15**	5 U	**180**
RDA-SW-SWD-0908		20080908	**777**	0.027 U	**1.6**	**2060**	0.152 U	**0.406 J**	**28600**	0.075 U	0.91 U	**20.1**	**34**	**34**	**48**	0.0024 U	**0.2**	**0.16**	5 U	**180**
RDA-SW-SWD-1208		20081208	**337**	0.027 U	**0.834 J**	**2150**	0.152 U	0.013 U	**36200**	0.075 U	0.91 U	**33.2**	20 U	**24**	**56**	0.0037 UJ	**0.12**	**0.34**	**12**	**150**
RDA-SW-SWD-0309		20090309	**115**	0.016 UJ	0.77 UJ	**1580**	0.23 UJ	0.059 UJ	**27000**	0.097 UJ	0.94 UJ	**25.3**	**21**	**35**	**43**	0.0024 U	**0.05**	**0.27**	**6.6**	**130**
RDA-SW-SWD-0909		20090914	--	--	--	--	--	--	--	--	--	--	**25**	**18**	**53**	0.01 U	--	**0.2**	**6.6**	**150**
RDA-SW-SWD-0909-D		20090914	--	--	--	--	--	--	--	--	--	--	**25**	**21**	**54**	0.01 U	--	**0.2**	**6.6**	**140**
RDA-SW-SWD-0310		20100317	--	--	--	--	--	--	--	--	--	--	**11**	**17**	**67 J**	0.008 U	0.03 U	**0.51**	**9.6**	**130**
RDA-SW-SWD-0910		20100915	--	--	--	--	--	--	--	--	--	--	**37**	**18**	**78 J**	0.008 U	**0.05**	**0.16 J**	**17**	**280**
RDA-SW-SWD-0311		20110314	--	--	--	--	--	--	--	--	--	--	**14**	**4.6 J**	**96**	--	0.03 U	**0.28 J**	**12**	**220**
RDA-SW-SWD-0911		20110906	--	--	--	--	--	--	--	--	--	--	**35**	**39**	**84**	--	--	**0.048 J**	0.57 UJ	**230**
RDA-SW-SWD-0911-D		20110906	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWD-52012		20120501	**45.6**	0.028 U	**0.79 J**	**2370**	0.15 U	**0.069 J**	**37200**	0.048 U	0.61 U	**8.1**	**50**	21 U	**63**	--	--	**0.12 J**	**5.4**	10 U
RDA-SW-SWD-0912		20120906	**1530 J**	0.028 R	**2.1 J**	**2840 J**	**0.17 J**	**0.026 J**	**41100**	**0.083 J**	**4.2 J**	**142 J**	**21**	21 U	**72**	--	--	**0.27**	0.2 U	**243**
RDA-SW-SWD-0912-D		20120906	**1310 J**	0.028 R	**1.2 J**	**2770 J**	0.15 UJ	0.022 UJ	**41300**	0.048 U	**2 J**	**85.6 J**	**31**	20 U	**72**	--	--	**0.24**	0.2 U	**230**
RDA-SW-SWD-0313		20130319	**136**	0.028 U	0.76 U	**2590 J**	0.15 U	0.022 UJ	**54300**	0.048 UJ	0.61 U	**23.6**	20 U	21 U	**98.6 J**	--	--	**1.7 J**	**10.9**	**190**
RDA-SW-SWD-0414		20140424	**233**	0.028 U	**1.1**	**2320**	0.15 U	0.022 U	**45400**	**0.089 J**	0.61 U	**27.4**	**27**	**20**	**96.5 J**	--	--	0.0672 UJ	**7.2**	**190**
RDA-SW-SWD-0414-D		20140424	**247**	0.028 U	**0.83 J**	**2370**	0.15 U	0.022 U	**46600**	0.048 U	0.61 U	**21**	**28**	**32**	**103 J**	--	--	0.0672 UJ	**8.94**	**210**
RDA-SW-SWD-0415		20150409	**264 J**	0.028 U	**2.1 J**	**2120 J**	0.15 U	0.022 U	**39400 J**	**0.053 J**	**2.8 J**	**30.3 J**	20 U	**18 J**	**69.3 J**	--	--	**0.285 J**	**6.86 J**	**181 J**
RDA-SW-SWD-0415-D		20150409	**157 J**	0.028 U	**0.89 J**	**2080 J**	0.15 U	0.022 U	**39400 J**	0.048 U	0.61 U	**13.6 J**	20 U	**19 J**	**70.2 J**	--	--	**0.281 J**	**6.74 J**	**157 J**
RDA-SW-SWD-0316		20160331	**515**	0.028 U	**1.1**	**2850**	0.19 U	0.022 U	**70900**	0.047 U	0.61 U	**32.4 J**	20 U	**34**	**121**	--	--	**0.288 J**	**7.59 J**	**263**
RDA-SW-SWD-0316-D		20160331	**636**	0.028 U	**1**	**2510**	0.19 U	0.022 U	**68900**	0.047 U	0.61 U	**25.5 J**	**25**	**24**	**121**	--	--	**0.286 J**	**7.58 J**	**252**
RDA-SWD-0517		20170516	--	--	--	--	--	--	--	--	--	--	**18 J**	**32 J**	**97 J**	--	--	**0.19 J**	**7.3**	**220 J**
RDA-SWD-052318		20180523	--	--	--	--	--	--	--	--	--	--	**27**	**24**	**150**	--	--	**0.19 J**	**4.9**	**330**
RDA-SWD-052318-D		20180523	--	--	--	--	--	--	--	--	--	--	**28**	**35**	**150**	--	--	**0.19 J**	**4.9**	**340**

Sample ID	Location ID	Sample Date	METALS (UG/L)										MISCELLANEOUS PARAMETERS (MG/L)							
			MANGANESE	MERCURY	NICKEL	POTASSIUM	SELENIUM	SILVER	SODIUM	THALLIUM	VANADIUM	ZINC	ALKALINITY	CHEMICAL OXYGEN DEMAND	CHLORIDE	CYANIDE	FERROUS IRON	NITRATE-N	SULFATE	TOTAL DISSOLVED SOLIDS
PALs			NC	0.77	52	NC	5	NC	NC	NC	NC	120	20	NC	230	0.0052	NC	NC	NC	NC
RDA-SW-SWU-0607	RDA-SWU	20070614	**1170**	0.2 U	**1**	**2200**	1 U	1 U	**56000**	1 U	1 U	**16.3**	**44 J**	20 U	**93**	0.0091 U	**0.28**	**0.22**	**6.3**	**220**
RDA-SW-SWU-0907		20070913	**1070**	0.2 U	**2.4**	**2660**	1 U	1 U	**65700**	1 U	1 U	**126**	20 U	20 U	**94**	0.0043 U	**0.14**	**0.18**	**120**	**380**
RDA-SW-SWU-1207		20071204	**525**	0.2 U	**1.2**	**2440**	1 U	1 U	**63300**	1 U	1 U	**27.4**	**29 J**	**22**	**110**	0.0043 U	**0.2**	**0.14**	**20**	**260**
RDA-SW-SWU-0408		20080408	**113**	0.03 U	**1.7**	**2560**	0.231 U	0.032 U	**51400**	0.049 U	0.116 U	22.2 U	20 U	20 U	**88**	0.0024 U	0.03 UJ	**0.28**	**13**	**190**
RDA-SW-SWU-0608		20080611	**3890**	0.2 U	**2 J**	**2830**	2 U	1 U	**62900**	1 U	1 U	20 UJ	**56**	**39**	**110**	0.0024 U	**0.27**	**0.14**	**5.3**	**270**
RDA-SW-SWU-0908		20080908	**1140**	0.027 U	**1.8**	**2490**	0.152 U	0.014 UJ	**43100**	0.075 U	0.91 U	**12.2 J**	**39**	**40**	**75**	0.0024 U	**0.23**	**0.15**	5 U	**230**
RDA-SW-SWU-1208		20081208	**315**	0.027 U	0.845 UJ	**2460**	0.152 U	0.013 U	**46600**	0.075 U	0.91 U	**20.8**	**26**	**25**	**74**	0.0032 UJ	**0.07**	**0.31**	**13**	**190**
RDA-SW-SWU-0309		20090309	**73.1**	0.016 UJ	**1.1**	**2500**	0.23 UJ	0.17 UJ	**48800**	0.15 UJ	1 UJ	16.7 U	**20**	**34**	**67**	**0.0029 J**	**0.03**	**0.21**	**9.8**	**190**
RDA-SW-SWU-0909		20090915	--	--	--	--	--	--	--	--	--	--	**33**	**24**	**86**	0.01 U	--	**0.38**	**6.2**	**220**
RDA-SW-SWU-0310		20100317	--	--	--	--	--	--	--	--	--	--	**11**	**18**	**69 J**	0.008 U	0.03 U	**0.21**	**11**	**110**
RDA-SW-SWU-0910		20100915	--	--	--	--	--	--	--	--	--	--	**27**	**37**	**85 J**	0.008 U	**1.69**	0.025 UJ	**33**	**300**
RDA-SW-SWU-0311		20110314	--	--	--	--	--	--	--	--	--	--	**13**	**3.6 J**	**100**	--	0.03 U	**0.12 J**	**12**	**220**
RDA-SW-SWU-0911		20110906	--	--	--	--	--	--	--	--	--	--	**30**	**37**	**110**	--	--	0.025 UJ	0.5 U	**330**
RDA-SW-SWU-52012		20120501	**54**	0.028 U	**0.89 J**	**2000**	0.15 U	0.022 U	**43100**	0.048 U	0.61 U	**4.4**	**40**	**26**	**76**	--	--	**0.017 J**	**2.7 J**	**110**
RDA-SW-SWU-0912		20120906	**991 J**	0.028 R	**2.5 J**	**3650 J**	0.15 UJ	**0.028 J**	**56200**	0.048 U	**2.3 J**	**69.1 J**	**23**	**39**	**97**	--	--	0.0078 U	0.2 U	**250**
RDA-SW-SWU-0313		20130319	**118**	0.028 U	0.58 U	**2550**	0.15 U	0.027 U	**56200**	0.048 U	0.61 U	**16.2**	20 U	20 U	**100 J**	--	--	**0.62**	**11.1**	**200**
RDA-SW-SWU-0313-D		20130319	**118**	0.028 U	0.61 U	**2520**	0.15 U	0.03 U	**54400**	0.06 U	0.61 U	**20.1**	20 U	20 U	**99.6 J**	--	--	**2.53 J**	**15.1**	**200**
RDA-SW-SWU-0414		20140424	**106**	0.028 U	**0.61 J**	**2310**	0.15 U	0.022 U	**51200**	0.048 U	0.61 U	**8.5**	**25**	20 U	**89 J**	--	--	0.0672 UJ	**6.06**	**220**
RDA-SW-SWU-0415		20150409	**452 J**	0.028 U	**0.83 J**	**2320 J**	0.15 U	0.022 U	**23400 J**	0.048 U	0.61 U	**10.6 J**	**45 J**	**17 J**	**39.7 J**	--	--	**0.16 J**	**7.73 J**	**125 J**
RDA-SW-SWU-0316		20160331	**690**	0.028 U	**0.78 J**	**2350**	0.19 U	0.022 U	**70300**	0.047 U	0.61 U	**15.3 J**	20 U	**25**	**124**	--	--	**0.303 J**	**11.5 J**	**181**
RDA-SWU-0517		20170516	--	--	--	--	--	--	--	--	--	--	**8 J**	**45 J**	**110 J**	--	--	0.05 UJ	**9**	**230 J**
RDA-SWU-052418		20180524	--	--	--	--	--	--	--	--	--	--	**22**	**70**	**120**	--	--	0.05 U	**0.86 J**	**280**

Table C-3a: Rubble Disposal Area Surface Water Results

Sample ID	Location ID	Sample Date	PESTICIDES/PCBS (UG/L)															SEMIVOLATILES (UG/L)		
			4,4'-DDD	4,4'-DDE	4,4'-DDT	ALDRIN	ALPHA-BHC	ALPHA-CHLORDANE	AROCLOR-1260	DELTA-BHC	DIELDRIN	ENDRIN ALDEHYDE	ENDRIN KETONE	GAMMA-BHC (LINDANE)	GAMMA-CHLORDANE	HEPTACHLOR	HEPTACHLOR EPOXIDE	1,4-DIOXANE	2,4-DINITROPHENOL	2-METHYLNAPHTHALENE
PALs			0.001	0.001	0.001	NC	NC	0.0043	0.014	NC	0.056	0.036	0.036	NC	0.0043	0.0038	0.0038	NC	NC	NC
RDA-SW-SW01-0607		20070613	**0.013 J**	0.018 UJ	0.06 UR	0.03 U	0.03 U	0.03 U	0.2 U	0.03 U	0.06 U	0.06 U	0.06 U	0.03 U	0.03 U	0.03 U	0.03 U	10 U	0.5 UJ	1 U
RDA-SW-SW01-0907		20070913	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	0.01 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	10 U	20 UJ	1 U
RDA-SW-SW01-1207		20071205	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	**0.012**	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	10 U	1 UJ	1 U
RDA-SW-SW01-0408		20080408	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	0.01 UJ	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	10 UJ	1 UJ	0.1 U
RDA-SW-SW01-0608		20080611	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	0.01 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	**0.049**	10 U	5 UJ	0.1 U
RDA-SW-SW01-0908		20080908	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	0.01 U	0.02 U	0.02 U	0.02 U	0.01 U	0.027 UJ	0.01 U	0.01 U	10 UJ	5 UJ	0.1 U
RDA-SW-SW01-1208		20081209	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	0.01 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	10 U	5 UJ	0.1 U
RDA-SW-SW01-0309		20090310	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	0.01 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	10 U	5 U	0.1 U
RDA-SW-SW01-0909		20090914	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.48 U	0.05 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	--	--	0.2 U
RDA-SW-SW01-0310		20100318	0.024 U	0.024 U	0.024 U	0.012 U	0.012 U	0.012 U	0.12 U	0.012 U	0.024 U	0.024 U	0.024 U	0.012 U	0.012 U	0.012 U	0.012 U	--	--	**0.1 J**
RDA-SW-SW01-0910	RDA-SW01	20100916	0.024 U	0.024 U	0.024 UJ	0.012 U	0.012 U	0.012 U	0.12 UJ	0.012 U	0.024 U	0.024 U	0.024 U	0.012 U	0.012 U	0.012 U	0.012 U	--	--	0.094 U
RDA-SW-SW01-0311		20110314	0.024 U	0.024 UJ	0.024 U	0.012 U	0.012 U	0.012 UJ	--	0.012 UJ	0.024 UJ	0.024 UJ	0.024 U	0.012 U	0.012 UJ	0.012 U	0.012 UJ	--	--	0.095 U
RDA-SW-SW01-0911		20110906	0.024 U	0.024 U	0.024 U	0.012 U	0.012 U	0.012 U	0.12 U	0.012 UJ	0.024 U	0.024 U	0.024 UJ	**0.0089 J**	0.012 U	0.012 U	0.012 U	--	--	0.095 U
RDA-SW-SW01-52012		20120501	0.0064 U	0.0056 U	0.007 U	0.0043 U	0.0018 U	0.0024 U	--	0.0027 U	0.0056 U	0.015 U	0.0046 U	0.0019 U	0.0026 U	0.0039 U	0.0028 U	0.07 U	--	0.018 U
RDA-SW-SW01-0912		20120906	0.0064 U	0.0056 U	0.007 U	0.0043 U	0.0018 UJ	0.0024 UJ	0.021 U	0.0027 U	0.0056 U	0.015 U	0.0046 U	0.0019 U	0.0026 U	0.0039 UJ	0.0028 U	0.07 U	--	0.018 U
RDA-SW-SW01-0313		20130319	0.1 U	0.1 U	0.1 UJ	0.05 U	0.05 U	0.05 U	--	0.05 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 UJ	0.05 U	0.1 U	--	0.1 U
RDA-SW-SW01-0414		20140424	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.07 U	--	0.018 U
RDA-SW-SW01-0415		20150409	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.07 U	--	0.018 U
RDA-SW-SW01-0316		20160331	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**0.54**	--	0.018 U
RDA-SW01-0517		20170515	0.0099 UJ	0.0099 UJ	0.018 UJ	0.018 UJ	0.0099 UJ	--	0.074 U	0.018 UJ	0.0099 UJ	0.0099 UJ	0.0099 UJ	0.0099 UJ	--	0.018 UJ	0.0099 UJ	--	--	0.19 UJ
RDA-SW01-052318		20180523	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.95 U
RDA-SW-SW02-0607		20070612	0.06 UJ	**0.024 J**	**0.024 J**	0.03 U	0.03 U	0.03 U	**0.24**	0.03 U	0.06 U	**0.042 J**	**0.04 J**	0.03 U	0.03 U	0.03 U	0.03 U	10 U	0.5 UJ	1 U
RDA-SW-SW02-0907		20070912	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	0.01 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	10 U	20 UJ	1 U
RDA-SW-SW02-0907-D		20070912	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	0.01 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	10 U	20 UJ	1 U
RDA-SW-SW02-1207		20071205	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	0.01 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	10 U	1 UJ	1 U
RDA-SW-SW02-1207-D		20071205	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	0.01 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	10 U	1 UJ	1 U
RDA-SW-SW02-0408		20080408	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	0.01 UJ	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	10 UJ	1 UJ	0.1 U
RDA-SW-SW02-0408-D		20080408	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	0.01 UJ	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	10 UJ	1 UJ	0.1 UJ
RDA-SW-SW02-0608	RDA-SW02	20080611	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	0.01 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	10 U	5 UJ	0.1 U
RDA-SW-SW02-0608-D		20080611	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	0.01 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	10 U	5 UJ	0.1 U
RDA-SW-SW02-0908		20080908	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	0.01 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	10 UJ	5 UJ	0.1 UJ
RDA-SW-SW02-0908-D		20080908	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	0.01 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	10 UJ	5 UJ	0.1 U
RDA-SW-SW02-1208		20081209	0.02 U	0.02 U	0.02 U	0.01 U	0.01 UJ	0.01 U	0.2 U	0.01 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	10 U	5 UJ	0.1 U
RDA-SW-SW02-1208-D		20081209	0.02 U	0.02 U	0.02 U	0.01 U	**0.037 J**	0.01 U	0.2 U	0.01 U	0.02 U	0.02 U	0.02 U	0.038 UJ	0.01 U	0.01 U	0.01 U	10 U	5 UJ	0.1 U
RDA-SW-SW02-0309		20090310	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	0.01 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	10 U	5 U	0.1 U
RDA-SW-SW02-0309-D		20090310	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	0.01 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	10 U	5 U	0.1 U
RDA-SW-SW02-0909		20090915	0.094 U	0.094 U	0.094 U	0.047 U	0.047 U	0.047 U	0.47 UJ	0.047 U	0.094 U	0.094 U	0.094 U	0.047 U	0.047 U	0.047 U	0.047 U	--	--	0.2 U

Sample ID	Location ID	Sample Date	PESTICIDES/PCBS (UG/L)															SEMIVOLATILES (UG/L)		
			4,4'-DDD	4,4'-DDE	4,4'-DDT	ALDRIN	ALPHA-BHC	ALPHA-CHLORDANE	AROCLOR-1260	DELTA-BHC	DIELDRIN	ENDRIN ALDEHYDE	ENDRIN KETONE	GAMMA-BHC (LINDANE)	GAMMA-CHLORDANE	HEPTACHLOR	HEPTACHLOR EPOXIDE	1,4-DIOXANE	2,4-DINITROPHENOL	2-METHYLNAPHTHALENE
PALs			0.001	0.001	0.001	NC	NC	0.0043	0.014	NC	0.056	0.036	0.036	NC	0.0043	0.0038	0.0038	NC	NC	NC
RDA-SW-SW02-0310	RDA-SW02	20100318	0.024 U	0.024 U	0.024 U	0.012 U	0.012 U	0.012 U	0.12 U	0.012 U	0.024 U	0.024 U	0.024 U	0.012 U	0.012 U	0.012 U	0.012 U	--	--	0.1 U
RDA-SW-SW02-0310-D		20100318	0.024 U	0.024 U	0.024 U	0.012 U	0.012 U	0.012 U	0.12 U	0.012 U	0.024 U	0.024 U	0.024 U	0.012 U	0.012 U	0.012 U	0.012 U	--	--	**0.08 J**
RDA-SW-SW02-0910		20100915	0.024 U	0.024 U	0.024 U	0.012 U	0.012 U	0.012 U	0.12 UJ	0.012 U	0.024 U	0.024 U	0.024 U	0.012 U	0.012 U	0.012 U	0.012 U	--	--	0.094 U
RDA-SW-SW02-0910-D		20100915	0.024 U	0.024 U	0.024 U	0.012 U	0.012 U	0.012 U	0.12 UJ	0.012 U	0.024 U	0.024 U	0.024 U	0.012 U	0.012 U	0.012 U	0.012 U	--	--	0.094 U
RDA-SW-SW02-0311		20110314	0.025 U	0.025 U	0.025 U	0.012 U	0.012 U	0.012 U	--	0.012 UJ	0.025 UJ	0.025 UJ	0.025 U	0.012 U	0.012 U	0.012 U	0.012 UJ	--	--	0.094 U
RDA-SW-SW02-0911		20110906	**0.0081 J**	**0.0059 J**	0.024 U	0.012 U	0.012 U	0.012 U	0.12 UJ	0.012 U	0.024 U	0.024 U	0.024 U	0.012 U	0.012 U	0.012 U	0.012 U	--	--	0.095 U
RDA-SW-SW02-0911-D		20110906	**0.0083 J**	0.024 U	0.024 U	0.012 U	0.012 U	0.012 U	0.12 UJ	0.012 UJ	0.024 U	0.024 U	0.024 UJ	0.012 U	0.012 U	0.012 U	0.012 U	--	--	0.094 U
RDA-SW-SW02-52012		20120501	0.0064 U	0.0056 U	0.007 U	0.0043 U	0.0018 U	0.0024 U	--	0.0027 U	0.0056 U	0.015 U	0.0046 U	0.0019 U	0.0026 U	0.0039 U	0.0028 U	0.07 U	--	0.018 U
RDA-SW-SW02-0313		20130319	0.1 U	0.1 U	0.1 UJ	0.05 U	0.05 U	0.05 U	--	0.05 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 UJ	0.05 U	0.1 U	--	0.1 U
RDA-SW-SW02-0415		20150409	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.07 U	--	0.018 U
RDA-SW-SW02-0414		20140424	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.07 U	--	0.018 U
RDA-SW-SW02-0316		20160331	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**4.2**	--	0.018 U
RDA-SW02-0517		20170515	0.012 UJ	0.012 UJ	0.022 UJ	0.022 UJ	0.012 UJ	--	0.075 U	0.022 UJ	0.012 UJ	0.012 UJ	0.012 UJ	0.012 UJ	--	0.022 UJ	0.012 UJ	--	--	0.2 U
RDA-SW02-052318		20180523	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1 UJ
RDA-SW-SW03-0607	RDA-SW03	20070613	**0.03 J**	**0.069 J**	**0.019 J**	0.03 U	0.03 U	**0.082 J**	**0.24**	0.03 U	**0.12**	0.06 U	0.06 U	0.03 U	**0.08**	0.03 U	0.03 U	10 U	0.5 UJ	1 U
RDA-SW-SW03-0607-D		20070613	0.06 U	**0.11**	**0.031 J**	**0.031 J**	0.03 U	**0.13 J**	0.2 U	0.03 U	**0.15 J**	0.06 U	0.06 U	0.03 U	0.2 UJ	0.03 U	0.03 U	10 U	0.5 UJ	1 U
RDA-SW-SW03-0907		20070912	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	0.01 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	10 U	20 UJ	1 U
RDA-SW-SW03-1207		20071205	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	0.01 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	**0.01 J**	0.01 U	10 U	1 UJ	1 U
RDA-SW-SW03-0408		20080408	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	0.01 UJ	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	10 UJ	1 UJ	0.1 U
RDA-SW-SW03-0608		20080611	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	0.01 U	0.02 U	0.02 U	0.02 U	0.029 U	0.01 U	0.07 U	**0.046**	10 U	5 UJ	0.1 U
RDA-SW-SW03-0908		20080908	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	0.01 U	0.02 U	0.02 U	0.02 U	**0.014 J**	0.01 U	0.01 U	0.01 U	10 UJ	5 UJ	0.1 U
RDA-SW-SW03-1208		20081209	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	0.01 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	10 U	5 UJ	0.1 UJ
RDA-SW-SW03-0309		20090310	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	0.01 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	10 U	5 U	0.1 U
RDA-SW-SW03-0909		20090915	0.097 U	0.097 U	0.097 U	0.048 U	0.048 U	0.048 U	0.48 U	0.048 U	0.097 U	0.097 U	0.097 U	0.048 U	0.048 U	0.048 U	0.048 U	--	--	0.2 U
RDA-SW-SW03-0310		20100318	0.024 U	0.024 U	0.024 U	0.012 U	0.012 U	0.012 U	0.12 U	0.012 U	**0.0078 J**	0.024 U	0.024 U	0.012 U	0.012 U	0.012 U	0.012 U	--	--	0.1 U
RDA-SW-SW03-0311		20110314	0.024 U	0.024 U	0.024 U	0.012 U	0.012 U	0.012 U	--	0.012 UJ	0.024 UJ	0.024 UJ	0.024 U	0.012 U	0.012 U	0.012 U	0.012 UJ	--	--	0.094 U
RDA-SW-SW03-0311-D		20110314	0.024 U	0.024 U	0.024 U	0.012 U	0.012 U	0.012 U	--	0.012 UJ	0.024 UJ	0.024 UJ	0.024 U	0.012 U	0.012 U	0.012 U	0.012 UJ	--	--	0.095 U
RDA-SW-SW03-0911		20110906	0.024 U	0.024 U	0.024 U	0.012 U	0.012 U	0.012 U	0.12 U	0.012 U	0.024 U	0.024 U	0.024 U	**0.0074 J**	0.012 U	0.012 U	0.012 U	--	--	0.095 U
RDA-SW-SW03-52012		20120501	0.0064 U	0.0056 U	**0.71**	0.0043 U	0.0018 U	0.0024 U	--	0.0027 U	0.0056 U	0.015 U	0.0046 U	0.0019 U	0.0026 U	0.0039 U	0.0028 U	0.07 U	--	0.018 U
RDA-SW-SW03-52012-D		20120501	0.0064 U	0.0056 U	0.007 U	0.0043 U	0.0018 U	0.0024 U	--	0.0027 U	0.0056 U	0.015 U	0.0046 U	0.0019 U	0.0026 U	0.0039 U	0.0028 U	0.07 U	--	0.018 U
RDA-SW-SW03-0912		20120906	0.0064 U	0.0056 U	0.007 U	0.0043 U	0.0018 U	0.0024 U	0.021 U	0.0027 U	0.0056 U	0.015 U	0.0046 U	0.0019 U	0.0026 U	0.0039 U	0.0028 U	0.07 U	--	0.018 U
RDA-SW-SW03-0313		20130319	0.1 U	0.1 U	0.1 UJ	0.05 U	0.05 U	0.05 U	--	0.05 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 UJ	0.05 U	0.1 U	--	0.1 U
RDA-SW-SW03-0414		20140424	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.07 U	--	0.018 U
RDA-SW-SW03-0415		20150409	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.07 U	--	0.018 U
RDA-SW-SW03-0316		20160331	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**2.3**	--	0.018 U
RDA-SW03-0517		20170515	0.0096 UJ	0.0096 UJ	0.017 UJ	0.017 UJ	0.0096 UJ	--	0.074 U	0.017 UJ	0.0096 UJ	0.0096 UJ	0.0096 UJ	0.0096 UJ	--	0.017 UJ	0.0096 UJ	--	--	0.19 U
RDA-SW03-0517-D		20170515	0.0097 U	0.0097 U	0.017 U	0.017 U	0.0097 U	--	0.075 U	0.017 U	0.0097 U	0.0097 U	0.0097 U	0.0097 U	--	0.017 U	0.0097 U	--	--	0.19 U
RDA-SW03-052418		20180524	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.19 UJ

Table C-3a: Rubble Disposal Area Surface Water Results

Sample ID	Location ID	Sample Date	PESTICIDES/PCBS (UG/L)															SEMIVOLATILES (UG/L)		
			4,4'-DDD	4,4'-DDE	4,4'-DDT	ALDRIN	ALPHA-BHC	ALPHA-CHLORDANE	AROCLOR-1260	DELTA-BHC	DIELDRIN	ENDRIN ALDEHYDE	ENDRIN KETONE	GAMMA-BHC (LINDANE)	GAMMA-CHLORDANE	HEPTACHLOR	HEPTACHLOR EPOXIDE	1,4-DIOXANE	2,4-DINITROPHENOL	2-METHYLNAPHTHALENE
PALs			0.001	0.001	0.001	NC	NC	0.0043	0.014	NC	0.056	0.036	0.036	NC	0.0043	0.0038	0.0038	NC	NC	NC
RDA-SW-SWD-0607		20070614	0.02 U	0.02 U	0.02 UJ	0.01 UJ	0.01 U	0.01 UJ	0.2 U	0.01 U	0.02 U	0.02 U	**0.02 J**	0.01 U	0.01 U	0.01 U	0.01 U	10 U	0.5 UJ	1 U
RDA-SW-SWD-0907		20070912	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	0.01 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	10 U	**1.9 J**	1 U
RDA-SW-SWD-1207		20071204	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	0.01 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	10 U	**3.4 J**	1 U
RDA-SW-SWD-0408		20080408	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	0.01 UJ	0.02 U	0.02 U	0.02 UJ	0.01 U	0.01 U	0.01 U	0.01 U	10 UJ	1 UJ	0.1 UJ
RDA-SW-SWD-0608		20080611	0.02 U	0.02 U	0.02 U	0.01 U	0.01 UJ	0.01 UJ	0.2 U	0.01 U	0.02 U	0.02 U	0.02 UJ	0.01 U	0.01 U	0.01 U	0.01 U	10 U	5 UJ	0.1 U
RDA-SW-SWD-0908		20080908	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 UJ	0.2 UJ	0.01 U	0.02 UJ	**0.15 J**	0.02 UJ	0.01 U	0.01 U	0.01 U	0.01 UJ	10 UJ	5 UJ	0.1 U
RDA-SW-SWD-1208		20081208	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	0.01 UJ	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	10 U	5 UJ	0.1 U
RDA-SW-SWD-0309		20090309	0.02 UJ	0.02 UJ	0.02 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.2 UJ	0.01 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	10 U	5 U	0.1 U
RDA-SW-SWD-0909		20090914	0.094 U	0.094 U	0.094 U	0.047 U	0.047 U	0.047 U	0.47 U	0.047 U	0.094 U	0.094 U	0.094 U	0.047 U	0.047 U	0.047 U	0.047 U	--	--	0.2 U
RDA-SW-SWD-0909-D		20090914	0.094 U	0.094 U	0.094 U	0.047 U	0.047 U	0.047 U	0.47 U	0.047 U	0.094 U	0.094 U	0.094 U	0.047 U	0.047 U	0.047 U	0.047 U	--	--	0.2 U
RDA-SW-SWD-0310		20100317	0.024 U	0.024 U	0.024 U	0.012 U	0.012 U	0.012 U	0.12 U	0.012 U	0.024 U	0.024 U	0.024 U	0.012 U	0.012 U	0.012 U	0.012 U	--	--	0.09 U
RDA-SW-SWD-0910		20100915	0.024 UJ	0.024 UJ	0.024 UJ	0.012 UJ	0.012 U	0.012 UJ	0.12 UJ	0.012 U	0.024 U	0.024 U	0.024 U	0.012 U	0.012 UJ	0.012 UJ	0.012 U	--	--	0.094 U
RDA-SW-SWD-0311		20110314	0.024 U	0.024 U	0.024 U	0.012 U	0.012 U	0.012 U	--	0.012 UJ	0.024 UJ	0.024 UJ	0.024 U	0.012 U	0.012 U	0.012 U	0.012 UJ	--	--	0.094 U
RDA-SW-SWD-0911		20110906	**0.008 J**	0.024 UJ	0.024 U	0.012 U	0.012 U	0.012 UJ	0.12 U	0.012 U	0.024 UJ	0.024 U	0.024 U	0.012 U	0.012 UJ	0.012 U	0.012 U	--	--	0.094 U
RDA-SW-SWD-0911-D	RDA-SWD	20110906	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWD-52012		20120501	0.0064 U	0.0056 U	0.007 U	0.0043 U	0.0018 U	0.0024 U	--	0.0027 U	0.0056 U	0.015 U	0.0046 U	0.0019 U	0.0026 U	0.0039 U	0.0028 U	0.07 U	--	0.018 U
RDA-SW-SWD-0912		20120906	0.0064 U	0.0056 U	0.007 U	0.0043 U	0.0018 UJ	0.0024 UJ	0.021 U	0.0027 U	0.0056 U	0.015 U	0.0046 U	0.0019 U	0.0026 U	0.0039 UJ	0.0028 U	0.07 U	--	0.018 U
RDA-SW-SWD-0912-D		20120906	0.0064 U	0.0056 U	0.007 U	0.0043 U	0.0018 UJ	0.0024 UJ	0.021 U	0.0027 U	0.0056 U	0.015 U	0.0046 U	0.0019 U	0.0026 U	0.0039 UJ	0.0028 U	0.07 U	--	0.018 U
RDA-SW-SWD-0313		20130319	0.1 U	0.1 U	0.1 UJ	0.05 U	0.05 U	0.05 U	--	0.05 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 UJ	0.05 U	0.1 U	--	0.1 U
RDA-SW-SWD-0414		20140424	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.07 U	--	0.018 U
RDA-SW-SWD-0414-D		20140424	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.07 U	--	0.018 U
RDA-SW-SWD-0415		20150409	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.07 U	--	0.018 U
RDA-SW-SWD-0415-D		20150409	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.07 U	--	0.018 U
RDA-SW-SWD-0316		20160331	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.07 U	--	0.018 U
RDA-SW-SWD-0316-D		20160331	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.07 U	--	0.018 U
RDA-SWD-0517		20170516	0.0096 U	0.0096 U	0.017 U	0.017 U	0.0096 U	--	0.075 U	0.017 U	0.0096 U	0.0096 U	0.0096 U	0.0096 U	--	0.017 U	0.0096 U	--	--	0.19 U
RDA-SWD-052318		20180523	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.2 U
RDA-SWD-052318-D		20180523	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.2 U

Sample ID	Location ID	Sample Date	PESTICIDES/PCBS (UG/L)															SEMIVOLATILES (UG/L)		
			4,4'-DDD	4,4'-DDE	4,4'-DDT	ALDRIN	ALPHA-BHC	ALPHA-CHLORDANE	AROCLOR-1260	DELTA-BHC	DIELDRIN	ENDRIN ALDEHYDE	ENDRIN KETONE	GAMMA-BHC (LINDANE)	GAMMA-CHLORDANE	HEPTACHLOR	HEPTACHLOR EPOXIDE	1,4-DIOXANE	2,4-DINITROPHENOL	2-METHYLNAPHTHALENE
PALs			0.001	0.001	0.001	NC	NC	0.0043	0.014	NC	0.056	0.036	0.036	NC	0.0043	0.0038	0.0038	NC	NC	NC
RDA-SW-SWU-0607	RDA-SWU	20070614	0.02 U	0.02 U	0.02 UJ	0.01 U	0.01 U	0.01 U	0.2 U	0.01 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	10 U	0.5 UJ	1 U
RDA-SW-SWU-0907		20070913	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	0.01 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	10 U	20 UJ	1 U
RDA-SW-SWU-1207		20071204	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	0.01 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	10 U	1 UJ	1 U
RDA-SW-SWU-0408		20080408	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	0.01 UJ	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	10 UJ	1 UJ	0.1 U
RDA-SW-SWU-0608		20080611	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	0.01 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	10 U	5 UJ	0.1 U
RDA-SW-SWU-0908		20080908	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 UJ	0.01 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	10 UJ	5 UJ	0.1 U
RDA-SW-SWU-1208		20081208	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	0.01 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	10 U	5 UJ	0.1 U
RDA-SW-SWU-0309		20090309	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.2 U	0.01 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	10 U	5 U	0.1 U
RDA-SW-SWU-0909		20090915	0.096 U	0.096 U	0.096 U	0.048 U	0.048 U	0.048 U	0.47 U	0.048 U	0.096 U	0.096 U	0.096 U	0.048 U	0.048 U	0.048 U	0.048 U	--	--	0.2 U
RDA-SW-SWU-0310		20100317	0.024 U	0.024 U	0.024 U	0.012 U	0.012 U	0.012 U	0.12 U	0.012 U	0.024 U	0.024 U	0.024 U	0.012 U	0.012 U	0.012 U	0.012 U	--	--	0.1 U
RDA-SW-SWU-0910		20100915	0.024 U	0.024 U	0.024 U	0.012 U	0.012 U	0.012 U	0.12 UJ	0.012 U	0.024 U	0.024 U	0.024 U	0.012 U	0.012 U	0.012 U	0.012 U	--	--	0.094 U
RDA-SW-SWU-0311		20110314	0.024 U	**0.0056 J**	0.024 U	0.012 U	0.012 U	0.012 U	--	0.012 UJ	0.024 UJ	0.024 UJ	0.024 U	0.012 U	0.012 U	0.012 U	0.012 UJ	--	--	0.096 U
RDA-SW-SWU-0911		20110906	0.024 U	0.024 U	0.024 U	0.012 U	0.012 U	0.012 U	0.12 U	0.012 U	0.024 U	0.024 U	0.024 U	**0.0088 J**	0.012 U	0.012 U	0.012 U	--	--	0.094 U
RDA-SW-SWU-52012		20120501	0.0064 U	0.0056 U	0.007 U	0.0043 U	0.0018 U	0.0024 U	--	0.0027 U	0.0056 U	0.015 U	0.0046 U	0.0019 U	0.0026 U	0.0039 U	0.0028 U	0.07 U	--	0.018 U
RDA-SW-SWU-0912		20120906	0.0064 U	0.0056 U	0.007 U	0.0043 U	0.0018 UJ	0.0024 UJ	0.021 U	0.0027 U	0.0056 U	0.015 U	0.0046 U	0.0019 U	0.0026 U	0.0039 UJ	0.0028 U	0.07 U	--	0.018 U
RDA-SW-SWU-0313		20130319	0.1 U	0.1 U	0.1 UJ	0.05 U	0.05 U	0.05 U	--	0.05 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 UJ	0.05 U	0.1 U	--	0.1 U
RDA-SW-SWU-0313-D		20130319	0.1 UJ	0.1 UJ	0.1 UJ	0.05 UJ	0.05 UJ	0.05 UJ	--	0.05 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.1 U	--	0.1 U
RDA-SW-SWU-0414		20140424	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.07 U	--	0.018 U
RDA-SW-SWU-0415		20150409	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.07 U	--	0.018 U
RDA-SW-SWU-0316		20160331	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.07 U	--	0.018 U
RDA-SWU-0517		20170516	0.0096 U	0.0096 U	0.017 U	0.017 U	0.0096 U	--	0.075 U	0.017 U	0.0096 U	0.0096 U	0.0096 U	0.0096 U	--	0.017 U	0.0096 U	--	--	0.19 U
RDA-SWU-052418		20180524	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.2 U

Sample ID	Location ID	Sample Date	SEMIVOLATILES (UG/L)																	
			4,6-DINITRO-2-METHYLPHENOL	4-CHLOROANILINE	4-METHYLPHENOL	ACENAPHTHENE	ANTHRACENE	BENZALDEHYDE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H,I)PERYLENE	BENZO(K)FLUORANTHENE	BIS(2-ETHYLHEXYL)PHTHALATE	CAPROLACTAM	CHRYSENE	FLUORANTHENE	FLUORENE	INDENO(1,2,3-CD)PYRENE	NAPHTHALENE
PALs			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
RDA-SW-SW01-0607	RDA-SW01	20070613	1 UJ	10 U	10 U	**0.11 J**	0.1 UJ	20 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	1 U	10 U	0.1 UJ	0.1 UJ	0.1 UJ	1 U	0.1 UJ
RDA-SW-SW01-0907	RDA-SW01	20070913	0.1 UJ	10 U	10 U	**0.13**	0.1 U	20 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U	10 U	0.1 U	0.1 U	0.1 U	1 U	0.1 U
RDA-SW-SW01-1207	RDA-SW01	20071205	1 UJ	10 U	**2 J**	**0.12**	0.1 U	20 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U	10 U	0.1 U	0.1 U	0.1 U	1 U	0.1 U
RDA-SW-SW01-0408	RDA-SW01	20080408	1 UJ	10 U	10 U	**0.14**	0.1 U	20 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U	10 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
RDA-SW-SW01-0608	RDA-SW01	20080611	1 UJ	10 U	10 U	**0.12**	0.1 U	20 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U	10 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
RDA-SW-SW01-0908	RDA-SW01	20080908	1 UJ	10 U	10 U	**0.17**	0.1 U	**1.8 J**	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U	10 U	0.1 U	0.1 U	**0.1**	0.1 U	0.1 U
RDA-SW-SW01-1208	RDA-SW01	20081209	1 UJ	10 U	10 U	**0.11**	0.1 U	20 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U	10 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
RDA-SW-SW01-0309	RDA-SW01	20090310	1 U	10 U	10 U	**0.17**	0.1 U	20 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U	10 U	0.1 U	0.1 U	**0.11**	0.1 U	0.1 U
RDA-SW-SW01-0909	RDA-SW01	20090914	--	--	--	**0.2**	0.2 U	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--	0.2 U	0.2 U	**0.09 J**	0.2 U	0.2 U
RDA-SW-SW01-0310	RDA-SW01	20100318	--	--	--	**0.3 J**	0.09 U	--	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	--	--	0.09 U	0.09 UJ	**0.2 J**	0.09 U	0.09 U
RDA-SW-SW01-0910	RDA-SW01	20100916	--	--	--	**0.19**	0.094 U	--	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	--	--	0.094 U	0.094 U	**0.076 J**	0.094 U	0.094 U
RDA-SW-SW01-0311	RDA-SW01	20110314	--	--	--	**0.25**	**0.051 J**	--	**0.28 J**	**0.22 J**	**0.29**	**0.12 J**	**0.091 J**	--	--	0.095 UJ	**0.44**	**0.12 J**	**0.2**	0.095 U
RDA-SW-SW01-0911	RDA-SW01	20110906	--	--	--	**0.14 J**	0.095 U	--	**0.12 J**	0.095 U	0.095 UJ	0.095 UJ	0.095 UJ	--	--	0.095 U	0.095 U	**0.081 J**	0.095 U	0.095 U
RDA-SW-SW01-52012	RDA-SW01	20120501	--	--	--	0.019 U	0.017 U	--	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	--	--	0.073 U	0.019 U	0.017 U	0.019 U	0.05 U
RDA-SW-SW01-0912	RDA-SW01	20120906	--	--	--	0.019 R	0.017 R	--	0.042 R	0.017 R	0.056 R	0.021 R	0.02 R	--	--	0.073 R	0.019 R	0.017 R	0.019 R	0.05 R
RDA-SW-SW01-0313	RDA-SW01	20130319	--	--	--	0.1 U	0.1 U	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	--	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
RDA-SW-SW01-0414	RDA-SW01	20140424	--	--	--	**0.13**	0.017 U	--	0.042 U	0.017 U	0.056 U	0.021 R	0.02 U	--	--	0.073 U	0.019 U	0.017 U	0.019 R	0.05 U
RDA-SW-SW01-0415	RDA-SW01	20150409	--	--	--	**0.37 J**	0.017 U	--	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	--	--	0.073 U	0.019 U	**0.17 J**	0.019 U	0.05 U
RDA-SW-SW01-0316	RDA-SW01	20160331	--	--	--	**0.15**	0.017 UJ	--	0.042 U	0.017 UJ	0.056 UJ	0.021 U	0.02 U	--	--	0.073 U	0.019 UJ	0.017 U	0.019 U	0.05 U
RDA-SW01-0517	RDA-SW01	20170515	--	--	--	**0.16 J**	0.19 UJ	--	0.19 UJ	0.19 UJ	0.19 UJ	0.19 UJ	0.19 UJ	--	--	0.097 UJ	0.19 UJ	0.19 UJ	0.19 UJ	0.19 UJ
RDA-SW01-052318	RDA-SW01	20180523	--	--	--	0.95 U	0.95 U	--	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	--	--	0.48 U	0.95 U	0.95 U	0.95 U	0.95 U
RDA-SW-SW02-0607	RDA-SW02	20070612	1 UJ	10 U	**12**	0.1 U	0.1 U	20 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U	10 U	0.1 U	0.1 U	0.1 U	1 U	0.1 U
RDA-SW-SW02-0907	RDA-SW02	20070912	0.1 UJ	10 U	10 U	0.1 U	0.1 U	20 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U	10 U	0.1 U	0.1 U	0.1 U	1 U	0.1 U
RDA-SW-SW02-0907-D	RDA-SW02	20070912	0.1 UJ	10 U	10 U	0.1 U	0.1 U	20 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U	10 U	0.1 U	0.1 U	0.1 U	1 U	0.1 U
RDA-SW-SW02-1207	RDA-SW02	20071205	1 UJ	10 U	10 U	0.1 U	0.1 U	20 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U	10 U	0.1 U	0.1 U	0.1 U	1 U	0.1 U
RDA-SW-SW02-1207-D	RDA-SW02	20071205	1 UJ	10 U	10 U	0.1 U	0.1 U	20 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	**2**	10 U	0.1 U	0.1 U	0.1 U	1 U	0.1 U
RDA-SW-SW02-0408	RDA-SW02	20080408	1 UJ	10 U	10 U	0.1 U	0.1 U	20 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U	10 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
RDA-SW-SW02-0408-D	RDA-SW02	20080408	1 UJ	10 U	10 U	0.1 UJ	0.1 UJ	20 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	1 U	10 U	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ
RDA-SW-SW02-0608	RDA-SW02	20080611	1 UJ	10 U	10 U	0.1 U	0.1 U	20 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U	10 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
RDA-SW-SW02-0608-D	RDA-SW02	20080611	1 UJ	10 U	10 U	0.1 U	0.1 U	20 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U	10 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
RDA-SW-SW02-0908	RDA-SW02	20080908	1 UJ	10 U	10 U	0.1 UJ	0.1 UJ	**5.1 J**	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	1 U	10 U	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ
RDA-SW-SW02-0908-D	RDA-SW02	20080908	1 UJ	10 U	10 U	0.1 U	0.1 U	**1.8 J**	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U	10 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
RDA-SW-SW02-1208	RDA-SW02	20081209	1 UJ	10 U	10 U	0.1 U	0.1 U	20 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U	10 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
RDA-SW-SW02-1208-D	RDA-SW02	20081209	1 UJ	10 U	10 U	0.1 U	0.1 U	20 UJ	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	1 U	10 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
RDA-SW-SW02-0309	RDA-SW02	20090310	1 U	10 U	10 U	0.1 U	0.1 U	20 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U	**1.4 J**	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
RDA-SW-SW02-0309-D	RDA-SW02	20090310	1 U	10 U	10 U	0.1 U	0.1 U	20 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U	**1.4 J**	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
RDA-SW-SW02-0909	RDA-SW02	20090915	--	--	--	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U

Sample ID	Location ID	Sample Date	SEMIVOLATILES (UG/L)																	
			4,6-DINITRO-2-METHYLPHENOL	4-CHLOROANILINE	4-METHYLPHENOL	ACENAPHTHENE	ANTHRACENE	BENZALDEHYDE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H,I)PERYLENE	BENZO(K)FLUORANTHENE	BIS(2-ETHYLHEXYL)PHTHALATE	CAPROLACTAM	CHRYSENE	FLUORANTHENE	FLUORENE	INDENO(1,2,3-CD)PYRENE	NAPHTHALENE
PALs			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
RDA-SW-SW02-0310	RDA-SW02	20100318	--	--	--	0.1 U	0.1 U	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	--	--	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U
RDA-SW-SW02-0310-D		20100318	--	--	--	0.1 U	0.1 U	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	--	--	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U
RDA-SW-SW02-0910		20100915	--	--	--	0.094 U	0.094 U	--	0.094 U	0.094 U	0.094 U	0.094 UJ	0.094 U	--	--	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U
RDA-SW-SW02-0910-D		20100915	--	--	--	0.094 U	0.094 U	--	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U	--	--	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U
RDA-SW-SW02-0311		20110314	--	--	--	**0.066 J**	0.094 U	--	**0.15 J**	0.094 U	0.094 U	0.094 U	0.094 U	--	--	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U
RDA-SW-SW02-0911		20110906	--	--	--	0.095 U	0.095 U	--	0.095 U	0.095 U	0.095 UJ	0.095 UJ	0.095 UJ	--	--	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U
RDA-SW-SW02-0911-D		20110906	--	--	--	0.094 U	0.094 U	--	0.094 U	0.094 U	0.094 UJ	0.094 UJ	0.094 UJ	--	--	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U
RDA-SW-SW02-52012		20120501	--	--	--	0.019 U	0.017 U	--	**0.1**	0.017 U	**0.19**	0.021 U	0.02 U	--	--	**0.13**	**0.19**	0.017 U	0.019 U	0.05 U
RDA-SW-SW02-0313		20130319	--	--	--	0.1 U	0.1 U	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	--	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
RDA-SW-SW02-0415		20150409	--	--	--	0.019 U	0.017 U	--	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	--	--	0.073 U	0.019 U	0.017 U	0.019 U	0.05 U
RDA-SW-SW02-0414		20140424	--	--	--	0.019 U	0.017 U	--	0.042 U	0.017 U	0.056 U	0.021 R	0.02 U	--	--	0.073 U	0.019 U	0.017 U	0.019 R	0.05 U
RDA-SW-SW02-0316		20160331	--	--	--	**0.16**	0.017 UJ	--	0.042 U	0.017 UJ	0.056 UJ	0.021 U	0.02 U	--	--	0.073 U	0.019 UJ	0.017 U	0.019 U	0.05 U
RDA-SW02-0517		20170515	--	--	--	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--	0.099 U	0.2 U	0.2 U	0.2 U	0.2 U
RDA-SW02-052318		20180523	--	--	--	1 UJ	1 UJ	--	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	--	--	0.51 UJ	1 UJ	1 UJ	1 UJ	1 UJ
RDA-SW-SW03-0607	RDA-SW03	20070613	1 UJ	10 U	**5 J**	0.1 U	0.1 U	20 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U	10 U	0.1 U	0.1 U	0.1 U	1 U	0.1 U
RDA-SW-SW03-0607-D		20070613	1 UJ	10 U	**5 J**	0.1 U	0.1 U	20 UJ	0.1 U	0.1 U	**0.1**	0.1 U	0.1 U	1 U	10 U	0.1 U	**0.12**	0.1 U	1 U	0.1 U
RDA-SW-SW03-0907		20070912	0.1 UJ	10 U	10 U	0.1 U	0.1 U	20 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U	10 U	0.1 U	0.1 U	0.1 U	1 U	0.1 U
RDA-SW-SW03-1207		20071205	1 UJ	10 U	10 U	0.1 U	0.1 U	20 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	**1**	10 U	0.1 U	0.1 U	0.1 U	1 U	0.1 U
RDA-SW-SW03-0408		20080408	1 UJ	10 U	10 U	0.1 U	0.1 U	20 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	**2.5**	**1.1 J**	0.1 U	0.1 U	0.1 U	0.1 U	**0.24**
RDA-SW-SW03-0608		20080611	1 UJ	10 U	**22**	0.1 U	0.1 U	**1.8 J**	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U	10 U	0.1 U	0.1 U	0.1 U	0.1 U	**0.24**
RDA-SW-SW03-0908		20080908	1 UJ	10 U	10 U	0.1 U	0.1 U	**2.2 J**	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U	10 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
RDA-SW-SW03-1208		20081209	1 UJ	10 U	10 U	0.1 UJ	0.1 UJ	20 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	1 U	10 U	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ
RDA-SW-SW03-0309		20090310	1 U	10 U	10 U	0.1 U	0.1 U	20 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U	10 U	0.1 U	0.1 U	0.1 U	0.1 U	**0.18**
RDA-SW-SW03-0909		20090915	--	--	--	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
RDA-SW-SW03-0310		20100318	--	--	--	**0.07 J**	0.1 U	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	--	--	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U
RDA-SW-SW03-0311		20110314	--	--	--	0.094 U	0.094 U	--	0.094 UJ	0.094 U	0.094 U	0.094 U	0.094 U	--	--	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U
RDA-SW-SW03-0311-D		20110314	--	--	--	0.095 U	0.095 U	--	**0.15 J**	0.095 U	0.095 U	0.095 U	0.095 U	--	--	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U
RDA-SW-SW03-0911		20110906	--	--	--	0.095 U	0.095 U	--	0.095 U	0.095 U	0.095 UJ	0.095 UJ	0.095 UJ	--	--	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U
RDA-SW-SW03-52012		20120501	--	--	--	0.019 U	0.017 U	--	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	--	--	0.073 U	0.019 U	0.017 U	0.019 U	0.05 U
RDA-SW-SW03-52012-D		20120501	--	--	--	0.019 U	0.017 U	--	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	--	--	0.073 U	0.019 U	0.017 U	0.019 U	0.05 U
RDA-SW-SW03-0912		20120906	--	--	--	0.019 R	0.017 R	--	0.042 R	0.017 R	0.056 R	0.021 R	0.02 R	--	--	0.073 R	0.019 R	0.017 R	0.019 R	0.05 R
RDA-SW-SW03-0313		20130319	--	--	--	0.1 U	0.1 U	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	--	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
RDA-SW-SW03-0414		20140424	--	--	--	0.019 U	0.017 U	--	0.042 U	0.017 U	0.056 U	0.021 R	0.02 U	--	--	0.073 U	0.019 U	0.017 U	0.019 R	0.05 U
RDA-SW-SW03-0415		20150409	--	--	--	0.019 U	0.017 U	--	**0.087 J**	0.017 U	**0.14 J**	0.021 U	0.02 U	--	--	**0.1 J**	**0.29 J**	0.017 U	0.019 U	0.05 U
RDA-SW-SW03-0316		20160331	--	--	--	**0.15**	0.017 U	--	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	--	--	0.073 U	**0.12**	0.017 U	0.019 U	0.05 U
RDA-SW03-0517		20170515	--	--	--	0.19 U	0.19 U	--	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	--	--	0.097 U	0.19 U	0.19 U	0.19 U	0.19 U
RDA-SW03-0517-D		20170515	--	--	--	0.19 U	0.19 U	--	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	--	--	0.096 U	0.19 U	0.19 U	0.19 U	0.19 U
RDA-SW03-052418		20180524	--	--	--	0.19 UJ	0.19 UJ	--	0.19 UJ	0.19 UJ	0.19 UJ	0.19 UJ	0.19 UJ	--	--	0.096 UJ	0.19 UJ	0.19 UJ	0.19 UJ	0.19 UJ

Sample ID	Location ID	Sample Date	SEMIVOLATILES (UG/L)																	
			4,6-DINITRO-2-METHYLPHENOL	4-CHLOROANILINE	4-METHYLPHENOL	ACENAPHTHENE	ANTHRACENE	BENZALDEHYDE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H,I)PERYLENE	BENZO(K)FLUORANTHENE	BIS(2-ETHYLHEXYL)PHTHALATE	CAPROLACTAM	CHRYSENE	FLUORANTHENE	FLUORENE	INDENO(1,2,3-CD)PYRENE	NAPHTHALENE
PALs			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
RDA-SW-SWD-0607	RDA-SWD	20070614	1 UJ	10 UR	10 U	0.1 U	0.1 U	20 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U	10 U	0.1 U	0.1 U	0.1 U	1 U	0.1 U
RDA-SW-SWD-0907		20070912	**0.21 J**	10 U	10 U	0.1 U	0.1 U	20 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U	**2 J**	0.1 U	0.1 U	0.1 U	1 U	0.1 U
RDA-SW-SWD-1207		20071204	1 UJ	10 UJ	10 U	**0.12**	0.1 U	20 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	**1**	10 U	0.1 U	0.1 U	0.1 U	1 U	0.1 U
RDA-SW-SWD-0408		20080408	1 UJ	10 U	10 U	0.1 UJ	0.1 UJ	20 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	1 U	10 U	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ
RDA-SW-SWD-0608		20080611	1 UJ	10 UJ	10 U	0.1 U	0.1 U	20 UJ	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	1 UJ	10 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U
RDA-SW-SWD-0908		20080908	1 UJ	10 U	10 U	0.1 U	0.1 U	20 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U	10 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
RDA-SW-SWD-1208		20081208	1 UJ	10 U	10 U	0.1 U	0.1 U	20 UJ	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	1 U	10 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U
RDA-SW-SWD-0309		20090309	1 U	10 UJ	10 U	0.1 U	0.1 U	20 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U	10 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
RDA-SW-SWD-0909		20090914	--	--	--	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
RDA-SW-SWD-0909-D		20090914	--	--	--	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
RDA-SW-SWD-0310		20100317	--	--	--	0.09 U	0.09 UJ	--	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	--	--	0.09 U	0.09 UJ	0.09 U	0.09 U	0.09 U
RDA-SW-SWD-0910		20100915	--	--	--	0.094 U	0.094 U	--	0.094 UJ	0.094 UJ	0.094 UJ	0.094 UJ	0.094 UJ	--	--	0.094 U	0.094 UJ	0.094 U	0.094 U	0.094 U
RDA-SW-SWD-0311		20110314	--	--	--	0.094 U	0.094 U	--	0.094 UJ	0.094 U	0.094 U	0.094 U	0.094 U	--	--	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U
RDA-SW-SWD-0911		20110906	--	--	--	0.094 U	0.094 U	--	0.094 UJ	0.094 U	0.094 U	0.094 UJ	0.094 UJ	--	--	0.094 UJ	**0.11 J**	0.094 U	0.094 UJ	0.094 U
RDA-SW-SWD-0911-D		20110906	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWD-52012		20120501	--	--	--	0.019 U	0.017 U	--	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	--	--	0.073 U	0.019 U	0.017 U	0.019 U	0.05 U
RDA-SW-SWD-0912		20120906	--	--	--	0.019 R	0.017 R	--	**0.23 J**	**0.17 J**	**0.27 J**	0.021 R	**0.11 J**	--	--	**0.24 J**	**0.51 J**	0.017 R	0.019 R	0.05 R
RDA-SW-SWD-0912-D		20120906	--	--	--	0.019 R	0.017 R	--	**0.13 J**	0.017 R	**0.15 J**	0.021 R	0.02 R	--	--	**0.14 J**	**0.32 J**	0.017 R	0.019 R	0.05 R
RDA-SW-SWD-0313		20130319	--	--	--	0.1 U	0.1 U	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	--	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
RDA-SW-SWD-0414		20140424	--	--	--	0.019 U	0.017 U	--	0.042 U	0.017 U	0.056 U	0.021 R	0.02 U	--	--	0.073 U	0.019 U	0.017 U	0.019 R	0.05 U
RDA-SW-SWD-0414-D		20140424	--	--	--	0.019 U	0.017 U	--	0.042 U	0.017 U	0.056 U	0.021 R	0.02 U	--	--	0.073 U	0.019 U	0.017 U	0.019 R	0.05 U
RDA-SW-SWD-0415		20150409	--	--	--	0.019 U	0.017 U	--	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	--	--	0.073 U	0.019 U	0.017 U	0.019 U	0.05 U
RDA-SW-SWD-0415-D		20150409	--	--	--	0.019 U	0.017 U	--	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	--	--	0.073 U	0.019 U	0.017 U	0.019 U	0.05 U
RDA-SW-SWD-0316		20160331	--	--	--	0.019 U	0.017 UJ	--	0.042 U	0.017 UJ	0.056 UJ	0.021 U	0.02 U	--	--	0.073 U	0.019 UJ	0.017 U	0.019 U	0.05 U
RDA-SW-SWD-0316-D		20160331	--	--	--	0.019 U	0.017 UJ	--	0.042 U	0.017 UJ	0.056 UJ	0.021 U	0.02 U	--	--	0.073 U	0.019 UJ	0.017 U	0.019 U	0.05 U
RDA-SWD-0517		20170516	--	--	--	0.19 U	0.19 U	--	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	--	--	0.096 U	0.19 U	0.19 U	0.19 U	0.19 U
RDA-SWD-052318		20180523	--	--	--	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	--	--	0.098 U	0.2 U	0.2 U	0.2 U	0.2 U
RDA-SWD-052318-D		20180523	--	--	--	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--	0.099 U	0.2 U	0.2 U	0.2 U	0.2 U

Sample ID	Location ID	Sample Date	SEMIVOLATILES (UG/L)																	
			4,6-DINITRO-2-METHYLPHENOL	4-CHLOROANILINE	4-METHYLPHENOL	ACENAPHTHENE	ANTHRACENE	BENZALDEHYDE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H,I)PERYLENE	BENZO(K)FLUORANTHENE	BIS(2-ETHYLHEXYL)PHTHALATE	CAPROLACTAM	CHRYSENE	FLUORANTHENE	FLUORENE	INDENO(1,2,3-CD)PYRENE	NAPHTHALENE
PALs			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
RDA-SW-SWU-0607	RDA-SWU	20070614	1 UJ	10 U	10 U	0.1 U	0.1 U	20 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U	10 U	0.1 U	0.1 U	0.1 U	1 U	0.1 U
RDA-SW-SWU-0907		20070913	0.1 UJ	10 U	10 U	0.1 U	0.1 U	20 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	2 U	10 U	0.1 U	0.1 U	0.1 U	1 U	0.1 U
RDA-SW-SWU-1207		20071204	1 UJ	**2 J**	10 U	0.1 U	0.1 U	20 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U	10 U	0.1 U	0.1 U	0.1 U	1 U	0.1 U
RDA-SW-SWU-0408		20080408	1 UJ	10 U	10 U	0.1 U	0.1 U	20 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U	10 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
RDA-SW-SWU-0608		20080611	1 UJ	10 U	10 U	0.1 U	0.1 U	20 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U	10 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
RDA-SW-SWU-0908		20080908	1 UJ	10 U	10 U	0.1 U	0.1 U	**1.3 J**	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U	10 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
RDA-SW-SWU-1208		20081208	1 UJ	10 U	10 U	0.1 U	0.1 U	20 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U	10 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
RDA-SW-SWU-0309		20090309	1 U	10 U	10 U	0.1 U	0.1 U	20 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U	10 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
RDA-SW-SWU-0909		20090915	--	--	--	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
RDA-SW-SWU-0310		20100317	--	--	--	0.1 U	0.1 U	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	--	--	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U
RDA-SW-SWU-0910		20100915	--	--	--	0.094 U	0.094 U	--	0.094 U	0.094 U	0.094 U	0.094 UJ	0.094 U	--	--	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U
RDA-SW-SWU-0311		20110314	--	--	--	0.096 U	0.096 U	--	0.096 UJ	0.096 U	0.096 U	0.096 U	0.096 U	--	--	0.096 U	0.096 U	0.096 U	0.096 U	0.096 U
RDA-SW-SWU-0911		20110906	--	--	--	0.094 U	0.094 U	--	0.094 U	0.094 U	0.094 UJ	0.094 UJ	0.094 UJ	--	--	0.094 U	0.094 U	0.094 U	0.094 U	0.094 U
RDA-SW-SWU-52012		20120501	--	--	--	0.019 U	0.017 U	--	0.042 U	0.017 U	**0.15**	0.021 U	0.02 U	--	--	0.073 U	**0.18**	0.017 U	0.019 U	0.05 U
RDA-SW-SWU-0912		20120906	--	--	--	0.019 R	0.017 R	--	0.042 R	0.017 R	0.056 R	0.021 R	0.02 R	--	--	0.073 R	0.019 R	0.017 R	0.019 R	0.05 R
RDA-SW-SWU-0313		20130319	--	--	--	0.1 U	0.1 U	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	--	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
RDA-SW-SWU-0313-D		20130319	--	--	--	0.1 U	0.1 U	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	--	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
RDA-SW-SWU-0414		20140424	--	--	--	0.019 U	0.017 U	--	0.042 U	0.017 U	0.056 U	0.021 R	0.02 U	--	--	0.073 U	0.019 U	0.017 U	0.019 R	0.05 U
RDA-SW-SWU-0415		20150409	--	--	--	0.019 U	0.017 U	--	0.042 U	0.017 U	0.056 U	0.021 U	0.02 U	--	--	0.073 U	0.019 U	0.017 U	0.019 U	0.05 U
RDA-SW-SWU-0316		20160331	--	--	--	0.019 U	0.017 UJ	--	0.042 U	0.017 UJ	0.056 UJ	0.021 U	0.02 U	--	--	0.073 U	0.019 UJ	0.017 U	0.019 U	0.05 U
RDA-SWU-0517		20170516	--	--	--	0.19 U	0.19 U	--	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	--	--	0.096 U	0.19 U	0.19 U	0.19 U	0.19 U
RDA-SWU-052418		20180524	--	--	--	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--	0.1 U	0.2 U	0.2 U	0.2 U	0.2 U

			SEMIVOLATILES (UG/L)				VOLATILES (UG/L)												
Sample ID	Location ID	Sample Date	PENTACHLOROPHENOL	PHENANTHRENE	PHENOL	PYRENE	2-BUTANONE	ACETONE	BENZENE	CARBON DISULFIDE	CHLOROBENZENE	CHLOROMETHANE	CYCLOHEXANE	ISOPROPYLBENZENE	METHYL ACETATE	METHYL CYCLOHEXANE	METHYLENE CHLORIDE	TOLUENE	TRANS-1,3-DICHLOROPROPENE
PALs			15	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
RDA-SW-SW01-0607		20070613	1 U	0.1 UJ	10 U	0.1 UJ	5 U	5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.49 J**	0.5 U
RDA-SW-SW01-0907		20070913	20 U	0.1 U	10 U	0.1 U	5 UJ	5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U
RDA-SW-SW01-1207		20071205	1 U	0.1 U	10 U	0.1 U	5 UJ	5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
RDA-SW-SW01-0408		20080408	1 U	0.1 U	10 U	0.1 U	5 U	5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
RDA-SW-SW01-0608		20080611	0.5 UJ	0.1 U	10 U	0.1 U	5 UJ	5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
RDA-SW-SW01-0908		20080908	0.5 U	0.1 U	10 U	0.1 U	5 U	5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U
RDA-SW-SW01-1208		20081209	0.5 UJ	0.1 U	10 U	0.1 U	5 U	5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
RDA-SW-SW01-0309		20090310	0.5 U	0.1 U	10 U	0.1 U	5 U	5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
RDA-SW-SW01-0909		20090914	--	0.2 U	--	0.2 U	5 U	6 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	**0.1 J**	**0.06 J**
RDA-SW-SW01-0310		20100318	--	0.09 UJ	--	0.09 U	2.5 U	**3 J**	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.2 UJ	0.25 U	0.25 U
RDA-SW-SW01-0910	RDA-SW01	20100916	--	0.094 U	--	0.094 U	2.5 UJ	2.5 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 UJ	0.25 U	0.25 U	0.25 U	0.25 UJ	0.25 UJ
RDA-SW-SW01-0311		20110314	--	**0.18 J**	--	**0.34 J**	2.5 UJ	**5.8 J**	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	**0.86**	0.25 U	0.25 U	0.25 U	0.25 U
RDA-SW-SW01-0911		20110906	--	0.095 U	--	0.095 UJ	2.5 UJ	**3.3 J**	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
RDA-SW-SW01-52012		20120501	**1.2**	0.019 U	--	0.016 U	2.1 U	2.2 U	0.33 U	0.34 U	0.26 U	0.26 U	0.71 U	0.38 U	0.29 U	0.76 U	0.41 U	0.32 U	0.48 U
RDA-SW-SW01-0912		20120906	0.055 U	0.019 R	--	0.016 R	2.1 U	2.2 U	0.33 U	0.34 U	0.26 U	0.26 U	0.71 U	0.38 U	0.29 U	0.76 U	0.41 U	**0.72 J**	0.48 U
RDA-SW-SW01-0313		20130319	1 UJ	0.1 U	--	0.1 U	5 U	**3.1 J**	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
RDA-SW-SW01-0414		20140424	0.055 U	0.019 U	--	0.016 U	2.1 U	2.2 U	0.33 U	0.34 U	0.26 U	0.26 U	0.71 U	0.38 U	0.29 U	0.76 U	0.41 U	0.32 U	0.48 U
RDA-SW-SW01-0415		20150409	0.055 U	0.019 U	--	0.016 U	2.1 U	2.2 U	0.33 U	0.34 U	0.26 U	0.26 U	0.71 U	0.38 U	0.29 U	0.76 U	0.41 U	0.32 U	0.48 U
RDA-SW-SW01-0316		20160331	0.055 UJ	0.019 U	--	0.016 UJ	2.1 U	2.2 U	0.33 U	0.34 U	0.26 U	0.26 U	0.71 U	0.38 U	0.29 U	0.76 U	0.41 U	0.32 U	0.48 U
RDA-SW01-0517		20170515	--	0.19 UJ	--	0.19 UJ	10 U	10 U	1 U	2 U	0.5 U	1 U	1 U	1 U	5 U	1 U	5 U	1 U	1 U
RDA-SW01-052318		20180523	--	0.95 U	--	0.95 U	10 U	**9.9 J**	1 U	2 U	0.5 U	1 U	1 U	1 U	5 U	1 U	5 U	**1.3**	1 U
RDA-SW-SW02-0607		20070612	1 U	0.1 U	10 U	0.1 U	5 U	5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**7.7**	0.5 U
RDA-SW-SW02-0907		20070912	20 U	0.1 U	10 U	0.1 U	5 UJ	5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U
RDA-SW-SW02-0907-D		20070912	20 U	0.1 U	10 U	0.1 U	5 UJ	5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U
RDA-SW-SW02-1207		20071205	1 U	0.1 U	10 U	0.1 U	5 UJ	5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
RDA-SW-SW02-1207-D		20071205	1 U	0.1 U	10 U	0.1 U	5 UJ	5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
RDA-SW-SW02-0408		20080408	1 U	0.1 U	10 U	0.1 U	5 U	5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
RDA-SW-SW02-0408-D		20080408	1 U	0.1 UJ	10 U	0.1 UJ	5 U	5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
RDA-SW-SW02-0608	RDA-SW02	20080611	0.5 UJ	0.1 U	10 U	0.1 U	5 UJ	5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	**0.49 J**	0.5 U
RDA-SW-SW02-0608-D		20080611	0.5 UJ	0.1 U	10 U	0.1 U	5 UJ	5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	**0.46 J**	0.5 U
RDA-SW-SW02-0908		20080908	0.5 UJ	0.1 UJ	10 U	0.1 UJ	5 U	5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U
RDA-SW-SW02-0908-D		20080908	**0.64**	0.1 U	10 U	0.1 U	5 U	5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U
RDA-SW-SW02-1208		20081209	0.5 UJ	0.1 U	10 U	0.1 U	5 U	5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
RDA-SW-SW02-1208-D		20081209	0.5 UJ	0.1 U	10 U	0.1 U	5 U	5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
RDA-SW-SW02-0309		20090310	0.5 U	0.1 U	10 U	0.1 U	5 U	5 U	0.5 U	0.5 U	**0.31 J**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
RDA-SW-SW02-0309-D		20090310	0.5 U	0.1 U	10 U	0.1 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
RDA-SW-SW02-0909		20090915	--	0.2 U	--	0.2 U	5 U	5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	**0.1 J**	**0.07 J**

