FINAL (100%) REMEDIAL DESIGN
PART 1 - BARRIER WALL AND EXCAVATION

Basis of Design Report

REVISION 0

American Creosote Works Site

Pensacola, Escambia County, Florida

Prepared Under:
U.S. EPA Contract No. EP-S4-09-02
U.S. EPA Task Order No. 089-RDRD-0445
Black & Veatch Project No. 049089
DCN: 49089-0131-01-B-03495R0

Prepared For:
U.S. Environmental Protection Agency Region 4
Superfund Division
Atlanta, Georgia

Prepared By:
Black & Veatch Special Projects Corp.
6 Concourse Parkway, Suite 1600
Atlanta, Georgia 30328

AUGUST 2019

Table of Contents

Acronyms and Abbreviations AA-1
1.0 Introduction 1-1
1.1 Purpose and Scope 1-1
1.2 Report Organization 1-1
2.0 Site Background 2-1
2.1 Site Description 2-1
2.2 Site Operational History 2-2
2.3 Site Regulatory History 2-3
2.4 Overview of Site Contamination 2-3
2.5 Supplemental Remedial Design Investigation 2-3
2.6 Summary of Selected Remedy 2-3
2.6.1 CMZ-1 Alternative #2 - Barrier Wall Containment with Cap 2-4
2.6.2 CMZ-2A Alternative #3 (Steam-Enhanced Extraction [SEE]) 2-4
2.6.3 CMZ-2B Alternative #3 (SEE) 2-4
2.6.4 CMZ-3 Alternative #2 (In Situ Chemical Oxidation [ISCO]/In Situ Enhanced Bioremediation [ISEB] Barriers) 2-4
2.6.5 CMZ-4A Alternative #2 (Excavation, Encapsulate On-facility CMZ-2A/3 Areas) 2-5
2.6.6 CMZ-4B Alternative #4 (Excavation/Disposal On-facility in Barrier Wall [CMZ-1] and Encapsulate On-facility [CMZ-2A/3]) 2-5
2.6.7 OU2/CMZ-5 Interim Alternative #3 (ISCO/ISEB Treatment Barriers) 2-6
3.0 Conceptual Site Model 3-1
3.1 Geology and Hydrogeology 3-1
3.1.1 Regional Hydrogeologic Setting 3-1
3.1.2 Site-Specific Geology 3-2
3.1.3 Geotechnical Testing Results 3-4
3.1.4 Site Hydrogeology 3-4
3.2 Physicochemical Properties of Contaminants 3-6
3.2.1 Creosote 3-7
3.2.2 PAHs 3-7
3.2.3 PCP 3-7
3.2.4 Dioxins 3-7
3.3 Contaminant Release Scenario 3-8
3.3.1 Soil Contamination 3-9
3.3.2 Creosote NAPL Contamination 3-9
3.3.3 Groundwater Contamination 3-10
3.4 Nature and Extent of NAPL Contamination 3-11

3.4.1 NAPL Characterization Tests 3-12
3.5 Nature and Extent of Soil Contamination 3-14
3.5.1 On-facility Soil and Ditch Sediments 3-15
3.5.2 Off-facility Soil Contamination 3-18
3.5.3 Site-Attributable Dioxin 3-21
3.6 Nature and Extent of Dissolved Contamination 3-21
3.6.1 Nature of the Dissolved Plume 3-22
3.6.2 Extent of Dissolved Plume 3-22
3.6.3 Groundwater Concentrations Trends 3-24
3.7 Nature and Extent of Marine Surface Water Contamination 3-26
3.8 Groundwater Geochemistry 3-27
3.9 Natural Attenuation Parameters 3-27
3.10 Potential Risk Receptor Summary 3-29
3.10.1 Human Health Risk Assessment Summary 3-29
3.10.2 Ecological Risk Assessment Summary 3-30
4.0 Remedial Action Objectives 4-1
4.1 Site-Specific Contaminant Remedial Goal Options 4-2
4.2 Remedial Action Objectives 4-2
4.3 Compliance with ARARs 4-2
4.4 Area of Concern Designation 4-3
4.5 Other Criteria, Advisories, or Guidance To Be Considered for this Remedial Action 4-3
5.0 Treatability Testing 5-1
5.1 Treatability Testing Goals 5-1
5.2 Treatability Test Setup and Methods 5-2
5.2.1 Treatability Sample Collection 5-2
5.2.2 Geotechnical Sample Collection Along Barrier Wall 5-3
5.2.3 Barrier Wall Treatability Test Procedures 5-3
5.2.4 Barrier Wall Treatability Test Results 5-5
6.0 Pre-Construction Site Preparation 6-1
6.1 Site Specific Plans 6-1
6.2 Pre-Construction tasks 6-2
6.2.1 Field Office Area 6-3
6.2.2 Survey Data and Property Boundaries 6-3
6.2.3 Site Access 6-3
6.2.4 Site Security and Fencing 6-4
6.2.5 Permit Requirements 6-4
6.2.6 Utilities 6-4
6.2.7 Establish Work Zones 6-5

6.2.8 Access and Haul Roads 6-5
6.2.9 Equipment Decontamination 6-6
6.2.10 Environmental Controls 6-6
6.2.11 Investigation-Derived Waste 6-6
6.2.12 Storm Water and Erosion Management 6-6
6.2.13 Site Clearing 6-7
6.2.14 Demolition 6-7
6.2.15 Well Abandonment 6-8
7.0 Barrier Wall Geotechnical Design 7-1
7.1 Geologic Setting 7-1
7.2 Barrier Wall Design 7-2
7.2.1 Barrier Wall Remedial Design Criteria 7-2
7.2.2 Barrier Wall Alignment 7-3
7.2.3 Barrier Wall Depth 7-3
7.2.4 Barrier Wall Height and Working Platform 7-3
7.2.5 Backfill Mix Design 7-5
7.3 Barrier Wall Construction 7-6
7.3.1 Slurry System and Hydration 7-6
7.3.2 QA/QC Testing of Barrier Wall 7-6
7.3.3 Barrier Wall Spoils Disposition 7-7
7.4 Head Maintenance System For Barrier Wall 7-7
8.0 Soil Excavation, Transport and Disposition 8-1
8.1 Temporary Soil Stockpile Staging Areas 8-2
8.2 On Facility Surficial Soil excavation and transport 8-2
8.2.1 Excavation Methodology 8-2
8.2.2 Surficial Soil Excavation, Transport, and Placement 8-2
8.2.3 Soil Backfill 8-3
8.2.4 Vegetative Restoration 8-3
8.3 Stockpile Excavation and Transport 8-3
8.3.1 Soil Stockpile 8-3
8.3.2 Debris Stockpiles 8-3
8.4 Off-facility Surficial Soil Excavation and Transport 8-4
8.4.1 Extent of Soil to Be Relocated 8-4
8.4.2 Soil Excavation 8-4
8.4.3 Soil Transport and Placement 8-4
8.4.4 Soil Backfill 8-4
8.4.5 Vegetative Restoration 8-4
9.0 Engineered Containment Cell Design 9-1
9.1.1 Base Liner System Design 9-1

9.1.2 ECC Closure System (Cap) Design 9-1
10.0 Barrier Wall Closure Cap and Cover Design 10-1
10.1 Subgrade 10-1
10.2 Barrier Cell Slope 10-1
10.3 Geosynthetic Liner 10-1
10.4 Geomembrane Liner 10-2
10.5 Stabilization / Drainage Geotextile 10-2
10.6 Gas Control 10-3
10.7 Soil Cover 10-3
10.8 Vegetative Layer 10-3
10.9 Drainage System and Stormwater Controls 10-3
10.9.1 Climatic Data 10-3
10.9.2 Existing Topography and Surface Drainage Patterns 10-4
10.9.3 Stormwater Management Approach 10-4
11.0 Electrical Design 11-1
12.0 Mechanical Design 12-1
13.0 Remedy Sustainability Summary 13-1
14.0 Value Engineering 14-1
15.0 Final Remedial Action Schedule 15-1
15.1 RA Sequence of Work 15-1
16.0 Contracting Plan and Cost Estimate 16-1
16.1 Contractor Strategy 16-1
16.2 Final Cost Estimate 16-1
16.3 Construction Specifications 16-1
16.4 Reports 16-1
16.5 Site Development Restriction 16-2
17.0 Operation and Maintenance 17-1
17.1.1 Health and Safety Considerations 17-1
18.0 References 18-1

LIST OF TABLES

Table 2-1 Site Chronology
Table 2-2 Groundwater Preliminary Remedial Goals
Table 3-1 Summary of Soil Geotechnical Testing
Table 3-2 Summary of Hydraulic Conductivity Values
Table 3-3 Summary of Historical Permeability Testing
Table 3-4 Groundwater Level Measurements January 2018 and March 2019
Table 3-5 Groundwater Analytical Results through 2018
Table 3-6 DPT Analytical Results - 2018
Table 3-7 Semi-Volatile Organic Compounds in Surface Soil - ACW Facility

Table 3-8 Semi-Volatile Organic Compounds in Subsurface Soil - ACW Facility
Table 3-9 Semi-Volatile Organic Compounds in Surface Soil - PYC Dredging Spoils Pile
Table 3-10a Semi-Volatile Organic Compounds in Surface Soil - SE Ditch Area
Table 3-10b Semi-Volatile Organic Compounds in Subsurface Soil - SE Ditch Area
Table 3-11 Dioxin Concentrations in Soil - ACW Facility
Table 3-12 Dioxin Concentrations in Soil - PYC Dredging Spoils Pile
Table 3-13 Dioxin Concentrations in Soil - SE Ditch Area
Table 3-14 Synthetic Precipitation Leaching Procedure Analysis for Semi-Volatile Organic Compounds
Table 3-15 Synthetic Precipitation Leaching Procedure Analysis for Pentachlorophenol
Table 3-16 Synthetic Precipitation Leaching Procedure Analysis for Dioxin
Table 3-17 Dioxin Concentrations in Soil - City Blocks
Table 3-18 Semi-Volatile Organic Compounds in Surface Soil - City Blocks
Table 3-19a Dioxin Concentrations in Soil - PYC Locations
Table 3-19b Semi-Volatile Organic Compounds in Subsurface Soil - PYC Locations
Table 3-20 Dioxin Concentrations in Soil - Gimble and Pine Streets
Table 3-21 Semi-Volatile Organic Compounds in Surface Soil - Gimble and Pine Streets
Table 3-22 Dioxin Concentrations in Soil – 2018 and 2019
Table 3-23 Volatile Organic Compounds in Soil - PYC Dredging Spoils Pile
Table 3-24 Inorganic Concentrations in Soil - PYC Dredging Spoils Pile
Table 3-25 Monitoring Well Construction Table
Table 3-26 Groundwater Quality Field Parameters
Table 3-27 MNA Parameter Groundwater Analytical Results April 2018
Table 4-1 Record of Decision Soil Cleanup Levels
Table 6-1 Proposed Wells to Abandoned in CMZ-1
Table 16-1 Proposed Bid Tab

LIST OF FIGURES

Figure 2-1 Site Location Map
Figure 2-2 Former ACW Pensacola Facility, circa 1960's
Figure 2-3 Site Layout Map
Figure 2-4 Contaminated Media Zones
Figure 3-1 Hydrogeologic Section B-B'
Figure 3-2 Hydrogeologic Section C-C'
Figure 3-3 Approximate Extent of DNAPL in Upper Sand
Figure 3-4 Approximate Extent of DNAPL in Lower Sand
Figure 3-5 Groundwater Elevations, Well Screened < 50 feet below land surface (ft bls) January 2018
Figure 3-6 Groundwater Elevations, Well Screened 50-100 feet below land surface (ft bls) January 2018

Figure 3-7	Groundwater Elevations, Well Screened > 100 feet below land surface (ft bls) January 2018
Figure 3-8a	Semi-Volatile Organic Compounds Exceedance in Soil – ACW Facility and Gimble & Pine Streets
Figure 3-8b	Semi-Volatile Organic Compounds Exceedance in Soil – ACW Facility and Gimble & Pine Streets (Continued)
Figure 3-9	Pentachlorophenol Exceedance Concentrations in Soil-ACW Facility and Gimble & Pine Streets
Figure 3-10	Dioxins/Furans Exceedance Concentrations in Soil-ACW Facility and Pine and Gimble Streets (2007-2011)
Figures 3-11a	Dioxin TEQ Concentrations in Off-facility Surface Soil (2007-2011)
Figure 3-11b	Off-facility Surface Soil Sampling Locations - 2018
Figure 3-12	Benzo(a)pyrene TEQ Concentrations in Off-facility Surface Soil
Figure 3-13	Dioxin Exposure Units Due to Overland Flow
Figure 3-14	Dioxin Exposure Units Due to Vehicular Traffic
Figure 3-15a	2008-2018 Naphthalene and PCP Concentrations in Groundwater (Sample Interval < 40 ft bls)
Figure 3-15b	2008-2018 Naphthalene and PCP Concentrations in Groundwater (Sample Interval < 40 ft bls)
Figure 3-16a	2008-2018 Naphthalene and PCP Concentrations in Groundwater (Sample Interval 40 - 80 ft bls)
Figure 3-16b	2008-2018 Naphthalene and PCP Concentrations in Groundwater (Sample Interval 40 - 80 ft bls) (Continued)
Figure 3-17	2008-2018 Naphthalene and PCP Concentrations in Groundwater (Sample Interval 80 - 120 ft bls)
Figure 3-18	2008-2018 Naphthalene and PCP Concentrations in Groundwater (Sample Interval 120 - 160 ft bls)
Figure 3-19	2008-2018 Naphthalene and PCP Concentrations in Groundwater (Sample Interval 160 - 200 ft bls)
Figure 3-20	2008-2018 Naphthalene and PCP Concentrations in Groundwater (Sample Interval > 200 ft bls)
Figure 3-21	Human Health Conceptual Site Model
Figure 5-1	Barrier Wall Boring Locations

LIST OF ATTACHMENTS

Attachment 1	Final Drawings

LIST OF APPENDICES

Appendix A	2017 Record of Decision – CD Only
Appendix B	Site Photographs
Appendix C	Supplemental Remedial Design Investigation – CD Only
C1	Soil Boring Logs
C2	Lithologic Photo Logs
C3	Soil Analytical Results
C4	Data Validation Reports
Appendix D	Treatability Testing Results (Kemron) / Table 1 – Table 10
Appendix E	Civil Design
E1	Tax Assessor Information – CD Only
E2	Calculations
E3	Stormwater Modeling – CD Only
E4	Best Management Practices Summary
Appendix F	Part 1 Construction Quality Assurance Plan (CQAP)
Appendix G	VE Screening Memo
Appendix H	RA Construction Schedule
Appendix I	RA Construction Cost Estimate
Appendix J	RA Specifications

Acronyms and Abbreviations

%	percent
ACW	American Creosote Works
amsl	above mean sea level
AOC	Area of Concern
ARAR	Applicable or Relevant and Appropriate Requirement
AST	aboveground storage tanks
ASTM	American Society for Testing and Materials
atm	atmosphere
BaP	benzo(a)pyrene
bcy	bank cubic yards
Black & Veatch	Black & Veatch Special Projects Corp.
bls	below land surface
BMP	best management practices
BTEX	benzene, toluene, ethyl benzene, and [total] xylenes
CAD	Computer Aided Drafting and Design
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CGP	Construction Generic Permit
CHASP	Construction Health and Safety Plan
cm/sec	centimeters per second
CMZ	Contaminated Media Zone
COC	chemical of concern
cP	centipoise
CQA	construction quality assurance
CQAP	Construction Quality Assurance Plan
CQC	construction quality control
CSM	Conceptual Site Model
CTL	Cleanup Target Level
cy	cubic yard
DNAPL	dense non-aqueous phase liquid
DPT	direct push technology
DSM	deep soil mixing
ECC	Engineered Containment Cell
EISA	Energy Independence and Security Act
EISB	Enhanced In Situ Bioremediation
EPA	U.S. Environmental Protection Agency
ERA	ecological risk assessment
ESCP	Erosion and Sediment Control Plan

F.A.C.	Florida Administrative Code
°F	degrees Fahrenheit
FEMA	Federal Emergency Management Agency
FDEP	Florida Department of Environmental Protection
FS	Feasibility Study
ft	feet/foot
ft^2	square feet
ft^3	cubic feet
FL	Florida
FYR	Five-Year Review
g	grams
GCL	geosynthetic clay liner
GCTL	Groundwater Cleanup Target Level
geonet	geosynthetic drainage net
gpm	gallons per minute
HASP	Health and Safety Plan
HDPE	high density polyethylene
HH&E	human health and the environment
HHRA	Human Health Risk Assessment
HSP	Health and Safety Plan
IC	Institutional Control
IDW	Investigation derived waste
ISCO	in situ chemical oxidation
ISEB	in situ enhanced bioremediation
Koc	partitioning coefficient
lb	pound
lbs/ft^3	pounds per cubic foot
LDPE	low-density polyethylene
LDR	Land Disposal Restrictions
LLDPE	linear low-density polyethylene
LNAPL	light non-aqueous phase liquid
LS	Lower Sand
LSASD	Laboratory Services and Applied Science Division
MCTL	Marine Cleanup Target Level
µg/kg	micrograms per kilogram
µg/L	micrograms per liter
mg/L	milligrams per liter
mm Hg	millimeters of mercury
MNA	monitored natural attenuation

MPE	multi-phase extraction
mV	millivolts
ng/kg	nanograms per kilogram
NAPL	non-aqueous phase liquid
NUS	NUS Corporation
O&M	operation and maintenance
OCDD	octachlorodibenzo-p-dioxin
ORP	oxidation-reduction potential
PAH	polycyclic aromatic hydrocarbon
PCP	pentachlorophenol
pg/kg-day	picogram per kilogram per day
pH	hydrogen ion concentration
PP	pocket penetrometer
PPE	personal protective equipment
ppt	parts per trillion
PRG	Preliminary Remediation Goal
psi	pounds per square inch
PTW	principal threat waste
PYC	Pensacola Yacht Club
QA	quality assurance
QC	quality control
RA	Remedial Action
RAC	Remedial Action Contract
RAO	Remedial Action Objective
RCRA	Resource Conservation & Recovery Act
RD	Remedial Design
RDI	Remedial Design Investigation
RfD	reference dose
RG	remedial goal
RGO	Remedial Goal Options
RI	Remedial Investigation
ROD	Record of Decision
ROW	Right-of-Way
R_{SAT}	Residual Saturation
SARA	Superfund Amendments and Reauthorization Act
SCAPS	Site Characterization and Analysis Penetrometer System
SCB	soil-cement bentonite
SCTL	Soil Cleanup Target Level
SEE	Steam-Enhanced Extraction

SES	SpecPro Environmental Services, LLC
SESD	Science and Ecosystem Support Division
Site	American Creosote Works Superfund Site
SMP	Site Management Plan
SOW	Statement of Work
SPLP	Synthetic Precipitation Leaching Procedure
SVOC	semi-volatile organic compound
SWPPP	stormwater pollution prevention plan
TarGOST®	Tar-specific Green Optical Screening Tool®
TBC	to be considered
TCDD	tetrachlorodibenzo-p-dioxin
TEQ	toxicity equivalent
TO	Task Order
TOC	total organic carbon
TS	Treatability Study
UCS	unconfined compressive strength
US	Upper Sand
USACE	U.S. Army Corps of Engineers
USCS	Unified Soil Classification System
USGS	U.S. Geological Survey
VE	value engineering
VEB	Vertical Engineered Barrier
VOC	volatile organic compound

1.0 Introduction

1.1 PURPOSE AND SCOPE

The U.S. Environmental Protection Agency (EPA), under authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986, has initiated procedures to conduct a Remedial Design (RD) for the American Creosote Works (ACW) Superfund Site (Site) located in Pensacola, Escambia County, Florida (FL). Black & Veatch Special Projects Corp. (Black & Veatch) was retained by the EPA in September 2017 to complete a RD under the EPA Remedial Action Contract (RAC) II, No. EP-S4-09-02; specifically, Task Order (TO) No. 089-RDRD-0445 and the Statement of Work (SOW), dated September 1, 2017 (EPA, 2017a). The SOW tasked Black & Veatch with supplemental site investigation and preparation of a RD to develop the plans, specifications, design criteria, provisions, and requirements necessary to implement the remedy. The RD was specified in the approved EPA Record of Decision (ROD; EPA, 2017c), included in **Appendix A**.

The ACW RD has been segmented into three main components. Part 1 of the RD contains the design for the on-facility slurry wall and cap, and excavation and containment of on-facility and off-facility surface soils. Part 2 of the RD addresses a design approach to remediate creosote non-aqueous phase liquid (NAPL) present in shallow and deep saturated soils that lies outside the proposed onsite slurry wall. Part 3 of the RD addresses groundwater in situ chemical oxidation and bioremediation treatment components of the overall remedy. In accordance with the EPA RD/Remedial Action (RA) Handbook (EPA, 1995), this Part 1 report addresses the soil remedy and represents a final 100 percent (%) level of completion. This report serves as the basis for further preparation of plans and specifications, and presents the design criteria, engineering methods and procedures used for the RD.

1.2 REPORT ORGANIZATION

This Basis of Design consists of sixteen main sections.

- Section 1.0 identifies the regulatory context and objectives of the RD.
- Section 2.0 describes the Site and its operational and environmental history.
- Section 3.0 presents the current Conceptual Site Model (CSM) understanding of the nature and extent of contamination at the Site.
- Section 4.0 Provides the RD objectives.
- Section 5.0 summarizes the bench scale treatability testing for the remedy.
- Section 6.0 provides the design basis and summary for the pre-construction and site preparation tasks of the RA.
- Section 7.0 provides the design basis and summary for the barrier wall geotechnical design.
- Section 8.0 provides the design basis and summary for soil excavation, transport and disposition tasks.
- Section 9.0 provides the design basis and summary for the engineered containment cell design.
- Section 10.0 provides the design basis and summary for the closure cap and cover design.
- Section 11.0 provides the design basis and summary for the electrical portion of the RD.

- Section 12.0 provides the design basis and summary for the mechanical portion of the RD.
- Section 13.0 provides the remediation sustainability summary for the RD.
- Section 14.0 is the Value Engineering (VE) Screening.
- Section 15.0 discusses the final RA construction schedule.
- Section 16.0 discusses the final construction cost estimate and contracting plan.
- Section 17.0 includes final considerations for long-term operation and maintenance (O&M) for the remedy.
- Section 18.0 presents references.
- Tables and figures follow the text. The design drawings are presented in **Attachment 1**. Pertinent background information, calculations and design criteria for each section are presented in the appendices.

2.0 Site Background

2.1 SITE DESCRIPTION

The ACW property is the location of a former wood treating facility that used creosote and pentachlorophenol (PCP) in the treatment processes. Details concerning the Site location, topography, surrounding land use, and other pertinent features are provided in the chart below:

Site Description Summary

Item	Summary
Address	The Site is located one block south of the intersection between Main Street and Barrancas Avenue, between L and F Street, about 500 yards north of Bayou Chico in Pensacola. Approximate address: 1800 Gimble Street, Pensacola, FL 32502, EPA ID: FLD008161994.
Current and Future Land Use	The land use in the area includes high density residential to the south and west with commercial/industrial entities to the north and east. There is a public park and beach located to the south in the Sanders Beach community. No schools or churches were identified in the investigative area. Reasonably anticipated future land use of the Site is recreational. The City of Pensacola is planning to turn the property into a park.
Site Location Map	See **Figure 2-1**.
Size/Boundaries	The former ACW facility is approximately 18 acres in size and is located one block south of the intersection between Main Street and Barrancas Avenue.
Adjacent Properties	Several businesses are located north and west of the former ACW facility, including a lumber company, a former auto body shop, and an appliance sales and repair shop. Residential areas, which are included as part of the ACW Site, border the former ACW facility on the east and south, with the nearest residence within 50 feet (ft) of the former facility. The Pensacola Yacht Club (PYC), which also is considered part of the ACW Site, is southwest of the former facility (U.S. Army Corps of Engineers [USACE], 2006).
Site Map with Utilities	See Drawings in **Attachment 1**.
Former Use and Facilities	The ACW Site is an abandoned wood preserving facility that operated from 1902 through December 1981. The ACW facility treated wood products using only creosote until 1950, after which pentachlorophenol (PCP) was used with increasing frequency until the facility closed in 1981. See **Figure 2-2**.
Current Site Features	The former ACW facility is currently abandoned, and all structures associated with the past operations have been demolished. The Site has been fenced to prevent unauthorized access. See **Figure 2-3**. There is an existing 35,000 cubic yard (cy) soil Stockpile, as well as a 10,000 cy PYC Dredging Spoil Pile, that currently exist on the former ACW facility in the Contaminated Media Zone (CMZ)-3 area.
Access Limits	The ACW facility is fenced and the former creosote NAPL/groundwater recovery system occupies the western portion of the facility, adjacent to the area of the former lagoons. Primary access to the former facility is from West Gimble Street.
Topography	The area surrounding the ACW facility is generally flat, with elevations ranging between 12 and 14 ft above mean sea level (amsl). The land slopes southward at about 25 ft per mile toward Pensacola Bay.
Climate	The Gulf of Mexico, situated about six miles south of Pensacola Bay, moderates the climate of Pensacola by tempering the cold northern winds of winter and causing cool sea breezes during the daytime in summer. The average temperature for the summer months is around 80 degrees Fahrenheit (°F) with an average daily range of 12.5

Site Description Summary

Item	Summary
	degrees. Temperatures of 90°F or higher occur on an average of 39 times yearly. A temperature of 100°F or higher occurs occasionally. The average winter temperature is in the low to mid 50s°F with an average daily range of 15.7 degrees. Severe cold waves are infrequent (EPA, 1994). Rainfall is usually well distributed through the year with the greatest frequency normally occurring in July and August. The greatest average monthly rainfall occurs in July, and the lowest occurs in October. Seriously destructive hurricanes are occasionally experienced in the vicinity. Hurricanes historically occur from early July to mid-October (EPA, 1994). Hurricane Ivan, a Category 5 hurricane, impacted this area in September 2004.
Drinking Water Supplies	There is a public water supply well located approximately 1 mile north of the ACW facility. The Sand-and-Gravel aquifer in the vicinity of the site has been classified as a Class G-II groundwater aquifer under Florida Administrative Code (F.A.C.) Chapter 62-520.410.
Surface Water	Most surface water drainage in the area is by overland sheet flow through the streets and storm drains south of the ACW facility into Bayou Chico/Pensacola Bay, and previously by way of a former drainage ditch on the PYC property. The City of Pensacola completed the construction in 2012 of a new storm water line to redirect storm water from entering the drainage ditch on the PYC property.
Groundwater	The January 2018 average depth to water in monitoring wells measured was 5.9 ft msl.
Utilities	The 2018 boundary survey indicates most of utilities are located on the northwest of the site. Utilities include a water-line, meters, pump controls, electric boxes, and a treatment system.
Photographs	Select site photographs are included in **Appendix B**.

2.2 SITE OPERATIONAL HISTORY

Wood-preserving operations were conducted at the ACW facility from 1902 until December 1981. Prior to 1950, creosote was used exclusively to treat wood poles. ACW began pressure-treating the lumber, using PCP and Number 2 fuel oil mixture in 1950. This process increased during the later years of the ACW operations. The dioxin/furan contamination present at the Site resulted from the use of PCP as a wood treating chemical, because dioxins/furans are a common impurity in commercial grade PCP and are released when the PCP is heated.

Four surface impoundments were in the western portion of the ACW facility. The Main and Overflow ponds, located adjacent to L Street, were used for disposal of process wastes. During operations, ACW discharged liquid process wastes into the two unlined surface impoundments. Prior to 1970, waste water in these ponds was allowed to overflow through a spillway, then flow through the streets and storm drains into a ditch on the PYC property and then into Bayou Chico and Pensacola Bay. In later years, liquid wastes were drawn off the larger lagoons and collected in the smaller Railroad Impoundment and Holding Pond or were spread out on the ground in designated "Spillage Areas" on the facility (**Figure 2-2**). Additional discharges occurred during periods of heavy rainfall and flooding when the ponds overflowed the containment dikes.

2.3 SITE REGULATORY HISTORY

Additional information on the operational and regulatory history can be found in the *OU3 Focused Remedial Investigation (RI) Report, Revision 0* (Black & Veatch, 2009). **Table 2-1** is a site chronology that summarizes the regulatory history and prior actions conducted at the ACW Site through 2018.

2.4 OVERVIEW OF SITE CONTAMINATION

Prior investigations have determined that the Site is impacted by a large volume of creosote dense non-aqueous phase liquid (DNAPL). Two zones of NAPL have been identified under the former waste ponds, in the Upper Sand (US) Unit at approximately 30 ft below land surface (bls) and in the Lower Sand (LS) Unit at 75 to 100 ft bls, respectively. While prior Site investigations indicated that NAPL beneath the former facility waste ponds was limited to depths of 20 to 100 ft bls in October 2011, NAPL was confirmed at a depth of 136 ft bls as a thin stringer of creosote in an area immediately east of the former waste ponds. This is the deepest recorded observation of NAPL at the Site. The lateral extent of observed NAPL in the LS Unit is limited to within the facility boundaries. NAPL in the LS Unit extends south along pathway of the former PYC Ditch to a depth of 49 ft bls. Dissolved groundwater contamination contains elevated levels of semi-volatile organic compounds (SVOCs; including naphthalene and carbazole), benzene, and PCP have been detected across the ACW Site. The deepest documented extent of naphthalene and PCP above Cleanup Target Levels (CTLs) were detected in the 167-177 ft interval at monitoring well CW9. CW9 is located 900 feet south of the southern ACW facility boundary.

2.5 SUPPLEMENTAL REMEDIAL DESIGN INVESTIGATION

A supplemental Remedial Design Investigation (RDI) was conducted February through November 2018 to further refine the remedy design basis and to determine the extent of excavation of off-facility contaminated surface soil. The three specific data needs for supplemental sampling were:

- Additional soil samples and geotechnical testing were needed to buttress the slurry wall design basis and to provide core samples for the bench scale treatability testing.
- Additional soil samples were collected to further refine the extent of proposed surface soil excavation for dioxin contaminated soil from the residential neighborhood located in CMZ-4B.
- An updated Site survey was needed.

Results of the RDI are summarized in **Appendix C**; the dataset is not complete and only the data available to date is presented, the full dataset is presented in this final RD. Documentation of soil boring logs and photographic logs are included in **Appendices C1** and **C2**, respectively. Analytical Results are included in **Appendix C3**. Data validation reports are provided in **Appendix C4**. Specific findings from the RD investigations are incorporated into the CSM in Section 3.0.

2.6 SUMMARY OF SELECTED REMEDY

Due to the complexity of the Site, it was divided into five separate contaminated media zones (CMZs) to aid in the screening, evaluation and selection of remedies (**Figure 2-4**). The selected remedies for Contaminated Media Zones are presented below.

2.6.1 CMZ-1 Alternative #2 - Barrier Wall Containment with Cap

Alternative #2 for CMZ-1 consists of a barrier wall constructed using a cutter soil mixer technology, or other in situ mixing method approved by the Engineer, surrounding the zone and a Resource Conservation & Recovery Act (RCRA) Subtitle C cap and cover. This alternative would provide physical isolation and hydraulic containment of the top, base, and side boundaries of the zone. The barrier wall would be installed to a depth of approximately 115 ft below the nominal ground surface. The isolation cell created offers an additional advantage to this remedy, as it will provide isolation of additional deeper soil that may have lower but appreciable levels of contamination. The cutter soil mixer method would result in a wall thickness of approximately 3-ft. The entire area will be covered with a combination of geosynthetic clay liner (GCL) and high-density polyethylene (HDPE) or low-density polyethylene (LDPE) liner, to contain the principal threat waste (PTW) from CMZ-4B Off Facility Surface Soil and CMZ-1 Soil Beyond Barrier Wall Extent, and then a 2-ft clean layer of fill will be placed on top that is vegetated cover to prevent rainwater from infiltrating into the containment system. The composite cap will also eliminate human exposure pathways, prevent infiltration of surface water, and subsequent leaching of the chemicals of concern (COCs).

2.6.2 CMZ-2A Alternative #3 (Steam-Enhanced Extraction [SEE])

CMZ-2A Alternative #3 includes thermal-enhanced DNAPL recovery using SEE steam stripping. SEE would be applied through injection wells to the DNAPL creosote-impacted soil. Assuming an effective steam influence and an overlapping multi-phase extraction (MPE) capture zone of 25-ft (42-ft spacing) from each well cluster, approximately 45 steam injection well cluster locations and a total of (120) 20-ft injection intervals would be needed to implement this approach. The groundwater and vapors will be separated in a knockout pot. The non-DNAPL water will be treated and disposed of in an infiltration gallery. The vapors will be passed through a blower to a vapor treatment unit and then vented to the atmosphere.

An additional goal of using SEE in CMZ-2A will be to reduce the groundwater contaminants to a subsurface level that will be able to detect leakage/failure of the containment remedy of CMZ-1. This level will be determined in the RD phase.

2.6.3 CMZ-2B Alternative #3 (SEE)

CMZ-2B Alternative #3 includes thermal-enhanced NAPL recovery using SEE steam stripping. Assuming an effective steam influence and an overlapping MPE capture zone of 25-ft (42-ft spacing) from each well cluster, approximately 62 steam injection well locations and a 15-ft injection interval would be needed to implement this approach. The groundwater and vapors will be separated in a knockout pot. The non-DNAPL water will be treated and disposed of in an infiltration gallery. The vapors will be passed through a blower to a vapor treatment unit and then vented to the atmosphere.

Groundwater monitoring below the shallow clay (approximately 20 ft bls) will be performed to assess the effectiveness of the remedy in this zone.

2.6.4 CMZ-3 Alternative #2 (In Situ Chemical Oxidation [ISCO]/In Situ Enhanced Bioremediation [ISEB] Barriers)

CMZ-3 Alternative #2 entails the use of an upgradient ISEB treatment zone along the northern CMZ-3 facility boundary and a combined ISCO/ISEB treatment barrier along the southern edge of the CMZ. The upgradient ISEB barrier will be created though injection points and will provide a flush of infused oxygen to sweep the CMZ, providing enhanced aerobic bioremediation of polycyclic aromatic hydrocarbons

(PAHs) and PCP. The ISCO/ISEB barrier will provide immediate relief from this contamination, effectively isolating the onsite secondary source from the downgradient plume and potential impacts to Pensacola Bay.

The CMZ-3 north ISEB treatment zone would consist of 24 two-depth cluster wells for oxygen infusion. These cluster wells would be screened from 5 to 40 ft bls and 45 to 80 ft bls, respectively. The treatment line will extend laterally along CMZ-3 for approximately 700 ft with ISEB clusters spaced by 30-ft. Two ISEB equipment trailers are anticipated; each delivering 90% infused oxygen gas to a network of buried manifolds and headers. The CMZ-3 southwest ISEB barrier will be constructed in a similar fashion, with 10 cluster wells along a 300-foot lateral treatment length. A programmable logic controller will be used to operate and monitor the treatment process. This will be presented in a subsequent RD document.

In addition, the removal of the upper 3 ft of soil as part of the CMZ-4A remedy will remove a significant quantity of the leachable source soil. These 3 ft of soil will be placed in the Engineered Containment Cell (ECC) located in the CMZ-3 area.

2.6.5 CMZ-4A Alternative #2 (Excavation, Encapsulate On-facility CMZ-2A/3 Areas)

CMZ-4A Alternative #2 (Excavation, Encapsulate On-facility CMZ-2A/3 Areas) includes excavation of all unsaturated contaminated surficial soil on the former facility and surficial soil in CMZ-2A from 0 to 3-ft bls. All this soil would be placed inside the CMZ-2A/3 Areas and capped for long-term isolation. Those soils will be placed with the area of contamination onsite. The resulting ECC will be completed with a RCRA subtitle C cap with hydro seeding. Excavation and placement would include all appropriate engineering controls for dust control and monitoring.

All on-facility soil except for soil that currently overlays CMZ-3, and the soil currently overlying CMZ-3 would also be placed inside the ECC for long-term isolation. The 35,000 cy soil stockpile, as well as the 10,000 cy PYC Dredging Spoil Pile that currently exist on the former ACW facility would be spread over the CMZ-2A/3 areas in the ECC.

2.6.6 CMZ-4B Alternative #4 (Excavation/Disposal On-facility in Barrier Wall [CMZ-1] and Encapsulate On-facility [CMZ-2A/3])

CMZ-4B Alternative #4 (Excavation/Disposal On-facility Over CMZ-2A/3 Areas) was chosen as the recommended remedy for this zone. This Alternative includes excavation of all unsaturated contaminated surficial soil located off-facility at depths ranging from 6 inches to a maximum depth of 3-ft bls (top of the average water table). The soil would be spread partially over the CMZ-1 Barrier Wall Cap area and partially over the CMZ-2A/CMZ-3 areas for long-term isolation in the ECC. The resulting caps will be sloped between 2:1 and 4:1 horizontal/vertical angle and completed with a RCRA subtitle C cap with hydro seeded. Excavation and placement would include all appropriate engineering controls for dust control and monitoring.

The encapsulation of the CMZ-2A/3 areas in an ECC to provide further protection of the groundwater and will level out the heights of these two capped areas. At the end of remedial action, there will be two RCRA subtitle C caps onsite, one covering the footprint of CMZ-1 and a second one covering the CMZ-2A/3 Areas.

2.6.7 OU2/CMZ-5 Interim Alternative #3 (ISCO/ISEB Treatment Barriers)

The Interim Remedy recommended for OU2/CMZ-5 is the ISCO/ISEB Treatment Barriers remedy (Alternative #3) for addressing the dissolved PCP groundwater plume on the eastern part of the Site. This alternative is an extension of the ISCO/ISEB biobarrier concept that was selected for CMZ-3 (Alternative #2). Groundwater monitoring will be conducted to assess the effectiveness of the DNAPL source treatment in reducing the naphthalene/SVOC plume on the west side of the Site. This recommendation reflects a consideration that active treatment at the foot of the Bay should not be necessary if source and contaminant flux reduction on-facility abates the dissolved naphthalene plume sufficiently in a 5-year timeframe following implementation of CMZ-1, -2A, and -2B remedies. This will be presented in a subsequent RD document.

The future selection of this alternative as the final remedy is highly contingent upon a thorough review of the initial post CMZ-1, -2A and -2B response actions. If the remedial actions to contain or remove the DNAPL in CMZ-1, -2A and -2B are effective then a final action for the entire groundwater OU2 will be selected. The needs for any additional groundwater actions will be accessed during the first Five Year Reviews of the remedy. During the first Five-Year Review (FYR), the protection of the surface water of Pensacola Bay will be evaluated. If significant decreasing trends are present at the first FYR a final groundwater ROD could be written at that time. Should groundwater monitoring not show progress towards meeting the CTLs in OU2/CMZ-5, a remedy screening and evaluation of other possible remedies will be completed at that time, so a final remedy can eventually be selected and documented in a final ROD for OU2/CMZ-5.

The selected remedies for this Part 1 will only consist of the construction of barrier wall at CMZ-1 to 115-ft bls using the cutter soil mixer technique, or other in situ mixing method approved by the Engineer, to isolate the highest percentage of mass; and excavation of CMZ-1, -2A, -3 (Stockpiles), -4A on-facility and CMZ-4B off-facility surficial soil to protect against the direct contact threat to the surrounding community. The removal of the upper 3 ft of onsite soil outside of CMZ-1 will be placed in the Engineered Containment Cell (ECC) located in the CMZ-3 area.

3.0 Conceptual Site Model

This Section provides a summary of the CSM along with recent updates to the model from the RDI conducted from February through November 2018.

A well-defined and current CSM is an essential element of the RD process. This section summarizes the pertinent environmental features and conditions at the Site and lays the foundation for the volume and mass of contaminated media proposed for remediation. Specific elements of the CSM include a thorough understanding of the following:

- Regional geology and hydrogeology
- Site-specific geology and hydrogeology
- Identification of COCs along with their physicochemical properties and applicable cleanup criteria
- Contaminant fate and transport pathways
- Nature and extent of NAPL contamination
- Nature and extent of surficial and subsurface soil contamination
- Nature and extent of groundwater contamination
- Potential risk receptors
- Groundwater geochemistry
- Natural attenuation parameters
- Treatability test results (see Section 5.0)
- Definition and volumetric dimensions of impacted media
- Breakdown of contaminant mass by impacted media
- Groundwater flow and solute transport modeling

The following sections summarize the elements relevant to the barrier wall and excavation RD and provide an overall CSM that will be a basis for the RD.

3.1 GEOLOGY AND HYDROGEOLOGY

3.1.1 Regional Hydrogeologic Setting

Pensacola, Florida lies within the Coastal Lowlands, a subdivision of a major physiographic division of the United States known as the Coastal Plain Province. The Coastal Lowlands are relatively undissected, nearly level, and lie about 100 ft or less amsl. The only distinctive topographic features of the Lowlands are the step-like Pleistocene marine terraces, which descend from the north, southward to the coastline. The Site is situated on a hilly, sandy slope which borders Bayou Chico and Pensacola Bay. Pensacola Bay is separated from the Gulf of Mexico by a long narrow island that forms a natural breakwater for the harbor. Most surface water drainage in the area is by overland sheet flow through the streets and storm drains south of the ACW facility into Bayou Chico/Pensacola Bay, and previously by way of a former drainage ditch on the PYC property. The City of Pensacola completed the construction in 2012 of a new storm water line to redirect storm water from entering the drainage ditch

on the PYC property. In 2016, contaminated soil was removed from the PYC Ditch and stockpiled on-facility. The former drainage ditch was backfilled to match the surrounding grade.

The Sand-and-Gravel aquifer underlies an area of about 6,500 square miles in southwestern Alabama and the westernmost part of Panhandle Florida. The Sand-and-Gravel aquifer consists largely of interbedded layers of sand and gravel. Clay beds and lenses are common in the aquifer and form local semi-confining and confining beds. Water in the aquifer is under unconfined conditions where the clay beds are thin or absent and is under artesian conditions where such beds are thick. Movement of groundwater is generally towards the coast. In most places, the Sand-and-Gravel aquifer can be divided into two high permeability zones, the upper surficial and lower main producing zones, separated by a less permeable sand and clay unit. The upper, or surficial, zone is mostly fine- to medium-grained sand, with gravel beds and lenses, and contains water that is mostly under unconfined conditions.

Near the Site the Sand-and-Gravel aquifer is underlain by the upper and lower limestone units of the Floridian aquifer. The Sand-and-Gravel aquifer and upper limestone of the Floridan aquifer are separated by a thick section of relatively impermeable clay called the Pensacola Clay (about 230 ft bls).

The Sand-and-Gravel aquifer is the only freshwater aquifer in central and southern Escambia County and is the source of public water supply for the area, including the City of Pensacola. The aquifer is exposed at the surface throughout Escambia County and deepens to as much as 1,100-ft thick. The closest well field belongs to the City of Pensacola, located at the corner of Cervantes and I Streets, approximately one mile north of the site (NUS Corporation [NUS], 1985).

The Site is in Zone X of the Federal Emergency Management Agency (FEMA) Insurance Rate Map (the site does not lie within the 100-year floodplain).

3.1.2 Site-Specific Geology

During the Feasibility Study (FS) supplemental investigations, soil borings were advanced by a sonic rig and a direct push technology (DPT) drill rig. These soil borings were advanced to determine the current presence of NAPL, observe soil lithologic data, and collect samples for geochemical and chemical analyses. Several of the borings were advanced to confirm the presence of a clay or low permeability zone near the deeper NAPL plume. The soil boring logs and geotechnical results from samples collected during the January 2011 investigation are provided in the ACW Site-Wide Feasibility Study (FS; Black & Veatch, 2016).

In February-July 2018, 19 borings were advanced to depths ranging from 90 to 125 ft bls using a sonic drill rig. These borings were installed along the alignment of the proposed barrier wall around CMZ-1, in part, to evaluate the lithology and depth of the competent clay unit. In April 2018, BW16 was installed to evaluate NAPL impacts across L Street to the west of the Site. The soil boring logs from samples collected during the February-July 2018 investigations are provided in **Appendix C1**. Additional DPT borings planned to delineate off-facility NAPL discovered in boring BW16 during the April 2018 investigation were installed in October and November 2018. These additional soil borings indicated some areas of staining and odors, but no free flowing NAPL was observed.

Hydrogeologic cross-sections of the proposed barrier wall location, detailed on **Drawings B-210** through **B-212**, have been prepared using the soil lithologic descriptions recorded during the RDI. Hydrogeologic cross-sections derived from 2018 RDI logs and previously collected soil logs are detailed on **Figures 3-1** and **3-2**.

Based on the results of previous site data, the supplemental FS investigations, and the RDI, four lower permeability units have been identified beneath the entire ACW Site.

- The first lower permeability unit is encountered at approximately 25 ft bls, in the US Unit beneath the former facility, and is comprised predominantly of a fine grain sand unit, with small percentage of silt and clay. **Table 3-1** provides the depth, U.S. Geological Survey (USGS) soil classification, and particle size analyses results from soil collected at borings SB509, SB512, SB520, SB521, SB523, SB524, SB525, and SB526 completed in this unit. In October 2011, additional soil samples were collected for hydraulic conductivity testing from SB524 and SB526, with the resulting values of 5.35×10^{-4} and 6.41×10^{-4} centimeters per second (cm/sec), respectively. These hydraulic conductivity values are presented in **Table 3-2**. This fine grain sand unit is not clearly seen on the cross-sections because variation in grain size and percentage of fines is difficult to illustrate at the scale of the figures. This is the unit where a large mass of NAPL has been identified under the ACW facility (**Figure 3-3**).
- The second lower permeability unit encountered is a fat clay unit that has been identified directly beneath the former ACW holding ponds (**Figure 2-2**) at a depth of about 100 ft bls (refer to logs for SB516, SB518, SB524, SB527 and SB530 in Site-Wide FS Appendix B-1 and logs for BW03-BW09, BW13, and BW14 in **Appendix C1** of this RD). This clay appears to be continuous under the ACW pond area (**Figure 3-1**); however, pinches out to the east of the former waste ponds and to the south of the Site (SB525 in **Figure 3-1**). This second lower permeability unit is encountered at depths ranging from 77 to 117 ft bls. Grain size analysis performed on soil collected from soil borings SB516, SB518 and SB522 indicate the presence of a range of 50 to 86% clay particles (**Table 3-1**). In January 2011, soil samples for permeability testing were collected at the same three borings with resulting values of 1.9×10^{-9} cm/sec from 104 to 112 ft bls, 2.0×10^{-9} cm/sec from 113.5 to 117 ft bls, and 1.1×10^{-8} cm/sec from 82 to 85 ft bls, respectively. These permeability values are presented in **Table 3-3**. This fat clay unit is depicted on **Figures 3-1** and **3-2**. **Figure 3-2** starts beneath the former waste ponds and shows the fat clay unit transitioning into a sandy clay unit at SB526. Previous investigations have shown that this clay unit pinches out to the south of the Site. **Figure 3-2** depicts the area underlying the former waste ponds where this clay unit appears to be continuous (SB524 to EW03A). This unit is where the deeper NAPL plume mass has been identified in the LS Unit (**Figure 3-4**).
- A third lower permeability unit, located south of the ACW property, is a very stiff clay unit. It underlies the PYC property at a depth of about 20 to 30 ft bls and extends south to Pensacola Bay (refer to SB528 and SB529 in Site-Wide FS Appendix B-1; Figure 1-8). The clay unit is over 30 ft thick in NUS B1 and over 20 ft thick in SB529. This shallow clay pinches out to the north before reaching the ACW facility (Bechtel, 1996). Physical soil test results from a sample of this clay indicated a vertical permeability of 8.41×10^{-8} cm/sec (NUS, 1985). The “tail” of the NAPL plume shown on **Figure 3-3** has been identified in this unit.
- The fourth low permeability unit is the relatively impermeable Pensacola Clay layer encountered at approximately 230 ft bls and is present across the entire area of the Site (refer to the cluster well logs in Site-Wide FS Appendix B-1 and Figure 1-8). The Pensacola Clay is approximately 250 to 300 ft thick and separates the Sand-and-Gravel aquifer from the underlying upper limestone of the Floridan aquifer.

3.1.3 Geotechnical Testing Results

Soil samples were collected for geotechnical testing and analyses from borings SB512, SB516, SB518, SB524, SB526, SB530, BW03, BW05, BW08, and BW13 located in CMZ-1. Sample intervals at SB512, SB516, SB518, SB524, SB526, and SB530 were determined based on field observations made by the project geologist, in consultation with the project engineer. Additional soil samples were collected from borings BW03, BW05, BW08, and BW13 along the barrier wall alignment to specifically support the barrier wall treatability test and design. A summary of geotechnical results is presented below.

- Grain size distribution testing/particle size analyses (American Society for Testing and Materials [ASTM] D422 with hydrometer analysis) was completed. The grain size distribution of the two fat clay samples collected near the barrier wall location (SB516 from 104 to 112 ft bls and SB518 from 113.5 to 117 ft bls) contained 81.9% to 86.2% clay-sized particles. These clay samples contained 12.0% to 12.7% silt and less than 10% sand-sized particles. The grain size distribution of the six sand samples collected at CMZ-1 (at various depths between 22 ft and 79 ft bls) contained between 76.8% and 98.1% sand-sized particles. These predominantly sand samples contained between 51.8% and 86.4% fine sand.
- Unified Soil Classification System (USCS) descriptions were completed for each soil sample per American Society for Testing and Materials (ASTM) standard D2487. The comparison of boring logs to the USCS description is shown in **Table 3-1**.
- Soil moisture tests were completed for samples collected from CMZ-1 soil borings SB512, SB516, SB518, BW 03, BW 05, BW 08, and BW 13 per ASTM Standard D2216. The values ranged from 16.6 (poorly graded sand) to 38.7 (clay). The moisture content is indicative of the soil type and indicates interstitial water. Moisture content results are shown in **Table 3-1** and **Table 3-2**.
- Atterberg limits were completed for clay samples collected from CMZ-1 soil borings SB516 and SB518 per ASTM standard D4318 (**Table 3-1**). Atterberg limits can be used to distinguish between different types of silt and clay. The clay soil tested had very high plasticity (plasticity index > 40).
- Two poorly graded sand samples collected from CMZ-1 were tested for hydraulic conductivity in November 2011. Results for SB524 (24 to 25 ft bls) and SB526 (32 to 33 ft bls) were 5.35E-04 cm/sec and 6.41E-04 cm/sec, respectively. Four clay samples collected from the barrier wall location at approximately 111 ft bls were tested for hydraulic conductivity in February-March 2018. Results were very low for both samples; ranging from 1.1E-09 to 2.0E-09 cm/sec, indicative of a low-permeability clay. Hydraulic conductivity results are shown in **Table 3-2**.

3.1.4 Site Hydrogeology

The water bearing zone underlying the ACW facility, the Sand-and-Gravel aquifer, is composed primarily of sand with many interbedded layers and lenses of clay and sandy clay. These clay layers and lenses range from less than one inch to approximately 38 ft in thickness. Based on characteristics of the sands in these areas, the water-bearing zone can be divided into two distinct strata: the US and LS Units.

The US Unit consists of approximately 25 ft of sediment varying in grain size from fine to coarse and in density from loose to dense (**Table 3-1**). These variations in grain size and density are important since they are a factor in the seepage rate of water through the soil. Soil samples for hydraulic conductivity analysis were collected for two intervals within the US Unit during the October 2011 soil investigation, with resulting values ranging from 6.79×10^{-7} to 5.35×10^{-4} cm/sec in soil borings, TG18 and SB524, respectively (**Table 3-2**).

An US Unit potentiometric map was generated using groundwater level measurements collected in January 2018 by the EPA Science and Ecosystem Support Division (SESD). These data are included in **Table 3-4** and presented on **Figure 3-5**. As seen from this Figure, the shallow groundwater flows to the south and southwest toward Bayou Chico/Pensacola Bay. The shallow aquifer is recharged by local rainfall, with relatively high infiltration rates because of the sandy nature of the aquifer and overlying soils. Annual recharge is up to 10 inches per year (EPA, 1994). **Table 3-4** includes water levels collected in March 2019, water levels average approximately 1 foot higher than those recorded in January 2018. A groundwater gradient was calculated using water level measurements collected in April 2008 from the CW8 background wells and the CW1 downgradient wells. The gradient for the US Unit was calculated in 2008 as 0.0031 feet/foot (ft/ft; SpecPro Environmental Services, LLC [SES], 2008). Black & Veatch calculated the gradient using the same well locations using the January 2018 groundwater elevations and a resultant gradient of 0.0039 ft/ft was calculated, which is the same as the 2008 data.

The LS Unit consists of sand at depths greater than 25 ft bls to a depth of approximately 200 ft and predominantly consist of a very dense sand, usually fine to medium grained, with variable amounts of silt. Discontinuous clay and sandy clay nodules and lenses occur throughout the deep sand. No continuous stratigraphic correlations can be determined between the clay lenses found in the various borings.

LS Unit potentiometric maps generated using groundwater level measurements collected in January 2018 by the EPA SESD are presented on **Figure 3-6** and **Figure 3-7**. **Figure 3-6** shows the water level measurements recorded from wells screened between 50 to 100 ft bls, while **Figure 3-7** presents data from wells with screens greater than 100 ft bls. Apparent groundwater flow in the LS Unit is to the south with discharge to Pensacola Bay. Groundwater gradients were calculated based on water level measurements collected in April 2008 in CW8 (background wells) and CW1 (downgradient wells). The gradient for the LS Unit was calculated as 0.0019 ft/ft between 50 to 100 ft bls, 0.0009 ft/ft from 100 to 150 ft bls and 0.0008 ft/ft from 150 to 227 ft bls (SES, 2008). Black & Veatch calculated the gradients using the January 2018 data. The gradients for the LS Unit were 0.0015 ft/ft between 50 to 100 ft bls, 0.0013 ft/ft from 100 to 150 ft bls and 0.0012 ft/ft from 150 to 227 ft bls. These data are relatively the same as the gradients calculated in 2008.

Geology and hydrogeology conclusions are summarized below:

- Creosote NAPL is present in significant mass in both the US Unit (25-30 ft bls) and LS Unit (55-80 ft bls).
- The Sand-and-Gravel aquifer consists of interbedded layers of sand and gravel; clay lenses are common and form local confining beds.
- Groundwater flow direction is generally towards south or southwest, toward Pensacola Bay at all depths measured.
- Four distinct lower permeability units exist beneath the ACW Site;
    1. A fine grain sand is encountered at approximately 25 ft bls,
    2. A fat “competent” clay unit is encountered at approximately 100 ft bls underlying the former ACW holding ponds,
    3. A shallow clay unit is encountered underlying the PYC property, and
    4. The Pensacola Clay at approximately 230 ft bls.

- Variation in grain size is an important factor in the vertical migration of NAPL.

3.2 PHYSICOCHEMICAL PROPERTIES OF CONTAMINANTS

Information about physical and chemical characteristics is useful in evaluating the fate (degradation/accumulation) and transport (mobility) of contaminants. The ACW facility is the location of a former wood treating facility that used coal tar creosote and PCP in the treatment process. As a result, the primary contaminants in the environmental media at the Site are NAPL creosote, PAHs, SVOCs, PCP and dioxins.

The contaminant properties of most relevance for fate and transport and remediation are:

- Soil organic carbon-water partitioning coefficient (Koc; expressed as milliliters/gram or mL/g). This parameter is an indicator for how strongly the contaminant will adhere to organics in the soil matrix.
- Henry's constant (for volatility expressed as atmospheres [atm] or as atmosphere•cubic meter/mole [atm•m^3/mol]). This parameter typifies the ability of the contaminant to be stripped (volatized) from the dissolved phase.
- Solubility (expressed as milligrams per liter or mg/L). This parameter quantifies the amount of chemical that can be dissolved in water at a set temperature. Co-solvent effects can modify this property.
- Vapor pressure (expressed as millimeters of mercury or mm Hg). This parameter quantifies the capacity for the chemical to be extracted as a vapor.
- Specific gravity (relative to water as 1.0).
- Oxidation potential (favorable or unfavorable with one or more oxidants)
- Chemical reduction potential (favorable or unfavorable with one or more reductants)
- Biodegradation potential (expressed as degradable, recalcitrant, non-biodegradable, and persistent).

The physiochemical properties for the SVOCs that are primary COCs are summarized below.

PHYSICAL/CHEMICAL PROPERTIES OF PRIMARY CONTAMINANTS

Chemical	K_{oc} (ml/g)	Henry's Law Constant (atm•m^3/mole)	Solubility (mg/L)	Biodegradation Potential (D,R,N,P)	Vapor Pressure (mm Hg)	Specific Gravity
Anthracene	1.6E+04	5.6E-05	4.3E-02	D	6.5E-06	1.3
Benzo(a)pyrene	5.50E+06	1.55E-06	1.20E-03	D	5.60E-09	1.35
Dioxin (2,3,7,8 TCDD [tetrachlorodibenzo-p-dioxin])	3.30E+06	3.60E-03	2.00E-04	N, P	1.70E-06	No Data
Fluorene	9.2E+03	9.6E-05	1.7E0	D	6.0E-04	1.2
1-Methylnaphthalene	2.5E+03	5.1E-04	2.6E+01	D	6.7E-02	1.0

Chemical	K_{oc} (ml/g)	Henry's Law Constant (atm•m³/mole)	Solubility (mg/L)	Biodegradation Potential (D,R,N,P)	Vapor Pressure (mm Hg)	Specific Gravity
Naphthalene	1.30E+03	1.15E-03	3.10E+01	D	2.30E-01	1.15
Pentachlorophenol	5.30E+04	2.75E-06	1.40E+01	R	1.10E-04	1.98
Phenanthrene	1.4E+04	1.59E-04	1.0E0	D	6.8E-04	1.06

3.2.1 Creosote

Coal tar creosote is a distillation product of coal tar and is a thick, oily liquid that is typically amber to black in color. Creosote consists of various aromatic hydrocarbons and related compounds. Creosote is often blended with up to 50% of a carrier fluid such as diesel fuel prior to use.

Coal tar creosote consists of over 200 organic compounds and at least 75% of coal tar creosote is made up of PAHs, which are comprised of carbon and hydrogen atoms grouped into at least two condensed aromatic ring structures. PAHs are subdivided into two categories:

- Low molecular weight (LMW) compounds composed of fewer than four rings such as naphthalene (a two-ring compound).
- High molecular weight (HMW) compounds of four or more rings, such as benzo(a)anthracene, benzo(a)pyrene (BaP), benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene.

3.2.2 PAHs

The PAHs present on the ACW Site have low volatility and solubility and have a high soil adsorption capacity. These compounds have a low vapor pressure and are generally not amenable to non-thermal vacuum extraction and stripping, generally accepted to be compounds over one mm Hg and with a Henry's constant greater than 130 atm. In addition, these compounds are well documented to be biodegradable by aerobic degradation (and some anaerobic pathways) and can be readily oxidized.

Naphthalene is the lowest weight polycyclic aromatic hydrocarbon (PAH) and has notable differences in its physicochemical characteristics. It is the most mobile PAH, has a high vapor potential and is highly soluble in water, therefore, typically is the main dissolved contaminant down gradient of the creosote.

3.2.3 PCP

The ACW facility also used the wood preserving chemical PCP in its processing activities. PCP is a chlorinated hydrocarbon used to protect timber from fungal rot and wood boring insects. PCP is applied to wood as a liquid formulation composed of PCP dissolved in petroleum diluents such as oils, kerosene, or mineral spirits. The presence of co-solvents, such as petroleum hydrocarbons, decreases the absorption of PCP in soil, possibly increasing its mobility in subsurface environments.

3.2.4 Dioxins

Low levels of dioxins were found in all the site surface soil and sediment samples analyzed. Dioxins are derived from human activities including chlorine bleaching of pulp and paper, chlorinated pesticides manufacturing, and the burning of fuel (e.g., wood, coal, oil, etc.). Dioxins are also a byproduct of the PCP manufacturing process, and trace amounts of dioxin impurities are found in the finished PCP

product. Tetra-, hexa-, and octachlorodibenzo-p-dioxins (TCDD, HexCDD, OCDD) are the manufacturing byproducts of PCP.

3.3 CONTAMINANT RELEASE SCENARIO

Based on historical information, such as aerial photographic analysis, site use documentation, and previous technical reports; the dioxins/furans, SVOCs (PAHs), creosote, and PCP contaminant source area was the ACW facility, primarily from the waste discharge to unlined ponds, spillage areas, and evaporation areas on the Site (**Figure 2-2**). Original contaminant releases could have occurred any time between 1902 and 1981 (116 to 37 years ago); with creosote being used primarily before 1950 and a PCP/Number 2 fuel oil mixture being used from 1950 to 1981. The dioxin/furan contamination at the Site is related to the PCP use. Migration of subsurface NAPL has been occurring since then. No record of the date, duration, or volume of specific releases has been documented.

The observed contamination at the Site is attributable to one or more of the following:

- On-facility creosote NAPL in the subsurface because of the waste lagoons and dipping ponds over many years of operation.
- Off-facility creosote NAPL in the subsurface because of the overflow through a drainage course into Bayou Chico and Pensacola Bay.
- On-facility soil contamination across the Site because of preserved wood storage prior to shipment off the Site by rail.
- Soil contamination because of previous discharges to, and overflow of the lagoons and ponds on the former ACW facility.
- On-facility dissolved groundwater contamination because of the NAPL in the subsurface.
- Off-facility dissolved groundwater contamination as a result off-facility NAPL in the subsurface soil and due to overflow through a drainage course into Bayou Chico and Pensacola Bay.
- Dissolved groundwater contamination because of previous discharges to, and overflow of the lagoons and ponds on the former ACW facility.
- Airborne transport of contaminated fugitive dust from the Site. Wind direction is omni-directional throughout the year, but there appears to be two dominant wind directions: north-northeast and south-southwest.
- Off-facility dioxin soil contamination not related to previous operations at the ACW facility, such as: another wood treater point source (Pensacola Wood Treating Company [PWTC]); backyard burning of wood and/or trash; vehicle exhaust emissions; rail transport of treated wood along the former right-of-way's (ROWs) from the ACW facility and other facilities; house fires; and fireplaces.

The present and historical site-specific potential migration pathways and release mechanisms at the Site include:

- treated lumber storage on the former facility,
- holding and dipping ponds used in the wood treatment process,
- storm water drainage and runoff,

- rail transportation of treated lumber,
- vehicular and foot traffic out the facility, and
- airborne transport by wind.

3.3.1 Soil Contamination

The most significant documented transport mechanism for the off-facility soil dioxin, PCP, and SVOCs contaminant migration has been stormwater overland flow, primarily to the northwest, west, southwest and south of the ACW property around the former waste ponds. Liquid process wastes were discharged into the unlined waste ponds or surface impoundments, which overflowed across the property and through a spillway/drainage ditch from the southwest corner of the ACW facility to a drainage ditch (former PYC Ditch) that led to Bayou Chico. Analytical results confirmed the presence of dioxin and SVOC concentrations in the PYC Ditch soil/dry sediments above the cleanup numbers listed in the 1999 OU1 Amended ROD. Therefore, 3-ft of soil was removed from the entire profile of the PYC Ditch during a RA conducted from June 1 through July 15, 2016. Approximately 4,000 cy of soil/sediment were excavated from the PYC Ditch. The soil removal activities are documented in the *American Creosote Works Operable Unit 1 Remedial Action Report* dated September 14, 2016 (SCMC, 2016).

The adjacent off-site residential properties to the south and along K Street, as well as the SE Ditch Area, and the Pine and Gimble Street ROWs, show the presence of site-related elevated dioxin and PAH concentrations, which are likely attributed to vehicular (truck, rail) and foot traffic from the facility. Rail transportation was used to move treated poles to the former Perdido Wharf for barge shipment via the SE ditch area. Truck traffic and storm water run-off along K Street is likely responsible for elevated levels of dioxins and SVOCs in these properties. Site-related dioxin and SVOC soil contamination detected along Pine and Gimble Streets and the properties adjacent to these streets was also likely transported by both storm water runoff and vehicular and foot traffic.

3.3.2 Creosote NAPL Contamination

As the primary source contaminant, the transport characteristics of creosote NAPL are an integral factor for the distribution of COCs. Creosote has a relatively slow downward gravity-driven migration but will also move laterally in more permeable layers overriding a lower permeable layer (e.g., fine sand, silt, or clay). The density of creosote NAPL is typically denser than water although weathering and different product formulations can result in both a light non-aqueous phase liquid (LNAPL) and a DNAPL. A DNAPL slightly denser than water is typical and appears to be the case at this Site. The relatively high viscosity of creosote, density driven flow, and persistence of the NAPL in the subsurface allows a long period of time for NAPL movement in the subsurface following an initial release. It is not uncommon to encounter sites where creosote NAPL is still moving following its introduction to the subsurface as much as 50 or 60 years earlier (Kueper, et al., 2003). Because many of the compounds within the creosote mixture are typically very hydrophobic, they tend to sorb strongly to the subsurface solids.

Creosote DNAPL movement in the subsurface is complex, with several factors controlling the distribution. Within the vadose zone, DNAPL migration is controlled by:

- DNAPL properties (e.g., density, viscosity, interfacial tension, degree of weathering, wettability);
- Soil porosity, permeability, moisture content, organic content, compaction, and lithologic bedding;
- Capillary pressure; and

- Surface water infiltration and any temporal perched conditions.

DNAPL actively spreads, primarily by gravity, until the free phase is distributed as a discontinuous mass of globules or ganglia (e.g., residual saturation). Although residual NAPL is immobile under normal subsurface conditions, it can act as a long-term source for continuing dissolution of contaminants into water in adjacent pores. Upon release at the ground surface, the creosote NAPL will migrate both vertically and laterally in the subsurface in a dendritic pattern. The specific migration pathways will be governed by the bedding structure of the porous medium. In horizontally bedded media, significant amounts of lateral spreading can be expected, including in directions not coincident with the direction of groundwater flow. Preferential spreading will occur where DNAPL encounters relatively permeable layers, fractures, or other pathways that present less capillary resistance to entry than underlying less permeable strata.

Residual NAPL, in the form of disconnected blobs and ganglia of organic liquid, is formed at the trailing end of a migrating NAPL body. The formation of residual NAPL, which occurs in response to pore-scale hydrodynamic instabilities, always takes place. The length of the individual blobs and ganglia of organic liquid comprising residual NAPL are typically between 1 and 10 times the average diameters of the soil particles (Kueper, et al., 2003). Residual NAPL will form in both unsaturated and saturated media and is held in place by capillary forces that arise because the interface between the NAPL, water, and air.

When NAPL migrates into partially pore-filled soil zones, the DNAPL will initially displace pore water and continue its migration under pressure and gravity forces. If migrating into a water filled pore zone, the DNAPL must overcome the capillary entry pressure to move either vertically or laterally. DNAPL may be immobilized as a reservoir of continuous immiscible fluid if the capillary barrier forms a bowl-shaped stratigraphic trap. Given enough accumulation, DNAPL will overflow discontinuous traps.

Creosote NAPL is present to depths of greater than 135 ft in the former source area, with the most mass located beneath the former holding ponds at 25-30 ft bls and at 60-75 ft bls. NAPL is migrating vertically and horizontally along low permeability sands mainly to the south, in correlation with groundwater flow. Vertical migration is dependent on the volume of NAPL or “head”. The more product the more likely it will migrate vertically along more porous lenses in stringers or ganglia. The permeability to product testing confirmed that both the shallower NAPL and deeper NAPL (**Figures 3-3** and **3-4**) have similar physical properties; viscosity, specific gravity, and hydraulic conductivity (permeability). The product has a vertical hydraulic conductivity similar to water in the same soil matrix (see Section 3.4.1). Therefore, if water will pass through a porous soil lens, so will this NAPL. NAPL has also migrated off the former facility via surface water drainage pathways to the east and south along the streets and the drainage ditches.

3.3.3 Groundwater Contamination

Site-related contaminants in the groundwater are associated with the presence of creosote NAPL in the subsurface and leachable concentrations in the soil.

In 2012, a solute transport model was developed by EPA. The groundwater model indicates a downward gradient on-facility where the clay unit is present directly beneath the former ACW holding ponds (**Figure 2-2**) at a depth of about 100 ft bls. South from the Site this clay unit pinches out and another clay unit is encountered, which underlies the PYC property and extends south to Pensacola Bay. An upward gradient exists beneath this second clay unit near the Bay. This reversal of the gradient (due to groundwater flow boundaries) adds complexity to the fate and transport of the dissolved plume.

Groundwater analytical data has been collected from the MW network yearly since the NAPL recovery system was terminated in September 2011. A direct comparison of data from 2012 with the 2018 data for both naphthalene and PCP indicate that concentrations levels vary based on the well location and sample interval. Cluster wells C1-MW03, C1-MW04, and C9-MW03 from 57 – 154 ft bls show various increases in concentrations of naphthalene and other SVOCs. Shallow cluster well C6-MW05 (sampled in 2017), screened from 9 – 19 ft bls, showed an increase in PCP, while naphthalene remained stable. Four wells installed near the former PYC ditch (MW28-3, MW420, MW720, and MW1A), and five other wells (MW660, MW680, MW4, MW6, and PYCDSN), also showed various increases in concentrations of naphthalene and other SVOCs. The other wells sampled in 2018 either had stabilized SVOC concentrations or showed a decrease. Groundwater analytical results through 2018 are shown in **Tables 3-5** and **3-6**.

The groundwater solute transport model predicted that neither naphthalene nor PCP should enter Pensacola Bay within 50 years if the sources are treated and the shallow clay to the south of the Site is present further to the east.

Well clusters installed to monitor groundwater concentrations closest to marine surface water bodies include Cluster 1 and 2 adjacent to Pensacola Bay and Cluster 4 adjacent to Bayou Chico. Groundwater sampling results indicate that SVOCs and volatile organic compounds (VOCs) in Cluster 4 wells, screened at various depths between 23 and 245 ft bls, have remained below detection limits since 2014. SVOCs and VOCs have also remained below detection limits in Cluster 2 wells screened at various depths between 118 and 246 ft bls and at a shallower interval between 11 and 21 ft bls. Despite detections of SVOCs and VOCs at C2-MW05 from 57-67 ft bls, including PCP above the marine CTL, concentrations have decreased since 2011. In Cluster 1 wells, SVOC and VOC concentrations have remained below detection limits at various depths between 196 and 251 ft bls and at a shallower interval between 17 and 27 ft bls. However, concentrations of SVOCs and BTEX (benzene, toluene, ethyl benzene, and total xylenes) have generally increased in wells C1-MW03 (screened from 137-147 ft bls) and C1-MW04 (screened from 57-67 ft bls). Concentrations of multiple SVOCs and VOCs are above CTLs in these two cluster wells.

3.4 NATURE AND EXTENT OF NAPL CONTAMINATION

The EPA 1994 OU2 ROD estimated 7.25 million gallons of NAPL to be present in the saturated zone at the ACW facility. 202,000 gallons of NAPL were recovered during the operation of the groundwater system over five years. Records indicate that wells EW02 and EW12 were the top producing NAPL extraction wells during system operation (USACE, 2007). Both wells are located within the boundaries of the former main waste pond. The hydrogeologic cross sections, **Figures 3-1** and **3-2**, illustrate where NAPL was encountered in soil borings advanced across the Site.

Two areas of NAPL have been identified at approximately 30 ft bls and at 75 to 100 ft bls, respectively, under the former waste ponds. In 2002 and 2007, the EPA contracted the USACE, Mobile District to conduct two Site Characterization and Analysis Penetrometer System (SCAPS) studies; one in the NAPL area south of the former waste ponds, and one on the PYC property around the former drainage ditch, to delineate the NAPL plumes and estimate the volume of NAPL present in the subsurface. Since the SCAPS tool was calibrated to lighter chain hydrocarbons, the EPA considers the results of the SCAPS study suspect and inconclusive regarding the extent and volume of the NAPL (USACE; 2006, 2007).

Black & Veatch was retained to perform a Tar-specific Green Optical Screening Tool® (TarGOST®) investigation to further investigate the NAPL plumes and verify the results of the SCAPS studies.

Confirmation and characterization of the two areas of NAPL were one of the main objectives of the October 2011 field investigation. A total of 27 TarGOST® points were pushed to depths ranging from 30 ft bls to 126 ft bls. **Figures 3-3** and **3-4** show the approximate extent of the NAPL plumes in the US Unit (25-30 ft bls) and in the LS Unit (55-80 ft bls) based on the October 2011 data and the 2018 RDI soil borings.

Results of prior site investigations, as well as the SCAPS investigation, indicated that NAPL exists beneath the former facility below the former waste ponds at depths of 20 to 80 ft (Bechtel, 1996; USACE, 2002). However, during the October 2011 FS investigation, NAPL was observed at boring, SB527, at a depth of 136 ft bls as a thin stringer of creosote. This is the deepest recorded observation of NAPL on the ACW facility. The lateral extent of NAPL in the LS Unit appears to exist within the facility boundaries.

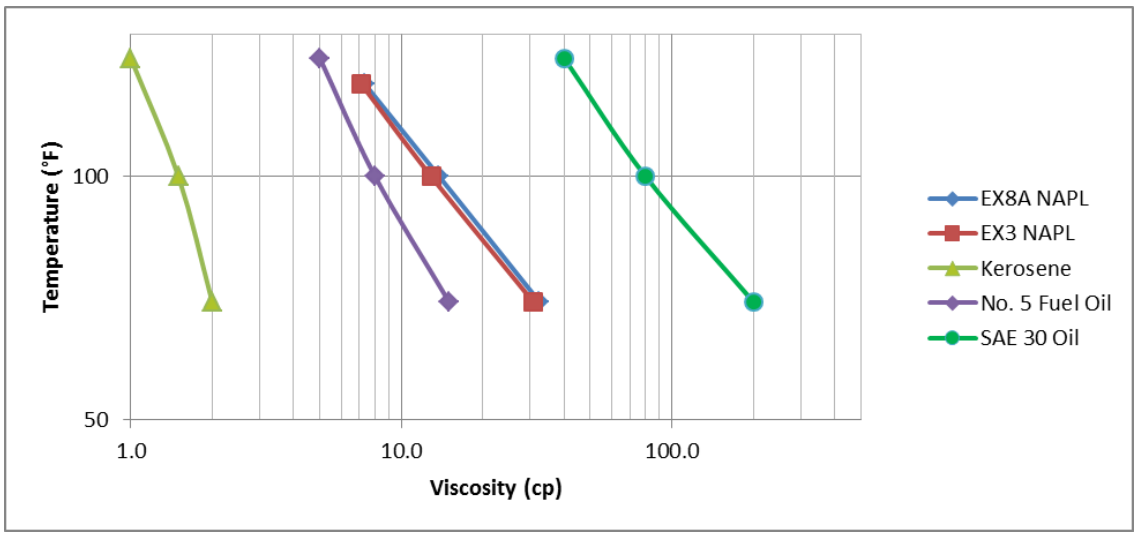
In addition to the observations beneath the ACW property, NAPL appears to have moved south towards the Pensacola Bay, and is found as far south as the PYC property (**Figure 3-3**). The southern extent of NAPL migration in the US Unit appears to be approximately 685 ft south of Cypress Street below the PYC property. A surface water drainage area between K and L Streets is the likely migratory source of off-facility NAPL (USACE, 2002). NAPL observed on the PYC property is only contained within the US Unit, from about 10 ft - 25 ft bls. The NAPL observed off-facility is less in quantity than the NAPL observed on-facility; however, both occurrences will continue to be a source of groundwater contamination (USACE, 2007).

3.4.1 NAPL Characterization Tests

The migration of NAPL in the saturated zone is heavily dependent upon the physical characteristics of the NAPL itself and the geophysical properties of the lithologic medium. NAPL transmissivity is a function of both fluid (e.g. density, viscosity) and media (e.g. permeability, pore saturation) properties. NAPL testing was performed to ascertain the viscosity and other physical properties of the NAPL found on the ACW facility, and to evaluate the transport and migration mechanisms of the NAPL in the subsurface. NAPL investigation data were provided in Site-Wide FS Appendix E. Samples of NAPL from the shallow plume at the bottom of the US Unit and from the deeper plume at the bottom of the LS Unit were collected from existing Site extraction wells to be representative of the two zones of NAPL on the ACW facility. Samples from EW03A, represented the shallow zone (above 35 ft bls) and samples from EW08A, represented deep NAPL (60 to 70 ft bls). Results from the ACW creosote DNAPL characterization tests are summarized below:

- Density - The density of creosote typically ranges between 1.0 and 1.1 grams per cubic centimeter (g/cm^3), depending on the amount and type of any carrier fluid, such as diesel, that may have been added (Kueper, et al., 2003). Two NAPL samples collected from the ACW Site were analyzed for density. The density of NAPL in a sample collected from well EW03A was at 1.076 g/cm^3 at 70°F. Results were similar for the sample collected from well EW08A, at 1.082 g/cm^3.

- Viscosity - Viscosity is a measure of a materials resistance to flow and is a function of temperature. The dynamic viscosity of creosote typically ranges between 15 and 50 centipoise (cP) at 68°F (water has a viscosity of 1 cP). Two NAPL samples collected from the ACW Site were analyzed for viscosity. The viscosity of NAPL in the sample collected from well EW03A (shown as EX3 in the plot below) was 30.7 cP at 70°F. Results were similar for the sample collected from well EX08A (shown as EX8A in the plot below), at 32.4 cP. The NAPL at the ACW Site can be classified as heavier and having a higher viscosity than a standard No. 5 Fuel Oil. A viscosity/temperature plot for ACW Site NAPL in relation to gasoline and heavier oils is shown below:



- Residual Saturation (R_{SAT}) – The R_{SAT} value is the amount of NAPL that is contained interstitially in a soil matrix where the NAPL has become immobilized by capillary forces. The residual NAPL saturation essentially represents the amount of NAPL that is unrecoverable using standard direct pumping extraction technologies. R_{SAT} tests using ASTM Method D425M (Dean-Stark method) at the ACW Site provide an indication of the volume/mass of creosote NAPL retained in the soil residually. Initial NAPL saturation tests represent the total amount of NAPL contained in the undisturbed soil matrix. The final NAPL saturation value represents the residual NAPL remaining after a centrifuge, running at 1,000 times the force of gravity, was used to move product and water from the core sample.

Initial ACW-specific NAPL pore saturations were 16.4% of the measured pore volume in sample 527SB97 and 28.8% in sample 524SB25. Final R_{SAT} values were 12.9% of the measured pore volume in sample 527SB97 and 7.7% in sample 524SB25. Thus, a moderate percentage of NAPL was retained, particularly for sample 527SB97. The potential R_{SAT} values are significant from a total mass perspective. An initial NAPL saturation value of 28.8% from sample 524SB25, equates to a NAPL concentration of 92,444 mg of NAPL per kilogram (kg) of soil (approximately 9% by weight). An initial NAPL saturation value of 16.4% from sample 527SB97, equates to a NAPL concentration of 43,974 mg of NAPL per kg of soil (approximately 4% by weight). The soil NAPL concentration for sample 524SB25 was derived as shown below:

(0.288) • (0.444) ft^3-NAPL	ft^3-soil	66.8 lb-NAPL	454 g-NAPL	lb-soil	1000 mg-NAPL
ft^3-soil	92.4 lb-soil	ft^3-NAPL	lb-NAPL	0.454 kg-soil	g-NAPL

where: NAPL saturation = 28.8%
soil porosity = 44.4% (assumed)
soil bulk density = 92.4 lb/ft^3
NAPL density = 1.07*62.4 = 66.8 lb/ft^3

- Permeability to product analysis was performed on five soil samples. The samples were collected from non-saturated NAPL zones that were directly beneath NAPL saturated zones. The results range from 1.88E-04 to 1.83E-07, which indicates that the NAPL has accumulated in the most porous units. Visual observations of soil cuttings and NAPL occurrences during supplemental investigations indicate that NAPL has accumulated in the more porous units (Site-Wide FS Appendix B-1: Plates 4, 4A, 4B, 32, and 33). Based on sample SB524, a similar hydraulic conductivity and NAPL conductivity were derived – it is assumed that NAPL and groundwater travel in similar modes.

Permeability to Product

Boring ID	Depth (ft)	Sample Location	Sample Orientation	NAPL Conductivity* (cm/sec)
TG15	17-19.5	PYC Property	V	1.83E-07
SB524	24-25	Former Holding Pond	R	1.88E-04
SB527	97.3	Side-gradient of Former Holding Pond	R	7.94E-06
528SB11	10.5-11	PYC Property	R	1.85E-06
530SB79	79-79.3	Former Holding Pond	R	2.21E-06

*sample completely saturated with NAPL, ft – feet, cm/sec – centimeters per second, V – vertical, R - remolded in cylinder

3.5 NATURE AND EXTENT OF SOIL CONTAMINATION

Surface soil and subsurface soil samples were collected from and around the ACW Site as part of the site investigative activities. The following summary of the nature and extent of soil contamination was derived from the *1999 AROD* (EPA, 1999) and the *OU3 Focused RI Report, Revision 0* (Black & Veatch, 2009).

The nature and extent of the residual surface soil dioxin contamination in the off-facility areas is documented in the approved *OU3 Focused RI Report, Revision 0* (Black & Veatch, 2009). Based on comments received on the final *OU3 Focused RI, Revision 0*, (Black & Veatch, 2009), the *OU3 Focused FS, Revision 0* (Black & Veatch, 2010) and *Revision 1* (Black & Veatch, 2011), additional soil samples were collected in February 2010, January 2011, and October 2011 as part of three supplemental FS investigations. The RDI conducted from February to November 2018 included the collection of additional soil samples to further refine the extent of proposed surface soil excavation of dioxin-contaminated soil from off-facility areas impacted by overland flow (storm water runoff from the former waste ponds), and vehicular traffic off-site (former railroad ROWs south and east of the facility and vehicle and foot traffic along K and J Streets). The nature and extent of the soil contamination based on these data is summarized in the following subsections. The sample identification nomenclature for the soil samples is as follows:

Soil Sample Nomenclature

Sample ID	Depth of Sample (bls)								
SS/SB Soil sample	A	B	AB	C	D	E	F	G	H
	0 – 6 inches	6 – 12 inches	0 – 12 inches	1 – 2 feet	2 – 3 feet	3 – 4 feet	4 – 6 feet	6 – 8 feet	8 – 10 feet

3.5.1 On-facility Soil and Ditch Sediments

The *1999 OU1 AROD* documented elevated levels of SVOCs, PCP, and dioxins/furans in the soil and sediments across the former ACW facility and the PYC Ditch; although PCP exceedances were not detected in the PYC Ditch sediments. The AROD stated that these areas would require remediation to meet the Remedial Goals (RGs) established in the document (EPA, 1999).

A comparison of the 2007, 2010, and 2011 soil sample results from the ACW facility, the PYC Ditch (i.e., Dredging Spoils Pile), and the SE Ditch to the 1999 AROD RGs and/or the more current SCTLs indicates that there are exceedances of SVOCs, PCP, dioxins/furans, in the surface and subsurface soil. The analytical results of the 2007, 2010, and 2011 sampling are provided in the following tables and figures:

- **Table 3-7**: Semi-Volatile Organic Compounds in Surface Soil - ACW Facility
- **Table 3-7**: Semi-Volatile Organic Compounds in Subsurface Soil - ACW Facility
- **Table 3-9**: Semi-Volatile Organic Compounds in Surface Soil - PYC Dredging Spoils Pile
- **Table 3-10a**: Semi-Volatile Organic Compounds in Surface Soil - SE Ditch Area
- **Table 3-10b**: Semi-Volatile Organic Compounds in Subsurface Soil - SE Ditch Area
- **Table 3-11**: Dioxin Concentrations in Soil - ACW Facility
- **Table 3-12**: Dioxin Concentrations in Soil - PYC Dredging Spoils Pile
- **Table 3-13**: Dioxin Concentrations in Soil - SE Ditch Area
- **Figure 3-8a**: Semi-Volatile Organic Compounds Exceedance in Soil – ACW Facility and Gimble & Pine Streets
- **Figure 3-8b**: Semi-Volatile Organic Compounds Exceedance in Soil – ACW Facility and Gimble & Pine Streets
- **Figure 3-9**: Pentachlorophenol Exceedance Concentrations in Soil – ACW Facility and Gimble &Pine Streets
- **Figure 3-10**: Dioxins/Furans Exceedance Concentrations in Soil – ACW Facility and Gimble and Pine Streets (2007-2011)
- **Figure 3-11a**: Dioxin TEQ Concentrations in Off-facility Surface Soil (2007-2011)
- **Figure 3-12**: Benzo(a)pyrene TEQ Concentrations in Off-facility Surface Soil (2007-2011)

3.5.1.1 On-facility Soil

Surface and subsurface soil samples were collected from a total of 25 sample locations. Four of the samples contained NAPL; therefore, most of the SVOCs and/or dioxins were elevated above regulatory criteria (SS501, SS504, SB515, and SB518), including the Land Disposal Restriction (LDR) criteria. These

locations are around the former holding ponds. The nature and extent of soil contamination on the former facility as of 2011 is summarized as follows:

Semi-Volatile Organic Compounds

On-facility SVOC results are shown on **Table 3-7**, **Table 3-8**, **Figure 3-8a**, and **Figure 3-8b**. Nine surface soil locations (0-3 ft bls) exceed a Florida Department of Environmental Protection (FDEP) Soil Cleanup Target Level ([SCTL] direct exposure for commercial, or leachability for protection of groundwater or marine surface water). BaP toxicity equivalent (TEQ) concentrations were detected above the FDEP commercial direct exposure SCTL (700 micrograms per kilogram [µg/kg]) in 12 samples: SS515D, SS516C, SS518AB, SS518C, SS519AB, SS519C, SS520AB, SS521AB, SS521C, SS521D, SS522AB, and SS522C. Of these 12 samples, seven were detected above the FDEP SCTL for leachability based on groundwater (8,000 µg/kg): SS515D, SS516C, SS518AB, SS521C, and SS522AB. The highest BaP TEQ concentration was observed at SS515D at 150,720 J,O µg/kg (this sample contained NAPL).

In the subsurface soil samples collected below 3 ft bls (saturated), SVOC concentrations exceeding a leachability FDEP SCTL at six locations. BaP TEQ concentrations were detected above the FDEP SCTL for leachability based on groundwater (8,000 µg/kg) in five samples: SS518E, SS518F, SS518G, SS518H, and SB524 at 26.5 ft bls. The highest BaP TEQ concentration was observed at SB524 from the 26.5 ft interval, at a concentration of 256,740 µg/kg. No additional SVOC soil samples were collected below this interval.

Pentachlorophenol

On-facility PCP results are shown on **Table 3-7**, **Table 3-8**, and **Figure 3-9**. Nine surface soil locations (0-3 ft bls) exceeded the FDEP SCTL for leachability based on groundwater (30 µg/kg): SS506D, SS509D, SS512D, SS515D, SS516B, SS516C, SS517B, SS517D, SS518AB, SS518D, SS519AB, SS519D, SS520AB, SS520C, SS521AB, SS522AB, and SS522C. Nine samples also exceed the FDEP SCTL for leachability based on marine surface water (200 µg/kg): SS512D, SS515D, SS516C, SS517B, SS517D, SS518AB, SS519AB, SS522AB, and SS522C. None of these samples exceed the commercial direct exposure FDEP SCTL of 28,000 µg/kg. The highest PCP concentration was observed at SS515D at 3,800 N,O µg/kg (this sample contained NAPL).

Subsurface soil locations and depths (below 3 ft bls) that exceed the FDEP SCTL for leachability based on groundwater (30 µg/kg) are; SS512E, SS517E, SS517F, SS517G, SS517H, SS518E, SS518F, SS522E, and SB524 (21 ft bls). Of these nine samples, three exceed the FDEP SCTL for leachability based on marine surface water (200 µg/kg); SS518E, SS518F, and SB524 (21 ft bls). The highest PCP concentration was observed at SS518E at 3,500 µg/kg, which contained NAPL.

Dioxins

On-facility dioxin results are shown on **Table 3-11** and **Figure 3-10**. Dioxin TEQ concentrations were detected above the FDEP commercial SCTL (30 nanograms per kilogram [ng/kg]) in 18 of 20 sample locations on the ACW property: SS501D, SS502D, SS503B, SS504D, SS506B, SS507B, SS508B, SS509D, SS510D, SS512D, SS515D, SS516B, SS517D, SS518AB, SS519C, SS520AB, SS521AB, and SS522D. The highest dioxin TEQ concentration of 12,000 ng/kg was detected at SB501B at a depth of 6-12 inches bls. This sample had visual evidence of NAPL on the soil sample. The deepest dioxin TEQ concentration, 3,900 ng/kg, was detected at SB504D at a depth of 2-3 ft bls. Deeper samples were not collected due to contact with the water table. Eight of the 20 locations (SS501D, SS502D, SS504D, SS509D, SS512D,

SS515D, SS517D, and SB522D) had exceedances of one or more of the LDRs at the "D" interval (3 ft bls). Only three of the 20 surface soil sample locations did not indicate any dioxins/furans levels in exceedance of an LDR criterion for any of the 17 congeners: SS505, SS506, and SS523. These locations are in the on-facility soil stockpile soil or as is the case with SS523, it is located at the eastern extent of the property.

Synthetic Precipitation Leaching Procedure

Select ACW facility soil samples were also analyzed by Synthetic Precipitation Leaching Procedure (SPLP) for SVOCs, PCP, and dioxins/furans and leachate results were compared to the FDEP Groundwater Cleanup Target Level (GCTLs) and CTLs. SPLP results for SVOCs, PCP, and dioxins are shown on Tables 3-14, 3-15, and 3-16, respectively. These data indicate that the soil on the former facility has the potential to leach contaminants into the groundwater, particularly for PCP. These tables also show the corresponding soil concentration in the same depth interval for comparison.

SVOCs*:* Thirteen locations were analyzed for SVOCs by the SPLP method. These locations produced leachate that exceeded at least one or more SVOC FDEP CTLs: SS506D, SS509G, SS512F, SS515D, SS516H, SS517H, SS518H, SS519G, SS520E, SS521G, SS522H, SS523F and SS603AB. Note: The letter after the sample location ID identifies the deepest depth sampled that detected an exceedance: The sample from SB518H (8-10 ft bls) contained the maximum SVOC concentrations in the soil and in the leachate, due to presence of NAPL in the sample. Results in **Table 3-14** indicate there is little to no correlation between the SPLP leachate result and the corresponding soil concentrations. For example, the samples from SS516D, E, F, G, and H produced leachate in exceedance of the CTLs criteria; however, the corresponding soil sample did not exceed the SCTL based on groundwater or marine surface water criteria. Exactly 42 samples analyzed by SPLP leached a concentration above a FDEP CTL, but the corresponding soil concentrations did not exceed the FDEP STCL for leachability based on groundwater or marine surface.

PCP*:* Surface and subsurface samples were collected from 13 locations and analyzed for PCP concentrations by the SPLP method. Eleven soil samples; SS512D, SS515D, SS516C, SS517B, SS517D, SS518AB, SS518E, SS518F, SS519AB, SS522AB, and SS522C detected a PCP concentration above both the FDEP SCTL for leachability based on marine surface water (200 µg/kg) and leachability based on groundwater (30 µg/kg). Of these 11 samples, eight produced leachate that exceeded the FDEP CTLs. The deepest detection was in the 4-6 ft interval (SS518F with NAPL). This comparison validates that the PCP SCTL for leachability is indicative of leachable concentrations above the FDEP CTL for PCP.

Dioxins: There was no correlation with the dioxins SPLP data. Only one sample, SS515D, indicated a dioxin TEQ concentration above the FDEP SCTL for leachability based on groundwater (3 µg/kg) at 27 J,O µg/kg. This sample did not produce a leachate above the FDEP GCTL for groundwater. This sample is in the former holding pond area. Note that sample SB515D and SS518 were collected in the former main pond area. The exceedingly high analytical results of these samples indicate the presence of NAPL.

3.5.1.2 SE Ditch Area Soil

The analytical results from surface and subsurface samples collected from the SE Ditch extension indicate exceedance of the dioxin TEQ residential direct exposure FDEP SCTL of 7 ng/kg in three locations; SS301, SS302 and SS303. Surface sample location, SS303B, contained the highest concentration of dioxin, with an estimated 200 ng/kg of dioxin TEQ at the 6-12-inch bls depth. Subsurface sample location, SB303F, detected a dioxin TEQ result of an estimated 25 ng/kg at the 4 ft bls

depth. Two sample depths, SS303A and SS303B, exceeded the OCDD LDR value of 50,000 ng/kg (**Table 3-13**).

3.5.1.3 PYC Dredging Spoils Pile

The analytical results from the three surface soil sample locations collected from the PYC Dredging Spoils Pile exceeded the dioxin TEQ residential SCTLs of 7 ng/kg at two locations: SS401 and SS402. Location SS402A contained the highest concentration of dioxin with an estimated 81 ng/kg of dioxin TEQ at the 6-12-inch bls depth. Two sample locations (SS402AC and SS403AC) contain BaP TEQ concentrations that exceed the FDEP residential SCTL of 100 µg/kg. Location SS402 contained the highest estimated concentration of BaP TEQ at 540 J,O µg/kg. **Tables 3-9** and **3-12** present the SVOC and dioxin analytical results of the December 2007 and February 2010 sampling performed in this area. The results are illustrated on **Figures 3-11a** and **3-12**.

3.5.2 Off-facility Soil Contamination

A soil investigation was performed in Sanders Beach Community, south of the Site in 1996 (Black & Veatch, 1997) that revealed the presence of elevated levels of dioxins/furans and PAHs in the surface soil in the residential area immediately surrounding the former facility. The FDEP regulations changed in 2005 which lowered the acceptable levels of dioxin concentrations that are deemed safe in residential and commercial settings. To delineate the dioxin concentrations to these new lower concentrations, additional soil samples were collected in December 2007 as the scope of the OU3 Focused RI to further delineate the areal and vertical extent of the dioxin contamination in the surrounding neighborhoods. A detailed explanation of the 2007 study is provided in the *OU3 Focused RI Report, Revision 0* (Black & Veatch, 2009).

The FS supplemental soil investigation was performed in February 2010, to further delineate the dioxin levels on and off the facility and to collect data on the SVOCs (PAHs) in the neighborhood soil. Additional RDI soil sampling was conducted in 2018 and 2019 to further refine the extent of proposed surface soil excavation for dioxin contaminated soil. The analytical results from these sampling events are summarized in **Table 3-17** through **Table 3-22** for the City Blocks, the PYC property, Gimble and Pine Streets, and 2018 off-facility areas and in **Figures 3-10, 3-11a, 3-11b,** and **3-12** as described below.

- **Table 3-17:** Dioxin Concentrations in Soil – City Blocks
- **Table 3-18**: Semi-Volatile Organic Compounds in Surface Soil – City Blocks
- **Table 3-19a**: Dioxin Concentrations in Soil – PYC Locations
- **Table 3-19b**: Semi-Volatile Organic Compounds in Subsurface Soil – PYC Locations
- **Table 3-20**: Dioxin Concentrations in Soil – Gimble and Pine Streets
- **Table 3-21**: Semi-Volatile Organic Compounds in Soil – Gimble and Pine Streets
- **Table 3-22**: Dioxin Concentrations in Soil – 2018 and 2019
- **Figure 3-8a**: Semi-Volatile Organic Compounds Exceedance in Soil – ACW Facility and Pine & Gimble Streets
- **Figure 3-8b**: Semi-Volatile Organic Compounds Exceedance in Soil – ACW Facility and Pine & Gimble Streets
- **Figure 3-9**: Pentachlorophenol Exceedance Concentrations in Soil – ACW Facility and Pine & Gimble Streets

- **Figure 3-10**: Dioxins/Furans Exceedance Concentrations in Soil – ACW Facility and Pine and Gimble Streets (2007 - 2011)
- **Figure 3-11a**: Dioxin TEQ Concentrations in Off-facility Surface Soil (2007 - 2011)
- **Figure 3-11b**: Dioxin TEQ Concentrations in Off-facility Surface Soil (2018)
- **Figure 3-12**: Benzo(a)pyrene TEQ Concentrations in Off-facility Surface Soil

The soil samples were analyzed for SVOCs (PAHs) and dioxins/furans. Since no PCP contamination was found during previous sampling events, the most of the residential/commercial area samples were not analyzed for PCP. Two samples collected from Gimble and Pine Streets were analyzed for PCP, since they were located adjacent to the former facility.

3.5.2.1 City Blocks

Surface soil samples were collected from the City Blocks in 2007 and February 2010. Surface soil samples were collected from the City Blocks during the 2018 RD investigation, these results are discussed below in Section 3.5.2.4.

Semi-Volatile Organic Compounds

A total of 23 locations were sampled and analyzed for SVOCs in 2010 and 2011. In the 23 locations, only five sample locations (SS114A, SS114B, SS145AB, SB157D, and SS176A) indicated a total BaP TEQ exceedance of the FDEP residential SCTL of less than (<) 100 µg/kg. All the locations were delineated at the next sample depth, except for SS145 and SS157D, which could not be sampled at the deeper depth due to contact with the water table. Sample location SS113C was relocated during the sample event from the right-of-way (ROW) into the actual parcel. This second location, identified as SS113R, indicated sample results below the BaP TEQ residential SCTL at depth "C" (1-2 ft bls). **Table 3-18** and **Figure 3-12** show the extent of BaP TEQ in the off-facility soil that exceeds the residential SCTL.

Dioxins

Five locations (SS173 – SS177) were sampled in February 2010 in the residential areas to further define the lateral extent of the dioxin contamination to the east and the west of the former facility (refer to **Figure 3-11a**). All five locations were below the residential SCTL at the 6-12-inch bls depth (**Table 3-17** and **Figure 3-11a**). This sampling delineated the eastern and western extents of the dioxin contamination. The southern extent was delineated in the OU3 RI. The northern extent of site-related dioxin contamination has been defined at Barrancas Avenue and Main Street due to other potential sources of dioxins from the commercial/industrial property usage in the vicinity.

Seven locations (SS115D, SS121D, SS125B, SB145AB, SS157D, SS158C, SS158D, and SS164D) were sampled to further delineate the vertical extent of the dioxin contamination. Five of the seven locations were vertically delineated to the 7 ng/kg residential exposure SCTL in 0-2 ft depths. Two subsurface soil samples (SS157D and SS158D) exceed the 7 ng/kg residential exposure SCTL (**Table 3-17** and **Figure 3-11a**).

Of all the off-facility locations sampled, only one sample location and depth, SS133B (located in the Gimble Street ROW), indicated a concentration of OCDD above LDR criteria (**Table 3-17**).

3.5.2.2 PYC Locations

Surface soil samples were located from six locations were on the PYC property and analyzed for dioxins/furans only. One sample depth, SS201A, exceeded the dioxin TEQ residential exposure SCTL of 7 ng/kg, but was delineated at the next depth. Sample, SS202, from 0-3 ft bls, contained levels above the dioxin TEQ residential exposure SCTL. SS202B also had an exceedance of the LDR criterion for OCDD (**Table 3-19** and **Figure 3-11a**).

Composite Samples

Two composite soil samples were collected in the PYC Dredging Spoils Pile in February 2010 and analyzed for VOCs and the priority pollutant metals in 2010 (as shown in **Table 3-23** and **Table 3-24**). These samples were analyzed to determine a proper disposal option for this soil (approximately 10,000 cy) during implementation of the PYC restoration. This soil is included in the remedy evaluations for the off-facility surface soil contamination.

3.5.2.3 Gimble and Pine Streets

Surface soil samples were collected from the Gimble and Pine Street ROWs in February 2010 for dioxins/furans and SVOCs (PAHs). Two samples were collected from Gimble and Pine Streets (SS601C and SS603AB). Sample SS603C was analyzed for SPLP SVOCs, PCP, and dioxins and sample SS601C was analyzed only for dioxins (see **Tables 3-14, 3-15, 3-16,** and **3-20**) due to previously high concentrations detected in these samples.

Semi-Volatile Organic Compounds

One surface soil sample collected from Gimble Street (SS601A) exceeded the residential BaP TEQ SCTL, 100 µg/kg, as did all four locations sampled on Pine Street (SS602A, SS603A, SS604A and SS605A). PCP levels exceeded the SCTLs for leachability, in five locations; SS601AB, SS602AB, SSS603A-C, SS604A-C, and SS605AB). The laboratory results for the sampling in this area are shown in **Table 3-21** and shown on **Figures 3-8b, 3-9**, and **3-12**.

Dioxins

Five locations were sampled in these two ROWs. All the locations in Gimble and Pine Streets indicate levels of dioxin TEQ in surface soil above the residential exposure SCTL of 7 ng/kg in the soil. Three of the locations indicated dioxin congener levels above one or more LDR criteria; SS601AB, SS603AB, and SS604AB. Sample SS603 exceeded the LDR criteria for six dioxin congeners. **Figures 3-10** and **3-11a**, and **Table 3-20** show these data.

Synthetic Precipitation Leaching Procedure

The highest concentration sample from Pine or Gimble Street (SS603) was analyzed by SVOC SPLP. Several SVOCs detected in the leachate above the FDEP CTLs confirmed the potential for these concentrations to leach into the groundwater (**Table 3-14**).

3.5.2.4 2018 RDI Off-Facility Samples

Surface soil samples were collected from off-facility areas from February through November 2018 for the RDI. EPA Laboratory Services and Applied Science Division (LSASD) collected an additional 13 samples in March 2019 to confirm previous analytical results and fill a data gap. **Table 3-22** and **Figure**

3-11b show the 2018 and 2019 dioxin TEQ sample locations. The results refined the extent of proposed dioxin-contaminated surface soil excavation within the exposure units.

Composite Samples

During the initial off-facility sampling event conducted in February 2018 5-point composite samples were collected from three depth intervals: 0 to 6 inches (A Zone), 6 to 12 inches (B Zone), and 12 to 24 inches (C Zone) bls. All samples collected for dioxins/furans analysis from Zone C were archived and stored at an approved laboratory in a temperature-controlled room. If the results of A and/or B zone analysis indicated an exceedance of the Dioxin TEQ remedial goal value of 7 ng/kg, then the C interval sample was analyzed. During the February 2018 sampling event 114 samples were collected from 38 locations. Following the evaluation of the A and B interval samples, 18 C interval samples were sent out for analysis.

Discrete Samples

The remaining off-facility sampling events conducted in April, June, July, October 2018, and March 2019 were discrete interval samples collected from three depth intervals: 0 to 6 inches (A Zone), 6 to 12 inches (B Zone), and 12 to 24 inches (C Zone) bls. Discrete samples were collected from the front and back yard from each of the three (3) intervals.

Sample Results

The results of the samples collected in 2018 and 2019 helped to define the extent of off-facility excavation. As seen on **Figure 3-11,** most of the excavation that will occur to 2-foot depth is located along the site boundaries and the former path of stormwater drainage. As you move away from the site and away from the process area, the excavation depths tend to be shallower (0-6 inches) or from 0-1 foot. The highest concentration of Dioxin TEQ was observed at sample location SS1042, located North of the Site on Gimble Street. All three intervals exceeded the remedial goal value of 7 ng/kg.

3.5.3 Site-Attributable Dioxin

As part of the FS, forensic geostatical analysis and congener analyses of the dioxin/furan soil data was performed to determine locations of site-attributable contamination. The analyses concluded that due to the transport method of dioxins from the facility, site-attributable dioxin were identified along two primary contaminant migration pathways: (1) overland flow (storm water runoff from the former waste ponds); and (2) vehicular traffic off-site (former railroad ROWs south and east of the facility and vehicle and foot traffic along K and J Streets). High risk exposure areas were identified where Site contamination migrated off-site. **Figure 3-13** depicts the exposure area where overland flow and stormwater runoff from the facility contributed to off-site migration of dioxin and PAH contamination to surface soil in the adjacent properties. **Figure 3-14** shows the exposure area where vehicular and foot traffic on and off the former facility resulted in dioxin and PAH contamination transport into the neighboring community's surface soil (0-2 ft).

3.6 NATURE AND EXTENT OF DISSOLVED CONTAMINATION

The nature and extent, as defined in the *1994 OU2 ROD* (EPA, 1994) for the dissolved plume, focused on SVOCs, phenols, and VOCs. In 1994, the groundwater contamination in the US Unit was limited to the area below and immediately downgradient of the ACW facility. The zone of 30 to 70 ft bls was found to contain the highest level of contamination, with the highest concentrations detected at the former

facility; immediately downgradient of the former holding ponds. Based on the data available at the time, the *1994 OU2 ROD* estimated 152 million gallons of groundwater would require treatment (EPA, 1994).

3.6.1 Nature of the Dissolved Plume

During its operation, the NAPL recovery system extracted and recycled approximately 201,915 gallons of NAPL; however, the groundwater contamination has continued to migrate downgradient of the Site towards the Pensacola Bay area. The dissolved plume extends from depths of approximately 3 to 190 ft. Naphthalene and PCP concentrations have been chosen as the indicators of the groundwater plume mass. Naphthalene was selected as the primary downgradient indicator of creosote contamination. Naphthalene has a higher solubility and a lower water K_{oc} than any other PAH or significant creosote component. It will travel farther and faster (with less retardation) than other PAHs. It always represents the leading edge of the dissolved plume at a creosote site; however, an important consideration is that naphthalene also typically biodegrades more readily than other PAHs which can counteract the spread of the dissolved plume.

PCP was determined to be the second dissolved phase indicator for the Site COCs. It is a direct indicator of the operational use of PCP in the pressurized wood treating process. It has a lower solubility and higher K_{oc} than naphthalene although it is more mobile based on these characteristics than most creosote PAHs. Unlike naphthalene, PCP is recalcitrant and will not readily biodegrade as easily under normal aquifer conditions; therefore, it can advect and disperse over longer distances than the corresponding PAH compounds from a wood treating site.

3.6.2 Extent of Dissolved Plume

The most recent groundwater quality data was collected by the EPA Region 4 LSASD in March 2019. The 2019 data will be presented in the Part 3 RD for groundwater. A comparison of 2018 groundwater analytical results to regulatory screening criteria or potential RGs are provided in **Tables 3-5** and **3-6**. The discussion below incorporates groundwater data collected through 2018.

Black & Veatch reviewed the groundwater analytical data from select well clusters, to determine if any trends could be established. Results of this evaluation are discussed below by analyte groupings: SVOCs and PCP.

Naphthalene and PCP concentration maps are included as **Figures 3-15** through **3-20**. The concentration maps represent six depth intervals based on similar well screen groupings up to 250 ft bls or the top of the Pensacola Clay. The lateral and vertical extents of the 2008-2018 naphthalene and PCP concentrations in groundwater at the Site can be seen from these figures.

- **Figures 3-15a/b**: Sample Interval < 40 ft bls
- **Figure 3-16a/b**: Sample Interval 40 - 80 ft bls
- **Figure 3-17**: Sample Interval 80 - 120 ft bls
- **Figure 3-18**: Sample Interval 120 - 160 ft bls
- **Figure 3-19**: Sample Interval 160 - 200 ft bls
- **Figure 3-20**: Sample Interval > 200 ft bls

The lateral and vertical extents of the 2008-2018 naphthalene and PCP concentrations in groundwater at the Site can be seen from these figures.

- CW8, located to the northeast of the ACW property, defines both the lateral and vertical extent of the plume in this direction. There have been no detections of naphthalene or PCP in any of the intervals in these wells in the last 10 years.
- The eastern edge of the plume is defined at CW10, located on east end of the ACW property, near Pine Street. There were no detections of any of the COCs in this well cluster.
- The 200 series wells, located at the corner of M Street and Barrancas Street, are the wells furthest to the west of the ACW property. The shallow well exhibits elevated levels of naphthalene at 23 ft bls, but non-detectable levels are indicated at the deeper intervals. Naphthalene concentrations in the shallow well have been decreasing, the 2016 sample is the first sample to be detected at a concentration below the regulatory screening values. No PCP was detected in this well cluster.
- CW5, located to the southwest of the ACW facility in a former railroad ROW, had elevated levels of PAHs, phenols and naphthalene from 17 to below 47 ft bls, but did not have detectable levels at the 67-77 ft interval and below. This well also indicated the highest levels of BTEX (benzene, toluene, ethyl benzene, and total xylenes) of any of the wells near the ACW site.
- To the south, naphthalene and PCP levels above the CTL screening criteria have been detected in CW1, located at the end of K Street and the edge of Pensacola Bay, and in CW2, located at end of I Street and Pensacola Bay.
    - Naphthalene and carbazole were detected above the CTLs in CW1 at the 57-67 ft interval and the 137 - 147 ft interval only. PCP was detected in this well cluster at the 137 - 147 ft interval only.
    - PCP was detected in CW2 above the FDEP CTLs only at the 57 - 67 ft interval. The next interval at 118 – 128 was non-detect for all COCs in 2016, samples at this interval were not collected in 2017 or 2018.
    - **Figure 3-19** shows deepest extent of PCP contamination above the CTLs is in the 167-177 ft interval of CW9 at 12 µg/L.
    - The deepest extent of naphthalene above the CTLs was detected in the 167-177 ft interval at CW9, located at the corner of J and Sonia Streets., and in MW4, located just southwest of the ACW property, along L Street, screened from 182-192 ft bls (**Figure 3-19**).

Table 3-25 contains the known well construction details for the Site wells.

Groundwater analytical data has been collected from the MW network yearly since the NAPL recovery system was terminated in September 2011. A direct comparison of data from 2012 with the 2018 data for both naphthalene and PCP indicate that concentrations levels vary based on the well location and sample interval. Cluster wells C1-MW03, C1-MW04, and C9-MW03 from 57 – 154 ft bls show various increases in concentrations of naphthalene and other SVOCs. Shallow cluster well C6-MW05 (sampled in 2017), screened from 9 – 19 ft bls, showed an increase in PCP, while naphthalene remained stable. Four wells installed near the former PYC ditch (MW28-3, MW420, MW720, and MW1A), and five other wells (MW660, MW680, MW4, MW6, and PYCDSN), also showed various increases in concentrations of

naphthalene and other SVOCs. The other wells sampled in 2018 either had stabilized SVOC concentrations or showed a decrease.

Well clusters installed to monitor groundwater concentrations closest to marine surface water bodies include Cluster 1 and 2 adjacent to Pensacola Bay and Cluster 4 adjacent to Bayou Chico. Groundwater sampling results indicate that SVOCs and volatile organic compounds (VOCs) in Cluster 4 wells, screened at various depths between 23 and 245 ft bls, have remained below detection limits since 2014. SVOCs and VOCs have also remained below detection limits in Cluster 2 wells screened at various depths between 118 and 246 ft bls and at a shallower interval between 11 and 21 ft bls. Despite detections of SVOCs and VOCs at C2-MW05 from 57-67 ft bls, including PCP above the marine CTL, concentrations have decreased since 2011. In Cluster 1 wells, SVOC and volatile organic compound (VOC) concentrations have remained below detection limits at various depths between 196 and 251 ft bls and at a shallower interval between 17 and 27 ft bls. However, concentrations of SVOCs and BTEX have generally increased in wells C1-MW03 (screened from 137-147 ft bls) and C1-MW04 (screened from 57-67 ft bls). Concentrations of multiple SVOCs and VOCs are above CTLs in these two cluster wells.

3.6.3 Groundwater Concentrations Trends

Naphthalene and PCP concentrations from select wells were evaluated to assess if any significant trends could be established from the historical data. The results are discussed the following subsections.

3.6.3.1 Naphthalene

Historically, most SVOC (naphthalene) contamination was found on-facility and immediately downgradient of the Site (Bechtel, 1996). A previously existing cluster of wells, known as the 300 series wells, were in the southwest corner of the facility boundary, along L Street. There is only one set of data from 1984 for these wells. There were five wells that made up the 300 series wells, and four of the five wells contained very high levels of naphthalene and other SVOCs (**Table 3-5**). In 1984, the highest detection of naphthalene was observed at MW320, the shallowest well, at a concentration of 580,000 µg/L. More recent data, from well MW06US, which is in the same area as MW320 and is screened at a similar depth, shows a significant decrease in concentrations over time. In 2011, naphthalene was detected at MW06US at a concentration of 7,000 µg/L. This comparison shows a significant reduction in concentrations over time. This portion of the plume was under the influence of the NAPL extraction system.

The 200-series wells are located west of the ACW facility, along M Street, between Pine Street and Barrancas Avenue. The 200-well series is made up of three wells, MW200, MW220 and MW260. Of these three wells, the shallowest well MW220, screened from 20-23 ft bls, is the only well with significant contamination. Well MW260, screened from 57-62 ft bls, has had a few SVOC detections. The deepest well MW200, screened from 98-100 ft bls, has had no detections of SVOCs.

Naphthalene Concentrations - MW220 (20–23 ft bls)

Date	04/04	06/07	10/07	01/08	04/08	02/12*	03/13	02/14	01/15	02/16	2/17	1/18
Naphthalene (µg/L)	1500	250	230	91	560	1700	200	63	18	2.5	1.4	0.80

*Sampling after termination of NAPL recovery system in 2011

Data from MW220 showed no decrease from 1984 to 2004 but did have a decrease in naphthalene concentration from 2004 to 2008. This is likely the result of the active product recovery system being operational. The February 2012 data indicate a rebound in naphthalene concentrations, back to levels

detected in April 1984. These data were thought to indicate that the naphthalene concentrations in this area of the Site were influenced by the groundwater extraction. However, the continued decrease in concentrations from 2013 to 2018 since the termination of the NAPL recovery system may indicate that the groundwater concentrations are naturally equilibrating or attenuating.

The MW28 cluster wells are located on the PYC property, just to the west of the former PYC Ditch, downgradient of the Site. Of the six wells that make up this cluster, the two deepest wells (MW28-1 at 59 ft bls and MW28-5 at 91 ft bls) show naphthalene impacts. Well MW28-1, screened from 54-59 ft bls, contained the higher naphthalene concentrations between these two wells.

Naphthalene Concentrations - MW28-1 (54–59 ft bls)

Date	04/04	06/07	10/07	01/08	04/08	02/12*	03/13	02/14	01/15	02/16	2/17	2/18
Naphthalene (µg/L)	2400	6900	6800	2200	6900	4000	4700	1500	5000	4200	4000	4100

*Sampling after termination of NAPL recovery system in 2011

Overall the data from April 2004 compared to the February 2018 data shows variability with no apparent trend observed.

The Cluster 1 wells are located along K Street near the Pensacola Bay, downgradient of the Site. Of the five wells located in this cluster, both C1-MW03 (137-147 ft bls) and C1-MW04 (57-67 ft bls) contain naphthalene detections. Well C1-MW03, screened from 137-147 ft bls, indicates the highest naphthalene concentration in this well cluster.

Naphthalene Concentrations - C1-MW03 (137–147 ft bls)

Date	07/07	10/07	01/08	04/08	01/11	01/12*	03/13	02/14	01/15	02/16	2/17	2/18
Naphthalene (µg/L)	2400	2300	1900	4500	2700	4800	6500	5000	5500	6300	5900	7300

*Sampling after termination of NAPL recovery system in 2011

A direct comparison of data from July 2007, with the most recent data from February 2018, indicates an increase in concentration.

The highest detection of naphthalene (February 2018) was detected in the shallow aquifer in soil boring BW16, at 8,100 µg/L, screened from 12-17 ft bls, located west of the former waste ponds. The deepest detection of naphthalene, at 86 µg/L, occurred at MW4, screened from 182-192 ft bls. MW4 is located southeast of the former waste ponds along L Street, between Pine and Cypress Streets (**Table 3-5** and **Figure 3-19**).

No naphthalene was detected in the shallow aquifer (shallower than 40 ft bls) in the wells closest to the marine surface body, Bayou Chico/Pensacola Bay.

3.6.3.2 Pentachlorophenol

The highest detection of PCP (May 2018) was detected at BW16, at 2,400 µg/L, screened from 12-17 ft bls (**Table 3-8** and **Figure 3-18a**). Soil boring BW16 is located near Pine Street and L Street. This soil boring was installed to evaluate the occurrence of NAPL impacts across L Street.

The deepest detection of PCP (12 µg/L) also occurred at C9-MW02, screened from 167-177 ft bls and the trend of this contaminant shows a very slight increase from 2.1 J,O in 2008 to 12 in 2018 (**Table 3-5** and **Figure 3-19**).

The 2018 PCP detection in OW9 is the first detection above the FDEP natural attenuation default concentration (NADC) of 100 µg/L detected since 2015. Direct comparison of the 2004 data with the 2018 data indicate that the PCP concentrations in this well and interval are decreasing.

PCP Concentrations - OW9 (74–77 ft bls)

Date	04/04	06/07	10/07	01/08	04/08	02/12*	03/13	01/14	02/15	02/16	2/17	2/18
PCP (µg/L)	340	1400	1200	1100	2600	470	110	700	180	67	15	110

*Sampling after termination of NAPL recovery system in 2011

CW5 wells are located on Cypress Street, between M and N Streets. Of the six wells located in this cluster, the two shallow wells, CW5-MW05 and CW5-MW06, are the only wells that had detections of PCP. MW06 is screened from 17-27 ft bls and MW05 is screened from 37-47 ft bls. MW06 has consistently had the highest PCP concentrations at this location. PCP detections in these wells have fluctuated by an order of magnitude over time; distinct decreasing or increasing trends are not apparent. Note that in some sampling data sets, dilutions were required due to high concentrations of other SVOC analytes in the samples. This dilution caused the laboratory reporting limit of PCP to be greater than the CTLs, while showing a non-detected concentration in the sample.