Sample ID	Location ID	Sample Date	SEMIVOLATILES (UG/L)				VOLATILES (UG/L)												
			PENTACHLOROPHENOL	PHENANTHRENE	PHENOL	PYRENE	2-BUTANONE	ACETONE	BENZENE	CARBON DISULFIDE	CHLOROBENZENE	CHLOROMETHANE	CYCLOHEXANE	ISOPROPYLBENZENE	METHYL ACETATE	METHYL CYCLOHEXANE	METHYLENE CHLORIDE	TOLUENE	TRANS-1,3-DICHLOROPROPENE
PALs			15	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
RDA-SW-SW02-0310	RDA-SW02	20100318	--	0.1 UJ	--	0.1 U	2.5 U	**3 J**	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.2 UJ	0.25 U	0.25 U
RDA-SW-SW02-0310-D		20100318	--	0.1 UJ	--	0.1 U	2.5 U	**3 J**	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.2 UJ	0.25 U	0.25 U
RDA-SW-SW02-0910		20100915	--	0.094 U	--	0.094 U	2.5 UJ	**4.3 J**	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 UJ
RDA-SW-SW02-0910-D		20100915	--	0.094 U	--	0.094 U	2.5 UJ	2.5 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 UJ	0.25 U	0.25 U	0.25 U	0.25 UJ	0.25 UJ
RDA-SW-SW02-0311		20110314	--	0.094 U	--	0.094 U	2.5 UJ	**3.5 J**	0.25 UJ	0.25 U	0.25 U	0.25 U	0.25 UJ	0.25 UJ	**0.25 J**	0.25 UJ	0.25 U	0.25 UJ	0.25 UJ
RDA-SW-SW02-0911		20110906	--	0.095 U	--	0.095 UJ	**1.4 J**	**6.5 J**	0.25 U	0.25 U	0.25 U	0.25 U	**0.56**	0.25 U	0.25 U	0.25 U	0.25 U	0.48 UJ	0.25 U
RDA-SW-SW02-0911-D		20110906	--	0.094 U	--	0.094 UJ	**1.5 J**	**7.1 J**	0.25 U	0.25 U	0.25 U	0.25 U	**0.57**	0.25 U	0.25 U	0.25 U	0.25 U	0.52 U	0.25 U
RDA-SW-SW02-52012		20120501	0.055 U	**0.11**	--	**0.18**	2.1 U	2.2 U	0.33 U	0.34 U	0.26 U	0.26 U	0.71 U	0.38 U	0.29 U	0.76 U	0.41 U	0.32 U	0.48 U
RDA-SW-SW02-0313		20130319	1 UJ	0.1 U	--	0.1 U	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
RDA-SW-SW02-0415		20150409	0.055 U	0.019 U	--	0.016 U	2.1 U	**6.5 J**	0.33 U	0.34 U	0.26 U	0.26 U	0.71 U	0.38 U	0.29 U	0.76 U	0.41 U	0.32 U	0.48 U
RDA-SW-SW02-0414		20140424	0.055 U	0.019 U	--	0.016 U	2.1 U	2.2 U	0.33 U	0.34 U	0.26 U	0.26 U	0.71 U	0.38 U	0.29 U	0.76 U	0.41 U	0.32 U	0.48 U
RDA-SW-SW02-0316		20160331	0.055 UJ	0.019 U	--	0.016 UJ	2.1 U	2.2 U	0.33 U	0.34 U	0.26 U	0.26 U	0.71 U	0.38 U	0.29 U	0.76 U	0.41 U	0.32 U	0.48 U
RDA-SW02-0517		20170515	--	0.2 U	--	0.2 U	10 U	10 U	1 U	2 U	0.5 U	1 U	1 U	1 U	5 U	1 U	5 U	1 U	1 U
RDA-SW02-052318		20180523	--	1 UJ	--	1 UJ	10 U	**12**	1 U	2 U	0.5 U	1 U	1 U	1 U	5 U	1 U	5 U	**1.2**	1 U
RDA-SW-SW03-0607	RDA-SW03	20070613	1 U	0.1 U	**2 J**	0.1 U	5 U	5 UJ	0.5 U	0.5 U	**20**	0.5 U	**6.2**	**0.47 J**	0.5 U	0.5 U	0.5 U	**5.4**	0.5 U
RDA-SW-SW03-0607-D		20070613	1 U	0.1 U	**2 J**	0.1 U	5 U	5 UJ	0.5 U	0.5 U	**19**	0.5 U	**5.8**	**0.45 J**	0.5 U	0.5 U	0.5 U	**5.2**	0.5 U
RDA-SW-SW03-0907		20070912	20 U	0.1 U	10 U	0.1 U	5 UJ	5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U
RDA-SW-SW03-1207		20071205	1 U	0.1 U	10 U	0.1 U	5 UJ	5 UJ	1 U	1 U	**20**	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
RDA-SW-SW03-0408		20080408	1 U	0.1 U	10 U	0.1 U	5 U	5 UJ	0.5 U	0.5 U	**25**	0.5 U	**2.6**	**0.32 J**	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
RDA-SW-SW03-0608		20080611	0.5 UJ	0.1 U	**9.2 J**	0.1 U	5 UJ	5 UJ	0.5 U	**0.32 J**	**5.7 J**	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	**2.4**	0.5 U
RDA-SW-SW03-0908		20080908	0.5 U	0.1 U	10 U	0.1 U	5 U	5 UJ	0.5 U	0.5 U	**15**	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 UJ	**5.4**	0.5 U
RDA-SW-SW03-1208		20081209	0.5 UJ	0.1 UJ	10 U	0.1 UJ	5 U	5 U	0.5 U	0.5 UJ	**17**	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	**1.5**	0.5 U
RDA-SW-SW03-0309		20090310	0.5 U	0.1 U	10 U	0.1 U	5 U	5 U	0.5 U	0.5 U	**14**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
RDA-SW-SW03-0909		20090915	--	0.2 U	--	0.2 U	5 U	5 UJ	0.5 U	0.5 U	**7**	0.5 U	0.5 U	**0.2 J**	0.5 U	0.5 U	0.5 UJ	**0.4 J**	0.5 U
RDA-SW-SW03-0310		20100318	--	0.1 UJ	--	0.1 U	**18**	**4 J**	**0.2 J**	0.25 U	**33**	0.25 U	0.25 U	**0.5 J**	0.25 U	0.25 U	0.2 UJ	0.2 UJ	0.25 U
RDA-SW-SW03-0311		20110314	--	0.094 U	--	0.094 U	2.5 UJ	**6.8 J**	0.5 U	0.25 U	**28**	0.25 U	0.5 U	**0.28 J**	0.5 U	**0.88 J**	**0.48 J**	0.5 U	0.5 U
RDA-SW-SW03-0311-D		20110314	--	0.095 U	--	0.095 U	2.5 UJ	**6.2 J**	**0.16 J**	0.25 U	**29**	0.25 U	0.25 U	**0.28 J**	0.5 U	**1**	**0.58 J**	0.25 U	0.25 U
RDA-SW-SW03-0911		20110906	--	0.095 U	--	0.095 UJ	2.5 UJ	**3.1 J**	0.25 U	0.25 U	**0.98**	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
RDA-SW-SW03-52012		20120501	0.055 U	0.019 U	--	0.016 U	2.1 U	2.2 U	0.33 U	0.34 U	0.26 U	0.26 U	0.71 U	0.38 U	0.29 U	0.76 U	0.41 U	0.32 U	0.48 U
RDA-SW-SW03-52012-D		20120501	0.055 U	0.019 U	--	0.016 U	2.1 U	**2.9 J**	0.33 U	0.34 U	**5.7**	0.26 U	0.71 U	0.38 U	0.29 U	0.76 U	0.41 U	0.32 U	0.48 U
RDA-SW-SW03-0912		20120906	0.055 U	0.019 R	--	0.016 R	2.1 U	2.2 U	0.33 U	0.34 U	0.26 U	0.26 U	0.71 U	0.38 U	0.29 U	0.76 U	0.41 U	0.32 U	0.48 U
RDA-SW-SW03-0313		20130319	1 UJ	0.1 U	--	0.1 U	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
RDA-SW-SW03-0414		20140424	0.055 U	0.019 U	--	0.016 U	2.1 U	2.2 U	0.33 U	0.34 U	0.26 U	0.26 U	0.71 U	0.38 U	0.29 U	0.76 U	0.41 U	0.32 U	0.48 U
RDA-SW-SW03-0415		20150409	0.055 U	**0.15 J**	--	**0.21 J**	2.1 U	**10 J**	0.33 U	0.34 U	0.26 U	0.26 U	0.71 U	0.38 U	0.29 U	0.76 U	0.41 U	0.32 U	0.48 U
RDA-SW-SW03-0316		20160331	0.055 UJ	0.019 U	--	0.016 U	2.1 U	2.2 U	0.33 U	0.34 U	0.26 U	0.26 U	0.71 U	0.38 U	0.29 U	0.76 U	0.41 U	0.32 U	0.48 U
RDA-SW03-0517		20170515	--	0.19 U	--	0.19 U	10 U	10 U	1 U	2 U	**7.9 J**	1 U	1 U	1 U	5 U	1 U	5 U	**5.4 J**	1 U
RDA-SW03-0517-D		20170515	--	0.19 U	--	0.19 U	10 U	10 U	1 U	2 U	0.5 UJ	1 U	1 U	1 U	5 U	1 U	5 U	1 UJ	1 U
RDA-SW03-052418		20180524	--	0.19 UJ	--	0.19 UJ	10 U	**8.7 J**	1 U	2 U	**6.3**	1 U	1 U	1 U	5 U	1 U	5 U	**4.2**	1 U

Table C-3a: Rubble Disposal Area Surface Water Results

Sample ID	Location ID	Sample Date	SEMIVOLATILES (UG/L)				VOLATILES (UG/L)												
			PENTACHLOROPHENOL	PHENANTHRENE	PHENOL	PYRENE	2-BUTANONE	ACETONE	BENZENE	CARBON DISULFIDE	CHLOROBENZENE	CHLOROMETHANE	CYCLOHEXANE	ISOPROPYLBENZENE	METHYL ACETATE	METHYL CYCLOHEXANE	METHYLENE CHLORIDE	TOLUENE	TRANS-1,3-DICHLOROPROPENE
PALs			15	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
RDA-SW-SWD-0607	RDA-SWD	20070614	1 U	0.1 U	10 U	0.1 U	5 UJ	5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
RDA-SW-SWD-0907		20070912	**0.18 J**	0.1 U	10 U	0.1 U	5 UJ	5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U
RDA-SW-SWD-1207		20071204	1 U	0.1 U	10 U	0.1 U	5 UJ	5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
RDA-SW-SWD-0408		20080408	1 U	0.1 UJ	10 U	0.1 UJ	5 U	5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
RDA-SW-SWD-0608		20080611	0.5 UJ	0.1 U	10 U	0.1 U	5 UJ	5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
RDA-SW-SWD-0908		20080908	0.5 U	0.1 U	10 U	0.1 U	5 U	5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U
RDA-SW-SWD-1208		20081208	0.5 UJ	0.1 U	10 U	0.1 U	5 U	5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
RDA-SW-SWD-0309		20090309	0.5 U	0.1 U	10 U	0.1 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
RDA-SW-SWD-0909		20090914	--	0.2 U	--	0.2 U	5 U	5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	**0.07 J**
RDA-SW-SWD-0909-D		20090914	--	0.2 U	--	0.2 U	5 U	5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	**0.06 J**
RDA-SW-SWD-0310		20100317	--	0.09 UJ	--	0.09 UJ	2.5 U	2.5 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.2 UJ	0.25 U	0.25 U
RDA-SW-SWD-0910		20100915	--	0.094 U	--	0.094 U	2.5 UJ	2.5 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ
RDA-SW-SWD-0311		20110314	--	0.094 U	--	0.094 U	2.5 UJ	2.5 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
RDA-SW-SWD-0911		20110906	--	**0.068 J**	--	**0.082 J**	2.5 UJ	**4.1 J**	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
RDA-SW-SWD-0911-D		20110906	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SW-SWD-52012		20120501	0.055 U	0.019 U	--	0.016 U	2.1 U	2.2 U	0.33 U	0.34 U	0.26 U	0.26 U	0.71 U	0.38 U	0.29 U	0.76 U	0.41 U	0.32 U	0.48 U
RDA-SW-SWD-0912		20120906	0.055 U	**0.19 J**	--	**0.41 J**	2.1 U	2.2 U	0.33 U	0.34 U	0.26 U	0.26 U	0.71 U	0.38 U	0.29 U	0.76 U	0.41 U	0.32 U	0.48 U
RDA-SW-SWD-0912-D		20120906	0.055 U	**0.15 J**	--	**0.25 J**	2.1 U	2.2 U	0.33 U	0.34 U	0.26 U	0.26 U	0.71 U	0.38 U	0.29 U	0.76 U	0.41 U	0.32 U	0.48 U
RDA-SW-SWD-0313		20130319	1 R	0.1 U	--	0.1 U	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
RDA-SW-SWD-0414		20140424	0.055 U	0.019 U	--	0.016 U	2.1 U	2.2 U	0.33 U	0.34 U	0.26 U	0.26 U	0.71 U	0.38 U	0.29 U	0.76 U	0.41 U	0.32 U	0.48 U
RDA-SW-SWD-0414-D		20140424	0.055 U	0.019 U	--	0.016 U	2.1 U	2.2 U	0.33 U	0.34 U	0.26 U	0.26 U	0.71 U	0.38 U	0.29 U	0.76 U	0.41 U	0.32 U	0.48 U
RDA-SW-SWD-0415		20150409	0.055 U	0.019 U	--	0.016 U	2.1 U	2.2 U	0.33 U	0.34 U	0.26 U	0.26 U	0.71 U	0.38 U	0.29 U	0.76 U	0.41 U	0.32 U	0.48 U
RDA-SW-SWD-0415-D		20150409	0.055 U	0.019 U	--	0.016 U	2.1 U	2.2 U	0.33 U	0.34 U	0.26 U	0.26 U	0.71 U	0.38 U	0.29 U	0.76 U	0.41 U	0.32 U	0.48 U
RDA-SW-SWD-0316		20160331	1 UB	0.019 U	--	0.016 UJ	2.1 U	2.2 U	0.33 U	0.34 U	0.26 U	0.26 U	0.71 U	0.38 U	0.29 U	0.76 U	0.41 U	0.32 U	0.48 U
RDA-SW-SWD-0316-D		20160331	1 UB	0.019 U	--	0.016 UJ	2.1 U	2.2 U	0.33 U	0.34 U	0.26 U	0.26 U	0.71 U	0.38 U	0.29 U	0.76 U	0.41 U	0.32 U	0.48 U
RDA-SWD-0517		20170516	--	0.19 U	--	0.19 U	10 U	10 U	1 U	2 U	0.5 U	1 U	1 U	1 U	5 U	1 U	5 U	1 U	1 U
RDA-SWD-052318		20180523	--	0.2 U	--	0.2 U	10 U	10 U	1 U	2 U	0.5 U	1 U	1 U	1 U	5 U	1 U	5 U	1 U	1 U
RDA-SWD-052318-D		20180523	--	0.2 U	--	0.2 U	10 U	10 U	1 U	2 U	0.5 U	1 U	1 U	1 U	5 U	1 U	5 U	1 U	1 U

Sample ID	Location ID	Sample Date	SEMIVOLATILES (UG/L)				VOLATILES (UG/L)												
			PENTACHLOROPHENOL	PHENANTHRENE	PHENOL	PYRENE	2-BUTANONE	ACETONE	BENZENE	CARBON DISULFIDE	CHLOROBENZENE	CHLOROMETHANE	CYCLOHEXANE	ISOPROPYLBENZENE	METHYL ACETATE	METHYL CYCLOHEXANE	METHYLENE CHLORIDE	TOLUENE	TRANS-1,3-DICHLOROPROPENE
PALs			15	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
RDA-SW-SWU-0607	RDA-SWU	20070614	1 U	0.1 U	10 U	0.1 U	5 UJ	5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
RDA-SW-SWU-0907		20070913	20 U	0.1 U	10 U	0.1 U	5 UJ	5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U
RDA-SW-SWU-1207		20071204	1 U	0.1 U	10 U	0.1 U	5 UJ	5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
RDA-SW-SWU-0408		20080408	1 U	0.1 U	10 U	0.1 U	5 U	5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
RDA-SW-SWU-0608		20080611	0.5 UJ	0.1 U	10 U	0.1 U	5 UJ	5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
RDA-SW-SWU-0908		20080908	0.5 U	0.1 U	10 U	0.1 U	5 U	5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U
RDA-SW-SWU-1208		20081208	0.5 UJ	0.1 U	10 U	0.1 U	5 U	5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
RDA-SW-SWU-0309		20090309	0.5 U	0.1 U	10 U	0.1 U	5 UJ	5 U	0.5 U	0.5 U	0.5 U	**0.76**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
RDA-SW-SWU-0909		20090915	--	0.2 U	--	0.2 U	5 U	5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
RDA-SW-SWU-0310		20100317	--	0.1 UJ	--	0.1 U	2.5 U	2.5 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.2 UJ	0.25 U	0.25 U
RDA-SW-SWU-0910		20100915	--	0.094 U	--	0.094 U	2.5 UJ	2.5 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 UJ
RDA-SW-SWU-0311		20110314	--	0.096 U	--	0.096 U	2.5 UJ	2.5 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
RDA-SW-SWU-0911		20110906	--	0.094 U	--	0.094 UJ	2.5 UJ	2.5 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.21 UJ	0.25 U
RDA-SW-SWU-52012		20120501	0.055 U	**0.13**	--	**0.17**	2.1 U	2.2 U	0.33 U	0.34 U	0.26 U	0.26 U	0.71 U	0.38 U	0.29 U	0.76 U	0.41 U	0.32 U	0.48 U
RDA-SW-SWU-0912		20120906	0.055 U	0.019 R	--	0.016 R	2.1 U	2.2 U	0.33 U	0.34 U	0.26 U	0.26 U	0.71 U	0.38 U	0.29 U	0.76 U	0.41 U	0.32 U	0.48 U
RDA-SW-SWU-0313		20130319	1 UJ	0.1 U	--	0.1 U	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
RDA-SW-SWU-0313-D		20130319	1 UJ	0.1 U	--	0.1 U	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
RDA-SW-SWU-0414		20140424	0.055 U	0.019 U	--	0.016 U	2.1 U	2.2 U	0.33 U	0.34 U	0.26 U	0.26 U	0.71 U	0.38 U	0.29 U	0.76 U	0.41 U	0.32 U	0.48 U
RDA-SW-SWU-0415		20150409	0.055 U	0.019 U	--	0.016 U	2.1 U	2.2 U	0.33 U	0.34 U	0.26 U	0.26 U	0.71 U	0.38 U	0.29 U	0.76 U	0.41 U	0.32 U	0.48 U
RDA-SW-SWU-0316		20160331	1 UB	0.019 U	--	0.016 UJ	2.1 U	2.2 U	0.33 U	0.34 U	0.26 U	0.26 U	0.71 U	0.38 U	0.29 U	0.76 U	0.41 U	0.32 U	0.48 U
RDA-SWU-0517		20170516	--	0.19 U	--	0.19 U	10 U	10 U	1 U	2 U	0.5 U	1 U	1 U	1 U	5 U	1 U	5 U	1 U	1 U
RDA-SWU-052418		20180524	--	0.2 U	--	0.2 U	10 U	10 U	1 U	2 U	0.5 U	1 U	1 U	1 U	5 U	1 U	5 U	1 U	1 U

Sample ID	Location ID	Sample Date	VPH MADEP (UG/L) C5-C8 ALIPHATICS	VPH MADEP (UG/L) C9-C10 AROMATICS	VPH MADEP (UG/L) C9-C12 ALIPHATICS	VPH MADEP (UG/L) ETHYLBENZENE	VPH MADEP (UG/L) TOLUENE
PALs			NC	NC	NC	NC	NC
RDA-SW-SW01-0607	RDA-SW01	20070613	--	--	--	--	--
RDA-SW-SW01-0907	RDA-SW01	20070913	--	--	--	--	--
RDA-SW-SW01-1207	RDA-SW01	20071205	--	--	--	--	--
RDA-SW-SW01-0408	RDA-SW01	20080408	--	--	--	--	--
RDA-SW-SW01-0608	RDA-SW01	20080611	--	--	--	--	--
RDA-SW-SW01-0908	RDA-SW01	20080908	--	--	--	--	--
RDA-SW-SW01-1208	RDA-SW01	20081209	--	--	--	--	--
RDA-SW-SW01-0309	RDA-SW01	20090310	--	--	--	--	--
RDA-SW-SW01-0909	RDA-SW01	20090914	--	--	--	--	--
RDA-SW-SW01-0310	RDA-SW01	20100318	--	--	--	--	--
RDA-SW-SW01-0910	RDA-SW01	20100916	--	--	--	--	--
RDA-SW-SW01-0311	RDA-SW01	20110314	--	--	--	--	--
RDA-SW-SW01-0911	RDA-SW01	20110906	--	--	--	--	--
RDA-SW-SW01-52012	RDA-SW01	20120501	--	--	--	--	--
RDA-SW-SW01-0912	RDA-SW01	20120906	--	--	--	--	--
RDA-SW-SW01-0313	RDA-SW01	20130319	--	--	--	--	--
RDA-SW-SW01-0414	RDA-SW01	20140424	--	--	--	--	--
RDA-SW-SW01-0415	RDA-SW01	20150409	--	--	--	--	--
RDA-SW-SW01-0316	RDA-SW01	20160331	**51.9 J**	**5.68 J**	**17.7 J**	--	--
RDA-SW01-0517	RDA-SW01	20170515	75 U	75 U	75 U	3.8 U	3.8 U
RDA-SW01-052318	RDA-SW01	20180523	75 U	75 U	75 U	3.8 U	**1.4 J**
RDA-SW-SW02-0607	RDA-SW02	20070612	--	--	--	--	--
RDA-SW-SW02-0907	RDA-SW02	20070912	--	--	--	--	--
RDA-SW-SW02-0907-D	RDA-SW02	20070912	--	--	--	--	--
RDA-SW-SW02-1207	RDA-SW02	20071205	--	--	--	--	--
RDA-SW-SW02-1207-D	RDA-SW02	20071205	--	--	--	--	--
RDA-SW-SW02-0408	RDA-SW02	20080408	--	--	--	--	--
RDA-SW-SW02-0408-D	RDA-SW02	20080408	--	--	--	--	--
RDA-SW-SW02-0608	RDA-SW02	20080611	--	--	--	--	--
RDA-SW-SW02-0608-D	RDA-SW02	20080611	--	--	--	--	--
RDA-SW-SW02-0908	RDA-SW02	20080908	--	--	--	--	--
RDA-SW-SW02-0908-D	RDA-SW02	20080908	--	--	--	--	--
RDA-SW-SW02-1208	RDA-SW02	20081209	--	--	--	--	--
RDA-SW-SW02-1208-D	RDA-SW02	20081209	--	--	--	--	--
RDA-SW-SW02-0309	RDA-SW02	20090310	--	--	--	--	--
RDA-SW-SW02-0309-D	RDA-SW02	20090310	--	--	--	--	--
RDA-SW-SW02-0909	RDA-SW02	20090915	--	--	--	--	--

Sample ID	Location ID	Sample Date	VPH MADEP (UG/L)				
			C5-C8 ALIPHATICS	C9-C10 AROMATICS	C9-C12 ALIPHATICS	ETHYLBENZENE	TOLUENE
PALs			NC	NC	NC	NC	NC
RDA-SW-SW02-0310	RDA-SW02	20100318	--	--	--	--	--
RDA-SW-SW02-0310-D		20100318	--	--	--	--	--
RDA-SW-SW02-0910		20100915	--	--	--	--	--
RDA-SW-SW02-0910-D		20100915	--	--	--	--	--
RDA-SW-SW02-0311		20110314	--	--	--	--	--
RDA-SW-SW02-0911		20110906	--	--	--	--	--
RDA-SW-SW02-0911-D		20110906	--	--	--	--	--
RDA-SW-SW02-52012		20120501	--	--	--	--	--
RDA-SW-SW02-0313		20130319	--	--	--	--	--
RDA-SW-SW02-0415		20150409	--	--	--	--	--
RDA-SW-SW02-0414		20140424	--	--	--	--	--
RDA-SW-SW02-0316		20160331	**57 J**	**6.92 J**	**17.4 J**	--	--
RDA-SW02-0517		20170515	75 U	75 U	75 U	3.8 U	3.8 U
RDA-SW02-052318		20180523	75 U	75 U	75 U	3.8 U	**1.3 J**
RDA-SW-SW03-0607	RDA-SW03	20070613	--	--	--	--	--
RDA-SW-SW03-0607-D		20070613	--	--	--	--	--
RDA-SW-SW03-0907		20070912	--	--	--	--	--
RDA-SW-SW03-1207		20071205	--	--	--	--	--
RDA-SW-SW03-0408		20080408	--	--	--	--	--
RDA-SW-SW03-0608		20080611	--	--	--	--	--
RDA-SW-SW03-0908		20080908	--	--	--	--	--
RDA-SW-SW03-1208		20081209	--	--	--	--	--
RDA-SW-SW03-0309		20090310	--	--	--	--	--
RDA-SW-SW03-0909		20090915	--	--	--	--	--
RDA-SW-SW03-0310		20100318	--	--	--	--	--
RDA-SW-SW03-0311		20110314	--	--	--	--	--
RDA-SW-SW03-0311-D		20110314	--	--	--	--	--
RDA-SW-SW03-0911		20110906	--	--	--	--	--
RDA-SW-SW03-52012		20120501	--	--	--	--	--
RDA-SW-SW03-52012-D		20120501	--	--	--	--	--
RDA-SW-SW03-0912		20120906	--	--	--	--	--
RDA-SW-SW03-0313		20130319	--	--	--	--	--
RDA-SW-SW03-0414		20140424	--	--	--	--	--
RDA-SW-SW03-0415		20150409	--	--	--	--	--
RDA-SW-SW03-0316		20160331	**53.2 J**	**6.35 J**	**17.1 J**	--	--
RDA-SW03-0517		20170515	75 U	75 U	75 U	**9.4**	**5.1**
RDA-SW03-0517-D		20170515	75 U	75 U	75 U	3.8 U	3.8 U
RDA-SW03-052418		20180524	75 U	75 U	75 U	**7.2**	**3.7 J**

Sample ID	Location ID	Sample Date	VPH MADEP (UG/L)				
			C5-C8 ALIPHATICS	C9-C10 AROMATICS	C9-C12 ALIPHATICS	ETHYLBENZENE	TOLUENE
PALs			NC	NC	NC	NC	NC
RDA-SW-SWD-0607	RDA-SWD	20070614	--	--	--	--	--
RDA-SW-SWD-0907		20070912	--	--	--	--	--
RDA-SW-SWD-1207		20071204	--	--	--	--	--
RDA-SW-SWD-0408		20080408	--	--	--	--	--
RDA-SW-SWD-0608		20080611	--	--	--	--	--
RDA-SW-SWD-0908		20080908	--	--	--	--	--
RDA-SW-SWD-1208		20081208	--	--	--	--	--
RDA-SW-SWD-0309		20090309	--	--	--	--	--
RDA-SW-SWD-0909		20090914	--	--	--	--	--
RDA-SW-SWD-0909-D		20090914	--	--	--	--	--
RDA-SW-SWD-0310		20100317	--	--	--	--	--
RDA-SW-SWD-0910		20100915	--	--	--	--	--
RDA-SW-SWD-0311		20110314	--	--	--	--	--
RDA-SW-SWD-0911		20110906	--	--	--	--	--
RDA-SW-SWD-0911-D		20110906	--	--	--	--	--
RDA-SW-SWD-52012		20120501	--	--	--	--	--
RDA-SW-SWD-0912		20120906	--	--	--	--	--
RDA-SW-SWD-0912-D		20120906	--	--	--	--	--
RDA-SW-SWD-0313		20130319	--	--	--	--	--
RDA-SW-SWD-0414		20140424	6.62 R	**5.2 J**	**17 J**	--	--
RDA-SW-SWD-0414-D		20140424	6.62 R	**5.74 J**	**17.5 J**	--	--
RDA-SW-SWD-0415		20150409	0.645 R	**10.9 J**	**9.84 J**	--	--
RDA-SW-SWD-0415-D		20150409	0.645 R	**5.23 J**	**14.5 J**	--	--
RDA-SW-SWD-0316		20160331	**41.7 J**	**6.83 J**	**14.3 J**	--	--
RDA-SW-SWD-0316-D		20160331	**56.4 J**	**6.63 J**	**11.3 J**	--	--
RDA-SWD-0517		20170516	75 U	75 U	75 U	3.8 U	3.8 U
RDA-SWD-052318		20180523	75 U	75 U	75 U	3.8 U	3.8 U
RDA-SWD-052318-D		20180523	75 U	75 U	75 U	3.8 U	3.8 U

Sample ID	Location ID	Sample Date	VPH MADEP (UG/L)				
			C5-C8 ALIPHATICS	C9-C10 AROMATICS	C9-C12 ALIPHATICS	ETHYLBENZENE	TOLUENE
PALs			NC	NC	NC	NC	NC
RDA-SW-SWU-0607	RDA-SWU	20070614	--	--	--	--	--
RDA-SW-SWU-0907		20070913	--	--	--	--	--
RDA-SW-SWU-1207		20071204	--	--	--	--	--
RDA-SW-SWU-0408		20080408	--	--	--	--	--
RDA-SW-SWU-0608		20080611	--	--	--	--	--
RDA-SW-SWU-0908		20080908	--	--	--	--	--
RDA-SW-SWU-1208		20081208	--	--	--	--	--
RDA-SW-SWU-0309		20090309	--	--	--	--	--
RDA-SW-SWU-0909		20090915	--	--	--	--	--
RDA-SW-SWU-0310		20100317	--	--	--	--	--
RDA-SW-SWU-0910		20100915	--	--	--	--	--
RDA-SW-SWU-0311		20110314	--	--	--	--	--
RDA-SW-SWU-0911		20110906	--	--	--	--	--
RDA-SW-SWU-52012		20120501	--	--	--	--	--
RDA-SW-SWU-0912		20120906	--	--	--	--	--
RDA-SW-SWU-0313		20130319	--	--	--	--	--
RDA-SW-SWU-0313-D		20130319	--	--	--	--	--
RDA-SW-SWU-0414		20140424	6.62 R	**5.38 J**	**17.3 J**	--	--
RDA-SW-SWU-0415		20150409	0.645 R	**5.48 J**	**13.2 J**	--	--
RDA-SW-SWU-0316		20160331	**40 J**	**5.78 J**	**15.8 J**	--	--
RDA-SWU-0517		20170516	75 U	75 U	75 U	3.8 U	3.8 U
RDA-SWU-052418		20180524	75 U	75 U	75 U	3.8 U	3.8 U

Sample ID	Location ID	Sample Date	EPH MADEP (MG/KG)															
			2-METHYLNAPHTHALENE	ACENAPHTHENE	ANTHRACENE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H,I)PERYLENE	BENZO(K)FLUORANTHENE	C11-C22 AROMATICS	C11-C22 AROMATICS-UNADJ	ALIPHATICS C19-C35	C19-C36 ALIPHATICS	C5-C8 ALIPHATICS	C9-C10 AROMATICS	C9-C12 ALIPHATICS	C9-C18 ALIPHATICS
PALs			0.07	0.083	0.4356	1.4	3.44652	2	0.37477	1.1	NC	NC	NC	NC	NC	NC	NC	NC
RDA-SD-SD01-0607	RDA-SD01	20070614	--	--	--	--	--	--	--	--	62	--	--	110	45 J	32 U	32 U	50 U
RDA-SD-SD01-0607-D		20070614	--	--	--	--	--	--	--	--	77	--	--	130	64 J	44 U	44 U	48 U
RDA-SD-SD01-0608		20080610	--	--	--	--	--	--	--	--	81	--	--	98	250 J	24 UJ	24 UJ	47 U
RDA-SD-SD01-0309		20090309	--	--	--	--	--	--	--	--	87 J	--	--	99	23 U	23 U	23 U	50 UJ
RDA-SD-SD01-0310		20100317	--	--	--	--	--	--	--	--	60 J	60 J	--	36 J	200 UJ	200 UJ	200 UJ	20 UJ
RDA-SD-SD01-0311		20110309	--	--	--	--	--	--	--	--	160	160	--	250	240 UJ	240 UJ	240 UJ	13 J
RDA-SD-SD01-52012		20120501	--	--	--	--	--	--	--	--	4.42 U	--	--	58.5	9.15	1.08 J	1.11 J	48.5
RDA-SD-SD01-0313		20130319	--	--	--	--	--	--	--	--	14.3 J	--	--	28.1 J	1.12 U	0.298 J	0.179 J	18.8 U
RDA-SD-SD01-0316		20160331	--	--	--	--	--	--	--	--	--	18.8 J	--	--	0.799 J	0.395	0.233 J	--
RDA-SD-SD01-0316-D		20160331	--	--	--	--	--	--	--	--	--	15.5 J	9.66 J	--	0.634 J	0.232 J	0.0719 J	--
RDA-SD01-052318		20180523	0.88 J	1.2 UJ	0.96 UJ	0.96 UJ	0.96 UJ	0.96 UJ	0.96 UJ	0.96 UJ	320 J	--	--	140 J	--	--	--	96 UJ
RDA-SD01-052318-D		20180523	0.86 UJ	1.1 UJ	0.86 UJ	0.86 UJ	0.86 UJ	0.86 UJ	0.86 UJ	0.86 UJ	260 J	--	--	61 J	--	--	--	86 UJ
RDA-SD-SD02-0607	RDA-SD02	20070614	--	--	--	--	--	--	--	--	60	--	--	140	63	48 U	48 U	47 U
RDA-SD-SD02-0608		20080610	--	--	--	--	--	--	--	--	100 J	--	--	150	63 UJ	63 UJ	63 UJ	50 U
RDA-SD-SD02-0608-D		20080610	--	--	--	--	--	--	--	--	220 J	--	--	230	530 J	49 UR	49 UR	49 U
RDA-SD-SD02-0309		20090309	--	--	--	--	--	--	--	--	230	--	--	240	45 U	45 U	45 U	50 U
RDA-SD-SD02-0309-D		20090309	--	--	--	--	--	--	--	--	230	--	--	210	61 U	61 U	61 U	50 U
RDA-SD-SD02-0310		20100317	--	--	--	--	--	--	--	--	100 J	100 J	--	88 J	440 UJ	440 UJ	440 UJ	20 UJ
RDA-SD-SD02-0310-D		20100317	--	--	--	--	--	--	--	--	1200 J	1200 J	--	430 J	450 UJ	450 UJ	450 UJ	150 UJ
RDA-SD-SD02-0311		20110309	--	--	--	--	--	--	--	--	180	180	--	250	270 UJ	270 UJ	270 UJ	28 U
RDA-SD-SD02-0311-D		20110309	--	--	--	--	--	--	--	--	170	170	--	250	300 UJ	300 UJ	300 UJ	16 J
RDA-SD-SD02-52012		20120520	--	--	--	--	--	--	--	--	3.03 U	--	--	59.6	9.25	0.473 J	0.461 J	63.4
RDA-SD-SD02-52012-D		20120520	--	--	--	--	--	--	--	--	2.82 U	--	--	52.9	7.32	0.396 J	0.404 J	57.2
RDA-SD-SD02-0313		20130319	--	--	--	--	--	--	--	--	32.6	--	--	37.9	0.761 U	0.153 U	0.0814 U	15.5 U
RDA-SD-SD02-0316		20160331	--	--	--	--	--	--	--	--	--	13.9 J	12.5 J	--	0.459 J	0.129 J	0.1212 J	--
RDA-SD02-052318		20180523	0.44 UJ	0.56 UJ	0.44 UJ	0.44 UJ	0.44 UJ	0.44 UJ	0.44 UJ	0.44 UJ	31 J	--	--	44 UJ	--	--	--	44 UJ
RDA-SD-SD03-0607	RDA-SD03	20070615	--	--	--	--	--	--	--	--	40 U	--	--	47	15 U	7.7 U	7.7 U	40 U
RDA-SD-SD03-0608		20080610	--	--	--	--	--	--	--	--	49 U	--	--	49 U	110 U	7.4 U	7.4 U	49 U
RDA-SD-SD03-0309		20090309	--	--	--	--	--	--	--	--	50 U	--	--	80	11 U	11 U	11 U	50 U
RDA-SD-SD03-0310		20100317	--	--	--	--	--	--	--	--	51 J	51 J	--	28 UJ	59 UJ	59 UJ	59 UJ	28 UJ
RDA-SD-SD03-0311		20110309	--	--	--	--	--	--	--	--	89 J	89 J	--	59 J	42 U	42 U	42 U	21 U
RDA-SD-SD03-052012		20120520	--	--	--	--	--	--	--	--	3.36 U	--	--	21.9 J	7.55	0.752 J	0.598 J	24.1
RDA-SD-SD03-0313		20130319	--	--	--	--	--	--	--	--	13.1 J	--	--	18.9	0.572 U	0.0744 U	0.105 U	8.67 J
RDA-SD-SD03-0313-D		20130319	--	--	--	--	--	--	--	--	27.4	--	--	34.8	1.24 J	0.164 U	0.196 J	9.94 J
RDA-SD-SD03-0316		20160331	--	--	--	--	--	--	--	--	--	12.1 J	9.53 J	--	0.476 J	0.422	0.064 J	--
RDA-SD03-052418		20180524	0.33 U	0.44 J	1.6	6.3	18	11	5.4	9.3	440	--	--	350	--	--	--	33 U

Table C-3b: Rubble Disposal Area Sediment Results

Sample ID	Location ID	Sample Date	EPH MADEP (MG/KG)									METALS (MG/KG)						
			CHRYSENE	DIBENZO(A,H)ANTHRACENE	FLUORANTHENE	FLUORENE	INDENO(1,2,3-CD)PYRENE	NAPHTHALENE	PHENANTHRENE	PYRENE	STEARYL CHLORIDE	ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM	CALCIUM
PALs			1.7	0.19	3	0.13	0.49	0.176	1.4	2.3	NC	8767.37	NC	9.8	202.48	3.2	1.95	13900
RDA-SD-SD01-0607	RDA-SD01	20070614	--	--	--	--	--	--	--	--	--	10100 J	2.9 UJ	6.2 J	84 J	0.02 U	2 J	10800 J
RDA-SD-SD01-0607-D		20070614	--	--	--	--	--	--	--	--	--	58200 J	10.4 UJ	33.3 J	382 J	0.028 U	7.4 J	50600 J
RDA-SD-SD01-0608		20080610	--	--	--	--	--	--	--	--	--	13200	0.56 J	10.1	95.5	0.74	2.5 J	10500
RDA-SD-SD01-0309		20090309	--	--	--	--	--	--	--	--	--	8940	0.46 J	4.5	61.9	0.83	1.2 J	7980
RDA-SD-SD01-0310		20100317	--	--	--	--	--	--	--	--	--	12500	1.4 J	7.5	92.7	0.7	2.3 J	14800
RDA-SD-SD01-0311		20110309	--	--	--	--	--	--	--	--	--	16000 J	2.4 J	8.6	121 J	1 J	2.7	18600 J
RDA-SD-SD01-52012		20120501	--	--	--	--	--	--	--	--	--	5280	0.98 J	9.2	80.9	0.25	0.87	9240
RDA-SD-SD01-0313		20130319	--	--	--	--	--	--	--	--	--	7010 J	0.45 J	3.5 U	53.5	0.37	0.35	2660
RDA-SD-SD01-0316		20160331	--	--	--	--	--	--	--	--	2.76	5000	0.48 J	2.5	29	0.11 J	0.4	1800
RDA-SD-SD01-0316-D		20160331	--	--	--	--	--	--	--	--	2.57	5720	0.65	2.8	33	0.095 J	0.51	2500
RDA-SD01-052318		20180523	0.96 UJ	0.96 UJ	0.96 UJ	0.96 UJ	0.96 UJ	1.2 J	0.96 UJ	0.96 UJ	--	7600 J	2.3 J	12 J	240 J	0.7 J	1.6 J	29000 J
RDA-SD01-052318-D		20180523	0.86 UJ	0.86 UJ	0.86 UJ	0.86 UJ	0.86 UJ	0.86 UJ	0.86 UJ	0.86 UJ	--	5600 J	2.1 J	9.7 J	200 J	0.66 J	1.1 J	23000 J
RDA-SD-SD02-0607	RDA-SD02	20070614	--	--	--	--	--	--	--	--	--	46400 J	4 UJ	19.2 J	480 J	1.1 J	5.3 J	33200 J
RDA-SD-SD02-0608		20080610	--	--	--	--	--	--	--	--	--	14300	0.56 J	6.3	150	1.6	1.9	10900
RDA-SD-SD02-0608-D		20080610	--	--	--	--	--	--	--	--	--	16800	0.49 J	7.7	155	1.4	2.2	8690
RDA-SD-SD02-0309		20090309	--	--	--	--	--	--	--	--	--	7800	0.14 UJ	2.1	83.9	0.76	0.61 J	6950
RDA-SD-SD02-0309-D		20090309	--	--	--	--	--	--	--	--	--	11800	0.14 UJ	4.2	113	1.3	1.2 J	9180
RDA-SD-SD02-0310		20100317	--	--	--	--	--	--	--	--	--	11000	0.5 UJ	4	95.7	0.77	1.2 J	7920
RDA-SD-SD02-0310-D		20100317	--	--	--	--	--	--	--	--	--	10900	0.5 UJ	5	96.4	0.74	1.5 J	7510
RDA-SD-SD02-0311		20110309	--	--	--	--	--	--	--	--	--	14300 J	0.35 J	5.1	131 J	1 J	1.5	9240 J
RDA-SD-SD02-0311-D		20110309	--	--	--	--	--	--	--	--	--	12000 J	0.28 J	4.9	115 J	0.86 J	1.4	8380 J
RDA-SD-SD02-52012		20120520	--	--	--	--	--	--	--	--	--	7410	0.65 J	5.3 J	68.9 J	1.1 J	1.7 J	4850
RDA-SD-SD02-52012-D		20120520	--	--	--	--	--	--	--	--	--	5290	0.81 J	3.4	66.2	0.31	1.2	5730
RDA-SD-SD02-0313		20130319	--	--	--	--	--	--	--	--	--	3560 J	0.31 J	1.9 U	39.2	0.19 J	0.23	2560
RDA-SD-SD02-0316		20160331	--	--	--	--	--	--	--	--	3.31	6480	0.84	4.5	36.5	0.25	0.94	2550
RDA-SD02-052318		20180523	0.44 UJ	0.44 UJ	0.33 J	0.44 UJ	0.44 UJ	0.44 UJ	0.44 UJ	0.44 UJ	--	8100 J	0.7 J	7.5 J	110 J	0.59 J	1.7 J	14000 J
RDA-SD-SD03-0607	RDA-SD03	20070615	--	--	--	--	--	--	--	--	--	6800 J	1.4 UJ	3.5 J	87.4 J	0.0076 U	0.5 J	4930 J
RDA-SD-SD03-0608		20080610	--	--	--	--	--	--	--	--	--	5290	0.13 UJ	3	46.2	0.28	0.17 J	1980
RDA-SD-SD03-0309		20090309	--	--	--	--	--	--	--	--	--	7710	0.14 UJ	2.7	72.1	0.58	0.44 J	3740
RDA-SD-SD03-0310		20100317	--	--	--	--	--	--	--	--	--	8690	0.5 UJ	3.9	69.9	0.24 J	0.35 J	6570
RDA-SD-SD03-0311		20110309	--	--	--	--	--	--	--	--	--	8000 J	0.2 J	3	59 J	0.33 J	0.27	4530 J
RDA-SD-SD03-052012		20120520	--	--	--	--	--	--	--	--	--	12100	2.3	5.2	168	0.17 J	4.9	7730
RDA-SD-SD03-0313		20130319	--	--	--	--	--	--	--	--	--	6770 J	0.38 J	2.1 U	22.7	0.27	0.063 U	1630
RDA-SD-SD03-0313-D		20130319	--	--	--	--	--	--	--	--	--	11900 J	0.69 J	5.1 U	58.8	0.45 J	0.32	3360
RDA-SD-SD03-0316		20160331	--	--	--	--	--	--	--	--	2.71	6270	0.54	3.2	34.3	0.12	0.55	2330
RDA-SD03-052418		20180524	12	0.5	25	0.77	4.8	0.33 U	14	21	--	8700	0.4 J	2.9	98	0.23	0.36	4900

Table C-3b: Rubble Disposal Area Sediment Results

Sample ID	Location ID	Sample Date	METALS (MG/KG)															
			CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE	MERCURY	NICKEL	POTASSIUM	SELENIUM	SILVER	SODIUM	THALLIUM	VANADIUM	ZINC
PALs			43.4	25.7	53.3	2400	200.86	1683.03	3690	0.28	22.7	603.24	1	0.5	2180	NC	38.18	549
RDA-SD-SD01-0607	RDA-SD01	20070614	**13.9 J**	**7.1 J**	**55.6 J**	**22000 J**	**97.6 J**	**3020 J**	**421 J**	0.07 U	**10.7 J**	**1090**	**0.22 J**	4.5 UJ	**209**	0.25 U	**56.7 J**	**261 J**
RDA-SD-SD01-0607-D		20070614	**71.4 J**	**32.6 J**	**156 J**	**21400 J**	**83.1 J**	**14300 J**	**1820 J**	0.11 U	**52.1 J**	**988**	**0.31 J**	**19 J**	**184 J**	0.36 U	**259 J**	**994 J**
RDA-SD-SD01-0608		20080610	**21.4**	**6.7**	**37**	**74700**	**65**	**3780**	**561**	**0.067**	**11.7 J**	**1140**	**2.4**	0.091 UJ	**217**	0.29 U	**43.4**	**194**
RDA-SD-SD01-0309		20090309	**10.1**	**3.6 J**	**22.6**	**18500 J**	**46.2 J**	**2640 J**	**348**	**0.05**	**6.5 J**	**823**	**0.62 J**	0.11 U	**166**	0.35 U	**32.6 J**	**146 J**
RDA-SD-SD01-0310		20100317	**16.1 J**	**4.2 J**	**28.9**	**21900 J**	**70.9**	**2810**	**574**	**0.09**	**10.3**	**1080**	1.3 UJ	**0.15**	**205**	**0.14 J**	**62.6**	**313**
RDA-SD-SD01-0311		20110309	**21 J**	**7.6 J**	**41.6 J**	**31800 J**	**95.9 J**	**3990 J**	**772 J**	**0.17 J**	**13.8 J**	**1340**	**1.6**	**0.18 J**	**260**	**0.16 J**	**98.3 J**	**360 J**
RDA-SD-SD01-52012		20120501	**9.5**	**2.9**	**15.6 J**	**22800**	**56.6 J**	**1500**	**665**	**0.042 J**	**4.4**	**420**	0.37 U	0.037 U	**80.4**	**1.4**	**16.7 J**	**83.7 J**
RDA-SD-SD01-0313		20130319	**11.3**	**3.8**	**14.9 J**	**13200 J**	**49.2 J**	**2380 J**	**201**	**0.022 J**	**6**	564 U	0.3 U	0.29 U	71.5 U	0.1 U	**19.7 J**	**57.9**
RDA-SD-SD01-0316		20160331	**5.7 J**	**2.1**	**11**	**8500**	**23 J**	**1100 J**	**290**	**0.032 J**	**4.1**	**200**	**0.75 J**	**0.16 J**	**43 J**	**0.4 J**	**11**	**60**
RDA-SD-SD01-0316-D		20160331	**8.6 J**	**2.6**	**13.6**	**9890**	**27.9**	**1370**	**430**	**0.033 J**	**5.9**	**264**	**1**	**0.22 J**	**66.9 J**	**0.45 J**	**13.2**	**89.2**
RDA-SD01-052318		20180523	**12 J**	**2.1 J**	**41 J**	**84000 J**	**74 J**	**1500 J**	**1100 J**	**0.26 J**	**10 J**	**780 J**	**2.1 J**	**0.36 J**	**270 J**	0.56 UJ	**69 J**	**220 J**
RDA-SD01-052318-D		20180523	**10 J**	**1.6 J**	**35 J**	**69000 J**	**55 J**	**1300 J**	**1100 J**	**0.18 J**	**8.4 J**	**620 J**	1.9 U	**0.32 J**	**260 J**	0.54 UJ	**53 J**	**160 J**
RDA-SD-SD02-0607	RDA-SD02	20070614	**47.2 J**	**28.5 J**	**132 J**	**8570 J**	**107 J**	**5800 J**	**1470 J**	0.22 UJ	**40.8 J**	**240**	0.36 UJ	8.3 UJ	**77.7 J**	0.42 UJ	**104 J**	**660 J**
RDA-SD-SD02-0608		20080610	**13.3**	**6**	**41.7**	**17800**	**123**	**1920**	**2610**	**0.26**	**11.9**	**419**	**4.8**	0.15 UJ	**117**	0.46 U	**38.6**	**215**
RDA-SD-SD02-0608-D		20080610	**13.8**	**6.8**	**44.2**	**14000**	**165**	**2160**	**1680**	**0.28**	**13.7**	**404**	**4.4**	0.12 UJ	**124**	**0.42 J**	**48.5**	**244**
RDA-SD-SD02-0309		20090309	**5.9**	**2.5 J**	**17.5**	**11500 J**	**51.4 J**	**825 J**	**1930**	0.0061 UJ	**5 J**	**175**	**1.7**	0.11 U	**82.2**	0.35 U	**12.8 J**	**67.6 J**
RDA-SD-SD02-0309-D		20090309	**8.7**	**4.2 J**	**28.7**	**20800 J**	**85.1 J**	**1640 J**	**2250**	0.0053 UJ	**8 J**	**345**	**1.4 J**	0.11 U	**108**	0.35 U	**28.6 J**	**146 J**
RDA-SD-SD02-0310		20100317	**10 J**	**4.2 J**	**24.6**	**15300 J**	**77.4**	**1150**	**1700**	**0.21**	**8.3**	**394**	**2.1**	**0.16**	96.4 U	**0.14 J**	**21.9**	**135**
RDA-SD-SD02-0310-D		20100317	**23.2 J**	**5.2 J**	**34.2**	**40200 J**	**78.6**	**1290**	**2040**	**0.2**	**13.6**	**368**	2.2 U	**0.16**	93.2 U	**0.12 J**	**35.2**	**135**
RDA-SD-SD02-0311		20110309	**14.5 J**	**6.5 J**	**30.3 J**	**20400 J**	**99.8 J**	**1860 J**	**2580 J**	**0.28 J**	**11.7 J**	**551**	**1.8**	**0.2**	**133 J**	**0.17 J**	**40.4 J**	**164 J**
RDA-SD-SD02-0311-D		20110309	**13.1 J**	**7.2 J**	**27.6 J**	**19200 J**	**85.2 J**	**1650 J**	**2090 J**	**0.22 J**	**11.9 J**	**390**	**1.6**	**0.17**	**117**	**0.13**	**37.9 J**	**150 J**
RDA-SD-SD02-52012		20120520	**5.5 J**	**3.4 J**	**14.3 J**	**31800**	**37.1 J**	**2370**	**2160**	**0.039 J**	**8.3 J**	**1210**	0.5 R	0.05 R	**70.5**	**3.8 J**	**45 J**	**171 J**
RDA-SD-SD02-52012-D		20120520	**7.4**	**3**	**15.6 J**	**22500**	**34.7 J**	**1450**	**3930**	**0.046 J**	**6.1**	**427**	**2.2**	**0.23 J**	**58.7**	**4.7**	**20 J**	**58.8 J**
RDA-SD-SD02-0313		20130319	**4.7 J**	**1.7 J**	**9.6 J**	**16100 J**	**17.3 J**	**912 J**	**928 J**	**0.024 J**	3.1 U	242 U	0.29 U	0.42 U	51.4 U	0.095 U	**11.2 J**	**40.7**
RDA-SD-SD02-0316		20160331	**8.7**	**3.1**	**14.9**	**19900**	**31.8**	**1550**	**425**	**0.029 J**	**5.7**	**249**	**0.48 J**	**0.42 J**	**64.8**	**0.57**	**16.3**	**81**
RDA-SD02-052318		20180523	**12 J**	**4.4 J**	**34 J**	**46000 J**	**88 J**	**2300 J**	**2000 J**	**0.079 J**	**10 J**	**810 J**	2 U	**0.083 J**	**380 J**	0.52 UJ	**26 J**	**110 J**
RDA-SD-SD03-0607	RDA-SD03	20070615	**10.2 J**	**4.5 J**	**44.7 J**	**18800 J**	**61.6 J**	**1390 J**	**2160 J**	0.019 UJ	**7.2 J**	**255**	0.083 UJ	**4.2 J**	**32.5 J**	0.098 U	**15.7 J**	**76.8 J**
RDA-SD-SD03-0608		20080610	**6.8**	**2.5**	**11.2**	**9170**	**35.8**	**1440**	**455**	**0.015 J**	**4.5 J**	**258**	**1.2 J**	0.1 UJ	**43.5 J**	0.33 U	**13**	**47.1**
RDA-SD-SD03-0309		20090309	**8.1**	**3.4 J**	**19.2**	**12900 J**	**69.8 J**	**2200 J**	**797**	**0.03 J**	**7.1 J**	**260**	0.6 U	0.11 U	**50.4**	0.35 U	**15.9 J**	**86.1 J**
RDA-SD-SD03-0310		20100317	**12.1 J**	**2.9 J**	**20.6**	**15100 J**	**81.4**	**1740**	**595**	**0.06**	**6.8**	**420**	0.64 UJ	**0.07 J**	64.3 UJ	**0.07 J**	**20.7**	**90.5**
RDA-SD-SD03-0311		20110309	**12.7 J**	**3.5 J**	**17.8 J**	**15000 J**	**71.6 J**	**1570 J**	**948 J**	**0.04 J**	**7.2 J**	**382**	**0.37 J**	**0.06 J**	**67.8 J**	**0.06 J**	**19.4 J**	**91.3 J**
RDA-SD-SD03-052012		20120520	**14.9**	**4.2**	**37.3**	**119000**	**120**	**2040**	**2100**	**0.16**	**8.2**	**446**	0.81 U	0.081 U	**120**	**3.6**	**20.7**	**159**
RDA-SD-SD03-0313		20130319	**7.5**	**4.1**	**9.3 J**	**12600 J**	**13.1 J**	**2400 J**	**265**	**0.03 J**	**6.5**	295 U	0.26 U	0.25 U	42.7 U	0.088 U	**14.9 J**	**110**
RDA-SD-SD03-0313-D		20130319	**15.7 J**	**5.5 J**	**20.1 J**	**21500 J**	**47.6 J**	**3270 J**	**242 J**	**0.025 J**	**8.5 J**	827 U	0.29 UJ	0.44 U	98.1 U	0.098 U	**29.8 J**	**60.6**
RDA-SD-SD03-0316		20160331	**7.3**	**3**	**15.2**	**10400**	**30.3**	**1670**	**387**	**0.038 J**	**5.6**	**325**	**0.77**	**0.24 J**	**58.9**	**0.45 J**	**14.6**	**114**
RDA-SD03-052418		20180524	**11**	**5.6**	**18**	**35000**	**74**	**1600**	**3100**	**0.097**	**8.3**	**340**	0.99 U	**0.12 J**	**230**	0.22 U	**22**	**85**

Sample ID	Location ID	Sample Date	MISCELLANEOUS PARAMETERS (%) PERCENT MOISTURE	TOTAL SOLIDS	CYANIDE	4,4'-DDD	4,4'-DDE	4,4'-DDT	ALPHA-CHLORDANE	AROCLOR-1242	AROCLOR-1260	DELTA-BHC	DIELDRIN	ENDOSULFAN SULFATE	ENDRIN	ENDRIN ALDEHYDE	ENDRIN KETONE	GAMMA-CHLORDANE
PALs			NC	NC	NC	0.73	0.23428	0.29	0.012	NC	0.23	0.0049	0.017	NC	NC	NC	NC	0.014
RDA-SD-SD01-0607	RDA-SD01	20070614	--	--	0.53 UJ	**0.028**	**0.015**	**0.0036 J**	**0.008 J**	0.016 UJ	**0.04 J**	0.0017 U	0.0033 U	0.0033 U	0.0033 U	**0.0043**	0.0033 U	**0.0052 J**
RDA-SD-SD01-0607-D		20070614	--	--	0.91 UJ	**0.04**	**0.019**	**0.0048 J**	**0.0073 J**	**0.048 J**	**0.051 J**	0.0017 U	0.0032 U	0.0032 U	**0.0055 J**	0.0032 U	0.0032 U	**0.0056 J**
RDA-SD-SD01-0608		20080610	--	--	0.12 U	**0.037**	0.008 U	0.008 U	0.0041 U	0.016 U	0.14 U	0.0041 U	0.008 U	0.008 U	0.008 U	0.008 U	0.008 U	0.0041 U
RDA-SD-SD01-0309		20090309	--	--	0.12 UJ	**0.016 J**	**0.0056 J**	**0.0027 J**	0.0089 UJ	0.017 U	**0.024 J**	0.00085 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 UJ	0.0055 UJ
RDA-SD-SD01-0310		20100317	--	--	0.4 UJ	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SD-SD01-0311		20110309	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SD-SD01-52012		20120501	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SD-SD01-0313		20130319	**29**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SD-SD01-0316		20160331	--	--	--	--	--	--	--	0.0013 U	0.0009 U	--	--	--	--	--	--	--
RDA-SD-SD01-0316-D		20160331	--	--	--	--	--	--	--	0.0013 U	0.0009 U	--	--	--	--	--	--	--
RDA-SD01-052318		20180523	--	**15**	--	--	--	--	--	0.038 UJ	**0.17 J**	--	--	--	--	--	--	--
RDA-SD01-052318-D		20180523	--	**15**	--	--	--	--	--	0.035 UJ	**0.13 J**	--	--	--	--	--	--	--
RDA-SD-SD02-0607	RDA-SD02	20070614	--	--	0.75 UJ	**0.046**	**0.018**	0.0033 U	0.0017 U	0.016 U	**0.024 J**	0.0017 U	0.0033 U	0.0033 U	0.0033 U	0.0033 U	**0.0037 J**	0.0017 U
RDA-SD-SD02-0608		20080610	--	--	**0.18 J**	**0.11 J**	**0.033 J**	0.017 U	0.0085 U	0.017 U	0.35 U	0.0085 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.0085 U
RDA-SD-SD02-0608-D		20080610	--	--	0.13 U	**0.034 J**	0.0081 U	0.0081 U	0.0042 U	0.016 U	0.11 U	0.0042 U	0.0081 U	**0.0098 J**	0.0081 U	0.048 U	0.0081 U	0.0042 U
RDA-SD-SD02-0309		20090309	--	--	**0.14 J**	**0.088**	**0.035**	0.017 U	0.0085 U	0.017 U	**0.041 J**	0.0085 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.0085 U
RDA-SD-SD02-0309-D		20090309	--	--	0.12 UJ	**0.077**	**0.031**	0.016 U	0.0085 U	0.016 U	**0.032 J**	0.0085 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.0085 U
RDA-SD-SD02-0310		20100317	--	--	0.4 UJ	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SD-SD02-0310-D		20100317	--	--	0.4 UJ	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SD-SD02-0311		20110309	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SD-SD02-0311-D		20110309	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SD-SD02-52012		20120520	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SD-SD02-52012-D		20120520	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SD-SD02-0313		20130319	**28**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SD-SD02-0316		20160331	--	--	--	--	--	--	--	0.0012 U	0.0009 U	--	--	--	--	--	--	--
RDA-SD02-052318		20180523	--	**34**	--	--	--	--	--	0.031 UJ	0.076 UJ	--	--	--	--	--	--	--
RDA-SD-SD03-0607	RDA-SD03	20070615	--	--	0.24 UJ	0.0016 U	**0.0032**	0.0016 U	**0.0046 J**	0.016 U	0.016 UJ	0.00082 U	0.0016 U	0.0016 U	0.0016 UJ	0.0016 UJ	0.0016 U	**0.0034 J**
RDA-SD-SD03-0608		20080610	--	--	0.12 U	0.0016 U	**0.0037 J**	0.0016 U	**0.0051 J**	0.016 U	0.016 U	**0.00085 J**	0.004 U	0.01 U	0.0016 UJ	0.0016 U	0.0016 U	**0.0036 J**
RDA-SD-SD03-0309		20090309	--	--	**0.17 J**	**0.0046**	**0.0081**	0.0017 U	**0.011 J**	0.017 U	0.017 U	0.00085 U	**0.0041**	0.0017 U	0.0017 U	0.0017 U	0.0017 U	**0.0087 J**
RDA-SD-SD03-0310		20100317	--	--	0.64 UJ	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SD-SD03-0311		20110309	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SD-SD03-052012		20120520	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SD-SD03-0313		20130319	**29**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SD-SD03-0313-D		20130319	**38**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDA-SD-SD03-0316		20160331	--	--	--	--	--	--	--	0.0012 U	0.0009 U	--	--	--	--	--	--	--
RDA-SD03-052418		20180524	--	**38**	--	--	--	--	--	0.014 U	0.036 UJ	--	--	--	--	--	--	--

Table C-3b: Rubble Disposal Area Sediment Results

Sample ID	Location ID	Sample Date	SEMIVOLATILES (MG/KG) 1-METHYLNAPHTHALENE	2-METHYLNAPHTHALENE	2-METHYLPHENOL	4-METHYLPHENOL	ACENAPHTHENE	ACENAPHTHYLENE	ANTHRACENE	ATRAZINE	BENZALDEHYDE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H,I)PERYLENE	BENZO(K)FLUORANTHENE	BIS(2-CHLOROETHYL)ETHER	BIS(2-ETHYLHEXYL)PHTHALATE
PALs			NC	0.07	NC	NC	0.083	0.25792	0.4356	NC	NC	1.4	3.44652	2	0.37477	1.1	NC	NC
RDA-SD-SD01-0607	RDA-SD01	20070614	--	0.0036 J	0.0033 U	0.33 U	0.2 J	0.022 J	0.044 J	0.33 U	0.18 JRB	0.18 J	0.16 J	0.3 J	0.034 J	0.15 J	0.0033 U	0.56 U
RDA-SD-SD01-0607-D		20070614	--	0.0049 J	0.0032 U	0.32 U	0.19 J	0.028 J	0.058 J	0.32 U	0.22 JRB	0.3 J	0.18 J	0.57 J	0.06 J	0.13 J	0.0032 U	0.64 U
RDA-SD-SD01-0608		20080610	--	0.0032 U	0.012	0.32 U	0.03	0.018	0.038	0.0032 U	0.58 J	0.094	0.055	0.083	0.031	0.045	0.0032 U	0.27 J
RDA-SD-SD01-0309		20090309	--	0.013	0.0033 U	0.33 U	0.13 J	0.034	0.059	0.0033 UJ	0.33 UJ	0.24	0.12 J	0.24	0.056 J	0.12 J	0.0033 U	0.17 J
RDA-SD-SD01-0310		20100317	0.00998 U	0.00998 U	--	--	0.021	0.005 J	0.013 J	--	--	0.073	0.076	0.16	0.048	0.044	--	--
RDA-SD-SD01-0311		20110309	--	0.01 U	--	--	0.083	0.0097 J	0.022	--	--	0.18 J	0.12	0.2	0.052	0.055	--	--
RDA-SD-SD01-52012		20120501	--	0.0018 U	0.0012 U	--	0.015	0.0084	0.023	0.0018 U	--	0.099	0.088	0.14	0.057	0.052	0.0016 U	--
RDA-SD-SD01-0313		20130319	--	0.0033 U	0.0033 UJ	--	0.0033 U	0.007	0.34 J	0.0033 U	0.029 J	0.6 J	0.47 J	0.67 J	0.22	0.21	0.0033 U	--
RDA-SD-SD01-0316		20160331	--	0.001 U	0.00063 U	--	0.0009 U	0.0092 J	0.0094 J	0.00099 U	0.033	0.046	0.045 J	0.082 J	0.041	0.037	0.00086 U	--
RDA-SD-SD01-0316-D		20160331	--	0.001 U	0.00063 U	--	0.0009 U	0.0068 J	0.009 J	0.00099 U	0.047	0.043	0.042 J	0.081 J	0.032	0.029	0.00086 U	--
RDA-SD01-052318		20180523	--	0.44 UJ	--	--	0.44 UJ	0.44 UJ	0.44 UJ	--	--	0.32 J	0.18 J	0.41 J	0.44 UJ	0.14 J	--	--
RDA-SD01-052318-D		20180523	--	0.4 UJ	--	--	0.4 UJ	0.4 UJ	0.4 UJ	--	--	0.24 J	0.19 J	0.37 J	0.4 UJ	0.13 J	--	--
RDA-SD-SD02-0607	RDA-SD02	20070614	--	0.0062 J	0.0033 U	0.33 U	0.015 J	0.072 J	0.05 J	0.33 U	0.32 JRB	0.23 J	0.3 J	0.67 J	0.12 J	0.22 J	0.0033 U	0.84 U
RDA-SD-SD02-0608		20080610	--	0.024 J	0.015	0.12 J	0.036 J	0.1 J	0.16 J	0.0066 U	1 J	0.24 J	0.27 J	0.4 J	0.21 J	0.21 J	0.0066 UJ	0.15 J
RDA-SD-SD02-0608-D		20080610	--	0.0084 J	0.017	0.32 U	0.012 J	0.038 J	0.053 J	0.0032 U	1.2 J	0.076 J	0.075 J	0.11 J	0.029 J	0.098 J	0.025 J	0.55
RDA-SD-SD02-0309		20090309	--	0.014	0.0033 U	0.33 U	0.016 J	0.041	0.039	0.0033 UJ	0.66 J	0.084	0.14	0.18	0.031	0.13 J	0.0033 U	0.49
RDA-SD-SD02-0309-D		20090309	--	0.011	0.0033 U	0.33 U	0.0069 J	0.029	0.026	0.0033 UJ	1 J	0.081	0.092	0.16	0.038	0.076 J	0.0033 U	0.78
RDA-SD-SD02-0310		20100317	0.006 J	0.006 J	--	--	0.007 J	0.027	0.024	--	--	0.15	0.22	0.37	0.23 J	0.19 J	--	--
RDA-SD-SD02-0310-D		20100317	0.006 J	0.002 J	--	--	0.006 J	0.026	0.025	--	--	0.13	0.2	0.36	0.12 J	0.094 J	--	--
RDA-SD-SD02-0311		20110309	--	0.018 U	--	--	0.013 J	0.036 J	0.027 J	--	--	0.14	0.23 J	0.48 J	0.13 J	0.13 J	--	--
RDA-SD-SD02-0311-D		20110309	--	0.01 U	--	--	0.0059 J	0.024	0.016 J	--	--	0.091	0.19 J	0.27 J	0.098 J	0.078 J	--	--
RDA-SD-SD02-52012		20120520	--	0.002 U	0.0013 U	--	0.042	0.011	0.098	0.002 U	--	0.3	0.27	0.39	0.15	0.16	0.0017 U	--
RDA-SD-SD02-52012-D		20120520	--	0.002 U	0.0012 U	--	0.043	0.012	0.091	0.002 U	--	0.25	0.24	0.37	0.15	0.12	0.0017 U	--
RDA-SD-SD02-0313		20130319	--	0.0033 U	0.026 J	--	0.0033 U	0.0049	0.037 J	0.0033 UJ	0.026 J	0.16 J	0.12 J	0.18 J	0.068 J	0.086 J	0.0033 U	--
RDA-SD-SD02-0316		20160331	--	0.001 U	0.00063 U	--	0.0009 U	0.011 J	0.013 J	0.00099 U	0.048	0.059	0.057 J	0.11 J	0.044	0.045	0.00086 U	--
RDA-SD02-052318		20180523	--	0.36 UJ	--	--	0.36 UJ	0.36 UJ	0.36 UJ	--	--	0.28 J	0.27 J	0.39 J	0.19 J	0.16 J	--	--
RDA-SD-SD03-0607	RDA-SD03	20070615	--	0.0032 U	0.0032 U	0.32 U	0.0032 U	0.0051 J	0.0052 J	0.32 U	0.057 JRB	0.041 J	0.062 J	0.16 J	0.026 J	0.051 J	0.0032 U	0.32 U
RDA-SD-SD03-0608		20080610	--	0.0032 U	0.0032 U	0.32 U	0.004	0.0032 U	0.0067	0.0032 U	0.34 J	0.037	0.037	0.089 J	0.03	0.027 J	0.0032 UJ	0.32 U
RDA-SD-SD03-0309		20090309	--	0.0071	0.0044	0.33 U	0.0098	0.016	0.019	0.0033 UJ	0.29 J	0.07	0.073	0.14	0.034	0.057	0.0033 U	0.12 J
RDA-SD-SD03-0310		20100317	0.005 J	0.007 J	--	--	0.015 J	0.00998 U	0.009 J	--	--	0.083	0.088 J	0.18 J	0.087	0.05	--	--
RDA-SD-SD03-0311		20110309	--	0.017 U	--	--	0.017 U	0.0078 J	0.008 J	--	--	0.089 J	0.15 J	0.29 J	0.1 J	0.073 J	--	--
RDA-SD-SD03-052012		20120520	--	0.002 U	0.0012 U	--	0.0018 U	0.012	0.013	0.002 U	--	0.085	0.11	0.21	0.1	0.062	0.0017 U	--
RDA-SD-SD03-0313		20130319	--	0.0035	0.0033 UJ	--	0.0033 U	0.0085	0.22	0.0033 U	0.018 J	0.59 J	0.48 J	0.68 J	0.26	0.29	0.0033 U	--
RDA-SD-SD03-0313-D		20130319	--	0.0033 U	0.0055 J	--	0.0033 U	0.0033 U	0.0056 J	0.02 J	0.017 J	0.029 J	0.025 J	0.037 J	0.017 J	0.014 J	0.0033 U	--
RDA-SD-SD03-0316		20160331	--	0.001 U	0.00063 U	--	0.0038 J	0.012 J	0.024 J	0.00099 U	0.053	0.11	0.086 J	0.18 J	0.056	0.058	0.00086 U	--
RDA-SD03-052418		20180524	--	0.16 U	--	--	0.16 U	0.16 U	0.16 U	--	--	0.16 U	0.082 J	0.16	0.16 U	0.051 J	--	--

Table C-3b: Rubble Disposal Area Sediment Results

Sample ID	Location ID	Sample Date	SEMIVOLATILES (MG/KG)													
			BUTYL BENZYL PHTHALATE	CARBAZOLE	CHRYSENE	DIBENZO(A,H)ANTHRACENE	DIBENZOFURAN	DI-N-BUTYL PHTHALATE	FLUORANTHENE	FLUORENE	INDENO(1,2,3-CD)PYRENE	NAPHTHALENE	PENTACHLOROPHENOL	PHENANTHRENE	PHENOL	PYRENE
PALs			NC	NC	1.7	0.19	NC	NC	3	0.13	0.49	0.176	NC	1.4	NC	2.3
RDA-SD-SD01-0607	RDA-SD01	20070614	0.33 U	0.33 U	0.21 J	0.014 J	0.036 J	0.33 U	0.43	0.2 J	0.038 J	0.01 J	0.67 U	0.095 J	0.013 JRB	0.22 J
RDA-SD-SD01-0607-D		20070614	0.32 U	0.034 J	0.18 J	0.018 J	0.32 U	0.32 U	0.79	0.18 J	0.062 J	0.016 J	0.66 U	0.12 J	0.014 JRB	0.46
RDA-SD-SD01-0608		20080610	0.32 U	0.32 U	0.11	0.012	0.32 U	0.16 J	0.45	0.029	0.031	0.0096	0.65 U	0.066	0.047 J	0.37
RDA-SD-SD01-0309		20090309	0.12 J	0.33 U	0.3	0.03	0.33 U	0.33 U	1.3 J	0.12 J	0.064	0.014	0.033 UJ	0.13 J	0.011	0.83 J
RDA-SD-SD01-0310		20100317	--	--	0.092	0.015 J	--	--	0.13	0.025	0.07	0.00998 U	--	0.04	--	0.19
RDA-SD-SD01-0311		20110309	--	--	0.16	0.017 J	--	--	0.72	0.091	0.11	0.01 U	--	0.12	--	0.57
RDA-SD-SD01-52012		20120501	--	--	0.12	0.016	--	--	0.19	0.014	0.048	0.0018 U	0.0012 U	0.082	0.024	0.15
RDA-SD-SD01-0313		20130319	--	--	0.49 J	0.064 J	--	--	0.93 J	0.14	0.23	0.0033 U	0.033 UJ	0.92 J	0.01 J	0.91 J
RDA-SD-SD01-0316		20160331	--	--	0.051	0.013 J	--	--	0.072 J	0.00087 U	0.038	0.001 U	0.036 J	0.018 J	0.0025 U	0.058 J
RDA-SD-SD01-0316-D		20160331	--	--	0.048	0.0098	--	--	0.081 J	0.00087 U	0.03	0.001 U	0.00065 U	0.019 J	0.0025 U	0.065 J
RDA-SD01-052318		20180523	--	--	0.38 J	0.44 UJ	--	--	0.73 J	0.44 UJ	0.44 UJ	0.44 UJ	--	0.22 UJ	--	0.68 J
RDA-SD01-052318-D		20180523	--	--	0.31 J	0.4 UJ	--	--	0.55 J	0.4 UJ	0.4 UJ	0.4 UJ	--	0.17 J	--	0.49 J
RDA-SD-SD02-0607	RDA-SD02	20070614	0.33 U	0.33 U	0.33 J	0.021 J	0.33 U	0.33 U	0.45	0.02 J	0.1 J	0.0087 J	0.67 U	0.21 J	0.015 JRB	0.33
RDA-SD-SD02-0608		20080610	0.37	0.33 U	0.39 J	0.086 J	0.33 U	0.33 U	0.92 J	0.052 J	0.2 J	0.041 J	0.67 U	0.48 J	0.032 J	0.68 J
RDA-SD-SD02-0608-D		20080610	0.46	0.32 U	0.1 J	0.027 J	0.32 U	0.32 U	0.3 J	0.015 J	0.064 J	0.018 J	0.66 U	0.13 J	0.034 J	0.27 J
RDA-SD-SD02-0309		20090309	0.38	0.33 U	0.17	0.025	0.33 U	0.33 U	0.27	0.02	0.087	0.023	0.033 UJ	0.12	0.02	0.25
RDA-SD-SD02-0309-D		20090309	0.48	0.33 U	0.13	0.019	0.33 U	0.33 U	0.23	0.012	0.06	0.017	0.033 UJ	0.093	0.02	0.22
RDA-SD-SD02-0310		20100317	--	--	0.24	0.07 J	--	--	0.2	0.011 J	0.27	0.006 J	--	0.15	--	0.21 J
RDA-SD-SD02-0310-D		20100317	--	--	0.2	0.037 J	--	--	0.22	0.013 J	0.18	0.003 J	--	0.14	--	0.43 J
RDA-SD-SD02-0311		20110309	--	--	0.24 J	0.035 J	--	--	0.32 J	0.024 J	0.16 J	0.006 J	--	0.17 J	--	0.42 J
RDA-SD-SD02-0311-D		20110309	--	--	0.13 J	0.025 J	--	--	0.18 J	0.012 J	0.12 J	0.0039 J	--	0.096 J	--	0.25 J
RDA-SD-SD02-52012		20120520	--	--	0.34	0.044	--	--	0.62	0.041	0.13	0.0071	0.0013 U	0.38	0.013	0.52
RDA-SD-SD02-52012-D		20120520	--	--	0.27	0.04	--	--	0.52	0.039	0.13	0.002 U	0.0013 U	0.34	0.01	0.43
RDA-SD-SD02-0313		20130319	--	--	0.16 J	0.02 J	--	--	0.28 J	0.021 J	0.066 J	0.0033 U	0.033 UJ	0.17 J	0.0033 UJ	0.23 J
RDA-SD-SD02-0316		20160331	--	--	0.069	0.014	--	--	0.1 J	0.00087 U	0.043	0.001 U	0.00065 U	0.036 J	0.0025 U	0.084 J
RDA-SD02-052318		20180523	--	--	0.31 J	0.36 UJ	--	--	0.67 J	0.36 UJ	0.2 J	0.36 UJ	--	0.27 J	--	0.53 J
RDA-SD-SD03-0607	RDA-SD03	20070615	0.32 U	0.32 U	0.055 J	0.012	0.32 U	0.32 U	0.036 J	0.0034 J	0.022 J	0.0032 U	0.64 U	0.023 J	0.0048 RB	0.024
RDA-SD-SD03-0608		20080610	0.32 U	0.32 U	0.053	0.01	0.32 U	0.32 U	0.068	0.0061	0.029	0.0079	0.032 UJ	0.023	0.031 J	0.06
RDA-SD-SD03-0309		20090309	0.33 U	0.33 U	0.11	0.023	0.33 U	0.33 U	0.16	0.014	0.061	0.012	0.033 UJ	0.056	0.0074	0.13
RDA-SD-SD03-0310		20100317	--	--	0.12	0.028 J	--	--	0.11	0.018 J	0.12	0.01 J	--	0.042	--	0.1
RDA-SD-SD03-0311		20110309	--	--	0.15	0.026 J	--	--	0.14 J	0.0056 J	0.11 J	0.017 U	--	0.044 J	--	0.14 J
RDA-SD-SD03-052012		20120520	--	--	0.12	0.028	--	--	0.11	0.0017 U	0.092	0.002 U	0.0013 U	0.032	0.02	0.091
RDA-SD-SD03-0313		20130319	--	--	0.63 J	0.08	--	--	0.93 J	0.067	0.26	0.014	0.033 UJ	0.79 J	0.0033 U	0.91 J
RDA-SD-SD03-0313-D		20130319	--	--	0.028 J	0.0048 J	--	--	0.046 J	0.0058 J	0.016 J	0.0033 U	0.033 UJ	0.017 J	0.0083 J	0.041 J
RDA-SD-SD03-0316		20160331	--	--	0.11	0.019	--	--	0.2 J	0.0053 J	0.056	0.001 U	0.00065 U	0.063 J	0.0025 U	0.16 J
RDA-SD03-052418		20180524	--	--	0.11 J	0.16 U	--	--	0.13 J	0.16 U	0.16 U	0.16 U	--	0.08 U	--	0.099 J

Table C-3b: Rubble Disposal Area Sediment Results

Sample ID	Location ID	Sample Date	VOLATILES (MG/KG)															
			1,2,4-TRICHLOROBENZENE	1,2-DICHLOROBENZENE	1,3-DICHLOROBENZENE	1,4-DICHLOROBENZENE	2-BUTANONE	2-HEXANONE	ACETONE	BENZENE	CARBON DISULFIDE	CHLOROBENZENE	CYCLOHEXANE	ISOPROPYLBENZENE	METHYL ACETATE	METHYL CYCLOHEXANE	METHYL TERT-BUTYL ETHER	METHYLENE CHLORIDE
PALs			NC	NC	NC	NC	0.33	NC	0.41684	NC	NC	NC	NC	NC	NC	NC	NC	NC
RDA-SD-SD01-0607		20070614	0.017 U	0.017 U	0.017 U	0.017 U	**0.15**	0.017 U	**0.28 J**	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U
RDA-SD-SD01-0607-D		20070614	0.024 U	0.024 U	0.024 U	0.024 U	**0.22**	0.024 U	**0.44 J**	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U
RDA-SD-SD01-0608		20080610	0.0071 U	0.0071 U	0.0071 U	0.0071 U	**0.028 J**	0.0071 U	**0.15 J**	0.0071 U	0.0071 U	0.0071 U	0.0071 U	0.0071 U	0.0071 U	0.0071 U	0.0071 U	0.0071 U
RDA-SD-SD01-0309		20090309	0.018 UJ	0.018 UJ	0.018 UJ	0.018 UJ	**0.064 J**	0.018 U	**0.28 J**	0.018 U	0.018 U	0.018 UJ	0.018 UJ	0.018 UJ	0.018 U	0.018 UJ	0.018 U	0.018 U
RDA-SD-SD01-0310		20100317	0.00507 UJ	0.00507 UJ	0.00507 UJ	0.00507 UJ	**0.21**	0.02533 U	**0.75**	0.00507 U	**0.004 J**	0.00507 U	0.00507 U	0.00507 UJ	0.00608 U	0.00507 U	0.00507 U	0.02533 U
RDA-SD-SD01-0311	RDA-SD01	20110309	0.009 UJ	**0.0044 J**	0.009 UJ	**0.0018 J**	**0.18**	**0.032 J**	**1.1 J**	0.009 U	**0.043**	**0.0029 J**	0.009 U	**0.0036 J**	**0.019**	**0.0076 J**	0.009 U	0.045 U
RDA-SD-SD01-52012		20120501	0.00085 UJ	0.00084 UJ	0.00094 UJ	0.0011 UJ	0.0027 UJ	0.0011 UJ	**0.0079 J**	0.00082 U	0.0004 U	0.00069 UJ	0.0023 U	0.00078 U	0.0019 U	0.0024 U	0.00082 U	0.0018 U
RDA-SD-SD01-0313		20130319	0.0025 UJ	0.0025 UJ	0.0025 UJ	0.0025 UJ	0.0025 UJ	0.0025 UJ	0.0025 UJ	0.0025 UJ	0.0025 UJ	0.0025 UJ	0.0025 UJ	0.0025 UJ	0.0025 UJ	0.0025 UJ	0.0025 UJ	0.023 U
RDA-SD-SD01-0316		20160331	0.00027 U	0.00027 U	0.0003 U	0.00034 U	**0.0032 J**	0.00035 U	**0.016 J**	0.00026 U	0.00013 U	0.00022 U	0.00073 U	0.00025 U	0.0006 U	0.00077 U	0.00026 U	0.00056 U
RDA-SD-SD01-0316-D		20160331	0.00027 U	0.00026 U	0.0003 U	0.00034 U	0.00085 U	0.00035 U	**0.013 J**	0.00026 U	0.00013 UJ	0.00022 U	0.00072 U	0.00025 U	0.00059 U	0.00076 U	0.00026 U	0.00055 U
RDA-SD01-052318		20180523	0.016 UJ	0.033 UJ	0.033 UJ	0.016 UJ	**0.9 J**	0.082 UJ	**4 J**	0.016 UJ	0.033 UJ	0.016 UJ	0.033 UJ	0.054 UJ	**0.11 J**	0.016 UJ	**0.013 J**	0.016 UJ
RDA-SD01-052318-D		20180523	0.011 UJ	0.021 UJ	0.021 UJ	0.011 UJ	**0.44 J**	0.053 UJ	**2.6 J**	0.011 UJ	0.021 UJ	0.011 UJ	0.021 UJ	0.035 UJ	**0.14 J**	0.011 UJ	**0.0095 J**	0.011 UJ
RDA-SD-SD02-0607		20070614	0.019 U	0.019 U	0.019 U	0.019 U	**0.22**	0.019 U	**0.38 J**	0.019 U	0.019 U	**0.004 J**	**0.17**	**0.005 J**	0.019 U	0.019 U	0.019 U	0.019 U
RDA-SD-SD02-0608		20080610	0.017 UJ	0.017 UJ	0.017 UJ	0.017 UJ	**0.49 J**	0.017 U	**1.6 J**	0.017 U	0.017 U	**0.0076 J**	0.017 U	**0.017 J**	0.017 U	**0.028 J**	0.017 U	0.017 U
RDA-SD-SD02-0608-D		20080610	0.013 UJ	0.013 UJ	0.013 UJ	0.013 UJ	0.013 UJ	0.013 U	**1.4 J**	0.013 U	0.013 U	**0.0045 J**	0.013 U	**0.014 J**	0.013 U	**0.027 J**	0.013 U	0.013 U
RDA-SD-SD02-0309		20090309	0.029 UJ	0.029 UJ	0.029 UJ	0.029 UJ	**0.57 J**	0.029 U	**3.2 J**	0.029 U	**0.019 J**	**0.014 J**	0.029 U	**0.0094 J**	0.029 U	0.029 U	0.029 U	**0.0064 J**
RDA-SD-SD02-0309-D		20090309	0.03 UJ	0.03 UJ	0.03 UJ	0.03 UJ	**0.77 J**	0.03 UJ	**2.4 J**	0.03 UJ	**0.011 J**	**0.018 J**	0.03 UJ	**0.018 J**	0.03 UJ	0.03 UJ	0.03 UJ	0.03 UJ
RDA-SD-SD02-0310		20100317	0.01027 UJ	0.01027 UJ	0.01027 UJ	0.01027 UJ	**0.7 J**	0.05137 UJ	**1.6 J**	0.01027 UJ	**0.007 J**	**0.01 J**	0.01027 UJ	**0.022 J**	0.01233 UJ	**0.008 J**	0.01027 UJ	0.05137 UJ
RDA-SD-SD02-0310-D	RDA-SD02	20100317	**0.023 J**	**0.007 J**	**0.007 J**	**0.011 J**	**1.8 J**	**0.068 J**	**4.5 J**	0.01221 UJ	**0.011 J**	**0.014 J**	0.01221 UJ	**0.045 J**	**0.41 J**	**0.012 J**	0.01221 UJ	0.06104 UJ
RDA-SD-SD02-0311		20110309	0.0072 UJ	0.0072 UJ	0.0072 UJ	0.0072 UJ	0.036 UJ	0.036 UJ	**0.73 J**	**0.0038 J**	**0.0087 J**	**0.0093 J**	0.0072 UJ	**0.028 J**	**0.013 J**	0.0072 UJ	0.0072 UJ	0.036 UJ
RDA-SD-SD02-0311-D		20110309	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	**0.46 J**	0.052 UJ	**0.98 J**	0.01 UJ	**0.018 J**	**0.0088 J**	0.01 UJ	**0.033 J**	**0.017 J**	0.01 UJ	0.01 UJ	0.052 UJ
RDA-SD-SD02-52012		20120520	0.001 U	0.001 U	0.0012 U	0.0013 U	0.0033 U	0.0014 U	0.0027 U	0.001 U	0.0005 U	0.00085 U	0.0028 U	0.00097 U	0.0023 U	0.003 U	0.001 U	0.0022 U
RDA-SD-SD02-52012-D		20120520	0.0012 UJ	0.0011 UJ	0.0013 UJ	0.0015 UJ	0.0037 UJ	0.0015 UJ	0.0029 UJ	0.0011 UJ	0.00055 UJ	0.00094 UJ	0.0031 U	0.0011 UJ	0.0026 U	0.0033 U	0.0011 UJ	**0.0026 J**
RDA-SD-SD02-0313		20130319	0.0019 UJ	0.0019 UJ	0.0019 UJ	0.0019 UJ	0.0019 UJ	0.0019 UJ	0.0019 UJ	0.0019 UJ	0.0019 UJ	0.0019 UJ	0.0019 UJ	0.0019 UJ	0.0019 UJ	0.0019 UJ	0.0019 UJ	0.0019 UJ
RDA-SD-SD02-0316		20160331	0.00037 U	0.00037 U	0.00041 U	0.00047 U	0.0012 U	0.00049 U	**0.022 J**	0.00036 U	0.00018 UJ	0.0003 U	0.001 U	0.00034 U	0.00083 U	0.0011 U	0.00036 U	0.00077 U
RDA-SD02-052318		20180523	0.011 UX	0.023 UX	0.023 UX	0.011 UX	**0.46 J**	0.057 UJ	**2.8 J**	0.011 UJ	0.023 UJ	0.011 UJ	0.023 UJ	0.038 UJ	0.11 UJ	0.011 UJ	**0.013 J**	0.011 UJ
RDA-SD-SD03-0607		20070615	0.004 U	0.004 U	0.004 U	0.004 U	**0.06**	0.004 U	**0.15 J**	0.004 U	0.004 U	**0.038**	**0.14**	**0.001 J**	0.004 U	**0.016**	0.004 U	0.004 U
RDA-SD-SD03-0608		20080610	0.0027 UJ	0.0027 UJ	0.0027 UJ	0.0027 UJ	0.0027 UJ	0.0027 U	**0.048 J**	0.0027 U	0.0027 U	**0.035 J**	0.0027 UJ	**0.0011 J**	0.0027 U	**0.0038 J**	0.0027 U	0.0027 U
RDA-SD-SD03-0309		20090309	0.0054 UJ	0.0054 UJ	0.0054 UJ	0.0054 UJ	**0.031 J**	0.0054 U	**0.11 J**	0.0054 U	0.0054 U	**0.01 J**	0.0054 U	0.0054 U	0.0054 U	0.0054 U	0.0054 U	0.0054 U
RDA-SD-SD03-0310		20100317	0.0034 UJ	0.0034 UJ	0.0034 UJ	0.0034 UJ	**0.044 J**	0.01698 UJ	**0.14 J**	0.0034 UJ	0.0034 UJ	**0.022 J**	0.0034 UJ	0.0034 UJ	0.00408 UJ	0.0034 UJ	0.0034 UJ	0.01698 UJ
RDA-SD-SD03-0311	RDA-SD03	20110309	0.002 UJ	0.002 UJ	0.002 UJ	0.002 UJ	0.01 U	0.01 U	0.078 UJ	0.002 U	0.003 UJ	**0.066 J**	0.002 UJ	**0.0016 J**	0.0025 U	0.002 U	0.002 U	0.01 U
RDA-SD-SD03-052012		20120520	0.0019 U	0.0018 U	0.0021 U	0.0024 U	**0.075**	0.0025 U	**0.19**	0.0018 U	0.00089 U	**0.007 J**	0.005 U	0.0017 U	0.0042 U	0.0053 U	0.0018 U	**0.007 J**
RDA-SD-SD03-0313		20130319	0.0014 UJ	0.0014 U	0.0014 UJ	0.0014 UJ	**0.0016**	0.0014 UJ	**0.0055**	0.0014 U	0.0014 U	0.0014 UJ	0.0014 U	0.0014 UJ	0.0014 U	0.0014 U	0.0014 U	0.0014 UJ
RDA-SD-SD03-0313-D		20130319	0.003 UJ	0.003 UJ	0.003 UJ	0.003 UJ	**0.014 J**	0.003 UJ	**0.034 J**	0.003 UJ	0.003 UJ	0.003 UJ	0.003 UJ	0.003 UJ	0.003 UJ	0.003 UJ	0.003 UJ	0.019 U
RDA-SD-SD03-0316		20160331	0.00032 U	0.00032 U	0.00036 U	0.00041 U	**0.0047 J**	0.00042 U	**0.024 J**	0.00031 U	0.00015 U	0.00026 U	0.00087 U	0.0003 U	0.00071 U	0.00092 U	0.00031 U	0.00066 U
RDA-SD03-052418		20180524	0.0045 UJ	0.0089 UJ	0.0089 UJ	0.0045 UJ	**0.097**	0.022 U	**0.57**	0.0045 U	0.0089 U	**0.048**	0.0089 U	0.015 U	**0.028 J**	0.0045 U	0.0089 U	0.0045 U

Table C-3b: Rubble Disposal Area Sediment Results

Sample ID	Location ID	Sample Date	VOLATILES (MG/KG)		VPH MADEP (MG/KG)				
			TOLUENE	TOTAL XYLENES	BENZENE	ETHYLBENZENE	M+P-XYLENES	NAPHTHALENE	O-XYLENE
PALs			NC	NC	NC	NC	NC	0.176	NC
RDA-SD-SD01-0607	RDA-SD01	20070614	0.017 U	0.017 U	--	--	--	--	--
RDA-SD-SD01-0607-D	RDA-SD01	20070614	0.024 U	0.024 U	--	--	--	--	--
RDA-SD-SD01-0608	RDA-SD01	20080610	0.0071 U	**0.0023 J**	--	--	--	--	--
RDA-SD-SD01-0309	RDA-SD01	20090309	0.018 U	0.018 UJ	--	--	--	--	--
RDA-SD-SD01-0310	RDA-SD01	20100317	0.00507 U	0.0152 U	--	--	--	--	--
RDA-SD-SD01-0311	RDA-SD01	20110309	0.009 U	0.027 U	--	--	--	--	--
RDA-SD-SD01-52012	RDA-SD01	20120501	0.00063 U	0.00063 R	--	--	--	--	--
RDA-SD-SD01-0313	RDA-SD01	20130319	0.0025 UJ	0.0025 UJ	--	--	--	--	--
RDA-SD-SD01-0316	RDA-SD01	20160331	0.0002 U	0.0002 U	--	--	--	--	--
RDA-SD-SD01-0316-D	RDA-SD01	20160331	0.0002 U	0.0002 U	--	--	--	--	--
RDA-SD01-052318	RDA-SD01	20180523	0.011 U	0.033 UJ	2 UJ	2 UJ	4.1 UJ	10 UJ	2 UJ
RDA-SD01-052318-D	RDA-SD01	20180523	0.006 U	0.021 UJ	3.1 UJ	3.1 UJ	6.2 UJ	15 UJ	3.1 UJ
RDA-SD-SD02-0607	RDA-SD02	20070614	0.019 U	0.019 U	--	--	--	--	--
RDA-SD-SD02-0608	RDA-SD02	20080610	0.017 U	**0.011 J**	--	--	--	--	--
RDA-SD-SD02-0608-D	RDA-SD02	20080610	0.013 U	**0.009 J**	--	--	--	--	--
RDA-SD-SD02-0309	RDA-SD02	20090309	0.029 U	0.029 U	--	--	--	--	--
RDA-SD-SD02-0309-D	RDA-SD02	20090309	0.03 UJ	**0.0073 J**	--	--	--	--	--
RDA-SD-SD02-0310	RDA-SD02	20100317	0.01027 UJ	0.03082 UJ	--	--	--	--	--
RDA-SD-SD02-0310-D	RDA-SD02	20100317	0.01221 UJ	**0.014 J**	--	--	--	--	--
RDA-SD-SD02-0311	RDA-SD02	20110309	0.0072 UJ	0.022 UJ	--	--	--	--	--
RDA-SD-SD02-0311-D	RDA-SD02	20110309	0.01 UJ	0.032 UJ	--	--	--	--	--
RDA-SD-SD02-52012	RDA-SD02	20120520	0.00078 U	0.00078 U	--	--	--	--	--
RDA-SD-SD02-52012-D	RDA-SD02	20120520	0.00086 UJ	0.00086 UJ	--	--	--	--	--
RDA-SD-SD02-0313	RDA-SD02	20130319	0.0019 UJ	0.0019 UJ	--	--	--	--	--
RDA-SD-SD02-0316	RDA-SD02	20160331	0.00028 U	0.00028 U	--	--	--	--	--
RDA-SD02-052318	RDA-SD02	20180523	0.0081 U	0.023 UJ	**0.37 J**	**0.62 J**	**0.89 J**	**0.61 J**	**0.46 J**
RDA-SD-SD03-0607	RDA-SD03	20070615	**0.001 J**	0.004 U	--	--	--	--	--
RDA-SD-SD03-0608	RDA-SD03	20080610	**0.0019 J**	0.0027 UJ	--	--	--	--	--
RDA-SD-SD03-0309	RDA-SD03	20090309	0.0054 U	0.0054 U	--	--	--	--	--
RDA-SD-SD03-0310	RDA-SD03	20100317	0.0034 UJ	0.01019 UJ	--	--	--	--	--
RDA-SD-SD03-0311	RDA-SD03	20110309	0.002 U	0.0062 UJ	--	--	--	--	--
RDA-SD-SD03-052012	RDA-SD03	20120520	0.0014 U	0.0014 U	--	--	--	--	--
RDA-SD-SD03-0313	RDA-SD03	20130319	0.0014 U	0.0014 UJ	--	--	--	--	--
RDA-SD-SD03-0313-D	RDA-SD03	20130319	0.003 UJ	**0.0007 J**	--	--	--	--	--
RDA-SD-SD03-0316	RDA-SD03	20160331	0.00024 U	0.00024 U	--	--	--	--	--
RDA-SD03-052418	RDA-SD03	20180524	0.0045 U	0.0089 U	0.9 UJ	**0.22 J**	1.8 UJ	4.4 UJ	0.9 UJ

APPENDIX C-4
SITE INSPECTION REPORT AND PHOTOGRAPHS

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Five-Year Review Site Inspection Checklist

<table>
<tr><th colspan="2">I. SITE INFORMATION</th></tr>
<tr><td>Site name: IR Site 2 – Rubble Disposal Area, OU 2</td><td>Date of inspection: 12/5/18</td></tr>
<tr><td>Location and Region: Former NAS South Weymouth, Weymouth, MA</td><td>EPA ID: MA2170022022</td></tr>
<tr><td>Agency, office, or company leading the five-year review: Tetra Tech</td><td>Weather/temperature: Sunny, 30°F</td></tr>
<tr><td colspan="2">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_removal of PCB impacted soil, wetland restoration, post-closure LTM and O&M.
____________________</td></tr>
<tr><td colspan="2">Attachments: ☐ Inspection team roster attached X Site map attached</td></tr>
<tr><th colspan="2">II. INTERVIEWS (Check all that apply)</th></tr>
<tr><td colspan="2">1. O&M site manager ____________ ____________ ____________
Name Title Date
Interviewed ☐ at site ☐ at office ☐ by phone Phone no. ____________
Problems, suggestions; ☐ Report attached ____________
____________</td></tr>
<tr><td colspan="2">2. O&M staff ____________ ____________ ____________
Name Title Date
Interviewed ☐ at site ☐ at office ☐ by phone Phone no. ____________
Problems, suggestions; ☐ Report attached ____________
____________</td></tr>
<tr><td colspan="2"></td></tr>
</table>

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.

See Report.

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 onsite but the O&M manual and O&M facility inspection reports 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 — X 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______________________________

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 (Date)	To (Date)	Total cost	
From__________	To__________	__________________	☐ Breakdown attached
From__________	To__________	__________________	☐ Breakdown attached
From__________	To__________	__________________	☐ Breakdown attached
From__________	To__________	__________________	☐ Breakdown attached
From__________	To__________	__________________	☐ Breakdown attached

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__

B. Other Access Restrictions

1. **Signs and other security measures** X Location shown on site map ☐ N/A
Remarks__Signage was present and in good condition. See attached site map.___________________

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
___Annual LUC inspections have been conducted in accordance with the LUCIP and documented in annual LUC monitoring reports prepared by Navy contractors. The most recent inspection was performed by Tetra Tech on 1/4/19 and stated the Site is compliant with the LUC objectives.
______

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___Bill Delahunt Parkway and sidewalk/walking path are located directly north of RDA. _

VI. GENERAL SITE CONDITIONS

A. Roads X Applicable ☐ N/A

1. **Roads damaged** ☐ Location shown on site map X Roads adequate ☐ N/A
Remarks____Access road appeared to be in good condition. There are no roads or access paths within the RDA site boundary. ______

B. Other Site Conditions

Remarks _Maintenance and annual mowing of landfill cover were in progress at the time of the inspection. The mowing had not yet started due to wet conditions but vegetation within 2 feet of the wood guard rail had been removed from the northern perimeter at the time of the inspection. Vegetation and small trees were observed along the southern riprap drainage ditch at the time of the inspection. Vegetation on cap is well established and was approximately 1 to 3 feet high at the time of the inspection. No erosion, ruts or areas of bare soil were observed on the landfill cap area. All gas vents and gas probes observed to be in good condition and secured. Gas vents were noted to be incorrectly labeled when compared to the site map at the time of the inspection but were subsequently corrected. Several gas probes need new bolts. TT-06 PVC needs to be trimmed so well casing cover can be secured/locked.

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 X Cover properly established X No signs of stress
☐ Trees/Shrubs (indicate size and locations on a diagram)
Remarks__Vegetation cover on cap 1-3 ft high at time of inspection. Mowing and vegetation removal event scheduled for following week due to wet conditions.

6. **Alternative Cover (armored rock, concrete, etc.)** X N/A
Remarks____

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 ☐ N/A or okay Remarks____
2.	**Bench Breached** ☐ Location shown on site map ☐ N/A or okay Remarks____
3.	**Bench Overtopped** ☐ Location shown on site map ☐ N/A or okay Remarks____
C. Letdown Channels	☐ Applicable X 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 ☐ No evidence of settlement Areal extent______________ Depth____________ Remarks____
2.	**Material Degradation** ☐ Location shown on site map ☐ No evidence of degradation Material type_______________ Areal extent_____________ Remarks____
3.	**Erosion** ☐ Location shown on site map ☐ No evidence of erosion Areal extent______________ Depth____________ Remarks____

4.	**Undercutting** ☐ Location shown on site map ☐ No evidence of undercutting Areal extent______________ Depth____________ Remarks____	
5.	**Obstructions** Type_____________________ ☐ No obstructions ☐ Location shown on site map Areal extent______________ Size____________ Remarks____	
6.	**Excessive Vegetative Growth** Type____________________ ☐ 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 X Properly secured/locked X Functioning X Routinely sampled X Good condition ☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A Remarks__Gas vents were re-labeled in accordance with the site map on 1/4/19_________________	
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_Gas probes should be labeled externally on casing or concrete pad._________________	
3.	**Monitoring Wells** (within surface area of landfill) ☐ Properly secured/locked X Functioning X Routinely sampled X Good condition ☐ Evidence of leakage at penetration X Needs Maintenance X N/A Remarks_TT-06 PVC needs to be trimmed so well casing cover can sit flush and secured with lock.	
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** X Location shown on site map ☐ N/A
☐ Vegetation does not impede flow
Areal extent_______________ Type_____________
Remarks___Thick vegetation in riprap drainage ditch along southern perimeter of landfill. Annual mowing and vegetation removal in progress at time of inspection.____________________________
____

3. **Erosion** ☐ Location shown on site map X Erosion not evident
Areal extent_______________ Depth_____________
Remarks____

4. **Discharge Structure** X Functioning ☐ N/A
Remarks___Discharge structures include perimeter riprap._____
____

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

E. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)
□ Properly secured/locked X Functioning X Routinely sampled X Good condition
X All required wells located X Needs Maintenance □ N/A
Remarks__TT-06 PVC needs to be trimmed so well can be locked.____________________________

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.____

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

The landfill cap and other remedy components were observed to be in good condition. Mowing of the landfill cap and removal of vegetation along the perimeter ditches were in progress at the time of the site inspection.

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. ___See Report.______________________________
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. _See Report.______________________________

Date: 12/5/2018 **Picture No.** 1 **Location:** RDA

Comment: Bill Delahunt bridge over Old Swampy River

Date: 12/5/2018 **Picture No.** 2 **Location:** RDA

Comment: Fence and riprap drainage swale along southern perimeter of RDA, needs vegetation removal

Date: 12/5/2018 **Picture No.** 3 **Location:** RDA

Comment: Gabion wall along southern perimeter of RDA

Date: 12/5/2018 **Picture No.** 4 **Location:** RDA

Comment: GV-02, looking east

Date: 12/5/2018 **Picture No.** 5 **Location:** RDA
Comment: View of GV-04, locked

Date: 12/5/2018 **Picture No.** 6 **Location:** RDA
Comment: GV-05 and cap of landfill, looking southwest

Date: 12/5/2018 **Picture No.** 7 **Location:** RDA
Comment: View of GV-05

Date: 12/5/2018 **Picture No.** 8 **Location:** RDA
Comment: View of MW-50D and 50D2

Date: 12/5/2018 **Picture No.** 9 **Location:** RDA
Comment: Northeastern corner of RDA, looking east

Date: 12/5/2018 **Picture No.** 10 **Location:** RDA
Comment: Riprap drainage swale in northeast corner of RDA, looking south

Date: 12/5/2018 **Picture No.** 11 **Location:** RDA
Comment: Sign and locked entrance gate

Date: 12/5/2018 **Picture No.** 12 **Location:** RDA
Comment: Southern portion of landfill cap and vegetation, looking north

Date: 12/5/2018 **Picture No.** 13 **Location:** RDA
Comment: View of TT-02, locked

Date: 12/5/2018 **Picture No.** 14 **Location:** RDA
Comment: View of TT-05, locked

Date: 12/5/2018 **Picture No.** 15 **Location:** RDA
Comment: TT-06 well casing cover cannot be secured, PVC needs to be trimmed

Date: 12/5/2018 **Picture No.** 16 **Location:** RDA
Comment: Turtle bridge located north of RDA

Date: 12/5/2018 Picture No. 17 Location: RDA
Comment: View of locked turtle fence gate at pull off area for RDA, view looking west

Date: 12/5/2018 Picture No. 18 Location: RDA
Comment: View of northern portion of RDA, turtle fence and TT-08

Date: 12/5/2018 Picture No. 19 Location: RDA
Comment: View of RDA from pull off area, looking east

Date: 12/5/2018 Picture No. 20 Location: RDA
Comment: Wood guard rail and riprap drainage ditch along northern perimeter of RDA

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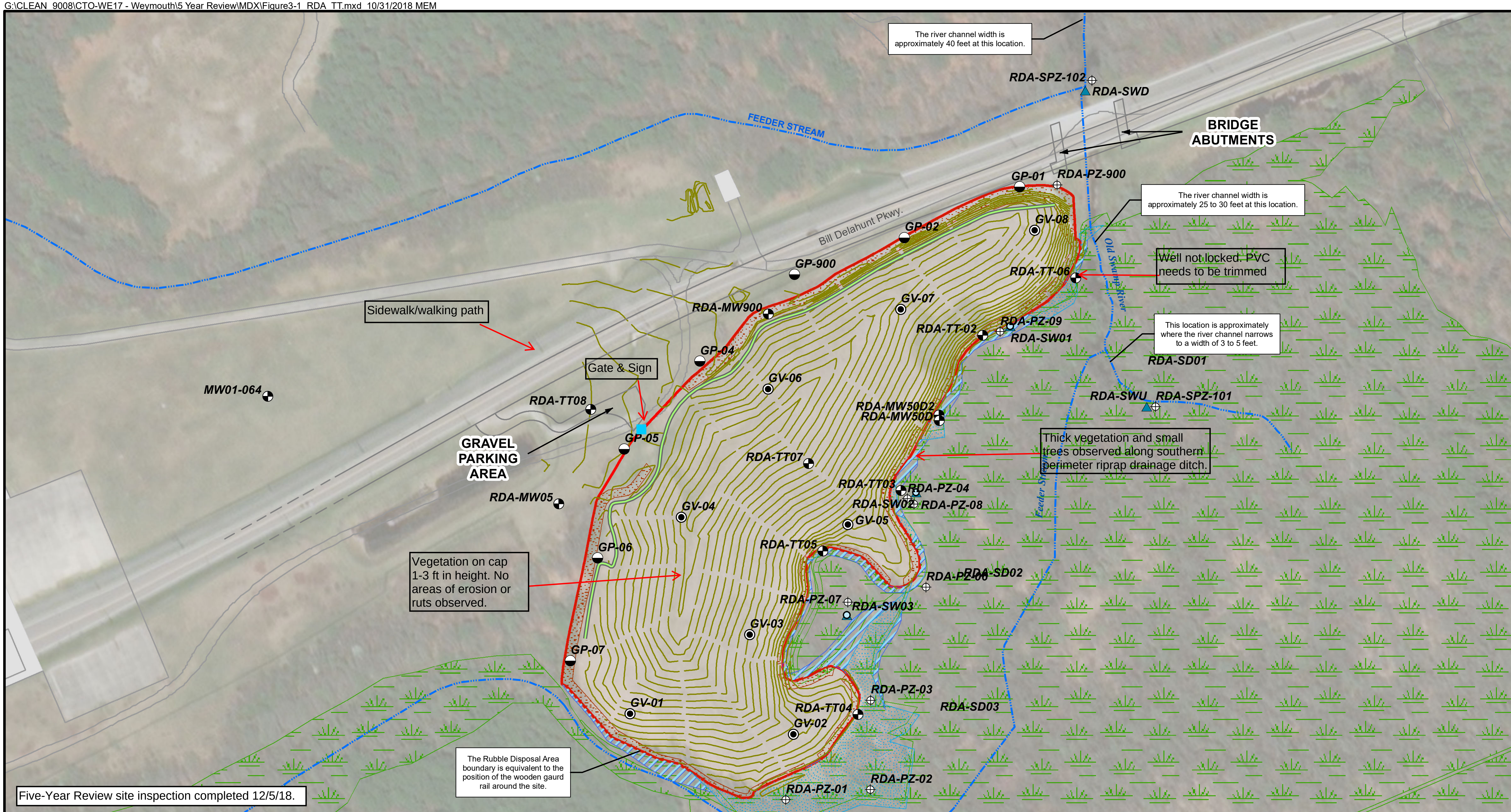
G:\CLEAN_9008\CTO-WE17 - Weymouth\5 Year Review\MDX\Figure3-1_RDA_TT.mxd 10/31/2018 MEM



NAVFAC

Drawn:	MEM	10/31/2018
Approved:	JC	10/31/2018
Project #:	112G08005-WE17	

Legend

- Surface Water Location
- GasProbe
- Gas Vent
- Piezometer
- Monitoring Well
- Sediment Locations
- LGMS
- Approximate Site Boundary
- Approximate Restored Wetland Location (Based on Tt EC Drawing, 2007)
- Approximate New Wetlands Created Location (Based on Tt EC Drawing, 2007)
- Wetland
- Approximate Location of Rip Rap (Based on Tt EC Drawing, 2007)

N

0 50 100 200 Feet

FIGURE 6-1
IR PROGRAM SITE 9
BUILDING 81
THIRD FIVE-YEAR REVIEW

FORMER NAVAL AIR STATION
SOUTH WEYMOUTH

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APPENDIX C-5
ARAR TABLES

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ARARS AND TBCS ASSOCIATED WITH ALTERNATIVE RDA-5: EXCAVATION AND OFFSITE DISPOSAL OF PCB MATERIAL, AND PERMEABLE SOIL CAP FOR LANDFILL MATERIAL
RDA
NAS SOUTH WEYMOUTH, MASSACHUSETTS

Media	Requirement	Requirement Synopsis	Action to be Taken to Attain Requirement	Status
Federal – Location-Specific				
Wetlands	US Army Corps of Engineers, New England District (USACE-NAE) Mitigation Guidance	This guidance provides measures depicting *Mitigation Special Conditions, Sample Monitoring Report, and Checklist for Review of Mitigation Plan.*	If a remedial action involves disruption or potential impacts to the adjacent wetlands, this guidance would be pertinent.	To Be Considered
Wetlands	National Environmental Policy Act (NEPA), Wetlands, Floodplains, Important Farmland, Coastal Zones, Wild and Scenic Rivers, Fish and Wildlife Endangered Species 40 CFR Part 6	These regulations contain the procedures for complying with the executive order on wetland protection (EO 11990). Under this order, federal agencies are required to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance natural and the beneficial values of wetlands. Requires that no remedial alternative adversely affect a wetland if another practicable alternative exists. If no such alternative exists, impacts from implementation must be mitigated.	Appropriate federal agencies would be contacted and allowed to review the proposed work plan for the remedial action prior to implementation of the action. Under this alternative, there is no practicable alternative that would have a less adverse impact on the aquatic ecosystem. Remedial activities would be scheduled and designed to minimize harm to the wetlands to the extent possible and any adverse impacts would be mitigated through wetland restoration.	Applicable
Wetlands	Fish and Wildlife Coordination Act 40 CFR Part 320.3 (16 USC 661 et seq.)	Requires that the U.S. Fish and Wildlife Services and National Marine Fisheries Service be consulted prior to structural modification of any stream or other water body (i.e., wetland). It also requires adequate protection of fish and wildlife resources. Requires consultation with state agencies to develop measures to prevent, mitigate, or compensate for project-related losses to fish and wildlife.	This alternative would include excavation within the wetlands adjacent to the former disposal area, and no practicable alternative exists. Actions taken would minimize adverse impacts to fish and wildlife. Relevant federal and state agencies would be contacted and allowed to review the proposed work plan for the remedial action prior to implementation of the action.	Relevant and Appropriate

ARARS AND TBCS ASSOCIATED WITH ALTERNATIVE RDA-5: EXCAVATION AND OFFSITE DISPOSAL OF PCB MATERIAL, AND PERMEABLE SOIL CAP FOR LANDFILL MATERIAL (CONTINUED)
RDA
NAS SOUTH WEYMOUTH, MASSACHUSETTS

Media	Requirement	Requirement Synopsis	Action to be Taken to Attain Requirement	Status
Floodplains	NEPA, Floodplain Management 40 CFR Part 6, Appendix A	Appendix A sets forth policy for carrying out the executive order on Floodplain Management (EO 11988). EO 11988 requires that a cleanup in a floodplain not be performed unless a determination is made that no practicable alternative exists. If no practicable alternative exists, potential harm must be minimized and action taken to restore and preserve the natural and beneficial values of the floodplain.	This alternative would include the excavation within the wetlands adjacent to the former disposal area, which is also within the 100-year floodplain of Old Swamp River. No practicable alternative to this excavation exists. Appropriate federal agencies would be contacted and allowed to review the proposed work plan for the remedial action prior to implementation of the action. Remedial activities would be scheduled and designed to minimize harm to the floodplains to the extent possible.	Applicable
Water	Clean Water Act (CWA) 404 (b) (1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material	Section 404 of the CWA regulates the discharge of dredged or fill material into U.S. waters, including wetlands. The purpose of section 404 is to ensure that proposed discharges are evaluated with respect to impacts on the aquatic ecosystem. No activity that adversely affects a wetland is permitted if a practicable alternative that has less effect is available. If there is no other practicable alternative, impacts must be mitigated.	Remedial activities would involve dredged or fill material discharge to wetlands. Under this alternative, there is no practicable alternative to this discharge; however any adverse impacts would be mitigated.	Relevant and Appropriate
Water	Rivers and Harbors Act Section 10, 33 U.S.C. 403, 33 CFR Parts 320-323	Section 10 of the Rivers and Harbors Act is implemented through a federal regulatory program administered by the U.S. Army Corps of Engineers (USACOE). It covers dredging, filling, excavation and placement of structures in all wetlands, tidal waters and navigable freshwaters.	Actions taken would minimize adverse impacts to the nearby Old Swamp River and comply with the environmental standards in 33 CFR Parts 320-323. Relevant federal and state agencies would be contacted and allowed to review the proposed work plan for the remedial action prior to implementation of any action that may impact the river.	Relevant and Appropriate

ARARS AND TBCS ASSOCIATED WITH ALTERNATIVE RDA-5: EXCAVATION AND OFFSITE DISPOSAL OF PCB MATERIAL, AND PERMEABLE SOIL CAP FOR LANDFILL MATERIAL (CONTINUED)
RDA
NAS SOUTH WEYMOUTH, MASSACHUSETTS

Media	Requirement	Requirement Synopsis	Action to be Taken to Attain Requirement	Status
State – Location Specific				
Wetlands	MA Wetland Protection Regulations 310 CMR 10.00	These regulations govern activities in freshwater wetlands, 100-year floodplains, and 100-foot buffer zones beyond such areas. Regulated activities include certain types of construction and excavation activities. Performance standards are provided and include evaluating the acceptability of various activities. The MA Wetland Protection program also is used to coordinate with the *Massachusetts Natural Heritage and Endangered Species Program* regarding the presence of rare wetlands wildlife, such as the spotted turtle (state-listed species of special concern). If a proposed project is determined to alter a resource area which is part of the habitat of a state-listed species, MAWPA regulations (310 CMR 10.59) state that this project "shall not be permitted to have any short or long term adverse effects on the habitat of the local population of this species."	Because remedial activities may include construction in wetlands, they would be performed in compliance with the performance standards of these requirements. Any disturbance of a wetland would be restored.	Applicable
Endangered Species	MA Endangered Species Act (MESA) 321 CMR 10.00	These regulations prohibit the "taking" of any rare plants or animals listed as Endangered, Threatened, or Special Concern by the MA Division of Fisheries & Wildlife. Northern harrier, which is a threatened species, have been observed in the vicinity of the site. They also protect designated "significant habitats." "Significant habitat" can be designated for Endangered or Threatened species populations after a public hearing process.	Environmental surveys would be performed to identify habitats and evidence of endangered species. Precautions to prevent impacts to identified habitats and species would be imposed during site activities.	Applicable

ARARS AND TBCS ASSOCIATED WITH ALTERNATIVE RDA-5: EXCAVATION AND OFFSITE DISPOSAL OF PCB MATERIAL, AND PERMEABLE SOIL CAP FOR LANDFILL MATERIAL (CONTINUED)
RDA
NAS SOUTH WEYMOUTH, MASSACHUSETTS

Media	Requirement	Requirement Synopsis	Action to be Taken to Attain Requirement	Status
Federal – Action-Specific				
Landfill	Presumptive Remedy for CERCLA Municipal Landfill Sites PB93-963339, September 1993	Guidance for complying with federal and state closure requirements, including cover material options and other site controls.	Because landfill capping would be implemented, this TBC would be achieved.	To Be Considered
Landfill	Application of the CERCLA Municipal Landfill Presumptive Remedy to Military Landfills PB96-963314, December 1996	Guidance for applying the municipal landfill presumptive remedy guidance (PB93-963339) to military bases where domestic, industrial, and other types of wastes may have been disposed of in a designated area or landfill.	Because landfill capping would be implemented, this TBC would be achieved.	To Be Considered
Waste	RCRA Identification and Listing of Hazardous Waste, Toxicity Characteristic 40 CFR Part 261.24	These requirements identify the maximum concentrations of contaminants for which the waste would be a RCRA characteristic waste because of its toxicity. The analytical test set out in Appendix II of 40 CFR Part 61 is referred to as the Toxicity Characteristic Leaching Procedure (TCLP).	Because this alternative involves the offsite disposal of PCB-impacted material and landfill material, it would be analyzed by the TCLP to determine whether they are characteristic hazardous waste under RCRA. Wastes that are determined to exceed TCLP allowable concentrations (and therefore be hazardous), would be disposed offsite in a RCRA Subtitle C or state-equivalent TSDF. Wastes that are determined to be below TCLP allowable concentrations (and therefore nonhazardous), would be disposed offsite in a RCRA Subtitle D or state-equivalent TSDF.	Applicable
Waste	RCRA Standards Applicable to Generators of Hazardous Waste 40 CFR Part 262	Massachusetts has been delegated the authority to administer these RCRA standards through its state hazardous waste management regulations. The relevant and appropriate provisions of 40 CFR Part 262 are incorporated by reference. Refer to 310 CMR 30.000.	Because this alternative involves the offsite disposal of PCB-impacted material and landfill material, it would be handled in compliance with the substantive requirements of these standards.	Applicable

ARARS AND TBCS ASSOCIATED WITH ALTERNATIVE RDA-5: EXCAVATION AND OFFSITE DISPOSAL OF PCB MATERIAL, AND PERMEABLE SOIL CAP FOR LANDFILL MATERIAL (CONTINUED)
RDA
NAS SOUTH WEYMOUTH, MASSACHUSETTS

Media	Requirement	Requirement Synopsis	Action to be Taken to Attain Requirement	Status
Waste	RCRA Use and Management of Containers 40 CFR Part 264 Subpart I	These requirements set standards for the storage of hazardous wastes in containers. Refer to 310 CMR 30.000.	Since some of the excavated material may be stored in drums prior to offsite disposal, the substantive requirements of this regulation would be achieved.	Applicable
Waste	EPA OSWER Publication 9345.3 – 03 FS January 1992	Management of wastes generated during remedial activities must ensure protection of human health and the environment.	Waste Management would be in accordance with this guidance.	To Be Considered
Surface Water	Federal Ambient Water Quality Criteria (AWQC) 33 USC 1314(a); 40 CFR Part 122.44	Federal AWQCs include (1) criteria for protection of human health from toxic properties of contaminants ingested through drinking water and aquatic organisms, and (2) criteria for protection of aquatic life.	Contaminant concentrations in Old Swamp River and the associated wetlands would be measured during monitoring to determine whether water quality is being impacted by site activities, and to ensure that AWQCs are being met.	Relevant and Appropriate
State- Action-Specific				
Landfill	MA Solid Waste Management Landfill Final Cover Systems 310 CMR 19.112	These are requirements for landfill final cover systems, including the performance standards and design criteria for cover system components.	This remedial alternative would meet the design and performance standards and include the cover system components outlined in these requirements.	Applicable
Landfill	MA Solid Waste Management Storm Water Controls 310 CMR 19.115	These are requirements for storm water controls based on performance standards and design criteria.	This remedial alternative would meet the design and performance standards of these requirements.	Applicable
Landfill	MA Solid Waste Management Environmental Monitoring Requirements 310 CMR 19.132	These are regulations for surface water and groundwater monitoring, including frequency, quality, reporting, analytical parameters, and mitigation protocols. Also includes leak detection, and supplemental systems (e.g., gas and leachate control) as necessary.	This alternative includes long-term monitoring. Gas and leachate control are not considered practical since the refuse is located within the saturated zone. This remedial alternative would meet the surface and ground water monitoring requirements of these regulations.	Applicable
Landfill	MA Solid Waste Management Landfill Closure Requirements 310 CMR 19.140	These are regulations related to the closure of landfills.	This remedial alternative would meet the substantive closure requirements of these regulations.	Applicable

ARARS AND TBCS ASSOCIATED WITH ALTERNATIVE RDA-5: EXCAVATION AND OFFSITE DISPOSAL OF PCB MATERIAL, AND PERMEABLE SOIL CAP FOR LANDFILL MATERIAL (CONTINUED)
RDA
NAS SOUTH WEYMOUTH, MASSACHUSETTS

Media	Requirement	Requirement Synopsis	Action to be Taken to Attain Requirement	Status
Landfill	MA Solid Waste Management Landfill Post-Closure Requirements 310 CMR 19.142	These are regulations for site maintenance and monitoring during the post-closure period to ensure the integrity of the closure measure as well as to detect and prevent any adverse affects to human health and the environment.	This remedial alternative would meet the substantive post-closure requirements of these regulations.	Applicable
Surface Water	MA Surface Water Quality Standards 314 CMR 4.00	These regulations limit or prohibit discharges of pollutants to surface waters to ensure that the surface water quality standards of the receiving waters are protected and maintained or attained.	Contaminant concentrations in Old Swamp River and the associated wetlands would be measured during monitoring to determine whether or not water quality is being impacted site activities, and to ensure that state water quality standards are being met.	Relevant and Appropriate
Water	MA Standards for Analytical Data for Remedial Response Action Bureau of Waste Site Cleanup Policy 300-89	This policy describes the minimum standards for analytical data submitted to the MADEP.	Because this remedial action includes a long-term monitoring, the analytical methods provided in this policy would be considered.	To Be Considered
Waste	MA Hazardous Waste Regulations 310 CMR 30.000	These regulations contain requirements for the generation, storage, collection, transport, treatment, disposal, use, reuse and recycling of hazardous waste.	Wastes generated as a part of a remedial action for the RDA that are considered hazardous would be handled in compliance with the substantive requirements of these regulations.	Applicable
Waste	MA Hazardous Waste Management Rules (HWMR) Requirements for Generators 310 CMR 30.300	These regulations contain requirements for generators of hazardous waste. The regulations apply to generators of sampling waste and also apply to the accumulation of waste prior to offsite disposal.	Wastes generated as a part of a remedial action for the RDA that are considered hazardous would be handled in compliance with the substantive requirements of these regulations.	Applicable

ARARS AND TBCS ASSOCIATED WITH ALTERNATIVE RDA-5: EXCAVATION AND OFFSITE DISPOSAL OF PCB MATERIAL, AND PERMEABLE SOIL CAP FOR LANDFILL MATERIAL (CONTINUED)
RDA
NAS SOUTH WEYMOUTH, MASSACHUSETTS

Media	Requirement	Requirement Synopsis	Action to be Taken to Attain Requirement	Status
Air	MA Air Pollution Control Regulations 310 CMR 7.09	These regulations establish the standards and requirements for air pollution control in the commonwealth. Section 7.09 contains requirements relevant to dust, odor, construction and demolition.	Any emissions of fugitive dust will be managed through engineering and other controls during remedial activities.	Applicable
Water	MA HWMR Groundwater Protection 310 CMR 30.660 – 30.679	These regulations require groundwater monitoring at specified regulated units that treat, store, or dispose of hazardous waste. Maximum concentration limits for the hazardous constituents are specified in 310 CMR 30.668.	The remedial action for the site would include groundwater monitoring. If wastes generated as part of a remedial action for the RDA are determined to be hazardous, the monitoring program would be developed to comply with the substantive sections of these requirements.	Applicable

ATTACHMENT A – ADDITIONAL ARARs AND TBCs FOR THE RDA ROD

Media	Requirement	Requirement Synopsis	Action to be Taken to Attain Requirement	Status
Federal – Chemical Specific				
All	Risk Assessment Guidance – Cancer Slope Factors	Guidance used in human health risk assessments as guidance values to evaluate the potential carcinogenic hazard caused by exposure to chemicals of concern.	Cancer slope factors were used to estimate risks and were used in the development of cleanup goals to mitigate potential carcinogenic hazards associated with human exposure to COCs in groundwater.	To Be Considered
All	EPA Reference Dose (RfD) Guidance	Guidance used to characterize human health risks associated with non-carcinogens in site media.	RfDs were used to estimate risks and were used in the development of cleanup goals to mitigate potential non-carcinogenic hazards associated with human exposure to COCs in groundwater.	To Be Considered
All	EPA Guidelines for Carcinogen Risk Assessment, EPA/630/P-03/001F (March 2005)	Guidance for assessing cancer risk.	This guidance was used to estimate risks and in the development of cleanup goals to mitigate potential carcinogenic hazards associated with human exposure to COCs in groundwater.	To Be Considered
All	EPA Supplemental Guidance for Assessing Susceptibility from Early Life Exposure to Carcinogens, EPA/630/R03/003F (March 2005)	Guidance for assessing cancer risks to children.	This guidance was used to estimate risks and in the development of cleanup goals to mitigate potential carcinogenic hazards associated with child exposure to COCs in groundwater.	To Be Considered

Federal – Action Specific				
Groundwater	Health Advisory for Manganese (EPA Office of Drinking Water)	Health Advisories are used to estimate risk associated with the consumption of contaminated drinking water; the advisories consider non-carcinogenic effects only. The Advisories are to be considered for contaminants in groundwater that may be used for drinking water where the standard in the Health Advisory is more conservative than either federal or statutory standards. The Health Advisory for manganese is 300 ug/L.	Groundwater monitoring will be performed to evaluate that the selected remedy continues to be protective of human health. Manganese data will be compared to the respective Health Advisory. Land Use Controls will be implemented to prevent the use of site groundwater as a drinking water supply.	To Be Considered
Groundwater	Safe Drinking Water Act 42 USC §300f *et seq.*; National primary drinking water regulations (40 CFR part 141, Subparts B and G)	Establishes maximum contaminant levels (MCLs) for common organic and inorganic contaminants applicable to public drinking water supplies. Used as relevant and appropriate cleanup standards for aquifers and surface water bodies that are potential drinking water sources.	Monitoring will be performed to evaluate that the selected remedy continues to be protective of human health. Groundwater monitoring data will be compared to MCLs. Land Use Controls will be implemented to prevent the use of site groundwater as a drinking water supply.	Relevant and Appropriate
Groundwater	Safe Drinking Water Act (42 USC §300f *et seq.*); National primary drinking water regulations (40 CFR 141, Subpart F)	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.	Monitoring will be performed to evaluate that the selected remedy continues to be protective of human health. Groundwater monitoring data will be compared to non-zero MCLGs. Land Use Controls will be implemented to prevent the use of site groundwater as a drinking water supply.	Relevant and Appropriate
State – Action Specific				
Groundwater	MA Drinking Water Standards, 310 CMR 22.00	These regulations establish Massachusetts MCLs (MMCLs) for public water supply systems. If MMCLs are more stringent than federal levels, then the state levels are used as the ARAR.	Monitoring will be performed to evaluate that the selected remedy continues to be protective of human health. Groundwater monitoring data will be compared to MMCLs. Land Use Controls will be implemented to prevent the use of site groundwater as a drinking water supply.	Relevant and Appropriate

APPENDIX D
FIRE FIGHTING TRAINING AREA

D-1 SITE CHRONOLOGY
D-2 BACKGROUND
D-3 SITE INSPECTION REPORT AND PHOTOGRAPHS

APPENDIX D-1

SITE CHRONOLOGY

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APPENDIX D-1

TABLE D-1: CHRONOLOGY OF SITE EVENTS, IR PROGRAM SITE 4 – FIRE FIGHTING TRAINING AREA

FFTA Event	Date
FFTA is used for firefighting exercises	1950 - 1986; 1988 - 1990
PA performed by Argonne National Laboratory	March 1988
SI completed by Baker Environmental, Inc.	December 1991
NAS South Weymouth is placed on the NPL	May 1994
Phase I RI conducted by B&R Environmental	1995 - 1996
Environmental Baseline Survey (EBS), Phase I for RIA 11	1995
FFTA Phase I RI Study completed by Brown & Root Environmental & ENSR	May 1996
FFTA Phase II RI completed by Tetra Tech NUS and ENSR	April 2001
Residual Petroleum Investigation completed by ENSR	April 2002
Proposed Plan	September 2003
ROD signed (No Further Action under CERCLA)	September 2004
Release Abatement Measure (RAM) (performed under MCP)	2005 - 2007
RAM Completion Report	July 2008
PFC Investigation 2010 - 2012	April 2010 - February 2012
ESD, 2013 (Added groundwater use restriction and monitoring for PFCs)	August 2013
Final LTM Plan	February 2014
LTM First Round, Spring 2014 conducted	April 2014
Final LUCIP	June 2014
First Annual LUC Inspection	June 2014
LTM Second Round, Fall 2014 conducted	October 2014
LTM First Round, Spring 2015 conducted	April 2015
Second Annual LUC Inspection	September 2015
LTM Second Round, Fall 2015 conducted	October 2015
LTM First Round, Spring 2016 conducted	April 2016
Third Annual LUC Inspection	November 2016
Revised LTM Plan	October 2016
LTM Second Round, Fall 2016 conducted	October 2016
LTM First Round, Spring 2017 conducted	April 2017
Fourth Annual LUC Inspection	November 2017
LTM Second Round, Fall 2017 conducted	October 2017
Basewide PFOS and PFOA LUCIP	February 2018
LTM First Round, Spring 2018 conducted	April 2018
First Annual Basewide PFOS and PFOA LUC Compliance Inspection	December 2018

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APPENDIX D-2
BACKGROUND

APPENDIX D-2
SITE BACKGROUND
IR PROGRAM SITE 4 – FIRE FIGHTING TRAINING AREA

Physical Characteristics

The FFTA site consists of two main areas; the FFTA area where firefighting training exercises primarily occurred at the Based and the FFTA site area which includes the FFTA PFAS study area (Figure 4-1). The FFTA area comprises approximately 3.8 acres located south of Runway 8-26 and east of Taxiway C and is relatively flat. The FFTA consists of a cracked asphalt pad. As observed during test pitting and drilling activities, there are multiple layers of asphalt underlying the FFTA, each exhibiting various stages of wear. Its primary surface feature is a paved semi-circular area adjacent to Taxiway C wetlands, a cranberry bog, and woodland. The FFTA is bounded by unpaved access roads to the north, south, and east and by Taxiway C to the west. The eastern branch of French Stream flows from north to south through the FFTA area. Previously the stream was culverted under the asphalt paving but is currently open.

The FFTA site area associated with the PFAS investigation is approximately 170 acres and is generally flat, open space. Site features include monitoring wells, surface water and sediment sampling locations. Taxiway C bisects the center of the FFTA site area with the 3.9 acre FFTA asphalt pad located east and the TACAN drainage ditch located to the west.

Land and Resource Use

The majority of the FFTA is zoned for open space (OS-R). According to the Zoning and Land Use By-Laws for NAS South Weymouth (SSTTDC, 2005), this open space is intended for park land, active and passive recreation, reservations, community gardens, rivers and streams, and similar uses. A small portion of the Site lies in the Golf Course/Open Space District (GOSD).

The spotted turtle (*Clemmys guttata)* and the eastern box turtle *(Terrapene carolina)* are present at and in the vicinity of the FFTA. During Phase II of the RI, both species were state-listed species of special concern (Tetra Tech NUS, 2001b). The spotted turtle was removed from the state list in May 2006. There is evidence that the box turtles are present in uplands and palustrine wetlands at and in the vicinity of the FFTA, and it is possible that these turtles could use the sandy, upland soils at the Site for nesting. The eastern box turtle *(Terrapene carolina)* is afforded protection under the Massachusetts Wetlands Protection Act (M.G.L. c. 131, s.40) and the Massachusetts Endangered Species Act (M.G.L. c. 131A) as Species of Special Concern. It is not a federally threatened or endangered species.

History of Contamination

The FFTA was used for fire-fighting training exercises for up to 38 years, between 1950 and 1986, and then again from 1988 until operations were ceased prior to 1990. Prior to 1986, a maximum of 500-gallons per month of waste oil and 1,500-gallons per month of other fuels were placed in old vehicles and burned for firefighting training purposes. There were no USTs or other permanent containment structures to store or contain the fuel prior to 1986. In 1988, concrete burn pits were installed to contain fuel.

At the FFTA, the earliest fire-extinguishing agent was high-pressure water, which was later interchanged with fire-suppressant foams as they became available. The use and release of aqueous film forming foam (AFFF) in Hangar 1 was evaluated in the Phase I EBS as Review Item Area (RIA) 11 (Stone and Webster, 1996). Although AFFF is not a CERCLA hazardous substance, chemical additives to AFFF known as PFAS are considered “emerging contaminants” by the EPA. RIA 11 was subsequently defined to include inadvertent releases or spills of AFFF in both Hangar 1 and the FFTA. Due to historic usage, spills, and releases of AFFF in or around these locations, a PFAS investigation was initiated in 2010.

Initial Response

The Navy has been conducting environmental investigations at the NAS South Weymouth property since 1988 through its IR Program (B&R Environmental, 1998). A PA, including a records search, interviews, and a site walkover, was performed by Argonne National Laboratory in 1988. Due to the findings of the PA, Baker Environmental, Inc. conducted a SI of eight sites, including the FFTA, which was completed in 1991. The SI recommended that the FFTA be further studied under the IR program as part of an RI.

APPENDIX D-3
SITE INSPECTION REPORT AND PHOTOGRAPHS

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Five-Year Review Site Inspection Checklist

I. SITE INFORMATION	
Site name: Site 4 - Fire Fighting Training Area	**Date of inspection: 12/5/18**
Location and Region: Former NAS South Weymouth, Weymouth, MA	**EPA ID: MA2170022022**
Agency, office, or company leading the five-year review: Tetra Tech	**Weather/temperature: Sunny, 35°F**

Remedy Includes: (Check all that apply)

☐ Landfill cover/containment
☐ Access controls
X Institutional controls
☐ Groundwater pump and treatment
☐ Surface water collection and treatment
X Other__PFAS LTM______
☐ Monitored natural attenuation
☐ Groundwater containment
☐ Vertical barrier walls

Attachments: ☐ Inspection team roster attached X 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.
See Report.

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

1. **O&M Documents**
☐ O&M manual ☐ Readily available ☐ Up to date X N/A
☐ As-built drawings ☐ Readily available ☐ Up to date X N/A
☐ Maintenance logs ☐ Readily available ☐ Up to date X N/A
Remarks ______________________________

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

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

7. **Groundwater Monitoring Records** ☐ Readily available ☐ Up to date X 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 ☐ Contractor for Federal Facility ☐ Other____
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 ☐ Gates secured X N/A Remarks: _
B. Other Access Restrictions
1. **Signs and other security measures** ☐ Location shown on site map X N/A Remarks:

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

____

2. **Adequacy** X ICs are adequate ☐ ICs are inadequate ☐ N/A

Remarks___ICs for groundwater beneath FFTA are included in the 2013 ESD and Basewide PFOS and PFOA LUCIP.

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. Several former test pit locations observed south of FFTA on Taxiway C (see site map).

VI. GENERAL SITE CONDITIONS

A. Roads ☐ Applicable X N/A

1. **Roads damaged** ☐ Location shown on site map ☐ Roads adequate ☐ N/A

Remarks_

B. Other Site Conditions
Remarks There were no signs of any newly installed wells or construction activities at the Site. Test pits were observed south of FFTA on Taxiway C. Two passive recreational users (dog walker and cyclist) were observed during the inspection. There was no indication of land use change at the time of the inspection.
VII. 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____ ____

VIII. GROUNDWATER/SURFACE WATER REMEDIES ☐ Applicable X N/A	
A. Groundwater Extraction Wells, Pumps, and Pipelines ☐ Applicable X 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 X Functioning X Routinely sampled X Good condition X All required wells located ☐ Needs Maintenance ☐ N/A Remarks__All monitoring wells on Figure 3 – Groundwater Restriction Area included in the 2013 ESD were located.________
IX. 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.
X. OVERALL OBSERVATIONS
A. Implementation of the Remedy
Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.). The remedy (LUCs and LTM) have been implemented and are ongoing. The FFTA 2013 ESD is to be nullified in March 2019 as the LUCs included for are duplicated in the 2018 Basewide PFOS and PFOA LUCIP.________
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. __See Report.________

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. _See Report.____________________
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. _See Report. ____________________

Date: 12/5/2018 Picture No. 1 Location: FFTA
Comment: Central portion of FFTA, looking south

Date: 12/5/2018 Picture No. 2 Location: FFTA
Comment: View of FFTA-MW-60D

Date: 12/5/2018 Picture No. 3 Location: FFTA
Comment: Looking east across FFTA

Date: 12/5/2018 Picture No. 4 Location: FFTA
Comment: Looking north from FFTA up Taxiway C

Date: 12/5/2018 **Picture No.** 5 **Location:** FFTA
Comment: Looking north from site up Taxiway

Date: 12/5/2018 **Picture No.** 6 **Location:** FFTA
Comment: Looking south across FFTA

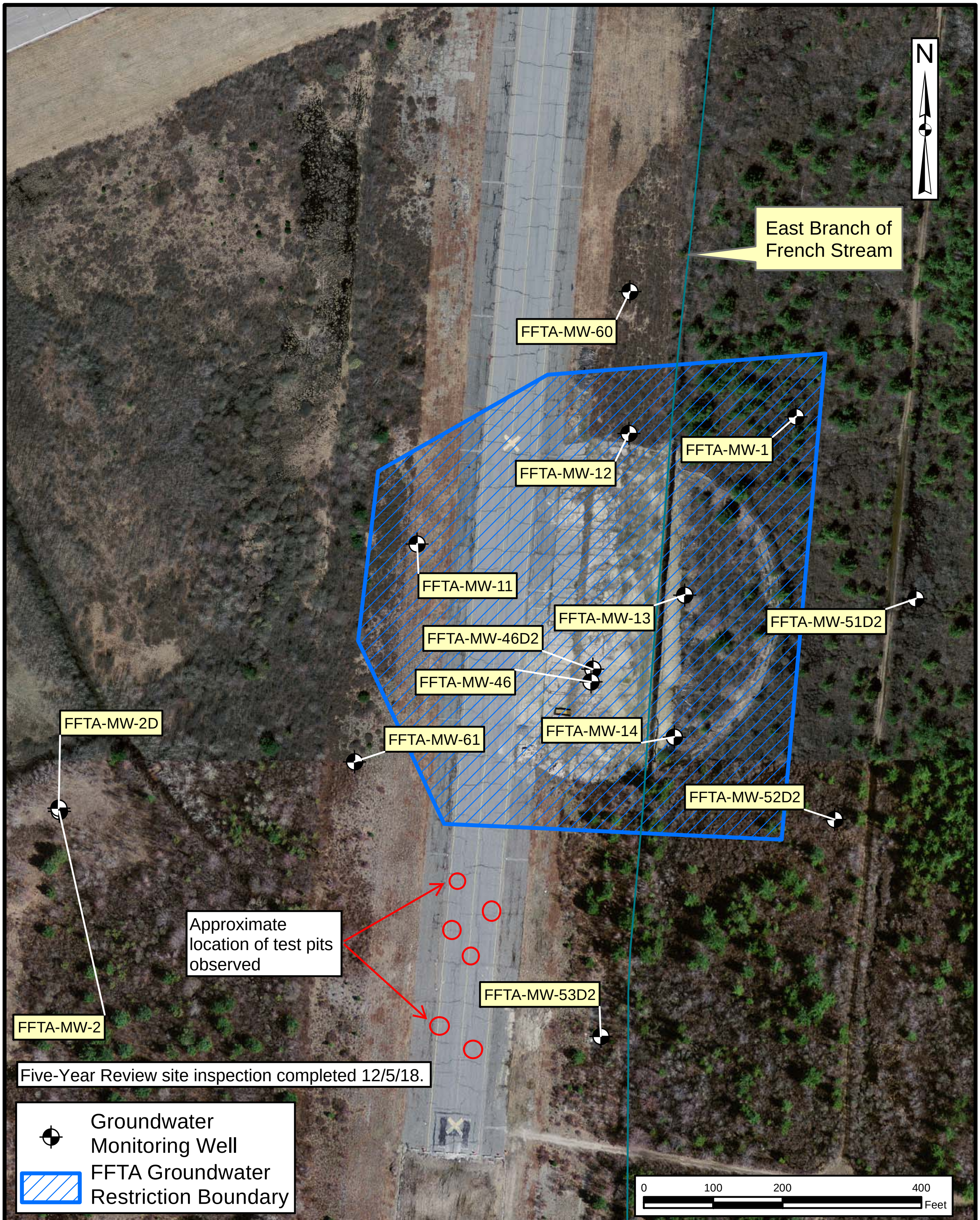
Date: 12/5/2018 **Picture No.** 7 **Location:** FFTA
Comment: Looking SW across remediated area of FFTA

Date: 12/5/2018 **Picture No.** 8 **Location:** FFTA
Comment: View of MW-11

Date: 12/5/2018 Picture No. 9 Location: FFTA
Comment: Path to AOC 8 located south of FFTA

Date: 12/5/2018 Picture No. 10 Location: FFTA
Comment: Test pits located south of FFTA LUC area

I:\02073\DD.MS.FFTA\afffGwRestrictionArea.MXD 09/26/12 DWM



TETRA TECH

FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

GROUNDWATER RESTRICTION AREA

FIRE FIGHTING TRAINING AREA
EXPLANATION OF SIGNIFICANT DIFFERENCES

SCALE	PER SCALE BAR
FILE	I:\..\afffGwRestrictionArea.MXD
REV	0
DATE	09/26/12
FIGURE NUMBER	FIGURE NO. 3

APPENDIX E
FORMER SEWAGE TREATMENT PLANT

E-1 SITE CHRONOLOGY
E-2 BACKGROUND
E-3 SITE INSPECTION REPORT AND PHOTOGRAPHS
E-4 ARAR TABLES

APPENDIX E-1
SITE CHRONOLOGY

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APPENDIX E-1

TABLE E-1: CHRONOLOGY OF SITE EVENTS, IR PROGRAM SITE 7 – FORMER SEWAGE TREATMENT PLANT

STP Event	Date
Tile Bed Area is constructed and used for treatment and disposal of Base sanitary wastewater	1940s to 1953
STP is constructed and used as a sewage treatment plant	1953 - 1978
STP is decommissioned	1978
STP covered sludge drying bed area used for storage of road salt and sand	1980 - 2005
PA performed by Argonne National Laboratory	March 1988
SI completed by Baker Environmental, Inc.	December 1991
Tanks and associated structures of STP removed	1992
NAS South Weymouth is placed on the NPL	May 1994
STP Phase I RI Study completed by Brown & Root Environmental	July 1998
STP Phase II RI completed by Tetra Tech NUS and ENSR	April 2002
Supplemental Sampling Event and Risk Assessment Addendum	February - March 2006
FS completed by Tetra Tech NUS	February 2007
Proposed Plan	August 2007
ROD signed	April 2008
Pre-Design Investigation (PDI) QAPP	February 2008
PDI Report completed by Tetra Tech	February 2009
Remedial Action Work Plan (RAWP), STP	July 2009
Remedial Action (RA)	July 2009 - September 2010
ESD	August 2010
QAPP Addendum 1	April 2011
Supplemental PDI completed	April and May 2011
Interim Remedial Action Completion Report (RACR)	May 2011
Supplemental PDI Project Report completed by Tetra Tech	September 2012
Soil Delineation Sampling Plan	June 2013
Additional Soil Delineation Investigation completed	July 2013
Additional Soil Delineation Investigation Data Report	February 2014
Final Addendum to Remedial Action Work Plan (RAWP)	July 2014
Emergency RACR	August 2015
Draft ROD Amendment	August 2015
Final Focused Feasibility Study (FFS)	January 2016

APPENDIX E-1

TABLE E-1: CHRONOLOGY OF SITE EVENTS, IR PROGRAM SITE 7 – FORMER SEWAGE TREATMENT PLANT

STP Event	Date
Final LTM Plan	May 2017
Draft RACR	June 2018
Draft LUCIP	June 2018
Final Proposed Plan	August 2018
Final Groundwater Risk Evaluation	August 2018
First Annual Basewide PFOS and PFOA LUC Compliance Inspection	December 2018
Final ROD Amendment	January 2019

APPENDIX E-2
BACKGROUND

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APPENDIX E-2
SITE BACKGROUND
IR PROGRAM SITE 7 – FORMER SEWAGE TREATMENT PLANT

Physical Characteristics

The STP comprises approximately 3.2 acres and is located in the northern portion of the former Base within the Town of Weymouth, as shown in Figure 5-1. The Site includes the former STP Area (upland area), the former Tile Bed Area (leach field), and a portion of an adjacent wetland area.

Forested and wetland areas border the upland area to the north and west, respectively, and an access road borders the Site to the east. The former Tile Bed Area is located immediately south of the upland area. The upland area is unpaved and is relatively flat with a westward slope. The Site's ground surface is covered by grasses, shrubs, and wetland vegetation. Remaining above-ground structures within the upland area include concrete walls surrounding the former sludge drying beds, an inactive transformer (that does not contain PCBs), and groundwater monitoring wells installed in support of previous investigations performed at the Site. Remaining below-ground structures include former trickling filters, digesters, building foundations, pipelines, a sump, a sludge pumping station, and other plant structures, some of which have been backfilled. A temporary security fence surrounds excavated areas north and northwest of the former sludge drying beds.

Several constructed drainage ditches are located at the Site, along the northwestern and southern borders of the STP area and surrounding the Tile Bed Area. The drainage ditches bordering the northwest and southern sides of the STP area converge west of the Site, merging into a drainage ditch that continues west through the wetlands toward French Stream. The drainage ditches on the north and northwest sides of the Tile Bed Area drain to the ditch that runs along the southern border of the STP area. The drainage ditches on the south and southwest sides of the Tile Bed Area discharge into the adjacent wetland near the southwestern corner of the Tile Bed Area. The forested wetland in this area is characterized by numerous small hummocks and depressions, but no distinct drainage channels.

According to published mapping, the Site is near the eastern edge of mapped stratified drift aquifer areas (Williams and Tasker, 1974). Glacial till is the expected overburden deposit. The surficial deposits were reworked with the excavation and placement of various man-made materials within portions of the Site. A thin layer of topsoil consisting of brown sand with some silt and gravel covers the Site. Roots and other organic materials are typically present.

The geologic origin and permeability of the sediments and the fracture orientation and morphology of the underlying bedrock influence groundwater flow throughout the Site. The relatively uniform placement of the upper and lower till above the bedrock suggests a relatively uniform groundwater flow pattern throughout the Site. An exception might be in areas where soil excavation has occurred, where gravel fill is present in the shallow overburden. Since the water table occurs within this gravel, at least under some conditions, possible local effects on groundwater flow may occur, but these would be minimal.

Groundwater flow throughout the STP area is generally toward the southwest, in the direction of French Stream (Tetra Tech NUS, 2000). Groundwater elevations generally range from 177 feet northeast of STP to less than 156 feet in wells in the southwestern portion of the Site.

Land and Resource Use

The reuse zoning for the STP area is a combination of open space [Open Space-Corporation District (OS-C)] and village commercial use [Shea Village Commercial District (SVCD)] (SSTTDC, 2005). The primary purpose of the OS-C District is to encourage the preservation of large continuous wetland areas and open space for park land, active and passive recreation, reservations, community gardens, rivers and streams, and similar uses. The OS-C District is designed to permanently protect these open space resources so as to enhance the quality of life for residents and visitors to the area. Allowed uses for the SVCD include light industry, biopharmaceutical commercial uses, and parking areas.

APPENDIX E-2
SITE BACKGROUND
IR PROGRAM SITE 7 – FORMER SEWAGE TREATMENT PLANT

In April 2017 the Southfield Redevelopment Authority lifted the APD designation from the aquifer that lies beneath a portion of the STP. Additionally, on November 1, 2017, the MassDEP issued a Second Amendment to the GUVD that concluded the aquifer has low use and value; therefore, under EPA groundwater guidance standards, the beneficial reuse of the STP aquifer is no longer identified as drinking water.

History of Contamination

The STP was active for approximately 25 years, from 1953 until 1978, at which time the plant was decommissioned and the wastewater system for the Base was connected to the Town of Weymouth municipal sanitary sewer system. The STP initially consisted of a settling tank for primary (physical) treatment with a trickling filter and secondary settling tanks for secondary (biological) treatment of wastewater. The treated wastewater was discharged through an outfall to a drainage ditch leading west. During the plant's 25 years of operation, the Navy completed several upgrades, including expansion of the secondary treatment system and construction of covered sludge drying beds for aerobic digestion (composing) of the wastewater sludge. In 1978, the Navy decommissioned the STP and the Base wastewater was discharged to the municipal sanitary sewer system. From 1980s until 2005, the covered sludge drying bed area was used for storage of road salt and sand.

Initial Response

The Navy has been conducting environmental investigations at the NAS South Weymouth property since 1988 through its IR Program (B&R Environmental, 1998). A PA, performed by Argonne National Laboratory in 1988 (Argonne, 1988), was followed by an SI which was completed in 1991 (Baker Environmental, 1991). The SI recommended that the STP be further studied under the IR program as part of an RI. The Phase I RI was completed by B&R Environmental in 1998. Additional investigation was deemed necessary following completion of the Phase I RI and a Phase II RI was conducted in 2002.

APPENDIX E-3
SITE INSPECTION REPORT AND PHOTOGRAPHS

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Five-Year Review Site Inspection Checklist

I. SITE INFORMATION	
Site name: Site 07 – Former Sewage Treatment Plant	**Date of inspection: 12/5/18**
Location and Region: Former NAS South Weymouth, Weymouth, MA	**EPA ID: MA2170022022**
Agency, office, or company leading the five-year review: Tetra Tech	**Weather/temperature: Sunny, 28°F**

Remedy Includes: (Check all that apply)

☐ Landfill cover/containment
☐ Access controls
X Institutional controls
☐ Groundwater pump and treatment
☐ Surface water collection and treatment
☐ Monitored natural attenuation
☐ Groundwater containment
☐ Vertical barrier walls
☐ Other__pre-design investigation, soil and sediment removal, soil cover, post-remediation GW and sediment verification monitoring and O&M of the soil cover. ____________________________

Attachments: ☐ Inspection team roster attached X 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.

See Report.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)				
1. **O&M Documents**				
☐ O&M manual		☐ Readily available	☐ Up to date	☐ N/A
☐ As-built drawings		☐ Readily available	☐ Up to date	☐ N/A
☐ Maintenance logs		☐ Readily available	☐ Up to date	☐ N/A
Remarks _O&M of the soil cover will be initiated once the ROD Amendment and LUCIP are finalized.				
2. **Site-Specific Health and Safety Plan**		☐ Readily available	☐ Up to date	X N/A
☐ Contingency plan/emergency response plan		☐ Readily available	☐ Up to date	X N/A
Remarks				
3. **O&M and OSHA Training Records**		☐ Readily available	☐ Up to date	X 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**		☐ Readily available	☐ Up to date	X N/A
Remarks				
7. **Groundwater Monitoring Records**		X Readily available	☐ 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____
____

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__________ (Date)	To__________ (Date)	__________ (Total cost)	☐ Breakdown attached
From__________ (Date)	To__________ (Date)	__________ (Total cost)	☐ Breakdown attached
From__________ (Date)	To__________ (Date)	__________ (Total cost)	☐ Breakdown attached
From__________ (Date)	To__________ (Date)	__________ (Total cost)	☐ Breakdown attached
From__________ (Date)	To__________ (Date)	__________ (Total cost)	☐ Breakdown attached

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 ☐ Gates secured X N/A
Remarks: _

B. Other Access Restrictions

1. **Signs and other security measures** X Location shown on site map ☐ N/A
Remarks: There are no warning or security measures at STP. There is a sign for the trail/recreation path system which runs through a portion of the STP.