PCP Concentrations - C5-MW05 (37–47 ft bls)

Date	07/07	10/07	01/08	04/08	02/11	02/12*	03/13	02/14	02/15	2/16	02/17	2/18
PCP (µg/L)	500U	2000U	26J	29J	10 J,O	1000U	20U	99 U	9.9 U	19	50	38

*Sampling after termination of NAPL recovery system in 2011

PCP Concentrations - C5-MW06 (17–27 ft bls)

Date	07/07	10/07	01/08	04/08	01/11	02/12*	03/13	02/14	02/15	2/16	02/17	2/18
PCP (µg/L)	310 J,O	2000U	110	120	100	100 U	290	250	140	42	240	85

*Sampling after termination of NAPL recovery system in 2011

No PCP was detected in the shallow aquifer (shallower than 40 ft bls) in the wells closest to the marine surface body, Bayou Chico/Pensacola Bay.

3.7 NATURE AND EXTENT OF MARINE SURFACE WATER CONTAMINATION

The USACE Mobile conducted pore water sample collection from 13 push-point piezometers installed at a depth of 5 ft bls along the edge of Pensacola Bay, Chico Bayou, and the PYC Ditch on behalf of the EPA in 2008. The samples were analyzed for VOCs, SVOCs, total petroleum hydrocarbons, dioxins, and total dissolved solids. One of the sample locations indicated exceedances of the Marine Cleanup Target Levels (MCTLs) for naphthalene and acenaphthene: Bayou Chico PW01, located at the edge of the PYC Marina. One other location, located at the north end of the PYC ditch, exceeded the MCTL for acenaphthene. No other site-related compounds were detected in the other 11 pore water samples above the MCTLs (SES, 2008). The data reported in this report did not include phenols (PCP).

3.8 GROUNDWATER GEOCHEMISTRY

Site geochemistry is important for natural biotic and abiotic degradation mechanisms. The geochemistry parameters recorded over time are presented in **Table 3-26**. Results, excluding samples with turbidity exceeding 50 Nephelometric Turbidity Units (NTU), are summarized below by depth range:

2018 Groundwater Geochemistry

Well Screen Depth (ft bls)	Dissolved Oxygen (mg/L)		Ferrous Iron (mg/L)		Oxidation-Reduction Potential (mV)		pH (SU)		Conductivity (µs/cm)	
	Range	Avg	Range	Avg	Range	Avg	Range	Avg	Range	Avg
<50	0.01 to 4.09	0.39	0 to 37.0	3.36	-341 to 240	-134.41	5.12 to 7.94	6.13	6.55 to 3,339	528.2
50-150	0 to 6.92	1.31	0 to 40.2	3.30	-405 to 345	-45.54	4.41 to 10.58	5.78	38.1 to 1,139	139.6
>200	0.01 to 8.15	3.59	0 to 4	0.42	-250 to 317	52.49	4.23 to 10.5	5.54	23.56 to 1,264	150

mV – millivolts; SU – standard units; µs/cm – microsiemens per centimeter

- Dissolved Oxygen (DO): The average DO in wells screened shallower than 50 ft bls is suitably low for anaerobic bioremediation to occur. In wells screened between 50 and 150 ft bls, the average DO is suitable for aerobic bioremediation to occur. The average DO in deeper wells indicates a highly aerobic environment.
- Ferrous iron: The highest average levels of ferrous iron may indicate a more reducing groundwater environment at depths shallower than 50 ft bls. The lowest average levels of ferrous iron were observed in deeper wells, corresponding with more oxidized conditions.
- Oxidation-Reduction Potential (ORP): The negative average ORP, coupled with the low average DO value, may indicate that reducing conditions are predominant at depths shallower than 50 ft bls. The positive average ORP, coupled with the elevated average DO value, may indicate that oxidizing conditions are predominant at depths greater than 150 ft bls.
- Hydrogen Ion Concentration (pH): At all well screen depth ranges, average pH values are lower than neutral. Although the wells with the deepest screen intervals had the lowest average pH, the range was also the widest, with samples ranging from acidic to basic and outside of optimal conditions for biodegradation.
- Specific Conductance or Conductivity: The highest average conductivity values may indicate the presence of more dissolved solids in groundwater less than 50 ft bls, than in groundwater deeper than 50 ft bls.

3.9 NATURAL ATTENUATION PARAMETERS

Natural attenuation parameters measured in 2018 are reported in **Table 3-27**. The monitored natural attenuation (MNA) analytical parameters collected from monitoring wells include: total organic carbon (TOC), ammonia, nitrate/nitrite, total phosphorous, sulfate, and total alkalinity. In addition, field measurements such as pH, ORP, and DO provide supplemental information regarding biodegradation

processes and changes in water chemistry. Field measurements are provided in **Table 3-26**. Results for natural attenuation parameters measured at the Site are summarized below.

Carbon, nitrogen, and phosphorous are nutrients that are essential for microbial metabolism and growth. TOC is a measure of both natural and anthropogenic organic carbon substrates in groundwater. If the anthropogenic portion is relatively small and the natural portion is oxidizable, TOC quantifies the natural electron donor pool available that microbes may utilize for energy. Concentrations of TOC onsite were less than 10 mg/L and are considered low.

Nitrogen and phosphorous in various forms are suitable for microbial growth. In particular; nitrogen in organic form, as ammonia, nitrite, and nitrate are suitable. In general, nitrate less than 1.0 mg/L is favorable for anaerobic microbial respiration. Whereas, the occurrence of nitrate above this level may indicate the groundwater setting is aerobic or anoxic (unless simply the total nitrogen levels are just low), and incapable of sustaining anaerobic biodegradation. In the two Site wells analyzed(ACWMW2B and ACWMW3D), ammonia and nitrate/nitrite were less than 1.0 mg/L. Ammonia was only greater than 1.0 mg/L in one well, MW-9A, located downgradient. Total phosphorous levels at the Site were less than 1.0 mg/L and are considered low.

Although oxygen is the primary electron acceptor for aerobic biodegradation processes, when oxygen levels are low other terminal electron acceptors may be utilized for microbial metabolism, including: nitrate, ferric iron, manganese, and sulfate. Sulfate can act as an electron acceptor by microorganisms when the supply of oxygen is low. Sulfate concentrations in Site wells were less than 20 mg/L and are considered low. There are a few exceptions at wells OW10, Cluster 4 MW06, and Cluster 8 MW05, where the sulfate concentrations were greater than 20 mg/L. Of these wells, OW10 and Cluster 4 MW06 are located downgradient and Cluster 8 MW05 is located upgradient.

Although ferric iron was not measured, concentrations of ferrous iron ranged from 2.31 to 40 mg/L in Site wells in 2018 (**Table 3-8**). The ferrous iron range drops significantly for wells screened at depths greater than 200 ft bls, to 0 to 4 mg/L. Reduction of ferric iron produces ferrous iron. Elevated levels of ferrous iron (greater than 1 mg/L) may indicate a reducing groundwater environment.

Alkalinity is a measure of the water's ability to resist pH changes. Higher levels of alkalinity in an aquifer provide a buffering capacity for organic acids created during aerobic and anaerobic biodegradation. Alkalinity in Site wells ranged from 34 to 150 mg/L.

Groundwater pH is an indicator of hydrogen activity. An acceptable value for biodegradation is a pH between 5 and 9 SU. However, the ideal range of pH for biodegradation is 6 to 8 SU. At depths greater than 50 ft bls, average Site pH is outside the lower-limits ideal for biodegradation (**Table 3-26**). However, biodegradation is still possible.

Average DO and redox potential concentrations measured in monitoring wells suggest anaerobic conditions at depths less than 50 ft bls and are suitably low for anaerobic bioremediation to occur. On average, groundwater appears to trend aerobic and oxidizing with increasing depth.

All historical Site data will be reviewed for collection of natural attenuation parameters (including other parameters, such as methane/ethane/ethene), and incorporated in subsequent RD documents. Under anaerobic conditions, organic acids and by-products such as methane and hydrogen gas may form.

3.10 POTENTIAL RISK RECEPTOR SUMMARY

Baseline risks to human health and ecological receptors exposed to contaminants at the Site were evaluated separately for OU1 (EBASCO, 1989), OU2 (Black & Veatch, 1993), and OU3 (Black & Veatch, 2009). In addition, an updated site wide Human Health Risk Assessment (HHRA; Black & Veatch, 2014) was prepared to support the site-wide FS and this ROD. All human health and ecological risk posed by PYC Ditch was eliminated by the removal and backfilling of the ditch as documented in the Remedial Action Report dated September 14, 2016.

3.10.1 Human Health Risk Assessment Summary

The Site Wide HHRA Addendum evaluated exposure to soil and groundwater based on data collected in 2007 through 2013. The environmental samples were analyzed for VOCs, SVOCs, phenols, and dioxins/furans. Data from previous investigations were not deemed acceptable for inclusion in the HHRA. In addition, sample data from media locations that no longer exist due to various removal actions were not included.

The CSM for the HHRA (Black & Veatch, 2014) incorporates information on the potential chemical sources, affected media, release mechanisms, routes of migration, and known or potential human receptors. The HHRA CSM for the ACW Site is presented in **Figure 3-21**. The potentially complete exposure pathways evaluated in the Site Wide HHRA are:

- Incidental ingestion of soil/dry sediment, inhalation of dust released from soil, and dermal contact with soil/dry sediment; and
- Routes of exposure with groundwater included ingestion, dermal contact, and inhalation of vapors.

The results of the HHRA for surface soil/sediment and groundwater at the ACW Site indicate that residential, industrial/commercial worker, and recreational user exposures result in unacceptable cancer risks and non-cancer hazards. The table below summarizes the COCs identified for each media and receptor:

Summary of COCs for Receptor Pathways

COC	Surface Soil/Dry Sediment			Groundwater
	Resident	Industrial/Commercial Worker	Recreational User	Resident
2,3,7,8-TCDD TEQ (dioxin)	✓	✓	✓	✓
Benzene				✓
Ethylbenzene				✓
Xylenes				✓
Acenaphthene				✓
Benzo (a) Pyrene TEQ	✓	✓	✓	
Benzo(a)Anthracene				✓
Benzo(a)Pyrene				✓
Benzo(b)Fluoranthene				✓
Benzo(k)Fluoranthene				✓
Carbazole				✓

Summary of COCs for Receptor Pathways

COC	Surface Soil/Dry Sediment			Groundwater
	Resident	Industrial/Commercial Worker	Recreational User	Resident
Chrysene				✓
Dibenzofuran				✓
Fluoranthene				✓
Fluorene				✓
Naphthalene				✓
2-Methylnaphthalene			✓	✓
Phenanthrene				✓
Pyrene				✓
1,1-Biphenyl				✓
1,2,4-Trichlorobenzene				✓
2,4,6-Trichlorophenol				✓
2,4-Dimethylphenol				✓
2-Methylphenol o-cresol (2-Methylphenol)				✓
3-Methylphenol o-cresol (3-Methylphenol)				✓
4-Methylphenol o-cresol (4-Methylphenol)				✓
Pentachlorophenol	✓			✓
Phenol				✓

3.10.2 Ecological Risk Assessment Summary

The potential impact of ACW related contaminants on ecological receptors has been evaluated in three separate ecological risk assessments (ERAs). Environmental impacts associated with the transport of contaminants from the Site (erosion of site soil and movement of contaminants via overland flow and groundwater into Pensacola Bay) were evaluated as part of the risk assessment for OU1 in 1989. An evaluation of the potential risks to terrestrial and aquatic receptors associated with contaminated soil and groundwater was included in the risk assessment for OU2 in 1993. In addition, an ERA was conducted for OU3 in 2009, and included an evaluation of the potential risk to ecological receptors associated with exposure to dioxins and furans in the off-facility commercial/residential areas at the Site.

There are no site-specific aquatic toxicity test data available for this Site. The aquatic ecosystem in the ACW area supports a great variety of aquatic species (for example, fishes, crustaceans, mollusks, mammals, amphibians, reptiles, etc.). Information on the effects of many chemicals found on site on specific organisms was unavailable. Dioxin is reported to cause mortality in fish at 2.3 parts per million (ppm). Benzene, carbon disulfide, styrene, trichlorobenzene, and xylene are known to be highly toxic to aquatic life.

Before removal, the total PAH and dioxin concentrations in the PYC Ditch sediments were above levels associated with adverse effects to aquatic biota. In addition, there was a possibility that PAHs and

dioxins in the PYC Ditch sediments may bioaccumulate into fish/invertebrate tissue and could result in a potential risk to birds (or mammals) that feed on the fish/invertebrates. However, the removal of PYC Ditch sediments mitigated risks to ecological receptors due to exposure to these sediments.

Maximum concentrations of chemicals detected in the shallow groundwater exceed Florida Marine Surface Water Quality Criteria for Class III Marine Surface Water (Fish Consumption, Recreation, Propagation and Maintenance of a Healthy, Well-Balanced Population of Fish and Wildlife; FDEP, F.A.C. Chapter 62.302, July 2012). However, the impact of the shallow aquifer on aquatic life in the Bay is likely to be minimal because of the slow water movement of this water to the Bay, the continued infiltration of precipitation, and the current low level of contamination of the shallow aquifer south of the Site near the point of discharge to the bay. In addition, sampling of surface water, pore water and sediment in the Pensacola Bay by USACE (USACE, 2008) indicated that detected concentrations are generally below levels of ecological concern.

The purpose of the Site-wide remedy is to protect the marine surface water body (Pensacola Bay/ Bayou Chico) from the site-related chemicals in the groundwater.

4.0 Remedial Action Objectives

The remedy specified in the ROD (EPA, 2017c) was selected to achieve the overall Site goal of eliminating human and ecological exposure to contaminants in soil, sediment, and groundwater and protecting surface water in Pensacola Bay/Bayou Chico and its associated tributaries. Although the remedy components designed in this RD are substantively those listed in the ROD, the implementation will differ slightly based on plans for Site reuse. These changes include placing part of the excavated soil from CMZ-4B within the CMZ-1 vault/cap rather than CMZ-2A/-3.

The major components of the remedy identified include:

PART 1 RD (included in this report)

- Construction of a barrier wall at CMZ-1 using the cutter soil mixer technique, or other in situ mixing method approved by the Engineer, to isolate the highest percentage of contaminated soil mass and prevent any future contamination of the aquifer from this zone.
- Excavation of PTW soil for inclusion in the CMZ-1 containment cell.
  - Excavation of PTW from CMZ-4B residential surficial soil to protect against the direct contact threat to the surrounding community. Soil exceeding residential cleanup levels would be placed within the CMZ-1 vault/cap.
- Install RCRA Subtitle C Cap (or equivalent) at CMZ-1.
- Construction of an Engineered Containment Cell (ECC) with a RCRA Subtitle C Cap (or equivalent) over the over CMZ-2A/-3 area on the ACW property.
  - Contaminated surficial soil overlying CMZ-2A, CMZ-3, and CMZ-4A will be placed within the ECC. The existing 35,000 cy Soil Stockpile and 10,000 cy PYC Dredging Spoils Pile that currently exist on the former facility would also be placed in the ECC.

PARTS 2 & 3 RD (included under separate cover)

- Installation and implementation of steam-enhanced extraction (SEE) on CMZ-2A and CMZ-2B to treat DNAPL and creosote stained soil.
- Implementation of groundwater sampling at OU2/Contaminated Media Zone (CMZ-5) to evaluate the effects of the SEE treatment and determine the need for/type/extent of treatment barrier for CMZ-5.
- Construction and implementation of the Enhanced In Situ Bioremediation (EISB) barriers and the In Situ Chemical Oxidation (ISCO) barrier in CMZ-3 to treat and isolate the onsite secondary source from the downgradient plume and potential impacts on Pensacola Bay.
- If needed based on groundwater sampling, construction and implementation of Enhanced In Situ Bioremediation (EISB)/In Situ Chemical Oxidation (ISCO) barrier in CMZ-5 to prevent any future impact to Pensacola Bay.
- EISB/ISCO performance monitoring for effectiveness in OU2/CMZ-5/5-Yr Review.

4.1 SITE-SPECIFIC CONTAMINANT REMEDIAL GOAL OPTIONS

Remedial Goal Options (RGOs) are the Site-specific concentrations for individual COCs in distinct media above which remediation or control measures are required. The RGOs for the ACW Site were derived with consideration of risk to human health and the environment (HH&E) and to specific chemical-based Applicable or Relevant and Appropriate Requirements (ARARs). The State of Florida soil/sediment cleanup goals were applied along with FDEP SCTL for the COCs.

The EPA (EPA, 2012) has released the final non-cancer dioxin reassessment, publishing a non-cancer toxicity value, or reference dose (RfD), for dioxin. The new RfD developed for dioxin TEQ is 0.7 picogram per kilogram per day (pg/kg-day). The Preliminary Remediation Goals (PRG) calculated using the new RfD of 0.7 pg/kg-day and EPA's non-adjusted exposure factors are 50 parts per trillion (ppt or ng/kg) dioxin TEQ for residential soil and 230 ppt dioxin TEQ for commercial/industrial soil.

The EPA has adopted the PRGs identified in the Proposed Plan as the final cleanup levels. The ROD Site final cleanup levels are shown in **Table 4-1**.

4.2 REMEDIAL ACTION OBJECTIVES

To satisfy requirements of the CERCLA and based on the findings of the previous site investigations, RAOs have been developed for the Site. The RAOs were developed to protect human health and the environment. The objectives specify the contaminants and media of concern, the exposure route(s) and receptor(s), and the acceptable contaminant levels or range of levels for each exposure route. The Site COCs in the soil are select SVOCs (PAHs), PCP, and dioxins. The RAOs for the ACW Site are:

- Prevent human (adult and child resident) exposure to site-related contaminated soil at concentrations above regulatory direct exposure contaminant levels.
- Reduce or eliminate the long-term leachability of soil COCs into the groundwater.
- Provide protection of marine surface waters from migration of contaminated groundwater into Pensacola Bay/Bayou Chico.
- Prevent ingestion of groundwater that contains concentrations of compounds representing a total excess cancer risk greater than 10^{-6}, a non-carcinogenic HI greater than 1, or concentrations which exceed Federal and State ARARs.
- Reduce residual and free-phase NAPL materials to the maximum extent practicable.

4.3 COMPLIANCE WITH ARARS

The selected remedy complies with all ARARs. RAs must comply with ARARs of federal laws or more stringent, promulgated state laws. Applicable requirements mean those cleanup standards, controls, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that specifically address a hazardous substance, contaminant, RA, location, or other circumstance at a Superfund site. Relevant and appropriate requirements are those cleanup standards, standards of control, or other substantive environmental provisions that do not directly and fully address site conditions but address situations or problems like those encountered at a Superfund site. "Applicability" is a legal and jurisdictional determination, while the determination of "relevant and appropriate" relies on professional judgment, considering environmental and technical factors at the Site. The ARARs and To Be Considered (TBC) for the selected remedy are presented in Tables 13 and 14 in the ROD (**Appendix A**) and include potential location-specific, and action-specific ARARs, respectively.

The most prominent ARAR considerations include:

- Meeting chemical-specific ARARs at the perimeter of the barrier wall, in surficial soil, and in subsurface soil (e.g., EPA Site Specific EPA Removal Action Level [SS-RAL]);
- Meeting chemical-specific ARARs in surface water (e.g., Ambient Water Quality Criteria, Florida Water Quality Criteria);
- Minimizing fugitive emissions during soil excavation and construction of the barrier wall and cap; and
- RCRA hazardous waste management unit requirements for the cap/cover design.

4.4 AREA OF CONCERN DESIGNATION

Creosote operational areas on the facility are reasonably well defined; however, the operational history is unclear for locations that involved the use of PCP. Given the comingled extent of these waste streams, the entire Site has been designated as an Area of Concern (AOC) that is inclusive of all identified COCs. An AOC is a RCRA unit where the contamination is contiguous and of a similar nature, but not necessarily homogenous. Per EPA's guidance on the use of AOCs, the excavation, relocation, and consolidation of contaminated media within an AOC (or engineered unit) does not constitute generation of the waste, or trigger LDRs or minimum technology requirements ("Use of the Area of Contamination (AOC) Concept During RCRA Cleanups", March 1995).

4.5 OTHER CRITERIA, ADVISORIES, OR GUIDANCE TO BE CONSIDERED FOR THIS REMEDIAL ACTION

In implementing the Selected Remedy, several non-binding criteria are TBC. These include:

- *Remedial Design/Remedial Action Handbook*, EPA 540/R-95/059, June 1995 (EPA, 1995).
- Guidance for the Data Quality Objectives Process, EPA QA/G-4, February 2006 (EPA, 2006).
- U.S. Environmental Protection Agency, Region 4, Science and Ecosystem Support Division (SESD), *Field Branches Quality System and Technical Procedures*, Last Updated September 1, 2017 (EPA, 2017b).
- EM 1110-1-1807, Standards for U.S. Army Corps of Engineers Computer Aided Drafting and Design (CAD) Systems; Volumes 1-4, July 30, 1990.
- Architecture, Engineering, and Construction Graphics Standard, The CAD/ Building Information Modeling (BIM) Technology Center for facilities, infrastructure, and environment, Release 2.0 (formerly titled CAD Drafting Standard). ERDC/ITL TR-12-1. August 2015. (U.S. Army Corps of Engineers, 2015).
- ER 1110-1-12, Appendix C: Architect-Engineer Design Quality Control Plan.

5.0 Treatability Testing

A Barrier Wall Mix Design and Compatibility Treatability Study is being performed by Kemron Environmental Services Applied Science laboratory to evaluate soil amendment mixtures for a soil-cement bentonite (SCB) barrier wall. The treatability study results (including summary tables) are included in **Appendix D**. The barrier wall treatability study consists of the following subtasks:

- Task 1 - Physical Characterization Testing - Testing of the soil along the proposed slurry wall alignment to determine the geophysical characteristics of the site soil.
- Task 2 - Barrier Wall Mixture Design and Compatibility Testing - Testing of site soil mixtures prepared with fresh tap water to measure strength and hydraulic conductivity criteria and to evaluate chemical and thermal compatibility of candidate mixture formulations to meet strength and hydraulic conductivity site criterial.

5.1 TREATABILITY TESTING GOALS

The objective of the American Creosote Works Site bench-scale treatability study (TS) is to develop sufficient data to, at a minimum, produce one economical and effective SCB mix design for a barrier wall at the Site. The TS goals for the SCB mixes are:

- A hydraulic conductivity of 1x10-7 cm/sec or less and is stable in the presence of site-specific contaminants; and
- A 28-day minimum unconfined compressive strength (UCS) of 25 pounds per square inch (psi).

Installation of a barrier wall can be achieved through either: 1) ex situ mixing (i.e., open trench technology utilizing a bentonite slurry to maintain stability of the open trench and backfilling with a SCB mix), or 2) in situ mixing (i.e., deep soil or cutter soil mixing creating a SCB mix in situ without the need for a bentonite slurry to maintain the stability of an open trench). Ex situ mixing is a two-step process (i.e., trench excavation and trench backfilling). This construction technique requires that an engineered fluid (i.e., bentonite slurry) be added to the trench during excavation to exert hydraulic pressure against the trench walls to prevent collapse of the trench prior to placement of the backfill mix. Ex situ mixing allows an opportunity to separate undesirable soil and/or contaminants from the backfill mix. The Treatability Study was designed to accrue data in support of either an in situ or ex situ installation method.

Specific data needs and goals developed for the Treatability Study are outlined below:

1. Selection of representative soil samples from the proposed barrier wall alignment for testing;
2. Baseline characterization of soil samples for geotechnical parameters;
3. Evaluation of variable proportions of soil, and commonly used amendments such as, but not limited to, Portland cement and bentonite, to examine the resulting hydraulic conductivity and soil unconfined compressive strength;
4. Evaluating whether a SCB mixture is economical;
5. Achieving a hydraulic conductivity of $1x10^{-7}$ cm/sec or less;
6. Achieving a 28-day UCS for a minimum of 25 pounds per square inch (psi).

7. DNAPL compatibility evaluation where effective mix designs are prepared with DNAPL and tested for changes in geotechnical properties.);
8. Thermal compatibility evaluation where the resultant mix design is subjected to thermal stress and tested for changes in hydraulic conductivity and strength.
9. Development of a specific cost basis for the RA based upon the evaluation of soil mixtures; and
10. Creation of suitable SCB material technical specifications for RA bidding.

5.2 TREATABILITY TEST SETUP AND METHODS

5.2.1 Treatability Sample Collection

Fifteen treatability test samples were obtained along the proposed alignment of the barrier wall for testing from borings BW01 through BW14 (14 separate boring locations) at depths between 5 and 90 ft bls using a rotosonic drill rig. The sonic boring locations are shown on **Figure 5-1**. The boring locations, frequency, and depth for the treatability materials were chosen by Black & Veatch and field confirmed to characterize the geotechnical stratigraphy both along the barrier wall alignment and to a depth corresponding to the design depth of the barrier wall key. No ground pore water was collected for the Site to be used in the treatability study.

A composite sample of NAPL was collected from multiple borings (BW12 off-set, BW13, and BW14) for use in the treatability testing to measure the potential reduction in the wall permeability due to exposure to the NAPL. Soil for the barrier wall treatability testing (Soil 1, Soil 2, Soil 3) was collected in plastic sleeves from the rotosonic core, placed in garbage bags, tied, and stored in 5-gallon buckets with screw-on sealable lids. Four (4), 5-gallon buckets were collected to represent coarse sand (Soil 1), with a focus on depths were coarse sands reside. Soil 1 was collected from 25 to 35 ft bls at the following boring locations: BW06, BW04, BW05, and BW12 off-set. Soil 1was selected for sampling based on visual analysis conducted by field personnel. Soil 1 was hand collected, placed in garbage bags, tied, and stored in four separate 5-gallon buckets with sealable lids. Three (3), 5-gallon buckets were collected to represent fine sands (Soil 2), with the focus on depths where fine sands reside. Soil 2 was collected from 40 to 50 and 70 to 80 ft bls from the following boring locations: BW13, BW11, BW12 off-set. Soil 2 was selected for sampling based on visual analysis conducted by field personnel. Soil 2 was hand collected, placed in garbage bags, tied, and stored in 3 separate 5-gallon buckets with sealable lids. Two (2), 5-gallon buckets were collected to represent NAPL sand (Soil 3), with focus on depths where NAPL resides. Soil 3 was collected from 5 to 35 and 85 to 90 ft bls from the following boring locations: BW13, BW14, and BW12 off-set. Soil 3 was selected for sampling based on visual analysis by field personnel. Soil 3 was hand collected, placed in garbage bags, tied, and stored in 2 separate 5-gallon buckets with sealable lids. These samples were sent to the Kemron laboratory on March 7, 2018.

The bulk soil samples in DOT shipping pails were submitted to KEMRON for physical properties testing and for use in SCB mix design preparation and testing. Shelby tube sample (undisturbed samples) were also obtained at four boring locations (BW03, BW05, BW08, and BW13) at depths of between 110 to 115 ft bls in the competent clay confining layer near the anticipated depth of the barrier wall key (the barrier wall will be keyed into the clay layer) using a thin-walled tube sampler, “Shelby tubes”. These samples were sealed with wax, protected from disturbance, and sent to KEMRON for permeability testing to assure the competence of the bottom clay layer.

The rotosonic borings were grouted from the bottom of the boring to the ground surface. Excess drill cuttings were containerized in 55-gallon steel drums, properly labeled, and staged on site for future incorporation below the cap during the RA.

5.2.2 Geotechnical Sample Collection Along Barrier Wall

Geotechnical properties were characterized for the 3-composite barrier wall soil samples [Soil 1 (Coarse Sand), Soil 2 (Fine Sand, and Soil 3 (NAPL)] in triplicate for:

- moisture content (ASTM D2216)
- USGS soil classification (ASTM D2487)
- grain size distribution (ASTM D422 with hydrometer analysis)
- hydraulic conductivity (ASTM 5084)
- Atterberg limits (ASTM D4318; and
- Loss on Ignition (ASTM D2974)

The results of the physical properties testing from the composite treatability samples collected along the proposed barrier wall are provided in **Appendix D**, **Table D-1**.

In addition, undisturbed geotechnical soil samples were collected along the basal clay layer of the proposed barrier wall using Shelby tubes and rotosonic drilling. Shelby tube samples from borings BW03, BW05, BW08, and BW13 were submitted to KEMRON for Hydraulic Conductivity. Borings were spatially distributed 50 to 300 ft apart along the alignment of the wall. The geotechnical boring depths and results are summarized in **Table D-2** and the boring locations are shown on **Figure 5-1**.

Key findings of the physical characterization of the treatability materials and basal clay layer are presented below:

- The triplicate testing indicates the composite samples are well homogenized.
- The treatability composite sample Soil 1 (Coarse Sand) and Soil 2 (Fine Sand) can be described as a non-plastic moist, poorly graded sand with silt (SP-SM) with very low organic content (< 1%)
- The treatability composite sample Soil 3 (NAPL) can be described as a non-plastic moist poorly graded sand (SP) with a moderate organic content (3%). The 3% organic content suggests the soil is impacted with NAPL.
- Hydraulic Conductivity on the clay basal layer confirms a confining clay layer slower than $2x10^{-9}$ cm/sec at a depth of 111 ft bls.

5.2.3 Barrier Wall Treatability Test Procedures

The treatability laboratory has not provided a report but has provided summary tables of results. These results are shown in **Tables 5-1** through **5-5**. The barrier wall mix design and compatibility testing will be conducted in two testing tiers as follows:

- Tier 1 testing evaluates mixture designs of Soil 1 (Coarse sand) using variable proportions of soil, cement, and bentonite for UCS and hydraulic conductivity testing.
- Tier 2- Compatibility Testing: Tier 2 testing will evaluate the selected optimal Tier 1 mix design for chemical compatibility (Tier 2A) using soil 3 (NAPL), fine grained soil compatibility (Tier 2B)

using soil 2, thermal compatibility (Tier 2C) using soil 1 or, plus a repeat mixing/testing of the optimal mix using soil 1 to confirm the results of Tier 1 testing (Tier 2D).

Upon receipt of the three composite soil samples (Soil 1, Soil 2, and Soil 3), the material was logged into a project tracking system and stored in a walk-in cooler at approximately 4°C. These materials were evaluated for the soil geotechnical properties (moisture content, USGS soil classification, grain size distribution, and Atterberg limits) as detailed in Section 5.2.2.

KEMRON homogenized the material type (Soil 1, Soil 2, and Soil 3) separately by placing the contents of each bucket into a pre-cleaned plastic mixing pan and gently blending by hand using a stainless-steel spoon until visually homogenous. Any particles measuring greater than 0.5-inch in diameter were removed to facilitate bench-scale treatment and adhere to particle-size limits outlined in certain ASTM and EPA test methods for UCS and permeability testing. These materials were tested for the geotechnical properties as discussed in Section 5.2.2.

In Tier 1 of the testing program, five SCB design mixes were evaluated on Soil 1 (Coarse Sand). Design of the SCB backfill mixes (the selected percentage of reagent added) was dependent upon a review of the geotechnical characteristics and fines content of the soil used in preparing the mixes. Soil used in constructing barrier walls generally need to have a fines content of 20 to 30%. Soil 1 is representative of the coarser material anticipated to be difficult to achieve low permeability.

The testing program for each mix design sample included visual observations and daily pocket penetrometer (PP) testing to monitor strength gain. Performance testing was conducted after designated curing periods of 7 and 28 days. The Tier 2 phase of the treatability study is planned after Tier 1 mix formulations are evaluated using Soil 1, Soil 2, and Soil 3. Tier 2 testing objectives are to evaluate the selected optimal Tier 1 mix design(s) for chemical compatibility (Tier 2A) using Soil 3 (NAPL), fine grained soil compatibility (Tier 2B) using soil 2, and thermal compatibility (Tier 2C) on material determined to be the most affected by thermal affects, plus a repeat mixing/testing of the optimal mix using soil 1 to confirm the results of Tier 1 testing (Tier 2D).

In Tier 2, Black & Veatch selected the mix formulations for testing based on observations and review of the initial geotechnical test results and Tier 1 test results. The Tier 2 mix formulations were determined by Black & Veatch, with input from the testing laboratory and Black & Veatch's outside expert. Two mixture formulations were performed on Soil 3 in duplicate. These formulations that were effective for Soil 1 in Tier 1 were not successful in developing any strength in the Soil 3 material.

Due to the uncertainty with the effectiveness of the formulations from Tier 1 on Soil 3, an experimental screening phase of mixture formulations was proposed and tested for chemical compatibility on Soil 3 (NAPL), at a 1:1 ratio of Soil 1 to Soil 3, and a 1.0:0.5:0.5 ratio of NAPL/Coarse Sand/Fine Sand to simulate an auger blending approached of Soil 1, Soil 2, and Soil 3 stratigraphic zones. Seventeen (17) formulations were developed during this experimental screening The Tier 2A experimental mixtures were evaluated for strength gain using PP testing up to 14 days of curing. The Tier 2 mix formulations and additional admixtures were determined by Black & Veatch, with input from the testing laboratory and Black & Veatch's outside expert. These mixtures included the use of a wide range of admixtures including Agricultural Dolomite, Portland Cement, Wyo-Ben Hydrogel, Granulated Ground Blast Furnace Slag (GGBFS), Lime Kiln Dust (LKD), and Calcium Oxide (Quicklime). The experimental mixture formulations were evaluated for strength gain using pocket penetrometer testing.

Wyo-Ben Hydrogel (Bentonite) meets the requirements of API Specification 13A Section 9. Manufacturer's bentonite powder documentation and test results are included in **Appendix D** in the final report.

5.2.4 Barrier Wall Treatability Test Results

The Barrier Wall Treatability Study is in progress. The treatability laboratory has provided summary tables for the untreated characterization, basal clay layer, Tier 1 and Tier 2A (preliminary) Testing and are included in **Appendix D**, **Table D-1** through **Table D-10**.

Key findings of the Tier 1 testing are presented below:

- The site criteria for a 28-day UCS of 25 psi was achieved for each of the five mixtures.
- The site criteria for a 28-day hydraulic conductivity of $1x10^{-7}$ was achieved for each of the five mixtures.

Based on a review of the Tier 1 testing, Black & Veatch chose slightly more conservative and economical mixtures that achieved the site criteria of strength and hydraulic conductivity. The selected mixtures were formulations with 4% PC/2% Bentonite and 5% PC/2% Bentonite. These two mixture formulations were selected as candidate mixtures to test in Tier 2A (Chemical Compatibility) on Soil 3 (NAPL). The mixture formulation was developed using the same procedure as outline for Tier 1 mixture development. The results of the Tier 2A testing are presented in **Table D-4**.

Key findings of the Tier 2A testing are presented below:

- The formulations were not chemically compatible with Soil 3 (NAPL). No strength gain was achieved after 14 days of curing.

Based on the results of pocket penetrometer testing, no additional testing was warranted. Black & Veatch determined that a cost-effective approach would be to include a screening phase to evaluate numerous reagents and formulation in a shorter period, as well as conserving treatability materials. Also, as part of the experimental screening, variations of the soil composites were evaluated to simulate potential auger column mixing of stratigraphic zones of Soils 1, 2, and 3 in the field. The purpose of the soil column mixing was to evaluate potential cost savings that might be realized by lowering reagent addition rates needed to achieve site criteria. Pocket Penetrometer results of testing for the Tier 2A Phase are summarized in **Table D-5**.

Key findings of the Tier 2A testing are presented below:

- Soil 3 (NAPL) shows significant resistance to gaining strength with relatively low addition rates of PC.
- Pocket penetrometer results suggest that Soil 3 can gain enough strength using Portland Cement at an addition rate of 15% and supplemented with either Calcium Oxide or Lime Kiln Dust (EXP-011 and EXP-012) along with 2% Hydrogel.
- Pocket penetrometer results suggest that blending the stratigraphic zones allows for improved strength gain using Portland Cement only at an addition rate of 10% with 2% Hydrogel (EXP-013)
- The treatability study has revealed successful mixture formulations that achieve strength criteria of 25 psi and a hydraulic conductivity of $1x10^{-7}$ at 28 days of curing for Soil 1 (Coarse Sand). In

addition, the treatability study has revealed successful formulations that can meet the strength criteria for Soil 3 (NAPL).

Based on the results of the Tier 2A Phase testing, Mixtures EXP-011 (15%PC/4% CaO/2% Bentonite) and Mixture EXP-012 (15% PC/8% LKD/2% Bentonite) from Tier 2A testing has been selected to continue with UCS and Hydraulic Conductivity testing on the NAPL (Soil 3) and thermal compatibility (Tier 2C Testing). Mixture BWM-03 (5% PC/2% Bentonite) from Tier 1 Testing has been selected to perform Tier 2B testing on Soil 2 (fine sand) and Tier 2D confirmation testing on Soil 1 (Coarse Sand). Results of testing for the Tier 2A Phase are summarized in **Table D-6.**

Key findings of the Tier 2A testing are presented below:

- The site criteria for a 28-Day UCS of 25 psi was achieved for BMW-08 and BMW-09 prepared with Soil 3 (NAPL) and BMW-15 and BMW-16 prepared with Soil 2 (fine sand).
- None of the mixtures that met the site criteria for 28-Day UCS met the site criteria for 28-Day hydraulic conductivity.

Based on the results of Tier 2A testing, Black & Veatch determined an additional screening phase would be required to evaluate increasing percentages of reagents in a shorter period, as well as conserving treatability materials. The pocket penetrometer results of the Tier 2A testing are presented in **Table D-7**.

Key findings of the Tier 2A supplemental testing are presented below:

- Mixtures BMW-17 EXP and BMW-18 EXP prepared using a 3:1 ratio of Soil 1 (coarse sand) to Soil 2 (fine sand) exhibited pocket penetrometer results suggesting sufficient strength gain with 10% PC/3.0% Hydrogel for BMW-17 and 10%PC/3.5% Hydrogel for BMW-18.
- Mixtures BMW-23 EXP and BMW-24 EXP prepared using Soil 3 (NAPL) show similar strength gain to BMW-08 and BMW-09 with an increased addition rate of 3.5% Hydrogel.

Based on the results of the Tier 2A supplemental testing, mixtures BMW-17 and BMW-18 would be prepared for Tier 2D testing. Mixtures BMW-23 and BMW-24 would be prepared for Tier 2A and Tier 2C testing. Results of testing for the Tier 2A and Tier 2D testing are summarized in **Table D-8**.

Key findings of the Tier 2A and Tier 2D testing are presented below:

- The 28-Day UCS criteria of 25 psi was not achieved in mixtures BMW-17 and BMW-18.
- The site criteria for a 28-day hydraulic conductivity was not achieved in BMW-17 and BMW-18.
- The 28-Day UCS criteria of 25 psi <u>was</u> achieved in mixtures BMW-23 and BMW-24.
- The site criteria for a 28-day hydraulic conductivity of 1.0×10^{-7} <u>was</u> achieved in both BMW-23 and BMW-24.

Based on the results of Tier 2A testing, Black & Veatch as determined BMW-23 and BMW-24 are potential candidate mixtures for Soil 3 (NAPL) and have chosen these two to continue with Tier 2A testing (long term chemical compatibility) and Tier 2C testing (thermal compatibility). Based on the results of Tier 2D testing, Black & Veatch determined to prepare two additional mixtures using 3:1 ratio of Soil 1 (coarse sand) to Soil 2 (fine sand) with addition rates of 12.5% PC/3.5% Hydrogel (BMW-29) and

15% PC/3.5% Hydrogel (BMW-30). Results of testing performed on BMW-29 and BMW-30 are summarized in **Table-D9**.

Key findings from the additional Tier 2D testing are presented below:

- Mixtures BMW-29 and BMW-30 exhibited UCS strength below the 28-Day UCS criteria of 25 psi after 7 days of curing.

Due to the low UCS results observed after 7 days of curing, Black & Veatch determined mixtures BMW-29 and BMW-30 were not viable potential candidate mixtures and any additional testing was canceled.

Tier 2A testing (long term chemical compatibility) was performed on BMW-23 and BMW-24. Long term chemical compatibility testing results are summarized in Figures D-1 and D-2.

Key findings of the Tier 2A testing are presented below:

- Hydraulic conductivity values for BMW-23 ranged from 2.17×10^{-7} cm/sec to 1.60×10^{-7}cm/sec throughout the duration of testing.
- The average hydraulic conductivity for BMW-23 was 1.9×10^{-7} cm/sec.
- Hydraulic conductivity values for BMW-24 ranged from 3.26×10^{-7} cm/sec to 1.75×10^{-7} cm/sec throughout the duration of testing.
- The average hydraulic conductivity for BMW-24 was 2.4×10^{-7} cm/sec.

Results from Tier 2A testing indicate long term exposure to NAPL present at the Site may negatively impact the hydraulic conductivity of the mix over time. Initial hydraulic conductivity values after 28 days of curing were $<1.0 \times 10^{-7}$ cm/sec. After an additional 56 days of curing, hydraulic conductivity values increased to $>1.0 \times 10^{-7}$ cm/sec.

Tier 2C testing (thermal compatibility) was also performed on BMW-23 and BMW-24. Results of Tier 2C testing are summarized in **Table D-10**.

Key findings of the Tier 2C testing are presented below:

- UCS results for BMW-23 increased with results exceeding 200 psi after 28 days of thermal treatment at all three temperatures.
- Hydraulic conductivity values for BMW-23 decreased with thermal treatment at all three temperatures. Results ranged from 3.7×10^{-8} cm/sec to 3.4×10^{-9} cm/sec. All hydraulic conductivity results exceeded the 1.0×10^{-7} cm/sec site criteria.
- UCS results for BMW-24 also increased with results ranging from 120.5 psi to 258.1 psi after 28 days of thermal treatment.
- Hydraulic conductivity results for BMW-24 decreased to $<1.0 \times 10^{-7}$ cm/sec after 28 days of thermal treatment at 80°C. Thermal treatment at 100°C had no effect on the hydraulic conductivity and thermal treatment at 125°C increased the hydraulic conductivity to $>1.0 \times 10^{-7}$ cm/sec.

6.0 Pre-Construction Site Preparation

The RA contractor (Contractor) will be responsible for preparation of site-specific plans prior to mobilization activities, setup of temporary office space and decontamination facilities and delivery of materials and equipment to the ACW site. Depending how EPA contracts the RA work, and the amount of funding that is available for implementation, it is also likely that the work will be divided up into several phases spread out over several years. As a result, some of the following tasks may not be applicable to every contract. The four proposed separate phases are listed in chronological order as follows:

- **Phase 1**: Excavation of off-facility LDR surficial soil (CMZ-4B), with placement inside CMZ-1 slurry wall confines; all soil from CMZ-4B that is above the regulatory limits will be placed within CMZ-1 to complete all off-facility excavations, until after the SEE remediation is completed;
- [Part 2: SEE remedy completion, break in Barrier Wall remedy construction];
- **Phase 2A**: Construction of slurry wall (CMZ-1);
- **Phase 2B**: Excavation of ECC cell and construction of ECC base liner, excavation and temporary staging of on-facility surficial soil from CMZ-2A, CMZ-3, PYC Dredging Spoil Pile, existing Stockpile, for footprint of the ECC (CMZ-2A/-3 area items);
- **Phase 2C:** Placement of on-facility surficial soil from CMZ-2A, CMZ-3, CMZ-4A, PYC Dredging Spoil Pile, and existing Stockpile within ECC; construction of ECC cap; completion of CMZ-1 cap;
- **Phase 2D:** Construction of Detention Pond with soil excavated from pond used as clean fill to grade over CMZ-4A/onsite as-needed; Construction of final grading and stormwater improvements.

6.1 SITE SPECIFIC PLANS

The Contractor will be responsible for preparation of site-specific plans prior to mobilization activities. The following plans are needed:

- **Site Management Plan (SMP)**. This plan will provide information on the Contractor's overall work approach and staging, construction sequencing, dust control, decontamination methods, equipment requirements. This submittal will also include the Contractor's preliminary construction schedule. The SMP will integrate by reference the plans described below.
- **Construction Health and Safety Plan (HSP).** This plan shall describe health and safety procedures and any job-specific hazard analysis (JHA) specific to the proposed work.
- **Erosion and Sediment Control Plan (ESCP)**. This plan will describe equipment and procedures used by the Contractor to control and manage erosion and sedimentation caused by wind, surface water and storm water in accordance with a stormwater pollution prevention plan (SWPPP) and a Construction Generic Permit (CGP) filed with the FDEP.
- **Air Quality Monitoring Plan.** This plan will describe air monitoring activities and work practices to minimize ambient air impacts (fugitive dust emissions) from construction activities, including proposed air quality monitoring program, equipment, methods, frequency, duration, and reporting. Contractor air quality monitoring should follow the general requirements outlined in the air monitoring approach provided by the contractor.

- **Soil Excavation, Grading, and Backfill Plan.** This plan will describe the Contractor's methods and procedures for excavating contaminated soil, segregating soil requiring disposal or screening, and placement of backfill materials. Specific details regarding Contractor work approaches along roadway ditches and swales shall be provided in this plan.
- **Soil Screening Plan.** This plan will include a description of soil screening methods, location of material stockpiles, proposed screening equipment and layout, dust control equipment, and quality control (QC) testing laboratories and procedures.
- **Soil Disposal and Transportation Plan.** This plan shall include transport methods for on-facility disposal; number, size, and type of transport vehicles; transporter's qualifications; and proposed disposal facilities.

The Contractor's site-specific plans will be provided to EPA and the RA Oversight Contractor (Engineer) for review and approval before any mobilization, site preparation, or construction activity begins. The Contractor is required to develop a SWPPP and file a CGP for storm water management during construction as described in Section 9.9.

6.2 PRE-CONSTRUCTION TASKS

Prior to commencing construction activities at the Site, temporary offices and support facilities, including field offices, power, water, and telephone hookups will be installed. Siting for the construction support facilities will be proposed by the RA contractor based on requirements for vehicle access, vehicle turning radius, the existing topography, location of remaining structures, site drainage, and site aesthetics. Site preparation activities are intended to ready the Site for the on-facility disposal of the dioxin-contaminated soil; excavation of NAPL impacted soil outside the proposed barrier wall; construction of the barrier wall and cap; and construction of storm water control features.

Site preparation activities will include the following tasks:

- Siting field office and construction support facilities;
- Identification of easements;
- Implementation of applicable permit requirements;
- Site security and fencing;
- Establishing Site access procedures;
- Identifying work zone areas;
- Identification of environmental control measures;
- Identification of haul roads;
- Establishment of construction storm water control measures, including sediment and erosion control features;
- Set-up of decontamination area;
- Identification/establishment of temporary utilities for construction;
- Establishment of investigation derived waste (IDW) storage and disposal procedures;
- Site clearing and disposal of vegetation;

- Temporary road construction;
- Demolition of site utilities;
- Removal of existing debris; and
- Well abandonment.

Mobilization of the RA Contractor will include transportation to the site and staging, if necessary, of all equipment, materials, and supplies required to complete the work.

Prior to initiating the work, a photographic and/or video survey of the proposed work areas should also be conducted to document the existing condition of site features.

A construction schedule will be prepared and maintained by the Contractor throughout work activities to assure substantial completion by the target construction completion date.

6.2.1 Field Office Area

It is anticipated that the Contractor will set up two office trailers on facility in near proximity to the Site work areas. The Contractor will be responsible for tapping into an existing power and water source, in a location approved by EPA, the Engineer, and the property owner. The Contractor will use the first trailer, while the second will be available for use by the Engineer, EPA, and state representatives. The field office area shall also include storage for personal protective equipment (PPE) to be accessed by EPA, the Engineer, and any site visitors.

A storage area for aboveground storage tanks (ASTs) for diesel fuel will be determined by the Contractor. The AST shall have secondary containment, either premanufactured or constructed with liners and berms, which can contain a minimum of 100% of the tank(s) volume and can intercept any spills from filling and discharge. A similar area with secondary containment will be designated for hydraulic oil for heavy machinery.

6.2.2 Survey Data and Property Boundaries

A topographic survey of the Site and adjacent properties was performed by Survtech Solutions Surveying in 2018. The survey was needed to determine the grading for soil excavation, precisely locating the proposed barrier wall, more precisely estimating the volume of soil in the Stockpile, and for storm water planning.

The survey is provided on **Drawings V-101** to **V-113**. Locations of the property boundaries are illustrated on these Drawings and shown on **Figure 2-2.** The proposed barrier wall alignment is entirely within the facility boundaries and will not require any property acquisition or easements. The entire Site resides within the City of Pensacola but does adjoin with the Escambia County boundary.

6.2.3 Site Access

All on-facility and off-facility work areas currently have sufficient access agreements and points of access to support construction activities. The Contractor will be responsible for identifying additional areas needing access improvements, prior to remediation, and the measures to be utilized to improve access to these areas.

6.2.4 Site Security and Fencing

The work areas on the facility shall be controlled at all times to discourage unwarranted trespass, theft, improper disposal, illegal dumping practices and other practices which could damage the remedy or create a hazard for people. The on-facility perimeter that falls within areas of soil excavation or barrier wall construction will be secured with an existing galvanized chain link security fence to discourage unauthorized entry as shown on **Drawings C-101, C-102,** and **C-601**. The fence will be six ft high chain-link fence. The fence will include permanent segments that will remain following construction and temporary fencing used only during construction. The integrity of all locks and fences should be inspected periodically during the construction phase.

6.2.5 Permit Requirements

The Site's Superfund status means that acquisition of specific permits will not be required. However, the substantive requirements of the following permits (as required by code) will be followed as ARARs at a minimum:

- City of Pensacola construction permit requirements;
- CGP with the Florida Dept. of Environmental Protection;
- Land Disturbance Plan/Site Grading Permit;
- Tree clearing permit;
- Haul permits;
- off-facility disposal of clean construction debris;
- Water use permit; and
- Electrical permit.

Additional applicable permit requirements may be identified upon consultation with the FDEP.

6.2.6 Utilities

The Site is served by public sewer, potable water, and electricity. No current active utilities lie within the barrier wall area; overhead electric lines are outside of the property fence. Locations of all utilities are shown on the Survey drawings (**Drawings V-101** through **V-113**) and will be field verified or cleared with hand equipment prior to initiating any subsurface activities. Old, inactive utilities require relocation or removal. Power is supplied by Gulf Power; Water is supplied by Emerald Coast Utilities Authority.

The electrical requirements for the RA are limited to the field offices and are expected to be an independent, metered 3-phase, 480-volt, 200-amp new service. Installation of the electrical service will require installation of a new meter, transformer, and main disconnect. Due to the proximity of the coast all overhead lines will have to meet Hurricane standards. All work will be completed by a licensed electrician and will comply with municipal standards for hurricane protection.

The Contractor will be responsible to field-locate all utilities within the designated work areas during the mobilization phase. Special care will be taken when excavating around utilities (for example, hand-digging). Excavation approaches should be coordinated with each utility owner to ensure protection of both the utilities and construction workers. Any utilities damaged or destroyed will be repaired or replaced by the Contractor at no expense to EPA.

6.2.7 Establish Work Zones

The ACW Site is still an active facility and used for the storage of product in the northwest corner; as well as a residential area in the southwest access corner of the site. Coordination with the Site owner and tenants is necessary to minimize the impact of RA construction and work areas on these facility operations. The Contractor shall coordinate with owner/tenant to identify acceptable work hours, suitable staging areas, access routes for hauling materials and equipment, material stockpile locations, and the potential for conducting construction activities during optimal periods of low production, when feasible.

Most of stored product on the facility and some equipment will remain during the RA. The Contractor will be responsible for notifying the owner/tenant prior to commencement of construction activities in each area.

RA tasks in certain work areas may be limited to specific times and days of the week.

Survey control points will be established and documented prior to the start of intrusive work. The proposed work limits should be surveyed and staked prior to the start or work, and all critical utilities, wells, and other structures within those proposed work limits or adjacent to proposed access routes should be adequately located and marked so that they are clearly visible to equipment operators. Temporary barriers will be erected as needed to protect sensitive areas.

Designated areas within work zones will be established to reduce the accidental spread of hazardous substances by workers or equipment from the contaminated areas to the clean areas; confine work activities to the appropriate areas, thereby minimizing the likelihood of accidental exposure; and facilitate the location and evacuation of personnel in case of an emergency.

To accomplish this, the site will be divided into as many zones as necessary to ensure minimal employee exposure to hazardous substances. As a minimum, three zones will be identified, including the Exclusion Zone, the Contamination Reduction Zone, and the Support Zone (where the trailer is located). Movement of personnel and equipment between these zones should be minimized and restricted to specific Access Control Points (ACP) to prevent cross contamination from contaminated areas to clean areas. The soil excavation zones and barrier wall zone are shown on **Drawing C-100** to **C-433**.

Site controls will be set up during implementation of the remedial activities. The following materials may be used to barricade construction areas/mark work zones and control traffic when necessary (such as heavy equipment offloading):

- Temporary fence;
- High visibility tape, rope, or chains;
- Signage;
- Traffic cones/barriers; and
- A spotter, where appropriate.

6.2.8 Access and Haul Roads

Temporary access roads on-facility will be required for transport of contaminated soil within the project area and movement of soil to backfill previously excavated contaminated areas. The Contractor shall identify the proposed access and haul routes in their plan submittals. All existing roads off-facility shall

be maintained in equal condition. Provisions for traffic control when trucks are entering or leaving the site shall be made. All trucks leaving the Site on public roads with contaminated soil will be subject to manifest and other transportation requirements.

6.2.9 Equipment Decontamination

A temporary decontamination pad will be constructed in designated work areas, or in a central location, prior to beginning the work. Contaminated equipment will be decontaminated by washing with steam or high-pressure water until visible traces of soil are removed. Decontamination water will be collected, stored in tankage, analyzed, and treated by the Contractor prior to disposal or discharge via a manner approved by EPA. The decontamination area shall have secondary containment. Equipment traffic patterns in work and non-work areas should be coordinated to minimize the amount of traffic in contaminated areas. Wheel washes should also be used at each exit from the construction site to minimize sediment tracking onto roadways.

6.2.10 Environmental Controls

The Contractor will use appropriate engineering measures for control of dust, storm water, erosion and equipment decontamination as necessary during all excavation, hauling, placement and loading/ unloading operations. Environmental controls shall be in place prior to any intrusive work in contaminated areas.

Dust controls will be designed to suppress visible dust above limits specified in the Contractor's HSP and Air Quality Monitoring Plan. The Contractor will be responsible for applying a suppressing agent (clean water or other approved agent) on all work and transportation surfaces, stockpiles, and in the stabilization area in accordance with a preventive schedule contained in the Contractor's SMP. The Contractor will be required to perform fugitive dust monitoring during performance of the work. The detailed approach to be used for air monitoring will be proposed by the RA Contractor in their SMP and reviewed and approved by EPA's oversight contractor.

6.2.11 Investigation-Derived Waste

IDW waste may be generated during the RA and is expected to include purge water, soil samples or cores, and contaminated PPE. IDW will be placed into 55-gallon drums and stored on Site for future disposal by the RA contractor.

6.2.12 Storm Water and Erosion Management

The contractor will develop a SWPPP and file a CGP with the Florida Dept. of Environmental Protection. The permit is issued under the provisions of Section 403.0885, Florida Statutes, and applicable rules of the Florida Administrative Code pursuant to the Department's federally-approved National Pollutant Discharge Elimination System (NPDES) stormwater regulatory program. The Contractor's SWPPP, will describe best management practices (BMPs) to be employed for storm water management, erosion control, and work area stabilization. The planned Erosion and Sediment Control Plan features are shown on **Drawings C-401** through **C-433**.

Storm water BMPs may include, but are not limited to:

- Scheduling, including performing work in dryer periods to reduce runoff potential. However, this portion of FL does not have a distinctive dry period, such as winter.

- Runoff controls, including temporary berms and ditches to direct storm water run-on away from active remediation areas and to direct storm water runoff from remediation areas to on-facility temporary storage.
- Erosion prevention methods - including protection of existing vegetation to minimize erosion; phasing of construction to avoid leaving exposed inactive areas prior to establishing cover; covering stockpiled soil to minimize contact between rainfall and contaminated soil; and maintaining temporary erosion control measures until the soil can be protected with vegetative cover.
- Peripheral erosion and sediment control barriers, including silt fence installed around all active construction areas and compost logs at storm drain inlets to prevent sediment discharge (**Drawing C-640**).
- Sediment tracking reduction measures, including gravel or paved surfaces at each exit from the construction site, wheel washes to prevent tracking of soil onto roadways, and avoiding trucking of saturated soil that may drip onto roadways.

6.2.13 Site Clearing

Drawings C-101 to **C-102** show the areas where vegetation clearing will be required. These areas correspond with the proposed soil excavation area, access roads, and barrier wall plus ECC footprints.

Vegetation clearing will consist of removing brush and small trees only as required to complete work. Larger trees will be preserved for aesthetic reasons. Grassy vegetation will be included with the soil during excavation. All cleared, woody vegetation will be cut into pieces or chipped and disposed of at the municipal landfill.

6.2.14 Demolition

Any physical restrictions on the Site that would hinder implementation of the remedy will be removed. No building demolition is necessary. Buried electrical panels from prior extraction system/wells or process operations are indicated on the demolition **Drawings C-101** and **C-102**, although the full extent of these is unknown. Any metal debris will be decontaminated and recycled. No wood or vegetative debris will be placed inside of the barrier wall confines.

Prior to the start of demolition activities, a walk-through of the planned demolition area will be performed to assess and identify any potential for the presence of demolition-related hazardous materials. All relevant utilities will be located and marked and disconnected prior to the start of demolition activities.

The demolition contractor will be required to dig a 2-ft wide proof trench three ft in depth around the entire perimeter of the planned slurry walls. If the slurry wall construction is not scheduled concurrent with demolition, the trench will be backfilled for safety. This trench will ensure that no additional buried foundations, concrete, utilities, etc. that would need to be removed prior to commencing slurry wall construction are present.

The building in the Northwest Area (outside of the CMZs/remediation area) is currently used for an operations building for the NAPL above-ground storage tanks and trailer on the facility and is marked to be demolished in **Drawing C-101**. This includes the office (onsite trailer) and limited parking; there are still components of the GW extraction system still onsite that will also be demolished during the Part 1

RA. Three steel product storage tanks, associated steel structures, and utility service lines will be also be removed and disposed of during demolition.

6.2.15 Well Abandonment

Part of the monitoring wells in the remediation area will be abandoned, including 18 extraction wells and 8 monitoring wells as shown on **Table 6-1**. Piezometers to be installed are described in Section 7.4.

7.0 Barrier Wall Geotechnical Design

Vertical engineered barrier (VEB) design using a slurry wall is specified to isolate contaminated soil and contiguous NAPL at the ACW Site. Through isolation, a slurry wall system can prevent or reduce the degradation of groundwater and potential threats to HH&E outside the contained area. The slurry wall will be constructed using native soil material excavated/extracted from the trench that is mixed with a mixture of bentonite and cement.

Available information on the performance of VEBs for hazardous waste containment suggests that the primary short-term factor affecting their performance is construction. Successful construction of a wall that meets design specification for low permeability requires deployment of an experienced construction crew, strict adherence to construction quality control (CQC)/construction quality assurance (CQA), and the selection of appropriate construction materials for the contaminants of concern and hydrogeologic setting (EPA, 2010).

This section presents the geotechnical design analyses for the barrier wall design. The design analysis for surficial/subsurface soil and sediment excavation is included in the Civil Design in Section 8.0.

7.1 GEOLOGIC SETTING

The depth of the slurry wall and extent for keying the wall into an underlying low permeability unit is a critical design basis component and is closely tied to the Site geology. The barrier wall for the ACW remedy will be installed within a geologic setting consisting of the following lithology (in order from land surface):

- 0 to 25 ft bls – Pamlico Marine Terrace (Upper Sand Unit): sand with little silt and clay, and some gravel.
- 25 ft – Lower Permeability Unit: The first lower permeability unit is encountered at approximately 25 ft bls and is comprised predominantly of a fine grain sand unit, with small percentage of silt and clay. This fine grain sand unit is not always present on borings or can be difficult to discern because variation in grain size and percentage of fines is difficult to illustrate at the scale of the Figures. This is the unit where a large mass of NAPL has been identified under the ACW facility.
- 25 to 100 ft bls – Citronelle Formation (Lower Sand Unit): quartz sand with variable amounts of silt, clay, and gravel. This is unit where the deeper NAPL plume mass has been identified.
- 100 ft bls – Second Lower Permeability Unit: a fat clay unit that has been identified directly beneath the former ACW holding ponds; however, this unit pinches out to the east of the former waste ponds and to the south of the Site. This second lower permeability unit is encountered at depths ranging from 77 to 117 ft bls. Four clay samples collected from the barrier wall location at approximately 111 ft bls were tested for hydraulic conductivity in February-March 2018. Results were very low for both samples; ranging from 1.1E-09 to 2.0E-091 cm/sec, indicative of a low-permeability clay. Hydraulic conductivity results are shown in **Table 3-2**. The grain size distribution of the two fat clay samples collected near the barrier wall location (SB516 from 104 - 112 ft bls and SB518 from 113.5 - 117 ft bls) contained 81.9% to 86.2% clay-sized particles. These clay samples contained 12.0% to 12.7% silt and less than 10% sand-sized particles.

The Pamlico Marine Terrace are very hard to distinguish from the underlying Citronelle sediments, but in general are less consolidated and contain less clay (NUS, 1985). Geologic cross sections for two transects across the Site are illustrated on **Figures 3-1** and **3-2**. Representative soil boring logs and photo-logs are provided in **Appendices C1** and **C2**, respectively.

7.2 BARRIER WALL DESIGN

The barrier wall design includes selecting barrier wall alignments, wall depths, thicknesses and compositions that will achieve the remedial objectives set for the walls. The purpose of the barrier wall is to provide containment of NAPL-impacted source materials, thus preventing additional off-site migration of contaminants at the ACW Site, as stated in the ROD:

> *Protection of HH&E will be achieved by isolating the creosote DNAPL and preventing future migration of. Encapsulating contaminated surface soil will eliminate potential risk to humans and animals.*

Compliance with ARARs will be achieved through isolation and encapsulation of PTW (DNAPL) and dioxin/PAHs impacted soil.

7.2.1 Barrier Wall Remedial Design Criteria

Specific design objectives, constraints, and specifications are listed below that governed the remedial design:

Barrier Wall

- The barrier wall design shall have an average net hydraulic conductivity of $1x10^{-7}$ cm/sec or less, and no single test result more permeable than $1x10^{-6}$ cm/sec;
- The barrier wall area is approximately 201,854 ft^2;
- The barrier wall shall have a minimum key into the underlying Second Lower Permeability Unit clay (depths ranging from 77 to 117 ft bls) of 4-ft;
- The barrier wall shall have a minimum uniform consistency and a minimum thickness of 3-ft;
- The wall shall be approximately 1,770-ft in length;
- The barrier wall shall have a minimum UCS of 25 psi at 28 days;
- Bench scale laboratory testing shall be used to develop the design basis for the barrier wall mixture; and
- The barrier wall construction shall be structurally sound and not susceptible to failure or erosion.

The UCS specification was developed with consideration for: (1) increased cost with higher cement content; (2) the potential for improved strength over time; (3) the potential for lowering the wall permeability with higher cement content; and the potential variability in test results.

The results of the barrier wall treatability testing provide the design basis for the barrier wall backfill mix. The final barrier wall's thickness may be adjusted based on the wall material's hydraulic conductivity determined during the TS. The RA contractor may offer an alternate design mixture, if

based on their experience it is expected to be more successful for the project. In this event, bench scale testing shall be completed by the RA Contractor to support the contention.

7.2.2 Barrier Wall Alignment

The ACW wall alignment is proposed to encompass most of NAPL-impacted soil on the west portion of the Site and allow for sufficient capacity to incorporate relocated dioxin-impacted soil from off-facility.

The alignment of the wall is shown on **Drawing C-100**. The lithologic profiles of the barrier wall alignment are shown on **Drawing C-510**. The barrier wall will encompass approximately 201,854 square feet (ft^2), with a linear distance of approximately 1,770-ft.

The barrier wall alignment will not transect any gas, water, overhead or underground electric, cable, or fiber optic lines. The depth to groundwater along the proposed wall alignment will likely vary from 2-10 ft bls depending on station location and seasonal variations. The highest groundwater elevation observed and recorded at locations along the proposed alignment is 6.25 AMSL, which occurred on January 30, 2018. Existing ground elevations along the proposed wall alignment vary from 14 amsl to 15 amsl (prior to grading for the barrier wall).

7.2.3 Barrier Wall Depth

The barrier wall will extend from ground surface down approximately 115 ft deep, penetrating a minimum of 4-ft into the competent Second Lower Permeability Unit clay. Using the updated lithology along the barrier wall alignment obtained during the RDI, the depth of the barrier wall will be approximately 115 ft bls across the Site. The surface grade for the wall will follow the site contours, and the maximum surface grade for the wall top will be 1% (1-ft, vertical/100-ft horizontal). Locally, the top of the Second Lower Permeability Unit clay is fairly distinct, notably by color and change in stiffness and soil moisture and is not considered to be significantly weathered. **Drawings C-211** (plan view) and **C-500** (profile view) illustrates the designated design depth for the barrier wall at each station. Any refusal, defined as locations where excavation of the key to the target depth cannot be completed with equipment on site, shall be brought to the attention of the engineer for discussion and recorded during construction. Termination of the barrier wall at a depth less than 4 feet into the secondary clay, and/or to a depth other than shown on the wall alignment drawings, must be approved by the Engineer.

7.2.4 Barrier Wall Height and Working Platform

The contractor shall construct a working platform along the length of the barrier wall alignment. This platform shall be of sufficient width to safely and efficiently operate the proposed in situ mixing equipment and allow for safe sampling of the constructed barrier wall. This platform shall be close to level to prevent loss of constructed barrier wall material prior to the time it hardens. This platform must be able to support 75 to 125 metric ton class excavators or cutter-soil mixing machine or other in situ mixing equipment the contractor proposes.

The top of barrier wall construction is set at a minimum elevation of 12 ft (NAVD 88). Therefore, a 2- to 3-ft thick working platform above this elevation is required. The ground surface elevation along the barrier wall alignment falls between 12 ft and 15 ft amsl. The onsite high groundwater table elevation during a 100-year storm event is expected to be 2-ft bls, hence the wall will extend above this height. The grade will be cut down to create the working platform as needed.

The barrier wall alignment will allow the wall to be constructed in situ using the cutter soil mixer, or other approved installation method, thus reducing handling of the backfill and associated costs. The work platform is designed to be level and will be graded prior to barrier wall alignment.

A SCB slurry barrier wall is specified for the RD based upon the results from the treatability study and projected costs. Four principal installation techniques are used for slurry wall construction: (1) traditional soil trenching using long-reach excavators and/or cranes/clamshells; (2) deep soil mixing (DSM) using large diameter augers; (3) a cutter soil mixing assembly; or (4) a deep trenching machine.

A cutter soil mixer slurry barrier wall, or other in situ mixing method approved by the Engineer, is assumed for this RD, although other construction methods are viable alternatives. The depth to key into the bottom clay-layer favors the use of the cutter soil mixer approach. Attributes associated with the barrier wall options are listed below:

Cutter Soil Mixer Barrier Wall

- Soil mixed in situ;
- Favorable for extended installation depths;
- Improved ability to cut through difficult soil lithologies, including stiff clays, gravels, and cobbles;
- Rectangular panel is ideal for wall construction;
- Instrumentation inside the cutting head monitors coordinate positions in real time to assure sufficient overlap between panels at extended depths;
- Easier to obtain quality assurance (QA)/QC results in real-time;
- Lower volume (5-10%) of excess excavated spoil material (still requires stabilizing); and
- Reduced work platform footprint.

Traditional Excavator/Clamshell Barrier Wall Construction

- Installation with long-reach excavators limited to approximately 90-ft bls;
- Bulldozer used to add stabilized soil mixture into open trench to displace bentonite water slurry;
- Can be impeded by large rocks or stone ledges; and
- Well-proven and reliable approach

Deep Soil Mixing Barrier Wall

- Soil mixed in situ;
- Ability to construct large diameter columns that effectively expand the wall thickness;
- Efficient and cost-effective method when mixing large volumes of soil;
- Ideally suited to provide settlement control and increased bearing capacity in soft soil; and
- Smaller diameter augers required as depth increases.

Deep Soil Trenching Machine

- Soil mixed in situ;

- Uniform soil mixing;
- Can reach depths of 120-ft bls in suitable soil conditions;
- Capable of cutting through difficult soil lithologies, including stiff clays, gravels, and cobbles although can be impeded by large rocks or stone ledges; and
- Good QA/QC sampling results for soil mix from return flights.

The barrier wall construction that is a predicate for the design presumes the use of a one-pass deep soil trencher. Deep trenchers are suitable for various underground geotechnical installations in non-consolidated soils and semi-solid soils. Deep soil trenchers can reach depths of 125 feet below grade for SB walls, and SCB wall installations. Deep soil trenching allows barrier wall construction underground, under the water table in highly fluid soil, with no open trenches, no dewatering, no shoring/sheeting no pumping/treating, and no mass excavations.

The RA subcontractor will be responsible for proposing the specific barrier wall construction technique for approval by EPA and their Consultant.

7.2.5 Backfill Mix Design

The design of the backfill mix for a slurry barrier wall is dependent on a variety of factors that include: permeability, strength, density, compatibility with contaminants, soil/groundwater conditions, and cost. After proper selection and design of an appropriate backfill mix, QA/ QC of this material is essential to produce repeatable results consistent to that achieved during initial laboratory bench-scale testing.

There are two distinct types of slurry wall backfill mixtures, self-hardening slurries and soil based backfills. Self-hardening slurries typically contain water, augmented clay (e.g., bentonite or attapulgite) and cement-based materials (for example, Portland cement). Self-hardening slurries can be used to achieve high compressive strengths and lower permeabilities. Soil based backfills are typically constructed from native site soil mixed with clay (for example, bentonite), cement, or a combination of both. Soil based backfills incorporate the excavated trench material into the mix, thereby reducing spoils.

The following table summarizes relevant aspects of these backfill mixtures:

Slurry Wall Backfill Mixture Options

Backfill Material	Permeability (cm/sec)	UCS (psi)	Density (lb/ft^3)	Relative Cost	Comment
Soil-Bentonite	$1x10^{-7}$	0	100-130	Low	
Soil-Attapulgite	$1x10^{-7}$	0	100-130	Low	
Soil-Cement-Bentonite	$5x10^{-7}$	50	95-120	Moderate	
Cement- Bentonite	$1x10^{-6}$	25	70-75	Moderate	
Slag Cement-Bentonite	$5x10^{-7}$	100	36-72	Mod-high	
Composite	$1x10^{-10}$	N/A	N/A	High	Depth limited

Modified from Andromalos, 2001. UCS = unconfined compressive strength; N/A = not applicable

Cement-bentonite is the most commonly used self-hardening slurry. SCB ratios typically are 2% to 3% bentonite and 4% to 10% (w/w-dry) cement.

The design basis for the slurry barrier wall has been established from the ACW Barrier Wall Treatability Study (Black & Veatch, 2018) discussed in Section 5.0. The results of this testing indicated that a SCB mixture in situ into the native soil, a reliable and cost-effective barrier wall meeting the design requirement of a minimum hydraulic conductivity of $1x10^{-7}$ cm/sec unconfined compressive strength.

The bentonite used in the barrier wall mixture shall be premium Wyoming grade sodium bentonite meeting the requirements of API Specification 13A Section 9 (for example, CETCO Premium Gel and Wyo-Ben Hydrogel). Bentonite is an expanding lattice smectite clay. Manufacturer's bentonite powder documentation and test results will be required.

7.3 BARRIER WALL CONSTRUCTION

The proposed bottom-of-trench-elevations are indicated on subsurface profiles along wall alignments, as shown on **Drawing C-500**. The trench depth will follow the contour intervals for the depth to clay while maintaining a 4-ft insertion depth. Additional details are provided in **Drawings C-600** and **C-601**.

7.3.1 Slurry System and Hydration

The RA Contractor shall prepare a location(s) for staging the reagent slurry batch plant system that is accessible for the delivery of bentonite and cement, and other reagents on tractor trailers while still being an efficient location for delivering the slurry mix to the mixing equipment where it is mixed in situ into the native soils. It is assumed that the slurry mix plant will be located within the confines of the barrier wall. A SCB slurry mix containing cement requires more careful mixing as the mixture must be placed quickly after batching, or risk affecting the desired final properties due to the curing time for the cement. Typically, with an in situ construction approach, the bentonite is hydrated with water for about 8 hours, sometimes longer, before being pumped to the mixing equipment where it is then mixed into the native soils. The cement and any other reagents are mixed with water to form a slurry that is then pumped to the mixing equipment, where it is then mixed into the previously prepared bentonite and native soil wall, there after curing if forms the in situ engineered vertical barrier wall. Generally, the batch plant for mixing the bentonite as well as the cement and other reagents, is centrally located within the barrier wall footprint. The RA Contractor will propose the optimal location and staging of the SCB mix slurry batch plant system.

The RA contractor shall identify and provide a source of water for the slurry mixing. The proportion of bentonite, Portland cement, soil, and water in the wall mixture shall be monitored by the RA Contractor in accordance with the CQC/CQA requirements.

7.3.2 QA/QC Testing of Barrier Wall

The barrier wall construction will require a detailed program of field QA/QC testing. The Contractor will be responsible for reviewing and updating the Part 1 Construction Quality Assurance Plan (CQAP).

The Contractor shall also procure a qualified testing laboratory for providing permeability and strength testing analysis for confirmation of soil design criteria. The Contractor will be responsible for the sampling, preparation, storage, handling and shipping of test sample. The QC testing shall include the following features:

- Test soil samples shall be composited from the complete boring depth for analysis.
- Testing UCS shall be done in accordance with ASTM Method D4832 or D1633.
- Permeability testing shall be by a triaxial cell according to ASTM Method D5084.

- Field samples shall be taken of the material immediately after mixing and before placement in the trench.

7.3.3 Barrier Wall Spoils Disposition

The addition of cement, bentonite, water and any other mixture additive, when mixed in situ into the native in place soils, will cause some displacement of the reagent soils mixture which will rise and spill over the top of the trench. These excess materials, called spoils, require proper management under the cap and within the footprint of the vertical barrier wall. The estimated spoils volume for the barrier wall construction is difficult to estimate accurately but may approach 5-10% of the trench volume. These barrier wall spoils may set up on their own due to the amount of cement used in constructing the barrier wall. However, it is also possible that these spoils will need be stabilized with fly ash and/or additional cement, by mixing on the ground or in a low spot within the interior of the wall following completion of the wall.

7.4 HEAD MAINTENANCE SYSTEM FOR BARRIER WALL

It is desirable from a COC containment perspective that the groundwater elevation inside the constructed and capped barrier wall containment system be at an equal or lower elevation than groundwater outside of the barrier wall system. This condition causes an inward hydraulic gradient across the barrier wall virtually eliminating the potential for COCs to migrate through the wall and outside the containment system.

As part of the containment system design, approximately 4 paired piezometers (1 piezometer inside the containment system paired with 1 piezometer located outside) will be installed to a depth of 12 ft bls and monitored with pressure transducers during and after construction of the barrier wall and capping system. The depth to groundwater along the proposed wall alignment will likely vary from 2-10 ft bls depending on station location and seasonal variations. Depending on the results of the monitoring, it may be recommended that a low flow groundwater extraction system (1-2 wells, 5 GPM maximum) be installed and operated to maintain the lower groundwater elevations desired. Additional details on such a system will be provided, if necessary, by the RA contractor.

8.0 Soil Excavation, Transport and Disposition

The selected remedy for the ACW Site includes soil excavation of surficial soil (varying spatially from 1- to 3-ft in depth). All surficial soil excavation at ACW is considered unsaturated.

Surficial soil with dioxin TEQ levels above 30 ng/kg onsite; and surficial soil with dioxin TEQ levels above 7 ng/kg are to be excavated from the adjacent neighborhoods off-facility from CMZ-4B. All off-facility contaminated excavated soil will be relocated to within the barrier wall and placed under the proposed surface cap/cover. Excavated soil onsite will be placed either within the slurry wall confines on CMZ-1 or within the ECC. **Drawings C301** through **C333** illustrate the planned final areas for soil excavation. **Table E2a** shows the calculations for the CMZ-4B soils. A summary of the soil excavation, handling and disposal tasks is outlined below.

Excavated Soil for Placement Under the Barrier Wall Cap

- Surficial soil (66%) from the CMZ-4B off-facility will be excavated (**Appendix E2**) and relocated to within the Barrier Wall Cap on CMZ-1. [all CMZ-4B off-facility soil will be temporarily placed into CMZ-1 with a temporary liner while the SEE is conducted].
- Spoils Return from Barrier Wall Construction will be paced within the Barrier Wall Cap on CMZ-1.

Excavated Soil for Placement in ECC

- Surficial soil from the existing stockpile in the central portion of the facility will be excavated and relocated to within the ECC on CMZ-3.
- Surficial soil from the PYC Dredging Spoils Pile (located just south of the Stockpile) will be excavated and relocated to within the ECC.
- Surficial soil from the CMZ-2A of the facility will be excavated and relocated to within the Barrier Wall confines on CMZ-1.
- Surficial soil from the CMZ-4A portion of the facility will be excavated and relocated to within the ECC.
- Surficial soil (33%) from the CMZ-4B off-facility will be excavated and relocated to within the ECC.
- Surficial soil currently residing within CMZ-3 will be excavated and replaced within the ECC.
- Surficial soil from the eastern portion of the facility will be excavated and relocated within the ECC to allow the construction of the stormwater detention pond (4,235 bcy).

Excavation quantity and depth estimates are summarized in the table below. Detailed calculations are provided in **Appendix E2** and provided in the drawings. The volume of soil to be excavated may vary based upon field observations of creosote stringers. Excavated areas will be backfilled to match the proposed final land surface grading with imported and screened fill and compacted to support equipment loads.

Soil Excavation Area	Location	Depth Interval (ft bls)	Area (ac)	Total Volume (bcy)
Soil Stockpile	Central Parcel	above grade	NA	35,000
PYC Dredging Spoils Pile		above grade	NA	10,000
Surficial Soil	Pond excavation	0 to 1.5 ft bls	1.75	4,725
	CMZ-4A	0 to 3 ft bls	2.38	11,500
	CMZ-2A	0 to 3 ft bls	0.48	9,500
	Spoils from Barrier Wall	0 to 115 ft bls	NA	4,327
	Barrier Wall Leveling	0 to 3 ft bls	NA	3,000
	Off-facility Residential Soil, CMZ-4B	0 to 3 ft bls		34,900

Steps will be taken to control erosion during excavation. Existing storm water conveyance system and drains will be repaired and/or replaced if damaged during excavation.

During the RA, construction worker health-related risks will be minimized through air monitoring and use of emission control techniques such as dust suppression. Short-term noise and traffic congestion impacts in the community will be controlled through work schedules and use of transportation routes that avoid residential areas.

8.1 TEMPORARY SOIL STOCKPILE STAGING AREAS

The excavation of the surficial and subsurface soil and movement of soil will require temporary soil stockpiles. Soil will be temporarily stockpiled on an existing contaminated area wherever possible. Designated clean soil can be stockpiled in areas of uncontaminated material. The final location of the temporary soil stockpile staging areas will be determined by the RA Contractor, as approved by EPA and their Consultant.

8.2 ON FACILITY SURFICIAL SOIL EXCAVATION AND TRANSPORT

8.2.1 Excavation Methodology

The primary objective for the on-facility surficial soil excavation scope is to remove soil impacted by dioxin contamination above cleanup levels for relocation to within the Barrier Wall vault or ECC. The excavation will use pre-determined sample depths from sampling including samples through the 2018 RDI. The excavation approach will be selected to minimize the volume of uncontaminated soil to be incidentally incorporated into the vault.

8.2.2 Surficial Soil Excavation, Transport, and Placement

On-facility excavation of soil will consist of the removal, transport, and placement of surficial soil from the central and eastern portion of the facility as shown on **Drawings C-321** through **C-323**.

Excavation of on-facility surficial soil will be completed initially from CMZ-2A. The existing Stockpile and PYC Dredging Soil Stockpile over CMZ-3 will be relocated and temporarily staged on bermed-liners to allow access to CMZ-3 soils. Surficial soils from CMZ-3 will be excavated and staged temporarily to allow construction of the ECC base liner. Contaminated surficial soil from CMZ-2A, CMZ-4A, and the staged

soil from CMZ-3 and the stockpiles will be relocated into the ECC. Excavation will be restricted to areas that have been pre-determined by investigative sampling, including the RDI.

All work adjacent to roadways (such as Pine Street) will require a road flagger to be present during construction activities. Dust suppression efforts will be essential during excavation, transport, and placement of surficial soil.

8.2.3 Soil Backfill

After surficial excavation, on facility excavated areas will be filled and grading per **Drawings C-321** through **C-333**. Backfill activities will include:

- Backfill will meet requirements shown on plans and specifications;
- Backfill will be compacted to 90% compaction in 18-inch lifts;
- Erosion protection rock will be placed in drainage ditches to restore the flow line elevation of the ditches to match the revised invert elevations of culverts as shown in the plans.
- The final backfill surface elevation will be verified by post-construction surveys.

8.2.4 Vegetative Restoration

All surficial soil excavation areas will be seeded with grass per the plans and specifications. Access roads for the current tenant will be constructed as shown.

8.3 STOCKPILE EXCAVATION AND TRANSPORT

8.3.1 Soil Stockpile

The Stockpile located on the CMZ-3 of the Site encompasses approximately 35,000 cy over 171,818 ft^2 (3.94 acres) with a height of approximately 5.5 ft. In addition, the PYC Dredging Spoils Pile includes 10,000 cy over approximately 49,091 ft^2 (1.13 acres) at the southern end of the Stockpile.

The Stockpile soil storage has a cover under the current vegetation, it must be removed prior to excavation of the soil in the cell. The cover should be decontaminated by removing any excess soil residue prior to disposal with other non-contaminated construction debris. All storage cell liner and cover material will be disposed as non-hazardous, solid waste. If there is a bottom liner, it will be removed and disposed following removal of the overlying soil.

Excavation and temporary staging of the Stockpile will proceed prior to the construction of the ECC. Soil will be relocated directly using front-end loaders or with a combination of front-end loaders and dump trucks with tarps/covers. The soil will be staged on-facility in the area shown on **Drawing C-301** prior to subsequent transport to the ECC.

8.3.2 Debris Stockpiles

The two Debris Stockpiles located adjacent to one another in the center of CMZ-3 of the Site encompass approximately 14,955 cubic feet (555 bcy). The debris piles will be removed during the demolition phase, and any metal debris will be decontaminated and recycled.

8.4 OFF-FACILITY SURFICIAL SOIL EXCAVATION AND TRANSPORT

8.4.1 Extent of Soil to Be Relocated

The estimated extent of soil to be removed off-facility from CMZ-4B from 0 to 2-ft bls (varies per property) is shown on **Drawing C-110**. Approximately 34,900 bcy (from approximately 19 acres) of contaminated soil is estimated for removal and transport to the barrier wall cell vault on CMZ-1. This soil volume estimate is the basis for the cost estimate in Section 16.2 and **Table E2**.

8.4.2 Soil Excavation

Contaminated soil will be removed from yards using a combination of vacuum soil excavation, backhoe excavation, and hand digging. Only vacuum excavation and hand digging will be used around tree roots or other sensitive areas. Once the top of the tree roots are visible, digging will be stopped, approximately 3-6 inches below the surface in root-areas. All utilities will be marked initially. The parcel-specific work will be communicated with homeowners in advance and prior to the excavation by EPA or its representative. The proposed excavation area will be flagged or staked by the Contractor to delineate the extent of proposed excavation. The basis for soil removal is based upon the 2018 RDI field investigation results along with prior data from the RI/FS.

Excavation will be restricted to areas that have been pre-determined by investigative sampling, including the RDI. The EPA representative and Consultant will be required to approve the initial plan and any subsequent changes brought on by weather or field conditions. Excavation shall be in accordance with Occupational Safety and Health Administration (OSHA) standards.

8.4.3 Soil Transport and Placement

Soil excavated from off-facility will be loaded into dump trucks and transported on-facility for inclusion in the slurry wall vault or ECC for long-term isolation. All truck loads will be securely covered prior to transport.

8.4.4 Soil Backfill

The off-facility excavations will be backfilled with clean fill from an off-site source to the prior grade. The fill will meet the requirements stipulated in the plans and specifications. Granular material will be backfilled in 6-inch lifts and compacted to an in-place density of 95% maximum dry density (MDD) per ASTM D1556.

8.4.5 Vegetative Restoration

All disturbed area will be seeded with grass per the plans and specifications to match the pre-existing condition to the extent possible.

9.0 Engineered Containment Cell Design

An ECC will be constructed with a RCRA Subtitle C Cap (or equivalent) over the over CMZ-2A/-3 area (approximately 5.33 acres) on the ACW property, that will extend over part the CMZ-4A. The final area of the ECC is shown on **Drawings C-321** through **C-323**.

9.1.1 Base Liner System Design

The containment cell will be lined with a geomembrane. The excavated surface soil material will be placed and compacted in the cell at low moisture content. During construction, there will be rainfall on the exposed material. Although the soils will be compacted as they are placed and graded to facilitate the runoff, collection, and ultimate removal of rainwater from the containment cell, some water infiltration into the placed soils is expected. The primary objective of the base liner is to prevent migration of leachate generated during construction and filling of the containment cell.

The base liner system for the containment cell will consist of a 60 mil HDPE or LLDPE bottom geomembrane liner. The liner will be a thermally welded at the seams using primarily a double track wedge welding system providing an air channel between welds. This channel provides a method to pressure test the welds to identify seam leaks prior to placing the liner in service.

The design of the cell will prevent saturation of the contained soil material. The base liner will be sloped to sumps constructed at the corners of the cell. The soil material to be placed into the containment cell is primarily a free draining granular material. Any water entering the containment cell will drain to a centralized sloped drainage pipe that drains to a sump where it will be pumped to the surface, treated (as necessary), and properly discharged. In addition, strip drains will be installed above the HDPE/LLDPE liner to accelerate drainage to the subsurface sumps, as shown on **Drawings C-322** and **C-323**.

The maximum potential leachate head will be on the base of the containment cell. There will be essentially no internal hydraulic head on the slopes of the containment cell. To minimize the potential for leachate migration from the cell, a GCL will be placed below the base of the containment cell forming a composite liner system, installed above the HDPE/LLDPE liner, as detailed in 02 56 15 GEOSYNTHETIC CLAY LINER and **Drawing C-600**.

9.1.2 ECC Closure System (Cap) Design

9.1.2.1 Requirements

The multi-layer ECC cap will provide a durable and functionally impermeable barrier to the infiltration of rainwater. The closure system will consist of a composite system. The entire area will be covered with a combination of GCL and then a 40 mil HDPE/LLDPE top geomembrane liner, to contain the waste. The soils will be placed and compacted below the cap system to provide a firm subgrade to support the cap system. Overlying the cap system will be a drainage system to prevent ponding of water on the closure liner system, like the CMZ-1 cap described in Section 10. The entire drainage and cap system will be protected by a soil cover with a minimum of 18 inches in thickness and 6 inches of topsoil and seeding. This cover design will be equivalent to the CMZ-1 cap. Final grading for the ECC are shown in **Drawings C-331** through **C-333**.

A CQAP has been developed for installation of the cap system and the base liner system and is included as **Appendix F**. The cap system will be installed under strict QA/QC inspection and testing. The installation of the cap components will meet the highest standards of the industry.

The project site is anticipated to be redeveloped as a park or municipal development. In order accommodate this development the cap must meet the following functionality:

- Modified Utility Construction (less than 1 ft depth bgs)
- Modified Light Pole/Sign Construction (less than 1 ft depth bgs)
- Walking Path Areas
- Storm Water Drainage

Restrictions on excavation depths within the capped area will be required for future site development.

10.0 Barrier Wall Closure Cap and Cover Design

A multi-layer cap is specified to cover the entire area contained by the barrier wall (approximately 1.77 acres). The cap will provide a durable and functional barrier to minimize the infiltration of rainwater. However, other layers in the cap perform important complementary functions. For example, the drainage layer placed over the hydraulic barrier reduces water infiltration by efficiently removing water that percolates through the vegetative (top) layer, minimizing the hydraulic head on the composite cap. In addition, the drainage layer prevents saturation of the cover soil allowing unimpeded vehicular access to the cap.

The closure system will consist of a composite liner consisting of an HDPE or LLDPE liner in contact with a GCL. The composite liner will be placed on the contaminated waste. Above the geomembrane will be a geocomposite drainage net (geonet) with a bonded geotextile to prevent water storage on the liner. Overlying the geonet will be an 18-inch layer of protective soil cover and 6 inches of topsoil and vegetative seeding. The vegetative layer plays an important role in erosion prevention by supporting vegetation, whose root structure anchors the soil. The cap will be sloped to prevent ponding of water on the closure system. The edges of the composite liner will overlie the barrier wall and be anchored into the surrounding soil. The closure system is considered an equivalent to a RCRA Subtitle C Landfill Cover. **Drawings C-501** and **C-504** illustrate the construction profile for the barrier wall cap. The final grading for the barrier wall and ECC caps are illustrated on **Drawings C-331** through **C-333**. The cap is estimated to have an average mound height of 13-ft.

A CQAP has been developed for installation of the cap system and is included as **Appendix F**. The cap system will be installed under strict QA/QC inspection and testing.

10.1 SUBGRADE

The subgrade for the closure cap will consist of the excavated and compacted wastes of variable thickness according to the pre-existing ground surface topography and the slope of the cap that will be graded to a uniform height prior to cap placement. The soil to be added to the barrier wall/cap area is not intended to be used as a structural fill. The material will be placed at a maximum of 12-inch lifts. The only compaction requirement for this material is that a bulldozer will make 2 passes over the 12-inch lift. The bulldozer shall be a D6 or larger. Organic debris will be uniformly spread within the contaminated soil within the cell. Pockets of organic debris will not be permitted. Concrete debris shall be broken into pieces not larger than 18 inches in the largest dimension. Concrete debris will be placed no closer than 5 ft from any geosynthetic material or barrier walls. Concrete debris will be placed in a single lift. Final lift placement and grading will require a smooth drum to compact the waste and provide a level surface for placement of the GCL.

10.2 BARRIER CELL SLOPE

The cover system for the barrier wall containment cell will be constructed at a slope 4:1 horizontal/vertical. The containment cell will be generally flat across the top of the mound with drainage as shown on the Drawings. **Drawings C-331** through **C-333** show the final grading plan and reference cross section details for the barrier wall and ECC.

10.3 GEOSYNTHETIC LINER

A GCL will be used as an approved alternate to a RCRA C landfill cover inclusive of 2-ft of clay. The geomembrane and GCL will function as a composite liner to prevent stormwater infiltration. GCLs are

defined by ASTM D 4439 as "hydraulic barriers typically manufactured of bentonite clay or other low permeability material, supported by geotextiles and/or geomembranes, which are held together by needling, stitching, or chemical adhesives." A geotextile encased GCL is specified. The permeability of the GCL will be equivalent to 2 ft of compacted clay with a maximum permeability of $1x10^{-9}$ cm/sec. The GCL layer will be placed atop the smooth-rolled subcap. The GCL will be isolated from any NAPL soil layers prior to hydration. The use of GCL instead of clay is recommended for the following reasons:

- A GCL takes up less space than an equivalent clay layer. The thickness of a GCL is approximately 0.25-inch compared to 2 ft of an equivalent clay layer;
- Compacted clay is susceptible to drying out and cracking over time whereas a GCL is self-healing if punctured due to the high swell potential of the sodium bentonite clay used;
- Better freeze-thaw resistance;
- Lower cost than clay liners;
- Sufficient quantities of clay with the uniform required permeability may not be available near the Site. Transporting the clay material to the Site would add considerable cost to the project; and
- CQA on the factory-manufactured GCL is more complete and effective than for a compacted clay liner. Clay being a natural material is susceptible to variations in consistency and permeability.

10.4 GEOMEMBRANE LINER

A 40 mil HDPE or LLDPE thermoplastic top geomembrane liner will be placed directly on the GCL barrier layer to create a geocomposite barrier layer. The purpose of this composite barrier layer is to create an impermeable barrier that blocks the infiltration of water. A HDPE or LLDPE liner provides good tension resistance, high elongation capability, puncture and stress-crack resistance, chemical resistance and ultraviolet (UV) resistance. Geomembrane panels will be thermally seamed. The contractor will propose the specific seam mechanism (e.g., lap seam, hot-knife). All seams shall be free of moisture and clean. The Contractor modified CQAP shall designate the trial and field test methods (e.g. seam strength tests, destructive tests).

The Hydrologic Evaluation of Landfill Performance (HELP) model has been completed to confirm the design of the drainage layer. The model calculates the head in the drainage layer based on a 30-year life span that includes an 11.8-inch 25-year, 24-your storm event. The results of the modeling effort are presented in **Appendix E3**. The model indicates that the peak head on the geomembrane is 0.35-inch, therefore much less than the required limitation of 12 inches. The peak leakage through the composite liner is less than 0.0003 cubic feet per acre.

10.5 STABILIZATION / DRAINAGE GEOTEXTILE

The top of the cap system will be sloped to drain to the perimeter of the containment cell. The drainage system will consist of continuous geonet to promote drainage off the 40 mil HDPE/LLDPE top geomembrane liner. The net includes a bonded geotextile filter to separate the net from the overlying soil. The geonet will be extended past the limits of the cap system to terminate in rip rap at the toe of the slope. The rip rap will protect the toe of the cover soil and the terminated end of the drainage net. The discharge from the geonet system will be collected at the perimeter of the containment cell and directed to natural drainage. This water will never have been in contact with the contaminated soil in the containment cell.

10.6 GAS CONTROL

Gas control will be included in the barrier wall cell to release any accrued gasses, potentially from long-term biodegradation of creosote components. Passive vent wells will be installed with 3-ft thick screens beneath the GCL layer. These vent wells will exit on the cap's side rather than on the top to remove obstructions to future use or maintenance and to eliminate potential infiltration at the vent seams. The gas vent system is illustrated on **Drawing C-330**.

10.7 SOIL COVER

The soil cover will consist of 24-inches of clean fill obtained from offsite. Fill sources may be blended to achieve an optimum composition. This 18-inch thick layer of protective soil will be compacted over the cap geonet that overlies the composite liner system. The top of the soil cover will be sloped a minimum of 1% to drain rainwater off the capped area. The edges of the cell will be sloped at maximum of 4 horizontal to 1 vertical or 25%. A 6-inch thick top soil layer will be placed on the ground surface and vegetated to complete the 24-inch total thickness. This current soil cover is designed to prevent erosion on the cap and assumes no future use for development (e.g., building foundations, major roads).

The RA Contractor will identify the source of the topsoil to be used as the soil cover. A layer of construction fencing, or other brightly colored material, should be placed at an elevation of 6 inches above the drainage layer to visually alert anyone disturbing the soil above the capping system. The RA Contractor will sample all potential source material for COCs to determine there is no contamination within the topsoil fill material.

10.8 VEGETATIVE LAYER

A vegetative layer will be selected after consultation with the land owner, EPA, and the RA Contractor. The selected vegetation should have the following characteristics as presented by the EPA:

- Indigenous perennial plants resistant to drought and temperature extremes.
- Shallow root structure to prevent penetration into drainage layer.
- Require little or no maintenance.
- Survive in low-nutrient soil.
- Grow in enough density to limit erosion.

The EPA also recommends that the surface layer be designed to limit the amount of erosion to less than 2 ton/acre/year. The U.S. Department of Agriculture's Universal Soil Loss Equation is typically used to estimate soil loss. A vegetative layer of grass is assumed for design purposes.

10.9 DRAINAGE SYSTEM AND STORMWATER CONTROLS

An overview of the drainage system and stormwater control design is included below.

10.9.1 Climatic Data

The area experiences a warm, humid temperature climate. Winters tend to be short and mild, while the summer season is typically long and hot. The area's average winter temperature is 53°F, while summer temperatures average around 82°F. The average annual precipitation is approximately 65 inches, with the greatest sustained rainfall occurring during the summer months. The entire ACW Facility is located

outside the FEMA Special Flood Hazard Area. Parts of the extended NAPL plume off-facility, CMZ-2B, are in the 100-year floodplain.

10.9.1.1 Rainfall

The precipitation depths were determined from National Oceanic and Atmospheric Administration (NOAA) ATLAS 14, Volume 6, Version 2 Point Precipitation-Frequency Estimates. TR-55 was used to determine Natural Resources Conservation Service (NRCS) Rainfall Distribution Type III is applicable for the ACW Pensacola Site. The precipitation frequency estimate is summarized below. The 9.22-inch event is representative of a 10-year, 24-hour design storm at the site.

Precipitation Frequency Estimate

Precipitation Frequency Estimate (in) Average Recurrence Interval (years)							
Duration	**1**	**2**	**10**	**25**	**100**	**500**	**1000**
60-min	2.16	2.44	3.31	3.91	4.90	6.19	6.78
6-hour	3.79	4.29	6.10	8.60	9.87	13.2	14.9
24-hour	5.09	5.95	9.22	11.8	16.6	23.4	26.8

10.9.2 Existing Topography and Surface Drainage Patterns

The ACW Site is a local high point due to previous soil placement. Existing drainage patterns follow low slope drainage paths discharging to grade off site. Storm water which drains off the Site to the west on L street ultimately drains south to; the City of Pensacola completed the construction in 2012 of a new storm water line to redirect storm water from entering the drainage ditch on the PYC property. Most of the Site drains off site to south and southeast ultimately discharging to Pensacola Bay.

10.9.3 Stormwater Management Approach

Stormwater management on the ACW Site will comply with Federal requirements as stated in the Energy Independence and Security Act (EISA), Section 438. Through compliance with EISA, FDEP, and local stormwater requirements will also be satisfied. Moderate infiltration capacity of the soil on site, Retention of the 95th Percentile Rainfall Event (EISA Option 1) will be used to satisfy EISA requirements. A 1.75-acre detention pond located in the southeastern corner of the Site near the intersection of West Pine Street and South F Street will infiltrate, evapotranspire, and attenuate rainwater to preserve the pre-development runoff conditions following construction as shown on **Drawings C-333**. The post-construction rate, volume, duration and temperature of runoff leaving the facility will not exceed the pre-development rates and the predevelopment hydrology will be replicated to the maximum extent technically feasible. Elevated runoff rates due to increased impervious surface cover in the post-development condition necessitate implementation of structural stormwater BMPs and onsite infiltration from a new stormwater detention pond.

In General, the existing drainage patterns will be maintained following construction. A shallow-sloped, vegetated swale will convey drainage to the proposed infiltration and detention basin in near the intersection of West Pine Street and South F Street. Rainfall on the proposed containment cell cap will be directed by an east/west ridge with a 1% crown slope. Runoff from the containment cell cap will be intercepted by shallow swales flowing southeast toward the infiltration and detention pond along with the other runoff from the remainder of the site. In low frequency, high intensity events the detention pond will discharge to the existing SE Ditch tributary that drains southeast to Pensacola Bay.

11.0 Electrical Design

The implementation of the RA includes only minor electrical work, including the use of portable generators and powering the office trailers. The RA Contractor will be responsible for securing electrical drops and meters and temporary power pole installation. All work will be compliant with local Electrical codes and National Electric Code (NEC) requirements.

12.0 Mechanical Design

The implementation of the RA includes only minor mechanical work, including the use of portable generators and pumps for temporary dewatering.

13.0 Remedy Sustainability Summary

The EPA has recommended the use of green remediation BMPs to help apply principles for greener cleanups and minimize the environmental 'footprint' of contaminated site cleanup activities (EPA, 2015). Therefore, an evaluation of BMPs potentially applicable to the Barrier Wall RA was conducted. The evaluation included BMPs identified in EPA's BMP Fact Sheets and the American Society for Testing and Materials (ASTM) E2893-13 Standard Guide for Greener Cleanups (ASTM, 2016). BMPs identified as potentially applicable to the RA are included in **Appendix E4**.

14.0 Value Engineering

A VE screening was conducted for the ACW Site to identify potential high cost design elements or subsystems that may become candidates for a formal VE study. VE was completed by three qualified personnel not involved in the project. The screening consisted of answering questions developed by the Society of American Value Engineers (SAVE). These questions and the site-specific answers are provided in **Appendix G**.

15.0 Final Remedial Action Schedule

15.1 RA SEQUENCE OF WORK

The RA schedule for will be established by the RA Contractor selected to perform the work. It is anticipated that the construction components (preconstruction, barrier wall installation, site excavation, cap installation, ECC construction, and storm water/drainage work) will be completed within 25 months from the Notice to Proceed (NTP) followed by a long-term monitoring and maintenance of the remedy; however, as noted, there is a break after the first 6 months for the SEE thermal remediation (detailed in Part 2 Basis of Design Report). **Appendix H** presents the construction schedule for the remedy implementation. A summary of the proposed schedule is shown below:

Part 1 RA Schedule Summary		
Schedule Task	**Net Duration (Days)**	**Projected Schedule**
Phase 1 – Off-Facility Site Soil Excavation and Onsite Consolidation		
Procurement	60	1/2020 - 7/2020
Mobilization and Site Preparation	25	
Off-Facility Excavation and On-Site Consolidation	55	
Part 2 RA - SEE Thermal Remediation [break in Part 1 RA]		
Phase 2A – Barrier Wall Construction		
Procurement	70	1/2022 - 10/2022
Mobilization and Site Preparation	25	
Barrier Wall Construction	84	
Phase 2B – Surface Soil Excavation, ECC Construction		
Mobilization and Site Preparation	25	9/2022 - 4/2023
Surface Soil Excavation and Transport	40	
ECC Construction	85	
Phase 2C – Barrier Wall Cap Construction		
Barrier Wall Cap Construction	88	3/2023 - 7/2023
Phase 2D - Detention Pond Construction		
Detention Pond Construction	14	7/2023 - 8/2023
Demobilization	5	

16.0 Contracting Plan and Cost Estimate

16.1 CONTRACTOR STRATEGY

The EPA has multiple contract vehicles available to it to implement the site remedy. These contract vehicles include the Region 4 Emergency Response Removal contract, the Region 4 RAC contract, the U.S. Army Corps of Engineers (USACE), the Remediation Environmental Services (RES); Remedial Acquisition Framework Multiple Award Contract [RAFMAC]) Contract, and perhaps others. Each of these contract vehicles has features and/or limitations which EPA will have to consider and evaluate for a specific phase of the RA.

As indicated in Section 15, the work has been strategically and logically divided up into 2 work phases. Depending on funding availability in a given fiscal year, it is anticipated that work phases may be procured separately, but if funding is enough one or more phases could be combined into one contract which would likely reduce costs and schedule. The barrier wall construction (Phase 2A) will require the services of a specialized contractor, whereas the remaining phases can readily be performed by one of many remediation contractors. If funding availability is sufficient, it is recommended that Phase 2A through 2D be combined into one contract.

Table 16-1 presents a proposed bid tab, or contractor pricing schedule, for EPA's use in soliciting bids for implementing the RA. Prior to the actual procurement, the bid tab should be further reviewed and edited to reflect just the phase(s) of work subject to the solicitation. Based on the potential variability of excavation, backfill, screening, transport, and disposal quantities, these items will be contracted on a lump sum with price adjustment basis. In addition, the special conditions of the contract should have a significant (i.e., 15%) quantity variation clause to allow for addition and deletion of work without causing a change in the unit price rate for the work item.

16.2 FINAL COST ESTIMATE

An RA cost estimate has been derived for the RA implementation. This Final design includes a detailed cost estimate developed using TRACES MII Version 4.2 Software. The total estimated cost is $13.4M, and is attached in **Appendix I**.

16.3 CONSTRUCTION SPECIFICATIONS

Construction specifications for the RD were prepared following the USACE SpecsIntact format. Specifications are included in **Appendix J**.

16.4 REPORTS

The RA Contractor will prepare a draft RA report in accordance with the Office of Solid Waste and Emergency Response (OSWER) Publication 9355.0-39FS, a fact sheet, entitled "Remedial Action Report Documentation for Operable Unit Completion" (EPA, 1992), the OSWER Publication 9320.2-09A-P, "Close Out Procedures for NPL Sites" (EPA, 2000), and the OSWER Publication 9320.2-13, an Addendum to Policy for "Close Out Procedures for NPL Sites" (EPA, 2005). The RA report will summarize the RA events, performance standards and CQC, construction activities, final inspection, certification that the remedy is functional, and the RA costs. Draft and Final completion reports shall be prepared to summarize and document the soil remediation activities. EPA and MDEQ comments on the draft report will be addressed and the final RA report will be prepared and submitted to EPA and MDEQ. In addition, weekly and monthly progress reports shall be submitted to EPA and MDEQ on a regular schedule during

the duration of the field activities. Daily Quality Construction Reports will be prepared to track the project progress and QC testing.

A complete list of planning documents and other deliverables prior to, during and after construction along with the corresponding projected due date for the RA phase of the site are summarized in the table below. Some of these plans can be merged into the RA Work Plan. All deliverables will be submitted within three weeks following the approval of the Work Plan.

Project Deliverable	No. of Copies
RA Work Plan (or SMP)	electronic
Construction Health & Safety Plan (CHASP)	electronic
Erosion and Sedimentation Control Plan (ESCP)	electronic
Air Quality Monitoring Plan	electronic
Soil Excavation, Grading, and Backfill Plan	3
Soil Screening Plan	electronic
Soil Disposal and Transportation Plan	electronic
Permit Applications (as required)	electronic
Construction Management Plan	3
Operation and Maintenance Plan	electronic
Remedial Action Report, Revision 0	electronic
Remedial Action Report, Revision 1	3

16.5 SITE DEVELOPMENT RESTRICTION

Institutional Controls (ICs), beyond those already in place, may be placed on the site while the RA takes place. ICs such as restrictive covenants addressing land use and deed restrictions will be employed to insure the long-term integrity of the barrier wall and closure cap. The restrictive covenant will state that no one shall dig into, excavate, or otherwise disturb the cover and soil below without first notifying and obtaining approval from EPA and the State of Florida. Further, the restrictive covenant will prohibit the construction of any wells on the restricted portions of the Site or using any accrued shallow groundwater for any purpose without receiving written prior approval from EPA and the State of Florida. No plans for future development of the portion of the Site covered by the barrier wall and cap are currently under consideration or envisioned.

17.0 Operation and Maintenance

O&M of the Site RA will be required throughout the life of the remedy. Restrictive covenants and ICs are to be placed on the property to protect and safeguard the health and safety of the public in addition to the protection of the remedy. An O&M Plan will be included with the Part 3 RD. The anticipated O&M activities include the following:

- Cap Maintenance – The surface of the capped areas must be inspected and maintained on a regular basis. The inspector shall walk the surface of the capped areas to verify that water is draining adequately from the caps and there is no erosion or ponding of water on the surfaces. If the cap covers have been vegetated with grass, the grass must be mowed, watered, fertilized, etc. to ensure its survivability.
- Performance Monitoring Wells – Performance monitoring wells used to gauge the gradient within the slurry wall will be inspected ad monitored on a regular basis for any indication of creosote in the well screen. Groundwater samples will be collected from performance monitoring wells outside the slurry wall and monitored for SVOCs. Performance monitoring wells will be added during Part 2 – SEE/Thermal.
- Fence Maintenance – Annual inspection of any perimeter fence (if included in the City of Pensacola Site development plans) and gate for security and structural integrity shall be performed.
- Inspection of Storm Water Controls – Annual monitoring of storm water drainage controls and surface water runoff for proper operation of the storm water system.

17.1.1 Health and Safety Considerations

The health and safety of the surrounding community and site workers will be of the utmost importance for this project. A Construction Health and Safety Plan (CHASP) will be submitted as a stand-alone document. The Health and Safety Plan (HASP) will be further refined by the RA contractor before construction begins. Construction practices to be implemented during the RA construction to ensure the safety of the surrounding community and that contamination does not spread outside the boundaries of the Site or off-facility construction areas include (but are not limited to) the following:

- The construction sequence will be specifically designed so that exposed contaminated areas are kept at a minimum.
- Access to the site and off-facility construction areas will be strictly controlled. Permanent fencing and warning signs will be placed around all construction areas before the construction activities begin in the area. A security guard will be onsite during the hours when the RA construction crew is not present.
- Water will be used to suppress the generation of dust during all activities that disturb the soil at the Site.
- An air monitoring plan will be developed and implemented to monitor the levels of dust from the Site and air borne site contaminants at the perimeters of the Site and off-facility excavation areas. Air monitoring stations will be set up both up wind and downwind of the construction activities and may also be set up at other strategic locations. If the levels of dust or contaminants exceed the established action levels, work will be halted immediately, and

corrective measures will be employed. The air monitoring plan will be submitted by the contractor.

- The ground surface within contaminated areas will be graded and/or bermed to ensure that all potentially contaminated surface water remains onsite and does not run off to surrounding areas.
- Equipment wash stations (including tire wash stations) will be set up at all exits to ensure that contaminated soil is prevented from adhering to the vehicles leaving the site and being inadvertently transported off-facility.

Measures to protect the site workers during the RA construction include (but are not limited to) the following:

- The RA contractor shall have a Health and Safety officer onsite at all times during the RA construction. The Health and Safety officer shall be responsible for all health and safety issues at the Site and shall have the power to stop work if any unsafe conditions should arise.
- All personnel entering the potentially contaminated areas of the Site and off-facility areas will meet the requirements of the Hazardous Waste Operations and Emergency Response (HAZWOPER) standards (29 Code of Federal Regulations [CFR] 1910.120).
- PPE shall be available and used as site conditions dictate.
- The breathing zone will be monitored by the site Health and Safety officer.
- Personnel decontamination stations will be set up at the access points to all contaminated zones to prevent the workers from inadvertently spreading contamination into uncontaminated areas.

18.0 References

Andromalos, 2001. Andromalos, Kenneth B. and Fisher, M. J. Design and Control of Slurry Wall Backfill Mixes for Groundwater Contamination. 2001.

ASTM, 2016. ASTM E2893-16, Standard Guide for Greener Cleanups, ASTM International, West Conshohocken, PA, 2016, www.astm.org.

Black & Veatch, 1993. Black & Veatch Waste Science and Technology Corp. Baseline Risk Assessment Report for the American Creosote Works Site Pensacola, Florida, EPA Work Assignment 08-4L45. August 2, 1993.

Black & Veatch, 2009. Black & Veatch Special Projects Corp. Focused Remedial Investigation Report, Revision 0, American Creosote Works Superfund Site OU3, Pensacola, Escambia County, Florida. April 2009.

Black & Veatch, 2014. Black & Veatch Special Projects Corp. Human Health Risk Assessment (HHRA) Addendum, American Creosote Works Superfund Site, Pensacola, Escambia County, Florida. March 3, 2014.

Black & Veatch, 2016. Black & Veatch Special Projects Corp. Site-Wide Feasibility Study, American Creosote Works Superfund Site, Pensacola, Escambia County, Florida, Revision 3. December 2016.

Black & Veatch, 2018. Black & Veatch Special Projects Corp. Barrier Wall Mix Design and Compatibility Testing Work Plan, American Creosote Works Remedial Design, Pensacola, Escambia County, Florida, Revision 0. January 2018.

Black & Veatch, 2017. Black & Veatch Special Projects Corp. Sampling and Analysis Plan Volume 2 – Field Sampling Plan, American Creosote Works Site, Pensacola, Escambia County, Florida, Revision 0. December 2017.

E2, 2010. E2, Inc. Planning for the Future: Reuse Assessment for the American Creosote Works Superfund Site, Pensacola, Florida. June 2010.

EBASCO Services Incorporated, 1989. Risk Assessment, American Creosote Works Site, Escambia County, Florida, prepared for U.S. Environmental Protection Agency, Region IV, Atlanta, Georgia. 1989.

EPA, 1988. U.S. Environmental Protection Agency, Guidelines for Ground-Water Classification under EPA Ground-Water Protection Strategy. June 1988.

EPA, 1991. U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, A Guide to Principal Threat and Low-Level Threat Wastes, 9380.3-06FS, November 1991.

EPA, 1994. U.S. Environmental Protection Agency, OU2 Record of Decision. 1994.

EPA, 1995. U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, Remedial Design/Remedial Action Handbook, EPA 540/R-95/059, June 1995.

EPA, 1998. United States Environmental Protection Agency, *Alternative LDR Treatment Standards for contaminated soil*, Federal Register Vol. 63, No. 100, May 1998.

EPA, 1999. United States Environmental Protection Agency, OU1 Amended ROD for the American Creosote Works Site, Escambia County, Florida. 1999.

EPA, 2006. U.S. Environmental Protection Agency, Guidance on Systematic Planning Using the Data Quality Objectives Process, EPA QA/G-4, February 2006.

EPA, 2015. EPA's Best Management Practice (BMP) Fact Sheets, https://clu-in.org/greenremediation/, last updated December 2015.

EPA, 2017a. U.S. Environmental Protection Agency. Statement of Work (SOW) for American Creosote Works Remedial Design (RD), American Creosote Works Site, Escambia County, Florida. September 1, 2017.

EPA, 2017b. Field Branches Quality System and Technical Procedures. U.S. Environmental Protection Agency, Region 4 SESD, www.epa.gov/region4/sesd/fbqstp/index.html, last updated September 1, 2017.

EPA, 2017c. U.S. Environmental Protection Agency. Site-Wide Record of Decision (ROD), American Creosote Works Site, Escambia County, Florida. September 7, 2017.

Kueper, et al., 2003. Kueper, B. H., Wealthall, G. P., Smith, J. W. N., Leharne, S. A., and Lerner, D. N. *An Illustrated Handbook of DNAPL Transport and Fate in the Subsurface*. 2003.

NUS, 1985. NUS Corporation. *Remedial Investigation Report, Volume 1, American Creosote Works, Inc. Site, Pensacola, Florida*. January 1985.

SCMC, 2016. SCMC, LLC. American Creosote Works Operable Unit 1 Remedial Action Report, Pensacola, Escambia County, Florida. September 14, 2016.

Tables

Table 2-1
Site Chronology
American Creosote Works Site
Pensacola, Escambia County, Florida

Date	Activity
1978	Spill due to heavy rain fall
1979	Spill due to heavy rain fall
1980	Creosote discovered in groundwater by City of Pensacola
Jul-81	USGS installs nine groundwater monitoring wells near the Site
8-Sep-83	Site placed on the NPL
1983	EPA investigation detects PAHs in soil and groundwater
Late 1983	Emergency clean out, solidification and capping of lagoon sludge
1985	EPA conducted a RI/FS which confirms PAH, phenol, and VOC contamination of soil and groundwater
30-Sep-85	EPA signs ROD
1986	State of Florida signs letter of non-concurrence of the ROD
1988	EPA conducts Supplemental RI
1989	EPA completes Supplemental FS
28-Sep-89	EPA signs Amended ROD
Aug-90	EPA issued ESD Fact Sheet, addressing site preparation, fence repair, drum sampling, analysis and disposal, demolition of buildings, debris removal, well closure, cap repair, and revegetation
Sep-90	EPA completed a Phase II Post RI
Feb-91	Initiated tasks in ESD
May-91	Completed tasks in ESD, triggered Five-Year Review requirement
Aug-91	Phase III Post RI
Sep-91	Dye Dispersion and Sediment Sampling Study
19-Sep-91	Interim RA Report, Roy F. Weston
25-Sep-91	EPA accepted RA Report by Weston
Nov-91	Supplemental Site Characterization Sampling and Treatability Study
Aug-93	Baseline Risk Assess,emt (BRA)
Nov-93	Supplemental Risk Assessment and FS
3-Feb-94	EPA signs OU2 ROD
Feb-94	Phase IV Post RI (EPA); Focused OU2 Groundwater Investigation
1994	EPA streamlines project by assigning all solid media to OU1 and groundwater to OU2
Sep-96	Final Design Investigation Report, Bechtel Environmental, Inc.
Nov-96	Pilot Test Treatability Report, Bechtel Environmental, Inc.
1997	Final RD Documents
Dec-97	Sanders Beach Community Area Surface Soil Study, Black & Veatch Special Projects Corp.
Sep-98	NAPL Recovery System installed
21-May-99	EPA signed Amended OU1 ROD
25-Sep-01	Initial Five-Year Review conducted

Table 2-1
Site Chronology
American Creosote Works Site
Pensacola, Escambia County, Florida

Date	Activity
May-03	Initiate excavation of off-facility soils, transport excavated soils to facility stockpile
Dec-03	Completed off-facility soil excavation
Jan-04	Initiate quarterly Groundwater Monitoring
Sep-04	Hurricane Ivan destroys the NAPL recovery system
Jan-05	End quarterly Groundwater Monitoring
Sep-06	2nd Five Year Review conducted
Dec-06	EPA established OU3 to address off-facility dioxin and PAH contamination
2007	NAPL recovery system operational; Quarterly groundwater monitoring resumes
Apr-07	OU3 Focused RI initiated by EPA
Mar-07	EPA installed 10 Groundwater Monitoring Well clusters; SCAPS NAPL assessment (USACE)
Dec-07	OU3 RI field investigation (off-facility surface soil sampling)
Jan-08	Groundwater Monitoring Event (USACE)
Apr-09	OU3 Focused RI (FRI) submitted
Jun-09	OU3 FRI approved, Black & Veatch Special Projects Corp.
Sep-09	EPA initiated Focused Feasibility Study (FFS)
Dec-09	EPA performed additional soil removal in SE Ditch
Feb-10	OU3 supplemental off-facility soil investigation
Dec-10	EPA combined OU1 (on-facility soil and NAPL Main Source Zone) into OU3
Jan-11	OU3 on-facility soil investigation
Jan-11	Groundwater Monitoring Event (SESD)
Sep-11	EPA combined OU1, OU2, and OU3 in order to complete evaluation and selection of a Site-wide Remedy
Sep-11	EPA terminated operations of the NAPL recovery system
Oct-11	OU3 NAPL and subsurface soil investigation
Jan-12	Groundwater Monitoring Event (SESD)
Jan-12	PYC Ditch Stormwater Rerouted (City of Pensacola)
Mar-13	Completed Groundwater Transport Model (OU2)
Jan-14	Groundwater Monitoring Event (SESD)
Mar-14	Supplemental HHRA Addendum completed
Mar-14	Draft Site-wide Feasibility Study and National Remedy Review Board Briefing
Jan-15	Groundwater Monitoring Event (SESD)
Feb-16	Groundwater Monitoring Event (SESD)
Dec-16	Final Site-wide FS Submitted; Black & Veatch Special Projects Corp.
Sep-17	EPA Site-Wide Record of Decision Approved
Feb-18	Black & Veatch conducts Remedial Design field activities.