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

2. **Adequacy** X ICs are adequate ☐ ICs are inadequate ☐ N/A
Remarks___ICs for groundwater beneath STP are included in the Basewide PFOS and PFOA LUCIP. ICs for subsurface soil at STP are included in the STP LUCIP (final pending, March 2019).________

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._Recreation/walking paths are located within STP______

3. **Land use changes off site** ☐ N/A
Remarks__None.______

VI. GENERAL SITE CONDITIONS

A. Roads X Applicable ☐ N/A

1. **Roads damaged** ☐ Location shown on site map X Roads adequate ☐ N/A
Remarks_There is a paved access road along the east side of STP. _

B. Other Site Conditions	
	Remarks Paved access road located along eastern side of STP. Dirt access path located south of Former Sludge Drying Bed area. Recreation/walking paths located in northern and western portion of site. No evidence of impacts to the soil cover observed; no evidence of excavation or dewatering activities. Remaining Former Sludge Drying Bed structure and associated manhole/concrete pit feature observed to have pooled water within them. Recommend re-covering and securing top to manhole/concrete pit feature for health & safety purposes considering area is open to the public.___________________________
VII. 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____ ____

VIII. GROUNDWATER/SURFACE WATER REMEDIES ☐ Applicable X N/A
A. Groundwater Extraction Wells, Pumps, and Pipelines ☐ Applicable X 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 X N/A Remarks___Monitoring wells observed but MNA is not included as a component of the remdy.________________
IX. 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.
X. 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.________________
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. __O&M of the soil cover will commence once the ROD Amendment and LUCIP are finalized._____

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 observed.____
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. _None.____

Date: 12/5/2018 **Picture No.** 1 **Location:** STP
Comment: Access road to STP, looking south

Date: 12/5/2018 **Picture No.** 2 **Location:** STP
Comment: Path from dog park to STP, looking south

Date: 12/5/2018 **Picture No.** 3 **Location:** STP
Comment: Recreation path sign

Date: 12/5/2018 **Picture No.** 4 **Location:** STP
Comment: Access road located south of former sludge drying bed area

Date: 12/5/2018 **Picture No.** 5 **Location:** STP
Comment: Chain link fence enclosure around inactive non-PCB transformer

Date: 12/5/2018 **Picture No.** 6 **Location:** STP
Comment: Drainage ditch in northwest portion of site

Date: 12/5/2018 **Picture No.** 7 **Location:** STP
Comment: Former sludge drying bed area, ponded water

Date: 12/5/2018 **Picture No.** 8 **Location:** STP
Comment: Historic location of sludge drying beds

Date: 12/5/2018 **Picture No.** 9 **Location:** STP

Comment: View of LTM-MW-01

Date: 12/5/2018 **Picture No.** 10 **Location:** STP

Comment: Manhole structure associated with former sludge drying beds

Date: 12/5/2018 **Picture No.** 11 **Location:** STP

Comment: View of MW-34

Date: 12/5/2018 **Picture No.** 12 **Location:** STP

Comment: Northeast portion of site in vicinity of former North Primary Tank and Chamber A, looking southwest

Date: 12/5/2018 Picture No. 13 Location: STP
Comment: Northern portion of site, looking west

Date: 12/5/2018 Picture No. 14 Location: STP
Comment: Walking path west of site

Date: 12/5/2018 Picture No. 15 Location: STP
Comment: Wetland area in southern portion of site, Tile Bed Area

RESOLUTION CONSULTANTS

Drawn:	JB	04/19/2016
Approved:	MS	04/19/2016
Project #:	60274866	

Legend

- Soil Sample Does Not Exceed Revised Remedial Goals
- Soil Sample Exceeds Revised Non-Residential Remedial Goals
- Soil Sample Exceeds Revised Residential Remedial Goals
- Monitoring Well in Long-Term Monitoring Plan
- Sediment Sample in Long-Term Monitoring Plan
- Surface Water Flow Direction
- Treeline
- Proposed Land Use Control Boundary (Below 2 Feet)
- Proposed Land Use Control Boundary (Below 9 Feet)
- Catch Basin
- Former Structures
- Gravel/Cobble Backfill
- Current Wetland Boundary
- ROD Wetland Boundary
- Test Pit Locations
- Ditch Excavation
- Pipe Excavated (2014/2015 Mobilization)
- Extent of Excavation (2009 Mobilization)
- Extent of Excavation (2014/2015 Mobilization)

N

0 8 16 32
Scale in Feet

LAND USE CONTROL IMPLEMENTATION PLAN
SITE 7, FORMER SEWAGE TREATMENT PLANT
FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

FIGURE 2
LUC AREA

P:\Govt\Projects\NavyCLEAN AECOM-EnSafe JV\South_Weymouth\GIS\Projects\STP\SAP\MXD\Fig_10_3_Site_Details.mxd

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APPENDIX E-4
ARAR TABLES

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APPENDIX F: ARAR TABLES

Media	Requirement	Requirement Synopsis	Action to be Taken to Attain Requirement	Status
Federal – Chemical Specific				
All	Risk Assessment Guidance – Cancer Slope Factors	Guidance used in human health risk assessments as guidance values to evaluate the potential carcinogenic hazard caused by exposure to chemicals of concern.	This alternative will meet these guidance values since potential carcinogenic hazards associated with exposure to contaminants will be addressed through removal and off-site disposal of all contaminated material that poses a carcinogenic risk.	To Be Considered
All	EPA Reference Dose (RfD) Guidance	Guidance used to characterize human health risks associated with non-carcinogens in site media.	This alternative will meet these guidance values since potential non-carcinogenic hazards associated with exposure to contaminants will be addressed through removal and off-site disposal of all contaminated material that poses a non-carcinogenic risk.	To Be Considered
All	EPA Guidelines for Carcinogen Risk Assessment, EPA/630/P-03/001F (March 2005)	Guidance for assessing cancer risk.	This alternative will meet these guidance values since potential carcinogenic hazards associated with exposure to contaminants will be addressed through removal and off-site disposal of all contaminated material that poses a carcinogenic risk.	To Be Considered
All	EPA Supplemental Guidance for Assessing Susceptibility from Early Life Exposure to Carcinogens, EPA/630/R03/003F (March 2005)	Guidance for assessing cancer risks to children.	This alternative will meet these guidance values since potential carcinogenic risks to children associated with exposure to contaminants will be addressed through removal and off-site disposal of all contaminated material that poses a carcinogenic risk.	To Be Considered

Federal – Location Specific				
Wetlands	Clean Water Act § 404, 33 U.S.C. § 1344; § 404(b)(1). Guidelines for Specification of Disposal Sites for Dredged or Fill Material, 40 C.F.R. Parts 230, 231 and 33 C.F.R. Parts 320-323.	Controls discharges of dredged or fill material to protect aquatic ecosystem. This alternative includes work to be performed in or near a wetland. Under this requirement, no activity that adversely affects a wetland shall be permitted if a practicable alternative with lesser effects is available. If activity takes place, impacts must be minimized to the maximum extent.	This is the least damaging practicable alternative to addressing site contamination and protecting wetland resources because contamination exists in wetlands and waterways, and it is the least costly method and uses technologies most certain to achieve PRGs. Mitigation of altered wetlands will follow applicable standards.	Applicable
Wetlands	Wetlands Protection, 40 C.F.R. § 6.302(a), Appendix A	This regulation codifies standards established under Executive Order 11990. Requires action to avoid (whenever possible) the long- and short-term impacts associated with the destruction of wetlands whenever there is a practical alternative that promotes preservation and restoration of the benefits and value of wetlands. If no alternative exists, impacts from implementation must be mitigated.	This is the least damaging practicable alternative to addressing site contamination and protecting wetland resources resources because contamination exists in wetlands and waterways, and it is the least costly and uses technologies most certain to achieve PRGs. Potential impacts to wetlands from the excavation or site restoration actions will be avoided to the extent possible, in accordance with this Order. Unavoidable impacts to wetlands from remedial actions will be mitigated.	Applicable
Wetlands	Fish and Wildlife Coordination Act of 1958, 16 U.S.C. § 661; Protection of Wildlife Habitats	Requires consultation with federal and state conservation agencies during planning and decision-making processes that may impact water bodies, including wetlands.	The Navy will consult with U.S. Fish and Wildlife Service should remedial activities involve the modification of wetlands or waterways.	Applicable
Floodplains	Floodplain Management, 40 C.F.R. § 6.302(b), Appendix A	This regulation codifies standards established under Executive Order 11988. EO 11988 requires that a cleanup in a floodplain not be performed unless a determination is made that no practicable alternative exists, potential harm must be minimized and action taken to restore and preserve the natural and beneficial values of the floodplain.	This alternative includes excavation within a wetland, which may be within the 100-year floodplain. No practicable alternative to this excavation exists. If the site is within the 100-year floodplain, (1) appropriate federal agencies would be contacted and allowed to review the proposed work plan for the remedial action prior to implementation of the action and (2) remedial activities would be scheduled and designed to minimize harm to the floodplains and prevent downstream flooding. Even If it is determined that the wetland is not within the 100-year floodplain, however, excavation work will be conducted in a manner that prevents downstream flooding within a downstream 100 year floodplain.	Applicable

State – Location Specific				
Wetlands	Wetlands Protection Act, 310 Chapters 10.51 – 10.60, specifically: § 10.54: Banks, § 10.55: Bordering Vegetated Wetlands, § 10.57: Land Subject to Flooding.	These regulations set performance standards for work within state-regulated wetland resources and their buffer zones (including within 100 feet of a bordering vegetated wetland and within 200 feet of a waterway).	Potential impacts to state-regulated wetland resources from the excavation or site restoration actions will be avoided to the extent possible. Unavoidable impacts to wetlands from remedial actions will be mitigated. Impacts to banks, bordering vegetated wetlands and land subject to flooding will be managed in accordance with these regulations.	Applicable
Wetlands	Massachusetts Endangered Species Act, 321 C.M.R. § 10.00	Prohibits the "taking" of any rare plants or animals listed as Endangered, Threatened, or Special Concern by the Massachusetts Division of Fisheries and Wildlife. This also protects designated endangered/threatened species populations.	No state-listed endangered species have been identified at the site. However, appropriate measures must be taken during remedial actions to ensure that a state-listed "species of special concern" identified in other areas of the base (eastern box turtle,) and habitat are not adversely affected by the remedial action.	Applicable
Federal – Action Specific				
All	Resource Conservation and Recovery Act ("RCRA"), 42 U.S.C. § 6901 *et seq.*	Federal standards used to identify, manage, and dispose of hazardous waste. Massachusetts has been delegated the authority to administer these RCRA standards through its state hazardous waste management regulations. These provisions have been adopted by the Commonwealth of Massachusetts.	Waste generated as part of excavation or monitoring activities will be characterized as hazardous or non-hazardous. If determined to be hazardous waste, then it will be stored, transported, and disposed in accordance with these standards. Please refer to enforceable state standards below under Massachusetts' Hazardous Waste Management Rules.	Applicable
Soil, sediment	Toxic Substances Control Act, 40 C.F.R. § 761.61(c), PCB Remediation Waste	Risk-based standards for the sampling, cleanup and disposal of PCB remediation waste. Requires a decision by the Regional Administrator, EPA-New England, that activities to address PCB remediation waste will not pose an unreasonable risk of injury to health or the environment.	PCBs were not identified as a Contaminant of Concern at the Site. However, if the Pre-design Investigation reveals presence of PCB contamination in soils/sediment that poses a risk to human health or the environment, these standards will be used. As such, a written decision would be required by the Regional Administrator, EPA-New England, that activities to address PCB remediation waste will not pose an unreasonable risk of injury to health or the environment.	Applicable
Air	Clean Air Act, 42 U.S.C. § 112(b)(1), National Emission Standards for Hazardous Air Pollutants (NESHAPS), 40 C.F.R. Part 61	The regulations establish emission standards for 189 hazardous air pollutants. Standards set for dust control and other release sources.	Emissions of fugitive dust will be managed through engineering and other controls during remedial activities.	Applicable

Sediment/ Surface Water	National Recommended Water Quality Criteria), 33 U.S.C. § 1314(a), 40 C.F.R. Part 122.44)	NRWQC include (1) criteria for protection of human health from toxic properties of contaminants ingested through consumption of water and aquatic organisms, and (2) criteria for protection of aquatic life.	Contaminant concentrations in the wetlands will be measured during short-term monitoring to determine whether or not water quality is being impacted by site activities, and to ensure that water quality criteria are being met. Any discharge to surface waters during remedial activities will be designed and operated so that it will not cause or contribute to an exceedance of the NRWQC. Engineering controls would be used during excavation in and near drainage ditches to limit migration/runoff of sediment into surface water. Dewatering is not anticipated to be necessary since soils are to be excavated to a depth of 1 foot, and discharge of collected water to surface water is not anticipated. Post excavation sampling will determine that all contaminated sediments have been removed from the Site.	Relevant and Appropriate
Water	Clean Water Act, (33 U.S.C.. § 1251 *et seq.*); National Pollution Discharge Elimination System (NPDES) (40 C.F.R. §§ 122-125, 131)	These standards address water discharges that may be directed to surface water. Federal standards that are health-based and ecologically-based criteria developed for numerous carcinogenic and non-carcinogenic compounds. Used by State to establish water quality standards for protection of human health and aquatic life.	The disposal of any water waste generated in the remedial action (including dewatering of excavations) that is discharged to surface waters must be conducted consistent with this section, including discharge limitations, monitoring requirements and best management practices, as necessary. Dewatering, however, is not anticipated because maximum depth of the excavation is expected to be 1 foot and drainage ditches typically contain little water.	Applicable
State – Action Specific				
All	Hazardous Waste Regulations, 310 C.M.R. § 30.100	These regulations establish requirements for determining whether wastes are hazardous.	The determination of whether wastes generated as a part of this remedial action are hazardous will be done according to these regulations.	Applicable
All	Hazardous Waste Management Rules; Requirements for Generators, 310 C.M.R. § 30.300	These regulations contain requirements for generators of hazardous waste. The regulations apply to generators of sampling waste and also apply to the accumulation of waste prior to offsite disposal.	Wastes generated during remedial actions that are determined to be hazardous would be managed in accordance with these requirements.	Applicable
All	Hazardous Waste Management Rules - General standards for hazardous waste facilities (310 C.M.R. 30.500)	General facility requirements for waste analysis, security measures, inspections, personnel training, and closure/post-closure.	Remedial activities to address hazardous wastes will be conducted in accordance with this requirement. Specifically, storage of wastes on site will be conducted in accordance with this regulation. All workers will be properly trained. Closure/post-closure standards will be met since all wastes will be excavated and removed from the site.	Relevant and Appropriate
All	Hazardous Waste Regulations – Groundwater Protection, 310 C.M.R. 660	Facility standards for the protection of groundwater. Groundwater standards must be met beyond a point of compliance (310 C.M.R. § 669)	The protection of groundwater, as necessary, will be achieved by compliance with these standards.	Applicable
All	Hazardous Waste Regulations – Use of Containers 310 C.M.R. § 30.680	Establishes requirements for the management of containers, such as drums, that would hold field-generated hazardous wastes.	Any hazardous waste containers used during the remedial action would comply with these requirements.	Applicable

All	Hazardous Waste Management Rules, Management, Storage, and Treatment in Tanks, 310 C.M.R. § 30.690	These regulations establish requirements for the use and management of tanks at hazardous waste facilities.	It is anticipated that storage of hazardous waste will be done in a portable roll-off container. However, if the remedial action requires storage of hazardous waste in tanks, then management procedure requirements will be followed.	Applicable
Soil, sediment	Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas	Massachusetts Guidance that sets standards for preventing erosion and sedimentation.	Remedial actions will be managed to prevent erosion and sedimentation.	To Be Considered
Water	Massachusetts Clean Water Act (MGL Ch 21 §§ 26-53); Surface Water Discharge Permit Regulations (314 C.M.R. 3.04)	These regulations limit or prohibit discharges of pollutants to surface waters to ensure that the surface water quality standards of the receiving waters are protected and maintained or attained. Discharges to waters of the Commonwealth shall not result in exceedances of MA Surface Water Quality Standards (MSWQS).	Contaminant concentrations in the wetlands will be measured during short-term monitoring to determine whether or not water quality is being impacted by site activities, and to ensure that state water quality standards are being met. Any discharge to surface waters during remedial activities will be designed and operated so that it will not cause or contribute to an exceedance of the MSWQS. Engineering controls would be used during excavation in and near drainage ditches to limit migration/runoff of sediment into surface water. Dewatering is not anticipated to be necessary since soils are to be excavated to a depth of 1 foot, and discharge of collected water to surface water is not anticipated.	Applicable
Air	Massachusetts Ambient Air Quality Standards, 310 C.M.R. § 6.00	These regulations set primary and secondary standards for emissions of certain contaminants, including particulate matter.	Emissions of fugitive dust will be managed through engineering and other controls during remedial activities.	Applicable
Air	Massachusetts Air Pollution Control Regulations, 310 C.M.R. § 7.00	These regulations set emission limits necessary to attain ambient air quality standards, including standards for visible emissions (310 C.M.R. § 7.06), dust, odor and demolition (310 C.M.R. § 7.09 0, and noise (310 C.M.R. § 7.10).	Emissions of fugitive dust will be managed through engineering and other controls during remedial activities.	Applicable

Table B-2a
Chemical-Specific ARARs and TBCs
Site 7 — Former Sewage Treatment Plant Feasibility Study
NAS South Weymouth, Weymouth, Massachusetts Alternative 2: LUCs and LTM

Requirement	Citation	Status	Requirement Synopsis	Action to Be Taken to Attain Requirement	Change from 2008 ROD
Federal					
Human Health Assessment Cancer Slope Factors (CSFs)	None	To Be Considered	CSFs are estimates of the upper-bound probability of an individual developing cancer as a result of a lifetime exposure to a particular concentration of a potential carcinogen.	Used to compute the potential carcinogenic risks caused by exposure to contaminants in subsurface soil. Soil cover, operations and/or maintenance (O&M), long-term monitoring (LTM) and land use controls (LUCs) will prevent exposure to site contaminants exceeding risk-based preliminary remediation goals (PRGs).	Cited in ROD. Used in the ROD to develop risk-based standards calculated using the guidance; achieved by removing all contamination exceeding the risk-based standards.
EPA Risk Reference Doses (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 in subsurface soil. Soil cover, O&M, LTM and LUCs will prevent exposure to site contaminants exceeding risk-based PRGs.	Cited in ROD. Used in the ROD to develop risk-based standards calculated using the guidance; achieved by removing all contamination exceeding the risk-based standards.
Guidelines for Carcinogenic Risk Assessment	EPA/630/P-03/001F (March 2005)	To Be Considered	These guidelines provide guidance on conducting risk assessments involving carcinogens.	Used to calculate potential carcinogenic risks caused by exposure to contaminants in subsurface soil. Soil cover, O&M, LTM and LUCs will prevent exposure to site contaminants exceeding risk-based PRGs.	Cited in ROD. Used in the ROD to develop risk-based standards calculated using the guidance; achieved by removing all contamination exceeding the risk-based standards.

Requirement	Citation	Status	Requirement Synopsis	Action to Be Taken to Attain Requirement	Change from 2008 ROD
Federal					
Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens	EPA/630/R-03/003F (March 2005)	To Be Considered	This provides guidance on assessing risk to children from carcinogens.	Used to calculate potential carcinogenic risks to children caused by exposure to contaminants in subsurface soil. Soil cover, O&M, LTM and LUCs will prevent exposure to site contaminants exceeding risk-based PRGs.	Cited in ROD. Used in the ROD to develop risk-based standards calculated using the guidance; achieved by removing all contamination exceeding the risk-based standards.
EPA Carcinogenic Assessment Group Potency Factors		To Be Considered	These factors are used to evaluate an acceptable risk from a carcinogen.	Used to calculate potential carcinogenic risks caused by exposure to contaminants in subsurface soil. Soil cover, O&M, LTM and LUCs will prevent exposure to site contaminants exceeding risk-based PRGs.	Not cited in ROD.
Guidance on Remedial Actions for Superfund Sites with Polychlorinated Biphenyl (PCB) Contamination	EPA-540- G-90-007 (August 1990)	To Be Considered	EPA Guidance for evaluating risks posed by PCBs at Superfund sites. Used to develop risk-based cleanup standards.	Used to calculate potential risks caused by exposure to PCBs in subsurface soil. Soil cover, O&M, LTM and LUCs will prevent exposure to PCBs exceeding risk-based PRGs.	Not cited in ROD.
Issuance of Final Guidance: Ecological Risk Assessment and Risk Management Principles for Superfund Sites	OSWER Directive 9285.7-28P (September 1999)	To Be Considered	EPA guidance intended to help Superfund risk managers make ecological risk management decisions .	Used to support the general basis for the derivation and selection of ecological PRGs.	Not cited in ROD.

Table B-2b
Location-Specific ARARs and TBCs
Site 7 — Former Sewage Treatment Plant
Feasibility Study
NAS South Weymouth, Weymouth, Massachusetts
Alternative 2: LUCs and LTM

Requirement	Citation	Status	Requirement Synopsis	Action to Be Taken to Attain Requirement	Change from 2008 ROD
Federal					
Floodplain Management and Protection of Wetlands	44 C.F.R. Part 9	Relevant and Appropriate	FEMA regulations that set forth the policy, procedure and responsibilities to implement and enforce Executive Order 11988 (Floodplain Management) and 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. Requires the avoidance of impacts associated with the occupancy and modification of federally-designated 100-year and 500-year floodplain and to avoid development within floodplain wherever there is a practicable alternative. An assessment of impacts to 500-year floodplain is required for critical actions – which includes siting hazardous waste facilities in a floodplain. Requires public notice when proposing any action in or affecting floodplain or wetlands.	O&M of the 2-foot cover, with LTM and LUCs will ensure the protection of wetland resources. The wetland will be restored with native vegetation on top of the cover. The soil cover and wetland covers within 500-year floodplain will be maintained to prevent any release of subsurface contamination in the event of up to a 500-year storm event. Covers were restored to grade so there was no loss of flood storage volume from the covers. Floodplain habitat will be restored with native vegetation to the extent practicable. Public comment was solicited through the Proposed Plan concerning the proposed alteration to wetlands and floodplain by the remedial action. No comments were received.	ROD cited federal Wetland Protection and Floodplain Management regulations at 40 C.F.R. § 6.302(a)&(b), Appendix A that no longer exist. The proposed ROD remedy would have achieved compliance with these former regulations by removing all soil and sediment contamination exceeding cleanup levels from floodplain and wetland areas within the OU. The revised remedy removed all surface soil and sediment contamination while covering remaining subsurface contaminated soil with a 2-foot soil cover.

Requirement	Citation	Status	Requirement Synopsis	Action to Be Taken to Attain Requirement	Change from 2008 ROD
Federal					
Fish and Wildlife Coordination Act; Protection of Wildlife Habitats	16 U.S.C. § 661	Applicable	Requires consultation with federal and state conservation agencies during planning and decision-making processes that may impact water bodies, including wetlands.	The Navy will consult with U.S. Fish and Wildlife Service since remedial activities (wetland excavation, installing/ maintaining cover over contaminated subsurface material) involve the modification of wetlands or waterways.	Cited in ROD. The Navy was required to consult with U.S. Fish and Wildlife Service since remedial activities (wetland excavation/ restoration) involved the modification of wetlands or waterways.
Clean Water Act, Guidelines for Specification of Disposal Sites for Dredged or Fill Material,	33 U.S.C. § 1344; § 404(b)(1); 40 C.F.R. Parts 230, 231 and 33 C.F.R. Parts 320-323.	Applicable	Controls discharges of dredged or fill material to protect aquatic ecosystem. This alternative includes work to be performed in a wetland. 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. Sets standards for restoration and mitigation required as a result of unavoidable impacts to aquatic resources. EPA must determine which alternative is the "Least Environmentally Damaging Practicable Alternative" (LEDPA) to protect wetland and aquatic resources	The Navy has revised its LEDPA determination due to practicable difficulties in removing all contamination in the subsurface. The Navy solicited public comment through the Proposed Plan that its limited removal of 2 feet of surface contamination in wetland areas and installation of a 2-foot cover, along with O&M and LTM of the cover is now the LEDPA. No public comments were received on this change. The wetland resource areas altered were restored with native vegetation on top of the cover.	Cited in the ROD. The ROD included a finding that the removal of all contamination from the wetland with restoration was the LEDPA because contamination exists in wetlands and waterways, and it is the least costly method and uses technologies most certain to achieve PRGs. Mitigation of altered wetlands will follow applicable standards.
Fish and Wildlife Coordination Act; Protection of Wildlife Habitats	16 U.S.C. § 661	Applicable	Requires consultation with federal and state conservation agencies during planning and decision-making processes that may impact water bodies, including wetlands.	The Navy will consult with U.S. Fish and Wildlife Service since remedial activities (wetland excavation, installing/ maintaining cover over contaminated subsurface material) involve the modification of wetlands or waterways.	Cited in ROD. The Navy was required to consult with U.S. Fish and Wildlife Service since remedial activities (wetland excavation/ restoration) involved the modification of wetlands or waterways.

Requirement	Citation	Status	Requirement Synopsis	Action to Be Taken to Attain Requirement	Change from 2008 ROD
Federal					
Management of Undesirable Plants on Federal Lands	7 USC 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.	Monitoring will ensure that native vegetation becomes established on the soil cover within wetland areas and that measures will be taken, if required, to prevent non-native species from becoming established on the wetland soil cover.	Not cited in the ROD.
State					
Wetlands Protection Act	Wetlands Protection Act, 310 Chapters 10.51 – 10.60, specifically: § 10.54: Banks, § 10.55: Bordering Vegetated Wetlands, § 10.57: Land Subject to Flooding.	Applicable	These regulations set performance standards for work within state-regulated wetland resources and their buffer zones (including within the 100-year floodplain, within 100 feet of a bordering vegetated wetland, and within 200 feet of a waterway).	O&M of the 2-foot cover, along with LTM and LUCs, will ensure the protection of state regulated wetland resources. The wetland resource areas were restored with native vegetation on top of the cover.	Cited in ROD. Potential impacts to state-regulated wetland resources from the excavation or site restoration actions will be avoided to the extent possible. Unavoidable impacts to wetlands from remedial actions will be mitigated. Impacts to banks, bordering vegetated wetlands and land subject to flooding will be managed in accordance with these regulations.
Massachusetts Endangered Species Act	321 C.M.R. § 10.00	Applicable	Prohibits the "taking" of any rare plants or animals listed as Endangered, Threatened, or Special Concern by the Massachusetts Division of Fisheries and Wildlife. This also protects designated endangered/threatened species populations	No state-listed endangered species have been identified at the site. However, appropriate measures must be taken during remedial actions (particularly O&M of the covers) to ensure that a state-listed "species of special concern" identified in other areas of the base (eastern box turtle,) and habitat are not adversely affected by the remedial action.	No state-listed endangered species have been identified at the site. However, appropriate measures must be taken during remedial actions to ensure that a state- listed "species of special concern" identified in other areas of the base (eastern box turtle,) and habitat are not adversely affected by the remedial action.

Table B-2c
Action-Specific ARARs and TBCs
Site 7 — Former Sewage Treatment Plant Feasibility Study
NAS South Weymouth, Weymouth, Massachusetts
Alternative 2: LUCs and LTM

Requirement	Citation	Status	Requirement Synopsis	Action to Be Taken to Attain Requirement	Change from 2008 ROD
Federal					
Toxic Substances Control Act (TSCA); PCB Remediation Waste	15 U.S.C. 2601 *et seq.;* 40 C.F.R. 761.61(c)	Relevant and Appropriat e	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.	PCBs have been detected at low concentrations, but above risk-based standards in subsurface site soils. This amended remedy establishes a PCB cleanup standard of 2,490_ug/kg for Aroclor 1260 and 4,110 ug/kg for Aroclor 1016, which are protective for unrestricted use. All soil exceeding identified PCB cleanup levels will remain inaccessible through the installation and O&M of soil covers, along with LTM and LUCs in order to meet TSCA protectiveness standards that require the remedy's soil PCB cleanup levels, along with the installation and O&M of soil covers, LTM and LUCs, will not pose an unreasonable risk to human health or the environment.	Cited in the ROD as a conditional Applicable ARAR. PCBs were not identified as a Contaminant of Concern at the Site. However, the ROD required if the Pre-design Investigation revealed the presence of PCB contamination in soils that posed a risk to human health or the environment, these standards would be used. A written decision would have been required by the Regional Administrator, EPA New England, that the post-ROD activities to address PCB remediation waste would not pose an unreasonable risk of injury to health or the environment. However, after consulting with EPA's TSCA Program, it was determined that because the PCBs likely had been disposed of before April 18, 1979, the TSCA regulations were not Applicable and no TSCA Determination was required. For this ROD Amendment, the Status of these regulations has been changed to Relevant and Appropriate.
Resource Conservation and Recovery Act (RCRA) Subtitle C; Hazardous Waste Identification and Listing Regulations; Generator and Handler Requirements, Closure and PostClosure	42 U.S.C. §6901 *et seq.*; 40 C.F.R. Parts 260-262 and 264	Applicable	Federal standards used to identify, manage, and dispose of hazardous waste. Massachusetts has been delegated the authority to administer these RCRA standards through its state hazardous waste management regulations. These provisions have been adopted by the State.	Any wastes generated during monitoring or future O&M of the cover will be characterized as hazardous or non-hazardous. If determined to be hazardous waste, then it will be stored, transported, and disposed in accordance with these standards. Please refer to enforceable state standards below under Massachusetts' Hazardous Waste Management Rules.	Cited in the ROD. Waste generated as part of excavation or monitoring activities will be characterized as hazardous or non-hazardous. If determined to be hazardous waste, then it will be stored, transported, and disposed in accordance with these standards. Please refer to enforceable state standards below under Massachusetts' Hazardous Waste Management Rules.

Requirement	Citation	Status	Requirement Synopsis	Action to Be Taken to Attain Requirement	Change from 2008 ROD
Federal					
Clean Air Act (CAA), Hazardous Air Pollutants; National Emission Standards for Hazardous Air Standards Pollutants (NESHAPS)	42.U.S.C. §112(b)(1); 40 C.F.R. Part 61	Applicable	The regulations establish emissions standards for 189 hazardous air pollutants set for dust and other release sources.	Remedial activities, including future O&M of the covers will be implemented in accordance with these rules. No air emissions from remedial activities will cause air quality standards to be exceeded. Dust standards will be complied with during excavation and management of materials within the Operable Unit (OU).	Cited in the ROD. Remedial activities, including excavation and management of soil and sediment was implemented in accordance with these rules. No air emissions from remedial activities caused air quality standards to be exceeded.
National Recommended Water Quality Criteria)	33 U.S.C.§ 1314(a), 40 C.F.R. Part 122.44	Applicable	NRWQC include (1) criteria for protection of human health from toxic properties of contaminants ingested through consumption of water and aquatic organisms, and (2) criteria for protection of aquatic life.	The standards will be used for monitoring surface water and sediment as part of LTM of the soil cover. They will also be used for monitoring standards if any maintenance of the covers is required.	Cited in the ROD. Contaminant concentrations in the wetlands will be measured during short-term monitoring to determine whether or not water quality is being impacted by site activities, and to ensure that water quality criteria are being met. Any discharge to surface waters during remedial activities will be designed and operated so that it will not cause or contribute to an exceedance of the NRWQC. Engineering controls would be used during excavation in and near drainage ditches to limit migration/ runoff of sediment into surface water. Dewatering is not anticipated to be necessary since soils are to be excavated to a depth of 1 foot, and discharge of collected water to surface water is not anticipated. Post excavation sampling will determine that all contaminated sediments have been removed from the Site.
Generation of investigation derived waste.	USEPA OSWER Publication 9345.3-03 FS (January 1992)	To Be Considered	Guidance on the management of Investigation-Derived Waste (IDW) in a manner that ensures protection of human health and the environment.	IDW generated as part of this remedial alternative will be managed based on guidance standards.	Not cited in the ROD.

Requirement	Citation	Status	Requirement Synopsis	Action to Be Taken to Attain Requirement	Change from 2008 ROD
Federal					
Clean Water Act; National Pollution Discharge Elimination System (NPDES)	33 U.S.C. § 1251 *et seq.*; 40 C.F.R. §§ 122-125, 131	Applicable	These standards address water discharges that may be directed to surface water. Federal standards that are health-based and ecologically-based criteria developed for numerous carcinogenic and non-carcinogenic compounds. Also, includes stormwater standards for activities disturbing more than one acre.	If any future maintenance of the covers generates water requiring discharge to surface water, these discharge standards will be met. Also, if any future remedial activity results in over an acre of disturbance applicable stormwater standards will be met.	Cited in the ROD, except for the stormwater requirements. The disposal of any water waste generated during the remedial action (including dewatering of excavations) that is discharged to surface waters was conducted consistent with this section, including discharge limitations, monitoring requirements and best management practices, as necessary.
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), *In Situ* Capping (Ch. 5), and Dredging and Excavation (Ch. 6).	The excavation and off-site disposal of contaminated sediments meets guidance standards for addressing contaminated sediments in the drainage ditch.	Not cited in the ROD. However, the excavation and off-site disposal of contaminated sediment meets guidance standards for addressing contaminated sediments in the drainage ditch.
State					
Hazardous Waste Regulations; Waste Identification and Listing	310 C.M.R. § 30.100	Relevant and Appropriate	These regulations establish requirements for determining whether wastes are hazardous.	Any wastes generated during monitoring or future O&M of the cover will be characterized as hazardous or non-hazardous.	Cited in the ROD. Waste generated as part of excavation or monitoring activities will be characterized as hazardous or non-hazardous.
Hazardous Waste Management Rules; Requirements for Generators,	310 C.M.R. § 30.300	Applicable	These regulations contain requirements for generators of hazardous waste. The regulations apply to generators of sampling waste and also apply to the accumulation of waste prior to offsite disposal.	Any hazardous wastes generated from the remedial action will be managed and disposed of in accordance with these standards.	Cited in the ROD. Any hazardous wastes generated from the implementation of the ROD remedy would have been managed and disposed of in accordance with these standards.

Requirement	Citation	Status	Requirement Synopsis	Action to Be Taken to Attain Requirement	Change from 2008 ROD
State					
Hazardous Waste Regulations - Use of Containers	310 C.M.R. § 30.680	Applicable	Establishes requirements for the management of containers, such as drums, that would hold field- generated hazardous wastes.	To the extent any hazardous waste containers are used during the remedial action, the containers would comply with these requirements.	Cited in the ROD. Any hazardous waste containers used during the remedial action would comply with these requirements.
Hazardous Waste Management Rules, Management, Storage, and Treatment in Tanks	310 C.M.R. § 30.690	Applicable	These regulations establish requirements for the use and management of tanks at hazardous waste facilities.	To the extent any hazardous waste tanks are used during the remedial action the tanks would comply with these requirements.	Cited in the ROD. Any hazardous waste tanks used during the remedial action would comply with these requirements.
Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas		To Be Considered	Massachusetts Guidance that sets standards for preventing erosion and sedimentation.	Remedial actions will be managed to prevent erosion and sedimentation.	Cited in the ROD.
Massachusetts Clean Water Act; Surface Water Discharge Permit Regulations	MGL Ch 21 §§ 26-53; 314 C.M.R. 3.04	Applicable	These regulations limit or prohibit discharges of pollutants to surface waters to ensure that the surface water quality standards of the receiving waters are protected and maintained or attained. Discharges to waters of the Commonwealth shall not result in exceedances of MA Surface Water Quality Standards (MSWQS).	If any future maintenance of the covers generates water requiring discharge to surface water, these discharge standards will be met.	Cited in the ROD. The disposal of any water waste generated during the remedial action (including dewatering of excavations) that is discharged to surface waters was conducted consistent with this section, including discharge limitations, monitoring requirements and best management practices, as necessary.
Massachusetts Standard References for Monitoring Wells	WSC–310- 91	To Be Considered	Guidance on locating, drilling, installing, sampling and decommissioning monitoring wells.	Monitoring wells will be installed, maintained and decommissioned based on guidance standards, based on LTM requirements for the remedy.	Not cited in the ROD, because groundwater LTM not required.

Requirement	Citation	Status	Requirement Synopsis	Action to Be Taken to Attain Requirement	Change from 2008 ROD
State					
Massachusetts Clean Water Act; MA Surface Water Quality Standards (MSWQS)	M.G.L. ch 21, §§ 26-53; 314 C.M.R. 4.00	Relevant and Appropriate	These standards designate the most sensitive uses for which the various waters of the Commonwealth shall be enhanced, maintained, or protected. Minimum water quality criteria required to sustain the designated uses are established.	The standards will be used for monitoring sediment as part of LTM of the soil cover. They will also be used for monitoring standards if any maintenance of the covers is required.	Not cited in the ROD.
Massachusetts Ambient Air Quality Standards	310 C.M.R. § 6.00	Applicable	These regulations set primary and secondary standards for emissions of certain contaminants, including particulate matter.	Remedial activities, including future O&M of the covers will be implemented in accordance with these rules. No air emissions from remedial activities will cause air quality standards to be exceeded. Dust standards will be complied with during excavation and management of materials within the OU.	Cited in the ROD. Remedial activities, including excavation and management of soil and sediment were implemented in accordance with these rules. No air emissions from remedial activities caused air quality standards to be exceeded.
Massachusetts Air Pollution Control Regulations, 310 C.M.R. § 7.00	310 C.M.R. § 6.00	Applicable	These regulations set emission limits necessary to attain ambient air quality standards, including standards for visible emissions (310 C.M.R. § 7.06), dust, odor and demolition (310 C.M.R. § 7.09 0, and noise (310 C.M.R. § 7.10).	Remedial activities, including future O&M of the covers will be implemented in accordance with these rules. No air emissions from remedial activities will cause air quality standards to be exceeded. Dust standards will be complied with during excavation and management of materials within the OU.	Cited in the ROD. Remedial activities, including excavation and management of soil and sediment were implemented in accordance with these rules. No air emissions from remedial activities caused air quality standards to be exceeded.
Massachusetts Contingency Plan, Implementation of Activity and Use Limitations	310 CMR 40.0111(8), 310 CMR 40.1070 and 310 CMR 40.1074	Applicable	State standards for recordable LUCs at CERCLA sites in Massachusetts.	LUCs will be established consistent with State standards for enforceable restrictions on contaminated property.	Not cited in the ROD because no contamination was to be left in place.

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APPENDIX F
BUILDING 81

F-1 SITE CHRONOLOGY
F-2 BACKGROUND
F-3 SITE INSPECTION REPORT AND PHOTOGRAPHS
F-4 ARAR TABLES

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APPENDIX F-1
SITE CHRONOLOGY

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APPENDIX F-1

TABLE F-1: CHRONOLOGY OF SITE EVENTS, IR PROGRAM SITE 9 – BUILDING 81

Site 9 Building 81 Event	Date
Waste Oil UST Removal	August 1991
Voluntary Phase I Limited SI (under MCP)	June 1993
Immediate Response Action (IRA)	1994
Phase I Initial SI Report	April 1995
Interim Phase II Comprehensive Site Assessment	April 1997
Supplemental Phase II Comprehensive Site Assessment	October 1997
Release Abatement Measure (RAM) Completion	May 1999
Additional PCE Assessment Report	May 1999
Bedrock Characterization Investigation Report	October 1999
ISCO Pilot Test	2000-2001
ISCO Remediation Performance Report	March 2002
Phase I RI	2005
Phase II RI	2008
Supplemental RI Field Program	2009-2011
Final RI Report	October 2011
Final FS	April 2013
Proposed Plan	October 2013
ROD	September 2014
In-Situ Enhanced Bioremediation Injections (Overburden)	November – December 2016
Final RD/RA Work Plan	July 2017
In-Situ Enhanced Bioremediation Injections (Bedrock)	September - October 2017
First Annual Basewide PFOS and PFOA LUC Inspection – 2018	December 2018

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APPENDIX F-2
BACKGROUND

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APPENDIX F-2
SITE BACKGROUND
IR PROGRAM SITE 9 – BUILDING 81

Physical Characteristics

The Building 81 Site is located in the Town of Weymouth, in the central portion of the Base, approximately 4,500 feet southeast of the main entrance to the Base on Route 18 (Figure 6-1). The Site is fenced and is bounded by Shea Memorial Drive to the west, Redfield Road to the north, an overgrown, heavily vegetated area to the east, and Building 140 to the south. The fenced area of the Site is comprised of approximately 1 acre of level land occupied by the former Building 81 foundation (a concrete slab) and paved areas to the east and south. A large excavated area that has been backfilled but not repaved, is located on the Site east of the building slab.

The site topography is relatively flat, with a very gradual slope to the southwest; elevations range from approximately 156 to 158 feet above MSL. Surface runoff follows the topography and enters into a base-wide storm drainage system which eventually discharges to French Stream, southwest of Runway 17-35 and approximately 1 mile south of the Site (Tetra Tech NUS, 2008b).

Three general geologic units have been identified at the Building 81 Site: fill (artificially placed), overburden (undisturbed), and bedrock. The undisturbed overburden consists of approximately 15 to 20 ft of native unconsolidated material, which is predominantly sand with varying amounts of gravel and silt. Bedrock below the Site consists of granite with vertical to near-horizontal fractures with varying apertures. Depth to bedrock encountered ranges from approximately 13 to 21 ft bgs.

The overall groundwater flow direction at the Site is generally toward the west-southwest. Towards the west, the contours progressively flatten out and the groundwater flow direction becomes more westerly or southwesterly with distance from east to west across the Site. Groundwater elevations across the Site range from approximately 146 ft above mean sea level (MSL) to 155 ft above MSL.

Land and Resource Use

Currently, the Site is vacant and remains part of the former NAS South Weymouth property owned by the Navy. The Navy plans to transfer the property as part of the redevelopment of the Base once the environmental cleanup is implemented and the property is deemed suitable for transfer. The local redevelopment agency established a Recreational District (RecD) zone for the part of the Site where the release occurred and a Village Center District (VCD) zone is present to the west, where a dissolved VOC contaminant plume extends across Shea Memorial Drive toward Building 15. According to the Zoning and Land Use By-Laws for NAS South Weymouth (SSTTDC, 2005), range of allowed future uses in the recreational district could include indoor and outdoor commercial recreation, athletic fields, health and fitness clubs, some institutional uses under a special permit only, and passive recreation such as walking trails. The VDC zone allows for mixed use areas, including residential development, office, commercial and/or retail uses.

History of Contamination

Building 81 was the Naval Station's Marine Air Reserve Training and former vehicle maintenance area. The exact age of the building is unknown but facility drawings dating back to March 1955 indicate that Building 81 was present at that time and was used for vehicle maintenance. Waste materials generated by vehicle maintenance activities at Building 81 included hydraulic oil, crankcase oil, brake fluid, ethylene glycol, solvents, oil filters, and other wastes typical of routine vehicle maintenance. Building 81 previously had a 500-gallon steel, underground storage tank (UST) on site that was used for the storage of waste oil generated during vehicle maintenance activities. Building 81 was demolished after 1997 as part of the Base closure activities. The foundation of the former garage remains.

APPENDIX F-2
SITE BACKGROUND
IR PROGRAM SITE 9 – BUILDING 81

Initial Response

Contamination at the Site was initially identified during the removal of a waste oil UST in 1991, when the Base was converting from underground waste oil storage to above-ground storage in 55-gallon drums. A voluntary Phase I Limited Site Investigation was conducted under the Massachusetts Contingency Plan (MCP) in June 1993 to determine if waste oil from the tank had contaminated the soil below. The Navy performed several soil removals and additional investigations under the MCP regulatory program between 1993 and 1998; however, during the additional investigations CVOCs were detected in soil and groundwater. Once non-petroleum based contaminants were found, the Site was moved from the MCP program into the Navy's IR Program for further investigation under the CERCLA program. In 2000-2001, an ISCO pilot test was conducted to assess whether total CVOCs in groundwater could be reduced using ISCO (Tetra Tech NUS, 2002c). The pilot test was successful for BTEX but did not reduce the CVOC concentrations to the target concentration throughout the plume, therefore, a Phase I, Phase II and Supplemental RI were conducted between 2005 and 2011 (Tetra Tech NUS, 2008b; 2009h).

APPENDIX F-3
SITE INSPECTION REPORT AND PHOTOGRAPHS

Five-Year Review Site Inspection Checklist

I. SITE INFORMATION	
Site name: Site 9 – Building 81	**Date of inspection: 12/5/18**
Location and Region: Former NAS South Weymouth, Weymouth, MA	**EPA ID: MA2170022022**
Agency, office, or company leading the five-year review: Tetra Tech	**Weather/temperature: Sunny, 35°F**
Remedy Includes: (Check all that apply) ☐ Landfill cover/containment ☐ Access controls X Institutional controls ☐ Groundwater pump and treatment ☐ Surface water collection and treatment ☐ Other__Enhanced in-situ GW bioremediation and monitoring_________________	X Monitored natural attenuation ☐ Groundwater containment ☐ Vertical barrier walls
Attachments: ☐ Inspection team roster attached	X 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.

See Report.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)				
1.	**O&M Documents**			
	☐ O&M manual	☐ Readily available	☐ Up to date	X N/A
	☐ As-built drawings	☐ Readily available	☐ Up to date	X N/A
	☐ Maintenance logs	☐ Readily available	☐ Up to date	X N/A
	Remarks______________________			
2.	**Site-Specific Health and Safety Plan**	☐ Readily available	☐ Up to date	X N/A
	☐ Contingency plan/emergency response plan	☐ Readily available	☐ Up to date	X N/A
	Remarks______________________			
3.	**O&M and OSHA Training Records**	☐ Readily available	☐ Up to date	X 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**	☐ Readily available	☐ Up to date	X 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 ☐ Contractor for Federal Facility
☐ Other____

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 (Date)	To (Date)	Total cost	
__________	__________	__________________	☐ Breakdown attached
__________	__________	__________________	☐ Breakdown attached
__________	__________	__________________	☐ Breakdown attached
__________	__________	__________________	☐ Breakdown attached
__________	__________	__________________	☐ Breakdown attached

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** X Location shown on site map X Gates secured ☐ N/A
Remarks: _There is a cut in the fence (see site map) with a temporary repair; a permanent repair should be completed. Both site access gates were locked at the time of the inspection; however, the gate on the north side of the site needs to be re-secured/tightened. _

B. Other Access Restrictions

1. **Signs and other security measures** X Location shown on site map ☐ N/A
Remarks: There is a warning sign and no trespassing sign posted on the western access gate.

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes ☐ No X N/A
Site conditions imply ICs not being fully enforced ☐ Yes ☐ No X 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

____

2. **Adequacy** ☐ ICs are adequate ☐ ICs are inadequate X N/A

Remarks IC have not yet been implemented. The Building 81 LUCIP is scheduled to be finalized in July 2019. The Property is still owned by the Navy and is under the control of the Navy.___________

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__Buildings 15 and 16 (located west of Building 81 and west of Shea Memorial Dr.) have been demolished. Building 11 has been partially demolished. _The IOA soil removal and associated soil piles are located south of the Building 81 site area and Building 140.

VI. GENERAL SITE CONDITIONS

A. Roads X Applicable ☐ N/A

1. **Roads damaged** ☐ Location shown on site map X Roads adequate ☐ N/A

Remarks__Redfield Rd and Shea Memorial Dr. serve as access road for the site.

B. Other Site Conditions	
	Remarks _RA for GW is ongoing. Monitoring wells and injection wells observed were locked, labeled and in good condition. Could not located MW-20 and MW-21 which are in the vicinity of the Building 11 demolish area. No evidence of trespassing or vandalism was observed.
	VII. 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____ ____

VIII. GROUNDWATER/SURFACE WATER REMEDIES X Applicable ☐ N/A
A. Groundwater Extraction Wells, Pumps, and Pipelines X Applicable ☐ N/A
1. **Pumps, Wellhead Plumbing, and Electrical** X Good condition ☐ All required wells properly operating ☐ Needs Maintenance ☐ N/A Remarks__RA in process; all GW injection equipment is assessed by the remediation contractor. The next injection is scheduled for December 2018.________________
2. **System Pipelines, Valves, Valve Boxes, and Other Appurtenances** X Good condition ☐ Needs Maintenance Remarks________________
3. **Spare Parts and Equipment** ☐ Readily available ☐ Good condition ☐ Requires upgrade X 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 X Applicable ☐ N/A	
1.	**Treatment Train** (Check components that apply) ☐ Metals removal ☐ Oil/water separation X 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) X N/A ☐ Good condition☐ Needs Maintenance Remarks__________
3.	**Tanks, Vaults, Storage Vessels** X N/A ☐ Good condition☐ Proper secondary containment ☐ Needs Maintenance Remarks__________
4.	**Discharge Structure and Appurtenances** X N/A ☐ Good condition☐ Needs Maintenance Remarks__________
5.	**Treatment Building(s)** X 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 X Routinely sampled ☐ Good condition ☐ All required wells located ☐ Needs Maintenance ☐ N/A Remarks__________
D. Monitoring Data	
1.	Monitoring Data X Is routinely submitted on time X Is of acceptable quality
2.	Monitoring data suggests: ☐ Groundwater plume is effectively contained X 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__MNA/LTM of GW will begin once the RA is complete.______________________________

IX. 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.

X. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).
The RA has been implemented but is not yet complete. Post-injection GW monitoring data suggest the remedy is functioning as designed.

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.

__See Report____

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. __See Report.__
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. _See Report._

Date: 12/5/2018 **Picture No.** 1 **Location:** Building 81
Comment: Area west of Building 81, looking west toward Building 82

Date: 12/5/2018 **Picture No.** 2 **Location:** Building 81
Comment: Building 81 access gate located on north side of site

Date: 12/5/2018 **Picture No.** 3 **Location:** Building 81
Comment: Building 81 and Building 140 looking north up Shea Memorial Dr.

Date: 12/5/2018 **Picture No.** 4 **Location:** Building 81
Comment: Building 81 and Building 140, looking east

Date: 12/5/2018 Picture No. 5 Location: Building 81
Comment: Building 81 area, looking south from Redfield Rd.

Date: 12/5/2018 Picture No. 6 Location: Building 81
Comment: Building 81 gate on west side of Building 81, locked

Date: 12/5/2018 Picture No. 7 Location: Building 81
Comment: Building 81, Monitoring wells MW33S and 33D located in northern portion of site

Date: 12/5/2018 Picture No. 8 Location: Building 81
Comment: Building 81 site access gate on west side of site, locked, looking northeast

Date: 12/5/2018 Picture No. 9 Location: Building 81

Comment: Could not locate manholes MH-20 and MH-21, may be covered with soil from demo of Building 11

Date: 12/5/2018 Picture No. 10 Location: Building 81

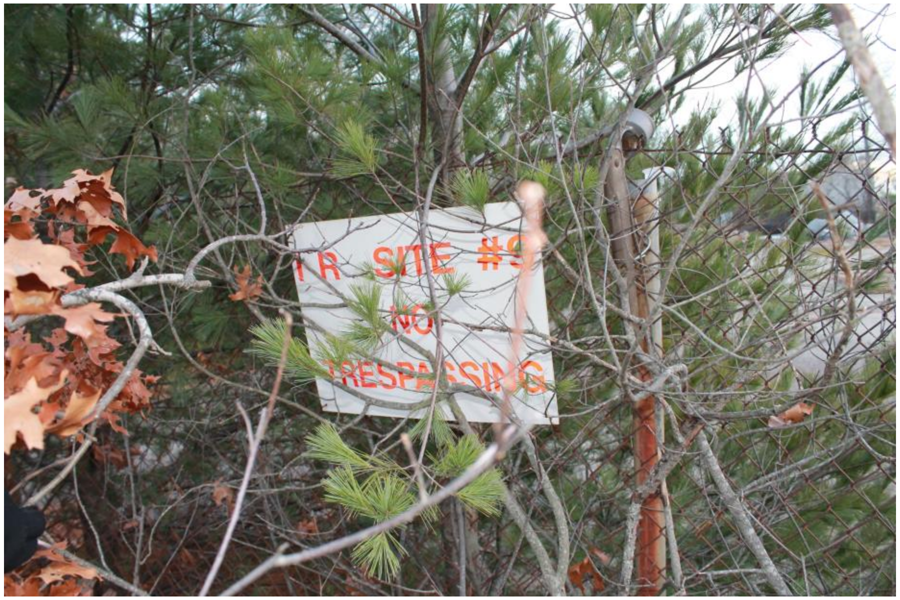
Comment: Cut in fence along northeast portion of site, fence needs permanent repair

Date: 12/5/2018 Picture No. 11 Location: Building 81

Comment: Demo of Building 11 in progress, area fenced, looking at southern side of Building 11

Date: 12/5/2018 Picture No. 12 Location: Building 81

Comment: Demo of Building 11 in progress, looking at northern side of building, facing west



Date: 12/5/2018 **Picture No.** 13 **Location:** Building 81
Comment: IR Site #9 site located on northeast portion of site fence

Date: 12/5/2018 **Picture No.** 14 **Location:** Building 81
Comment: MW38I, 38B, and 38S monitoring wells located in northern portion of site

Date: 12/5/2018 **Picture No.** 15 **Location:** Building 81
Comment: Western portion of site and remediation area, looking south

Date: 12/5/2018 **Picture No.** 16 **Location:** Building 81
Comment: View of Building 11, partially demolished

Date: 12/5/2018 **Picture No.** 17 **Location:** Building 81
Comment: Manholes B81 14 and 15

Date: 12/5/2018 **Picture No.** 18 **Location:** Building 81
Comment: View of MW-74S and 74I

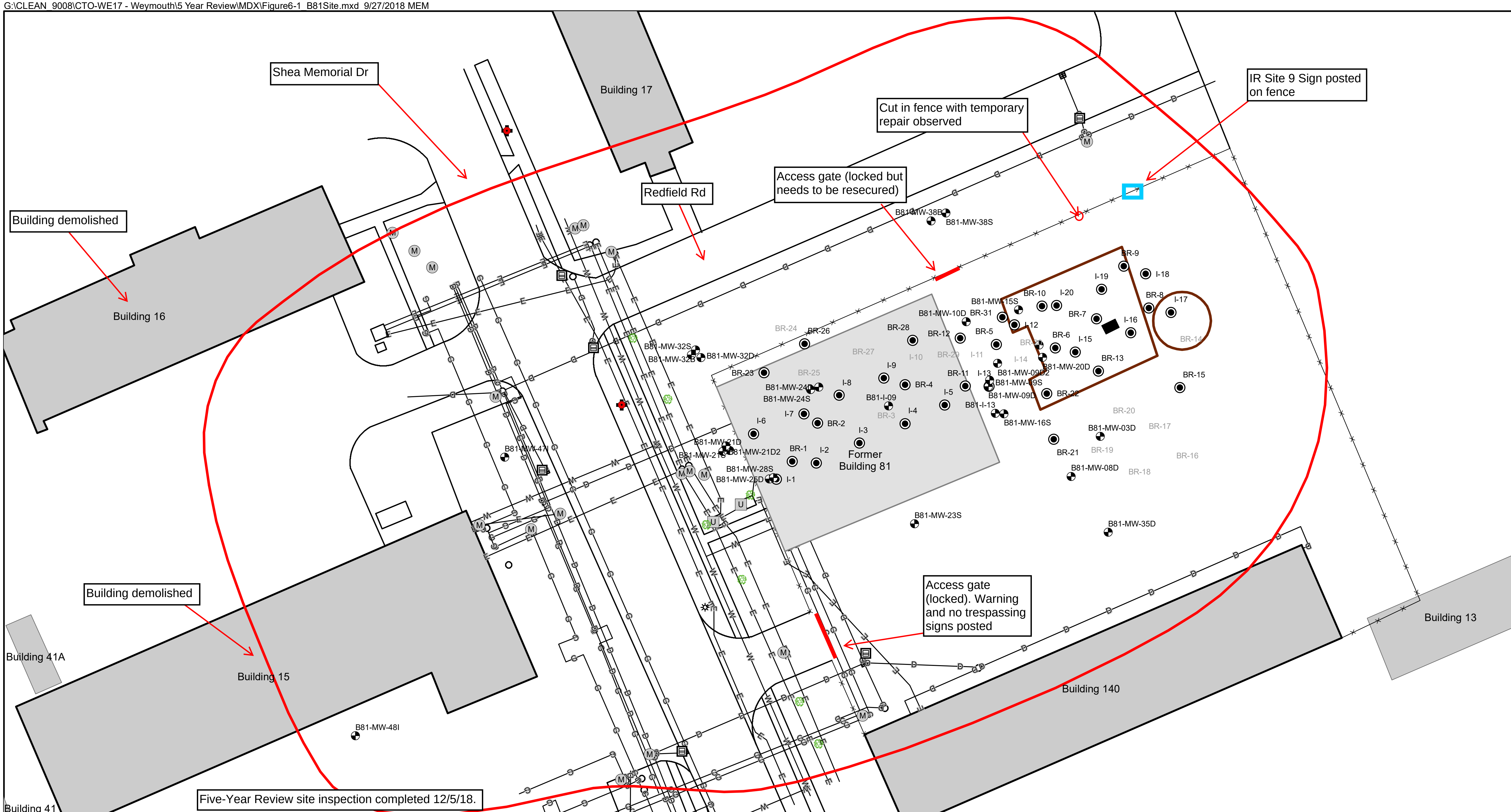
Date: 12/5/2018 **Picture No.** 19 **Location:** Building 81
Comment: Northern portion of Building 81 area including Redfield Rd., looking east

Date: 12/5/2018 **Picture No.** 20 **Location:** Building 81
Comment: Northern portion of Building 81 site, looking north towards new recreation/athletic complex

Date: 12/5/2018 **Picture No.** 21 **Location:** Building 81

Comment: View of northern portion of Building 81 area, looking northeast

G:\CLEAN_9008\CTO-WE17 - Weymouth\5 Year Review\MDX\Figure6-1_B81Site.mxd 9/27/2018 MEM



NAVFAC

Drawn: MEM 9/27/2018

Approved: JC 9/27/2018

Project #: 112G08005-WE17

Legend

- Monitoring Well
- Historic ISCO Injection Well
- Building
- Extent of VOCs in groundwater
- Source UST
- Previous Excavation Areas
- Catch Basin
- Fire Hydrant
- Manhole
- Tree
- Utility Box
- Water Valve
- Electric Line
- Water Line
- Natural Gas Line
- Drain Line
- Fence

N

0 20 40

Scale in Feet

NOTE:

Figure adapted from Site Management Plan - Annual Update #18 Former NAS South Weymouth (Resolution Consultants, June 18, 2018)

FIGURE 6-1
IR PROGRAM SITE 9
BUILDING 81
THIRD FIVE-YEAR REVIEW

FORMER NAVAL AIR STATION
SOUTH WEYMOUTH

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APPENDIX F-4
ARAR TABLES

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TABLE D-1

FEDERAL AND STATE CHEMICAL-SPECIFIC ARARs AND TBCs – ALTERNATIVE G-3 - IN-SITU ENHANCED BIOREMEDIATION (SOURCE), BIO-BARRIERS, MNA, AND LUCs
BUILDING 81
FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

Requirement	Citation	Status	Synopsis	Evaluation/Action To Be Taken
Federal				
Cancer Slope Factors (CSFs)	US EPA, Integrated Risk Information System	To Be Considered (TBC)	Guidance used to compute individual incremental cancer risk resulting from exposure to carcinogenic contaminants in site media.	This alternative will meet the risk-based cleanup levels developed through the use of this guidance since treating groundwater that poses potential carcinogenic risks through bioremediation and natural attenuation will address long-term risk, while land use controls (LUCs) will prevent short-term exposure until risk-based cleanup levels are achieved.
Reference Doses (RfDs)	US EPA, Integrated Risk Information System	TBC	Guidance used to compute human health hazard resulting from exposure to non-carcinogens in site media.	This alternative will meet the risk-based cleanup levels developed through the use of this guidance since treating groundwater that poses potential non-carcinogenic risks through bioremediation and natural attenuation will address long-term risk, while LUCs will prevent short-term exposure until risk-based cleanup levels are achieved.

FEDERAL AND STATE CHEMICAL-SPECIFIC ARARs AND TBCs – ALTERNATIVE G-3 - IN-SITU ENHANCED BIOREMEDIATION (SOURCE), BIO-BARRIERS, MNA, AND LUCs
BUILDING 81
FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

Requirement	Citation	Status	Synopsis	Evaluation/Action To Be Taken
Federal (Continued)				
Guidelines for Carcinogen Risk Assessment	EPA/630/p-03/001F March 2005	TBC	Guidelines for assessing cancer risk	This alternative will meet the risk-based cleanup levels developed through the use of this guidance since treating groundwater that poses potential carcinogenic risks through bioremediation and natural attenuation will address long-term risk, while LUCs will prevent short-term exposure until risk-based cleanup levels are achieved.
Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens	EPA.630/r-03/003F March 2005	TBC	Guidance for assessing cancer risks in children	This alternative will meet the risk-based cleanup levels developed through the use of this guidance since treating groundwater that poses potential carcinogenic risks to children through bioremediation and natural attenuation will address long-term risk, while LUCs will prevent short-term exposure until risk-based cleanup levels are achieved.

TABLE D-1

FEDERAL AND STATE CHEMICAL-SPECIFIC ARARs AND TBCs – ALTERNATIVE G-3 - IN-SITU ENHANCED BIOREMEDIATION (SOURCE), BIO-BARRIERS, MNA, AND LUCs
BUILDING 81
FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

Requirement	Citation	Status	Synopsis	Evaluation/Action To Be Taken
Federal (Continued)				
Draft Guidance for Evaluating Vapor Intrusion to Indoor Air Pathways from Groundwater and Soils (Subsurface Vapor Intrusion Guidance)	EPA 530-D-02-004 November, 2002	TBC	Guidance for assessing vapor intrusion risk.	Since the future use includes structures on the Site, assessment of potential vapor intrusion risks will be conducted in accordance with the guidance and LUCs that address building design and construction methods will control exposure.
State				
Massachusetts Contingency Plan – GW-3 Standards	310 CMR 40.0974(2)	TBC	Least protective state cleanup standards.	Risk-based cleanup levels will be compared to the GW-3 standards, and the GW-3 standards will be used when less than the risk-based cleanup levels.

TABLE D-2

FEDERAL AND STATE LOCATION-SPECIFIC ARARs AND TBCs – ALTERNATIVE G-3 - IN-SITU ENHANCED BIOREMEDIATION (SOURCE), BIO-BARRIERS, MNA, AND LUCs
BUILDING 81
FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

Requirement	Citation	Status	Synopsis	Evaluation/Action to be Taken
Federal				
There are no federal location-specific ARARs.				
State				
Massachusetts Endangered Species Act	MGL Ch. 131A; 321 CMR 10.00	Applicable	Sets out authority to research, list, and protect any species deemed endangered, threatened, or of other special concern. Actions must be conducted in a manner that minimizes the effect on listed Massachusetts species.	A state-listed species of special concern (Eastern Box Turtle) has been observed at the Base, but not at the Building 81 Site. The existing area is highly developed and little suitable habitat is present. Appropriate measures will be taken during implementation of the selected remedial action to ensure that the species is not harmed.

TABLE D-3

FEDERAL AND STATE ACTION-SPECIFIC ARARs AND TBCs – ALTERNATIVE G-3 - IN-SITU ENHANCED BIOREMEDIATION (SOURCE), BIO-BARRIERS, MNA, AND LUCs
BUILDING 81
FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

Requirement	Citation	Status	Synopsis	Evaluation/Action To Be Taken
Federal				
Resource Conservation and Recovery Act (RCRA)	42 USC § 6901 *et seq*.	Applicable	Federal standards used to identify, manage, and dispose of hazardous waste. Massachusetts has been delegated the authority to administer the RCRA standards through its state hazardous waste management regulations.	Specific state hazardous waste standards authorized under the Act apply when determining whether or not a solid waste is hazardous, either by being listed or by exhibiting a hazardous characteristic, such as contaminated purge water from groundwater sampling or contaminated material generated from well installation or maintenance. Existing data do not indicate that any wastes will be hazardous. Any water generated by this action that requires off-site disposal will be tested.
Underground Injection Control	40 CFR 144, 146, 147.1100	Relevant and Appropriate	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 and experimental technologies as Class V wells authorized by rule that do not require a separate UIC permit. State requirements apply in this case; see 310 CMR 27.00 below.	These standards regulate the injection of biological or chemical substances into the groundwater. In-situ treatment using enhanced bioremediation and injection-based bio-barriers will be conducted in compliance with these standards.
CAA National Emission Standards for Hazardous Air Pollutants (NESHAPs)	42 U.S.C § 7412 40 CFR Parts 61 and 63	Applicable	The regulations establish emission standards for 189 hazardous air pollutants. Standards are set for fugitive dust and other release sources.	If remedial activities generate regulated air pollutants, then measures will be implemented to meet the standards.

TABLE D-3

FEDERAL AND STATE ACTION-SPECIFIC ARARs AND TBCs – ALTERNATIVE G-3 - IN-SITU ENHANCED BIOREMEDIATION (SOURCE), BIO-BARRIERS, MNA, AND LUCs
BUILDING 81
FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

Requirement	Citation	Status	Synopsis	Evaluation/Action To Be Taken
Federal (Continued)				
Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites	OSWER Directive 9200.4-17P (April 21, 1999)	TBC	EPA guidance regarding the use of monitored natural attenuation (MNA) for the cleanup of contaminated soil and groundwater. In particular, a reasonable time frame for achieving cleanup standard through monitored attenuation would be comparable to that which could be achieved through active restoration.	The monitored natural attenuation (MNA) component of this alternative will only meet these standards if natural attenuation will attain all groundwater cleanup standards within a reasonable time frame. It is estimated that cleanup goals will be achieved in <10 years in overburden, in 30 years in shallow bedrock, and in <5 years in deep bedrock.
State				
Hazardous Waste Rules for Identification and Listing of Hazardous Wastes	310 CMR 30.100	Applicable	Establish requirements for determining whether wastes are hazardous. Defines listed and characteristic hazardous wastes.	These regulations apply when determining whether or not a solid waste generated as part of this remedial action is classified as hazardous, either by being listed or by exhibiting a hazardous characteristic, such as contaminated purge water from groundwater sampling or contaminated material generated from well installation or maintenance. Existing data do not indicate that any wastes will be hazardous.

TABLE D-3

FEDERAL AND STATE ACTION-SPECIFIC ARARs AND TBCs – ALTERNATIVE G-3 - IN-SITU ENHANCED BIOREMEDIATION (SOURCE), BIO-BARRIERS, MNA, AND LUCs
BUILDING 81
FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

Requirement	Citation	Status	Synopsis	Evaluation/Action To Be Taken
State (Continued)				
Management Procedures for Remedial Wastewater and Remedial Additives	310 CMR 40.0040	Applicable	Establishes requirements and procedures for the management of remedial wastewater and/or remedial additives, and for the construction, installation, modification, operation and maintenance of treatment works for the management of remedial wastewater and/or remedial additives.	These regulations apply to remedial actions that involve underground injection, such as an electron donor for bioremediation. To ensure that the remedial action complies with the substantive requirements of these regulations, the proposed quantities to be injected will be included in the design and submitted to EPA and MassDEP for comment and concurrence and the groundwater monitoring program will assess the impact of the injected compounds.
Hazardous Waste Management Rules – Requirements for Generators	310 CMR 30.300	Applicable	These regulations contain requirements for generators of hazardous waste. The regulations apply to generators of sampling waste and also apply to the accumulation of waste prior to off-site disposal.	Any hazardous wastes generated as part of the remedial action will be handled in compliance with the requirements of these regulations.

TABLE D-3

FEDERAL AND STATE ACTION-SPECIFIC ARARs AND TBCs – ALTERNATIVE G-3 - IN-SITU ENHANCED BIOREMEDIATION (SOURCE), BIO-BARRIERS, MNA, AND LUCs
BUILDING 81
FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

Requirement	Citation	Status	Synopsis	Evaluation/Action To Be Taken
State (Continued)				
Underground Injection Control Program	310 CMR 27.00	Applicable	The federal Underground Injection Control program under the Safe Drinking Water Act has been delegated to the Commonwealth of Massachusetts. Establishes a State Underground Injection Control Program consistent with federal requirements to protect underground sources of drinking water.	The regulations apply to remedial actions involving underground injection, including use of bioremediation agents. To ensure that the remedial action complies with the substantive requirements of these regulations, the proposed quantities to be injected will be included in the design and submitted to EPA and MassDEP for comment and concurrence and the groundwater monitoring program will assess the impact of the injected compounds.
Certification of Well Drillers and Filing of Well Completion Reports	313 CMR 3.03 (predecessor regulations); 310 CMR 46	Applicable	Requirements relating to well abandonment	Well drillers will follow all regulatory requirements for drilling and decommissioning of wells.
Standard References for Monitoring Wells	WSC-310-91 MADEP April 1991	TBC	This guidance describes the technical requirements for locating, drilling, installing, sampling and decommissioning monitoring wells.	Applies to wells installed for monitoring and injection wells for groundwater treatment.
Erosion and Sediment Control Guidance	-	TBC	This guidance includes standards for preventing erosion and sedimentation.	Remedial actions, such as installation and maintenance of wells, will be managed to control erosion and sedimentation.

APPENDIX G
BUILDING 82

G-1 SITE CHRONOLOGY
G-2 BACKGROUND
G-3 SITE INSPECTION REPORT AND PHOTOGRAPHS
G-4 ARAR TABLES
G-5 ECOLOGICAL RISK ASSESSMENT TABLE

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APPENDIX G-1

SITE CHRONOLOGY

APPENDIX G-1

TABLE G-1: CHRONOLOGY OF SITE EVENTS, IR PROGRAM SITE 10 – BUILDING 82

Site 10, Building 82 Event	Date
Preliminary Assessment	1983
Removal Action	September 1998
Phase I Initial SI (under MCP)	1999
Maintenance Action for Floor Drain System Removal (under MCP)	2001
Phase II Environmental Baseline Survey (EBS), Review Item Area (RIA) 30B	2002
Limited Due Diligence Assessment	2003
AOC 61 Non-Time Critical Removal Action (NTCRA)	2004
RI Field Program	June – December 2006
Maintenance Action for Additional Floor Drain System Removal	2007
Access Road Excavation	2007
Additional RI Field Program	May 2009
RI Report	February 2010
RI Addendum	July 2011
Final Maintenance Action Report	July 2011
FS	July 2012
Proposed Plan	August 2012
ROD	September 2012
RA Start of Construction	December 2013
ISCO Injection	April 2014
Final Pilot Test Work Plan	May 2014
Post-Injection Groundwater Monitoring	June 2014 – October 2015
LTM Spring Semi-Annual Round, conducted 2016	March 2016
LTM Fall Semi-Annual Round, conducted 2016	October 2016
Final LUCIP	November 2016
Final LTM Plan	December 2016
LTM Spring Semi-Annual Round, conducted 2017	March 2017
Re-Classification of GW Aquifer	November 2017
Operating Properly and Successfully Demonstration and RACR	January 2018
ESD, NFA (Re-classification of GW Aquifer)	February 2018
First Annual Basewide PFOS and PFOA LUC Inspection – 2018	December 2018

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APPENDIX G-2
BACKGROUND

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APPENDIX G-2
SITE BACKGROUND
IR PROGRAM SITE 10 – BUILDING 82

Physical Characteristics

Building 82 is located in the central building area of NAS South Weymouth. The Building 82 Site consists of the building itself, the concrete apron surrounding the building to the north, west, and south, and the area immediately surrounding the TCE plume southeast of the building. In addition to the operational areas associated with the building itself, there was a complex network of subsurface drainage structures and pre-construction features underneath the building and the concrete apron. Many of these features are presumed to still exist, while other features have been altered or removed during Base decommissioning activities. Most of the subsurface drainage pipelines were either plugged or excavated in 1998, 2000, and 2006, as part of an overall Base decommissioning effort implemented by the Navy to position the property for transfer and re-use. The area east of the southern apron of the hangar, including Buildings 15 and 41 and the paved areas surrounding them, is part of the Building 82 Site, as shown in Figure 7-1.

Surface water runoff around the hangar flows into catch basins located on the concrete apron and empties into drain pipes that discharge into the drainage ditches in grassy areas along the northwest and southwest perimeter of the site. The northwestern drainage ditch collects and routes surface water runoff into two parallel 42-inch storm sewers which cross the property in a north-south direction along the western side of the hangar as depicted in Figure 7-1. The southwestern drainage ditch and the 42-inch storm sewers merge south of Building 82 where the surface water empties into the base wide storm drainage system that flows via culverts toward the TACAN outfall drainage system and ultimately discharges into French Stream.

The topography of the Site is relatively level, with ground surface elevations ranging from 152 to 155 feet above MSL. However, the elevation of the bottom of the drainage ditches is approximately 145 feet MSL (National Geodetic Vertical Datum (NGVD), 1929).

Three general geologic units have been identified at the Site: fill (artificially placed), overburden (undisturbed), and bedrock. The Site overburden, including the fill layer, consists of approximately 25 to 40 feet of unconsolidated materials. The native overburden materials consist predominately of sand and gravel with varying amounts of silt. The general groundwater flow direction is toward the southwest; however, in the southwestern portion of the site the localized overburden groundwater flow diverges from this general flow pattern due to the influence of the two 42-inch diameter storm sewers and a drainage ditch. The depth to groundwater ranges from 2 to 12 feet bgs during low water conditions and is generally 1 to 2 feet higher during high water conditions.

Land and Resource Use

Currently, the Building 82 Site is used as an event venue (i.e. outdoor concerts) and Building 82 is used for vehicle storage. The Navy plans to transfer the property as part of the redevelopment of the Base within the next six months. The Site has been zoned as a Village Center District (VCD), which could include a range of future uses from residential to commercial and light industrial land uses.

In April 2017, the Southfield Redevelopment Authority lifted the APD designation from the aquifer that lies beneath a portion of the Building 82 area. Additionally, on November 1, 2017, the MassDEP issued a Second Amendment to the Groundwater Use and Value Determination (GUVD) that concluded the aquifer has low use and value (MassDEP, 2017); therefore, under EPA groundwater guidance standards, the beneficial reuse of the Building 82 aquifer is no longer identified as drinking water.

APPENDIX G-2
SITE BACKGROUND
IR PROGRAM SITE 10 – BUILDING 82

History of Contamination

Building 82, also known as Hangar 2, was constructed in 1956 as an aircraft hangar (maintenance facility) for fixed wing aircraft. It was continuously used by the U.S. Marine Corps for that purpose from 1956 through 1996, when operations at the Base ceased. During that time, oils, lubricants, and solvents necessary for aircraft maintenance were used and stored in the building. Following Base closure, Building 82 was used for the storage of miscellaneous Navy-owned vehicles (i.e., plows, backhoes, buses, etc.) until 2000. Building 82 is currently vacant but may be occasionally occupied by personnel during routine building maintenance inspections.

Building 41 and Building 15 are also within the boundary of Site 10. Building 41, the former Family Service Center, did not have any identified areas of interest or potential source areas. Building 15 was used as a transportation building and contained an above-ground storage tank (AST), a battery storage room, floor drains and associated piping (some of which originally connected to the storm sewer system), gas trap manhole (also referred to as the oil-water separator [OWS]), and hydraulic lifts.

Initial Response

The Building 82 site became the subject of environmental investigation in December 1998, when petroleum related compounds were detected in the vicinity of a gas trap manhole in excess of MCP Reportable Concentrations for S-1 soils. Additional investigations were conducted under the MCP program, including a Phase I Initial SI and a subsequent removal action in 2001. Soil and groundwater samples collected during the MCP SI identified the floor drain system as a possible source of contamination. The Navy then removed the four floor drain systems to the extent possible, without removing piping from below weight-bearing structures. Once the floor drain systems were removed, the soils beneath the floor drains were sampled.