Table 2-1
Site Chronology
American Creosote Works Site
Pensacola, Escambia County, Florida

Date	Activity

Notes:

ACW	American Creosote Works
BRA	Baseline Risk Assessment
DNAPL	dense non-aqueous phase liquid
EPA	United States Environmental Protection Agency
ESD	Explanation of Significant Differences
FDEP	Florida Department of Environmental Protection
FRI	Focused Remedial Investigation
FFS	Focused Feasibility Study
FS	Feasibility Study
NPL	National Priorities List
OU	Operable Unit
PAH	polycyclic aromatic hydrocarbons
RA	Remedial Action
RD	Remedial Design
ROD	Record of Decision
SE	Southeast
TEQ	Toxicity Equivalent
USGS	U.S. Geological Survey
USACE	U.S. Army Corps of Engineers
VOC	volatile organic compound

Table 2-2
Groundwater Preliminary Remedial Goals
American Creosote Works Site
Pensacola, Escambia County, Florida

Analyte	EPA MCL	FDEP GCTL	Residential Lifetime (10-6 Risk)	Residential Child (HQ=1)
SVOCs (µg/L)				
Acenaphthene	NE	20	NA	940
Benzo(a)anthracene	NE	0.05	0.036	NA
Benzo(a)pyrene	0.2	0.2	0.0036	NA
Benzo(b)fluoranthene	NE	0.05	0.036	NA
Benzo(k)fluoranthene	NE	0.5	0.36	NA
Chrysene	NE	4.8	3.6	NA
Dibenzofuran	NE	28	NA	16
Fluoranthene	NE	280	NA	630
Fluorene	NE	280	NA	630
Naphthalene	NE	14	0.0052	6.1
2-Methylnaphthalene	NE	14	NA	63
Phenanthrene	NE	210	NA	470
Pyrene	NE	210	NA	470
Phenols (µg/L)				
1,1-Biphenyl	NE	0.5	8.4	0.83
2,4,6-Trichlorophenol	NE	3.2	6.1	4.1
Carbazole	NE	1.8	NA	NA
2,4-Dimethylphenol	NE	3.5	NA	1,600
2-Methylphenol (Cresol,o-)	NE	35	NA	16
3-Methylphenol (Cresol,m-)	NE	35	NA	310
4-Methylphenol (Cresol,p-)	NE	3.5	NA	780
Pentachlorophenol	1	1	0.17	78
Phenol	NE	10	NA	4700
VOCs (µg/L)				
1,2,4-Trichlorobenzene	70	70	2.3	4.1
Benzene	5	1	6.20E-04	31
Ethyl benzene	700	30	0.002	NA
Xylenes, total	10,000	20	NA	200
Dioxins (µg/L)				
Dioxin TEQ (2,3,7,8-TCDD) (Toxic. Equiv. Value)	3.00E-05	3.00E-05	5.20E-07	1.10E-05

Notes:
FDEP - Florida Department of Environmental Protection
GCTL - Groundwater Cleanup Target Level
TCDD TEQ = Tetrachlorodibenzo-p-dioxin (dioxin) Toxicity Equivalent
µg/L is micrograms per liter
MCL - Maximum Contaminant Level
NA = Not Applicable; constituent not a concern for cancer risk or non-cancer hazard
NE = Not Established
FDEP's GCTL are the presumptive remedial goals.

Table 3-1
Summary of Soil Geotechnical Testing
American Creosote Works Site
Pensacola, Escambia County, Florida

SAMPLE ID	Depth (ft bls)	CMZ Location	Soil Classification USCS	Lithology Description	Particle Size Analyses				Percent Finer (-#200)	Atterberg Limits			Moisture Content %
					Gravel %	Sand %	Silt %	Clay %		LL	PL	PI	
SB512	29-34	CMZ-1	SP	White Poorly graded sand with silt	0.0	90.7	-	-	9.3	NT	NT	NA	24.0
SB516	92-93	CMZ-1	SP	White Poorly graded sand and silt	0.0	92.7	-	-	7.3	NT	NT	NA	24.0
	104-112	CMZ-1	CH	Greenish Gray fat clay	0.0	6.1	12.0	81.9	93.9	82.0	22.0	60.0	38.2
SB518	51-52	CMZ-1	SP	White-Gray poorly graded with sand and silt	0.0	90.4	-	-	9.6	NT	NT	NA	16.6
	113.5-117	CMZ-1	CH	Greenish Gray fat clay	0.0	1.1	12.7	86.2	98.9	85.0	29.0	63.0	37.0
SB522	37-41	CMZ-2A	SP	Dark Brown poorly graded with sand with silt	0.0	90.3	-	-	9.7	NT	NT	NA	26.8
	56-57	CMZ-2A	SM	White-Gray silty sand	0.0	85.9	-	-	14.1	NT	NT	NA	22.3
	82-85	CMZ-2A	CH	Very Pale Brown sandy fat clay	0.0	41.7	8.0	50.3	58.3	80.0	17.0	63.0	25.4
SB517	34.5-35	CMZ-3A	SM	Gray- Tan silty sand	0.0	59.0	-	-	41.0	NT	NT	NA	19.7
	42-44	CMZ-3A	SM	Gray- Tan silty sand	0.0	77.3	-	-	22.7	NT	NT	NA	20.5
SB520	18.4-19	CMZ-3A	SM	Gray- Tan silty sand	0.0	76.1	-	-	23.9	NT	NT	NA	32.4
	24-25	CMZ-3A	SP	White-Gray poorly graded sand with silt	0.0	94.4	-	-	5.6	NT	NT	NA	16.0
SB521	16-17	CMZ-3A	SP	Dark Brown poorly graded with sand	0.0	97.2	-	-	2.8	NT	NT	NA	20.8
SB509	23-23.6	CMZ-3B	SP	Brown poorly graded sand	0.0	88.3	-	-	11.7	NT	NT	NA	19.7
SB523	24-25	CMZ-4A	SM	Brown silty sand	0.0	76.0	-	-	23.7	NT	NT	NA	37.8

SAMPLE ID	Depth (ft bls)	CMZ Location	Soil Classification USCS	Lithology Description	Particle Size Analyses				
					Gravel %	Coarse Sand %	Medium Sand %	Fine Sand %	Silt/Clay %
SB524	22	CMZ-1	SM	Fine Sand	0	0	20.7	64.5	14.8
SB526	33	CMZ-1	SP	Fine Sand	0	0	40.5	57.6	1.8
SB526	86-87	CMZ-1	SP	Fine Sand	0	0	20.1	76.4	3.5
SB530	31.5	CMZ-1	SM	Fine Sand	0	0	25	51.8	23.2
SB530	73-73.4	CMZ-1	SM	Fine Sand	0	0	17.1	65.2	17.7
SB530	78.7-79	CMZ-1	SP	Fine Sand	0	0	4	86.4	9.6
SB525	17.1-18.1	CMZ-2A	SP	Fine Sand	0	0	34.4	63.2	2.4
SB252	35	CMZ-2A	SM	Fine Sand	0	0	12.9	63.7	23.4
SB527	138.5-139	CMZ-2A	SP	Fine Sand	0	0	28.9	65.5	5.7
SB529	55-56.6	CMZ-2B	GM	Silt	15.2	5.1	4.7	10.7	64.2
SB529	63	CMZ-2B	SM	Fine Sand	0	0	1	79	20

Notes:

Particle Size Analysis - ASTM D422
Atterberg Limits - ASTM D4318
Moisture Content - ASTM D2216
ASTM = American Standard Test Method
CH = Fat Clay
CMZ = Contaminant Media Zone
% = percentage
ft bls = feet below land surface

GM = Silty Gravel
SM = Silty Sand
SP = Poorly graded Sand
NT = Not Tested
NA = not applicable
PI = Plasticity Index
LL = Liquid Limit
PL - Plastic Limit

Sample descriptions based on the Unified Soils Classification System (USCS). Where Atterberg limits were not tested, the description is based on an assumed PI<4.
Sample color determined by the Munsell Soil Color Charts.

Table 3-2
Summary of Hydraulic Conductivity Values
American Creosote Works Site
Pensacola, Escambia County, Florida

Summary of November 2011 Hydraulic Conductivity Testing

Boring ID	Testing Date	Depth (ft bls)	Lithology	Test Method	Hydraulic Conductivity [1] (cm/sec)
TG15	November-11	44 - 46	CH	Physical Soil Test	4.34×10^{-7}
TG18	November-11	7 - 9	CH	Physical Soil Test	6.79×10^{-7}
SB524	November-11	24 - 25	SP	Physical Soil Test	5.35×10^{-4}
SB526	November-11	32 - 33	SP	Physical Soil Test	6.41×10^{-4}

Summary of February-March 2018 Basal Clay Hydraulic Conductivity Testing

Sample ID	Depth (ft bls)	Test Method	Description	Moisture Content %	Dry Density (pcf)	Wet Density (pcf)	Hydraulic Conductivity [2] (cm/sec)
BW 03	111	ASTM D5084	Moist greyish brown clay	37.2	82.0	113	1.1×10^{-9}
BW 05	111	ASTM D5084	Moist greyish brown clay	38.7	81.0	112	2.0×10^{-9}
BW 08	111.8	ASTM D5084	Moist greyish brown clay	37.5	83.0	114	1.4×10^{-9}
BW 13	111	ASTM D5084	Moist greyish brown clay	35.3	82.4	112	1.5×10^{-9}

Summary of August 2018 Aquifer Testing

Boring ID	Testing Date	Depth (ft bls)	Lithology	Test Method	Hydraulic Conductivity (cm/sec)
IW01	August-18	40-60	SP	Step-Drawdown/ Constant-Rate	7.9×10^{-3}

Notes:

[1] - Vertical Hydraulic Conductivity (PTS Laboratories)

[2] - Vertical Hydraulic Conductivity (Kemron)

cm/sec = centimeters per second

ft bls - feet below land surface

pcf - pounds per cubic foot

SB = Soil Boring

SP = Poorly graded Sand

SM = Silty Sand

CL = Clay of low to medium plasticity

CH = Clay of high plasticity

Highlight = $< 1.0 \times 10^{-6}$

Table 3-3
Summary of Historical Permeability Testing
American Creosote Works Site
Pensacola, Escambia County, Florida

Boring ID	Testing Date	Depth (ft bls)	Test Method	Lithology	Permeability[1] (cm/sec)
MW-1	1984	175 - 185	Recovery Test		4.2×10^{-04}
MW-3	1984	87 - 97	Recovery Test		3.4×10^{-04}
MW-4	1984	182.5 - 192.5	Recovery Test		4.6×10^{-03}
MW-5	1984	130 - 140	Recovery Test		6.7×10^{-04}
MW-6	1984	90 - 100	Recovery Test		5.8×10^{-05}
Well 100	1984	95 - 100	Recovery Test		3.5×10^{-04}
Well 600	1984	97 - 100	Recovery Test		8.8×10^{-04}
Well 620	1984	17 - 20	Recovery Test		1.6×10^{-03}
Well 700	1984	97 - 100	Recovery Test		4.2×10^{-04}
Well 720	1984	17 - 20	Recovery Test		2.0×10^{-03}
B-2	1984	98	Physical Soil Test	SP-SM	1.0×10^{-03}
		123	Physical Soil Test	CH	1.3×10^{-08}
B-3	1984	18	Physical Soil Test	SP-SM	1.76×10^{-02}
		43	Physical Soil Test	SP	2.08×10^{-04}
B-3A	1984	108	Physical Soil Test	CL	1.09×10^{-08}
SB516	February-11	104 - 112	Physical Soil Test	CH	1.9×10^{-09}
SB518	February-11	113.5 - 117	Physical Soil Test	CH	2.0×10^{-09}
SB522	February-11	82 - 85	Physical Soil Test	CH	1.1×10^{-08}

Notes:

[1] - Source of Data: Remedial Investigation Report, NUS, 1985.

cm/sec = centimeters per second

ft bls - feet below land surface

SB = Soil Boring

SP = Poorly graded Sand

SM = Silty Sand

CL = Clay of low to medium plasticity

CH = Clay of high plasticity

Highlight = $< 1.0 \times 10^{-6}$

Table 3-4
Groundwater Level Measurements January 2018 and March 2019
American Creosote Works Site
Pensacola, Escambia County, Florida

Series/Cluster/ Location	Well ID	Top of Casing Elevation (ft msl)	Well Depth (ft bls)	Depth to Water January 2018* (ft btoc)	Depth to Water March 2019** (ft btoc)	Groundwater Elevation January 2018 (ft msl)
200 Series M St. at Barrancas Ave.	MW200	14.05	100.45	6.54	6.32	7.51
	MW220	14.36	23.21	6.71	6.61	7.65
	MW260	14.41	61.82	6.85	6.65	7.56
400 Series Cypress St. beween L and K St.	MW400	6.87	99.12	0.75	NM	6.12
	MW420	7.23	18.20	0.50	4.85	6.73
	MW440	7.21	39.76	0.00	0.00	7.21
	MW480	7.06	78.39	1.31	0.50	5.75
600 Series	MW600	unknown	unknown	NM	0.45	NM
	MW660	unknown	unknown	NM	0.90	NM
	MW680	unknown	unknown	NM	0.88	NM
700 Series East of PYC Ditch at Sonia St.	MW700	8.24	101.47	1.10	0.58	7.14
	MW760	8.29	20.72	1.23	2.66	7.06
	MW720	8.20	65.78	2.36	0.48	5.84
MW-28 Cluster West side of PYC Ditch	MW28-1	9.95	58.70	NM	NM	NM
	MW28-2	9.74	13.29	NM	5.75	NM
	MW28-3	10.00	16.85	NM	5.78	NM
	MW28-4	10.19	10.37	NM	NM	NM
	MW28-5	9.46	91.20	NM	2.45	NM
	MW28-6	10.33	20.88	NM	5.95	NM
ACW Shallow Wells North side of facility	ACW4	13.55	13.04	4.60	4.85	8.95
	ACW5	13.27	9.74	4.51	4.84	8.76
ACW Shallow Wells South side of facility	ACW-MW1	11.94	15.00	3.36	3.96	8.58
	ACW-MW2	11.44	15.00	3.21	3.70	8.23
	ACW-MW2B	14.93	33.00	NM	6.74	NM
	ACW-MW3	11.66	14.00	3.53	4.05	8.13
	ACW-MW3D	14.50	79.50	NM	6.39	NM
MW1, 1A, 2, 3 Cluster PYC Ditch at Sonia St.	MW1	7.87	185.00	2.54	1.38	5.33
	MW1A	5.01	28.35	2.81	3.33	2.20
	MW2	7.82	150.00	2.51	1.39	5.31
	MW3	7.86	98.52	3.00	2.01	4.86
MW4, 5, 6 Cluster Cypress and L St.	MW4	11.03	192.50	5.11	4.07	5.92
	MW5	11.04	141.79	5.10	3.95	5.94
	MW6	11.09	101.00	4.91	4.34	6.18
Observation Wells I St. (9); J St. (10)	OW9	10.61	77.40	4.21	3.93	6.40
	OW10	11.72	14.15	4.72	5.09	7.00

Created by :Michael Jury
Checked by: A. Hernandez

Table 3-4
Groundwater Level Measurements January 2018 and March 2019
American Creosote Works Site
Pensacola, Escambia County, Florida

Series/Cluster/ Location	Well ID	Top of Casing Elevation (ft msl)	Well Depth (ft bls)	Depth to Water January 2018* (ft btoc)	Depth to Water March 2019** (ft btoc)	Groundwater Elevation January 2018 (ft msl)
PYC Cluster Wells North of Marina	PYCDS-M	6.84	88.02	2.27	1.97	4.57
	PYCDS-N	7.23	53.43	2.53	1.53	4.70
	PYCDS-S	6.20	18.28	4.70	5.14	1.50
	PYCWC-B	10.50	158.00	3.86	2.65	6.64
Offsite wells	MW7A	10.24	20.00	NM	5.79	NM
	MW7B	10.34	79.50	NM	3.45	NM
	MW7C	TBD	100.00	NM	4.63	NM
	MW8A	10.22	45.00	NM	2.93	NM
	MW8B	10.27	65.00	NM	3.01	NM
	MW8C	10.40	85.00	NM	3.35	NM
	MW9A	8.10	18.00	NM	5.13	NM
Offsite wells/ Marina	MW10A	9.12	26.50	NM	3.35	NM
	MW10B	9.11	47.00	NM	3.32	NM
Cluster Well 1 Waterfront between K and J St.	C1-MW01	7.04	251.00	2.27	1.19	4.77
	C1-MW02	7.13	207.00	2.28	1.35	4.85
	C1-MW03	7.02	147.00	2.35	1.33	4.67
	C1-MW04	7.01	67.00	2.78	1.72	4.23
	C1-MW05	6.93	27.00	6.65	6.26	0.28
Cluster Well 2 Waterfront between J and I St.	C2-MW01	8.77	247.00	3.90	2.84	4.87
	C2-MW02	8.79	227.00	4.03	2.98	4.76
	C2-MW03	8.96	167.00	4.23	3.21	4.73
	C2-MW04	8.92	128.00	4.21	3.18	4.71
	C2-MW05	9.14	67.00	4.84	3.79	4.30
	C2-MW06	9.22	23.00	8.72	8.50	0.50
Cluster Well 3 PYC North of Marina	C3-MW01	7.92	246.00	2.76	1.72	5.16
	C3-MW02	7.94	227.00	2.75	1.68	5.19
	C3-MW03	7.93	147.00	3.00	1.87	4.93
Cluster Well 4 PYC Marina	C4-MW01	5.44	247.00	0.91	0.05	4.53
	C4-MW02	5.38	207.00	0.91	0.06	4.47
	C4-MW03	5.61	147.00	1.24	0.35	4.37
	C4-MW04	5.50	127.00	1.21	0.28	4.29
	C4-MW05	5.53	87.00	1.56	0.61	3.97
	C4-MW06	5.55	33.00	5.45	4.92	0.10
Cluster Well 5 Cypress and M St.	C5-MW01	10.38	248.00	4.59	3.67	5.79
	C5-MW02	10.47	207.00	4.66	3.75	5.81
	C5-MW03	10.67	147.00	4.90	4.02	5.77
	C5-MW04	10.62	77.00	5.55	4.62	5.07
	C5-MW05	10.71	47.00	3.84	4.02	6.87
	C5-MW06	10.80	27.00	3.95	4.13	6.85

Created by :Michael Jury
Checked by: A. Hernandez

Table 3-4
Groundwater Level Measurements January 2018 and March 2019
American Creosote Works Site
Pensacola, Escambia County, Florida

Series/Cluster/ Location	Well ID	Top of Casing Elevation (ft msl)	Well Depth (ft bls)	Depth to Water January 2018* (ft btoc)	Depth to Water March 2019** (ft btoc)	Groundwater Elevation January 2018 (ft msl)
Cluster Well 6 Pine St. ROW between I and H St.	C6-MW01	11.18	243.00	4.92	3.81	6.26
	C6-MW02	11.09	207.00	4.88	3.79	6.21
	C6-MW03	11.10	147.00	4.88	4.08	6.22
	C6-MW04	11.08	67.00	3.58	3.40	7.50
	C6-MW05	11.08	19.50	2.88	3.40	8.20
Cluster Well 7 SW corner of ACW Facility	C7-MW01	16.40	243.00	10.15	8.99	6.25
	C7-MW02	16.35	207.00	9.88	8.71	6.47
	C7-MW03	16.17	171.00	9.68	8.50	6.49
	C7-MW04	16.33	108.00	8.71	8.46	7.62
Cluster Well 8 Background Well - north of Main St.	C8-MW01	13.99	242.00	4.82	3.40	9.17
	C8-MW02	13.93	207.00	5.97	5.98	7.96
	C8-MW03	13.70	147.00	5.76	5.36	7.94
	C8-MW04	13.83	67.00	4.00	4.11	9.83
	C8-MW05	13.77	27.00	3.87	4.02	9.90
Cluster Well 9 Sonia and J St.	C9-MW01	7.06	249.00	1.91	0.64	5.15
	C9-MW02	7.12	177.00	2.01	0.68	5.11
	C9-MW03	7.13	156.00	2.04	0.82	5.09
	C9-MW04	7.11	87.00	2.39	1.13	4.72
	C9-MW05	7.05	36.00	2.94	2.80	4.11
Cluster Well 10 SE corner of ACW Facility	C10-MW01	11.47	250.00	5.35	4.49	6.12
	C10-MW02	11.46	217.00	5.31	4.54	6.15
	C10-MW03	11.53	117.00	4.9	4.39	6.63
	C10-MW04	11.58	67.00	4.87	4.75	6.71
	C10-MW05	11.45	27.00	3.01	3.32	8.44
					Average:	5.9

Notes:

ACW American Creosote Works
bls below sea level
btoc below top of casing
ft feet
ID Identification
msl mean sea level
NM not measured
MW Monitoring Well