Since other parcels within the former NAS South Weymouth property were already undergoing environmental activities under the federal Superfund program, the EPA and MassDEP directed the Navy to cease activities under the MCP program and continue activities under the Superfund program. The detection of chlorinated solvents (1,1,1-trichloroethane) at Building 82 made the CERCLA petroleum exclusion policy no longer applicable to the site. Areas within the Building 82 footprint and concrete apron which were previously evaluated under the EBS (RIAs 30A and 107) were also incorporated into IR Site 10.

In 2003, the Navy performed a limited due diligence assessment to provide preliminary environmental data to the contractor for the master developer of the former NAS property (ENSR, 2003). In 2004, a non-time critical removal action (NTCRA) was conducted in the drainage ditches and sewers in the vicinity of Building 82 and in 2007 six remaining floor drains from the interior of Building 82 were removed. Between 2006 and 2011, a RI and Supplemental RI were conducted at the Site to assess contamination in soil, groundwater, surface water, and sediment at the Site.

APPENDIX G-3
SITE INSPECTION REPORT AND PHOTOGRAPHS

Five-Year Review Site Inspection Checklist

<table>
<tr><th colspan="2">I. SITE INFORMATION</th></tr>
<tr><td>Site name: Site 10 – Building 82</td><td>Date of inspection: 12/5/18</td></tr>
<tr><td>Location and Region: Former NAS South Weymouth, Weymouth, MA</td><td>EPA ID: MA2170022022</td></tr>
<tr><td>Agency, office, or company leading the five-year review: Tetra Tech</td><td>Weather/temperature: Sunny, 35°F</td></tr>
<tr><td colspan="2">Remedy Includes: (Check all that apply)
☐ Landfill cover/containment ☐ Monitored natural attenuation
☐ Access controls ☐ Groundwater containment
X Institutional controls ☐ Vertical barrier walls
☐ Groundwater pump and treatment
☐ Surface water collection and treatment
X Other__ESD for No Further Action (NFA) finalized in February 2018 based on revised GW remedial goals due to changes in classification of groundwater underlying the site._ __________</td></tr>
<tr><td colspan="2">Attachments: ☐ Inspection team roster attached X Site map attached</td></tr>
<tr><th colspan="2">II. INTERVIEWS (Check all that apply)</th></tr>
<tr><td colspan="2">1. O&M site manager ______________________________ ________________________ _____________
Name Title Date
Interviewed ☐ at site ☐ at office ☐ by phone Phone no. _______________
Problems, suggestions; ☐ Report attached ____
____</td></tr>
<tr><td colspan="2">2. O&M staff ______________________________ ________________________ _____________
Name Title Date
Interviewed ☐ at site ☐ at office ☐ by phone Phone no. _______________
Problems, suggestions; ☐ Report attached ____
____</td></tr>
</table>

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.

See Report.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)				
1.	**O&M Documents** ☐ O&M manual ☐ Readily available ☐ Up to date X N/A ☐ As-built drawings ☐ Readily available ☐ Up to date X N/A ☐ Maintenance logs ☐ Readily available ☐ Up to date X N/A Remarks______________________			
2.	**Site-Specific Health and Safety Plan** ☐ Readily available ☐ Up to date X N/A ☐ Contingency plan/emergency response plan ☐ Readily available ☐ Up to date X N/A Remarks______________________			
3.	**O&M and OSHA Training Records**	☐ Readily available	☐ Up to date	X 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**	☐ Readily available	☐ Up to date	X N/A
	Remarks______________________			
7.	**Groundwater Monitoring Records**	X Readily available	☐ 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 ☐ Contractor for Federal Facility ☐ Other_______________
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 ☐ Gates secured X N/A Remarks: _Fencing surrounds portions of the Building 82 but the site is unrestricted/open. _
B. Other Access Restrictions
1. **Signs and other security measures** ☐ Location shown on site map X N/A Remarks:

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

2. **Adequacy** ☐ ICs are adequate ☐ ICs are inadequate X N/A

Remarks Due to changes in groundwater classification and the results of the revised risk assessment, the remedy has been changed to NFA for groundwater COCs. LUCs for PFAS in groundwater beneath Building 82 are included in the 2018 Basewide PFOS and PFOA LUCIP.

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map X No vandalism evident

Remarks______

2. **Land use changes on site** ☐ N/A

Remarks__A portion of the site is used as an event venue (i.e. concerts, vendors, etc.)___________

3. **Land use changes off site** ☐ N/A

Remarks__Building 82 is centrally located within Union Point (former NAS South Weymouth). Redevelopment of the surrounding area under the Southfield Redevelopment Authority and the master developer is ongoing.

VI. GENERAL SITE CONDITIONS

A. Roads X Applicable ☐ N/A

1. **Roads damaged** ☐ Location shown on site map X Roads adequate ☐ N/A

Remarks__There are no roads within the Building 82 site but the site can be accessed via Houghton Rd and Memorial Grove Ave.

B. Other Site Conditions
Remarks _Hangar 2 is currently used for storage of vehicles. The hangar and surrounding area is also referred to as "The Hang Out" and is used as an event venue for concerts. There are metal conex boxes and a picnic area used by vendors. There is a fence along portions of the site but it is not continuous and the access gates are open; access to the Hangar 2 building observed to be locked. Monitoring wells observed were in good condition and secured.
VII. 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____

VIII. GROUNDWATER/SURFACE WATER REMEDIES ☐ Applicable X N/A	
A. Groundwater Extraction Wells, Pumps, and Pipelines ☐ Applicable X N/A	
1.	**Pumps, Wellhead Plumbing, and Electrical** ☐ Good condition ☐ All required wells properly operating ☐ Needs Maintenance ☐ N/A Remarks______________________________
2.	**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 X 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 X Good condition ☐ All required wells located ☐ Needs Maintenance ☐ N/A Remarks__Select Building 82 groundwater monitoring are included in the Basewide PFAS Site Investigation.___
IX. 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.
X. 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.). In January 2018, an Operating Properly and Successfully Demonstration and Remedial Action Completion Report (OPS/RACR0 was finalized. In February 2019, the Navy finalized an ESD which modified the Building 82 remedy to NFA. This change was based on the exclusion of the underlying aquifer from the Aquifer Protection Designation by the Southfield Redevelopment Authority in April 2017. See report text for further details.
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. __N/A___

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. __See Report.______
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. _None.______

Date: 12/5/2018 Picture No. 1 Location: Building 82

Comment: Drainage ditch located in southern portion of site

Date: 12/5/2018 Picture No. 2 Location: Building 82

Comment: Eastern portion of Building 82 area looking north

Date: 12/5/2018 Picture No. 3 Location: Building 82

Comment: Eastern portion of site, looking southwest

Date: 12/5/2018 Picture No. 4 Location: Building 82

Comment: Fence surrounds Building 82 site area but gates are open, unrestricted

Date: 12/5/2018 Picture No. 5 Location: Building 82

Comment: Hangar 2 and northern portion of site from Memorial Grove Ave., looking south

Date: 12/5/2018 Picture No. 6 Location: Building 82

Comment: Hangar 2 current use includes storage of cars/vehicles and event venue for concerts in summer

Date: 12/5/2018 Picture No. 7 Location: Building 82

Comment: Hangar 2, looking south

Date: 12/5/2018 Picture No. 8 Location: Building 82

Comment: Monitoring wells MW201S and 201D located on eastern side of Building 82

Date: 12/5/2018 **Picture No.** 9 **Location:** Building 82
Comment: MW-10S located in southern portion of site

Date: 12/5/2018 **Picture No.** 10 **Location:** Building 82
Comment: Northeast corner of Building 82 area, part of event venue (picnic tables)

Date: 12/5/2018 **Picture No.** 11 **Location:** Building 82
Comment: Northeast portion of site, looking northwest

Date: 12/5/2018 **Picture No.** 12 **Location:** Building 82
Comment: Northern portion of site now referred to as the Hang Out

Date: 12/5/2018 **Picture No.** 13 **Location:** Building 82
Comment: Northern portion of site, looking west

Date: 12/5/2018 **Picture No.** 14 **Location:** Building 82
Comment: Northwest corner of Building 82 site, PFAS-MW-02 monitoring well

Date: 12/5/2018 **Picture No.** 15 **Location:** Building 82
Comment: Southern portion of Building 82 area looking west

Date: 12/5/2018 **Picture No.** 16 **Location:** Building 82
Comment: Southern portion of Building 82 site, looking east

Date: 12/5/2018 Picture No. 17 Location: Building 82

Comment: View of western portion of Building 82 site, looking southeast

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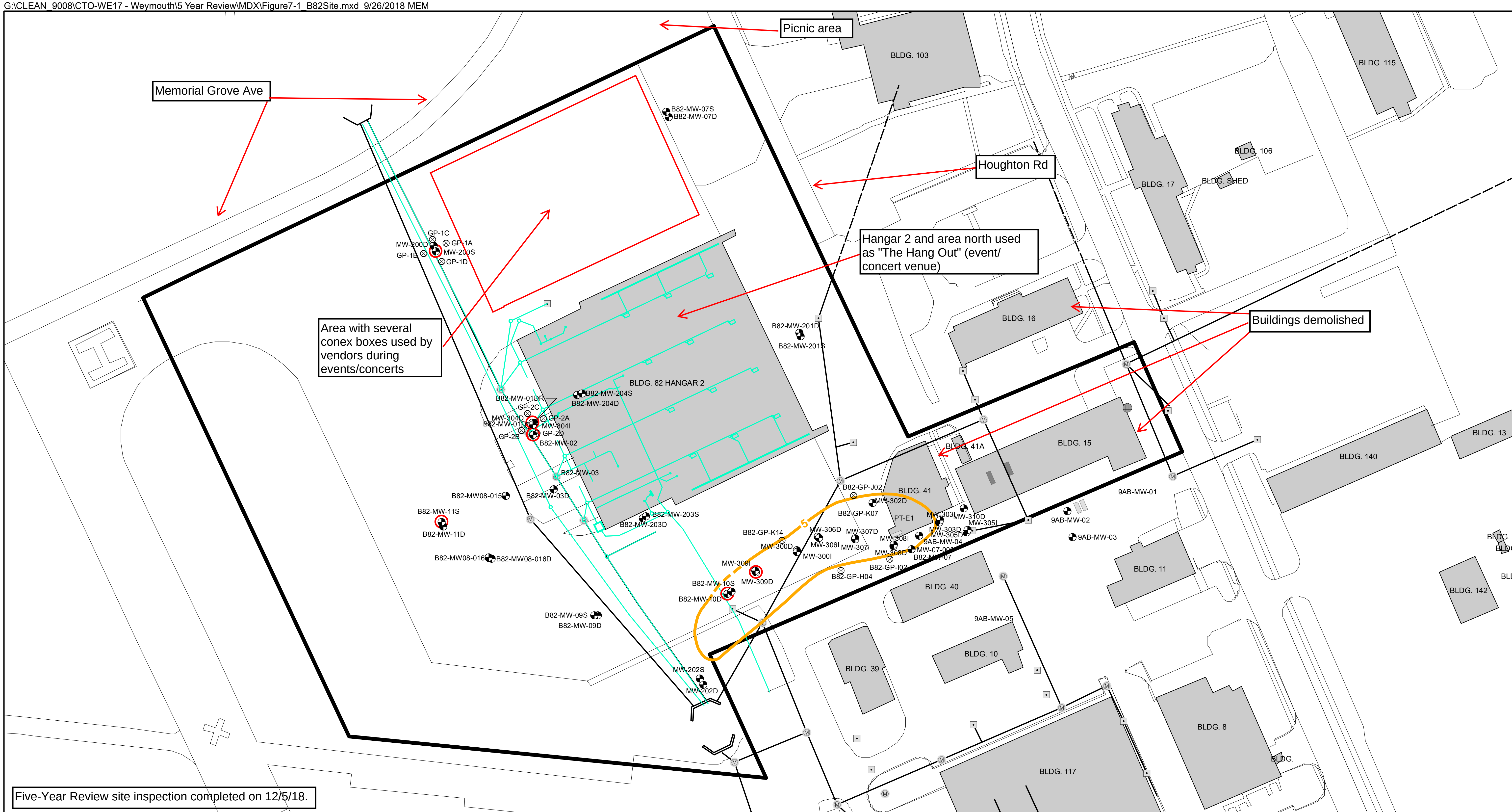

NAVFAC

Drawn:	MEM	9/26/2018
Approved: JC		9/26/2018
Project #: 112G08005-WE17		

Legend

- Overburden Monitoring Well
- Groundwater Profile Location
- Manganese Concentration Above Remedial Goal of 300 ug/L (February 2017)
- Deep Overburden TCE Contour (February 2017)
- Oil-Water Separator
- Manhole
- Catch Basin
- Storm Line_Legend
- Floor Drain System
- Road/Pavement
- Building
- UST
- Former Hydraulic Lifts

NOTE
1. The shallow overburden is defined as between 0-10' BGS.
2. The deep overburden is defined as between 10' BGS and bedrock.
3. Figure adapted from Site Management Plan - Annual Update #18 Former NAS South Weymouth (Resolution Consultants, June 18, 2018)

N

0 55 110
Scale in Feet

FIGURE 7-1
IR PROGRAM SITE 10
BUILDING 82
THIRD FIVE-YEAR REVIEW

FORMER NAVAL AIR STATION
SOUTH WEYMOUTH

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APPENDIX G-4
ARAR TABLES

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TABLE E-1

FEDERAL AND STATE CHEMICAL-SPECIFIC ARARs – ALTERNATIVE G-2A
BUILDING 82 RECORD OF DECISION
FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

Requirement	Citation	Status	Synopsis	Evaluation/Action To Be Taken
Federal				
Cancer Slope Factors (CSFs)	US EPA, Integrated Risk Information System	To Be Considered	Guidance used to compute individual incremental cancer risk resulting from exposure to carcinogenic contaminants in site media	This alternative will meet the risk-based cleanup goals developed through the use of this guidance since treating groundwater that poses potential carcinogenic risks through chemical oxidation will address long-term risk, while land use controls will prevent short-term exposure to COCs in groundwater until risk-based cleanup goals are achieved.
Reference Doses (RfDs)	US EPA, Integrated Risk Information System	To Be Considered	Guidance used to compute human health hazard resulting from exposure to non-carcinogens in site media	This alternative will meet the risk-based cleanup goals developed through the use of this guidance since treating groundwater that poses potential non-carcinogenic risks through chemical oxidation will address long-term risk, while land use controls will prevent short-term exposure to COCs in groundwater until risk-based cleanup goals are achieved.

FEDERAL AND STATE CHEMICAL-SPECIFIC ARARs – ALTERNATIVE G-2A
BUILDING 82 RECORD OF DECISION
FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

Requirement	Citation	Status	Synopsis	Evaluation/Action To Be Taken
Federal (Continued)				
Guidelines for Carcinogen Risk Assessment	EPA/630/p-03/001F March 2005	To Be Considered	Guidelines for assessing cancer risk	This alternative will meet the risk-based cleanup goals developed through the use of this guidance since treating groundwater that poses potential carcinogenic risks through chemical oxidation will address long-term risk, while land use controls will prevent short-term exposure to COCs in groundwater until risk-based cleanup goals are achieved.
Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens	EPA.630/r-03/003F March 2005	To Be Considered	Guidance for assessing cancer risks in children	This alternative will meet the risk-based cleanup goals developed through the use of this guidance since treating groundwater that poses potential carcinogenic risks to children through chemical oxidation will address long-term risk, while land use controls will prevent short-term exposure to COCs in groundwater until risk-based cleanup goals are achieved.

FEDERAL AND STATE CHEMICAL-SPECIFIC ARARs – ALTERNATIVE G-2A
BUILDING 82 RECORD OF DECISION
FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

Requirement	Citation	Status	Synopsis	Evaluation/Action To Be Taken
Federal (Continued)				
Safe Drinking Water Act; National Primary Drinking Water Regulations, Maximum Contaminant Levels	42 USC § 300f *et seq.;* 40 CFR 141, Subpart B	Relevant and Appropriate	Establishes maximum contaminant levels (MCLs) for common organic and inorganic contaminants applicable to public drinking water supplies. Used as relevant and appropriate cleanup standards for aquifers and surface water bodies that are potential drinking water sources.	This alternative will achieve MCL standards through treatment of groundwater by chemical oxidation. Land use controls will prevent short-term exposure until MCL standards are reached.
Safe Drinking Water Act; National Primary Drinking Water Regulations, Maximum Contaminant Level Goals	42 USC § 300f *et seq.;* 40 CFR 141, Subpart F	Relevant and Appropriate for non-zero MCLGs only	Establishes maximum contaminant level goals (MCLGs) for public water supplies. Non-zero MCLGs are health goals for public drinking water sources. These unenforceable health goals are available for a number of organic and inorganic compounds. MCLGs are set at levels that would result in no known or expected adverse health effects with an adequate margin of safety. Non-zero MCLGs are to be used as cleanup goals when MCLs have not been established for a particular COC.	This alternative will achieve MCLG standards through treatment of groundwater by chemical oxidation. Land use controls will prevent short-term exposure until MCLG standards are reached.

TABLE E-1

FEDERAL AND STATE CHEMICAL-SPECIFIC ARARs – ALTERNATIVE G-2A
BUILDING 82 RECORD OF DECISION
FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

Requirement	Citation	Status	Synopsis	Evaluation/Action To Be Taken
Federal (Continued)				
Health Advisories	EPA Office of Drinking Water, EPA-822-R-04-003, January, 2004	TBC	Health Advisories are estimates of risk due to consumption of contaminated drinking water; they consider non-carcinogenic effects only. To be considered for contaminants which do not have chemical-specific ARARs where groundwater may be used for drinking water. The non-enforceable federal guideline Health Advisory for manganese is 0.3 mg/l.	This alternative will achieve these guidelines since non-carcinogenic risk resulting from exposure to compounds identified in the Health Advisory (e.g., manganese) will be addressed by natural attenuation. Land use controls will prevent short-term exposure until protective levels are reached. Would not be considered where background concentration is greater than HA value.
State				
Massachusetts Drinking Water Regulations	310 CMR 22.00	Relevant and Appropriate	Establish enforceable state MCLs for organic and inorganic contaminants that have been determined to adversely affect human health in public drinking water systems. Will be used where state standard is more stringent than federal standard. Also establishes state MCLGs which are non-enforceable health goals for public drinking water systems.	This alternative will achieve state MCL and MCLG standards through treatment of groundwater by chemical oxidation. Land use controls will prevent short-term exposure until state MCL and MCLG standards are reached.
Massachusetts Surface Water Quality Standards	314 CMR 4.00	To Be Considered	Establishes enforceable water quality standards for surface water.	Surface water monitoring will be performed for this alternative to ensure protection to surface water.

TABLE E-2

FEDERAL AND STATE LOCATION-SPECIFIC ARARs – ALTERNATIVE G-2A
BUILDING 82 RECORD OF DECISION
FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

Requirement	Citation	Status	Synopsis	Evaluation/Action to be Taken
Federal				
There are no federal location-specific ARARs.				
State				
Massachusetts Endangered Species Act	M.G.L. ch.,131A 321 C.M.R. 10.00	Applicable	Sets out authority to research, list, and protect any species deemed endangered, threatened, or of other special concern. Actions must be conducted in a manner that minimizes the effect on listed Massachusetts species.	A state-listed species of special concern (Eastern Box Turtle) has been observed at the Base, but not at the Building 82 site. Appropriate measures will be taken during remedial actions to ensure that the species is not harmed by the alternative

TABLE E-3

FEDERAL AND STATE ACTION-SPECIFIC ARARs – ALTERNATIVE G-2A
BUILDING 82 RECORD OF DECISION
FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

Requirement	Citation	Status	Synopsis	Evaluation/Action To Be Taken
Federal				
Resource Conservation and Recovery Act (RCRA)	42 USC § 6901 *et seq*.	Applicable	Federal standards used to identify, manage, and dispose of hazardous waste. Massachusetts has been delegated the authority to administer the RCRA standards through its state hazardous waste management regulations.	Specific state hazardous waste standards authorized under the Act would apply when determining whether or not a solid waste is hazardous, either by being listed or by exhibiting a hazardous characteristic, such as contaminated purge water from groundwater sampling or contaminated material generated from well installation or maintenance. Existing data do not indicate that any wastes will be hazardous.
Underground Injection Control	40 CFR 144, 146, 147.1100	Relevant and Appropriate	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 and experimental technologies as Class V wells authorized by rule that do not require a separate UIC permit. State requirements apply in this case; see 310 CMR 27.00 below.	These standards regulate the injection of chemical substances into the groundwater. In-situ treatment using chemical oxidation will be conducted in compliance with these standards.
Clean Air Act National Emission Standards for Hazardous Air Pollutants	42 USC § 112(b)(1) et seq. 40 CFR Part 61	Applicable	Regulations establish emission standards for 189 hazardous air pollutants. Standards are set for fugitive emissions and other release sources.	If remedial activities generate regulated air pollutants, then measures will be implemented to meet the standards.

FEDERAL AND STATE ACTION-SPECIFIC ARARs – ALTERNATIVE G-2A
BUILDING 82 RECORD OF DECISION
FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

Requirement	Citation	Status	Synopsis	Evaluation/Action To Be Taken
State				
Hazardous Waste Rules for Identification and Listing of Hazardous Wastes	310 CMR 30.100	Applicable	Establish requirements for determining whether wastes are hazardous. Defines listed and characteristic hazardous wastes.	These regulations would apply when determining whether or not a solid waste that is generated as part of this remedial action is classified as hazardous, either by being listed or by exhibiting a hazardous characteristic, such as contaminated purge water from groundwater sampling or contaminated material generated from well installation or maintenance. Existing data do not indicate that any wastes will be hazardous.
Management Procedures for Remedial Wastewater and Remedial Additives	310 CMR 40.0040	Applicable	Establishes requirements and procedures for the management of remedial wastewater and/or remedial additives, and for the construction, installation, modification, operation and maintenance of treatment works for the management of remedial wastewater and/or remedial additives.	These regulations would apply to remedial actions involve underground injection, such as an oxidizer for in-situ chemical oxidation. To ensure that the remedial action complies with the substantive requirements of these regulations, the proposed quantities to be injected will be included in the design and submitted to EPA and MassDEP for comment and concurrence and the groundwater monitoring program will assess the impact of the injected compounds.

FEDERAL AND STATE ACTION-SPECIFIC ARARs – ALTERNATIVE G-2A
BUILDING 82 RECORD OF DECISION
FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

Requirement	Citation	Status	Synopsis	Evaluation/Action To Be Taken
State (Continued)				
Hazardous Waste Management Rules – Requirements for Generators	310 CMR 30.300	Applicable	These regulations contain requirements for generators of hazardous waste. The regulations apply to generators of sampling waste and to the accumulation of waste prior to off-site disposal.	Wastes generated during remedial actions that are determined to be hazardous will be handled in compliance with the substantive requirements of these regulations.
Underground Injection Control Program	310 CMR 27.00	Applicable	The federal Underground Injection Control program under the Safe Drinking Water Act has been delegated to the Commonwealth of Massachusetts. Establishes a State Underground Injection Control Program consistent with federal requirements to protect underground sources of drinking water.	The regulations apply to remedial actions involving underground injection, including use of an oxidizer for in-situ chemical oxidation. To ensure that the remedial action complies with the substantive requirements of these regulations, the proposed quantities to be injected will be included in the design and submitted to EPA and MassDEP for comment and concurrence and the groundwater monitoring program will assess the impact of the injected compounds.
Certification of Well Drillers and Filing of Well Completion Reports	313 CMR 3.~~03~~ 00 (predecessor regulations); 310 CMR 46.00	Applicable	Requirements relating to well abandonment	Well drillers will follow all regulatory requirements for drilling and decommissioning of wells.
Standard References for Monitoring Wells	WSC-310-91 MADEP April 1991	To Be Considered	This guidance describes the technical requirements for locating, drilling, installing, sampling and decommissioning monitoring wells.	Applies to wells installed for monitoring and/or groundwater treatment.

TABLE E-3

FEDERAL AND STATE ACTION-SPECIFIC ARARs – ALTERNATIVE G-2A
BUILDING 82 RECORD OF DECISION
FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

Requirement	Citation	Status	Synopsis	Evaluation/Action To Be Taken
State (Continued)				
Erosion and Sediment Control Guidance	-	To Be Considered	This guidance includes standards for preventing erosion and sedimentation.	Remedial actions, particularly installation and maintenance of wells and other components of the remedy, will be managed to control erosion and sedimentation.

APPENDIX G-5
ECOLOGICAL RISK ASSESSMENT TABLE

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TABLE G-5
OCCURENCE, DISTRIBUTION, AND SELECTION OF ECOLOGICAL CHEMICALS OF
POTENTIAL CONCERN - EXPOSED SURFACE SOIL
BUILDING 82 SITE
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

								2010 RI Ecological Risk Screening					2018 Re-Evaluation of Ecological Risk Screening				
Chemical	Minimum Concentration (1)	Maximum Concentration (1)	Sample of Maximum Concentration	Average of All Samples (2)	Average of Positive Detections (3)	95% UCL Concentration (4)	Frequency of Detection	Screening Level	Source of Screening Level	Hazard Quotient (5)	Retained as COPC (yes/no)	Rationale	Screening Level	Source of Screening Level	Hazard Quotient (5)	Retained as COPC (yes/no)	Rationale
Volatile Organics (µg/kg)																	
2-butanone	4	4	B82-SS-120-0002-AVG	2	4	NA	1/6	NA	NA	NA	Yes	NSL	1000	Reg 4	0.004	No	BSL
Acetone	16	130	B82-SS-120-0002-AVG	25.5	73	130	2/6	NA	NA	NA	Yes	NSL	1200	Reg 4	0.11	No	BSL
Semivolatile Organics (µg/kg)																	
1,1-biphenyl	46 J	46 J	B82-SS-118-0002	163	46	NA	1/5	NA	NA	NA	Yes	NSL	200	Reg 4	0.23	No	BSL
2-methylnaphthalene	4.6	220 J	SB08019-NSO-121198-0	69.2	96.1	143.4	5/7	29000	ECO-SSL	0.01	No	BSL	29000	ECO-SSL	0.01	No	BSL
Acenaphthene	15	1200	B82-SS-119-0002	282	299	995.4	6/7	29000	ECO-SSL	0.04	No	BSL	29000	ECO-SSL	0.04	No	BSL
Acenaphthylene	7.1 J	220	B82-SS-119-0002	96.2	82.2	143.1	6/7	29000	ECO-SSL	0.01	No	BSL	29000	ECO-SSL	0.01	No	BSL
Anthracene	65	1500	B82-SS-119-0002	348	376	1203	6/7	29000	ECO-SSL	0.05	No	BSL	29000	ECO-SSL	0.05	No	BSL
Benzaldehyde	47 J	76 J	B82-SS-120-0002-AVG	116	60	78.13	3/5	NA	NA	NA	Yes	NSL	NA	NA	NA	Yes	NSL
Benzo(a)anthracene	320 J	1700	B82-SS-119-0002	689	773	1075	6/7	1100	ECO-SSL	1.55	Yes	ASL	1100	ECO-SSL	1.55	Yes	ASL
Benzo(a)pyrene	5.5 J	1300	B82-SS-119-0002	611	611	925.5	7/7	1100	ECO-SSL	1.18	Yes	ASL	1100	ECO-SSL	1.18	Yes	ASL
Benzo(b)fluoranthene	380 J	1500	B82-SS-119-0002	877	993	1266	6/7	1100	ECO-SSL	1.36	Yes	ASL	1100	ECO-SSL	1.36	Yes	ASL
Benzo(g,h,i)perylene	120 J	650 J	B82-SS-119-0002	384	418	533.8	6/7	1100	ECO-SSL	0.59	No	BSL	1100	ECO-SSL	0.59	No	BSL
Benzo(k)fluoranthene	200 J	820	B82-SS-119-0002	431	473	619.5	6/7	1100	ECO-SSL	0.75	No	BSL	1100	ECO-SSL	0.75	No	BSL
Bis(2-ethylhexyl)phthalate	160 J	160 J	B82-SS-MW202D-0002	220	160	NA	1/7	NA	NA	NA	Yes	NSL	20	Reg 4	8.00	Yes	ASL
Carbazole	72 J	910	B82-SS-119-0002	266	298	786.7	5/7	NA	NA	NA	Yes	NSL	70	Reg 4	13.00	Yes	ASL
Chrysene	370 J	1900	B82-SS-119-0002	880	997	1361	6/7	1100	ECO-SSL	1.73	Yes	ASL	1100	ECO-SSL	1.73	Yes	ASL
Di-n-butyl phthalate	46 J	46 J	B82-SS-MW202D-0002	172	46	NA	1/7	200000	Reg 4	0.0002	No	BSL	11	Reg 4	4.18	Yes	ASL
Dibenzo(a,h)anthracene	3.6 J	310	B82-SS-119-0002	142	142	217.1	7/7	1100	ECO-SSL	0.28	No	BSL	1100	ECO-SSL	0.28	No	BSL
Dibenzofuran	240 J	260 J	B82-SS-119-0002	201	250	NA	2/7	NA	NA	NA	Yes	NSL	150	Reg 4	1.73	Yes	ASL
Fluoranthene	500	7000 J	B82-SS-119-0002	2211	2550	3984	6/7	29000	ECO-SSL	0.24	No	BSL	29000	ECO-SSL	0.24	No	BSL
Fluorene	12	930 J	B82-SS-119-0002	238	238	787.7	6/7	29000	ECO-SSL	0.03	No	BSL	29000	ECO-SSL	0.03	No	BSL
Indeno(1,2,3-cd)pyrene	120 J	620 J	B82-SS-119-0002	360	390	498.6	6/7	1100	ECO-SSL	0.56	No	BSL	1100	ECO-SSL	0.56	No	BSL
Naphthalene	5.4	90 J	SB08019-NSO-121198-0	26.2	30.4	50.42	6/7	29000	ECO-SSL	0.003	No	BSL	29000	ECO-SSL	0.003	No	BSL
Phenanthrene	190	10000 J	B82-SS-119-0002	2294	2647	8328	6/7	29000	ECO-SSL	0.34	No	BSL	29000	ECO-SSL	0.34	No	BSL
Phenol	7.7	11	B82-SS-119-0002	31.7	9.7	10.23	4/7	50	Reg 4	0.2	No	BSL	790	Reg 4	0.01	No	BSL
Pyrene	500	6700	B82-SS-119-0002	1930	2222	5678	6/7	1100	ECO-SSL	6	Yes	ASL	1100	ECO-SSL	6.09	Yes	ASL
Pesticides/PCBs (µg/kg)																	
4,4'-DDE	1.9	5.9 J	B82-SS-119-0002	2.6	3.5	4.3	4/6	21	ECO-SSL	0.3	No	BSL	21	ECO-SSL	0.28	No	BSL
4,4'-DDT	2.6	18 J	B82-SO-114-0002-AVG	9.9	11.7	15.6	5/6	21	ECO-SSL	0.9	No	BSL	21	ECO-SSL	0.86	No	BSL
Aroclor-1260	22	140	B82-SS-120-0002-AVG	56.8	79.8	111	4/6	20	Reg 4	7	Yes	ASL	41	Reg 4	3.41	Yes	ASL
Endrin aldehyde	2.8 J	3.2 J	B82-SS-119-0002	2.9	3	NA	2/6	1	Reg 4	3	Yes	ASL	1.9	Reg 4	1.68	Yes	ASL
Endrin ketone	6.6 J	10 J	B82-SS-115-0002-AVG	3.7	8.3	NA	2/6	1	Reg 4	10	Yes	ASL	1.9	Reg 4	5.26	Yes	ASL
Gamma-chlordane	3 J	3 J	B82-SS-115-0002-AVG	1.2	3	NA	1/5	NA	NA	NA	Yes	NSL	20	Reg 4	0.15	No	BSL
Heptachlor epoxide	5.2	5.2	B82-SS-120-0002-AVG	1.7	5.2	NA	1/6	NA	NA	NA	Yes	NSL	0.15	Reg 4	34.67	Yes	ASL
Inorganics (mg/kg)																	
Aluminum	5950	8920 J	B82-SS-MW202D-0002	7705	7705	8684	6/6	pH	ECO-SSL(6)	NA	Yes	NSL	pH	ECO-SSL(6)	NA	Yes	NSL
Arsenic	1.24 J	6.75	B82-SS-118-0002	3.5	3.5	5.62	6/6	18	ECO-SSL	0.4	No	BSL	18	ECO-SSL	0.38	No	BSL
Barium	20.5	31.2	B82-SO-114-0002-AVG	26	26	29.22	5/6	330	ECO-SSL	0.1	No	BSL	330	ECO-SSL	0.09	No	BSL
Beryllium	0.259 J	0.37 J	B82-SS-MW202D-0002	0.33	0.33	0.36	6/6	21	ECO-SSL	0.02	No	BSL	21	ECO-SSL	0.02	No	BSL
Cadmium	0.496	1.44	B82-SO-114-0002-AVG	0.73	0.73	1.1	6/6	0.36	ECO-SSL	4.0	Yes	ASL	0.36	ECO-SSL	4.00	Yes	ASL
Calcium	969 J	2310	B82-SO-114-0002-AVG	1765	1765	2143	6/6	NA	NA	NA	No	NUT	NA	NA	NA	No	NUT
Chromium	6.19 J	15.6 J	B82-SS-MW202D-0002	10.4	10.4	13.2	6/6	26	ECO-SSL	0.6	No	BSL	26	ECO-SSL	0.60	No	BSL
Cobalt	1.86 J	4.68	B82-SO-114-0002-AVG	3	3	4	6/6	13	ECO-SSL	0.4	No	BSL	13	ECO-SSL	0.36	No	BSL
Copper	7.98	18.3	B82-SS-115-0002-AVG	11.9	11.9	15.6	6/6	28	ECO-SSL	0.7	No	BSL	28	ECO-SSL	0.65	No	BSL
Cyanide	0.18 J	0.36 J	B82-SS-115-0002-AVG	0.15	0.27	NA	2/6	0.9	Reg 4	0.4	No	BSL	0.1	Reg 4	3.60	Yes	ASL
Iron	9370	17000	B82-SO-114-0002-AVG	11910	11910	14286	6/6	pH	ECO-SSL(6)	NA	Yes	NSL	pH	ECO-SSL(6)	NA	Yes	NSL
Lead	12.8 J	39.5	B82-SS-119-0002	24.5	24.5	34.2	6/6	11	ECO-SSL	3.6	Yes	ASL	11	ECO-SSL	3.59	Yes	ASL
Magnesium	975 J	2200 J	B82-SS-MW202D-0002	1569	1569	1935	6/6	NA	NA	NA	No	NUT	NA	NA	NA	No	NUT
Manganese	114	328	B82-SO-114-0002-AVG	204	204	261	6/6	220	ECO-SSL	1.5	Yes	ASL	220	ECO-SSL	1.49	Yes	ASL

TABLE G-5
OCCURENCE, DISTRIBUTION, AND SELECTION OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN - EXPOSED SURFACE SOIL
BUILDING 82 SITE
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Chemical	Minimum Concentration (1)	Maximum Concentration (1)	Sample of Maximum Concentration	Average of All Samples (2)	Average of Positive Detections (3)	95% UCL Concentration (4)	Frequency of Detection	2010 RI Ecological Risk Screening: Screening Level	Source of Screening Level	Hazard Quotient (5)	Retained as COPC (yes/no)	Rationale	2018 Re-Evaluation of Ecological Risk Screening: Screening Level	Source of Screening Level	Hazard Quotient (5)	Retained as COPC (yes/no)	Rationale
Mercury	0.0075 J	0.0363	B82-SO-114-0002-AVG	0.013	0.018	0.025	4/6	0.1	Reg 4	0.4	No	BSL	0.013	Reg 4	2.79	Yes	ASL
Nickel	5.09	11.5 J	B82-SO-114-0002-AVG	7.4	7.4	9.4	6/6	38	ECO-SSL	0.3	No	BSL	38	ECO-SSL	0.30	No	BSL
Potassium	131 J	657	B82-SS-MW202D-0002	371	371	547	3/6	NA	NA	NA	No	NUT	NA	NA	NA	No	NUT
Selenium	0.0906 J	0.358	B82-SO-114-0002-AVG	0.16	0.18	0.261	5/6	0.52	ECO-SSL	0.7	No	BSL	0.52	ECO-SSL	0.69	No	BSL
Silver	0.0452 J	0.131 J	B82-SO-114-0002-AVG	0.07	0.07	0.1	6/6	4.2	ECO-SSL	0.03	No	BSL	4.2	ECO-SSL	0.03	No	BSL
Sodium	60.4 J	60.4 J	B82-SS-118-0002	35.9	60.4	NA	1/6	NA	NA	NA	No	NUT	NA	NA	NA	No	NUT
Thallium	0.0254 J	0.0511	B82-SS-120-0002-AVG	0.03	0.03	0.042	6/6	1	Reg 4	0.1	No	BSL	0.05	Reg 4	1.02	Yes	ASL
Vanadium	13.5 J	27.5	B82-SO-114-0002-AVG	17.9	17.9	22.4	6/6	7.8	ECO-SSL	3.5	Yes	ASL	7.8	ECO-SSL	3.53	Yes	ASL
Zinc	32.5 J	64.5	B82-SS-119-0002	47	47	57.2	6/6	46	ECO-SSL	1.4	Yes	ASL	46	ECO-SSL	1.40	Yes	ASL

Selection of COPCs conducted for the 2010 RI was re-evaluated in 2018 for the Five Year Review using updated screening values.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria and it indicates that the shaded chemical was retained as a COPC.
Yellow highlighting indicates that the chemical would be selected as a COPC based on 2018 screening levels but was not selected as a COPC for the 2010 RI.

1 - Sample and duplicate are considered as one sample when determining the minimum and maximum detected concentrations and frequency of detection.
2 - Average of all analytical results are calculated using half of the detection limit for nondetects.
3 - Average of positive analytical results only.
4 - 95% UCL is the UCL recommended by Pro UCL 4.00.04; a 95% UCL was not calculated for chemicals with less than 3 positive detections.
5 - The hazard quotient is the maximum detected concentration divided by the screening level.
6 - Eco SSL is based on the soil pH. The soil pH at the site is not known so aluminum and iron are initially selected as COPCs.
COPC = Chemical of Potential Concern
NA = Not Available or Not Applicable.
UCL = Upper Confidence Limit

Screening Level Sources and Order of Preference for 2010 RI Evaluation:
Eco SSL – EPA Ecological Soil Screening Levels (U.S. EPA, 2003, 2005, 2006, 2007)
Reg 4 – EPA Region IV soil screening levels (U.S. EPA, 2001b)

Screening Level Sources for 2018 Evaluation for the Five Year Review:
Same sources in the above order of preference, with updated Region 4 soil screening levels (U.S. EPA, 2018)

Rationale Codes:
For Selection as a COPC or for Further Evaluation:
- ASL = Above COPC Screening Level
- BSL = Below COPC Screening Level
- NSL = No Screening Level Available
- NUT = Essential Nutrient

SURFACE SOIL NUTRIENT SCREEN

Nutrient	Screening Benchmarks: Maximum Tolerable Dietary Conc. (mg/kg)*	Screen: Surface Soil Maximum Concentration (mg/kg)	Ingestion Rate for Maximum Soil Conc.*** (mg/kg BW/day)	Maximum Ingestion Rate > Maximum Tolerable Ingestion Rate ?
Calcium	10000	2310	10.395	no
Magnesium	3000	2200	9.9	no
Potassium	30000	657	2.9565	no
Sodium	20000	60	0.2718	no

Notes:
* - Maximum tolerable nutrient concentration for swine and other animals (NRC, 1980)
** - Max. tolerable intake rate = Max. tolerable dietary conc. (mg/kg diet) X Dietary intake (kg diet/day) / Body Weight (kg).
Values for swine (3.41 kg diet/day, 227 kg body weight) from Kenaga, 1972.
*** - Max. Soil Ingestion Rate = Soil conc. (mg/kg soil) X Fraction diet as soil (0.3) X Dietary Intake (kg diet/day)/Body Weight (kg).
Nutrient screening conducted as presented in TtNUS (1999).

APPENDIX H
SOLVENT RELEASE AREA

H-1 SITE CHRONOLOGY
H-2 BACKGROUND
H-3 SITE INSPECTION REPORT AND PHOTOGRAPHS
H-4 ARAR TABLES
H-5 ECOLOGICAL RISK ASSESSMENT TABLE

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APPENDIX H-1
SITE CHRONOLOGY

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APPENDIX H-1

TABLE H-1: CHRONOLOGY OF SITE EVENTS IR PROGRAM SITE 11 – SOLVENT RELEASE AREA

Event	Date
Preliminary Assessment	1988
Phase II EBS	2000
AOC 35 (Pistol Range) Time-Critical Removal Action (TCRA)	2000
Soil Characterization	2002
Groundwater Sampling	2003
Groundwater and Soil Sampling, Geophysical Survey	2004
Former Hobby Shop (Building 95) Removal Actions and NFA	2004
AOC 35 (Pistol Range) NFA ROD for Soil (GW to be addressed under Site 11)	2004
Final RI Work Plan	October 2006
RI Field Program	May 2006 – January 2007
AOC 60 (East Mat Ditch) NFA ROD	2009
AOC 61 (Tactical Air Navigation [TACAN] Outfall) NFA ROD	2009
Supplemental RI and Soil Vapor Survey	2009
Final RI Report	August 2010
FS	December 2012
Proposed Plan	February 2013
ROD	September 2013
Final SAP Addendum	February 2014
Phase I Source Area Remedial Action	April 2014 – March 2016
Phase II Source Area Remedial Action	June - October 2017
Phase II Remedial Design Addendum	June 2018
First Annual Basewide PFOS and PFOA LUC Inspection 2018	December 2018

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APPENDIX H-2
BACKGROUND

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APPENDIX H-2
SITE BACKGROUND
IR PROGRAM SITE 11 – SOLVENT RELEASE AREA

Physical Characteristics

The SRA Site is in the eastern portion of the Base (Figure 8-1). The Site is approximately 14 acres of undeveloped, flat land. The SRA is bounded to the north by Pidgeon Road. The Eastern Drainage Ditch to the east and the East Mat Ditch (EMD) to the south lie within the Site boundary. The ground-surface elevations over most of the Site range from approximately 167 to 157 feet (North American Vertical Datum [NAVD] 1988). The dirt road along the eastern perimeter of the Site provides access to the East Mat. The East Mat is an open, flat paved area.

The Site overburden consists of approximately 10 to 30 feet of native unconsolidated materials, underlain by bedrock. Four overburden geologic units have been observed at the Site, including: a fine-to-coarse sand unit; a discontinuous fine to-coarse sand, silty sand, and silt unit; a sand and gravel unit; and a glacial till unit.

The Site is underlain by Dedham Granite, which is weathered, fractured, medium to coarse-grained, and light grayish-pink to greenish-gray in color. Overall, the bedrock surface elevation at the Site ranges from approximately 133 feet to 153 feet (NAVD 1988) and slopes from north to south.

The overburden, shallow bedrock, and deep bedrock groundwater contour maps all show a southerly groundwater flow direction beneath the Site. Four synoptic groundwater level measurement rounds indicated a consistent depth to groundwater, ranging from 0 to 6 feet bgs across the Site. The EMD is the dominant surface or near-surface feature in the area that affects groundwater flow, particularly in the overburden.

Along with the EMD and the eastern drainage ditch, a drainage ditch is also present to the west of the western boundary of the Site. Surface drainage over a majority of the Site flows in a southerly direction toward the EMD. The surface water flow in the EMD divides where the Eastern Drainage Ditch flows into the EMD. The western component of surface water in the EMD flows to a catch basin which is part of the base-wide storm water drainage system that ultimately drains into French Stream. The eastern component of surface water in the EMD becomes part of the base-wide storm water drainage system that ultimately drains into Old Swamp River. Surface water in the ditches is intermittent, and at times portions of the ditches are dry.

Land and Resource Use

The Navy plans to transfer the property as part of the redevelopment of the Base once the environmental cleanup is implemented, and the property is determined to be suitable for transfer. The SSTTDC Zoning and Land Use By-Laws established open space and recreation zoning districts for the Site. The range of allowed future uses could include indoor and outdoor commercial recreation, athletic fields, health and fitness clubs, some institutional uses under a special permit only, and passive recreation such as walking trails.

History of Contamination

A portion of the Site (approximately 2 acres) immediately north of the EMD was formerly used as a Pistol Range and was designated as Area of Concern (AOC) 35. The EMD provided drainage for the East Mat which was a mooring area for lighter-than-air aircraft, aircraft fuel discharge area, aircraft de-arming area, and a taxiway and parking area for aircraft. The former Hobby Shop (Building 95) is located on the north side of Pidgeon Road and upgradient of the Site. Building 95 was constructed in the 1960s and used for vehicle maintenance and repairs.

APPENDIX H-2
SITE BACKGROUND
IR PROGRAM SITE 11 – SOLVENT RELEASE AREA

Initial Response

As part of the Phase II EBS, subsurface soil sample BG-05, intended to assess background soil conditions, was collected in the area. A trace level of PCE (below regulatory standards) was detected in the soil sample. It was determined through conversations with Navy personnel that Navy reservists used this area of the Base to conduct weekend field activities. Based on the potential that gun cleaning or other activities may have occurred, the area was added to Phase II EBS program and was designated as RIA 108. Additional samples were collected to confirm that the PCE result was valid. The Navy subsequently sampled a downgradient well at the former Pistol Range and found PCE concentrations exceeding screening criteria.

In 2003, the Navy performed a field screening study and installed seven monitoring wells. Preliminary results from those wells confirmed the presence of chlorinated solvents, primarily PCE, in the groundwater, with the most elevated concentrations near the original BG-05 location. In the fall of 2004, the Navy conducted a geophysical investigation and source delineation. Based on results and available information, the Navy determined that further investigation under CERCLA was necessary and the site was therefore moved to the IR Program as Site 11. Between 2006 and 2009, a RI and Supplement RI were conducted to assess contamination in soil, groundwater, surface water, and sediment at the Site (Tetra Tech, NUS, 2010g).

APPENDIX H-3
SITE INSPECTION REPORT AND PHOTOGRAPHS

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Five-Year Review Site Inspection Checklist

I. SITE INFORMATION	
Site name: Site 11 – Solvent Release Area	**Date of inspection: 12/6/18**
Location and Region: Former NAS South Weymouth, Weymouth, MA	**EPA ID: MA2170022022**
Agency, office, or company leading the five-year review: Tetra Tech	**Weather/temperature: Sunny, 30°F**

Remedy Includes: (Check all that apply)

☐ Landfill cover/containment ☐ Monitored natural attenuation
☐ Access controls ☐ Groundwater containment
X Institutional controls ☐ Vertical barrier walls
☐ Groundwater pump and treatment
☐ Surface water collection and treatment
☐ Other__Enhanced in-situ GW bioremediation and monitoring_________________

Attachments: ☐ Inspection team roster attached X 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.

See Report.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)				
1.	**O&M Documents**			
	☐ O&M manual	☐ Readily available	☐ Up to date	X N/A
	☐ As-built drawings	☐ Readily available	☐ Up to date	X N/A
	☐ Maintenance logs	☐ Readily available	☐ Up to date	X N/A
	Remarks_______________			
2.	**Site-Specific Health and Safety Plan**	☐ Readily available	☐ Up to date	X N/A
	☐ Contingency plan/emergency response plan	☐ Readily available	☐ Up to date	X N/A
	Remarks_______________			
3.	**O&M and OSHA Training Records**	☐ Readily available	☐ Up to date	X 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**	☐ Readily available	☐ Up to date	X 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 ☐ Contractor for Federal Facility
☐ Other____
____

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 ☐ Gates secured ☐ N/A
Remarks: _Site is not fenced. _

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map X N/A
Remarks: No warning signs observed.

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

2. **Adequacy** ☐ ICs are adequate X ICs are inadequate X N/A
Remarks An SRA LUCIP has not yet been finalized. The Property is still owned by the Navy and is under the control of the Navy._PFAS in groundwater beneath a portion of the SRA are included in the 2018 Basewide PFOS and PFOS LUCIP.__________

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__A new athletic complex is being constructed west of the site.

VI. GENERAL SITE CONDITIONS

A. Roads X Applicable ☐ N/A

1. **Roads damaged** ☐ Location shown on site map X Roads adequate ☐ N/A
Remarks__Dirt access road through center of site is adequate for RA activities.

B. Other Site Conditions	
	Remarks _RA for GW is ongoing. Monitoring wells and injection wells observed were in good condition but there were several that need to be labeled and locked. No evidence of trespassing was observed. Frac tank for groundwater injection activities was observed onsite.
	VII. 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____ ____

VIII. GROUNDWATER/SURFACE WATER REMEDIES X Applicable ☐ N/A
A. Groundwater Extraction Wells, Pumps, and Pipelines X Applicable ☐ N/A
1. **Pumps, Wellhead Plumbing, and Electrical** X Good condition ☐ All required wells properly operating ☐ Needs Maintenance ☐ N/A Remarks__RA in process; all GW injection equipment is assessed by the remediation contractor. Phase II weathered bedrock and bedrock injections were conducted in November 2018 and post-injection monitoring is ongoing.___
2. **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 X Applicable ☐ N/A	
1.	**Treatment Train** (Check components that apply) ☐ Metals removal ☐ Oil/water separation X 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) X N/A ☐ Good condition ☐ Needs Maintenance Remarks_______________
3.	**Tanks, Vaults, Storage Vessels** ☐ N/A X Good condition ☐ Proper secondary containment ☐ Needs Maintenance Remarks___Frac tank onsite for RA activities ___________
4.	**Discharge Structure and Appurtenances** X N/A ☐ Good condition ☐ Needs Maintenance Remarks_______________
5.	**Treatment Building(s)** X 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 X Routinely sampled X Good condition ☐ All required wells located ☐ Needs Maintenance ☐ N/A Remarks_______________
D. Monitoring Data	
1.	Monitoring Data X Is routinely submitted on time X Is of acceptable quality
2.	Monitoring data suggests: ☐ Groundwater plume is effectively contained X 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__MNA/LTM of GW will begin once the RA is complete.________________________________

IX. 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.

X. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).
The RA has been implemented but is not yet complete. Post-injection GW monitoring data suggest the remedy is functioning as designed. 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.

__N/A

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. __See Report.__
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. _See Report._

Date: 12/6/2018 Picture No. 1 Location: SRA
Comment: Access path along East Mat Ditch heading east

Date: 12/6/2018 Picture No. 2 Location: SRA
Comment: Area southwest of SRA, IOA site visible across field

Date: 12/6/2018 Picture No. 3 Location: SRA
Comment: Athletic complex located west of SRA

Date: 12/6/2018 Picture No. 4 Location: SRA
Comment: Construction related to new athletic complex west of SRA site boundary

Date: 12/6/2018 **Picture No.** 5 **Location:** SRA
Comment: East Drainage Ditch and SW-SD-104 location

Date: 12/6/2018 **Picture No.** 6 **Location:** SRA
Comment: East Mat Ditch, looking southeast

Date: 12/6/2018 **Picture No.** 7 **Location:** SRA
Comment: East Mat Ditch, SG-6 location

Date: 12/6/2018 **Picture No.** 8 **Location:** SRA
Comment: Frac tank stored onsite

Date: 12/6/2018 **Picture No.** 9 **Location:** SRA

Comment: Monitoring wells located west of site access road

Date: 12/6/2018 **Picture No.** 10 **Location:** SRA

Comment: MW10-340 and view of wooded area in southeast portion of site

Date: 12/6/2018 **Picture No.** 11 **Location:** SRA

Comment: MW420S, BR1 and BR2 located in south-central portion of site

Date: 12/6/2018 **Picture No.** 12 **Location:** SRA

Comment: Newly installed weathered bedrock injection wells Eastern Weathered Bedrock Treatment Area and PRB2

Date: 12/6/2018 **Picture No.** 13 **Location:** SRA

Comment: Newly installed weathered bedrock injection wells located north of Overburden TTZ, PRB1

Date: 12/6/2018 **Picture No.** 14 **Location:** SRA

Comment: Northern access path to SRA

Date: 12/6/2018 **Picture No.** 15 **Location:** SRA

Comment: View of OBTTZ-65

Date: 12/6/2018 **Picture No.** 16 **Location:** SRA

Comment: PFAS SRA MW-01 located in north-central portion of site

Date: 12/6/2018 **Picture No.** 17 **Location:** SRA

Comment: View of PRB1-57

Date: 12/6/2018 **Picture No.** 18 **Location:** SRA

Comment: View of PRB2

Date: 12/6/2018 **Picture No.** 19 **Location:** SRA

Comment: View of PRB2-73, unlocked

Date: 12/6/2018 **Picture No.** 20 **Location:** SRA

Comment: View of PRB3

Date: 12/6/2018 **Picture No.** 21 **Location:** SRA
Comment: View of PRB4

Date: 12/6/2018 **Picture No.** 22 **Location:** SRA
Comment: View of PRB4-15

Date: 12/6/2018 **Picture No.** 23 **Location:** SRA
Comment: View of PRB5

Date: 12/6/2018 **Picture No.** 24 **Location:** SRA
Comment: View of PRB1-52 through -56

Date: 12/6/2018 Picture No. 25 Location: SRA
Comment: Site access road, looking south

Date: 12/6/2018 Picture No. 26 Location: SRA
Comment: Southwest portion of site along East Mat Ditch in vicinity of SW-SD106

Date: 12/6/2018 Picture No. 27 Location: SRA
Comment: View of wooded area in southwest portion of site

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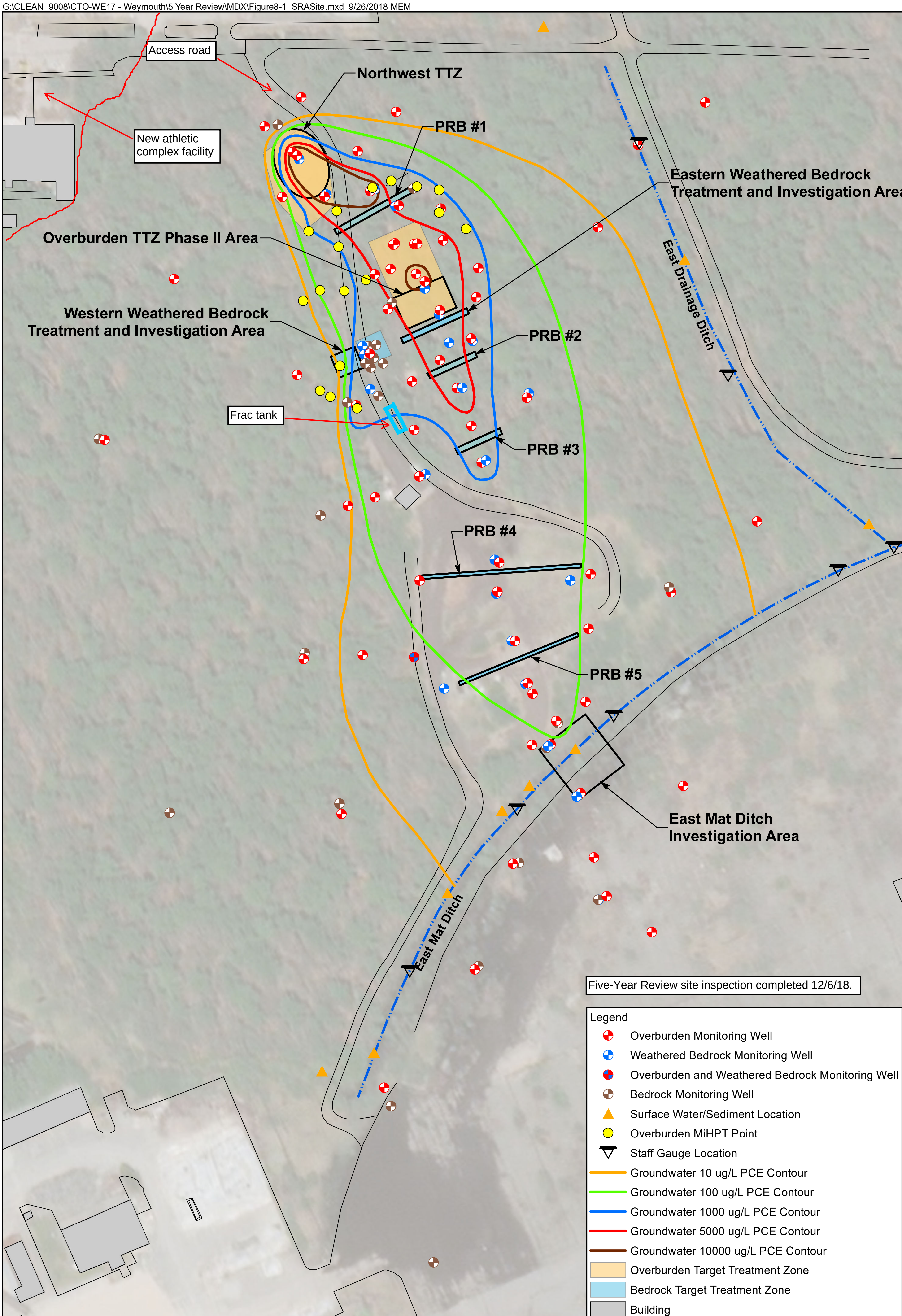

NAVFAC Drawn: MEM 9/26/2018 Approved: JC 9/26/2018 Project #: 112G08005-WE17	N 0 50 100 Scale in Feet NOTE: Figure adapted from Site Management Plan - Annual Update #18 Former NAS South Weymouth (Resolution Consultants, June 18, 2018)	FIGURE 8-1 IR PROGRAM SITE 11 SOLVENT RELEASE AREA THIRD FIVE-YEAR REVIEW FORMER NAVAL AIR STATION SOUTH WEYMOUTH

APPENDIX H-4
ARAR TABLES

TABLE E-1

FEDERAL AND STATE CHEMICAL-SPECIFIC ARARs AND TBCs – ALTERNATIVE G-5A – OVERBURDEN AND BEDROCK SOURCE ZONES ENHANCED BIOREMEDIATION, TWO OVERBURDEN PRBs, MONITORING, ENGINEERING CONTROLS, AND LUCs
SOLVENT RELEASE AREA FEASIBILITY STUDY
FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

Requirement	Citation	Status	Synopsis	Evaluation/Action To Be Taken
Federal				
Cancer Slope Factors (CSFs)	US EPA, Integrated Risk Information System	To be considered (TBC)	Guidance used to compute individual incremental cancer risk resulting from exposure to carcinogenic contaminants in site media	Used to compute the individual incremental cancer risk resulting from exposure to carcinogenic contaminants in site media. This alternative will meet the risk-based cleanup goals developed through the use of this guidance because the fence and PRBs will prevent exposure to COCs in surface water, source area treatment and PRBs will reduce the concentrations of COCs in groundwater, and LUCs will prevent exposure to COCs in groundwater.
Reference Doses (RfDs)	US EPA, Integrated Risk Information System	TBC	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. This alternative will meet the risk-based cleanup goals developed through the use of this guidance because the fence and PRBs will prevent exposure to COCs in surface water, source area treatment and PRBs will reduce the concentrations of COCs in groundwater, and LUCs will prevent exposure to COCs in groundwater.

TABLE E-1

FEDERAL AND STATE CHEMICAL-SPECIFIC ARARs AND TBCs – ALTERNATIVE G-5A – OVERBURDEN AND BEDROCK SOURCE ZONES ENHANCED BIOREMEDIATION, TWO OVERBURDEN PRBs, MONITORING, ENGINEERING CONTROLS, AND LUCs
SOLVENT RELEASE AREA FEASIBILITY STUDY
FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

Requirement	Citation	Status	Synopsis	Evaluation/Action To Be Taken
Federal (Continued)				
Guidelines for Carcinogen Risk Assessment	EPA/630/p-03/001F March 2005	TBC	Guidelines for assessing cancer risk	Used to calculate potential carcinogenic risks caused by exposure to contaminants. This alternative will meet the risk-based cleanup goals developed through the use of this guidance because the fence and PRBs will prevent exposure to COCs in surface water, source area treatment and PRBs will reduce the concentrations of COCs in groundwater, and LUCs will prevent exposure to COCs in groundwater.
Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens	EPA.630/r-03/003F March 2005	TBC	Guidance for assessing cancer risks in children	Used to calculate potential carcinogenic risks to children caused by exposure to contaminants. This alternative will meet the risk-based cleanup goals developed through the use of this guidance because the fence and PRBs will prevent exposure to COCs in surface water, source area treatment and PRBs will reduce the concentrations of COCs in groundwater, and LUCs will prevent exposure to COCs in groundwater.

TABLE E-1

FEDERAL AND STATE CHEMICAL-SPECIFIC ARARs AND TBCs – ALTERNATIVE G-5A – OVERBURDEN AND BEDROCK SOURCE ZONES ENHANCED BIOREMEDIATION, TWO OVERBURDEN PRBs, MONITORING, ENGINEERING CONTROLS, AND LUCs
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Requirement	Citation	Status	Synopsis	Evaluation/Action To Be Taken
Federal (Continued)				
Draft Guidance for Evaluating Vapor Intrusion to Indoor Air Pathways from Groundwater and Soils (Subsurface Vapor Intrusion Guidance)	EPA 530-D-02-004 November, 2002	TBC	Guidance for assessing vapor intrusion risk.	Since the future use includes structures on the site, assessment of potential vapor intrusion risks will be conducted in accordance with the guidance and LUCs that address building design and construction methods will control exposure.
Health Advisories	EPA Office of Drinking Water, EPA-822-R-04-003, January, 2004	TBC	Health Advisories are estimates of risk due to consumption of contaminated drinking water; they consider non-carcinogenic effects only. To be considered for contaminants which do not have chemical-specific ARARs where groundwater may be used for drinking water. The non-enforceable federal guideline Health Advisory for manganese is 0.3 mg/l.	This alternative will achieve these guidelines since non-carcinogenic risk resulting from exposure to compounds identified in the Health Advisory (e.g., manganese) will be addressed by monitoring. Land use controls will prevent short-term exposure until protective levels are reached. Would not be considered where the background concentration is greater than the health advisory value.

TABLE E-1

FEDERAL AND STATE CHEMICAL-SPECIFIC ARARs AND TBCs – ALTERNATIVE G-5A – OVERBURDEN AND BEDROCK SOURCE ZONES ENHANCED BIOREMEDIATION, TWO OVERBURDEN PRBs, MONITORING, ENGINEERING CONTROLS, AND LUCs
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Requirement	Citation	Status	Synopsis	Evaluation/Action To Be Taken
State				
Massachusetts Contingency Plan – GW-3 Standards	310 CMR 40.0974(2)	TBC	These standards are applicable in areas where groundwater is considered to be GW-1, GW-2, or GW-3 per 310 CMR 40.0932.	Risk-based PRGs will be compared to the GW-3 standards, and the GW-3 standards will be used when less than the risk-based PRGs.

TABLE E-2

FEDERAL AND STATE LOCATION-SPECIFIC ARARs - ALTERNATIVE G-5A – OVERBURDEN AND BEDROCK SOURCE ZONES ENHANCED BIOREMEDIATION, TWO OVERBURDEN PRBs, MONITORING, ENGINEERING CONTROLS, AND LUCs SOLVENT RELEASE AREA FEASIBILITY STUDY FORMER NAVAL AIR STATION SOUTH WEYMOUTH WEYMOUTH, MASSACHUSETTS

Requirement	Citation	Status	Synopsis	Evaluation/Action to be Taken
Federal				
Floodplain Management and Protection of Wetlands	44 Code of Federal Regulations (CFR) 9	Relevant and Appropriate	FEMA regulations that set forth the policy, procedure and responsibilities to implement and enforce Executive Order 11990, Protection of Wetlands.	Remedial alternatives such as source area treatment conducted within federal jurisdictional wetlands will be implemented in compliance with these standards.
Clean Water Act, Section 404; Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material	33 United States Code (USC) 1344; 40 CFR 230, 231 and 33 CFR 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.	Remedial activities, such as source area treatment will involve fill material discharge to wetlands. If there is no practicable alternative to the discharge, any adverse impacts must be minimized and mitigated. A Least Environmentally Damaging Practicable Alternative determination to protect wetland resources and provide the best balance of addressing contaminated media within and adjacent to wetlands with minimizing both temporary and permanent alteration of wetlands and aquatic habitats on site will be made when the remedy is selected.

TABLE E-2

FEDERAL AND STATE LOCATION-SPECIFIC ARARs - ALTERNATIVE G-5A – OVERBURDEN AND BEDROCK SOURCE ZONES ENHANCED BIOREMEDIATION, TWO OVERBURDEN PRBs, MONITORING, ENGINEERING CONTROLS, AND LUCs
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Requirement	Citation	Status	Synopsis	Evaluation/Action to be Taken
Federal (Continued)				
Fish and Wildlife Coordination Act	16 USC 661 et seq.,	Applicable	Enacted to protect fish and wildlife when federal actions result in the control or modification of a natural stream or body of water. Requires federal agencies to take into consideration the effect that water-related projects would have on fish and wildlife resources; to take action to prevent loss or damage to those resources; and to provide for the development and improvement of those resources.	All construction will be conducted in a manner to mitigate impacts. Actions taken will minimize adverse impacts to fish and wildlife. Relevant federal and state agencies will be contacted and allowed to review the proposed work plan for the fence, source area treatment, PRB installation, and monitoring well installation prior to implementation.
State				
Massachusetts Endangered Species Act	Massachusetts General Laws (MGL) Ch.,131A 321; Code of Massachusetts Regulations (CMR) 10.00	Applicable	Sets out authority to research, list, and protect any species deemed endangered, threatened, or of other special concern. Actions must be conducted in a manner that minimizes the effect on listed Massachusetts species.	A state-listed species of special concern (Eastern Box Turtle) has been observed at the base, but not at the SRA site. Appropriate measures will be taken during remedial actions to ensure that the species is not harmed by the alternative.

TABLE E-2

FEDERAL AND STATE LOCATION-SPECIFIC ARARs - ALTERNATIVE G-5A – OVERBURDEN AND BEDROCK SOURCE ZONES ENHANCED BIOREMEDIATION, TWO OVERBURDEN PRBs, MONITORING, ENGINEERING CONTROLS, AND LUCs SOLVENT RELEASE AREA FEASIBILITY STUDY FORMER NAVAL AIR STATION SOUTH WEYMOUTH WEYMOUTH, MASSACHUSETTS

Requirement	Citation	Status	Synopsis	Evaluation/Action to be Taken
State (Continued)				
MA Wetlands Protection Act	310 CMR 10.00	Applicable	These regulations govern activities in freshwater wetlands, 100-year floodplains, 100-foot buffer zones beyond such areas, and 200-foot buffer zones to waterways. Regulated activities include certain types of construction and excavation activities. Performance standards are provided and include evaluating the acceptability of various activities.	Any temporary disturbance of a wetland during fence installation, source area treatment, PRB installation, or monitoring well activities will be restored.

TABLE E-3

FEDERAL AND STATE ACTION-SPECIFIC ARARs - ALTERNATIVE G-5A – OVERBURDEN AND BEDROCK SOURCE ZONES ENHANCED BIOREMEDIATION, TWO OVERBURDEN PRBS, MONITORING, ENGINEERING CONTROLS, AND LUCs
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Requirement	Citation	Status	Synopsis	Evaluation/Action To Be Taken
Federal				
Resource Conservation and Recovery Act (RCRA)	42 USC § 6901 et seq.	Applicable	Federal standards used to identify, manage, and dispose of hazardous waste. Massachusetts has been delegated the authority to administer the RCRA standards through its state hazardous waste management regulations.	Specific state hazardous waste standards authorized under the Act would apply when determining whether or not a solid waste is hazardous, either by being listed or by exhibiting a hazardous characteristic, such as contaminated purge water from groundwater sampling or contaminated material generated from well installation or maintenance. Existing data to not indicate that any wastes will be hazardous.
Underground Injection Control (UIC)	40 CFR 144,146, and 147.1100	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 and experimental technologies as Class V wells authorized by rule that do not require a separate UIC permit. State requirements apply in this case; see 310 CMR 27.00 below.	These standards regulate the injection of biological or chemical substance into the groundwater. In-situ treatment using bioremediation will be conducted in compliance with these standards.
Clean Water Act Section 402 -- National Pollution Discharge Elimination System (NPDES)	40 CFR 122-125, 131, 136	Applicable	Includes discharge limitations, monitoring requirements, and best management practices. Substantive requirements under NPDES are written such that state and federal ambient water quality criteria (AWQC) are met.	The standards apply to the digging of the trench and any dewatering of wetlands. The standard would apply only if there were a discharge associated with the remedial activities.

TABLE E-3

FEDERAL AND STATE ACTION-SPECIFIC ARARs - ALTERNATIVE G-5A – OVERBURDEN AND BEDROCK SOURCE ZONES ENHANCED BIOREMEDIATION, TWO OVERBURDEN PRBS, MONITORING, ENGINEERING CONTROLS, AND LUCs
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Requirement	Citation	Status	Synopsis	Evaluation/Action To Be Taken
CAA National Emission Standards for Hazardous Air Pollutants (NESHAPs)	42 U.S.C § 7412 40 CFR Parts 61 and 63	Applicable	The regulations establish emission standards for 189 hazardous air pollutants. Standards are set for fugitive dust and other release sources.	If remedial activities generate regulated air pollutants, then measures will be implemented to meet the standards.
State				
Hazardous Waste Rules for Identification and Listing of Hazardous Wastes,	310 Code of Massachusetts Regulations (CMR) 30.100	Applicable	Establish requirements for determining whether wastes are hazardous. Defines listed and characteristic hazardous wastes.	These regulations would apply when determining whether or not a solid waste generated as part of this remedial action is classified as hazardous, such as soil cuttings from injection wells, soil from PRB installation, contaminated purge water from groundwater sampling or contaminated material generated from well installation or maintenance. Existing data do not indicate that any wastes will be hazardous, other than soil cuttings from wells in the source area.
Hazardous Waste Management Rules – Requirements for Generators	310 CMR 30.300	Applicable	These regulations contain requirements for generators of hazardous waste. The regulations apply to generators of sampling waste and also apply to the accumulation of waste prior to off-site disposal.	Hazardous wastes generated as part of the remedial action will be handled in compliance with the requirements of these regulations.

TABLE E-3

FEDERAL AND STATE ACTION-SPECIFIC ARARs - ALTERNATIVE G-5A – OVERBURDEN AND BEDROCK SOURCE ZONES ENHANCED BIOREMEDIATION, TWO OVERBURDEN PRBS, MONITORING, ENGINEERING CONTROLS, AND LUCs
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Requirement	Citation	Status	Synopsis	Evaluation/Action To Be Taken
State (Continued)				
Management Procedures for Remedial Wastewater and Remedial Additives	310 CMR 40.0040	Applicable	Establishes requirements and procedures for the management of remedial wastewater and/or remedial additives, and for the construction, installation, modification, operation and maintenance of treatment works for the management of remedial wastewater and/or remedial additives.	These regulations would apply to remedial actions that involve underground injection, such as an electron donor for bioremediation of source area. To ensure that the remedial action complies with the substantive requirements of these regulations, the proposed quantities to be injected will be included in the design and submitted to EPA and MassDEP for comment and concurrence and the groundwater monitoring program will assess the impact of the injected compounds.
Underground Injection Control Program	310 CMR 27.00	Applicable	The federal Underground Injection Control program under the Safe Drinking Water Act has been delegated to the Commonwealth of Massachusetts. Establishes a State Underground Injection Control Program consistent with federal requirements to protect underground sources of drinking water.	The regulations apply to remedial actions involving underground injection, including use of bioremediation agents. To ensure that the remedial action complies with the substantive requirements of these regulations, the proposed quantities to be injected will be included in the design and submitted to EPA and MassDEP for comment and concurrence and the groundwater monitoring program will assess the impact of the injected compounds.

TABLE E-3

FEDERAL AND STATE ACTION-SPECIFIC ARARs - ALTERNATIVE G-5A – OVERBURDEN AND BEDROCK SOURCE ZONES ENHANCED BIOREMEDIATION, TWO OVERBURDEN PRBS, MONITORING, ENGINEERING CONTROLS, AND LUCs
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Requirement	Citation	Status	Synopsis	Evaluation/Action To Be Taken
State (Continued)				
Certification of Well Drillers and Filing of Well Completion Reports	313 CMR 3.03 (predecessor regulations); 310 CMR 46	Applicable	Requirements relating to well abandonment	Well drillers will follow all regulatory requirements for drilling and decommissioning of wells.
Standard References for Monitoring Wells	WSC-310-91 MADEP April 1991	TBC	This guidance describes the technical requirements for locating, drilling, installing, sampling and decommissioning monitoring wells.	Applies to wells installed for monitoring and/or groundwater treatment.
Erosion and Sediment Control Guidance		To Be Considered	This guidance includes standards for preventing erosion and sedimentation.	Remedial actions, particularly installation and maintenance of wells and other components of the remedy, will be managed to control erosion and sedimentation.
Air Pollution Control - Dust, Odor, Construction and Demolition	310 CMR 7.09	Applicable	Requires control of dust and particulate emissions from construction operations.	Water sprays and other dust suppression methods will control dust from excavation and backfill of PRBs.