* Water Levels measured in January 2018 were collected on 1/30/2018

** Water Levels measured in March 2019 were collected over 3/19/2019 through 3/27/2019

Created by :Michael Jury
Checked by: A. Hernandez

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			Boring			Cluster Well 1											
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	BW16_12	BW16_65		C1-MW01								C1-MW02			
Sample ID					12-17	65-70		241 - 251								196 - 206			
Date					05/18/18	05/18/18	05/18/18	01/31/11	01/31/12	03/25/13	02/01/14	02/02/15	02/05/16	02/03/17	02/03/18	01/31/11	01/31/12	03/25/13	02/01/14
SVOCs (ug/L)																			
Acenaphthene	NE	20	3	200	670	38	40	2.0 U	5.0 U	2.0 U	2.1 U	2.1 U	2.1 U	2 U	0.3 U	2.0 U	5.0 U	2.0 U	2.0 U
Acenaphthylene	NE	210	**	2,100	23	4	4	2.0 U	5.0 U	NA	NA	NA	NA	NA	NA	2.0 U	5.0 U	NA	NA
Anthracene	NE	2,100	0.3	21,000	100	5.5	2.8	2.0 U	5.0 U,J,O	2.0 U	2.1 U	2.1 U	2.1 U	2 U	0.3 U	2.0 U	5.0 U	2.0 U	2.0 U
Benzo(a)anthracene	NE	0.05	**	5	80	1.6	4	2.0 U	5.0 U	2.0 U	2.1 U	2.1 U	2.1 U	2 U	0.3 U	2.0 U	5.0 U	2.0 U	2.0 U
Benzo(a)pyrene	0.2	0.2	**	20	80	4	4	2.0 U	5.0 U,R,O	2.0 U	2.1 U	2.1 U	2.1 U	2 U	0.3 U	2.0 U	5.0 U,J,O	2.0 U	2.0 U
Benzo(b)fluoranthene	NE	0.05	**	5	80	4	4	2.0 U	5.0 U,R,O	2.0 U	2.1 U	2.1 U	2.1 U	2 U	0.3 U	2.0 U	5.0 U,J,O	2.0 U	2.0 U
Benzo(g,h,i)perylene	NE	210	**	2,100	80	4	4	2.0 U	5.0 U,R,O	2.0 U	2.1 U	2.1 U	2.1 U	2 U	0.3 U	2.0 U	5.0 U	2.0 U	2.0 U
Benzo(k)fluoranthene	NE	0.5	**	50	80	4	4	2.0 U	5.0 U,R,O	2.0 U	2.1 U	2.1 U	2.1 U	2 U	0.3 U	2.0 U	5.0 U	2.0 U	2.0 U
Chrysene	NE	4.8	**	480	80	4	4	2.0 U	5.0 U	2.0 U	2.1 U	2.1 U	2.1 U	2 U	0.3 U	2.0 U	5.0 U	2.0 U	2.0 U
Dibenzo(a,h)anthracene	NE	0.005	**	0.5	80	4	4	2.0 U	5.0 U,R,O	2.0 U	2.1 U	2.1 U	2.1 U	2 U	0.3 U	2.0 U	5.0 U	2.0 U	2.0 U
Dibenzofuran	NE	28	67	280	520	14	16	2.0 U,J,O	5.0 U	2.0 U	2.1 U	2.1 U	2.1 U	2 U	2 U	2.0 U,J,O	5.0 U	2.0 U	2.0 U
Fluoranthene	NE	280	0.3	2,800	90	17	18	2.0 U	5.0 U	2.0 U	2.1 U	2.1 U	2.1 U	2 U	0.3 U	2.0 U	5.0 U	2.0 U	2.0 U
Fluorene	NE	280	30	2,800	400	22	22	2.0 U	5.0 U	2.0 U	2.1 U	2.1 U	2.1 U	2 U	0.3 U	2.0 U	5.0 U	2.0 U	2.0 U
Indeno (1,2,3-cd) pyrene	NE	0.05	**	5	80	4	4	2.0 U	5.0 U,R,O	2.0 U	2.1 U	2.1 U	2.1 U	2 U	0.3 U	2.0 U	5.0 U	2.0 U	2.0 U
Naphthalene	NE	14#	26	140	8100	4	4	2.0 U	5.0 U	2.0 U	2.1 U	2.1 U	2.1 U	2 U	0.3 U	2.0 U	5.0 U	2.0 U	2.0 U
2-Methylnaphthalene	NE	28	30	280	850	4	4	2.0 U	5.0 U	NA	NA	NA	2.2	NA	NA	2.0 U	5.0 U	NA	NA
Phenanthrene	NE	210	**	2,100	580	4	4	2.0 U	5.0 U,J,O	2.0 U	2.1 U	2.1 U	2.3 U	2 U	0.3 U	2.0 U	5.0 U	2.0 U	2.0 U
Pyrene	NE	210	0.3	2,100	50	8.8	9.1	2.0 U	5.0 U	2.0 U	2.1 U	2.1 U	2.4 U	2 U	0.3 U	2.0 U	5.0 U	2.0 U	2.0 U
Phenols (ug/L)																			
1-1 Byphenol	NE	0.5	18	5	160	9.6	9.4	2.0 U	5.0 U	2.0 U	2.1 U	2.1 U	2.1 U	2 U	2 U	2.0 U	5.0 U	2.0 U	2.0 U
2,4,6-Trichlorophenol	NE	3.2	6.5*	320	400	20	20	10 U	5.0 U	NA	NA	NA	NA	NA	NA	9.9 U	5.0 U	NA	NA
Bis(2-ethylhexyl) phthalate	6	6	2.2	600	400	20	20	10 U	5.0 U	NA	NA	NA	NA	NA	NA	9.9 U	5.0 U	NA	NA
Carbazole	NE	1.8	47	180	1000	40	20	2.0 U	5.0 U	2.0 U	2.1 U	2.1 U	2.1 U	2 U	2 U	2.0 U	5.0 U	2.0 U	2.0 U
2,4-Dimethylphenol	NE	140	160	1,400	3800	35	33	10 U	5.0 U	NA	NA	NA	NA	10 U	9.9 U	9.9 U	5.0 U	NA	NA
2-Methylphenol (Cresol,o-)	NE	35#	250	350	2000	20	20	10 U	5.0 U	9.9 U	10 U	10 U	11 U	10 U	9.9 U	9.9 U	5.0 U	10 U	10 U
(3-and/or 4-)Methylphenol	NE	35#	450	350	4900	20	20	10 U	5.0 U	9.9 U	10 U	10 U	11 U	10 U	9.9 U	9.9 U	5.0 U	10 U	10 U
Pentachlorophenol	1	1	7.9	100	2400	190	200	10 U	10 U,J,O	9.9 U	10 U	10 U	11 U	10 U	6.9 U	9.9 U	10 U,J,O	10 U	10 U
Phenol	NE	10	6.5	100	2300	20	20	10 U	5.0 U	9.9 U	10 U	10 U	11 U	10 U	5.9 U	9.9 U	5.0 U	10 U	10 U
VOCs (ug/L)																			
1,2,4-Trichlorobenzene	70	70	23	700	NA	NA	NA	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	0.50 U	5.0 U	0.50 U	0.50 U
Benzene	5	1	71.28*	100	NA	NA	NA	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	0.50 U	5.0 U	0.50 U	0.50 U
Ethyl Benzene	700	30	610	300	NA	NA	NA	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	0.50 U	5.0 U	0.50 U	0.50 U
Toluene	1,000	40	480	400	NA	NA	NA	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	0.50 U	5.0 U	0.50 U	0.50 U
Xylenes	10,000	20	370	200	NA	NA	NA	0.50 U	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U	NA	1.50 U	0.50 U	5.0 U	1.50 U	1.50 U
Inorganics (ug/L)																			
Aluminum	200	200	1,500	2,000	NA	NA	NA	1,100	NA	NA	NA	NA	NA	NA	NA	100 U	NA	NA	NA
Chromium	100	100	50	1,000	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA
Lead	15	15	8.5	150	NA	NA	NA	1.0 U	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	NA
Manganese	50	50	NE	500	NA	NA	NA	43	NA	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA
Zinc	5,000	5,000	86	50,000	NA	NA	NA	10 U	NA	NA	NA	NA	NA	NA	NA	91	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			Cluster Well 1																
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	C1-MW02				C1-MW03												
Sample ID					196 - 206				137 - 147												
Date					01/31/15	02/05/16	02/03/17	02/03/18	01/31/11	01/31/12	03/25/13	02/01/14	2/1/14 (dup)	01/31/15	1/31/15 (dup)	02/05/16	2/5/2016 (dup)	02/02/17	2/2/2017 (dup)	02/03/18	2/3/2018 (dup)
SVOCs (ug/L)																					
Acenaphthene	NE	20	3	200	2.0 U	2.0 U	2 U	0.3 U	1.9 J,O	300 J,O	410	330	350	340	340	400	400	420	440	350	340
Acenaphthylene	NE	210	**	2,100	NA	NA	NA	NA	7.2	500 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NE	2,100	0.3	21,000	2.0 U	2.0 U	2 U	0.3 U	6.1	500 U	11	10 J,O	11 J,O	20 U	20 U	9.8	9.6	8.8 J,O	9.2 J,O	5.9	6.3
Benzo(a)anthracene	NE	0.05	**	5	2.0 U	2.0 U	2 U	0.3 U	2.0 U	500 U	3.9 U	21 U	20 U	20 U	20 U	2.0 U	2.1 U	20 U	20 U	0.3 U	0.3 U
Benzo(a)pyrene	0.2	0.2	**	20	2.0 U	2.0 U	2 U	0.3 U	2.0 U	500 U,J,O	3.9 U	21 U	20 U	20 U	20 U	2.0 U	2.1 U	20 U	20 U	0.3 U	0.3 U
Benzo(b)fluoranthene	NE	0.05	**	5	2.0 U	2.0 U	2 U	0.3 U	2.0 U	500 U,J,O	3.9 U	21 U	20 U	20 U	20 U	2.0 U	2.1 U	20 U	20 U	0.3 U	0.3 U
Benzo(g,h,i)perylene	NE	210	**	2,100	2.0 U	2.0 U	2 U	0.3 U	2.0 U	500 U	3.9 U	21 U	20 U	20 U	20 U	2.0 U	2.1 U	20 U	20 U	0.3 U	0.3 U
Benzo(k)fluoranthene	NE	0.5	**	50	2.0 U	2.0 U	2 U	0.3 U	2.0 U	500 U	3.9 U	21 U	20 U	20 U	20 U	2.0 U	2.1 U	20 U	20 U	0.3 U	0.3 U
Chrysene	NE	4.8	**	480	2.0 U	2.0 U	2 U	0.3 U	2.0 U	500 U	3.9 U	21 U	20 U	20 U	20 U	2.0 U	2.1 U	20 U	20 U	0.3 U	0.3 U
Dibenzo(a,h)anthracene	NE	0.005	**	0.5	2.0 U	2.0 U	2 U	0.3 U	2.0 U	500 U	3.9 U	21 U	20 U	20 U	20 U	2.0 U	2.1 U	20 U	20 U	0.3 U	0.3 U
Dibenzofuran	NE	28	67	280	2.0 U	2.0 U	2 U	2 U	74 J,O	140 J,O	230	210	210	190	190	260	250	270	280	200	200
Fluoranthene	NE	280	0.3	2,800	2.0 U	2.0 U	2 U	0.3 U	5.7	500 U	5.7	21 U	20 U	20 U	20 U	6.4	6.2	5.1 J,O	5.1 J,O	3.8	4.1
Fluorene	NE	280	30	2,800	2.0 U	2.0 U	2 U	0.3 U	87	120 J,O	220	190	200	170	170	210	210	230	230	170	160
Indeno (1,2,3-cd) pyrene	NE	0.05	**	5	2.0 U	2.0 U	2 U	0.3 U	2.0 U	500 U	3.9 U	21 U	20 U	20 U	20 U	2.0 U	2.1 U	20 U	20 U	0.3 U	0.3 U
Naphthalene	NE	14#	26	140	2.0 U	2.0 U	2 U	0.3 U	2,700	4,800	6,500	5,000	5,100	5,500	4,800	6,300	6,700	5900	7900	7300	7300
2-Methylnaphthalene	NE	28	30	280	NA	NA	NA	NA	160	250 J,O	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	210	**	2,100	2.0 U	2.0 U	2 U	0.3 U	67	500 U	140	140	150	140	150	120	110	160	170	130	130
Pyrene	NE	210	0.3	2,100	2.0 U	2.0 U	2 U	0.3 U	2.3	500 U	4.0	21 U	20 U	20 U	20 U	2.4	2.5	20 U	20 U	1.7	1.8
Phenols (ug/L)																					
1-1 Byphenol	NE	0.5	18	5	2.0 U	2.0 U	2 U	2 U	33	500 U	90	84	88	70	67	76	71	110	120	84	91
2,4,6-Trichlorophenol	NE	3.2	6.5*	320	NA	NA	NA	NA	10 U	500 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	6	6	2.2	600	NA	NA	NA	NA	10 U	500 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NE	1.8	47	180	2.0 U,J,O	2.0 U	2 U	2 U	230	240 J,O	470	560	570	350	360	400	390	450	440	410	420
2,4-Dimethylphenol	NE	140	160	1,400	NA	NA	10 U	10 U	47 J,O	150 J,O	NA	NA	NA	NA	NA	NA	NA	440	470	1000 U	990 U
2-Methylphenol (Cresol,o-)	NE	35#	250	350	10 U	9.8 U	10 U	10 U	5.3 J,O	500 U	52	38 J,O	38 J,O	25 J,O	23 J,O	41	38	56 J,O	61 J,O	32	33
(3-and/or 4-)Methylphenol	NE	35#	450	350	10 U	9.8 U	10 U	10 U	1.4 J,O	500 U	62	47 J,O	47 J,O	26 J,O	25 J,O	43	42	51 J,O	56 J,O	17	18
Pentachlorophenol	1	1	7.9	100	10 U	9.8 U	7 U	7 U	4.6 J,O	1,000 U	9.3 J,O	18 J,O	18 J,O	17 J,O	18 J,O	21	20	100 U	100 U	9.6	9.8
Phenol	NE	10	6.5	100	10 U	9.8 U	6 U	6 U	10 U	500 U	5.4 J,O	100 U	100 U	100 U	100 U	10 U	10 U	100 U	100 U	6 U	5.9 U
VOCs (ug/L)																					
1,2,4-Trichlorobenzene	70	70	23	700	0.50 U	0.50 U	0.5 U	0.5 U	5.0 U	5.0 U	5.0 U	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U	NA	NA	5 U	5 U
Benzene	5	1	71.28*	100	0.50 U	0.50 U	0.5 U	0.5 U	24	45	51	60	58	47	48	59	60	NA	NA	49	49
Ethyl Benzene	700	30	610	300	0.50 U	0.50 U	0.5 U	0.5 U	22	43	47	48	46	40	41	50	50	NA	NA	45	45
Toluene	1,000	40	480	400	0.50 U	0.50 U	0.5 U	0.5 U	15	45	79	93	90	65	66	79	78	NA	NA	70	71
Xylenes	10,000	20	370	200	1.50 U	1.50 U	NA	1.50 U	38	59	111	138	132	101	101	125	124	NA	NA	107	109
Inorganics (ug/L)																					
Aluminum	200	200	1,500	2,000	NA	NA	NA	NA	100 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	100	50	1,000	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	15	15	8.5	150	NA	NA	NA	NA	1.0 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	50	NE	500	NA	NA	NA	NA	42	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5,000	5,000	86	50,000	NA	NA	NA	NA	10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			Cluster Well 1														
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	C1-MW04								C1-MW05						
Sample ID					57 - 67								17 - 27						
Date					01/31/11	01/31/12	03/25/13	02/01/14	01/31/15	02/05/16	02/02/17	02/03/18	01/31/12	03/25/13	*3/25/13 (dup)*	02/01/14	01/31/15	02/05/16	02/03/17	02/03/18
SVOCs (ug/L)																				
Acenaphthene	NE	20	3	200	63 J,O	67	67	30	76	100	71	70	5.0 U	2.0 U	*2.1 U*	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Acenaphthylene	NE	210	**	2,100	1.9 U	10 U	NA	NA	NA	NA	NA	NA	5.0 U	NA	*NA*	NA	NA	NA	NA	NA
Anthracene	NE	2,100	0.3	21,000	1.9 U	10 U	2.1 U	2.0 U	1.1 J,O	1.5 J,O	1.2 J,O	0.77	5.0 U	2.0 U	*2.1 U*	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Benzo(a)anthracene	NE	0.05	**	5	1.9 U	10 U	2.1 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U	5.0 U	2.0 U	*2.1 U*	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Benzo(a)pyrene	0.2	0.2	**	20	1.9 U	10 U,J,O	2.1 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U	5.0 U,J,O	2.0 U	*2.1 U*	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Benzo(b)fluoranthene	NE	0.05	**	5	1.9 U	10 U,J,O	2.1 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U	5.0 U,J,O	2.0 U	*2.1 U*	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Benzo(g,h,i)perylene	NE	210	**	2,100	1.9 U	10 U	2.1 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U	5.0 U	2.0 U	*2.1 U*	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Benzo(k)fluoranthene	NE	0.5	**	50	1.9 U	10 U	2.1 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U	5.0 U	2.0 U	*2.1 U*	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Chrysene	NE	4.8	**	480	1.9 U	10 U	2.1 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U	5.0 U	2.0 U	*2.1 U*	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Dibenzo(a,h)anthracene	NE	0.005	**	0.5	1.9 U	10 U	2.1 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U	5.0 U	2.0 U	*2.1 U*	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Dibenzofuran	NE	28	67	280	1.9 U,J,O	10 U	2.1 U	2.0 U	2.0 U	2.9	0.96 J,O	2 U	5.0 U	2.0 U	*2.1 U*	2.0 U	2.0 U	2.0 U	2 U	2 U
Fluoranthene	NE	280	0.3	2,800	1.9 U	10 U	2.1 U	2.0 U	2.0 U	2.0 U	0.6 J,O	0.45	5.0 U	2.0 U	*2.1 U*	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Fluorene	NE	280	30	2,800	19	13	15	8.0	28	47	32	23	5.0 U	2.0 U	*2.1 U*	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Indeno (1,2,3-cd) pyrene	NE	0.05	**	5	1.9 U	10 U	2.1 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U	5.0 U	2.0 U	*2.1 U*	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Naphthalene	NE	14#	26	140	4	10 U	2.1	8.8	84	520	120	59	5.0 U	2.0 U	*2.1 U*	2.0 U	2.0 U	2.0 U	2 U	0.3 U
2-Methylnaphthalene	NE	28	30	280	1.9 U	10 U	NA	NA	NA	NA	NA	NA	5.0 U	NA	*NA*	NA	NA	NA	NA	NA
Phenanthrene	NE	210	**	2,100	1.2 J,O	10 U	2.1 U	2.0 U	5.4	18	13	5.2	5.0 U	2.0 U	*2.1 U*	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Pyrene	NE	210	0.3	2,100	1.9 U	10 U	2.1 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U	5.0 U	2.0 U	*2.1 U*	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Phenols (ug/L)																				
1-1 Byphenol	NE	0.5	18	5	1.9 U	10 U	2.1 U	2.0 U	1.6 J,O	2.3	2 U	2 U	5.0 U	2.0 U	*2.1 U*	2.0 U	2.0 U	2.0 U	2 U	2 U
2,4,6-Trichlorophenol	NE	3.2	6.5*	320	9.6 U	10 U	NA	NA	NA	NA	NA	NA	5.0 U	NA	*NA*	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	6	6	2.2	600	9.6 U	10 U	NA	NA	NA	NA	NA	NA	5.0 U	NA	*NA*	NA	NA	NA	NA	NA
Carbazole	NE	1.8	47	180	1.9 U	10 U	2.1 U	2.0 U	8.3	51	20	2.5	5.0 U	2.0 U	*2.1 U*	2.0 U	2.0 U	2.0 U	2 U	2 U
2,4-Dimethylphenol	NE	140	160	1,400	9.6 U	10 U	NA	NA	NA	NA	10 U	10 U	5.0 U	NA	*NA*	NA	NA	NA	10 U	10 U
2-Methylphenol (Cresol,o-)	NE	35#	250	350	9.6 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	5.0 U	10 U	*10 U*	10 U	10 U	10 U	10 U	10 U
(3-and/or 4-)Methylphenol	NE	35#	450	350	9.6 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	5.0 U	10 U	*10 U*	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	1	1	7.9	100	9.6 U	20 U	10 U	10 U	10 U	10 U	10 U	7 U	10 U,J,O	10 U	*10 U*	10 U	10 U	10 U	10 U	7 U
Phenol	NE	10	6.5	100	9.6 U	10 U	10 U	10 U	10 U	10 U	10 U	6 U	5.0 U	10 U	*10 U*	10 U	10 U	10 U	10 U	6 U
VOCs (ug/L)																				
1,2,4-Trichlorobenzene	70	70	23	700	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	5.0 U	0.50 U	*0.50 U*	0.50 U	0.50 U	0.50 U	NA	0.5 U
Benzene	5	1	71.28*	100	3	2.2 J,O	2.8	5.1	14	22	NA	9.1	5.0 U	0.50 U	*0.50 U*	0.50 U	0.50 U	0.50 U	NA	0.5 U
Ethyl Benzene	700	30	610	300	0.23 J	5.0 U	0.50 U	0.090 J,O	0.57	2.2	NA	0.59	5.0 U	0.50 U	*0.50 U*	0.50 U	0.50 U	0.50 U	NA	0.5 U
Toluene	1,000	40	480	400	0.50 U	5.0 U	0.50 U	0.17 J,O	0.46 J,O	0.79	NA	0.26 J,O	5.0 U	0.50 U	*0.50 U*	0.50 U	0.50 U	0.50 U	NA	0.5 U
Xylenes	10,000	20	370	200	0.61 J	5.0 U	0.29 J,O	1.99 J,O	2.35 J,O	4.6	NA	1.91	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U	1.50 U	NA	1.50 U
Inorganics (ug/L)																				
Aluminum	200	200	1,500	2,000	100 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	*NA*	NA	NA	NA	NA	NA
Chromium	100	100	50	1,000	5.0 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	*NA*	NA	NA	NA	NA	NA
Lead	15	15	8.5	150	1.0 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	*NA*	NA	NA	NA	NA	NA
Manganese	50	50	NE	500	96	NA	NA	NA	NA	NA	NA	NA	NA	NA	*NA*	NA	NA	NA	NA	NA
Zinc	5,000	5,000	86	50,000	10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	*NA*	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			Cluster Well 2															
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	C2-MW01								C2-MW02							
Sample ID					236 - 246								217 - 227							
Date					01/29/11	02/07/12	03/28/13	02/01/14	02/02/15	02/05/16	02/06/17	02/03/18	01/29/11	02/07/12	03/28/13	02/01/14	02/02/15	02/05/16	02/06/17	02/03/18
SVOCs (ug/L)																				
Acenaphthene	NE	20	3	200	2.1 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.3 U	2.1 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Acenaphthylene	NE	210	**	2,100	2.1 U	5.0 U	NA	NA	NA	NA	NA	NA	2.1 U	5.0 U	NA	NA	NA	NA	NA	NA
Anthracene	NE	2,100	0.3	21,000	2.1 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.3 U	2.1 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Benzo(a)anthracene	NE	0.05	**	5	2.1 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.3 U	2.1 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Benzo(a)pyrene	0.2	0.2	**	20	2.1 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.3 U	2.1 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Benzo(b)fluoranthene	NE	0.05	**	5	2.1 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.3 U	2.1 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Benzo(g,h,i)perylene	NE	210	**	2,100	2.1 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.3 U	2.1 U	5.0 U,J,O	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Benzo(k)fluoranthene	NE	0.5	**	50	2.1 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.3 U	2.1 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Chrysene	NE	4.8	**	480	2.1 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.3 U	2.1 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Dibenzo(a,h)anthracene	NE	0.005	**	0.5	2.1 U	5.0 U,J,O	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.3 U	2.1 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Dibenzofuran	NE	28	67	280	2.1 U,J,O	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	2 U	2.1 U,J,O	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	2 U
Fluoranthene	NE	280	0.3	2,800	2.1 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.3 U	2.1 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Fluorene	NE	280	30	2,800	2.1 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.3 U	2.1 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Indeno (1,2,3-cd) pyrene	NE	0.05	**	5	2.1 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.3 U	2.1 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Naphthalene	NE	14#	26	140	2.1 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	**1.2 J,O**	0.3 U	2.1 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
2-Methylnaphthalene	NE	28	30	280	2.1 U	5.0 U	NA	NA	NA	NA	NA	NA	2.1 U	5.0 U	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	210	**	2,100	2.1 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.3 U	2.1 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Pyrene	NE	210	0.3	2,100	2.1 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.3 U	2.1 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Phenols (ug/L)																				
1-1 Byphenol	NE	0.5	18	5	2.1 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	2 U	2.1 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	2 U
2,4,6-Trichlorophenol	NE	3.2	6.5*	320	11 U	5.0 U	NA	NA	NA	NA	NA	NA	11 U	5.0 U	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	6	6	2.2	600	11 U	5.0 U	NA	NA	NA	NA	NA	NA	11 U	5.0 U	NA	NA	NA	NA	NA	NA
Carbazole	NE	1.8	47	180	2.1 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	2 U	2.1 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	2 U
2,4-Dimethylphenol	NE	140	160	1,400	11 U	5.0 U	NA	NA	NA	NA	10 U	10 U	11 U	5.0 U	NA	NA	NA	NA	10 U	9.9 U
2-Methylphenol (Cresol,o-)	NE	35#	250	350	11 U	5.0 U	9.9 U	10 U	10 U	9.8 U	10 U	10 U	11 U	5.0 U	9.7 U	10 U	10 U	9.9 U	10 U	9.9 U
(3-and/or 4-)Methylphenol	NE	35#	450	350	11 U	5.0 U	9.9 U	10 U	10 U	9.8 U	10 U	10 U	11 U	5.0 U	9.7 U	10 U	10 U	9.9 U	10 U	9.9 U
Pentachlorophenol	1	1	7.9	100	11 U	10 U,J,O	9.9 U	10 U	10 U	9.8 U	10 U	7 U	11 U	10 U	9.7 U	10 U	10 U	9.9 U	10 U	6.9 U
Phenol	NE	10	6.5	100	11 U	5.0 U	9.9 U	10 U	10 U	9.8 U	10 U	6 U	11 U	5.0 U	9.7 U	10 U	10 U	9.9 U	10 U	5.9 U
VOCs (ug/L)																				
1,2,4-Trichlorobenzene	70	70	23	700	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Benzene	5	1	71.28*	100	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Ethyl Benzene	700	30	610	300	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Toluene	1,000	40	480	400	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Xylenes	10,000	20	370	200	0.50 U	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U	NA	1.50 U	0.50 U	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U	NA	1.50 U
Inorganics (ug/L)																				
Aluminum	200	200	1,500	2,000	**140**	NA	NA	NA	NA	NA	NA	NA	100 U	NA	NA	NA	NA	NA	NA	NA
Chromium	100	100	50	1,000	**30**	NA	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA	NA
Lead	15	15	8.5	150	**1.8**	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	NA	NA	NA	NA	NA
Manganese	50	50	NE	500	**12**	NA	NA	NA	NA	NA	NA	NA	**16**	NA	NA	NA	NA	NA	NA	NA
Zinc	5,000	5,000	86	50,000	**33**	NA	NA	NA	NA	NA	NA	NA	**16**	NA	NA	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			Cluster Well 2															
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	C2-MW03								C2-MW04							
Sample ID					157 - 167								118-128							
Date					01/30/11	02/07/12	03/28/13	02/01/14	02/02/15	02/06/16	02/06/17	02/03/18	01/29/11	02/07/12	03/28/13	02/01/14	02/02/15	02/06/16	02/06/17	02/03/18
SVOCs (ug/L)																				
Acenaphthene	NE	20	3	200	2.0 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.3 U	2.0 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Acenaphthylene	NE	210	**	2,100	2.0 U	5.0 U	NA	NA	NA	NA	NA	NA	2.0 U	5.0 U	NA	NA	NA	NA	NA	NA
Anthracene	NE	2,100	0.3	21,000	2.0 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.3 U	2.0 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Benzo(a)anthracene	NE	0.05	**	5	2.0 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.3 U	2.0 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Benzo(a)pyrene	0.2	0.2	**	20	2.0 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.3 U	2.0 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Benzo(b)fluoranthene	NE	0.05	**	5	2.0 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.3 U	2.0 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Benzo(g,h,i)perylene	NE	210	**	2,100	2.0 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U,J,O	2 U	0.3 U	2.0 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U,J,O	2 U	0.3 U
Benzo(k)fluoranthene	NE	0.5	**	50	2.0 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.3 U	2.0 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Chrysene	NE	4.8	**	480	2.0 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.3 U	2.0 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Dibenzo(a,h)anthracene	NE	0.005	**	0.5	2.0 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.3 U	2.0 U	5.0 U,J,O	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Dibenzofuran	NE	28	67	280	2.0 U,J,O	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	2 U	2.0 U,J,O	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	2 U
Fluoranthene	NE	280	0.3	2,800	2.0 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.3 U	2.0 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Fluorene	NE	280	30	2,800	2.0 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.3 U	2.0 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Indeno (1,2,3-cd) pyrene	NE	0.05	**	5	2.0 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.3 U	2.0 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Naphthalene	NE	14#	26	140	2.0 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.3 U	2.0 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
2-Methylnaphthalene	NE	28	30	280	2.0 U	5.0 U	NA	NA	NA	NA	NA	NA	2.0 U	5.0 U	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	210	**	2,100	2.0 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.3 U	2.0 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Pyrene	NE	210	0.3	2,100	2.0 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.3 U	2.0 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Phenols (ug/L)																				
1-1 Byphenol	NE	0.5	18	5	NA	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	2 U	NA	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	2 U
2,4,6-Trichlorophenol	NE	3.2	6.5*	320	NA	5.0 U	NA	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	6	6	2.2	600	9.8 U	5.0 U	NA	NA	NA	NA	NA	NA	11 U	5.0 U	NA	NA	NA	NA	NA	NA
Carbazole	NE	1.8	47	180	2.0 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	2 U	2.0 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	2 U
2,4-Dimethylphenol	NE	140	160	1,400	9.8 U	5.0 U	NA	NA	NA	NA	9.9 U	10 U	11 U	5.0 U	NA	NA	NA	NA	9.9 U	10 U
2-Methylphenol (Cresol,o-)	NE	35#	250	350	9.8 U	5.0 U	9.9 U	10 U	10 U	9.8 U	9.9 U	10 U	11 U	5.0 U	9.7 U	10 U	10 U	9.8 U	9.9 U	10 U
(3-and/or 4-)Methylphenol	NE	35#	450	350	9.8 U	5.0 U	9.9 U	10 U	10 U	9.8 U	9.9 U	10 U	11 U	5.0 U	9.7 U	10 U	10 U	9.8 U	9.9 U	10 U
Pentachlorophenol	1	1	7.9	100	9.8 U	10 U	9.9 U	10 U	10 U	9.8 U	9.9 U	7 U	11 U	10 U,J,O	9.7 U	10 U	10 U	9.8 U	9.9 U	7 U
Phenol	NE	10	6.5	100	9.8 U	5.0 U	9.9 U	10 U	10 U	9.8 U	9.9 U	6 U	11 U	5.0 U	9.7 U	10 U	10 U	9.8 U	9.9 U	6 U
VOCs (ug/L)																				
1,2,4-Trichlorobenzene	70	70	23	700	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Benzene	5	1	71.28*	100	0.50 U	5.0 U	**0.15 J,O**	0.50 U	0.50 U	0.50 U	NA	0.5 U	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Ethyl Benzene	700	30	610	300	NA	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	NA	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Toluene	1,000	40	480	400	NA	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	NA	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Xylenes	10,000	20	370	200	NA	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U	NA	1.50 U	NA	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U	NA	1.50 U
Inorganics (ug/L)																				
Aluminum	200	200	1,500	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	100	50	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	15	15	8.5	150	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	50	NE	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5,000	5,000	86	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			Cluster Well 2														
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	C2-MW05								C2-MW06						
Sample ID					57-67								11-21						
Date					01/29/11	02/07/12	03/27/13	02/01/14	01/31/15	02/05/16	02/06/17	02/03/18	02/07/12	03/28/13	02/01/14	01/31/15	02/05/16	02/06/17	02/03/18
SVOCs (ug/L)																			
Acenaphthene	NE	20	3	200	2.6 U	10 U	2.0 U	2.0 U	**1.5 J,O**	**2.2**	**2.4**	**2.5**	10 U	2.1 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Acenaphthylene	NE	210	**	2,100	2.6 U	10 U	NA	NA	NA	NA	NA	NA	10 U	NA	NA	NA	NA	NA	NA
Anthracene	NE	2,100	0.3	21,000	2.6 U	10 U	2.0 U	2.0 U	2.3 U	2.1 U	2 U	0.3 U	10 U	2.1 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Benzo(a)anthracene	NE	0.05	**	5	2.6 U	10 U	2.0 U	2.0 U	2.3 U	2.1 U	2 U	0.3 U	10 U	2.1 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Benzo(a)pyrene	0.2	0.2	**	20	2.6 U	10 U	2.0 U	2.0 U	2.3 U	2.1 U	2 U	0.3 U	10 U	2.1 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Benzo(b)fluoranthene	NE	0.05	**	5	2.6 U	10 U	2.0 U	2.0 U	2.3 U	2.1 U	2 U	0.3 U	10 U	2.1 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Benzo(g,h,i)perylene	NE	210	**	2,100	2.6 U	10 U,J,O	2.0 U	2.0 U	2.3 U	2.1 U	2 U	0.3 U	10 U,J,O	2.1 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Benzo(k)fluoranthene	NE	0.5	**	50	2.6 U	10 U	2.0 U	2.0 U	2.3 U	2.1 U	2 U	0.3 U	10 U	2.1 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Chrysene	NE	4.8	**	480	2.6 U	10 U	2.0 U	2.0 U	2.3 U	2.1 U	2 U	0.3 U	10 U	2.1 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Dibenzo(a,h)anthracene	NE	0.005	**	0.5	2.6 U	10 U	2.0 U	2.0 U	2.3 U	2.1 U	2 U	0.3 U	10 U	2.1 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Dibenzofuran	NE	28	67	280	**3.0 J,O**	**4.1 J,O**	**3.1**	**3.9**	**3.3**	**4.6**	**4.2**	**3.8**	10 U	2.1 U	2.0 U	2.1 U	2.0 U	2 U	2 U
Fluoranthene	NE	280	0.3	2,800	2.6 U	10 U	2.0 U	2.0 U	2.3 U	2.1 U	2 U	0.3 U	10 U	2.1 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Fluorene	NE	280	30	2,800	2.6 U	10 U	2.0 U	**1.2 J,O**	**1.2 J,O**	**1.6 J,O**	**1.4 J,O**	**1.6**	10 U	2.1 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Indeno (1,2,3-cd) pyrene	NE	0.05	**	5	2.6 U	10 U	2.0 U	2.0 U	2.3 U	2.1 U	2 U	0.3 U	10 U	2.1 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Naphthalene	NE	14#	26	140	**3.3**	**4.3 J,O**	**1.3 J,O**	**1.2 J,O**	2.3 U	2.1 U	2 U	0.3 U	10 U	2.1 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
2-Methylnaphthalene	NE	28	30	280	2.6 U	10 U	NA	NA	NA	NA	NA	NA	10 U	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	210	**	2,100	2.6 U	10 U	2.0 U	2.0 U	2.3 U	2.1 U	**0.43 J,O**	**0.41**	10 U	2.1 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Pyrene	NE	210	0.3	2,100	2.6 U	10 U	2.0 U	2.0 U	2.3 U	2.1 U	2 U	0.3 U	10 U	2.1 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Phenols (ug/L)																			
1-1 Byphenol	NE	0.5	18	5	2.6 U	10 U	2.0 U	2.0 U	2.3 U	2.1 U	2 U	2 U	10 U	2.1 U	2.0 U	2.1 U	2.0 U	2 U	2 U
2,4,6-Trichlorophenol	NE	3.2	6.5*	320	13 U	10 U	NA	NA	NA	NA	NA	NA	10 U	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	6	6	2.2	600	13 U	10 U	NA	NA	NA	NA	NA	NA	10 U	NA	NA	NA	NA	NA	NA
Carbazole	NE	1.8	47	180	2.6 U	10 U	2.0 U	2.0 U	2.3 U	2.1 U	**0.79 J,O**	**0.99 J,O**	10 U	2.1 U	2.0 U	2.1 U	2.0 U	2 U	2 U
2,4-Dimethylphenol	NE	140	160	1,400	13 U	10 U	NA	NA	NA	NA	10 U	10 U	10 U	NA	NA	NA	NA	9.8 U	10 U
2-Methylphenol (Cresol,o-)	NE	35#	250	350	13 U	10 U	9.8 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	9.8 U	10 U
(3-and/or 4-)Methylphenol	NE	35#	450	350	13 U	10 U	9.8 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	9.8 U	10 U
Pentachlorophenol	1	1	7.9	100	**160**	**150**	**100**	**110**	**77**	**68**	**40**	**38**	20 U	10 U	10 U	10 U	10 U	9.8 U	7 U
Phenol	NE	10	6.5	100	13 U	10 U	9.8 U	10 U	11 U	10 U	10 U	6 U	10 U	10 U	10 U	10 U	10 U	9.8 U	6 U
VOCs (ug/L)																			
1,2,4-Trichlorobenzene	70	70	23	700	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Benzene	5	1	71.28*	100	0.50 U	5.0 U	0.50 U	**0.090 J,O**	0.50 U	**0.13 J,O**	NA	**0.08 J,O**	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Ethyl Benzene	700	30	610	300	**0.33 J**	5.0 U	**0.23 J,O**	**0.16 J,O**	**0.090 J,O**	0.50 U	NA	0.5 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Toluene	1,000	40	480	400	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Xylenes	10,000	20	370	200	**1.86 J**	5.0 U	**1.42 J,O**	**1.24 J,O**	**0.98 J,O**	**0.67 J,O**	NA	**0.48 J,O**	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U	NA	1.5 U
Inorganics (ug/L)																			
Aluminum	200	200	1,500	2,000	100 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	100	50	1,000	5.0 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	15	15	8.5	150	1.0 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	50	NE	500	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5,000	5,000	86	50,000	10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			Cluster Well 3														
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	C3-MW01								C3-MW02						
Sample ID					236 - 246								217 - 227						
Date					02/08/12	03/21/13	*3/21/2013 (dup)*	02/03/14	01/29/15	02/04/16	02/01/17	01/30/18	02/02/12	03/21/13	02/03/14	01/29/15	02/02/16	02/01/17	01/30/18
SVOCs (ug/L)																			
Acenaphthene	NE	**20**	**3**	**200**	5.0 U	2.0 U	*2.0 U*	2.0 U	2.1 U	2.0 U	2 U	0.3 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Acenaphthylene	NE	**210**	**	**2,100**	5.0 U	NA	*NA*	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA
Anthracene	NE	**2,100**	**0.3**	**21,000**	5.0 U	2.0 U	*2.0 U*	2.0 U	2.1 U	2.0 U	2 U	0.3 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Benzo(a)anthracene	NE	**0.05**	**	**5**	5.0 U	2.0 U	*2.0 U*	2.0 U	2.1 U	2.0 U	2 U	0.3 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Benzo(a)pyrene	**0.2**	**0.2**	**	**20**	5.0 U	2.0 U	*2.0 U*	2.0 U	2.1 U	2.0 U	2 U	0.3 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Benzo(b)fluoranthene	NE	**0.05**	**	**5**	5.0 U	2.0 U	*2.0 U*	2.0 U	2.1 U	2.0 U	2 U	0.3 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Benzo(g,h,i)perylene	NE	**210**	**	**2,100**	5.0 U,J,O	2.0 U	*2.0 U*	2.0 U	2.1 U	2.0 U	2 U	0.3 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Benzo(k)fluoranthene	NE	**0.5**	**	**50**	5.0 U	2.0 U	*2.0 U*	2.0 U	2.1 U	2.0 U	2 U	0.3 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Chrysene	NE	**4.8**	**	**480**	5.0 U	2.0 U	*2.0 U*	2.0 U	2.1 U	2.0 U	2 U	2 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	2 U
Dibenzo(a,h)anthracene	NE	**0.005**	**	**0.5**	5.0 U	2.0 U	*2.0 U*	2.0 U	2.1 U	2.0 U	2 U	0.3 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Dibenzofuran	NE	**28**	**67**	**280**	5.0 U	2.0 U	*2.0 U*	2.0 U	2.1 U	2.0 U	2 U	2 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	2 U
Fluoranthene	NE	**280**	**0.3**	**2,800**	5.0 U	2.0 U	*2.0 U*	2.0 U	2.1 U	2.0 U	2 U	0.3 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Fluorene	NE	**280**	**30**	**2,800**	5.0 U	2.0 U	*2.0 U*	2.0 U	2.1 U	2.0 U	2 U	0.3 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Indeno (1,2,3-cd) pyrene	NE	**0.05**	**	**5**	5.0 U	2.0 U	*2.0 U*	2.0 U	2.1 U	2.0 U	2 U	0.3 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Naphthalene	NE	**14#**	**26**	**140**	5.0 U	2.0 U	*2.0 U*	2.0 U	2.1 U	2.0 U	2 U	0.3 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
2-Methylnaphthalene	NE	**28**	**30**	**280**	5.0 U	NA	*NA*	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	**210**	**	**2,100**	5.0 U	2.0 U	*2.0 U*	2.0 U	2.1 U	2.0 U	2 U	0.3 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Pyrene	NE	**210**	**0.3**	**2,100**	5.0 U	2.0 U	*2.0 U*	2.0 U	2.1 U	2.0 U	2 U	0.3 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Phenols (ug/L)																			
1-1 Byphenol	NE	**0.5**	**18**	**5**	5.0 U	2.0 U	*2.0 U*	2.0 U	2.1 U	2.0 U	2 U	2 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	2 U
2,4,6-Trichlorophenol	NE	**3.2**	**6.5***	**320**	5.0 U	NA	*NA*	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	**6**	**6**	**2.2**	**600**	5.0 U	NA	*NA*	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA
Carbazole	NE	**1.8**	**47**	**180**	5.0 U	2.0 U	*2.0 U*	2.0 U	2.1 U	2.0 U	2 U	2 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	2 U
2,4-Dimethylphenol	NE	**140**	**160**	**1,400**	5.0 U	NA	*NA*	NA	NA	NA	10 U	9.9 U	5.0 U	NA	NA	NA	NA	9.8 U	9.9 U
2-Methylphenol (Cresol,o-)	NE	**35#**	**250**	**350**	5.0 U	10 U	*10 U*	10 U	10 U	10 U	10 U	9.9 U	5.0 U	9.9 U	10 U	10 U	10 U	9.8 U	9.9 U
(3-and/or 4-)Methylphenol	NE	**35#**	**450**	**350**	5.0 U	10 U	*10 U*	10 U	10 U	10 U	10 U	9.9 U	5.0 U	9.9 U	10 U	10 U	10 U	9.8 U	9.9 U
Pentachlorophenol	**1**	**1**	**7.9**	**100**	10 U	10 U	*10 U*	10 U	10 U	10 U	10 U	6.9 U	10 U	9.9 U	10 U	10 U	10 U	9.8 U	6.9 U
Phenol	NE	**10**	**6.5**	**100**	5.0 U	10 U	*10 U*	10 U	10 U	10 U	10 U	5.9 U	5.0 U	9.9 U	10 U	10 U	10 U	9.8 U	5.9 U
VOCs (ug/L)																			
1,2,4-Trichlorobenzene	**70**	**70**	**23**	**700**	5.0 U	0.50 U	*0.50 U*	0.50 U	0.50 U	0.50 U	NA	0.5 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Benzene	**5**	**1**	**71.28***	**100**	5.0 U	0.50 U	*0.50 U*	0.50 U	0.50 U	0.50 U	NA	0.5 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Ethyl Benzene	**700**	**30**	**610**	**300**	5.0 U	0.50 U	*0.50 U*	0.50 U	0.50 U	0.50 U	NA	0.5 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Toluene	**1,000**	**40**	**480**	**400**	5.0 U	0.50 U	*0.50 U*	0.50 U	0.50 U	0.50 U	NA	0.5 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Xylenes	**10,000**	**20**	**370**	**200**	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U	1.50 U	NA	1.5 U	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U	NA	1.5 U
Inorganics (ug/L)																			
Aluminum	**200**	**200**	**1,500**	**2,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	**100**	**100**	**50**	**1,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	**15**	**15**	**8.5**	**150**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	**50**	**50**	**NE**	**500**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	**5,000**	**5,000**	**86**	**50,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			Cluster Well 3							Cluster Well 4						
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	C3-MW03							C4-MW01						
Sample ID					137 - 147							235-245						
Date					02/02/12	03/21/13	02/03/14	01/28/15	02/02/16	02/02/17	01/31/18	02/02/12	03/20/13	02/03/14	01/29/15	02/04/16	02/01/17	01/31/18
SVOCs (ug/L)																		
Acenaphthene	NE	20	3	200	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2 U	0.31 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.1 U	0.3 U
Acenaphthylene	NE	210	**	2,100	5.0 U	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA
Anthracene	NE	2,100	0.3	21,000	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2 U	0.31 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.1 U	0.3 U
Benzo(a)anthracene	NE	0.05	**	5	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2 U	0.31 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.1 U	0.3 U
Benzo(a)pyrene	0.2	0.2	**	20	0	2.0 U	2.0 U	2.0 U	2.1 U	2 U	0.31 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.1 U	0.3 U
Benzo(b)fluoranthene	NE	0.05	**	5	5.0 U,J,O	2.0 U	2.0 U	2.0 U	2.1 U	2 U	0.31 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.1 U	0.3 U
Benzo(g,h,i)perylene	NE	210	**	2,100	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2 U	0.31 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.1 U	0.3 U
Benzo(k)fluoranthene	NE	0.5	**	50	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2 U	0.31 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.1 U	0.3 U
Chrysene	NE	4.8	**	480	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2 U	2.1 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2 U
Dibenzo(a,h)anthracene	NE	0.005	**	0.5	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2 U	0.31 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.1 U	0.3 U
Dibenzofuran	NE	28	67	280	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2 U	2.1 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2 U
Fluoranthene	NE	280	0.3	2,800	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2 U	0.31 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.1 U	0.3 U
Fluorene	NE	280	30	2,800	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2 U	0.31 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.1 U	0.3 U
Indeno (1,2,3-cd) pyrene	NE	0.05	**	5	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2 U	0.31 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.1 U	0.3 U
Naphthalene	NE	14#	26	140	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2 U	0.31 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.1 U	0.3 U
2-Methylnaphthalene	NE	28	30	280	5.0 U	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	210	**	2,100	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2 U	0.31 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.1 U	0.3 U
Pyrene	NE	210	0.3	2,100	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2 U	0.31 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.1 U	0.3 U
Phenols (ug/L)																		
1-1 Byphenol	NE	0.5	18	5	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2 U	2.1 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2 U
2,4,6-Trichlorophenol	NE	3.2	6.5*	320	5.0 U	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	6	6	2.2	600	5.0 U	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA
Carbazole	NE	1.8	47	180	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2 U	2.1 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2 U
2,4-Dimethylphenol	NE	140	160	1,400	5.0 U	NA	NA	NA	NA	10 U	10 U	5.0 U	NA	NA	NA	NA	10 U	10 U
2-Methylphenol (Cresol,o-)	NE	35#	250	350	5.0 U	10 U	10 U	10 U	10 U	10 U	10 U	5.0 U	9.9 U,J,O	10 U	10 U	9.9 U	10 U	10 U
(3-and/or 4-)Methylphenol	NE	35#	450	350	5.0 U	10 U	10 U	10 U	10 U	10 U	10 U	5.0 U	9.9 U,J,O	10 U	10 U	9.9 U	10 U	10 U
Pentachlorophenol	1	1	7.9	100	10 U,J,O	10 U	10 U	10 U	10 U	10 U	7.2 U	10 U	9.9 U	10 U	10 U	9.9 U	10 U	7 U
Phenol	NE	10	6.5	100	5.0 U	10 U	10 U	10 U	10 U	10 U	6.2 U	5.0 U	9.9 U,J,O	10 U	10 U	9.9 U	10 U	6 U
VOCs (ug/L)																		
1,2,4-Trichlorobenzene	70	70	23	700	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Benzene	5	1	71.28*	100	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Ethyl Benzene	700	30	610	300	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Toluene	1,000	40	480	400	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Xylenes	10,000	20	370	200	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U	NA	1.5 U	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U	NA	1.5 U
Inorganics (ug/L)																		
Aluminum	200	200	1,500	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	100	50	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	15	15	8.5	150	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	50	NE	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5,000	5,000	86	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			Cluster Well 4													
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	C4-MW02							C4-MW03						
Sample ID					197 - 207							137 - 147						
Date					02/02/12	03/20/13	02/03/14	01/29/15	02/06/16	02/01/17	01/31/18	02/02/12	03/20/13	02/03/14	01/29/15	02/04/16	02/01/17	01/31/18
SVOCs (ug/L)																		
Acenaphthene	NE	20	3	200	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2.1 U	0.29 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.32 U
Acenaphthylene	NE	210	**	2,100	5.0 U	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA
Anthracene	NE	2,100	0.3	21,000	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2.1 U	0.29 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.32 U
Benzo(a)anthracene	NE	0.05	**	5	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2.1 U	0.29 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.32 U
Benzo(a)pyrene	0.2	0.2	**	20	5.0 U,J,O	2.0 U	2.1 U	2.0 U	2.0 U	2.1 U	0.29 U	5.0 U,J,O	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.32 U
Benzo(b)fluoranthene	NE	0.05	**	5	5.0 U,J,O	2.0 U	2.1 U	2.0 U	2.0 U	2.1 U	0.29 U	5.0 U,J,O	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.32 U
Benzo(g,h,i)perylene	NE	210	**	2,100	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U,J,O	2.1 U	0.29 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.32 U
Benzo(k)fluoranthene	NE	0.5	**	50	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2.1 U	0.29 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.32 U
Chrysene	NE	4.8	**	480	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2.1 U	2 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.32 U
Dibenzo(a,h)anthracene	NE	0.005	**	0.5	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2.1 U	0.29 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.32 U
Dibenzofuran	NE	28	67	280	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2.1 U	2 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	2.1 U
Fluoranthene	NE	280	0.3	2,800	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2.1 U	0.29 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.32 U
Fluorene	NE	280	30	2,800	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2.1 U	0.29 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.32 U
Indeno (1,2,3-cd) pyrene	NE	0.05	**	5	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2.1 U	0.29 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.32 U
Naphthalene	NE	14#	26	140	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2.1 U	0.29 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.32 U
2-Methylnaphthalene	NE	28	30	280	5.0 U	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	210	**	2,100	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2.1 U	0.29 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.32 U
Pyrene	NE	210	0.3	2,100	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2.1 U	0.29 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.32 U
Phenols (ug/L)																		
1-1 Byphenol	NE	0.5	18	5	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2.1 U	2 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	2.1 U
2,4,6-Trichlorophenol	NE	3.2	6.5*	320	5.0 U	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	6	6	2.2	600	5.0 U	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA
Carbazole	NE	1.8	47	180	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2.1 U	2 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	2.1 U
2,4-Dimethylphenol	NE	140	160	1,400	5.0 U	NA	NA	NA	NA	11 U	9.8 U	5.0 U	NA	NA	NA	NA	10 U	11 U
2-Methylphenol (Cresol,o-)	NE	35#	250	350	5.0 U	10 U	10 U	9.9 U	9.9 U	11 U	9.8 U	5.0 U	9.8 U	10 U	10 U	9.9 U	10 U	11 U
(3-and/or 4-)Methylphenol	NE	35#	450	350	5.0 U	10 U	10 U	9.9 U	9.9 U	11 U	9.8 U	5.0 U	9.8 U	10 U	10 U	9.9 U	10 U	11 U
Pentachlorophenol	1	1	7.9	100	10 U,J,O	10 U	10 U	9.9 U	9.9 U	11 U	6.8 U	10 U,J,O	9.8 U	10 U	10 U	9.9 U	10 U	7.4 U
Phenol	NE	10	6.5	100	5.0 U	10 U	10 U	9.9 U	9.9 U	11 U	5.9 U	5.0 U	9.8 U	10 U	10 U	9.9 U	10 U	6.3 U
VOCs (ug/L)																		
1,2,4-Trichlorobenzene	70	70	23	700	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Benzene	5	1	71.28*	100	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Ethyl Benzene	700	30	610	300	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Toluene	1,000	40	480	400	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Xylenes	10,000	20	370	200	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U	NA	1.5 U	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U	NA	1.5 U
Inorganics (ug/L)																		
Aluminum	200	200	1,500	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	100	50	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	15	15	8.5	150	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	50	NE	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5,000	5,000	86	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			Cluster Well 4													
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	C4-MW04							C4-MW05						
Sample ID					117 - 127							77 - 87						
Date					02/02/12	03/20/13	02/03/14	01/29/15	02/05/16	02/01/17	01/31/18	02/02/12	03/20/13	02/03/14	01/29/15	02/04/16	02/01/17	01/31/18
SVOCs (ug/L)																		
Acenaphthene	NE	20	3	200	5.0 U	2.0 U	2.0 U	2.0 U	1.9 U	2 U	0.3 U	18	7.3	2.1 U	2.0 U	2.0 U	2 U	0.31 U
Acenaphthylene	NE	210	**	2,100	5.0 U	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA
Anthracene	NE	2,100	0.3	21,000	5.0 U	2.0 U	2.0 U	2.0 U	1.9 U	2 U	0.3 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.31 U
Benzo(a)anthracene	NE	0.05	**	5	5.0 U	2.0 U	2.0 U	2.0 U	1.9 U	2 U	0.3 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.31 U
Benzo(a)pyrene	0.2	0.2	**	20	5.0 U,J,O	2.0 U	2.0 U	2.0 U	1.9 U	2 U	0.3 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.31 U
Benzo(b)fluoranthene	NE	0.05	**	5	5.0 U,J,O	2.0 U	2.0 U	2.0 U	1.9 U	2 U	0.3 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.31 U
Benzo(g,h,i)perylene	NE	210	**	2,100	5.0 U	2.0 U	2.0 U	2.0 U	1.9 U,J,O	2 U	0.3 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.31 U
Benzo(k)fluoranthene	NE	0.5	**	50	5.0 U	2.0 U	2.0 U	2.0 U	1.9 U	2 U	0.3 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.31 U
Chrysene	NE	4.8	**	480	5.0 U	2.0 U	2.0 U	2.0 U	1.9 U	2 U	2 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	2.1 U
Dibenzo(a,h)anthracene	NE	0.005	**	0.5	5.0 U	2.0 U	2.0 U	2.0 U	1.9 U	2 U	0.3 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.31 U
Dibenzofuran	NE	28	67	280	5.0 U	2.0 U	2.0 U	2.0 U	1.9 U	2 U	2 U	11	2.4	2.1 U	2.0 U	2.0 U	2 U	2.1 U
Fluoranthene	NE	280	0.3	2,800	5.0 U	2.0 U	2.0 U	2.0 U	1.9 U	2 U	0.3 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.31 U
Fluorene	NE	280	30	2,800	5.0 U	2.0 U	2.0 U	2.0 U	1.9 U	2 U	0.3 U	5.6	2.4	2.1 U	2.0 U	2.0 U	2 U	0.31 U
Indeno (1,2,3-cd) pyrene	NE	0.05	**	5	5.0 U	2.0 U	2.0 U	2.0 U	1.9 U	2 U	0.3 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.31 U
Naphthalene	NE	14#	26	140	5.0 U	2.0 U	2.0 U	2.0 U	1.9 U	2 U	0.3 U	15	1.6 J,O	2.1 U	2.0 U	2.0 U	2 U	0.31 U
2-Methylnaphthalene	NE	28	30	280	5.0 U	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	210	**	2,100	5.0 U	2.0 U	2.0 U	2.0 U	1.9 U	2 U	0.3 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.31 U
Pyrene	NE	210	0.3	2,100	5.0 U	2.0 U	2.0 U	2.0 U	1.9 U	2 U	0.3 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.31 U
Phenols (ug/L)																		
1-1 Byphenol	NE	0.5	18	5	5.0 U	2.0 U	2.0 U	2.0 U	1.9 U	2 U	2 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	2.1 U
2,4,6-Trichlorophenol	NE	3.2	6.5*	320	5.0 U	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	6	6	2.2	600	5.0 U	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA
Carbazole	NE	1.8	47	180	5.0 U	2.0 U	2.0 U	2.0 U	1.9 U	2 U	2 U	4.1 J,O	2.0 U	2.1 U	2.0 U	2.0 U	2 U	2.1 U
2,4-Dimethylphenol	NE	140	160	1,400	5.0 U	NA	NA	NA	NA	10 U	9.9 U	5.0 U	NA	NA	NA	NA	10 U	10 U
2-Methylphenol (Cresol,o-)	NE	35#	250	350	5.0 U	10 U	10 U	10 U	9.7 U	10 U	9.9 U	5.0 U	9.9 U	10 U	10 U	10 U	10 U	10 U
(3-and/or 4-)Methylphenol	NE	35#	450	350	5.0 U	10 U	10 U	10 U	9.7 U	10 U	9.9 U	5.0 U	9.9 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	1	1	7.9	100	10 U,J,O	10 U	10 U	10 U	9.7 U	10 U	6.9 U	10 U	9.9 U	10 U	10 U	10 U	10 U	7.2 U
Phenol	NE	10	6.5	100	5.0 U	10 U	10 U	10 U	9.7 U	10 U	5.9 U	5.0 U	9.9 U	10 U	10 U	10 U	10 U	6.2 U
VOCs (ug/L)																		
1,2,4-Trichlorobenzene	70	70	23	700	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Benzene	5	1	71.28*	100	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	5.3	2.4	0.50 U	0.50 U	0.50 U	NA	0.5 U
Ethyl Benzene	700	30	610	300	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	5.0 U	0.33 J,O	0.50 U	0.50 U	0.50 U	NA	0.5 U
Toluene	1,000	40	480	400	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Xylenes	10,000	20	370	200	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U	NA	1.5 U	5.0 U	0.50 J,O	1.50 U	1.50 U	1.50 U	NA	1.5 U
Inorganics (ug/L)																		
Aluminum	200	200	1,500	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	100	50	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	15	15	8.5	150	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	50	NE	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5,000	5,000	86	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			Cluster Well 4								Cluster Well 5							
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	C4-MW06								C5-MW01							
Sample ID					23 - 33								238 - 248							
Date					02/02/12	*2/2/12 (dup)*	03/19/13	02/03/14	01/29/15	02/04/16	02/01/17	01/31/18	02/01/11	02/03/12	03/23/13	02/04/14	02/03/15	02/08/16	02/06/17	02/05/18
SVOCs (ug/L)																				
Acenaphthene	NE	**20**	**3**	**200**	5.0 U	*5.0 U*	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.29 U	2.1 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Acenaphthylene	NE	**210**	**	**2,100**	5.0 U	*5.0 U*	NA	NA	NA	NA	NA	NA	2.1 U	5.0 U	NA	NA	NA	NA	NA	NA
Anthracene	NE	**2,100**	**0.3**	**21,000**	5.0 U	*5.0 U*	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.29 U	2.1 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Benzo(a)anthracene	NE	**0.05**	**	**5**	5.0 U	*5.0 U*	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.29 U	2.1 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Benzo(a)pyrene	**0.2**	**0.2**	**	**20**	5.0 U,J,O	*5.0 U,J,O*	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.29 U	2.1 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Benzo(b)fluoranthene	NE	**0.05**	**	**5**	5.0 U,J,O	*5.0 U,J,O*	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.29 U	2.1 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Benzo(g,h,i)perylene	NE	**210**	**	**2,100**	5.0 U	*5.0 U*	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.29 U	2.1 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Benzo(k)fluoranthene	NE	**0.5**	**	**50**	5.0 U	*5.0 U*	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.29 U	2.1 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Chrysene	NE	**4.8**	**	**480**	5.0 U	*5.0 U*	2.0 U	2.0 U	2.0 U	2.0 U	2 U	2 U	2.1 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Dibenzo(a,h)anthracene	NE	**0.005**	**	**0.5**	5.0 U	*5.0 U*	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.29 U	2.1 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Dibenzofuran	NE	**28**	**67**	**280**	5.0 U	*5.0 U*	2.0 U	2.0 U	2.0 U	2.0 U	2 U	2 U	2.1 U,J,O	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	2 U
Fluoranthene	NE	**280**	**0.3**	**2,800**	5.0 U	*5.0 U*	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.29 U	2.1 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Fluorene	NE	**280**	**30**	**2,800**	5.0 U	*5.0 U*	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.29 U	2.1 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Indeno (1,2,3-cd) pyrene	NE	**0.05**	**	**5**	5.0 U	*5.0 U*	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.29 U	2.1 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Naphthalene	NE	**14#**	**26**	**140**	5.0 U	*5.0 U*	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.29 U	2.1 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
2-Methylnaphthalene	NE	**28**	**30**	**280**	5.0 U	*5.0 U*	NA	NA	NA	NA	NA	NA	2.1 U	5.0 U	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	**210**	**	**2,100**	5.0 U	*5.0 U*	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.29 U	2.1 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Pyrene	NE	**210**	**0.3**	**2,100**	5.0 U	*5.0 U*	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.29 U	2.1 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.3 U
Phenols (ug/L)																				
1-1 Byphenol	NE	**0.5**	**18**	**5**	5.0 U	*5.0 U*	2.0 U	2.0 U	2.0 U	2.0 U	2 U	2 U	NA	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	2 U
2,4,6-Trichlorophenol	NE	**3.2**	**6.5***	**320**	5.0 U	*5.0 U*	NA	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	**6**	**6**	**2.2**	**600**	5.0 U	*5.0 U*	NA	NA	NA	NA	NA	NA	11 U	5.0 U	NA	NA	NA	NA	NA	NA
Carbazole	NE	**1.8**	**47**	**180**	5.0 U	*5.0 U*	2.0 U	2.0 U	2.0 U,J,O	2.0 U	2 U	2 U	2.1 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	2 U
2,4-Dimethylphenol	NE	**140**	**160**	**1,400**	5.0 U	*5.0 U*	NA	NA	NA	NA	10 U	9.8 U	11 U	5.0 U	NA	NA	NA	NA	9.8 U	10 U
2-Methylphenol (Cresol,o-)	NE	**35#**	**250**	**350**	5.0 U	*5.0 U*	9.9 U	10 U	10 U	10 U	10 U	9.8 U	11 U	5.0 U	10 U	10 U	11 U	10 U	9.8 U	10 U
(3-and/or 4-)Methylphenol	NE	**35#**	**450**	**350**	5.0 U	*5.0 U*	9.9 U	10 U	10 U	10 U	10 U	9.8 U	11 U	5.0 U	10 U	10 U	11 U	10 U	9.8 U	10 U
Pentachlorophenol	**1**	**1**	**7.9**	**100**	10 U,J,O	*10 U,J,O*	9.9 U	10 U	10 U	10 U	10 U	6.9 U	11 U	10 U	10 U	10 U	11 U	10 U	9.8 U	7 U
Phenol	NE	**10**	**6.5**	**100**	5.0 U	*5.0 U*	9.9 U	10 U	10 U	10 U	10 U	5.9 U	11 U	5.0 U	10 U	10 U	11 U	10 U	9.8 U	6 U
VOCs (ug/L)																				
1,2,4-Trichlorobenzene	**70**	**70**	**23**	**700**	5.0 U	*5.0 U*	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Benzene	**5**	**1**	**71.28***	**100**	5.0 U	*5.0 U*	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Ethyl Benzene	**700**	**30**	**610**	**300**	5.0 U	*5.0 U*	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	NA	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Toluene	**1,000**	**40**	**480**	**400**	5.0 U	*5.0 U*	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	NA	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Xylenes	**10,000**	**20**	**370**	**200**	5.0 U	*5.0 U*	1.50 U	1.50 U	1.50 U	1.50 U	NA	1.5 U	NA	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U	NA	1.5 U
Inorganics (ug/L)																				
Aluminum	**200**	**200**	**1,500**	**2,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	**100**	**100**	**50**	**1,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	**15**	**15**	**8.5**	**150**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	**50**	**50**	**NE**	**500**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	**5,000**	**5,000**	**86**	**50,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			Cluster Well 5																
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	C5-MW02									C5-MW03							
Sample ID					197-207									137 - 147							
Date					02/01/11	02/05/12	*2/5/12 (dup)*	03/23/13	02/04/14	02/03/15	02/08/16	02/07/17	02/05/18	02/01/11	02/05/12	03/23/13	02/04/14	02/03/15	02/08/16	02/06/17	02/06/18
SVOCs (ug/L)																					
Acenaphthene	NE	**20**	**3**	**200**	2.4 U,O	5.0 U	*5.0 U*	2.0 U	2.0 U	1.9 U	2.0 U	2 U	0.3 U	2.0 U	5.0 U	2.0 U	1.9 U	2.0 U	2.1 U	2 U	0.29 U
Acenaphthylene	NE	**210**	**	**2,100**	2.4 U,O	5.0 U	*5.0 U*	NA	NA	NA	NA	NA	NA	2.0 U	5.0 U	NA	NA	NA	NA	NA	NA
Anthracene	NE	**2,100**	**0.3**	**21,000**	2.4 U,O	5.0 U	*5.0 U*	2.0 U	2.0 U	1.9 U	2.0 U	2 U	0.3 U	2.0 U	5.0 U	2.0 U	1.9 U	2.0 U	2.1 U	2 U	0.29 U
Benzo(a)anthracene	NE	**0.05**	**	**5**	2.4 U,O	5.0 U	*5.0 U*	2.0 U	2.0 U	1.9 U	2.0 U	2 U	0.3 U	2.0 U	5.0 U	2.0 U	1.9 U	2.0 U	2.1 U	2 U	0.29 U
Benzo(a)pyrene	**0.2**	**0.2**	**	**20**	2.4 U,O	5.0 U,J,O	*5.0 U,J,O*	2.0 U	2.0 U	1.9 U	2.0 U	2 U	0.3 U	2.0 U	5.0 U	2.0 U	1.9 U	2.0 U	2.1 U	2 U	0.29 U
Benzo(b)fluoranthene	NE	**0.05**	**	**5**	2.4 U,O	5.0 U,J,O	*5.0 U,J,O*	2.0 U	2.0 U	1.9 U	2.0 U	2 U	0.3 U	2.0 U	5.0 U	2.0 U	1.9 U	2.0 U	2.1 U	2 U	0.29 U
Benzo(g,h,i)perylene	NE	**210**	**	**2,100**	2.4 U,O	5.0 U,J,O	*5.0 U,J,O*	2.0 U	2.0 U	1.9 U	2.0 U	2 U	0.3 U	2.0 U	5.0 U	2.0 U	1.9 U	2.0 U	2.1 U	2 U	0.29 U
Benzo(k)fluoranthene	NE	**0.5**	**	**50**	2.4 U,O	5.0 U,J,O	*5.0 U,J,O*	2.0 U	2.0 U	1.9 U	2.0 U	2 U	0.3 U	2.0 U	5.0 U	2.0 U	1.9 U	2.0 U	2.1 U	2 U	0.29 U
Chrysene	NE	**4.8**	**	**480**	2.4 U,O	5.0 U	*5.0 U*	2.0 U	2.0 U	1.9 U	2.0 U	2 U	0.3 U	2.0 U	5.0 U	2.0 U	1.9 U	2.0 U	2.1 U	2 U	0.29 U
Dibenzo(a,h)anthracene	NE	**0.005**	**	**0.5**	2.4 U,O	5.0 U,J,O	*5.0 U,J,O*	2.0 U	2.0 U	1.9 U	2.0 U	2 U	0.3 U	2.0 U	5.0 U	2.0 U	1.9 U	2.0 U	2.1 U	2 U	0.29 U
Dibenzofuran	NE	**28**	**67**	**280**	2.4 U,J,O	5.0 U	*5.0 U*	2.0 U	2.0 U	1.9 U	2.0 U	2 U	2 U	2.0 U,J,O	5.0 U	2.0 U	1.9 U	2.0 U	2.1 U	2 U	2 U
Fluoranthene	NE	**280**	**0.3**	**2,800**	2.4 U,O	5.0 U	*5.0 U*	2.0 U	2.0 U	1.9 U	2.0 U	2 U	0.3 U	2.0 U	5.0 U	2.0 U	1.9 U	2.0 U	2.1 U	2 U	0.29 U
Fluorene	NE	**280**	**30**	**2,800**	2.4 U,O	5.0 U	*5.0 U*	2.0 U	2.0 U	1.9 U	2.0 U	2 U	0.3 U	2.0 U	5.0 U	2.0 U	1.9 U	2.0 U	2.1 U	2 U	0.29 U
Indeno (1,2,3-cd) pyrene	NE	**0.05**	**	**5**	2.4 U,O	5.0 U,J,O	*5.0 U,J,O*	2.0 U	2.0 U	1.9 U	2.0 U	2 U	0.3 U	2.0 U	5.0 U	2.0 U	1.9 U	2.0 U	2.1 U	2 U	0.29 U
Naphthalene	NE	**14#**	**26**	**140**	2.4 U,O	5.0 U	*5.0 U*	2.0 U	2.0 U	1.9 U	2.0 U	2 U	0.3 U	2.0 U	5.0 U	2.0 U	1.9 U	2.0 U	2.1 U	2 U	0.29 U
2-Methylnaphthalene	NE	**28**	**30**	**280**	2.4 U,O	5.0 U	*5.0 U*	NA	NA	NA	NA	NA	NA	2.0 U	5.0 U	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	**210**	**	**2,100**	2.4 U,O	5.0 U	*5.0 U*	2.0 U	2.0 U	1.9 U	2.0 U	2 U	0.3 U	2.0 U	5.0 U	2.0 U	1.9 U	2.0 U	2.1 U	2 U	0.29 U
Pyrene	NE	**210**	**0.3**	**2,100**	2.4 U,O	5.0 U	*5.0 U*	2.0 U	2.0 U	1.9 U	2.0 U	2 U	0.3 U	2.0 U	5.0 U	2.0 U	1.9 U	2.0 U	2.1 U	2 U	0.29 U
Phenols (ug/L)																					
1-1 Byphenol	NE	**0.5**	**18**	**5**	NA	5.0 U	*5.0 U*	2.0 U	2.0 U	1.9 U	2.0 U	2 U	2 U	NA	5.0 U	2.0 U	1.9 U	2.0 U	2.1 U	2 U	2 U
2,4,6-Trichlorophenol	NE	**3.2**	**6.5***	**320**	NA	5.0 U	*5.0 U*	NA	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	**6**	**6**	**2.2**	**600**	12.0 U,O	5.0 U	*5.0 U*	NA	NA	NA	NA	NA	NA	10 U	5.0 U	NA	NA	NA	NA	NA	NA
Carbazole	NE	**1.8**	**47**	**180**	2.4 U,O	5.0 U	*5.0 U*	2.0 U	2.0 U	1.9 U	2.0 U	2 U	2 U	2.0 U	5.0 U	2.0 U	1.9 U	2.0 U	2.1 U	2 U	2 U
2,4-Dimethylphenol	NE	**140**	**160**	**1,400**	12.0 U,O	5.0 U	*5.0 U*	NA	NA	NA	NA	9.8 U	10 U	10 U	5.0 U	NA	NA	NA	NA	10 U	9.8 U
2-Methylphenol (Cresol,o-)	NE	**35#**	**250**	**350**	12.0 U,O	5.0 U	*5.0 U*	9.9 U	10 U	9.7 U	10 U	9.8 U	10 U	10 U	5.0 U	10 U	9.7 U	9.9 U	10 U	10 U	9.8 U
(3-and/or 4-)Methylphenol	NE	**35#**	**450**	**350**	12.0 U,O	5.0 U	*5.0 U*	9.9 U	10 U	9.7 U	10 U	9.8 U	10 U	10 U	5.0 U	10 U	9.7 U	9.9 U	10 U	10 U	9.8 U
Pentachlorophenol	**1**	**1**	**7.9**	**100**	12.0 U,O	10 U	*10 U*	9.9 U	10 U	9.7 U	10 U	9.8 U	7 U	10 U	10 U	10 U	9.7 U	9.9 U	10 U	10 U	6.9 U
Phenol	NE	**10**	**6.5**	**100**	12.0 U,O	5.0 U	*5.0 U*	9.9 U	10 U	9.7 U	10 U	9.8 U	6 U	10 U	5.0 U	10 U	9.7 U	9.9 U	10 U	10 U	5.9 U
VOCs (ug/L)																					
1,2,4-Trichlorobenzene	**70**	**70**	**23**	**700**	0.50 U,O	5.0 U	*5.0 U*	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	0.50 U,O	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Benzene	**5**	**1**	**71.28***	**100**	0.50 U,O	5.0 U	*5.0 U*	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	0.50 U,O	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Ethyl Benzene	**700**	**30**	**610**	**300**	NA	5.0 U	*5.0 U*	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	NA	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Toluene	**1,000**	**40**	**480**	**400**	NA	5.0 U	*5.0 U*	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	NA	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Xylenes	**10,000**	**20**	**370**	**200**	NA	5.0 U	*5.0 U*	1.50 U	1.50 U	1.50 U	1.50 U	NA	1.5 U	NA	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U	NA	1.5 U
Inorganics (ug/L)																					
Aluminum	**200**	**200**	**1,500**	**2,000**	NA	NA	*NA*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	**100**	**100**	**50**	**1,000**	NA	NA	*NA*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	**15**	**15**	**8.5**	**150**	NA	NA	*NA*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	**50**	**50**	**NE**	**500**	NA	NA	*NA*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	**5,000**	**5,000**	**86**	**50,000**	NA	NA	*NA*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			Cluster Well 5																
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	C5-MW04									C5-MW05							
Sample ID					67 - 77									37 - 47							
Date					02/01/11	*2/1/11 (dup)*	02/05/12	03/23/13	02/04/14	02/03/15	02/08/16	02/06/17	02/05/18	02/01/11	02/05/12	03/23/13	02/04/14	02/03/15	02/08/16	02/06/17	02/05/18
SVOCs (ug/L)																					
Acenaphthene	NE	20	3	200	2.1 U	*2.1 U*	**1.2 J,O**	2.0 U	2.0 U	2.0 U	**1.1 J,O**	2 U	0.3 U	140	500 U	180	79	55	240	220	240 J,O
Acenaphthylene	NE	210	**	2,100	2.1 U	*2.1 U*	5.0 U	NA	NA	NA	NA	NA	NA	10 U	500 U	NA	NA	NA	NA	NA	NA
Anthracene	NE	2,100	0.3	21,000	2.1 U	*2.1 U*	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U	10 U	500 U	3.9 U	20 U	2.0 U	4.6	20 U	1.5 U
Benzo(a)anthracene	NE	0.05	**	5	2.1 U	*2.1 U*	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U	10 U	500 U	3.9 U	20 U	2.0 U	2.0 U	20 U	1.5 U
Benzo(a)pyrene	0.2	0.2	**	20	2.1 U	*2.1 U*	5.0 U,J,O	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U	10 U	500 U	3.9 U	20 U	2.0 U	2.0 U	20 U	1.5 U
Benzo(b)fluoranthene	NE	0.05	**	5	2.1 U	*2.1 U*	5.0 U,J,O	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U	10 U	500 U	3.9 U	20 U	2.0 U	2.0 U	20 U	1.5 U
Benzo(g,h,i)perylene	NE	210	**	2,100	2.1 U	*2.1 U*	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U	10 U	500 U	3.9 U	20 U	2.0 U	2.0 U	20 U	1.5 U
Benzo(k)fluoranthene	NE	0.5	**	50	2.1 U	*2.1 U*	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U	10 U	500 U	3.9 U	20 U	2.0 U	2.0 U	20 U	1.5 U
Chrysene	NE	4.8	**	480	2.1 U	*2.1 U*	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U	10 U	500 U	3.9 U	20 U	2.0 U	2.0 U	20 U	1.5 U
Dibenzo(a,h)anthracene	NE	0.005	**	0.5	2.1 U	*2.1 U*	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U	10 U	500 U	3.9 U	20 U	2.0 U	2.0 U	20 U	1.5 U
Dibenzofuran	NE	28	67	280	2.1 U,J,O	*2.1 U,J,O*	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	2 U	54 J,O	500 U	94	39	26	95	120	110
Fluoranthene	NE	280	0.3	2,800	2.1 U	*2.1 U*	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U	10 U	500 U	3.9 U	20 U	2.0 U	1.9 J,O	20 U	1.8
Fluorene	NE	280	30	2,800	2.1 U	*2.1 U*	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U	73	500 U	97	42	29	96	120	110
Indeno (1,2,3-cd) pyrene	NE	0.05	**	5	2.1 U	*2.1 U*	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U	10 U	500 U	3.9 U	20 U	2.0 U	2.0 U	20 U	1.5 U
Naphthalene	NE	14#	26	140	2.1 U	*2.1 U*	**1.3 J,O**	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U	2,900	4,800	5,200	2,400	1,700	4,500	5400	4500
2-Methylnaphthalene	NE	28	30	280	2.1 U	*2.1 U*	5.0 U	NA	NA	NA	NA	NA	NA	320	340 J,O	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	210	**	2,100	2.1 U	*2.1 U*	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U	24	500 U	27	14 J,O	8.6	46	54	52
Pyrene	NE	210	0.3	2,100	2.1 U	*2.1 U*	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U	10 U	500 U	3.9 U	20 U	2.0 U	2.0 U	20 U	1.5 U
Phenols (ug/L)																					
1-1 Byphenol	NE	0.5	18	5	NA	NA	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	2 U	36	500 U	50	20	14	51	55	52
2,4,6-Trichlorophenol	NE	3.2	6.5*	320	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA	50 U	500 U	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	6	6	2.2	600	10 U	*10 U*	5.0 U	NA	NA	NA	NA	NA	NA	50 U	500 U	NA	NA	NA	NA	NA	NA
Carbazole	NE	1.8	47	180	2.1 U	2.1 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	2 U	160	150 J,O	150	84	56	260	190	190 J,O
2,4-Dimethylphenol	NE	140	160	1,400	10 U	*10 U*	5.0 U	NA	NA	NA	NA	10 U	10 U	3,000	3,900	NA	NA	NA	NA	5100	3900 J,O
2-Methylphenol (Cresol,o-)	NE	35#	250	350	10 U	*10 U*	5.0 U	10 U	9.9 U	10 U	10 U	10 U	10 U	1,600	2,200	2,100	700	130	2,300	2900	2300 J,O
(3-and/or 4-)Methylphenol	NE	35#	450	350	10 U	*10 U*	5.0 U	10 U	9.9 U	10 U	10 U	10 U	10 U	2,700	4,000	3,700	91 J,O	4.4 J,O	4,200	7200	5100
Pentachlorophenol	1	1	7.9	100	10 U	*10 U*	10 U	10 U	9.9 U	10 U	10 U	10 U	7 U	10 J,O	1000 U	20 U	99 U	9.9 U	19	50 J,O	38
Phenol	NE	10	6.5	100	10 U	10 U	5.0 U	10 U	9.9 U	10 U	10 U	10 U	6 U	530	1300	940	15 J,O	9.9 U	860	2400	1800 J,O
VOCs (ug/L)																					
1,2,4-Trichlorobenzene	70	70	23	700	0.50 U,O	*0.50 U,O*	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	5.0 U	5.0 U	1.0 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Benzene	5	1	71.28*	100	0.50 U,O	*0.50 U,O*	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	54	75	95	43	32	81	NA	69
Ethyl Benzene	700	30	610	300	NA	NA	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	27	36	43	24	20	44	NA	41
Toluene	1,000	40	480	400	NA	NA	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	49	73	82	38	29	82	NA	83
Xylenes	10,000	20	370	200	NA	NA	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U	NA	1.5 U	70	65	119	59	50	123	NA	110
Inorganics (ug/L)																					
Aluminum	200	200	1,500	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	61,000	NA	NA	NA	NA	NA	NA	NA
Chromium	100	100	50	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	110	NA	NA	NA	NA	NA	NA	NA
Lead	15	15	8.5	150	NA	NA	NA	NA	NA	NA	NA	NA	NA	73	NA	NA	NA	NA	NA	NA	NA
Manganese	50	50	NE	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	150	NA	NA	NA	NA	NA	NA	NA
Zinc	5,000	5,000	86	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	50 U	NA	NA	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			Cluster Well 5													
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	C5-MW06													
				Sample ID	17 - 27													
				Date	01/31/11	02/05/12	03/23/13	3/23/13 (dup)	02/04/14	2/4/2014 (dup)	02/03/15	2/3/2015 (dup)	02/09/16	2/9/2016 (dup)	02/06/17	2/6/2017 (dup)	02/05/18	2/5/2018 (dup)
SVOCs (ug/L)																		
Acenaphthene	NE	20	3	200	360	410 J,O	520	450	450	470	400	400	370	350	340	320	150	160
Acenaphthylene	NE	210	**	2,100	13	1000 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NE	2,100	0.3	21,000	11	1000 U	4.0 U	4.0 U	15 J,O	15 J,O	16 J,O	16 J,O	12	12	13 J,O	11 J,O	5.9	5.7
Benzo(a)anthracene	NE	0.05	**	5	10 U	1000 U	4.0 U	4.0 U	20 U	20 U	20 U	20 U	2.0 U	2.0 U	20 U	19 U	1.5 U	1.5 U
Benzo(a)pyrene	0.2	0.2	**	20	10 U	1000 U	4.0 U	4.0 U	20 U	20 U	20 U	20 U	2.0 U	2.0 U	20 U	19 U	1.5 U	1.5 U
Benzo(b)fluoranthene	NE	0.05	**	5	10 U	1000 U	4.0 U	4.0 U	20 U	20 U	20 U	20 U	2.0 U	2.0 U	20 U	19 U	1.5 U	1.5 U
Benzo(g,h,i)perylene	NE	210	**	2,100	10 U	21 J	4.0 U	4.0 U,J,O	20 U	20 U	20 U	20 U	2.0 U	2.0 U	20 U	19 U	1.5 U	1.5 U
Benzo(k)fluoranthene	NE	0.5	**	50	10 U	1000 U	4.0 U	4.0 U	20 U	20 U	20 U	20 U	2.0 U	2.0 U	20 U	19 U	1.5 U	1.5 U
Chrysene	NE	4.8	**	480	10 U	1000 U	4.0 U	4.0 U	20 U	20 U	20 U	20 U	2.0 U	2.0 U	20 U	19 U	1.5 U	1.5 U
Dibenzo(a,h)anthracene	NE	0.005	**	0.5	10 U	1000 U	4.0 U	4.0 U	20 U	20 U	20 U	20 U	2.0 U	2.0 U	20 U	19 U	1.5 U	1.5 U
Dibenzofuran	NE	28	67	280	210	1000 U	150	140	240	250	230	230	110	110	200	190	83	86
Fluoranthene	NE	280	0.3	2,800	10 U	1000 U	5.5	5.0	20 U	20 U	14 J,O	13 J,O	13	12	7.5 J,O	7.1 J,O	5.8	6
Fluorene	NE	280	30	2,800	170	1000 U	200	180	230	250	240	240	210	210	190	170	70	75
Indeno (1,2,3-cd) pyrene	NE	0.05	**	5	10 U	1000 U	4.0 U	4.0 U	20 U	20 U	20 U	20 U	2.0 U	2.0 U	20 U	19 U	1.5 U	1.5 U
Naphthalene	NE	14#	26	140	7,400	9,300	8,000	7,500	6,000	6,300	7,100	7,500	5,600	5,900	7200	7000	3400	3500
2-Methylnaphthalene	NE	28	30	280	560	700 J,O	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	210	**	2,100	96	1000 U	110	95	160	180	160	160	100	100	130	120	94	96
Pyrene	NE	210	0.3	2,100	10 U	1000 U	3.5 J,O	3.1 J,O	20 U	20 U	20 U	20 U	3.8	3.8	20 U	19 U	3.2	3.2
Phenols (ug/L)																		
1-1 Byphenol	NE	0.5	18	5	77	260	100	94	110	110	110	110	65	60	84	77	33	34
2,4,6-Trichlorophenol	NE	3.2	6.5*	320	11 J	50 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	6	6	2.2	600	50 U	50 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NE	1.8	47	180	320	680	410	350	450 J,O	490 J,O	340	400	370	390	330	300	210	210
2,4-Dimethylphenol	NE	140	160	1,400	7,500	7,200	NA	NA	NA	NA	NA	NA	NA	NA	7700	7200	1900	1800
2-Methylphenol (Cresol,o-)	NE	35#	250	350	5,200	4,400	3,800	3,700	5,200	5,300	4,900	5,100	4,000	4,100	5200	4700	690	660
(3-and/or 4-)Methylphenol	NE	35#	450	350	14,000	12,000	9,000	8,700	11,000	12,000	11,000	12,000	9,700	10,000	15000	14000	1100	1000
Pentachlorophenol	1	1	7.9	100	100	100 UJ	290	260	250	250	140	140	42	43	240	210	85	79
Phenol	NE	10	6.5	100	4,700	5,400	2,700	2,600	3,800	3,800	3,400	3,600	3,400	3,500	5400	5100	300	290
VOCs (ug/L)																		
1,2,4-Trichlorobenzene	70	70	23	700	10 U	5.0 U	2.5 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	2.5 U	2.5 U
Benzene	5	1	71.28*	100	74	170	170	160	160	160	140	140	100	94	NA	NA	42	41
Ethyl Benzene	700	30	610	300	28	58	52	50	49	47	49	51	47	46	NA	NA	30	29
Toluene	1,000	40	480	400	76	160	140	140	140	130	130	130	110	100	NA	NA	61	60
Xylenes	10,000	20	370	200	95	120	150	149	145	138	145	148	141	138	NA	NA	88	85
Inorganics (ug/L)																		
Aluminum	200	200	1,500	2,000	290	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	100	50	1,000	5.0 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	15	15	8.5	150	2.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	50	NE	500	190	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5,000	5,000	86	50,000	10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			Cluster Well 6											
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	C6-MW01						C6-MW02					
Sample ID					232.5 - 242.5						197 - 207					
Date					02/04/12	03/22/13	01/31/14	01/30/15	02/04/16	01/31/17	02/04/12	03/22/13	01/31/14	01/30/15	02/04/16	01/31/17
SVOCs (ug/L)																
Acenaphthene	NE	20	3	200	5.0 U	2.1 U	2.0 U	2.0 U	2.0 U	2 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U
Acenaphthylene	NE	210	**	2,100	5.0 U	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA
Anthracene	NE	2,100	0.3	21,000	5.0 U	2.1 U	2.0 U	2.0 U	2.0 U	2 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U
Benzo(a)anthracene	NE	0.05	**	5	5.0 U	2.1 U	2.0 U	2.0 U	2.0 U	2 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U
Benzo(a)pyrene	0.2	0.2	**	20	5.0 U	2.1 U	2.0 U	2.0 U	2.0 U	2 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U
Benzo(b)fluoranthene	NE	0.05	**	5	5.0 U	2.1 U	2.0 U	2.0 U	2.0 U	2 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U
Benzo(g,h,i)perylene	NE	210	**	2,100	5.0 U	2.1 U	2.0 U	2.0 U	2.0 U	2 U	**2.5 J,O**	2.0 U	2.0 U	2.1 U	2.0 U	2 U
Benzo(k)fluoranthene	NE	0.5	**	50	5.0 U	2.1 U	2.0 U	2.0 U	2.0 U	2 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U
Chrysene	NE	4.8	**	480	5.0 U	2.1 U	2.0 U	2.0 U	2.0 U	2 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U
Dibenzo(a,h)anthracene	NE	0.005	**	0.5	5.0 U	2.1 U	2.0 U	2.0 U	2.0 U	2 U	**1.0 J,O**	2.0 U	2.0 U	2.1 U	2.0 U	2 U
Dibenzofuran	NE	28	67	280	5.0 U	2.1 U	2.0 U	2.0 U	2.0 U	2 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U
Fluoranthene	NE	280	0.3	2,800	5.0 U	2.1 U	2.0 U	2.0 U	2.0 U	2 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U
Fluorene	NE	280	30	2,800	5.0 U	2.1 U	2.0 U	2.0 U	2.0 U	2 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U
Indeno (1,2,3-cd) pyrene	NE	0.05	**	5	5.0 U	2.1 U	2.0 U	2.0 U	2.0 U	2 U	**1.4 J,O**	2.0 U	2.0 U	2.1 U	2.0 U	2 U
Naphthalene	NE	14#	26	140	5.0 U	2.1 U	2.0 U	2.0 U	2.0 U	2 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U
2-Methylnaphthalene	NE	28	30	280	5.0 U	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA
Phenanthrene	NE	210	**	2,100	5.0 U	2.1 U	2.0 U	2.0 U	2.0 U	2 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U
Pyrene	NE	210	0.3	2,100	5.0 U	2.1 U	2.0 U	2.0 U	2.0 U	2 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U
Phenols (ug/L)																
1-1 Byphenol	NE	0.5	18	5	5.0 U	2.1 U	2.0 U	2.0 U	2.0 U	2 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U
2,4,6-Trichlorophenol	NE	3.2	6.5*	320	5.0 U	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	6	6	2.2	600	5.0 U	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA
Carbazole	NE	1.8	47	180	5.0 U	2.1 U	2.0 U	2.0 U	2.0 U	2 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U
2,4-Dimethylphenol	NE	140	160	1,400	5.0 U	NA	NA	NA	NA	10 U	5.0 U	NA	NA	NA	NA	10 U
2-Methylphenol (Cresol,o-)	NE	35#	250	350	5.0 U	10 U	9.9 U	10 U	9.8 U	10 U	5.0 U	10 U	10 U	10 U	9.9 U	10 U
(3-and/or 4-)Methylphenol	NE	35#	450	350	5.0 U	10 U	9.9 U	10 U	9.8 U	10 U	5.0 U	10 U	10 U	10 U	9.9 U	10 U
Pentachlorophenol	1	1	7.9	100	10 U	10 U	9.9 U	10 U	9.8 U	10 U	10 U	10 U	10 U	10 U	9.9 U	10 U
Phenol	NE	10	6.5	100	5.0 U	10 U	9.9 U	10 U	9.8 U	10 U	5.0 U	10 U	10 U	10 U	9.9 U	10 U
VOCs (ug/L)																
1,2,4-Trichlorobenzene	70	70	23	700	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA
Benzene	5	1	71.28*	100	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA
Ethyl Benzene	700	30	610	300	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA
Toluene	1,000	40	480	400	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA
Xylenes	10,000	20	370	200	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U	NA	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U	NA
Inorganics (ug/L)																
Aluminum	200	200	1,500	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	100	50	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	15	15	8.5	150	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	50	NE	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5,000	5,000	86	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			Cluster Well 6														
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	C6-MW03						C6-MW04								
Sample ID					137-147						57 - 67								
Date					02/04/12	03/22/13	01/31/14	01/30/15	02/04/16	01/31/17	01/28/11	*1/28/11 (dup)*	02/04/12	03/22/13	01/31/14	01/30/15	02/04/16	01/31/17	02/05/18
SVOCs (ug/L)																			
Acenaphthene	NE	20	3	200	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	1.1 J,O	*1.2 J,O*	10 U	**1.8 J,O**	**1.9**	**1.4 J,O**	**1.1 J,O**	**2**	**1 J,O**
Acenaphthylene	NE	210	**	2,100	5.0 U	NA	NA	NA	NA	NA	2.1 U	*2.0 U*	10 U	NA	NA	NA	NA	NA	NA
Anthracene	NE	2,100	0.3	21,000	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	2.1 U	*2.0 U*	10 U	2.0 U	1.9 U	2.0 U	2.0 U	2 U	0.31 U
Benzo(a)anthracene	NE	0.05	**	5	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	2.1 U	*2.0 U*	10 U	2.0 U	1.9 U	2.0 U	2.0 U	2 U	0.31 U
Benzo(a)pyrene	0.2	0.2	**	20	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	2.1 U	*2.0 U*	10 U	2.0 U	1.9 U	2.0 U	2.0 U	2 U	0.31 U
Benzo(b)fluoranthene	NE	0.05	**	5	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	2.1 U	*2.0 U*	10 U	2.0 U	1.9 U	2.0 U	2.0 U	2 U	0.31 U
Benzo(g,h,i)perylene	NE	210	**	2,100	5.0 U,J,O	2.0 U	2.0 U	2.1 U	2.0 U	2 U	2.1 U	*2.0 U*	10 U	2.0 U	1.9 U	2.0 U	2.0 U	2 U	0.31 U
Benzo(k)fluoranthene	NE	0.5	**	50	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	2.1 U	*2.0 U*	10 U	2.0 U	1.9 U	2.0 U	2.0 U	2 U	0.31 U
Chrysene	NE	4.8	**	480	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	2.1 U	*2.0 U*	10 U	2.0 U	1.9 U	2.0 U	2.0 U	2 U	0.31 U
Dibenzo(a,h)anthracene	NE	0.005	**	0.5	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	2.1 U	*2.0 U*	10 U	2.0 U	1.9 U	2.0 U	2.0 U	2 U	0.31 U
Dibenzofuran	NE	28	67	280	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	2.1 U,J,O	*2.0 U,J,O*	10 U	**1.6 J,O**	**1.6 J,O**	**1.0 J,O**	**0.99 J,O**	**1.3 J,O**	2 U
Fluoranthene	NE	280	0.3	2,800	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	2.1 U	*2.0 U*	10 U	2.0 U	1.9 U	2.0 U	2.0 U	**0.51 J,O**	0.31 U
Fluorene	NE	280	30	2,800	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	2.1 U	*2.0 U*	10 U	**1.4 J,O**	**1.3 J,O**	2.0 U	2.0 U	**1.4 J,O**	**0.64**
Indeno (1,2,3-cd) pyrene	NE	0.05	**	5	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	2.1 U	*2.0 U*	10 U	2.0 U	1.9 U	2.0 U	2.0 U	2 U	0.31 U
Naphthalene	NE	14#	26	140	**1.2 J,O**	2.0 U	2.0 U	2.1 U	2.0 U	2 U	2.1 U	*1.3 J,O*	10 U	**1.4 J,O**	**1.1 J,O**	**2.3**	**1.7 J,O**	2 U	**0.61**
2-Methylnaphthalene	NE	28	30	280	5.0 U	NA	NA	NA	NA	NA	2.1 U	*2.0 U*	10 U	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	210	**	2,100	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	2.1 U	*2.0 U*	10 U	2.0 U	1.9 U	2.0 U	2.0 U	2 U	0.31 U
Pyrene	NE	210	0.3	2,100	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	2.1 U	*2.0 U*	10 U	2.0 U	1.9 U	2.0 U	2.0 U	2 U	0.31 U
Phenols (ug/L)																			
1-1 Byphenol	NE	0.5	18	5	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	2.1 U	*2.0 U*	10 U	2.0 U	1.9 U	2.0 U	2.0 U	2 U	2 U
2,4,6-Trichlorophenol	NE	3.2	6.5*	320	5.0 U,J,O	NA	NA	NA	NA	NA	11 U	*9.8 U*	10 U	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	6	6	2.2	600	5.0 U	NA	NA	NA	NA	NA	11 U	*9.8 U*	10 U	NA	NA	NA	NA	NA	NA
Carbazole	NE	1.8	47	180	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	2.1 U	*2.0 U*	10 U	2.0 U	1.9 U	2.0 U	2.0 U	2 U	2 U
2,4-Dimethylphenol	NE	140	160	1,400	5.0 U	NA	NA	NA	NA	9.8 U	11 U	*9.8 U*	10 U	NA	NA	NA	NA	9.9 U	10 U
2-Methylphenol (Cresol,o-)	NE	35#	250	350	5.0 U	9.9 U	9.8 U	10 U	10 U	9.8 U	11 U	*9.8 U*	10 U	10 U	9.7 U	10 U	9.8 U	9.9 U	10 U
(3-and/or 4-)Methylphenol	NE	35#	450	350	5.0 U	9.9 U	9.8 U	10 U	10 U	9.8 U	11 U	*9.8 U*	10 U	10 U	9.7 U	10 U	9.8 U	9.9 U	10 U
Pentachlorophenol	1	1	7.9	100	10 U,J,O	9.9 U	9.8 U	10 U	10 U	9.8 U	**150**	***140***	**83**	**120**	**98**	**190**	**140**	**88**	**100**
Phenol	NE	10	6.5	100	5.0 U	9.9 U	9.8 U	10 U	10 U	9.8 U	11 U	*9.8 U*	10 U	10 U	9.7 U	10 U	9.8 U	9.9 U	6.1 U
VOCs (ug/L)																			
1,2,4-Trichlorobenzene	70	70	23	700	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.50 U	*0.50 U*	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Benzene	5	1	71.28*	100	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.50 U	*0.50 U*	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Ethyl Benzene	700	30	610	300	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.50 U	*0.50 U*	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Toluene	1,000	40	480	400	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.50 U	*0.50 U*	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Xylenes	10,000	20	370	200	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U	NA	**0.15 J**	***0.16 J***	5.0 U	**0.18 J,O**	**0.14 J,O**	**0.27 J,O**	**0.21 J,O**	NA	1.50 U
Inorganics (ug/L)																			
Aluminum	200	200	1,500	2,000	NA	NA	NA	NA	NA	NA	100 U	*100 U*	NA	NA	NA	NA	NA	NA	NA
Chromium	100	100	50	1,000	NA	NA	NA	NA	NA	NA	5.0 U	*5.0 U*	NA	NA	NA	NA	NA	NA	NA
Lead	15	15	8.5	150	NA	NA	NA	NA	NA	NA	1.0 U	*1.0 U*	NA	NA	NA	NA	NA	NA	NA
Manganese	50	50	NE	500	NA	NA	NA	NA	NA	NA	**40**	***39***	NA	NA	NA	NA	NA	NA	NA
Zinc	5,000	5,000	86	50,000	NA	NA	NA	NA	NA	NA	10 U	*10 U*	NA	NA	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			Cluster Well 6							Cluster Well 7					
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	C6-MW05							C7-MW01					
Sample ID					9 - 19							233 - 243					
Date					01/28/11	02/04/12	03/22/13	01/31/14	01/29/15	02/04/16	01/31/17	02/05/12	03/23/13	01/31/14	02/02/15	02/09/16	02/05/18
SVOCs (ug/L)																	
Acenaphthene	NE	20	3	200	2.6	7.1	7.7	5.8	7.5	4.4	2.6	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	0.29 U
Acenaphthylene	NE	210	**	2,100	2.1 U	5.0 U	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA
Anthracene	NE	2,100	0.3	21,000	2.1 U	1.7 J,O	2.0 U	2.0 U	2.1 U	2.0 U	2 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	0.29 U
Benzo(a)anthracene	NE	0.05	**	5	2.1 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	0.29 U
Benzo(a)pyrene	0.2	0.2	**	20	2.1 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	5.0 U,J,O	2.0 U	2.0 U	2.0 U	2.0 U	0.29 U
Benzo(b)fluoranthene	NE	0.05	**	5	2.1 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	5.0 U,J,O	2.0 U	2.0 U	2.0 U	2.0 U	0.29 U
Benzo(g,h,i)perylene	NE	210	**	2,100	2.1 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	5.0 U,J,O	2.0 U	2.0 U	2.0 U	2.0 U	0.29 U
Benzo(k)fluoranthene	NE	0.5	**	50	2.1 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	5.0 U,J,O	2.0 U	2.0 U	2.0 U	2.0 U	0.29 U
Chrysene	NE	4.8	**	480	2.1 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	0.29 U
Dibenzo(a,h)anthracene	NE	0.005	**	0.5	2.1 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	5.0 U,J,O	2.0 U	2.0 U	2.0 U	2.0 U	0.29 U
Dibenzofuran	NE	28	67	280	2.1 U,J,O	5.0 U	**2.0**	**1.0 J,O**	2.1 U	2.0 U	2 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.9 U
Fluoranthene	NE	280	0.3	2,800	2.1 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	0.29 U
Fluorene	NE	280	30	2,800	**1.8 J,O**	**1.6 J,O**	**2.9**	**2.6**	**2.8**	**1.7 J,O**	**1.1 J,O**	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	0.29 U
Indeno (1,2,3-cd) pyrene	NE	0.05	**	5	2.1 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	5.0 U,J,O	2.0 U	2.0 U	2.0 U	2.0 U	0.29 U
Naphthalene	NE	14#	26	140	2.1 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	0.29 U
2-Methylnaphthalene	NE	28	30	280	2.1 U	5.0 U	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA
Phenanthrene	NE	210	**	2,100	2.1 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	**0.44 J,O**	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	0.29 U
Pyrene	NE	210	0.3	2,100	2.1 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	0.29 U
Phenols (ug/L)																	
1-1 Byphenol	NE	0.5	18	5	2.1 U	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.9 U
2,4,6-Trichlorophenol	NE	3.2	6.5*	320	10 U	5.0 U	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	6	6	2.2	600	10 U	5.0 U	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA
Carbazole	NE	1.8	47	180	2.1 U	5.0 U	2.0 U	2.0 U	2.1 U,J,O	2.0 U	2 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.9 U
2,4-Dimethylphenol	NE	140	160	1,400	10 U	5.0 U	NA	NA	NA	NA	9.9 U	5.0 U	NA	NA	NA	NA	9.7 U
2-Methylphenol (Cresol,o-)	NE	35#	250	350	10 U	5.0 U	9.9 U	9.8 U	10 U	10 U	9.9 U	5.0 U	9.8 U	10 U	10 U	10 U	9.7 U
(3-and/or 4-)Methylphenol	NE	35#	450	350	10 U	5.0 U	9.9 U	9.8 U	10 U	10 U	9.9 U	5.0 U	9.8 U	10 U	10 U	10 U	9.7 U
Pentachlorophenol	1	1	7.9	100	10 U	**3.4 J**	9.9 U	9.8 U	10 U	10 U	28	10 U	9.8 U	10 U	10 U	10 U	6.8 U
Phenol	NE	10	6.5	100	10 U	5.0 U	9.9 U	9.8 U	10 U	10 U	9.9 U	5.0 U	9.8 U	10 U	10 U	10 U	5.8 U
VOCs (ug/L)																	
1,2,4-Trichlorobenzene	**70**	**70**	**23**	**700**	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	0.5 U
Benzene	**5**	**1**	**71.28***	**100**	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	0.5 U
Ethyl Benzene	**700**	**30**	**610**	**300**	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	0.5 U
Toluene	**1,000**	**40**	**480**	**400**	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	0.5 U
Xylenes	**10,000**	**20**	**370**	**200**	0.50 U	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U	NA	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U	1.50 U
Inorganics (ug/L)																	
Aluminum	**200**	**200**	**1,500**	**2,000**	100 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	**100**	**100**	**50**	**1,000**	5.0 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	**15**	**15**	**8.5**	**150**	1.0 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	**50**	**50**	**NE**	**500**	**430**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	**5,000**	**5,000**	**86**	**50,000**	10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			Cluster Well 7											
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	C7-MW02						C7-MW03					
Sample ID					197 - 207						161 - 171					
Date					02/05/12	03/23/13	01/31/14	02/03/15	02/09/16	02/05/18	02/05/12	03/23/13	01/31/14	02/03/15	02/09/16	02/05/18
SVOCs (ug/L)																
Acenaphthene	NE	20	3	200	5.4 U,J,O	2.0 U	2.0 U	1.9 U	2.0 U	0.29 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	0.29 U
Acenaphthylene	NE	210	**	2,100	5.4 U,J,O	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA
Anthracene	NE	2,100	0.3	21,000	5.4 U,J,O	2.0 U	2.0 U	1.9 U	2.0 U	0.29 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	0.29 U
Benzo(a)anthracene	NE	0.05	**	5	5.4 U,J,O	2.0 U	2.0 U	1.9 U	2.0 U	0.29 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	0.29 U
Benzo(a)pyrene	0.2	0.2	**	20	5.4 U,J,O	2.0 U	2.0 U	1.9 U	2.0 U	0.29 U	5.0 U,J,O	2.0 U	2.1 U	2.0 U	2.0 U	0.29 U
Benzo(b)fluoranthene	NE	0.05	**	5	5.4 U,J,O	2.0 U	2.0 U	1.9 U	2.0 U	0.29 U	5.0 U,J,O	2.0 U	2.1 U	2.0 U	2.0 U	0.29 U
Benzo(g,h,i)perylene	NE	210	**	2,100	5.4 U,J,O	2.0 U	2.0 U	1.9 U	2.0 U	0.29 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	0.29 U
Benzo(k)fluoranthene	NE	0.5	**	50	5.4 U,J,O	2.0 U	2.0 U	1.9 U	2.0 U	0.29 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	0.29 U
Chrysene	NE	4.8	**	480	5.4 U,J,O	2.0 U	2.0 U	1.9 U	2.0 U	0.29 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	0.29 U
Dibenzo(a,h)anthracene	NE	0.005	**	0.5	5.4 U,J,O	2.0 U	2.0 U	1.9 U	2.0 U	0.29 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	0.29 U
Dibenzofuran	NE	28	67	280	5.4 U,J,O	2.0 U	2.0 U	1.9 U	2.0 U	1.9 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U
Fluoranthene	NE	280	0.3	2,800	5.4 U,J,O	2.0 U	2.0 U	1.9 U	2.0 U	0.29 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	0.29 U
Fluorene	NE	280	30	2,800	5.4 U,J,O	2.0 U	2.0 U	1.9 U	2.0 U	0.29 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	0.29 U
Indeno (1,2,3-cd) pyrene	NE	0.05	**	5	5.4 U,J,O	2.0 U	2.0 U	1.9 U	2.0 U	0.29 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	0.29 U
Naphthalene	NE	14#	26	140	5.4 U,J,O	2.0 U	2.0 U	1.9 U	2.0 U	0.29 U	5.0 U	2.0 U	2.1 U	2.0 U	2.1 U	0.29 U
2-Methylnaphthalene	NE	28	30	280	5.4 U,J,O	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	2.2	NA
Phenanthrene	NE	210	**	2,100	5.4 U,J,O	2.0 U	2.0 U	1.9 U	2.0 U	0.29 U	5.0 U	2.0 U	2.1 U	2.0 U	2.3 U	0.29 U
Pyrene	NE	210	0.3	2,100	5.4 U,J,O	2.0 U	2.0 U	1.9 U	2.0 U	0.29 U	5.0 U	2.0 U	2.1 U	2.0 U	2.4 U	0.29 U
Phenols (ug/L)																
1-1 Byphenol	NE	0.5	18	5	5.4 U,J,O	2.0 U	2.0 U	1.9 U	2.0 U	1.9 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U
2,4,6-Trichlorophenol	NE	3.2	6.5*	320	5.4 U,J,O	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	6	6	2.2	600	5.4 U,J,O	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA
Carbazole	NE	1.8	47	180	5.4 U,J,O	2.0 U	2.0 U	1.9 U	2.0 U	1.9 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U
2,4-Dimethylphenol	NE	140	160	1,400	5.4 U,J,O	NA	NA	NA	NA	9.7 U	5.0 U	NA	NA	NA	NA	9.8 U
2-Methylphenol (Cresol,o-)	NE	35#	250	350	5.4 U,J,O	9.9 U	10 U	9.7 U	10 U	9.7 U	5.0 U	10 U	10 U	10 U	10 U	9.8 U
(3-and/or 4-)Methylphenol	NE	35#	450	350	5.4 U,J,O	9.9 U	10 U	9.7 U	10 U	9.7 U	5.0 U	10 U	10 U	10 U	10 U	9.8 U
Pentachlorophenol	1	1	7.9	100	11 U,J,O	9.9 U	10 U	9.7 U	10 U	6.8 U	10 U	10 U	10 U	10 U	10 U	6.9 U
Phenol	NE	10	6.5	100	5.4 U,J,O	9.9 U	10 U	9.7 U	10 U	5.8 U	5.0 U	10 U	10 U	10 U	10 U	5.9 U
VOCs (ug/L)																
1,2,4-Trichlorobenzene	70	70	23	700	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	0.5 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	0.5 U
Benzene	5	1	71.28*	100	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	0.5 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	0.5 U
Ethyl Benzene	700	30	610	300	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	0.5 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	0.5 U
Toluene	1,000	40	480	400	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	0.5 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	0.5 U
Xylenes	10,000	20	370	200	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U	1.50 U	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U	1.50 U
Inorganics (ug/L)																
Aluminum	200	200	1,500	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	100	50	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	15	15	8.5	150	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	50	NE	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5,000	5,000	86	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			Cluster Well 7						Cluster Well 8				
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	C7-MW04						C8-MW01				
Sample ID					98 - 108						232 - 242				
Date					02/05/12	03/23/13	01/31/14	02/02/15	02/09/16	02/05/18	02/03/12	03/22/13	01/31/14	01/28/15	02/02/16
SVOCs (ug/L)															
Acenaphthene	NE	20	3	200	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	0.3 U	5.0 U,J,O	2.0 U	2.1 U	2.0 U	2.0 U
Acenaphthylene	NE	210	**	2,100	5.0 U	NA	NA	NA	NA	NA	5.0 U,J,O	NA	NA	NA	NA
Anthracene	NE	2,100	0.3	21,000	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	0.3 U	5.0 U,J,O	2.0 U	2.1 U	2.0 U	2.0 U
Benzo(a)anthracene	NE	0.05	**	5	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	0.3 U	5.0 U,J,O	2.0 U	2.1 U	2.0 U	2.0 U
Benzo(a)pyrene	0.2	0.2	**	20	5.0 U,J,O	2.0 U	2.0 U	2.1 U	2.1 U	0.3 U	5.0 U,R,O	2.0 U	2.1 U	2.0 U	2.0 U
Benzo(b)fluoranthene	NE	0.05	**	5	5.0 U,J,O	2.0 U	2.0 U	2.1 U	2.1 U	0.3 U	5.0 U,R,O	2.0 U	2.1 U	2.0 U	2.0 U
Benzo(g,h,i)perylene	NE	210	**	2,100	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	0.3 U	5.0 U,R,O	2.0 U	2.1 U	2.0 U	2.0 U
Benzo(k)fluoranthene	NE	0.5	**	50	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	0.3 U	5.0 U,R,O	2.0 U	2.1 U	2.0 U	2.0 U
Chrysene	NE	4.8	**	480	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	0.3 U	5.0 U,J,O	2.0 U	2.1 U	2.0 U	2.0 U
Dibenzo(a,h)anthracene	NE	0.005	**	0.5	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	0.3 U	5.0 U,R,O	2.0 U	2.1 U	2.0 U	2.0 U
Dibenzofuran	NE	28	67	280	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	2 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U
Fluoranthene	NE	280	0.3	2,800	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	0.3 U	5.0 U,J,O	2.0 U	2.1 U	2.0 U	2.0 U
Fluorene	NE	280	30	2,800	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	0.3 U	5.0 U	2.0 U	2.1 U	2.0 U	2.0 U
Indeno (1,2,3-cd) pyrene	NE	0.05	**	5	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	0.3 U	5.0 U,R,O	2.0 U	2.1 U	2.0 U	2.0 U
Naphthalene	NE	14#	26	140	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	0.3 U	5.0 U,J,O	2.0 U	2.1 U	2.0 U	2.0 U
2-Methylnaphthalene	NE	28	30	280	5.0 U	NA	NA	NA	NA	NA	5.0 U,J,O	NA	NA	NA	NA
Phenanthrene	NE	210	**	2,100	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	0.3 U	5.0 U,J,O	2.0 U	2.1 U	2.0 U	2.0 U
Pyrene	NE	210	0.3	2,100	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	0.3 U	5.0 U,J,O	2.0 U	2.1 U	2.0 U	2.0 U
Phenols (ug/L)															
1-1 Byphenol	NE	0.5	18	5	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	2 U	5.0 U,J,O	2.0 U	2.1 U	2.0 U	2.0 U
2,4,6-Trichlorophenol	NE	3.2	6.5*	320	5.0 U	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	6	6	2.2	600	5.0 U	NA	NA	NA	NA	NA	5.0 U,J,O	NA	NA	NA	NA
Carbazole	NE	1.8	47	180	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	2 U	5.0 U	2.0 U	2.1 U	2.0 U,J,O	2.0 U
2,4-Dimethylphenol	NE	140	160	1,400	5.0 U	NA	NA	NA	NA	10 U	5.0 U	NA	NA	NA	NA
2-Methylphenol (Cresol,o-)	NE	35#	250	350	5.0 U	10 U	10 U	10 U	10 U	10 U	5.0 U	10 U	10 U	9.8 U	10 U
(3-and/or 4-)Methylphenol	NE	35#	450	350	5.0 U	10 U	10 U	10 U	10 U	10 U	5.0 U	10 U	10 U	9.8 U	10 U
Pentachlorophenol	1	1	7.9	100	10 U	10 U	10 U	10 U	10 U	7 U	10 U	10 U	10 U	9.8 U	10 U
Phenol	NE	10	6.5	100	5.0 U	10 U	10 U	10 U	10 U	6 U	5.0 U,J,O	10 U	10 U	9.8 U	10 U
VOCs (ug/L)															
1,2,4-Trichlorobenzene	70	70	23	700	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	0.5 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U
Benzene	5	1	71.28*	100	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	0.5 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U
Ethyl Benzene	700	30	610	300	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	0.5 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U
Toluene	1,000	40	480	400	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	0.5 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U
Xylenes	10,000	20	370	200	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U	1.50 U	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U
Inorganics (ug/L)															
Aluminum	200	200	1,500	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	100	50	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	15	15	8.5	150	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	50	NE	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5,000	5,000	86	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			Cluster Well 8														
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	C8-MW02					C8-MW03					C8-MW04				
Sample ID					197 - 207					137 - 147					57 - 67				
Date					02/03/12	03/22/13	01/31/14	01/28/15	02/02/16	02/03/12	03/22/13	01/31/14	01/28/15	02/02/16	02/03/12	03/22/13	01/31/14	01/28/15	02/02/16
SVOCs (ug/L)																			
Acenaphthene	NE	20	3	200	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	5.0 U	2.1 U	2.2 U	2.0 U	2.0 U
Acenaphthylene	NE	210	**	2,100	5.0 U	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA
Anthracene	NE	2,100	0.3	21,000	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	5.0 U	2.1 U	2.2 U	2.0 U	2.0 U
Benzo(a)anthracene	NE	0.05	**	5	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	5.0 U	2.1 U	2.2 U	2.0 U	2.0 U
Benzo(a)pyrene	0.2	0.2	**	20	5.0 U,J,O	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U,J,O	2.0 U	2.0 U	2.1 U	2.1 U	5.0 U,J,O	2.1 U	2.2 U	2.0 U	2.0 U
Benzo(b)fluoranthene	NE	0.05	**	5	5.0 U,J,O	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U,J,O	2.0 U	2.0 U	2.1 U	2.1 U	5.0 U,J,O	2.1 U	2.2 U	2.0 U	2.0 U
Benzo(g,h,i)perylene	NE	210	**	2,100	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	5.0 U	2.1 U	2.2 U	2.0 U	2.0 U
Benzo(k)fluoranthene	NE	0.5	**	50	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	5.0 U	2.1 U	2.2 U	2.0 U	2.0 U
Chrysene	NE	4.8	**	480	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	5.0 U	2.1 U	2.2 U	2.0 U	2.0 U
Dibenzo(a,h)anthracene	NE	0.005	**	0.5	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	5.0 U	2.1 U	2.2 U	2.0 U	2.0 U
Dibenzofuran	NE	28	67	280	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	5.0 U	2.1 U	2.2 U	2.0 U	2.0 U
Fluoranthene	NE	280	0.3	2,800	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	5.0 U	2.1 U	2.2 U	2.0 U	2.0 U
Fluorene	NE	280	30	2,800	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	5.0 U	2.1 U	2.2 U	2.0 U	2.0 U
Indeno (1,2,3-cd) pyrene	NE	0.05	**	5	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	5.0 U	2.1 U	2.2 U	2.0 U	2.0 U
Naphthalene	NE	14#	26	140	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	5.0 U	2.1 U	2.2 U	2.0 U	2.0 U
2-Methylnaphthalene	NE	28	30	280	5.0 U	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA
Phenanthrene	NE	210	**	2,100	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	5.0 U	2.1 U	2.2 U	2.0 U	2.0 U
Pyrene	NE	210	0.3	2,100	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	5.0 U	2.1 U	2.2 U	2.0 U	2.0 U
Phenols (ug/L)																			
1-1 Byphenol	NE	0.5	18	5	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	5.0 U	2.1 U	2.2 U	2.0 U	2.0 U
2,4,6-Trichlorophenol	NE	3.2	6.5*	320	5.0 U	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	6	6	2.2	600	5.0 U	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA
Carbazole	NE	1.8	47	180	5.0 U	2.0 U	2.0 U	2.0 U,J,C	2.0 U	5.0 U	2.0 U	2.0 U	2.1 U,J,C	2.1 U	5.0 U	2.1 U	2.2 U	2.0 U,J,O	2.0 U
2,4-Dimethylphenol	NE	140	160	1,400	5.0 U	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA
2-Methylphenol (Cresol,o-)	NE	35#	250	350	5.0 U	10 U	10 U	10 U	9.9 U	5.0 U	9.9 U	10 U	11 U	10 U	5.0 U	10 U	11 U	10 U	9.8 U
(3-and/or 4-)Methylphenol	NE	35#	450	350	5.0 U	10 U	10 U	10 U	9.9 U	5.0 U	9.9 U	10 U	11 U	10 U	5.0 U	10 U	11 U	10 U	9.8 U
Pentachlorophenol	1	1	7.9	100	10 U	10 U	10 U	10 U	9.9 U	10 U	9.9 U	10 U	11 U	10 U	10 U	10 U	11 U	10 U	9.8 U
Phenol	NE	10	6.5	100	5.0 U	10 U	10 U	10 U	9.9 U	5.0 U	9.9 U	10 U	11 U	10 U	5.0 U	10 U	11 U	10 U	9.8 U
VOCs (ug/L)																			
1,2,4-Trichlorobenzene	70	70	23	700	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U
Benzene	5	1	71.28*	100	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U
Ethyl Benzene	700	30	610	300	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U
Toluene	1,000	40	480	400	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U
Xylenes	10,000	20	370	200	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U
Inorganics (ug/L)																			
Aluminum	200	200	1,500	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	100	50	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	15	15	8.5	150	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	50	NE	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5,000	5,000	86	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			Cluster Well 8					Cluster Well 9							
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	C8-MW05					C9-MW01							
Sample ID					17 - 27					239 - 249							
Date					02/03/12	03/22/13	01/31/14	01/28/15	02/02/16	01/30/11	01/31/12	03/21/13	02/03/14	01/30/15	02/05/16	02/04/17	02/01/18
SVOCs (ug/L)																	
Acenaphthene	NE	20	3	200	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2.1 U	5.0 U	2.0 U	2.1 U	2.0 U	1.9 U	2 U	0.3 U
Acenaphthylene	NE	210	**	2,100	5.0 U	NA	NA	NA	NA	2.1 U	5.0 U	NA	NA	NA	NA	NA	NA
Anthracene	NE	2,100	0.3	21,000	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2.1 U	5.0 U	2.0 U	2.1 U	2.0 U	1.9 U	2 U	0.3 U
Benzo(a)anthracene	NE	0.05	**	5	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2.1 U	5.0 U	2.0 U	2.1 U	2.0 U	1.9 U	2 U	0.3 U
Benzo(a)pyrene	0.2	0.2	**	20	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2.1 U	5.0 U,J,O	2.0 U	2.1 U	2.0 U	1.9 U	2 U	0.3 U
Benzo(b)fluoranthene	NE	0.05	**	5	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2.1 U	5.0 U,J,O	2.0 U	2.1 U	2.0 U	1.9 U	2 U	0.3 U
Benzo(g,h,i)perylene	NE	210	**	2,100	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2.1 U	5.0 U	2.0 U	2.1 U	2.0 U	1.9 U,J,O	2 U	0.3 U
Benzo(k)fluoranthene	NE	0.5	**	50	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2.1 U	5.0 U	2.0 U	2.1 U	2.0 U	1.9 U	2 U	0.3 U
Chrysene	NE	4.8	**	480	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2.1 U	5.0 U	2.0 U	2.1 U	2.0 U	1.9 U	2 U	0.3 U
Dibenzo(a,h)anthracene	NE	0.005	**	0.5	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2.1 U	5.0 U	2.0 U	2.1 U	2.0 U	1.9 U	2 U	0.3 U
Dibenzofuran	NE	28	67	280	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2.1 U,J,O	5.0 U	2.0 U	2.1 U	2.0 U	1.9 U	2 U	2 U
Fluoranthene	NE	280	0.3	2,800	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2.1 U	5.0 U	2.0 U	2.1 U	2.0 U	1.9 U	2 U	0.3 U
Fluorene	NE	280	30	2,800	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2.1 U	5.0 U	2.0 U	2.1 U	2.0 U	1.9 U	2 U	0.3 U
Indeno (1,2,3-cd) pyrene	NE	0.05	**	5	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2.1 U	5.0 U	2.0 U	2.1 U	2.0 U	1.9 U	2 U	0.3 U
Naphthalene	NE	14#	26	140	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2.1 U	**9.6**	2.0 U	2.1 U	2.0 U	1.9 U	2 U	0.3 U
2-Methylnaphthalene	NE	28	30	280	5.0 U	NA	NA	NA	NA	2.1 U	5.0 U	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	210	**	2,100	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2.1 U	5.0 U	2.0 U	2.1 U	2.0 U	1.9 U	2 U	0.3 U
Pyrene	NE	210	0.3	2,100	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	2.1 U	5.0 U	2.0 U	2.1 U	2.0 U	1.9 U	2 U	0.3 U
Phenols (ug/L)																	
1-1 Byphenol	NE	0.5	18	5	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	NA	5.0 U	2.0 U	2.1 U	2.0 U	1.9 U	2 U	2 U
2,4,6-Trichlorophenol	NE	3.2	6.5*	320	5.0 U	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	6	6	2.2	600	5.0 U	NA	NA	NA	NA	10 U	5.0 U	NA	NA	NA	NA	NA	NA
Carbazole	NE	1.8	47	180	5.0 U	2.0 U	2.0 U	2.1 U,J,O	2.0 U	2.1 U	5.0 U	2.0 U	2.1 U	2.0 U	1.9 U	2 U	2 U
2,4-Dimethylphenol	NE	140	160	1,400	5.0 U	NA	NA	NA	NA	10 U	5.0 U	NA	NA	NA	NA	10 U	9.9 U
2-Methylphenol (Cresol,o-)	NE	35#	250	350	5.0 U	9.9 U	10 U	10 U	9.8 U	10 U	5.0 U	10 U	10 U	10 U	9.7 U	10 U	9.9 U
(3-and/or 4-)Methylphenol	NE	35#	450	350	5.0 U	9.9 U	10 U	10 U	9.8 U	10 U	5.0 U	10 U	10 U	10 U	9.7 U	10 U	9.9 U
Pentachlorophenol	1	1	7.9	100	10 U	9.9 U	10 U	10 U	9.8 U	10 U	10 U	10 U	10 U	10 U	9.7 U	10 U	6.9 U
Phenol	NE	10	6.5	100	5.0 U	9.9 U	10 U	10 U	9.8 U	10 U	5.0 U	10 U	10 U	10 U	9.7 U	10 U	5.9 U
VOCs (ug/L)																	
1,2,4-Trichlorobenzene	70	70	23	700	5.0 U,J,O	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Benzene	5	1	71.28*	100	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Ethyl Benzene	700	30	610	300	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Toluene	1,000	40	480	400	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Xylenes	10,000	20	370	200	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U	NA	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U	NA	1.50 U
Inorganics (ug/L)																	
Aluminum	200	200	1,500	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	100	50	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	15	15	8.5	150	NA	NA	NA	NA	NA	**3.1**	NA	NA	NA	NA	NA	NA	NA
Manganese	50	50	NE	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5,000	5,000	86	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			Cluster Well 9														
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	C9-MW02								C9-MW03						
Sample ID					167 - 177								144 - 154						
Date					01/30/11	01/31/12	03/21/13	02/03/14	01/31/15	02/05/16	02/04/17	02/01/18	01/30/11	01/31/12	03/21/13	02/03/14	2/3/14 (dup)	01/31/15	1/31/2015 (dup)
SVOCs (ug/L)																			
Acenaphthene	NE	20	3	200	120	320 J,O	160	200	210	160	180	210	29	32	200	210	210	66	72
Acenaphthylene	NE	210	**	2,100	8.3	500 U	NA	NA	NA	NA	NA	NA	2.0 U	5.0 U	NA	NA	NA	NA	NA
Anthracene	NE	2,100	0.3	21,000	7.4	500 U	2.0 U	3.6	5.3	5.1	5.3	4.7	1.2 J,O	5.0 U	6.5	6.1	6.2	2.9	3.0
Benzo(a)anthracene	NE	0.05	**	5	2.1 U	500 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.29 U	2.0 U	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	2.1 U
Benzo(a)pyrene	0.2	0.2	**	20	2.1 U	500 U,J,O	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.29 U	2.0 U	5.0 U,J,O	2.0 U	2.1 U	2.1 U	2.0 U	2.1 U
Benzo(b)fluoranthene	NE	0.05	**	5	2.1 U	500 U,J,O	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.29 U	2.0 U	5.0 U,J,O	2.0 U	2.1 U	2.1 U	2.0 U	2.1 U
Benzo(g,h,i)perylene	NE	210	**	2,100	2.1 U	500 U	2.0 U	2.1 U	2.0 U	2.0 U,J,O	2 U	0.29 U	2.0 U	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	2.1 U
Benzo(k)fluoranthene	NE	0.5	**	50	2.1 U	500 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.29 U	2.0 U	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	2.1 U
Chrysene	NE	4.8	**	480	2.1 U	500 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.29 U	2.0 U	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	2.1 U
Dibenzo(a,h)anthracene	NE	0.005	**	0.5	2.1 U	500 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.29 U	2.0 U	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	2.1 U
Dibenzofuran	NE	28	67	280	73 J,O	150 J,O	71	100	95	85	110	93	15 J,O	16	100	110	110	41	45
Fluoranthene	NE	280	0.3	2,800	4.6	500 U	2.1	1.8 J,O	1.8 J,O	2.3	1.9 J,O	1.7	1.4 J,O	5.0 U	2.3	2.9	2.9	2.3	2.4
Fluorene	NE	280	30	2,800	86	120 J,O	58	85	89	78	98	80	18	14	100	110	110	41	44
Indeno (1,2,3-cd) pyrene	NE	0.05	**	5	2.1 U	500 U	2.0 U	2.1 U	2.0 U	2.0 U	2 U	0.29 U	2.0 U	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	2.1 U
Naphthalene	NE	14#	26	140	2300	4000	1700	2000	3300	2300	3400	2700	100	5.0 U	3,100	2,300	2,300	270	330
2-Methylnaphthalene	NE	28	30	280	150	250 J,O	NA	NA	NA	NA	NA	NA	3.1	5.0 U	NA	NA	NA	NA	NA
Phenanthrene	NE	210	**	2,100	64	500 U	25	45	54	55	64	47	8.9	5.0 U	68	72	71	25	27
Pyrene	NE	210	0.3	2,100	1.9 J,O	500 U	1.2 J,O	2.1 U	2.0 U	2.0 U	2 U	0.54	2.0 U	5.0 U	1.2 J,O	1.6 J,O	1.6 J,O	1.1 J,O	1.1 J,O
Phenols (ug/L)																			
1-1 Byphenol	NE	0.5	18	5	38	500 U	23	32	43	34	41	38	2.0 U	5.0 U	15	27	27	2.0 U	2.1 U
2,4,6-Trichlorophenol	NE	3.2	6.5*	320	11 U	500 U	NA	NA	NA	NA	NA	NA	10 U	5.0 U	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	6	6	2.2	600	11 U	500 U	NA	NA	NA	NA	NA	NA	10 U	5.0 U	NA	NA	NA	NA	NA
Carbazole	NE	1.8	47	180	150	210 J,O	150	190	220	190	230	210	28	16	230	240	240	90	90
2,4-Dimethylphenol	NE	140	160	1,400	11 U	500 U	NA	NA	NA	NA	9.8 U	9.8 U	10 U	5.0 U	NA	NA	NA	NA	NA
2-Methylphenol (Cresol,o-)	NE	35#	250	350	11 U	500 U	10 U	10 U	10 U	9.8 U	9.8 U	9.8 U	10 U	5.0 U	10 U	10 U	10 U	9.9 U	10 U
(3-and/or 4-)Methylphenol	NE	35#	450	350	11 U	500 U	10 U	10 U	10 U	9.8 U	9.8 U	9.8 U	10 U	5.0 U	10 U	10 U	10 U	9.9 U	10 U
Pentachlorophenol	1	1	7.9	100	2.1 J,O	1000 U	4.7 J,O	8.1 J,O	14	12	10	12	10 U	10 U,J,O	10 U	10 U	10 U	9.9 U	10 U
Phenol	NE	10	6.5	100	11 U	500 U	10 U	10 U	10 U	9.8 U	9.8 U	5.9 U	10 U	5.0 U	10 U	10 U	10 U	9.9 U	10 U
VOCs (ug/L)																			
1,2,4-Trichlorobenzene	70	70	23	700	2.5.0 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	2.5 U	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Benzene	5	1	71.28*	100	2.8	4.1 J,O	4.2	3.9	2.3	1.7	NA	1.3 J,O	1.3	1.3 J,O	6.0	7.0	6.8	2.5	2.7
Ethyl Benzene	700	30	610	300	9.4	18	11	15	16	13	NA	10	1.2	5.0 U	13	20	20	8.0	8.0
Toluene	1,000	40	480	400	6.2	14	9.9	14	16	14	NA	10	0.34 J	5.0 U	6.8	13	13	0.27 J,O	0.28 J,O
Xylenes	10,000	20	370	200	26.8	38	36	47	54	45	NA	34	1.88	0.89 J,O	31	46	45	7	7
Inorganics (ug/L)																			
Aluminum	200	200	1,500	2,000	100 U	NA	NA	NA	NA	NA	NA	NA	100 U	NA	NA	NA	NA	NA	NA
Chromium	100	100	50	1,000	5.0 U	NA	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA
Lead	15	15	8.5	150	1.0 U	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	NA	NA	NA	NA
Manganese	50	50	NE	500	26	NA	NA	NA	NA	NA	NA	NA	22	NA	NA	NA	NA	NA	NA
Zinc	5,000	5,000	86	50,000	10 U	NA	NA	NA	NA	NA	NA	NA	24	NA	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			Cluster Well 9												
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	C9-MW03 (cont'd.)						C9-MW04						
				Sample ID	144 - 154						77 - 87						
				Date	02/05/16	2/5/2016 (dup)	02/04/17	2/4/2017 (dup)	02/01/18	2/1/2018 (dup)	01/31/12	03/21/13	02/03/14	01/30/15	02/05/16	02/04/17	02/01/18
SVOCs (ug/L)																	
Acenaphthene	NE	20	3	200	140	140	150	140	80	83	5.0 U	2.0 U	1.4 J,O	2.1 U	2.0 U	2 U	0.3 U
Acenaphthylene	NE	210	**	2,100	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA
Anthracene	NE	2,100	0.3	21,000	4.3	4.3	6.3	6.2	4.1	4.2	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	2 U	0.3 U
Benzo(a)anthracene	NE	0.05	**	5	2.0 U	1.9 U	2 U	2 U	0.3 U	0.3 U	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	2 U	0.3 U
Benzo(a)pyrene	0.2	0.2	**	20	2.0 U	1.9 U	2 U	2 U	0.3 U	0.3 U	5.0 U,J,O	2.0 U	2.1 U	2.1 U	2.0 U	2 U	0.3 U
Benzo(b)fluoranthene	NE	0.05	**	5	2.0 U	1.9 U	2 U	2 U	0.3 U	0.3 U	5.0 U,J,O	2.0 U	2.1 U	2.1 U	2.0 U	2 U	0.3 U
Benzo(g,h,i)perylene	NE	210	**	2,100	2.0 U,J,O	1.9 U,J,O	2 U	2 U	0.3 U	0.3 U	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U,J,O	2 U	0.3 U
Benzo(k)fluoranthene	NE	0.5	**	50	2.0 U	1.9 U	2 U	2 U	0.3 U	0.3 U	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	2 U	0.3 U
Chrysene	NE	4.8	**	480	2.0 U	1.9 U	2 U	2 U	0.3 U	0.3 U	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	2 U	0.3 U
Dibenzo(a,h)anthracene	NE	0.005	**	0.5	2.0 U	1.9 U	2 U	2 U	0.3 U	0.3 U	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	2 U	0.3 U
Dibenzofuran	NE	28	67	280	77	76	110	110	56	58	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	2 U	2 U
Fluoranthene	NE	280	0.3	2,800	1.9 J,O	1.9	3.7	3.6	2.8	3	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	2 U	0.3 U
Fluorene	NE	280	30	2,800	72	71	100	100	52	54	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	2 U	0.3 U
Indeno (1,2,3-cd) pyrene	NE	0.05	**	5	2.0 U	1.9 U	2 U	2 U	0.3 U	0.3 U	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	2 U	0.3 U
Naphthalene	NE	14#	26	140	1,900	1,800	2500	2400	780	780	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	2 U	0.3 U
2-Methylnaphthalene	NE	28	30	280	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	210	**	2,100	40	40	76	74	35	36	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	2 U	0.3 U
Pyrene	NE	210	0.3	2,100	2.0 U	1.9 U	1.3 J,O	1.2 J,O	1.1	1.1	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	2 U	0.3 U
Phenols (ug/L)																	
1-1 Byphenol	NE	0.5	18	5	7.8	7.5	15	15	3.1	3.2	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	2 U	2 U
2,4,6-Trichlorophenol	NE	3.2	6.5*	320	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	6	6	2.2	600	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA
Carbazole	NE	1.8	47	180	180	180	210	190	98	99	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	2 U	2 U
2,4-Dimethylphenol	NE	140	160	1,400	NA	NA	10 U	9.8 U	9.9 U	9.9 U	5.0 U	NA	NA	NA	NA	10 U	9.9 U
2-Methylphenol (Cresol,o-)	NE	35#	250	350	9.9 U	9.7 U	10 U	9.8 U	9.9 U	9.9 U	5.0 U	10 U	10 U	10 U	9.8 U	10 U	9.9 U
(3-and/or 4-)Methylphenol	NE	35#	450	350	9.9 U	9.7 U	10 U	9.8 U	9.9 U	9.9 U	5.0 U	10 U	10 U	10 U	9.8 U	10 U	9.9 U
Pentachlorophenol	1	1	7.9	100	9.9 U	9.7 U	10 U	9.8 U	6.9 U	6.9 U	8.1 J,O	1.4 J,O	6.8 J,O	9.2 J,O	7.5 J,O	10 U	6.9 U
Phenol	NE	10	6.5	100	9.9 U	9.7 U	10 U	9.8 U	5.9 U	5.9 U	5.0 U	10 U	10 U	10 U	9.8 U	10 U	5.9 U
VOCs (ug/L)																	
1,2,4-Trichlorobenzene	70	70	23	700	0.50 U	0.50 U	NA	NA	0.5 U	0.5 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Benzene	5	1	71.28*	100	4.1	4.4	NA	NA	1.8	1.8	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Ethyl Benzene	700	30	610	300	11	11	NA	NA	7.2	7.1	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Toluene	1,000	40	480	400	3.7	3.9	NA	NA	0.7	0.7	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Xylenes	10,000	20	370	200	26.5	28	NA	NA	9.2	9	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U	NA	1.50 U
Inorganics (ug/L)																	
Aluminum	200	200	1,500	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	100	50	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	15	15	8.5	150	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	50	NE	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5,000	5,000	86	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			Cluster Well 9								Cluster Well 10				
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	C9-MW05								C10-MW01				
				Sample ID	26 - 36								240 - 250				
				Date	01/30/11	01/31/12	03/21/13	02/03/14	01/30/15	02/05/16	02/04/17	02/01/18	02/04/12	03/25/13	01/31/14	01/30/15	02/03/16
SVOCs (ug/L)																	
Acenaphthene	NE	20	3	200	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2 U	0.29 U	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U
Acenaphthylene	NE	210	**	2,100	2.0 U	5.0 U	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA
Anthracene	NE	2,100	0.3	21,000	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2 U	0.29 U	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U
Benzo(a)anthracene	NE	0.05	**	5	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2 U	0.29 U	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U
Benzo(a)pyrene	0.2	0.2	**	20	2.0 U	5.0 U,J,O	2.0 U	2.0 U	2.0 U	2.1 U	2 U	0.29 U	5.0 U,J,O	2.0 U	2.0 U	2.0 U	2.1 U
Benzo(b)fluoranthene	NE	0.05	**	5	2.0 U	5.0 U,J,O	2.0 U	2.0 U	2.0 U	2.1 U	2 U	0.29 U	5.0 U,J,O	2.0 U	2.0 U	2.0 U	2.1 U
Benzo(g,h,i)perylene	NE	210	**	2,100	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U,J,O	2 U	0.29 U	5.0 U,J,O	2.0 U	2.0 U	2.0 U	2.1 U
Benzo(k)fluoranthene	NE	0.5	**	50	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2 U	0.29 U	5.0 U,J,O	2.0 U	2.0 U	2.0 U	2.1 U
Chrysene	NE	4.8	**	480	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2 U	0.29 U	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U
Dibenzo(a,h)anthracene	NE	0.005	**	0.5	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2 U	0.29 U	5.0 U,J,O	2.0 U	2.0 U	2.0 U	2.1 U
Dibenzofuran	NE	28	67	280	2.0 U,J,O	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2 U	2 U	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U
Fluoranthene	NE	280	0.3	2,800	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2 U	0.29 U	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U
Fluorene	NE	280	30	2,800	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2 U	0.29 U	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U
Indeno (1,2,3-cd) pyrene	NE	0.05	**	5	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2 U	0.29 U	5.0 U,J,O	2.0 U	2.0 U	2.0 U	2.1 U
Naphthalene	NE	14#	26	140	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2 U	0.29 U	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U
2-Methylnaphthalene	NE	28	30	280	2.0 U	5.0 U	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA
Phenanthrene	NE	210	**	2,100	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2 U	0.29 U	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U
Pyrene	NE	210	0.3	2,100	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2 U	0.29 U	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U
Phenols (ug/L)																	
1-1 Byphenol	NE	0.5	18	5	NA	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2 U	2 U	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U
2,4,6-Trichlorophenol	NE	3.2	6.5*	320	NA	5.0 U	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	6	6	2.2	600	10 U	5.0 U	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA
Carbazole	NE	1.8	47	180	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.1 U	2 U	2 U	5.0 U	2.0 U	2.0 U	2.0 U,J,O	2.1 U
2,4-Dimethylphenol	NE	140	160	1,400	10 U	5.0 U	NA	NA	NA	NA	10 U	9.8 U	5.0 U	NA	NA	NA	NA
2-Methylphenol (Cresol,o-)	NE	35#	250	350	10 U	5.0 U	10 U	10 U	9.9 U	10 U	10 U	9.8 U	5.0 U	10 U	9.9 U	10 U	10 U
(3-and/or 4-)Methylphenol	NE	35#	450	350	10 U	5.0 U	10 U	10 U	9.9 U	10 U	10 U	9.8 U	5.0 U	10 U	9.9 U	10 U	10 U
Pentachlorophenol	1	1	7.9	100	10 U	10 U,J,O	10 U	10 U	9.9 U	10 U	10 U	6.8 U	10 U	10 U	9.9 U	10 U	10 U
Phenol	NE	10	6.5	100	10 U	5.0 U	10 U	10 U	9.9 U	10 U	10 U	5.9 U	5.0 U	10 U	9.9 U	10 U	10 U
VOCs (ug/L)																	
1,2,4-Trichlorobenzene	70	70	23	700	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	-	0.50 U	0.50 U	0.50 U	0.50 U
Benzene	5	1	71.28*	100	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	-	0.50 U	0.50 U	0.50 U	0.50 U
Ethyl Benzene	700	30	610	300	NA	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	-	0.50 U	0.50 U	0.50 U	0.50 U
Toluene	1,000	40	480	400	NA	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	-	0.50 U	0.50 U	0.50 U	0.50 U
Xylenes	10,000	20	370	200	NA	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U	NA	1.50 U	-	1.50 U	1.50 U	1.50 U	1.50 U
Inorganics (ug/L)																	
Aluminum	200	200	1,500	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	100	50	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	15	15	8.5	150	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	50	NE	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5,000	5,000	86	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			Cluster Well 10														
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	C10-MW02					C10-MW03					C10-MW04				
				Sample ID	190 - 200					140 - 150					60 - 70				
				Date	02/04/12	03/25/13	01/31/14	01/30/15	02/03/16	02/04/12	03/25/13	01/31/14	01/30/15	02/03/16	02/04/12	03/25/13	01/31/14	01/30/15	02/02/16
SVOCs (ug/L)																			
Acenaphthene	NE	**20**	**3**	**200**	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Acenaphthylene	NE	**210**	**	**2,100**	5.0 U	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA
Anthracene	NE	**2,100**	**0.3**	**21,000**	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Benzo(a)anthracene	NE	**0.05**	**	**5**	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Benzo(a)pyrene	**0.2**	**0.2**	**	**20**	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	5.0 U,J,O	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Benzo(b)fluoranthene	NE	**0.05**	**	**5**	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	5.0 U,J,O	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Benzo(g,h,i)perylene	NE	**210**	**	**2,100**	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	5.0 U,J,O	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Benzo(k)fluoranthene	NE	**0.5**	**	**50**	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	5.0 U,J,O	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Chrysene	NE	**4.8**	**	**480**	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Dibenzo(a,h)anthracene	NE	**0.005**	**	**0.5**	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	5.0 U,J,O	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Dibenzofuran	NE	**28**	**67**	**280**	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Fluoranthene	NE	**280**	**0.3**	**2,800**	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Fluorene	NE	**280**	**30**	**2,800**	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Indeno (1,2,3-cd) pyrene	NE	**0.05**	**	**5**	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	5.0 U,J,O	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Naphthalene	NE	**14#**	**26**	**140**	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U
2-Methylnaphthalene	NE	**28**	**30**	**280**	5.0 U	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA
Phenanthrene	NE	**210**	**	**2,100**	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Pyrene	NE	**210**	**0.3**	**2,100**	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Phenols (ug/L)																			
1-1 Byphenol	NE	**0.5**	**18**	**5**	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U
2,4,6-Trichlorophenol	NE	**3.2**	**6.5***	**320**	5.0 U	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	**6**	**6**	**2.2**	**600**	5.0 U	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA
Carbazole	NE	**1.8**	**47**	**180**	5.0 U	2.0 U	2.0 U	2.1 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U,J,O	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U,J,O	2.0 U
2,4-Dimethylphenol	NE	**140**	**160**	**1,400**	5.0 U	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA
2-Methylphenol (Cresol,o-)	NE	**35#**	**250**	**350**	5.0 U	9.9 U	10 U	10 U	10 U	5.0 U	9.9 U	9.9 U	10 U	10 U	5.0 U	10 U	9.9 U	10 U	10 U
(3-and/or 4-)Methylphenol	NE	**35#**	**450**	**350**	5.0 U	9.9 U	10 U	10 U	10 U	5.0 U	9.9 U	9.9 U	10 U	10 U	5.0 U	10 U	9.9 U	10 U	10 U
Pentachlorophenol	**1**	**1**	**7.9**	**100**	10 U	9.9 U	10 U	10 U	10 U	10 U	9.9 U	9.9 U	10 U	10 U	10 U	10 U	9.9 U	10 U	10 U
Phenol	NE	**10**	**6.5**	**100**	5.0 U	9.9 U	10 U	10 U	10 U	5.0 U	9.9 U	9.9 U	10 U	10 U	5.0 U	10 U	9.9 U	10 U	10 U
VOCs (ug/L)																			
1,2,4-Trichlorobenzene	**70**	**70**	**23**	**700**	-	0.50 U	0.50 U	0.50 U	0.50 U	-	0.50 U	0.50 U	0.50 U	0.50 U	-	0.50 U	0.50 U	0.50 U	0.50 U
Benzene	**5**	**1**	**71.28***	**100**	-	0.50 U	0.50 U	0.50 U	0.50 U	-	0.50 U	0.50 U	0.50 U	0.50 U	-	0.50 U	0.50 U	0.50 U	0.50 U
Ethyl Benzene	**700**	**30**	**610**	**300**	-	0.50 U	0.50 U	0.50 U	0.50 U	-	0.50 U	0.50 U	0.50 U	0.50 U	-	0.50 U	0.50 U	0.50 U	0.50 U
Toluene	**1,000**	**40**	**480**	**400**	-	0.50 U	0.50 U	0.50 U	0.50 U	-	0.50 U	0.50 U	0.50 U	0.50 U	-	0.50 U	0.50 U	0.50 U	0.50 U
Xylenes	**10,000**	**20**	**370**	**200**	-	1.50 U	1.50 U	1.50 U	1.50 U	-	1.50 U	1.50 U	1.50 U	1.50 U	-	1.50 U	1.50 U	1.50 U	1.50 U
Inorganics (ug/L)																			
Aluminum	**200**	**200**	**1,500**	**2,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	**100**	**100**	**50**	**1,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	**15**	**15**	**8.5**	**150**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	**50**	**50**	**NE**	**500**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	**5,000**	**5,000**	**86**	**50,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			Cluster Well 10					ACW Source Wells														
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	C10-MW05					ACWMW05LS					ACWMW05US					ACWMW06LS				
Sample ID					20 - 30					69-74					24-29					69-74				
Date					02/04/12	03/25/13	01/31/14	01/30/15	02/02/16	06/11/09	12/15/09	06/22/10	12/14/10	06/28/11	06/10/09	12/15/09	06/22/10	12/14/10	06/28/11	06/10/09	12/15/09	06/22/10	12/14/10	06/28/11
SVOCs (ug/L)																								
Acenaphthene	NE	20	3	200	5.0 U	2.0 U	2.1 U	2.0 U	2.1 U	5.0 U	4.9 J	11	20 U	20 U	43	8.1	7.4	25	20 U	44	5.6 U	12	27	91
Acenaphthylene	NE	210	**	2,100	5.0 U	NA	NA	NA	NA	5.0 U	5.1 U	5.0 U	20 U	20 U	0.97 J	5.4 U	5.0 U	20 U	20 U	1.7 J	5.6 U	2.7 J	20 U	20 U
Anthracene	NE	2,100	0.3	21,000	5.0 U	2.0 U	2.1 U	2.0 U	2.1 U	0.65 J,O	5.1 U	3.6 J,O	20 U	20 U	1.2 J,O	5.4 U	2.3 J,O	20 U	20 U	4.5 J,O	5.6 UJ	2.7 J,O	20 U	22
Benzo(a)anthracene	NE	0.05	**	5	5.0 U	2.0 U	2.1 U	2.0 U	2.1 U	5.0 U	5.1 U	1.7 J,O	20 U	20 U	5.0 U	1.5 J	1.1 J,O	20 U	20 U	5.0 U	5.6 U	1.1 J,O	20 U	12
Benzo(a)pyrene	0.2	0.2	**	20	5.0 U,J,O	2.0 U	2.1 U	2.0 U	2.1 U	5.0 U	5.1 U	5.0 U,R,O	20 U	20 U	5.0 U	5.4 U	5.0 U,R,O	20 U	20 U	5.0 U	5.6 U	5.0 U,R,O	20 U	20 U
Benzo(b)fluoranthene	NE	0.05	**	5	5.0 U,J,O	2.0 U	2.1 U	2.0 U	2.1 U	1.1 J,O	5.1 U	1.3 J,O	20 U	20 U	5.0 U	5.4 U	5.0 U	20 U	20 U	5.0 U	5.6 U	5.0 U	20 U	20 U
Benzo(g,h,i)perylene	NE	210	**	2,100	5.0 U,J,O	2.0 U	2.1 U	2.0 U	2.1 U	5.0 U	5.1 U	5.0 U	20 U	20 U	5.0 U	5.4 U	5.0 U	20 U	20 U	5.0 U	5.6 U	5.0 U	20 U	20 U
Benzo(k)fluoranthene	NE	0.5	**	50	5.0 U,J,O	2.0 U	2.1 U	2.0 U	2.1 U	5.0 U	5.1 U	5.0 U	20 U	20 U	5.0 U	5.4 U	5.0 U	20 U	20 U	5.0 U	5.6 U	5.0 U	20 U	20 U
Chrysene	NE	4.8	**	480	5.0 U	2.0 U	2.1 U	2.0 U	2.1 U	5.0 U	1.4 J	1.9 J,O	20 U	20 U	5.0 U	2.4 J	1.1 J,O	20 U	20 U	5.0 U	5.6 U	1.2 J,O	20 U	10 J
Dibenzo(a,h)anthracene	NE	0.005	**	0.5	5.0 U,J,O	2.0 U	2.1 U	2.0 U	2.1 U	5.0 U	5.1 U	5.0 U	20 U	20 U	5.0 U	5.4 U	5.0 U	20 U	20 U	5.0 U	5.6 U	5.0 U	20 U	20 U
Dibenzofuran	NE	28	67	280	5.0 U	2.0 U	2.1 U	2.0 U	2.1 U	5.0 U	5.1 U	9.4	20 UJ	20 U	16	7.0	6.1	13 J	20 U	19	5.6 U	8.3	20 UJ	55
Fluoranthene	NE	280	0.3	2,800	5.0 U	2.0 U	2.1 U	2.0 U	2.1 U	3.7 J	10	13	20 U	20 U	6.7	14	10	12 J	10 J	5.3	2.8 J	7.9	20 U	74
Fluorene	NE	280	30	2,800	5.0 U	2.0 U	2.1 U	2.0 U	2.1 U	0.77 J,O	7.8	13	20 U	20 U	44	12	8.6	21	20 U	19	5.6 U	11	11 J	79
Indeno (1,2,3-cd) pyrene	NE	0.05	**	5	5.0 U,J,O	2.0 U	2.1 U	2.0 U	2.1 U	5.0 U	5.1 U	5.0 U	20 U	20 U	5.0 U	5.4 U	5.0 U	20 U	20 U	5.0 U	5.6 U	5.0 U	20 U	20 U
Naphthalene	NE	14#	26	140	5.0 U	2.0 U	2.1 U	2.0 U	2.1 U	5.0 U	8	18	17 J	20 U	2.3 J	11	14	100	20 U	1,900	5.6 U	330	3,000	1,000
2-Methylnaphthalene	NE	28	30	280	5.0 U	NA	NA	NA	NA	5.0 U	2.9 J	7.5	20 U	20 U	5.0 U	3.5 J	5.5	22	20 U	75	5.6 U	15	76	76
Phenanthrene	NE	210	**	2,100	5.0 U	2.0 U	2.1 U	2.0 U	2.1 U	4.9 J,O	29	34	18 J	20 U	2.9 J,O	33	22	38	20 U	26	5.6 UJ	20	15 J	170
Pyrene	NE	210	0.3	2,100	5.0 U	2.0 U	2.1 U	2.0 U	2.1 U	2.3 J,O	5.8	8.2	20 U	20 U	3.7 J,O	7.3	2.9	20 U	20 U	3.4 J,O	1.8 J	4.8 J,O	20 U	100 UJ
Phenols (ug/L)																								
1-1 Byphenol	NE	0.5	18	5	5.0 U	2.0 U	2.1 U	2.0 U	2.1 U	5.0 U	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	9.9	NA	NA	NA	NA
2,4,6-Trichlorophenol	NE	3.2	6.5*	320	5.0 U	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	6	6	2.2	600	5.0 U	NA	NA	NA	NA	5.0 U	5.1 U	5.0 U	100 U	100 U	5.0 U	5.4 U	5.0 U	100 U	100 U	5.0 U	5.6 U	5.0 U	20 U	100 U
Carbazole	NE	1.8	47	180	5.0 U	2.0 U	2.1 U	2.0 U,J,O	2.1 U	1.3 J	5.1 U	6.8	20 U	20 U	5.0 U	10	4.8 J	12 J	20 U	93	5.6 U	8.7	150	220
2,4-Dimethylphenol	NE	140	160	1,400	5.0 U	NA	NA	NA	NA	5.0 U	5.1 U	2.3 J,O	20 U	100 U	4 J,O	5.4 U	2.3 J,O	100 U	100 U	1,000	5.6 U	470 J,O	2,600	2,700
2-Methylphenol (Cresol,o-)	NE	35#	250	350	5.0 U	10 U	11 U	10 U	10 U	5.0 U	5.1 U	5.0 U	100 U	100 U	2.5 J,O	5.4 U	5.0 U	100 U	100 UJ	410	5.6 U	68	540 J	24 J
(3-and/or 4-)Methylphenol	NE	35#	450	350	5.0 U	10 U	11 U	10 U	10 U	5.0 U	5.1 U	1.1 J,O	20 U	100 UJ	7.3	5.4 U	5.0 U	100 U	100 UJ	650	5.6 U	40	960	55 J
Pentachlorophenol	1	1	7.9	100	10 U	10 U	11 U	10 U	10 U	10 UJ	10 U	10 UJ	100 U	100 U	1.9 J	11 U	10 UJ	100 U	100 U	7.5 J	11 U	10 UJ	100 U	100 U
Phenol	NE	10	6.5	100	5.0 U	10 U	11 U	10 U	10 U	5.0 U	5.1 U	5.0 U	100 U	100 UJ	1.8 J	5.4 U	5.0 U	100 U	100 UJ	18 J	5.6 U	5.0 U	100 U	100 UJ
VOCs (ug/L)																								
1,2,4-Trichlorobenzene	70	70	23	700	-	0.50 U	0.50 U	0.50 U	0.50 U	5.0 U	0.50 U	5.0 U	0.50 U	0.50 U	5.0 U	0.50 U	5.0 U	0.50 U	0.50 U	5.0 U	0.50 U	5.0 U	10 U	10 U
Benzene	5	1	71.28*	100	-	0.50 U	0.50 U	0.50 U	0.50 U	5.0 U	0.50 U	5.0 U	0.50 U	0.17	5.0 U	0.50 U	5.0 U	0.50 U	0.50 U	25	0.50 U	8.8	63	52
Ethyl Benzene	700	30	610	300	-	0.50 U	0.50 U	0.50 U	0.50 U	5.0 U	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	11	2.4 J,O	33	NA	NA
Toluene	1,000	40	480	400	-	0.50 U	0.50 U	0.50 U	0.50 U	5.0 U	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	29	NA	NA	NA	NA
Xylenes	10,000	20	370	200	-	1.50 U	1.50 U	1.50 U	1.50 U	5.0 U	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	33	NA	NA	74	NA
Inorganics (ug/L)																								
Aluminum	200	200	1,500	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	100	50	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	15	15	8.5	150	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	50	NE	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5,000	5,000	86	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			ACW Source Wells					200 Series Wells							
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	ACWMW06US					MW200						MW220	
Sample ID					16-21					97-100						20 - 23	
Date					06/10/09	12/15/09	06/22/10	12/14/10	06/28/11	2/7/12	3/20/13	2/4/14	2/4/16	2/6/17	1/31/18	02/07/12	03/20/13
SVOCs (ug/L)																	
Acenaphthene	NE	20	3	200	1,100	1,300	380 J,O	870	770	5.0 U	1.9 U	2.0 U	2.1 U	2.1 U	0.29 U	75	32
Acenaphthylene	NE	210	**	2,100	47 J,O	30	5.0 U	20	24	5.0 U	NA	NA	NA	NA	NA	50 U	NA
Anthracene	NE	2,100	0.3	21,000	310	190 J	82 J,O	180	180	5.0 U	1.9 U	2.0 U	2.1 U	2.1 U	0.29 U	50 U	2.0 U
Benzo(a)anthracene	NE	0.05	**	5	170	220 J	1.2 J,O	120	120	5.0 U	1.9 U	2.0 U	2.1 U	2.1 U	0.29 U	50 U	2.0 U
Benzo(a)pyrene	0.2	0.2	**	20	662	62	11 J,O	45	42	5.0 U	1.9 U	2.0 U	2.1 U	2.1 U	0.29 U	50 U	2.0 U
Benzo(b)fluoranthene	NE	0.05	**	5	100	88	18	51	52	5.0 U	1.9 U	2.0 U	2.1 U	2.1 U	0.29 U	50 U	2.0 U
Benzo(g,h,i)perylene	NE	210	**	2,100	21 J	18	3.2 J	12 J	11 J	5.0 U	1.9 U	2.0 U	2.1 U	2.1 U	0.29 U	50 U,J,O	2.0 U
Benzo(k)fluoranthene	NE	0.5	**	50	51	61	9.8	48	50	5.0 U	1.9 U	2.0 U	2.1 U	2.1 U	0.29 U	50 U	2.0 U
Chrysene	NE	4.8	**	480	160	150 J	42 J,O	92	100	5.0 U	1.9 U	2.0 U	2.1 U	2.1 U	1.9 U	50 U	2.0 U
Dibenzo(a,h)anthracene	NE	0.005	**	0.5	9.6 J,O	7.3 J	5.0 U	-	20 U	5.0 U	1.9 U	2.0 U	2.1 U	2.1 U	0.29 U	50 U	2.0 U
Dibenzofuran	NE	28	67	280	750 J,O	470 J	250 J,O	450 J	530	5.0 U	1.9 U	2.0 U	2.1 U	2.1 U	1.9 U	35 J,O	12
Fluoranthene	NE	280	0.3	2,800	910 J,O	1,200	180 J,O	690	620	5.0 U	1.9 U	2.0 U	2.1 U	2.1 U	0.29 U	50 U	2.0 U
Fluorene	NE	280	30	2,800	880 J,O	1,100	250 J,O	690	680	5.0 U	1.9 U	2.0 U	2.1 U	2.1 U	0.29 U	50 U	16
Indeno (1,2,3-cd) pyrene	NE	0.05	**	5	21 J,O	26	3.6 J,O	14 J	12 J	5.0 U	1.9 U	2.0 U	2.1 U	2.1 U	0.29 U	50 U	2.0 U
Naphthalene	NE	14#	26	140	11,000	8,500	4,700	7,600	7,000	5.0 U	1.9 U	2.0 U	2.1 U	2.1 U	0.29 U	1700	200
2-Methylnaphthalene	NE	28	30	280	1,400	1,300	540 J,O	940	910	5.0 U	NA	NA	NA	NA	NA	48 J,O	NA
Phenanthrene	NE	210	**	2,100	2,100	2,500	420 J,O	1,500	1,700	5.0 U	1.9 U	2.0 U	2.1 U	2.1 U	0.29 U	50 U	9.6
Pyrene	NE	210	0.3	2,100	660	580 J	1.7 J,O	460	3,900 J	5.0 U	1.9 U	2.0 U	2.1 U	2.1 U	0.29 U	50 U	2.0 U
Phenols (ug/L)																	
1-1 Byphenol	NE	0.5	18	5	260	NA	NA	NA	NA	5.0 U	1.9 U	2.0 U	2.1 U	2.1 U	1.9 U	50 U	2.0 U
2,4,6-Trichlorophenol	NE	3.2	6.5*	320	50 U	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	50 U	NA
Bis(2-ethylhexyl) phthalate	6	6	2.2	600	50 U	10 U	5.0 U	100 U	100 U	5.0 U	NA	NA	NA	NA	NA	50 U	NA
Carbazole	NE	1.8	47	180	680	330 J	360 J	500	550	5.0 U	1.9 U	2.0 U	2.1 U	2.1 U	1.9 U	92	32
2,4-Dimethylphenol	NE	140	160	1,400	4,500	1,300	6,100 J,O	6,200	6,800	5.0 U	NA	NA	NA	10 U	9.6 U	50 U	NA
2-Methylphenol (Cresol,o-)	NE	35#	250	350	3,900	520 J	3,100	4,600	4,600 J	5.0 U	9.7 U	10 U	10 U	10 U	9.6 U	50 U	9.9 U
(3-and/or 4-)Methylphenol	NE	35#	450	350	11,000	2,200	8,300	12,000	12,000 J	5.0 U	9.7 U	10 U	10 U	10 U	9.6 U	50 U	9.9 U
Pentachlorophenol	1	1	7.9	100	100 UJ	20 U	10 UJ	100 U	100 U	10 U	9.7 U	10 U	10 U	10 U	6.7 U	100 U	9.9 U
Phenol	NE	10	6.5	100	5,400	520 J	3,100 J	3,900	3,900 J	5.0 U	9.7 U	10 U	10 U	10 U	5.8 U	50 U	9.9 U
VOCs (ug/L)																	
1,2,4-Trichlorobenzene	70	70	23	700	5.0 U	0.50 U	5.0 U	10 U	10 U	5.0 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	5.0 U	0.50 U
Benzene	5	1	71.28*	100	47	26	5.0 U	53	61	5.0 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	6.6	0.98
Ethyl Benzene	700	30	610	300	30	31	1 J,O	NA	NA	5.0 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	19	1.8
Toluene	1,000	40	480	400	83	NA	NA	NA	NA	5.0 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	2.3 J,O	0.48 J,O
Xylenes	10,000	20	370	200	94	99	NA	NA	NA	5.0 U	1.07 J,O	1.5 U	1.5 U	NA	1.5 U	19	3.10
Inorganics (ug/L)																	
Aluminum	200	200	1,500	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	100	50	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	15	15	8.5	150	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	50	NE	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5,000	5,000	86	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			200 Series Wells											400 Series Wells	
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	MW220					MW260						MW400	
Sample ID					20 - 23					57 - 62						96 - 99	
Date					02/04/14	01/29/15	02/08/16	02/06/17	01/31/18	02/01/12	03/20/13	02/04/14	02/04/16	02/06/17	01/31/18	01/27/11	02/03/12
SVOCs (ug/L)																	
Acenaphthene	NE	20	3	200	26	16	9.9	7.2	6	5.0 U	4.9	2.0 J,O	2.2 U	2 U	0.32 U	5.7	7.1
Acenaphthylene	NE	210	**	2,100	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	2.1 U	5.0 U
Anthracene	NE	2,100	0.3	21,000	2.0 U	2.0 U	2.0 U	2 U	0.3 U	5.0 U	2.0 U	2.1 U	2.2 U	2 U	0.32 U	2.1 U	5.0 U
Benzo(a)anthracene	NE	0.05	**	5	2.0 U	2.0 U	2.0 U	2 U	0.3 U	5.0 U	2.0 U	2.1 U	2.2 U	2 U	0.32 U	2.1 U	5.0 U
Benzo(a)pyrene	0.2	0.2	**	20	2.0 U	2.0 U	2.0 U	2 U	0.3 U	5.0 U	2.0 U	2.1 U	2.2 U	2 U	0.32 U	2.1 U	5.0 U
Benzo(b)fluoranthene	NE	0.05	**	5	2.0 U	2.0 U	2.0 U	2 U	0.3 U	5.0 U	2.0 U	2.1 U	2.2 U	2 U	0.32 U	2.1 U	5.0 U
Benzo(g,h,i)perylene	NE	210	**	2,100	2.0 U	2.0 U	2.0 U,J,O	2 U	0.3 U	5.0 U	2.0 U	2.1 U	2.2 U	2 U	0.32 U	2.1 U	5.0 U
Benzo(k)fluoranthene	NE	0.5	**	50	2.0 U	2.0 U	2.0 U	2 U	0.3 U	5.0 U	2.0 U	2.1 U	2.2 U	2 U	0.32 U	2.1 U	5.0 U
Chrysene	NE	4.8	**	480	2.0 U	2.0 U	2.0 U	2 U	2 U	5.0 U	2.0 U	2.1 U	2.2 U	2 U	2.1 U	2.1 U	5.0 U
Dibenzo(a,h)anthracene	NE	0.005	**	0.5	2.0 U	2.0 U	2.0 U	2 U	0.3 U	5.0 U,J,O	2.0 U	2.1 U	2.2 U	2 U	0.32 U	2.1 U	5.0 U
Dibenzofuran	NE	28	67	280	9.2	4.7	3.0	1.3 J,O	0.87 J,O	5.0 U	2.0 U	2.1 U	2.2 U	2 U	2.1 U	3.4 J,O	5.3
Fluoranthene	NE	280	0.3	2,800	2.0 U	2.0 U	2.0 U	2 U	0.3 U	5.0 U	2.0 U	2.1 U	2.2 U	2 U	0.32 U	2.1 U	5.0 U
Fluorene	NE	280	30	2,800	15	12	7.9	7	6.2	5.0 U	2.0 U	2.1 U	2.2 U	2 U	0.32 U	4.3	5.1
Indeno (1,2,3-cd) pyrene	NE	0.05	**	5	2.0 U	2.0 U	2.0 U	2 U	0.3 U	5.0 U	2.0 U	2.1 U	2.2 U	2 U	0.32 U	2.1 U	5.0 U
Naphthalene	NE	14#	26	140	63	18	2.5	1.4 J,O	0.8	5.0 U	2.0 U	2.1 U	2.2 U	2 U	0.32 U	2.1 U	5.0 U
2-Methylnaphthalene	NE	28	30	280	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	2.1 U	5.0 U
Phenanthrene	NE	210	**	2,100	6.6	1.7 J,O	1.7 J,O	0.84 J,O	0.42	5.0 U	2.0 U	2.1 U	2.2 U	2 U	0.32 U	2.1 U	5.0 U
Pyrene	NE	210	0.3	2,100	2.0 U	1.6 J,O	2.0 U	2 U	0.3 U	5.0 U	2.0 U	2.1 U	2.2 U	2 U	0.32 U	2.1 U	5.0 U
Phenols (ug/L)																	
1-1 Byphenol	NE	0.5	18	5	2.0 U	2.0 U	2.0 U	2 U	2 U	5.0 U	2.0 U	2.1 U	2.2 U	2 U	2.1 U	2.1 U	5.0 U
2,4,6-Trichlorophenol	NE	3.2	6.5*	320	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	10 U	5.0 U
Bis(2-ethylhexyl) phthalate	6	6	2.2	600	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	10 U	5.0 U
Carbazole	NE	1.8	47	180	26	12	7.3	2.7	0.7 J,O	5.0 U	2.0 U	2.1 U	2.2 U	2 U	2.1 U	2.1 U	5.0 U
2,4-Dimethylphenol	NE	140	160	1,400	NA	NA	NA	10 U	10 U	5.0 U	NA	NA	NA	10 U	11 U	10 U	5.0 U
2-Methylphenol (Cresol,o-)	NE	35#	250	350	10 U	9.9 U	9.8 U	10 U	10 U	5.0 U	9.8 U	10 U	11 U	10 U	11 U	10 U	5.0 U
(3-and/or 4-)Methylphenol	NE	35#	450	350	10 U	9.9 U	9.8 U	10 U	10 U	5.0 U	9.8 U	10 U	11 U	10 U	11 U	10 U	5.0 U
Pentachlorophenol	1	1	7.9	100	10 U	9.9 U	9.8 U	10 U	7.1 U	10 U,J,O	9.8 U	10 U	11 U	10 U	7.4 U	10 U	10 U
Phenol	NE	10	6.5	100	10 U	9.9 U	9.8 U	10 U	6.1 U	5.0 U	9.8 U	10 U	11 U	10 U	6.4 U	10 U	5.0 U
VOCs (ug/L)																	
1,2,4-Trichlorobenzene	70	70	23	700	0.50 U	0.50 U	0.50 U	NA	0.5 U	5.0 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	0.50 U	5.0 U
Benzene	5	1	71.28*	100	0.45 J,O	0.20 J,O	0.50 U	NA	0.5 U	5.0 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	0.50 U	5.0 U
Ethyl Benzene	700	30	610	300	0.73	0.23 J,O	0.28 J,O	NA	0.5 U	5.0 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	0.09 J,O	5.0 U
Toluene	1,000	40	480	400	0.26 J,O	0.18 J,O	0.080 J,O	NA	0.5 U	5.0 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	0.50 U	5.0 U
Xylenes	10,000	20	370	200	1.53 J,O	0.58 J,O	0.72 J,O	NA	0.44 J,O	5.0 U	1.50 U	1.50 U	1.50 U	NA	1.5 U	0.50 U	5.0 U
Inorganics (ug/L)																	
Aluminum	200	200	1,500	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100 U	NA
Chromium	100	100	50	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.0 U	NA
Lead	15	15	8.5	150	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.5	NA
Manganese	50	50	NE	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	38	NA
Zinc	5,000	5,000	86	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1900	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			400 Series Wells														
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	MW420								MW440						
Sample ID					15 - 18								36.7 - 39.7						
Date					01/27/11	02/03/12	03/27/13	02/04/14	01/31/15	02/08/16	02/02/17	02/08/16	01/27/11	02/03/12	03/27/13	02/04/14	01/31/15	02/08/16	02/02/17
SVOCs (ug/L)																			
Acenaphthene	NE	20	3	200	28	4.2 J,O	19	20	12	11	22	19	140	76	76	49	46	40	34
Acenaphthylene	NE	210	**	2,100	2.2 U	5.0 U	NA	NA	NA	NA	NA	NA	10 U	50 U	NA	NA	NA	NA	NA
Anthracene	NE	2,100	0.3	21,000	2.2 U	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	2 U	0.43	5.4 J,O	50 U	3.1	3.6	5.9	3.1	1.2 J,O
Benzo(a)anthracene	NE	0.05	**	5	2.2 U	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	2 U	0.3 U	10 U	50 U	2.0 U	2.0 U	2.1 U	2.2 U	2 U
Benzo(a)pyrene	0.2	0.2	**	20	2.2 U	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	2 U	0.3 U	10 U	50 U,J,O	2.0 U	2.0 U	2.1 U	2.2 U	2 U
Benzo(b)fluoranthene	NE	0.05	**	5	2.2 U	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	2 U	0.3 U	10 U	50 U,J,O	2.0 U	2.0 U	2.1 U	2.2 U	2 U
Benzo(g,h,i)perylene	NE	210	**	2,100	2.2 U	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	2 U	0.3 U	10 U	21 J	2.0 U	2.0 U	2.1 U	2.2 U	2 U
Benzo(k)fluoranthene	NE	0.5	**	50	2.2 U	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	2 U	0.3 U	10 U	50 U	2.0 U	2.0 U	2.1 U	2.2 U	2 U
Chrysene	NE	4.8	**	480	2.2 U	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	2 U	0.3 U	10 U	50 U	2.0 U	2.0 U	2.1 U	2.2 U	2 U
Dibenzo(a,h)anthracene	NE	0.005	**	0.5	2.2 U	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	2 U	0.3 U	10 U	50 U	2.0 U	2.0 U	2.1 U	2.2 U	2 U
Dibenzofuran	NE	28	67	280	7.4 J,O	5.0 U	5.7	5.1	2.8	3.0	6.1	5.2	69 J,O	46 J,O	30	13	16	8.6	6
Fluoranthene	NE	280	0.3	2,800	2.2.0 U	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	0.57 J,O	0.6	10 U	50 U	2.0 U	2.0 U	2.0 J,O	1.6 J,O	0.74 J,O
Fluorene	NE	280	30	2,800	13	5.0 U	7.8	7.3	4.4	4.5	9.4	8.7	90	48 J,O	31	18	28	15	7.9
Indeno (1,2,3-cd) pyrene	NE	0.05	**	5	2.2.0 U	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	2 U	0.3 U	10 U	50 U	2.0 U	2.0 U	2.1 U	2.2 U	2 U
Naphthalene	NE	14#	26	140	110 J,O	14	38	29	6.1	4.0	64	190	560	330	270	89	48	14	16
2-Methylnaphthalene	NE	28	30	280	43 J,O	4.5 J,O	NA	NA	NA	NA	NA	NA	91	30 J,O	NA	NA	NA	NA	NA
Phenanthrene	NE	210	**	2,100	4.3	5.0 U	4.0	4.5	3.5	3.2	4.8	5	59	38 J,O	24	18	20	9.0	7
Pyrene	NE	210	0.3	2,100	2.2.0 U	5.0 U	2.0 U	2.0 U	2.1 U	2.1 U	2 U	0.43	10 U	50 U	2.0 U	2.0 U	2.1 U	2.2 U	2 U
Phenols (ug/L)																			
1-1 Byphenol	NE	0.5	18	5	3.5	5.0 U	1.4 J,O	1.0 J,O	2.1 U	2.1 U	1.8 J,O	2 U	17	260	4.4	2.2	1.7 J,O	2.2 U	2 U
2,4,6-Trichlorophenol	NE	3.2	6.5*	320	11 UJ	5.0 U	NA	NA	NA	NA	NA	NA	50 U	50 U	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	6	6	2.2	600	11 U	5.0 U	NA	NA	NA	NA	NA	NA	50 U	50 U	NA	NA	NA	NA	NA
Carbazole	NE	1.8	47	180	33 J,O	2.4 J,O	13	14	6.4	4.8	9.2	18	180	680	54	30	52	21	9.9
2,4-Dimethylphenol	NE	140	160	1,400	11 U,J,O	5.0 U	NA	NA	NA	NA	9.9 U	10 U	50 U	50 U	NA	NA	NA	NA	10 U
2-Methylphenol (Cresol,o-)	NE	35#	250	350	11 U,J,O	5.0 U	10 U	10 U	11 U	10 U	9.9 U	10 U	50 U	50 U	9.8 U	10 U	10 U	11 U	10 U
(3-and/or 4-)Methylphenol	NE	35#	450	350	11 U,J,O	5.0 U	10 U	10 U	11 U	10 U	9.9 U	10 U	50 U	50 U	9.8 U	10 U	10 U	11 U	10 U
Pentachlorophenol	1	1	7.9	100	11 U	10 U	10 U	10 U	11 U	10 U	9.9 U	7 U	50 U	100 UJ	9.8 U	10 U	10 U	11 U	10 U
Phenol	NE	10	6.5	100	11 U	5.0 U	10 U	10 U	11 U	10 U	9.9 U	6 U	50 U	5400	9.8 U	10 U	10 U	11 U	10 U
VOCs (ug/L)																			
1,2,4-Trichlorobenzene	70	70	23	700	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	2.0 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA
Benzene	5	1	71.28*	100	3.6	3.0 J,O	4.0	3.1	0.52	0.59	NA	1.7	1.4 J,O	0.91 J,O	0.55	0.31 J,O	0.26 J,O	0.50 U	NA
Ethyl Benzene	700	30	610	300	2.6	2.0 J,O	2.2	1.3	0.37 J,O	0.38 J,O	NA	3.5	6.4	3.5 J,O	2.8	1.1	0.80	0.17 J,O	NA
Toluene	1,000	40	480	400	0.50 U	5.0 U	0.25 J,O	0.25 J,O	0.50 U	0.50 U	NA	0.2 J,O	2	1.0 J,O	0.76	0.19 J,O	0.26 J,O	0.090 J,O	NA
Xylenes	10,000	20	370	200	7.65	4.5 J,O	7.36	5.63	2.85 J,O	3.10 J,O	NA	4.39	8.9	2.7 J,O	2.90	0.76 J,O	0.81 J,O	1.50 U	NA
Inorganics (ug/L)																			
Aluminum	200	200	1,500	2,000	100 U	NA	NA	NA	NA	NA	NA	NA	100 U	NA	NA	NA	NA	NA	NA
Chromium	100	100	50	1,000	5.0 U	NA	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA
Lead	15	15	8.5	150	4.4	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	NA	NA	NA	NA
Manganese	50	50	NE	500	140	NA	NA	NA	NA	NA	NA	NA	87	NA	NA	NA	NA	NA	NA
Zinc	5,000	5,000	86	50,000	4,100	NA	NA	NA	NA	NA	NA	NA	10 U	NA	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			400 Series Wells									600 Series Wells					
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	MW440	MW480								MW600			MW660		
				Sample ID	36.7 - 39.7	75 - 78								97-100			55-58		
				Date	02/02/18	01/27/11	02/03/12	03/27/13	02/04/14	01/31/15	02/08/16	02/02/17	02/08/16	02/06/16	02/03/17	02/02/18	02/06/16	02/03/17	02/02/18
SVOCs (ug/L)																			
Acenaphthene	NE	20	3	200	69	300	350	520	140	59	73	110	64	2.0 U	2 U	0.3 U	110	180	150
Acenaphthylene	NE	210	**	2,100	NA	9.6 J,O	250 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NE	2,100	0.3	21,000	1.2	10 U	250 U	4.1 U	20 U	5.4	4.2	8.3	7.2	2.0 U	2 U	0.3 U	1.9 J,O	2.7	2
Benzo(a)anthracene	NE	0.05	**	5	0.29 U	10 U	250 U	4.1 U	20 U	1.9 U	2.0 U	2 U	0.3 U	2.0 U	2 U	0.3 U	2.0 U	2 U	0.3 U
Benzo(a)pyrene	0.2	0.2	**	20	0.29 U	10 U	250 U	4.1 U	20 U	1.9 U	2.0 U	2 U	0.3 U	2.0 U	2 U	0.3 U	2.0 U	2 U	0.3 U
Benzo(b)fluoranthene	NE	0.05	**	5	0.29 U	10 U	250 U	4.1 U	20 U	1.9 U	2.0 U	2 U	0.3 U	2.0 U	2 U	0.3 U	2.0 U	2 U	0.3 U
Benzo(g,h,i)perylene	NE	210	**	2,100	0.29 U	10 U	250 U	4.1 U	20 U	1.9 U	2.0 U	2 U	0.3 U	2.0 U,J,O	2 U	0.3 U	2.0 U,J,O	2 U	0.3 U
Benzo(k)fluoranthene	NE	0.5	**	50	0.29 U	10 U	250 U	4.1 U	20 U	1.9 U	2.0 U	2 U	0.3 U	2.0 U	2 U	0.3 U	2.0 U	2 U	0.3 U
Chrysene	NE	4.8	**	480	0.29 U	10 U	250 U	4.1 U	20 U	1.9 U	2.0 U	2 U	0.3 U	2.0 U	2 U	0.3 U	2.0 U	2 U	0.3 U
Dibenzo(a,h)anthracene	NE	0.005	**	0.5	0.29 U	10 U	250 U	4.1 U	20 U	1.9 U	2.0 U	2 U	0.3 U	2.0 U	2 U	0.3 U	2.0 U	2 U	0.3 U
Dibenzofuran	NE	28	67	280	6.9	220 J,O	230 J,O	310	130	51	65	80	42	2.0 U	2 U	2 U	48	71	70
Fluoranthene	NE	280	0.3	2,800	0.75	10 U	250 U	2.3 J,O	20 U	6.3	7.1	8.5	6.5	2.0 U	2 U	0.3 U	2.0 U	2 U	0.3 U
Fluorene	NE	280	30	2,800	9.5	250	190 J,O	280	130	34	56	72	44	2.0 U	2 U	0.3 U	47	69	73
Indeno (1,2,3-cd) pyrene	NE	0.05	**	5	0.29 U	10 U	250 U	4.1 U	20 U	1.9 U	2.0 U	2 U	0.3 U	2.0 U	2 U	0.3 U	2.0 U	2 U	0.3 U
Naphthalene	NE	14#	26	140	410	9100	6600	9200	1000	1000	810	1600	940	2.0 U	2 U	0.3 U	1800	2900	3000
2-Methylnaphthalene	NE	28	30	280	NA	830	620	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	210	**	2,100	5.6	130	160 J,O	170	140	160	72	69	50	2.0 U	2 U	0.3 U	23	30	30
Pyrene	NE	210	0.3	2,100	0.45	10 U	250 U	2.4 J,O	20 U	2.9	3.2	5	3.8	2.0 U	2 U	0.3 U	2.0 U	2 U	0.3 U
Phenols (ug/L)																			
1-1 Byphenol	NE	0.5	18	5	0.91 J,O	120	250 U	120	32	6.1	14	26	7.9	2.0 U	2 U	2 U	16	28	24
2,4,6-Trichlorophenol	NE	3.2	6.5*	320	NA	50 U	250 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	6	6	2.2	600	NA	50 U	250 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NE	1.8	47	180	32	590	450	530	250	290	240	220	110	2.0 U	2 U	2 U	110	150	170 J,O
2,4-Dimethylphenol	NE	140	160	1,400	9.8 U	3300	1900	NA	NA	NA	NA	220	29 J,O	NA	9.9 U	9.9 U	NA	890	860 J,O
2-Methylphenol (Cresol,o-)	NE	35#	250	350	9.8 U	900	450	580 J,O	130	9.3 J,O	10 U	9.9 U	10 U	10 U	9.9 U	9.9 U	6.6 J,O	3.6 J,O	10 U
(3-and/or 4-)Methylphenol	NE	35#	450	350	9.8 U	1900	820	1200	180	9.7 U	10 U	9.9 U	10 U	10 U	9.9 U	9.9 U	9.8 U	9.9 U	10 U
Pentachlorophenol	1	1	7.9	100	6.9 U	29 J,O	500 U	2.7 J,O	100 U	9.7 U	10 U	9.9 U	7 U	10 U	9.9 U	6.9 U	9.8 U	9.9 U	7.1 U
Phenol	NE	10	6.5	100	5.9 U	130	250 U	70	100 U	9.7 U	10 U	9.9 U	6 U	10 U	9.9 U	5.9 U	9.8 U	9.9 U	6.1 U
VOCs (ug/L)																			
1,2,4-Trichlorobenzene	70	70	23	700	0.5 U	10 U	5.0 U	2.5 U	0.50 U	0.50 U	0.50 U	NA	1 U	0.50 U	NA	0.5 U	0.50 U	NA	2.5 U
Benzene	5	1	71.28*	100	0.28 J,O	160	120	130	38	31	22	NA	15	0.50 U	NA	0.5 U	34	NA	35
Ethyl Benzene	700	30	610	300	2	60	63	70	19	18	14	NA	10	0.50 U	NA	0.5 U	26	NA	26
Toluene	1,000	40	480	400	0.29 J,O	150	120	150	31	4.7	2.0	NA	0.52 J,O	0.50 U	NA	0.5 U	12	NA	6.2
Xylenes	10,000	20	370	200	1.47 J,O	176	110	205	42	30.3	23.6	NA	11.7	1.50 U	NA	1.5 U	62	NA	59
Inorganics (ug/L)																			
Aluminum	200	200	1,500	2,000	NA	320	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	100	50	1,000	NA	5.0 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	15	15	8.5	150	NA	35	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	50	NE	500	NA	59	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5,000	5,000	86	50,000	NA	7700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			600 Series Wells			700 Series Wells											
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	MW680			MW700								MW720			
Sample ID					76-79			98.5 - 101.5								17.8 - 20.8			
Date					02/06/16	02/03/17	02/02/18	01/27/11	02/06/12	03/26/13	02/03/14	01/27/15	02/06/16	02/03/17	02/01/18	01/27/11	02/06/12	03/26/13	02/01/14
SVOCs (ug/L)																			
Acenaphthene	NE	20	3	200	2.7	2	110	10 U	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	1.9 U	0.3 U	3.3	5.0 U	1.6 J,O	3.5
Acenaphthylene	NE	210	**	2,100	NA	NA	NA	10 U	5.0 U	NA	NA	NA	NA	NA	NA	2.1 U	5.0 U	NA	NA
Anthracene	NE	2,100	0.3	21,000	2.0 U	2 U	1.2	10 U	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	1.9 U	0.3 U	2.1 U	5.0 U	1.9 U	2.0 U
Benzo(a)anthracene	NE	0.05	**	5	2.0 U	2 U	0.3 U	10 U	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	1.9 U	0.3 U	2.1 U	5.0 U	1.9 U	2.0 U
Benzo(a)pyrene	0.2	0.2	**	20	2.0 U	2 U	0.3 U	10 U	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	1.9 U	0.3 U	2.1 U	5.0 U	1.9 U	2.0 U
Benzo(b)fluoranthene	NE	0.05	**	5	2.0 U	2 U	0.3 U	10 U	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	1.9 U	0.3 U	2.1 U	5.0 U	1.9 U	2.0 U
Benzo(g,h,i)perylene	NE	210	**	2,100	2.0 U,J,O	2 U	0.3 U	10 U	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U,J,O	1.9 U	0.3 U	2.1 U	5.0 U	1.9 U	2.0 U
Benzo(k)fluoranthene	NE	0.5	**	50	2.0 U	2 U	0.3 U	10 U	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	1.9 U	0.3 U	2.1 U	5.0 U	1.9 U	2.0 U
Chrysene	NE	4.8	**	480	2.0 U	2 U	0.3 U	10 U	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	1.9 U	0.3 U	2.1 U	5.0 U	1.9 U	2.0 U
Dibenzo(a,h)anthracene	NE	0.005	**	0.5	2.0 U	2 U	0.3 U	10 U	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	1.9 U	0.3 U	2.1 U	5.0 U	1.9 U	2.0 U
Dibenzofuran	NE	28	67	280	2.0	1.4 J,O	72	10 U,J,O	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	1.9 U	2 U	2.1 U,J,O	5.0 U	1.9 U	2.0 U
Fluoranthene	NE	280	0.3	2,800	2.0 U	2 U	1.4	10 U	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	1.9 U	0.3 U	2.1 U	5.0 U	1.9 U	2.0 U
Fluorene	NE	280	30	2,800	1.9 J,O	1.3 J,O	72	10 U	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	1.9 U	0.3 U	1.1 J,O	5.0 U	1.9 U	1.1 J,O
Indeno (1,2,3-cd) pyrene	NE	0.05	**	5	2.0 U	2 U	0.3 U	10 U	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	1.9 U	0.3 U	2.1 U	5.0 U	1.9 U	2.0 U
Naphthalene	NE	14#	26	140	1.7 J,O	2 U	2200	10 U	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	1.9 U	0.3 U	2.1 U	5.0 U	1.9 U	2.0 U
2-Methylnaphthalene	NE	28	30	280	NA	NA	NA	10 U	5.0 U	NA	NA	NA	NA	NA	NA	2.1 U	5.0 U	NA	NA
Phenanthrene	NE	210	**	2,100	2.0 U	2 U	52	10 U	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	1.9 U	0.3 U	2.1 U	5.0 U	1.9 U	2.0 U
Pyrene	NE	210	0.3	2,100	2.0 U	2 U	0.84	10 U	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	1.9 U	0.3 U	2.1 U	5.0 U	1.9 U	2.0 U
Phenols (ug/L)																			
1-1 Byphenol	NE	0.5	18	5	2.0 U	2 U	23	10 U	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	1.9 U	2 U	2.1 U	5.0 U	1.9 U	2.0 U
2,4,6-Trichlorophenol	NE	3.2	6.5*	320	NA	NA	NA	50 U	5.0 U	NA	NA	NA	NA	NA	NA	11 U	5.0 U	NA	NA
Bis(2-ethylhexyl) phthalate	6	6	2.2	600	NA	NA	NA	50 U	5.0 U	NA	NA	NA	NA	NA	NA	11 U	5.0 U	NA	NA
Carbazole	NE	1.8	47	180	2.0 U	2 U	150	10 U	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U	1.9 U	2 U	2.1 U	5.0 U	1.9 U	2.0 U
2,4-Dimethylphenol	NE	140	160	1,400	NA	10 U	280	50 U	5.0 U	NA	NA	NA	NA	9.7 U	10 U	11 U	5.0 U	NA	NA
2-Methylphenol (Cresol,o-)	NE	35#	250	350	9.8 U	10 U	25	50 U	5.0 U	10 U	10 U	11 U	10 U	9.7 U	10 U	11 U	5.0 U	9.7 U	10 U
(3-and/or 4-)Methylphenol	NE	35#	450	350	9.8 U	10 U	57	50 U	5.0 U	10 U	10 U	11 U	10 U	9.7 U	10 U	11 U	5.0 U	9.7 U	10 U
Pentachlorophenol	1	1	7.9	100	9.8 U	10 U	6.9 U	50 U	10 U	10 U	10 U	11 U	10 U	9.7 U	7 U	11 U	10 U	9.7 U	10 U
Phenol	NE	10	6.5	100	9.8 U	10 U	5.9 U	50 U	1.6 J,O	10 U	10 U	11 U	10 U	9.7 U	6 U	11 U	5.0 U	9.7 U	10 U
VOCs (ug/L)																			
1,2,4-Trichlorobenzene	70	70	23	700	0.50 U	NA	1 U	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	0.50 U	5.0 U	0.50 U	0.50 U
Benzene	5	1	71.28*	100	0.16 J,O	NA	37	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	0.50 U	5.0 U	0.50 U	0.50 U
Ethyl Benzene	700	30	610	300	0.50 U	NA	20	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	0.50 U	5.0 U	0.50 U	0.50 U
Toluene	1,000	40	480	400	0.50 U	NA	7.7	0.50 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	0.50 U	5.0 U	0.50 U	0.50 U
Xylenes	10,000	20	370	200	1.50 U	NA	34.1	0.50 U	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U	NA	0.5 U	0.50 U	5.0 U	1.50 U	1.50 U
Inorganics (ug/L)																			
Aluminum	200	200	1,500	2,000	NA	NA	NA	100 U	NA	NA	NA	NA	NA	NA	NA	240	NA	NA	NA
Chromium	100	100	50	1,000	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA
Lead	15	15	8.5	150	NA	NA	NA	16	NA	NA	NA	NA	NA	NA	NA	12	NA	NA	NA
Manganese	50	50	NE	500	NA	NA	NA	14	NA	NA	NA	NA	NA	NA	NA	110	NA	NA	NA
Zinc	5,000	5,000	86	50,000	NA	NA	NA	4,400	NA	NA	NA	NA	NA	NA	NA	340	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			700 Series Wells						MW900 Wells		Pensacola Yacht Club Ditch MW1, 1A, 2, 3 Cluster								
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	MW720				MW760		MW900		MW1A				MW1		MW2		
Sample ID					17.8 - 20.8				62.8 - 65.8				18 - 28				175-185		140 - 150		
Date					01/27/15	02/06/16	02/03/17	02/01/18	01/28/11	02/06/12	01/11/11	1/11/11 (dup)	01/28/11	02/01/12	02/04/17	01/31/18	02/06/17	01/31/18	02/01/12	02/04/17	02/01/18
SVOCs (ug/L)																					
Acenaphthene	NE	20	3	200	3.4	3.3	13	9.5	250	290	0.019 U	*0.019 U*	15	5.0 U	82	92	2 U	0.31 U	5.0 U	2 U	0.3 U
Acenaphthylene	NE	210	**	2,100	NA	NA	NA	NA	6.5 J,O	250 U	0.019 U	*0.019 U*	2.1 U	5.0 U	NA	NA	NA	NA	5.0 U	NA	NA
Anthracene	NE	2,100	0.3	21,000	2.1 U	2.0 U	1.9 U	0.29 U	9.2 J,O	250 U	0.019 U	*0.019 U*	2.1 U	5.0 U	2.8	6.2	2 U	0.31 U	5.0 U	2 U	0.3 U
Benzo(a)anthracene	NE	0.05	**	5	2.1 U	2.0 U	1.9 U	0.29 U	10 U	250 U	0.019 U	*0.019 U*	2.1 U	5.0 U	2.1 U	0.3 U	2 U	0.31 U	5.0 U,J,O	2 U	0.3 U
Benzo(a)pyrene	0.2	0.2	**	20	2.1 U	2.0 U	1.9 U	0.29 U	10 U	250 U	0.019 U	*0.019 U*	2.1 U	5.0 U,J,O	2.1 U	0.3 U	2 U	0.31 U	5.0 U	2 U	0.3 U
Benzo(b)fluoranthene	NE	0.05	**	5	2.1 U	2.0 U	1.9 U	0.29 U	10 U	250 U	0.019 U	*0.019 U*	2.1 U	5.0 U,J,O	2.1 U	0.3 U	2 U	0.31 U	5.0 U	2 U	0.3 U
Benzo(g,h,i)perylene	NE	210	**	2,100	2.1 U	2.0 U,J,O	1.9 U	0.29 U	10 U	250 U	0.019 U	*0.019 U*	2.1 U	5.0 U	2.1 U	0.3 U	2 U	0.31 U	5.0 U	2 U	0.3 U
Benzo(k)fluoranthene	NE	0.5	**	50	2.1 U	2.0 U	1.9 U	0.29 U	10 U	250 U	0.019 U	*0.019 U*	2.1 U	5.0 U	2.1 U	0.3 U	2 U	0.31 U	5.0 U	2 U	0.3 U
Chrysene	NE	4.8	**	480	2.1 U	2.0 U	1.9 U	0.29 U	10 U	250 U	0.019 U	*0.019 U*	2.1 U	5.0 U	2.1 U	0.3 U	2 U	0.31 U	5.0 U,J,O	2 U	0.3 U
Dibenzo(a,h)anthracene	NE	0.005	**	0.5	2.1 U	2.0 U	1.9 U	0.29 U	10 U	250 U,J,O	0.019 U	*0.019 U*	2.1 U	5.0 U	2.1 U	0.3 U	2 U	0.31 U	5.0 U	2 U	0.3 U
Dibenzofuran	NE	28	67	280	2.1 U	2.0 U	3.4	3.2	110 J,O	160 J,O	9.4	*0.22 J*	4.4 J,O	5.0 U	6.5	6.8	2 U	2.1 U	5.0 U	2 U	2 U
Fluoranthene	NE	280	0.3	2,800	2.1 U	2.0 U	1.9 U	0.29 U	10 U	250 U	0.019 U	*0.019 U*	2.1 U	5.0 U	1.3 J,O	4.2	2 U	0.31 U	5.0 U,J,O	2 U	0.3 U
Fluorene	NE	280	30	2,800	1.3 J,O	1.2 J,O	5.5	4.5	150	250 U	0.097 J	*0.17 J*	5.9	5.0 U	51	60	2 U	0.31 U	5.0 U	2 U	0.3 U
Indeno (1,2,3-cd) pyrene	NE	0.05	**	5	2.1 U	2.0 U	1.9 U	0.29 U	10 U	250 U	0.019 U	*0.019 U*	2.1 U	5.0 U	2.1 U	0.3 U	2 U	0.31 U	5.0 U	2 U	0.3 U
Naphthalene	NE	14#	26	140	2.1 U	30	200	110	4500	8000	0.019 U	*0.28*	510	5.0 U	6.3	89	2 U	0.31 U	5.0 U	2 U	0.3 U
2-Methylnaphthalene	NE	28	30	280	NA	NA	NA	NA	540	600	0.019 U	*0.019 U*	22	5.0 U	NA	NA	NA	NA	5.0 U	NA	NA
Phenanthrene	NE	210	**	2,100	2.1 U	2.0 U	0.69 J,O	0.65	92	250 U	0.019 U	*0.019 U*	2.1 U	5.0 U	34	52	2 U	0.31 U	5.0 U	2 U	0.3 U
Pyrene	NE	210	0.3	2,100	2.1 U	2.0 U	1.9 U	0.29 U	10 U	250 U	0.019 U	*0.019 U*	2.1 U	5.0 U	2.1 U	1.5	2 U	0.31 U	5.0 U,J,O	2 U	0.3 U
Phenols (ug/L)																					
1-1 Byphenol	NE	0.5	18	5	2.1 U	2.0 U	0.94 J,O	0.94 J,O	68	70 J,O	NA	NA	2.1 U	5.0 U	2.1 U	2 U	2 U	2.1 U	5.0 U	2 U	2 U
2,4,6-Trichlorophenol	NE	3.2	6.5*	320	NA	NA	NA	NA	50 U	250 U	NA	NA	10 U	5.0 U	NA	NA	NA	NA	5.0 U	NA	NA
Bis(2-ethylhexyl) phthalate	6	6	2.2	600	NA	NA	NA	NA	50 U	250 U	9.4 U	*8.3 J*	10 U	5.0 U	NA	NA	NA	NA	5.0 U	NA	NA
Carbazole	NE	1.8	47	180	2.1 U	2.0 U	11	7.1	370	380	9.4 U	*9.4 U*	26	5.0 U	8.6	28	2 U	2.1 U	5.0 U	2 U	2 U
2,4-Dimethylphenol	NE	140	160	1,400	NA	NA	19	26	1200	1300	NA	NA	86	5.0 U	10 U	4.9 J,O	9.9 U	10 U	5.0 U	9.9 U	10 U
2-Methylphenol (Cresol,o-)	NE	35#	250	350	10 U	10 U	9.7 U	9.7 U	22 J,O	250 U	NA	NA	10 U	5.0 U	10 U	10 U	9.9 U	10 U	5.0 U	9.9 U	10 U
(3-and/or 4-)Methylphenol	NE	35#	450	350	10 U	10 U	9.7 U	9.7 U	1.5 J,O	250 U	NA	NA	10 U	5.0 U	10 U	10 U	9.9 U	10 U	5.0 U	9.9 U	10 U
Pentachlorophenol	1	1	7.9	100	10 U	10 U	9.7 U	6.8 U	50 U	500 U,J,O	0.019 U	*0.019 U*	10 U	10 U,J,O	10 U	7 U	9.9 U	7.3 U	10 U	9.9 U	7 U
Phenol	NE	10	6.5	100	10 U	10 U	9.7 U	5.8 U	50 U	250 U	9.4 U	*9.4 U*	10 U	5.0 U	10 U	6 U	9.9 U	6.2 U	5.0 U,J,O	9.9 U	6 U
VOCs (ug/L)																					
1,2,4-Trichlorobenzene	70	70	23	700	0.50 U	0.50 U	NA	0.5 U	5.0 U	5.0 U	NA	NA	1.0 U	5.0 U	NA	0.5 U	NA	0.5 U	5.0 U	NA	0.5 U
Benzene	5	1	71.28*	100	0.50 U	1.5	NA	1	67	75	1 U	*1 U*	15	0.94 J,O	NA	11	NA	0.5 U	5.0 U	NA	0.5 U
Ethyl Benzene	700	30	610	300	0.50 U	0.68	NA	0.7	61	74	NA	NA	11	5.0 U	NA	7	NA	0.5 U	5.0 U	NA	0.5 U
Toluene	1,000	40	480	400	0.50 U	0.090 J,O	NA	0.19 J,O	16	25	NA	NA	0.26 J	5.0 U	NA	0.32 J,O	NA	0.5 U	5.0 U	NA	0.5 U
Xylenes	10,000	20	370	200	1.50 U	1.55 J,O	NA	1.5 J,O	130	110	NA	NA	11.4	5.0 U	NA	7.8	NA	1.5 U	5.0 U	NA	1.5 U
Inorganics (ug/L)																					
Aluminum	200	200	1,500	2,000	NA	NA	NA	NA	100 U	NA	NA	NA	100 U	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	100	50	1,000	NA	NA	NA	NA	5.0 U	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA	NA	NA
Lead	15	15	8.5	150	NA	NA	NA	NA	12	NA	NA	NA	1.0 U	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	50	NE	500	NA	NA	NA	NA	76	NA	NA	NA	150	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5,000	5,000	86	50,000	NA	NA	NA	NA	820	NA	NA	NA	10 U	NA	NA	NA	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			PYC MW1, 1A, 2, 3 Cluster						L Street MW4, 5, 6 Cluster			L Street MW4, 5, 6 Cluster							
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	MW3						MW4			MW5				MW6			
Sample ID					88.5 - 98.5						182.5 - 192.5			132 - 142				91 - 101			
Date					01/28/11	02/01/12	2/1/12 (dup)	02/02/15	02/04/17	02/01/18	02/01/12	02/03/17	02/01/18	01/29/11	02/01/12	02/03/17	02/01/18	01/30/11	02/01/12	02/03/17	02/01/18
SVOCs (ug/L)																					
Acenaphthene	NE	20	3	200	21	5.0 U	5.0 U	2.0 U	2 U	0.31 U	4.3 J,O	4.6	4.8	10 U	5.0 U	2.1 U	0.3 U	6.4 J,O	1.0 J,O	2.9	5.8
Acenaphthylene	NE	210	**	2,100	2.1 U	5.0 U	5.0 U	NA	NA	NA	5.0 U	NA	NA	10 U	5.0 U	NA	NA	10 U	5.0 U	NA	NA
Anthracene	NE	2,100	0.3	21,000	2.1 U	5.0 U	5.0 U	2.0 U	2 U	0.31 U	5.0 U	2 U	0.31 U	10 U	5.0 U	2.1 U	0.3 U	10 U	5.0 U	2.2 U	0.29 U
Benzo(a)anthracene	NE	0.05	**	5	2.1 U	5.0 U	5.0 U	2.0 U	2 U	0.31 U	5.0 U	2 U	0.31 U	10 U	5.0 U	2.1 U	0.3 U	10 U	5.0 U	2.2 U	0.29 U
Benzo(a)pyrene	0.2	0.2	**	20	2.1 U	5.0 U,J,O	5.0 U,J,O	2.0 U	2 U	0.31 U	5.0 U,J,O	2 U	0.31 U	10 U	5.0 U,J,O	2.1 U	0.3 U	10 U	5.0 U	2.2 U	0.29 U
Benzo(b)fluoranthene	NE	0.05	**	5	2.1 U	5.0 U,J,O	5.0 U,J,O	2.0 U	2 U	0.31 U	5.0 U,J,O	2 U	0.31 U	10 U	5.0 U,J,O	2.1 U	0.3 U	10 U	5.0 U	2.2 U	0.29 U
Benzo(g,h,i)perylene	NE	210	**	2,100	2.1 U	5.0 U	5.0 U	2.0 U	2 U	0.31 U	5.0 U	2 U	0.31 U	10 U	5.0 U	2.1 U	0.3 U	10 U	5.0 U	2.2 U	0.29 U
Benzo(k)fluoranthene	NE	0.5	**	50	2.1 U	5.0 U	5.0 U	2.0 U	2 U	0.31 U	5.0 U	2 U	0.31 U	10 U	5.0 U	2.1 U	0.3 U	10 U	5.0 U	2.2 U	0.29 U
Chrysene	NE	4.8	**	480	2.1 U	5.0 U	5.0 U	2.0 U	2 U	0.31 U	5.0 U	2 U	0.31 U	10 U	5.0 U	2.1 U	0.3 U	10 U	5.0 U	2.2 U	0.29 U
Dibenzo(a,h)anthracene	NE	0.005	**	0.5	2.1 U	5.0 U	5.0 U	2.0 U	2 U	0.31 U	5.0 U	2 U	0.31 U	10 U	5.0 U	2.1 U	0.3 U	10 U	5.0 U	2.2 U	0.29 U
Dibenzofuran	NE	28	67	280	8.3 J,O	5.0 U	5.0 U	2.0 U	2 U	2.1 U	1.8 J,O	1.9 J,O	1.8 J,O	10 U,J,O	5.0 U	2.1 U	2 U	10 U,J,O	5.0 U	0.9 J,O	2
Fluoranthene	NE	280	0.3	2,800	2.1 U	5.0 U	5.0 U	2.0 U	2 U	0.31 U	5.0 U	2 U	0.31 U	10 U	5.0 U	2.1 U	0.3 U	10 U	5.0 U	2.2 U	0.29 U
Fluorene	NE	280	30	2,800	7.9	5.0 U	5.0 U	2.0 U	2 U	0.31 U	5.0 U	0.95 J,O	0.89	10 U	5.0 U	2.1 U	0.3 U	10 U	5.0 U	2.2 U	0.87
Indeno (1,2,3-cd) pyrene	NE	0.05	**	5	2.1 U	5.0 U	5.0 U	2.0 U	2 U	0.31 U	5.0 U	2 U	0.31 U	10 U	5.0 U	2.1 U	0.3 U	10 U	5.0 U	2.2 U	0.29 U
Naphthalene	NE	14#	26	140	460	5.0 U	5.0 U	2.0 U	2 U	0.31 U	39	59	86	10 U	5.0 U	2.1 U	0.3 U	64	27	6	75
2-Methylnaphthalene	NE	28	30	280	25	5.0 U	5.0 U	NA	NA	NA	5.3	NA	NA	10 U	5.0 U	NA	NA	10 U	1.3 J,O	NA	NA
Phenanthrene	NE	210	**	2,100	2.1 U	5.0 U	5.0 U	2.0 U	2 U	0.31 U	5.0 U	0.9 J,O	0.8	10 U	5.0 U	2.1 U	0.3 U	10 U	5.0 U	0.48 J,O	0.65
Pyrene	NE	210	0.3	2,100	2.1 U	5.0 U	5.0 U	2.0 U	2 U	0.31 U	5.0 U	2 U	0.31 U	10 U	5.0 U	2.1 U	0.3 U	10 U	5.0 U	2.2 U	0.29 U
Phenols (ug/L)																					
1-1 Byphenol	NE	0.5	18	5	2.1 U	5.0 U	5.0 U	2.0 U	2 U	2.1 U	5.0 U	0.96 J,O	1.1 J,O	NA	5.0 U	2.1 U	2 U	10 U	5.0 U	2.2 U	1.2 J,O
2,4,6-Trichlorophenol	NE	3.2	6.5*	320	11 U	5.0 U	5.0 U	NA	NA	NA	5.0 U	NA	NA	NA	5.0 U	NA	NA	50 U	5.0 U	NA	NA
Bis(2-ethylhexyl) phthalate	6	6	2.2	600	11 U	5.0 U	5.0 U	NA	NA	NA	5.0 U	NA	NA	50 U	5.0 U	NA	NA	50 U	5.0 U	NA	NA
Carbazole	NE	1.8	47	180	18	5.0 U	5.0 U	2.0 U	2 U	2.1 U	2.6 J,O	3.9	3.9	10 U	5.0 U	2.1 U	2 U	5.8 J,O	5.0 U	4.6	6.1
2,4-Dimethylphenol	NE	140	160	1,400	2.5 J,O	5.0 U	5.0 U	NA	9.8 U	10 U	120	120	110	50 U	5.0 U	10 U	9.9 U	120	24	150	230
2-Methylphenol (Cresol,o-)	NE	35#	250	350	11 U	5.0 U	5.0 U	10 U	9.8 U	10 U	99	77	76	50 U	5.0 U	10 U	9.9 U	66	18	36	9.8 U
(3-and/or 4-)Methylphenol	NE	35#	450	350	11 U	5.0 U	5.0 U	10 U	9.8 U	10 U	210	96	100	50 U	5.0 U	10 U	9.9 U	130	24	29	130
Pentachlorophenol	1	1	7.9	100	11 U	10 U,J,O	10 U,J,O	10 U	9.8 U	7.2 U	10 U,J,O	10 U	7.3 U	50 U	10 U,J,O	10 U	6.9 U	50 U	10 U	11 U	6.9 U
Phenol	NE	10	6.5	100	11 U	5.0 U	5.0 U	10 U	9.8 U	6.2 U	72	19	21	50 U	5.0 U	10 U	5.9 U	46 J,O	5.0 U	9 J,O	46
VOCs (ug/L)																					
1,2,4-Trichlorobenzene	70	70	23	700	0.50 U	5.0 U	5.0 U	0.50 U	NA	0.5 U	5.0 U	NA	0.5 U	0.50 U	5.0 U	NA	0.5 U	0.50 U	5.0 U	NA	0.5 U
Benzene	5	1	71.28*	100	12	5.0 U	5.0 U	0.50 U	NA	0.5 U	3.3 J,O	NA	2.7	0.50 U	5.0 U	NA	0.5 U	2.7	2.1 J,O	NA	2.4
Ethyl Benzene	700	30	610	300	5.1	5.0 U	5.0 U	0.50 U	NA	0.5 U	1.2 J,O	NA	1.3	NA	5.0 U	NA	0.5 U	0.87	0.52 J,O	NA	1.1
Toluene	1,000	40	480	400	0.38 J	5.0 U	5.0 U	0.50 U	NA	0.5 U	2.8 J,O	NA	2.1	NA	5.0 U	NA	0.5 U	0.98	0.98 J,O	NA	2.3
Xylenes	10,000	20	370	200	7.3	5.0 U	5.0 U	1.50 U	NA	1.5 U	2.8 J,O	NA	4.3	NA	5.0 U	NA	1.5 U	1.87	1.0 J,O	NA	4
Inorganics (ug/L)																					
Aluminum	200	200	1,500	2,000	100 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	120	NA	NA	NA
Chromium	100	100	50	1,000	5.0 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA
Lead	15	15	8.5	150	1.0 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	NA
Manganese	50	50	NE	500	45	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.4	NA	NA	NA
Zinc	5,000	5,000	86	50,000	10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			Neighborhood Wells									Marina Wells	
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	MW-7A	MW-7B	MW-7C	MW-8A	MW-8B			MW-8C	MW-9A	MW-10A	MW-10B
				Sample ID	10-20	70-80	unknown	35-45	10-15		55-65	75-85	8-18	17-27	37-47
				Date	04/10/18	04/10/18	02/03/18	06/07/18	05/16/18	05/16/18	06/07/18	06/07/18	04/11/18	04/11/18	04/11/18
SVOCs (ug/L)															
Acenaphthene	NE	20	3	200	2.2	0.52	0.3 U	0.3 U	0.3 U	0.3 U,J,O	0.29 U,J,O	8.3	27	3	0.45
Acenaphthylene	NE	210	**	2,100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NE	2,100	0.3	21,000	0.3 U	0.31 U	0.3 U	0.3 U	0.3 U	0.3 U,J,O	0.29 U,J,O	0.3 U	0.61 U	0.31 U	0.3 U
Benzo(a)anthracene	NE	0.05	**	5	0.3 U	0.31 U	0.3 U	0.3 U	0.3 U	0.3 U,J,O	0.29 U,J,O	0.3 U	4 U	0.31 U	2 U
Benzo(a)pyrene	0.2	0.2	**	20	0.3 U	0.31 U	0.3 U	0.3 U	0.3 U	0.3 U,J,O	0.29 U,J,O	0.3 U	0.61 U	0.31 U	0.3 U
Benzo(b)fluoranthene	NE	0.05	**	5	0.3 U	0.31 U	0.3 U	0.3 U	0.3 U	0.3 U,J,O	0.29 U,J,O	0.3 U	0.61 U	0.31 U	0.3 U
Benzo(g,h,i)perylene	NE	210	**	2,100	0.3 U	0.31 U	0.3 U	0.3 U	0.3 U	0.3 U,J,O	0.29 U,J,O	0.3 U	0.61 U	0.31 U	0.3 U
Benzo(k)fluoranthene	NE	0.5	**	50	0.3 U	0.31 U	0.3 U	0.3 U	0.3 U	0.3 U,J,O	0.29 U,J,O	0.3 U	0.61 U	0.31 U	0.3 U
Chrysene	NE	4.8	**	480	0.3 U	0.31 U	0.3 U	0.3 U	0.3 U	0.3 U,J,O	0.29 U,J,O	0.3 U	0.61 U	0.31 U	0.3 U
Dibenzo(a,h)anthracene	NE	0.005	**	0.5	0.3 U	0.31 U	0.3 U	0.3 U	0.3 U	0.3 U,J,O	0.29 U,J,O	0.3 U	0.61 U	0.31 U	0.3 U
Dibenzofuran	NE	28	67	280	2 U	2 U	2 U	2 U	2 U	2 U,J,O	2 U,J,O	7.1	6.8	0.83 J,O	2 U
Fluoranthene	NE	280	0.3	2,800	0.3 U	0.31 U	0.3 U	0.3 U	0.3 U	0.3 U,J,O	0.29 U,J,O	0.3 U	0.61 U	0.31 U	0.3 U
Fluorene	NE	280	30	2,800	0.3 U	0.31 U	0.3 U	0.3 U	0.3 U	0.3 U,J,O	0.29 U,J,O	4.5	8	0.43	0.3 U
Indeno (1,2,3-cd) pyrene	NE	0.05	**	5	0.3 U	0.31 U	0.3 U	0.3 U	0.3 U	0.3 U,J,O	0.29 U,J,O	0.3 U	0.61 U	0.31 U	0.3 U
Naphthalene	NE	14#	26	140	1.1	0.61	0.3 U	0.3 U	0.3 U	0.3 U,J,O	0.29 U,J,O	1.4	1100	1.2	1.5
2-Methylnaphthalene	NE	28	30	280	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	210	**	2,100	0.3 U	0.31 U	0.3 U	0.3 U	0.3 U	0.3 U,J,O	0.29 U,J,O	0.3 U	0.71	0.31 U	0.3 U
Pyrene	NE	210	0.3	2,100	0.3 U	0.31 U	0.3 U	0.3 U	0.3 U	0.3 U,J,O	0.29 U,J,O	0.3 U	0.61 U	0.31 U	0.3 U
Phenols (ug/L)															
1-1 Byphenol	NE	0.5	18	5	2 U	2 U	2 U	2 U	2 U	2 U,J,O	2 U,J,O	2 U	6.7	2.1 U	2 U
2,4,6-Trichlorophenol	NE	3.2	6.5*	320	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	6	6	2.2	600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NE	1.8	47	180	2 U	2 U	2 U	2 U	2 U	2 U,J,O	2 U,J,O	2 U	24	2.1 U	2 U
2,4-Dimethylphenol	NE	140	160	1,400	10 U	10 U	9.9 U	10 U	10 U	9.9 U	9.8 U	10 U	190	10 U	10 U
2-Methylphenol (Cresol,o-)	NE	35#	250	350	10 U	10 U	9.9 U	10 U	10 U	9.9 U	9.8 U	10 U	20 U	10 U	10 U
(3-and/or 4-)Methylphenol	NE	35#	450	350	10 U	10 U	9.9 U	10 U	10 U	9.9 U	9.8 U	10 U	20 U	10 U	10 U
Pentachlorophenol	1	1	7.9	100	7.1 U	7.1 U	6.9 U	7.1 U	7 U	6.9 U	6.9 U	25	14 U	140	7.1 U
Phenol	NE	10	6.5	100	6.1 U	6.1 U	5.9 U	6.1 U	6 U	5.9 U	5.9 U	6 U	12 U	6.2 U	6.1 U
VOCs (ug/L)															
1,2,4-Trichlorobenzene	70	70	23	700	0.5 U,O	0.5 U	NA	0.5 U	0.5 U	1 U,O	1 U,O	0.5 U	0.5 U	0.5 U,J,O	0.5 U
Benzene	5	1	71.28*	100	0.5 U,O	22	NA	0.08 J,O	0.08 J,O	1 U,O	1 U,O	0.09 J,O	16	0.5 U,J,O	0.5 U
Ethyl Benzene	700	30	610	300	0.5 U,O	0.13 J,O	NA	0.5 U	0.5 U	1 U,O	1 U,O	0.09 J,O	11	0.8 J,O	0.5 U
Toluene	1,000	40	480	400	0.09 J,O	0.57 J,O	NA	0.17 J,O	0.16 J,O	1 U,O	1 U,O	0.12 J,O	7.2	0.14 J,O	0.5 U
Xylenes	10,000	20	370	200	1.5 U,O	1.5 U	NA	1.5 U	3 U, O	3 U, O	1.7 J, O	0.27 J,O	21.3	1.5 U	1.5 U
Inorganics (ug/L)															
Aluminum	200	200	1,500	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	100	50	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	15	15	8.5	150	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	50	NE	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5,000	5,000	86	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			Observation Well									Performance Monitoring Wells				
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	OW9							OW10		PMW-01	PMW-02	PMW-03	PMW-04	PMW-05
Sample ID					74.4 - 77.4							11-14		40-60	40-60	40-60	40-60	40-60
Date					02/04/12	03/22/13	02/04/14	01/30/15	02/03/16	02/02/17	02/02/18	02/02/17	02/05/18	08/17/18	08/18/18	08/19/18	08/19/18	08/19/18
SVOCs (ug/L)																		
Acenaphthene	NE	20	3	200	5.0 U	2.0 U	20 U	20 U	2.1 U	1.9 U	0.3 U	73	44 J,O	0.3 U	0.3 U	0.3 U	0.3 U	**0.36**
Acenaphthylene	NE	210	**	2,100	5.0 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NE	2,100	0.3	21,000	5.0 U	2.0 U	20 U	20 U	2.1 U	1.9 U	0.3 U	2.1 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Benzo(a)anthracene	NE	0.05	**	5	5.0 U	2.0 U	20 U	20 U	2.1 U	1.9 U	0.3 U	2.1 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Benzo(a)pyrene	0.2	0.2	**	20	5.0 U	2.0 U	20 U	20 U	2.1 U	1.9 U	0.3 U	2.1 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Benzo(b)fluoranthene	NE	0.05	**	5	5.0 U	2.0 U	20 U	20 U	2.1 U	1.9 U	0.3 U	2.1 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Benzo(g,h,i)perylene	NE	210	**	2,100	5.0 U	2.0 U	20 U	20 U	2.1 U	1.9 U	0.3 U	2.1 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Benzo(k)fluoranthene	NE	0.5	**	50	5.0 U	2.0 U	20 U	20 U	2.1 U	1.9 U	0.3 U	2.1 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Chrysene	NE	4.8	**	480	5.0 U	2.0 U	20 U	20 U	2.1 U	1.9 U	0.3 U	2.1 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Dibenzo(a,h)anthracene	NE	0.005	**	0.5	5.0 U	2.0 U	20 U	20 U	2.1 U	1.9 U	0.3 U	2.1 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Dibenzofuran	NE	28	67	280	5.0 U	2.0 U	20 U	20 U	2.1 U	1.9 U	2 U	45	18	2 U	2 U	2 U	2 U	2 U
Fluoranthene	NE	280	0.3	2,800	5.0 U	2.0 U	20 U	20 U	2.1 U	1.9 U	0.3 U	8.9	10	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Fluorene	NE	280	30	2,800	5.0 U	2.0 U	20 U	20 U	2.1 U	1.9 U	0.3 U	49	28	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Indeno (1,2,3-cd) pyrene	NE	0.05	**	5	5.0 U	2.0 U	20 U	20 U	2.1 U	1.9 U	0.3 U	2.1 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Naphthalene	NE	14#	26	140	**3.5 J,O**	**1.9 J,O**	20 U	20 U	2.1 U	1.9 U	**1.2**	180	**1.1**	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
2-Methylnaphthalene	NE	28	30	280	5.0 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	210	**	2,100	5.0 U	2.0 U	20 U	20 U	2.1 U	1.9 U	0.3 U	**6.3**	0.3 U	0.3 U	**0.4**	0.3 U	0.3 U	**0.57**
Pyrene	NE	210	0.3	2,100	5.0 U	2.0 U	20 U	20 U	2.1 U	1.9 U	0.3 U	5.7	5	0.3 U	0.3 U,J,O	0.3 U	0.3 U	0.3 U
Phenols (ug/L)																		
1-1 Byphenol	NE	0.5	18	5	5.0 U	2.0 U	20 U	20 U	2.1 U	1.9 U	2 U	2.1 U	2 U	2 U	2 U	2 U	2 U	2 U
2,4,6-Trichlorophenol	NE	3.2	6.5*	320	5.0 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	6	6	2.2	600	5.0 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NE	1.8	47	180	5.0 U	2.0 U	20 U	20 U	2.1 U	1.9 U	2 U	28	2 U	2 U	2 U	2 U	2 U	2 U
2,4-Dimethylphenol	NE	140	160	1,400	5.0 U	NA	NA	NA	NA	9.7 U	10 U	10 U	9.9 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol (Cresol,o-)	NE	35#	250	350	5.0 U	10 U	100 U	100 U	10 U	9.7 U	10 U	10 U	9.9 U	10 U	10 U	10 U	10 U	10 U
(3-and/or 4-)Methylphenol	NE	35#	450	350	5.0 U	10 U	100 U	100 U	10 U	9.7 U	10 U	10 U	9.9 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	1	1	7.9	100	**470**	**110**	**700**	**180**	67	15	**110**	10 U	6.9 U	7.1 U	7 U	7.1 U	7.1 U	7.1 U
Phenol	NE	10	6.5	100	5.0 U	10 U	100 U	100 U	10 U	9.7 U	6 U	10 U	5.9 U	6.1 U	6 U	6.1 U	6.1 U	6.1 U
VOCs (ug/L)																		
1,2,4-Trichlorobenzene	70	70	23	700	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	NA	0.5 U	NA	NA	NA	NA	NA
Benzene	5	1	71.28*	100	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	NA	0.5 U	NA	NA	NA	NA	NA
Ethyl Benzene	700	30	610	300	5.0 U	**0.47 J,O**	**1.3**	**0.62**	**0.15 J,O**	NA	**0.48 J,O**	NA	0.5 U	NA	NA	NA	NA	NA
Toluene	1,000	40	480	400	5.0 U	0.50 U	**0.19 J,O**	**0.11 J,O**	0.50 U	NA	**0.08 J,O**	NA	0.5 U	NA	NA	NA	NA	NA
Xylenes	10,000	20	370	200	**2.3 J,O**	**3.6**	**8.9**	**3.3**	**1.04 J,O**	NA	**2.3**	NA	1.16 U, J, O	NA	NA	NA	NA	NA
Inorganics (ug/L)																		
Aluminum	200	200	1,500	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	100	50	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	15	15	8.5	150	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	50	NE	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5,000	5,000	86	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			West Side of Pensacola Yacht Club Cluster Wells											
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	PYCDS-S			PYCDS-N			PYCDS-M			PYCWC-B		
Sample ID					8 - 18			48.5 - 53.5			78 - 88			180 - 190		
Date					02/01/12	02/01/17	02/05/18	02/02/12	02/01/17	02/02/18	02/02/12	02/01/17	02/02/18	02/06/12	02/03/17	02/01/18
SVOCs (ug/L)																
Acenaphthene	NE	20	3	200	5.0 U	2.1 U	0.3 U	7.5	9	9.8	5.0 U,J,O	4.4	5.4	5.0 U	2 U	0.3 U
Acenaphthylene	NE	210	**	2,100	5.0 U	NA	NA	5.0 U	NA	NA	5.0 U,J,O	NA	NA	5.0 U	NA	NA
Anthracene	NE	2,100	0.3	21,000	5.0 U	2.1 U	0.3 U	5.0 U	2 U	0.29 U	5.0 U,J,O	2.1 U	0.29 U	5.0 U	2 U	0.3 U
Benzo(a)anthracene	NE	0.05	**	5	5.0 U	2.1 U	0.3 U	5.0 U	2 U	0.29 U	5.0 U,J,O	2.1 U	0.29 U	5.0 U	2 U	0.3 U
Benzo(a)pyrene	0.2	0.2	**	20	5.0 U,J,O	2.1 U	0.3 U	5.0 U	2 U	0.29 U	5.0 U,J,O	2.1 U	0.29 U	5.0 U	2 U	0.3 U
Benzo(b)fluoranthene	NE	0.05	**	5	5.0 U,J,O	2.1 U	0.3 U	5.0 U	2 U	0.29 U	5.0 U,J,O	2.1 U	0.29 U	5.0 U	2 U	0.3 U
Benzo(g,h,i)perylene	NE	210	**	2,100	5.0 U,J,O	2.1 U	0.3 U	5.0 U	2 U	0.29 U	5.0 U,J,O	2.1 U	0.29 U	5.0 U	2 U	0.3 U
Benzo(k)fluoranthene	NE	0.5	**	50	5.0 U,J,O	2.1 U	0.3 U	5.0 U	2 U	0.29 U	5.0 U,J,O	2.1 U	0.29 U	5.0 U	2 U	0.3 U
Chrysene	NE	4.8	**	480	5.0 U	2.1 U	0.3 U	5.0 U	2 U	0.29 U	5.0 U,J,O	2.1 U	0.29 U	5.0 U	2 U	0.3 U
Dibenzo(a,h)anthracene	NE	0.005	**	0.5	5.0 U,J,O	2.1 U	0.3 U	5.0 U	2 U	0.29 U	5.0 U,J,O	2.1 U	0.29 U	5.0 U	2 U	0.3 U
Dibenzofuran	NE	28	67	280	5.0 U	2.1 U	2 U	5.0 U	2 U	1.9 U	5.0 U	2.1 U	1.9 U	5.0 U	2 U	2 U
Fluoranthene	NE	280	0.3	2,800	5.0 U	2.1 U	0.3 U	5.0 U	2 U	0.29 U	5.0 U,J,O	2.1 U	0.29 U	5.0 U	2 U	0.3 U
Fluorene	NE	280	30	2,800	5.0 U	2.1 U	0.3 U	5.0 U	**0.59 J,O**	**0.6**	5.0 U	2.1 U	0.29 U	5.0 U	2 U	0.3 U
Indeno (1,2,3-cd) pyrene	NE	0.05	**	5	5.0 U,J,O	2.1 U	0.3 U	5.0 U	2 U	0.29 U	5.0 U,J,O	2.1 U	0.29 U	5.0 U	2 U	0.3 U
Naphthalene	NE	14#	26	140	5.0 U	2.1 U	0.3 U	51	130	100	5.0 U,J,O	2.1 U	**0.45**	5.0 U	2 U	0.3 U
2-Methylnaphthalene	NE	28	30	280	5.0 U	NA	NA	**13**	NA	NA	5.0 U,J,O	NA	NA	5.0 U	NA	NA
Phenanthrene	NE	210	**	2,100	5.0 U	2.1 U	0.3 U	5.0 U	**0.55 J,O**	**0.49**	5.0 U,J,O	2.1 U	0.29 U	5.0 U	2 U	0.3 U
Pyrene	NE	210	0.3	2,100	5.0 U	2.1 U	0.3 U	5.0 U	2 U	0.29 U	5.0 U,J,O	2.1 U	0.29 U	5.0 U	2 U	0.3 U
Phenols (ug/L)																
1-1 Byphenol	NE	0.5	18	5	5.0 U	2.1 U	2 U	5.0 U	2 U	1.9 U	5.0 U	2.1 U	1.9 U	5.0 U	2 U	2 U
2,4,6-Trichlorophenol	NE	3.2	6.5*	320	5.0 U	NA	NA	5.0 U	NA	NA	5.0 U	NA	NA	5.0 U	NA	NA
Bis(2-ethylhexyl) phthalate	6	6	2.2	600	5.0 U	NA	NA	5.0 U	NA	NA	5.0 U	NA	NA	5.0 U	NA	NA
Carbazole	NE	1.8	47	180	5.0 U	2.1 U	2 U	**1.1 J,O**	3.9	3.9	5.0 U	2.1 U	**1.2 J,O**	5.0 U	2 U	2 U
2,4-Dimethylphenol	NE	140	160	1,400	5.0 U	10 U	9.9 U	**1.3 J,O**	10 U	9.7 U	5.0 U	10 U	9.7 U	5.0 U	10 U	9.9 U
2-Methylphenol (Cresol,o-)	NE	35#	250	350	5.0 U	10 U	9.9 U	5.0 U	10 U	9.7 U	5.0 U	10 U	9.7 U	5.0 U	10 U	9.9 U
(3-and/or 4-)Methylphenol	NE	35#	450	350	5.0 U	10 U	9.9 U	5.0 U	10 U	9.7 U	5.0 U	10 U	9.7 U	5.0 U	10 U	9.9 U
Pentachlorophenol	1	1	7.9	100	10 U	10 U	6.9 U	10 U	10 U	6.8 U	10 U	10 U	6.8 U	10 U	10 U	6.9 U
Phenol	NE	10	6.5	100	5.0 U	10 U	5.9 U	5.0 U	10 U	5.8 U	5.0 U,J,O	10 U	5.8 U	5.0 U	10 U	5.9 U
VOCs (ug/L)																
1,2,4-Trichlorobenzene	70	70	23	700	5.0 U	NA	0.5 U	5.0 U	NA	0.5 U	5.0 U	NA	0.5 U	5.0 U	NA	0.5 U
Benzene	5	1	71.28*	100	5.0 U	NA	0.5 U	5.2	NA	3.3	5.0 U	NA	1	5.0 U	NA	0.5 U
Ethyl Benzene	700	30	610	300	5.0 U	NA	0.5 U	**2.0 J,O**	NA	**1.9**	5.0 U	NA	**4.6**	5.0 U	NA	0.5 U
Toluene	1,000	40	480	400	5.0 U	NA	0.5 U	5.0 U	NA	**0.17 J,O**	5.0 U	NA	0.5 U	5.0 U	NA	0.5 U
Xylenes	10,000	20	370	200	5.0 U	NA	1.5 U	**1.8 J,O**	NA	**2.06**	5.0 U	NA	**2.32**	5.0 U	NA	1.5 U
Inorganics (ug/L)																
Aluminum	200	200	1,500	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	100	50	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	15	15	8.5	150	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	50	NE	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5,000	5,000	86	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			Pensacola Yacht Club - MW28 Cluster													
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	MW28-1							MW28-2						
				Sample ID	54 - 59							8 - 13						
				Date	02/06/12	03/27/13	02/01/14	01/28/15	02/06/16	02/02/17	02/01/18	2/6/12	03/26/13	02/01/14	01/28/15	02/08/16	02/02/17	02/01/18
SVOCs (ug/L)																		
Acenaphthene	NE	20	3	200	170	190	94	180	150	170	410	5.0 U	2.0 U	5.2	1.1 J,O	2.0 U	3.3	7
Acenaphthylene	NE	210	**	2,100	50 U	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA
Anthracene	NE	2,100	0.3	21,000	50 U	2.0 U	4.0	5.1	4.6	5.3	5.6	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.29 U
Benzo(a)anthracene	NE	0.05	**	5	50 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.29 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.29 U
Benzo(a)pyrene	0.2	0.2	**	20	50 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.29 U	5.0 U,J,O	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.29 U
Benzo(b)fluoranthene	NE	0.05	**	5	50 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.29 U	5.0 U,J,O	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.29 U
Benzo(g,h,i)perylene	NE	210	**	2,100	50 U	2.0 U	2.0 U	2.1 U	2.0 U,J,O	2 U	0.29 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U,J,O	2 U	0.29 U
Benzo(k)fluoranthene	NE	0.5	**	50	50 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.29 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.29 U
Chrysene	NE	4.8	**	480	50 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.29 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.29 U
Dibenzo(a,h)anthracene	NE	0.005	**	0.5	50 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.29 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.29 U
Dibenzofuran	NE	28	67	280	83	75	51	72	69	80	73	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	2 U
Fluoranthene	NE	280	0.3	2,800	50 U	2.0 U	2.0 U	2.1 U	2.0 U	0.66 J,O	0.74	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.29 U
Fluorene	NE	280	30	2,800	86	84	60	80	76	87	78	5.0 U	2.0 U	1.5 J,O	2.0 U	2.0 U	0.59 J,O	1.7
Indeno (1,2,3-cd) pyrene	NE	0.05	**	5	50 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.29 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.29 U
Naphthalene	NE	14#	26	140	4,000	4,700	1,500	5,000	4,200	4000	4100	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	51	0.72
2-Methylnaphthalene	NE	28	30	280	360	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	210	**	2,100	53	52	38	52	50	56	51	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.29 U
Pyrene	NE	210	0.3	2,100	50 U	2.0 U	2.0 U	2.1 U	2.0 U	2 U	0.29 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.29 U
Phenols (ug/L)																		
1-1 Byphenol	NE	0.5	18	5	39 J,O	39	29	36	31	42	35	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	2 U
2,4,6-Trichlorophenol	NE	3.2	6.5*	320	50 U	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	6	6	2.2	600	50 U	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA
Carbazole	NE	1.8	47	180	2630	230	200	260	220	230	360	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	2.1
2,4-Dimethylphenol	NE	140	160	1,400	72	NA	NA	NA	NA	99 U	36	5.0 U	NA	NA	NA	NA	10 U	9.8 U
2-Methylphenol (Cresol,o-)	NE	35#	250	350	50 U	9.9 U	9.9 U	10 U	10 U	9.9 U	9.8 U	5.0 U	10 U	9.9 U	10 U	10 U	10 U	9.8 U
(3-and/or 4-)Methylphenol	NE	35#	450	350	50 U	9.9 U	9.9 U	10 U	10 U	9.9 U	9.8 U	5.0 U	10 U	9.9 U	10 U	10 U	10 U	9.8 U
Pentachlorophenol	1	1	7.9	100	100 U	9.9 U	9.9 U	10 U	10 U	9.9 U	6.8 U	10 U	10 U	9.9 U	10 U	10 U	10 U	6.8 U
Phenol	NE	10	6.5	100	NA	9.9 U	9.9 U	10 U	10 U	9.9 U	5.9 U	5.0 U	10 U	9.9 U	10 U	10 U	10 U	5.9 U
VOCs (ug/L)																		
1,2,4-Trichlorobenzene	70	70	23	700	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	5 U,J,O	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Benzene	5	1	71.28*	100	58	60	59	64	61	NA	57 J,O	5.0 U	0.50 U	0.50 U	0.14 J,O	0.50 U	NA	0.99
Ethyl Benzene	700	30	610	300	53	58	50	58	56	NA	49 J,O	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.15 J,O
Toluene	1,000	40	480	400	6.6	6.9	5.7	7.4	7.0	NA	5.4 J,O	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.14 J,O
Xylenes	10,000	20	370	200	112	126	100	117	118	NA	100 J,O	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U	NA	3.7
Inorganics (ug/L)																		
Aluminum	200	200	1,500	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	100	50	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	15	15	8.5	150	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	50	NE	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5,000	5,000	86	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			Pensacola Yacht Club - MW28 Cluster													
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	MW28-3							MW28-5						
Sample ID					12 - 17							86 - 91						
Date					02/06/12	03/26/13	02/01/14	01/27/15	02/06/16	02/02/17	02/02/18	02/06/12	03/26/13	02/01/14	01/28/15	02/06/16	02/02/17	02/01/18
SVOCs (ug/L)																		
Acenaphthene	NE	20	3	200	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	2.7	75	44	59	61	72	48	53
Acenaphthylene	NE	210	**	2,100	5.0 U	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA
Anthracene	NE	2,100	0.3	21,000	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U	1.1 J,O	1.9 U	1.6 J,O	1.5 J,O	1.7 J,O	1.4 J,O	1.6
Benzo(a)anthracene	NE	0.05	**	5	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Benzo(a)pyrene	0.2	0.2	**	20	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U	5.0 U,J,O	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Benzo(b)fluoranthene	NE	0.05	**	5	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U	5.0 U,J,O	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Benzo(g,h,i)perylene	NE	210	**	2,100	5.0 U,J,O	2.0 U	2.0 U	2.0 U	2.0 U,J,O	2 U	0.3 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U,J,O	2 U	0.3 U
Benzo(k)fluoranthene	NE	0.5	**	50	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Chrysene	NE	4.8	**	480	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Dibenzo(a,h)anthracene	NE	0.005	**	0.5	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Dibenzofuran	NE	28	67	280	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	1.4 J,O	12	4.4	17	5.6	15	8.6	8.5
Fluoranthene	NE	280	0.3	2,800	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U	5.0 U	1.9 U	2.0 U	1.0 J,O	1.0 J,O	0.84 J,O	1
Fluorene	NE	280	30	2,800	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	1.6	32	26	37	36	43	32	36
Indeno (1,2,3-cd) pyrene	NE	0.05	**	5	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U
Naphthalene	NE	14#	26	140	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	4.4	95	790	250	550	280	710	300	160
2-Methylnaphthalene	NE	28	30	280	5.0 U	NA	NA	NA	NA	NA	NA	61	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	210	**	2,100	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U	17	13	23	22	28	18	20
Pyrene	NE	210	0.3	2,100	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	0.3 U	5.0 U	1.9 U	2.0 U	2.0 U	2.0 U	2 U	0.38
Phenols (ug/L)																		
1-1 Byphenol	NE	0.5	18	5	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	2 U	1.3 J,O	1.0 J,O	1.1 J,O	2.0 U	1.5 J,O	2.6	1.8 J,O
2,4,6-Trichlorophenol	NE	3.2	6.5*	320	5.0 U	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	6	6	2.2	600	5.0 U	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA
Carbazole	NE	1.8	47	180	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2 U	3.2	54	28	73	39	63	35	32
2,4-Dimethylphenol	NE	140	160	1,400	5.0 U	NA	NA	NA	NA	10 U	9.9 U	31	NA	NA	NA	NA	25	15
2-Methylphenol (Cresol,o-)	NE	35#	250	350	5.0 U	10 U	10 U	10 U	10 U	10 U	9.9 U	5.0 U	9.7 U	10 U	9.9 U	9.9 U	9.9 U	9.9 U
(3-and/or 4-)Methylphenol	NE	35#	450	350	5.0 U	10 U	10 U	10 U	10 U	10 U	9.9 U	5.0 U	9.7 U	10 U	9.9 U	9.9 U	9.9 U	9.9 U
Pentachlorophenol	1	1	7.9	100	10 U	10 U	10 U	10 U	10 U	10 U	6.9 U	10 U	9.7 U	10 U	9.9 U	9.9 U	9.9 U	6.9 U
Phenol	NE	10	6.5	100	5.0 U	10 U	10 U	10 U	10 U	10 U	5.9 U	5.0 U	9.7 U	10 U	9.9 U	9.9 U	9.9 U	5.9 U
VOCs (ug/L)																		
1,2,4-Trichlorobenzene	70	70	23	700	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.5 U
Benzene	5	1	71.28*	100	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	1.4	23	16	30	18	26	NA	16
Ethyl Benzene	700	30	610	300	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	1.2	10	4.1	10	3.4	8.0	NA	3.6
Toluene	1,000	40	480	400	5.0 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	0.3 J,O	1.1 J,O	0.63	0.79	0.37 J,O	0.74	NA	0.56
Xylenes	10,000	20	370	200	5.0 U	1.50 U	1.50 U	1.50 U	1.50 U	NA	3.9	11	5.3	7.2	2.21	6.3	NA	4.9
Inorganics (ug/L)																		
Aluminum	200	200	1,500	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	100	50	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	15	15	8.5	150	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	50	NE	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5,000	5,000	86	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			ACW Facility Southside Shallow Wells													
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	ACW-MW1											ACW-MW2		
Sample ID					5.0 - 15.0											5.0 - 15.0		
Date					02/07/12	03/19/13	02/04/14	02/02/15	2/2/15 (dup)	02/08/16	2/8/16 (dup)	02/06/17	2/6/2017 (dup)	02/06/18	2/6/2018 (dup)	02/07/12	02/07/17	02/06/18
SVOCs (ug/L)																		
Acenaphthene	NE	20	3	200	440	400	300	290	290	410	440	390	450	500 J,O	520 J,O	64 J,O	220	220 J,O
Acenaphthylene	NE	210	**	2,100	250 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100 U	NA	NA
Anthracene	NE	2,100	0.3	21,000	250 U	3.9 U	20 U	11	11	17	18	14 J,O	16 J,O	16	18	100 U	9.1	6.8
Benzo(a)anthracene	NE	0.05	**	5	250 U	3.9 U	20 U	20 U	20 U	1.9 U	2.0 U	20 U	21 U	1.5 U	1.5 U	100 U	2.1 U	0.29 U
Benzo(a)pyrene	0.2	0.2	**	20	250 U	3.9 U	20 U	20 U	20 U	1.9 U	2.0 U	20 U	21 U	1.5 U	1.5 U	100 U	2.1 U	0.29 U
Benzo(b)fluoranthene	NE	0.05	**	5	250 U	3.9 U	20 U	20 U	20 U	1.9 U	2.0 U	20 U	21 U	1.5 U	1.5 U	100 U	2.1 U	0.29 U
Benzo(g,h,i)perylene	NE	210	**	2,100	250 U	3.9 U	20 U	20 U	20 U	1.9 U	2.0 U	20 U	21 U	1.5 U	1.5 U	100 U,J,O	2.1 U	0.29 U
Benzo(k)fluoranthene	NE	0.5	**	50	250 U	3.9 U	20 U	20 U	20 U	1.9 U	2.0 U	20 U	21 U	1.5 U	1.5 U	100 U	2.1 U	0.29 U
Chrysene	NE	4.8	**	480	250 U	3.9 U	20 U	20 U	20 U	1.9 U	2.0 U	20 U	21 U	1.5 U	1.5 U	100 U	2.1 U	0.29 U
Dibenzo(a,h)anthracene	NE	0.005	**	0.5	250 U,J,O	3.9 U	20 U	20 U	20 U	1.9 U	2.0 U	20 U	21 U	1.5 U	1.5 U	100 U	2.1 U	0.29 U
Dibenzofuran	NE	28	67	280	270	190	170	150	150	260	280	240	280	280	290	100 U	140	120
Fluoranthene	NE	280	0.3	2,800	250 U	5.1	20 U	6.6	6.2	16	17	7.2 J,O	8.1 J,O	8.6	9.9	100 U	1.4 J,O	1.2
Fluorene	NE	280	30	2,800	220 J,O	190	160	150	150	240	260	220	250	270	280	100 U	170	130
Indeno (1,2,3-cd) pyrene	NE	0.05	**	5	250 U	3.9 U	20 U	20 U	20 U	1.9 U	2.0 U	20 U	21 U	1.5 U	1.5 U	100 U	2.1 U	0.29 U
Naphthalene	NE	14#	26	140	7,200	5,400	5,700	3,700	3,800	6,300	6,500	7000	7300	6100	6300	610	110	230
2-Methylnaphthalene	NE	28	30	280	880	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	31 J,O	NA	NA
Phenanthrene	NE	210	**	2,100	170 J,O	110	110	110	100	170	180	160	180	200	210	100 U	160	130
Pyrene	NE	210	0.3	2,100	250 U	3.2 J,O	20 U	3.4	2.9	6.0	6.3	20 U	21 U	3.5	4.2	100 U	2.1 U	0.29 U
Phenols (ug/L)																		
1-1 Byphenol	NE	0.5	18	5	110 J,O	94	80	69	69	93	100	97	110	110	120	100 U	2.1 U	1.9 U
2,4,6-Trichlorophenol	NE	3.2	6.5*	320	250 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100 U	NA	NA
Bis(2-ethylhexyl) phthalate	6	6	2.2	600	250 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100 U	NA	NA
Carbazole	NE	1.8	47	180	350	290	290	240	230	380	390	380	450	550 J,O	560 J,O	93 J,O	23	12 J,O
2,4-Dimethylphenol	NE	140	160	1,400	250 U	NA	NA	NA	NA	NA	NA	1100	1200	1300 J,O	1300 J,O	100 U	10 U	9.7 U
2-Methylphenol (Cresol,o-)	NE	35#	250	350	250 U	110	230	440	450	430	470	470	530	2500 U	2500 U	100 U	10 U	9.7 U
(3-and/or 4-)Methylphenol	NE	35#	450	350	250 U	220	410	910	920	650	710	1100	1200	1100 J,O	1100 J,O	100 U	10 U	9.7 U
Pentachlorophenol	1	1	7.9	100	500 U,J,O	20 U	100 U	99 U	100 U	2.6 J,O	2.4 J,O	100 U	100 U	24 J,O	26 J,O	200 U	10 U	6.8 U
Phenol	NE	10	6.5	100	250 U	17 J,O	24 J,O	110	120	150	160	230	250	420	480	100 U	10 U	5.8 U
VOCs (ug/L)																		
1,2,4-Trichlorobenzene	70	70	23	700	5.0 U	2.5 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	NA	NA	0.5 U	0.5 U	5.0 U	NA	0.5 U
Benzene	5	1	71.28*	100	8.1	20	37	56	61	56	55	NA	NA	65	66	0.73 J,O	NA	0.5 U
Ethyl Benzene	700	30	610	300	30	31	36	35	37	52	53	NA	NA	64	64	11	NA	0.48 J,O
Toluene	1,000	40	480	400	21	27	33	44	49	60	58	NA	NA	96	96	2.4 J,O	NA	0.15 J,O
Xylenes	10,000	20	370	200	61	88	98	96	102	153	153	NA	NA	175	176	7.2	NA	0.74 J,O
Inorganics (ug/L)																		
Aluminum	200	200	1,500	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	100	50	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	15	15	8.5	150	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	50	NE	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5,000	5,000	86	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Analyte	EPA	FDEP			ACW Facility Southside Shallow Wells					ACW Northside Shallow Wells					Pilot Injection Wells		
	2012 DWSHA MCL or Secondary MCL	Groundwater CTL	Marine CTL	Natural Attenuation	ACW-MW2B		ACW-MW3		ACW-MW3D	ACW4		ACW5			IW01	IW02	
Sample ID					23-33		4-14		70-80	10-13		7 - 10			40-60	41-61	
Date					04/11/18	*4/11/2018 (dup)*	02/07/17	02/06/18	04/10/18	01/31/17	01/30/18	02/05/12	01/31/17	01/31/18	08/18/18	08/18/18	8/18/2018 (dup)
SVOCs (ug/L)																	
Acenaphthene	NE	**20**	**3**	**200**	**31**	**33**	2 U	0.29 U	0.31 U	2 U	0.3 U	5.0 U	2.2 U	0.29 U	0.3 U	0.3 U	0.3 U
Acenaphthylene	NE	**210**	**	**2,100**	NA	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA
Anthracene	NE	**2,100**	**0.3**	**21,000**	0.3 U	0.31 U	2 U	0.29 U	0.31 U	2 U	0.3 U	5.0 U	2.2 U	0.29 U	0.3 U	0.3 U	0.3 U
Benzo(a)anthracene	NE	**0.05**	**	**5**	2 U	2.1 U	2 U	0.29 U	0.31 U	2 U	0.3 U	5.0 U	2.2 U	0.29 U	0.3 U	0.3 U	0.3 U
Benzo(a)pyrene	**0.2**	**0.2**	**	**20**	0.3 U	0.31 U	2 U	0.29 U	0.31 U	2 U	0.3 U	5.0 U	2.2 U	0.29 U	0.3 U	0.3 U	0.3 U
Benzo(b)fluoranthene	NE	**0.05**	**	**5**	0.3 U	0.31 U	2 U	0.29 U	0.31 U	2 U	0.3 U	5.0 U	2.2 U	0.29 U	0.3 U	0.3 U	0.3 U
Benzo(g,h,i)perylene	NE	**210**	**	**2,100**	0.3 U	0.31 U	2 U	0.29 U	0.31 U	2 U	0.3 U	5.0 U,J,O	2.2 U	0.29 U	0.3 U	0.3 U	0.3 U
Benzo(k)fluoranthene	NE	**0.5**	**	**50**	0.3 U	0.31 U	2 U	0.29 U	0.31 U	2 U	0.3 U	5.0 U	2.2 U	0.29 U	0.3 U	0.3 U	0.3 U
Chrysene	NE	**4.8**	**	**480**	0.3 U	0.31 U	2 U	0.29 U	0.31 U	2 U	2 U	5.0 U	2.2 U	2 U	0.3 U	0.3 U	0.3 U
Dibenzo(a,h)anthracene	NE	**0.005**	**	**0.5**	0.3 U	0.31 U	2 U	0.29 U	0.31 U	2 U	0.3 U	5.0 U	2.2 U	0.29 U	0.3 U	0.3 U	0.3 U
Dibenzofuran	NE	**28**	**67**	**280**	**2.1**	**2.3**	2 U	2 U	2.1 U	2 U	2 U	5.0 U	2.2 U	2 U	2 U	2 U	2 U
Fluoranthene	NE	**280**	**0.3**	**2,800**	0.3 U	0.31 U	2 U	0.29 U	**0.54**	2 U	0.3 U	5.0 U	2.2 U	0.29 U	0.3 U	0.3 U	0.3 U
Fluorene	NE	**280**	**30**	**2,800**	**1.9**	**2.1**	2 U	0.29 U	0.31 U	2 U	0.3 U	5.0 U	2.2 U	0.29 U	0.3 U	0.3 U	0.3 U
Indeno (1,2,3-cd) pyrene	NE	**0.05**	**	**5**	0.3 U	0.31 U	2 U	0.29 U	0.31 U	2 U	0.3 U	5.0 U	2.2 U	0.29 U	0.3 U	0.3 U	0.3 U
Naphthalene	NE	**14#**	**26**	**140**	**1.2**	**1.3**	2 U	0.29 U	**0.63**	2 U	0.3 U	5.0 U	2.2 U	0.29 U	0.3 U	0.3 U	0.3 U
2-Methylnaphthalene	NE	**28**	**30**	**280**	NA	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA
Phenanthrene	NE	**210**	**	**2,100**	0.3 U	0.31 U	2 U	0.29 U	**0.91**	2 U	0.3 U	5.0 U	2.2 U	0.29 U	0.3 U	0.3 U	0.3 U
Pyrene	NE	**210**	**0.3**	**2,100**	0.3 U	0.31 U	2 U	0.29 U	0.31 U	2 U	0.3 U	5.0 U	2.2 U	0.29 U	0.3 U	0.3 U	0.3 U
Phenols (ug/L)																	
1-1 Byphenol	NE	**0.5**	**18**	**5**	2 U	2.1 U	2 U	2 U	2.1 U	2 U	2 U	5.0 U	2.2 U	2 U	2 U	2 U	2 U
2,4,6-Trichlorophenol	NE	**3.2**	**6.5***	**320**	NA	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	**6**	**6**	**2.2**	**600**	NA	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA
Carbazole	NE	**1.8**	**47**	**180**	2 U	2.1 U	2 U	2 U	**0.62 J,O**	2 U	2 U	5.0 U	2.2 U	2 U	2 U	2 U	2 U
2,4-Dimethylphenol	NE	**140**	**160**	**1,400**	10 U	10 U	10 U	9.8 U	10 U	10 U	10 U	5.0 U	11 U	9.8 U	10 U	10 U	10 U
2-Methylphenol (Cresol,o-)	NE	**35#**	**250**	**350**	10 U	10 U	10 U	9.8 U	10 U	10 U	10 U	5.0 U	11 U	9.8 U	10 U	10 U	10 U
(3-and/or 4-)Methylphenol	NE	**35#**	**450**	**350**	10 U	10 U	10 U	9.8 U	10 U	10 U	10 U	5.0 U	11 U	9.8 U	10 U	10 U	10 U
Pentachlorophenol	**1**	**1**	**7.9**	**100**	7.1 U	7.2 U	10 U	6.9 U	**39**	10 U	7 U	10 U	11 U	6.9 U	7.1 U	7.1 U	7 U
Phenol	NE	**10**	**6.5**	**100**	6.1 U	6.2 U	10 U	5.9 U	6.2 U	10 U	6 U	5.0 U	11 U	5.9 U	6.1 U	6.1 U	6 U
VOCs (ug/L)																	
1,2,4-Trichlorobenzene	**70**	**70**	**23**	**700**	0.5 U	0.5 U	NA	0.5 U	0.5 U,O	NA	0.5 U	5.0 U	NA	0.5 U	NA	NA	NA
Benzene	**5**	**1**	**71.28***	**100**	0.5 U	0.5 U	NA	0.5 U	**0.08 J,O**	NA	0.5 U	5.0 U	NA	0.5 U	NA	NA	NA
Ethyl Benzene	**700**	**30**	**610**	**300**	0.5 U	0.5 U	NA	0.5 U	**0.2 J,O**	NA	0.5 U	5.0 U	NA	0.5 U	NA	NA	NA
Toluene	**1,000**	**40**	**480**	**400**	0.5 U	0.5 U	NA	0.5 U	**0.11 J,O**	NA	0.5 U	5.0 U	NA	0.5 U	NA	NA	NA
Xylenes	**10,000**	**20**	**370**	**200**	1.5 U	1.5 U	NA	1.5 U	**0.64 J,O**	NA	1.5 U	5.0 U	NA	1.5 U	NA	NA	NA
Inorganics (ug/L)																	
Aluminum	**200**	**200**	**1,500**	**2,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	**100**	**100**	**50**	**1,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	**15**	**15**	**8.5**	**150**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	**50**	**50**	**NE**	**500**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	**5,000**	**5,000**	**86**	**50,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3-5
Groundwater Analytical Results through 2018
American Creosote Works
Pensacola, Escambia County, Florida

Notes:

#	Groundwater CTLs for class C carcinogens with no cancer slope factor were developed using the reference dose divided by a factor of 10, as described in the February 2005 "Final Technical Report: Development of Cleanup Target Levels (CTLs) for Chapter 62-777".
*	Annual average concentration, per FAC Chapter 62-302.530; Surface Water Criteria for Class III Marine Waters
**	Annual average concentrations of these compounds cannot exceed a Total PAH concentration of 0.031 ug/L
U	Analyte not detected at or above laboratory reporting limit.
J	Identification of analyte is acceptable. Reported value is an estimate.
O	Other qualifiers, provided from the laboratory to explain qualifier
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
UR	The analyte was analyzed for, but was not detected.
NR	The analysis indicates the presence of an analyte that has been "tentatively identified". The sample results are rejected due to deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.
Bold	Samples that have detections
Bold	Indicates exceedance of EPA 2012 Drinking Water Standards and Health Advisories (DWSHA) Maximum Contaminant Levels (MCLs) or secondary MCLs.
Bold	Indicates the exceedance of FDEP CTLs for Groundwater, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777.
Bold	Indicates the exceedance of FDEP CTLs for Marine Surface Water, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777.
Bold	Indicates the exceedance of FDEP Natural Attenuation Default Criteria, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777.

Per Case # 11-1130, the Bayou Chico Basin is classified as a Class III water in accordance with FDEP Surface Water Quality Standards, Chapter 62-302.

ACW	American Creosote Works
CTL	Cleanup Target Levels
dup	duplicate sample
DWSHA	EPA Drinking Water Standards and Health Advisories, 2012
EPA	U.S. Environmental Protection Agency
FDEP	Florida Department of Environmental Protection
ft bls	feet below land surface
MCL	Maximum Contaminant Level
µg/L	micrograms per liter
NA	Not Analyzed
ND	Not detected above the laboratory reporting limit
NE	None Established
PAH	polycyclic aromatic hydrocarbons
SVOC	semi-volatile organic compounds
VOC	volatile organic compounds

All 2008 groundwater analytical data on Figures 3-15 to 3-20 can be found in the *2016 Feasibility Study* (Black & Veatch, 2016)

Table 3-6
DPT Analytical Results - 2018
American Creosote Works
Pensacola, Escambia County, Florida

Sample Location	DPT1000	DPT1000	DPT1000	DPT1000	DPT1000	DPT1000	DPT1001	DPT1001	DPT1001	DPT1001	DPT1001	DPT1002	DPT1002	DPT1002
Sample Date	11/3/2018	11/3/2018	11/3/2018	11/3/2018	11/3/2018	11/3/2018	10/31/2018	10/31/2018	10/31/2018	10/31/2018	10/31/2018	11/2/2018	11/2/2018	11/2/2018
Sample ID No.	GW1000-10	GW1000-20	GW1000-32	GW1000-46	GW1000-50	GW1000-60	GW1001-10	GW1001-19	GW1001-30	GW1001-40	GW1001-50	GW1002-10	GW1002-20	GW1002-30
Depth (ft bls)	6-10	16-20	28-32	42-46	46-50	56-60	6-10	15-19	26-30	36-40	46-50	6-10	16-20	26-30
Analyte (ug/L)														
(3-and/or 4-)Methylphenol	2 J,O	18	6.3 J,O	9.9	9.5 U	9.6 U	9.5 U	10 U	9.6 U	9.5 U	9.6 U	9.6 U	9.7 U	9.6 U
1,1-Biphenyl	4.8 U	7.6	2 J,O	4.8 U	4.8 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U	4.8 U	4.9 U	4.8
1,2,4,5-Tetrachlorobenzene	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U	4.8 U	4.9 U	4.8 U
1,4-Dioxane	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	2 U,J,O	1.9 U	1.9 U,J,O	1.9 U	1.9 U	1.9 U	1.9 U
2,3,4,6-Tetrachlorophenol	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U	4.8 U	4.9 U	4.8 U
2,4,5-Trichlorophenol	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U	4.8 U	4.9 U	4.8 U
2,4,6-Trichlorophenol	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U	4.8 U	4.9 U	4.8 U
2,4-Dichlorophenol	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U	4.8 U	4.9 U	4.8 U
2,4-Dimethylphenol	6.5 J,O	65 J,O	28 J,O	36 J,O	1.4 J,O	2.1 J,O	1.6 J,O	2.3 J,O	1.7 J,O	4.8 U	4.8 U	4.8 U	4.9 U	190
2,4-Dinitrophenol	9.6 U,J,O	NA	9.6 U,J,O	9.6 U,J,O	9.5 U,J,O	9.6 U,J,O	9.5 U,J,O	10 U,J,O	9.6 U,J,O	9.5 U,J,O	9.6 U,J,O	9.6 U,J,O	9.7 U,J,O	9.6 U,J,O
2,4-Dinitrotoluene	4.8 U	4.8 U,J,O	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U	4.8 U	4.9 U	4.8 U,J,O
2,6-Dinitrotoluene	4.8 U	4.8 U,J,O	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U	4.8 U	4.9 U	4.8 U,J,O
2-Chloronaphthalene	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U	4.8 U	4.9 U	4.8 U
2-Chlorophenol	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U	4.8 U	4.9 U	4.8 U
2-Methyl-4,6-dinitrophenol	9.6 U,J,O	9.6 U,J,O	9.6 U,J,O	9.6 U,J,O	9.5 U,J,O	9.6 U,J,O	9.5 U,J,O	10 U,J,O	9.6 U,J,O	9.5 U,J,O	9.6 U,J,O	9.6 U,J,O	9.7 U,J,O	9.6 U,J,O
2-Methylnaphthalene	4.8 U	19 J,O	7.8	6.4	0.091 J,O	0.41	4.8 U	0.86 J,O	0.29	0.1	0.38	0.12	0.77 J,O	14 J,O
2-Methylphenol	1.6 J,O	19	5.9 J,O	8.5 J,O	9.5 U	9.6 U	9.5 U	10 U	9.6 U	9.5 U	9.6 U	9.6 U	9.7 U	9.6 U
2-Nitroaniline	4.8 U	NA	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U	4.8 U	4.9 U	4.8 U
2-Nitrophenol	4.8 U	4.8 U,J,O	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U	4.8 U	4.9 U	4.8 U,J,O
3,3'-Dichlorobenzidine	9.6 U,J,O	9.6 U,J,O	9.6 U,J,O	9.6 U,J,O	9.5 U,J,O	9.6 U,J,O	9.5 U,J,O	10 U,J,O	9.6 U,J,O	9.5 U,J,O	9.6 U,J,O	9.6 U,J,O	9.7 U,J,O	9.6 U,J,O
3-Nitroaniline	9.6 U	NA	9.6 U	9.6 U	9.5 U	9.6 U	9.5 U	10 U	9.6 U	9.5 U	9.6 U	9.6 U	9.7 U	9.6 U
4-Bromophenyl phenyl ether	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U	4.8 U	4.9 U	4.8 U
4-Chloro-3-methylphenol	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U	4.8 U	4.9 U	4.8 U
4-Chloroaniline	9.6 U	9.6 U	9.6 U	9.6 U	9.5 U	9.6 U	9.5 U	10 U	9.6 U,J,O	9.5 U	9.6 U	9.6 U	9.7 U	9.6 U
4-Chlorophenyl phenyl ether	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U	4.8 U	4.9 U	4.8 U
4-Nitroaniline	9.6 U	NA	9.6 U	9.6 U	9.5 U	9.6 U	9.5 U	10 U	9.6 U	9.5 U	9.6 U	9.6 U	9.7 U	9.6 U
4-Nitrophenol	9.6 U	NA	9.6 U	9.6 U	9.5 U	9.6 U	9.5 U	10 U	9.6 U	9.5 U	9.6 U	9.6 U	9.7 U	9.6 U
Acenaphthene	4.8 U	43	24	12	3 J,O	9.8	4.8 U	4.1 J,O	0.7	0.55	0.83	0.2	1.9 J,O	30
Acenaphthylene	4.8 U	0.81 J,O	4.8 U	4.8 U	0.034 J,O	0.12	4.8 U	5 U	0.096 U	0.095 U	0.096 U	0.011 J,O	4.9 U	0.87 J,O
Acetophenone	9.6 U	9.6 U,J,O	9.6 U	9.6 U	9.5 U	9.6 U	9.5 U	10 U	9.6 U	9.5 U	9.6 U	9.6 U	9.7 U	9.6 U,J,O
Anthracene	4.8 U	1.4 J,O	0.62 J,O	0.49 J,O	0.091 J,O	0.15	4.8 U	5 U	0.099	0.056 J,O	0.027 J,O	0.096 U	4.9 U	0.97 J,O
Atrazine	9.6 U	9.6 U,J,O	9.6 U	9.6 U	9.5 U	9.6 U	9.5 U	10 U	9.6 U	9.5 U	9.6 U	9.6 U	9.7 U	9.6 U
Benzaldehyde	9.6 U	9.6 U	9.6 U	9.6 U	9.5 U	9.6 U	9.5 U	10 U	9.6 U	9.5 U	9.6 U	9.6 U	9.7 U	9.6 U
Benzo(a)anthracene	4.8 U	4.8 U	4.8 U	4.8 U	0.095 U	0.096 U	4.8 U	5 U	0.096 U	0.095 U	0.096 U	0.096 U	4.9 U	4.8 U
Benzo(a)pyrene	4.8 U,J,O	NA	4.8 U,J,O	4.8 U,J,O	0.095 U	0.096 U	4.8 U,J,O	5 U,J,O	0.096 U	0.095 U	0.096 U	0.096 U	4.9 U,J,O	NA
Benzo(b)fluoranthene	4.8 U,J,O	NA	4.8 U,J,O	4.8 U,J,O	0.095 U	0.096 U	4.8 U,J,O	5 U,J,O	0.096 U	0.095 U	0.096 U	0.096 U	4.9 U,J,O	NA
Benzo(g,h,i)perylene	4.8 U,J,O	NA	4.8 U,J,O	4.8 U,J,O	0.095 U	0.096 U	4.8 U,J,O	5 U,J,O	0.096 U	0.095 U	0.096 U	0.096 U	4.9 U,J,O	NA
Benzo(k)fluoranthene	4.8 U,J,O	NA	4.8 U,J,O	4.8 U,J,O	0.095 U	0.096 U	4.8 U,J,O	5 U,J,O	0.096 U	0.095 U	0.096 U	0.096 U	4.9 U,J,O	NA
Benzyl butyl phthalate	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U	4.8 U	4.9 U	4.8 U
Bis(2-chloroethoxy)methane	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U	4.8 U	4.9 U	4.8 U
bis(2-Chloroethyl) Ether	9.6 U	9.6 U	9.6 U	9.6 U	9.5 U	9.6 U	9.5 U	10 U	9.6 U	9.5 U	9.6 U	9.6 U	9.7 U	9.6 U
Bis(2-chloroisopropyl) ether	9.6 U	9.6 U	9.6 U	9.6 U	9.5 U	9.6 U	9.5 U	10 U	9.6 U	9.5 U	9.6 U	9.6 U	9.7 U	9.6 U
Bis(2-ethylhexyl) phthalate	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U	4.8 U	4.9 U	4.8 U
Caprolactam	9.6 U,J,O	9.6 U,J,O	9.6 U,J,O	9.6 U,J,O	9.5 U,J,O	9.6 U,J,O	9.5 U,J,O	10 U,J,O	9.6 U,J,O	2.4 J,O	9.6 U,J,O	9.6 U,J,O	9.7 U,J,O	9.6 U,J,O

Created by: Suzy Prouty
Checked by: Amy Callaway

Table 3-6
DPT Analytical Results - 2018
American Creosote Works
Pensacola, Escambia County, Florida

Sample Location	DPT1000	DPT1000	DPT1000	DPT1000	DPT1000	DPT1000	DPT1001	DPT1001	DPT1001	DPT1001	DPT1001	DPT1002	DPT1002	DPT1002
Sample Date	11/3/2018	11/3/2018	11/3/2018	11/3/2018	11/3/2018	11/3/2018	10/31/2018	10/31/2018	10/31/2018	10/31/2018	10/31/2018	11/2/2018	11/2/2018	11/2/2018
Sample ID No.	GW1000-10	GW1000-20	GW1000-32	GW1000-46	GW1000-50	GW1000-60	GW1001-10	GW1001-19	GW1001-30	GW1001-40	GW1001-50	GW1002-10	GW1002-20	GW1002-30
Depth (ft bls)	6-10	16-20	28-32	42-46	46-50	56-60	6-10	15-19	26-30	36-40	46-50	6-10	16-20	26-30
Analyte (ug/L)														
Carbazole	9.6 U	39	15	8.2 J,O	9.5 U	9.6 U	1.8 J,O	13	1.4 J,O	2.3 J,O	1.5 J,O	9.6 U	2.5 J,O	12
Chrysene	4.8 U	4.8 U	4.8 U	4.8 U	0.095 U	0.096 U	4.8 U	5 U	0.096 U	0.095 U	0.096 U	0.096 U	4.9 U	4.8 U
Dibenzo(a,h)anthracene	4.8 U,J,O	NA	4.8 U,J,O	4.8 U,J,O	0.095 U	0.096 U	4.8 U,J,O	5 U,J,O	0.096 U	0.095 U	0.096 U	0.096 U	4.9 U,J,O	NA
Dibenzofuran	4.8 U	26	8.4	4.9	4.8 U	4.8 U	4.8 U	1.5 J,O	4.8 U	4.8 U	4.8 U	4.8 U	4.9 U	9.7
Diethyl phthalate	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U	4.8 U	4.9 U	4.8 U
Dimethyl phthalate	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U	4.8 U	4.9 U	4.8 U
Di-n-butylphthalate	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	8.3	4.8 U	4.9 U	4.8 U
Di-n-octylphthalate	9.6 U	9.6 U	9.6 U	9.6 U	9.5 U	9.6 U	9.5 U	10 U	9.6 U	9.5 U	9.6 U	9.6 U	9.7 U	9.6 U
Fluoranthene	9.6 U	2.2 J,O	0.41 J,O	9.6 U	0.019 J,O	0.13	9.5 U	0.34 J,O	0.096 U	0.095 U	0.096 U	0.096 U	9.7 U	9.6 U
Fluorene	4.8 U	18	7.4	3.8 J,O	0.26 J,O	0.34	4.8 U	3.2 J,O	0.29	0.15	0.26	0.088 J,O	4.9 U	4.3 J,O
Hexachlorobenzene (HCB)	4.8 U	4.8 U,J,O	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U	4.8 U	4.9 U	4.8 U
Hexachlorobutadiene	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U	4.8 U	4.9 U	4.8 U
Hexachlorocyclopentadiene (HCCP)	9.6 U,J,O	9.6 U,J,O	9.6 U,J,O	9.6 U,J,O	9.5 U,J,O	9.6 U,J,O	9.5 U	10 U	9.6 U	9.5 U	9.6 U	9.6 U,J,O	9.7 U,J,O	9.6 U,J,O
Hexachloroethane	4.8 U	4.8 U,J,O	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U	4.8 U	4.9 U	4.8 U,J,O
Indeno (1,2,3-cd) pyrene	4.8 U,J,O	NA	4.8 U,J,O	4.8 U,J,O	0.095 U	0.096 U	4.8 U,J,O	5 U,J,O	0.096 U	0.095 U	0.096 U	0.096 U	4.9 U,J,O	NA
Isophorone	4.8 U	4.8 U,J,O	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U	4.8 U	4.9 U	4.8 U,J,O
Naphthalene	12	780	240	130	15	10	9	24	3.6	2	5.6	2.9	22	780
Nitrobenzene	4.8 U	4.8 U,J,O	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U	4.8 U	4.9 U	4.8 U,J,O
n-Nitroso di-n-Propylamine	4.8 U	4.8 U,J,O	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U	4.8 U	4.9 U	4.8 U,J,O
n-Nitrosodiphenylamine/Diphenylamine	4.8 U	4.8 U,J,O	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5 U	4.8 U	4.8 U	4.8 U	4.8 U	4.9 U	4.8 U,J,O
Pentachlorophenol	9.6 U,J,O	9.6 U,J,O	9.6 U,J,O	9.6 U,J,O	9.5 U,J,O	9.6 U,J,O	9.5 U,J,O	10 U,J,O	0.19 U	0.19 U	0.19 U	9.6 U,J,O	9.7 U,J,O	9.6 U,J,O
Phenanthrene	4.8 U	40 J,O	5.3	5.2	0.31 J,O	0.49	4.8 U	0.92 J,O	0.22	0.1	0.14	0.046 J,O	4.9 U	2.6 J,O
Phenol	9.6 U	2.7 J,O	9.6 U	9.6 U	9.5 U	9.6 U	9.5 U	10 U	9.6 U	9.5 U	9.6 U	9.6 U	9.7 U	9.6 U
Pyrene	4.8 U	1.5 J,O	4.8 U	4.8 U	0.095 U	0.096 U	4.8 U	5 U	0.096 U	0.095 U	0.096 U	0.029 J,O	4.9 U	4.8 U

Notes:

ACW - American Creosote Works

ft bls - feet below land surface

µg/L - micrograms per liter

U - Analyte not detected at or above laboratory reporting limit.

J - Identification of analyte is acceptable. Reported value is an estimate.

O - Other qualifiers, provided from the laboratory to explain qualifier

NA - Not Analyzed

Created by: Suzy Prouty
Checked by: Amy Callaway

Table 3-6
DPT Analytical Results - 2018
American Creosote Works
Pensacola, Escambia County, Florida

Sample Location	DPT1002	DPT1002	DPT1002	DPT1004	DPT1004	DPT1004	DPT1004	DPT1005	DPT1005	DPT1005	DPT1006	IW01	IW01
Sample Date	11/2/2018	11/2/2018	11/2/2018	11/4/2018	11/4/2018	11/4/2018	11/4/2018	10/29/2018	10/29/2018	10/29/2018	10/30/2018	11/5/2018	11/5/2018
Sample ID No.	GW1002-42	GW91002-42	GW1002-54	GW1004-10	GW1004-20	GW1004-30	GW1004-40	GW1005-14	GW1005-22	GW1005-30	GW1006-16	IW01	IW901
Depth (ft bls)	38-42	38-42	50-54	6-10	16-20	26-30	36-40	10-14	18-22	26-30	12-16	40-60	40-60
Analyte (ug/L)													
(3-and/or 4-)Methylphenol	9.7 U	9.7 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	14	330 J,O	4.1 J,O	0.76 J,O	9.6 U	9.6 U
1,1-Biphenyl	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	1.5 J,O	15 J,O	23	19	4.8 U	4.8 U
1,2,4,5-Tetrachlorobenzene	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	49 U	4.9 U,J,O	4.8 U	4.8 U	4.8 U
1,4-Dioxane	1.9 U	1.9 U	1.9 U,J,O	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	19 U	1.9 U	1.9 U	1.9 U	1.9 U
2,3,4,6-Tetrachlorophenol	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	49 U	4.9 U,J,O	4.8 U	4.8 U	4.8 U
2,4,5-Trichlorophenol	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	49 U	4.9 U,J,O	4.8 U	4.8 U	4.8 U
2,4,6-Trichlorophenol	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	49 U	4.9 U,J,O	4.8 U	4.8 U	4.8 U
2,4-Dichlorophenol	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	49 U	4.9 U,J,O	4.8 U	4.8 U	4.8 U
2,4-Dimethylphenol	4.9 U	4.9 U	4.8 U	4.8 U	0.94 J,O	4.8 U	4.8 U	37	1100	25 J,O	600	4.8 U	4.8 U
2,4-Dinitrophenol	9.7 U,J,O	9.7 U,J,O	9.6 U,J,O	9.6 U,J,O	9.6 U,J,O	9.6 U,J,O	9.6 U,J,O	9.5 U,J,O	97 U,J,O	9.7 U,J,O	NA	9.6 U,J,O	9.6 U,J,O
2,4-Dinitrotoluene	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	49 U	4.9 U,J,O	4.8 U,J,O	4.8 U	4.8 U
2,6-Dinitrotoluene	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	49 U	4.9 U,J,O	0.81 J,O	4.8 U	4.8 U
2-Chloronaphthalene	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	49 U	4.9 U	4.8 U	4.8 U	4.8 U
2-Chlorophenol	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	49 U	4.9 U	4.8 U	4.8 U	4.8 U
2-Methyl-4,6-dinitrophenol	9.7 U,J,O	9.7 U,J,O	9.6 U,J,O	9.6 U,J,O	9.6 U,J,O	9.6 U,J,O	9.6 U,J,O	9.5 U,J,O	97 U,J,O	9.7 U,J,O	9.6 U,J,O	9.6 U,J,O	9.6 U,J,O
2-Methylnaphthalene	0.33	0.15	0.053 J,O	0.076 J,O	1.9 J,O	0.11	0.033 J,O	13	120	190 J,O	52 J,O	0.096 U	0.096 U
2-Methylphenol	9.7 U	9.7 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.4 J,O	210 J,O	9.7 U	3.1 J,O	9.6 U	9.6 U
2-Nitroaniline	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	49 U	4.9 U	NA	4.8 U	4.8 U
2-Nitrophenol	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	49 U	4.9 U,J,O	4.8 U,J,O	4.8 U	4.8 U
3,3'-Dichlorobenzidine	9.7 U,J,O	9.7 U,J,O	9.6 U,J,O	9.6 U,J,O	9.6 U,J,O	9.6 U,J,O	9.6 U,J,O	9.5 U,J,O	97 U,J,O	9.7 U,J,O	9.6 U,J,O	9.6 U,J,O	9.6 U,J,O
3-Nitroaniline	9.7 U	9.7 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.5 U	97 U	9.7 U	NA	9.6 U	9.6 U
4-Bromophenyl phenyl ether	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	49 U	4.9 U	4.8 U	4.8 U	4.8 U
4-Chloro-3-methylphenol	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	49 U	4.9 U,J,O	4.8 U,J,O	4.8 U	4.8 U
4-Chloroaniline	9.7 U	9.7 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.5 U	97 U	9.7 U	9.6 U	9.6 U	9.6 U
4-Chlorophenyl phenyl ether	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	49 U	4.9 U	4.8 U	4.8 U	4.8 U
4-Nitroaniline	9.7 U	9.7 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.5 U	97 U	9.7 U	NA	9.6 U	9.6 U
4-Nitrophenol	9.7 U	9.7 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.5 U	97 U	9.7 U	NA	9.6 U	9.6 U
Acenaphthene	1.2	1.2	4.8	0.44	12	9.4	1.4	7.1	75 J,O	91 J,O	110 J,O	0.17	0.15
Acenaphthylene	0.02 J,O	0.019 J,O	0.034 J,O	0.011 J,O	4.8 U	0.22	0.035 J,O	4.8 U	49 U	2.7 J,O	2.4 J,O	0.096 U	0.096 U
Acetophenone	9.7 U	9.7 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	0.85 J,O	19 J,O	0.77 J,O	9.6 U,J,O	9.6 U	9.6 U
Anthracene	0.054 J,O	0.062 J,O	0.096	0.021 J,O	0.4 J,O	0.38	0.087 J,O	0.44 J,O	5.1 J,O	3.5 J,O	2 J,O	0.04 J,O	0.042 J,O
Atrazine	9.7 U	9.7 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.5 U	97 U	9.7 U	9.6 U	9.6 U	9.6 U
Benzaldehyde	9.7 U	9.7 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.5 U	97 U	9.7 U	9.6 U	9.6 U	9.6 U
Benzo(a)anthracene	0.097 U	0.097 U	0.096 U	0.096 U	4.8 U	0.096 U	0.096 U	4.8 U	49 U	4.9 U	4.8 U	0.096 U	0.096 U
Benzo(a)pyrene	0.097 U	0.097 U	0.096 U	0.096 U	4.8 U,J,O	0.096 U	0.096 U	4.8 U	49 U	4.9 U,J,O	4.8 U,J,O	0.096 U	0.096 U
Benzo(b)fluoranthene	0.097 U	0.097 U	0.096 U	0.096 U	4.8 U,J,O	0.096 U	0.096 U	4.8 U	49 U	4.9 U,J,O	4.8 U,J,O	0.096 U	0.096 U
Benzo(g,h,i)perylene	0.097 U	0.097 U	0.096 U	0.096 U	4.8 U,J,O	0.096 U	0.096 U	4.8 U	49 U	4.9 U,J,O	4.8 U,J,O	0.096 U	0.096 U
Benzo(k)fluoranthene	0.097 U	0.097 U	0.096 U	0.096 U	4.8 U,J,O	0.096 U	0.096 U	4.8 U	49 U	4.9 U,J,O	4.8 U,J,O	0.096 U	0.096 U
Benzyl butyl phthalate	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	49 U	4.9 U	4.8 U	4.8 U	4.8 U
Bis(2-chloroethoxy)methane	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	49 U	4.9 U	4.8 U	4.8 U	4.8 U
bis(2-Chloroethyl) Ether	9.7 U	9.7 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.5 U	97 U	9.7 U	9.6 U	9.6 U	9.6 U
Bis(2-chloroisopropyl) ether	9.7 U	9.7 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.5 U	97 U	9.7 U	9.6 U	9.6 U	9.6 U
Bis(2-ethylhexyl) phthalate	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	49 U	4.9 U	4.8 U	4.8 U	4.8 U
Caprolactam	9.7 U,J,O	9.7 U,J,O	9.6 U,J,O	9.6 U,J,O	9.6 U,J,O	9.6 U,J,O	9.6 U,J,O	9.5 U,J,O	97 U,J,O	9.7 U,J,O	9.6 U,J,O	9.6 U,J,O	9.6 U,J,O

Created by: Suzy Prouty
Checked by: Amy Callaway

Table 3-6
DPT Analytical Results - 2018
American Creosote Works
Pensacola, Escambia County, Florida

Sample Location	DPT1002	DPT1002	DPT1002	DPT1004	DPT1004	DPT1004	DPT1004	DPT1005	DPT1005	DPT1005	DPT1006	IW01	IW01
Sample Date	11/2/2018	11/2/2018	11/2/2018	11/4/2018	11/4/2018	11/4/2018	11/4/2018	10/29/2018	10/29/2018	10/29/2018	10/30/2018	11/5/2018	11/5/2018
Sample ID No.	GW1002-42	GW91002-42	GW1002-54	GW1004-10	GW1004-20	GW1004-30	GW1004-40	GW1005-14	GW1005-22	GW1005-30	GW1006-16	IW01	IW901
Depth (ft bls)	38-42	38-42	50-54	6-10	16-20	26-30	36-40	10-14	18-22	26-30	12-16	40-60	40-60
Analyte (ug/L)													
Carbazole	9.7 U	9.7 U	9.6 U	9.6 U	4.7 J,O	9.6 U	9.6 U	16	110 J,O	250 J,O	96 J,O	9.6 U	9.6 U
Chrysene	0.097 U	0.097 U	0.096 U	0.096 U	4.8 U	0.096 U	0.096 U	4.8 U	49 U	4.9 U	4.8 U	0.096 U	0.096 U
Dibenzo(a,h)anthracene	0.097 U	0.097 U	0.096 U	0.096 U	4.8 U,J,O	0.096 U	0.096 U	4.8 U	49 U	4.9 U,J,O	4.8 U,J,O	0.096 U	0.096 U
Dibenzofuran	4.9 U	4.9 U	4.8 U	4.8 U	3.6 J,O	4.8 U	4.8 U	4 J,O	45 J,O	48	55	4.8 U	4.8 U
Diethyl phthalate	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	49 U	4.9 U	4.8 U	4.8 U	4.8 U
Dimethyl phthalate	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	49 U	4.9 U	4.8 U	4.8 U	4.8 U
Di-n-butylphthalate	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	49 U	4.9 U	4.8 U	4.8 U	4.8 U
Di-n-octylphthalate	9.7 U	9.7 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.5 U	97 U	9.7 U	9.6 U	9.6 U	9.6 U
Fluoranthene	0.097 U	0.097 U	0.096 U	0.096 U	9.6 U	0.041 J,O	0.018 J,O	9.5 U	97 U	0.96 J,O	0.76 J,O	0.029 J,O	0.027 J,O
Fluorene	0.043 J,O	0.049 J,O	0.12	0.11	3 J,O	2	0.096 U	4.6 J,O	47 J,O	60	48	0.067 J,O	0.068 J,O
Hexachlorobenzene (HCB)	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	49 U	4.9 U	4.8 U	4.8 U	4.8 U
Hexachlorobutadiene	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	49 U	4.9 U,J,O	4.8 U	4.8 U	4.8 U
Hexachlorocyclopentadiene (HCCP)	9.7 U,J,O	9.7 U,J,O	9.6 U,J,O	9.6 U,J,O	9.6 U,J,O	9.6 U,J,O	9.6 U,J,O	9.5 U	97 U	9.7 U,J,O	9.6 U,J,O	9.6 U,J,O	9.6 U,J,O
Hexachloroethane	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	49 U	4.9 U,J,O	4.8 U,J,O	4.8 U	4.8 U
Indeno (1,2,3-cd) pyrene	0.097 U	0.097 U	0.096 U	0.096 U	4.8 U,J,O	0.096 U	0.096 U	4.8 U	49 U	4.9 U,J,O	4.8 U,J,O	0.096 U	0.096 U
Isophorone	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	49 U	4.9 U,J,O	4.8 U,J,O	4.8 U	4.8 U
Naphthalene	3	2.3	0.98	3.7	140	13	1.1	180	1900	3200	1600	0.096 U	0.1
Nitrobenzene	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	49 U	4.9 U,J,O	4.8 U,J,O	4.8 U	4.8 U
n-Nitroso di-n-Propylamine	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	49 U	4.9 U,J,O	4.8 U,J,O	4.8 U	4.8 U
n-Nitrosodiphenylamine/Diphenylamine	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	49 U	4.9 U,J,O	4.8 U,J,O	4.8 U	4.8 U
Pentachlorophenol	9.7 U,J,O	9.7 U,J,O	9.6 U,J,O	9.6 U,J,O	9.6 U,J,O	9.6 U,J,O	9.6 U,J,O	9.5 U,J,O	97 U,J,O	9.7 U,J,O	9.6 U,J,O	0.077 J,O	0.089 J,O
Phenanthrene	0.036 J,O	0.042 J,O	0.072 J,O	0.026 J,O	0.67 J,O	0.12	0.074 J,O	4.1 J,O	47 J,O	31	28	0.014 J,O	0.015 J,O
Phenol	9.7 U	9.7 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.5 U	22 J,O	9.7 U	9.6 U	9.6 U	9.6 U
Pyrene	0.097 U	0.097 U	0.096 U	0.096 U	4.8 U	0.096 U	0.096 U	4.8 U	49 U	4.9 U	0.6 J,O	0.096 U	0.096 U

Notes:

ACW - American Creosote Works

ft bls - feet below land surface

µg/L - micrograms per liter

U - Analyte not detected at or above laboratory repo

J - Identification of analyte is acceptable. Reported v

O - Other qualifiers, provided from the laboratory to

NA - Not Analyzed

Created by: Suzy Prouty
Checked by: Amy Callaway

Table 3-7
Semi-Volatile Organic Compounds in Surface Soil - ACW Facility
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	Land Disposal Restrictions[1]	EPA 1999 AROD RGs[2]	FDEP SCTLs[3]			Sample ID				
						SS506	SS509	SS512	SS515	
						D	D	D	D	D (dup)
						Sample Date				
	10X UTS	ACW Facility Surface Soil	Commercial Direct Exposure	Leachability Based on Groundwater Criteria	Leachability Based on Marine Surface Water Criteria	2/23/2010	2/23/2010	2/23/2010	1/31/2011	
SVOCs - cPAHs (µg/kg)										
Total BaP TEQ	NE	NE	700	8,000	NE	227 J,O	56 J,O	313 J,O	150,720 J,O	154,740 J,O
Benzo(a)anthracene	34,000	NE	#	800	NE	170 J,O	28 J,O	570	350,000	3,700,000
Benzo(a)pyrene	34,000	NE	700	8,000	NE	140 J,O	29 J,O	170 J,O	78,000	79,000
Benzo(b)fluoranthene	68,000	NE	#	2,400	NE	140 J,O	36 J,O	220	130,000 J,O	150,000 J,O
Benzo(k)fluoranthene	68,000	NE	#	24,000	NE	170 J,O	43 J,O	240 J,O	49,000 J,O	28,000 J,O
Chrysene	34,000	NE	#	77,000	NE	200	35	580	330,000	360,000
Dibenzo(a,h)anthracene	82,000	NE	#	700	NE	45 J,O	15	53 J,O	20,000	19,000
Indeno (1,2,3-cd) pyrene	34,000	NE	#	6,600	NE	95 J,O	55 J,O	76 J,O	39,000	41,000
SVOCs -cPAHs (µg/kg)										
Acenaphthene	34,000	NE	20,000,000	2,100	300	300	130 J,O	1,500	1,500,000	1,700,000
Acenaphthylene	34,000	NE	20,000,000	27,000	NE	15	11	570 J,O	44,000	49,000
Anthracene	34,000	NE	300,000,000	2,500,000	400	280 J,O	45 J,O	1,100 J,O	1,500,000 J,O	1,800,000 J,O
Benzo(g,h,i)perylene	18,000	NE	52,000,000	32,000,000	NE	61 J,O	40 J,O	48 J,O	20,000	21,000
Dibenzofuran	NE	NE	6,300,000	15,000	36,000	230	84 J,O	840	1,300,000	1,500,000
Fluoranthene	34,000	NE	59,000,000	1,200,000	1,300	640	75 J,O	2,800	2,200,000	2,500,000
Fluorene	34,000	NE	33,000,000	160,000	17,000	290	69 J,O	1,400	1,600,000	1,800,000
Naphthalene	56,000	NE	300,000	1,200	2,200	870	950	920	2,800,000	3,100,000
2-Methylnaphthalene	NE	NE	2,100,000	8,500	9,100	320	270	610	1,400,000	1,600,000
Phenanthrene	56,000	NE	36,000,000	250,000	NE	920	95 J,O	3,500	3,900,000 J,O	4,500,000 J,O
Pyrene	82,000	NE	45,000,000	880,000	1,300	470	65 J,O	1,900	1,400,000	1,500,000
Phenols (µg/kg)										
1,1-Biphenyl	NE	NE	34,000,000	200	5,800	50 J,O	31 J,O	95 J,O	180,000 J,O	320,000 J,O
Bis(2-ethylhexyl) phthalate	280,000	NE	390,000	3,600,000	1,300,000	180 U	190 U	190 U	6,100 U	6,900 U
Carbazole	NE	NE	240,000	200	6,500	130 J,O	190 U	330	760,000	840,000
Phenol	62,000	NE	220,000,000	50	30	180 U	190 U	190 U	6,000	7,400
2,4-Dimethylphenol	140,000	NE	18,000,000	1,700	1,900	180 U	190 U	190 U	6,100 U	6,900 U
2-Methylphenol (Cresol,o-)	56,000	NE	31,000,000	300	1,900	180 U	190 U	190 U	6,100 U	6,900 U
3-Methylphenol (Cresol,m-)	56,000	NE	33,000,000	300	3,300	180 U	190 U	190 U	6,100 U	6,900 U
4-Methylphenol (Cresol,p-)	56,000	NE	3,400,000	30	500	180 U	190 U	190 U	6,100 U	6,900 U
Pentachlorophenol	74,000	30,000	28,000	30	200	92 O	160 J,O	2,800 O	3,800 N,O	3,100

Table 3-7
Semi-Volatile Organic Compounds in Surface Soil - ACW Facility
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	Land Disposal Restrictions[1]	EPA 1999 AROD RGs[2]	FDEP SCTLs[3]			Sample ID					
						SS516			SS517		
						B	C	D	B	C	D
	10X UTS	ACW Facility Surface Soil	Commercial Direct Exposure	Leachability Based on Groundwater Criteria	Leachability Based on Marine Surface Water Criteria	Sample Date					
						2/26/2010		1/31/2011	2/26/2010	1/31/2011	
SVOCs - cPAHs (µg/kg)											
Total BaP TEQ	NE	NE	700	8,000	NE	581.4 J,O	39,364 J,O	290 J,O	513.2 J,O	5.17	487 J,O
Benzo(a)anthracene	34,000	NE	#	800	NE	310 J,O	21,000	230	230 J,O	10	310 J,O
Benzo(a)pyrene	34,000	NE	700	8,000	NE	310	22,000	180	290	3.5 U	290
Benzo(b)fluoranthene	68,000	NE	#	2,400	NE	710	38,000	190	470	4.4	550
Benzo(k)fluoranthene	68,000	NE	#	24,000	NE	300	14,000	140	290	4.8	600
Chrysene	34,000	NE	#	77,000	NE	380 J,O	24,000	270	300 J,O	8.0	580 J,O
Dibenzo(a,h)anthracene	82,000	NE	#	700	NE	130 J,O	8,900	52 J,O	120 J,O	3.5 U	76 J,O
Indeno (1,2,3-cd) pyrene	34,000	NE	#	6,600	NE	360 J,O	24,000 J,O	140	300 J,O	3.5 U	280 J,O
SVOCs -cPAHs (µg/kg)											
Acenaphthene	34,000	NE	20,000,000	2,100	300	9.2	130	4.0 U,O	3.9 J,O	7.4 U,O	32 U,O
Acenaphthylene	34,000	NE	20,000,000	27,000	NE	130 J,O	9,100	53 J,O	120 J,O	3.5 U	160
Anthracene	34,000	NE	300,000,000	2,500,000	400	460	2,700 J,O	20	28	8.2	610
Benzo(g,h,i)perylene	18,000	NE	52,000,000	32,000,000	NE	240	14,000	140	150	3.5 U	310 J,O
Dibenzofuran	NE	NE	6,300,000	15,000	36,000	230 U	4,000 U	NA	210 U	NA	NA
Fluoranthene	34,000	NE	59,000,000	1,200,000	1,300	380 J,O	32,000	340 J,O	340 J,O	16 U,O	290 J,O
Fluorene	34,000	NE	33,000,000	160,000	17,000	14	330	10	5.7	11	53
Naphthalene	56,000	NE	300,000	1,200	2,200	16	410	21	11	14	60 J,O
2-Methylnaphthalene	NE	NE	2,100,000	8,500	9,100	10	280	6.3 U,O	6.8	4.2 U,O	30
Phenanthrene	56,000	NE	36,000,000	250,000	NE	110 J,O	5,900	240 J,O	42 J,O	13 U,O	100 J,O
Pyrene	82,000	NE	45,000,000	880,000	1,300	330 J,O	27,000	330	300 J,O	14 U,O	310 J,O
Phenols (µg/kg)											
1,1-Biphenyl	NE	NE	34,000,000	200	5,800	230 U	4,000 U	NA	210 U	NA	NA
Bis(2-ethylhexyl) phthalate	280,000	NE	390,000	3,600,000	1,300,000	230 U	4,000 U	NA	210 U	NA	NA
Carbazole	NE	NE	240,000	200	6,500	56 J,O	910 J,O	NA	210 U	NA	NA
Phenol	62,000	NE	220,000,000	50	30	230 U	4,000 U	NA	210 U	NA	NA
2,4-Dimethylphenol	140,000	NE	18,000,000	1,700	1,900	230 U	4,000 U	NA	210 U	NA	NA
2-Methylphenol (Cresol,o-)	56,000	NE	31,000,000	300	1,900	230 U	4,000 U	NA	210 U	NA	NA
3-Methylphenol (Cresol,m-)	56,000	NE	33,000,000	300	3,300	230 U	4,000 U	NA	210 U	NA	NA
4-Methylphenol (Cresol,p-)	56,000	NE	3,400,000	30	500	230 U	4,000 U	NA	210 U	NA	NA
Pentachlorophenol	74,000	30,000	28,000	30	200	85 J,O	670 J,O	7.3 U,R,O	690 O	7.1 U,R,O	1,200

Table 3-7
Semi-Volatile Organic Compounds in Surface Soil - ACW Facility
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	Land Disposal Restrictions[1]	EPA 1999 AROD RGs[2]	FDEP SCTLs[3]			Sample ID					
						SS518			SS519		
						AB	C	D	AB	C	D
	10X UTS	ACW Facility Surface Soil	Commercial Direct Exposure	Leachability Based on Groundwater Criteria	Leachability Based on Marine Surface Water Criteria	Sample Date					
						1/31/2011			1/31/2011		
SVOCs - cPAHs (µg/kg)											
Total BaP TEQ	NE	NE	700	8,000	NE	14,882	6,872	165 J,O	7,076	715 J,O	21.7 J,O
Benzo(a)anthracene	34,000	NE	#	800	NE	28,000	11,000	290	1,800	400	31 J,O
Benzo(a)pyrene	34,000	NE	700	8,000	NE	9,600	4,600	77	4,600	490	12
Benzo(b)fluoranthene	68,000	NE	#	2,400	NE	11,000	4,700	160	7,600	520	21
Benzo(k)fluoranthene	68,000	NE	#	24,000	NE	10,000	5,200	100	5,200	500 J,O	19
Chrysene	34,000	NE	#	77,000	NE	22,000	9,800	230	3,600	510	31
Dibenzo(a,h)anthracene	82,000	NE	#	700	NE	940	520	34 J,O	1,200	94 J,O	3.5 U,J,O
Indeno (1,2,3-cd) pyrene	34,000	NE	#	6,600	NE	3,200	1,200	76 J,O	2,800	330	8.1 J,O
SVOCs -cPAHs (µg/kg)											
Acenaphthene	34,000	NE	20,000,000	2,100	300	87,000	36,000	790	34	130	3.5 U
Acenaphthylene	34,000	NE	20,000,000	27,000	NE	3,400	1,200	17	700	20	3.3 J,O
Anthracene	34,000	NE	300,000,000	2,500,000	400	75,000	18,000	770	580	240	3.2 J,O
Benzo(g,h,i)perylene	18,000	NE	52,000,000	32,000,000	NE	1,800	1,000	65 J,O	2,800	350	8.3 J,O
Dibenzofuran	NE	NE	6,300,000	15,000	36,000	NA	NA	NA	NA	NA	NA
Fluoranthene	34,000	NE	59,000,000	1,200,000	1,300	150,000	55,000	1,300 J,O	2,500	790	46 J,O
Fluorene	34,000	NE	33,000,000	160,000	17,000	88,000	35,000	860	60	78	3.5 U
Naphthalene	56,000	NE	300,000	1,200	2,200	330,000	110,000	1,400	81	170 J,O	7.9 J,O
2-Methylnaphthalene	NE	NE	2,100,000	8,500	9,100	77,000	27,000	520	46	120	3.5 U
Phenanthrene	56,000	NE	36,000,000	250,000	NE	240,000	89,000	1,700 J,O	570	550	3.1 U,J,O
Pyrene	82,000	NE	45,000,000	880,000	1,300	85,000	34,000	990	4,000	560	57 J,O
Phenols (µg/kg)											
1,1-Biphenyl	NE	NE	34,000,000	200	5,800	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	280,000	NE	390,000	3,600,000	1,300,000	NA	NA	NA	NA	NA	NA
Carbazole	NE	NE	240,000	200	6,500	NA	NA	NA	NA	NA	NA
Phenol	62,000	NE	220,000,000	50	30	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	140,000	NE	18,000,000	1,700	1,900	NA	NA	NA	NA	NA	NA
2-Methylphenol (Cresol,o-)	56,000	NE	31,000,000	300	1,900	NA	NA	NA	NA	NA	NA
3-Methylphenol (Cresol,m-)	56,000	NE	33,000,000	300	3,300	NA	NA	NA	NA	NA	NA
4-Methylphenol (Cresol,p-)	56,000	NE	3,400,000	30	500	NA	NA	NA	NA	NA	NA
Pentachlorophenol	74,000	30,000	28,000	30	200	950 J,O	390 U,J,O	42 J	210 J,O	360 U,J,O	39 J,O

Table 3-7
Semi-Volatile Organic Compounds in Surface Soil - ACW Facility
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	Land Disposal Restrictions[1]	EPA 1999 AROD RGs[2]	FDEP SCTLs[3]			Sample ID						
						SS520			SS521			
	10X UTS	ACW Facility Surface Soil	Commercial Direct Exposure	Leachability Based on Groundwater Criteria	Leachability Based on Marine Surface Water Criteria	AB	C	D	AB	C	*C (dup)*	D
						Sample Date						
						1/31/2011			1/31/2011			
SVOCs - cPAHs (µg/kg)												
Total BaP TEQ	NE	NE	700	8,000	NE	3,711	13.2 J,O	4.5 J,O	2,174	20,400 J,O	*26,700*	5,667 J,O
Benzo(a)anthracene	34,000	NE	#	800	NE	1,600	7.6	3.5 U,J,O	780	6,500 J,O	*6,500*	870 J,O
Benzo(a)pyrene	34,000	NE	700	8,000	NE	2,400	8.5	3.5 U	1,300	14,000	*19,000*	3,900
Benzo(b)fluoranthene	68,000	NE	#	2,400	NE	3,800	13 J,O	6.2 J,O	2,100	19,000	*21,000*	5,100
Benzo(k)fluoranthene	68,000	NE	#	24,000	NE	2,800 J,O	11	3.2 J,O	1,500	15,000	*17,000*	3,800
Chrysene	34,000	NE	#	77,000	NE	2,700	13	3.9	1,300	9,600 J,O	*10,000*	1,900 J,O
Dibenzo(a,h)anthracene	82,000	NE	#	700	NE	590	3.5 U,J,O	3.5 U,J,O	450	2,800	*3,900*	900
Indeno (1,2,3-cd) pyrene	34,000	NE	#	6,600	NE	1,500	7.5 J,O	3.5 U,J,O	1,200	8,300	*8,700*	2,300
SVOCs -cPAHs (µg/kg)												
Acenaphthene	34,000	NE	20,000,000	2,100	300	110	3.5 U	3.5 U	35	91	*78*	55 J,O
Acenaphthylene	34,000	NE	20,000,000	27,000	NE	400	3.7 J,O	3.5 U	240	1,600	*2,000*	650
Anthracene	34,000	NE	300,000,000	2,500,000	400	290	5.8	3.5 U	320	1,600	*2,800*	760 J,O
Benzo(g,h,i)perylene	18,000	NE	52,000,000	32,000,000	NE	1,400	7.9	3.5 U	1,400	8,600	*8,200*	2,300
Dibenzofuran	NE	NE	6,300,000	15,000	36,000	NA	NA	NA	NA	NA	*NA*	NA
Fluoranthene	34,000	NE	59,000,000	1,200,000	1,300	2,700	9.1 U,J,O	3.7 U,J,O	1,300	5,400 J,O	*6,600*	1,200 J,O
Fluorene	34,000	NE	33,000,000	160,000	17,000	130	3.5 U	3.5 U	35	260	*190*	160 J,O
Naphthalene	56,000	NE	300,000	1,200	2,200	180	3.5 U	3.5 U	200	100	*92*	21 J,O
2-Methylnaphthalene	NE	NE	2,100,000	8,500	9,100	49	3.5 U	3.5 U	50	76	*68*	20 J,O
Phenanthrene	56,000	NE	36,000,000	250,000	NE	420	3.5 U,J,O	3.5 U,J,O	560	290	*530*	200 J,O
Pyrene	82,000	NE	45,000,000	880,000	1,300	2,200	9.2 U,J,O	3.8 U,O	1,500	18,000 J,O	*19,000*	4,000 J,O
Phenols (µg/kg)												
1,1-Biphenyl	NE	NE	34,000,000	200	5,800	NA	NA	NA	NA	NA	*NA*	NA
Bis(2-ethylhexyl) phthalate	280,000	NE	390,000	3,600,000	1,300,000	NA	NA	NA	NA	NA	*NA*	NA
Carbazole	NE	NE	240,000	200	6,500	NA	NA	NA	NA	NA	*NA*	NA
Phenol	62,000	NE	220,000,000	50	30	NA	NA	NA	NA	NA	*NA*	NA
2,4-Dimethylphenol	140,000	NE	18,000,000	1,700	1,900	NA	NA	NA	NA	NA	*NA*	NA
2-Methylphenol (Cresol,o-)	56,000	NE	31,000,000	300	1,900	NA	NA	NA	NA	NA	*NA*	NA
3-Methylphenol (Cresol,m-)	56,000	NE	33,000,000	300	3,300	NA	NA	NA	NA	NA	*NA*	NA
4-Methylphenol (Cresol,p-)	56,000	NE	3,400,000	30	500	NA	NA	NA	NA	NA	*NA*	NA
Pentachlorophenol	74,000	30,000	28,000	30	200	120 J,O	32 J,O	9.1	38 J,O	10 J,O	*5.6 J,O*	390 U,J,O

Table 3-7
Semi-Volatile Organic Compounds in Surface Soil - ACW Facility
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	Land Disposal Restrictions[1]	EPA 1999 AROD RGs[2]	FDEP SCTLs[3]			Sample ID					
						SS522			SS523		
	10X UTS	ACW Facility Surface Soil	Commercial Direct Exposure	Leachability Based on Groundwater Criteria	Leachability Based on Marine Surface Water Criteria	AB	C	D	AB	C	D
						Sample Date					
						1/31/2011			1/31/2011		
SVOCs - cPAHs (µg/kg)											
Total BaP TEQ	NE	NE	700	8,000	NE	11,162 J,O	2,678 J,O	608 J,O	148 J,O	93.4 J,O	23.6 J,O
Benzo(a)anthracene	34,000	NE	#	800	NE	11,000 J,O	4,800 J,O	960 J,O	88	52	21 J,O
Benzo(a)pyrene	34,000	NE	700	8,000	NE	7,500	1,600	420	100 J,O	70 J,O	15
Benzo(b)fluoranthene	68,000	NE	#	2,400	NE	9,400 J,O	2,400 J,O	590 J,O	140 J,O	66 J,O	9.0 J,O
Benzo(k)fluoranthene	68,000	NE	#	24,000	NE	6,800	1,900	430	77 J,O	35 J,O	12
Chrysene	34,000	NE	#	77,000	NE	14,000	6,000	1,200	110	60	27 J,O
Dibenzo(a,h)anthracene	82,000	NE	#	700	NE	1,200	270	23 J,O	19	8.2	4.2 J,O
Indeno (1,2,3-cd) pyrene	34,000	NE	#	6,600	NE	3,400	630	40 J,O	56	30	13 J,O
SVOCs -cPAHs (µg/kg)											
Acenaphthene	34,000	NE	20,000,000	2,100	300	13,000	13,000	2,500	3.6 J	5.3 U,O	3.5 U
Acenaphthylene	34,000	NE	20,000,000	27,000	NE	650	280	74	9.3	3.6 U	3.5 U
Anthracene	34,000	NE	300,000,000	2,500,000	400	23,000	8,200	1,400	11	7.5	3.5 U
Benzo(g,h,i)perylene	18,000	NE	52,000,000	32,000,000	NE	3,000	550	38 J,O	78 J,O	57 J,O	16 J,O
Dibenzofuran	NE	NE	6,300,000	15,000	36,000	NA	NA	NA	NA	NA	NA
Fluoranthene	34,000	NE	59,000,000	1,200,000	1,300	46,000	28,000	8,000	64 J,O	52 J,O	16 U,J,O
Fluorene	34,000	NE	33,000,000	160,000	17,000	15,000	15,000	2,900	3.6 U	3.6 U	3.5 U
Naphthalene	56,000	NE	300,000	1,200	2,200	4,800	370	15	15	11	9.9
2-Methylnaphthalene	NE	NE	2,100,000	8,500	9,100	4,100	53	5.9	6.3 U,O	15 U,O	13 U,O
Phenanthrene	56,000	NE	36,000,000	250,000	NE	33,000	36,000	7,400	15 U,J,O	27 J	7.5 U,J,O
Pyrene	82,000	NE	45,000,000	880,000	1,300	27,000	15,000	3,900	85	57	24 U,J,O
Phenols (µg/kg)											
1,1-Biphenyl	NE	NE	34,000,000	200	5,800	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	280,000	NE	390,000	3,600,000	1,300,000	NA	NA	NA	NA	NA	NA
Carbazole	NE	NE	240,000	200	6,500	NA	NA	NA	NA	NA	NA
Phenol	62,000	NE	220,000,000	50	30	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	140,000	NE	18,000,000	1,700	1,900	NA	NA	NA	NA	NA	NA
2-Methylphenol (Cresol,o-)	56,000	NE	31,000,000	300	1,900	NA	NA	NA	NA	NA	NA
3-Methylphenol (Cresol,m-)	56,000	NE	33,000,000	300	3,300	NA	NA	NA	NA	NA	NA
4-Methylphenol (Cresol,p-)	56,000	NE	3,400,000	30	500	NA	NA	NA	NA	NA	NA
Pentachlorophenol	74,000	30,000	28,000	30	200	410 J,O	930 J,O	17 J,O	7.3 U	7.2 U	7.1 U,J,O

Table 3-7
Semi-Volatile Organic Compounds in Surface Soil - ACW Facility
American Creosote Works Site
Pensacola, Escambia County, Florida

Notes

[1]	Land Disposal Restrictions (LDR) equals 10 times the Universal Treatment Standards (UTS), Per Code of Federal Regulations (CFR) 40-268.48.
[2]	Remedial Goals (RGs) as obtained from the Amended Record of Decision (AROD), Operable Unit 1, American Creosote Works (ACW) Site, Pensacola, Escambia County, Florida, EPA, May 1999.
[3]	Florida Administrative Code (F.A.C.) Chapter 62-777, Table II, adopted April 2005, FDEP
#	Site concentrations for carcinogenic polycyclic aromatic hydrocarbons (PAHs) must be converted to benzo(a)pyrene equivalents before comparison with the appropriate direct exposure SCTL for benzo(a)pyrene using the approach described in the February 2005 "Final Technical Report: Development of Cleanup Target Levels (CTLs) for Chapter 62-777, F.A.C."
NA	Not Analyzed
NE	Not Established
EPA	U.S. Environmental Protection Agency
FDEP	Florida Department of Environmental Protection
µg/kg	micrograms per kilogram (parts per billion or "ppb")
U	Analyte not detected at or above laboratory reporting limit.
J	Identification of analyte is acceptable. Reported value is an estimate.
R	The presence or absence of the analyte can not be determined from the data due to severe quality control problems. The data are rejected and considered unusable.
O	Denoted as "other". Specified in EPA Final Analytical Report Project 10-0274 and 11-0156 as: B-4 - Level in blank impacts MRLs; CLP01 - Concentration reported is less than the lowest standard on calibration curve; CLP02 - Concentration reported is greater than the highest standard on calibration curve; CLP15 - TIC Results reported as identified by lab - IDs not verified; CLP16 - Initial calibration response erratic; CLP17 - Initial calibration relative response outside method control limits; CLP32 - Continuing calibration relative response outside method control limits; QC-1 - Analyte concentration low in continuing calibration verification standard; QC-2 - Analyte concentration high in continuing calibration verification standard; QI-1 - Internal standard was outside of method control limits; QM-1 - Matrix Spike Recovery less than method control limits; QM-2 - Matrix Spike Recovery greater than method control limits; QS-3 - Surrogate recovery is lower than established control limits; QS-4 - Surrogate recovery less than 10 percent.
Bold	Indicates the exceedance of the laboratory method detection limit.
Bold Underline	Contaminant of Concern identified in 1999 Amended Record of Decision (AROD).
Bold	Indicates the exceedance of LDR (UTS X10).
Bold	Indicates the exceedance of EPA 1999 AROD ACW Facility Surface Soil Remedial Goals.
Bold	Indicates the exceedance of FDEP SCTLs for Direct Exposure in Commercial Soil, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777.
Bold	Indicates the exceedance of FDEP SCTLs for Leachability Based on Groundwater Criteria, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777.
Bold	Indicates the exceedance of FDEP SCTLs for Marine Surface Water, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777. (Per Case # 11-1130, the Bayou Chico Basin is classified as a Class III water in accordance with FDEP Surface Water Quality Standards, Chapter 62-302.)
BaP	benzo(a)pyrene
TEQ	Toxicity Equivalent
Italic	Indicates a duplicate (dup) sample
SCTL	Soil Cleanup Target Levels
SVOC	Semi-Volatile Organic Compounds
ft	feet
SS	Soil Sample
A	Depth of 0-6 inches
B	Depth of 6-12 inches
AB	Depth of 0-12 inches
C	Depth of 1-2 feet
D	Depth of 2-3 feet

Table 3-8
Semi-Volatile Organic Compounds in Subsurface Soil - ACW Facility
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	Land Disposal Restrictions[1]	EPA 1999 AROD RGs[2]	FDEP SCTLs[3]		Sample ID							
					SS506				SS509			
					E	F	G	H	E	F	G	H
					Sample Date							
	10X UTS	Subsurface Soil	Leachability Based on Groundwater Criteria	Leachability Based on Marine Surface Water Criteria	1/31/2011				1/31/2011			
SVOCs - cPAHs (µg/kg)												
Total BaP TEQ	NE	NE	8,000	NE	4.4 U,J,O	4.4 U,J,O	4.6 U,J,O	4.6 U,J,O	4.5 U,J,O	**8.91 J,O**	4.7 U,J,O	4.6 U,J,O
Benzo(a)anthracene	34,000	740,000	800	NE	3.8 U	3.8 U	4.0 U	4.0 U	3.9 U	3.8 U	4.1 U,J,O	4.0 U,J,O
Benzo(a)pyrene	34,000	NE	8,000	NE	3.8 U	3.8 U	4.0 U	4.0 U	3.9 U	**6.0 J,O**	4.1 U	4.0 U
Benzo(b)fluoranthene	68,000	153,065,000	2,400	NE	3.8 U	3.8 U	4.0 U	4.0 U	3.9 U	**6.1 J,O**	4.1 U,J,O	4.0 U
Benzo(k)fluoranthene	68,000	153,065,000	24,000	NE	3.8 U	3.8 U	4.0 U	4.0 U	3.9 U	3.8 U,J,O	4.1 U	4.0 U
Chrysene	34,000	2,090,000	77,000	NE	3.8 U	3.8 U	4.0 U	4.0 U	3.9 U	3.8 U	4.1 U	4.0 U
Dibenzo(a,h)anthracene	82,000	NE	700	NE	3.8 U,J,O	3.8 U,J,O	4.0 U,J,O	4.0 U,J,O	3.9 U,J,O	3.8 U	4.1 U,J,O	4.0 U,J,O
Indeno (1,2,3-cd) pyrene	34,000	NE	6,600	NE	3.8 U,J,O	3.8 U,J,O	4.0 U,J,O	4.0 U,J,O	3.9 U,J,O	3.8 U	4.1 U,J,O	4.0 U,J,O
SVOCs (µg/kg)												
Acenaphthene	34,000	876,000	2,100	300	3.8 U	3.8 U	4.0 U	4.0 U	3.9 U	3.8 U	4.1 U	4.0 U
Acenaphthylene	34,000	NE	27,000	NE	3.8 U	3.8 U	4.0 U	4.0 U	3.9 U	3.8 U	4.1 U	4.0 U
Anthracene	34,000	145,000	2,500,000	400	3.8 U	3.8 U	4.0 U	4.0 U	**5.2**	3.8 U	4.1 U	4.0 U
Benzo(g,h,i)perylene	18,000	NE	32,000,000	NE	3.8 U	3.8 U	4.0 U	4.0 U	3.9 U	3.8 U	4.1 U,J,O	4.0 U,J,O
Dibenzofuran	NE	24,000	15,000	36,000	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	34,000	1,450,000	1,200,000	1,300	6.9 U,J,O	3.9 U,J,O	6.4 U,J,O	4.0 U,J,O	7.7 U,J,O	3.8 U,J,O	4.1 U,J,O	4.2 U,J,O
Fluorene	34,000	78,000	160,000	17,000	3.8 U	3.8 U	4.0 U	4.0 U	3.9 U	3.8 U	4.1 U	4.0 U
Naphthalene	56,000	235,000	1,200	2,200	3.8 U	3.8 U	4.0 U	4.0 U	3.9 U	3.8 U	4.1 U	4.0 U
Phenanthrene	56,000	148,000	250,000	NE	3.8 U,J,O	3.8 U,J,O	4.0 U,J,O	4.0 U,J,O	3.9 U,J,O	3.8 U,J,O	4.1 U,J,O	4.0 U,J,O
Pyrene	82,000	1,070,000	880,000	1,300	6.9 U,J,O	3.8 U,J,O	4.7 U,J,O	4.0 U,J,O	6.0 U,J,O	3.8 U	4.1 U,J,O	4.0 U,J,O
2-Methylnaphthalene	NE	NE	8,500	9,100	3.8 U	3.8 U	4.0 U	4.0 U	3.9 U	3.8 U	4.1 U	4.0 U
Phenols (µg/kg)												
1,1-Biphenyl	NE	NE	200	5,800	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	280,000	NE	3,600,000	1,300,000	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NE	NE	200	6,500	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	62,000	NE	50	30	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	140,000	NE	1,700	1,900	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol (Cresol,o-)	56,000	NE	300	1,900	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol (Cresol,m-)	56,000	Depth of 4-6 feet	300	3,300	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol (Cresol,p-)	56,000	NE	30	500	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	74,000	138,000,000	30	200	7.8 U,R,O	7.7 U,R,O	8.1 U,R,O	8.1 U,R,O	**11 J,O**	**8.0**	8.3 U,R,O	**4.8 J,O**

Table 3-8
Semi-Volatile Organic Compounds in Subsurface Soil - ACW Facility
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	Land Disposal Restrictions[1]	EPA 1999 AROD RGs[2]	FDEP SCTLs[3]		Sample ID								
					SS512				SS516				
	10X UTS	Subsurface Soil	Leachability Based on Groundwater Criteria	Leachability Based on Marine Surface Water Criteria	E	F	G	H	E	F	G	H	*H (dup)*
					Sample Date								
					1/31/2011				1/31/2011				
SVOCs - cPAHs (µg/kg)													
Total BaP TEQ	NE	NE	8,000	NE	**20.01 J,O**	**4.97 J,O**	4.6 U,J,O	4.6 U,J,O	**35**	**15.03 J,O**	**5.93 J,O**	4.6 U,J,O	*6.2 J,O*
Benzo(a)anthracene	34,000	740,000	800	NE	**11 J,O**	3.9 U	4.0 U,J,O	4.0 U,J,O	**35**	**20**	**6.7**	4.0 U,J,O	***16***
Benzo(a)pyrene	34,000	NE	8,000	NE	**14**	3.9 U	4.0 U	4.0 U	**22**	3.8 U	3.9 U	4.0 U	*4.0 U*
Benzo(b)fluoranthene	68,000	153,065,000	2,400	NE	**18 J,O**	**6.3 J,O**	4.0 U,J,O	4.0 U,J,O	**13**	**18 J,O**	**11 J,O**	4.0 U	***3.1 J,O***
Benzo(k)fluoranthene	68,000	153,065,000	24,000	NE	**14**	**4.3 J,O**	4.0 U	4.0 U	**20**	**21**	**5.9**	4.0 U	***3.2 J,O***
Chrysene	34,000	2,090,000	77,000	NE	**20 J,O**	**4.1**	4.0 U	4.0 U	**36**	**21**	**5.7**	4.0 U	***10***
Dibenzo(a,h)anthracene	82,000	NE	700	NE	4.0 U,J,O	3.9 U	4.0 U,J,O	4.0 U,J,O	**6.8**	**7.1 J,O**	3.9 U,J,O	4.0 U,J,O	*4.0 U*
Indeno (1,2,3-cd) pyrene	34,000	NE	6,600	NE	**9.5 J,O**	3.9 U	4.0 U,J,O	4.0 U,J,O	**14**	**20 J,O**	3.9 U,J,O	4.0 U,J,O	*4.0 U*
SVOCs (µg/kg)													
Acenaphthene	34,000	876,000	2,100	300	4.0 U	3.9 U	8.1 U,O	6.1 U,O	13 U,O	3.8 U	4.1 U,O	4.0 U	*14 U,O*
Acenaphthylene	34,000	NE	27,000	NE	**5.7**	3.9 U	4.0 U	4.0 U	3.8 U	**5.1**	3.9 U	4.0 U	*4.0 U*
Anthracene	34,000	145,000	2,500,000	400	**13**	3.9 U	4.0 U	4.0 U	**17**	**5.2**	**3.9**	4.0 U	***13***
Benzo(g,h,i)perylene	18,000	NE	32,000,000	NE	**12 J,O**	**4.1 J,O**	4.0 U,J,O	4.0 U,J,O	**15**	**21 J,O**	3.9 U,J,O	4.0 U	*4.0 U*
Dibenzofuran	NE	24,000	15,000	36,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	34,000	1,450,000	1,200,000	1,300	38 U,J,O	8.2 U,J,O	23 U,J,O	7.1 U,J,O	**100 J,O**	**30**	**12**	4.0 U,J,O	***54 J,O***
Fluorene	34,000	78,000	160,000	17,000	4.0 U	3.9 U	4.0 U	4.0 U	**27**	**6.3**	**7.5**	4.0 U	***25***
Naphthalene	56,000	235,000	1,200	2,200	4.0 U	3.9 U	4.0 U	4.0 U	**20**	**16**	**17**	4.0 U	***35***
Phenanthrene	56,000	148,000	250,000	NE	4.0 U,J,O	3.9 U,J,O	4.0 U,J,O	4.0 U,J,O	**110 J,O**	17 U,O	15 U,O	4.0 U,J,O	***64 J,O***
Pyrene	82,000	1,070,000	880,000	1,300	26 U,J,O	3.9 U,O	7.3 U,J,O	6.3 U,J,O	**86**	**29**	11 U,O	4.0 U	***40***
2-Methylnaphthalene	NE	NE	8,500	9,100	4.0 U	3.9 U	4.0 U	4.0 U	7.5 U,O	6.1 U,O	5.0 U,O	4.0 U	*9.5 U,O*
Phenols (µg/kg)													
1,1-Biphenyl	NE	NE	200	5,800	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	280,000	NE	3,600,000	1,300,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NE	NE	200	6,500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	62,000	NE	50	30	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	140,000	NE	1,700	1,900	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol (Cresol,o-)	56,000	NE	300	1,900	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol (Cresol,m-)	56,000	Depth of 4-6 feet	300	3,300	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol (Cresol,p-)	56,000	NE	30	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	74,000	138,000,000	30	200	**43 J,O**	**14**	**7.9 J,O**	**6.6 J,O**	7.6 U	7.8 U,R,O	8.0 U,R,O	8.1 U	*8.1 U,R,O*

Table 3-8
Semi-Volatile Organic Compounds in Subsurface Soil - ACW Facility
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	Land Disposal Restrictions[1]	EPA 1999 AROD RGs[2]	FDEP SCTLs[3]		Sample ID								
					SS517					SS518			
	10X UTS	Subsurface Soil	Leachability Based on Groundwater Criteria	Leachability Based on Marine Surface Water Criteria	E	F	G	G (dup)	H	E	F	G	H
					Sample Date								
					1/31/2011					1/31/2011			
SVOCs - cPAHs (µg/kg)													
Total BaP TEQ	NE	NE	8,000	NE	68 J,O	103	35.6	39.1	51.2	19,899 J,O	33,149 J,O	89,650 J,O	128,460 J,O
Benzo(a)anthracene	34,000	740,000	800	NE	65	66	30	35	65	34,000 J,O	59,000 J,O	150,000 J,O	220,000
Benzo(a)pyrene	34,000	NE	8,000	NE	36	48	21	24	30	13,000	21,000	57,000 J,O	82,000 J,O
Benzo(b)fluoranthene	68,000	153,065,000	2,400	NE	70 J,O	110	33	30	38	14,000	24,000	67,000 J,O	94,000 J,O
Benzo(k)fluoranthene	68,000	153,065,000	24,000	NE	70	61	29	31	27	15,000	22,000	55,000 J,O	130,000 J,O
Chrysene	34,000	2,090,000	77,000	NE	72 J,O	67	21	36	34	29,000 J,O	49,000 J,O	200,000	260,000
Dibenzo(a,h)anthracene	82,000	NE	700	NE	14	32	5.7	6.7	8.2	1,500	2,900	8,500	11,000 J,O
Indeno (1,2,3-cd) pyrene	34,000	NE	6,600	NE	37	45	23	16	24	4,200	6,800	17,000	25,000 J,O
SVOCs (µg/kg)													
Acenaphthene	34,000	876,000	2,100	300	6.3 U,J,O	18 U,O	15 U,O	5.3 U,O	12	170,000	290,000	670,000	820,000
Acenaphthylene	34,000	NE	27,000	NE	37	27	5.0	3.9 U	5.4	2,500	6,400	14,000	20,000
Anthracene	34,000	145,000	2,500,000	400	120	130	28	12	28	87,000	190,000	360,000	480,000 J,O
Benzo(g,h,i)perylene	18,000	NE	32,000,000	NE	54	49	19	18	19	2,800	5,300	13,000	19,000 J,O
Dibenzofuran	NE	24,000	15,000	36,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	34,000	1,450,000	1,200,000	1,300	35 J,O	110 J,O	42 J,O	70 J,O	150	310,000	510,000	1,100,000	1,400,000
Fluorene	34,000	78,000	160,000	17,000	10	21	21	10	26	170,000	290,000	660,000	790,000
Naphthalene	56,000	235,000	1,200	2,200	4.0	19	26	19	21	570,000	1,100,000	2,300,000	2,700,000
Phenanthrene	56,000	148,000	250,000	NE	13 U,J,O	99 J,O	40 J,O	23 U,J,O	150	560,000	850,000	1,800,000	2,400,000 J,O
Pyrene	82,000	1,070,000	880,000	1,300	77	100	43	56 J,O	120	190,000	280,000	620,000	840,000
2-Methylnaphthalene	NE	NE	8,500	9,100	3.7 U	12 U,O	9.7 U,O	6.0 U	6.7	160,000	280,000	670,000	800,000
Phenols (µg/kg)													
1,1-Biphenyl	NE	NE	200	5,800	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	280,000	NE	3,600,000	1,300,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NE	NE	200	6,500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	62,000	NE	50	30	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	140,000	NE	1,700	1,900	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol (Cresol,o-)	56,000	NE	300	1,900	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol (Cresol,m-)	56,000	Depth of 4-6 feet	300	3,300	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol (Cresol,p-)	56,000	NE	30	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	74,000	138,000,000	30	200	170 J,O	120	61 J,O	8.1	30 J,O	610 J,O	3,500 J,O	390 U,J,O	380 U,J,O

Table 3-8
Semi-Volatile Organic Compounds in Subsurface Soil - ACW Facility
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	Land Disposal Restrictions[1]	EPA 1999 AROD RGs[2]	FDEP SCTLs[3]		Sample ID							
					SS519				SS520			
					E	F	G	H	E	F	G	H
	10X UTS	Subsurface Soil	Leachability Based on Groundwater Criteria	Leachability Based on Marine Surface Water Criteria	Sample Date							
					1/31/2011				1/31/2011			
SVOCs - cPAHs (µg/kg)												
Total BaP TEQ	NE	NE	8,000	NE	4.0 U,J,O	**4.6 J,O**	**6.6 J,O**	4.6 U,J,O	**5.31 J,O**	4.5 U,J,O	4.6 U,J,O	4.4 U,J,O
Benzo(a)anthracene	34,000	740,000	800	NE	3.5 U,J,O	3.7 U,J,O	**4.9 J,O**	4.0 U,J,O	**9.0**	3.9 U	4.0 U	3.8 U
Benzo(a)pyrene	34,000	NE	8,000	NE	3.5 U	3.7 U	3.9 U	4.0 U	3.7 U	3.9 U	4.0 U	3.8 U
Benzo(b)fluoranthene	68,000	153,065,000	2,400	NE	3.5 U	**4.6 J,O**	**13 J,O**	4.0 U,J,O	**4.7 J,O**	3.9 U	4.0 U	3.8 U
Benzo(k)fluoranthene	68,000	153,065,000	24,000	NE	3.5 U	**4.9**	**9.4**	4.0 U	**4.8**	3.9 U	4.0 U	3.8 U
Chrysene	34,000	2,090,000	77,000	NE	3.5 U	**4.5 J,O**	**7.6 J,O**	4.0 U	**9.3**	3.9 U	4.0 U	3.8 U
Dibenzo(a,h)anthracene	82,000	NE	700	NE	3.5 U,J,O	3.7 U,J,O	3.9 U,J,O	4.0 U,J,O	3.7 U,J,O	3.9 U,J,O	4.0 U,J,O	3.8 U,J,O
Indeno (1,2,3-cd) pyrene	34,000	NE	6,600	NE	3.5 U,J,O	3.7 U,J,O	**7.6 J,O**	4.0 U,J,O	3.7 U,J,O	3.9 U,J,O	4.0 U,J,O	3.8 U,J,O
SVOCs (µg/kg)												
Acenaphthene	34,000	876,000	2,100	300	3.5 U	3.7 U	3.9 U	4.0 U	3.7 U	3.9 U	6.3 U,O	6.4 U,O
Acenaphthylene	34,000	NE	27,000	NE	3.5 U	3.7 U	**3.6 J,O**	4.0 U	3.7 U	3.9 U	4.0 U	3.8 U
Anthracene	34,000	145,000	2,500,000	400	3.5 U	3.7 U	3.9 U	4.0 U	**6.8**	3.9 U	4.0 U	3.8 U
Benzo(g,h,i)perylene	18,000	NE	32,000,000	NE	3.5 U,J,O	3.7 U,J,O	**7.8 J,O**	4.0 U,J,O	3.7 U	3.9 U	4.0 U	3.8 U
Dibenzofuran	NE	24,000	15,000	36,000	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	34,000	1,450,000	1,200,000	1,300	3.5 U,J,O	3.7 U,J,O	3.9 U,J,O	4.0 U,J,O	**23 J,O**	4.8 U,J,O	4.1 U,J,O	8.0 U,J,O
Fluorene	34,000	78,000	160,000	17,000	3.5 U	3.7 U	3.9 U	4.0 U	**5.7**	3.9 U	4.0 U	3.8 U
Naphthalene	56,000	235,000	1,200	2,200	3.5 U	3.7 U	3.9 U	4 U	3.7 U	3.9 U	4.0 U	3.8 U
Phenanthrene	56,000	148,000	250,000	NE	3.5 U,J,O	3.7 U,J,O	3.9 U,J,O	4 U,J,O	21 U,J,O	3.9 U,J,O	4.0 U,J,O	3.8 U,J,O
Pyrene	82,000	1,070,000	880,000	1,300	3.5 U,J,O	4.3 U,J,O	4.1 U,J,O	4 U,J,O	18 U,J,O	4.4 U,J,O	4.0 U,J,O	4.7 U,J,O
2-Methylnaphthalene	NE	NE	8,500	9,100	3.5 U	3.7 U	3.9 U	4 U	3.7 U	3.9 U	4.0 U	3.8 U
Phenols (µg/kg)												
1,1-Biphenyl	NE	NE	200	5,800	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	280,000	NE	3,600,000	1,300,000	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NE	NE	200	6,500	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	62,000	NE	50	30	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	140,000	NE	1,700	1,900	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol (Cresol,o-)	56,000	NE	300	1,900	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol (Cresol,m-)	56,000	Depth of 4-6 feet	300	3,300	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol (Cresol,p-)	56,000	NE	30	500	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	74,000	138,000,000	30	200	7.2 U	7.5 U,R,O	7.9 U,R,O	8.0 U,R,O	**4.4 J,O**	7.9 U,R,O	8.2 U,R,O	7.6 U,R,O

Table 3-8
Semi-Volatile Organic Compounds in Subsurface Soil - ACW Facility
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	Land Disposal Restrictions[1]	EPA 1999 AROD RGs[2]	FDEP SCTLs[3]		Sample ID							
					SS521				SS522			
	10X UTS	Subsurface Soil	Leachability Based on Groundwater Criteria	Leachability Based on Marine Surface Water Criteria	E	F	G	H	E	F	G	H
					Sample Date							
					1/31/2011				1/31/2011			
SVOCs - cPAHs (µg/kg)												
Total BaP TEQ	NE	NE	8,000	NE	1,636 J,O	538 J,O	20.7 J,O	4.6 U,J,O	766 J,O	473 J,O	507 J,O	572 J,O
Benzo(a)anthracene	34,000	740,000	800	NE	230	83	7.2 J,O	4 U,J,O	600 J,O	280 J,O	940 J,O	830 J,O
Benzo(a)pyrene	34,000	NE	8,000	NE	1,200	420	14	4.0 U	570	350	360	420
Benzo(b)fluoranthene	68,000	153,065,000	2,400	NE	1,400	520	9.8 J,O	4.0 U	660 J,O	400 J,O	330 J,O	380 J,O
Benzo(k)fluoranthene	68,000	153,065,000	24,000	NE	1,100 J,O	440 J,O	14	4.0 U	440	320	380	420
Chrysene	34,000	2,090,000	77,000	NE	760	260	14 J,O	4.0 U	710	360	830	820
Dibenzo(a,h)anthracene	82,000	NE	700	NE	210	33 J,O	4.1 U,J,O	4.0 U,J,O	36 J,O	30 J,O	13 J,O	23 J,O
Indeno (1,2,3-cd) pyrene	34,000	NE	6,600	NE	510	200	7.2 J,O	4.0 U,J,O	290	210 U	21 J,O	32 J,O
SVOCs (µg/kg)												
Acenaphthene	34,000	876,000	2,100	300	24	7.4	4.1 U	4.0 U	2,200	2,700	4,000	2,200
Acenaphthylene	34,000	NE	27,000	NE	370	60	5.1	4.0 U	79	63	85	77
Anthracene	34,000	145,000	2,500,000	400	370	76	3.9 J,O	4.0 U	1,200	420	1,100	1,300
Benzo(g,h,i)perylene	18,000	NE	32,000,000	NE	470	190	9.6 J,O	4.0 U,J,O	230	44 J,O	19 J,O	26 J,O
Dibenzofuran	NE	24,000	15,000	36,000	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	34,000	1,450,000	1,200,000	1,300	730	110	4.7 U,J,O	4.0 U,J,O	3,500	1,400	5,000	3,800
Fluorene	34,000	78,000	160,000	17,000	66	12	4.1 U	4.0 U	3,600	2,500	4,300	2,800
Naphthalene	56,000	235,000	1,200	2,200	19	15	4.1 U	4.0 U	34	4,500	3,500	5,800
Phenanthrene	56,000	148,000	250,000	NE	87	32	4.1 U,J,O	4.0 U,J,O	7,400	1,200	6,600	7,000
Pyrene	82,000	1,070,000	880,000	1,300	2,800	570	20 U,J,O	4.0 U,J,O	1,700	790	2,700	2,100
2-Methylnaphthalene	NE	NE	8,500	9,100	9.6	6.1	4.1 U	4.0 U	12	1,400	2,600	2,600
Phenols (µg/kg)												
1,1-Biphenyl	NE	NE	200	5,800	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	280,000	NE	3,600,000	1,300,000	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NE	NE	200	6,500	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	62,000	NE	50	30	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	140,000	NE	1,700	1,900	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol (Cresol,o-)	56,000	NE	300	1,900	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol (Cresol,m-)	56,000	Depth of 4-6 feet	300	3,300	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol (Cresol,p-)	56,000	NE	30	500	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	74,000	138,000,000	30	200	9.4 J,O	380 U,J,O	8.2 U,R,O	8.2 U	31 J,O	10 J,O	450 U,J,O	4.4 J,O