APPENDIX H-5
ECOLOGICAL RISK ASSESSMENT TABLE

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TABLE H-5
EVALUATION OF CHANGES TO CRITERIA FOR
SELECTION OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN - SURFACE SOIL
SOLVENT RELEASE AREA
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Parameter	Frequency of Detection	Minimum Detected Concentration(1)	Maximum Detected Concentration(1)	Sample with Maximum Detection	Average Concentration(2)	Average of Positive Detects(3)	Basewide Background	2010 RI Ecological Risk Screening: Ecological Screening Level	Source of Screening Level	Hazard Quotient (4)	Retained as a COPC for Plants/ Invertebrates?	COPC Rationale	2018 Re-Evaluation of Ecological Risk Screening: Ecological Screening Level	Source of Screening Level	Hazard Quotient (4)	Retained as a COPC for Plants/ Invertebrates?	COPC Rationale
Volatile Organics (µg/kg)																	
2-butanone	8/24	3.25	76	SRA-SB-SB10-409-0002	13.6	29.3	100	NA	NA	NA	Yes	NSL	1000	Reg 4	0.08	No	BSL
4-isopropyltoluene	2/18	1 J	2 J	SRA-SB-SB10-502-0002	1.96	1.5	NA	NA	NA	NA	Yes	NSL	180	Reg 4	0.01	No	BSL
Acetone	8/25	3 J	1250 J	SRA-SB-SB10-412-0002-AVG	70.5	188	2200	NA	NA	NA	Yes	NSL	1200	Reg 4	1.04	Yes	ASL
cis-1,2-dichloroethene	1/24	4 J	4 J	SRA-SB-SB10-503-0002-AVG	2.3	4	NA	200	TV	0.02	No	BSL	40	Reg 4	0.10	No	BSL
Tetrachloroethene	5/25	4	18	SRA-SB-SB10-505-0002	3.78	9.6	15	3800	SQG	0.005	No	BSL	60	Reg 4	0.30	No	BSL
Total 1,2-dichloroethene	1/24	4 J	4 J	SRA-SB-SB10-503-0002-AVG	2.3	4	NA	200	NA (6)	0.020	No	BSL	40	Reg 4	0.10	No	BSL
Total chlorinated ethenes	6/25	4	18	SRA-SB-SB10-505-0002	3.8	9.14	NA	NA	NA	NA	No	NSL*	NA	NA	NA	No	NSL*
Total chlorinated vocs	6/25	4	18	SRA-SB-SB10-505-0002	4.34	9.14	NA	NA	NA	NA	No	NSL*	NA	NA	NA	No	NSL*
Trichloroethene	2/24	0.7	2.15 J	SRA-SB-SB10-503-0002-AVG	1.2	1.42	NA	3000	SQG	0.0007	No	BSL	60	Reg 4	0.04	No	BSL
Semivolatile Organics (µg/kg)																	
4-methylphenol	1/15	134 J	134 J	SRA-SB-SB10-503-0002-AVG	225	134	NA	500	Reg 4	0.27	No	BSL	80	Reg 4	1.68	Yes	ASL
Acenaphthene	4/21	2.8 J	37.5 J	SRA-SB-SB20-501-0002-AVG	5.62	12.9	NA	29000	ECO-SSL	0.0013	No	BSL	29000	ECO-SSL	0.00	No	BSL
Acenaphthylene	6/21	1.9 J	47	SRA-SB-SB10-405-0002	7.16	14.4	210	29000	ECO-SSL	0.0016	No	BSL	29000	ECO-SSL	0.00	No	BSL
Anthracene	11/22	2.2 J	77.5 J	SRA-SB-SB20-501-0002-AVG	12.5	20.8	170	29000	ECO-SSL	0.0027	No	BSL	29000	ECO-SSL	0.00	No	BSL
Benzaldehyde	5/21	47 J	210 J	SRA-SB-SB10-506-0002	185	89.5	NA	NA	NA	NA	Yes	NSL	NA	NA	NA	Yes	NSL
Benzo(a)anthracene	19/22	3.7	220	SRA-SB-SB20-501-0002-AVG	31.7	36.4	810	1100	ECO-SSL*	0.20	No	BSL	1100	ECO-SSL*	0.20	No	BSL
Benzo(a)pyrene	17/22	5.4	165	SRA-SB-SB20-501-0002-AVG	30.6	38.6	1829	1100	ECO-SSL*	0.15	No	BSL	1100	ECO-SSL*	0.15	No	BSL
Benzo(b)fluoranthene	20/22	4	315	SRA-SB-SB20-501-0002-AVG	50.8	55.3	770	1100	ECO-SSL*	0.29	No	BSL	1100	ECO-SSL*	0.29	No	BSL
Benzo(g,h,i)perylene	19/22	4.2	120	SRA-SB-SB10-405-0002	21.6	24.7	310	1100	ECO-SSL*	0.11	No	BSL	1100	ECO-SSL*	0.11	No	BSL
Benzo(k)fluoranthene	16/22	4.2	89	SRA-SB-SB20-501-0002-AVG	17.7	22.5	2700	1100	ECO-SSL*	0.081	No	BSL	1100	ECO-SSL*	0.08	No	BSL
Bis(2-chloroethyl)ether	1/21	16 J	16 J	SRA-SB-SB10-405-0002	5.37	16	NA	NA	NA	NA	Yes	NSL	NA	NA	NA	Yes	NSL
Bis(2-ethylhexyl)phthalate	20/22	68 J	150000	SRA-SB-SB10-501-0002-20060707	7160	7860	46000	100	TV	1500	Yes	ASL	20	Reg 4	7500	Yes	ASL
Butyl benzyl phthalate	1/21	86 J	86 J	SRA-SB-SB10-409-0002	212	86	270	100	TV	0.86	No	BSL	590	Reg 4	0.15	No	BSL
Caprolactam	1/21	61 J	61 J	SRA-SB-SB10-409-0002	211	61	NA	NA	NA	NA	Yes	NSL	NA	NA	NA	Yes	NSL
Chrysene	19/22	5.9	200	SRA-SB-SB20-501-0002-AVG	35.2	40.5	1400	1100	ECO-SSL*	0.18	No	BSL	1100	ECO-SSL*	0.18	No	BSL
Dibenzo(a,h)anthracene	11/22	4.4 J	38	SRA-SB-SB20-501-0002-AVG	8.99	13.7	96	1100	ECO-SSL*	0.035	No	BSL	1100	ECO-SSL*	0.035	No	BSL
Diethyl phthalate	1/21	76 J	76 J	SRA-SB-SB10-501-0002-20060707	212	76	NA	100000	ORNL Plant	0.0008	No	BSL	250	Reg 4	0.30	No	BSL
Fluoranthene	22/22	4.3 J	585 J	SRA-SB-SB20-501-0002-AVG	79.3	79.3	2400	29000	ECO-SSL	0.0202	No	BSL	29000	ECO-SSL	0.020	No	BSL
Fluorene	5/21	4.3	40 J	SRA-SB-SB20-501-0002-AVG	6.22	11.7	NA	29000	ECO-SSL	0.0014	No	BSL	29000	ECO-SSL	0.0014	No	BSL
High molecular weight PAHs	22/22	10.1	2272.5 J	SRA-SB-SB20-501-0002-AVG	351	351	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	14/22	4.2	162 J	SRA-SB-SB20-501-0002-AVG	62.5	30.3	175	1100	ECO-SSL*	0.147	No	BSL	1100	ECO-SSL*	0.15	No	BSL
Low molecular weight PAHs	19/25	4.9	554.2 J	SRA-SB-SB20-501-0002-AVG	56.8	73.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	1/24	14.2 J	14.2 J	SRA-SB-SB20-501-0002-AVG	4.4	14.2	NA	29000	ECO-SSL	0.0005	No	BSL	29000	ECO-SSL	0.0005	No	BSL
Phenanthrene	19/22	4.9	385 J	SRA-SB-SB20-501-0002-AVG	44.3	50.6	1500	29000	ECO-SSL	0.0133	No	BSL	29000	ECO-SSL	0.01	No	BSL
Phenol	1/21	19 B	19 B	SRA-SB-SB10-405-0002	18.3	19	70	30000	ORNL Invert	0.0006	No	BSL	790	Reg 4	0.02	No	BSL
Pyrene	22/22	4.5	405 J	SRA-SB-SB20-501-0002-AVG	61	61	1500	1100	ECO-SSL*	0.37	No	BSL	1100	ECO-SSL*	0.37	No	BSL
Total PAHs	22/25	10.1	2826.7 J	SRA-SB-SB20-501-0002-AVG	365	414	12160	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides/PCBs (µg/kg)																	
4,4'-DDD	4/22	0.63 J	37 J	SRA-SB-SB10-411-0002	3.42	13.8	6.6	21	ECO-SSL*	1.8	Yes	ASL	21	ECO-SSL*	1.76	Yes	ASL
4,4'-DDE	8/22	0.48 J	4.5 J	SRA-SB-SB10-405-0002	1.37	1.75	320	21	ECO-SSL*	0.21	No	BSL	21	ECO-SSL*	0.21	No	BSL
4,4'-DDT	8/22	0.64 J	38	SRA-SB-SB10-411-0002	4.24	9.71	325	21	ECO-SSL*	1.8	Yes	ASL	21	ECO-SSL*	1.81	Yes	ASL

								2010 RI Ecological Risk Screening					2018 Re-Evaluation of Ecological Risk Screening				
Parameter	Frequency of Detection	Minimum Detected Concentration[1]	Maximum Detected Concentration[1]	Sample with Maximum Detection	Average Concentration[2]	Average of Positive Detects[3]	Basewide Background	Ecological Screening Level	Source of Screening Level	Hazard Quotient [4]	Retained as a COPC for Plants/ Invertebrates?	COPC Rationale	Ecological Screening Level	Source of Screening Level	Hazard Quotient [4]	Retained as a COPC for Plants/ Invertebrates?	COPC Rationale
Aldrin	1/22	0.372 J	0.372 J	SRA-SB-SB20-501-0002-AVG	0.65	0.372	15	2.5	Reg 4	0.1	No	BSL	30	Reg 4	0.01	No	BSL
Alpha-chlordane	1/22	0.685 J	0.685 J	SRA-SB-SB20-501-0002-AVG	0.665	0.685	4	0.03	TV	22.8	Yes	ASL	2.9	Reg 4	0.24	No	BSL
Aroclor-1242	2/22	30 J	32 J	SRA-SB-SB10-408-0002	10.9	31	NA	20	Reg 4	1.6	Yes	ASL	41	Reg 4	0.78	No	BSL
Aroclor-1260	4/22	25.5 J	270	SRA-SB-SB10-411-0002	26.5	104	106	20	Reg 4	13.5000	Yes	ASL	41	Reg 4	6.59	Yes	ASL
beta-BHC	1/22	1.3 J	1.3 J	SRA-SB-SB10-409-0002	0.687	1.3	NA	9	TV	0.14	No	BSL	0.3	Reg 4	4.33	Yes	ASL
Dieldrin	5/22	0.32 J	6.3 J	SRA-SB-SB10-411-0002	1.35	1.67	52	4.9	ECO-SSL*	1.29	Yes	ASL	4.9	ECO-SSL*	1.29	Yes	ASL
Endosulfan I	2/22	0.44 J	0.46 J	SRA-SB-SB20-502D-0002	0.654	0.45	NA	0.01	TV	46.00	Yes	ASL	0.9	Reg 4	0.51	No	BSL
Endosulfan II	2/22	0.585 J	0.6 J	SRA-SB-SB20-504D-0002	1.25	0.592	NA	0.01	TV	60.00	Yes	ASL	0.9	Reg 4	0.67	No	BSL
Endosulfan sulfate	3/22	0.805 J	1.95 J	SRA-SB-SB20-501-0002-AVG	1.31	1.24	18	0.01	TV	195.00	Yes	ASL	6.5	Reg 4	0.30	No	BSL
Endrin aldehyde	1/22	12 J	12 J	SRA-SB-SB10-411-0002	1.69	12	9.5	0.04	TV	300	Yes	ASL	1.9	Reg 4	6.32	Yes	ASL
Endrin ketone	1/22	0.81 J	0.81 J	SRA-SB-SB20-502D-0002	1.26	0.81	NA	0.04	TV	20.25	Yes	ASL	1.9	Reg 4	0.43	No	BSL
Gamma-BHC	1/22	0.662	0.662	SRA-SB-SB20-501-0002-AVG	0.664	0.662	15	0.05	TV	13.24	Yes	ASL	3.1	Reg 4	0.21	No	BSL
Heptachlor Epoxide	2/22	0.37 J	0.43 J	SRA-SB-SB20-501-0002-AVG	0.647	0.4	26	0.0002	TV	2150	Yes	ASL	0.15	Reg 4	2.87	Yes	ASL
Total aroclor	6/22	25.5 J	270	SRA-SB-SB10-411-0002	28.5	79.4	NA	20	Reg 4	13.5000	Yes	ASL	41	Reg 4	6.59	Yes	ASL
Total DDx	11/22	0.48 J	75 J	SRA-SB-SB10-411-0002	7.19	13.3	NA	21	ECO-SSL*	3.6	Yes	ASL	21	ECO-SSL*	3.57	Yes	ASL
Inorganics (mg/kg)																	
Aluminum	21/21	5800	15500	SRA-SB-SB10-412-0002-AVG	8950	8950	10499	pH<5.5	ECO-SSL	NA [5]	Yes	ASL	pH<5.5	ECO-SSL	NA [5]	Yes	ASL
Arsenic	21/21	0.359	3.58 J	SRA-SB-SB10-412-0002-AVG	1.3	1.3	5.31	18	ECO-SSL	0.20	No	BSL	18	ECO-SSL	0.20	No	BSL
Barium	21/21	16.6 J	47.6	SRA-SB-SB10-412-0002-AVG	24.6	24.6	49.9	330	ECO-SSL	0.14	No	BSL	330	ECO-SSL	0.14	No	BSL
Beryllium	20/21	0.15	0.47	SRA-SB-SB10-406-0002	0.292	0.303	0.3	21	ECO-SSL*	0.022	No	BSL	21	ECO-SSL*	0.02	No	BSL
Cadmium	17/21	0.04 J	0.459	SRA-SB-SB10-411-0002	0.195	0.237	0.9	0.36	ECO-SSL*	1.3	Yes	ASL	0.36	ECO-SSL*	1.28	Yes	ASL
Calcium	21/21	498 J	2380 J	SRA-SB-SB10-405-0002	1200	1200	6360	NUT	NA	NA	No	NUT	NUT	NA	NA	No	NUT
Chromium	21/21	5.2	15	SRA-SB-SB20-504D-0002	8.4	8.4	10.1	26	ECO-SSL*	0.58	No	BSL	26	ECO-SSL*	0.58	No	BSL
Cobalt	21/21	0.694 J	5.93	SRA-SB-SB10-411-0002	2.38	2.38	3.98	13	ECO-SSL	0.46	No	BSL	13	ECO-SSL	0.46	No	BSL
Copper	21/21	1.6 J	9.81	SRA-SB-SB10-411-0002	5.08	5.08	26.22	28	ECO-SSL*	0.35	No	BSL	28	ECO-SSL*	0.35	No	BSL
Cyanide	7/15	0.12 J	0.23	SRA-SB-SB10-405-0002	0.113	0.163	NA	0.9	SQG	0.26	No	BSL	0.1	Reg 4	2.30	Yes	ASL
Iron	21/21	4700 J	19000	SRA-SB-SB10-411-0002	9760	9760	11300	pH<5, pH>8	ECO-SSL	NA [5]	No	BSL	pH<5, pH>8	ECO-SSL	NA [5]	No	BSL
Lead	21/21	3.68 J	51.1	SRA-SB-SB10-412-0002-AVG	12.6	12.6	301.7	11	ECO-SSL*	4.6	Yes	ASL	11	ECO-SSL*	4.65	Yes	ASL
Magnesium	21/21	620	3360 J	SRA-SB-SB10-407-0002	1380	1380	1963	NUT	NA	NA	No	NUT	NUT	NA	NA	No	NUT
Manganese	21/21	56.6 J	369 J	SRA-SB-SB10-407-0002	156	156	314	220	ECO-SSL	1.7	Yes	ASL	220	ECO-SSL	1.68	Yes	ASL
Mercury	8/21	0.0082 J	0.156	SRA-SB-SB10-412-0002-AVG	0.0172	0.0353	0.49	0.1	ORNL Invert	1.6	Yes	ASL	0.013	Reg 4	12.00	Yes	ASL
Nickel	21/21	2.4	10.8	SRA-SB-SB10-407-0002	5.56	5.56	17.2	38	ECO-SSL	0.28	No	BSL	38	ECO-SSL	0.28	No	BSL
Potassium	15/21	234	846 J	SRA-SB-SB10-412-0002-AVG	326	375	631	NUT	NA	NA	No	NUT	NUT	NA	NA	No	NUT
Selenium	15/21	0.0565 J	1.8	SRA-SB-SB10-412-0002-AVG	0.313	0.362	3	0.52	ECO-SSL	3.5	Yes	ASL	0.52	ECO-SSL	3.46	Yes	ASL
Silver	19/21	0.01 J	0.19 J	SRA-SB-SB10-412-0002-AVG	0.0492	0.0533	NA	4.2	ECO-SSL*	0.045	No	BSL	4.2	ECO-SSL*	0.05	No	BSL
Sodium	13/21	46.4 J	194	SRA-SB-SB20-501-0002-AVG	69	89.5	272	NUT	NA	NA	No	NUT	NUT	NA	NA	No	NUT
Thallium	9/21	0.0214 J	0.158 J	SRA-SB-SB10-412-0002-AVG	0.0482	0.0682	1.8	1	ORNL Plant	0.16	No	BSL	0.05	Reg 4	3.16	Yes	ASL
Vanadium	21/21	13.1	36.4 J	SRA-SB-SB10-412-0002-AVG	19.3	19.3	89.1	7.8	ECO-SSL*	4.7	Yes	ASL	7.8	ECO-SSL*	4.67	Yes	ASL
Zinc	21/21	10.2 J	43.9 J	SRA-SB-SB10-408-0002	21.6	21.6	73.8	46	ECO-SSL*	0.95	No	BSL	46	ECO-SSL*	0.95	No	BSL

Parameter	Frequency of Detection	Minimum Detected Concentration(1)	Maximum Detected Concentration(1)	Sample with Maximum Detection	Average Concentration(2)	Average of Positive Detects(3)	Basewide Background	2010 RI Ecological Risk Screening: Ecological Screening Level	Source of Screening Level	Hazard Quotient (4)	Retained as a COPC for Plants/ Invertebrates?	COPC Rationale	2018 Re-Evaluation of Ecological Risk Screening: Ecological Screening Level	Source of Screening Level	Hazard Quotient (4)	Retained as a COPC for Plants/ Invertebrates?	COPC Rationale
Miscellaneous Parameters																	
Total Organic Carbon (%)	1/2	1.3 J	1.3 J	SRA-SB-SB10-405-0002	0.925	1.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Selection of COPCs conducted for the 2010 RI was re-evaluated in 2018 for the Five Year Review using updated screening values.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria and it indicates that the shaded chemical was retained as a COPC.
Yellow highlighting indicates that the chemical would be selected as a COPC based on 2018 screening levels but was not selected as a COPC for the 2010 RI.

1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations detected concentrations and as one sample when determining the frequency of detection.
2 - Average of all analytical results are calculated using half of the detection limit for nondetects.
3 - Average of positive analytical results only.
4 - The hazard quotient is the maximum detected concentration divided by the screening level.
5 - pH was measured as 5.37 at one historic surface soil location (BL-05).
6 - Ecological screening level for cis-1,2-dichloroethene used as a surrogate for total 1,2-dichloroethene.
COPC = Chemical of Potential Concern
NA = Not Available or Not Applicable.
DDx = Sum of positive detections of 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT.

Rationale Codes:
For Selection as a COPC or for Further Evaluation:
ASL = Above COPC Screening Level
BSL = Below COPC Screening Level
NSL = No Screening Level Available
NSL* = No screening level, but risks are accounted for by individual consti
NUT = Essential Nutrient

Screening Level Sources and Order of Preference for 2010 RI Evaluation:
1. Eco SSL – EPA Ecological Soil Screening Levels (U.S. EPA, 2003, 2005, 2006, 2007)
2. Reg 4 – EPA Region IV Soil Screening Levels (U.S. EPA, 2001b)
3. SQG - Canadian Soil Quality Guideline for environmental health soil contact value (EC 1999a,b; CCME 2006)
4a. ORNL Plant - Oak Ridge National Laboratory Plant Toxicological Bencmark (Efroymson, et al. 1997a).
4b. ORNL Invert - Oak Ridge National Laboratory Invertebrate Toxicological Bencmark (Efroymson, et al. 1997b).
5. TV - Target Value (MHSPE, 2000)

* Eco SSL is based on mammals or birds. Chemicals with maximum detected concentrations less than these values are not included in the food chain models.

Screening Level Sources for 2018 Evaluation for the Five Year Review:
Same sources in the above order of preference, with updated Region 4 soil screening levels (U.S. EPA, 2018)

SURFACE SOIL NUTRIENT SCREEN

Nutrient	Screening Benchmarks: Maximum Tolerable Dietary Conc. (mg/kg)*	Screen: Surface Soil Maximum Concentration (mg/kg)	Ingestion Rate for Maximum Soil Conc.*** (mg/kg BW/day)	Maximum Ingestion Rate > Maximum Tolerable Ingestion Rate?
Calcium	10000	2380	10.71	no
Magnesium	3000	3360	15.12	no
Potassium	30000	846	3.807	no
Sodium	20000	142	0.639	no

Notes:
* - Maximum tolerable nutrient concentration for swine and other animals (NRC, 1980)
** - Max. tolerable intake rate = Max. tolerable dietary conc. (mg/kg diet) X Dietary intake (kg diet/day) / Body Weight (kg).
Values for swine (3.41 kg diet/day, 227 kg body weight) from Kenaga, 1972.
*** - Max. Soil Ingestion Rate = Soil conc. (mg/kg soil) X Fraction diet as soil (0.3) X Dietary Intake (kg diet/day)/Body Weight (kg).
Nutrient screening conducted as presented in ENSR (1999).

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APPENDIX I
AOC HANGAR 1

I-1 SITE CHRONOLOGY

I-2 BACKGROUND

I-3 REMEDIAL INVESTIGATION ANALYITCAL RESULTS

I-4 SITE INSPECTION REPORT AND PHOTOGRAPHS

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APPENDIX I-1
SITE CHRONOLOGY

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APPENDIX I-1

TABLE I-1: CHRONOLOGY OF SITE EVENTS, AREA OF CONCERN – HANGER 1

Hangar 1 Event	Date
Hangar 1 and Lean-Tos re-constructed (originally constructed in 1942)	1966
NAS South Weymouth is placed on the NPL	May 1994
Phase I EBS	1995
Hydrostatic Testing of Floor Drain System	1998
Removal Action Report for Building 1	March 1999
Time Critical Removal Action (TCRA) for Building 1	January 2001
Removal Action Report for Floor Drain System Removal	January 2001
Removal Action Report for Floor Drain System Soil Remediation	February 2001
Phase II EBS Field Report	December 2004
Streamlined HHRA	December 2009
Proposed Plan	March 2010
ROD signed, NFA	July 2010
PFAS Investigation 2010 - 2012	April 2010 - February 2012
ESD, 2011 (Groundwater use restriction on Non-APD parcel)	December 2011
Final LUCIP	December 2011
Hangar 1 building and Lean-Tos demolished	February 2012
Annual LUC Inspection - 2012	December 2012
Annual LUC Inspection - 2013	December 2013
Groundwater Assessment Sampling - 2014	April 2014
Annual LUC Inspection – 2014	December 2014
Annual LUC Inspection – 2015	September 2015
Remedial Investigation	December 2015 – August 2016
Annual LUC Inspection – 2016	November 2016
Annual LUC Inspection – 2017	November 2017
Re-Classification of GW Aquifer	November 2017
Draft RI Report (PFAS)	July 2018
First Annual Basewide PFOS and PFOA LUC Inspection – 2018	December 2018

APPENDIX I-2
BACKGROUND

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APPENDIX I-2
SITE BACKGROUND
AREA OF CONCERN – HANGER 1

Physical Characteristics

AOC Hangar 1 is located in the center of the Base, with the Bill Delahunt Parkway running through the southern portion of the Site (Figure 9-1). AOC Hanger 1 includes approximately 33 acres encompassing the aircraft parking apron and former Hanger 1 building area. The Hangar 1 building was demolished in 2012; the area surrounding the former Hangar 1 location is paved. There are no water bodies located within 1,500 feet of AOC Hangar 1 and only sparse vegetation exists on the Site (Foster Wheeler Environmental, 2001a). Topographically, AOC Hangar 1 is relatively flat. The groundwater flow is generally to the southwest across the Site and to the south-southwest downgradient of the Site.

Land and Resource Use

Hangar 1 and its Lean-tos were demolished in February 2012 but its concrete floor and the surrounding apron are still present. Currently, there are no activities occurring at AOC Hangar 1 except the extension of the new Bill Delahunt Parkway cuts through the southern portion of the AOC Hangar 1 property to connect with Trotter Road to the west. The anticipated future use of the AOC Hangar 1 property is based on the Zoning and Land Use By-Laws for NAS South Weymouth (SSTTDC, 2005). AOC Hangar 1 is located in an area zoned as a “Village Center District” and also borders a “residential district.” The Village Center District zone is mixed-use with housing, offices and commercial and retail uses.

In April 2017, the Southfield Redevelopment Authority lifted the APD designation from the aquifer that lies beneath a portion of the Hangar 1 area. Additionally, on November 1, 2017, the MassDEP issued a Second Amendment to the GUVD that concluded the aquifer has low use and value (MassDEP, 2017); therefore, under EPA groundwater guidance standards, the beneficial reuse of the Hangar 1 aquifer is no longer identified as drinking water.

History of Contamination

Hangar 1 was re-constructed in 1966 (originally constructed in 1942) and used for storage and maintenance of aircraft, including activities such as metal working, engine work, painting, arming, washing, hydraulic system repair, welding, parachute packing, photo development, training, and plating and anodizing. The concrete apron surrounding Hangar 1 was used for storage and fueling of aircraft. Floor drains beneath the hangar were identified during the EBS process as potential sources of contamination to subsurface soil and groundwater. AFFF for fire suppression was distributed through piping in the floor to distribution stations within the Hangar and in the Lean-tos. AFFF was stored in Hangar 1 in two 10,000-gallon above ground storage tanks (ASTs) and in 55-gallon drums in the crash truck garage in the South Lean-to.

Releases of AFFF have occurred in the vicinity of Hangar 1. A spill of 5,000 to 10,000 gallons of AFFF occurred on October 21, 1987, inside Hangar 1 (Tetra Tech, 2009f) and was reportedly contained in the oil-water separator which connects to the sanitary sewer. Several inadvertent releases of AFFF from two AFFF ASTs in the pump room have also been reported.

Initial Response

Hangar 1 was initially identified as an area requiring further investigation under the EBS program. The Site was designated as AOC Hangar 1 due to the presence of contamination in the floor drain system. In 1999, Navy removed two oil water separators from the site, cleaned and tested the floor drain systems, and collected soil samples near the separators. Between 2000 and 2001, the floor drain system was removed, and soil samples were collected along the former pipelines and at other locations based on visual, field screening, and olfactory evidence. Based on the analytical results, soil was excavated and removed in areas where elevated chemical concentrations were detected. A total of 104.58 tons of contaminated soil was removed and shipped off site for disposal. The excavations were backfilled with clean soil.

APPENDIX I-2
SITE BACKGROUND
AREA OF CONCERN – HANGER 1

In 2009, a streamlined HHRA was prepared for AOC Hangar 1 (Tetra Tech NUS, 2009g). The HHRA determined that cancer risks to future residents exposed to subsurface soil and groundwater were within EPA's target risk levels. The HHRA did not identify any COCs at this Site and there are no ecological receptors at the Site, therefore, an ERA was not performed. In 2010, a NFA ROD was completed. In 2010, the EPA and MassDEP requested an additional investigation for the potential presence of PFAS at Hanger 1 due to the documented release of 5,000 – 10,000-gallons of AFFF in 1987.

APPENDIX I-3
REMEDIAL INVESTIGATION ANALYITCAL RESULTS

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Table 4-1
Surfical Soil Analytical Results: April 2011 - October 2017
Hanger 1 Remedial Investigation
Former Naval Air Station South Weymouth

	Location ID	AFFF-SB05-304	AFFF-SB26	PX-DEL-EU44-01	PX-DEL-EU44-01	PX-DEL-EU49-01	H1-SB-130	H1-SB-130	H1-SB-131	H1-SB-132	H1-SB-133
	Sampling Interval (ft bgs)	1 - 3	0 - 3	0-2	0-2	0-2	0 - 2 ft	0 - 2 ft	0 - 2 ft	0 - 2 ft	0 - 2 ft
	Sample Date	4/26/2011	2/16/2012	3/23/2016	3/23/2016	3/23/2016	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017
	Sample ID	AFFF-SO-SB05-304-0103	AFFF-SO-SB26-0003	PX-DEL-EU44-01	DEL-DUP7-0316	PX-DEL-EU49-01	H1-SB-130-0'-2'-0917	FIELD DUP1-0917	H1-SB-131-0'-2'-0917	H1-SB-132-0'-2'-0917	H1-SB-133-0'-2'-0917
	Sample Type	N	N	N	FD	N	N	FD	N	N	N
PFAS (ug/kg)	Screening Criteria (ug/kg)										
Perfluorobutanesulfonic Acid (PFBS)	160000	NA	NA	< 0.35 U	0.19 J	< 0.33 U	< 0.890 U	< 0.953 UJ	< 0.967 U	< 0.895 UJ	< 0.902 UJ
Perfluorooctanesulfonic Acid (PFOS)	**126**	< 0.59 U	**460**	**150**	**160**	2.2	< 0.890 U	< 0.953 U	0.684 J	0.604 J	0.186 J
Perfluorooctanoic Acid (PFOA)	**126**	< 0.59 U	20	11	14	0.41 J	< 1.78 U	< 1.91 U	< 1.93 U	< 1.79 U	< 1.80 U

Notes:
PFAS - Perfluoroalkyl substances
ug/kg - Microgram per kilogram
ft - Feet
bgs - Below ground surface
U - Non-detect at laboratory detection limit
J - Estimated value
N - Normal sample type
FD - Field duplicate sample type
NA - Analysis did not include these compounds
Exceedances to screening criteria are highlighted and bolded

Table 4-1
Surfical Soil Analytical Results: April 2011 - October 2017
Hanger 1 Remedial Investigation
Former Naval Air Station South Weymouth

	Location ID	H1-SB-134	H1-SB-135	H1-SB-136	H1-SB-137	H1-SB-138
	Sampling Interval (ft bgs)	0 - 2 ft	0 - 2 ft	0 - 2 ft	0 - 2 ft	0 - 2 ft
	Sample Date	9/27/2017	10/5/2017	10/5/2017	10/5/2017	10/5/2017
	Sample ID	H1-SB-134-0'-2'-0917	H1-SB-135-0'-2'-1017	H1-SB-136-0'-2'-1017	H1-SB-137-0'-2'-1017	H1-SB-138-0'-2'-1017
	Sample Type	N	N	N	N	N
PFAS (ug/kg)	Screening Criteria (ug/kg)					
Perfluorobutanesulfonic Acid (PFBS)	160000	< 0.993 U	< 0.929 U	< 0.939 U	< 0.945 U	< 1.00 U
Perfluorooctanesulfonic Acid (PFOS)	**126**	0.680 J	< 0.929 U	0.180 J	0.288 J	12.8 J
Perfluorooctanoic Acid (PFOA)	**126**	< 1.99 U	0.572 J	0.353 J	4.79	**535 J**

Notes:
PFAS - Perfluoroalkyl substances
ug/kg - Microgram per kilogram
ft - Feet
bgs - Below ground surface
U - Non-detect at laboratory detection limit
J - Estimated value
N - Normal sample type
FD - Field duplicate sample type
NA - Analysis did not include these compounds
Exceedances to screening criteria are highlighted and bolded

Table 4-2
Subsurface Soil Analytical Results: April 2011 - November 2015
Hanger 1 Remedial Investigation
Former Naval Air Station South Weymouth

	Location ID	AFFF-SB03	AFFF-SB04	AFFF-SB05	AFFF-SB05-301	AFFF-SB05-302	AFFF-SB05-302	AFFF-SB05-303	AFFF-SB05-304	AFFF-SB05-307
	Depth Interval (ft bgs)	6 - 8 ft	4 - 6 ft	6 - 8 ft	4 - 6 ft	7 - 9 ft	7 - 9 ft	6 - 8 ft	6 - 8 ft	6 - 8 ft
	Sample Date	4/26/2011	12/29/2011	4/26/2011	4/27/2011	4/26/2011	4/26/2011	4/26/2011	4/26/2011	4/27/2011
	Sample ID	AFFF-SO-SB03-0608	AFFF-SO-SB04-0406	AFFF-SO-SB05-0608	AFFF-SO-SB05-301-0406	AFFF-SO-SB05-302-0709-D	AFFF-SO-SB05-302-0709	AFFF-SO-SB05-303-0608	AFFF-SO-SB05-304-0608	AFFF-SO-SB05-307-0608
	Sample Type	N	N	N	N	FD	N	N	N	N
PFAS (ug/kg)	Screening Criteria (ug/kg)									
Perfluorobutanesulfonic Acid (PFBS)	160000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic Acid (PFOS)	**126**	**250**	5.7	3.7	< 0.6 U	1.1 J	1.9 J	1.7	0.29 J	< 0.6 U
Perfluorooctanoic Acid (PFOA)	126	2	16 J	2.2	< 0.6 U	2.1	1.8	0.58 J	< 0.61 U	< 0.6 U

Notes:
PFAS - Perfluoroalkyl substances
ug/kg - Microgram per kilogram
ft - Feet
bgs - Below ground surface
U - Non-detect at laboratory detection limit
J - Estimated value
N - Normal sample type
FD - Field duplicate sample type
NA - Analysis did not include these compounds
Exceedances to screening criteria are highlighted and bolded

Table 4-2
Subsurface Soil Analytical Results: April 2011 - November 2015
Hanger 1 Remedial Investigation
Former Naval Air Station South Weymouth

	Location ID	AFFF-SB05-308	AFFF-SB06	AFFF-SB07	AFFF-SB08	AFFF-SB09	AFFF-SB10	AFFF-SB11	AFFF-SB12	AFFF-SB12
	Depth Interval (ft bgs)	6 - 8 ft	7 - 9 ft	7 - 9 ft	6 - 8 ft	5 - 7 ft	5 - 7 ft	5 - 7 ft	6 - 8 ft	6 - 8 ft
	Sample Date	4/26/2011	12/28/2011	12/28/2011	12/28/2011	12/28/2011	4/27/2011	12/28/2011	12/28/2011	12/28/2011
	Sample ID	AFFF-SO-SB05-308-0608	AFFF-SO-SB06-0709	AFFF-SO-SB07-0709	AFFF-SO-SB08-0608	AFFF-SO-SB09-0507	AFFF-SO-SB10-0507	AFFF-SO-SB11-0507	AFFF-SO-SB12-0608-D	AFFF-SO-SB12-0608
	Sample Type	N	N	N	N	N	N	N	FD	N
PFAS (ug/kg)	Screening Criteria (ug/kg)									
Perfluorobutanesulfonic Acid (PFBS)	160000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic Acid (PFOS)	**126**	**360**	1.2	0.72 J	0.45 J	< 0.6 U	< 0.6 U	< 0.6 U	0.41 J	0.44 J
Perfluorooctanoic Acid (PFOA)	126	2.5	1.7	1.5	0.7 J	0.48 J	< 0.6 U	0.56 J	4.1 J	4 J

Notes:
PFAS - Perfluoroalkyl substances
ug/kg - Microgram per kilogram
ft - Feet
bgs - Below ground surface
U - Non-detect at laboratory detection limit
J - Estimated value
N - Normal sample type
FD - Field duplicate sample type
NA - Analysis did not include these compounds
Exceedances to screening criteria are highlighted and bolded

Table 4-2
Subsurface Soil Analytical Results: April 2011 - November 2015
Hanger 1 Remedial Investigation
Former Naval Air Station South Weymouth

	Location ID	AFFF-SB13	AFFF-SB13	AFFF-SB14	AFFF-SB15	AFFF-SB16	AFFF-SB17	AFFF-SB18	AFFF-SB19	AFFF-SB20
	Depth Interval (ft bgs)	5 - 7 ft	5 - 7 ft	5 - 7 ft	5 - 7 ft	5 - 7 ft	6 - 8 ft	1 - 6 ft	6 - 8 ft	5 - 7 ft
	Sample Date	12/28/2011	12/28/2011	12/28/2011	12/28/2011	12/28/2011	12/28/2011	12/29/2011	12/29/2011	12/29/2011
	Sample ID	AFFF-SO-SB13-0507-D	AFFF-SO-SB13-0507	AFFF-SO-SB14-0507	AFFF-SO-SB15-0507	AFFF-SO-SB16-0507	AFFF-SO-SB17-0608	AFFF-SO-SB18-0106	AFFF-SO-SB19-0608	AFFF-SO-SB20-0507
	Sample Type	FD	N	N	N	N	N	N	N	N
PFAS (ug/kg)	Screening Criteria (ug/kg)									
Perfluorobutanesulfonic Acid (PFBS)	160000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic Acid (PFOS)	**126**	0.52 J	0.64 J	0.32 J	0.27 J	0.26 J	0.41 J	4.4	< 0.6 U	**150**
Perfluorooctanoic Acid (PFOA)	126	2.3 J	3.1 J	0.34 J	0.77 J	0.46 J	1.6 J	11 J	< 0.6 U	5.9 J

Notes:
PFAS - Perfluoroalkyl substances
ug/kg - Microgram per kilogram
ft - Feet
bgs - Below ground surface
U - Non-detect at laboratory detection limit
J - Estimated value
N - Normal sample type
FD - Field duplicate sample type
NA - Analysis did not include these compounds
Exceedances to screening criteria are highlighted and bolded

Table 4-2
Subsurface Soil Analytical Results: April 2011 - November 2015
Hanger 1 Remedial Investigation
Former Naval Air Station South Weymouth

	Location ID	AFFF-SB21	AFFF-SB22	AFFF-SB23	AFFF-SB24	AFFF-SB25	AFFF-SB25	AFFF-SB26	AFFF-SB27	AFFF-SBH1
	Depth Interval (ft bgs)	5 - 7 ft	5 - 7 ft	5 - 7 ft	5 - 7 ft	5 - 7 ft	5 - 7 ft	5 - 7 ft	5 - 7 ft	6 - 8 ft
	Sample Date	12/29/2011	2/16/2012	2/16/2012	2/16/2012	2/16/2012	2/16/2012	2/16/2012	2/16/2012	4/27/2011
	Sample ID	AFFF-SO-SB21-0507	AFFF-SO-SB22-0507	AFFF-SO-SB23-0507	AFFF-SO-SB24-0507	AFFF-SO-SB25-0507-D	AFFF-SO-SB25-0507	AFFF-SO-SB26-0507	AFFF-SO-SB27-0507	AFFF-SO-SBH1-0608
	Sample Type	N	N	N	N	FD	N	N	N	N
PFAS (ug/kg)	Screening Criteria (ug/kg)									
Perfluorobutanesulfonic Acid (PFBS)	160000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic Acid (PFOS)	**126**	0.62 J	1.2	**380**	0.77	**1200**	**1000**	**680**	44	0.56 J
Perfluorooctanoic Acid (PFOA)	126	< 0.6 UJ	< 0.58 U	8.8	0.21 J	7.5	7	15	1.9	< 0.6 U

Notes:
PFAS - Perfluoroalkyl substances
ug/kg - Microgram per kilogram
ft - Feet
bgs - Below ground surface
U - Non-detect at laboratory detection limit
J - Estimated value
N - Normal sample type
FD - Field duplicate sample type
NA - Analysis did not include these compounds
Exceedances to screening criteria are highlighted and bolded

Table 4-2
Subsurface Soil Analytical Results: April 2011 - November 2015
Hanger 1 Remedial Investigation
Former Naval Air Station South Weymouth

	Location ID	H1-MW-110D	H1-MW-110D	H1-MW-112	H1-MW-112	H1-MW-113	H1-MW-113	H1-MW-114	H1-MW-114	H1-MW-114
	Depth Interval (ft bgs)	7 - 9 ft	16.5 - 18.5 ft	9 - 11 ft	25 - 27 ft	8.5 - 10.5 ft	25 - 27 ft	8 - 10 ft	23 - 25 ft	23 - 25 ft
	Sample Date	11/11/2015	11/11/2015	11/6/2015	11/6/2015	11/9/2015	11/10/2015	11/9/2015	11/9/2015	11/9/2015
	Sample ID	H1-MW-110D-7'-9'-1115	H1-MW-110D-16.5'-18.5'-1115	MW-112-9'-11'-1115	MW-112-25'-27'-1115	H1-MW-113-81/2'-101/2'-1115	H1-MW-113-25'-27'-1115	H1-MW-114-8'-10'-1115	H1-MW-114-23'-25'-1115	DUP1-1115
	Sample Type	N	N	N	N	N	N	N	N	FD
PFAS (ug/kg)	Screening Criteria (ug/kg)									
Perfluorobutanesulfonic Acid (PFBS)	160000	< 0.41 U	< 0.33 U	< 0.39 U	< 0.34 U	< 0.40 U	< 0.33 U	< 0.38 U	< 0.35 U	< 0.39 U
Perfluorooctanesulfonic Acid (PFOS)	**126**	0.22 J	< 0.36 U	19	0.55 J	3.1	< 0.35 U	0.90 J	3.5	0.64 J
Perfluorooctanoic Acid (PFOA)	126	< 0.46 U	< 0.37 U	1.1	0.39 J	1.9	0.38 J	1.4	0.44 J	< 0.44 U

Notes:
PFAS - Perfluoroalkyl substances
ug/kg - Microgram per kilogram
ft - Feet
bgs - Below ground surface
U - Non-detect at laboratory detection limit
J - Estimated value
N - Normal sample type
FD - Field duplicate sample type
NA - Analysis did not include these compounds
Exceedances to screening criteria are highlighted and bolded

Table 4-2
Subsurface Soil Analytical Results: April 2011 - November 2015
Hanger 1 Remedial Investigation
Former Naval Air Station South Weymouth

	Location ID	H1-MW-902D	H1-SB-101	H1-SB-101	H1-SB-102	H1-SB-102	H1-SB-103	H1-SB-103	MW05-302D	MW05-302D
	Depth Interval (ft bgs)	8 - 10 ft	8 - 10 ft	22 - 24 ft	11 - 13 ft	21 - 23 ft	9 - 11 ft	25 - 26.5 ft	9 - 11 ft	26 - 28 ft
	Sample Date	11/10/2015	11/10/2015	11/10/2015	11/6/2015	11/6/2015	11/6/2015	11/6/2015	11/5/2015	11/5/2015
	Sample ID	H1-MW-902D-8'-10'-1115	H1-SB-101-8'-10'-1115	H1-SB-101-22'-24'-1115	SB-102-11'-13'-1115	SB-102-21'-23'-1115	SB-103-9'-11'-1115	SB-103-25'-26.5'-1115	MW05-302D-9'-11'-1115	MW05-302D-26'-28'-1115
	Sample Type	N	N	N	N	N	N	N	N	N
PFAS (ug/kg)	Screening Criteria (ug/kg)									
Perfluorobutanesulfonic Acid (PFBS)	160000	< 0.35 U	< 0.34 U	< 0.33 U	< 0.35 U	< 0.33 U	< 0.39 U	< 0.32 U	< 0.38 U	< 0.33 U
Perfluorooctanesulfonic Acid (PFOS)	**126**	0.32 J	< 0.36 U	< 0.35 U	3.7	0.29 J	< 0.42 U	< 0.35 U	0.39 J	< 0.35 U
Perfluorooctanoic Acid (PFOA)	126	< 0.40 U	< 0.38 U	< 0.37 U	0.92	0.27 J	0.37 J	< 0.37 U	0.82 J	< 0.37 U

Notes:
PFAS - Perfluoroalkyl substances
ug/kg - Microgram per kilogram
ft - Feet
bgs - Below ground surface
U - Non-detect at laboratory detection limit
J - Estimated value
N - Normal sample type
FD - Field duplicate sample type
NA - Analysis did not include these compounds
Exceedances to screening criteria are highlighted and bolded

Table 4-2
Subsurface Soil Analytical Results: April 2011 - November 2015
Hanger 1 Remedial Investigation
Former Naval Air Station South Weymouth

	Location ID	MW05-303D	MW05-303D	MW05-304D	MW05-304D
	Depth Interval (ft bgs)	8 - 10 ft	25 - 27 ft	9 - 11 ft	26 - 28 ft
	Sample Date	11/10/2015	11/10/2015	11/6/2015	11/9/2015
	Sample ID	MW05-303D-8'-10'-1115	MW-05-303D-25'-27'-1115	MW05-304D-9'-11'-1115	MW05-304D-26'-28'-1115
	Sample Type	N	N	N	N
PFAS (ug/kg)	Screening Criteria (ug/kg)				
Perfluorobutanesulfonic Acid (PFBS)	160000	< 0.39 U	< 0.33 U	< 0.37 U	< 0.33 U
Perfluorooctanesulfonic Acid (PFOS)	**126**	< 0.42 U	0.31 J	< 0.40 U	< 0.36 U
Perfluorooctanoic Acid (PFOA)	126	< 0.44 U	< 0.37 U	< 0.42 U	< 0.38 U

Notes:
PFAS - Perfluoroalkyl substances
ug/kg - Microgram per kilogram
ft - Feet
bgs - Below ground surface
U - Non-detect at laboratory detection limit
J - Estimated value
N - Normal sample type
FD - Field duplicate sample type
NA - Analysis did not include these compounds
Exceedances to screening criteria are highlighted and bolded

Table 4-3
Groundwater Analytical Results: April 2010 - July 2016
Hanger 1 Remedial Investigation
Former Naval Air Station South Weymouth

	Location ID	H1-MW-1	H1-MW-1	H1-MW-1	H1-MW-2	H1-MW-2	H1-MW-2	H1-MW-2D	H1-MW-2D	H1-MW-2D
	Screen Interval (ft bgs)	3.6-13.6	3.6-13.6	3.6-13.6	3-13	3-13	3-13	23.5-33.5	23.5-33.5	23.5-33.5
	Sample Date	5/6/2011	4/2/2014	11/16/2015	5/5/2011	4/2/2014	11/23/2015	5/6/2011	4/2/2014	11/23/2015
	Sample ID	AFFF-GW-H1MW01-0511	AFFF-H1-MW-1-040214	H1-MW-1-111615	AFFF-GW-H1MW02-0511	AFFF-H1-MW-2-040214	H1-MW-2-112315	AFFF-GW-H1MW2D-0511	AFFF-H1-MW-2D-040214	H1-MW-2D-112315
	Sample Type	N	N	N	N	N	N	N	N	N
		Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well
PFAS (ug/L)	Screening Criteria (ug/L)									
Perfluorobutanesulfonic Acid (PFBS)	38	NA	NA	0.016 J	NA	NA	< 0.015 U	NA	NA	< 0.016 U
Perfluorooctanesulfonic Acid (PFOS)	**0.07**	0.033	0.059	0.053	0.01 J	0.011 J	0.013 J	**0.12**	0.033	0.035
Perfluorooctanoic Acid (PFOA)	**0.07**	0.056	0.045	**0.12**	0.0068 J	0.012 J	< 0.017 U	0.027	0.013 J	0.015 J
Total PFOS and PFOA	**0.07**	**0.089**	**0.104**	**0.173**	0.0168	0.023	0.013	**0.147**	0.046	0.05

Notes:
PFAS - Perfluoroalkyl substances
ug/L - Microgram per liter
ft - Feet
bgs - Below ground surface
U - Non-detect at laboratory detection limit
J - Estimated value
N - Normal sample type
FD - Field duplicate sample type
NA - Analysis did not include these compounds
Exceedances to screening criteria are highlighted and bolded

Table 4-3
Groundwater Analytical Results: April 2010 - July 2016
Hanger 1 Remedial Investigation
Former Naval Air Station South Weymouth

	Location ID	H1-MW-101	H1-MW-101	H1-MW-101D	H1-MW-102	H1-MW-102	H1-MW-102D	H1-MW-103	H1-MW-103	H1-MW-103D
	Screen Interval (ft bgs)	5-15	5-15	16-26	3-13	3-13	13-21	5-15	5-15	15-25
	Sample Date	11/20/2015	11/20/2015	11/20/2015	11/20/2015	11/20/2015	11/20/2015	11/19/2015	11/19/2015	11/19/2015
	Sample ID	H1-MW-101-112015	DUP5-112015	H1-MW-101D-112015	H1-MW-102-112015	DUP4-112015	H1-MW-102D-112015	DUP2-111915	H1-MW-103-111915	H1-MW-103D-111915
	Sample Type	N	FD	N	N	FD	N	FD	N	N
		Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well
PFAS (ug/L)	Screening Criteria (ug/L)									
Perfluorobutanesulfonic Acid (PFBS)	38	0.28	0.29	0.060	< 0.016 U	< 0.017 U	< 0.017 U	< 0.016 U	< 0.016 U	< 0.016 U
Perfluorooctanesulfonic Acid (PFOS)	**0.07**	**7.7**	**8.2**	**2.0**	**0.13**	**0.14**	**0.55**	0.017 J	0.019 J	0.025 J
Perfluorooctanoic Acid (PFOA)	**0.07**	**0.84**	**0.86**	**0.48**	0.032	0.035	**0.17**	0.010 J	< 0.018 U	0.013 J
Total PFOS and PFOA	**0.07**	**8.54**	**9.06**	**2.48**	**0.162**	**0.175**	**0.72**	0.027	0.019	0.038

Notes:
PFAS - Perfluoroalkyl substances
ug/L - Microgram per liter
ft - Feet
bgs - Below ground surface
U - Non-detect at laboratory detection limit
J - Estimated value
N - Normal sample type
FD - Field duplicate sample type
NA - Analysis did not include these compounds
Exceedances to screening criteria are highlighted and bolded

Table 4-3
Groundwater Analytical Results: April 2010 - July 2016
Hanger 1 Remedial Investigation
Former Naval Air Station South Weymouth

	Location ID	H1-MW-104	H1-MW-104D	H1-MW-105	H1-MW-105D	H1-MW-106	H1-MW-106D	H1-MW-107	H1-MW-107D	H1-MW-108
	Screen Interval (ft bgs)	5-15	32-42	4-12	12-17	5-15	33-43	5-15	26-36	5-15
	Sample Date	11/19/2015	11/19/2015	11/17/2015	11/17/2015	11/23/2015	11/23/2015	11/19/2015	11/24/2015	11/20/2015
	Sample ID	H1-MW-104-111915	H1-MW-104D-111915	H1-MW-105-111715	H1-MW-105D-111715	H1-MW-106-112315	H1-MW-106D-112315	H1-MW-107-111915	H1-MW-107D-112415	H1-MW-108-112015
	Sample Type	N	N	N	N	N	N	N	N	N
		Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well
PFAS (ug/L)	Screening Criteria (ug/L)									
Perfluorobutanesulfonic Acid (PFBS)	38	0.065	< 0.016 U	< 0.018 U	< 0.018 U	< 0.015 U	0.0079 J	< 0.015 U	< 0.016 U	< 0.016 U
Perfluorooctanesulfonic Acid (PFOS)	**0.07**	**9.0**	**0.27**	**0.31**	**0.56**	0.011 J	**0.35**	0.012 J	**0.25 J+**	0.042
Perfluorooctanoic Acid (PFOA)	**0.07**	**0.21**	**0.075**	0.019 J	0.045	< 0.016 U	0.064	0.058	0.041	0.049
Total PFOS and PFOA	**0.07**	**9.21**	**0.345**	**0.329**	**0.605**	0.011	**0.414**	0.07	**0.291**	**0.091**

Notes:
PFAS - Perfluoroalkyl substances
ug/L - Microgram per liter
ft - Feet
bgs - Below ground surface
U - Non-detect at laboratory detection limit
J - Estimated value
N - Normal sample type
FD - Field duplicate sample type
NA - Analysis did not include these compounds
Exceedances to screening criteria are highlighted and bolded

Table 4-3
Groundwater Analytical Results: April 2010 - July 2016
Hanger 1 Remedial Investigation
Former Naval Air Station South Weymouth

	Location ID	H1-MW-108D	H1-MW-109D	H1-MW-110	H1-MW-110D	H1-MW-111D	H1-MW-112	H1-MW-112	H1-MW-113	H1-MW-114
	Screen Interval (ft bgs)	20-30	3-13	3-13	13-18.5	4-14	5-15	5-15	6-16	5-15
	Sample Date	11/20/2015	11/24/2015	11/17/2015	11/17/2015	11/19/2015	11/18/2015	11/18/2015	11/23/2015	11/19/2015
	Sample ID	H1-MW-108D-112015	H1-MW-109D-112415	H1-MW-110-111715	H1-MW-110D-111715	H1-MW-111D-111915	H1-MW-112-111815	DUP1-111815	H1-MW-113-112315	H1-MW-114-111915
	Sample Type	N	N	N	N	N	N	FD	N	N
		Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well
PFAS (ug/L)	Screening Criteria (ug/L)									
Perfluorobutanesulfonic Acid (PFBS)	38	< 0.016 U	0.015 J	0.017 J	0.012 J	0.016 J	0.0092 J	0.012 J	0.046	< 0.015 U
Perfluorooctanesulfonic Acid (PFOS)	**0.07**	0.056	**0.085**	**0.65**	**0.58**	**2.4**	**9.6**	**11**	**0.75**	**0.39**
Perfluorooctanoic Acid (PFOA)	**0.07**	0.021	**0.14**	**0.33**	**0.35**	**0.12**	**1.7 J**	**1.9 J**	**2.0 J**	**0.78**
Total PFOS and PFOA	**0.07**	**0.077**	**0.225**	**0.98**	**0.93**	**2.52**	**11.3**	**12.9**	**2.75**	**1.17**

Notes:
PFAS - Perfluoroalkyl substances
ug/L - Microgram per liter
ft - Feet
bgs - Below ground surface
U - Non-detect at laboratory detection limit
J - Estimated value
N - Normal sample type
FD - Field duplicate sample type
NA - Analysis did not include these compounds
Exceedances to screening criteria are highlighted and bolded

Table 4-3
Groundwater Analytical Results: April 2010 - July 2016
Hanger 1 Remedial Investigation
Former Naval Air Station South Weymouth

	Location ID	H1-MW-114	H1-MW-115D	H1-MW-116	H1-MW-116D	H1-MW-117	H1-MW-117D	H1-MW-117D	H1-MW-118	H1-MW-118D
	Screen Interval (ft bgs)	5-15	3-11	5-13	17-23.5	5-15	43-53	43-53	6-16	28-38
	Sample Date	11/19/2015	4/1/2016	3/31/2016	3/31/2016	3/31/2016	3/31/2016	3/31/2016	3/31/2016	3/31/2016
	Sample ID	DUP3-111915	H1-MW-115D-040116	H1-MW-116-033116	H1-MW-116D-033316	H1-MW-117-033116	H1-MW-117D-033116	DUP2-033116	H1-MW-118-033116	H1-MW-118D-033116
	Sample Type	FD	N	N	N	N	N	FD	N	N
		Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well
PFAS (ug/L)	Screening Criteria (ug/L)									
Perfluorobutanesulfonic Acid (PFBS)	38	< 0.016 U	0.035	< 0.017 U	0.020	< 0.018 U	< 0.017 U	< 0.017 U	< 0.018 U	< 0.016 U
Perfluorooctanesulfonic Acid (PFOS)	**0.07**	**0.33**	**0.73**	**0.16**	**0.20**	0.040	**0.076 J**	0.040 J	0.057	< 0.017 U
Perfluorooctanoic Acid (PFOA)	**0.07**	**0.94**	**0.15**	0.046	**0.14**	0.036	0.048	0.050	< 0.020 U	< 0.018 U
Total PFOS and PFOA	**0.07**	**1.27**	**0.88**	**0.206**	**0.34**	**0.076**	**0.124**	**0.09**	0.057	< 0.018 U

Notes:
PFAS - Perfluoroalkyl substances
ug/L - Microgram per liter
ft - Feet
bgs - Below ground surface
U - Non-detect at laboratory detection limit
J - Estimated value
N - Normal sample type
FD - Field duplicate sample type
NA - Analysis did not include these compounds
Exceedances to screening criteria are highlighted and bolded

Table 4-3
Groundwater Analytical Results: April 2010 - July 2016
Hanger 1 Remedial Investigation
Former Naval Air Station South Weymouth

	Location ID	H1-MW-119	H1-MW-119D	H1-MW-120	H1-MW-120D	H1-MW-121	H1-MW-121D	H1-MW-121D	H1-MW-122	H1-MW-122D
	Screen Interval (ft bgs)	6-16	25-35	6-16	26-36	5-15	22-32	22-32	2.5-13.5	15-25
	Sample Date	3/31/2016	3/31/2016	3/30/2016	3/30/2016	3/30/2016	3/30/2016	3/30/2016	3/29/2016	3/29/2016
	Sample ID	H1-MW-119-033116	H1-MW-119D-033116	H1-MW-120-033016	H1-MW-120D-033016	H1-MW-121-033016	H1-MW-121D-033016	DUP1-033016	H1-MW-122-032916	H1-MW-122D-032916
	Sample Type	N	N	N	N	N	N	FD	N	N
		Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well
PFAS (ug/L)	Screening Criteria (ug/L)									
Perfluorobutanesulfonic Acid (PFBS)	38	< 0.018 U	< 0.018 U	< 0.018 U	< 0.018 U	< 0.017 U	< 0.018 U	< 0.017 U	< 0.017 U	0.085
Perfluorooctanesulfonic Acid (PFOS)	**0.07**	0.029 J	**0.077**	0.032	**0.14**	0.027 J	< 0.019 U	< 0.018 U	0.019 J	**2.2**
Perfluorooctanoic Acid (PFOA)	**0.07**	0.062	0.017 J	0.018 J	0.064	< 0.019 U	< 0.020 U	< 0.019 U	0.041	**0.91**
Total PFOS and PFOA	**0.07**	**0.091**	**0.094**	0.05	**0.204**	0.027	< 0.020 U	< 0.019 U	0.06	**3.11**

Notes:
PFAS - Perfluoroalkyl substances
ug/L - Microgram per liter
ft - Feet
bgs - Below ground surface
U - Non-detect at laboratory detection limit
J - Estimated value
N - Normal sample type
FD - Field duplicate sample type
NA - Analysis did not include these compounds
Exceedances to screening criteria are highlighted and bolded

Table 4-3
Groundwater Analytical Results: April 2010 - July 2016
Hanger 1 Remedial Investigation
Former Naval Air Station South Weymouth

	Location ID	H1-MW-123D	H1-MW-124	H1-MW-124D	H1-MW-125	H1-MW-125D	H1-MW-126	H1-MW-126D	H1-MW-127	H1-MW-127	H1-MW-127D
	Screen Interval (ft bgs)	5.7-15.7	3-13	3-13	15-23.5	4-14	15.5-25.5	5-15	5-15	5-15	27-37
	Sample Date	4/1/2016	3/29/2016	3/29/2016	7/13/2016	7/14/2016	7/13/2016	7/13/2016	7/13/2016	7/13/2016	7/13/2016
	Sample ID	H1-MW-123D-040116	H1-MW-124-032916	H1-MW-124D-032916	H1-MW-125-071316	H1-MW-125D-071416	H1-MW-126-071316	H1-MW-126D-071316	H1-MW-127-071316	H1-DUP1-071316	H1-MW-127D-071316
	Sample Type	N	N	N	N	N	N	N	N	FD	N
		Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well
PFAS (ug/L)	Screening Criteria (ug/L)										
Perfluorobutanesulfonic Acid (PFBS)	38	< 0.018 U	< 0.017 U	< 0.017 U	< 0.017 U	0.018 J	< 0.017 U	< 0.017 U	< 0.017 U	< 0.018 U	0.011 J
Perfluorooctanesulfonic Acid (PFOS)	**0.07**	**0.32**	0.016 J	< 0.018 U	0.031	**0.28**	**0.071**	0.032	0.022 J	0.026 J	**0.57**
Perfluorooctanoic Acid (PFOA)	**0.07**	0.028	0.016 J	0.023	0.017 J	**0.20**	< 0.019 U	< 0.019 U	< 0.019 U	< 0.019 U	0.027
Total PFOS and PFOA	**0.07**	**0.348**	0.032	0.023	0.048	**0.48**	**0.071**	0.032	0.022	0.026	**0.597**

Notes:
PFAS - Perfluoroalkyl substances
ug/L - Microgram per liter
ft - Feet
bgs - Below ground surface
U - Non-detect at laboratory detection limit
J - Estimated value
N - Normal sample type
FD - Field duplicate sample type
NA - Analysis did not include these compounds
Exceedances to screening criteria are highlighted and bolded

Table 4-3
Groundwater Analytical Results: April 2010 - July 2016
Hanger 1 Remedial Investigation
Former Naval Air Station South Weymouth

	Location ID	H1-MW-128	H1-MW-128D	H1-MW-129	H1-MW-129D	H1-MW900	H1-MW900	H1-MW901	H1-MW901	H1-MW902	H1-MW902
	Screen Interval (ft bgs)	5-15	19-29	5-15	17-23	3-13	3-13	3-13	3-13	3-13	3-13
	Sample Date	7/13/2016	7/13/2016	7/13/2016	7/13/2016	4/2/2014	11/19/2015	4/2/2014	11/19/2015	4/2/2014	4/2/2014
	Sample ID	H1-MW-128-071316	H1-MW-128D-071316	H1-MW-129-071316	H1-MW-129D-071316	AFFF-MW05-306-040214	H1-MW900-111915	AFFF-MW05-307-040214	H1-MW901-111915	AFFF-MW05-308-040214	AFFF-DUP1-040214
	Sample Type	N	N	N	N	N	N	N	N	N	FD
		Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well
PFAS (ug/L)	Screening Criteria (ug/L)										
Perfluorobutanesulfonic Acid (PFBS)	38	< 0.018 U	< 0.018 U	< 0.018 U	< 0.017 U	NA	0.075	NA	0.011 J	NA	NA
Perfluorooctanesulfonic Acid (PFOS)	**0.07**	0.013 J	0.026 J	< 0.019 U	< 0.018 U	**0.46**	**0.38**	**0.56**	0.056	**4.6**	**4.7**
Perfluorooctanoic Acid (PFOA)	**0.07**	0.014 J	< 0.020 U	< 0.020 U	< 0.019 U	**0.33**	**0.45**	**0.29**	**0.87**	**0.40**	**0.36**
Total PFOS and PFOA	**0.07**	0.027	0.026	< 0.020 U	< 0.019 U	**0.79**	**0.83**	**0.85**	**0.926**	**5.00**	**5.06**

Notes:
PFAS - Perfluoroalkyl substances
ug/L - Microgram per liter
ft - Feet
bgs - Below ground surface
U - Non-detect at laboratory detection limit
J - Estimated value
N - Normal sample type
FD - Field duplicate sample type
NA - Analysis did not include these compounds
Exceedances to screening criteria are highlighted and bolded

Table 4-3
Groundwater Analytical Results: April 2010 - July 2016
Hanger 1 Remedial Investigation
Former Naval Air Station South Weymouth

	Location ID	H1-MW902	MW05-031	MW05-031	MW05-031	MW05-033	MW05-033	MW05-033	MW05-033D	MW05-034	MW05-034
	Screen Interval (ft bgs)	3-13	4.5-14.5	4.5-14.5	4.5-14.5	4-14	4-14	4-14	14-23	4-14	4-14
	Sample Date	11/17/2015	4/21/2010	4/2/2014	11/18/2015	4/20/2010	4/2/2014	11/18/2015	11/20/2015	5/4/2011	4/1/2014
	Sample ID	H1-MW-902-111715	AFFF-GW-MW05-031-0410	AFFF-MW05-031-040214	MW05-031-111815	AFFF-GW-MW05-033-0410	AFFF-MW05-033-040214	MW05-033-111815	MW05-033D-112015	AFFF-GW-MW05034-0511	AFFF-MW05-034-040114
	Sample Type	N	N	N	N	N	N	N	N	N	N
		Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well
PFAS (ug/L)	Screening Criteria (ug/L)										
Perfluorobutanesulfonic Acid (PFBS)	38	0.011 J	NA	NA	< 0.018 U	NA	NA	< 0.017 U	< 0.018 U	NA	NA
Perfluorooctanesulfonic Acid (PFOS)	**0.07**	**1.1**	**0.21**	**0.13**	**0.15**	0.032	**0.089**	**0.25**	**0.29**	**0.24**	**0.24**
Perfluorooctanoic Acid (PFOA)	**0.07**	**0.22**	0.013	0.016 J	0.016 J	0.017	0.020 J	0.050	0.061	**0.079**	0.028 J
Total PFOS and PFOA	**0.07**	**1.32**	**0.223**	**0.146**	**0.166**	0.049	**0.109**	**0.3**	**0.351**	**0.319**	**0.268**

Notes:
PFAS - Perfluoroalkyl substances
ug/L - Microgram per liter
ft - Feet
bgs - Below ground surface
U - Non-detect at laboratory detection limit
J - Estimated value
N - Normal sample type
FD - Field duplicate sample type
NA - Analysis did not include these compounds
Exceedances to screening criteria are highlighted and bolded

Table 4-3
Groundwater Analytical Results: April 2010 - July 2016
Hanger 1 Remedial Investigation
Former Naval Air Station South Weymouth

	Location ID	MW05-034	MW05-301	MW05-301	MW05-301	MW05-302	MW05-302	MW05-302	MW05-302D	MW05-303	MW05-303
	Screen Interval (ft bgs)	4-14	5-10	5-10	5-10	5-15	5-15	5-15	20-30	5-15	5-15
	Sample Date	11/18/2015	4/23/2010	4/2/2014	11/17/2015	4/20/2010	4/1/2014	11/17/2015	11/19/2015	4/21/2010	4/21/2010
	Sample ID	MW05-034-111815	AFFF-GW-MW05-301-0410	AFFF-MW05-301-040214	MW05-301-111715	AFFF-GW-MW05-302-0410	AFFF-MW05-302-040114	MW05-302-111715	MW05-302D-111915	AFFF-GW-MW05-303-0410	AFFF-GW-MW05-303-0410-D
	Sample Type	N	N	N	N	N	N	N	N	N	FD
		Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well
PFAS (ug/L)	Screening Criteria (ug/L)										
Perfluorobutanesulfonic Acid (PFBS)	38	< 0.016 U	NA	NA	< 0.018 U	NA	NA	< 0.018 U	0.16	NA	NA
Perfluorooctanesulfonic Acid (PFOS)	**0.07**	**0.25**	0.031	**0.086**	**0.086**	**0.37**	**0.74**	**0.093**	**0.57**	**0.25**	**0.25**
Perfluorooctanoic Acid (PFOA)	**0.07**	0.038	0.067	0.033 J	0.031	**15**	**2.8 J**	**0.91 J**	**3.5**	**1.7**	**1.5**
Total PFOS and PFOA	**0.07**	**0.288**	**0.098**	**0.119**	**0.117**	**15.37**	**3.54**	**1.003**	**4.07**	**1.95**	**1.75**

Notes:
PFAS - Perfluoroalkyl substances
ug/L - Microgram per liter
ft - Feet
bgs - Below ground surface
U - Non-detect at laboratory detection limit
J - Estimated value
N - Normal sample type
FD - Field duplicate sample type
NA - Analysis did not include these compounds
Exceedances to screening criteria are highlighted and bolded

Table 4-3
Groundwater Analytical Results: April 2010 - July 2016
Hanger 1 Remedial Investigation
Former Naval Air Station South Weymouth

	Location ID	MW05-303	MW05-303	MW05-303	MW05-303D	MW05-304	MW05-304	MW05-304	MW05-304D	MW05-306	MW05-307
	Screen Interval (ft bgs)	5-15	5-15	5-15	17-27	7-17	7-17	7-17	18-28.5	5-15	5-15
	Sample Date	4/1/2014	4/1/2014	4/1/2016	11/20/2015	4/20/2010	4/1/2014	11/18/2015	11/19/2015	5/4/2011	5/3/2011
	Sample ID	AFFF-MW05-303-040114	AFFF-DUP2-040114	MW05-303-040116	MW05-303D-112015	AFFF-GW-MW05-304-0410	AFFF-MW05-304-040114	MW05-304-111815	MW05-304D-111915	AFFF-GW-MW05306-0511	AFFF-GW-MW05307-0511
	Sample Type	N	FD	N	N	N	N	N	N	N	N
		Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well
PFAS (ug/L)	Screening Criteria (ug/L)										
Perfluorobutanesulfonic Acid (PFBS)	38	NA	NA	< 0.018 U	0.0091 J	NA	NA	< 0.019 U	< 0.016 U	NA	NA
Perfluorooctanesulfonic Acid (PFOS)	**0.07**	0.038 J	**0.088**	0.044	**0.27**	**0.21**	**0.16**	**0.11**	**0.21**	**0.63**	0.019 J
Perfluorooctanoic Acid (PFOA)	**0.07**	**0.45**	**0.45**	**0.24**	**0.77**	**1.6**	**1.6 J**	**0.90**	**1.5 J**	0.047	0.029
Total PFOS and PFOA	**0.07**	**0.488**	**0.538**	**0.284**	**1.04**	**1.81**	**1.76**	**1.01**	**1.71**	**0.677**	0.048

Notes:
PFAS - Perfluoroalkyl substances
ug/L - Microgram per liter
ft - Feet
bgs - Below ground surface
U - Non-detect at laboratory detection limit
J - Estimated value
N - Normal sample type
FD - Field duplicate sample type
NA - Analysis did not include these compounds
Exceedances to screening criteria are highlighted and bolded

Table 4-3
Groundwater Analytical Results: April 2010 - July 2016
Hanger 1 Remedial Investigation
Former Naval Air Station South Weymouth

	Location ID	MW05-307	MW05-308	MW09-006	MW09-006	MW09-006	9AB-MW-05	AVG-MW-4	MW06-301	MW06-301	MW06-304
	Screen Interval (ft bgs)	5-15	3-13	4-14	4-14	4-14	4.3-14.3	5-15	5-15	5-15	3-13
	Sample Date	5/3/2011	5/4/2011	5/4/2011	4/1/2014	11/18/2015	7/14/2016	7/15/2016	7/14/2016	7/14/2016	7/14/2016
	Sample ID	AFFF-GW-MW05307-0511-D	AFFF-GW-MW05308-0511	AFFF-GW-MW09006-0511	AFFF-MW09-006-040114	MW09-006-111815	9AB-MW-05-071416	AVG-MW-04-071516	MW06-301-071416	H1-DUP2-071416	MW06-304-071416
	Sample Type	FD	N	N	N	N	N	N	N	FD	N
		Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Hangar 1 Well	Off-Site Well	Off-Site Well	Off-Site Well	Off-Site Well	Off-Site Well
PFAS (ug/L)	Screening Criteria (ug/L)										
Perfluorobutanesulfonic Acid (PFBS)	38	NA	NA	NA	NA	0.011 J	< 0.016 U	< 0.017 U	0.011 J	0.0077 J	< 0.017 U
Perfluorooctanesulfonic Acid (PFOS)	**0.07**	0.025 J	**21**	**2.3**	**1.6**	**1.7**	**0.12**	< 0.018 U	**0.26**	**0.25**	**0.22**
Perfluorooctanoic Acid (PFOA)	**0.07**	0.031	**0.52**	**0.36**	**0.23**	**0.36**	**0.16**	< 0.019 U	**0.14**	**0.11**	**0.084**
Total PFOS and PFOA	**0.07**	0.056	**21.52**	**2.66**	**1.83**	**2.06**	**0.28**	< 0.019 U	**0.4**	**0.36**	**0.304**

Notes:
PFAS - Perfluoroalkyl substances
ug/L - Microgram per liter
ft - Feet
bgs - Below ground surface
U - Non-detect at laboratory detection limit
J - Estimated value
N - Normal sample type
FD - Field duplicate sample type
NA - Analysis did not include these compounds
Exceedances to screening criteria are highlighted and bolded

Table 4-3
Groundwater Analytical Results: April 2010 - July 2016
Hanger 1 Remedial Investigation
Former Naval Air Station South Weymouth

	Location ID	MW07-301	MW11-201	B14-MW-01	B82-MW-202D	B82-MW-202S
	Screen Interval (ft bgs)	2.5-12.5	5-15		26-36	7-17
	Sample Date	7/14/2016	7/14/2016	7/14/2016	7/14/2016	7/14/2016
	Sample ID	MW07-301-071416	MW11-201-071416	B14-MW-01-071416	B82-MW-202D-071416	B82-MW-202S-071416
	Sample Type	N	N	N	N	N
		Off-Site Well	Off-Site Well	Off-Site Well	Off-Site Well	Off-Site Well
PFAS (ug/L)	Screening Criteria (ug/L)					
Perfluorobutanesulfonic Acid (PFBS)	38	< 0.016 U	< 0.016 U	0.028	0.016 J	< 0.018 U
Perfluorooctanesulfonic Acid (PFOS)	**0.07**	< 0.017 U	**0.17**	**0.29**	**0.20**	**0.16**
Perfluorooctanoic Acid (PFOA)	**0.07**	< 0.018 U	0.035	0.056	**0.22**	**0.11**
Total PFOS and PFOA	**0.07**	< 0.018 U	**0.205**	**0.346**	**0.42**	**0.27**

Notes:
PFAS - Perfluoroalkyl substances
ug/L - Microgram per liter
ft - Feet
bgs - Below ground surface
U - Non-detect at laboratory detection limit
J - Estimated value
N - Normal sample type
FD - Field duplicate sample type
NA - Analysis did not include these compounds
Exceedances to screening criteria are highlighted and bolded

Table 4-4
Surface Water Analytical Results
Hanger 1 Remedial Investigation
Former Naval Air Station South Weymouth

	Location ID	AFFF-SW01	H1-SW-01	H1-SW-DUP	H1-SW-02	H1-SW-03	PFAS-SW/SED05	PFAS-SW/SED06	PFAS-SW/SED07	PFAS-SW/SED08	PFAS-SW/SED33	PFAS-SW/SED34
	Sample ID	AFFF-SW-SW01-0511	H1-SW-01-081516	H1-SW-DUP-081516	H1-SW-02-081516	H1-SW-03-081516	PFAS-SW05-110216	PFAS-SW06-110216	PFAS-SW07-110216	PFAS-SW08-110216	PFAS-SW33-111116	PFAS-SW34-111116
	Sample Date	5/2/2011	8/15/2016	8/15/2016	8/15/2016	8/15/2016	11/2/2016	11/2/2016	11/2/2016	11/2/2016	11/11/2016	11/11/2016
	Sample Type	N	N	FD	N	N	N	N	N	N	N	N
PFAS (ug/L)	Screening Criteria (ug/L)											
Perfluorobutanesulfonic Acid (PFBS)	5,260	NA	< 0.017 U	< 0.018 U	< 0.018 U	< 0.017 U	< 0.00400 UJ	0.00548 J-	0.00494 J-	0.00436 J-	0.0133 J-	0.0156
Perfluorooctanesulfonic Acid (PFOS)	5.26	0.88	0.025 J	0.026 J	0.032	0.026 J	0.0139 J-	0.172 J-	0.171 J-	0.162 J-	0.655 J-	0.635
Perfluorooctanoic Acid (PFOA)	5.26	0.22	0.010 J	0.010 J	< 0.019 U	< 0.019 U	0.00733 J-	0.0777 J-	0.0661 J-	0.0676 J-	0.232 J-	0.216

Notes:
PFAS - Perfluoroalkyl substances
ug/L - Microgram per liter
U - Non-detect at laboratory detection limit
J - Estimated value
N - Normal sample type
FD - Field duplicate sample type
NA - Analysis did not include these compounds

Table 4-5
Sediment Analytical Results
Hanger 1 Remedial Investigation
Former Naval Air Station South Weymouth

	Location ID	AFFF-SD01	H1-SED-01	H1-SED-DUP	H1-SED-02	H1-SED-03	PFAS-SW/SED05	PFAS-SW/SED06	PFAS-SW/SED07	PFAS-SW/SED08	PFAS-SW/SED33	PFAS-SW/SED34
	Sample ID	AFFF-SD-SD01-0004	H1-SED-01-081516	H1-SED-DUP-081516	H1-SED-02-081516	H1-SED-03-081516	PFAS-SED05-110216	PFAS-SED06-110216	PFAS-SED07-110216	PFAS-SED08-110216	PFAS-SED33-111116	PFAS-SED34-111116
	Sample Date	5/2/2011	8/15/2016	8/15/2016	8/15/2016	8/15/2016	11/2/2016	11/2/2016	11/2/2016	11/2/2016	11/11/2016	11/11/2016
	Sample Type	N	N	FD	N	N	N	N	N	N	N	N
PFAS (ug/kg)	Screening Criteria (ug/kg)											
Perfluorobutanesulfonic Acid (PFBS)	714,000	NA	< 0.37 U	< 0.37 U	< 0.41 U	< 0.46 U	< 0.466 U	< 0.480 U	< 0.512 U	< 0.465 U	< 0.497 U	< 0.499 U
Perfluorooctanesulfonic Acid (PFOS)	714	3.2	< 0.95 U	< 0.95 U	< 1.0 U	< 1.2 U	0.194 J	1.39 J	0.544 J	0.978 J	0.366 JEB	1.06 JEB
Perfluorooctanoic Acid (PFOA)	714	1.9	< 0.41 U	< 0.42 U	< 0.46 U	< 0.52 U	< 0.117 U	< 1.92 U	< 2.05 U	< 1.86 U	< 0.124 U	0.757 J

Notes:
PFAS - Perfluoroalkyl substances
ug/kg - Microgram per kilogram
U - Non-detect at laboratory detection limit
J - Estimated value
N - Normal sample type
FD - Field duplicate sample type
NA - Analysis did not include these compounds
JEB - Estimated value, analyte was identified in an aqueous equipment blank

APPENDIX I-4
SITE INSPECTION REPORT AND PHOTOGRAPHS

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Five-Year Review Site Inspection Checklist

I. SITE INFORMATION	
Site name: AOC Hangar 1	**Date of inspection: 12/5/18**
Location and Region: Former NAS South Weymouth, Weymouth, MA	**EPA ID: MA2170022022**
Agency, office, or company leading the five-year review: Tetra Tech	**Weather/temperature: Partly Cloudy, 38°F**

Remedy Includes: (Check all that apply)

☐ Landfill cover/containment ☐ Monitored natural attenuation
☐ Access controls ☐ Groundwater containment
X Institutional controls ☐ Vertical barrier walls
☐ Groundwater pump and treatment
☐ Surface water collection and treatment
☐Other____

Attachments: ☐ Inspection team roster attached X 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.

See Report.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)				
1.	**O&M Documents**			
	☐ O&M manual	☐ Readily available	☐ Up to date	X N/A
	☐ As-built drawings	☐ Readily available	☐ Up to date	X N/A
	☐ Maintenance logs	☐ Readily available	☐ Up to date	X N/A
	Remarks ______________________________			
2.	**Site-Specific Health and Safety Plan**	☐ Readily available	☐ Up to date	X N/A
	☐ Contingency plan/emergency response plan	☐ Readily available	☐ Up to date	X N/A
	Remarks______________________________			
3.	**O&M and OSHA Training Records**	☐ Readily available	☐ Up to date	X 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**	☐ Readily available	☐ Up to date	X N/A
	Remarks______________________________			
7.	**Groundwater Monitoring Records**	☐ Readily available	☐ Up to date	X 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 ☐ Contractor for Federal Facility
☐ Other____
____

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 (Date)	To (Date)	Total cost	
From__________	To__________	__________________	☐ Breakdown attached
From__________	To__________	__________________	☐ Breakdown attached
From__________	To__________	__________________	☐ Breakdown attached
From__________	To__________	__________________	☐ Breakdown attached
From__________	To__________	__________________	☐ Breakdown attached

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 ☐ Gates secured X N/A
Remarks: _

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map X N/A
Remarks:

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

2. **Adequacy** X ICs are adequate ☐ ICs are inadequate ☐ N/A

Remarks ICs for PFAS in groundwater beneath AOC Hangar 1 are included in the 2011 ESD and Basewide PFOS and PFOA LUCIP.

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map X No vandalism evident

Remarks ____

2. **Land use changes on site** ☐ N/A

Remarks The Bill Delahunt Parkway and Patriot Parkway are complete and run through the southern portion of the former Hangar 1 area. Soil or construction material piles are located west of the former Hangar 1. The area northeast of the intersection of Shea Memorial Dr and Bill Delahunt Parkway is currently used as a temporary parking area. Portions of the former Hangar 1 apron area are/were used as a film set (some film set structures are still present). There is an outdoor ice rink located southeast of the intersection of Shea Memorial Dr and Bill Delahunt Parkway. The former Hangar 1 apron area is used for passive recreation (i.e. biking, dog walking).

3. **Land use changes off site** ☐ N/A

Remarks AOC Hangar 1 is centrally located within Union Point (former NAS South Weymouth). Redevelopment of the surrounding area is ongoing under the Southfield Redevelopment Authority and master developer.

VI. GENERAL SITE CONDITIONS

A. Roads ☐ Applicable X N/A

1. **Roads damaged** ☐ Location shown on site map ☐ Roads adequate ☐ N/A

Remarks There are no road directly associated with AOC Hangar 1. There are four roads that intersect the site (Cummings Rd, Shea Memorial Dr., Bill Delahunt Parkway and Patriot Parking) which provide adequate access to the site.

B. Other Site Conditions
Remarks There were no signs of any newly installed wells or construction activities at the Site. Several passive recreational users (dog walkers and cyclist) were observed during the inspection. There was no indication of land use change inconsistent with the ICs at the time of the inspection.
VII. 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____

VIII. GROUNDWATER/SURFACE WATER REMEDIES ☐ Applicable X N/A	
A. Groundwater Extraction Wells, Pumps, and Pipelines ☐ Applicable X 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 X Functioning X Routinely sampled X Good condition
☐ All required wells located ☐ Needs Maintenance ☐ N/A
Remarks__Monitoring wells observed in the Hangar 1 RI study area were observed to be locked and in good condition. RI is in process.

IX. 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.

X. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

The remedy (ICs) has been implemented and an RI is in process. The Hangar 1 2011 ESD is to be nullified in March 2019 as the ICs included for PFAS in groundwater are duplicated in the 2018 Basewide PFOS and PFOA LUCIP. See report text for further details.

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.
__N/A

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. See Report.
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. See Report.

Date: 12/5/2018 Picture No. 1 Location: Hangar 1

Comment: Area west of Runway 17-35, looking north toward The Commons condo complex

Date: 12/5/2018 Picture No. 2 Location: Hangar 1

Comment: Western portion of AOC Hangar 1

Date: 12/5/2018 Picture No. 3 Location: Hangar 1

Comment: Central portion of Hangar 1 area and intersection of Shea Memorial Dr., Patriot Parkway and Bill Delahunt Parkway

Date: 12/5/2018 Picture No. 4 Location: Hangar 1

Comment: Construction/concrete debris piles located west of AOC Hangar 1

Date: 12/5/2018 **Picture No.** 5 **Location:** Hangar 1

Comment: Hangar 1 apron located south of Patriot Parkway, looking toward Bill Delahunt Parkway intersection

Date: 12/5/2018 **Picture No.** 6 **Location:** Hangar 1

Comment: Area south of Bill Delahunt and Shea Memorial Dr. intersection, former film set

Date: 12/5/2018 **Picture No.** 7 **Location:** Hangar 1

Comment: Location of former Hangar 1, looking west

Date: 12/5/2018 **Picture No.** 8 **Location:** Hangar 1

Comment: H1-MW-102 and 102D located north of former Hangar 1 building

Date: 12/5/2018 **Picture No.** 9 **Location:** Hangar 1

Comment: H1-MW-120 and 120D, located along western portion of East-West runway and within Hangar 1 RI study area

Date: 12/5/2018 **Picture No.** 10 **Location:** Hangar 1

Comment: H1-MW-126 and 126D located along Runway 17-35 and northeast of Old Hangar 2 area

Date: 12/5/2018 **Picture No.** 11 **Location:** Hangar 1

Comment: Ice rink located south of Bill Delahunt Parkway and Shea Memorial Dr.

Date: 12/5/2018 **Picture No.** 12 **Location:** Hangar 1

Comment: NE portion of Hangar 1 area and intersections of Shea Memorial Dr. and Bill Delahunt Parkway

Date: 12/5/2018 Picture No. 13 Location: Hangar 1

Comment: Old Hangar 2 area, looking southwest

Date: 12/5/2018 Picture No. 14 Location: Hangar 1

Comment: TACAN Outfall, looking southwest

Date: 12/5/2018 Picture No. 15 Location: Hangar 1

Comment: View of East-West runway and area south of Hangar 1 apron

Date: 12/5/2018 Picture No. 16 Location: Hangar 1

Comment: View of former location of Hangar 1, looking southwest from intersection of Shea Memorial Dr. and Cummings Rd.

Date: 12/5/2018 **Picture No.** 17 **Location:** Hangar 1

Comment: View of ice rink and intersection of Shea Memorial Dr. and Bill Delahunt and Patriot Parkway

Date: 12/5/2018 **Picture No.** 18 **Location:** Hangar 1

Comment: View of Patriot Parkway from intersection, looking west

Date: 12/5/2018 **Picture No.** 19 **Location:** Hangar 1

Comment: View of south central portion of Hangar 1 RI study area, looking northeast

Date: 12/5/2018 **Picture No.** 20 **Location:** Hangar 1

Comment: View of southern portion of AOC Hangar 1, south of Patriot Parkway, looking west

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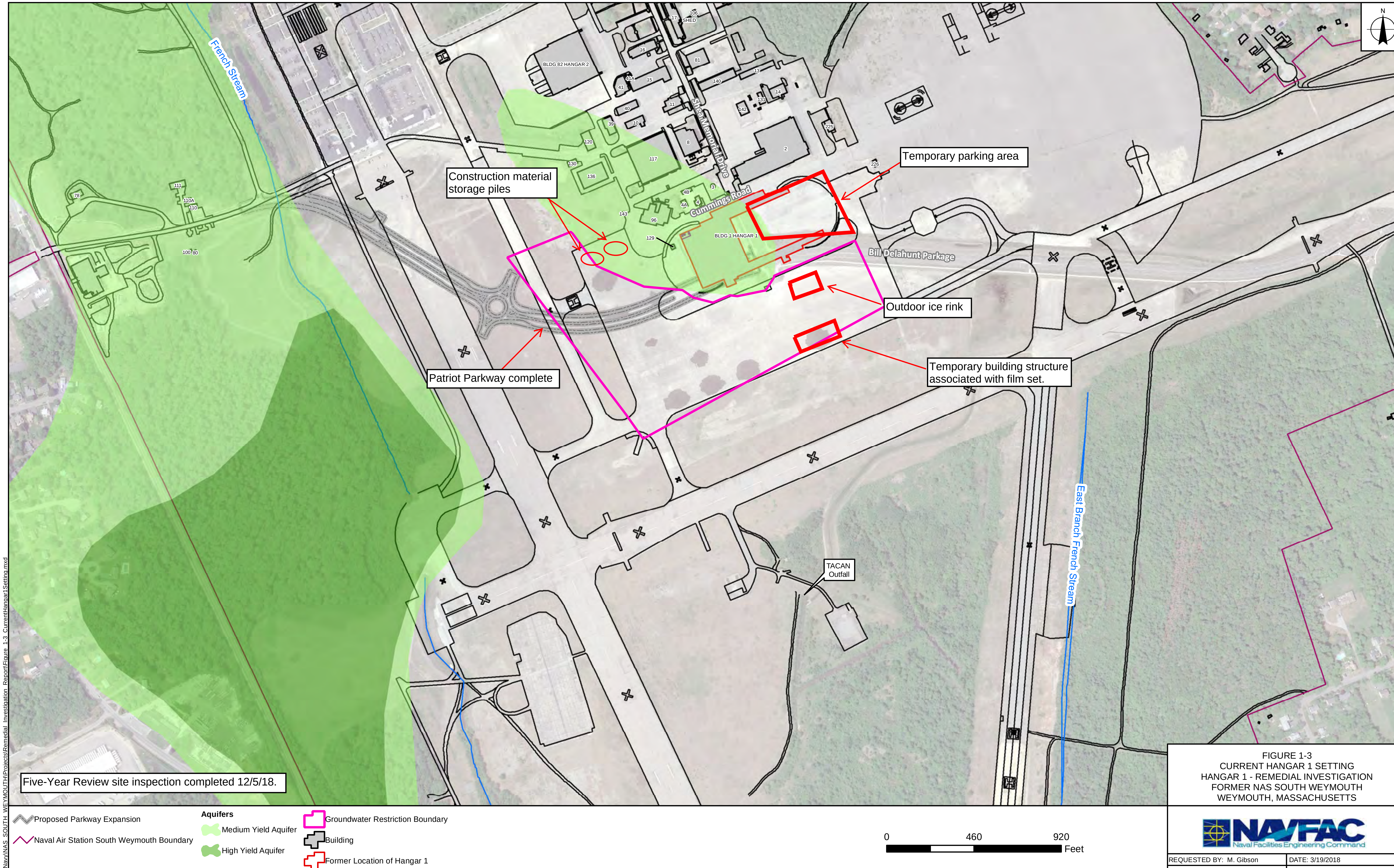

FIGURE 1-3
CURRENT HANGAR 1 SETTING
HANGAR 1 - REMEDIAL INVESTIGATION
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

NAVFAC Naval Facilities Engineering Command

REQUESTED BY: M. Gibson	DATE: 3/19/2018
DRAWN BY: kburnum	TASK ORDER NUMBER: WE27

Service Layer Credits: Google Earth Pro

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APPENDIX J
INDUSTRIAL OPERATIONS AREA

J-1 SITE CHRONOLOGY
J-2 BACKGROUND
J-3 SITE INSPECTION REPORT AND PHOTOGRAPHS
J-4 ARAR TABLES

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APPENDIX J-1
SITE CHRONOLOGY

APPENDIX J-1

TABLE J-1: CHRONOLOGY OF SITE EVENTS, INDUSTRIAL OPERATIONS AREA

IOA Event	Date
Establishment of IOA Site Boundary	2009
IOA Technical Memorandum	May 2010
IOA Field Investigation	2011
IOA Project Report and HHRA	April 2013
Focused FS	April 2015
ROD	September 2015
Pre-Excavation Soil Sampling	December 2015 and March 2016
Final PDI/RDWP	August 2016
RA Start of Soil Excavation	October 2016
Draft ESD	August 2018
First Annual Basewide PFOS and PFOA LUC Inspection - 2018	December 2018
Completion of RA Soil Excavation	In process

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APPENDIX J-2
BACKGROUND

APPENDIX J-2
SITE BACKGROUND
INDUSTRIAL OPERATIONS AREA

Physical Characteristics

The IOA covers approximately 20 acres and is located in the central part of NAS South Weymouth (Figure 10-1). The IOA contains 13 inactive buildings including: the former power plant (Building 8), the former AIMD facility (Building 117), and supply warehouse (Building 2). The IOA also contains the location of a former water tower, remnants of a railroad spur, and a former hazardous waste accumulation area. The IOA is generally flat and mostly covered by asphalt or buildings; there are a few small grassy areas located around buildings and sidewalks. Shea Memorial Drive bisects the approximate center of the IOA. The current wetland delineation for former NAS South Weymouth does not identify wetlands within the IOA site.

The geology at the Site consists of three units; overburden generally consisting of fine to medium sand and gravel; glacial till; and underlying bedrock. Bedrock beneath the Site is Dedham Granite and observed approximately 30 feet bgs. The overall groundwater flow direction at the Site is generally toward the west-southwest and is relatively flat with the groundwater table ranging from 8 to 10 feet bgs.

Surface water runoff at the IOA follows the site topography and discharges into the Basewide stormwater drainage system, flowing into the TACAN outfall drainage system and ultimately into French Stream. There are no surface water bodies at or near the IOA.

Land and Resource Use

The IOA Site is currently vacant and remains part of the former NAS South Weymouth property owned by the Navy. The Navy plans to transfer the property as part of the redevelopment of the Base once the environmental cleanup is implemented and the property is deemed suitable for transfer. The Zoning and Land Use By-Laws have established four zoning districts within the IOA; Main Street Overlay District; Village Center District (VCD); Mixed-Use Village District (MUVD); and Recreation District (RecD) (SSTTDC, 2005). The VCD and MUVD allow for mixed use areas including residential development, office, commercial, and institutional uses. The RecD allows for futures uses such as indoor and outdoor commercial recreation, athletic fields, health and fitness clubs, some institutional uses under special permit only, and passive recreation (i.e. walking trails).

A medium-yield potentially productive aquifer is mapped in the western portion of the IOA. However, in April 2017 the Southfield Redevelopment Authority lifted the APD designation from the aquifer that lies beneath a portion of the IOA. Additionally, on November 1, 2017, the MassDEP issued a Second Amendment to the GUVD that concluded the aquifer has low use and value (MassDEP, 2017); therefore, under EPA groundwater guidance standards, the beneficial reuse of the IOA aquifer is no longer identified as drinking water.

History of Contamination

The IOA was an area where predominantly industrial operations occurred, including, but not limited to: storage of industrial materials, equipment and coal for the power plant, movement of materials by truck and railroad spur, and power plant operations.

Initial Response

In 2009, the U.S. EPA and MassDEP raised concerns about the potential presence of low-level dispersed contamination in soil across the IOA due to historical site use for industrial operations. The IOA boundary was established at that time and was defined as the outer perimeter of the area where industrial operations took place, based on information from aerial photographs and previous investigations. The 2009 establishment of the IOA boundary also incorporated the four active environmental sites, and the decision was made to consolidate future investigation activities at those sites with investigation of the potential low-level dispersed contamination in soil across the IOA.

In 2011, the Navy conducted an additional field investigation within the IOA. The main objective of the field investigation was to evaluate the potential presence or lack of contaminants associated with operations conducted in the IOA. The data gaps included incomplete target analyte lists for assessing potential low-level dispersed contamination in surface soil and assessing subsurface soil data at the former floor drain locations (RIA 33) and at the former UST area (RIA 82).

As discussed in the 2013 IOA Project Report, which summarized the 2011 sampling activities, the IOA data were compared to EPA's residential EPA Regional Screening Values and Base background values (where appropriate) (Tetra Tech, 2013a). Several contaminants including PAHs, pesticides, PCBs, dioxin, and metals were present in surface soil above screening levels. Several contaminants including PAHs and metals were present in subsurface soil above screening levels. The 2013 IOA Project Report included a HHRA that identified several COCs present at concentrations above risk-based clean-up goals in surface soil and delineated the areal extent requiring remedial actions to address the surface soil contaminants. Among the areas identified within the IOA for remedial action are the open AOC 14 and AOC 83. No remedial actions were deemed necessary at RIA 33 and RIA 82.

APPENDIX J-3
SITE INSPECTION REPORT AND PHOTOGRAPHS

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Five-Year Review Site Inspection Checklist

I. SITE INFORMATION	
Site name: AOC Industrial Operations Area	**Date of inspection: 12/4/18**
Location and Region: Former NAS South Weymouth, Weymouth, MA	**EPA ID: MA2170022022**
Agency, office, or company leading the five-year review: Tetra Tech	**Weather/temperature: Sunny, 38°F**

Remedy Includes: (Check all that apply)

☐ Landfill cover/containment
☐ Access controls
X Institutional controls
☐ Groundwater pump and treatment
☐ Surface water collection and treatment
X Other__Soil PDI, Soil removal/excavation and off-site disposal. Post-excavation confirmation soil sampling.___
☐ Monitored natural attenuation
☐ Groundwater containment
☐ Vertical barrier walls

Attachments: ☐ Inspection team roster attached X 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.

See Report.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)				
1.	**O&M Documents**			
	☐ O&M manual	☐ Readily available	☐ Up to date	X N/A
	☐ As-built drawings	☐ Readily available	☐ Up to date	X N/A
	☐ Maintenance logs	☐ Readily available	☐ Up to date	X N/A
	Remarks ____________________			
2.	**Site-Specific Health and Safety Plan**	☐ Readily available	☐ Up to date	X N/A
	☐ Contingency plan/emergency response plan	☐ Readily available	☐ Up to date	X N/A
	Remarks ____________________			
3.	**O&M and OSHA Training Records**	☐ Readily available	☐ Up to date	X 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**	☐ Readily available	☐ Up to date	X N/A
	Remarks ____________________			
7.	**Groundwater Monitoring Records**	☐ Readily available	☐ Up to date	X 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 ☐ Contractor for Federal Facility
☐ Other____

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__________ (Date)	To__________ (Date)	__________________ (Total cost)	☐ Breakdown attached
From__________ (Date)	To__________ (Date)	__________________ (Total cost)	☐ Breakdown attached
From__________ (Date)	To__________ (Date)	__________________ (Total cost)	☐ Breakdown attached
From__________ (Date)	To__________ (Date)	__________________ (Total cost)	☐ Breakdown attached
From__________ (Date)	To__________ (Date)	__________________ (Total cost)	☐ Breakdown attached

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: A temporary construction chain link fence surrounds the soil removal area. A permanent fence is not a component of the remedy.

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A
Remarks: Signs are posted on the temporary construction fence. Signs read “Danger Construction Area – Keep Out.”

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes ☐ No X N/A
Site conditions imply ICs not being fully enforced ☐ Yes ☐ No X 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

2. **Adequacy** ☐ ICs are adequate ☐ ICs are inadequate X N/A
Remarks___ ICs for soil are not included in the remedy as all soil in exceedance of the cleanup goals will be removed once the RA is complete. PFAS in groundwater beneath IOA are included in the Basewide PFOS and PFOA LUCIP.

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__The IOA is centrally located within Union Point (former NAS South Weymouth). Redevelopment of the surrounding area is ongoing under the Southfield Redevelopment Authority and master developer.

VI. GENERAL SITE CONDITIONS

A. Roads X Applicable ☐ N/A

1. **Roads damaged** ☐ Location shown on site map X Roads adequate ☐ N/A
Remarks_

B. Other Site Conditions
Remarks Soil excavation is not complete. Soil excavation is in process and area surrounded by temporary construction fencing (metal chainlink fence) with "Danger Construction Area – Keep Out" signs posed. Numerous soil piles were observed onsite and in need of repair/maintenance at the time of the inspection. Soil piles were re-covered with high-density canvas and securing anchors the week of December 10, 2018. Bid walk with contractors to remove the soil piles scheduled for December 12, 2018 with bids due in January 2019 and soil piles to be removed staring in March 2019.______________________

VII. 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____

VIII. GROUNDWATER/SURFACE WATER REMEDIES ☐ Applicable X N/A	
A. Groundwater Extraction Wells, Pumps, and Pipelines ☐ Applicable X 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 X N/A
Remarks____

IX. 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.

X. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

The remedy (i.e. soil removal and off-site disposal) has been implemented but is not complete. Post-excavation soil sampling is still underway and has resulted in increased soil excavation volumes. An ESD is in the process of being finalized (March 2019) to update soil excavation volumes and update cleanup goals for total chromium and PAHs.

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.

N/A

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. See Report.
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. See Report.

Date: 12/4/2018 **Picture No.** 1 **Location:** IOA
Comment: Building 96 located within the IOA area

Date: 12/4/2018 **Picture No.** 2 **Location:** IOA
Comment: East mat ditch, looking east

Date: 12/4/2018 **Picture No.** 3 **Location:** IOA
Comment: East mat ditch, looking northeast

Date: 12/4/2018 **Picture No.** 4 **Location:** IOA
Comment: Construction fence along western perimeter of IOA excavation

Date: 12/4/2018 Picture No. 5 Location: IOA

Comment: Eastern portion of former Building 2 excavation area

Date: 12/4/2018 Picture No. 6 Location: IOA

Comment: IOA area west of Shea Memorial Dr., looking west towards area of former Building 4a

Date: 12/4/2018 Picture No. 7 Location: IOA

Comment: Southeast portion of IOA and Former Building 2 excavation area

Date: 12/4/2018 Picture No. 8 Location: IOA

Comment: Soil piles anchored with hay bales

Date: 12/4/2018 Picture No. 9 Location: IOA
Comment: Soil piles located south of Building 140

Date: 12/4/2018 Picture No. 10 Location: IOA
Comment: Soil piles south of Building 140, looking northeast

Date: 12/4/2018 Picture No. 11 Location: IOA
Comment: Soil piles, looking southeast from Shea Memorial Dr.

Date: 12/4/2018 Picture No. 12 Location: IOA
Comment: Soil piles, looking northwest from Cummings Rd.

Date: 12/4/2018 Picture No. 13 Location: IOA

Comment: Soil stockpiles partially covered, to be re-covered within next week

Date: 12/4/2018 Picture No. 14 Location: IOA

Comment: Southern portion of construction fence along Cummings Rd., looking west

Date: 12/4/2018 Picture No. 15 Location: IOA

Comment: View of Building 8 and 117, looking north

Date: 12/4/2018 Picture No. 16 Location: IOA

Comment: View of central portion of IOA excavation area, looking north

Date: 12/4/2018 Picture No. 17 Location: IOA

Comment: View of eastern portion of IOA excavation, looking northeast from Cummings Dr.

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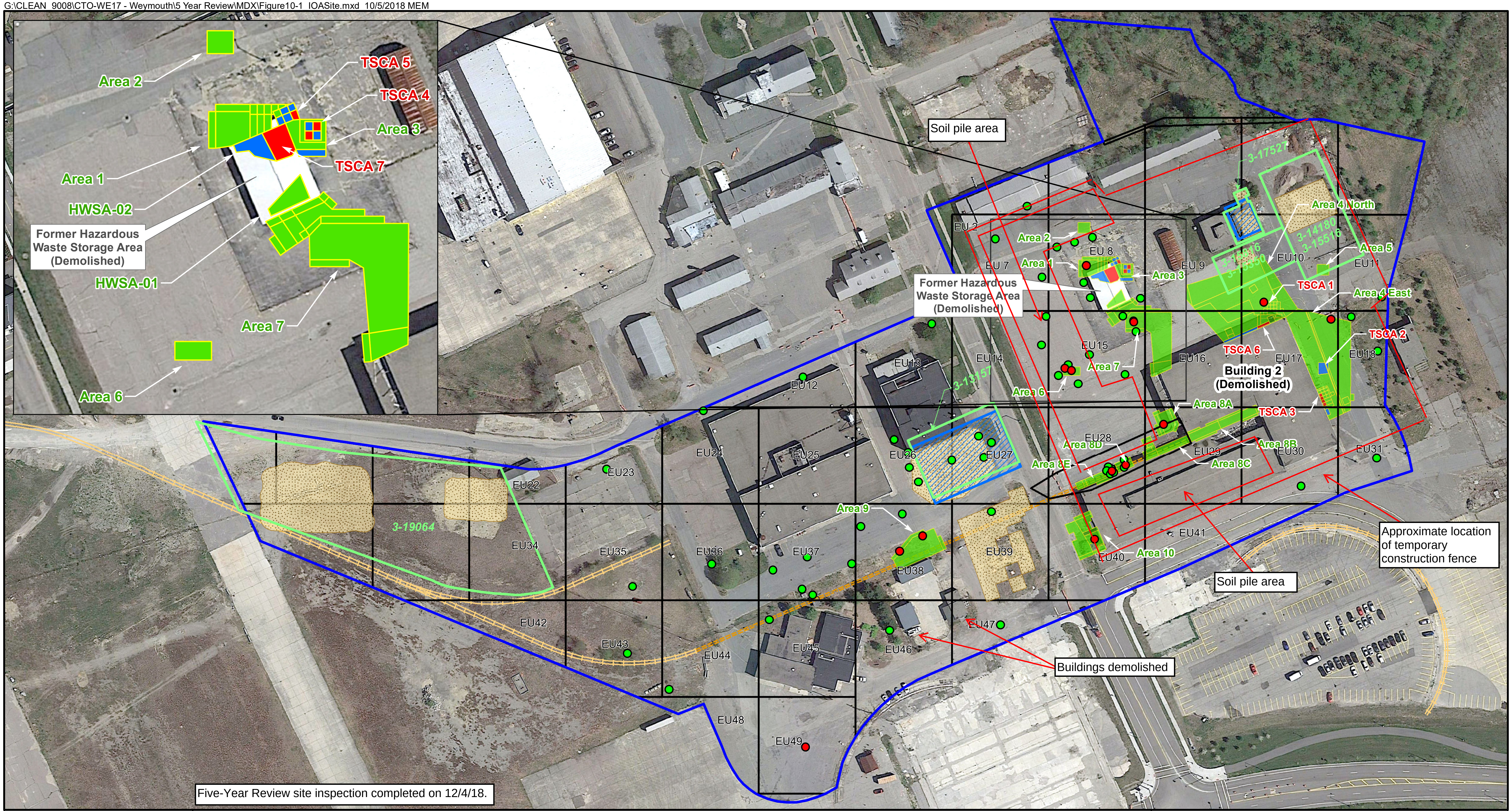
G:\CLEAN_9008\CTO-WE17 - Weymouth\5 Year Review\MDX\Figure10-1_IOASite.mxd 10/5/2018 MEM



Drawn:	MEM	10/5/2018	
Approved:	JC	10/5/2018	
Project #:	112G08005-WE17		

NAVFAC

Legend

- Historical IOA Surface Soil Sample (Exceedance)
- Existing Surface Soil Sample (No Exceedance)
- Industrial Area Boundary
- Railroad Spur (Portions Removed)
- Previously Excavated Area

Excavation Status (09/28/18):

- Clean
- Non-TSCA Exceedance (awaiting excavation)
- TSCA (PCB levels still present)
- Utilities Obstruction

- Activity And Use Limitation Area Boundary
- RTN Site Boundary

Note:
1. Historical information suggests SB06-001 and SB06-002 locations are uncertain.
2. Figure adapted from IOA Remedial Action Excavation Status (9/28/18) figure (Tetra Tech EC, 2018)

N

0 75 150

Scale in Feet

FIGURE 10-1
INDUSTRIAL OPERATIONS AREA
THIRD FIVE-YEAR REVIEW

FORMER NAVAL AIR STATION
SOUTH WEYMOUTH

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APPENDIX J-4
ARAR TABLES

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TABLE D-1
FEDERAL AND STATE CHEMICAL-SPECIFIC ARARs and TBCs* – ALTERNATIVE 2 – EXCAVATION AND OFF-SITE DISPOSAL
IOA FOCUSED FEASIBILITY STUDY
FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

Requirement	Citation	Status	Synopsis	Evaluation/Action To Be Taken
Federal				
Cancer Slope Factors (CSFs)	US EPA, Integrated Risk Information System	To be considered (TBC)	Cancer Slope Factors are used to compute the incremental cancer risk resulting from exposure to site contaminants and represent the most up-to-date information on Cancer Risk from USEPA's Carcinogen Assessment Group.	This alternative will meet the risk-based cleanup goals developed through the use of this guidance since removal of contaminated soil that poses potential carcinogenic risks will address long-term risk.
Reference Doses (RfDs)	US EPA, Integrated Risk Information System	TBC	Reference Doses are estimates of daily exposure levels unlikely to cause significant adverse non-carcinogenic health effects over a lifetime. Guidance used to compute human health hazard resulting from exposure to non-carcinogens in site media.	This alternative will meet the risk-based cleanup goals developed through the use of this guidance since removal of contaminated soil that poses potential non-carcinogenic risks will address long-term risk.
Guidelines for Carcinogen Risk Assessment	EPA/630/P-03/001F March 2005	TBC	Guidelines for assessing cancer risk.	This alternative will meet the risk-based cleanup goals developed through the use of this guidance since removal of contaminated soil that poses potential carcinogenic risks will address long-term risk.
Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens	EPA.630/R-03/003F March 2005	TBC	Guidance for assessing cancer risks in children.	This alternative will meet the risk-based cleanup goals developed through the use of this guidance since removal of contaminated soil that poses potential carcinogenic risks will address long-term risk.

TABLE D-2
FEDERAL AND STATE CHEMICAL-SPECIFIC ARARs and TBCs* – ALTERNATIVE 2 – EXCAVATION AND OFF-SITE DISPOSAL
IOA FOCUSED FEASIBILITY STUDY
FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

Requirement	Citation	Status	Synopsis	Evaluation/Action To Be Taken
State				
State Risk Thresholds	310 CMR 40.0993 (6)	TBC	When conducting a quantitative risk assessment (Method 3), cumulative risk from multiple contaminants of concern shall be compared to a cancer risk limit of one in one hundred thousand, and non-cancer hazard index of 1.	This alternative will meet the risk-based cleanup goals developed from the risk assessment that provided a comparison to a cancer risk limit of one in one hundred thousand, and non-cancer hazard index of 1.

TABLE D-3
FEDERAL AND STATE LOCATION-SPECIFIC ARARs – ALTERNATIVE 2 – EXCAVATION AND OFF-SITE DISPOSAL
IOA FOCUSED FEASIBILITY STUDY
FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

Requirement	Citation	Status	Synopsis	Evaluation/Action to be Taken
Federal				
There are no federal location-specific ARARs.				
State				
There are no state location-specific ARARs.				

TABLE D-4

FEDERAL AND STATE ACTION-SPECIFIC ARARs AND TBCs* – ALTERNATIVE 2 – EXCAVATION AND OFF-SITE DISPOSAL IOA FOCUSED FEASIBILITY STUDY
FORMER NAVAL AIR STATION SOUTH WEYMOUTH WEYMOUTH, MASSACHUSETTS

Federal

Requirement	Citation	Status	Synopsis	Evaluation/Action To Be Taken
Resource Conservation and Recovery Act (RCRA)	40 CFR Part 260 Hazardous Waste Management System Part 261 Identification and Listing of Hazardous Waste Part 262 Standards Applicable to Generators of Hazardous Waste Part 268 Land Disposal Requirements Part 264 Subpart L Waste Piles	Applicable	These federal standards apply to the identification, management, and disposal of hazardous waste. In Massachusetts, the authority to administer most of these standards has been delegated to MassDEP through its state hazardous waste management regulations, which are cited below.	Wastes generated as part of remedial activities that will be disposed of off-site will be characterized as hazardous or non-hazardous. If determined to be hazardous waste, they will be stored, transported, and disposed of in accordance with the substantive portions of the applicable state hazardous waste regulations. If any federal hazardous waste standards apply for which there is no state counterpart, such federal standards will apply directly.
Toxic Substances Control Act (TSCA)	40 Code of Federal Regulations (CFR) 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 be addressed in a manner to comply with TSCA. The ROD will contain a finding by the Director, Office of Site Remediation and Restoration, USEPA Region 1 that the cleanup levels selected meet these standards for protectiveness.

Requirement	Citation	Status	Synopsis	Evaluation/Action To Be Taken
Stormwater Requirements for Small Construction Sites	40 CFR 122 (National Pollution Discharge Elimination System [NPDES]), 40 CFR 123 (State Program Reqs.), 40 CFR 124 (Procedures for Decision-Making)	Applicable	Regulates the storm water discharges from construction activities including clearing, grading, and excavating that result in land disturbance of equal to or greater than one acre and less than five acres.	This regulation would be applied only if the area of disturbance is greater than one acre. The estimated area of disturbance is less than 1 acre, but that area could increase in the remedial design.
Guide to Management of Investigation-Derived Wastes	OSWER Publication 9345.3-03FS, January, 1992	To be Considered (TBC)	Management of investigation-derived waste must ensure protectiveness of human health and the environment and comply with regulatory requirements.	Investigation-derived waste will be managed in a way to protect human health and the environment and to comply with regulatory requirements.
Massachusetts Hazardous Waste Management Act	M.G.L. c. 21C	Applicable	State statute for the management of hazardous waste.	Any hazardous wastes generated as part of the remedial action will be managed in compliance with the substantive requirements of this statute.
Hazardous Waste Management Rules	310 CMR 30.001 – 30.099	Applicable	General requirements for implementation and interpretation of Hazardous Waste Management Rules.	Any hazardous wastes generated as part of the remedial action will be handled in compliance with the substantive requirements of these regulations.

State

Requirement	Citation	Status	Synopsis	Evaluation/Action To Be Taken
Hazardous Waste Management Rules – Identification and Listing of Hazardous Wastes	310 CMR 30.100 - 30.162	Applicable	Establishes requirements for determining whether wastes are hazardous. Defines listed and characteristic hazardous wastes.	These regulations would apply when determining whether or not wastes generated as part of this remedial action are classified as hazardous, either by being listed or by exhibiting a hazardous characteristic, such as contaminated soil.
Hazardous Waste Management Rules – Requirements for Generators	310 CMR 30.300 – 30.394	Applicable	Establishes requirements for generators of hazardous waste. The regulations apply to generators of sampling waste and also apply to the accumulation of waste prior to off-site disposal.	Any hazardous wastes generated as part of the remedial action will be handled in compliance with the substantive requirements of these regulations.
Hazardous Waste Management Rules – Management	310 CMR 30.501 – 30.561	Applicable	Establishes requirements for management of hazardous waste.	Any on-site management of hazardous waste will be in compliance with the substantive requirements of these regulations.
Hazardous Waste Management Rules – Waste Piles	310 CMR 30.640	Applicable	Establishes requirements for management of hazardous waste piles.	Any on-site hazardous wastes piles generated as part of the remedial action will be managed in compliance with the substantive requirements of these regulations.
Air Pollution Control Statute	M.G.L. c. 111, §§ 142A – 142D	Applicable	State statute for control of air pollutants, including dust, odor and noise.	Any on-site generation of dust, odor, noise or other air pollutants must be controlled to prevent a condition of air pollution.

Requirement	Citation	Status	Synopsis	Evaluation/Action To Be Taken
Air Pollution Control Regulations	310 CMR 7.06, 7.09 and 7.10	Applicable	These regulations requires that air pollutants (including dust, odor, noise and other visible emissions) must be controlled to prevent a condition of air pollution	Fugitive dust from remedial operations such as excavation and backfill will be managed using engineering controls such as water sprays. Otherwise all remedial activities will be managed to meet the standards for visible emissions, dust, odor and noise.
Massachusetts Endangered Species Act	M.G.L. c. 131A	Applicable	Massachusetts statute protecting endangered, threatened or species of special concern.	Remedial actions to comply with this statute and the regulations promulgated pursuant thereto. The statute and the regulations cited below are triggered by the presence of a Priority Habitat of State-listed Species and Priority Habitat of Rare Wildlife at the IOA.

TABLE D-4
FEDERAL AND STATE ACTION-SPECIFIC ARARs AND TBCs* – ALTERNATIVE 2 – EXCAVATION AND OFF-SITE DISPOSAL IOA FOCUSED FEASIBILITY STUDY
FORMER NAVAL AIR STATION SOUTH WEYMOUTH WEYMOUTH, MASSACHUSETTS

Requirement	Citation	Status	Synopsis	Evaluation/Action To Be Taken
Massachusetts Endangered Species Act Regulations	321 CMR 10.02 321 CMR 10.04(1) and (2) 321 CMR 10.16(1) 321 CMR 10.17 321 CMR 10.18 321 CMR 10.19 321 CMR 10.20 321 CMR 10.23 321 CMR 10.90	Applicable	Massachusetts regulations protecting endangered species, threatened species and species of special concern. 321 CMR 10.02 contains definitions, 321 CMR 10.04(1) and (2) contains the basic prohibition on "takes", 321 CMR 10.16(1) prohibits project segmentation, 321 CMR 10.17 governs information requests, 321 CMR 10.18 contains standards for determining whether a take occurred, 321 CMR 10.19 contains performance standards for the avoidance of a take, 321 CMR 10.20 describes what information is used to determine whether a take occurred, 321 CMR 10.23 describes performance standards for developing a conservation and management plan for a project that results in a take, and 321 CMR 10.90 is the Massachusetts list of species designated as endangered, threatened or special concern.	A determination must be made pursuant to the cited regulations as to whether the remedial actions will result in a "take." If a take does occur, a conservation and management plan must be developed and followed that, among other requirements, results in a long-term net benefit to the affected state-listed species.
Wetlands Protection Regulations	310 CMR 10.59	Applicable	Applies to, Estimated Habitat of State-Listed Rare Wetlands Wildlife that is present in the Industrial Operations Area	All on-site actions in the Estimated Habitat of State-Listed Rare Wetlands Wildlife must comply with these regulations.

Requirement	Citation	Status	Synopsis	Evaluation/Action To Be Taken
Wetlands Protection Regulations	310 CMR 10.54, 310 CMR 10.55, 310 CMR 10.56, 310 CMR 10.57, 310 CMR 10.58, and 310 CMR 10.60.	Applicable	Applies to Bank, Bordering Vegetated Wetlands, Land Under Water Bodies, Land Subject to Flooding, and Riverfront Area, and Wildlife Habitat Evaluations (if applicable).	MassGIS maps show the possible presence of Bank, Bordering Vegetated Wetlands, Land Under Water Bodies and Riverfront Area proximate to the northeast edge of, and possibly overlapping, the Industrial Operations Area. A wetlands delineation should be performed, and any if any such wetlands resource areas are present, all on-site actions must comply with the cited wetlands regulations.

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APPENDIX K
BASEWIDE PFAS

K-1 SITE CHRONOLOGY
K-2 BACKGROUND
K-3 GRANT OF RESTRICTION PLAN

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APPENDIX K-1
SITE CHRONOLOGY

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APPENDIX K-1

TABLE K-1: CHRONOLOGY OF SITE EVENTS – BASEWIDE PFAS

Basewide PFAS Event	Date
Basewide PFAS PA	December 2016
Basewide PFAS Investigation	November 2016 – February 2017
Final Basewide PFAS Sampling Report	July 2017
Final Basewide PFAS SI SAP	February 2018
Basewide PFOS and PFOA LUCIP	February 2018
Basewide PFAS SI	Spring 2018
Basewide PFOS and PFOA LUCIP Amendment (addition of WGL)	December 2018
First Annual Basewide PFOS and PFOA LUC Inspection – 2018	December 2018

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APPENDIX K-2
BACKGROUND

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APPENDIX K-2
SITE BACKGROUND
BASEWIDE PFAS

Physical Characteristics

The former NAS South Weymouth is located approximately 15 miles southeast of Boston, Massachusetts in the Towns of Abington, Rockland, and Weymouth. The Base is comprised of approximately 1,444 acres of land that was originally developed during World War II.

The topography of the Base and the surrounding area is relatively flat and is characterized by developed areas, swampy and forested wetlands, open fields, forested uplands, bedrock outcrops, and small drainage channels. Local relief ranges from approximately 120 feet to 180 feet above MSL. The greatest elevation changes are located near the perimeter of the Base, with the highest elevation in the northern portion of the Base, and the lowest elevation along the eastern portion of the Base. During construction of the airfield, runways, taxiways, and other related facilities, many former low-lying wetland areas were filled, other areas were re-graded, and surface water bodies were diverted through channels and culverts.

Major surface water bodies on the Base include the east and west branches of French Stream and Old Swamp River. French Stream flows south and is located approximately 0.5 miles west of the Site. Old Swamp River flows north through the eastern-most portion of the Base (Tetra Tech NUS, 2000).

Groundwater elevations across the Base generally follow the ground surface topography and the groundwater divide between Old Swamp River and French Stream. Groundwater from the northern, southern, and central portions of the Base generally flows southwest toward French Stream. Groundwater from the eastern portion of the Base flows east toward Old Swamp River. Groundwater depths at the Base range from approximately 1 to 12 feet bgs (Tetra Tech, NUS, 2000).

The surficial geology of the Base is characterized by glacial deposits. Till is unsorted, unstratified homogenized glacial debris ranging in particle size from clay, silt, sand, gravel and boulders. The Dedham Granite is an intrusive igneous rock that is mapped throughout the Base. Throughout most of the Base, bedrock is covered by overburden deposits; however, outcrops are present at a few locations. The depth to bedrock varies throughout the Base from approximately 15-20 feet below grade at the Building 81 site, to approximately 20-50 feet below grade at Building 82, and to more than 50 feet below grade near the Rubble Disposal Area and Old Swamp River.

Land and Resource Use

Since the Base was closed under the BRAC program, approximately 1,263 acres of land have been transferred by the Navy to the local redevelopment authority, Southfield Redevelopment Authority. The property developer is involved in redevelopment of several parcels with ongoing PFAS concerns. The proposed redevelopment includes the construction of commercial property, mixed-use buildings, recreational facilities and associated roadways and utility infrastructure.

History of Contamination

PFAS are identified as an emerging contaminant by the EPA and Navy and are 'pollutants or contaminants' as defined under CERCLA. AFFF was used at the Base during its operation and likely contained formulations of PFAS. AFFF was used in the fire suppression systems at Hanger 1 and in firefighting training activities on Base. Although AFFF is considered the primary source of PFAS at the Base, PFAS compounds are also used in herbicides, insecticides, cosmetics, greases, lubricants, and adhesives, and are now considered to be widespread in the environment. Additionally, landfills and areas where industrial operations have occurred, such as plating, may be a source of PFAS at the Base.

APPENDIX K-2
SITE BACKGROUND
BASEWIDE PFAS

Initial Response

In 2003, at the request of the MassDEP, the Navy conducted a literature review on the specific types of aqueous film forming foam (AFFF) used at the Base. Further research in 2009 indicated AFFF used at the Base may have contained an emerging contaminant, PFAS. Two sites (FFTA and Hanger 1) were initially investigated due to documented use and spills of AFFF; both sites had achieved regulatory closure prior to being re-opened to address concerns related to PFAS.

In 2010-2011, a study was conducted to assess the presence/absence of PFOA and PFOS at the FFTA and Hanger 1 sites. The study identified PFOA and PFOS in groundwater at both sites and above the PHAs levels. Assessment of PFAS have been on-going at both FFTA and Hanger 1 since detection in 2010.

In July 2016, the EPA requested the Navy complete a PFAS assessment for NAS South Weymouth. The EPA requested two separate tasks; 1) investigate the presence of PFAS at sites with executed RODs where existing well networks could be used to gather data and; 2) conduct a Basewide PFAS PA.

The Basewide PFAS PA was finalized in December 2016. The Basewide PFAS PA effort included reviewing available records concerning use, storage, and releases of PFAS-containing materials. Reviewed items included Fire Department response records and building historical use records. Specific items of interest included locations of AFFF storage, fire training areas, plating facilities, and photograph development facilities. The PA identified 13 areas to be considered for further PFAS investigation. An SI Work Plan will be developed to evaluate the areas identified under the PA requiring further PFAS investigation.

Concurrent with the Basewide PFAS PA activities, Navy conducted a PFAS investigation at 12 ROD sites across NAS South Weymouth (Figure 11-1). In addition to the 12 ROD sites, Navy also collected samples from select locations along the perimeter of NAS South Weymouth to obtain data representative of overall basewide conditions. Basewide PFAS environmental samples were collected between November 2016 and February 2017. PFAS concentrations were detected above the LHA at the following AOCs or sites: Building 81, Building 82, East Mat, Former Pistol Range (within the SRA site), Main Gate, RDA, SL, SRA, and WGL.

Based on the results of the PFAS PA and Basewide PFAS sampling, a Basewide PFAS SI sampling program is underway to determine the extent of PFOS and PFOA in groundwater for the following 14 sites:

- Building 81
- Building 82
- Rubble Disposal Area (RDA)
- Small Landfill
- Solvent Release Area (SRA)
- West Gate Landfill (WGL)
- AOC-8 (Wyoming Street Area)
- Building 14 (Vehicle Maintenance Facility)
- Building 15 (Transportation Building Fuel Tank Farm)
- Fuel Tank Farm

- Building 107 (Sewage Lift Station)
- Industrial Operations Area (IOA)
- Runway 17-35
- Building 33 Area

APPENDIX K-3
GRANT OF RESTRICTION PLAN

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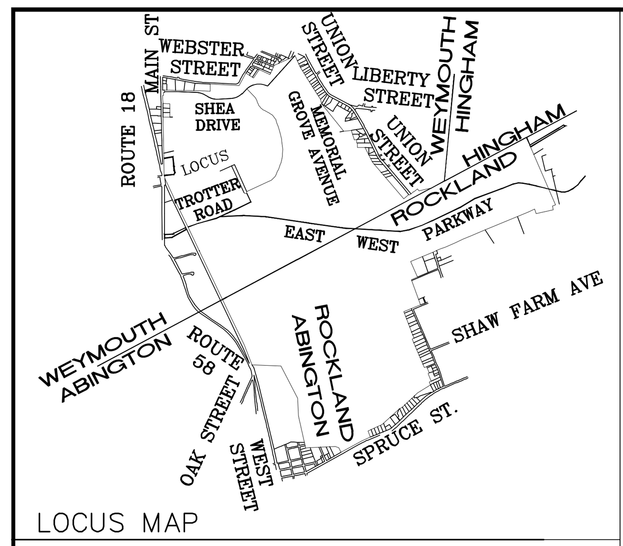

LOCUS MAP:
NOT TO SCALE

GRANT OF RESTRICTION AREA TABLE		
Parcel #	Area Feet	Area Acres
LSTAR AREA 1	56,335±	1.293±
LSTAR AREA 2	90,078±	2.068±
LSTAR AREA 3	41,022±	0.942±
LSTAR AREA 5	169±	0.004±
LSTAR AREA 6	2,077,056±	47.683±
LSTAR AREA 7	144,103±	3.308±
NPS AREA 1	5,484±	0.126±
NPS AREA 2	6,583±	0.151±
NPS AREA 3	5,597±	0.128±
NPS AREA 4	804±	0.018±
SRA AREA 1	1,258±	0.029±
SRA AREA 2	46±	0.001±
SRA AREA 3	57,543±	1.321±
SRA AREA 4	122,736±	2.818±
SRA AREA 5	116,572±	2.676±
SRA AREA 6	173,176±	3.976±
TROTTER ROAD	10,776±	0.247±
UP ENDV SPE 1	6,693±	0.154±
UP ENDV SPE 2	6,954±	0.160±
UP SPORTS AREA 1	26,261±	0.603±

GRANT OF RESTRICTION AREA TABLE		
Parcel #	Area Feet	Area Acres
UPC AREA 1	727,843±	16.709±
UPC AREA 2	948,217±	21.768±
UPC AREA 3	2,508,257±	57.582±
UPC AREA 4	355,145±	8.153±
UPC AREA 5	2,103,393±	48.287±
UPR AREA 1	9,543±	0.219±
UPR AREA 2	48,670±	1.117±
UPR AREA 3	312,562±	7.175±
UPR AREA 4	695,738±	15.972±
UPR AREA 5	638,621±	14.661±

RESERVED FOR REGISTRY USE

LEGEND

ABREVIATION	ENTITY
LSTAR	LSTAR SOUTHFIELD LLC
UP ENDV SPE	UP ENDV SPE LLC
NPS	NATIONAL PARK SERVICE
SRA	SOUTHFIELD REDEVELOPMENT AUTHORITY
UP SPORTS	UNION POINT SPORTS LLC
UPC	UNION POINT COMMERCIAL LLC
UPR	UNION POINT RESIDENTIAL LLC

THIS PLAN HAS BEEN PREPARED IN CONFORMITY WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS.

THE PROPERTY LINES SHOWN ON THIS PLAN ARE THE LINES DIVIDING EXISTING OWNERSHIPS, AND THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED, AND NO NEW LINES FOR DIVISION OF EXISTING OWNERSHIP OR FOR NEW WAYS ARE SHOWN.

PRELIMINARY

KEVIN HANLEY, PLS
MASSACHUSETTS REG. No. 31313

325 WOOD ROAD
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FAX (781)380-7757
SMC SURVEYING AND MAPPING CONSULTANTS

GRANT OF RESTRICTION PLAN OF LAND UNION POINT, ABINGTON, ROCKLAND & WEYMOUTH, MA

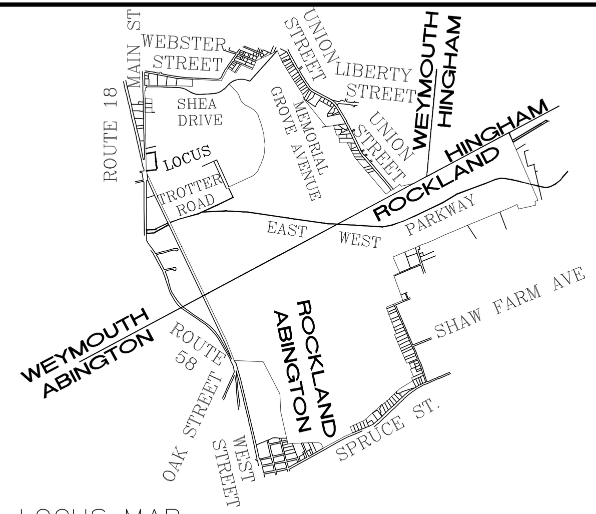
PREPARED FOR: LSTAR SOUTHFIELD, LLC

SCALE: 1"=500'

DATE: FEBRUARY 27, 2018

SMC DWG. NO. 201711726WS GOR.dwg

Date:	FEBRUARY 27, 2018
Job No.:	2017117.26
Drawn By:	EP
Checked By:	KH
Calc'd By:	EP
Drawing No.:	201711726WS GOR.dwg
Sheet:	1 OF 10



LOCUS MAP:
NOT TO SCALE

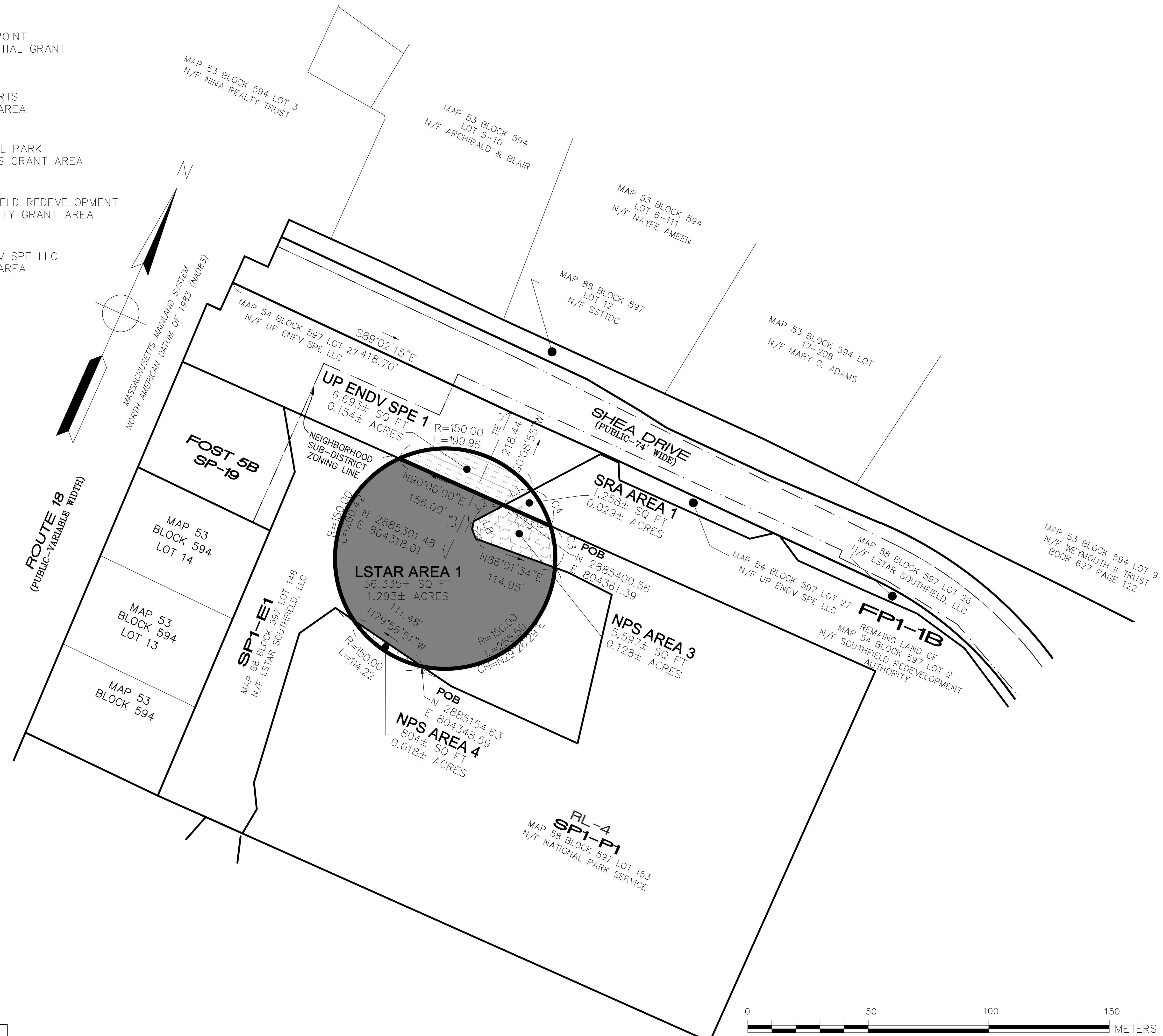
Line and Curve Table				
Line #	Length	Direction	Arc Length	Radius
L1	42.81	S38° 03' 51"W		
L2	46.74	S38° 03' 51"W		
L3	10.91	S13° 07' 46"E		
L8	13.93	S44° 41' 34"E		
L73	69.24	N90° 00' 00"E		
C3		N30° 20' 55"W	57.55	150.00
C4		N51° 48' 35"W	54.82	150.00

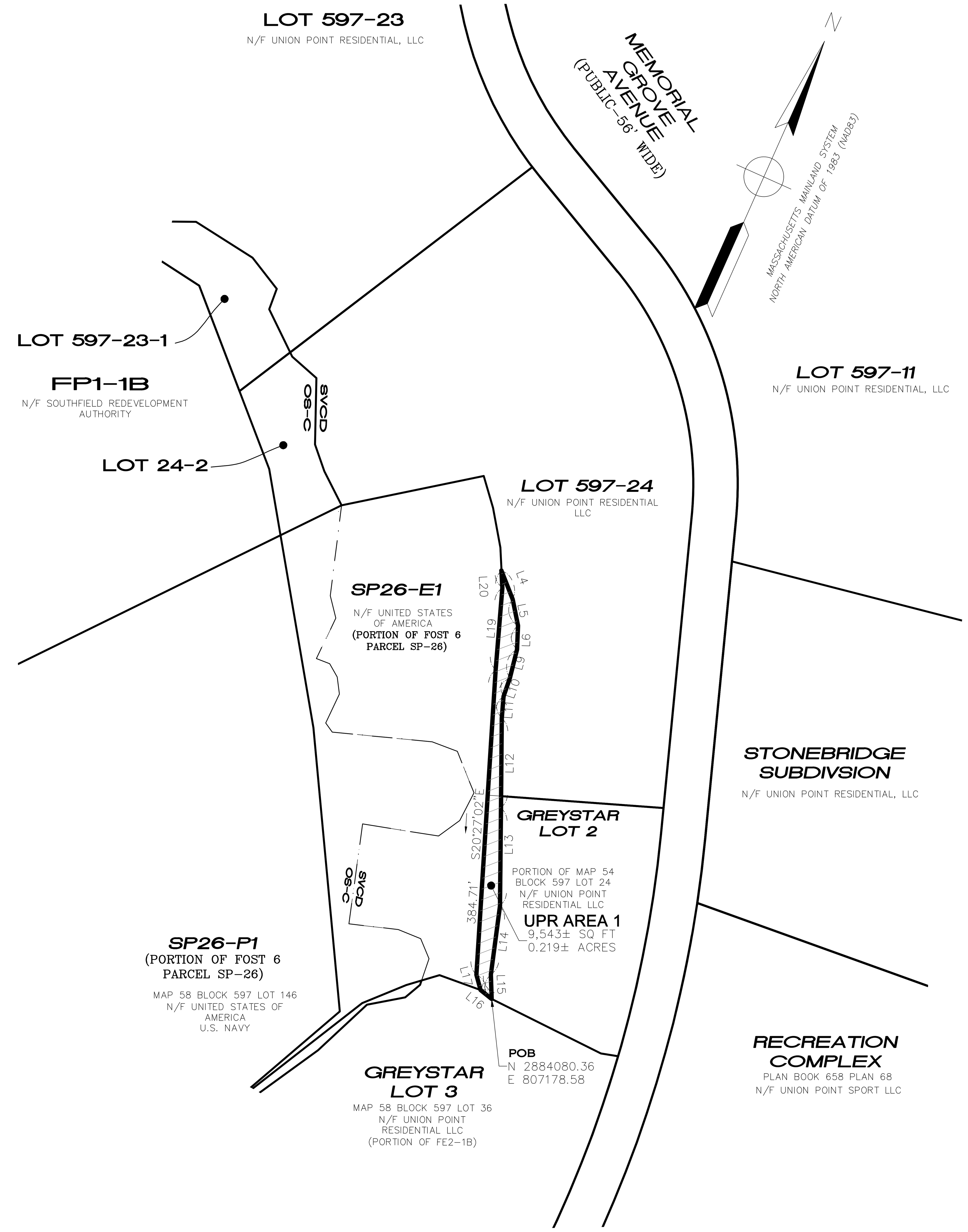
LEGEND

- N/F — NOW OR FORMERLY
- RIGHT-OF-WAY LINE
- PARCEL LINE
- PERIMETER LINE
- LSTAR GRANT AREA
- UUNION POINT COMMERCIAL GRANT AREA
- UNION POINT RESIDENTIAL GRANT AREA
- UP SPORTS GRANT AREA
- NATIONAL PARK SERVICES GRANT AREA
- SOUTHFIELD REDEVELOPMENT AUTHORITY GRANT AREA
- UP ENDV SPE LLC GRANT AREA

THIS SHEET DEPICTS THE FOLLOWING PARCELS:

UP ENDV SPE 1
SRA AREA 1
NPS AREA 3
NPS AREA 4
LSTAR AREA 1
UPR AREA 1





RESERVED FOR REGISTRY USE

Line Table		
Line #	Length	Direction
L4	38.83	S45° 21' 57"E
L5	33.86	S35° 44' 23"E
L6	30.18	S21° 44' 30"E
L9	37.15	S09° 58' 09"E
L10	24.40	S04° 48' 42"E
L11	27.73	S19° 25' 17"E
L12	113.08	S23° 35' 57"E
L13	123.54	S23° 27' 12"E
L14	87.43	S16° 24' 33"E
L15	30.64	S25° 58' 33"E
L16	17.94	N75° 21' 01"W
L17	19.93	N38° 57' 00"W
L19	104.20	N19° 26' 35"W
L20	21.82	N26° 50' 47"W

THIS PLAN HAS BEEN PREPARED IN CONFORMITY WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS.

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PRELIMINARY

KEVIN HANLEY, PLS
MASSACHUSETTS REG. No. 31313

GRAPHIC SCALE 1" = 100' (0, 50, 100, 150 METERS; 0, 100, 200, 300, 400 FEET)

Date:	FEBRUARY 27, 2018
Job No.:	2017117.26
Drawn By:	EP
Checked By:	KH
Calc'd By:	EP
Drawing No.:	201711726WS GOR.dwg
Sheet:	2 OF 10

325 WOOD ROAD
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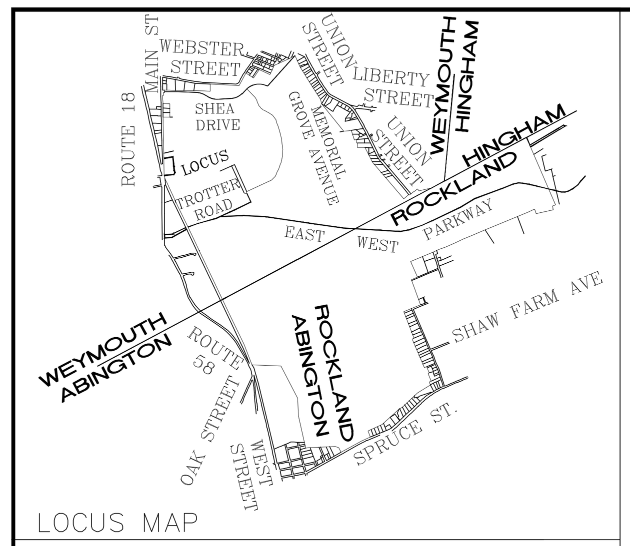
GRANT OF RESTRICTION PLAN OF LAND UNION POINT, ABINGTON, ROCKLAND & WEYMOUTH, MA

PREPARED FOR: LSTAR SOUTHFIELD, LLC

SCALE: 1"=100'
DATE: FEBRUARY 27, 2018

SMC DWG. NO. 201711726WS GOR.dwg



LOCUS MAP:
NOT TO SCALE

LEGEND

N/F	NOW OR FORMERLY
	RIGHT-OF-WAY LINE
	PARCEL LINE
	PERIMETER LINE
	LSTAR GRANT AREA
	UNION POINT COMMERCIAL GRANT AREA
	UNION POINT RESIDENTIAL GRANT AREA
	UP SPORTS GRANT AREA
	NATIONAL PARK SERVICES GRANT AREA
	SOUTHFIELD REDEVELOPMENT AUTHORITY GRANT AREA
	UP ENDV SPE LLC GRANT AREA

RESERVED FOR REGISTRY USE

Line and Curve Table

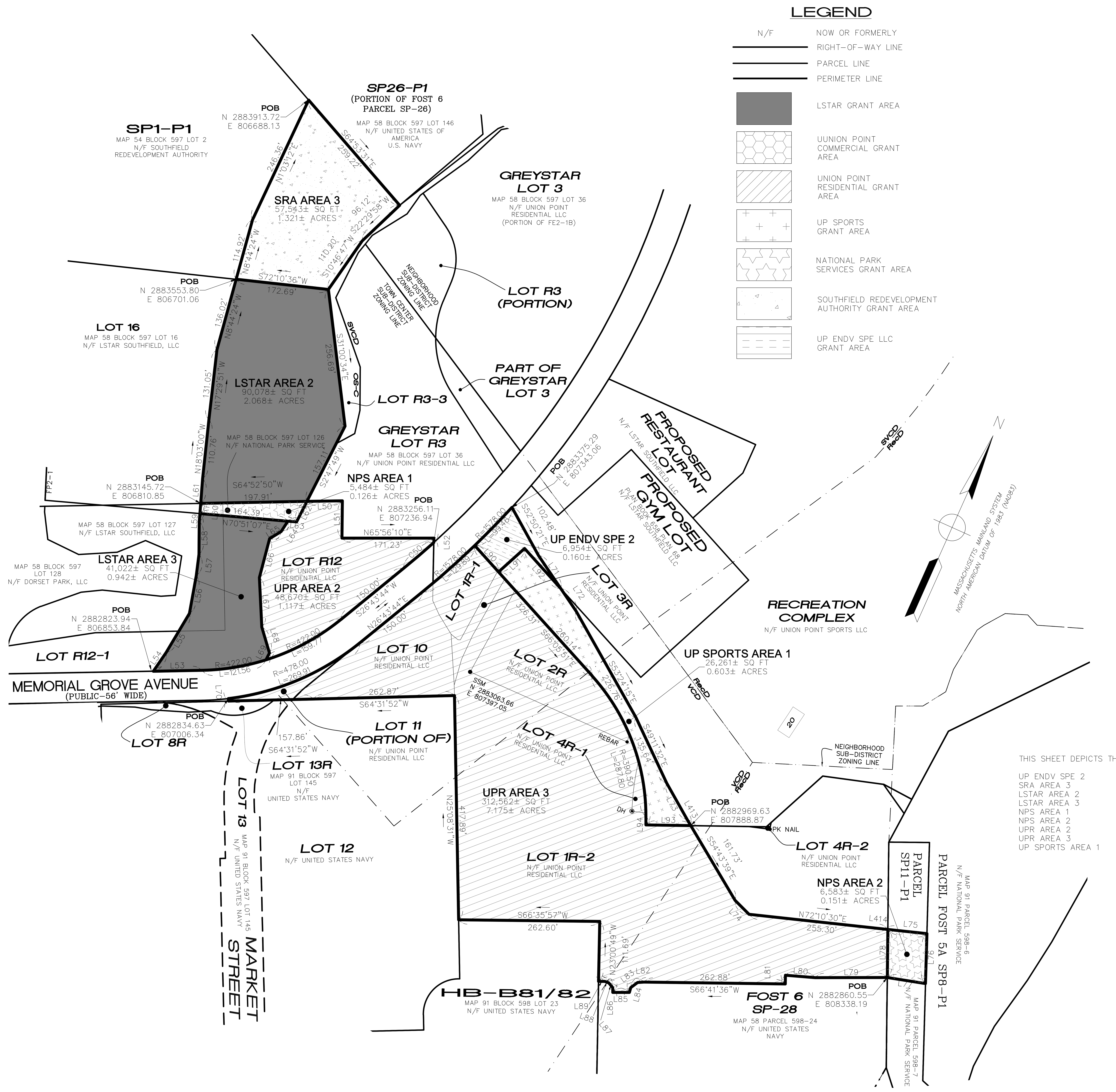
Line #	Length	Direction	Arc Length	Radius
L50	66.04	N64° 52' 50"E		
L51	69.60	S23° 19' 04"E		
L52	8.21	S22° 55' 54"E		
C50		S25° 19' 43"W	74.40	1522.00
L53	90.36	S64° 55' 34"W		
L54	42.16	N10° 30' 28"E		
L55	84.94	N06° 46' 26"E		
L56	71.67	N13° 48' 48"W		
L57	39.74	N16° 49' 16"W		
L58	61.01	N23° 42' 10"W		
L59	15.00	N19° 33' 30"W		
L60	19.19	N19° 33' 30"W		
L61	46.01	N19° 33' 30"W		
L64	23.01	S08° 32' 14"W		
L65	25.28	S34° 24' 04"W		
L66	74.89	S09° 18' 18"E		
L67	92.38	S26° 49' 44"E		
L68	50.36	S40° 43' 45"E		
L69	14.42	S02° 56' 16"W		
L62	42.89	N02° 47' 49"E		
L63	16.28	N70° 51' 07"E		

Line Table

Line #	Length	Direction
L70	4.57	N26° 45' 50"W
L71	74.25	S58° 10' 21"E
L72	50.84	S58° 10' 21"E
L73	78.02	S53° 23' 35"E
L74	36.79	S69° 08' 44"E
L75	73.21	N72° 04' 19"E
L76	92.95	S22° 27' 06"E
L77	72.06	S74° 54' 12"W
L78	89.51	S23° 25' 18"E
L79	134.22	S65° 47' 35"W
L80	55.58	S70° 38' 10"W
L81	16.26	S23° 03' 51"E
L82	12.16	S62° 11' 21"W
L83	15.90	S29° 25' 45"W
L84	9.44	S09° 15' 14"E
L85	31.09	S65° 56' 10"W
L86	8.78	N23° 53' 07"W
L87	11.76	N63° 32' 25"W
L88	7.67	S86° 43' 09"W
L89	11.67	S65° 58' 23"W

Line Table

Line #	Length	Direction
L90	66.17	S66° 05' 51"E
L91	65.50	S23° 54' 09"W
L92	100.71	N66° 05' 51"W
L93	83.51	N66° 46' 43"E
L94	15.37	S23° 52' 11"E
L413	12.86	S54° 43' 39"E
L414	4.50	N72° 04' 19"E



THIS SHEET DEPICTS THE FOLLOWING PARCELS:

UP ENDV SPE 2
SRA AREA 3
LSTAR AREA 2
LSTAR AREA 3
NPS AREA 1
NPS AREA 2
UPR AREA 2
UPR AREA 3
UP SPORTS AREA 1

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PRELIMINARY

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SMC SURVEYING AND MAPPING CONSULTANTS

GRANT OF RESTRICTION PLAN OF LAND UNION POINT, ABINGTON, ROCKLAND & WEYMOUTH, MA

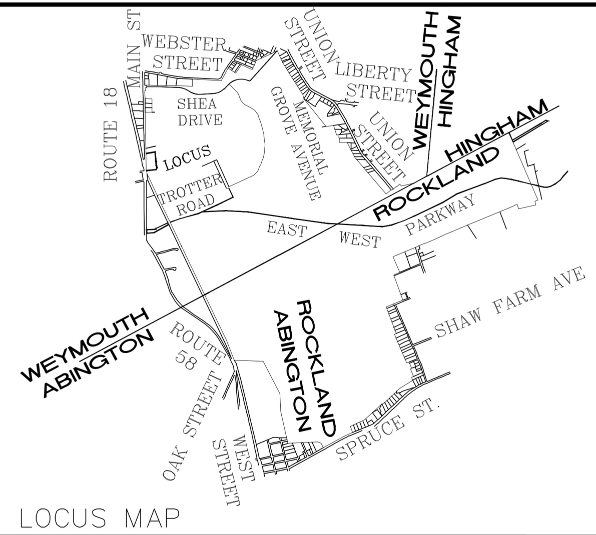
PREPARED FOR: LSTAR SOUTHFIELD, LLC

SCALE: 1"=100'
DATE: FEBRUARY 27, 2018

GRAPHIC SCALE 1" = 100' (0 50 100 150 METERS; 0 100 200 300 400 FEET)

Date:	FEBRUARY 27, 2018
Job No.:	2017117.26
Drawn By:	EP
Checked By:	KH
Calc'd By:	EP
Drawing No.:	201711726WS GOR.dwg
Sheet:	3 OF 10