Table 3-8
Semi-Volatile Organic Compounds in Subsurface Soil - ACW Facility
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	Land Disposal Restrictions[1]	EPA 1999 AROD RGs[2]	FDEP SCTLs[3]		Sample ID							
					SS523					SB524		
	10X UTS	Subsurface Soil	Leachability Based on Groundwater Criteria	Leachability Based on Marine Surface Water Criteria	E	*E (dup)*	F	G	H	21 ft	26.5 ft	*26.5 ft (dup)*
					Sample Date							
					1/31/2011					10/31/2011		
SVOCs - cPAHs (µg/kg)												
Total BaP TEQ	NE	NE	8,000	NE	**4.05 J,O**	**4.52 J,O**	**50.9 J,O**	4.6 U,J,O	4.7 U,J,O	**471 J**	**256,740 J**	***166,260 J***
Benzo(a)anthracene	34,000	740,000	800	NE	3.5 U,J,O	**3.3 J,O**	**31**	4.0 U	4.1 U	**73 J**	**430,000 J**	**250,000 J**
Benzo(a)pyrene	34,000	NE	8,000	NE	3.5 U	3.5 U,J,O	**31 J,O**	4.0 U,J,O	4.1 U,J,O	420 U	**140,000 J**	**110,000 J**
Benzo(b)fluoranthene	68,000	153,065,000	2,400	NE	3.5 U,J,O	**5.0 J,O**	**51 J,O**	4.0 U,J,O	4.1 U,J,O	420 U	**220,000 J**	**170,000 J**
Benzo(k)fluoranthene	68,000	153,065,000	24,000	NE	3.5 U	3.5 U,J,O	**35 J,O**	4.0 U,J,O	4.1 U,J,O	420 U	**100,000 J**	**18,000 J**
Chrysene	34,000	2,090,000	77,000	NE	**3.8 J,O**	**4.1**	**39**	4.0 U	4.1 U	**50 J**	**340,000 J**	**180,000 J**
Dibenzo(a,h)anthracene	82,000	NE	700	NE	3.5 U,J,O	3.5 U	**8.7 J,O**	4.0 U	4.1 U	420 U	93,000 U	**11,000 J**
Indeno (1,2,3-cd) pyrene	34,000	NE	6,600	NE	3.5 U,J,O	3.5 U	**26**	4.0 U	4.1 U	420 U	**39,000 J**	**29,000 J**
SVOCs (µg/kg)												
Acenaphthene	34,000	876,000	2,100	300	3.5 U	3.5 U	3.8 U	4.0 U	4.1 U	**340 J**	**1,800,000**	**1,300,000**
Acenaphthylene	34,000	NE	27,000	NE	3.5 U	3.5 U	**5.0**	4.0 U	4.1 U	420 U	**51,000 J**	**39,000 J**
Anthracene	34,000	145,000	2,500,000	400	3.5 U	3.5 U	**10**	4.0 U	4.1 U	**140 J**	**660,000 J**	**500,000 J**
Benzo(g,h,i)perylene	18,000	NE	32,000,000	NE	3.5 U,J,O	**3.2 J,O**	**31 J,O**	4.0 U	4.1 U	420 U	**34,000 J**	**25,000 J**
Dibenzofuran	NE	24,000	15,000	36,000	NA	NA	NA	NA	NA	**300 J**	93,000 U	**1,000,000**
Fluoranthene	34,000	1,450,000	1,200,000	1,300	3.3 U,J,O	3.5 U,J,O	**41 J,O**	4.0 U,J,O	4.1 U,J,O	490	**2,300,000**	**1,800,000**
Fluorene	34,000	78,000	160,000	17,000	3.5 U	3.5 U	3.8 U	4.0 U	4.1 U	**410 J**	**1,800,000**	**1,400,000**
Naphthalene	56,000	235,000	1,200	2,200	3.5 U	**5.4**	**17**	4.0 U	4.1 U	**360 J**	**3,900,000**	**3,000,000**
Phenanthrene	56,000	148,000	250,000	NE	3.5 U,J,O	3.5 U,J,O	19 U,J,O	4.0 U,J,O	4.1 U,J,O	1,100	**4,200,000**	**3,200,000**
Pyrene	82,000	1,070,000	880,000	1,300	4.1 U,J,O	3.9 U,O	**40**	4.0 U	4.1 U	**290 J**	**1,500,000**	**1,200,000 J**
2-Methylnaphthalene	NE	NE	8,500	9,100	3.5 U	3.5 U	21 U,O	4.0 U	4.1 U	**190 J**	**1,500,000**	**1,200,000**
Phenols (µg/kg)												
1,1-Biphenyl	NE	NE	200	5,800	NA	NA	NA	NA	NA	**57 J**	**380,000**	**290,000**
Bis(2-ethylhexyl) phthalate	280,000	NE	3,600,000	1,300,000	NA	NA	NA	NA	NA	**130 J**	93,000 U	89,000 U
Carbazole	NE	NE	200	6,500	NA	NA	NA	NA	NA	**230 J**	**340,000**	**260,000**
Phenol	62,000	NE	50	30	NA	NA	NA	NA	NA	**700**	93,000 U	89,000 U
2,4-Dimethylphenol	140,000	NE	1,700	1,900	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol (Cresol,o-)	56,000	NE	300	1,900	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol (Cresol,m-)	56,000	Depth of 4-6 feet	300	3,300	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol (Cresol,p-)	56,000	NE	30	500	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	74,000	138,000,000	30	200	7.1 U,J,O	7.1 U	7.7 U	8.0 U	8.4 U	**2,700**	**790,000**	**560,000**

Table 3-8
Semi-Volatile Organic Compounds in Subsurface Soil - ACW Facility
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	Land Disposal Restrictions[1]	EPA 1999 AROD RGs[2]	FDEP SCTLs[3]		Sample ID											
					SB525					SB526		SB527			SB530	
	10X UTS	Subsurface Soil	Leachability Based on Groundwater Criteria	Leachability Based on Marine Surface Water Criteria	35 ft	44 ft	79 ft	90 ft	124 ft	32 ft	33.5 ft	43 ft	70 ft	145 ft	31 ft	157 ft
					Sample Date											
					10/312011					10/31/2011		10/31/2011			10/31/2011	
SVOCs - cPAHs (µg/kg)																
Total BaP TEQ	NE	NE	8,000	NE	451 U	439 U	508 U	462 U	439 U	**589 J**	428 U	451 U	462 U	428 U	416 U	439 U
Benzo(a)anthracene	34,000	740,000	800	NE	390 U	380 U	440 U	400 U	380 U	**720**	370 U	390 U	400 U	370 U	360 U	380 U
Benzo(a)pyrene	34,000	NE	8,000	NE	390 U	380 U	440 U	400 U	380 U	**270 J**	370 U	390 U	400 U	370 U	360 U	380 U
Benzo(b)fluoranthene	68,000	153,065,000	2,400	NE	390 U	380 U	440 U	400 U	380 U	**360 J**	370 U	390 U	400 U	370 U	360 U	380 U
Benzo(k)fluoranthene	68,000	153,065,000	24,000	NE	390 U	380 U	440 U	400 U	380 U	**180 J**	370 U	390 U	400 U	370 U	360 U	380 U
Chrysene	34,000	2,090,000	77,000	NE	390 U	380 U	440 U	400 U	380 U	**500**	370 U	390 U	400 U	370 U	360 U	380 U
Dibenzo(a,h)anthracene	82,000	NE	700	NE	390 U	380 U	440 U	400 U	380 U	400 U	370 U	390 U	400 U	370 U	360 U	380 U
Indeno (1,2,3-cd) pyrene	34,000	NE	6,600	NE	390 U	380 U	440 U	400 U	380 U	**90 J**	370 U	390 U	400 U	370 U	360 U	380 U
SVOCs (µg/kg)																
Acenaphthene	34,000	876,000	2,100	300	390 U	380 U	440 U	400 U	380 U	1,500	370 U	390 U	400 U	370 U	360 U	380 U
Acenaphthylene	34,000	NE	27,000	NE	390 U	380 U	440 U	400 U	380 U	**75 J**	370 U	390 U	400 U	370 U	360 U	380 U
Anthracene	34,000	145,000	2,500,000	400	390 U	380 U	440 U	400 U	380 U	1,000	370 U	390 U	400 U	370 U	360 U	380 U
Benzo(g,h,i)perylene	18,000	NE	32,000,000	NE	390 U	380 U	440 U	400 U	380 U	**82 J**	370 U	390 U	400 U	370 U	360 U	380 U
Dibenzofuran	NE	24,000	15,000	36,000	390 U	380 U	440 U	400 U	380 U	**1,500**	370 U	390 U	400 U	370 U	360 U	380 U
Fluoranthene	34,000	1,450,000	1,200,000	1,300	390 U	380 U	440 U	400 U	380 U	3,400	370 U	390 U	400 U	370 U	360 U	380 U
Fluorene	34,000	78,000	160,000	17,000	390 U	380 U	440 U	400 U	380 U	**2,200**	370 U	390 U	400 U	370 U	360 U	380 U
Naphthalene	56,000	235,000	1,200	2,200	**330 J**	**97 J**	440 U	**57 J**	380 U	2,300	370 U	**99 J**	**51 J**	370 U	360 U	380 U
Phenanthrene	56,000	148,000	250,000	NE	390 U	380 U	440 U	400 U	380 U	**5,800**	**51 J**	**76 J**	400 U	370 U	360 U	380 U
Pyrene	82,000	1,070,000	880,000	1,300	390 U	380 U	440 U	400 U	380 U	1,900	370 U	390 U	400 U	370 U	360 U	380 U
2-Methylnaphthalene	NE	NE	8,500	9,100	**40 J**	380 U	440 U	400 U	380 U	**1,100**	370 U	390 U	400 U	370 U	360 U	380 U
Phenols (µg/kg)																
1,1-Biphenyl	NE	NE	200	5,800	390 U	380 U	440 U	400 U	380 U	**360 J**	370 U	390 U	400 U	370 U	360 U	380 U
Bis(2-ethylhexyl) phthalate	280,000	NE	3,600,000	1,300,000	390 U	380 U	440 U	400 U	380 U	400 U	370 U	390 U	400 U	370 U	360 U	380 U
Carbazole	NE	NE	200	6,500	390 U	380 U	440 U	400 U	380 U	**1,700**	**44 J**	**47 J**	**48 J**	370 U	**46 J**	380 U
Phenol	62,000	NE	50	30	390 U	380 U	440 U	400 U	380 U	400 U	370 U	390 U	400 U	370 U	**260 J**	380 U
2,4-Dimethylphenol	140,000	NE	1,700	1,900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol (Cresol,o-)	56,000	NE	300	1,900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol (Cresol,m-)	56,000	Depth of 4-6 feet	300	3,300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol (Cresol,p-)	56,000	NE	30	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	74,000	138,000,000	30	200	770 U	760 U	870 U	800 U	760 U	810 U	750 U	770 U	800 U	740 U	720 U	760 U

Table 3-8
Semi-Volatile Organic Compounds in Subsurface Soil - ACW Facility
American Creosote Works Site
Pensacola, Escambia County, Florida

Notes	
[1]	Land Disposal Restrictions (LDR) equals 10 times the Universal Treatment Standards (UTS), Per Code of Federal Regulations (CFR) 40-268.48.
[2]	Remedial Goals (RGs) as obtained from the Amended Record of Decision (AROD), Operable Unit 1, American Creosote Works (ACW) Site, Pensacola, Escambia County, Florida, EPA, May 1999.
[3]	Florida Administrative Code (F.A.C.) Chapter 62-777, Table II, adopted April 2005, FDEP
NE	Not Established
EPA	U.S. Environmental Protection Agency
FDEP	Florida Department of Environmental Protection
µg/kg	micrograms per kilogram (parts per billion or "ppb")
U	Analyte not detected at or above laboratory reporting limit.
J	Identification of analyte is acceptable. Reported value is an estimate.
R	The presence or absence of the analyte can not be determined from the data due to severe quality control problems. The data are rejected and considered unusable.
O	Denoted as "other". Specified in EPA Final Analytical Report Project 10-0274 and 11-0156 as: B-4 - Level in blank impacts MRLs; CLP01 - Concentration reported is less than the lowest standard on calibration curve; CLP02 - Concentration reported is greater than the highest standard on calibration curve; CLP15 - TIC Results reported as identified by lab - IDs not verified; CLP16 - Initial calibration response erratic; CLP17 - Initial calibration relative response outside method control limits; CLP32 - Continuing calibration relative response outside method control limits; QC-1 - Analyte concentration low in continuing calibration verification standard; QC-2 - Analyte concentration high in continuing calibration verification standard; QI-1 - Internal standard was outside of method control limits; QM-1 - Matrix Spike Recovery less than method control limits; QM-2 - Matrix Spike Recovery greater than method control limits; QS-3 - Surrogate recovery is lower than established control limits; QS-4 - Surrogate recovery less than 10 percent.
Bold	Indicates the exceedance of the laboratory method detection limit.
Bold Underline	Contaminant of Concern identified in 1999 Record of Decision (ROD).
Bold	Indicates the exceedance of LDR (UTS X10).
Bold	Indicates the exceedance of EPA 1999 AROD Subsurface Soil Remedial Goals.
Bold	Indicates the exceedance of FDEP SCTLs for Marine Surface Water, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777. (Per Case # 11-1130, the Bayou Chico Basin is classified as a Class III water in accordance with FDEP Surface Water Quality Standards, Chapter 62-302.)
Bold	Indicates the exceedance of FDEP SCTLs for Leachability Based on Groundwater Criteria, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777.
BaP	benzo(a)pyrene
TEQ	Toxicity Equivalent
Italic	Indicates a duplicate (dup) sample
ft	feet
SCTL	Soil Cleanup Target Levels
SVOC	Semi-Volatile Organic Compounds
SS/SB	Soil Sample
NA	Not Analyzed
E	Depth of 3-4 feet
F	Depth of 4-6 feet
G	Depth of 6-8 feet
H	Depth of 8-10 feet

Table 3-9
Semi-Volatile Organic Compounds in Surface Soil - PYC Dredging Spoils Pile
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	Land Disposal Restrictions[1]	EPA 1999 AROD RGs[2]	FDEP SCTLs[3]			Sample ID		
						SS402	SS403	*SS403 (dup)*
	10X UTS	Residential Surface Soil	Residential Direct Exposure	Leachability Based on Groundwater Criteria	Leachability Based on Marine Surface Water Criteria	AC	AC	
						Sample Date		
						2/23/2010	2/23/2010	
SVOCs - cPAHs (µg/kg)								
Total BaP TEQ	NE	NE	100	8,000	NE	540.7 J,O	271 J,O	*87.1 J,O*
Benzo(a)anthracene	34,000	NE	100	800	NE	380	180	*46*
Benzo(a)pyrene	34,000	330	100	8,000	NE	310	150	*40*
Benzo(b)fluoranthene	68,000	NE	1,000	2,400	NE	450	190	*47*
Benzo(k)fluoranthene	68,000	NE	1,000	24,000	NE	210	140	*37*
Chrysene	34,000	NE	100,000	77,000	NE	620	270	*49*
Dibenzo(a,h)anthracene	82,000	NE	100	700	NE	120 J,O	63 J,O	*32*
Indeno (1,2,3-cd) pyrene	34,000	NE	1,000	6,600	NE	250	190 J,O	*54 J,O*
SVOCs -cPAHs (µg/kg)								
Acenaphthene	34,000	NE	2,400,000	2,100	300	8.1	6.3	*6.2*
Acenaphthylene	34,000	NE	1,800,000	27,000	NE	32	16	*9.7*
Anthracene	34,000	NE	21,000,000	2,500,000	400	120 J,O	22	*11*
Benzo(g,h,i)perylene	18,000	NE	2,500,000	32,000,000	NE	120	110	*28*
Dibenzofuran	NE	NE	320,000	15,000	36,000	190 U	180 U	*180 U*
Fluoranthene	34,000	NE	3,200,000	1,200,000	1,300	360	280	*70*
Fluorene	34,000	NE	2,600,000	160,000	17,000	16	7.4	*7.8*
Naphthalene	56,000	NE	55,000	1,200	2,200	13	11	*14*
2-Methylnaphthalene	NE	NE	210,000	8,500	9,100	7.2	5.8	*7.1*
Phenanthrene	56,000	NE	2,200,000	250,000	NE	110	80	*16*
Pyrene	82,000	NE	2,400,000	880,000	1,300	310	240	*74*
Phenols (µg/kg)								
1,1-Biphenyl	NE	NE	3,000,000	200	5,800	190 U,J,O	180 U,J,O	*180 U,J,O*
Bis(2-ethylhexyl) phthalate	280,000	NE	72,000	3,600,000	1,300,000	190 U	180 U	*180 U*
Carbazole	NE	NE	49,000	200	6,500	190 U	180 U	*180 U*
Phenol	62,000	NE	500,000**	50	30	190 U	180 U	*180 U*
2,4-Dimethylphenol	140,000	NE	1,300,000	1,700	1,900	190 U	180 U	*180 U*
2-Methylphenol (Cresol,o-)	56,000	NE	2,900,000	300	1,900	190 U	180 U	*180 U*
3-Methylphenol (Cresol,m-)	56,000	NE	2,900,000	300	3,300	190 U	180 U	*180 U*
4-Methylphenol (Cresol,p-)	56,000	NE	300,000	30	500	190 U	180 U	*180 U*
Pentachlorophenol	74,000	NE	7,200	30	200	3.8 J,O	7.3 O	*2.9 J,O*

Table 3-9
Semi-Volatile Organic Compounds in Soil - PYC Dredging Spoils Pile
American Creosote Works Site
Pensacola, Escambia County, Florida

Notes	
[1]	Land Disposal Restrictions (LDR) equals 10 times the Universal Treatment Standards (UTS), Per Code of Federal Regulations (CFR) 40-268.48.
[2]	Remedial Goals (RGs) as obtained from the Amended Record of Decision (AROD), Operable Unit 1, American Creosote Works (ACW) Site, Pensacola, Escambia County, Florida, EPA, May 1999.
[3]	Florida Administrative Code (F.A.C.) Chapter 62-777, Table II, adopted April 2005, FDEP
**	Direct exposure value based on acute toxicity considerations.
NE	Not Established
EPA	U.S. Environmental Protection Agency
FDEP	Florida Department of Environmental Protection
µg/kg	micrograms per kilogram (parts per billion or "ppb")
U	Analyte not detected at or above laboratory reporting limit.
J	Identification of analyte is acceptable. Reported value is an estimate.
O	Denoted as "other". Specified in EPA Final Analytical Report Project 10-0274 as: CLP01 - Concentration reported is less than the lowest standard on calibration curve; CLP02 - Concentration reported is greater than the highest standard on calibration curve; CLP15 - TIC Results reported as identified by lab - IDs not verified; CLP16 - Initial calibration response erratic; QC-1 - Analyte concentration low in continuing calibration verification standard; QC-2 - Analyte concentration high in continuing calibration verification standard; QM-1 - Matrix Spike Recovery less than method control limits; QS-3 - Surrogate recovery is lower than established control limits; QS-4 - Surrogate recovery less than 10 percent.
Bold	Indicates the exceedance of the laboratory method detection limit.
Bold Underline	Contaminant of Concern identified in 1999 Amended Record of Decision (AROD).
Bold	Indicates the exceedance of LDR (UTS X10).
Bold	Indicates the exceedance of EPA 1999 AROD Residential Surface Soil Remedial Goals.
Bold	Indicates the exceedance of FDEP SCTLs for Direct Exposure in Residential Soil, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777.
Bold	Indicates exceedance of FDEP SCTLs for Leachability Based on Groundwater Criteria, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777.
Bold	Indicates the exceedance of FDEP SCTLs for Marine Surface Water, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777. (Per Case # 11-1130, the Bayou Chico Basin is classified as a Class III water in accordance with FDEP Surface Water Quality Standards, Chapter 62-302.)
BaP	benzo(a)pyrene
TEQ	Toxicity Equivalent
Italic	Indicates a duplicate (dup) sample
SCTL	Soil Cleanup Target Levels
SVOC	Semi-Volatile Organic Compounds
ft bls	feet below land surface
SS	Soil Sample
AC	Depth of 0-2 feet

Table 3-10a
Semi-Volatile Organic Compounds in Surface Soil - SE Ditch Area
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	Land Disposal Restrictions[1]	EPA 1999 AROD RGs[2]	FDEP SCTLs[3]				Sample ID	
							SS302	
	10X UTS	Residential Surface Soil	Residential Direct Exposure	Commercial Direct Exposure	Leachability Based on Groundwater Criteria	Leachability Based on Marine Surface Water Criteria	D	*D (dup)*
							Sample Date	
							2/25/2010	
SVOCs - cPAHs (µg/kg)								
Total BaP TEQ	NE	NE	100	700	8,000	NE	21	*9.7*
Benzo(a)anthracene	34,000	NE	100	#	800	NE	7.5	*6.9*
Benzo(a)pyrene	34,000	330	100	700	8,000	NE	11	*5.8*
Benzo(b)fluoranthene	68,000	NE	1,000	#	2,400	NE	12	*6.6*
Benzo(k)fluoranthene	68,000	NE	1,000	#	24,000	NE	6.7	*4.6*
Chrysene	34,000	NE	100,000	#	77,000	NE	7.2	*6.6*
Dibenzo(a,h)anthracene	82,000	NE	100	#	700	NE	6.8	*3.5 U*
Indeno (1,2,3-cd) pyrene	34,000	NE	1,000	#	6,600	NE	12	*7*
SVOCs -cPAHs (µg/kg)								
Acenaphthene	34,000	NE	2,400,000	20,000,000	2,100	300	3.2 J,O	*17*
Acenaphthylene	34,000	NE	1,800,000	20,000,000	27,000	NE	3.5 U	*3.5 U*
Anthracene	34,000	NE	21,000,000	300,000,000	2,500,000	400	3.5 U	*15*
Benzo(g,h,i)perylene	18,000	NE	2,500,000	52,000,000	32,000,000	NE	0.65 J,O	*4.3*
Dibenzofuran	NE	NE	320,000	6,300,000	15,000	36,000	180 U	*180 U*
Fluoranthene	34,000	NE	3,200,000	59,000,000	1,200,000	1,300	14	*40 J,O*
Fluorene	34,000	NE	2,600,000	33,000,000	160,000	17,000	3.5 U	*19*
Naphthalene	56,000	NE	55,000	300,000	1,200	2,200	3.5 U	*61 J,O*
2-Methylnaphthalene	NE	NE	210,000	2,100,000	8,500	9,100	3.5 U	*24*
Phenanthrene	56,000	NE	2,200,000	36,000,000	250,000	NE	8.6	*70 J,O*
Pyrene	82,000	NE	2,400,000	45,000,000	880,000	1,300	12	*23 J,O*
Phenols (µg/kg)								
1,1-Biphenyl	NE	NE	3,000,000	34,000,000	200	5,800	180 U	*180 U*
Bis(2-ethylhexyl) phthalate	280,000	NE	72,000	390,000	3,600,000	1,300,000	180 U	*180 U*
Carbazole	NE	NE	49,000	240,000	200	6,500	180 U	*180 U*
Phenol	62,000	NE	500,000**	220,000,000	50	30	180 U	*180 U*
2,4-Dimethylphenol	140,000	NE	1,300,000	18,000,000	1,700	1,900	180 U	*180 U*
2-Methylphenol (Cresol,o-)	56,000	NE	2,900,000	31,000,000	300	1,900	180 U	*180 U*
3-Methylphenol (Cresol,m-)	56,000	NE	2,900,000	33,000,000	300	3,300	180 U	*180 U*
4-Methylphenol (Cresol,p-)	56,000	NE	300,000	3,400,000	30	500	180 U	*180 U*
Pentachlorophenol	74,000	NE	7,200	28,000	30	200	6.3 N,J,O	*15 J,O*

Table 3-10a
Semi-Volatile Organic Compounds in Surface Soil - SE Ditch Area
American Creosote Works Site
Pensacola, Escambia County, Florida

Notes	
[1]	Land Disposal Restrictions (LDR) equals 10 times the Universal Treatment Standards (UTS), Per Code of Federal Regulations (CFR) 40-268.48.
[2]	Remedial Goals (RGs) as obtained from the Amended Record of Decision (AROD), Operable Unit 1, American Creosote Works (ACW) Site, Pensacola, Escambia County, Florida, EPA, May 1999.
[3]	Florida Administrative Code (F.A.C.) Chapter 62-777, Table II, adopted April 2005, FDEP
**	Direct Exposure vaue based on acute toxicity considerations.
NE	Not Established
EPA	U.S. Environmental Protection Agency
FDEP	Florida Department of Environmental Protection
µg/kg	micrograms per kilogram (parts per billion or "ppb")
U	Analyte not detected at or above laboratory reporting limit.
J	Identification of analyte is acceptable. Reported value is an estimate.
N	There is presumptive evidence that the analyte is present; the analyte is reported as a tentative identification.
O	Denoted as "other". Specified in EPA Final Analytical Report Project 10-0274 as: CLP01 - Concentration reported is less than the lowest standard on calibration curve; CLP02 - Concentration reported is greater than the highest standard on calibration curve; CLP15 - TIC Results reported as identified by lab - IDs not verified; CLP16 - Initial calibration response erratic; QC-1 - Analyte concentration low in continuing calibration verification standard; QC-2 - Analyte concentration high in continuing calibration verification standard; QM-1 - Matrix Spike Recovery less than method control limits; QS-3 - Surrogate recovery is lower than established control limits; QS-4 - Surrogate recovery less than 10 percent.
Bold	Indicates the exceedance of the laboratory method detection limit.
Bold Underline	Contaminant of Concern identified in 1999 Amended Record of Decision (AROD).
Bold	Indicates the exceedance of LDR (UTS X10).
Bold	Indicates the exceedance of EPA 1999 AROD Residential Surface Soil Remedial Goals.
Bold	Indicates the exceedance of FDEP SCTLs for Direct Exposure in Residential Soil, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777.
Bold	Indicates exceedance of FDEP SCTLs for Leachability Based on Groundwater Criteria, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777.
Bold	Indicates the exceedance of FDEP SCTLs for Marine Surface Water, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777. (Per Case # 11-1130, the Bayou Chico Basin is classified as a Class III water in accordance with FDEP Surface Water Quality Standards, Chapter 62-302.)
BaP	benzo(a)pyrene
TEQ	Toxicity Equivalent
Italic	Indicates a duplicate (dup) sample
SCTL	Soil Cleanup Target Levels
SVOC	Semi-Volatile Organic Compounds
SS	Soil Sample
D	Depth of 2-3 feet

Table 3-10b
Semi-Volatile Organic Compounds in Subsurface Soil - SE Ditch Area
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	Land Disposal Restrictions[1]	EPA 1999 AROD RGs[2]	FDEP SCTLs[3]				Sample ID		
							SS302	SS303	
	10X UTS	Subsurface Soil	Residential Direct Exposure	Commercial Direct Exposure	Leachability Based on Groundwater Criteria	Leachability Based on Marine Surface Water Criteria	E	E	F
							Sample Date		
							2/25/2010		
SVOCs - cPAHs (µg/kg)									
Total BaP TEQ	NE	NE	100	700	8,000	NE	41.6	95.4	106.6
Benzo(a)anthracene	34,000	740,000	100	#	800	NE	29	82	73
Benzo(a)pyrene	34,000	NE	100	700	8,000	NE	21	59	66
Benzo(b)fluoranthene	68,000	153,065,000	1,000	#	2,400	NE	30	59	60 J,O
Benzo(k)fluoranthene	68,000	153,065,000	1,000	#	24,000	NE	31	47	66
Chrysene	34,000	2,090,000	100,000	#	77,000	NE	40	91	120
Dibenzo(a,h)anthracene	82,000	NE	100	#	700	NE	11	14	38 U
Indeno (1,2,3-cd) pyrene	34,000	NE	1,000	#	6,600	NE	33	77	75
SVOCs (µg/kg)									
Acenaphthene	34,000	876,000	2,400,000	20,000,000	2,100	300	3.8 U	3.9	4.2
Acenaphthylene	34,000	NE	1,800,000	20,000,000	27,000	NE	3.8 U	21	25
Anthracene	34,000	145,000	21,000,000	300,000,000	2,500,000	400	3.8 U	7.1	12
Benzo(g,h,i)perylene	18,000	NE	2,500,000	52,000,000	32,000,000	NE	21	26	39
Dibenzofuran	NE	24,000	320,000	6,300,000	15,000	36,000	190 U	190 U	190 U
Fluoranthene	34,000	1,450,000	3,200,000	59,000,000	1,200,000	1,300	92	160	270
Fluorene	34,000	78,000	2,600,000	33,000,000	160,000	17,000	3.8 U	5.3	9.3
Naphthalene	56,000	235,000	55,000	300,000	1,200	2,200	3.8 U	5.3	12
Pyrene	82,000	1,070,000	2,400,000	45,000,000	880,000	1,300	66	170	270
2-Methylnaphthalene	NE	NE	210,000	2,100,000	8,500	9,100	3.8 U	5.4	17
Phenols (µg/kg)									
1,1-Biphenyl	NE	NE	3,000,000	34,000,000	200	5,800	190 U	190 U	190 U
Bis(2-ethylhexyl) phthalate	280,000	NE	72,000	390,000	3,600,000	1,300,000	190 U	190 U	190 U
Carbazole	NE	NE	49,000	240,000	200	6,500	190 U	190 U	190 U
Phenol	62,000	NE	500,000**	220,000,000	50	30	190 U	190 U	190 U
2,4-Dimethylphenol	140,000	NE	1,300,000	18,000,000	1,700	1,900	190 U	190 U	190 U
2-Methylphenol (Cresol,o-)	56,000	NE	2,900,000	31,000,000	300	1,900	190 U	190 U	190 U
3-Methylphenol (Cresol,m-)	56,000	NE	2,900,000	33,000,000	300	3,300	190 U	190 U	190 U
4-Methylphenol (Cresol,p-)	56,000	NE	300,000	3,400,000	30	500	190 U	190 U	190 U
Pentachlorophenol	74,000	138,000,000	7,200	28,000	30	200	9 N,O	6.3 N,J,O	8.5 N,O

Table 3-10b
Semi-Volatile Organic Compounds in Subsurface Soil - SE Ditch Area
American Creosote Works Site
Pensacola, Escambia County, Florida

Notes

[1]	Land Disposal Restrictions (LDR) equals 10 times the Universal Treatment Standards (UTS), Per Code of Federal Regulations (CFR) 40-268.48.
[2]	Remedial Goals (RGs) as obtained from the Amended Record of Decision (AROD), Operable Unit 1, American Creosote Works (ACW) Site, Pensacola, Escambia County, Florida, EPA, May 1999.
[3]	Florida Administrative Code (F.A.C.) Chapter 62-777, Table II, adopted April 2005, FDEP
[#]	Site concentrations for carcinogenic polycyclic aromatic hydrocarbons (PAHs) must be converted to benzo(a)pyrene equivalents before comparison with the appropriate direct exposure SCTL for benzo(a)pyrene using the approach described in the February 2005 "Final Technical Report: Development of Cleanup Target Levels (CTLs) for Chapter 62-777, F.A.C."
FDEP	Florida Department of Environmental Protection
µg/kg	micrograms per kilogram (parts per billion or "ppb")
U	Analyte not detected at or above laboratory reporting limit.
J	Identification of analyte is acceptable. Reported value is an estimate.
N	There is presumptive evidence that the analyte is present; the analyte is reported as a tentative identification.
O	Denoted as "other". Specified in EPA Final Analytical Report Project 10-0274 as: CLP01 - Concentration reported is less than the lowest standard on calibration curve; CLP02 - Concentration reported is greater than the highest standard on calibration curve; CLP15 - TIC Results reported as identified by lab - IDs not verified; CLP16 - Initial calibration response erratic; QC-1 - Analyte concentration low in continuing calibration verification standard; QC-2 - Analyte concentration high in continuing calibration verification standard; QM-1 - Matrix Spike Recovery less than method control limits; QS-3 - Surrogate recovery is lower than established control limits; QS-4 - Surrogate recovery less than 10 percent.
Bold	Indicates the exceedance of the laboratory method detection limit.
Bold Underline	Contaminant of Concern identified in 1999 Record of Decision (ROD).
Bold	Indicates the exceedance of LDR (UTS X10).
Bold	Indicates the exceedance of EPA 1999 AROD Subsurface Soil Remedial Goals.
Bold	Indicates the exceedance of FDEP SCTLs for Direct Exposure in Commercial Soil, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777.
Bold	Indicates exceedance of FDEP SCTLs for Leachability Based on Groundwater Criteria, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777.
Bold	Indicates the exceedance of FDEP SCTLs for Marine Surface Water, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777. (Per Case # 11-1130, the Bayou Chico Basin is classified as a Class III water in accordance with FDEP Surface Water Quality Standards, Chapter 62-302.)
BaP	benzo(a)pyrene
TEQ	Toxicity Equivalent
SVOC	Semi-Volatile Organic Compounds
Italic	Indicates a duplicate (dup) sample
SCTL	Soil Cleanup Target Levels
SS	Soil Sample
NE	Not Established
EPA	U.S. Environmental Protection Agency
E	Depth of 3-4 feet
F	Depth of 4-6 feet

Table 3-11
Dioxin Concentrations in Soil - ACW Facility
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	Land Disposal Restrictions[1]	FDEP SCTL[4]	Sample ID							
			SS501			SS502			SS503	
	10X UTS	Commercial	A	B	D	A	B	D	A	B
			Sample Date							
			12/12/2007			12/12/2007			12/11/2007	
Dioxins/Furans (ng/kg)										
1,2,3,4,6,7,8-Heptachlorodibenzodioxin HpCDD	25,000	NE	73,000	560,000 J	97,000	1,100	200	40,000	53,000	46,000
1,2,3,4,6,7,8-Heptachlorodibenzofuran HpCDF-C13	25,000	NE	12,000	69,000	19,000	150	28	6,400	12,000 J	7,300
Octachlorodibenzodioxin OCDD	50,000	NE	320,000 J	5,100,000 J	880,000	16,000 J	2,500	360,000 J,O	240,000 J	410,000 J
Octachlorodibenzofuran OCDF	50,000	NE	38,000	240,000 J	65,000	610	120	32,000	38,000	23,000
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	30	1,700	12,000 J	2,500 J,O	24 J	4.9 J	790 J,O	1,500 J	1,000 J
Hexachlorodibenzodioxin (Total) HxCDD	10,000	NE	12,000 J	55,000 J	13,000 J,O	110 J	22 J	3,000 J,O	7,700 J	4,600 J
Hexachlorodibenzofuran (Total) HxCDF	10,000	NE	12,000 J	72,000 J	19,000 J,O	130 J	26 J	6,000 J,O	22,000 J	6,800 J

ANALYTE	Land Disposal Restrictions[1]	FDEP SCTL[4]	Sample ID								
			SS504			SS505					
	10X UTS	Commercial	A	B	D	A	*A (dup)*	B	*B (dup)*	D	*D (dup)*
			Sample Date								
			12/11/2007			12/11/2007					
Dioxins/Furans (ng/kg)											
1,2,3,4,6,7,8-Heptachlorodibenzodioxin HpCDD	25,000	NE	300,000	320,000	130,000	180	*170*	40	*36*	6.6	*5.4*
1,2,3,4,6,7,8-Heptachlorodibenzofuran HpCDF-C13	25,000	NE	54,000	86,000	36,000	27	*28*	6.8	*5.9*	1.2 U	*0.84 U*
Octachlorodibenzodioxin OCDD	50,000	NE	2,100,000 J	530,000	120,000	2,500	*2,400*	460	*440*	84	*69*
Octachlorodibenzofuran OCDF	50,000	NE	160,000	310,000	95,000	96	*94*	24	*20*	4.8 U	*3.3 U*
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	30	7,900	7,600	3,900	4 J	*4 J*	2 J	*1.4 J*	1.7 J,O	*0.91 J,O*
Hexachlorodibenzodioxin (Total) HxCDD	10,000	NE	42,000 J	44,000 J	18000 J,O	16 J	*17 J*	5.5 J	*4.8 J*	0.75 U,J,O	*1.4 J,O*
Hexachlorodibenzofuran (Total) HxCDF	10,000	NE	66,000 J	110,000 J	50000 J,O	16 J	*17 J*	5.2 J	*4.5 J*	1.1 J,O	*0.48 J,O*

Table 3-11
Dioxin Concentrations in Soil - ACW Facility
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	Land Disposal Restrictions[1]	FDEP SCTL[4]	Sample ID								
			SS506							SS507	
	10X UTS	Commercial	A	B	D	D	E	*E (dup)*	F	A	B
			Sample Date								
			12/11/2007			02/23/2010	01/30/2011			12/11/2007	
Dioxins/Furans (ng/kg)											
1,2,3,4,6,7,8-Heptachlorodibenzodioxin HpCDD	25,000	NE	1,200	1,500	29	410	190	*170*	75	32,000	9,900
1,2,3,4,6,7,8-Heptachlorodibenzofuran HpCDF-C13	25,000	NE	240	220	4.2	66	30	*27*	11	5,400	1,400
Octachlorodibenzodioxin OCDD	50,000	NE	20,000 J	30,000 J	470	5,100 J,O	2,100	*1,900*	840	100,000	85,000 J
Octachlorodibenzofuran OCDF	50,000	NE	980	820	17	250	120	*110*	48	110,000	3,700
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	30	28 J	31 J	1.3 J,O	11 J,O	4.8 J,O	*4.4 J,O*	1.9 J,O	630	200 J
Hexachlorodibenzodioxin (Total) HxCDD	10,000	NE	130 J	140 J	2.6 J,O	67 J,O	35 J,O	*33 J,O*	14 J,O	3,700 J	1,000 J
Hexachlorodibenzofuran (Total) HxCDF	10,000	NE	150 J	110 J	2.4 J,O	110 J,O	30 J,O	*27 J,O*	10 J,O	6,000 J	1,900 J

ANALYTE	Land Disposal Restrictions[1]	FDEP SCTL[4]	Sample ID						
			SS508		SS509				
	10X UTS	Commercial	A	B	A	B	D	E	F
			Sample Date						
			12/11/2007		12/11/2007			1/30/2011	
Dioxins/Furans (ng/kg)									
1,2,3,4,6,7,8-Heptachlorodibenzodioxin HpCDD	25,000	NE	14,000	7,200	200,000	110,000	33,000	250	400
1,2,3,4,6,7,8-Heptachlorodibenzofuran HpCDF-C13	25,000	NE	2,000	1,300	58,000	26,000	6,500	51	77
Octachlorodibenzodioxin OCDD	50,000	NE	190,000 J	83,000 J	710,000 J	210,000	14,000	2,700	4,300 J,O
Octachlorodibenzofuran OCDF	50,000	NE	6,800	3,400	150,000	77,000	22,000	150	220
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	30	320 J	160 J	5,300 J	2,600	840	5.86 J,O	9.2 J,O
Hexachlorodibenzodioxin (Total) HxCDD	10,000	NE	2,400 J	2,100 J	35,000 J	14,000 J	5,400 J,O	30 J,O	49.7 J,O
Hexachlorodibenzofuran (Total) HxCDF	10,000	NE	2,800 J	1,400 J	71,000 J	31,000 J	12,000 J,O	43 J,O	67.3 J,O

Table 3-11
Dioxin Concentrations in Soil - ACW Facility
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	Land Disposal Restrictions[1]	FDEP SCTL[4]	Sample ID							
			SS510			SS512				SS515
	10X UTS	Commercial	A	B	D	D	E	*E (dup)*	F	D
			Sample Date							
			12/11/2007			02/23/2010	1/31/2011			02/23/2010
Dioxins/Furans (ng/kg)										
1,2,3,4,6,7,8-Heptachlorodibenzodioxin HpCDD	25,000	NE	20,000	7,600	1,700	8,900	1,200	*2,600*	360	1,300,000
1,2,3,4,6,7,8-Heptachlorodibenzofuran HpCDF-C13	25,000	NE	2,900	1,200	410	2,000	220	*400*	83	95,000
Octachlorodibenzodioxin OCDD	50,000	NE	200,000 J	60,000	21,000 J,O	130,000 J,O	17,000 J,O	*41,000 J,O*	3,800	28,000,000 J,O
Octachlorodibenzofuran OCDF	50,000	NE	22,000	7,400	3,100	5,300	540	*1,100*	150	310,000
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	30	460 J	210	42 J,O	220 J,O	27.6 J,O	*57.4 J,O*	8.6 J,O	27,000 J,O
Hexachlorodibenzodioxin (Total) HxCDD	10,000	NE	8,400 J	2,300 J	320 J,O	1,000 J,O	150 J,O	*280 J,O*	49.9 J,O	220,000 J,O
Hexachlorodibenzofuran (Total) HxCDF	10,000	NE	5,100 J	2,600 J	390 J,O	2,200 J,O	180 J,O	*370 J,O*	65.5 J,O	180,000 J,O

ANALYTE	Land Disposal Restrictions[1]	FDEP SCTL[4]	Sample ID							
			SS516		SS517			SS518		
	10X UTS	Commercial	B	C	B	C	D	AB	C	D
			Sample Date							
			02/26/2010		02/26/2010	01/27/2011		1/26/2011		
Dioxins/Furans (ng/kg)										
1,2,3,4,6,7,8-Heptachlorodibenzodioxin HpCDD	25,000	NE	4,000	260	15,000	42,000 J,O	12,000	9,800	27	26
1,2,3,4,6,7,8-Heptachlorodibenzofuran HpCDF-C13	25,000	NE	580	32	2,700	6,900	2,300	1,100	3.4 J,O	3.39 J,O
Octachlorodibenzodioxin OCDD	50,000	NE	66,000 J,O	4,100 J,O	170,000 J,O	230,000 J,O	130,000 J,O	210,000	340	630
Octachlorodibenzofuran OCDF	50,000	NE	2,400	140	12,000	20,000	2,600	4,400	13	12
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	30	99 J,O	6.3 J,O	360 J,O	910 J,O	280 J,O	220	1.4 J,O	0.82 J,O
Hexachlorodibenzodioxin (Total) HxCDD	10,000	NE	480 J,O	28 J,O	2,100 J,O	5,600 J,O	2,000 J,O	1,200 J,O	1.26 U,J,O	3.74 J,O
Hexachlorodibenzofuran (Total) HxCDF	10,000	NE	1,300 J,O	91 J,O	6,600 J,O	7,700 J,O	2,700 J,O	1,200 J,O	1.35 U,J,O	3.55 J,O

Table 3-11
Dioxin Concentrations in Soil - ACW Facility
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	Land Disposal Restrictions[1]	FDEP SCTL[4]	Sample ID								
			SS519			SS520			SS521		
			AB	C	D	AB	C	D	AB	C	D
	10X UTS	Commercial	Sample Date								
			1/30/2011			1/29/2011			1/30/2011		
Dioxins/Furans (ng/kg)											
1,2,3,4,6,7,8-Heptachlorodibenzodioxin HpCDD	25,000	NE	9,100	280	99	20,000 J,O	930	150	17,000 J,O	83 J,O	18.9 J,O
1,2,3,4,6,7,8-Heptachlorodibenzofuran HpCDF-C13	25,000	NE	1,800	60.4 J,O	17	3,500 J,O	220	29	2,200 J,O	63.7 J,O	9.98 J,O
Octachlorodibenzodioxin OCDD	50,000	NE	87,000 J,O	2,600	1,000	160,000 J,O	8,600 J,O	1,500	180,000 J,O	830 J,O	220 J,O
Octachlorodibenzofuran OCDF	50,000	NE	5,700	140	57	12,000 J,O	650	85	6,400 J,O	30 J,O	9.07 J,O
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	30	240 J,O	33 J,O	3 J,O	480 J,O	23.9 J,O	4.7 J,O	410 J,O	12 J,O	1.6 J,O
Hexachlorodibenzodioxin (Total) HxCDD	10,000	NE	1,500 J,O	79.2 J,O	15 J,O	2,700 J,O	100 J,O	20 J,O	2,400 J,O	38.2 J,O	5.6 J,O
Hexachlorodibenzofuran (Total) HxCDF	10,000	NE	2,000 J,O	200 J,O	15.8 J,O	4,300 J,O	250 J,O	37.8 J,O	2,800 J,O	65.9 J,O	11 J,O

ANALYTE	Land Disposal Restrictions[1]	FDEP SCTL[4]	Sample ID					
			SS522			SS523		
			AB	C	D	AB	C	D
	10X UTS	Commercial	Sample Date					
			1/28/2011			1/31/2011		
Dioxins/Furans (ng/kg)								
1,2,3,4,6,7,8-Heptachlorodibenzodioxin HpCDD	25,000	NE	44,000	55,000 J,O	13,000	21	3.81 J,O	2.28 J
1,2,3,4,6,7,8-Heptachlorodibenzofuran HpCDF-C13	25,000	NE	9,900	12,000	1,900	6.7	2.28 J,O	0.732 U,O
Octachlorodibenzodioxin OCDD	50,000	NE	400,000 J,O	230,000 J,O	130,000 J,O	210	17	22
Octachlorodibenzofuran OCDF	50,000	NE	33,000 J,O	52,000	7,500	6.88 J,O	1.21 U	0.69 U
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	30	950 J,O	1,100 J,O	250 J,O	2.2 J	0.82 J,O	0.52 J,O
Hexachlorodibenzodioxin (Total) HxCDD	10,000	NE	4,000 J,O	5,100 J,O	1200 J,O	10.7 J,O	9.5 J,O	3.94 J,O
Hexachlorodibenzofuran (Total) HxCDF	10,000	NE	8,000 J,O	13,000 J,O	2100 J,O	29.6 J,O	4.19 J,O	1.58 J,O

Table 3-11
Dioxin Concentrations in Soil - ACW Facility
American Creosote Works Site
Pensacola, Escambia County, Florida

Notes	
[1]	Land Disposal Restrictions (LDR) equals 10 times the Universal Treatment Standards (UTS), Per Code of Federal Regulations (CFR) 40-268.48.
[2]	Obtained from the Amended Record of Decision (AROD), Operable Unit 1, American Creosote Works (ACW) Site, Pensacola, Escambia County, Florida, EPA, May 1999.
[3]	EPA Dioxin Preliminary Remediation Goal (10^{-4} HQ=1), February 2012
[4]	Florida Administrative Code (F.A.C.) Chapter 62-777, Table II, adopted April 2005, FDEP
EPA	U.S. Environmental Protection Agency
FDEP	Florida Department of Environmental Protection
ng/kg	nanograms per kilogram (parts per trillion or "ppt")
NA	Not Applicable
NE	Not Established
PRG	Preliminary Remedial Goals
≤	less than or equal to
>	greater than
U	Analyte not detected at or above laboratory reporting limit.
J	Identification of analyte is acceptable. Reported value is an estimate.
UJ	Analyte not detected at or above reporting limit. Reporting limit is an estimate.
O	Denoted as "other". Specified in EPA Final Analytical Reports Projects 10-0274 and 11-0156 as: CLP01 - Concentration reported is less than the lowest standard on calibration curve; CLP02 - Concentration reported is greater than the highest standard on calibration curve; CLP10 - 2,3,7,8-TCDF confirmed by second column; CLP18 - Estimated Maximum Possible Concentration (EMPC) Reported; CLP24 - Result has not been confirmed by second column analysis; CLP33 - Poor Chromatography - Split Peaks and/or Poor Peak Shape Present D-4 - Minimum Reporting Limit (MRL) elevated due to interferences; D-5 - Estimated quantitation for one or more individual constituents comprising >10% of the total; Q-3 - Instrument not calibrated for all constituents of the total concentration result; QI-1 - Internal standard was outside of method control limits.
Bold	Indicates the exceedance of the laboratory method detection limit.
Bold Underline	Contaminant of Concern identified in 1999 Record of Decision (ROD).
Bold	Indicates the exceedance of Land Disposal Restrictions (Univeral Treatment Standard X 10).
Bold	Indicates the exceedance of FDEP SCTLs for Direct Exposure in Commercial Soil, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777.
Italic	Indicates a duplicate (dup) sample.
TEQ	Toxicity Equivalent
SCTL	Soil Cleanup Target Level
SS	Soil Sample
A	Depth of 0-6 inches
B	Depth of 6-12 inches
AB	Depth of 0-12 inches
C	Depth of 1-2 feet
D	Depth of 2-3 feet
E	Depth of 3-4 feet
F	Depth of 4-6 feet

Table 3-12
Dioxin Concentrations in Soil - PYC Dredging Spoils Pile
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	EPA	FDEP SCTLs[4]	Sample ID		
			SS401		
	Land Disposal Restrictions[1] 10X UTS	Residential Direct Exposure	A	B	C
			Sample Date		
			12/13/2007		
Dioxins/Furans (ng/kg)					
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	7	17 J	16 J	12 J.O

ANALYTE	EPA	FDEP SCTLs[4]	Sample ID						
			SS402						
	Land Disposal Restrictions[1] 10X UTS	Residential Direct Exposure	A	*A (dup)*	B	*B (dup)*	C	*C (dup)*	AC
			Sample Date						
			12/11/2007						02/23/2010
Dioxins/Furans (ng/kg)									
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	7	81 J	*42*	2.2 J	*2.9 J*	0.93 J,O	*1.3 J,O*	75

ANALYTE	EPA	FDEP SCTLs[4]	Sample ID			
			SS403			
	Land Disposal Restrictions[1] 10X UTS	Residential Direct Exposure	A	B	AC	*AC (dup)*
			Sample Date			
			12/13/2007		02/23/2010	
Dioxins/Furans (ng/kg)						
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	7	1.4 J	1.4 J	4.3 J,O	*3.3 J,O*

Table 3-12
Dioxin Concentrations in Soil - PYC Dredging Spoils Pile
American Creosote Works Site
Pensacola, Escambia County, Florida

Notes

[1]	Land Disposal Restrictions (LDR) equals 10 times the Universal Treatment Standards (UTS), Per Code of Federal Regulations (CFR) 40-268.48.
[2]	Obtained from the Amended Record of Decision (AROD), Operable Unit 1, American Creosote Works (ACW) Site, Pensacola, Escambia County, Florida, EPA, May 1999.
[3]	EPA Dioxin Preliminary Remediation Goal (10^{-4} HQ=1), February 2012
[4]	Florida Administrative Code (F.A.C.) Chapter 62-777, Table II, adopted April 2005, FDEP
EPA	U.S. Environmental Protection Agency
FDEP	Florida Department of Environmental Protection
ng/kg	nanograms per kilogram (parts per trillion or "ppt")
NA	Not Applicable
NE	Not Established
PRG	Preliminary Remedial Goals
≤	less than or equal to
U	Analyte not detected at or above laboratory reporting limit.
J	Identification of analyte is acceptable. Reported value is an estimate.
UJ	Analyte not detected at or above reporting limit. Reporting limit is an estimate.
O	Denoted as "other". Specified in EPA Final Analytical Report Project 10-0275 as: CLP01 - Concentration reported is less than the lowest standard on calibration curve; CLP02 - Concentration reported is greater than the highest standard on calibration curve; CLP10 - 2,3,7,8-TCDF confirmed by second column; CLP18 - Estimated Maximum Possible Concentration (EMPC) Reported; CLP24 - Result has not been confirmed by second column analysis; D-4 - Minimum Reporting Limit (MRL) elevated due to interferences; D-5 - Estimated quantitation for one or more individual constituents comprising >10% of the total; Q-3 - Instrument not calibrated for all constituents of the total concentration result; QI-1 - Internal standard was outside of method control limits.
Bold	Indicates the exceedance of the laboratory method detection limit.
Bold Underline	Contaminant of Concern identified in 1999 Record of Decision (ROD).
Bold	Indicates the exceedance of Land Disposal Restrictions (Universal Treatment Standard X 10).
Bold	Indicates the exceedance of FDEP SCTLs for Direct Exposure in Residential Soil, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777.
Italic	Indicates a duplicate (dup) sample
TEQ	Toxicity Equivalent
SCTL	Soil Cleanup Target Level
SS	Soil Sample
A	Depth of 0-6 inches
B	Depth of 6-12 inches
AC	Depth of 0-2 feet
C	Depth of 1-2 feet

Table 3-13
Dioxin Concentrations in Soil - SE Ditch Area
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	EPA	FDEP SCTLs[4]	Sample ID			
			SS301			
	Land Disposal Restrictions[1] 10X UTS	Residential Direct Exposure	A	B	C	D
			Sample Date			
			12/14/2007			
Dioxins/Furans (ng/kg)						
Octachlorodibenzodioxin OCDD	50,000	NE	2,300	500	220	180
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	7	12 J	14 J	1.2 J	1 J

ANALYTE	EPA	FDEP SCTLs[4]	Sample ID					
			SS302					
	Land Disposal Restrictions[1] 10X UTS	Residential Direct Exposure	A	B	C	D	D	E
			Sample Date					
			12/14/2007				02/25/2010	
Dioxins/Furans (ng/kg)								
Octachlorodibenzodioxin OCDD	50,000	NE	2,600	1,800	3,900 J	3,500 J	99	120
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	7	30 J	32 J	30 J	36	0.8 J,O	0.86 J,O

ANALYTE	EPA	FDEP SCTLs[4]	Sample ID								
			SS303					SS304		SS305	
	Land Disposal Restrictions[1] 10X UTS	Residential Direct Exposure	A	B	D	E	F	A	B	A	B
			Sample Date								
			12/14/2007			02/25/2010		12/15/2007		12/15/2007	
Dioxins/Furans (ng/kg)											
Octachlorodibenzodioxin OCDD	50,000	NE	83,000 J	92,000 J	9,100 J,O	1,800	10,000 J,O	450	160	2,300	1,100
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	7	190 J	200 J	21 J, O	5.7 J,O	25 J,O	1.5 J	0.61 J	3 J	2 J

Table 3-13
Dioxin Concentrations in Soil - SE Ditch Area
American Creosote Works Site
Pensacola, Escambia County, Florida

Notes	
[1]	Land Disposal Restrictions (LDR) equals 10 times the Universal Treatment Standards (UTS), Per Code of Federal Regulations (CFR) 40-268.48.
[2]	Obtained from the Amended Record of Decision (AROD), Operable Unit 1, American Creosote Works (ACW) Site, Pensacola, Escambia County, Florida, EPA, May 1999.
[3]	EPA Dioxin Preliminary Remediation Goal (10^{-4} HQ=1), February 2012
[4]	Florida Administrative Code (F.A.C.) Chapter 62-777, Table II, adopted April 2005, FDEP
EPA	U.S. Environmental Protection Agency
FDEP	Florida Department of Environmental Protection
ng/kg	nanograms per kilogram (parts per trillion or "ppt")
NA	Not Applicable
NE	Not Established
PRG	Preliminary Remedial Goals
≥	less than or equal to
U	Analyte not detected at or above laboratory reporting limit.
J	Identification of analyte is acceptable. Reported value is an estimate.
UJ	Analyte not detected at or above reporting limit. Reporting limit is an estimate.
O	Denoted as "other". Specified in EPA Final Analytical Report Project 10-0275 as:
Bold	Indicates the exceedance of the laboratory method detection limit.
Bold Underline	Contaminant of Concern identified in 1999 Record of Decision (ROD).
Bold	Indicates the exceedance of Land Disposal Restrictions (Univeral Treatment Standard X 10).
Bold	Indicates the exceedance of FDEP SCTLs for Direct Exposure in Residential Soil, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777.
Italic	Indicates a duplicate (dup) sample
TEQ	Toxicity Equivalent
SCTL	Soil Cleanup Target Level
SS	Soil Sample
A	Depth of 0-6 inches
B	Depth of 6-12 inches
C	Depth of 1-2 feet
D	Depth of 2-3 feet
E	Depth of 3-4 feet
F	Depth of 4-6 feet

Table 3-14
Synthetic Precipitation Leaching Procedure Analysis for Semi-Volatile Organic Compounds
ACW Facility / Pine Street
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	1994 ROD Remedial Goals for Groundwater OR Surface Water*	FDEP GCTLs[1] Based on Groundwater Criteria	FDEP CTLs[1] Based on Marine Surface Water Criteria	Sample ID								
				SS506D	SS506E	SS506F	SS506G	SS506H	SS509D	SS509F	SS509G	SS509H
				Sample Date								
				2/22/2010	1/31/2011				2/23/2010	1/30/2011		
SPLP Carcinogenic PAHs (µg/L)												
Benzo(a)anthracene	1,100	0.05	0.031	0.22 J,O	0.053	0.053	0.054	0.05 U	0.14 J,O	0.055	0.05 U	0.058
Benzo(a)pyrene	NE	0.2	0.031	0.65 J,O	0.1 U	0.1 U	0.1 U	0.1 U	0.3 J,O	0.1 U	0.1 U	0.1 U
Benzo(b)fluoranthene	NE	0.05	0.031	0.88 J,O	0.11	0.084	0.05 U	0.05 U	0.57 J,O	0.05 U,J,O	0.05 U,J,O	0.05 U,J,O
Benzo(k)fluoranthene	NE	0.5	0.031	0.46 J,O	0.1 U	0.1 U	0.1 U	0.1 U	0.29 J,O	0.1 U	0.1 U	0.1 U
Chrysene	NE	4.8	0.031	0.23 J,O	0.1 U	0.1 U	0.1 U	0.1 U	0.14 J,O	0.1 U	0.1 U	0.1 U
Dibenzo(a,h)anthracene	NE	0.005	0.031	0.22 J,O	0.005 U,J,O	0.005 U,J,O	0.005 U,J,O	0.005 U,J,O	0.15 J,O	0.005 U	0.0075	0.005 U
Indeno (1,2,3-cd) pyrene	NE	0.05	0.031	0.71 J,O	0.05 U	0.05 U	0.05 U	0.05 U	0.42 J,O	0.05 U	0.05 U	0.05 U
Corresponding Carcinogenic PAHs Soil Concentrations (µg/kg)												
ANALYTE	FDEP SCTLs[2] Leachability Based on Groundwater Criteria	FDEP SCTLs[2] Leachability Based on Marine Surface Water Criteria		SS506D	SS506E	SS506F	SS506G	SS506H	SS509D	SS509F	SS509G	SS509H
Benzo(a)anthracene	800	NE*		170 J,O	3.8 U	3.8 U	4.0 U	4.0 U	28 J,O	3.8 U	4.1 U,J,O	4.0 U,J,O
Benzo(a)pyrene	8,000	NE*		140 J,O	3.8 U	3.8 U	4.0 U	4.0 U	29 J,O	6.0 J,O	4.1 U	4.0 U
Benzo(b)fluoranthene	2,400	NE*		140 J,O	3.8 U	3.8 U	4.0 U	4.0 U	36 J,O	6.1 J,O	4.1 U,J,O	4.0 U
Benzo(k)fluoranthene	24,000	NE*		170 J,O	3.8 U	3.8 U	4.0 U	4.0 U	43 J,O	3.8 U,J,O	4.1 U	4.0 U
Chrysene	77,000	NE*		200	3.8 U	3.8 U	4.0 U	4.0 U	35	3.8 U	4.1 U	4.0 U
Dibenzo(a,h)anthracene	700	NE*		45 J,O	3.8 U,J,O	3.8 U,J,O	4.0 U,J,O	4.0 U,J,O	15	3.8 U	4.1 U,J,O	4.0 U,J,O
Indeno (1,2,3-cd) pyrene	6,600	NE*		95 J,O	3.8 U,J,O	3.8 U,J,O	4.0 U,J,O	4.0 U,J,O	55 J,O	3.8 U	4.1 U,J,O	4.0 U,J,O

ANALYTE	1994 ROD Remedial Goals for Groundwater OR Surface Water*	FDEP GCTLs[1] Based on Groundwater Criteria	FDEP CTLs[1] Based on Marine Surface Water Criteria	Sample ID								
				SS506D	SS506E	SS506F	SS506G	SS506H	SS509D	SS509F	SS509G	SS509H
				Sample Date								
				2/22/2010	1/31/2011				2/23/2010	1/30/2011		
SPLP Non-Carcinogenic PAHs (µg/L)												
Acenaphthene	9,000	20	3	0.5 J,O	0.1 U	0.1 U	0.1 U	0.16	0.7 J,O	0.1 U	0.1 U	0.1 U
Acenaphthylene	NE	210	0.031	0.068 J,O	0.1 U	0.1 U	0.1 U	0.1 U	0.083 J,O	0.1 U	0.1 U	0.1 U
Anthracene	NE	2,100	0.3	0.36 J,O	0.1 U	0.1 U	0.1 U	0.1 U	0.56 J,O	0.1 U	0.1 U	0.1 U
Benzo(g,h,i)perylene	NE	210	0.031	0.55 J,O	0.1 U	0.1 U	0.1 U	0.1 U	0.31 J,O	0.1 U	0.1 U	0.1 U
Fluoranthene	1,500	280	0.3	0.63 J,O	0.14	0.12	0.1 U	0.1 U	0.44 J,O	0.1 U	0.1 U	0.12
Fluorene	NE	280	30	0.39 J,O	0.1 U	0.1 U	0.1 U	0.1 U	0.55 J,O	0.1 U	0.1 U	0.1 U
Naphthalene	21,900	14	26	5.7 J,O	0.1 U	0.1 U	0.1 U	0.19	6.1 J,O	0.1 U	0.1 U	0.1 U
Phenanthrene	NE	210	0.031	0.95 J,O	0.1	0.1 U	0.1 U	0.1 U	1.3 J,O	0.1 U	0.1 U	0.15
Pyrene	NE	210	0.3	0.56 J,O	0.15	0.16	0.13	0.1 U	0.41 J,O	0.1 U	0.1 U	0.11
2-Methylnaphthalene	NE	28	30	1.1 J,O	0.1 U	0.1 U	0.1 U	0.1 U	1.4 J,O	0.1 U	0.1 U	0.1 U
Corresponding Non-Carcinogenic PAHs Soil Concentrations (µg/kg)												
ANALYTE	FDEP SCTLs[2] Leachability Based on Groundwater Criteria	FDEP SCTLs[2] Leachability Based on Marine Surface Water Criteria		SS506D	SS506E	SS506F	SS506G	SS506H	SS509D	SS509F	SS509G	SS509H
Acenaphthene	2,100	300		300	3.8 U	3.8 U	4.0 U	4.0 U	130 J,O	3.8 U	4.1 U	4.0 U
Acenaphthylene	27,000	NE*		15	3.8 U	3.8 U	4.0 U	4.0 U	11	3.8 U	4.1 U	4.0 U
Anthracene	2,500,000	400		280 J,O	3.8 U	3.8 U	4.0 U	4.0 U	45 J,O	3.8 U	4.1 U	4.0 U
Benzo(g,h,i)perylene	32,000,000	NE*		61 J,O	3.8 U	3.8 U	4.0 U	4.0 U	40 J,O	3.8 U	4.1 U,J,O	4.0 U,J,O
Fluoranthene	1,200,000	1,300		640	6.9 U,J,O	3.9 U,J,O	6.4 U,J,O	4.0 U,J,O	75 J,O	3.8 U,J,O	4.1 U,J,O	4.2 U,J,O
Fluorene	160,000	17,000		290	3.8 U	3.8 U	4.0 U	4.0 U	69 J,O	3.8 U	4.1 U	4.0 U
Naphthalene	1,200	2,200		870	3.8 U	3.8 U	4.0 U	4.0 U	950	3.8 U	4.1 U	4.0 U
Phenanthrene	250,000	NE*		920	3.8 U,J,O	3.8 U,J,O	4.0 U,J,O	4.0 U,J,O	95 J,O	3.8 U,J,O	4.1 U,J,O	4.0 U,J,O
Pyrene	880,000	1,300		470	6.9 U,J,O	3.8 U,J,O	4.7 U,J,O	4.0 U,J,O	65 J,O	3.8 U	4.1 U,J,O	4.0 U,J,O
2-Methylnaphthalene	8,500	9,100		320	3.8 U	3.8 U	4.0 U	4.0 U	270	3.8 U	4.1 U	4.0 U

Table 3-14
Synthetic Precipitation Leaching Procedure Analysis for Semi-Volatile Organic Compounds
ACW Facility / Pine Street
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	1994 ROD Remedial Goals for Groundwater OR Surface Water*	FDEP GCTLs[1] Based on Groundwater Criteria	FDEP CTLs[1] Based on Marine Surface Water Criteria	Sample ID													
				SS512D	SS512E	SS512F	SS512G	SS512H	SS515D	*SS515D (dup)*	SS516C	SS516D	SS516E	SS516F	SS516G	SS516H	*SS516H (Dup)*
				Sample Date													
				2/22/2010	1/31/2011				2/22/2010	*2/22/2010*	2/26/2010	1/25/2011					
SPLP Carcinogenic PAHs (µg/L)																	
Benzo(a)anthracene	1,100	0.05	0.031	2.8 J,O	0.68	0.073	0.086	0.051	23 J,O	*110 J,O*	0.1 U,R,O	4.2	0.43	0.51 J,O	0.087	0.05 U	*0.75 J,O*
Benzo(a)pyrene	NE	0.2	0.031	0.82 J,O	0.47	0.1 U	0.1 U	0.1 U,J,O	39 J,O	*27 J,O*	0.1 U,R,O	5.5 J,O	0.62 J,O	0.1 U	0.1 U	0.1 U	*0.1 U*
Benzo(b)fluoranthene	NE	0.05	0.031	1.00 J,O	0.69	0.077 J,O	0.05 U	0.05 U,J,O	2,000 J,O	*41 J,O*	0.1 U,R,O	4.6	0.5	0.49	0.072	0.05 U	*0.44*
Benzo(k)fluoranthene	NE	0.5	0.031	0.96 J,O	0.45 U,O	0.1 U	0.1 U	0.1 U	2,400 J,O	*30 J,O*	0.1 U,R,O	4.7	0.82 U,O	0.3 U,O	0.1 U	0.1 U	*0.42 U,O*
Chrysene	NE	4.8	0.031	2.9 J,O	0.52	0.11	0.1 U	0.1 U	22 J,O	*100 J,O*	0.1 U,R,O	7.1	0.69	0.74	0.11	0.1 U	*0.69*
Dibenzo(a,h)anthracene	NE	0.005	0.031	0.17 J,O	0.056	0.012	0.0098	0.005 U,J,O	2300 J,O	*1.3 J,O*	0.1 U,R,O	0.25 J,O	0.035 J,O	0.023 J,O	0.0053 J,O	0.005 U,J,O	*0.022 J,O*
Indeno (1,2,3-cd) pyrene	NE	0.05	0.031	21 J,O	0.38	0.061	0.052	0.05 U,J,O	3,200 J,O	*2,200 J,O*	0.13 J,O	2.3	0.35	0.21	0.05 U	0.05 U	*0.14*
Corresponding Carcinogenic PAHs Soil Concentrations (µg/kg)																	
ANALYTE	FDEP SCTLs[2] Leachability Based on Groundwater Criteria	FDEP SCTLs[2] Leachability Based on Marine Surface Water Criteria		SS512D	SS512E	SS512F	SS512G	SS512H	SS515D	*SS515D (dup)*	SS516C	SS516D	SS516E	SS516F	SS516G	SS516H	*SS516H (Dup)*
Benzo(a)anthracene	800	NE*		570	11 J,O	3.9 U	4.0 U,J,O	4.0 U,J,O	350,000	*3,700,000*	21,000	230	35	20	6.7	4.0 U,J,O	*16*
Benzo(a)pyrene	8,000	NE*		170 J,O	14	3.9 U	4.0 U	4.0 U	78,000	*79,000*	22,000	180	22	3.8 U	3.9 U	4.0 U	*4.0 U*
Benzo(b)fluoranthene	2,400	NE*		220	18 J,O	6.3 J,O	4.0 U,J,O	4.0 U,J,O	130,000 J,O	*150,000 J,O*	38,000	190	13	18 J,O	11 J,O	4.0 U	*3.1 J,O*
Benzo(k)fluoranthene	24,000	NE*		240 J,O	14	4.3 J,O	4.0 U	4.0 U	49,000 J,O	*28,000 J,O*	14,000	140	20	21	5.9	4.0 U	*3.2 J,O*
Chrysene	77,000	NE*		580	20 J,O	4.1	4.0 U	4.0 U	330,000	*360,000*	24,000	270	36	21	5.7	4.0 U	*10*
Dibenzo(a,h)anthracene	700	NE*		53 J,O	4.0 U,J,O	3.9 U	4.0 U,J,O	4.0 U,J,O	20,000	*19,000*	8,900	52 J,O	6.8	7.1 J,O	3.9 U,J,O	4.0 U,J,O	*4.0 U*
Indeno (1,2,3-cd) pyrene	6,600	NE*		76 J,O	9.5 J,O	3.9 U	4.0 U,J,O	4.0 U,J,O	39,000	*41,000*	24,000 J,O	140	14	20 J,O	3.9 U,J,O	4.0 U,J,O	*4.0 U*

ANALYTE	1994 ROD Remedial Goals for Groundwater OR Surface Water*	FDEP GCTLs[1] Based on Groundwater Criteria	FDEP CTLs[1] Based on Marine Surface Water Criteria	Sample ID													
				SS512D	SS512E	SS512F	SS512G	SS512H	SS515D	*SS515D (dup)*	SS516C	SS516D	SS516E	SS516F	SS516G	SS516H	*SS516H (Dup)*
				Sample Date													
				2/22/2010	1/31/2011				2/22/2010	*2/22/2010*	2/26/2010	1/25/2011					
SPLP Non-Carcinogenic PAHs (µg/L)																	
Acenaphthene	9,000	20	3	19 J,O	0.1 U	0.1 U	0.18	0.12	310 J,O	*730 J ,O*	0.1 U,R,O	0.12 J,O	0.1 U	0.1 U	0.1 U	0.1 U	*0.1 U*
Acenaphthylene	NE	210	0.031	0.6 J,O	0.1 U	0.1 U	0.1 U	0.1 U	13 J,O	*18 J,O*	0.1 U,R,O	0.56 J,O	0.1 U	0.1 U	0.1 U	0.1 U	*0.1 U*
Anthracene	NE	2,100	0.3	8.2 J,O	0.21	0.1 U	0.12	0.1 U	110 J,O	*440 J,O*	0.13 J,O	0.27 J,O	0.1 U	0.1 U	0.1 U	0.1 U	*0.1 U*
Benzo(g,h,i)perylene	NE	210	0.031	0.32 J,O	0.44	0.1 U	0.1 U	0.1 U,J,O	2,000 J,O	*2 J,O*	0.1 U,R,O	2.4	0.39	0.25	0.1 U	0.1 U	*0.16*
Fluoranthene	1,500	280	0.3	35 J,O	0.36	0.43	2.2	0.31	170 J,O	*710 J,O*	0.1 U,R,O	7.9	0.71	0.64 J,O	0.15 J,O	0.1 U	*0.81*
Fluorene	NE	280	30	18 J,O	2.5	0.1 U	0.1 U	0.1 U	220 J,O	*610 J,O*	0.1 U,R,O	0.21 J,O	0.12	0.11	0.1 U	0.1 U	*0.1 U*
Naphthalene	21,900	14	26	5.4 J,O	0.1 U	0.1 U	0.1 U	0.1 U	5,300 J,O	*3,500 J,O*	0.12 J,O	0.87	0.26	0.32	0.28	0.1 U	*0.24*
Phenanthrene	NE	210	0.031	38 J,O	0.1 U	0.1 U	0.1 U	0.19	490 J,O	*1,400 J,O*	0.056 J,O	2.3	0.43	0.33	0.1 U	0.1 U	*0.28*
Pyrene	NE	210	0.3	21 J,O	0.1 U	0.16	0.23	0.23	110 J,O	*490 J,O*	0.089 J,O	6.1 J,O	0.56 J,O	0.66	0.12	0.1 U	*0.65 J,O*
2-Methylnaphthalene	NE	28	30	1.4 J,O	0.88	0.1 U	0.1 U	0.1 U	320 J,O	*600 J,O*	0.1 U,R,O	0.33	0.11	0.1	0.1 U	0.1 U	*0.1 U*
Corresponding Non-Carcinogenic PAHs Soil Concentrations (µg/kg)																	
ANALYTE	FDEP SCTLs[2] Leachability Based on Groundwater Criteria	FDEP SCTLs[2] Leachability Based on Marine Surface Water Criteria		SS512D	SS512E	SS512F	SS512G	SS512H	SS515D	*SS515D (dup)*	SS516C	SS516D	SS516E	SS516F	SS516G	SS516H	*SS516H (Dup)*
Acenaphthene	2,100	300		1,500	4.0 U	3.9 U	8.1 U,O	6.1 U,O	1,500,000	*1,700,000*	130	4.0 U,O	13 U,O	3.8 U	4.1 U,O	4.0 U	*14 U,O*
Acenaphthylene	27,000	NE*		570 J,O	5.7	3.9 U	4.0 U	4.0 U	44,000	*49,000*	9,100	53 J,O	3.8 U	5.1	3.9 U	4.0 U	*4.0 U*
Anthracene	2,500,000	400		1,100 J,O	13	3.9 U	4.0 U	4.0 U	1,500,000 J,O	*1,800,000 J,O*	2,700 J,O	20	17	5.2	3.9	4.0 U	*13*
Benzo(g,h,i)perylene	32,000,000	NE*		48 J,O	12 J,O	4.1 J,O	4.0 U,J,O	4.0 U,J,O	20,000	*21,000*	14,000	140	15	21 J,O	3.9 U,J,O	4.0 U	*4.0 U*
Fluoranthene	1,200,000	1,300		2,800	38 U,J,O	8.2 U,J,O	23 U,J,O	7.1 U,J,O	2,200,000	*2,500,000*	32,000	340 J,O	100 J,O	30	12	4.0 U,J,O	*54 J,O*
Fluorene	160,000	17,000		1,400	4.0 U	3.9 U	4.0 U	4.0 U	1,600,000	*1,800,000*	330	10	27	6.3	7.5	4.0 U	*25*
Naphthalene	1,200	2,200		920	4.0 U	3.9 U	4.0 U	4.0 U	2,800,000	*3,100,000*	410	21	20	16	17	4.0 U	*35*
Phenanthrene	250,000	NE*		3,500	4.0 U,J,O	3.9 U,J,O	4.0 U,J,O	4.0 U,J,O	3,900,000 J,O	*4,500,000 J,O*	5,900	240 J,O	110 J,O	17 U,O	15 U,O	4.0 U,J,O	*64 J,O*
Pyrene	880,000	1,300		1,900	26 U,J,O	3.9 U,O	7.3 U,J,O	6.3 U,J,O	1,400,000	*1,500,000*	27,000	330	86	29	11 U,O	4.0 U	*40*
2-Methylnaphthalene	8,500	9,100		610	4.0 U	3.9 U	4.0 U	4.0 U	1,400,000	*1,600,000*	280	6.3 U,O	7.5 U,O	6.1 U,O	5.0 U,O	4.0 U	*9.5 U,O*

Table 3-14
Synthetic Precipitation Leaching Procedure Analysis for Semi-Volatile Organic Compounds
ACW Facility / Pine Street
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	1994 ROD Remedial Goals for Groundwater OR Surface Water*	FDEP GCTLs[1] Based on Groundwater Criteria	FDEP CTLs[1] Based on Marine Surface Water Criteria	Sample ID														
				SS517B	SS517C	SS517D	SS517E	SS517F	SS517G	*SS517G (dup)*	SS517H	SS518AB	SS518C	SS518D	SS518E	SS518F	SS518G	SS518H
				Sample Date														
				2/25/2010	1/27/2011							1/26/2011						
SPLP Carcinogenic PAHs (µg/L)																		
Benzo(a)anthracene	1,100	0.05	0.031	1.1 J,O	0.24	0.92	0.49	0.45	1.1	*1.4*	0.74	710 J,O	270 J,O	8.7	800 J,O	1,700 J,O	4,800 J,O	6,800 J,O
Benzo(a)pyrene	NE	0.2	0.031	1.4 J,O	0.1 U	1.4	0.54 J,O	0.42 J,O	0.92 J,O	*1.4*	0.1 U	270	97	4.7 J,O	310	630	1,900 J,O	2,600
Benzo(b)fluoranthene	NE	0.05	0.031	2.3 J,O	0.16	1.6	1.1	0.71	1.1	*1.3*	0.35 J,O	300	120	3.5	330	680	2,100 J,O	2,900
Benzo(k)fluoranthene	NE	0.5	0.031	2.3 J,O	0.1 U	1.3	0.67 U,O	0.52 U,O	0.98 U,O	*0.84*	0.28 J,O	270	96	3.6	360	630	2,000 J,O	2,700
Chrysene	NE	4.8	0.031	1.8 J,O	0.33	1.5	0.93	0.72	1.5	*1.7*	0.9 J,O	570	220	9.1	650	1,400	4,700 J,O	5,600
Dibenzo(a,h)anthracene	NE	0.005	0.031	1.4 J,O	0.006 J,O	0.085 J,O	0.029 J,O	0.022 J,O	0.039 J,O	*0.037 J,O*	0.005 U,J,O	24	11	0.13 J,O	38	54	57 J,O	190 J,O
Indeno (1,2,3-cd) pyrene	NE	0.05	0.031	1.5 J,O	0.059	0.65 J,O	0.28	0.22	0.34	*0.33*	0.076 J,O	54	26	1.0	91 J,O	120 J,O	120 J,O	480 J,O
Corresponding Carcinogenic PAHs Soil Concentrations (µg/kg)																		
ANALYTE	FDEP SCTLs[2] Leachability Based on Groundwater Criteria	FDEP SCTLs[2] Leachability Based on Marine Surface Water Criteria		SS517B	SS517C	SS517D	SS517E	SS517F	SS517G	*SS517G (dup)*	SS517H	SS518AB	SS518C	SS518D	SS518E	SS518F	SS518G	SS518H
Benzo(a)anthracene	800	NE*		230 J,O	10	310 J,O	65	66	30	*35*	65	28,000	11,000	290	34,000 J,O	59,000 J,O	150,000 J,O	220,000
Benzo(a)pyrene	8,000	NE*		290	3.5 U	290	36	48	21	*24*	30	9,600	4,600	77	13,000	21,000	57,000 J,O	82,000 J,O
Benzo(b)fluoranthene	2,400	NE*		470	4.4	550	70 J,O	110	33	*30*	38	11,000	4,700	160	14,000	24,000	67,000 J,O	94,000 J,O
Benzo(k)fluoranthene	24,000	NE*		290	4.8	600	70	61	29	*31*	27	10,000	5,200	100	15,000	22,000	55,000 J,O	130,000 J,O
Chrysene	77,000	NE*		300 J,O	8.0	580 J,O	72 J,O	67	21	*36*	34	22,000	9,800	230	29,000 J,O	49,000 J,O	200,000	260,000
Dibenzo(a,h)anthracene	700	NE*		120 J,O	3.5 U	76 J,O	14	32	5.7	*6.7*	8.2	940	520	34 J,O	1,500	2,900	8,500	11,000 J,O
Indeno (1,2,3-cd) pyrene	6,600	NE*		300 J,O	3.5 U	280 J,O	37	45	23	*16*	24	3,200	1,200	76 J,O	4,200	6,800	17,000	25,000 J,O

ANALYTE	1994 ROD Remedial Goals for Groundwater OR Surface Water*	FDEP GCTLs[1] Based on Groundwater Criteria	FDEP CTLs[1] Based on Marine Surface Water Criteria	Sample ID														
				SS517B	SS517C	SS517D	SS517E	SS517F	SS517G	*SS517G (dup)*	SS517H	SS518AB	SS518C	SS518D	SS518E	SS518F	SS518G	SS518H
				Sample Date														
				2/25/2010	1/27/2011							1/26/2011						
SPLP Non-Carcinogenic PAHs (µg/L)																		
Acenaphthene	9,000	20	3	0.45 J,O	0.13	0.1 U	0.1 U	0.23	0.1 U	*0.01 U*	0.49 J,O	2,200	660	41 J,O	2,300	5,300	13,000 J,O	24,000 J,O
Acenaphthylene	NE	210	0.031	0.67 J,O	0.1 U	0.4	0.2	0.11	0.13	*0.1 U*	0.1 U	69	25	0.34 J,O	120 J,O	130 J,O	100 J,O	200 J,O
Anthracene	NE	2,100	0.3	2.7 J,O	0.12	1.6	0.82	0.37	0.29	*0.28*	0.31 J,O	1,300	420	11	1,100	2,300	5,500 J,O	7,100 J,O
Benzo(g,h,i)perylene	NE	210	0.031	1.5 J,O	0.1 U	0.57	0.3	0.24	0.37	*0.36*	0.1 U	41 J,O	23	0.59	78 J,O	100 J,O	100 J,O	400 J,O
Fluoranthene	1,500	280	0.3	2.4 J,O	0.35 J,O	0.84	0.75	0.67	2.5	*2.8*	2.3	3,500	1,200	90	15,000	12,000	13,000 J,O	13,000
Fluorene	NE	280	30	0.39 J,O	0.29	0.12	0.12	0.31	0.12	*0.26*	0.79 J,O	2,700	730	53	2,400	4,700	13,000 J,O	15,000
Naphthalene	21,900	14	26	5 J,O	0.27	0.24	0.32	0.15	0.11	*0.12*	0.1 U	37,000	1,900	60	24,000	24,000	55,000 J,O	79,000 J,O
Phenanthrene	NE	210	0.031	1.2 J,O	0.23	0.48	0.57	0.26	0.46	*0.85*	1.9	34,000	1,900	150	25,000	20,000	16,000 J,O	69,000 J,O
Pyrene	NE	210	0.3	3.6 J,O	0.39	0.81 J,O	0.74 J,O	0.67 J,O	3.6	*3.6*	2	2,000	660	54 J,O	2,600	5,300	9,000 J,O	10,000
2-Methylnaphthalene	NE	28	30	0.89 J,O	0.1 U	0.12	0.13	0.1 U	0.1 U	*0.069 J,O*	0.1 U	2,500	780	18 J,O	2,500	5,500	15,000 J,O	26,000 J,O
Corresponding Non-Carcinogenic PAHs Soil Concentrations (µg/kg)																		
ANALYTE	FDEP SCTLs[2] Leachability Based on Groundwater Criteria	FDEP SCTLs[2] Leachability Based on Marine Surface Water Criteria		SS517B	SS517C	SS517D	SS517E	SS517F	SS517G	*SS517G (dup)*	SS517H	SS518AB	SS518C	SS518D	SS518E	SS518F	SS518G	SS518H
Acenaphthene	2,100	300		3.9 J,O	7.4 U,O	32 U,O	6.3 U,J,O	18 U,O	15 U,O	*5.3 U,O*	12	87,000	36,000	790	170,000	290,000	670,000	820,000
Acenaphthylene	27,000	NE*		120 J,O	3.5 U	160	37	27	5.0	*3.9 U*	5.4	3,400	1,200	17	2,500	6,400	14,000	20,000
Anthracene	2,500,000	400		28	8.2	610	120	130	28	*12*	28	75,000	18,000	770	87,000	190,000	360,000	480,000 J,O
Benzo(g,h,i)perylene	32,000,000	NE*		150	3.5 U	310 J,O	54	49	19	*18*	19	1,800	1,000	65 J,O	2,800	5,300	13,000	19,000 J,O
Fluoranthene	1,200,000	1,300		340 J,O	16 U,O	290 J,O	35 J,O	110 J,O	42 J,O	*70 J,O*	150	150,000	55,000	1,300 J,O	310,000	510,000	1,100,000	1,400,000
Fluorene	160,000	17,000		5.7	11	53	10	21	21	*10*	26	88,000	35,000	860	170,000	290,000	660,000	790,000
Naphthalene	1,200	2,200		11	14	60 J,O	4.0	19	26	*19*	21	330,000	110,000	1,400	570,000	1,100,000	2,300,000	2,700,000
Phenanthrene	250,000	NE*		42 J,O	13 U,O	100 J,O	13 U,J,O	99 J,O	40 J,O	*23 U,J,O*	150	240,000	89,000	1,700 J,O	560,000	850,000	1,800,000	2,400,000 J,O
Pyrene	880,000	1,300		300 J,O	14 U,O	310 J,O	77	100	43	*56 J,O*	120	85,000	34,000	990	190,000	280,000	620,000	840,000
2-Methylnaphthalene	8,500	9,100		6.8	4.2 U,O	30	3.7 U	12 U,O	9.7 U,O	*6.0 U*	6.7	77,000	27,000	520	160,000	280,000	670,000	800,000

Table 3-14
Synthetic Precipitation Leaching Procedure Analysis for Semi-Volatile Organic Compounds
ACW Facility / Pine Street
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	1994 ROD Remedial Goals for Groundwater OR Surface Water*	FDEP GCTLs[1] Based on Groundwater Criteria	FDEP CTLs[1] Based on Marine Surface Water Criteria	Sample ID													
				SS519AB	SS519C	SS519D	SS519E	SS519F	SS519G	SS519H	SS520AB	SS520C	SS520D	SS520E	SS520F	SS520G	SS520H
				1/30/2011							1/29/2011						
SPLP Carcinogenic PAHs (µg/L)																	
Benzo(a)anthracene	1,100	0.05	0.031	46	9.5	1.1	0.05 U	0.094	0.18	0.05 U	23 J,O	0.15	0.091	0.29	0.05 U,O	0.05 U	0.05 U
Benzo(a)pyrene	NE	0.2	0.031	85	10	0.3	0.1 U,J,O	0.1 U,J,O	0.1 U,J,O	0.1 U,J,O	30	0.28	0.1 U	0.1 U	0.1 U,O	0.1 U	0.1 U
Benzo(b)fluoranthene	NE	0.05	0.031	140	11	0.61	0.05 U,J,O	0.14 J,O	0.41 J,O	0.05 U,J,O	52	0.24	0.099	0.15	0.05 U,O	0.056	0.05 U
Benzo(k)fluoranthene	NE	0.5	0.031	90	44	0.73 U,O	0.1 U	0.16 U,O	0.4 U,O	0.1 U	41	0.16 U,O	0.1 U	0.11 U,O	0.1 U,O	0.1 U	0.1 U
Chrysene	NE	4.8	0.031	68 J,O	11	1.2	0.1 U	0.15	0.27	0.1 U	37 J,O	0.26	0.14	0.38	0.1 U,O	0.1 U	0.1 U
Dibenzo(a,h)anthracene	NE	0.005	0.031	29	3.9 J,O	0.04	0.005 U,J,O	0.015 U,J,O	0.042 U,J,O	0.005 U,J,O	9.4	0.017 J,O	0.005 U,J,O	0.005 U,J,O	0.005 U,O	0.005 U,J,O	0.005 U,J,O
Indeno (1,2,3-cd) pyrene	NE	0.05	0.031	72	8.1	0.35	0.05 U,J,O	0.071 J,O	0.26 J,O	0.05 U,J,O	22	0.092	0.05 U	0.05 U	0.05 U,O	0.05 U	0.05 U
Corresponding Carcinogenic PAHs Soil Concentrations (µg/kg)																	
ANALYTE	FDEP SCTLs[2] Leachability Based on Groundwater Criteria	FDEP SCTLs[2] Leachability Based on Marine Surface Water Criteria		SS519AB	SS519C	SS519D	SS519E	SS519F	SS519G	SS519H	SS520AB	SS520C	SS520D	SS520E	SS520F	SS520G	SS520H
Benzo(a)anthracene	800	NE*		1,800	400	31 J,O	3.5 U,J,O	3.7 U,J,O	4.9 J,O	4.0 U,J,O	1,600	7.6	3.5 U,J,O	9.0	3.9 U	4.0 U	3.8 U
Benzo(a)pyrene	8,000	NE*		4,600	490	12	3.5 U	3.7 U	3.9 U	4.0 U	2,400	8.5	3.5 U	3.7 U	3.9 U	4.0 U	3.8 U
Benzo(b)fluoranthene	2,400	NE*		7,600	520	21	3.5 U	4.6 J,O	13 J,O	4.0 U,J,O	3,800	13 J,O	6.2 J,O	4.7 J,O	3.9 U	4.0 U	3.8 U
Benzo(k)fluoranthene	24,000	NE*		5,200	500 J,O	19	3.5 U	4.9	9.4	4.0 U	2,800 J,O	11	3.2 J,O	4.8	3.9 U	4.0 U	3.8 U
Chrysene	77,000	NE*		3,600	510	31	3.5 U	4.5 J,O	7.6 J,O	4.0 U	2,700	13	3.9	9.3	3.9 U	4.0 U	3.8 U
Dibenzo(a,h)anthracene	700	NE*		1,200	94 J,O	3.5 U,J,O	3.5 U,J,O	3.7 U,J,O	3.9 U,J,O	4.0 U,J,O	590	3.5 U,J,O	3.5 U,J,O	3.7 U,J,O	3.9 U,J,O	4.0 U,J,O	3.8 U,J,O
Indeno (1,2,3-cd) pyrene	6,600	NE*		2,800	330	8.1 J,O	3.5 U,J,O	3.7 U,J,O	7.6 J,O	4.0 U,J,O	1,500	7.5 J,O	3.5 U,J,O	3.7 U,J,O	3.9 U,J,O	4.0 U,J,O	3.8 U,J,O

ANALYTE	1994 ROD Remedial Goals for Groundwater OR Surface Water*	FDEP GCTLs[1] Based on Groundwater Criteria	FDEP CTLs[1] Based on Marine Surface Water Criteria	Sample ID													
				SS519AB	SS519C	SS519D	SS519E	SS519F	SS519G	SS519H	SS520AB	SS520C	SS520D	SS520E	SS520F	SS520G	SS520H
				Sample Date													
				1/30/2011							1/29/2011						
SPLP Non-Carcinogenic PAHs (µg/L)																	
Acenaphthene	9,000	20	3	0.64	6.3	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	3.7	0.13	0.19	0.1 U	0.1 U,O	0.37	0.7
Acenaphthylene	NE	210	0.031	15	1.3	0.1 U	0.1 U	0.1 U	0.16	0.1 U	8.1	0.1 U	0.1 U	0.1 U	0.1 U,O	0.1 U	0.1 U
Anthracene	NE	2,100	0.3	12	5.7	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	9.1	0.15	0.12	0.17	0.1 U,O	0.1 U	0.1 U
Benzo(g,h,i)perylene	NE	210	0.031	77	8.9	0.29	0.1 U,J,O	0.1 U,J,O	0.24 J,O	0.1 U,J,O	22 J,O	0.11	0.1 U	0.1 U	0.1 U,O	0.1 U	0.1 U
Fluoranthene	1,500	280	0.3	58	18	2.5	0.1 U	0.1 U	0.1 U	0.1 U	36 J,O	0.19	0.18	1.4	0.16 O	0.1	0.4
Fluorene	NE	280	30	0.6	3.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	3.2	0.15	0.21	0.34	0.1 U,O	0.1 U	0.1 U
Naphthalene	21,900	14	26	1.9	11	0.2	0.1 U	0.1 U	0.1 U	0.1 U	5.3	0.1 U	0.1 U	0.17	0.1 U,O	0.1 U	0.1 U
Phenanthrene	NE	210	0.031	11	12	0.19	0.1 U	0.1 U	0.1 U	0.1 U	6.1 J,O	0.21	0.25	1.4	0.13 O	0.1 U	0.1 U
Pyrene	NE	210	0.3	62 J,O	14	2.6	0.1 U	0.15	0.16	0.1 U	32 J,O	0.29	0.24	0.79	0.1 O	0.12	0.24
2-Methylnaphthalene	NE	28	30	1.1	5.6	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1.5	0.1 U	0.1 U	0.1 U	0.1 U,O	0.1 U	0.1 U
Corresponding Non-Carcinogenic PAHs Soil Concentrations (µg/kg)																	
ANALYTE	FDEP SCTLs[2] Leachability Based on Groundwater Criteria	FDEP SCTLs[2] Leachability Based on Marine Surface Water Criteria		SS519AB	SS519C	SS519D	SS519E	SS519F	SS519G	SS519H	SS520AB	SS520C	SS520D	SS520E	SS520F	SS520G	SS520H
Acenaphthene	2,100	300		34	130	3.5 U	3.5 U	3.7 U	3.9 U	4.0 U	110	3.5 U	3.5 U	3.7 U	3.9 U	6.3 U,O	6.4 U,O
Acenaphthylene	27,000	NE*		700	20	3.3 J,O	3.5 U	3.7 U	3.6 J,O	4.0 U	400	3.7 J,O	3.5 U	3.7 U	3.9 U	4.0 U	3.8 U
Anthracene	2,500,000	400		580	240	3.2 J,O	3.5 U	3.7 U	3.9 U	4.0 U	290	5.8	3.5 U	6.8	3.9 U	4.0 U	3.8 U
Benzo(g,h,i)perylene	32,000,000	NE*		2,800	350	8.3 J,O	3.5 U,J,O	3.7 U,J,O	7.8 J,O	4.0 U,J,O	1,400	7.9	3.5 U	3.7 U	3.9 U	4.0 U	3.8 U
Fluoranthene	1,200,000	1,300		2,500	790	46 J,O	3.5 U,J,O	3.7 U,J,O	3.9 U,J,O	4.0 U,J,O	2,700	9.1 U,J,O	3.7 U,J,O	23 J,O	4.8 U,J,O	4.1 U,J,O	8.0 U,J,O
Fluorene	160,000	17,000		60	78	3.5 U	3.5 U	3.7 U	3.9 U	4.0 U	130	3.5 U	3.5 U	5.7	3.9 U	4.0 U	3.8 U
Naphthalene	1,200	2,200		81	170 J,O	7.9 J,O	3.5 U	3.7 U	3.9 U	4 U	180	3.5 U	3.5 U	3.7 U	3.9 U	4.0 U	3.8 U
Phenanthrene	250,000	NE*		570	550	3.1 U,J,O	3.5 U,J,O	3.7 U,J,O	3.9 U,J,O	4 U,J,O	420	3.5 U,J,O	3.5 U,J,O	21 U,J,O	3.9 U,J,O	4.0 U,J,O	3.8 U,J,O
Pyrene	880,000	1,300		4,000	560	57 J,O	3.5 U,J,O	4.3 U,J,O	4.1 U,J,O	4 U,J,O	2,200	9.2 U,J,O	3.8 U,O	18 U,J,O	4.4 U,J,O	4.0 U,J,O	4.7 U,J,O
2-Methylnaphthalene	8,500	9,100		46	120	3.5 U	3.5 U	3.7 U	3.9 U	4 U	49	3.5 U	3.5 U	3.7 U	3.9 U	4.0 U	3.8 U

Table 3-14
Synthetic Precipitation Leaching Procedure Analysis for Semi-Volatile Organic Compounds
ACW Facility / Pine Street
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	1994 ROD Remedial Goals for Groundwater OR Surface Water*	FDEP GCTLs[1] Based on Groundwater Criteria	FDEP CTLs[1] Based on Marine Surface Water Criteria	Sample ID														
				SS521AB	SS521C	*SS521C (dup)*	SS521D	SS521E	SS521F	SS521G	SS521H	SS522AB	SS522C	SS522D	SS522E	SS522F	SS522G	SS522H
				Sample Date														
				1/30/2011								1/28/2011						
SPLP Carcinogenic PAHs (µg/L)																		
Benzo(a)anthracene	1,100	0.05	0.031	72 J,O	140 J,O	*170 J,O*	21 J,O	6.1 J,O	2.3 J,O	0.29	0.05 U	200 J,O	120 J,O	21 J,O	26 J,O	5.4 J,O	18	11 J,O
Benzo(a)pyrene	NE	0.2	0.031	77	290	*350*	71	23	8	0.43	0.1 U	150	31	7.1	14	6.9	6.5	4.5 J,O
Benzo(b)fluoranthene	NE	0.05	0.031	87 J,O	370 J,O	*470 J,O*	96 J,O	31	11	0.5	0.05 U,J,O	200 J,O	58	12	19	7.9	6.3	3.1 J,O
Benzo(k)fluoranthene	NE	0.5	0.031	62	310	*340*	62	19	5.9 U,O	0.67 U,O	0.1 U	150	41	8.1 U,O	13	5.1 U,O	5.7 U,O	5 U,O
Chrysene	NE	4.8	0.031	85	200	*240*	39	15	5.6	0.46	0.1 U	240	110	24	17	6.8	15	9.9 O
Dibenzo(a,h)anthracene	NE	0.005	0.031	21	63	*75*	18	4.5 J,O	0.41	0.035	0.005 U	31	4.7 J,O	0.64 J,O	4.1 J,O	0.43	0.12 J,O	0.34 J,O
Indeno (1,2,3-cd) pyrene	NE	0.05	0.031	62	150 J,O	*190 J,O*	46	11	3 J,O	0.35	0.05 U	88 J,O	13	2.8 J,O	9.5	3.6 J,O	2.1 J,O	1.9 J,O
Corresponding Carcinogenic PAHs Soil Concentrations (µg/kg)																		
ANALYTE	FDEP SCTLs[2] Leachability Based on Groundwater Criteria	FDEP SCTLs[2] Leachability Based on Marine Surface Water Criteria		SS521AB	SS521C	*SS521C (dup)*	SS521D	SS521E	SS521F	SS521G	SS521H	SS522AB	SS522C	SS522D	SS522E	SS522F	SS522G	SS522H
Benzo(a)anthracene	800	NE*		780	6,500 J,O	*6,500*	870 J,O	230	83	7.2 J,O	4 U,J,O	11,000 J,O	4,800 J,O	960 J,O	600 J,O	280 J,O	940 J,O	830 J,O
Benzo(a)pyrene	8,000	NE*		1,300	14,000	*19,000*	3,900	1,200	420	14	4.0 U	7,500	1,600	420	570	350	360	420
Benzo(b)fluoranthene	2,400	NE*		2,100	19,000	*21,000*	5,100	1,400	520	9.8 J,O	4.0 U	9,400 J,O	2,400 J,O	590 J,O	660 J,O	400 J,O	330 J,O	380 J,O
Benzo(k)fluoranthene	24,000	NE*		1,500	15,000	*17,000*	3,800	1,100 J,O	440 J,O	14	4.0 U	6,800	1,900	430	440	320	380	420
Chrysene	77,000	NE*		1,300	9,600 J,O	*10,000*	1,900 J,O	760	260	14 J,O	4.0 U	14,000	6,000	1,200	710	360	830	820
Dibenzo(a,h)anthracene	700	NE*		450	2,800	*3,900*	900	210	33 J,O	4.1 U,J,O	4.0 U,J,O	1,200	270	23 J,O	36 J,O	30 J,O	13 J,O	23 J,O
Indeno (1,2,3-cd) pyrene	6,600	NE*		1,200	8,300	*8,700*	2,300	510	200	7.2 J,O	4.0 U,J,O	3,400	630	40 J,O	290	210 U	21 J,O	32 J,O

ANALYTE	1994 ROD Remedial Goals for Groundwater OR Surface Water*	FDEP GCTLs[1] Based on Groundwater Criteria	FDEP CTLs[1] Based on Marine Surface Water Criteria	Sample ID														
				SS521AB	SS521C	*SS521C (dup)*	SS521D	SS521E	SS521F	SS521G	SS521H	SS522AB	SS522C	SS522D	SS522E	SS522F	SS522G	SS522H
				Sample Date														
				1/30/2011								1/28/2011						
SPLP Non-Carcinogenic PAHs (µg/L)																		
Acenaphthene	9,000	20	3	1.5	1.5	*3.8 J,O*	1.9	0.32	0.13	0.1 U	0.1 U	200	210	53	38	46	78	19 O
Acenaphthylene	NE	210	0.031	25	38	*50*	11	3.9	1.2	0.1 U	0.1 U	13	5	1.8	2	1.4	2.1	2.2 J,O
Anthracene	NE	2,100	0.3	26	30	*51*	12	2.6	0.64	0.1 U	0.1 U	370	120	31	22	7.9	20	12 O
Benzo(g,h,i)perylene	NE	210	0.031	69	150 J,O	*190 J,O*	47	11	3	0.37	0.1 U	62	12	2.7	7.6	3.3	0.85	1.6 J,O
Fluoranthene	1,500	280	0.3	150	120	*160*	24	16	1.4 J,O	0.19	0.1 U	720	500	130	40	27	77	46 O
Fluorene	NE	280	30	6.6	2.2	*1.3*	3	0.44	0.17	0.1 U	0.1 U	250	280	62	61	49	70	11 O
Naphthalene	21,900	14	26	2	2.7	*1.4*	0.48	0.34	0.29	0.1 U	0.1 U	110 J,O	7.2	0.46	0.91	76	64	0.33
Phenanthrene	NE	210	0.031	37	8.2	*16*	2.9 J,O	0.52	0.28	0.1 U	0.1 U	550	650	130	64	24	110	15 O
Pyrene	NE	210	0.3	150	350	*380*	79	62	13	0.76	0.1 U	470	290	73	31	17	52	27 O
2-Methylnaphthalene	NE	28	30	1.1	1.8	*3.8 J,O*	0.45	0.14	0.11	0.1 U	0.1 U	82 J,O	1.2 J,O	0.18	0.33	30	47	0.1
Corresponding Non-Carcinogenic PAHs Soil Concentrations (µg/kg)																		
ANALYTE	FDEP SCTLs[2] Leachability Based on Groundwater Criteria	FDEP SCTLs[2] Leachability Based on Marine Surface Water Criteria		SS521AB	SS521C	*SS521C (dup)*	SS521D	SS521E	SS521F	SS521G	SS521H	SS522AB	SS522C	SS522D	SS522E	SS522F	SS522G	SS522H
Acenaphthene	2,100	300		35	91	*78*	55 J,O	24	7.4	4.1 U	4.0 U	13,000	13,000	2,500	2,200	2,700	4,000	2,200
Acenaphthylene	27,000	NE*		240	1,600	*2,000*	650	370	60	5.1	4.0 U	650	280	74	79	63	85	77
Anthracene	2,500,000	400		320	1,600	*2,800*	760 J,O	370	76	3.9 J,O	4.0 U	23,000	8,200	1,400	1,200	420	1,100	1,300
Benzo(g,h,i)perylene	32,000,000	NE*		1,400	8,600	*8,200*	2,300	470	190	9.6 J,O	4.0 U,J,O	3,000	550	38 J,O	230	44 J,O	19 J,O	26 J,O
Fluoranthene	1,200,000	1,300		1,300	5,400 J,O	*6,600*	1,200 J,O	730	110	4.7 U,J,O	4.0 U,J,O	46,000	28,000	8,000	3,500	1,400	5,000	3,800
Fluorene	160,000	17,000		35	260	*190*	160 J,O	66	12	4.1 U	4.0 U	15,000	15,000	2,900	3,600	2,500	4,300	2,800
Naphthalene	1,200	2,200		200	100	*92*	21 J,O	19	15	4.1 U	4.0 U	4,800	370	15	34	4,500	3,500	5,800
Phenanthrene	250,000	NE*		560	290	*530*	200 J,O	87	32	4.1 U,J,O	4.0 U,J,O	33,000	36,000	7,400	7,400	1,200	6,600	7,000
Pyrene	880,000	1,300		1,500	18,000 J,O	*19,000*	4,000 J,O	2,800	570	20 U,J,O	4.0 U,J,O	27,000	15,000	3,900	1,700	790	2,700	2,100
2-Methylnaphthalene	8,500	9,100		50	76	*68*	20 J,O	9.6	6.1	4.1 U	4.0 U	4,100	53	5.9	12	1,400	2,600	2,600

Table 3-14
Synthetic Precipitation Leaching Procedure Analysis for Semi-Volatile Organic Compounds
ACW Facility / Pine Street
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	1994 ROD Remedial Goals for Groundwater OR Surface Water*	FDEP GCTLs[1] Based on Groundwater Criteria	FDEP CTLs[1] Based on Marine Surface Water Criteria	Sample ID								
				SS523AB	SS523C	SS523D	SS523E	*SS523E (dup)*	SS523F	SS523G	SS523H	SS603AB
				Sample Date								
				1/28/2011								2/22/2010
SPLP Carcinogenic PAHs (µg/L)												
Benzo(a)anthracene	1,100	0.05	0.031	3.4	1.8	0.59	0.14	*0.12*	1.2	0.05 U	0.05 U	1.3 J,O
Benzo(a)pyrene	NE	0.2	0.031	2	0.93	0.37	0.1 U	*0.1 U*	0.68	0.1 U	0.1 U	3.1 J,O
Benzo(b)fluoranthene	NE	0.05	0.031	2.1 J,O	0.6 J,O	0.72	0.11 J,O	*0.1 J,O*	1.3 J,O	0.05 U,J,O	0.05 U,J,O	3.1 J,O
Benzo(k)fluoranthene	NE	0.5	0.031	3.2	0.85 U,O	0.46 U,O	0.11 U,O	*0.12 U,O*	1.2	0.1 U	0.1 U	3.6 J,O
Chrysene	NE	4.8	0.031	3.8	2	0.73	0.16	*0.14*	1.4	0.1 U	0.1 U	1.8 J,O
Dibenzo(a,h)anthracene	NE	0.005	0.031	0.32	0.097	0.087	0.014	*0.019*	0.13 J,O	0.005 U	0.005 U	3.1 J,O
Indeno (1,2,3-cd) pyrene	NE	0.05	0.031	2.1	0.61	0.66	0.094	*0.12*	0.87 J,O	0.05 U	0.05 U	3.9 J,O
Corresponding Carcinogenic PAHs Soil Concentrations (µg/kg)												
ANALYTE	FDEP SCTLs[2] Leachability Based on Groundwater Criteria	FDEP SCTLs[2] Leachability Based on Marine Surface Water Criteria		SS523AB	SS523C	SS523D	SS523E	*SS523E (dup)*	SS523F	SS523G	SS523H	SS603AB
Benzo(a)anthracene	800	NE*		88	52	21 J,O	3.5 U,J,O	*3.3 J,O*	31	4.0 U	4.1 U	1,700
Benzo(a)pyrene	8,000	NE*		100 J,O	70 J,O	15	3.5 U	*3.5 U,J,O*	31 J,O	4.0 U,J,O	4.1 U,J,O	1,800
Benzo(b)fluoranthene	2,400	NE*		140 J,O	66 J,O	9.0 J,O	3.5 U,J,O	*5.0 J,O*	51 J,O	4.0 U,J,O	4.1 U,J,O	2,800
Benzo(k)fluoranthene	24,000	NE*		77 J,O	35 J,O	12	3.5 U	*3.5 U,J,O*	35 J,O	4.0 U,J,O	4.1 U,J,O	1,100 J,O
Chrysene	77,000	NE*		110	60	27 J,O	3.8 J,O	*4.1*	39	4.0 U	4.1 U	2,300
Dibenzo(a,h)anthracene	700	NE*		19	8.2	4.2 J,O	3.5 U,J,O	*3.5 U*	8.7 J,O	4.0 U	4.1 U	840
Indeno (1,2,3-cd) pyrene	6,600	NE*		56	30	13 J,O	3.5 U,J,O	*3.5 U*	26	4.0 U	4.1 U	2,500

ANALYTE	1994 ROD Remedial Goals for Groundwater OR Surface Water*	FDEP GCTLs[1] Based on Groundwater Criteria	FDEP CTLs[1] Based on Marine Surface Water Criteria	Sample ID								
				SS523AB	SS523C	SS523D	SS523E	*SS523E (dup)*	SS523F	SS523G	SS523H	SS603AB
				Sample Date								
				1/28/2011								2/22/2010
SPLP Non-Carcinogenic PAHs (µg/L)												
Acenaphthene	9,000	20	3	0.1 U	0.19	0.1 U	0.1 U	*0.1 U*	0.1 U	0.1 U	0.1 U	0.065 J,O
Acenaphthylene	NE	210	0.031	0.23	0.1 U	0.1 U	0.1 U	*0.1 U*	0.16	0.1 U	0.1 U	0.38 J,O
Anthracene	NE	2,100	0.3	0.23	0.16	0.045 J,O	0.1 U	*0.1 U*	0.24	0.1 U	0.1 U	0.28 J,O
Benzo(g,h,i)perylene	NE	210	0.031	2.3	0.7	0.58	0.1	*0.12*	0.91	0.1 U	0.1 U	3.8 J,O
Fluoranthene	1,500	280	0.3	3.7	2.7	0.62	0.16	*0.14*	1.9	0.1 U	0.1 U	1.1 J,O
Fluorene	NE	280	30	0.1 U	0.1 U	0.1 U	0.1 U	*0.1 U*	0.13	0.1 U	0.1 U	0.1 J,O
Naphthalene	21,900	14	26	0.35	0.34	0.19	0.1 U	*0.15*	0.46	0.1 U	0.1 U	1.2 J,O
Phenanthrene	NE	210	0.031	0.94	2	0.32	0.13	*0.1 U*	0.96	0.1 U	0.1 U	0.32 J,O
Pyrene	NE	210	0.3	3.6	2.6	0.69	0.14	*0.16*	1.6	0.1 U	0.1 U	1.4 J,O
2-Methylnaphthalene	NE	28	30	0.15	0.41	0.16	0.1 U	*0.1 U*	0.54	0.1 U	0.1 U	0.25 J,O
Corresponding Non-Carcinogenic PAHs Soil Concentrations (µg/kg)												
ANALYTE	FDEP SCTLs[2] Leachability Based on Groundwater Criteria	FDEP SCTLs[2] Leachability Based on Marine Surface Water Criteria		SS523AB	SS523C	SS523D	SS523E	*SS523E (dup)*	SS523F	SS523G	SS523H	SS603AB
Acenaphthene	2,100	300		3.6 J	5.3 U,O	3.5 U	3.5 U	*3.5 U*	3.8 U	4.0 U	4.1 U	66 J,O
Acenaphthylene	27,000	NE*		9.3	3.6 U	3.5 U	3.5 U	*3.5 U*	5.0	4.0 U	4.1 U	860
Anthracene	2,500,000	400		11	7.5	3.5 U	3.5 U	*3.5 U*	10	4.0 U	4.1 U	1,700 J,O
Benzo(g,h,i)perylene	32,000,000	NE*		78 J,O	57 J,O	16 J,O	3.5 U,J,O	*3.2 J,O*	31 J,O	4.0 U	4.1 U	1,500
Fluoranthene	1,200,000	1,300		64 J,O	52 J,O	16 U,J,O	3.3 U,J,O	*3.5 U,J,O*	41 J,O	4.0 U,J,O	4.1 U,J,O	3,500
Fluorene	160,000	17,000		3.6 U	3.6 U	3.5 U	3.5 U	*3.5 U*	3.8 U	4.0 U	4.1 U	100 J,O
Naphthalene	1,200	2,200		15	11	9.9	3.5 U	*5.4*	17	4.0 U	4.1 U	85 J,O
Phenanthrene	250,000	NE*		15 U,J,O	27 J	7.5 U,J,O	3.5 U,J,O	*3.5 U,J,O*	19 U,J,O	4.0 U,J,O	4.1 U,J,O	900
Pyrene	880,000	1,300		85	57	24 U,J,O	4.1 U,J,O	*3.9 U,O*	40	4.0 U	4.1 U	2,700
2-Methylnaphthalene	8,500	9,100		6.3 U,O	15 U,O	13 U,O	3.5 U	*3.5 U*	21 U,O	4.0 U	4.1 U	38 J,O

Table 3-14
Synthetic Precipitation Leaching Procedure Analysis for Semi-Volatile Organic Compounds
ACW Facility / Pine Street
American Creosote Works Site
Pensacola, Escambia County, Florida

Notes:

[1]	Florida Administrative Code (F.A.C.) Chapter 62-777.170, Table I, Groundwater Cleanup Target Levels (GCTLs), adopted 2005, FDEP
[2]	Florida Administrative Code (F.A.C.) Chapter 62-777, Table II, Soil Cleanup Target Level (SCTLs) adopted 2005, FDEP
*	Obtained from the Record of Decision (ROD), Table 9*, Operable Unit 2, American Creosote Works Site, Pensacola, Escambia County, Florida, EPA, February 1994.
≤	Less than or equal to
NE	Not Established
NE*	None Established at time of rule adoption
FDEP	Florida Department of Environmental Protection
µg/kg	micrograms per kilogram (parts per billion or "ppb")
µg/L	micrograms per liter (parts per billion or "ppb")
U	Analyte not detected at or above laboratory reporting limit.
J	Identification of analyte is acceptable. Reported value is an estimate.
O	Denoted as "other". Specified in EPA Final Analytical Report Project 10-0274, 10-0275 and 11-0156 as: B-4 - Level in blank impacts MRLs; CLP01 - Concentration reported is less than the lowest standard on calibration curve; CLP02 - Concentration reported is greater than the highest standard on calibration curve; CLP16 - Initial Calibration Response Erratic; CLP17 - Initial Calibration Relative Response Outside Method Control Limits; CLP18 - Estimated Maximum Possible Concentration (EMPC) Reported; CLP32 - Continuing Calibration Relative Response Outside Method Control Limits; CR - Results in dispute with diluted results; D-5 - Estimated quantitation for one or more individual constituents comprising >10% of the total; H-7 - Recommended preparation holding time exceeded; QC-1 -Analyte concentration low in continuing calibration verification standard; QC-2 - Analyte concentration high in continuing calibration verification standard; QS-3 - Surrogate recovery is lower than established control limits; Q-3 - Instrument not calibrated for all constituents of the total concentration result; QI-1 - Internal standard was outside the method control limits; QM-2 - Matrix Spike Recovery is greater than method control limits; QS-3 - Surrogate recovery is lower than established control limits.
Bold	Indicates the exceedance of the laboratory method detection limit.
Bold Underline	Contaminant of Concern identified in 1994 ROD.

SPLP Carcinogenic PAHs

Bold	Indicates the exceedance based on the 1994 ROD Remedial Goals for Groundwater or Freshwater Surface Water.
Bold	Indicates the exceedance of FDEP CTLs Based on Groundwater Criteria, Chapter 62-777.
Bold	Indicates the exceedance of FDEP CTLs Based on Marine Surface Water Criteria, Chapter 62-777.

Corresponding Carcinogenic PAHs Soil Concentrations

Bold	Indicates the exceedance of FDEP SCTLs Leachability based on Groundwater Criteria, Chapter 62-777.
Bold	Indicates the exceedance of FDEP SCTLs Leachability based on Marine Surface Water Criteria, Chapter 62-777.

PAH	Polycyclic Aromatic Hydrocarbon
Italic	Indicates a duplicate (dup) sample
SPLP	Synthetic Precipitation Leaching Procedure
SS	Soil Sample

AB	Depth of 0-12 inches	**E**	Depth of 3-4 feet
B	Depth of 6-12 inches	**F**	Depth of 4-6 feet
C	Depth of 1-2 feet	**G**	Depth of 6-8 feet
D	Depth of 2-3 feet	**H**	Depth of 8-10 feet

Table 3-15
Synthetic Precipitation Leaching Procedure Analysis for Pentachlorophenol
ACW Facility / Pine Street
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	1994 ROD Remedial Goals for Groundwater OR Surface Water*	FDEP GCTLs[1] Based on Groundwater Criteria	FDEP CTLs[1] Based on Marine Surface Water Criteria	Sample ID				
				SS506D	SS506E	SS506F	SS506G	SS506H
				Sample Date				
				2/22/2010	1/31/2011			
SPLP Phenols (µg/L)								
Pentachlorophenol	296,000	1	7.9	3.6 J,O	0.25 J,O	0.2 U,R,O	0.2 U,R,O	0.2 U,R,O
Corresponding Phenols Soil Concentrations (µg/kg)								
ANALYTE	FDEP SCTLs[2] Leachability Based on Groundwater Criteria		FDEP SCTLs[2] Leachability Based on Marine Surface Water Criteria	SS506D	SS506E	SS506F	SS506G	SS506H
Pentachlorophenol	30		200	92 O	7.8 U,R,O	7.7 U,R,O	8.1 U,R,O	8.1 U,R,O

ANALYTE	1994 ROD Remedial Goals for Groundwater OR Surface Water*	FDEP GCTLs[1] Based on Groundwater Criteria	FDEP CTLs[1] Based on Marine Surface Water Criteria	Sample ID			
				SS509D	SS509F	SS509G	SS509H
				Sample Date			
				2/22/2010	1/30/2011		
SPLP Phenols (µg/L)							
Pentachlorophenol	296,000	1	7.9	1.2 J,O	0.61 J,O	0.2 U,R,O	0.29 J,O
Corresponding Phenols Soil Concentrations (µg/kg)							
ANALYTE	FDEP SCTLs[2] Leachability Based on Groundwater Criteria		FDEP SCTLs[2] Leachability Based on Marine Surface Water Criteria	SS509D	SS509F	SS509G	SS509H
Pentachlorophenol	30		200	160 J,O	8.0	8.3 U,R,O	4.8 J,O

Table 3-15
Synthetic Precipitation Leaching Procedure Analysis for Pentachlorophenol
ACW Facility / Pine Street
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	1994 ROD Remedial Goals for Groundwater OR Surface Water*	FDEP GCTLs[1] Based on Groundwater Criteria	FDEP CTLs[1] Based on Marine Surface Water Criteria	Sample ID						
				SS512D	SS512E	SS512F	SS512G	SS512H	SS515D	*SS515D (dup)*
				Sample Date						
				2/22/2010	1/31/2011				2/22/2010	*2/22/2010*
SPLP Phenols (µg/L)										
Pentachlorophenol	296,000	1	7.9	44 J,O	5.6 J,O	0.96 J,O	1.3 J,O	0.47 J,O	3,600 J,O	*5,600 J,O*
Corresponding Phenols Soil Concentrations (µg/kg)										
ANALYTE	FDEP SCTLs[2] Leachability Based on Groundwater Criteria	FDEP SCTLs[2] Leachability Based on Marine Surface Water Criteria		SS512D	SS512E	SS512F	SS512G	SS512H	SS515D	*SS515D (dup)*
Pentachlorophenol	30	200		2,800 O	43 J,O	14	7.9 J,O	6.6 J,O	3,800 N,O	*3,100*

ANALYTE	1994 ROD Remedial Goals for Groundwater OR Surface Water*	FDEP GCTLs[1] Based on Groundwater Criteria	FDEP CTLs[1] Based on Marine Surface Water Criteria	Sample ID						
				SS516C	SS516D	SS516E	SS516F	SS516G	SS516H	*SS516H (dup)*
				Sample Date						
				2/26/2010	1/25/2011					
SPLP Phenols (µg/L)										
Pentachlorophenol	296,000	1	7.9	0.2 U,R,O	0.2 U,R,O	**0.1 J,O**	0.2 U,R,O	0.2 U,R,O	0.2 U,R,O	**0.11 J,O**
Corresponding Phenols Soil Concentrations (µg/kg)										
ANALYTE	FDEP SCTLs[2] Leachability Based on Groundwater Criteria	FDEP SCTLs[2] Leachability Based on Marine Surface Water Criteria		SS516C	SS516D	SS516E	SS516F	SS516G	SS516H	*SS516H (dup)*
Pentachlorophenol	30	200		670 J,O	7.3 U,R,O	7.6 U	7.8 U,R,O	8.0 U,R,O	8.1 U	*8.1 U,R,O*

Table 3-15
Synthetic Precipitation Leaching Procedure Analysis for Pentachlorophenol
ACW Facility / Pine Street
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	1994 ROD Remedial Goals for Groundwater OR Surface Water*	FDEP GCTLs[1] Based on Groundwater Criteria	FDEP CTLs[1] Based on Marine Surface Water Criteria	Sample ID							
				SS517B	SS517C	SS517D	SS517E	SS517F	SS517G	*SS517G (dup)*	SS9517H
				Sample Date							
				2/25/2010	1/27/2011						
SPLP Phenols (µg/L)											
Pentachlorophenol	296,000	1	7.9	14 J,O	0.2 U,R,O	7.2 J,O	6.6 J,O	1.4 J,O	1.5 J,O	1 J,O	0.9 J,O
Corresponding Phenols Soil Concentrations (µg/kg)											
ANALYTE	FDEP SCTLs[2] Leachability Based on Groundwater Criteria	FDEP SCTLs[2] Leachability Based on Marine Surface Water Criteria		SS517B	SS517C	SS517D	SS517E	SS517F	SS517G	*SS517G (dup)*	SS9517H
Pentachlorophenol	30	200		690 O	7.1 U,R,O	1,200	170 J,O	120	61 J,O	*8.1*	30 J,O

ANALYTE	1994 ROD Remedial Goals for Groundwater OR Surface Water*	FDEP GCTLs[1] Based on Groundwater Criteria	FDEP CTLs[1] Based on Marine Surface Water Criteria	Sample ID						
				SS518AB	SS518C	SS518D	SS518E	SS518F	SS518G	SS518H
				Sample Date						
				1/26/2011						
SPLP Phenols (µg/L)										
Pentachlorophenol	296,000	1	7.9	44 J,O	0.2 U,R,O	4.6 J,O	32 J,O	120 J,O	10 U,J,O	0.2 U,R,O
Corresponding Phenols Soil Concentrations (µg/kg)										
ANALYTE	FDEP SCTLs[2] Leachability Based on Groundwater Criteria	FDEP SCTLs[2] Leachability Based on Marine Surface Water Criteria		SS518AB	SS518C	SS518D	SS518E	SS518F	SS518G	SS518H
Pentachlorophenol	30	200		950 J,O	390 U,J,O	42 J	610 J,O	3,500 J,O	390 U,J,O	380 U,J,O

Table 3-15
Synthetic Precipitation Leaching Procedure Analysis for Pentachlorophenol
ACW Facility / Pine Street
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	1994 ROD Remedial Goals for Groundwater OR Surface Water*	FDEP GCTLs[1] Based on Groundwater Criteria	FDEP CTLs[1] Based on Marine Surface Water Criteria	Sample ID						
				SS519AB	SS519C	SS519D	SS519E	SS519F	SS519G	SS519H
				Sample Date						
				1/30/2011						
SPLP Phenols (µg/L)										
Pentachlorophenol	296,000	1	7.9	2.6 J,O	0.12 J,O	2 J,O	0.2 U,R,O	0.2 U,R,O	0.2 U,R,O	0.2 U,R,O
Corresponding Phenols Soil Concentrations (µg/kg)										
ANALYTE	FDEP SCTLs[2] Leachability Based on Groundwater Criteria	FDEP SCTLs[2] Leachability Based on Marine Surface Water Criteria		SS519AB	SS519C	SS519D	SS519E	SS519F	SS519G	SS519H
Pentachlorophenol	30	200		210 J,O	360 U,J,O	39 J,O	7.2 U	7.5 U,R,O	7.9 U,R,O	8.0 U,R,O

ANALYTE	1994 ROD Remedial Goals for Groundwater OR Surface Water*	FDEP GCTLs[1] Based on Groundwater Criteria	FDEP CTLs[1] Based on Marine Surface Water Criteria	Sample ID						
				SS520AB	SS520C	SS520D	SS520E	SS520F	SS520G	SS520H
				Sample Date						
				1/29/2011						
SPLP Phenols (µg/L)										
Pentachlorophenol	296,000	1	7.9	7.4 J,O	0.37 J,O	0.21 J,O	0.17 J,O	0.21 J,O	0.2 U,R,O	0.2 U,R,O
Corresponding Phenols Soil Concentrations (µg/kg)										
ANALYTE	FDEP SCTLs[2] Leachability Based on Groundwater Criteria	FDEP SCTLs[2] Leachability Based on Marine Surface Water Criteria		SS520AB	SS520C	SS520D	SS520E	SS520F	SS520G	SS520H
Pentachlorophenol	30	200		120 J,O	32 J,O	9.1	4.4 J,O	7.9 U,R,O	8.2 U,R,O	7.6 U,R,O

Table 3-15
Synthetic Precipitation Leaching Procedure Analysis for Pentachlorophenol
ACW Facility / Pine Street
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	1994 ROD Remedial Goals for Groundwater OR Surface Water*	FDEP GCTLs[1] Based on Groundwater Criteria	FDEP CTLs[1] Based on Marine Surface Water Criteria	Sample ID							
				SS521AB	SS521C	*SS521C (dup)*	SS521D	SS521E	SS521F	SS521G	SS521H
				Sample Date							
				1/30/2011							
SPLP Phenols (µg/L)											
Pentachlorophenol	296,000	1	7.9	1.6 J,O	0.35 J,O	*0.2 U,R,O*	0.2 U,R,O	0.2 U,R,O	0.083 J,O	0.2 U,R,O	0.2 U,R,O
Corresponding Phenols Soil Concentrations (µg/kg)											
ANALYTE	FDEP SCTLs[2] Leachability Based on Groundwater Criteria		FDEP SCTLs[2] Leachability Based on Marine Surface Water Criteria	SS521AB	SS521C	*SS521C (dup)*	SS521D	SS521E	SS521F	SS521G	SS521H
Pentachlorophenol	30		200	38 J,O	10 J,O	*5.6 J,O*	390 U,J,O	9.4 J,O	380 U,J,O	8.2 U,R,O	8.2 U

ANALYTE	1994 ROD Remedial Goals for Groundwater OR Surface Water*	FDEP GCTLs[1] Based on Groundwater Criteria	FDEP CTLs[1] Based on Marine Surface Water Criteria	Sample ID						
				SS522AB	SS522C	SS522D	SS522E	SS522F	SS522G	SS522H
				Sample Date						
				1/28/2011						
SPLP Phenols (µg/L)										
Pentachlorophenol	296,000	1	7.9	10 J,O	17 J,O	0.2 U,R,O	10 U,J,O	0.2 U,R,O	0.2 U,R,O	10 U,O
Corresponding Phenols Soil Concentrations (µg/kg)										
ANALYTE	FDEP SCTLs[2] Leachability Based on Groundwater Criteria		FDEP SCTLs[2] Leachability Based on Marine Surface Water Criteria	SS522AB	SS522C	SS522D	SS522E	SS522F	SS522G	SS522H
Pentachlorophenol	30		200	410 J,O	930 J,O	17 J,O	31 J,O	10 J,O	450 U,J,O	4.4 J,O

Table 3-15
Synthetic Precipitation Leaching Procedure Analysis for Pentachlorophenol
ACW Facility / Pine Street
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	1994 ROD Remedial Goals for Groundwater OR Surface Water*	FDEP GCTLs[1] Based on Groundwater Criteria	FDEP CTLs[1] Based on Marine Surface Water Criteria	Sample ID							
				SS523AB	SS523C	SS523D	SS523E	*SS523E (dup)*	SS523F	SS523G	SS523H
				Sample Date							
				1/28/2011							
SPLP Phenols (µg/L)											
Pentachlorophenol	296,000	1	7.9	0.2 U,R,O	0.2 U,R,O	0.2 U,R,O	0.2 U,R,O	0.2 U,R,O	0.2 U,R,O	0.2 U,R,O	0.2 U,R,O
Corresponding Phenols Soil Concentrations (µg/kg)											
ANALYTE	FDEP SCTLs[2] Leachability Based on Groundwater Criteria		FDEP SCTLs[2] Leachability Based on Marine Surface Water Criteria	SS523AB	SS523C	SS523D	SS523E	*SS523E (dup)*	SS523F	SS523G	SS523H
Pentachlorophenol	30		200	7.3 U	7.2 U	7.1 U,J,O	7.1 U,J,O	7.1 U	7.7 U	8.0 U	8.4 U

ANALYTE	1994 ROD Remedial Goals for Groundwater OR Surface Water*	FDEP GCTLs[1] Based on Groundwater Criteria	FDEP CTLs[1] Based on Marine Surface Water Criteria	Sample ID
				SS603AB
				Sample Date
				2/22/2010
SPLP Phenols (µg/L)				
Pentachlorophenol	296,000	1	7.9	0.24 J,O
Corresponding Phenols Soil Concentrations (µg/kg)				
ANALYTE	FDEP SCTLs[2] Leachability Based on Groundwater Criteria		FDEP SCTLs[2] Leachability Based on Marine Surface Water Criteria	SS603AB
Pentachlorophenol	30		200	58 O

Table 3-15
Synthetic Precipitation Leaching Procedure Analysis for Pentachlorophenol
ACW Facility / Pine Street
American Creosote Works Site
Pensacola, Escambia County, Florida

Notes:

[1]	Florida Administrative Code (F.A.C.) Chapter 62-777.170, Table I, Groundwater Cleanup Target Levels (GCTLs), adopted 2005, FDEP
[2]	Florida Administrative Code (F.A.C.) Chapter 62-777, Table II, Soil Cleanup Target Levels (SCTLs) adopted 2005, FDEP
*	Obtained from the Record of Decision (ROD), Table 9*, Operable Unit 2, American Creosote Works Site, Pensacola, Escambia County, Florida, EPA, February 1994.
≤	Less than or equal to
NE	Not Established
FDEP	Florida Department of Environmental Protection
µg/kg	micrograms per kilogram (parts per billion or "ppb")
µg/L	micrograms per liter (parts per billion or "ppb")
U	Analyte not detected at or above laboratory reporting limit
R	The presence or absence of the analyte can not be determined from the data due to severe quality control problems. The data are rejected and considered unusable.
J	Identification of analyte is acceptable. Reported value is an estimate.
O	Denoted as "other". Specified in EPA Final Analytical Report Project 10-0274, 10-0275 and 11-0156 as: B-4 - Level in blank impacts MRLs; CLP01 - Concentration reported is less than the lowest standard on calibration curve; CLP02 - Concentration reported is greater than the highest standard on calibration curve; CLP16 - Initial Calibration Response Erratic; CLP17 - Initial Calibration Relative Response Outside Method Control Limits; CLP18 - Estimated Maximum Possible Concentration (EMPC) Reported; CLP32 - Continuing Calibration Relative Response Outside Method Control Limits; CR - Results in dispute with diluted results; D-5 - Estimated quantitation for one or more individual constituents comprising >10% of the total; H-7 - Recommended preparation holding time exceeded; QC-1 -Analyte concentration low in continuing calibration verification standard; QC-2 - Analyte concentration high in continuing calibration verification standard; QS-3 - Surrogate recovery is lower than established control limits; Q-3 - Instrument not calibrated for all constituents of the total concentration result; QI-1 - Internal standard was outside the method control limits; QM-2 - Matrix Spike Recovery is greater than method control limits; QS-3 - Surrogate recovery is lower than established control limits.
Bold	Indicates the exceedance of the laboratory method detection limit.
Bold Underline	Contaminant of Concern identified in 1994 ROD.

SPLP Carcinogenic PAHs

Bold	Indicates the exceedance based on the 1994 ROD Remedial Goals for Groundwater or Freshwater Surface Water.
Bold	Indicates the exceedance of FDEP CTLs Based on Groundwater Criteria, Chapter 62-777.
Bold	Indicates the exceedance of FDEP CTLs Based on Marine Surface Water Criteria, Chapter 62-777.

Corresponding Carcinogenic PAHs Soil Concentrations

Bold	Indicates the exceedance of FDEP SCTLs Leachability based on Groundwater Criteria, Chapter 62-777.
Bold	Indicates the exceedance of FDEP SCTLs Leachability based on Marine Surface Water Criteria, Chapter 62-777.

Italic	Indicates a duplicate (dup) sample
SPLP	Synthetic Precipitation Leaching Procedure
SS	Soil Sample

AB	Depth of 0-12 inches	**E**	Depth of 3-4 feet
B	Depth of 6-12 inches	**F**	Depth of 4-6 feet
C	Depth of 1-2 feet	**G**	Depth of 6-8 feet
D	Depth of 2-3 feet	**H**	Depth of 8-10 feet

Table 3-16
Synthetic Precipitation Leaching Procedure Analysis for Dioxin
ACW Facility / Pine Street
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	FDEP GCTLs[1] Based on Groundwater Criteria	Sample ID					
		SS506D	SS512D	SS515D	SS516C	SS517B	SS601C
		Sample Date					
		2/22/2010	2/22/2010	2/22/2010	2/26/2010	2/25/2010	2/22/2010
SPLP Dioxins / Furans (µg/L)							
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	3.E-05	1.10E-08 J,O	4.00E-06 J,O	7.50E-06 J,O	7.90E-05 J,O	5.90E-04 J,O	5.80E-04 J,O
Corresponding Dioxins / Furans Soil Concentrations (µg/kg)							
ANALYTE	FDEP SCTLs[2] Leachability Based on Groundwater Criteria	SS506D	SS512D	SS515D	SS516C	SS517B	SS601C
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	3	0.011 J,O	0.220 J, O	27 J, O	0.0063 J, O	0.3600 J, O	0.0067 J,O

Table 3-16
Synthetic Precipitation Leaching Procedure Analysis for Dioxin
ACW Facility / Pine Street
American Creosote Works Site
Pensacola, Escambia County, Florida

Notes:

[1]	Florida Administrative Code (F.A.C.) Chapter 62-777.170, Table I, Groundwater Cleanup Target Levels (GCTLs), adopted 2005, FDEP
[2]	Florida Administrative Code (F.A.C.) Chapter 62-777, Table II, Soil Cleanup Target Levels (SCTLs) adopted 2005, FDEP
*	Obtained from the Record of Decision (ROD), Table 9*, Operable Unit 2, American Creosote Works Site, Pensacola, Escambia County, Florida, EPA, February 1994.
≤	Less than or equal to
NE	Not Established
FDEP	Florida Department of Environmental Protection
µg/kg	micrograms per kilogram (parts per billion or "ppb")
µg/L	micrograms per liter (parts per billion or "ppb")
J	Identification of analyte is acceptable. Reported value is an estimate.
O	Denoted as "other". Specified in EPA Final Analytical Report Project 10-0274, 10-0275 and 11-0156 as: B-4 - Level in blank impacts MRLs; CLP01 - Concentration reported is less than the lowest standard on calibration curve; CLP02 - Concentration reported is greater than the highest standard on calibration curve; CLP16 - Initial Calibration Response Erratic; CLP17 - Initial Calibration Relative Response Outside Method Control Limits; CLP18 - Estimated Maximum Possible Concentration (EMPC) Reported; CLP32 - Continuing Calibration Relative Response Outside Method Control Limits; CR - Results in dispute with diluted results; D-5 - Estimated quantitation for one or more individual constituents comprising >10% of the total; H-7 - Recommended preparation holding time exceeded; QC-1 -Analyte concentration low in continuing calibration verification standard; QC-2 - Analyte concentration high in continuing calibration verification standard; QS-3 - Surrogate recovery is lower than established control limits; Q-3 - Instrument not calibrated for all constituents of the total concentration result; QI-1 - Internal standard was outside the method control limits; QM-2 - Matrix Spike Recovery is greater than method control limits; QS-3 - Surrogate recovery is lower than established control limits.
Bold	Indicates the exceedance of the laboratory method detection limit.
Bold Underline	Contaminant of Concern identified in 1994 ROD.

SPLP Dioxins / Furans

Bold	Indicates the exceedance of FDEP GCTLs Based on Groundwater Criteria, Chapter 62-777.

Corresponding Dioxins / Furans Soil Concentrations

Bold	Indicates the exceedance of FDEP SCTLs Leachability based on Groundwater Criteria, Chapter 62-777.

TEQ	Toxicity Equivalent
Italic	Indicates a duplicate (dup) sample
SPLP	Synthetic Precipitation Leaching Procedure
SS	Soil Sample
B	Depth of 6-12 inches
C	Depth of 1-2 feet
D	Depth of 2-3 feet

Table 3-17
Dioxin Concentrations in Soil - City Blocks
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	EPA Land Disposal Restrictions[1] 10X UTS	FDEP SCTLs[4] Residential Direct Exposure	Sample ID							
			SS101				SS102		SS103	
			A	B	C	D	A	B	A	B
			Sample Date							
			12/14/2007				12/14/2007		12/14/2007	
Dioxins/Furans (ng/kg)										
1,2,3,4,6,7,8-Heptachlorodibenzodioxin HpCDD	25,000	NE	2,300	1,200	440	750	1,000	200	1,500	1,100
Octachlorodibenzodioxin OCDD	50,000	NE	20,000 J	11,000 J	4,300 J	7,000 J	8,400 J	1,700	9,700	6,900 J
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	7	72	30 J	13 J	20 J	27 J	5.5 J	40 J	19 J

ANALYTE	EPA Land Disposal Restrictions[1] 10X UTS	FDEP SCTLs[4] Residential Direct Exposure	Sample ID								
			SS104		SS105		SS106		SS107		
			A	B	A	B	A	B	A	B	D
			Sample Date								
			12/13/2007		12/13/2007		12/13/2007		12/14/2007		
Dioxins/Furans (ng/kg)											
1,2,3,4,6,7,8-Heptachlorodibenzodioxin HpCDD	25,000	NE	710	100	330	62	920	83	1,700	4,400	140
Octachlorodibenzodioxin OCDD	50,000	NE	6,400 J	920	2,800	540	7,600 J	730	16,000	43,000 J	1,400
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	7	20 J	3.3 J	11 J	2.4 J	29 J	2.8 J	59	130 J	4.3 J

ANALYTE	EPA Land Disposal Restrictions[1] 10X UTS	FDEP SCTLs[4] Residential Direct Exposure	Sample ID							
			SS108			SS109		SS110		
			A	B	C	A	B	A	B	C
			Sample Date							
			12/15/2007		02/24/2010	12/15/2007		12/15/2007		02/24/2010
Dioxins/Furans (ng/kg)										
1,2,3,4,6,7,8-Heptachlorodibenzodioxin HpCDD	25,000	NE	240	41	19	130	66	2,100	300	38
Octachlorodibenzodioxin OCDD	50,000	NE	2,000	380	220	1,000	540	19,000	2,700	420
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	7	6.3 J	1.3 J	0.85 J,O	7.5 J	3 J	47	6.9 J	1.3 J,O

Table 3-17
Dioxin Concentrations in Soil - City Blocks
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	EPA Land Disposal Restrictions[1] 10X UTS	FDEP SCTLs[4] Residential Direct Exposure	Sample ID: SS111 A	SS111 B	SS112 A	SS112 B	SS113 A	SS113 B	SS113 C	SS113 D	SS113R C
			Sample Date: 12/15/2007		12/15/2007		12/15/2007				02/24/2010
Dioxins/Furans (ng/kg)											
1,2,3,4,6,7,8-Heptachlorodibenzodioxin HpCDD	25,000	NE	480	12	260	28	4,000	1,100	260	130	63
Octachlorodibenzodioxin OCDD	50,000	NE	4,100 J	110	2,300	270	31,000	9,200 J	2,300	1,200	630
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	7	11 J	0.95 J	6.4 J	1.3 J	130	26 J	7.8 J	4.0 J	2.9 J,O

ANALYTE	EPA Land Disposal Restrictions[1] 10X UTS	FDEP SCTLs[4] Residential Direct Exposure	Sample ID: SS114 A	SS114 B	SS114 C	SS115 A	SS115 B	SS115 C	SS115 D	SS115 D
			Sample Date: 02/24/2010			12/16/2007				02/24/2010
Dioxins/Furans (ng/kg)										
1,2,3,4,6,7,8-Heptachlorodibenzodioxin HpCDD	25,000	NE	950	78	14	540	780	85	360	12
Octachlorodibenzodioxin OCDD	50,000	NE	9,000 J,O	800	200	4,800 J	6,800 J	860	3,200	110
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	7	36 J,O	5.2 J,O	1.1 J,O	12 J	19 J	2.6 J	9.2 J	0.78 J,O

ANALYTE	EPA Land Disposal Restrictions[1] 10X UTS	FDEP SCTLs[4] Residential Direct Exposure	Sample ID: SS116 A	SS116 B	SS116 C	SS116 D	SS118 A	SS118 B
			Sample Date: 12/16/2007				12/16/2007	
Dioxins/Furans (ng/kg)								
1,2,3,4,6,7,8-Heptachlorodibenzodioxin HpCDD	25,000	NE	1,000	370	66	17	280	35
Octachlorodibenzodioxin OCDD	50,000	NE	9,600 J	3,300	660	200	2,400	310
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	7	25 J	8.9 J	1.8 J	0.74 J	8.1 J	1.2 J

Table 3-17
Dioxin Concentrations in Soil - City Blocks
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	EPA Land Disposal Restrictions[1] 10X UTS	FDEP SCTLs[4] Residential Direct Exposure	Sample ID								
			SS119					SS121			
			A	B	B	C	D	A	B	D	D
			Sample Date								
			12/17/2007		02/25/2010	12/17/2007		12/16/2007			02/24/2010
Dioxins/Furans (ng/kg)											
1,2,3,4,6,7,8-Heptachlorodibenzodioxin HpCDD	25,000	NE	3,500	5,000	680	1,100	190	1,700	3,300	4,100	58
Octachlorodibenzodioxin OCDD	50,000	NE	32,000 J	43,000 J	7,800 J,O	12,000 J,O	2,200	16,000	23,000 J	33,000	760
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	7	82 J	140	19 J,O	29 J,O	4.5 J	62	92	100	2.4 J,O

ANALYTE	EPA Land Disposal Restrictions[1] 10X UTS	FDEP SCTLs[4] Residential Direct Exposure	Sample ID						
			SS123		SS124		SS125		
			A	B	A	B	A	B	B
			Sample Date						
			12/16/2007		12/17/2007		12/16/2007		02/24/2010
Dioxins/Furans (ng/kg)									
1,2,3,4,6,7,8-Heptachlorodibenzodioxin HpCDD	25,000	NE	840	240	1,000	220	1,400	380	64
Octachlorodibenzodioxin OCDD	50,000	NE	7,300 J	2,200	9,000 J	2,000	14,000 J	3,600 J	660
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	7	22 J	6.4 J	26 J	6.3 J	34 J	9.5 J	2.3 J,O

ANALYTE	EPA Land Disposal Restrictions[1] 10X UTS	FDEP SCTLs[4] Residential Direct Exposure	Sample ID							
			SS126			SS127		SS128		
			A	B	C	A	B	A	B	C
			Sample Date							
			12/16/2007			12/16/2007		12/16/2007		
Dioxins/Furans (ng/kg)										
1,2,3,4,6,7,8-Heptachlorodibenzodioxin HpCDD	25,000	NE	970	240	9	280	150	2,600	600	26
Octachlorodibenzodioxin OCDD	50,000	NE	7,300 J	1,600	90	2,500	1,300	25,000 J	5,600 J	270
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	7	61 J	13 J	1.1 J	9.4 J	4.8 J	60 J	15 J	1.1 J

Table 3-17
Dioxin Concentrations in Soil - City Blocks
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	EPA Land Disposal Restrictions[1] 10X UTS	FDEP SCTLs[4] Residential Direct Exposure	Sample ID SS129 A	SS129 B	SS130 A	SS130 B	SS131 A	SS131 *A (dup)*	SS131 B	SS131 *B (dup)*
			Sample Date 12/16/2007		12/16/2007		12/16/2007			
Dioxins/Furans (ng/kg)										
1,2,3,4,6,7,8-Heptachlorodibenzodioxin HpCDD	25,000	NE	330	24	1,200	84	310	*310*	23	*31*
Octachlorodibenzodioxin OCDD	50,000	NE	3,200	250	12,000 J	860	2,700	*2,600*	230	*290*
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	7	11 J	1 J	33 J	2.5 J	15 J	*15 J*	1.5 J	*2.1 J*

ANALYTE	EPA Land Disposal Restrictions[1] 10X UTS	FDEP SCTLs[4] Residential Direct Exposure	Sample ID SS133 A	SS133 *A (dup)*	SS133 B	SS133 *B (dup)*	SS133 C	SS133 *C (dup)*	SS133 D	SS133 *D (dup)*
			Sample Date 12/17/2007							
Dioxins/Furans (ng/kg)										
1,2,3,4,6,7,8-Heptachlorodibenzodioxin HpCDD	25,000	NE	38,000	*32,000*	11,000	*6,600*	540	*530*	790	*820*
Octachlorodibenzodioxin OCDD	50,000	NE	110,000	*290,000 J*	85,000 J	*49,000*	4,400 J	*4,300 J*	6,500 J	*6,500 J*
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	7	1,000	*970*	280	*220*	17 J	*17 J*	22 J	*23 J*

ANALYTE	EPA Land Disposal Restrictions[1] 10X UTS	FDEP SCTLs[4] Residential Direct Exposure	Sample ID SS134 A	SS134 B	SS135 A	SS135 B	SS135 C	SS136 A	SS136 B	SS136 C
			Sample Date 12/17/2007		12/16/2007			12/16/2007		
Dioxins/Furans (ng/kg)										
1,2,3,4,6,7,8-Heptachlorodibenzodioxin HpCDD	25,000	NE	290	120	100	610	90	310	82	21
Octachlorodibenzodioxin OCDD	50,000	NE	2,500	1,200	980	5,000 J	790	2,400	680	220
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	7	9 J	4.7 J	3.1 J	22 J	3.9 J	14 J	11 J	1.2 J

Table 3-17
Dioxin Concentrations in Soil - City Blocks
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	EPA Land Disposal Restrictions[1] 10X UTS	FDEP SCTLs[4] Residential Direct Exposure	Sample ID								
			SS138		SS139		SS140			SS141	
			A	B	A	B	A	B	C	A	B
			Sample Date								
			12/16/2007		12/16/2007		12/17/2007			12/17/2007	
Dioxins/Furans (ng/kg)											
1,2,3,4,6,7,8-Heptachlorodibenzodioxin HpCDD	25,000	NE	130	32	490	69	770	220	36	360	140
Octachlorodibenzodioxin OCDD	50,000	NE	1,200	380	4,600 J	720	7,400 J	1,900	380	3,100	1,200
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	7	5.7 J	1.6 J	13 J	2.3 J	59 J	15 J	4.2 J	16 J	8.1 J

ANALYTE	EPA Land Disposal Restrictions[1] 10X UTS	FDEP SCTLs[4] Residential Direct Exposure	Sample ID							
			SS143		SS144		SS145			
			A	B	A	B	A	B	C	AB
			Sample Date							
			12/14/2007		12/15/2007		12/17/2007			02/25/2010
Dioxins/Furans (ng/kg)										
1,2,3,4,6,7,8-Heptachlorodibenzodioxin HpCDD	25,000	NE	32	10	440	170	3,300	580	100	360
Octachlorodibenzodioxin OCDD	50,000	NE	320	120	3,100	1,100	25,000 J	4,500 J	840	3,400
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	7	2 J	0.83 J	13 J	5.3 J	86	23 J	27 J	69

ANALYTE	EPA Land Disposal Restrictions[1] 10X UTS	FDEP SCTLs[4] Residential Direct Exposure	Sample ID							
			SS146		SS148		SS149		SS151	
			A	B	A	B	A	B	A	B
			Sample Date							
			12/14/2007		12/13/2007		12/17/2007		12/13/2007	
Dioxins/Furans (ng/kg)										
1,2,3,4,6,7,8-Heptachlorodibenzodioxin HpCDD	25,000	NE	78	14	200	46	100	27	270	41
Octachlorodibenzodioxin OCDD	50,000	NE	690	130	1,700	410	830	210	2,400	390
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	7	3 J	0.85 J	5.9 J	1.8 J	6.7 J	1.3 J	9.8 J	1.8 J

Table 3-17
Dioxin Concentrations in Soil - City Blocks
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	EPA Land Disposal Restrictions[1] 10X UTS	FDEP SCTLs[4] Residential Direct Exposure	Sample ID SS153 A	SS153 B	SS154 A	SS154 B	SS155 A	SS155 B
			Sample Date 12/17/2007		12/18/2007		12/17/2007	
Dioxins/Furans (ng/kg)								
1,2,3,4,6,7,8-Heptachlorodibenzodioxin HpCDD	25,000	NE	460	210	280	73	190	80
Octachlorodibenzodioxin OCDD	50,000	NE	4,700 J	2,100	2,200	570	2,100	930
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	7	13 J	6.5 J	13 J	4.2 J	4.9 J	2.3 J

ANALYTE	EPA Land Disposal Restrictions[1] 10X UTS	FDEP SCTLs[4] Residential Direct Exposure	Sample ID SS157 A	SS157 B	SS157 C	SS157 D	SS158 A	SS158 B	SS158 C	SS158 C	SS158 D
			Sample Date 12/17/2007			02/24/2010	12/17/2007			02/24/2010	
Dioxins/Furans (ng/kg)											
1,2,3,4,6,7,8-Heptachlorodibenzodioxin HpCDD	25,000	NE	780	210	110	58	740	320	110	92	20
Octachlorodibenzodioxin OCDD	50,000	NE	7,400 J	2,000	950	400	5,900 J	2,600	950	980	270
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	7	27 J	36	93	83	36 J	24	7.9 J	12 J,O	7.2 J,O

ANALYTE	EPA Land Disposal Restrictions[1] 10X UTS	FDEP SCTLs[4] Residential Direct Exposure	Sample ID SS159 A	SS159 B	SS160 A	SS160 B	SS161 A	SS161 B	SS162 A	SS162 B
			Sample Date 12/13/2007		12/13/2007		12/15/2007		12/15/2007	
Dioxins/Furans (ng/kg)										
1,2,3,4,6,7,8-Heptachlorodibenzodioxin HpCDD	25,000	NE	100	17	79	45	150	13	180	75
Octachlorodibenzodioxin OCDD	50,000	NE	990	180	650	370	1,300	130	1,600	680
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	7	2.9 J	0.81 J	4.5 J	2.4 J	6.6 J	0.86 J	6.5 J	3 J

Table 3-17
Dioxin Concentrations in Soil - City Blocks
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	EPA Land Disposal Restrictions[1] 10X UTS	FDEP SCTLs[4] Residential Direct Exposure	Sample ID SS163 A	SS163 B	SS164 A	SS164 B	SS164 C	SS164 D	SS165 A	SS165 B
			Sample Date 12/14/2007		12/14/2007			02/24/2010	12/14/2007	
Dioxins/Furans (ng/kg)										
1,2,3,4,6,7,8-Heptachlorodibenzodioxin HpCDD	25,000	NE	260	18	1,200	190	83	6.4	250	23
Octachlorodibenzodioxin OCDD	50,000	NE	2,100	300	8,300 J	1,400	640	68	2,300	260
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	7	8.9 J	1.1 J	42	14 J	16 J	1.2 J,O	9.3 J	2.9 J

ANALYTE	EPA Land Disposal Restrictions[1] 10X UTS	FDEP SCTLs[4] Residential Direct Exposure	Sample ID SS166 A	SS166 B	SS167 A	SS167 B	SS172 A	SS172 *A (dup)*	SS172 B	SS172 *B (dup)*
			Sample Date 12/14/2007		12/14/2007		12/18/2007			
Dioxins/Furans (ng/kg)										
1,2,3,4,6,7,8-Heptachlorodibenzodioxin HpCDD	25,000	NE	180	50	200	92	270	*230*	14	*16*
Octachlorodibenzodioxin OCDD	50,000	NE	1,600	420	1,600	750	2,500	*2,200*	160	*180*
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	7	6.7 J	2.1 J	6.8 J	3.4 J	9.7 J	*8.7 J*	1.6 J	*1.7 J*

ANALYTE	EPA Land Disposal Restrictions[1] 10X UTS	FDEP SCTLs[4] Residential Direct Exposure	Sample ID SS173 A	SS173 B	SS174 A	SS174 B	SS175 A	SS175 B	SS175 C
			Sample Date 02/25/2010		02/25/2010		02/25/2010		
Dioxins/Furans (ng/kg)									
1,2,3,4,6,7,8-Heptachlorodibenzodioxin HpCDD	25,000	NE	720	47	98	50	67	15	59
Octachlorodibenzodioxin OCDD	50,000	NE	6,300 J,O	490	1,300	890	630	130	1,100
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	7	23 J,O	2 J,O	3.4 J,O	2.4 J,O	3.6 J,O	1.4 J,O	1.7 J,O

Table 3-17
Dioxin Concentrations in Soil - City Blocks
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	EPA	FDEP SCTLs[4]	Sample ID					
			SS176			SS177		
	Land Disposal Restrictions[1] 10X UTS	Residential Direct Exposure	A	B	C	A	B	C
			Sample Date					
			02/24/2010			02/23/2010		
Dioxins/Furans (ng/kg)								
1,2,3,4,6,7,8-Heptachlorodibenzodioxin HpCDD	25,000	NE	140	3 J,O	1.9 J,O	190	21	5.2
Octachlorodibenzodioxin OCDD	50,000	NE	1,200	24	26	1,600	280	89
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	7	7.9 J,O	0.65 J,O	0.37 J,O	7 J,O	1.5 J,O	0.59 J,O

Table 3-17
Dioxin Concentrations in Soil - City Blocks
American Creosote Works Site
Pensacola, Escambia County, Florida

Notes

[1]	Land Disposal Restrictions (LDR) equals 10 times the Universal Treatment Standards (UTS), Per Code of Federal Regulations (CFR) 40-268.48.
[2]	Obtained from the Amended Record of Decision (AROD), Operable Unit 1, American Creosote Works (ACW) Site, Pensacola, Escambia County, Florida, EPA, May 1999.
[3]	EPA Dioxin Preliminary Remediation Goal (10^{-4} HQ=1), February 2012
[4]	Florida Administrative Code (F.A.C.) Chapter 62-777, Table II, adopted April 2005, FDEP
EPA	U.S. Environmental Protection Agency
FDEP	Florida Department of Environmental Protection
ng/kg	nanograms per kilogram (parts per trillion or "ppt")
NA	Not Applicable
NE	Not Established
PRG	Preliminary Remedial Goal
≤	less than or equal to
U	Analyte not detected at or above laboratory reporting limit.
J	Identification of analyte is acceptable. Reported value is an estimate.
UJ	Analyte not detected at or above reporting limit. Reporting limit is an estimate.
O	Denoted as "other". Specified in EPA Final Analytical Report Project 10-0275 as:
	CLP01 - Concentration reported is less than the lowest standard on calibration curve;
	CLP02 - Concentration reported is greater than the highest standard on calibration curve;
	CLP10 - 2,3,7,8-TCDF confirmed by second column;
	CLP18 - Estimated Maximum Possible Concentration (EMPC) Reported;
	CLP24 - Result has not been confirmed by second column analysis;
	D-4 - Minimum Reporting Limit (MRL) elevated due to interferences;
	D-5 - Estimated quantitation for one or more individual constituents comprising >10% of the total;
	Q-3 - Instrument not calibrated for all constituents of the total concentration result;
	QI-1 - Internal standard was outside of method control limits.
Bold	Indicates the exceedance of the laboratory method detection limit.
Bold Underline	Contaminant of Concern identified in 1999 Record of Decision (ROD).
Bold	Indicates the exceedance of Land Disposal Restrictions (Univeral Treatment Standard X 10).
Bold	Indicates the exceedance of FDEP SCTLs for Direct Exposure in Residential Soil, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777.
Italic	Indicates a duplicate (dup) sample
TEQ	Toxicity Equivalent
SCTL	Soil Cleanup Target Level
SS	Soil Sample
A	Depth of 0-6 inches
B	Depth of 6-12 inches
AB	Depth of 0-12 inches
C	Depth of 1-2 feet
D	Depth of 2-3 feet

Table 3-18
Semi-Volatile Organic Compounds in Surface Soil - City Blocks
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	Land Disposal Restrictions[1]	EPA 1999 AROD RGs[2]	FDEP SCTLs[3]			Sample ID								
						SS108		SS110		SS113R		SS114		
	10X UTS	Residential Surface Soil	Residential Direct Exposure	Leachability Based on Groundwater Criteria	Leachability Based on Marine Surface Water Criteria	B	C	B	C	C	D	A	B	C
						Sample Date								
						2/24/2010		2/24/2010		2/24/2010		2/24/2010		
SVOCs - cPAHs (µg/kg)														
Total BaP TEQ	NE	NE	100	8,000	NE	**6.1 J,O**	**41 J,O**	**5.2**	4.6 U	**5.1 J,O**	4.5 U	**3,844.7 J,O**	**344.4 J,O**	**50.9**
Benzo(a)anthracene	**34,000**	NE	100	800	NE	3.5 U	**30 J,O**	3.8 U	4 U	3.9 U	3.9 U	**1,600**	**130**	**27**
Benzo(a)pyrene	**34,000**	**330**	100	8,000	NE	**3.2 J,O**	**25 J,O**	3.8 U	4 U	3.9 U	3.9 U	**2,000**	**200**	**26**
Benzo(b)fluoranthene	**68,000**	NE	1,000	2,400	NE	**3.6**	**31 J,O**	**3.9**	4 U	**5.0**	3.9 U	**4,800**	**320**	**41**
Benzo(k)fluoranthene	**68,000**	NE	1,000	24,000	NE	**3.0 J,O**	**21 J,O**	3.8 U	4 U	**3.9**	3.9 U	**1,300**	**220**	**29**
Chrysene	**34,000**	NE	100,000	77,000	NE	3.5 U	**30 J,O**	3.8 U	4 U	**3.8 J,O**	3.9 U	**1,700**	**150**	**25**
Dibenzo(a,h)anthracene	**82,000**	NE	100	700	NE	3.5 U	**7.2**	3.8 U	4 U	3.9 U	3.9 U	**940**	**76**	**14**
Indeno (1,2,3-cd) pyrene	**34,000**	NE	1,000	6,600	NE	**5.6**	**25 J,O**	**6.5**	4 U	**4.9**	3.9 U	**2,500 J,O**	**210 J,O**	**38**
SVOCs -cPAHs (µg/kg)														
Acenaphthene	**34,000**	NE	2,400,000	2,100	300	3.5 U	3.5 U	3.8 U	4 U	3.9 U	3.9 U	**10**	3.6 U	3.5 U
Acenaphthylene	**34,000**	NE	1,800,000	27,000	NE	3.5 U	**5.0**	3.8 U	4 U	3.9 U	3.9 U	**630**	**23**	3.5 U
Anthracene	**34,000**	NE	21,000,000	2,500,000	400	3.5 U	3.5 U	3.8 U	4 U	3.9 U	3.9 U	**320**	**8.9**	3.5 U
Benzo(g,h,i)perylene	**18,000**	NE	2,500,000	32,000,000	NE	**3.9**	**23**	**5.6**	4 U	3.9 U	3.9 U	**1,300**	**130**	**29**
Dibenzofuran	NE	NE	320,000	15,000	36,000	180 U	180 U	190 U	200 U	200 U	200 U	190 U	180 U	180 U
Fluoranthene	**34,000**	NE	3,200,000	1,200,000	1,300	**3.9**	**40 J,O**	3.8 U	4 U	**4.6**	3.9 U	**1,300**	**110**	**35**
Fluorene	**34,000**	NE	2,600,000	160,000	17,000	3.5 U	3.5 U	3.8 U	4 U	3.9 U	3.9 U	**11**	3.6 U	3.5 U
Naphthalene	**56,000**	NE	55,000	1,200	2,200	**7.7**	**7.6**	**9.5**	**12**	**11**	**11**	**18**	**3.7**	3.5 U
2-Methylnaphthalene	NE	NE	210,000	8,500	9,100	3.5 U	3.5 U	3.8 U	4 U	3.9 U	3.9 U	**18**	3.6 U	3.5 U
Phenanthrene	**56,000**	NE	2,200,000	250,000	NE	3.5 U	3.5 U	**4.0**	4 U	3.9 U	3.9 U	**66 J,O**	**13**	**9.1**
Pyrene	**82,000**	NE	2,400,000	880,000	1,300	**5.9 J,O**	**37 J,O**	**5.3 J,O**	4 U	**5.7 J,O**	3.9 U	**2,000**	**150**	**30**
Phenols (µg/kg)														
1,1-Biphenyl	NE	NE	3,000,000	200	5,800	180 U	180 U	190 U	200 U	200 U	200 U	190 U	180 U	180 U
Bis(2-ethylhexyl) phthalate	**280,000**	NE	72,000	3,600,000	1,300,000	180 U	180 U	190 U	200 U	200 U	200 U	190 U	180 U	180 U
Carbazole	NE	NE	49,000	200	6,500	180 U	180 U	190 U	200 U	200 U	200 U	110 J,O	180 U	180 U
Phenol	**62,000**	NE	500,000**	50	30	180 U	180 U	190 U	200 U	200 U	200 U	190 U	180 U	180 U
2,4-Dimethylphenol	**140,000**	NE	1,300,000	1,700	1,900	180 U	180 U	190 U	200 U	200 U	200 U	190 U	180 U	180 U
2-Methylphenol (Cresol,o-)	**56,000**	NE	2,900,000	300	1,900	180 U	180 U	190 U	200 U	200 U	200 U	190 U	180 U	180 U
3-Methylphenol (Cresol,m-)	**56,000**	NE	2,900,000	300	3,300	180 U	180 U	190 U	200 U	200 U	200 U	190 U	180 U	180 U
4-Methylphenol (Cresol,p-)	**56,000**	NE	300,000	30	500	180 U	180 U	190 U	200 U	200 U	200 U	190 U	180 U	180 U
Pentachlorophenol	**74,000**	NE	7,200	30	200	7.0 U	7 U	7.6 U	8.1 U	7.9 U	7.9 U	**7 J,O**	**13**	**9.4**

Table 3-18
Semi-Volatile Organic Compounds in Surface Soil - City Blocks
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	Land Disposal Restrictions[1]	EPA 1999 AROD RGs[2]	FDEP SCTLs[3]			Sample ID									
						SS115	SS119		SS121	SS125	SS126	SS128	SS136	SS140	SS141
	10X UTS	Residential Surface Soil	Residential Direct Exposure	Leachability Based on Groundwater Criteria	Leachability Based on Marine Surface Water Criteria	D	B	C	D	B	B	C	C	C	B
						Sample Date									
						2/24/2010	2/25/2010		2/24/2010	2/24/2010	2/24/2010	2/24/2010	2/23/2010	2/24/2010	2/24/2010
SVOCs - cPAHs (µg/kg)															
Total BaP TEQ	NE	NE	100	8,000	NE	4.4 U	**7.5 J,O**	**47.9**	**19.9**	**17.7**	**7.9 J,O**	4.4 U	**4.1 J,O**	**39.9**	**4.9 J,O**
Benzo(a)anthracene	34,000	NE	100	800	NE	3.8 U	3.7 U	**31**	**8.6**	**7.1**	3.6 U	3.8 U	**1.9 J,O**	**27**	4.1 U
Benzo(a)pyrene	34,000	330	100	8,000	NE	3.8 U	**4.1**	**23**	**13**	**10**	**4.5**	3.8 U	3.5 U	**19**	4.1 U
Benzo(b)fluoranthene	68,000	NE	1,000	2,400	NE	3.8 U	**7.9**	**39**	**23**	**17**	**6.7**	3.8 U	3.5 U	**26**	4.1 U
Benzo(k)fluoranthene	68,000	NE	1,000	24,000	NE	3.8 U	**3.5 J,O**	**33**	**12**	**7.9**	**3.6 J,O**	3.8 U	3.5 U	**29**	4.1 U
Chrysene	34,000	NE	100,000	77,000	NE	3.8 U	3.7 U	**31**	**9.7**	**8**	3.6 U	3.8 U	**1.9 J,O**	**36**	4.1 U
Dibenzo(a,h)anthracene	82,000	NE	100	700	NE	3.8 U	3.7 U	**14**	3.8 U	**3.8**	3.6 U	3.8 U	3.5 U	**12**	4.1 U
Indeno (1,2,3-cd) pyrene	34,000	NE	1,000	6,600	NE	3.8 U	**5.0**	**35**	**17**	**14**	**7.4**	3.8 U	3.5 U	**33**	**3.8 J,O**
SVOCs -cPAHs (µg/kg)															
Acenaphthene	34,000	NE	2,400,000	2,100	300	3.8 U	3.7 U	**3.8 J,O**	3.8 U	3.6 U	3.6 U	3.8 U	**3.5**	3.6 U	4.1 U
Acenaphthylene	34,000	NE	1,800,000	27,000	NE	3.8 U	3.7 U	**5.2**	3.8 U	3.6 U	3.6 U	3.8 U	3.5 U	**10**	4.1 U
Anthracene	34,000	NE	21,000,000	2,500,000	400	3.8 U	3.7 U	**5.2**	3.8 U	3.6 U	3.6 U	3.8 U	**3.3 J,O**	**4.5**	4.1 U
Benzo(g,h,i)perylene	18,000	NE	2,500,000	32,000,000	NE	3.8 U	**4.3**	**27**	**11**	**8.8**	**3.6 J,O**	3.8 U	**3.0 J,O**	**28**	4.1 U
Dibenzofuran	NE	NE	320,000	15,000	36,000	200 U	190 U	200 U	200 U	190 U	190 U	200 U	180 U	190 U	210 U
Fluoranthene	34,000	NE	3,200,000	1,200,000	1,300	3.8 U	3.7 U	**52**	3.8 U	**14**	**5.2**	3.8 U	**6.1**	**55**	**4.8**
Fluorene	34,000	NE	2,600,000	160,000	17,000	3.8 U	3.7 U	3.9 U	3.8 U	3.6 U	3.6 U	3.8 U	**5.0**	3.6 U	4.1 U
Naphthalene	56,000	NE	55,000	1,200	2,200	3.8 U	3.7 U	**11**	**9**	3.6 U	3.6 U	3.8 U	**5.3**	3.6 U	4.1 U
2-Methylnaphthalene	NE	NE	210,000	8,500	9,100	3.8 U	3.7 U	**5.8**	**4.3**	3.6 U	3.6 U	3.8 U	**3.9**	3.6 U	4.1 U
Phenanthrene	56,000	NE	2,200,000	250,000	NE	3.8 U	3.7 U	**18**	**8.8**	**6.8**	**5.6**	3.8 U	**11**	**41**	4.1 U
Pyrene	82,000	NE	2,400,000	880,000	1,300	3.8 U	**3.6 J,O**	**37**	**12**	**12**	**5.4**	3.8 U	**6.3**	**58**	**6.6**
Phenols (µg/kg)															
1,1-Biphenyl	NE	NE	3,000,000	200	5,800	200 U,J,O	190 U	200 U	200 U	190 U	190 U	200 U	180 U	190 U	210 U
Bis(2-ethylhexyl) phthalate	280,000	NE	72,000	3,600,000	1,300,000	200 U,J,O	190 U	200 U	200 U	190 U	190 U	200 U	180 U	190 U	210 U
Carbazole	NE	NE	49,000	200	6,500	200 U	190 U	200 U	200 U	190 U	190 U	200 U	180 U	190 U	210 U
Phenol	62,000	NE	500,000**	50	30	200 U	190 U	200 U	200 U	190 U	190 U	200 U	180 U	190 U	210 U
2,4-Dimethylphenol	140,000	NE	1,300,000	1,700	1,900	200 U	190 U	200 U	200 U	190 U	190 U	200 U	180 U	190 U	210 U
2-Methylphenol (Cresol,o-)	56,000	NE	2,900,000	300	1,900	200 U	190 U	200 U	200 U	190 U	190 U	200 U	180 U	190 U	210 U
3-Methylphenol (Cresol,m-)	56,000	NE	2,900,000	300	3,300	200 U	190 U	200 U	200 U	190 U	190 U	200 U	180 U	190 U	210 U
4-Methylphenol (Cresol,p-)	56,000	NE	300,000	30	500	200 U	190 U	200 U	200 U	190 U	190 U	200 U	180 U	190 U	210 U
Pentachlorophenol	74,000	NE	7,200	30	200	7.9 U	**12**	**21**	7.8 U	**9.2**	7.3 U	**6.2 N,J,O**	**8.1**	7.5 U	8.4 U

Table 3-18
Semi-Volatile Organic Compounds in Surface Soil - City Blocks
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	Land Disposal Restrictions[1]	EPA 1999 AROD RGs[2]	FDEP SCTLs[3]			Sample ID										
						SS145	SS149	SS157	SS158		SS164	SS173			SS174	
	10X UTS	Residential Surface Soil	Residential Direct Exposure	Leachability Based on Groundwater Criteria	Leachability Based on Marine Surface Water Criteria	AB	B	D	C	D	D	A	A (dup)	B	A	B
						Sample Date										
						2/25/2010	2/24/2010	2/24/2010	2/24/2010		2/24/2010	2/25/2010			2/25/2010	
SVOCs - cPAHs (µg/kg)																
Total BaP TEQ	NE	NE	100	8,000	NE	195.9 J,O	4.0 U	110.3	61.5	32.3	8.4	48.2 J,O	42.4 J,O	4.2	14.7	16.5
Benzo(a)anthracene	34,000	NE	100	800	NE	120	3.5 U	69	33	15	3.8 U	20	20	3.5 U	5.4	5.7
Benzo(a)pyrene	34,000	330	100	8,000	NE	100	3.5 U	57	36	18	5	34	24	3.5 U	9.7	11
Benzo(b)fluoranthene	68,000	NE	1,000	2,400	NE	250	3.5 U	100	33	36	6.6	37	32	3.5 U	13	12
Benzo(k)fluoranthene	68,000	NE	1,000	24,000	NE	77 J,O	3.5 U	40	35	15	3.3 J,O	27	32	3.5 U	8.6	9
Chrysene	34,000	NE	100,000	77,000	NE	120	3.5 U	68	33	17	3.8 U	26	27	3.5 U	6.7	6.4
Dibenzo(a,h)anthracene	82,000	NE	100	700	NE	39	3.5 U	26	15	6.2	3.8 U	4.6	9	3.5 U	3.4 U	3.5
Indeno (1,2,3-cd) pyrene	34,000	NE	1,000	6,600	NE	190 J,O	3.5 U	99	35	28	6.6	36 J,O	39 J,O	3.6	14	19
SVOCs -cPAHs (µg/kg)																
Acenaphthene	34,000	NE	2,400,000	2,100	300	13	3.6	11	6	4.3	3.8 U	3.6 U	8.5	12	3.4 U	3.5
Acenaphthylene	34,000	NE	1,800,000	27,000	NE	22	3.5 U	12	3.9	3.8 U	3.8 U	4.1	4.1	3.5 U	3.4 U	3.5
Anthracene	34,000	NE	21,000,000	2,500,000	400	23	3.5 U	12	8.7	3.8 U	3.8 U	4	5.6	3.5 U	3.4 U	3.5
Benzo(g,h,i)perylene	18,000	NE	2,500,000	32,000,000	NE	65	3.5 U	39	23	12	4.2	30	29	5.8	7.5	14
Dibenzofuran	NE	NE	320,000	15,000	36,000	200 U	180 U	210 U	190 U	200 U	190 U	190 U	190 U	180 U	180 U	180
Fluoranthene	34,000	NE	3,200,000	1,200,000	1,300	310	3.5 U	120	70	22	5.4	41 J,O	52 J,O	6.3	8.1	7.9
Fluorene	34,000	NE	2,600,000	160,000	17,000	9.8	3.5 U	7.2	5.9	3.8 U	3.8 U	3.6 U	8.2	9.9	3.4 U	3.5
Naphthalene	56,000	NE	55,000	1,200	2,200	18	3.5 U	12	4.3	3.8 U	3.8 U	9.4	29	71 J,O	3.4 U	7.7
2-Methylnaphthalene	NE	NE	210,000	8,500	9,100	23	3.5 U	7.1	4.2	3.8 U	3.8 U	3.3 J,O	14	23	3.4 U	3
Phenanthrene	56,000	NE	2,200,000	250,000	NE	150	3.5 U	77	45	11	3.8 U	10	20	13	3.4 U	3.7
Pyrene	82,000	NE	2,400,000	880,000	1,300	270	3.9	94	53	25	5.6	38 J,O	47 J,O	6.2	9.6	11
Phenols (µg/kg)																
1,1-Biphenyl	NE	NE	3,000,000	200	5,800	200 U	180 U	210 U	190 U	200 U	190 U	190 U	190 U	180 U	180 U	180
Bis(2-ethylhexyl) phthalate	280,000	NE	72,000	3,600,000	1,300,000	200 U	180 U	210 U	190 U	200 U	190 U	190 U	190 U	180 U	180 U	180
Carbazole	NE	NE	49,000	200	6,500	200 U	180 U	210 U	190 U	200 U	190 U	190 U	190 U	180 U	180 U	180
Phenol	62,000	NE	500,000**	50	30	200 U	180 U	210 U	190 U	200 U	190 U	190 U	190 U	180 U	180 U	180
2,4-Dimethylphenol	140,000	NE	1,300,000	1,700	1,900	200 U	180 U	210 U	190 U	200 U	190 U	190 U	190 U	180 U	180 U	180
2-Methylphenol (Cresol,o-)	56,000	NE	2,900,000	300	1,900	200 U	180 U	210 U	190 U	200 U	190 U	190 U	190 U	180 U	180 U	180
3-Methylphenol (Cresol,m-)	56,000	NE	2,900,000	300	3,300	200 U	180 U	210 U	190 U	200 U	190 U	190 U	190 U	180 U	180 U	180
4-Methylphenol (Cresol,p-)	56,000	NE	300,000	30	500	200 U	180 U	210 U	190 U	200 U	190 U	190 U	190 U	180 U	180 U	180
Pentachlorophenol	74,000	NE	7,200	30	200	10	5.3 J,O	8.3 U	10 O	7.6 U	9.4	7 J,O	7.3 J,O	7 U	7 U	15

Table 3-18
Semi-Volatile Organic Compounds in Surface Soil - City Blocks
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	Land Disposal Restrictions[1]	EPA 1999 AROD RGs[2]	FDEP SCTLs[3]			
	10X UTS	Residential Surface Soil	Residential Direct Exposure	Leachability Based on Groundwater Criteria	Leachability Based on Marine Surface Water Criteria	
SVOCs - cPAHs (µg/kg)						
Total BaP TEQ	NE	NE	100	8,000	NE	
Benzo(a)anthracene	34,000	NE	100	800	NE	
Benzo(a)pyrene	34,000	330	100	8,000	NE	
Benzo(b)fluoranthene	68,000	NE	1,000	2,400	NE	
Benzo(k)fluoranthene	68,000	NE	1,000	24,000	NE	
Chrysene	34,000	NE	100,000	77,000	NE	
Dibenzo(a,h)anthracene	82,000	NE	100	700	NE	U
Indeno (1,2,3-cd) pyrene	34,000	NE	1,000	6,600	NE	
SVOCs -cPAHs (µg/kg)						
Acenaphthene	34,000	NE	2,400,000	2,100	300	U
Acenaphthylene	34,000	NE	1,800,000	27,000	NE	U
Anthracene	34,000	NE	21,000,000	2,500,000	400	U
Benzo(g,h,i)perylene	18,000	NE	2,500,000	32,000,000	NE	
Dibenzofuran	NE	NE	320,000	15,000	36,000	U
Fluoranthene	34,000	NE	3,200,000	1,200,000	1,300	
Fluorene	34,000	NE	2,600,000	160,000	17,000	U
Naphthalene	56,000	NE	55,000	1,200	2,200	
2-Methylnaphthalene	NE	NE	210,000	8,500	9,100	**J,O**
Phenanthrene	56,000	NE	2,200,000	250,000	NE	
Pyrene	82,000	NE	2,400,000	880,000	1,300	**J,O**
Phenols (µg/kg)						
1,1-Biphenyl	NE	NE	3,000,000	200	5,800	U
Bis(2-ethylhexyl) phthalate	280,000	NE	72,000	3,600,000	1,300,000	U
Carbazole	NE	NE	49,000	200	6,500	U
Phenol	62,000	NE	500,000**	50	30	U
2,4-Dimethylphenol	140,000	NE	1,300,000	1,700	1,900	U
2-Methylphenol (Cresol,o-)	56,000	NE	2,900,000	300	1,900	U
3-Methylphenol (Cresol,m-)	56,000	NE	2,900,000	300	3,300	U
4-Methylphenol (Cresol,p-)	56,000	NE	300,000	30	500	U
Pentachlorophenol	74,000	NE	7,200	30	200	

Table 3-18
Semi-Volatile Organic Compounds in Surface Soil - City Blocks
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	Land Disposal Restrictions[1]	EPA 1999 AROD RGs[2]	FDEP SCTLs[3]			Sample ID								
						SS175			SS176			SS177		
	10X UTS	Residential Surface Soil	Residential Direct Exposure	Leachability Based on Groundwater Criteria	Leachability Based on Marine Surface Water Criteria	A	B	C	A	B	C	A	B	C
						Sample Date								
						2/25/2010			2/24/2010			2/23/2010		
SVOCs - cPAHs (µg/kg)														
Total BaP TEQ	NE	NE	100	8,000	NE	**65 J,O**	**7.4**	**4.2**	**448.6 J,O**	**16.6**	**4.9**	**38.4**	**13.8 J,O**	**8.2 J,O**
Benzo(a)anthracene	**34,000**	NE	100	800	NE	**39 J,O**	3.5 U	3.5 U	**280**	**7.2**	3.6 U	**18**	**6.1**	**4**
Benzo(a)pyrene	**34,000**	**330**	100	8,000	NE	**39 J,O**	**4.3**	3.5 U	**250**	**11**	3.6 U	**24**	**7.5**	**4.5**
Benzo(b)fluoranthene	**68,000**	NE	1,000	2,400	NE	**50 J,O**	**5.3**	3.5 U	**390**	**14**	**4.2**	**30**	**19**	**5.6**
Benzo(k)fluoranthene	**68,000**	NE	1,000	24,000	NE	**47 J,O**	**4**	3.5 U	**230**	**8.2**	**2.2 J,O**	**18**	**8.1**	**3.6**
Chrysene	**34,000**	NE	100,000	77,000	NE	**51 J,O**	**3.9**	3.5 U	**330**	**8.5**	3.6 U	**21**	**6.9**	**4.4**
Dibenzo(a,h)anthracene	**82,000**	NE	100	700	NE	**12**	3.5 U	3.5 U	**98 J,O**	3.9 U	3.6 U	**6.5**	3.6 U	3.5 U
Indeno (1,2,3-cd) pyrene	**34,000**	NE	1,000	6,600	NE	**46 J,O**	**6.1**	**3.6**	**310 J,O**	**14**	**6.5**	**29**	**19 J,O**	**9 J,O**
SVOCs -cPAHs (µg/kg)														
Acenaphthene	**34,000**	NE	2,400,000	2,100	300	**2.4 J,O**	3.5 U	3.5 U	**20**	3.9 U	3.6 U	**2.9 J,O**	**1.5 J,O**	**2.2 J,O**
Acenaphthylene	**34,000**	NE	1,800,000	27,000	NE	**6.1**	3.5 U	3.5 U	**7.2**	3.9 U	3.6 U	**1.7 J,O**	**2.3 J,O**	**0.6 J,O**
Anthracene	**34,000**	NE	21,000,000	2,500,000	400	**3.6**	3.5 U	3.5 U	**55 J,O**	3.9 U	3.6 U	**4.3**	**59 J,O**	3.5 U
Benzo(g,h,i)perylene	**18,000**	NE	2,500,000	32,000,000	NE	**30 J,O**	**4.5**	**4.3**	**190**	3.9 U	**6.1**	**19**	**16**	**8.1**
Dibenzofuran	NE	NE	320,000	15,000	36,000	180 U	180 U	180 U	190 U	200 U	180 U	190 U	180 U	180 U
Fluoranthene	**34,000**	NE	3,200,000	1,200,000	1,300	**82 J,O**	**4.1**	3.5 U	**730**	**9.4**	3.6 U	**56 J,O**	**6.5**	**6.6**
Fluorene	**34,000**	NE	2,600,000	160,000	17,000	**4.3**	3.5 U	3.5 U	**16**	3.9 U	3.6 U	**2.8 J,O**	**2.8 J,O**	3.5 U
Naphthalene	**56,000**	NE	55,000	1,200	2,200	**4.8**	**5.7**	**6.6**	**9.4**	**7.8**	**7.2**	**6.5**	**9.4**	**6.7**
2-Methylnaphthalene	NE	NE	210,000	8,500	9,100	4.6	3.5 U	3.5 U	**4.4**	3.9 U	3.6 U	**3.6 J,O**	**3.5 J,O**	**3 J,O**
Phenanthrene	**56,000**	NE	2,200,000	250,000	NE	**40 J,O**	**2.8 J,O**	3.5 U	**280**	3.9 U	3.6 U	**19**	**5.6**	**4.1**
Pyrene	**82,000**	NE	2,400,000	880,000	1,300	**81 J,O**	**5.3 J,O**	3.5 U	**560**	**15 J,O**	**4.4 J,O**	**45 J,O**	**11**	**10**
Phenols (µg/kg)														
1,1-Biphenyl	NE	NE	3,000,000	200	5,800	180 U	180 U	180 U	190 U	200 U	180 U	190 U,J,O	180 U,J,O	180 U,J,O
Bis(2-ethylhexyl) phthalate	**280,000**	NE	72,000	3,600,000	1,300,000	**200**	180 U	180 U	190 U	200 U	180 U	190 U	180 U	180 U
Carbazole	NE	NE	49,000	200	6,500	180 U	180 U	180 U	190 U	200 U	180 U	190 U	180 U	180 U
Phenol	**62,000**	NE	500,000**	50	30	180 U	180 U	180 U	190 U	200 U	180 U	190 U	180 U	180 U
2,4-Dimethylphenol	**140,000**	NE	1,300,000	1,700	1,900	180 U	180 U	180 U	190 U	200 U	180 U	190 U	180 U	180 U
2-Methylphenol (Cresol,o-)	**56,000**	NE	2,900,000	300	1,900	180 U	180 U	180 U	190 U	200 U	180 U	190 U	180 U	180 U
3-Methylphenol (Cresol,m-)	**56,000**	NE	2,900,000	300	3,300	180 U	180 U	180 U	190 U	200 U	180 U	190 U	180 U	180 U
4-Methylphenol (Cresol,p-)	**56,000**	NE	300,000	30	500	180 U	180 U	180 U	190 U	200 U	180 U	190 U	180 U	180 U
Pentachlorophenol	**74,000**	NE	7,200	30	200	**4.1 J,O**	7 U	7 U	7.6 U	8 U	7.3 U	**7.7 N,O**	7.1 U	**9.2 N,O**

Table 3-18
Semi-Volatile Organic Compounds in Surface Soil - City Blocks
American Creosote Works Site
Pensacola, Escambia County, Florida

Notes	
[1]	Land Disposal Restrictions (LDR) equals 10 times the Universal Treatment Standards (UTS), Per Code of Federal Regulations (CFR) 40-268.48.
[2]	Remedial Goals (RGs) as obtained from the Amended Record of Decision (AROD), Operable Unit 1, American Creosote Works (ACW) Site, Pensacola, Escambia County, Florida, EPA, May 1999.
[3]	Florida Administrative Code (F.A.C.) Chapter 62-777, Table II, adopted April 2005, FDEP
NE	Not Established
EPA	U.S. Environmental Protection Agency
FDEP	Florida Department of Environmental Protection
µg/kg	micrograms per kilogram (parts per billion or "ppb")
U	Analyte not detected at or above laboratory reporting limit.
J	Identification of analyte is acceptable. Reported value is an estimate.
N	There is presumptive evidence that the analyte is present; the analyte is reported as a tentative identification.
O	Denoted as "other". Specified in EPA Final Analytical Report Project 10-0274 as: CLP01 - Concentration reported is less than the lowest standard on calibration curve; CLP02 - Concentration reported is greater than the highest standard on calibration curve; CLP15 - TIC Results reported as identified by lab - IDs not verified; CLP16 - Initial calibration response erratic; QC-1 - Analyte concentration low in continuing calibration verification standard; QC-2 - Analyte concentration high in continuing calibration verification standard; QM-1 - Matrix Spike Recovery less than method control limits; QS-3 - Surrogate recovery is lower than established control limits; QS-4 - Surrogate recovery less than 10 percent.
Bold	Indicates the exceedance of the laboratory method detection limit.
Bold Underline	Contaminant of Concern identified in 1999 Record of Decision (ROD).
Bold	Indicates the exceedance of LDR (UTS X10).
Bold	Indicates the exceedance of EPA 1999 AROD Residential Surface Soil Remedial Goals.
Bold	Indicates the exceedance of FDEP SCTLs for Direct Exposure in Residential Soil, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777.
Bold	Indicates exceedance of FDEP SCTLs for Leachability Based on Groundwater Criteria, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777.
Bold	Indicates the exceedance of FDEP SCTLs for Marine Surface Water, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777. (Per Case # 11-1130, the Bayou Chico Basin is classified as a Class III water in accordance with FDEP Surface Water Quality Standards, Chapter 62-302.)
BaP	benzo(a)pyrene
TEQ	Toxicity Equivalent
Italic	Indicates a duplicate (dup) sample
SCTL	Soil Cleanup Target Levels
SVOC	Semi-Volatile Organic Compounds
SS	Soil Sample
A	Depth of 0-6 inches
B	Depth of 6-12 inches
AB	Depth of 0-12 inches
C	Depth of 1-2 feet
D	Depth of 2-3 feet

Table 3-19a
Dioxin Concentrations in Soil - PYC Locations
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	EPA Land Disposal Restrictions[1] 10X UTS	FDEP SCTLs[4] Residential Direct Exposure	Sample ID						
			SS201		SS202			SS203	
			A	B	A	B	D	A	B
			Sample Date						
			12/12/2007		12/12/2007			12/12/2007	
Dioxins/Furans (ng/kg)									
Octachlorodibenzodioxin OCDD	50,000	NE	2,600	1,500	12,000 J	51,000 J	10,000 J	1,600	760
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	7	12 J	6.3 J	31 J	160	150 J	6.6 J	3 J

ANALYTE	EPA Land Disposal Restrictions[1] 10X UTS	FDEP SCTLs[4] Residential Direct Exposure	Sample ID					
			SS204		SS205		SS206	
			A	B	A	B	A	B
			Sample Date					
			12/13/2007		12/12/2007		12/13/2007	
Dioxins/Furans (ng/kg)								
Octachlorodibenzodioxin OCDD	50,000	NE	1,900	390	830	200	2,800	660
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	7	6.8 J	1.6 J	3.3 J	1.2 J	6.7 J	1.9 J

Table 3-19a
Dioxin Concentrations in Soil - PYC Locations
American Creosote Works Site
Pensacola, Escambia County, Florida

Notes

[1]	Land Disposal Restrictions (LDR) equals 10 times the Universal Treatment Standards (UTS), Per Code of Federal Regulations (CFR) 40-268.48.
[2]	Obtained from the Amended Record of Decision (AROD), Operable Unit 1, American Creosote Works (ACW) Site, Pensacola, Escambia County, Florida, EPA, May 1999.
[3]	EPA Dioxin Preliminary Remediation Goal (10^{-4} HQ=1), February 2012
[4]	Florida Administrative Code (F.A.C.) Chapter 62-777, Table II, adopted April 2005, FDEP
EPA	U.S. Environmental Protection Agency
FDEP	Florida Department of Environmental Protection
ng/kg	nanograms per kilogram (parts per trillion or "ppt")
NA	Not Applicable
NE	Not Established
PRG	Preliminary Remedial Goal
≤	less than or equal to
U	Analyte not detected at or above laboratory reporting limit.
J	Identification of analyte is acceptable. Reported value is an estimate.
UJ	Analyte not detected at or above reporting limit. Reporting limit is an estimate.
O	Denoted as "other". Specified in EPA Final Analytical Report Project 10-0275 as: CLP01 - Concentration reported is less than the lowest standard on calibration curve; CLP02 - Concentration reported is greater than the highest standard on calibration curve; CLP10 - 2,3,7,8-TCDF confirmed by second column; CLP18 - Estimated Maximum Possible Concentration (EMPC) Reported; CLP24 - Result has not been confirmed by second column analysis; D-4 - Minimum Reporting Limit (MRL) elevated due to interferences; D-5 - Estimated quantitation for one or more individual constituents comprising >10% of the total; Q-3 - Instrument not calibrated for all constituents of the total concentration result; QI-1 - Internal standard was outside of method control limits.
Bold	Indicates the exceedance of the laboratory method detection limit.
Bold Underline	Contaminant of Concern identified in 1999 Record of Decision (ROD).
Bold	Indicates the exceedance of Land Disposal Restrictions (Univeral Treatment Standard X 10).
Bold	Indicates the exceedance of FDEP SCTLs for Direct Exposure in Residential Soil, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777.
Italic	Indicates a duplicate (dup) sample
PYC	Pensacola Yacht Club
TEQ	Toxicity Equivalent
SCTL	Soil Cleanup Target Level
SS	Soil Sample
A	Depth of 0-6 inches
B	Depth of 6-12 inches
D	Depth of 2-3 feet

Table 3-19b
Semi-Volatile Organic Compounds in Subsurface Soil - PYC Locations
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	Land Disposal Restrictions[1]	EPA 1999 AROD RGs[2]	FDEP SCTLs[3]				Sample ID									
							SB528			SB529				TG15		TG18
							36 ft	60 ft	84 ft	60 ft	90 ft	140 ft	170 ft	17 ft	44 ft	7 ft
							Sample Date									
	10X UTS	Subsurface Soil	Residential Direct Exposure (0-3 ft bls)	Commercial Direct Exposure (0-3 ft bls)	Leachability Based on Groundwater Criteria	Leachability Based on Marine Surface Water Criteria	10/31/2011			10/31/2011				10/31/2011		10/31/2011
Carcinogenic PAHs (µg/kg)																
Total BaP TEQ	NE	NE	100	700	8,000	NE	439 U	474 U	439 U	428 U	416 U	428 U	451 U	187,070	111,468	786
Benzo(a)anthracene	34,000	740,000	100	#	800	NE	380 U	410 U	380 U	370 U	360 U	370 U	390 U	220,000	96,000	680 U
Benzo(a)pyrene	34,000	NE	100	700	8,000	NE	380 U	410 U	380 U	370 U	360 U	370 U	390 U	98,000 J	46,000 J	680 U
Benzo(b)fluoranthene	68,000	153,065,000	1,000	#	2,400	NE	380 U	410 U	380 U	370 U	360 U	370 U	390 U	130,000	65,000 J	680 U
Benzo(k)fluoranthene	68,000	153,065,000	1,000	#	24,000	NE	380 U	410 U	380 U	370 U	360 U	370 U	390 U	63,000 J	29,000 J	680 U
Chrysene	34,000	2,090,000	100,000	#	77,000	NE	380 U	410 U	380 U	370 U	360 U	370 U	390 U	140,000	78,000 J	680 U
Dibenzo(a,h)anthracene	82,000	NE	100	#	700	NE	380 U	410 U	380 U	370 U	360 U	370 U	390 U	100,000 U	95,000 U	680 U
Indeno (1,2,3-cd) pyrene	34,000	NE	1,000	#	6,600	NE	380 U	410 U	380 U	370 U	360 U	370 U	390 U	33,000 J	15,000 J	680 U
Non-Carcinogenic PAHs (µg/kg)																
Acenaphthene	34,000	876,000	2,400,000	20,000,000	2,100	300	380 U	410 U	380 U	370 U	360 U	370 U	390 U	390,000	220,000	680 U
Acenaphthylene	34,000	NE	1,800,000	20,000,000	27,000	NE	380 U	410 U	380 U	370 U	360 U	370 U	390 U	40,000 J	18,000 J	680 U
Anthracene	34,000	145,000	21,000,000	300,000,000	2,500,000	400	45 J	410 U	380 U	370 U	360 U	370 U	390 U	230,000	120,000	680 U
Benzo(g,h,i)perylene	18,000	NE	2,500,000	52,000,000	32,000,000	NE	380 U	410 U	380 U	370 U	360 U	370 U	390 U	31,000 J	14,000 J	680 U
Dibenzofuran	NE	24,000	320,000	6,300,000	15,000	36,000	380 U	410 U	380 U	370 U	360 U	370 U	390 U	290,000	160,000	680 U
Fluoranthene	34,000	1,450,000	3,200,000	59,000,000	1,200,000	1,300	380 U	410 U	380 U	370 U	360 U	370 U	390 U	690,000	350,000	150 J
Fluorene	34,000	78,000	2,600,000	33,000,000	160,000	17,000	380 U	410 U	380 U	370 U	360 U	370 U	390 U	430,000	250,000	83 J
Naphthalene	56,000	235,000	55,000	300,000	1,200	2,200	380 U	44 J	380 U	370 U	360 U	370 U	390 U	1,600,000	730,000	270 J
2-Methylnaphthalene	NE	NE	210,000	2,100,000	8,500	9,100	380 U	410 U	380 U	370 U	360 U	370 U	390 U	450,000	230,000	70 J
Phenanthrene	56,000	148,000	2,200,000	36,000,000	250,000	NE	52 J	410 U	380 U	370 U	360 U	370 U	390 U	1,300,000	620,000	240 J
Pyrene	82,000	1,070,000	2,400,000	45,000,000	880,000	1,300	380 U	410 U	380 U	370 U	360 U	370 U	390 U	440,000	220,000	99 J
Phenols (µg/kg)																
1,1-Biphenyl	NE	NE	3,000,000	34,000,000	200	5,800	380 U	410 U	380 U	370 U	360 U	370 U	390 U	89,000 J	47,000 J	680 U
Bis(2-ethylhexyl) phthalate	280,000	NE	72,000	390,000	3,600,000	1,300,000	380 U	410 U	380 U	370 U	360 U	370 U	390 U	100,000 U	95,000 U	680 U
Carbazole	NE	NE	49,000	240,000	200	6,500	380 U	410 U	380 U	370 U	360 U	370 U	390 U	150,000	55,000 J	680 U
Phenol	62,000	NE	500,000**	220,000,000	50	30	380 U	410 U	380 U	370 U	360 U	370 U	390 U	100,000 U	95,000 U	680 U
2,4-Dimethylphenol	140,000	NE	1,300,000	18,000,000	1,700	1,900	380 U	410 U	380 U	370 U	360 U	370 U	390 U	100,000 U	95,000 U	680 U
2-Methylphenol (Cresol,o-)	56,000	NE	2,900,000	31,000,000	300	1,900	380 U	410 U	380 U	370 U	360 U	370 U	390 U	100,000 U	95,000 U	680 U
3-Methylphenol (Cresol,m-)	56,000	NE	2,900,000	33,000,000	300	3,300	380 U	410 U	380 U	370 U	360 U	370 U	390 U	100,000 U	95,000 U	680 U
4-Methylphenol (Cresol,p-)	56,000	NE	300,000	3,400,000	30	500	380 U	410 U	380 U	370 U	360 U	370 U	390 U	100,000 U	95,000 U	680 U
Pentachlorophenol	74,000	138,000,000	7,200	28,000	30	200	770 U	830 U	760 U	740 U	720 U	750 U	780 U	200,000 U	190,000 U	1,400 U

Table 3-19b
Semi-Volatile Organic Compounds in Subsurface Soil - PYC Locations
American Creosote Works Site
Pensacola, Escambia County, Florida

Notes	
[1]	Land Disposal Restrictions (LDR) equals 10 times the Universal Treatment Standards (UTS), Per Code of Federal Regulations (CFR) 40-268.48.
[2]	Remedial Goals (RGs) as obtained from the Amended Record of Decision (AROD), Operable Unit 1, American Creosote Works (ACW) Site, Pensacola, Escambia County, Florida, EPA, May 1999.
[3]	Florida Administrative Code (F.A.C.) Chapter 62-777, Table II, adopted April 2005, FDEP
NE	Not Established
EPA	U.S. Environmental Protection Agency
FDEP	Florida Department of Environmental Protection
µg/kg	micrograms per kilogram (parts per billion or "ppb")
U	Analyte not detected at or above laboratory reporting limit.
J	Identification of analyte is acceptable. Reported value is an estimate.
N	There is presumptive evidence that the analyte is present; the analyte is reported as a tentative identification.
O	Denoted as "other". Specified in EPA Final Analytical Report Project 10-0274 as: CLP01 - Concentration reported is less than the lowest standard on calibration curve; CLP02 - Concentration reported is greater than the highest standard on calibration curve; CLP15 - TIC Results reported as identified by lab - IDs not verified; CLP16 - Initial calibration response erratic; QC-1 - Analyte concentration low in continuing calibration verification standard; QC-2 - Analyte concentration high in continuing calibration verification standard; QM-1 - Matrix Spike Recovery less than method control limits; QS-3 - Surrogate recovery is lower than established control limits; QS-4 - Surrogate recovery less than 10 percent.
Bold	Indicates the exceedance of the laboratory method detection limit.
Bold Underline	Contaminant of Concern identified in 1999 Record of Decision (ROD).
Bold	Indicates the exceedance of LDR (UTS X10).
Bold	Indicates the exceedance of EPA 1999 AROD Subsurface Soil Remedial Goals.
Bold	Indicates the exceedance of FDEP SCTLs for Direct Exposure in Commercial Soil, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777.
Bold	Indicates exceedance of FDEP SCTLs for Leachability Based on Groundwater Criteria, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777.
Bold	Indicates the exceedance of FDEP SCTLs for Marine Surface Water, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777. (Per Case # 11-1130, the Bayou Chico Basin is classified as a Class III water in accordance with FDEP Surface Water Quality Standards, Chapter 62-302.)
BaP	benzo(a)pyrene
TEQ	Toxicity Equivalent
Italic	Indicates a duplicate (dup) sample
PYC	Pensacola Yacht Club
SCTL	Soil Cleanup Target Levels
SVOC	Semi-Volatile Organic Compounds
ft	feet
SB	Soil Sample
TG	TarGOST® Sample

Table 3-20
Dioxin Concentrations in Soil - Gimble and Pine Streets
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	EPA Land Disposal Restrictions[1] 10X UTS	FDEP SCTLs[4] Residential Direct Exposure	Sample ID: SS133 A	SS133 A (dup)	SS133 B	SS133 B (dup)	SS601 AB	SS601 C	SS601 D	SS602 AB
			Sample Date: 12/17/2007				02/22/2010			02/25/2010
Dioxins/Furans (ng/kg)										
1,2,3,4,6,7,8-Heptachlorodibenzodioxin HpCDD	25,000	NE	38,000	*32,000*	11,000	*6,600*	15,000	240	37	1,700
1,2,3,4,6,7,8-Heptachlorodibenzofuran HpCDF-C13	25,000	NE	7,300	*5,300*	2,800	*1,600*	3,000	49	6.9	420
Octachlorodibenzodioxin OCDD	50,000	NE	110,000	*290,000 J*	85,000 J	*49,000*	170,000	2,800	510	20,000 J,O
Octachlorodibenzofuran OCDF	50,000	NE	19,000	*14,000 J*	8,200	*5,400*	12,000	180	24	1,600
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	7	1,000	*970*	280	*220*	400	6.7 J,O	1.4 J,O	49 J,O
Hexachlorodibenzodioxin (Total) HxCDD	10,000	NE	5,500 J	*6,100 J*	1,400 J	*1,500 J*	2,000 J,O	35 J,O	8.3 J,O	320 J,O
Hexachlorodibenzofuran (Total) HxCDF	10,000	NE	8,900 J	*8,500 J*	2,500 J	*2,600 J*	5,000 J,O	78 J,O	10 J,O	1,200 J,O

ANALYTE	EPA Land Disposal Restrictions[1] 10X UTS	FDEP SCTLs[4] Residential Direct Exposure	Sample ID: SS603 AB	SS603 C	SS604 AB	SS604 C	SS605 AB	SS605 C
			Sample Date: 02/22/2010		02/22/2010		02/22/2010	
Dioxins/Furans (ng/kg)								
1,2,3,4,6,7,8-Heptachlorodibenzodioxin HpCDD	25,000	NE	120,000	21,000	9,400	2,300	4,300	150
1,2,3,4,6,7,8-Heptachlorodibenzofuran HpCDF-C13	25,000	NE	28,000	3,400	1,200	240	1,400	25
Octachlorodibenzodioxin OCDD	50,000	NE	720,000 J,O	22,000	110,000 J,O	27,000	45,000 J,O	2,000
Octachlorodibenzofuran OCDF	50,000	NE	120,000	17,000	3,400	680	2100 J,O	90
Dioxin TEQ (Mammalian Toxic. Equiv. Value)	10,000	7	4,100 J,O	400	240 J,O	58	160 J,O	4.1 J,O
Hexachlorodibenzodioxin (Total) HxCDD	10,000	NE	19,000 J,O	2,000 J,O	1,600 J,O	330 J,O	2,000 J,O	30 J,O
Hexachlorodibenzofuran (Total) HxCDF	10,000	NE	55,000 J,O	6,200 J,O	2,400 J,O	640 J,O	2,000 J,O	36 J,O

Table 3-20
Dioxin Concentrations in Soil - Gimble and Pine Streets
American Creosote Works Site
Pensacola, Escambia County, Florida

Notes

[1]	Land Disposal Restrictions (LDR) equals 10 times the Universal Treatment Standards (UTS), Per Code of Federal Regulations (CFR) 40-268.48.
[2]	Obtained from the Amended Record of Decision (AROD), Operable Unit 1, American Creosote Works (ACW) Site, Pensacola, Escambia County, Florida, EPA, May 1999.
[3]	EPA Dioxin Preliminary Remediation Goal (10^{-4} HQ=1), February 2012
[4]	Florida Administrative Code (F.A.C.) Chapter 62-777, Table II, adopted April 2005, FDEP
EPA	U.S. Environmental Protection Agency
FDEP	Florida Department of Environmental Protection
ng/kg	nanograms per kilogram (parts per trillion or "ppt")
NA	Not Applicable
NE	Not Established
PRG	Preliminary Remedial Goal
≤	less than or equal to
U	Analyte not detected at or above laboratory reporting limit.
J	Identification of analyte is acceptable. Reported value is an estimate.
UJ	Analyte not detected at or above reporting limit. Reporting limit is an estimate.
O	Denoted as "other". Specified in EPA Final Analytical Report Project 10-0275 as: CLP01 - Concentration reported is less than the lowest standard on calibration curve; CLP02 - Concentration reported is greater than the highest standard on calibration curve; CLP10 - 2,3,7,8-TCDF confirmed by second column; CLP18 - Estimated Maximum Possible Concentration (EMPC) Reported; CLP24 - Result has not been confirmed by second column analysis; D-4 - Minimum Reporting Limit (MRL) elevated due to interferences; D-5 - Estimated quantitation for one or more individual constituents comprising >10% of the total; Q-3 - Instrument not calibrated for all constituents of the total concentration result; QI-1 - Internal standard was outside of method control limits.
Bold	Indicates the exceedance of the laboratory method detection limit.
Bold Underline	Contaminant of Concern identified in 1999 Record of Decision (ROD).
Bold	Indicates the exceedance of Land Disposal Restrictions (Univeral Treatment Standard X 10).
Bold	Indicates the exceedance of FDEP SCTLs for Direct Exposure in Residential Soil, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777.
Italic	Indicates a duplicate (dup) sample
TEQ	Toxicity Equivalent
SCTL	Soil Cleanup Target Level
SS	Soil Sample
AB	Depth of 0-12 inches
C	Depth of 1-2 feet
D	Depth of 2-3 feet

Table 3-21
Semi-Volatile Organic Compounds in Surface Soil - Gimble and Pine Streets
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	Land Disposal Restrictions[1]	EPA 1999 AROD RGs[2]	FDEP SCTLs[3]			Sample ID					
						SS601			SS602	SS603	
						AB	C	D	AB	AB	C
						Sample Date					
	10X UTS	Residential Surface Soil	Residential Direct Exposure	Leachability Based on Groundwater Criteria	Leachability Based on Marine Surface Water Criteria	2/22/2010			2/25/2010	2/22/2010	
SVOCs - cPAHs (µg/kg)											
Total BaP TEQ	NE	NE	100	8,000	NE	198.3 J,O	4 U	4.3 U	649.5 J,O	3,353.3 J,O	925 J,O
Benzo(a)anthracene	34,000	NE	100	800	NE	70 J,O	3.5 U	3.7 U	290	1,700	530
Benzo(a)pyrene	34,000	330	100	8,000	NE	98 J,O	3.5 U	3.7 U	350	1,800	530
Benzo(b)fluoranthene	68,000	NE	1,000	2,400	NE	190	3.5 U	3.7 U	720	2,800	820
Benzo(k)fluoranthene	68,000	NE	1,000	24,000	NE	120 J,O	3.5 U	3.7 U	310	1,100 J,O	530 J,O
Chrysene	34,000	NE	100,000	77,000	NE	85 J,O	3.5 U	3.7 U	360	2,300	740
Dibenzo(a,h)anthracene	82,000	NE	100	700	NE	59 J,O	3.5 U	3.7 U	150 J,O	840	190
Indeno (1,2,3-cd) pyrene	34,000	NE	1,000	6,600	NE	140 J,O	3.5 U	3.7 U	450 J,O	2,500	640
SVOCs -cPAHs (µg/kg)											
Acenaphthene	34,000	NE	2,400,000	2,100	300	3.1 J,O	3.5 U	3.7 U	3.8 U	66 J,O	40 J,O
Acenaphthylene	34,000	NE	1,800,000	27,000	NE	39 J,O	3.5 U	3.7 U	120 J,O	860	270
Anthracene	34,000	NE	21,000,000	2,500,000	400	110 J,O	3.3 J,O	3.3 J,O	86 J,O	1,700 J,O	370 J,O
Benzo(g,h,i)perylene	18,000	NE	2,500,000	32,000,000	NE	100 J,O	3.5 U	4.7	230	1,500	430
Dibenzofuran	NE	NE	320,000	15,000	36,000	180 U	180 U	190 U	200 U	48 J,O	190 U
Fluoranthene	34,000	NE	3,200,000	1,200,000	1,300	88 J,O	3.5 U	3.7 U	330	3,500	1,600
Fluorene	34,000	NE	2,600,000	160,000	17,000	6	3.5 U	3.7 U	5	100 J,O	57 J,O
Naphthalene	56,000	NE	55,000	1,200	2,200	16	19	11.0	10	85 J,O	37 J,O
2-Methylnaphthalene	NE	NE	210,000	8,500	9,100	5.6 J,O	6.9	4.5	4.9	38 J,O	26 J,O
Phenanthrene	56,000	NE	2,200,000	250,000	NE	38 J,O	4.6 J,O	6.3 J,O	18	900	780
Pyrene	82,000	NE	2,400,000	880,000	1,300	94 J,O	3.5 U	3.6 J,O	390	2,700	1,200
Phenols (µg/kg)											
1,1-Biphenyl	NE	NE	3,000,000	200	5,800	180 U,J,O	180 U,J,O	190 U,J,O	200 U	190 U,J,O	190 U,J,O
Bis(2-ethylhexyl) phthalate	280,000	NE	72,000	3,600,000	1,300,000	180 U	180 U	190 U	200 U	190 U	190 U
Carbazole	NE	NE	49,000	200	6,500	180 U	180 U	190 U	200 U	450	160 J,O
Phenol	62,000	NE	500,000**	50	30	180 U	180 U	190 U	200 U	190 U	190 U
2,4-Dimethylphenol	140,000	NE	1,300,000	1,700	1,900	180 U	180 U	190 U	200 U	190 U	190 U
2-Methylphenol (Cresol,o-)	56,000	NE	2,900,000	300	1,900	180 U	180 U	190 U	200 U	190 U	190 U
3-Methylphenol (Cresol,m-)	56,000	NE	2,900,000	300	3,300	180 U	180 U	190 U	200 U	190 U	190 U,J,O
4-Methylphenol (Cresol,p-)	56,000	NE	300,000	30	500	180 U	180 U	190 U	200 U	190 U	190 U,J,O
Pentachlorophenol	74,000	NE	7,200	30	200	110 O	6 J,O	5.1 J,O	58 O	630 O	190 O

Table 3-21
Semi-Volatile Organic Compounds in Surface Soil - Gimble and Pine Streets
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	Land Disposal Restrictions[1]	EPA 1999 AROD RGs[2]	FDEP SCTLs[3]			Sample ID			
						SS604		SS605	
						AB	C	AB	C
	10X UTS	Residential Surface Soil	Residential Direct Exposure	Leachability Based on Groundwater Criteria	Leachability Based on Marine Surface Water Criteria	Sample Date			
						2/22/2010		2/22/2010	
SVOCs - cPAHs (µg/kg)									
Total BaP TEQ	NE	NE	100	8,000	NE	1,489 J,O	103 J,O	964.5 J,O	4.8 J,O
Benzo(a)anthracene	34,000	NE	100	800	NE	710	51 J,O	350	1.4 J,O
Benzo(a)pyrene	34,000	330	100	8,000	NE	810	54 J,O	540	4 U
Benzo(b)fluoranthene	68,000	NE	1,000	2,400	NE	1,400	110 J,O	1,100	4 U
Benzo(k)fluoranthene	68,000	NE	1,000	24,000	NE	810 J,O	73 J,O	500 J,O	4 U
Chrysene	34,000	NE	100,000	77,000	NE	890	68 J,O	510	1.7 J,O
Dibenzo(a,h)anthracene	82,000	NE	100	700	NE	370	25	220	4 U
Indeno (1,2,3-cd) pyrene	34,000	NE	1,000	6,600	NE	890	71 J,O	540	4.4 J,O
SVOCs -cPAHs (µg/kg)									
Acenaphthene	34,000	NE	2,400,000	2,100	300	13	5.8	5.2	1.1 J,O
Acenaphthylene	34,000	NE	1,800,000	27,000	NE	310	14	150 J,O	1.1 J,O
Anthracene	34,000	NE	21,000,000	2,500,000	400	270 J,O	64 J,O	150 J,O	1.8 J,O
Benzo(g,h,i)perylene	18,000	NE	2,500,000	32,000,000	NE	530	49 J,O	380	4.6
Dibenzofuran	NE	NE	320,000	15,000	36,000	190 U	190 U	190 U	210 U
Fluoranthene	34,000	NE	3,200,000	1,200,000	1,300	820	74 J,O	370	2.0 J,O
Fluorene	34,000	NE	2,600,000	160,000	17,000	30	6.6	5.1	2.2 J,O
Naphthalene	56,000	NE	55,000	1,200	2,200	100 J,O	75 J,O	6.1	6.4
2-Methylnaphthalene	NE	NE	210,000	8,500	9,100	43 J,O	20	4.5	2.5 J,O
Phenanthrene	56,000	NE	2,200,000	250,000	NE	110 J,O	36 J,O	45 J,O	3.1 J,O
Pyrene	82,000	NE	2,400,000	880,000	1,300	850	71 J,O	480	3.1 J,O
Phenols (µg/kg)									
1,1-Biphenyl	NE	NE	3,000,000	200	5,800	190 U,J,O	190 U,J,O	190 U,J,O	210 U,J,O
Bis(2-ethylhexyl) phthalate	280,000	NE	72,000	3,600,000	1,300,000	190 U	190 U	190 U	210 U
Carbazole	NE	NE	49,000	200	6,500	65 J,O	190 U	53 J,O	210 U
Phenol	62,000	NE	500,000**	50	30	190 U	190 U	190 U	210 U
2,4-Dimethylphenol	140,000	NE	1,300,000	1,700	1,900	190 U	190 U	190 U	210 U
2-Methylphenol (Cresol,o-)	56,000	NE	2,900,000	300	1,900	190 U	190 U	190 U	210 U
3-Methylphenol (Cresol,m-)	56,000	NE	2,900,000	300	3,300	190 U	190 U	190 U	210 U
4-Methylphenol (Cresol,p-)	56,000	NE	300,000	30	500	190 U	190 U	190 U	210 U
Pentachlorophenol	74,000	NE	7,200	30	200	960 O	32 O	78 O	15 J,O

Table 3-21
Semi-Volatile Organic Compounds in Surface Soil - Gimble and Pine Streets
American Creosote Works Site
Pensacola, Escambia County, Florida

Notes	
[1]	Land Disposal Restrictions (LDR) equals 10 times the Universal Treatment Standards (UTS), Per Code of Federal Regulations (CFR) 40-268.48.
[2]	Remedial Goals (RGs) as obtained from the Amended Record of Decision (AROD), Operable Unit 1, American Creosote Works (ACW) Site, Pensacola, Escambia County, Florida, EPA, May 1999.
[3]	Florida Administrative Code (F.A.C.) Chapter 62-777, Table II, adopted April 2005, FDEP
NE	Not Established
EPA	U.S. Environmental Protection Agency
FDEP	Florida Department of Environmental Protection
µg/kg	micrograms per kilogram (parts per billion or "ppb")
U	Analyte not detected at or above laboratory reporting limit.
J	Identification of analyte is acceptable. Reported value is an estimate.
N	There is presumptive evidence that the analyte is present; the analyte is reported as a tentative identification.
O	Denoted as "other". Specified in EPA Final Analytical Report Project 10-0274 as: CLP01 - Concentration reported is less than the lowest standard on calibration curve; CLP02 - Concentration reported is greater than the highest standard on calibration curve; CLP15 - TIC Results reported as identified by lab - IDs not verified; CLP16 - Initial calibration response erratic; QC-1 - Analyte concentration low in continuing calibration verification standard; QC-2 - Analyte concentration high in continuing calibration verification standard; QM-1 - Matrix Spike Recovery less than method control limits; QS-3 - Surrogate recovery is lower than established control limits; QS-4 - Surrogate recovery less than 10 percent.
Bold	Indicates the exceedance of the laboratory method detection limit.
Bold Underline	Contaminant of Concern identified in 1999 Amended Record of Decision (AROD).
Bold	Indicates the exceedance of LDR (UTS X10).
Bold	Indicates the exceedance of EPA 1999 AROD Residential Surface Soil Remedial Goals.
Bold	Indicates the exceedance of FDEP SCTLs for Direct Exposure in Residential Soil, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777.
Bold	Indicates exceedance of FDEP SCTLs for Leachability Based on Groundwater Criteria, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777.
Bold	Indicates the exceedance of FDEP SCTLs for Marine Surface Water, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777. (Per Case # 11-1130, the Bayou Chico Basin is classified as a Class III water in accordance with FDEP Surface Water Quality Standards, Chapter 62-302.)
BaP	benzo(a)pyrene
TEQ	Toxicity Equivalent
Italic	Indicates a duplicate (dup) sample
PYC	Pensacola Yacht Club
SCTL	Soil Cleanup Target Levels
SVOC	Semi-Volatile Organic Compounds
SS	Soil Sample
AB	Depth of 0-12 inches
C	Depth of 1-2 feet
D	Depth of 2-3 feet

Table 3-22
Dioxin Concentrations in Soil - 2018
American Creosote Works
Pensacola, Escambia, FL

	Sample Location	SS1000	SS1000	SS1000	SS1001	SS1001	SS1002	SS1002	SS1002	SS1003	SS1003	SS1003	SS1003	SS1004	SS1004	SS1004
	Sample Date	2/20/2018	2/20/2018	2/20/2018	2/20/2018	2/20/2018	2/20/2018	2/20/2018	2/20/2018	2/20/2018	2/20/2018	2/20/2018	2/20/2018	2/20/2018	2/20/2018	2/20/2018
	Sample Identification No.	SS1000A	SS1000B	SS1000C	SS1001A	SS1001B	SS1002A	SS1002B	SS1002C	SS1003A	SS91003A	SS1003B	SS1003C	SS1004A	SS1004B	SS1004C
	Start Depth (ft)	0	0.5	1	0	0.5	0	0.5	1	0	0	0.5	1	0	0.5	1
	End Depth (ft)	0.5	1	2	0.5	1	0.5	1	2	0.5	0.5	1	2	0.5	1	2
Analyte	**EPA Dioxin TEQ Action Level**															
% Moisture		8.8	8.7	11	18	14	9.8	9.5	12	11	16	15	13	13	19	16
Dioxins (ng/kg dry)																
1,2,3,4,6,7,8-Heptachlorodibenzodioxin		1600	210	110	150	34	2800	1200	970	9200	11000	9900	710	3200	790	72
1,2,3,4,6,7,8-Heptachlorodibenzofuran		210	30 J,O	16	26	5.5	510	260	180	1200	1400	1400	110	490	140	11
1,2,3,4,7,8,9-Heptachlorodibenzofuran		15 U,O	2.2 U,O	1.2 J,O	1.8 J,O	0.39 U	32	15	12	100	120	110	8	31 J,O	7.1	0.67 J,O
1,2,3,4,7,8-Hexachlorodibenzodioxin		13 J,O	2.1 U,O	0.96 J,O	1.6 J,O	0.34 U	30	12	10	73	86	96	7.1	18 J,O	4.8 J,O	0.49 U,O
1,2,3,4,7,8-Hexachlorodibenzofuran		7.2 J,O	1.3 U	0.51 J,O	0.96 J,O	0.24 U	22	8.2	6.3	52	62	60	5.7	13 J,O	3.7 U,O	0.39 J,O
1,2,3,6,7,8-Hexachlorodibenzodioxin		39 J,O	5.3 J,O	2.9 J,O	4.3 J,O	0.98 J,O	84	38	31	230	270	280	22	69	18	1.5 J,O
1,2,3,6,7,8-Hexachlorodibenzofuran		5.4 J,O	1.3 U	0.39 J,O	0.98 U,O	0.17 U,O	22	9.4	7.1	44	51	45 J,O	4.3 J,O	11 J,O	3.2 J,O	0.18 J,O
1,2,3,7,8,9-Hexachlorodibenzodioxin		23 J,O	5.2 J,O	1.6 J,O	2.7 J,O	0.66 U	57	22	19	140	160	180	13	34 J,O	9	0.82 J,O
1,2,3,7,8,9-Hexachlorodibenzofuran		3.2 J,O	1.5 U	0.32 U,O	0.35 U	0.14 U	4.8 J,O	3.3 J,O	3.7 J,O	38 J	88 J	18	1.9 U,O	3.3 U,O	1.7 J,O	0.15 J,O
1,2,3,7,8-Pentachlorodibenzodioxin		5.2 J,O	1.2 U	0.55 J,O	0.64 U	0.17 U	14	4.8 J,O	4.7 J,O	27	32	34	2.7 J,O	6.8 J,O	1.7 J,O	0.24 U,O
1,2,3,7,8-Pentachlorodibenzofuran		1.5 J,O	1.2 U	0.24 U,O	0.11 U	0.11 U	3.3 J,O	1.2 J,O	1.6 J,O	4.8 J,O	4.9 U,O	6.5	1.2 U,O	1.3 U,O	0.47 U	0.11 U
2,3,4,6,7,8-Hexachlorodibenzofuran		8.8 J,O	1.3 U	0.37 U,O	1.4 U	0.33 U	33	14	5.9	74	90	29	2.3 U,O	17 J,O	6	0.35 J,O
2,3,4,7,8-Pentachlorodibenzofuran		1.8 U	1.8 U	0.22 J,O	0.41 U,O	0.17 U	4.2 J,O	2.7 J,O	3.1 J,O	6.2	8.2	9.3	1.7 U	2.3 U,O	1.3 U,O	0.17 U
2,3,7,8-Tetrachlorodibenzodioxin		1.4 U,O	0.72 U	0.19 U,O	0.08 U	0.12 U,O	0.52 U,O	0.23 U,O	0.41 U,O	6.1	4.9	7.1	0.66 U	0.76 U	0.14 U,O	0.15 U,O
2,3,7,8-Tetrachlorodibenzofuran		0.87 U	0.88 U	0.08 U	0.23 U,O	0.1 U	0.84 J,O	0.55 J,O	0.43 J,O	1.5	1.6	2.4	0.81 U	0.93 U	0.32 U	0.08 U
Heptachlorodibenzodioxin (Total)		3200 J,O	440 J,O	210 J,O	300 J,O	66 J,O	5400 J,O	2200 J,O	1700 J,O	24000 J,O	28000 J,O	21000 J,O	1500 J,O	5600 J,O	1500 J,O	120 J,O
Heptachlorodibenzofuran (Total)		740 J,O	91 J,O	60 J,O	75 J,O	15 J,O	1400 J,O	720 J,O	520 J,O	4100 J,O	4800 J,O	5100 J,O	360 J,O	1500 J,O	430 J,O	32 J,O
Hexachlorodibenzodioxin (Total)		280 J,O	63 J,O	18 J,O	36 J,O	8.4 J,O	610 J,O	260 J,O	190 J,O	1700 J,O	2000 J,O	1600 J,O	140 J,O	560 J,O	170 J,O	12 J,O
Hexachlorodibenzofuran (Total)		200 J,O	35 J,O	14 J,O	27 J,O	5.2 J,O	740 J,O	320 J,O	200 J,O	1700 J,O	2000 J,O	2000 J,O	130 J,O	400 J,O	140 J,O	7.2 J,O
Octachlorodibenzodioxin		17000	2300	1400	1700	500	24000	11000 J,O	9600 J,O	87000 J,O	99000 J,O	87000 J,O	6600 O	29000	7200 J,O	720
Octachlorodibenzofuran		850	100 J,O	61	76	17	1200	620	400	4500	5100	5100	370	1700	450	36
Pentachlorodibenzodioxin (Total)		25 J,O	7.4 J,O	2 J,O	5.7 J,O	1 J,O	70 J,O	38 J,O	17 J,O	130 J,O	150 J,O	100 J,O	6.5 J,O	72 J,O	32 J,O	1.7 J,O
Pentachlorodibenzofuran (Total)		38 J,O	19 J,O	2.7 J,O	8.1 J,O	1.8 J,O	180 J,O	96 J,O	44 J,O	270 J,O	330 J,O	230 J,O	19 J,O	84 J,O	53 J,O	1.9 J,O
TEQ (Avian Toxic. Equiv. Value, WHO TEQ-98)		21 J,O	6.7 J,O	1.9 J,O	2.7 J,O	0.9 J,O	47	20 J,O	18 J,O	110 J,O	140 J,O	130 J,O	12 J,O	32 J,O	9.3 J,O	1.1 J,O
TEQ (Fish Toxic. Equiv. Value, WHO TEQ-98)		23 J,O	5.4 J,O	2 J,O	2.8 J,O	0.8 J,O	52	22 J,O	18 J,O	130 J,O	150 J,O	150 J,O	12 J,O	35 J,O	9.7 J,O	1.1 J,O
TEQ (Mammalian Toxic Equiv Value, WHO TEQ-2005)	7	**41 J,O**	**7.5 J,O**	3.2 J,O	4.4 J,O	1.2 J,O	**82**	**35 J,O**	**29 J,O**	**230 J,O**	**280 J,O**	**260 J,O**	**20 J,O**	**71 J,O**	**19 J,O**	1.9 J,O
Tetrachlorodibenzodioxin (Total)		7.1 J,O	2.6 J,O	1.8 J,O	1.6 J,O	1.2 J,O	11 J,O	8.4 J,O	6.5 J,O	19 J,O	22 J,O	17 J,O	2.6 J,O	6.3 J,O	7.3 J,O	0.86 J,O
Tetrachlorodibenzofuran (Total)		6.5 J,O	3.4 J,O	2.2 J,O	7.5 J,O	6.7 J,O	36 J,O	24 J,O	17 J,O	67 J,O	66 J,O	33 J,O	4.5 J,O	16 J,O	20 J,O	1.2 J,O

Notes:

% - percent
ft - feet
J - Identification of analyte is acceptable. Reported value is an estimate.
ng/kg - nanograms per kilogram
O - Other Qualifiers
SS - surface soil
TEQ - toxic equivalency
U - Analyte not detected at or above laboratory reporting limit.
- EPA Dioxin TEQ Action Level

Created by: R Dawkins 7/23/18
Updated by: AMC 9/4/18

Table 3-22
Dioxin Concentrations in Soil - 2018
American Creosote Works
Pensacola, Escambia, FL

	Sample Location	SS1005	SS1005	SS1006F	SS1006F	SS1006F	SS1006F	SS1006R	SS1006R	SS1007	SS1007	SS1008	SS1008	SS1008	SS1009	SS1009
	Sample Date	2/22/2018	2/22/2018	6/4/2018	6/4/2018	10/30/2018	10/30/2018	6/4/2018	6/4/2018	2/22/2018	2/22/2018	2/23/2018	2/23/2018	2/23/2018	2/23/2018	2/23/2018
	Sample Identification No.	SS1005A	SS1005B	SS1006F_A	SS1006F_B	SS1006F_C	SS91006F_C	SS1006R_A	SS1006R_B	SS1007A	SS1007B	SS1008A	SS1008B	SS1008C	SS1009A	SS1009B
	Start Depth (ft)	0	0.5	0	0.5	1	1	0	0.5	0	0.5	0	0.5	1	0	0.5
	End Depth (ft)	0.5	1	0.5	1	2	2	0.5	1	0.5	1	0.5	1	2	0.5	1
Analyte	**EPA Dioxin TEQ Action Level**															
% Moisture		16	15	15	9.7	16	15	9.2	8.3	13	12	16	20	18	15	16
Dioxins (ng/kg dry)																
1,2,3,4,6,7,8-Heptachlorodibenzodioxin		600	76	180 J,O	240 J,O	370	360	12 J,O	7.8 J,O	550	90	4100	440	220	120	770
1,2,3,4,6,7,8-Heptachlorodibenzofuran		120	15	50	71	92	83	1.6 J,O	0.83 U,O	120	16	680	70	32	25	150
1,2,3,4,7,8,9-Heptachlorodibenzofuran		6.1	0.77 U,O	2.4 J,O	3.5 J,O	5	4.2 J,O	0.15 U	0.15 U	5.5 J,O	0.92 U	45	4.6 J,O	1.9 J,O	1.4 J,O	8.1
1,2,3,4,7,8-Hexachlorodibenzodioxin		4.6 J,O	0.53 U,O	1.1 J,O	1.3 J,O	1.7 J,O	2 J,O	0.23 U,O	0.17 U	4.4 U,O	0.93 U	40 J,O	3.2 J,O	1.1 J,O	1.2 J,O	7
1,2,3,4,7,8-Hexachlorodibenzofuran		2.8 J,O	0.41 U	1.7 J,O	2.1 J,O	2.3 J,O	2.6 J,O	0.11 U	0.11 U	4.2 J,O	0.89 U	27 J,O	2.3 J,O	0.88 J,O	1.4 U	5.2
1,2,3,6,7,8-Hexachlorodibenzodioxin		16	1.9 J,O	4.6 J,O	6.4	8.7	8.6	0.41 U,O	0.26 U,O	19 J,O	2.8 J,O	130 J,O	11	4.8 J,O	4.2 J,O	25
1,2,3,6,7,8-Hexachlorodibenzofuran		1.8 J,O	0.27 U	3.8 J,O	5.2	4.5 J,O	5.3	0.12 U	0.12 U	4.2 U,O	0.94 J,O	14 J,O	1.4 J,O	0.48 J,O	0.95 J,O	4.9 J,O
1,2,3,7,8,9-Hexachlorodibenzodioxin		8.5	0.91 U	2.3 J,O	2.8 J,O	3.8 J,O	5	0.49 J,O	0.32 U,O	11 J,O	2 J,O	44 J,O	5.1	2.1 J,O	2.2 J,O	12
1,2,3,7,8,9-Hexachlorodibenzofuran		3.3 J,O	0.2 U	1 J,O	2.6 J,O	1.9 J,O	2.4 J,O	0.14 U	0.14 U	1.6 U	0.62 U,O	4.8 J,O	0.86 J,O	0.14 U	0.6 J,O	1.4 J,O
1,2,3,7,8-Pentachlorodibenzodioxin		1.7 J,O	0.21 U,O	0.75 J,O	1 J,O	1.1 J,O	1.3 J,O	0.15 U,O	0.16 J,O	1.8 J,O	0.63 U,O	9.7 J,O	0.75 J,O	0.56 J,O	0.56 J,O	2.6 J,O
1,2,3,7,8-Pentachlorodibenzofuran		0.35 U	0.14 U	0.46 U,O	0.68 U,O	0.7 J,O	0.64 J,O	0.11 U	0.11 U	1.4 U	0.45 U	10 J,O	0.38 J,O	0.11 U	0.37 J,O	0.91 J,O
2,3,4,6,7,8-Hexachlorodibenzofuran		3.7 J,O	0.45 U	9.4	5.8	5	6.2 U,O	0.11 U	0.11 U	4.5 U,O	1.8 J,O	27 J,O	2.4 J,O	0.51 J,O	1.3 U	7
2,3,4,7,8-Pentachlorodibenzofuran		2.9 J,O	0.44 U	3.1 J,O	4 J,O	3.4 J,O	4.1 J,O	0.17 U	0.17 U	1.9 U	2.4 J,O	6.6 J,O	0.78 J,O	0.18 U,O	0.53 J,O	2.9 J,O
2,3,7,8-Tetrachlorodibenzodioxin		0.19 U,O	0.14 U,O	0.07 U	0.2 U,O	0.18 U,O	0.24 U,O	0.15 U,O	0.07 U	0.74 U	0.16 U,O	0.58 U	0.1 U	0.15 U,O	0.12 U	0.33 U
2,3,7,8-Tetrachlorodibenzofuran		0.53 U	0.08 U	0.67 U,O	1	1.9	1.5	0.08 U	0.08 U	2.4 J,O	0.97 J,O	0.93 J,O	0.14 U	0.08 U	0.36 J,O	0.85 J,O
Heptachlorodibenzodioxin (Total)		1100 J,O	130 J,O	310 J,O	410 J,O	660 J,O	620 J,O	25 J,O	17 J,O	1000 J,O	170 J,O	7500 J,O	820 J,O	380 J,O	250 J,O	1500 J,O
Heptachlorodibenzofuran (Total)		380 J,O	48 J,O	170 J,O	260 J,O	350 J,O	290 J,O	3.9 J,O	2.3 J,O	300 J,O	43 J,O	2200 J,O	220 J,O	100 J,O	70 J,O	420 J,O
Hexachlorodibenzodioxin (Total)		100 J,O	9.9 J,O	33 J,O	46 J,O	64 J,O	86 J,O	3.2 J,O	1.8 J,O	150 J,O	29 J,O	830 J,O	77 J,O	32 J,O	37 J,O	200 J,O
Hexachlorodibenzofuran (Total)		110 J,O	12 J,O	150 J,O	240 J,O	220 J,O	250 J,O	1.1 J,O	0.4 J,O	150 J,O	27 J,O	570 J,O	59 J,O	25 J,O	26 J,O	140 J,O
Octachlorodibenzodioxin		5300 J,O	900	2100 J,O	2900 J,O	4100 J,O	3900	450 J,O	390 J,O	4800	690	37000	4400 J,O	2400	1000	6400 J,O
Octachlorodibenzofuran		410	52	150 J,O	210 J,O	320	270	4.2 J,O	3.6 J,O	270	41	2300	250	100	70	430
Pentachlorodibenzodioxin (Total)		11 J,O	0.87 J,O	5.6 J,O	8.3 J,O	11 J,O	17 J,O	0.23 J,O	0.22 J,O	27 J,O	7.6 J,O	100 J,O	12 J,O	4.3 J,O	9.8 J,O	34 J,O
Pentachlorodibenzofuran (Total)		28 J,O	3.3 J,O	200 J,O	290 J,O	210 J,O	270 J,O	0.1 J,O	0.14 U,J,O	100 J,O	38 J,O	98 J,O	11 J,O	3.8 J,O	10 J,O	41 J,O
TEQ (Avian Toxic. Equiv. Value, WHO TEQ-98)		10 J,O	1.5 J,O	7.5 J,O	9.5 J,O	10 J,O	11 J,O	0.75 J,O	0.64 J,O	12 J,O	5.2 J,O	49 J,O	4.9 J,O	2.3 J,O	2.8 J,O	13 J,O
TEQ (Fish Toxic. Equiv. Value, WHO TEQ-98)		9.5 J,O	1.3 J,O	5.6 J,O	6.9 J,O	7.2 J,O	8.1 J,O	0.64 J,O	0.52 J,O	9.9 J,O	3.3 J,O	58 J,O	5.4 J,O	2.4 J,O	2.6 J,O	13 J,O
TEQ (Mammalian Toxic Equiv Value, WHO TEQ-2005)	7	**16 J,O**	2.2 J,O	**7.2 J,O**	**9.2 J,O**	**11 J,O**	**12 J,O**	0.8 J,O	0.62 J,O	**17 J,O**	3.9 J,O	**100 J,O**	**10 J,O**	5.1 J,O	3.9 J,O	**21 J,O**
Tetrachlorodibenzodioxin (Total)		2.4 J,O	0.3 J,O	2.5 J,O	4.5 J,O	5.7 J,O	9.3 J,O	0.23 J,O	0.07 U,J,O	5.3 J,O	4.3 J,O	17 J,O	3.9 J,O	2.4 J,O	4.8 J,O	11 J,O
Tetrachlorodibenzofuran (Total)		9.6 J,O	0.16 J,O	48 J,O	81 J,O	62 J,O	84 J,O	0.14 J,O	0.08 U,J,O	41 J,O	20 J,O	27 J,O	4.1 J,O	2.3 J,O	12 J,O	23 J,O

Notes:

% - percent
ft - feet
J - Identification of analyte is acceptable. Reported value is an estimate.
ng/kg - nanograms per kilogram
O - Other Qualifiers
SS - surface soil
TEQ - toxic equivalency
U - Analyte not detected at or above laboratory reporting limit.
- EPA Dioxin TEQ Action Level

Created by: R Dawkins 7/23/18
Updated by: AMC 9/4/18

Table 3-22
Dioxin Concentrations in Soil - 2018
American Creosote Works
Pensacola, Escambia, FL