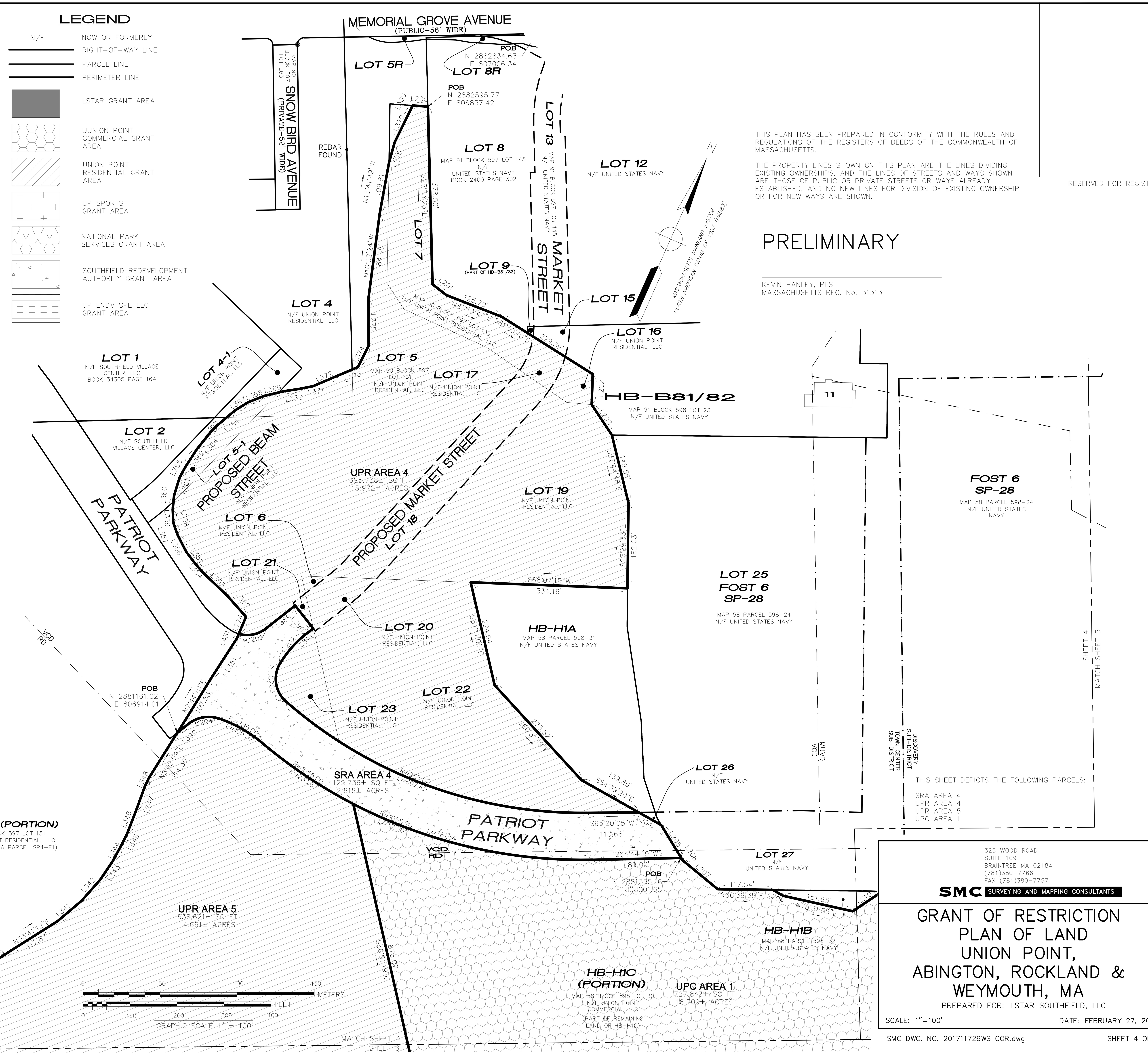
SMC DWG. NO. 201711726WS GOR.dwg



LOCUS MAP:
NOT TO SCALE

Line and Curve Table				
Line #	Length	Direction	Arc Length	Radius
L200	32.56	N69° 53' 38"E		
L201	37.69	S76° 04' 59"E		
L202	64.92	S22° 01' 23"E		
L203	77.73	S57° 38' 39"E		
L204	55.09	S84° 39' 20"E		
L205	81.78	S55° 13' 25"E		
L206	5.74	S55° 13' 25"E		
L207	96.99	S74° 39' 28"E		
L209	24.80	S83° 50' 48"E		
L345	27.33	N02° 16' 27"E		
L346	52.66	N02° 46' 15"W		
L347	54.90	N04° 13' 31"W		
L348	19.44	N01° 21' 05"E		
L351	99.93	N08° 40' 30"E		
L352	60.75	N65° 43' 45"W		
L353	72.23	N70° 32' 27"W		
L354	25.40	N64° 10' 37"W		
L355	30.23	N61° 12' 46"W		
L356	39.74	N51° 08' 46"W		
L357	23.42	N44° 12' 38"W		
L358	7.36	N35° 22' 31"W		
L359	25.24	N26° 00' 55"W		
L360	29.55	N18° 45' 57"W		
L361	40.77	N07° 00' 09"W		
L362	44.58	N08° 39' 09"E		
L364	46.78	N14° 39' 31"E		
L365	18.61	N20° 25' 37"E		
L366	50.65	N25° 48' 57"E		
L367	33.22	N33° 51' 55"E		
L368	36.40	N44° 17' 51"E		
L369	43.41	N52° 45' 35"E		
L370	33.28	N57° 04' 32"E		
L371	29.68	N54° 59' 16"E		

Line and Curve Table				
Line #	Length	Direction	Arc Length	Radius
L372	59.36	N42° 48' 13"E		
L373	44.65	N42° 48' 13"E		
L374	51.18	N02° 27' 41"E		
L375	98.59	N24° 28' 42"W		
L378	44.85	N08° 29' 26"W		
L379	78.28	N02° 07' 16"E		
L380	8.85	N00° 58' 12"E		
L333	59.75	N11° 41' 19"E		
L334	45.01	N20° 05' 42"E		
L335	53.26	N25° 25' 59"E		
L336	39.49	N28° 14' 13"E		
L337	60.75	N28° 05' 45"E		
L338	22.10	N28° 28' 48"E		
L339	61.68	N32° 37' 04"E		
L341	66.87	N25° 37' 15"E		
L342	60.07	N17° 15' 36"E		
L343	47.92	N09° 56' 34"E		
L344	37.75	N04° 36' 00"E		
L431	10.17	N01° 06' 47"W		
L774	39.30	N01° 06' 47"W		
L785	25.42	N04° 45' 39"E		
C203		N32° 55' 31"W	89.13	64.00
C202		N17° 23' 39"E	85.14	234.00
L391	18.00	N27° 49' 03"E		
L390	62.00	N62° 10' 57"W		
L389	79.48	S27° 49' 03"W		
C201		S55° 01' 11"W	60.77	64.00
L392	29.90	S27° 25' 52"W		
C204		S56° 10' 22"W	70.23	70.00
L210	73.45	N32° 11' 29"E		



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RESERVED FOR REGISTRY USE

PRELIMINARY

KEVIN HANLEY, PLS
MASSACHUSETTS REG. No. 31313

THIS SHEET DEPICTS THE FOLLOWING PARCELS:
SRA AREA 4
UPR AREA 4
UPR AREA 5
UPC AREA 1

Date:	FEBRUARY 27, 2018
Job No.:	2017117.26
Drawn By:	EP
Checked By:	KH
Calc'd By:	EP
Drawing No.:	201711726WS GOR.dwg
Sheet:	4 OF 10

325 WOOD ROAD
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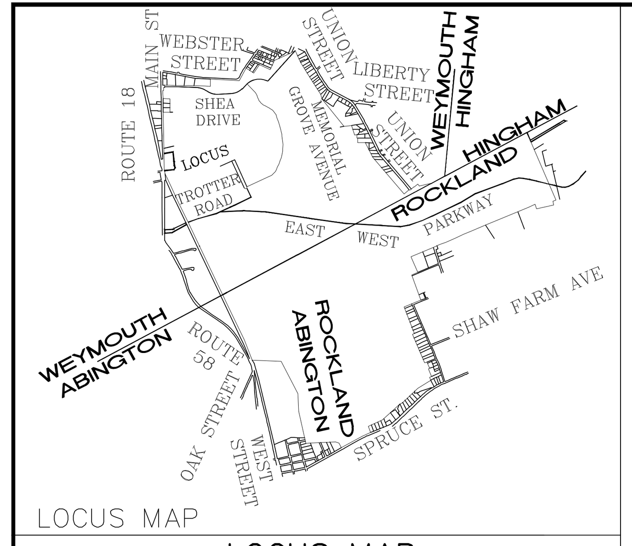
PREPARED FOR: LSTAR SOUTHFIELD, LLC

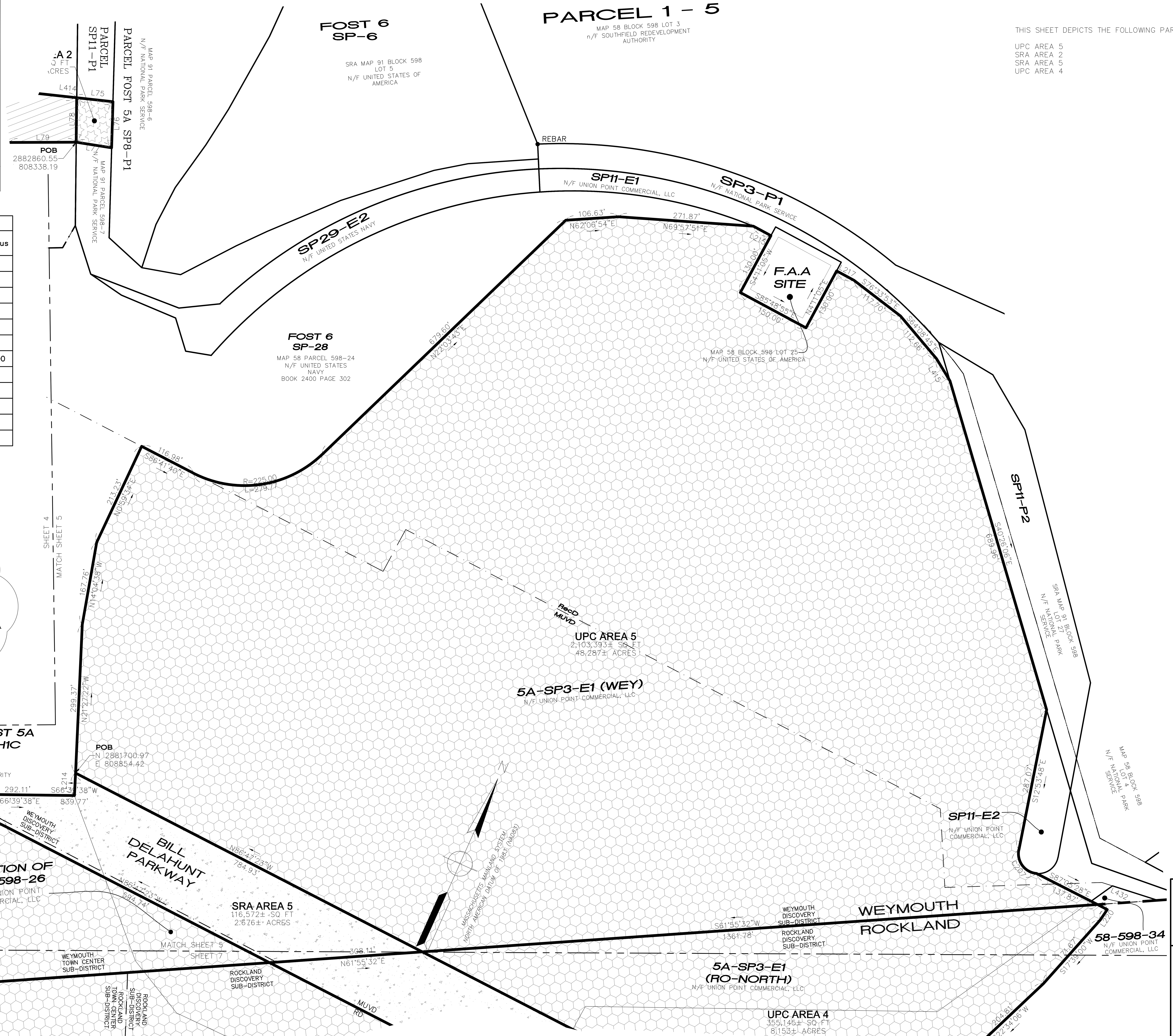
SCALE: 1"=100' DATE: FEBRUARY 27, 2018

SMC DWG. NO. 201711726WS GOR.dwg



LOCUS MAP:
NOT TO SCALE

Line and Curve Table					
Line #	Length	Direction	Arc Length	Radius
L214	45.17	N21° 27' 22"W		
L215	40.00	S85° 48' 55"E		
L217	40.00	S85° 48' 55"E		
L220	25.48	S10° 19' 54"W		
L222	58.38	S17° 35' 05"W		
L415	51.88	S55° 18' 45"E		
C207		S60° 32' 19"E	66.52	40.00
L210	73.45	N32° 11' 29"E		
L211	3.24	N32° 11' 29"E		
L212	38.37	N64° 57' 22"E		
L213	0.69	N25° 02' 38"W		
L412	35.66	S66° 39' 38"W		



THIS SHEET DEPICTS THE FOLLOWING PARCELS:

UPC AREA 5
SRA AREA 2
SRA AREA 5
UPC AREA 4

RESERVED FOR REGISTRY USE

LEGEND

- N/F — NOW OR FORMERLY
- RIGHT-OF-WAY LINE
- PARCEL LINE
- PERIMETER LINE
- LSTAR GRANT AREA
- UUNION POINT COMMERCIAL GRANT AREA
- UNION POINT RESIDENTIAL GRANT AREA
- UP SPORTS GRANT AREA
- NATIONAL PARK SERVICES GRANT AREA
- SOUTHFIELD REDEVELOPMENT AUTHORITY GRANT AREA
- UP ENDV SPE LLC GRANT AREA

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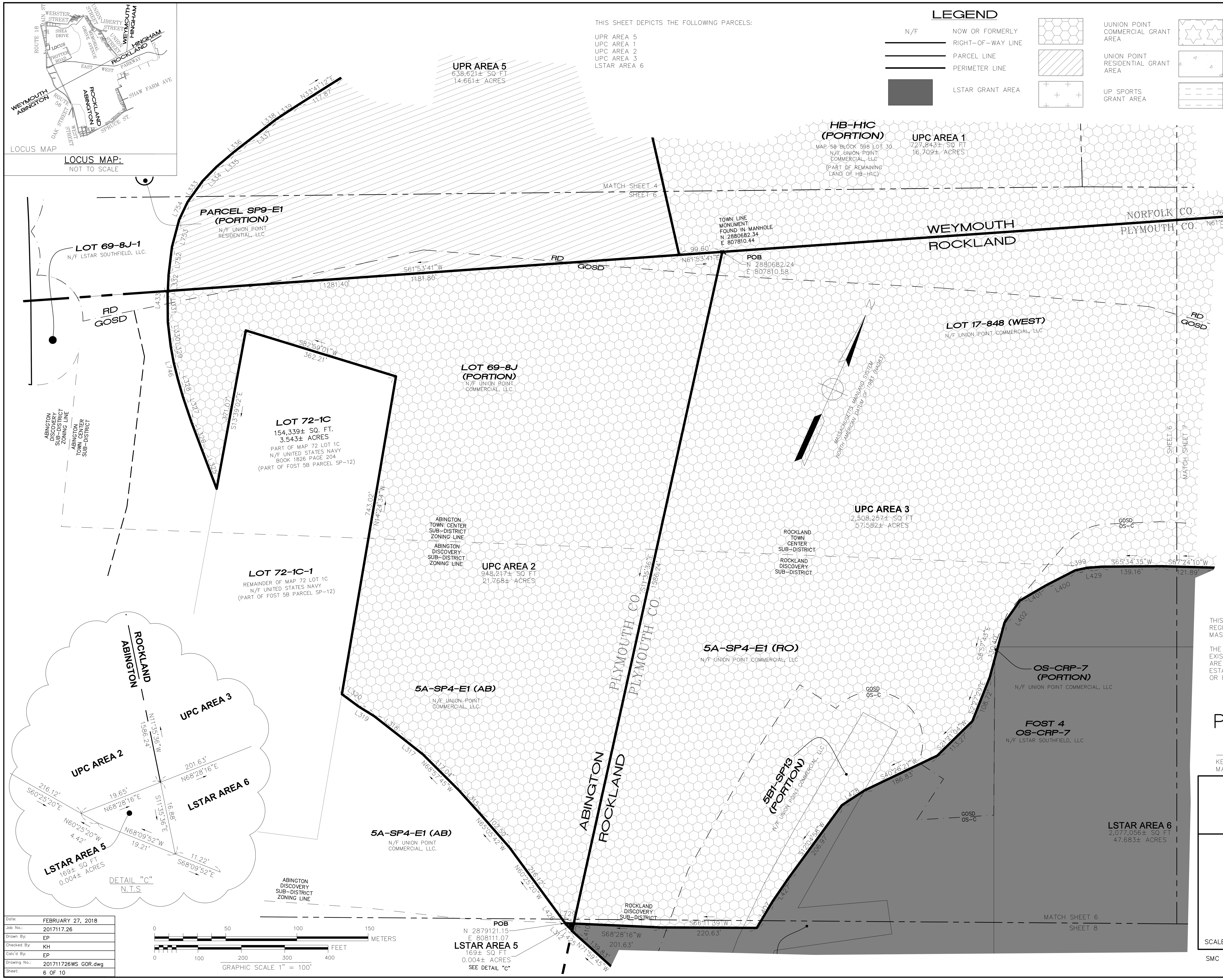
PREPARED FOR: LSTAR SOUTHFIELD, LLC

SCALE: 1"=100'
DATE: FEBRUARY 27, 2018

0 50 100 150 METERS
0 100 200 300 400 FEET
GRAPHIC SCALE 1" = 100'

Date:	FEBRUARY 27, 2018
Job No.:	2017117.26
Drawn By:	EP
Checked By:	KH
Calc'd By:	EP
Drawing No.:	201711726WS GOR.dwg
Sheet:	5 OF 10

SMC DWG. NO. 201711726WS GOR.dwg



Line Table		
Line #	Length	Direction
L312	19.21	N68° 09' 52"W
L315	73.64	N66° 10' 43"W
L317	54.63	N75° 50' 21"W
L318	88.71	N76° 01' 55"W
L319	42.67	N82° 18' 39"W
L320	47.54	N77° 33' 47"W
L325	90.22	N44° 54' 36"W
L326	73.69	N44° 39' 23"W
L327	62.59	N42° 42' 31"W
L328	40.93	N40° 15' 48"W
L329	37.49	N34° 43' 35"W
L330	55.79	N30° 34' 45"W
L331	62.55	N24° 32' 54"W
L332	37.49	N21° 17' 56"W
L333	59.75	N11° 41' 19"E
L334	45.01	N20° 05' 42"E
L335	53.26	N25° 25' 59"E
L336	39.49	N28° 14' 13"E
L337	60.75	N28° 05' 45"E
L338	22.10	N28° 28' 48"E
L339	61.68	N32° 37' 04"E
L341	66.87	N25° 37' 15"E
L342	60.07	N17° 15' 36"E

Line Table		
Line #	Length	Direction
L343	47.92	N09° 56' 34"E
L344	37.75	N04° 36' 00"E
L345	27.33	N02° 16' 27"E
L346	52.66	N02° 46' 15"W
L347	54.90	N04° 13' 31"W
L348	19.44	N01° 21' 05"E
L351	99.93	N08° 40' 30"E
L399	25.93	S53° 50' 42"W
L400	76.60	S38° 37' 51"W
L401	68.71	S35° 45' 31"W
L402	62.36	S10° 47' 04"W
L407	70.72	S06° 46' 28"W
L410	16.88	S11° 35' 36"E
L425	11.22	N68° 09' 52"W
L426	4.42	N60° 25' 20"W
L427	66.41	S10° 29' 57"W
L428	61.96	S32° 36' 21"W
L429	35.11	S60° 48' 23"W
L729	19.65	N68° 28' 16"E
L746	41.51	N37° 41' 22"W
L752	64.73	N17° 19' 43"W
L753	64.60	N09° 03' 23"W
L754	45.42	N01° 08' 06"E

RESERVED FOR REGISTRY USE

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PREPARED FOR: LSTAR SOUTHFIELD, LLC

SCALE: 1"=100'
DATE: FEBRUARY 27, 2018

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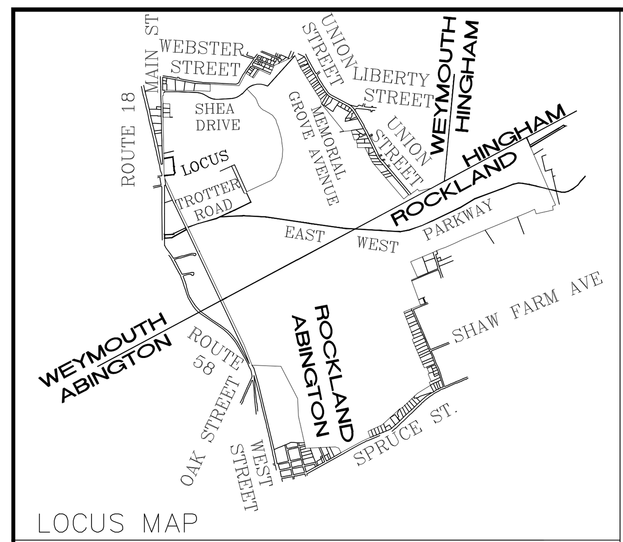
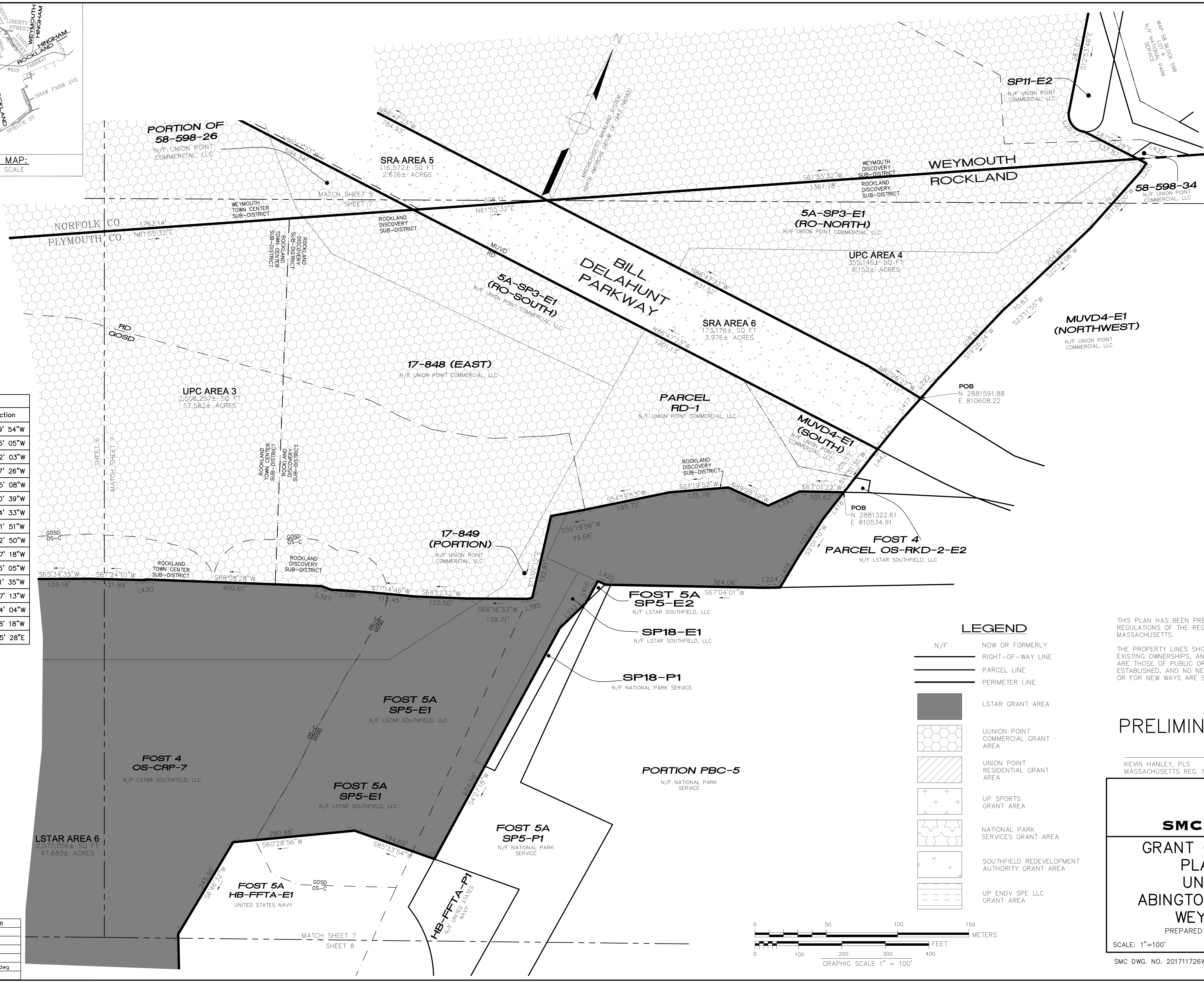
Drawing No.:	201711726WS GOR.dwg
Sheet:	6 OF 10



LOCUS MAP:
NOT TO SCALE



Line #	Length	Direction
L220	25.48	S10° 19' 54"W
L222	58.38	S17° 35' 05"W
L224	37.12	S64° 52' 03"W
L225	87.07	S15° 07' 26"W
L232	82.54	S22° 05' 08"W
L393	79.59	S41° 40' 39"W
L395	10.22	S51° 44' 33"W
L396	79.81	S69° 31' 51"W
L397	22.93	S86° 32' 50"W
L410	57.65	S04° 27' 18"W
L417	66.18	S17° 35' 05"W
L418	77.86	S13° 51' 35"W
L419	82.07	S06° 47' 13"W
L420	19.98	N89° 44' 04"W
L430	12.62	S59° 18' 18"W
L432	22.17	S87° 05' 28"E

Line Table

RESERVED FOR REGISTRY USE

THIS SHEET DEPICTS THE FOLLOWING PARCELS:

SRA AREA 6
UPC AREA 3
UPC AREA 4
LSTAR AREA 6

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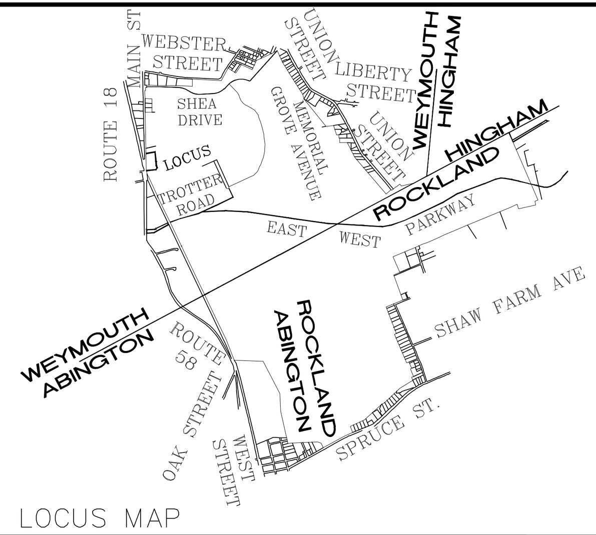
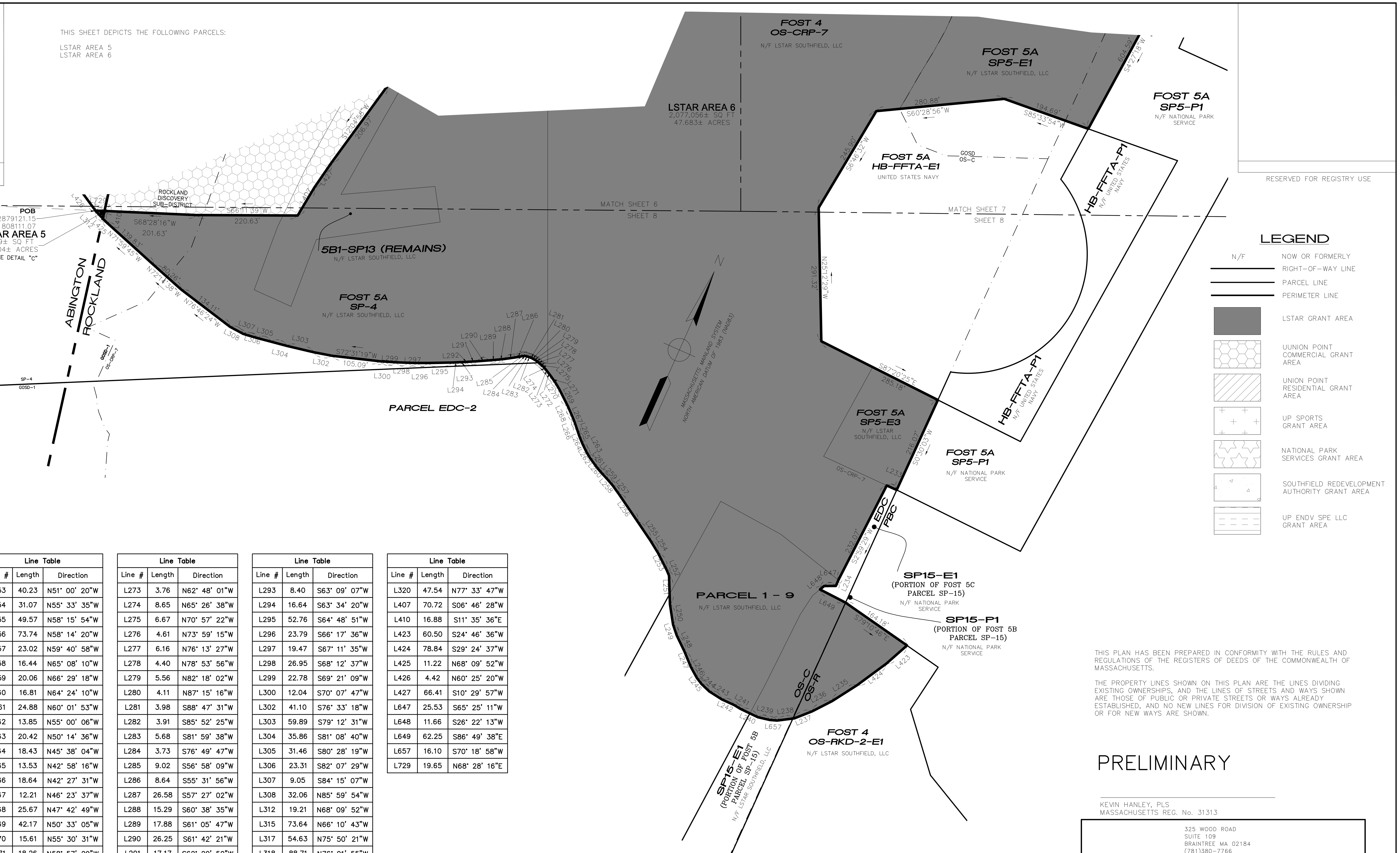
Sheet:	7 OF 10



LOCUS MAP:
NOT TO SCALE

THIS SHEET DEPICTS THE FOLLOWING PARCELS:
LSTAR AREA 5
LSTAR AREA 6



RESERVED FOR REGISTRY USE

Line Table		
Line #	Length	Direction
L233	24.02	N90° 00' 00"E
L234	13.90	S00° 00' 01"E
L235	64.63	S33° 37' 59"W
L236	49.26	S38° 41' 32"W
L237	41.85	S44° 24' 45"W
L238	37.64	S58° 48' 48"W
L239	26.69	S79° 09' 25"W
L240	42.26	N88° 46' 30"W
L241	16.45	N82° 40' 20"W
L242	29.53	N89° 30' 51"W
L243	32.61	N81° 34' 38"W
L244	23.01	N70° 16' 07"W
L245	16.44	N61° 48' 32"W
L246	28.05	N53° 01' 39"W
L247	36.06	N46° 16' 43"W
L248	39.27	N49° 49' 52"W
L249	25.04	N42° 26' 48"W
L250	44.79	N32° 50' 12"W
L251	62.46	N25° 54' 43"W
L252	15.18	N47° 13' 40"W

Line Table		
Line #	Length	Direction
L253	40.23	N51° 00' 20"W
L254	31.07	N55° 33' 35"W
L255	49.57	N58° 15' 54"W
L256	73.74	N58° 14' 20"W
L257	23.02	N59° 40' 58"W
L258	16.44	N65° 08' 10"W
L259	20.06	N66° 29' 18"W
L260	16.81	N64° 24' 10"W
L261	24.88	N60° 01' 53"W
L262	13.85	N55° 00' 06"W
L263	20.42	N50° 14' 36"W
L264	18.43	N45° 38' 04"W
L265	13.53	N42° 58' 16"W
L266	18.64	N42° 27' 31"W
L267	12.21	N46° 23' 37"W
L268	25.67	N47° 42' 49"W
L269	42.17	N50° 33' 05"W
L270	15.61	N55° 30' 31"W
L271	18.26	N58° 57' 29"W
L272	13.38	N60° 46' 32"W

Line Table		
Line #	Length	Direction
L273	3.76	N62° 48' 01"W
L274	8.65	N65° 26' 38"W
L275	6.67	N70° 57' 22"W
L276	4.61	N73° 59' 15"W
L277	6.16	N76° 13' 27"W
L278	4.40	N78° 53' 56"W
L279	5.56	N82° 18' 02"W
L280	4.11	N87° 15' 16"W
L281	3.98	S88° 47' 31"W
L282	3.91	S85° 52' 25"W
L283	5.68	S81° 59' 38"W
L284	3.73	S76° 49' 47"W
L285	9.02	S56° 58' 09"W
L286	8.64	S55° 31' 56"W
L287	26.58	S57° 27' 02"W
L288	15.29	S60° 38' 35"W
L289	17.88	S61° 05' 47"W
L290	26.25	S61° 42' 21"W
L291	17.17	S62° 20' 50"W
L292	12.72	S62° 48' 44"W

Line Table		
Line #	Length	Direction
L293	8.40	S63° 09' 07"W
L294	16.64	S63° 34' 20"W
L295	52.76	S64° 48' 51"W
L296	23.79	S66° 17' 36"W
L297	19.47	S67° 11' 35"W
L298	26.95	S68° 12' 37"W
L299	22.78	S69° 21' 09"W
L300	12.04	S70° 07' 47"W
L302	41.10	S76° 33' 18"W
L303	59.89	S79° 12' 31"W
L304	35.86	S81° 08' 40"W
L305	31.46	S80° 28' 19"W
L306	23.31	S82° 07' 29"W
L307	9.05	S84° 15' 07"W
L308	32.06	N85° 59' 54"W
L312	19.21	N68° 09' 52"W
L315	73.64	N66° 10' 43"W
L317	54.63	N75° 50' 21"W
L318	88.71	N76° 01' 55"W
L319	42.67	N82° 18' 39"W

Line Table		
Line #	Length	Direction
L320	47.54	N77° 33' 47"W
L407	70.72	S06° 46' 28"W
L410	16.88	S11° 35' 36"E
L423	60.50	S24° 46' 36"W
L424	78.84	S29° 24' 37"W
L425	11.22	N68° 09' 52"W
L426	4.42	N60° 25' 20"W
L427	66.41	S10° 29' 57"W
L647	25.53	S65° 25' 11"W
L648	11.66	S26° 22' 13"W
L649	62.25	S86° 49' 38"E
L657	16.10	S70° 18' 58"W
L729	19.65	N68° 28' 16"E

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GRANT OF RESTRICTION PLAN OF LAND UNION POINT, ABINGTON, ROCKLAND & WEYMOUTH, MA

PREPARED FOR: LSTAR SOUTHFIELD, LLC

SCALE: 1"=100' DATE: FEBRUARY 27, 2018

SMC DWG. NO. 201711726WS GOR.dwg

0 50 100 150 METERS
0 100 200 300 400 FEET
GRAPHIC SCALE 1" = 100'

Date:	FEBRUARY 27, 2018
Job No.:	2017117.26
Drawn By:	EP
Checked By:	KH
Calc'd By:	EP
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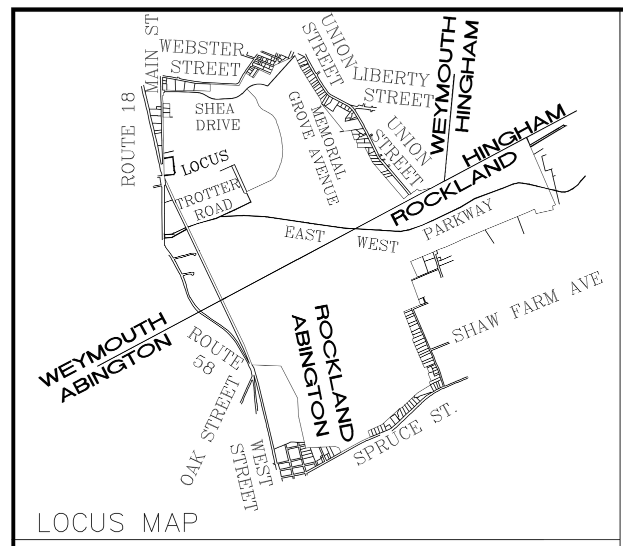
Sheet:	8 OF 10



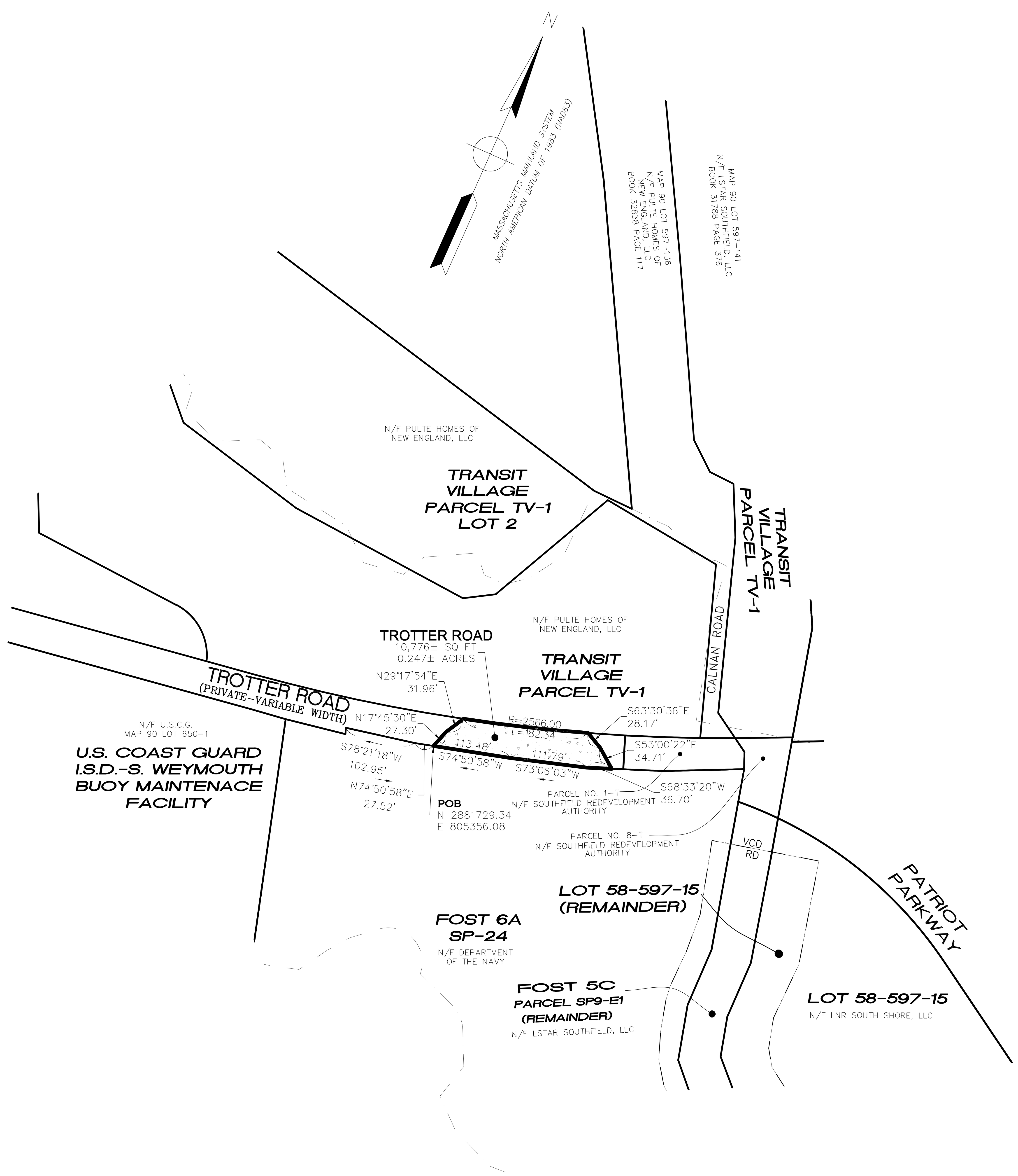
LOCUS MAP:
NOT TO SCALE

LEGEND

N/F	NOW OR FORMERLY
	RIGHT-OF-WAY LINE
	PARCEL LINE
	PERIMETER LINE
	LSTAR GRANT AREA
	UUNION POINT COMMERCIAL GRANT AREA
	UNION POINT RESIDENTIAL GRANT AREA
	UP SPORTS GRANT AREA
	NATIONAL PARK SERVICES GRANT AREA
	SOUTHFIELD REDEVELOPMENT AUTHORITY GRANT AREA
	UP ENDV SPE LLC GRANT AREA

THIS SHEET DEPICTS THE FOLLOWING PARCELS:

TROTTER ROAD



REFERENCES

1. DEFINITIVE SUBDIVISION PLAN SOUTHFIELD PHASE 1A
PREPARED BY: SURVEYING AND MAPPING CONSULTANTS, INC. AND KIMLEY-HORN AND ASSOCIATES, INC.
DATED: APRIL 6, 2007 SCALE: 1"=50' SHEETS P1.0 – P1.8
PLAN BOOK 569 PAGES 1-99

2. PROPERTY BOUNDARY SURVEY (F.O.S.T. No.1 & No.2)
NAVAL AIR STATION, SOUTH WEYMOUTH
PREPARED BY: SURVEYING AND MAPPING CONSULTANTS, INC. DATED: MAY 12, 2003 SCALE: 1"=200'
FILED AS No. 300 A of 6, PLAN BOOK 508

3. PROPERTY BOUNDARY SURVEY (F.O.S.T. No.2 SUB-PARCELS)
NAVAL AIR STATION, SOUTH WEYMOUTH
PREPARED BY: SURVEYING AND MAPPING CONSULTANTS, INC.
DATED: 3/28/2003 SCALE: 1"=200'

4. PLAN OF ACCEPTANCE SHEA DRIVE SHOWING RIGHT-OF-WAY AND EASEMENTS, NAVAL AIR STATION, SOUTH WEYMOUTH, MA
PREPARED BY: SURVEYING AND MAPPING CONSULTANTS, INC.
DATE: APRIL 8, 2010, SCALE: 1"=40'; PLAN BOOK 601, PAGES 60-68

5. PLAN OF ACCEPTANCE MEMORIAL GROVE AVENUE SHOWING RIGHT-OF-WAY AND EASEMENTS, NAVAL AIR STATION, SOUTH WEYMOUTH, MA
PREPARED BY: SURVEYING AND MAPPING CONSULTANTS, INC.
DATE: MAY 3, 2010, SCALE: 1"=40'; PLAN BOOK 601, PAGES 69-86

6. PROPERTY BOUNDARY SURVEY (F.O.S.T. Nos 5B, 5C & 6)
NAVAL AIR STATION, SOUTH WEYMOUTH, WEYMOUTH, MA
PREPARED BY: SURVEYING AND MAPPING CONSULTANTS, INC.
DATE: NOVEMBER 11, 2011, SCALE: 1"=200'; PLAN BOOK 611 PAGES 80-85

7. BOUNDARY ADJUSTMENT PLAN
UNION POINT, WEYMOUTH, MA.
PREPARED BY VHB
DATED: OCTOBER 21, 2016 SCALE: 1"=120'

8. SUBDIVISION PLAN OF LAND
WHITE STREET, UNION POINT, WEYMOUTH, MA
PREPARED BY: SURVEYING AND MAPPING CONSULTANTS, INC.
DATED: DECEMBER 12, 2016, REVISED: MAY 31, 2017, SCALE: 1"=50'

9. ALTA/NSPS LAND TITLE SURVEY SALE PLOT 2B
MEMORIAL GROVE AVENUE, UNION POINT, SOUTH WEYMOUTH, MA
PREPARED BY: SURVEYING AND MAPPING CONSULTANTS, INC.
DATED: FEBRUARY 10, 2017 SCALE: 1"=60'

10. DEFINITIVE SUBDIVISION PLAN, SOUTHFIELD, S. WEYMOUTH, MA
PREPARED BY: SURVEYING AND MAPPING CONSULTANTS, INC.
DATED: MAY 5, 2016, SCALE: 1"=60'

11. APPROVAL-NOT-REQUIRED PLAN OF LAND,
RECREATION COMPLEX, UNION POINT, SOUTH WEYMOUTH, MA
PREPARED BY: SURVEYING AND MAPPING CONSULTANTS, INC.
DATED: APRIL 19, 2017, SCALE: 1"=80'
PLAN BOOK 658 PAGE 68

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SCALE: 1"=100' DATE: FEBRUARY 27, 2018

0 50 100 150 METERS
0 100 200 300 400 FEET
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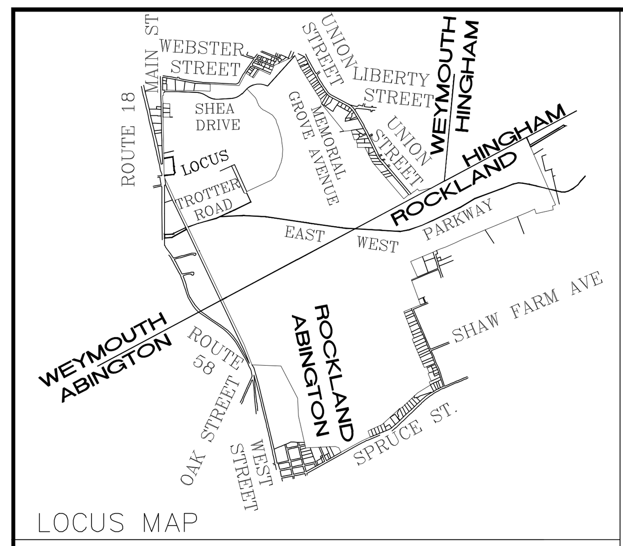
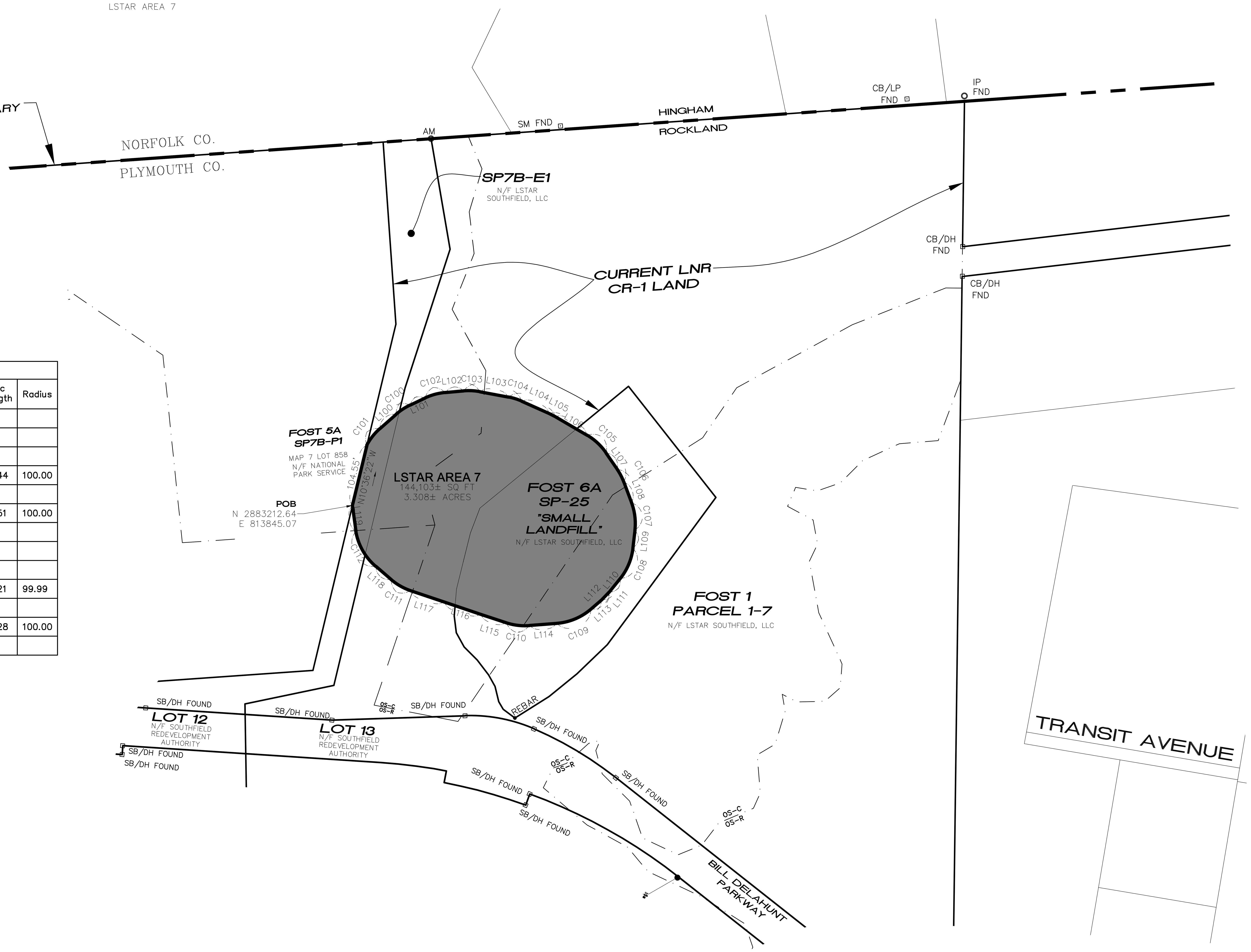


LOCUS MAP:
NOT TO SCALE

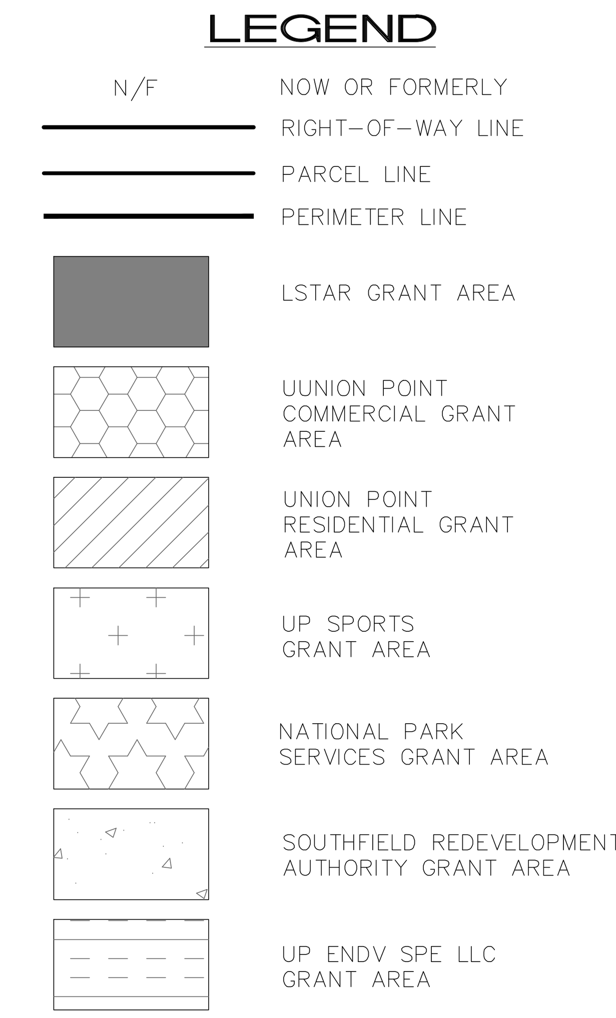
THIS SHEET DEPICTS THE FOLLOWING PARCELS:
LSTAR AREA 7

Line and Curve Table				
Line #	Length	Direction	Arc Length	Radius
C101		N14° 15' 28"E	35.45	99.43
L100	36.61	N24° 26' 39"E		
C100		N32° 31' 22"E	28.20	100.00
L101	27.93	N40° 36' 04"E		
C102		N50° 46' 23"E	35.51	100.00
L102	31.19	N60° 56' 44"E		
C103		N68° 48' 06"E	27.42	100.01
L103	49.06	N76° 39' 28"E		
C104		N83° 19' 44"E	23.29	100.02
L104	50.98	N90° 00' 00"E		
L105	10.91	S86° 52' 24"E		
L106	62.23	S83° 44' 54"E		
C105		S71° 03' 50"E	44.28	100.00
L107	33.48	S58° 22' 46"E		
C106		S51° 29' 48"E	24.02	99.91
L108	37.05	S44° 36' 52"E		
C107		S31° 04' 12"E	47.28	100.00
L109	30.18	S17° 31' 31"E		
C108		S01° 20' 05"E	56.52	100.00
L110	29.75	S14° 51' 23"W		

Line and Curve Table				
Line #	Length	Direction	Arc Length	Radius
L111	0.25	S14° 55' 36"W		
L112	17.70	S20° 04' 37"W		
L113	23.77	S25° 09' 13"W		
C109		S43° 19' 44"W	63.44	100.00
L114	46.14	S61° 30' 16"W		
C110		S72° 49' 27"W	39.51	100.00
L115	45.42	S84° 08' 38"W		
L116	64.82	S84° 33' 28"W		
L117	59.45	S84° 39' 55"W		
C111		N84° 23' 21"W	38.21	99.99
L118	34.17	N73° 26' 35"W		
C112		N53° 35' 47"W	69.28	100.00
L119	43.83	N31° 46' 45"W		



RESERVED FOR REGISTRY USE



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DATE: FEBRUARY 27, 2018

SMC DWG. NO. 201711726WS GOR.dwg

SHEET 10 OF 10

Date:	FEBRUARY 27, 2018
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APPENDIX L
COMPLETED SITES

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APPENDIX L

This section includes a description of the IR sites and AOCs at the Base which are ‘closed sites,’ where investigations are complete and either a No Action or a NFA ROD is in place. Two IR sites, the Former Fuel Farm (IR Site 6) and the U.S. Coast Guard Buoy Depot, are not discussed in this section. The Former Fuel Farm was removed from the IR Program in 1994 and addressed under the Navy’s Underground Storage Tank Program. The site was closed under the MCP in 2002. The U.S. Coast Guard leased the Buoy Depot site from the Navy from March 1972 until October 2000, when the Navy transferred the property to the Coast Guard. At the time of transfer the U.S. Coast Guard assumed responsibility for the CERCLA investigation at the Buoy Depot site. The U.S. Coast Guard and EPA signed a ROD in 2006; the remedy has been implemented and long-term monitoring and operations and maintenance are underway.

The completed, or closed, sites include 3 IR sites with No Action RODs and 14 AOCs with either No Action or NFA RODs. Since there are no cleanup actions required and no unacceptable risks at these sites, five-year reviews are not required. The table below indicates the completed sites discussed in this section. Note that IR Site 10, Building 82 will be included in this section in the next FYR.

Navy Designation	EPA Designation	Site Name	Report Section
IR Site 3, OU-3	OU3	Small Landfill	L-1
IR Site 5, OU-5	OU5	Tile Leach Field	L-2
IR Site 8, OU-8	OU8	Abandoned Bladder Tank Fuel Storage Area	L-3
AOC 3	OU15	Suspected TACAN Disposal Area	L-4
AOC 4A	OU19	Air Traffic Control Area – Abandoned Septic System	L-5
AOC 8	OU16	Wyoming Street Area – Building 70	L-6
AOC 13	OU15	Supply Warehouse	L-7
AOC 15	OU15	Water Tower	L-8
AOC 35	OU13	Former Pistol Range	L-9
AOC 53	OU17	Former Radio Transmitter Building Area	L-10
AOC 55A	OU12	North of Trotter Road – Antenna Field	L-11
AOC 55B	OU12	North of Trotter Road – Debris Area	L-12
AOC 55C	OU22	North of Trotter Road – Pond Area	L-13
AOC 55D	OU18	North of Trotter Road – Wetland Area	L-14
AOC 60	OU20	East Mat Drainage Ditch	L-15
AOC 61	OU21	TACAN Outfall and Associated Areas	L-16
AOC 100	OU15	East Street Gate Area	L-17
AOC Main Gate	NA	Main Gate Encroachment Area	L-18

L-1 IR Site 3 - Small Landfill

IR Program Site 3, the SL, is an approximately 0.8-acre inactive landfill located east of the Old Swamp River. The SL received concrete rubble and tree stumps for a brief period of time ending in the mid-1980s.

The Navy collected soil and groundwater samples and conducted geophysical studies during the SI and RI. The human health and ERAs concluded that cleanup of environmental media was not warranted based on potential exposure to these compounds. Since no CERCLA risks were identified, an FS was not required.

The ROD was signed by the EPA and Navy, with MassDEP concurrence, in March 2002 (Navy, 2002). The ROD specified No Action with groundwater monitoring under CERCLA and required closure of the landfill under applicable state law. The required groundwater monitoring was completed in 2002. The Navy submitted a Corrective Action Design, which follows the substantive requirements of the Massachusetts Solid Waste Regulations, to the MassDEP Office of Solid Waste in January 2008. The landfill cover system was constructed in summer 2010, consistent with the approved Corrective Action Design (Tetra Tech, 2008c). Post-closure LTM activities consistent with state requirements began in fall 2010 and are on-going (Tetra Tech, 2010h).

L-2 IR Site 5 - Tile Leach Field

IR Program Site 5, the TLF, comprises approximately 0.3 acres located in the southwest part of the Base along a drainage ditch. The TLF was in active use from 1945 until its closure in 1956. Available information indicated that the leach field may have received battery acid wastes, which likely contained lead.

Surface water, sediment, groundwater, and soil samples were collected as part of the SI and Phase I RI. There were no exceedances of human health or ecological risk thresholds for the receptors that were assessed. The Final RI Report was submitted in May 2002. Since no risks were identified, an FS was not performed.

An additional focused groundwater investigation was conducted in April 2005 to address concerns about the 1, 4-dioxane results reported in the Phase II RI. The Navy issued a No Action Proposed Plan in October 2005. The Navy and EPA signed the Final ROD in May 2006 that specified No Action under CERCLA. MassDEP provided a letter of concurrence dated April 27, 2006.

L-3 IR Site 8 - Abandoned Bladder Tank Fuel Storage Area

IR Program Site 8, the ABTFSA, comprises approximately 0.46 acres located northwest of Building No. 82 (Hangar 2). From approximately 1982 to 1987, the site was used for the temporary storage of JP-5, a type of aviation gasoline. The fuel was stored in four 10,000-gal fabric bladders (tanks) contained within an earthen berm. The tanks were used to support refueling operations for active aircraft.

Soil, sediment, groundwater, and surface water samples were collected as part of the SI and Phase I RI. No significant human health or ecological risks were identified at the site. The RI report was finalized in March 2002.

The Navy issued a No Action Proposed Plan in October 2002. The Navy and EPA signed the No Action ROD in May 2003. MassDEP provided a letter of concurrence with the No Action decision, dated March 21, 2003.

L-4 Area of Concern 3

AOC 3, the Suspected Tactical Air Navigation System (TACAN) Disposal area, is defined as the area bordered by Runway 8-26, Runway 17-35, and Taxiway C, and is situated in the central portion of the Base. AOC 3 is located east of the TACAN outfall headwall and northwest of the Jet Engine Test Stand. AOC 3 included a mound (soil pile) containing soil, debris, wood, and metal waste in a grassy field near the TACAN outfall. The Navy removed the mound and adjacent soil. Confirmatory sampling indicated that the cleanup goals were achieved and no significant risk remained to human health or the environment.

An NFA Proposed Plan was issued in October 2005. The Navy and EPA, with MassDEP concurrence, signed a No Further Action ROD in May 2006.

L-5 Area of Concern 4A

The AOC 4A, Air Traffic Control (ATC) Area - Abandoned Septic System, investigations focused on potential leaching of material from a septic system that serviced the control tower. The control tower was built in the early 1950s and was in service from the time of its construction until autumn of 1996.

The surface soil, subsurface soil, groundwater, and sediment data collected during the sampling events were used to evaluate potential human health risks at the site. The HHRA determined that there were no unacceptable risks. In July 2004, an ERA was conducted; no unacceptable risks to ecological receptors were identified from potential exposure to surface soils and sediment.

A No Action Proposed Plan was issued in June 2007. The Navy and EPA, with MassDEP concurrence, signed a No Action ROD in December 2007.

L-6 Area of Concern 8

AOC 8, the Wyoming St. Area - Building 70, consists of the former location of Building No. 70, the Radio Receiver Building. The site is located in a remote part of the southeastern portion of the Base. The building contained electrical equipment used to support an antenna field and was reportedly burned as a fire fighting exercise. Reports also indicated that electrical equipment may not have been removed prior to burning the structure.

Surface soil, subsurface soil, and groundwater samples were collected during a number of sampling events to characterize the site. The results indicated that soils were contaminated with PCBs and a PCB clean up goal was established. Following a number of removal actions to excavate the full extent of the contaminated soils, post-excavation confirmatory samples indicated that the clean up goals were achieved. Approximately 1,534 tons of soils were removed for off-site disposal. Wetland areas disturbed during the removal actions were restored.

A NFA Proposed Plan was issued in June 2007. The Navy and EPA, with MassDEP concurrence, signed a NFA ROD in January 2008. Post-restoration wetland monitoring has been successfully completed.

L-7 Area of Concern 13

AOC 13, the Supply Warehouse Railroad Spur, includes the area immediately surrounding the north side of Building No. 2, the supply warehouse, where a rail spur abuts the building. The site is located in the central portion of the Base. The rail spur adjacent to the supply warehouse provided access to the building for delivery of all hazardous and nonhazardous materials used on Base for nearly 20 years.

Soil and groundwater samples were collected. PAHs and hydrocarbons were identified in the soils; no contaminants of concern were identified in groundwater. Soils were excavated in 2001. After additional subsurface sidewall confirmatory samples were collected in early 2004, the Navy excavated a larger area in September 2004. Target cleanup levels were achieved and thus no unacceptable risk to human health or the environment remained.

A NFA Proposed Plan was issued in October 2005. Navy and EPA, with MassDEP concurrence, signed a NFA ROD in May 2006.

L-8 <u>Area of Concern 15</u>

AOC 15, the Water Tower, consists of a grassy area underneath and around the Water Tower. Site surveys identified the possibility that lead paint in soil was a site concern. The Navy conducted removal actions to reduce lead levels in soil surrounding the base of the tower.

A ground-water assessment was conducted to confirm that lead–contaminated soil at AOC 15 had not affected ground water. Based on the results, no further action was recommended for this site.

A NFA Proposed Plan was issued in October 2005. The Navy and EPA, with MassDEP concurrence, signed a NFA ROD in May 2006.

L-9 <u>Area of Concern 35</u>

AOC 35, the Pistol Range, is comprised of approximately 2 acres located in the central portion of the Base and north of the East Mat. The site formerly contained small buildings and a large earthen embankment which doubled as a pistol range backstop and de-armament embankment as a safety precaution for aircraft parked on the East Mat. The Navy has removed the buildings and de-armament embankment.

In June 2000, the Navy completed a CERCLA TCRA to address soil that contained elevated concentrations of lead (from past Pistol Range operations) through excavation and off-site disposal. Post-excavation soil sampling results confirmed that the cleanup goal was achieved and that lead concentrations in soil were below EPA's risk-based screening criterion for unrestricted use. In December 2003, the Navy completed the removal of the site's earthen "de-armament embankment" and disposed the soil offsite. The Navy found no record that arms from aircraft were ever discharged to the embankment, and through its investigations, the Navy found no evidence that unexploded ordnance (UXO) or munitions-related compounds were present. Post-excavation soil sample results for other constituents were within acceptable levels for unrestricted use. The presence of VOCs in groundwater at AOC 35 was attributed to an upgradient site, IR Site 11 (SRA), and not to AOC 35 itself.

The Navy issued a NFA Proposed Plan in September 2004. The Navy and EPA, with MassDEP concurrence, signed a NFA ROD in February 2005.

L-10 Area of Concern 53

AOC 53, the Former Radio Transmitter Building, covers approximately 5.7 acres and includes a large open field that is the former location of the Radio Transmitter Building (Building No. 33). The building was likely demolished between 1978 and 1993 and may have housed PCB-containing equipment. Interviews with Base personnel indicated that liquid and solid waste was buried in the vicinity of former Building No. 33.

Two surface soil, subsurface soil, groundwater, sediment, and surface water sampling rounds were conducted at AOC 53. The results indicated potential risks to human health and the environment. Petroleum-contaminated soil was removed from the Building 33 foundation; and sediment with elevated concentrations of metals and PAHs was removed from the Old Mill Stream bed. Following completion of the excavations, the soil data were used in further risk evaluations which determined that there was no unacceptable risk to human health or the environment.

The Navy issued a NFA Proposed Plan in June 2007. The Navy and EPA, with MassDEP concurrence, signed a NFA ROD in December 2007.

L-11 Area of Concern 55A

AOC 55A is located west of Calnan Road, north of Trotter Road and along (east of) the Base property fence line. The antenna field contained seven towers that were associated with the Radio Transmitter Building (Building No. 78). The poles and much of the grounding system wires and rods have been removed from the approximately 11 acre site.

Sediment and surface soils samples were collected; the data were used to support the streamlined human health and ERAs. There were no unacceptable human health risks identified at the site. The Navy removed the antenna poles, and the contaminated soils and sediment around the base of the poles to address potential unacceptable ecological risks. The post-excavation samples indicated that no unacceptable ecological risk remained. The Navy issued a NFA Proposed Plan in August 2003. The Navy and EPA, with MassDEP concurrence, signed a NFA ROD in October 2003.

L-12 Area of Concern 55B

AOC 55B extends north of the current Radio Transmitter Building (Building No. 78) to the area south of the former Radio Transmitter Building (AOC 53) and the Main Gate. The site is an approximately 10 acre area of solid waste debris containing concrete debris with rebar, some rusted 55-gal drums, tires, shoes, and other household and automotive debris. The Navy removed the surficial solid waste and debris.

Surface soil, subsurface soil, groundwater, and surface water samples were collected and the results used to support the streamlined human health and ERAs. Due to low ecological risks associated primarily with the wetland area in the northwest portion of the site, that area was re-designated as AOC 55D and was addressed separately from AOC 55B.

There were no unacceptable human health or ecological risks identified at the site. A No Action Proposed Plan was issued for public comment in August 2003. The Navy and EPA, with MassDEP concurrence, signed a No Action ROD in October 2003.

L-13 Area of Concern 55C

AOC 55C is located in the Town of Weymouth west of Perimeter Road. The site includes a small pond and adjacent wetland and is approximately 0.4 acres. Metallic debris was observed scattered throughout this area, with a large percentage of debris around the perimeter of the pond. The site is an undeveloped parcel; most of the area is a delineated isolated wetland which appears to have been historically disturbed by filling and dumping. A potential vernal pool area (which has not been classified as a "certified vernal pool" by the State of Massachusetts) has been identified within the wetland.

The ERA performed in 2007 concluded that there were potential risks to terrestrial plants and invertebrates, and sediment invertebrates. A HHRA performed in 2008 identified potential unacceptable cancer risks to future residents exposed to soils and sediments.

The Navy prepared an engineering evaluation and cost analysis (EE/CA) which recommended excavation, confirmatory sampling, and wetland restoration for AOC 55C. A NTCRA was completed in 2011, and post-restoration monitoring was performed to ensure the success of the wetland restoration and to control invasive noL-native plants, as needed. Following the successful completion of the removal action, the Navy prepared an NFA Proposed Plan and ROD. The NFA ROD was signed by the EPA on September 21, 2011 and the MassDEP provided their concurrence in a correspondence dated September 8, 2011. Post-restoration wetland monitoring continues.

L-14 Area of Concern 55D

AOC 55D is a 0.44-acre wetland located in the northwest portion of the Base, north of Trotter Road. The site was originally part of the northwest section of AOC 55B, which contained miscellaneous construction, household, and other debris. Sediment and surface water samples were collected at AOC 55D from the wetland area, initially as part of the AOC 55B investigations, and later as part of AOC 55D.

In 2004, a streamlined ERA determined that the site sediment and surface soils did not pose unacceptable risk to ecological receptors. A HHRA was also completed; human health risks were determined to be below the EPA target level for surface water and sediment at the site.

The Navy concluded that there was no unacceptable risk to human health or the environment and therefore issued a No Action Proposed Plan in June 2007. A No Action ROD was signed by the Navy and EPA, with MassDEP concurrence, in December 2007.

L-15 <u>Area of Concern 60</u>

AOC 60, the East Mat Drainage Ditch, is located in the east-central portion of the Base, adjacent to the East Mat. The ditches provided drainage from the East Mat and the surrounding areas. AOC 60 includes the eastern portion of the ditch; the western portion of the ditch is part of AOC 61. The primary use of the East Mat was as a mooring area for lighter-than-air aircraft, aircraft fuel discharge area, aircraft de-arming area, and as a taxiway and parking area for aircraft.

Surface water and sediment samples collected during multiple investigations were used in a streamlined ecological risk assessment. Based on the identified risks due to PAHs, the Navy removed sediment from 3 locations in the East Mat Ditch and the northernmost section of the downstream tributary in January 2004. In January 2006, additional sediment sampling identified a PAH hot spot which was removed in 2007.

A Technical Memorandum completed in 2008 compiled the current conditions data set and screened the data against human health and ecological benchmarks. Based on results of these evaluations, the Navy concluded that the removal actions successfully mitigated the identified risks and determined that the site does not pose an unacceptable risk to human health or the environment.

Navy issued a NFA Proposed Plan in September 2008. A NFA ROD was signed by Navy and EPA, with MassDEP concurrence, in January 2009.

L-16 <u>Area of Concern 61</u>

The TACAN Outfall is located in the center of the triangular area created by former Runways 17-35 and 8-26 and Taxiway C. The TACAN Outfall itself is comprised of a 700-foot pipe that drains storm water (collected from a number of swales, ditches, and catch basins) from large areas of the Base. The Base storm water drainage system consists of a series of drains, manholes, ditches, and swales, connected by underground piping that ranges from 4 to 60 inches in diameter. The investigated areas which contribute to the TACAN Outfall are the Navy Exchange (NEX) Swale, Fuel Farm Swale, RIA 30B Swale, Virgo Street Ditch, Connecting Swale, Barracks Ditch, East Mat Ditch (west end only), TACAN Tributary, and the Taxiway C Ditch.

Following collection of sediment samples and additional exploratory sampling, the Navy performed a non-time critical removal action to clean accumulated sediment and other materials from the catch basins, manholes, drainage ditches, and approximately 36,000 linear feet of storm water drainage pipes that discharge to the TACAN Outfall. The work began in October 2002 and was completed in January 2004.

Additional sediment and subsurface soil sample results confirmed that the earlier removal actions reduced potential human health and ecological risks to acceptable levels. A Technical Memorandum compiled the current conditions data sets and determined that there were no unacceptable risks to human health and the environment.

The Navy issued a NFA Proposed Plan in September 2008. A NFA ROD was signed by the Navy and EPA, with MassDEP concurrence, in January 2009.

L-17 <u>Area of Concern 100</u>

AOC 100, the East Street Gate Area, is a 0.5 acre area of building rubble debris near the southwest fence line of the Base. Various materials, including building debris (mainly bricks) and potential asbestos-containing material, were disposed of in wooded areas of the site. Based on surface soils data, debris and associated soil were removed from the rubble piles and surrounding area. Confirmatory soil sample results indicated that the cleanup levels had been achieved and that no significant risk remained to human health or the environment. An evaluation of the potential for compounds to leach into groundwater determined that groundwater was not a medium of concern.

The Navy issued a NFA Proposed Plan in October 2005. The Navy and EPA, with MassDEP concurrence, signed a NFA ROD in May 2006.

L-18 <u>Main Gate Encroachment Area</u>

The Main Gate Encroachment Area (MGEA) is located approximately 250 feet south of Shea Memorial Drive, the main entrance to the former NAS South Weymouth. The encroachment onto former NAS South Weymouth occurred from property located at 1182 Main Street, Weymouth.

Groundwater, surface soil, subsurface soil, and sediment samples were collected as part of the field investigation activities. Analytical results indicated impacts to soils and sediments primarily by PAHs. A Field Investigation Report was issued in August 2008 (Tetra Tech NUS, 2008d).

The Navy prepared an EE/CA which recommended excavation and off-site disposal, post-excavation confirmatory sampling, site restoration, and construction of a berm and fence to prevent re-encroachment. A NTCRA was completed in 2011. Following the successful completion of the removal action, the Navy prepared a NFA Proposed Plan and ROD. The NFA ROD was signed by the EPA on September 23, 2011 and the MassDEP provided their concurrence in correspondence dated September 8, 2011.

APPENDIX M
NOTIFICATIONS

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Third Five-Year Review
Former Naval Air Station South Weymouth
Weymouth, Massachusetts

The Department of the Navy, in cooperation with the U.S. Environmental Protection Agency and the Massachusetts Department of Environmental Protection, has begun a five-year review (FYR) of the remedies selected at the former Naval Air Station (NAS) South Weymouth, Weymouth, Massachusetts. The purpose of the FYR is to evaluate the implementation and performance of the remedies to ensure that they are and will continue to be protective of human health and the environment. The FYR is mandated under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Section 121 for sites with onsite remedies where hazardous substances, pollutants, or contaminants remain onsite above levels that allow for unlimited use and unrestricted exposure. This is the third FYR for the former NAS South Weymouth. The Navy plans to complete the review in July 2019.

The Navy will discuss the FYR process at the next Restoration Advisory Board meeting currently scheduled for October 11, 2018. Navy will solicit concerns and comments about the site remedies through questionnaires and interviews with interested parties. Public participation is encouraged and welcomed. If you are interested in participating in the interview process, please contact Mr. David A. Barney at the address noted below.

Mr. David A. Barney
BRAC Program Management Office East
PO Box 169
South Weymouth, MA 02190
Phone: 781-626-0105
Email: david.a.barney@navy.mil

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APPENDIX N
INTERVIEW RECORDS

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INTERVIEW QUESTIONS
THIRD FIVE-YEAR REVIEW
FORMER NAVAL AIR STATION SOUTH WEYMOUTH

(Please use other side for additional comments)

1. What is your overall impression of the remedial actions conducted or planned at the Base?

I do believe the remedial actions taken by the Navy have improved the environment within Union Point.

2. Have Navy's environmental cleanup activities had any effects on the surrounding communities?

The combined efforts to clean-up the base and develop ~~&~~ Union point has improved all surrounding communities.

3. Are you aware of any community concerns regarding cleanup activities at the Base? Please provide details.

I believe the emerging contaminants (PFOA) Fire Fighting Foams is a concern to residents due to the lack of adequate regulatory standards.

4. Are you aware of any complaints, incidents, unusual activities (vandalism, trespassing), or emergency responses by local authorities at any of the active environmental sites?

No. However, we have had complaints that wells were installed by LSTAR. Upon investigation we found it was a municipal water tie. Also, badly covered contaminated soil could become an issue.

5. Do you feel well informed about the environmental cleanup activities and progress?

Yes.

6. Do you have any comments, suggestions, or recommendations regarding the management of the active environmental sites?

Yes, I believe soil piles should be better or more frequently managed. A well marking system could be developed to differentiate irrigation, potable, monitoring wells, as well as municipal ~~wells~~ water ties.

Name: Matthew Brennan, R.S.

Title: Weymouth Health Department

Organization/Community: Weymouth

Please return to: Mr. Brian Helland, Remedial Project Manager
BRAC Program Management Office Northeast
4911 South Broad Street, Philadelphia, PA 19112
e-mail: brian.helland@navy.mil

Additional Comments:

- Union point continues to grow which increases the chances of complaints, trespassing, or incidents involving clean-up sites. Proper security fencing and soil management should be focused on more.

- All A.U.L. restrictions on Union Point property should be submitted in GIS shape file form to the Town's IT department for intergration within the Town's GIS system.