	Sample Location	SS1009	SS1010	SS1010	SS1010	SS1011	SS1011	SS1011	SS1012	SS1012	SS1013	SS1013	SS1013	SS1014F	SS1014F	SS1014F
	Sample Date	2/23/2018	2/23/2018	2/23/2018	2/23/2018	2/23/2018	2/23/2018	2/23/2018	2/23/2018	2/23/2018	2/23/2018	2/23/2018	2/23/2018	6/6/2018	6/6/2018	10/31/2018
	Sample Identification No.	SS1009C	SS1010A	SS1010B	SS1010C	SS1011A	SS1011B	SS1011C	SS1012A	SS1012B	SS1013A	SS1013B	SS91013B	SS1014F_A	SS1014F_B	SS1014F_C
	Start Depth (ft)	1	0	0.5	1	0	0.5	1	0	0.5	0	0.5	0.5	0	0.5	1
	End Depth (ft)	2	0.5	1	2	0.5	1	2	0.5	1	0.5	1	1	0.5	1	2
Analyte	**EPA Dioxin TEQ Action Level**															
% Moisture		18	16	25	18	11	20	16	12	11	9.3	25	9.5	5.9	5.9	14
Dioxins (ng/kg dry)																
1,2,3,4,6,7,8-Heptachlorodibenzodioxin		79	240	230	84	62	280	140	1400	160	1000	150	93	1400 J,O	300 J,O	100
1,2,3,4,6,7,8-Heptachlorodibenzofuran		15	60	53	33	21	73	100	250	33	200	33	22	200	47	19 J
1,2,3,4,7,8,9-Heptachlorodibenzofuran		0.59 U,O	3.1 J,O	3.1 J,O	1.4 J,O	0.89 J,O	3.8 J,O	2.7 J,O	16	2.3 J,O	11	2.2 J,O	1.4 J,O	13	2.7 J,O	0.98 J,O
1,2,3,4,7,8-Hexachlorodibenzodioxin		0.78 J,O	2.4 J,O	2.5 J,O	0.97 J,O	0.68 J,O	2.8 J,O	1.5 J,O	14	1.5 J,O	12	2 J,O	1.2 J,O	7.6	2.2 J,O	0.93 J,O
1,2,3,4,7,8-Hexachlorodibenzofuran		0.48 J,O	2.7 J,O	2.7 J,O	2.6 J,O	0.68 U	3.5 J,O	4.4 J,O	10	1.9 U	7.5	2 U	1.7 U	5.2	1.5 J,O	0.9 U,O
1,2,3,6,7,8-Hexachlorodibenzodioxin		2 J,O	7.9	7.3	3.2 J,O	2 J,O	9.1	5.2	46	5.1	35	6	3.4 J,O	33	7.4	2.8 J,O
1,2,3,6,7,8-Hexachlorodibenzofuran		0.28 J,O	3.7 J,O	3.9 J,O	8.1	0.6 J,O	3.9 J,O	9.7	12	1.7 J,O	8.4	2.5 J,O	2.4 J,O	3.3 J,O	1.3 J,O	0.92 U,O
1,2,3,7,8,9-Hexachlorodibenzodioxin		1.2 J,O	4.3 J,O	3.8 J,O	1.8 J,O	1.1 J,O	4.9 J,O	3 J,O	22	2.9 J,O	23	3.5 J,O	2.4 J,O	14	4 J,O	1.8 J,O
1,2,3,7,8,9-Hexachlorodibenzofuran		0.25 U,O	1.2 J,O	1.5 J,O	2.5 J,O	0.34 U	1.5 J,O	2.7 J,O	3.1 J,O	0.6 J,O	1.8 J,O	0.86 J,O	0.82 J,O	1.8 J,O	0.52 U,O	1.4 J,O
1,2,3,7,8-Pentachlorodibenzodioxin		0.51 U,O	1.1 J,O	0.95 J,O	1.1 J,O	0.27 U	1.1 J,O	1.4 U,O	5.4	0.66 J,O	5	0.7 J,O	0.59 J,O	2.6 J,O	0.93 U,O	0.7 J,O
1,2,3,7,8-Pentachlorodibenzofuran		0.15 U,O	0.63 J,O	0.8 J,O	0.94 U,O	0.22 U	0.9 J,O	1.2 J,O	2 J,O	0.28 U	1.3 J,O	0.68 J,O	0.58 J,O	0.63 U	0.26 U	0.29 U,O
2,3,4,6,7,8-Hexachlorodibenzofuran		0.54 J,O	8.1	9.5	23	1.3 U	8.4	12	22	2.6 J,O	13	4.4 J,O	4.5 J,O	3.1 J,O	1.3 U,O	0.89 U,O
2,3,4,7,8-Pentachlorodibenzofuran		0.21 J,O	9.8	13	6.5	1.1 J,O	11	7.1	21	2.5 J,O	9.5	5.6	6.2	2.1 U,O	1.1 J,O	1.5 J,O
2,3,7,8-Tetrachlorodibenzodioxin		0.07 U	0.1 U	0.097 U	0.25 U,O	0.11 U	0.1 U	0.22 U,O	0.58 U	0.13 U	0.38 U	0.11 U	0.1 U	0.25 U,O	0.07 U	0.18 U,O
2,3,7,8-Tetrachlorodibenzofuran		0.11 J,O	0.56 J,O	0.64 J,O	1.5 U,O	0.11 U	0.86 J,O	1.7	2 O	0.14 U	0.95 J,O	0.44 J,O	0.39 J,O	0.44 U,O	0.22 U,O	0.36 J,O
Heptachlorodibenzodioxin (Total)		150 J,O	480 J,O	460 J,O	150 J,O	120 J,O	590 J,O	280 J,O	2800 J,O	320 J,O	1900 J,O	290 J,O	180 J,O	2300 J,O	540 J,O	190 J,O
Heptachlorodibenzofuran (Total)		39 J,O	150 J,O	140 J,O	78 J,O	48 J,O	180 J,O	200 J,O	720 J,O	99 J,O	500 J,O	84 J,O	56 J,O	770 J,O	160 J,O	53 J,O
Hexachlorodibenzodioxin (Total)		21 J,O	72 J,O	56 J,O	30 J,O	15 J,O	79 J,O	51 J,O	420 J,O	44 J,O	280 J,O	47 J,O	34 J,O	180 J,O	58 J,O	33 J,O
Hexachlorodibenzofuran (Total)		11 J,O	110 J,O	130 J,O	310 J,O	20 J,O	120 J,O	400 J,O	340 J,O	44 J,O	210 J,O	63 J,O	62 J,O	180 J,O	55 J,O	34 J,O
Octachlorodibenzodioxin		750	2100	2300	930	630	2600	1500	12000 J,O	1500	8400 J,O	1200	750	15000 J,O	3200 J,O	1000
Octachlorodibenzofuran		38	130	110	38	34	160	96	740	100	510	80	51	840 J,O	160 J,O	54 J
Pentachlorodibenzodioxin (Total)		4.1 J,O	12 J,O	10 J,O	9.9 J,O	0.8 J,O	15 J,O	13 J,O	80 J,O	8.5 J,O	49 J,O	13 J,O	11 J,O	14 J,O	9.7 J,O	11 J,O
Pentachlorodibenzofuran (Total)		3.4 J,O	130 J,O	160 J,O	510 J,O	12 J,O	120 J,O	470 J,O	310 J,O	33 J,O	120 J,O	61 J,O	75 J,O	47 J,O	33 J,O	32 J,O
TEQ (Avian Toxic. Equiv. Value, WHO TEQ-98)		1.6 J,O	15 J,O	18 J,O	14 J,O	2.4 J,O	17 J,O	15 J,O	43	5.2 J,O	26	9 J,O	9 J,O	14 J,O	4.5 J,O	3.8 J,O
TEQ (Fish Toxic. Equiv. Value, WHO TEQ-98)		1.6 J,O	10 J,O	12 J,O	9.4 J,O	2 J,O	11 J,O	10 J,O	34	4.2 J,O	24	6.4 J,O	5.8 J,O	15 J,O	4.4 J,O	3 J,O
TEQ (Mammalian Toxic Equiv Value, WHO TEQ-2005)	7	2.4 J,O	**11 J,O**	**12 J,O**	**9.2 J,O**	2.4 J,O	**12 J,O**	**11 J,O**	**46**	5.6 J,O	**33**	6.9 J,O	5.7 J,O	**31 J,O**	**7.7 J,O**	3.9 J,O
Tetrachlorodibenzodioxin (Total)		2.6 J,O	2.9 J,O	3.5 J,O	5.5 J,O	0.11 U,J,O	5.5 J,O	7.5 J,O	19 J,O	2.1 J,O	11 J,O	6.8 J,O	6.5 J,O	3.7 J,O	5.9 J,O	15 J,O
Tetrachlorodibenzofuran (Total)		4.1 J,O	39 J,O	47 J,O	160 J,O	2.7 J,O	44 J,O	160 J,O	110 J,O	16 J,O	58 J,O	28 J,O	32 J,O	9.4 J,O	10 J,O	13 J,O

Notes:

% - percent
ft - feet
J - Identification of analyte is acceptable. Reported value is an estimate.
ng/kg - nanograms per kilogram
O - Other Qualifiers
SS - surface soil
TEQ - toxic equivalency
U - Analyte not detected at or above laboratory reporting limit.
- EPA Dioxin TEQ Action Level

Created by: R Dawkins 7/23/18
Updated by: AMC 9/4/18

Table 3-22
Dioxin Concentrations in Soil - 2018
American Creosote Works
Pensacola, Escambia, FL

	Sample Location	SS1014F_C	SS1014R	SS1014R	SS1014R	SS1015F	SS1015F	SS1015F	SS1015R	SS1015R	SS1015R	SS1016	SS1016	SS1016	SS1016	SS1017
	Sample Date	10/31/2018	6/6/2018	6/6/2018	6/6/2018	6/6/2018	6/6/2018	6/6/2018	6/6/2018	6/6/2018	10/31/2018	2/25/2018	2/25/2018	2/25/2018	2/25/2018	2/25/2018
	Sample Identification No.	SS91014F_C	SS1014R_A	SS91014R_A	SS1014R_B	SS1015F_A	SS91015F_A	SS1015F_B	SS1015R_A	SS1015R_B	SS1015R_C	SS1016A	SS1016B	SS91016B	SS1016C	SS1017A
	Start Depth (ft)	1	0	0	0.5	0	0	0.5	0	0.5	1	0	0.5	0.5	1	0
	End Depth (ft)	2	0.5	0.5	1	0.5	0.5	1	0.5	1	2	0.5	1	1	2	0.5
Analyte	**EPA Dioxin TEQ Action Level**															
% Moisture		15	8	8.2	5.8	9.3	7.4	3.6	7.2	4.2	5.5	6.6	6.1	12	11	12
Dioxins (ng/kg dry)																
1,2,3,4,6,7,8-Heptachlorodibenzodioxin		100	1000 J,O	1100 J,O	120 J,O	1700 J,O	1800 J,O	150 J,O	2900 J,O	390 J,O	45	43000	4500	6600	3800	1100
1,2,3,4,6,7,8-Heptachlorodibenzofuran		17 J,O	220	240	27	470	470	40	600	90	6.5	7700	860	1300	630	230
1,2,3,4,7,8,9-Heptachlorodibenzofuran		1.5 U	8.8	9.3	1 J,O	32	32	2.7 J,O	42	5.5	0.42 J,O	740	74	110	55	17
1,2,3,4,7,8-Hexachlorodibenzodioxin		1.7 U	8.2	9.1	1.3 J,O	8.1	8	0.72 J,O	17	2.7 J,O	0.45 J,O	420	47	68	31	11
1,2,3,4,7,8-Hexachlorodibenzofuran		1.1 U	4 J,O	4.6 J,O	0.55 U	12	12	0.99 J,O	14	2.2 J,O	0.22 J,O	250	27	41	16	8.8
1,2,3,6,7,8-Hexachlorodibenzodioxin		3.1 J,O	27	31	3.1 J,O	47	49	3.7 J,O	68	9.5	1.3 J,O	1100	110	160	78	32
1,2,3,6,7,8-Hexachlorodibenzofuran		1.2 U	4.2 J,O	5	0.6 J,O	5.7	6.2	0.46 J,O	9.9	1.5 U,O	0.22 J,O	270	29	43	17	8
1,2,3,7,8,9-Hexachlorodibenzodioxin		2 J,O	19	21	2.4 J,O	16	16	1.4 U,O	35	5.1	0.86 J,O	860	94	130	64	23
1,2,3,7,8,9-Hexachlorodibenzofuran		1.4 U	1.1 J,O	2.7 J,O	0.28 J,O	2.1 J,O	2.8 J,O	0.41 J,O	3.8 J,O	0.68 U,O	0.35 J,O	49	13	17	7.3 U,O	1.6 J,O
1,2,3,7,8-Pentachlorodibenzodioxin		1.1 U	4 J,O	4.1 J,O	0.54 U,O	3.4 J,O	3.5 J,O	0.51 U	6.3	1.3 J,O	0.26 J,O	140	15	22	10	4.5 J,O
1,2,3,7,8-Pentachlorodibenzofuran		1.1 U	0.62 U	0.57 J,O	0.11 U	0.85 U,O	0.9 U,O	0.11 U	1 U,O	0.26 U,O	0.12 U,O	17	2.2 J,O	3.4 J,O	1.2 J,O	1.1 J,O
2,3,4,6,7,8-Hexachlorodibenzofuran		1.1 U	4.5 J,O	4.3 J,O	0.9 J,O	10	10	0.83 J,O	16	2.4 J,O	0.37 J,O	430	48	69	28	12
2,3,4,7,8-Pentachlorodibenzofuran		1.7 U	1.1 J,O	1.4 J,O	0.23 J,O	2 J,O	2.7 J,O	0.17 U	2 U,O	0.51 U,O	0.17 U	48	13	16	1.7 J,O	2.9 J,O
2,3,7,8-Tetrachlorodibenzodioxin		0.66 U	0.44 U,O	0.28 U,O	0.07 U	0.35 U,O	0.33 U,O	0.16 U,O	0.38 U,O	0.19 U,O	0.07 U	5.6	0.95 U	1.2 U,O	0.47 J,O	0.31 U
2,3,7,8-Tetrachlorodibenzofuran		0.8 U	0.34 U,O	0.29 U,O	0.08 U	0.68 J,O	0.74 J,O	0.08 U	0.64 J,O	0.3 J,O	0.08 U	2.6 O	0.88 J,O	0.86 J,O	0.3 U,O	0.76 J
Heptachlorodibenzodioxin (Total)		200 J,O	1700 J,O	1900 J,O	200 J,O	2800 J,O	2900 J,O	230 J,O	4100 J,O	590 J,O	87 J,O	65000 J,O	7100 J,O	10000 J,O	5500 J,O	1800 J,O
Heptachlorodibenzofuran (Total)		53 J,O	630 J,O	690 J,O	73 J,O	1900 J,O	2000 J,O	160 J,O	2400 J,O	320 J,O	17 J,O	22000 J,O	2400 J,O	3600 J,O	1900 J,O	710 J,O
Hexachlorodibenzodioxin (Total)		36 J,O	200 J,O	220 J,O	26 J,O	210 J,O	220 J,O	18 J,O	330 J,O	48 J,O	14 J,O	6100 J,O	690 J,O	1000 J,O	460 J,O	200 J,O
Hexachlorodibenzofuran (Total)		30 J,O	190 J,O	210 J,O	20 J,O	380 J,O	410 J,O	29 J,O	460 J,O	69 J,O	6.7 J,O	7100 J,O	770 J,O	1100 J,O	470 J,O	210 J,O
Octachlorodibenzodioxin		990 J,O	8200 J,O	8900 J,O	1000 J,O	17000 J,O	17000 J,O	1500 J,O	28000 J,O	3600 J,O	450	310000 J,O	37000	52000	33000	9800 J,O
Octachlorodibenzofuran		52 J,O	680 J,O	740 J,O	75 J,O	1900 J,O	1900 J,O	160 J,O	2300 J,O	310 J,O	18	25000	2800	4200	2000	730
Pentachlorodibenzodioxin (Total)		8.7 J,O	20 J,O	22 J,O	3.3 J,O	17 J,O	19 J,O	2.4 J,O	24 J,O	6.4 J,O	2.3 J,O	570 J,O	97 J,O	130 J,O	38 J,O	27 J,O
Pentachlorodibenzofuran (Total)		26 J,O	30 J,O	33 J,O	4.4 J,O	55 J,O	64 J,O	3.9 J,O	59 J,O	12 J,O	4 J,O	1100 J,O	190 J,O	260 J,O	75 J,O	51 J,O
TEQ (Avian Toxic. Equiv. Value, WHO TEQ-98)		5.6 J,O	14 J,O	15 J,O	2 J,O	21 J,O	22 J,O	2.2 J,O	31 J,O	5.5 J,O	0.99 J,O	580	72	100	42	19 J,O
TEQ (Fish Toxic. Equiv. Value, WHO TEQ-98)		4.5 J,O	15 J,O	16 J,O	2.2 J,O	21 J,O	22 J,O	2.2 J,O	34 J,O	5.7 J,O	0.95 J,O	660	78	110	49	20 J,O
TEQ (Mammalian Toxic Equiv Value, WHO TEQ-2005)	7	5 J,O	**27 J,O**	**29 J,O**	3.4 J,O	**42 J,O**	**44 J,O**	4 J,O	**68 J,O**	**10 J,O**	1.4 J,O	**1100**	**120**	**180**	**91**	**32 J,O**
Tetrachlorodibenzodioxin (Total)		14 J,O	4.5 J,O	5 J,O	1.1 J,O	6.2 J,O	6.7 J,O	0.71 J,O	6.2 J,O	3 J,O	2.1 J,O	59 J,O	23 J,O	27 J,O	9.3 J,O	6.9 J,O
Tetrachlorodibenzofuran (Total)		10 J,O	8.3 J,O	10 J,O	1.4 J,O	22 J,O	23 J,O	1.5 J,O	19 J,O	7 J,O	3.9 J,O	160 J,O	54 J,O	71 J,O	22 J,O	26 J,O

Notes:

% - percent
ft - feet
J - Identification of analyte is acceptable. Reported value is an estimate.
ng/kg - nanograms per kilogram
O - Other Qualifiers
SS - surface soil
TEQ - toxic equivalency
U - Analyte not detected at or above laboratory reporting limit.
- EPA Dioxin TEQ Action Level

Created by: R Dawkins 7/23/18
Updated by: AMC 9/4/18

Table 3-22
Dioxin Concentrations in Soil - 2018
American Creosote Works
Pensacola, Escambia, FL

	Sample Location	SS1017	SS1018	SS1018	SS1018	SS1018	SS1018	SS1018F	SS1018	SS1018	SS1018R	SS1019	SS1019	SS1020	SS1020	SS1021F
	Sample Date	2/25/2018	2/23/2018	2/23/2018	7/24/2018	7/24/2018	7/24/2018	10/30/2018	7/24/2018	7/24/2018	10/30/2018	2/23/2018	2/23/2018	2/22/2018	2/22/2018	4/8/2018
	Sample Identification No.	SS1017B	SS1018A	SS1018B	SS1018F_A	SS91018F_A	SS1018F_B	SS1018F_C	SS1018R_A	SS1018R_B	SS1018R_C	SS1019A	SS1019B	SS1020A	SS1020B	SS1021F_A
	Start Depth (ft)	0.5	0	0.5	0	0.5	0.5	1	0	0.5	1	0	0.5	0	0.5	0
	End Depth (ft)	1	0.5	1	0.5	1	1	2	0.5	1	2	0.5	1	0.5	1	0.5
Analyte	**EPA Dioxin TEQ Action Level**															
% Moisture		5.8	8.8	24	3.5	3.5	2.1	7.7	1.7	1.1	7.3	8.7	7.5	8.6	7.4	9.4
Dioxins (ng/kg dry)																
1,2,3,4,6,7,8-Heptachlorodibenzodioxin		180	1200	140	230	210	610	22	110	220	270	450	62	650	35	280
1,2,3,4,6,7,8-Heptachlorodibenzofuran		43	350	38	40	37	100	3.3 J,O	20	44	67	89	17	110	6	58
1,2,3,4,7,8,9-Heptachlorodibenzofuran		3.2 J,O	16	2.1 J,O	2.8 J,O	2.5 J,O	7.3	0.21 J,O	1.2 J,O	3.1 J,O	4.1 J,O	6.4	1 J,O	6.3	0.38 U	4.3 J,O
1,2,3,4,7,8-Hexachlorodibenzodioxin		1.8 J,O	12	1.6 J,O	2.3 J,O	2.3 J,O	6	0.23 U,O	1.4 J,O	3.1 J,O	2.9 J,O	5.4	1 J,O	6	0.39 U	4.6 J,O
1,2,3,4,7,8-Hexachlorodibenzofuran		2 U	11	1.3 U	1.4 J,O	1.3 J,O	3.8 J,O	0.15 U,O	0.87 J,O	2.7 J,O	5.3	3.5 J,O	0.81 U	3.4 J,O	0.19 U	2.8 U
1,2,3,6,7,8-Hexachlorodibenzodioxin		6.3	42	4.9 J,O	7.9	7.2	20	0.57 J,O	3.9 J,O	8.4	7.8	15	2.3 J,O	17	1 U,O	11
1,2,3,6,7,8-Hexachlorodibenzofuran		1.6 J,O	11	1.1 J,O	1.4 J,O	1.1 J,O	3.5 J,O	0.12 U	0.81 J,O	2.5 J,O	5.2	3.4 J,O	1.2 J,O	3 J,O	0.18 U,O	3.3 J,O
1,2,3,7,8,9-Hexachlorodibenzodioxin		3.8 J,O	21	2.9 J,O	4.2 J,O	3.9 J,O	11	0.43 J,O	2.6 J,O	5.5	5.1	8.6	1.4 J,O	12	0.74 U	5.8
1,2,3,7,8,9-Hexachlorodibenzofuran		0.62 J,O	2.6 J,O	0.38 J,O	0.33 J,O	0.33 J,O	0.83 J,O	0.14 U	0.37 J,O	0.73 J,O	2.2 J,O	0.93 J,O	0.44 J,O	0.83 J,O	0.15 U	0.88 U
1,2,3,7,8-Pentachlorodibenzodioxin		1 J,O	4.1 J,O	0.65 J,O	1 J,O	0.77 J,O	2.1 J,O	0.15 U,O	0.55 J,O	1.3 J,O	2.1 J,O	1.8 J,O	0.49 J,O	2.4 J,O	0.21 U,O	1.6 J,O
1,2,3,7,8-Pentachlorodibenzofuran		0.5 J,O	2 J,O	0.33 J,O	0.24 J,O	0.23 J,O	0.58 J,O	0.11 U	0.28 J,O	1.1 J,O	2.3 J,O	0.54 J,O	0.22 U	0.68 U	0.11 U	0.93 U
2,3,4,6,7,8-Hexachlorodibenzofuran		2.5 J,O	19	2 U	1.8 J,O	1.6 J,O	5.3	0.16 U,O	1.2 J,O	3.5 J,O	8.6	5.9	2.3 J,O	4.6 J,O	0.32 U	5.4
2,3,4,7,8-Pentachlorodibenzofuran		1.7 J,O	10	0.96 J,O	0.45 J,O	0.47 J,O	2.2 J,O	0.17 U	0.47 J,O	2.2 J,O	8.3	3.9 J,O	2.8 J,O	1.6 J,O	0.2 U	5
2,3,7,8-Tetrachlorodibenzodioxin		0.064 U	0.44 U	0.1 U	0.078 U	0.056 U	0.2 J,O	0.13 U,O	0.084 U	0.28 J,O	0.29 U,O	0.12 U	0.082 U	0.18 U,O	0.11 U,O	0.17 U
2,3,7,8-Tetrachlorodibenzofuran		0.51 J,O	1.6 O	0.32 J,O	0.12 J,O	0.13 J,O	0.48 J,O	0.08 U	0.22 J,O	0.93 J,O	2.3	0.43 J,O	0.32 J,O	0.58 U	0.08 U	1 O
Heptachlorodibenzodioxin (Total)		330 J,O	2200 J,O	270 J,O	490 J,O	460 J,O	1400 J,O	40 J,O	210 J,O	430 J,O	500 J,O	880 J,O	120 J,O	1300 J,O	70 J,O	590 J,O
Heptachlorodibenzofuran (Total)		130 J,O	1100 J,O	110 J,O	120 J,O	110 J,O	330 J,O	10 J,O	58 J,O	130 J,O	160 J,O	260 J,O	46 J,O	340 J,O	17 J,O	180 J,O
Hexachlorodibenzodioxin (Total)		42 J,O	260 J,O	32 J,O	53 J,O	48 J,O	140 J,O	4.5 J,O	31 J,O	75 J,O	85 J,O	120 J,O	20 J,O	150 J,O	9.1 J,O	98 J,O
Hexachlorodibenzofuran (Total)		45 J,O	350 J,O	35 J,O	37 J,O	31 J,O	100 J,O	2.8 J,O	21 J,O	53 J,O	86 J,O	100 J,O	31 J,O	100 J,O	5.7 J,O	100 J,O
Octachlorodibenzodioxin		1700	9100 J,O	1100	2200	2100	5700	240	1000	1900	2100	4000	560	5900 J,O	360	2500
Octachlorodibenzofuran		130	1200	120	140	130	390	12	63	120	130	270	41	360	19	170
Pentachlorodibenzodioxin (Total)		8.6 J,O	43 J,O	5.3 J,O	6.2 J,O	5.8 J,O	18 J,O	0.69 J,O	4.9 J,O	17 J,O	24 J,O	16 J,O	6.4 J,O	24 J,O	1.6 J,O	22 J,O
Pentachlorodibenzofuran (Total)		23 J,O	150 J,O	13 J,O	11 J,O	6.9 J,O	36 J,O	0.7 J,O	6.7 J,O	27 J,O	92 J,O	52 J,O	33 J,O	34 J,O	1.9 J,O	70 J,O
TEQ (Avian Toxic. Equiv. Value, WHO TEQ-98)		5.4 J,O	30 J,O	3.6 J,O	3.7 J,O	3.3 J,O	10 J,O	0.74 J,O	2.5 J,O	7.4 J,O	17 J,O	11 J,O	4.7 J,O	10 J,O	0.94 J,O	11 J,O
TEQ (Fish Toxic. Equiv. Value, WHO TEQ-98)		4.5 J,O	27 J,O	3.3 J,O	4 J,O	3.6 J,O	10 J,O	0.64 J,O	2.4 J,O	6.3 J,O	12 J,O	10 J,O	3.3 J,O	10 J,O	0.86 J,O	9.2 J,O
TEQ (Mammalian Toxic Equiv Value, WHO TEQ-2005)	7	6.3 J,O	**38 J,O**	4.7 J,O	6.6 J,O	5.9 J,O	**17 J,O**	0.85 J,O	3.6 J,O	**8.3 J,O**	**13 J,O**	**14 J,O**	3.4 J,O	**17 J,O**	1.2 J,O	**11 J,O**
Tetrachlorodibenzodioxin (Total)		3.4 J,O	16 J,O	1.5 J,O	0.84 J,O	0.73 J,O	4.8 J,O	0.3 J,O	1.1 J,O	7.4 J,O	21 J,O	5.1 J,O	3.5 J,O	8 J,O	0.68 J,O	9.3 J,O
Tetrachlorodibenzofuran (Total)		16 J,O	75 J,O	10 J,O	2.9 J,O	2.5 J,O	14 J,O	0.4 J,O	4.5 J,O	27 J,O	84 J,O	19 J,O	15 J,O	20 J,O	2.1 J,O	42 J,O

Notes:

% - percent
ft - feet
J - Identification of analyte is acceptable. Reported value is an estimate.
ng/kg - nanograms per kilogram
O - Other Qualifiers
SS - surface soil
TEQ - toxic equivalency
U - Analyte not detected at or above laboratory reporting limit.
- EPA Dioxin TEQ Action Level

Created by: R Dawkins 7/23/18
Updated by: AMC 9/4/18

Table 3-22
Dioxin Concentrations in Soil - 2018
American Creosote Works
Pensacola, Escambia, FL

	Sample Location	SS1021F	SS1021R	SS1021R	SS1021R	SS1022F	SS1022F	SS1022R	SS1022R	SS1023	SS1023	SS1024F	SS1024F	SS1024	SS1024R	SS1024R
	Sample Date	4/8/2018	4/8/2018	4/8/2018	4/8/2018	6/4/2018	6/4/2018	6/4/2018	6/4/2018	2/22/2018	2/22/2018	6/4/2018	6/4/2018	10/31/2018	6/4/2018	6/4/2018
	Sample Identification No.	SS1021F_B	SS1021R_A	SS91021R_A	SS1021R_B	SS1022F_A	SS1022F_B	SS1022R_A	SS1022R_B	SS1023A	SS1023B	SS1024F_A	SS1024F_B	SS1024F_C	SS1024R_A	SS1024R_B
	Start Depth (ft)	0.5	0	0	0.5	0	0.5	0	0.5	0	0.5	0	0.5	1	0	0.5
	End Depth (ft)	1	0.5	0.5	1	0.5	1	0.5	1	0.5	1	0.5	1	2	0.5	1
Analyte	**EPA Dioxin TEQ Action Level**															
% Moisture		7.7	13	12	8.4	4.2	2.7	7.8	6.3	7.1	7.1	2.8	3.6	7	3.4	2.6
Dioxins (ng/kg dry)																
1,2,3,4,6,7,8-Heptachlorodibenzodioxin		44	73	71	13	26 J,O	4.7 J,O	280 J,O	39 J,O	540	170	750 J,O	180 J,O	78	850 J,O	130 J,O
1,2,3,4,6,7,8-Heptachlorodibenzofuran		8	17	15	3.6 U	4.7 J,O	0.54 J,O	110	29	100	49	140	38	13	160	23
1,2,3,4,7,8,9-Heptachlorodibenzofuran		0.75 U	0.8 J,O	1 J,O	0.63 U	0.2 U	0.15 U	2.8 J,O	0.49 U,O	5.4	2.1 J,O	7.6	2.1 J,O	1.2 U,O	8.3	1.2 J,O
1,2,3,4,7,8-Hexachlorodibenzodioxin		0.98 J,O	1.4 J,O	1.3 J,O	0.66 U	0.33 U,O	0.17 U	2.6 J,O	0.42 U,O	4.7 J,O	1.3 U	6.1	2.1 J,O	0.96 J,O	6.8	1.2 J,O
1,2,3,4,7,8-Hexachlorodibenzofuran		0.5 U	1.2 U	1.1 J,O	0.57 U	0.16 U	0.11 U	1.9 J,O	0.46 U	2.9 J,O	1.1 U	4 J,O	2.5 J,O	0.74 J,O	3.9 J,O	0.64 U
1,2,3,6,7,8-Hexachlorodibenzodioxin		1.7 J,O	2.6 J,O	2.4 J,O	0.65 U	0.77 J,O	0.18 U,O	7	1.2 J,O	15	4.9 J,O	19	5.3	2.4 J,O	21	3.4 J,O
1,2,3,6,7,8-Hexachlorodibenzofuran		0.44 J,O	1.4 J,O	1.3 J,O	0.55 U	0.15 U,O	0.12 U	3.5 J,O	1.3 U,O	3 J,O	1.2 J,O	3.1 J,O	2.9 J,O	0.56 J,O	3.2 J,O	0.53 J,O
1,2,3,7,8,9-Hexachlorodibenzodioxin		1.3 J,O	4.5 J,O	4.1 J,O	0.64 U	0.58 J,O	0.19 U	4.3 J,O	0.74 U,O	9.5	2.6 J,O	10	3.2 J,O	1.2 J,O	11	1.8 J,O
1,2,3,7,8,9-Hexachlorodibenzofuran		0.42 U	1.1 U	0.94 U	0.55 U	0.14 U	0.14 U	1 J,O	0.45 U,O	0.93 J,O	0.42 U,O	1.6 J,O	1.3 J,O	0.64 U,O	1.1 U,O	0.2 U
1,2,3,7,8-Pentachlorodibenzodioxin		0.38 J,O	0.75 J,O	1 J,O	0.45 U	0.2 U	0.11 U	1.1 J,O	0.27 U	2 J,O	0.69 U	2.5 J,O	1.7 J,O	0.65 J,O	2.4 J,O	0.47 U
1,2,3,7,8-Pentachlorodibenzofuran		0.3 U	2 U	2.5 J,O	0.58 U	0.12 U,O	0.11 U	0.43 U	0.19 U,O	0.61 U	0.3 U,O	0.95 J,O	1.9 U,O	0.39 U,O	0.63 U,O	0.11 U
2,3,4,6,7,8-Hexachlorodibenzofuran		0.63 U	2.2 U	1.7 U	0.6 U	0.31 U,O	0.11 U	8.4	3.4 U,O	4.7 J,O	2.2 J,O	5.9	4.8 J,O	0.93 J,O	5.3	0.83 J,O
2,3,4,7,8-Pentachlorodibenzofuran		0.61 J,O	2.4 J,O	2.4 J,O	0.76 J,O	0.17 U	0.17 U	2.2 J,O	0.83 U,O	2.7 U,O	1.2 J,O	1.7 J,O	4 J,O	0.55 U,O	1.3 J,O	0.29 J,O
2,3,7,8-Tetrachlorodibenzodioxin		0.19 U	0.32 U	0.27 U	0.19 U	0.07 U	0.14 U,O	0.18 U,O	0.07 U	0.19 U	0.07 U	0.21 U,O	0.38 J,O	0.24 U,O	0.23 U,O	0.07 U
2,3,7,8-Tetrachlorodibenzofuran		0.3 U	3.7 O	2.3 O	0.9 U	0.08 U	0.08 U	0.41 J,O	0.18 J,O	1	0.55 U,O	0.79 U,O	2.3	0.28 U,O	0.39 U,O	0.12 U,O
Heptachlorodibenzodioxin (Total)		88 J,O	150 J,O	140 J,O	27 J,O	51 J,O	8.9 J,O	510 J,O	71 J,O	1100 J,O	300 J,O	1300 J,O	310 J,O	140 J,O	1500 J,O	230 J,O
Heptachlorodibenzofuran (Total)		23 J,O	40 J,O	35 J,O	7.5 J,O	12 J,O	1.5 J,O	250 J,O	57 J,O	310 J,O	170 J,O	440 J,O	100 J,O	41 J,O	490 J,O	68 J,O
Hexachlorodibenzodioxin (Total)		16 J,O	43 J,O	46 J,O	7.4 J,O	6.8 J,O	1.2 J,O	59 J,O	10 J,O	120 J,O	34 J,O	120 J,O	40 J,O	16 J,O	140 J,O	22 J,O
Hexachlorodibenzofuran (Total)		12 J,O	32 J,O	24 J,O	5.7 J,O	4.1 J,O	0.4 J,O	140 J,O	52 J,O	100 J,O	52 J,O	120 J,O	70 J,O	15 J,O	120 J,O	19 J,O
Octachlorodibenzodioxin		420	710	770	140	300 J,O	67 J,O	2700 J,O	410 J,O	5000 J,O	1400	7100 J,O	1700 J,O	750	8600 J,O	1200 J,O
Octachlorodibenzofuran		24	27	26	5.2 J,O	12 J,O	1.5 J,O	170 J,O	27 J,O	320	180	440 J,O	94 J,O	43	480 J,O	64 J,O
Pentachlorodibenzodioxin (Total)		5.4 J,O	20 J,O	30 J,O	3.3 J,O	1.1 J,O	0.11 U,J,O	7.6 J,O	1.9 J,O	17 J,O	6.1 J,O	13 J,O	11 J,O	3.1 J,O	12 J,O	2.6 J,O
Pentachlorodibenzofuran (Total)		7.5 J,O	54 J,O	42 J,O	11 J,O	1.9 J,O	0.14 J,O	140 J,O	65 J,O	43 J,O	23 J,O	43 J,O	82 J,O	6.7 J,O	24 J,O	4.1 J,O
TEQ (Avian Toxic. Equiv. Value, WHO TEQ-98)		2.1 J,O	8.8 J,O	7.5 J,O	2.8 J,O	0.8 J,O	0.61 J,O	7.7 J,O	2.4 J,O	11 J,O	4.2 J,O	11 J,O	11 J,O	2.5 J,O	11 J,O	2 J,O
TEQ (Fish Toxic. Equiv. Value, WHO TEQ-98)		1.8 J,O	4.2 J,O	4.2 J,O	1.7 J,O	0.73 J,O	0.5 J,O	7 J,O	1.9 J,O	9.5 J,O	3.5 J,O	11 J,O	7.3 J,O	2.3 J,O	12 J,O	2.1 J,O
TEQ (Mammalian Toxic Equiv Value, WHO TEQ-2005)	7	2 J,O	4.8 J,O	4.7 J,O	1.6 J,O	0.98 J,O	0.49 J,O	**9.7 J,O**	2.2 J,O	**15 J,O**	5.2 J,O	**20 J,O**	**8.5 J,O**	3 J,O	**21 J,O**	3.4 J,O
Tetrachlorodibenzodioxin (Total)		2.8 J,O	41 J,O	49 J,O	5.9 J,O	0.65 J,O	0.24 J,O	3.5 J,O	1.3 J,O	4.2 J,O	2.1 J,O	4.2 J,O	7.6 J,O	1.5 J,O	5.5 J,O	1.2 J,O
Tetrachlorodibenzofuran (Total)		7.8 J,O	290 J,O	230 J,O	51 J,O	11 J,O	2.8 J,O	38 J,O	16 J,O	21 J,O	16 J,O	17 J,O	59 J,O	5.9 J,O	14 J,O	5.3 J,O

Notes:

% - percent
ft - feet
J - Identification of analyte is acceptable. Reported value is an estimate.
ng/kg - nanograms per kilogram
O - Other Qualifiers
SS - surface soil
TEQ - toxic equivalency
U - Analyte not detected at or above laboratory reporting limit.
- EPA Dioxin TEQ Action Level

Created by: R Dawkins 7/23/18
Updated by: AMC 9/4/18

Table 3-22
Dioxin Concentrations in Soil - 2018
American Creosote Works
Pensacola, Escambia, FL

	Sample Location	SS1026	SS1026	SS1027F	SS1027F	SS1027R	SS1027R	SS1028F	SS1028F	SS1028R	SS1028R	SS1029	SS1029	SS1029	SS1029	SS1030
	Sample Date	2/22/2018	2/22/2018	4/8/2018	4/8/2018	4/8/2018	4/8/2018	6/6/2018	6/6/2018	6/6/2018	6/6/2018	2/22/2018	2/22/2018	2/22/2018	2/22/2018	2/24/2018
	Sample Identification No.	SS1026A	SS1026B	SS1027F_A	SS1027F_B	SS1027R_A	SS1027R_B	SS1028F_A	SS1028F_B	SS1028R_A	SS1028R_B	SS1029A	SS91029A	SS1029B	SS1029C	SS1030A
	Start Depth (ft)	0	0.5	0	0.5	0	0.5	0	0.5	0	0.5	0	0	0.5	1	0
	End Depth (ft)	0.5	1	0.5	1	0.5	1	0.5	1	0.5	1	0.5	0.5	1	2	0.5
Analyte	**EPA Dioxin TEQ Action Level**															
% Moisture		10	10	10	7.8	12	8.5	5.2	3.1	3.5	3.3	5.2	5	7.1	6.3	9.7
Dioxins (ng/kg dry)																
1,2,3,4,6,7,8-Heptachlorodibenzodioxin		640	190	480	24	300	43	280 J,O	25 J,O	80 J,O	15 J,O	320	310	260	140	1000
1,2,3,4,6,7,8-Heptachlorodibenzofuran		130	37	88	4.1 U	65	7.5	98	11	21	3.9 J	55	51	26	12	230
1,2,3,4,7,8,9-Heptachlorodibenzofuran		7	2.2 J,O	5.4	0.64 U	3.4 J,O	0.82 U	2.8 J,O	0.15 U	0.93 U,O	0.15 U	3.3 J,O	3 J,O	1.8 J,O	0.93 J,O	14
1,2,3,4,7,8-Hexachlorodibenzodioxin		4.9 J,O	1.6 J,O	6.2	0.74 J,O	3.6 J,O	0.78 J,O	2.7 J,O	0.33 J,O	0.88 J,O	0.26 J,O	2.6 J,O	2.7 J,O	1.2 U	0.63 J,O	9.9
1,2,3,4,7,8-Hexachlorodibenzofuran		8.6	3.4 J,O	3.4 J,O	0.29 U	2.8 U	0.52 U	1.8 J,O	0.18 U	0.79 J,O	0.14 U,O	1.7 J,O	1.6 U	0.99 U	0.39 J,O	11
1,2,3,6,7,8-Hexachlorodibenzodioxin		18	5.4	14	1.2 J,O	10	1.7 J,O	7.6	0.74 U,O	2.9 J,O	0.6 J,O	8.7	8.2	5.4	2.7 J,O	34
1,2,3,6,7,8-Hexachlorodibenzofuran		4.5 J,O	1.6 J,O	3.4 J,O	0.42 U	2.4 J,O	0.51 J,O	2.2 J,O	0.23 J,O	0.84 J,O	0.2 U,O	1.8 J,O	1.7 J,O	1.1 J,O	0.36 J,O	9.9
1,2,3,7,8,9-Hexachlorodibenzodioxin		9.8	3.2 J,O	8.8	0.72 J,O	5.6	1.2 J,O	5.3	0.58 U,O	1.6 J,O	0.42 U,O	5.4	4.9 J,O	2.7 J,O	1.3 U,O	18
1,2,3,7,8,9-Hexachlorodibenzofuran		1.9 J,O	0.77 U,O	0.66 J,O	0.7 U	0.64 J,O	0.44 U	0.76 U,O	0.19 U	0.4 J,O	0.21 J,O	0.72 J,O	0.72 U,O	0.57 U	0.27 U,O	2.9 J,O
1,2,3,7,8-Pentachlorodibenzodioxin		2.3 J,O	0.75 U	1.9 J,O	0.51 U	1.3 J,O	0.51 U	1.5 J,O	0.19 U,O	0.82 J,O	0.31 J,O	1.3 J,O	1.4 J,O	0.76 U	0.41 J,O	3.9 J,O
1,2,3,7,8-Pentachlorodibenzofuran		0.63 U	0.36 U	0.76 U	0.37 U	0.94 U	0.27 U	0.48 U	0.11 U	0.53 J,O	0.11 U	0.11 U	0.59 U	0.36 U	0.11 U	6.1 J
2,3,4,6,7,8-Hexachlorodibenzofuran		6.7	2.4 J,O	5.2	0.39 U	4 J,O	0.63 U	3.9 J,O	0.45 J,O	1.1 J,O	0.16 U,O	2.8 J,O	2.8 J,O	1.7 J,O	0.31 J,O	14
2,3,4,7,8-Pentachlorodibenzofuran		3.2 J,O	1.5 U,O	3.7 J,O	0.38 U	3.5 J,O	0.72 J,O	2.1 J,O	0.29 J,O	1.6 J,O	0.3 J,O	0.98 J,O	1.1 J,O	0.95 J,O	0.33 U,O	27 J
2,3,7,8-Tetrachlorodibenzodioxin		0.91 U	0.33 U,O	0.19 U	0.19 U	0.15 U	0.19 U	0.07 U	0.07 U	0.28 U,O	0.23 U,O	0.23 U,O	0.26 U,O	0.18 U,O	0.16 U,O	0.42 U
2,3,7,8-Tetrachlorodibenzofuran		1.2	0.35 U	0.99 U	0.35 U	1.4 O	0.35 U	0.55 J,O	0.08 J,O	0.77 J,O	0.18 U,O	0.75 J,O	0.92 J,O	0.73 J,O	0.22 U,O	2.5 J,O
Heptachlorodibenzodioxin (Total)		1200 J,O	360 J,O	950 J,O	49 J,O	580 J,O	86 J,O	520 J,O	47 J,O	140 J,O	25 J,O	620 J,O	600 J,O	540 J,O	280 J,O	1900 J,O
Heptachlorodibenzofuran (Total)		360 J,O	110 J,O	250 J,O	11 J,O	180 J,O	21 J,O	210 J,O	20 J,O	56 J,O	9.6 J,O	170 J,O	160 J,O	85 J,O	42 J,O	630 J,O
Hexachlorodibenzodioxin (Total)		140 J,O	42 J,O	130 J,O	10 J,O	78 J,O	15 J,O	61 J,O	6.4 J,O	21 J,O	4.2 J,O	64 J,O	66 J,O	39 J,O	18 J,O	210 J,O
Hexachlorodibenzofuran (Total)		150 J,O	47 J,O	110 J,O	4.8 J,O	75 J,O	10 J,O	72 J,O	7.4 J,O	18 J,O	3.3 J,O	55 J,O	57 J,O	32 J,O	12 J,O	230 J,O
Octachlorodibenzodioxin		6300 J,O	1800	4800	250	2900	410	2800 J,O	280 J,O	730 J,O	180 J,O	3200	3000	3700	2200	9600 J,O
Octachlorodibenzofuran		340	98	240	11	170	19	150 J,O	13 J,O	64 J,O	11 J,O	180	170	91	45	600
Pentachlorodibenzodioxin (Total)		20 J,O	7.3 J,O	21 J,O	1.4 J,O	17 J,O	4.4 J,O	8.1 J,O	0.86 J,O	4.8 J,O	0.78 J,O	11 J,O	14 J,O	7 J,O	1.9 J,O	34 J,O
Pentachlorodibenzofuran (Total)		70 J,O	29 J,O	59 J,O	4.4 J,O	46 J,O	8.1 J,O	43 J,O	4.7 J,O	16 J,O	1.3 J,O	22 J,O	30 J,O	23 J,O	5.7 J,O	170 J,O
TEQ (Avian Toxic. Equiv. Value, WHO TEQ-98)		14 J,O	5 J,O	11 J,O	1.9 J,O	9.6 J,O	2.4 J,O	7.5 J,O	0.99 J,O	4.4 J,O	1.2 J,O	6 J,O	6.3 J,O	4.4 J,O	1.9 J,O	45 J,O
TEQ (Fish Toxic. Equiv. Value, WHO TEQ-98)		12 J,O	4.3 J,O	11 J,O	1.6 J,O	7.5 J,O	1.9 J,O	6.6 J,O	0.86 J,O	3.1 J,O	0.99 J,O	5.4 J,O	5.6 J,O	3.5 J,O	1.7 J,O	32 J,O
TEQ (Mammalian Toxic Equiv Value, WHO TEQ-2005)	7	**20 J,O**	6.3 J,O	**15 J,O**	1.7 J,O	**10 J,O**	2.2 J,O	**9.4 J,O**	1.1 J,O	3.8 J,O	1.1 J,O	**9.1 J,O**	**9 J,O**	6.7 J,O	3.5 J,O	**38 J,O**
Tetrachlorodibenzodioxin (Total)		7.5 J,O	2.6 J,O	4.8 J,O	2 J,O	7.4 J,O	1.8 J,O	3.6 J,O	0.44 J,O	5.1 J,O	0.83 J,O	3.9 J,O	6.1 J,O	2.7 J,O	1 J,O	12 J,O
Tetrachlorodibenzofuran (Total)		67 J,O	16 J,O	33 J,O	13 J,O	38 J,O	11 J,O	20 J,O	3.2 J,O	16 J,O	1.9 J,O	14 J,O	21 J,O	14 J,O	3.9 J,O	120 J,O

Notes:

% - percent
ft - feet
J - Identification of analyte is acceptable. Reported value is an estimate.
ng/kg - nanograms per kilogram
O - Other Qualifiers
SS - surface soil
TEQ - toxic equivalency
U - Analyte not detected at or above laboratory reporting limit.
- EPA Dioxin TEQ Action Level

Created by: R Dawkins 7/23/18
Updated by: AMC 9/4/18

Table 3-22
Dioxin Concentrations in Soil - 2018
American Creosote Works
Pensacola, Escambia, FL

	Sample Location	SS1030	SS1030	SS1030	SS1030	SS1031	SS1031	SS1033F	SS1033F	SS1033F	SS1033F	SS1033R	SS1033R	SS1034F	SS1034F	SS1034F
	Sample Date	2/24/2018	2/24/2018	2/24/2018	2/24/2018	2/22/2018	2/22/2018	6/4/2018	6/4/2018	6/4/2018	10/31/2018	6/4/2018	6/4/2018	6/8/2018	6/8/2018	10/31/2018
	Sample Identification No.	SS91030A	SS1030B	SS1030C	SS91030C	SS1031A	SS1031B	SS1033F_A	SS91033F_A	SS1033F_B	SS1033F_C	SS1033R_A	SS1033R_B	SS1034F_A	SS1034F_B	SS1034F_C
	Start Depth (ft)	0	0.5	1	1	0	0.5	0	0	0.5	1	0	0.5	0	0.5	1
	End Depth (ft)	0.5	1	2	2	0.5	1	0.5	0.5	1	2	0.5	1	0.5	1	2
Analyte	**EPA Dioxin TEQ Action Level**															
% Moisture		9.6	7.4	18	8.7	7	6.9	3.4	3.3	2.9	7.3	4	3.7	7.9	6.6	7.8
Dioxins (ng/kg dry)																
1,2,3,4,6,7,8-Heptachlorodibenzodioxin		920	210	52	72	420	80	1100 J,O	1100 J,O	460 J,O	32	540 J,O	76 J,O	2600 J,O	510 J,O	53
1,2,3,4,6,7,8-Heptachlorodibenzofuran		260	60	9.3	13	110	21	180	180	78	6.2	96	15	740	160	11
1,2,3,4,7,8,9-Heptachlorodibenzofuran		15	3.4 J,O	0.6 J,O	0.9 J,O	5.2	0.9 U	9.3	9.9	4.1 J,O	0.39 U,O	5.6	0.81 U,O	60	12	0.78 J,O
1,2,3,4,7,8-Hexachlorodibenzodioxin		9.6	2.3 J,O	0.51 J,O	0.64 J,O	3.5 J,O	0.84 U	7.4	7.1	3.2 J,O	0.25 J,O	3.8 J,O	0.56 U,O	8.2	1.9 U,O	0.38 J,O
1,2,3,4,7,8-Hexachlorodibenzofuran		15	3.5 J,O	0.43 J,O	0.55 J,O	3.5 J,O	0.95 U	4.2 J,O	4.7 J,O	1.9 J,O	0.24 J,O	2.9 J,O	0.48 J,O	110	21	1.1 J,O
1,2,3,6,7,8-Hexachlorodibenzodioxin		31	7.4	1.5 J,O	1.9 J,O	12	2.5 J,O	25	24	11	0.75 J,O	14	2.5 U,O	73	14	1.4 J,O
1,2,3,6,7,8-Hexachlorodibenzofuran		16	5.4	0.34 U,O	0.41 J,O	3.2 J,O	0.82 J,O	2.9 J,O	3 J,O	1.3 J,O	0.16 J,O	2.3 J,O	0.45 J,O	22	4.6 J,O	0.35 J,O
1,2,3,7,8,9-Hexachlorodibenzodioxin		18	4.4 J,O	0.92 J,O	1.2 J,O	6.8	1.7 U,O	12	12	5.4	0.44 J,O	6.5	1.1 J,O	16	3.1 J,O	0.61 J,O
1,2,3,7,8,9-Hexachlorodibenzofuran		4.9 J,O	1.3 J,O	0.15 J,O	0.23 U,O	1.3 J,O	0.49 U,O	1.1 J,O	1.4 J,O	0.59 J,O	0.14 U,O	0.85 J,O	0.22 J,O	9.8	2.1 J,O	0.22 J,O
1,2,3,7,8-Pentachlorodibenzodioxin		4.5 J,O	1 J,O	0.33 J,O	0.44 J,O	1.8 J,O	0.62 U	2.6 U,O	2.5 J,O	1.1 J,O	0.23 U,O	1.4 J,O	0.3 U,O	2.8 J,O	0.57 J,O	0.17 U,O
1,2,3,7,8-Pentachlorodibenzofuran		20 J	8.4	0.12 U,O	0.11 U	1.1 U	0.28 U,O	0.48 J,O	0.52 J,O	0.3 U,O	0.21 J,O	0.51 J,O	0.15 U,O	1.9 J,O	0.3 U,O	0.11 U
2,3,4,6,7,8-Hexachlorodibenzofuran		20	5	0.54 J,O	0.49 U,O	5	1.2 U	4.9 J,O	5.1	2.3 J,O	0.23 U,O	3.1 J,O	0.56 J,O	39	7.6	0.34 U,O
2,3,4,7,8-Pentachlorodibenzofuran		95 J	38	0.28 U,O	0.36 J,O	2.9 J,O	1.2 J,O	1 J,O	1.1 U,O	0.52 J,O	0.17 U	0.67 U,O	0.18 U,O	7.8	2 J,O	0.17 U
2,3,7,8-Tetrachlorodibenzodioxin		0.55 U	0.27 U	0.07 U	0.14 U,O	0.2 U,O	0.07 U	0.23 U,O	0.24 U,O	0.19 U,O	0.19 U,O	0.32 U,O	0.56 U,O	0.24 U,O	0.07 U	0.07 U
2,3,7,8-Tetrachlorodibenzofuran		4.4 J,O	1.8 O	0.13 U,O	0.24 U,O	1.1	0.43 U	0.27 J,O	0.28 U,O	0.17 U,O	0.08 J,O	0.27 J,O	0.14 J,O	0.6 J,O	0.1 U	0.08 U
Heptachlorodibenzodioxin (Total)		1700 J,O	380 J,O	89 J,O	120 J,O	790 J,O	150 J,O	1900 J,O	2000 J,O	810 J,O	60 J,O	960 J,O	130 J,O	4200 J,O	820 J,O	92 J,O
Heptachlorodibenzofuran (Total)		660 J,O	150 J,O	27 J,O	38 J,O	320 J,O	56 J,O	580 J,O	590 J,O	250 J,O	18 J,O	310 J,O	47 J,O	2500 J,O	510 J,O	35 J,O
Hexachlorodibenzodioxin (Total)		210 J,O	53 J,O	11 J,O	15 J,O	92 J,O	22 J,O	150 J,O	150 J,O	65 J,O	5.5 J,O	83 J,O	17 J,O	280 J,O	53 J,O	8 J,O
Hexachlorodibenzofuran (Total)		280 J,O	71 J,O	8.5 J,O	12 J,O	110 J,O	22 J,O	130 J,O	130 J,O	58 J,O	3.9 J,O	74 J,O	13 J,O	1100 J,O	220 J,O	12 J,O
Octachlorodibenzodioxin		8500 J,O	1800	550	760	4100 J,O	770	12000 J,O	12000 J,O	5100 J,O	380	5700 J,O	860 J,O	29000 J,O	5400 J,O	550
Octachlorodibenzofuran		530	120	26	35	290	49	570 J,O	590 J,O	250 J,O	30	310 J,O	46 J,O	1000 J,O	200 J,O	23
Pentachlorodibenzodioxin (Total)		40 J,O	12 J,O	1.7 J,O	2.7 J,O	17 J,O	5.3 J,O	11 J,O	12 J,O	4.8 J,O	0.41 J,O	6.7 J,O	1.5 J,O	16 J,O	3.4 J,O	0.43 J,O
Pentachlorodibenzofuran (Total)		440 J,O	170 J,O	3.7 J,O	5.1 J,O	47 J,O	14 J,O	17 J,O	17 J,O	8 J,O	0.7 J,O	14 J,O	5.5 J,O	95 J,O	20 J,O	1.4 J,O
TEQ (Avian Toxic. Equiv. Value, WHO TEQ-98)		120 J,O	45 J,O	1.3 J,O	1.8 J,O	10 J,O	3.3 J,O	12 J,O	12 J,O	5.2 J,O	0.97 J,O	6.8 J,O	1.9 J,O	46 J,O	9.6 J,O	1 J,O
TEQ (Fish Toxic. Equiv. Value, WHO TEQ-98)		69 J,O	25 J,O	1.2 J,O	1.6 J,O	8.8 J,O	2.5 J,O	13 J,O	13 J,O	5.8 J,O	0.87 J,O	7.3 J,O	1.8 J,O	44 J,O	9.1 J,O	0.97 J,O
TEQ (Mammalian Toxic Equiv Value, WHO TEQ-2005)	7	**61 J,O**	**19 J,O**	1.7 J,O	2.4 J,O	**13 J,O**	3.2 J,O	**26 J,O**	**26 J,O**	**11 J,O**	1.2 J,O	**14 J,O**	2.7 J,O	**76 J,O**	**15 J,O**	1.6 J,O
Tetrachlorodibenzodioxin (Total)		16 J,O	7.4 J,O	1.1 J,O	2.1 J,O	8.3 J,O	2.8 J,O	2.6 J,O	2.9 J,O	1.2 J,O	0.19 J,O	3.1 J,O	3.2 J,O	4.6 J,O	0.94 J,O	0.1 J,O
Tetrachlorodibenzofuran (Total)		380 J,O	120 J,O	3 J,O	5.7 J,O	34 J,O	10 J,O	5.6 J,O	5.2 J,O	3.4 J,O	0.38 J,O	6.1 J,O	8.1 J,O	17 J,O	3 J,O	0.48 J,O

Notes:

% - percent
ft - feet
J - Identification of analyte is acceptable. Reported value is an estimate.
ng/kg - nanograms per kilogram
O - Other Qualifiers
SS - surface soil
TEQ - toxic equivalency
U - Analyte not detected at or above laboratory reporting limit.
- EPA Dioxin TEQ Action Level

Created by: R Dawkins 7/23/18
Updated by: AMC 9/4/18

Table 3-22
Dioxin Concentrations in Soil - 2018
American Creosote Works
Pensacola, Escambia, FL

	Sample Location	SS1034R	SS1034R	SS1035	SS1035	SS1036	SS1036	SS1037	SS1037	SS1038	SS1038	SS1038	SS1039	SS1039	SS1039	SS1040
	Sample Date	6/8/2018	6/8/2018	2/21/2018	2/21/2018	2/21/2018	2/21/2018	2/21/2018	2/21/2018	2/21/2018	2/21/2018	2/21/2018	2/25/2018	2/25/2018	2/25/2018	2/25/2018
	Sample Identification No.	SS1034R_A	SS1034R_B	SS1035A	SS1035B	SS1036A	SS1036B	SS1037A	SS1037B	SS1038A	SS1038B	SS1038C	SS1039A	SS1039B	SS1039C	SS1040A
	Start Depth (ft)	0	0.5	0	0.5	0	0.5	0	0.5	0	0.5	1	0	0.5	1	0
	End Depth (ft)	0.5	1	0.5	1	0.5	1	0.5	1	0.5	1	2	0.5	1	2	0.5
Analyte	**EPA Dioxin TEQ Action Level**															
% Moisture		5.4	6.3	17	18	12	20	12	18	14	15	18	9.2	7.8	12	7.9
Dioxins (ng/kg dry)																
1,2,3,4,6,7,8-Heptachlorodibenzodioxin		570 J,O	52 J,O	950	110	780	62	1100	180	4800	200	280	270	150	57	470
1,2,3,4,6,7,8-Heptachlorodibenzofuran		120	10	180	20	170	14	190	35	660	39	46	61	43	32	110
1,2,3,4,7,8,9-Heptachlorodibenzofuran		6.2	0.67 J,O	9.2	1.1 U	9.8	0.91 U	12	2.3 J,O	48	2.6 J,O	3.5 J,O	3.6 J,O	2.4 J,O	0.71 J,O	7.7
1,2,3,4,7,8-Hexachlorodibenzodioxin		4.4 J,O	0.37 U,O	7.4	1 U	6.8	0.61 U	7.6	1.8 J,O	27	1.9 J,O	1.8 J,O	2.6 J,O	1.4 J,O	0.45 J,O	3.6 J,O
1,2,3,4,7,8-Hexachlorodibenzofuran		4.3 J,O	0.5 U,O	6.4	0.75 U	7	0.65 U	8.9	1.8 J,O	39	2.1 J,O	2.5 J,O	3.1 J,O	2.5 J,O	0.99 J,O	4.9 J,O
1,2,3,6,7,8-Hexachlorodibenzodioxin		16	1.4 J,O	27	3 J,O	23	1.9 J,O	31	5.4	150	6.7	8.8	8.5	4.7 J,O	1.8 J,O	19
1,2,3,6,7,8-Hexachlorodibenzofuran		3.8 J,O	0.42 U,O	5.3	0.64 J,O	6.3	0.71 U,O	7	1.5 U,O	23	2.3 J,O	1.8 J,O	4.1 J,O	5.6	2.2 J,O	7.1
1,2,3,7,8,9-Hexachlorodibenzodioxin		7.8	0.79 J,O	15	2 J,O	13	1.2 J,O	15	3.3 J,O	53	3.5 J,O	3.6 J,O	4.5 J,O	2.3 J,O	0.87 J,O	7.3
1,2,3,7,8,9-Hexachlorodibenzofuran		1.2 U,O	0.14 U	2.3 U,O	0.34 U	2.4 J,O	0.28 U,O	3 J,O	0.91 U,O	11	0.93 J,O	0.78 U,O	1.9 J,O	2 J,O	0.61 J,O	1.7 J,O
1,2,3,7,8-Pentachlorodibenzodioxin		2 J,O	0.21 U,O	2.9 U,O	0.44 U	3.1 J,O	0.33 U,O	2.7 J,O	0.92 U	8.8	1.1 J,O	0.97 J,O	1.2 J,O	0.8 J,O	0.38 J,O	1.5 J,O
1,2,3,7,8-Pentachlorodibenzofuran		0.75 J,O	0.11 U	1.3 U	0.18 U,O	1.4 J,O	0.23 U	2 J,O	0.67 U,O	3.4 U,O	0.73 U	0.51 J,O	0.61 U	1 J,O	0.33 J,O	1.3 J,O
2,3,4,6,7,8-Hexachlorodibenzofuran		6.6	0.57 J,O	7.8 U,O	0.91 U	11	1.1 U	9.9	2 J,O	37	4.1 J,O	2.8 J,O	10	15	4.8 J,O	10
2,3,4,7,8-Pentachlorodibenzofuran		1.8 U,O	0.17 U	3.2 J,O	0.71 U	11	3 U,O	2.1 U,O	0.94 U,O	6.8	2.2 U,O	1 J,O	11	22	1.6 J,O	4.1 J,O
2,3,7,8-Tetrachlorodibenzodioxin		0.27 U,O	0.11 U,O	0.19 U,O	0.07 U	0.19 U,O	0.07 U	0.17 U,O	0.15 U,O	0.36 U,O	0.17 U	0.17 U,O	0.38 U	0.23 U	0.15 U,O	0.091 U
2,3,7,8-Tetrachlorodibenzofuran		0.63 J,O	0.08 U	0.64 J,O	0.11 U,O	1	0.18 U	0.59 U	0.7 J,O	1.5 U,O	1 U,O	0.48 J,O	0.76 J,O	0.93 J,O	0.45 J,O	1.1 O
Heptachlorodibenzodioxin (Total)		1000 J,O	92 J,O	1900 J,O	200 J,O	1500 J,O	120 J,O	2100 J,O	390 J,O	9400 J,O	380 J,O	510 J,O	540 J,O	300 J,O	100 J,O	810 J,O
Heptachlorodibenzofuran (Total)		340 J,O	29 J,O	520 J,O	56 J,O	500 J,O	37 J,O	570 J,O	99 J,O	2200 J,O	110 J,O	150 J,O	190 J,O	130 J,O	59 J,O	270 J,O
Hexachlorodibenzodioxin (Total)		98 J,O	8.8 J,O	170 J,O	21 J,O	160 J,O	14 J,O	190 J,O	41 J,O	680 J,O	46 J,O	45 J,O	61 J,O	36 J,O	14 J,O	110 J,O
Hexachlorodibenzofuran (Total)		130 J,O	11 J,O	190 J,O	21 J,O	210 J,O	22 J,O	230 J,O	42 J,O	950 J,O	71 J,O	56 J,O	140 J,O	190 J,O	71 J,O	160 J,O
Octachlorodibenzodioxin		5700 J,O	570 J,O	9500 J,O	1100	7300 J,O	620	10000 J,O	1800	39000	1700 U,O	2400	2600	1500	530	4800 J,O
Octachlorodibenzofuran		320 J,O	27 J,O	480	53	460	33	510	94	2000	94 U,O	120	160	120	33	240
Pentachlorodibenzodioxin (Total)		11 J,O	0.7 J,O	20 J,O	3 J,O	26 J,O	2.6 J,O	21 J,O	9.1 J,O	60 J,O	11 J,O	5.3 J,O	10 J,O	7.7 J,O	3.2 J,O	14 J,O
Pentachlorodibenzofuran (Total)		48 J,O	4.1 J,O	43 J,O	5.8 J,O	110 J,O	17 J,O	51 J,O	18 J,O	210 J,O	75 J,O	24 J,O	130 J,O	260 J,O	81 J,O	74 J,O
TEQ (Avian Toxic. Equiv. Value, WHO TEQ-98)		10 J,O	1.1 J,O	15 J,O	2.3 J,O	23 J,O	4.3 J,O	15 J,O	4.6 J,O	53	6.8 J,O	5 J,O	17 J,O	28 J,O	4 J,O	13 J,O
TEQ (Fish Toxic. Equiv. Value, WHO TEQ-98)		9.7 J,O	1 J,O	15 J,O	2.1 J,O	19 J,O	2.8 J,O	15 J,O	4 J,O	55	5.2 J,O	4.5 J,O	12 J,O	16 J,O	2.9 J,O	10 J,O
TEQ (Mammalian Toxic Equiv Value, WHO TEQ-2005)	7	**16 J,O**	1.6 J,O	26 J,O	3.3 J,O	**26 J,O**	2.9 J,O	**28 J,O**	5.9 J,O	**110**	**7.2 J,O**	**7.8 J,O**	**13 J,O**	**14 J,O**	3.3 J,O	**16 J,O**
Tetrachlorodibenzodioxin (Total)		4.7 J,O	0.44 J,O	5.1 J,O	1.1 J,O	5.6 J,O	1.1 J,O	3.8 J,O	4.5 J,O	6.2 J,O	4.1 J,O	3.2 J,O	2.2 J,O	3.5 J,O	1.7 J,O	3.9 J,O
Tetrachlorodibenzofuran (Total)		18 J,O	1.3 J,O	18 J,O	4.2 J,O	38 J,O	8 J,O	16 J,O	18 J,O	46 J,O	38 J,O	17 J,O	37 J,O	71 J,O	27 J,O	27 J,O

Notes:

% - percent
ft - feet
J - Identification of analyte is acceptable. Reported value is an estimate.
ng/kg - nanograms per kilogram
O - Other Qualifiers
SS - surface soil
TEQ - toxic equivalency
U - Analyte not detected at or above laboratory reporting limit.
- EPA Dioxin TEQ Action Level

Created by: R Dawkins 7/23/18
Updated by: AMC 9/4/18

Table 3-22
Dioxin Concentrations in Soil - 2018
American Creosote Works
Pensacola, Escambia, FL

	Sample Location	SS1040	SS1041	SS1041	SS1042	SS1042	SS1042	SS1043	SS1043	SS1043	SS1044	SS1044	SS1045	SS1045	SS1045	SS1046
	Sample Date	2/25/2018	2/24/2018	2/24/2018	2/20/2018	2/20/2018	2/20/2018	2/24/2018	2/24/2018	2/24/2018	2/24/2018	2/24/2018	2/24/2018	2/24/2018	2/24/2018	2/24/2018
	Sample Identification No.	SS1040B	SS1041A	SS1041B	SS1042A	SS1042B	SS1042C	SS1043A	SS1043B	SS1043C	SS1044A	SS1044B	SS1045A	SS1045B	SS1045C	SS1046A
	Start Depth (ft)	0.5	0	0.5	0	0.5	1	0	0.5	1	0	0.5	0	0.5	1	0
	End Depth (ft)	1	0.5	1	0.5	1	2	0.5	1	2	0.5	1	0.5	1	2	0.5
Analyte	**EPA Dioxin TEQ Action Level**															
% Moisture		12	7.3	7.6	12	12	13	9.5	6.1	12	5.4	6.6	9.6	7	6.5	8.9
Dioxins (ng/kg dry)																
1,2,3,4,6,7,8-Heptachlorodibenzodioxin		47	72	15	34000	15000	5600	100	46	46	21	11	3100	3400	9100	770
1,2,3,4,6,7,8-Heptachlorodibenzofuran		10	20	3.9 J,O	5200	2300	810	27	14	19	4.8 J,O	1.9 J,O	510	580	1200	120
1,2,3,4,7,8,9-Heptachlorodibenzofuran		0.78 J,O	1.3 J,O	0.46 U	440	250	77	1.9 J,O	1.3 J,O	1 J,O	0.49 J,O	0.52 U	32	37	78	7.8
1,2,3,4,7,8-Hexachlorodibenzodioxin		0.45 J,O	1 J,O	0.47 J,O	180	63	26	1.7 J,O	0.92 J,O	0.53 J,O	0.38 J,O	0.18 U	18	25	33	5.1
1,2,3,4,7,8-Hexachlorodibenzofuran		0.53 U	1.3 U	0.54 U	170	90	27	2.6 J,O	2.1 U	1 J,O	0.64 U	0.31 U	28	29	43	5.9
1,2,3,6,7,8-Hexachlorodibenzodioxin		2 J,O	3 J,O	0.9 J,O	820	350	130	4.3 J,O	2.4 J,O	1.8 J,O	0.96 J,O	0.39 J,O	88	100	200	22
1,2,3,6,7,8-Hexachlorodibenzofuran		0.73 J,O	1.5 J,O	0.51 J,O	130	62	22	3.9 J,O	3.6 J,O	2.3 J,O	0.58 J,O	0.42 U	11	12	17	4.1 J,O
1,2,3,7,8,9-Hexachlorodibenzodioxin		0.97 J,O	1.8 J,O	0.76 J,O	350	120	46	3.2 J,O	2.5 J,O	1.2 J,O	0.71 J,O	0.4 J,O	37	51	76	9.6
1,2,3,7,8,9-Hexachlorodibenzofuran		0.33 U	0.57 J,O	0.36 J,O	48 J,O	75	19	1.3 J,O	1.4 J,O	0.7 J,O	0.35 J,O	0.37 U	5.3	6.6	20	2.1 J,O
1,2,3,7,8-Pentachlorodibenzodioxin		0.27 U	0.48 J,O	0.27 U	59	23	9.7	1.2 J,O	0.84 J,O	0.54 J,O	0.35 J,O	0.27 U	5.4	7.8	9.1	2 J,O
1,2,3,7,8-Pentachlorodibenzofuran		0.22 U	0.51 J,O	0.43 J,O	16 J,O	5	2 J,O	0.84 J,O	0.75 J,O	0.47 J,O	0.65 J,O	0.23 J,O	2.2 J,O	3.4 J,O	4.5 J,O	1.1 J,O
2,3,4,6,7,8-Hexachlorodibenzofuran		1 U	2.9 J,O	0.8 U	230	120	42	8.6	8.1	2.8 J,O	0.92 U	0.39 U	21	22	40	7.4
2,3,4,7,8-Pentachlorodibenzofuran		0.58 J,O	3.3 J,O	0.88 J,O	19 U,O	9.5	4 J,O	12	13	2.3 J,O	1.4 J,O	0.36 J,O	14	12	9.6	6.9
2,3,7,8-Tetrachlorodibenzodioxin		0.079 U	0.085 U	0.11 U	2 U,O	0.42 U,O	0.39 U,O	0.09 U	0.17 U	0.14 U,O	0.066 U	0.083 U	0.091 U	0.29 U	0.25 U,O	0.24 U
2,3,7,8-Tetrachlorodibenzofuran		0.36 J,O	0.58 J,O	0.71 J,O	2.7 J,O	1.1	0.41 J,O	0.75 J,O	0.71 J,O	0.69 J,O	0.71 J,O	0.23 J,O	1.3 O	2.3 O	2.4 U,O	0.96 J,O
Heptachlorodibenzodioxin (Total)		81 J,O	140 J,O	29 J,O	55000 J,O	23000 J,O	8600 J,O	210 J,O	96 J,O	81 J,O	46 J,O	22 J,O	6200 J,O	6500 J,O	18000 J,O	1600 J,O
Heptachlorodibenzofuran (Total)		26 J,O	47 J,O	8.1 J,O	18000 J,O	9000 J,O	3000 J,O	70 J,O	37 J,O	50 J,O	11 J,O	4.4 J,O	1900 J,O	2200 J,O	5200 J,O	410 J,O
Hexachlorodibenzodioxin (Total)		12 J,O	23 J,O	7.8 J,O	3700 J,O	1500 J,O	530 J,O	44 J,O	31 J,O	15 J,O	8.3 J,O	4.1 J,O	400 J,O	450 J,O	900 J,O	130 J,O
Hexachlorodibenzofuran (Total)		15 J,O	38 J,O	7.9 J,O	5600 J,O	2800 J,O	830 J,O	110 J,O	99 J,O	81 J,O	11 J,O	2.2 J,O	540 J,O	610 J,O	1200 J,O	150 J,O
Octachlorodibenzodioxin		430	640	150	360000	170000 J,O	64000 J,O	910	410	440	190	110	33000	34000	110000 J,O	7800 J,O
Octachlorodibenzofuran		23	37	6.2 J,O	18000	9000	3200	54	27	42	9.4 J,O	4.4 J,O	2100	2300	5700	440
Pentachlorodibenzodioxin (Total)		1.3 J,O	4.8 J,O	1.5 J,O	270 J,O	190 J,O	42 J,O	12 J,O	9.2 J,O	3.9 J,O	2.8 J,O	0.65 J,O	26 J,O	32 J,O	38 J,O	15 J,O
Pentachlorodibenzofuran (Total)		9.1 J,O	42 J,O	9.7 J,O	770 J,O	380 J,O	120 J,O	140 J,O	150 J,O	120 J,O	14 J,O	2.8 J,O	160 J,O	150 J,O	300 J,O	75 J,O
TEQ (Avian Toxic. Equiv. Value, WHO TEQ-98)		1.9 J,O	5.7 J,O	2.4 J,O	320	150 J,O	54 J,O	17 J,O	17 J,O	4.9 J,O	3 J,O	1.2 J,O	45	50	78 J,O	16 J,O
TEQ (Fish Toxic. Equiv. Value, WHO TEQ-98)		1.4 J,O	3.8 J,O	1.4 J,O	360	160 J,O	59 J,O	10 J,O	9.9 J,O	3.2 J,O	1.7 J,O	0.85 J,O	41	49	79 J,O	13 J,O
TEQ (Mammalian Toxic Equiv Value, WHO TEQ-2005)	7	1.9 J,O	4 J,O	1.4 J,O	**770**	**340 J,O**	**130 J,O**	**9.1 J,O**	**7.8 J,O**	3.3 J,O	1.7 J,O	0.91 J,O	**78**	**88**	**190 J,O**	**22 J,O**
Tetrachlorodibenzodioxin (Total)		1.4 J,O	2.2 J,O	2.2 J,O	30 J,O	35 J,O	10 J,O	3.8 J,O	3.8 J,O	2.4 J,O	1.4 J,O	0.083 U,J,O	4.5 J,O	6.2 J,O	11 J,O	4.8 J,O
Tetrachlorodibenzofuran (Total)		9.7 J,O	23 J,O	16 J,O	91 J,O	70 J,O	26 J,O	40 J,O	40 J,O	47 J,O	11 J,O	2.3 J,O	48 J,O	44 J,O	79 J,O	32 J,O

Notes:

% - percent
ft - feet
J - Identification of analyte is acceptable. Reported value is an estimate.
ng/kg - nanograms per kilogram
O - Other Qualifiers
SS - surface soil
TEQ - toxic equivalency
U - Analyte not detected at or above laboratory reporting limit.
- EPA Dioxin TEQ Action Level

Created by: R Dawkins 7/23/18
Updated by: AMC 9/4/18

Table 3-22
Dioxin Concentrations in Soil - 2018
American Creosote Works
Pensacola, Escambia, FL

	Sample Location	SS1046	SS1046	SS1047	SS1047	SS1048F	SS1048F	SS1048F	SS1048R	SS1048R	SS1049F	SS1049F	SS1049F	SS1049R	SS1049R	SS1049R
	Sample Date	2/24/2018	2/24/2018	2/22/2018	2/22/2018	6/6/2018	6/6/2018	10/31/2018	6/6/2018	6/6/2018	6/6/2018	6/6/2018	10/31/2018	6/6/2018	6/6/2018	10/31/2018
	Sample Identification No.	SS1046B	SS1046C	SS1047A	SS1047B	SS1048F_A	SS1048F_B	SS1048F_C	SS1048R_A	SS1048R_B	SS1049F_A	SS1049F_B	SS1049F_C	SS1049R_A	SS1049R_B	SS1049R_C
	Start Depth (ft)	0.5	1	0	0.5	0	0.5	1	0	0.5	0	0.5	1	0	0.5	1
	End Depth (ft)	1	2	0.5	1	0.5	1	2	0.5	1	0.5	1	2	0.5	1	2
Analyte	**EPA Dioxin TEQ Action Level**															
% Moisture		12	14	18	15	9.7	6.2	14	4.3	3.3	6	3.2	7.5	6.2	4	5.3
Dioxins (ng/kg dry)																
1,2,3,4,6,7,8-Heptachlorodibenzodioxin		570	120	580	83	500 J,O	190 J,O	89	420 J,O	110 J,O	420 J,O	500 J,O	120	290 J,O	380 J,O	260
1,2,3,4,6,7,8-Heptachlorodibenzofuran		96	19	94	18	170	56	44	72	52	85	95	25	64	82	55
1,2,3,4,7,8,9-Heptachlorodibenzofuran		6.3	1.1 J,O	4.7 J,O	0.95 U	6.1	2 J,O	2 J,O	3.8 J,O	1.2 J,O	5.2	5.9	1.8 J,O	3.1 J,O	4.7 J,O	3 J,O
1,2,3,4,7,8-Hexachlorodibenzodioxin		4.2 J,O	0.74 J,O	4.8 J,O	0.81 U	4.6 J,O	1.8 J,O	0.88 J,O	3.3 J,O	1 J,O	4.2 J,O	4.5 J,O	1.1 J,O	2.7 J,O	3.7 J,O	2.5 J,O
1,2,3,4,7,8-Hexachlorodibenzofuran		5.1	0.63 J,O	2.6 J,O	0.65 U,O	7.8	2.4 J,O	3.8 J,O	2.1 J,O	0.95 J,O	2.9 J,O	3.2 J,O	0.89 J,O	2.8 J,O	3.9 J,O	2.4 J,O
1,2,3,6,7,8-Hexachlorodibenzodioxin		17	3 J,O	15	2.4 J,O	17	6	3.9 J,O	10	3.3 J,O	13	14	3.6 J,O	8.6	11	8.2
1,2,3,6,7,8-Hexachlorodibenzofuran		3.5 J,O	0.45 J,O	3.3 J,O	1.3 J,O	8.6	3.3 J,O	11	1.7 U,O	1 J,O	2.9 J,O	3.3 J,O	0.96 J,O	2.7 J,O	3.8 J,O	3.1 J,O
1,2,3,7,8,9-Hexachlorodibenzodioxin		8.1	1.4 J,O	10	1.7 J,O	9.3	3.5 J,O	2 J,O	6.2	2.1 J,O	7.5	9	2.3 J,O	5	7.1	5.2
1,2,3,7,8,9-Hexachlorodibenzofuran		1.9 J,O	0.18 J,O	0.87 J,O	0.4 U	2.2 J,O	0.95 J,O	3 J,O	1.2 J,O	0.78 J,O	0.87 J,O	1.3 J,O	1.1 J,O	0.69 J,O	1.2 J,O	3.9 U,O
1,2,3,7,8-Pentachlorodibenzodioxin		1.7 J,O	0.39 J,O	2.3 J,O	0.46 U	2.9 J,O	1.3 J,O	1.3 J,O	1.3 U,O	0.69 J,O	2 U,O	2.3 J,O	0.64 J,O	1.2 J,O	2 J,O	1.8 J,O
1,2,3,7,8-Pentachlorodibenzofuran		1.1 J,O	0.22 J,O	0.7 U	0.26 U,O	1.6 U,O	0.51 U,O	1.3 J,O	0.36 J,O	0.39 U,O	0.4 U,O	0.63 J,O	0.27 U,O	0.47 U,O	7.1 U,O	0.81 U,O
2,3,4,6,7,8-Hexachlorodibenzofuran		6	0.82 J,O	5.2	2.5 J,O	10	3.1 U,O	14	1.8 J,O	1.3 J,O	4.6 J,O	2.7 J,O	1 J,O	3.8 J,O	5.8	3.2 U,O
2,3,4,7,8-Pentachlorodibenzofuran		5.6	0.38 U,O	1.8 J,O	0.89 J,O	8.1	5.2 U,O	8.6 U,O	1.1 J,O	1 J,O	3.6 J,O	3.7 J,O	0.97 J,O	3.9 U,O	6.7	3.9 J,O
2,3,7,8-Tetrachlorodibenzodioxin		0.2 U	0.07 U	0.29 U,O	0.13 U,O	0.26 U,O	0.19 U,O	0.15 U,O	0.07 U	0.14 U,O	0.19 U,O	0.18 U,O	0.15 U,O	0.17 U,O	0.27 U,O	0.2 U,O
2,3,7,8-Tetrachlorodibenzofuran		1 O	0.21 J,O	0.74 J,O	0.25 U,O	1.2	0.66 U,O	2.1 U,O	0.37 U,O	0.45 U,O	0.48 U,O	0.42 J,O	0.29 J,O	0.57 J,O	1.3	0.9 U,O
Heptachlorodibenzodioxin (Total)		1200 J,O	230 J,O	1200 J,O	160 J,O	950 J,O	410 J,O	160 J,O	760 J,O	220 J,O	730 J,O	880 J,O	210 J,O	520 J,O	740 J,O	500 J,O
Heptachlorodibenzofuran (Total)		320 J,O	62 J,O	270 J,O	47 J,O	370 J,O	130 J,O	100 J,O	210 J,O	110 J,O	250 J,O	290 J,O	81 J,O	180 J,O	240 J,O	150 J,O
Hexachlorodibenzodioxin (Total)		110 J,O	18 J,O	160 J,O	26 J,O	150 J,O	67 J,O	34 J,O	87 J,O	31 J,O	87 J,O	110 J,O	28 J,O	62 J,O	98 J,O	77 J,O
Hexachlorodibenzofuran (Total)		120 J,O	17 J,O	92 J,O	36 J,O	280 J,O	120 J,O	450 J,O	66 J,O	43 J,O	92 J,O	120 J,O	32 J,O	73 J,O	110 J,O	100 J,O
Octachlorodibenzodioxin		5900 J,O	1300	5200 J,O	820	4700 J,O	1900 J,O	780	3800 J,O	1100 J,O	3700 J,O	4600 J,O	1100 J,O	2700 J,O	3400 J,O	2100
Octachlorodibenzofuran		340	59	280	44	240 J,O	87 J,O	47	210 J,O	58 J,O	240 J,O	280 J,O	86 J,O	160 J,O	210 J,O	120
Pentachlorodibenzodioxin (Total)		14 J,O	1.6 J,O	26 J,O	6.1 J,O	22 J,O	13 J,O	11 J,O	8.8 J,O	6 J,O	8.6 J,O	11 J,O	5 J,O	7.5 J,O	15 J,O	10 J,O
Pentachlorodibenzofuran (Total)		62 J,O	6.8 J,O	60 J,O	54 J,O	280 J,O	150 J,O	660 J,O	19 J,O	24 J,O	56 J,O	70 J,O	22 J,O	62 J,O	130 J,O	110 J,O
TEQ (Avian Toxic. Equiv. Value, WHO TEQ-98)		14 J,O	1.9 J,O	9.9 J,O	2.8 J,O	20 J,O	9.8 J,O	16 J,O	6 J,O	3.8 J,O	10 J,O	11 J,O	3.3 J,O	8.9 J,O	15 J,O	9.9 J,O
TEQ (Fish Toxic. Equiv. Value, WHO TEQ-98)		11 J,O	1.8 J,O	9.5 J,O	2.4 J,O	16 J,O	7.1 J,O	10 J,O	6 J,O	3.1 J,O	9.2 J,O	9.9 J,O	2.8 J,O	7.1 J,O	11 J,O	7.7 J,O
TEQ (Mammalian Toxic Equiv Value, WHO TEQ-2005)	7	**17 J,O**	3.1 J,O	**16 J,O**	3.1 J,O	**20 J,O**	**8.3 J,O**	**9.7 J,O**	**11 J,O**	4.2 J,O	**13 J,O**	**15 J,O**	4 J,O	**9.7 J,O**	**14 J,O**	**10 J,O**
Tetrachlorodibenzodioxin (Total)		5.7 J,O	0.5 J,O	6.4 J,O	1.8 J,O	7.5 J,O	6.6 J,O	4.4 J,O	2.2 J,O	4.1 J,O	2.5 J,O	3.4 J,O	4.8 J,O	2.3 J,O	7 J,O	5.6 J,O
Tetrachlorodibenzofuran (Total)		33 J,O	3 J,O	20 J,O	18 J,O	85 J,O	47 J,O	220 J,O	5.6 J,O	13 J,O	12 J,O	15 J,O	12 J,O	18 J,O	42 J,O	29 J,O

Notes:

% - percent
ft - feet
J - Identification of analyte is acceptable. Reported value is an estimate.
ng/kg - nanograms per kilogram
O - Other Qualifiers
SS - surface soil
TEQ - toxic equivalency
U - Analyte not detected at or above laboratory reporting limit.
- EPA Dioxin TEQ Action Level

Created by: R Dawkins 7/23/18
Updated by: AMC 9/4/18

Table 3-22
Dioxin Concentrations in Soil - 2018
American Creosote Works
Pensacola, Escambia, FL

	Sample Location	SS1050F	SS1050F	SS1050F	SS1050R	SS1050R	SS1050R	SS1051F	SS1051F	SS1051R	SS1051R	SS1052	SS1052	SS1052	SS1053	SS1053
	Sample Date	10/30/2018	10/30/2018	10/30/2018	10/30/2018	10/30/2018	10/30/2018	4/8/2018	4/8/2018	4/8/2018	4/8/2018	2/21/2018	2/21/2018	2/21/2018	2/21/2018	2/21/2018
	Sample Identification No.	SS1050F_A	SS1050F_B	SS1050F_C	SS1050R_A	SS1050R_B	SS1050R_C	SS1051F_A	SS1051F_B	SS1051R_A	SS1051R_B	SS1052A	SS1052B	SS91052B	SS1053A	SS1053B
	Start Depth (ft)	0	0.5	1	0	0.5	1	0	0.5	0	0.5	0	0.5	0.5	0	0.5
	End Depth (ft)	0.5	1	2	0.5	1	2	0.5	1	0.5	1	0.5	1	1	0.5	1
Analyte	**EPA Dioxin TEQ Action Level**															
% Moisture		8.4	8.1	7	12	11	7.4	11	6.5	8.6	9	13	5.3	9.8	8.8	9.8
Dioxins (ng/kg dry)																
1,2,3,4,6,7,8-Heptachlorodibenzodioxin		160	40	16	450	580	32	250	16	220	47	340	52 U,J,O	180 J	650	200
1,2,3,4,6,7,8-Heptachlorodibenzofuran		29	7.2	2.3 J,O	87	88	2.9 J,O	52	3 U	57	11	61	14 J	25 J	130	36
1,2,3,4,7,8,9-Heptachlorodibenzofuran		1.5 J,O	0.43 J,O	0.15 U	4.1 J,O	4.3 J,O	0.15 J,O	3.3 J,O	0.53 U	3 J,O	1 J,O	2.7 J,O	0.88 U	0.9 U	5.9	1.8 J,O
1,2,3,4,7,8-Hexachlorodibenzodioxin		1.6 J,O	0.43 J,O	0.19 U,O	3.9 J,O	3 U,O	0.63 J,O	5.6	0.57 U	3.1 J,O	0.79 J,O	3.1 J,O	0.7 U	0.75 U	7.3	2.3 J,O
1,2,3,4,7,8-Hexachlorodibenzofuran		0.88 J,O	0.23 J,O	0.11 U	2.8 J,O	2.3 J,O	0.11 U	2.1 U	0.43 U	2.6 U	0.52 J,O	2.1 J,O	0.81 U	0.93 U	6.1	1.9 J,O
1,2,3,6,7,8-Hexachlorodibenzodioxin		4.2 J,O	1.1 J,O	0.53 J,O	12	11	0.99 J,O	9.1	0.71 J,O	8.2	2 J,O	9.7	2 J,O	3.7 J,O	22	6.2
1,2,3,6,7,8-Hexachlorodibenzofuran		0.94 J,O	0.21 U,O	0.12 U	3.1 J,O	3.2 J,O	0.12 U	2.5 J,O	0.43 U	2.5 J,O	0.53 J,O	2.2 J,O	0.66 U	0.99 J,O	8	2.9 J,O
1,2,3,7,8,9-Hexachlorodibenzodioxin		2.9 J,O	0.88 J,O	0.46 U,O	7.2	5.2	1.8 J,O	7.1	0.55 U	5.2	1.2 J,O	6.3	1.4 J,O	2.3 J,O	18	5.6
1,2,3,7,8,9-Hexachlorodibenzofuran		0.72 J,O	0.43 J,O	0.17 J,O	3.1 U,O	7.1 U,O	0.75 J,O	0.79 U	0.56 U	0.61 J,O	0.34 U	1 J,O	0.59 U	0.59 U	2.9 J,O	1.4 J,O
1,2,3,7,8-Pentachlorodibenzodioxin		0.85 J,O	0.3 J,O	0.17 J,O	2.3 J,O	1.8 J,O	0.46 J,O	2.6 J,O	0.39 U	1.2 J,O	0.54 U	1.9 J,O	0.5 U	0.68 U	4.9 J,O	1.7 J,O
1,2,3,7,8-Pentachlorodibenzofuran		0.3 U,O	0.15 U,O	0.11 U	0.99 U,O	0.97 J,O	0.11 U	0.52 U	0.24 U	0.82 U	0.24 U	0.8 U,O	0.69 U	0.69 U	5.4 U,O	2.9 U,O
2,3,4,6,7,8-Hexachlorodibenzofuran		1.7 J,O	0.46 U,O	0.13 J,O	4 J,O	2.1 U,O	0.13 J,O	3.5 J,O	0.46 U	4.2 J,O	0.82 U	3.3 J,O	1.2 U,O	1.8 J,O	12	5.4
2,3,4,7,8-Pentachlorodibenzofuran		1.8 J,O	0.82 J,O	0.27 U,O	8	7.8	0.25 J,O	2.1 J,O	0.31 U	3.4 J,O	0.71 J,O	2.2 J,O	0.87 J,O	1.2 J,O	13	6.5
2,3,7,8-Tetrachlorodibenzodioxin		0.2 U,O	0.07 U	0.12 U,O	0.36 U,O	0.39 U,O	0.17 U,O	0.42 U	0.16 U	0.23 U	0.2 U	0.21 U,O	0.17 U	0.17 U	0.41 U,O	0.21 U,O
2,3,7,8-Tetrachlorodibenzofuran		0.29 J,O	0.16 J,O	0.08 U	1	1.1	0.08 U	0.7 U	0.14 U	0.96 U	0.22 U	0.76 U,O	0.34 U	0.4 U,O	4.5 U,O	2.2 U,O
Heptachlorodibenzodioxin (Total)		290 J,O	77 J,O	31 J,O	870 J,O	1200 J,O	63 J,O	540 J,O	34 J,O	430 J,O	90 J,O	680 J,O	100 J,O	360 J,O	1200 J,O	360 J,O
Heptachlorodibenzofuran (Total)		81 J,O	20 J,O	6.2 J,O	250 J,O	310 J,O	11 J,O	140 J,O	7.9 J,O	150 J,O	30 J,O	160 J,O	31 J,O	62 J,O	320 J,O	97 J,O
Hexachlorodibenzodioxin (Total)		39 J,O	13 J,O	6.5 J,O	130 J,O	150 J,O	19 J,O	90 J,O	5.3 J,O	76 J,O	16 J,O	100 J,O	21 J,O	38 J,O	200 J,O	60 J,O
Hexachlorodibenzofuran (Total)		33 J,O	8.7 J,O	2.6 J,O	110 J,O	130 J,O	3.5 J,O	71 J,O	3.9 J,O	78 J,O	14 J,O	69 J,O	20 J,O	34 J,O	220 J,O	85 J,O
Octachlorodibenzodioxin		1500 J,O	430 J,O	230 J,O	3900 J,O	6300 J,O	630 J,O	2400	170	1900	440	3000	510 U,O	1500 U,O	5000 J,O	1600 U,O
Octachlorodibenzofuran		78 J,O	19 J,O	6.3 J,O	220 J,O	250 J,O	8 J,O	140	7.6 J,O	130	25	150	26 U,O	45 U,O	250	76 U,O
Pentachlorodibenzodioxin (Total)		7.2 J,O	3.4 J,O	2 J,O	19 J,O	17 J,O	3 J,O	18 J,O	0.48 J,O	18 J,O	2 J,O	20 J,O	5.2 J,O	7.5 J,O	39 J,O	16 J,O
Pentachlorodibenzofuran (Total)		21 J,O	7.6 J,O	1.8 J,O	60 J,O	58 J,O	0.9 J,O	38 J,O	2.1 J,O	43 J,O	8.6 J,O	42 J,O	24 J,O	35 J,O	240 J,O	130 J,O
TEQ (Avian Toxic. Equiv. Value, WHO TEQ-98)		4.6 J,O	1.8 J,O	0.83 J,O	16 J,O	16 J,O	1.4 J,O	8.9 J,O	1.4 J,O	8.6 J,O	2.3 J,O	8.2 J,O	2.7 J,O	3.8 J,O	31 J,O	14 J,O
TEQ (Fish Toxic. Equiv. Value, WHO TEQ-98)		3.9 J,O	1.3 J,O	0.66 J,O	12 J,O	11 J,O	1.3 J,O	9 J,O	1.3 J,O	6.9 J,O	2 J,O	7.2 J,O	2.1 J,O	3 J,O	22 J,O	8.6 J,O
TEQ (Mammalian Toxic Equiv Value, WHO TEQ-2005)	7	5.3 J,O	1.6 J,O	0.81 J,O	**15 J,O**	**17 J,O**	1.7 J,O	**11 J,O**	1.3 J,O	**8.6 J,O**	2.3 J,O	**11 J,O**	2.6 J,O	4.9 J,O	**27 J,O**	**9.6 J,O**
Tetrachlorodibenzodioxin (Total)		12 J,O	6.2 J,O	2.7 J,O	9.3 J,O	9.1 J,O	1.8 J,O	8.4 J,O	0.34 J,O	9.6 J,O	2.1 J,O	6.8 J,O	2.7 J,O	3.1 J,O	12 J,O	5.3 J,O
Tetrachlorodibenzofuran (Total)		9.9 J,O	7.1 J,O	2.2 J,O	23 J,O	28 J,O	0.67 J,O	29 J,O	2.3 J,O	34 J,O	8.5 J,O	19 J,O	9.7 J,O	12 J,O	240 J,O	130 J,O

Notes:

% - percent
ft - feet
J - Identification of analyte is acceptable. Reported value is an estimate.
ng/kg - nanograms per kilogram
O - Other Qualifiers
SS - surface soil
TEQ - toxic equivalency
U - Analyte not detected at or above laboratory reporting limit.
- EPA Dioxin TEQ Action Level

Created by: R Dawkins 7/23/18
Updated by: AMC 9/4/18

Table 3-22
Dioxin Concentrations in Soil - 2018
American Creosote Works
Pensacola, Escambia, FL

	Sample Location	SS1053	SS1054F	SS1054F	SS1054R	SS1054R	SS1060F	SS1060F	SS1060R	SS1060R	SS1060R	SS1061F	SS1061F	SS1061F	SS1061R	SS1061R
	Sample Date	2/21/2018	6/4/2018	6/4/2018	6/4/2018	6/4/2018	7/25/2018	7/25/2018	7/25/2018	7/25/2018	10/30/2018	10/30/2018	10/30/2018	10/30/2018	10/30/2018	10/30/2018
	Sample Identification No.	SS1053C	SS1054F_A	SS1054F_B	SS1054R_A	SS1054R_B	SS1060F_A	SS1060F_B	SS1060R_A	SS1060R_B	SS1060R_C	SS1061F_A	SS1061F_B	SS1061F_C	SS1061R_A	SS1061R_B
	Start Depth (ft)	1	0	0.5	0	0.5	0.5	0.5	0	0.5	1	0	0.5	1	0	0.5
	End Depth (ft)	2	0.5	1	0.5	1	1	1	0.5	1	2	0.5	1	2	0.5	1
Analyte	**EPA Dioxin TEQ Action Level**															
% Moisture		8.8	5.1	2.7	4.6	4.1	5.9	4.4	2.3	3.5	7.8	6.1	6	6.4	5.5	6.4
Dioxins (ng/kg dry)																
1,2,3,4,6,7,8-Heptachlorodibenzodioxin		110	100 J,O	68 J,O	39 J,O	140 J,O	140	35	3900	1900	62	280	82	9.2	39	3.9 J,O
1,2,3,4,6,7,8-Heptachlorodibenzofuran		19	18	12	8.9	40	27	6.2	89	220	25	51	14	1.4 J,O	11	0.69 J,O
1,2,3,4,7,8,9-Heptachlorodibenzofuran		1.1 J,O	1 J,O	0.67 J,O	0.41 J,O	1.6 J,O	1.7 J,O	0.52 J,O	5.1	15	0.84 J,O	2.4 J,O	0.78 J,O	0.15 U,O	0.47 U,O	0.15 U
1,2,3,4,7,8-Hexachlorodibenzodioxin		1.2 J,O	0.82 J,O	0.51 J,O	0.4 J,O	1.7 J,O	2 J,O	0.64 J,O	5.5	16	0.84 J,O	2.6 J,O	0.83 J,O	0.17 U	0.54 J,O	0.17 U
1,2,3,4,7,8-Hexachlorodibenzofuran		1 J,O	0.76 J,O	0.57 J,O	0.44 J,O	1.9 J,O	1.1 J,O	0.38 U	2.1 J,O	6.6	0.55 U,O	1.6 J,O	0.46 J,O	0.11 U	0.56 J,O	0.11 U
1,2,3,6,7,8-Hexachlorodibenzodioxin		3.3 J,O	2.3 J,O	1.4 J,O	1.3 J,O	5.3	5.4	1.4 J,O	60	51	2.1 J,O	7.5	2.2 J,O	0.42 J,O	1.3 J,O	0.14 U
1,2,3,6,7,8-Hexachlorodibenzofuran		1.3 J,O	0.78 J,O	0.56 J,O	0.31 J,O	1.5 J,O	1.3 J,O	0.42 U	2.9 J,O	10	0.7 J,O	1.7 J,O	0.42 J,O	0.12 U	1.3 J,O	0.12 U
1,2,3,7,8,9-Hexachlorodibenzodioxin		2.9 J,O	1.5 J,O	1 J,O	0.88 J,O	3.4 J,O	3.9 J,O	1.1 J,O	32	37	1.2 U,O	4.3 J,O	1.3 J,O	0.22 J,O	0.95 J,O	0.19 U
1,2,3,7,8,9-Hexachlorodibenzofuran		0.61 J,O	0.38 J,O	0.37 J,O	0.18 J,O	0.71 J,O	0.36 J,O	0.44 U	0.84 J,O	1.2 J,O	0.21 U,O	0.55 J,O	0.22 U,O	0.14 U	0.51 J,O	0.14 U
1,2,3,7,8-Pentachlorodibenzodioxin		0.92 U,O	0.45 J,O	0.28 J,O	0.36 J,O	1.4 J,O	0.85 J,O	0.32 J,O	1.6 J,O	5.4	0.79 J,O	1.3 J,O	0.48 U,O	0.13 U,O	0.43 J,O	0.11 U
1,2,3,7,8-Pentachlorodibenzofuran		0.32 U,O	0.21 J,O	0.11 U	0.19 U,O	0.57 U,O	0.33 J,O	0.22 U	0.36 J,O	0.85 J,O	0.14 U,O	0.55 U,O	0.18 J,O	0.11 U	0.24 U,O	0.11 U
2,3,4,6,7,8-Hexachlorodibenzofuran		2.6 J,O	1.4 J,O	0.91 J,O	0.53 U,O	2.6 J,O	2 J,O	0.41 U	4.2 J,O	13	1.3 J,O	2.8 J,O	0.74 J,O	0.13 J,O	2.9 J,O	0.11 U
2,3,4,7,8-Pentachlorodibenzofuran		2.7 J,O	2.1 J,O	1.5 U,O	0.28 J,O	2.1 J,O	1.1 J,O	0.31 U	2 J,O	2.3 J,O	1.9 J,O	1.4 U,O	0.41 J,O	0.17 U	1.4 J,O	0.17 U,O
2,3,7,8-Tetrachlorodibenzodioxin		0.22 U,O	0.07 U	0.07 U	0.18 U,O	0.22 U,O	0.14 J,O	0.064 U	0.15 J,O	0.28 J,O	0.26 U,O	0.21 U,O	0.07 U	0.07 U	0.07 U	0.07 U
2,3,7,8-Tetrachlorodibenzofuran		2	0.4 J,O	0.24 J,O	0.19 U,O	0.85 J,O	0.3 J,O	0.11 J,O	0.31 J,O	0.38 J,O	0.46 J,O	0.52 J,O	0.18 U,O	0.08 U	0.41 J,O	0.08 U
Heptachlorodibenzodioxin (Total)		190 J,O	190 J,O	120 J,O	70 J,O	280 J,O	260 J,O	65 J,O	7700 J,O	3200 J,O	100 J,O	520 J,O	160 J,O	16 J,O	74 J,O	7.4 J,O
Heptachlorodibenzofuran (Total)		47 J,O	48 J,O	31 J,O	23 J,O	93 J,O	71 J,O	16 J,O	320 J,O	590 J,O	65 J,O	140 J,O	39 J,O	3.8 J,O	25 J,O	1.6 J,O
Hexachlorodibenzodioxin (Total)		31 J,O	20 J,O	13 J,O	11 J,O	55 J,O	44 J,O	11 J,O	420 J,O	300 J,O	13 J,O	60 J,O	18 J,O	2 J,O	13 J,O	0.7 J,O
Hexachlorodibenzofuran (Total)		39 J,O	23 J,O	15 J,O	9.1 J,O	45 J,O	31 J,O	5.6 J,O	91 J,O	220 J,O	25 J,O	52 J,O	13 J,O	1.3 J,O	41 J,O	1.5 J,O
Octachlorodibenzodioxin		910	1200 J,O	870 J,O	450 J,O	1300 J,O	1200	310	31000	15000	510	2400	810	110	420	50
Octachlorodibenzofuran		35	46 J,O	36 J,O	18 J,O	61 J,O	72	17	310	610	61	130	40	4.6 J,O	19	1.6 J,O
Pentachlorodibenzodioxin (Total)		5.5 J,O	3.4 J,O	2.1 J,O	2.1 J,O	11 J,O	8.2 J,O	2.1 J,O	16 J,O	26 J,O	2.2 J,O	8.2 J,O	2.7 J,O	0.2 J,O	4 J,O	0.11 U,J,O
Pentachlorodibenzofuran (Total)		51 J,O	25 J,O	16 J,O	5.4 J,O	35 J,O	15 J,O	2.6 J,O	27 J,O	51 J,O	19 J,O	26 J,O	5.7 J,O	0.4 J,O	55 J,O	2 J,O
TEQ (Avian Toxic. Equiv. Value, WHO TEQ-98)		7.2 J,O	4 J,O	2.8 J,O	1.5 J,O	6.5 J,O	4 J,O	1.3 J,O	17	22	4.3 J,O	5.9 J,O	1.9 J,O	0.58 J,O	3.2 J,O	0.54 J,O
TEQ (Fish Toxic. Equiv. Value, WHO TEQ-98)		4.2 J,O	2.8 J,O	1.9 J,O	1.2 J,O	5 J,O	3.7 J,O	1.2 J,O	15	25	3.1 J,O	5.4 J,O	1.7 J,O	0.47 J,O	2.2 J,O	0.43 J,O
TEQ (Mammalian Toxic Equiv Value, WHO TEQ-2005)	7	5 J,O	3.6 J,O	2.4 J,O	1.7 J,O	6.3 J,O	5 J,O	1.5 J,O	62	46	3.4 J,O	**8.2 J,O**	2.5 J,O	0.54 J,O	2.4 J,O	0.4 J,O
Tetrachlorodibenzodioxin (Total)		2.9 J,O	1.3 J,O	1 J,O	1.3 J,O	6.8 J,O	3.6 J,O	0.48 J,O	3.9 J,O	4.4 J,O	0.97 J,O	3.9 J,O	1.1 J,O	0.07 U,J,O	2.8 J,O	0.15 J,O
Tetrachlorodibenzofuran (Total)		67 J,O	11 J,O	5.7 J,O	4.9 J,O	23 J,O	10 J,O	2.5 J,O	15 J,O	18 J,O	4.5 J,O	14 J,O	4.4 J,O	0.3 J,O	23 J,O	1.4 J,O

Notes:

% - percent
ft - feet
J - Identification of analyte is acceptable. Reported value is an estimate.
ng/kg - nanograms per kilogram
O - Other Qualifiers
SS - surface soil
TEQ - toxic equivalency
U - Analyte not detected at or above laboratory reporting limit.
- EPA Dioxin TEQ Action Level

Created by: R Dawkins 7/23/18
Updated by: AMC 9/4/18

Table 3-22
Dioxin Concentrations in Soil - 2018
American Creosote Works
Pensacola, Escambia, FL

	Sample Location	SS1061R	SS1062F	SS1062F	SS1062F	SS1062R	SS1062R	SS1062R
	Sample Date	10/30/2018	10/30/2018	10/30/2018	10/30/2018	10/30/2018	10/30/2018	10/30/2018
	Sample Identification No.	SS1061R_C	SS1062F_A	SS1062F_B	SS1062F_C	SS1062R_A	SS1062R_B	SS1062R_C
	Start Depth (ft)	1	0	0.5	1	0	0.5	1
	End Depth (ft)	2	0.5	1	2	0.5	1	2
Analyte	**EPA Dioxin TEQ Action Level**							
% Moisture		6.7	9.1	8.8	7.8	7.5	7	7.3
Dioxins (ng/kg dry)								
1,2,3,4,6,7,8-Heptachlorodibenzodioxin		3.5 J,O	700	240	53	560	29	160
1,2,3,4,6,7,8-Heptachlorodibenzofuran		0.55 J,O	120	42	8.9	110	5.1	30
1,2,3,4,7,8,9-Heptachlorodibenzofuran		0.15 U	6.2	2.3 J,O	0.59 J,O	4.8 J,O	0.25 U,O	1.6 J,O
1,2,3,4,7,8-Hexachlorodibenzodioxin		0.17 U	4.4 J,O	1.7 J,O	0.48 J,O	3.9 J,O	0.26 U,O	1.2 J,O
1,2,3,4,7,8-Hexachlorodibenzofuran		0.11 U	2.9 J,O	1 J,O	0.29 U,O	2.8 J,O	0.15 J,O	0.75 J,O
1,2,3,6,7,8-Hexachlorodibenzodioxin		0.14 U	15	4.9 J,O	1.3 J,O	14	0.77 U,O	4 J,O
1,2,3,6,7,8-Hexachlorodibenzofuran		0.12 U	2.2 J,O	0.76 J,O	0.26 J,O	2.2 J,O	0.12 U	0.63 J,O
1,2,3,7,8,9-Hexachlorodibenzodioxin		0.19 U	7.8	2.5 J,O	0.66 J,O	6.5	0.5 J,O	2 J,O
1,2,3,7,8,9-Hexachlorodibenzofuran		0.14 U	0.88 J,O	0.32 U,O	0.15 U,O	0.8 J,O	0.16 J,O	0.24 U,O
1,2,3,7,8-Pentachlorodibenzodioxin		0.11 U	1.5 J,O	0.6 U,O	0.29 U,O	1.9 J,O	0.15 U,O	0.54 J,O
1,2,3,7,8-Pentachlorodibenzofuran		0.11 U	0.42 J,O	0.18 U,O	0.18 J,O	0.61 J,O	0.11 U	0.18 J,O
2,3,4,6,7,8-Hexachlorodibenzofuran		0.11 U	4 J,O	1.5 J,O	0.33 J,O	3.6 J,O	0.18 U,O	1 J,O
2,3,4,7,8-Pentachlorodibenzofuran		0.17 U	1.4 J,O	0.59 J,O	0.21 J,O	1.6 U,O	0.17 U	0.35 J,O
2,3,7,8-Tetrachlorodibenzodioxin		0.11 U,O	0.23 U,O	0.07 U	0.23 U,O	0.28 U,O	0.07 U	0.19 U,O
2,3,7,8-Tetrachlorodibenzofuran		0.08 U	0.31 J,O	0.15 J,O	0.08 U	0.57 J,O	0.08 U	0.15 U,O
Heptachlorodibenzodioxin (Total)		6.5 J,O	1300 J,O	430 J,O	94 J,O	1000 J,O	53 J,O	300 J,O
Heptachlorodibenzofuran (Total)		1.3 J,O	370 J,O	130 J,O	27 J,O	320 J,O	14 J,O	87 J,O
Hexachlorodibenzodioxin (Total)		0.8 J,O	110 J,O	39 J,O	8.7 J,O	96 J,O	5.8 J,O	30 J,O
Hexachlorodibenzofuran (Total)		0.8 J,O	96 J,O	33 J,O	7.3 J,O	91 J,O	4.4 J,O	24 J,O
Octachlorodibenzodioxin		49	7100 J,O	2300 J,O	580	5100 J,O	290 J,O	1500 J,O
Octachlorodibenzofuran		1.4 J,O	370 J,O	120 J,O	28	300 J,O	15 J,O	85 J,O
Pentachlorodibenzodioxin (Total)		0.11 U,J,O	8.3 J,O	3.2 J,O	0.87 J,O	11 J,O	0.47 J,O	3.2 J,O
Pentachlorodibenzofuran (Total)		1 J,O	21 J,O	8 J,O	1.8 J,O	23 J,O	0.9 J,O	6.1 J,O
TEQ (Avian Toxic. Equiv. Value, WHO TEQ-98)		0.57 J,O	8.3 J,O	3.1 J,O	1.2 J,O	8.6 J,O	0.73 J,O	2.4 J,O
TEQ (Fish Toxic. Equiv. Value, WHO TEQ-98)		0.47 J,O	8.6 J,O	3.2 J,O	1.2 J,O	8.4 J,O	0.63 J,O	2.5 J,O
TEQ (Mammalian Toxic Equiv Value, WHO TEQ-2005)	7	0.44 J,O	**16 J,O**	5.7 J,O	1.8 J,O	**14 J,O**	0.93 J,O	4.2 J,O
Tetrachlorodibenzodioxin (Total)		0.19 J,O	2.6 J,O	1.1 J,O	0.36 J,O	6.4 J,O	0.18 J,O	1.5 J,O
Tetrachlorodibenzofuran (Total)		0.4 J,O	8.5 J,O	5.2 J,O	1 J,O	17 J,O	0.74 J,O	4 J,O

Notes:
% - percent
ft - feet
J - Identification of analyte is acceptable. Reported value is an estimate.
ng/kg - nanograms per kilogram
O - Other Qualifiers
SS - surface soil
TEQ - toxic equivalency
U - Analyte not detected at or above laboratory reporting limit.
- EPA Dioxin TEQ Action Level

Created by: R Dawkins 7/23/18
Updated by: AMC 9/4/18

Table 3-23
Volatile Organic Compounds in Soil - PYC Dredging Spoils Pile
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	FDEP SCTLs[1]				Sample ID		
	Residential Direct Exposure	Commercial Direct Exposure	Leachability Based on Groundwater Criteria	Leachability Based on Marine Surface Water Criteria	SS402	SS403	*SS403 (dup)*
					AC	AC	
					Sample Date		
					02/23/10	02/23/10	
Volatile Organic Compounds (µg/kg)							
1,1,1-Trichloroethane	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
1,1,2,2-Tetrachloroethane	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
1,1,2-Trichloroethane	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
1,1-Dichloroethane	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
1,1-Dichloroethene (1,1-Dichloroethylene)	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
1,2,3-Trichlorobenzene	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
1,2,4-Trichlorobenzene	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
1,2-Dibromo-3-Chloropropane (DBCP)	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
1,2-Dibromoethane (EDB)	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
1,2-Dichlorobenzene	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
1,2-Dichloroethane	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
1,2-Dichloropropane	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
1,3-Dichlorobenzene	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
1,4-Dichlorobenzene	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
Acetone	11,000,000	68,000,000	25,000	6,800	**28**	**32**	*15 U*
Benzene	1,200	1,700	7	500	5.3 U	5.0 U	*7.3 U*
Bromochloromethane	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
Bromodichloromethane	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
Bromoform	NE	NE	NE	NE	5.3 U,J,O	5.0 U,J,O	*7.3 U,J,O*
Bromomethane	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
Carbon disulfide	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
Carbon Tetrachloride	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
Chlorobenzene	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
Chloroethane	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
Chloroform	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
Chloromethane	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
cis-1,2-Dichloroethene	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
cis-1,3-Dichloropropene	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
Cyclohexane	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
Dibromochloromethane	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
Dichlorodifluoromethane	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
Ethyl Benzene	1,500,000	9,200,000	6,000	120,000	5.3 U	5.0 U	*7.3 U*
Isopropylbenzene (Cumene)	220,000	1,200,000	200	56,000	5.3 U	5.0 U	*7.3 U*
Methyl Acetate	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
Methyl Butyl Ketone	NE	NE	NE	NE	11 U	10 U	*15 U*
Methyl Ethyl Ketone	NE	NE	NE	NE	11 U	10 U	*15 U*
Methyl Isobutyl Ketone	NE	NE	NE	NE	11 U	10 U	*15 U*
Methyl T-Butyl Ether (MTBE)	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
Methylcyclohexane	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
Methylene Chloride	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
o-Xylene	130,000	700,000	200	3,900	5.3 U	5.0 U	*7.3 U*
(m- and/or p-)Xylene					5.3 U	5.0 U	*7.3 U*
Styrene	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
Tetrachloroethene (Tetrachloroethylene)	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
Toluene	7,500,000	60,000,000	5,000	5,600	5.3 U	5.0 U	*7.3 U*
trans-1,2-Dichloroethene	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
trans-1,3-Dichloropropene	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
Trichloroethene (Trichloroethylene)	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
Trichlorofluoromethane (Freon 11)	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*
Vinyl chloride	NE	NE	NE	NE	5.3 U	5.0 U	*7.3 U*

Table 3-23
Volatile Organic Compounds in Soil - PYC Dredging Spoils Pile
American Creosote Works Site
Pensacola, Escambia County, Florida

Notes	
[1]	Obtained from the Amended Record of Decision (AROD), Operable Unit 1, American Creosote Works Site, Pensacola, Escambia County, Florida, EPA, May 1999.
NE	Not Established
FDEP	Florida Department of Environmental Protection
SCTL	Soil Cleanup Target Levels
µg/kg	micrograms per kilogram (parts per trillion or "ppt")
U	Analyte not detected at or above laboratory reporting limit.
J	Identification of analyte is acceptable. Reported value is an estimate.
O	Denoted as "other". Specified in EPA Final Analytical Report Project 10-0275 as:
Bold	Indicates exceedance of the laboratory method detection limit
Bold	Indicates the exceedance of FDEP SCTLs for Direct Exposure in Residential Soil, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777.
Bold	Indicates the exceedance of FDEP SCTLs for Direct Exposure in Commercial Soil, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777.
Bold	Indicates the exceedance of FDEP SCTLs for Leachability Based on Groundwater Criteria, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777.
Bold	Indicates the exceedance of FDEP SCTLs for Leachability Based on Marine Surface Water Criteria, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777.
Italic	Indicates a duplicate (dup) sample
SS	Surface Soil Sample
AC	Depth to 0-2 feet

Table 3-24
Inorganic Concentrations in Soil - PYC Dredging Spoils Pile
American Creosote Works Site
Pensacola, Escambia County, Florida

ANALYTE	FDEP SCTLs[1]				Sample ID		
	Residential Direct Exposure	Commercial Direct Exposure	Leachability Based on Groundwater Criteria	Leachability Based on Marine Surface Water Criteria	SS402	SS403	*SS403 (dup)*
					AC	AC	
					Sample Date		
					02/23/10	02/23/10	
METALS (mg/kg)							
Aluminum	80,000	*	***	***	**840 J,O**	**110 J,O**	***120 J,O***
Antimony	27	370	5.4	3,900	7 U	6.3 U	*6.3 U*
Arsenic	2.1	12	***	***	**1.5**	1.1 U	*1 U*
Barium	120**	130,000	1,600	NE	23 U	21 U	*21 U*
Beryllium	120	1,400	63	2.1	0.59 U	0.53 U	*0.52 U*
Cadmium	82	1,700	7.5	14	0.59 U	0.53 U	*0.52 U*
Calcium	NE	NE	NE	NE	590 U	530 U	*520 U*
Chromium (total)	210	470	38	19	**5.4**	**0.79 J,O**	***1.2***
Cobalt	1,700	42,000	***	**NA**	5.9 U	5.3 U	*5.2 U*
Copper	150**	89,000	***	***	**11**	**16**	***19***
Iron	53,000	*	***	***	**3,800**	**410**	***440***
Lead	400	1,400	***	***	**24 J,O**	**9.4 J,O**	***11 J,O***
Magnesium	NE	NE	NE	NE	590 U	530 U	*520 U*
Manganese	3,500	43,000	***	NE	**3.7**	1.6 U	***2.2***
Mercury	NE	NE	2.1	0.03	0.13	0.43	*0.65*
Nickel	340**	35,000	130	11	4.7 U	4.2 U	*4.2 U*
Potassium	NE	NE	NE	NE	**240 J,O**	530 U	*520 U*
Selenium	440	11,000	5.2	7.4	4.1 U	3.7 U	*3.7 U*
Silver	410	8,200	17	0.06	1.2 U	1.1 U	*1 U*
Sodium	NE	NE	NE	NE	590 U	530 U	*520 U*
Thallium	6.1	150	2.8	9	2.9 U	2.6 U	*2.6 U*
Vanadium	67**	10,000	980	NE	**5 J,O**	5.3 U	*5.2 U*
Zinc	26,000	630,000	***	***	**12**	**7.5**	***8.6***

Table 3-24
Inorganic Concentrations in Soil - PYC Dredging Spoils Pile
American Creosote Works Site
Pensacola, Escambia County, Florida

Notes:

[1]	Obtained from the Amended Record of Decision (AROD), OU1, American Creosote Works Site, Pensacola, Escambia County, Florida, EPA, May 1999.
*	Contaminant is not a health concern for this exposure scenario.
**	Direct exposure value based on acute toxicity consideration.
***	Leachability values may be derived using the SPLP test to calculate site-specific SCTLs or may be determined using TCLP in the event oily wastes are present.
NA	Not Analyzed
NE	Not Established
FDEP	Florida Department of Environmental Protection
SCTL	Soil Cleanup Target Levels
mg/kg	micrograms per kilogram
PYC	Pensacola Yacht Club
SS	Surface Soil Sample
AC	Depth of 1-2 feet
U	Analyte not detected at or above laboratory reporting limit.
J	Identification of analyte is acceptable. Reported value is an estimate.
O	Denoted as "other". Specified in EPA Final Analytical Report Project 10-0274 as:
Bold	Indicates exceedance of the laboratory method detection limit.
Bold	Indicates the exceedance of FDEP SCTLs for Direct Exposure in Residential Soil, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777.
Bold	Indicates the exceedance of FDEP SCTLs for Direct Exposure in Commercial Soil, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777.
Bold	Indicates the exceedance of FDEP SCTLs for Leachability Based on Groundwater Criteria, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777.
Bold	Indicates the exceedance of FDEP SCTLs for Direct Exposure in Residential Soil, as specified in the FDEP Contaminant Cleanup Target Levels, Chapter 62-777.
Italic	Indicates a duplicate (dup) sample

Table 3-25
Monitoring Well Construction Table
American Creosote Works Site
Pensacola, Escambia County, Florida

Series/Cluster/Location	Well ID	Date Installed	Northing	Easting	Well Pad Elevation (ft amsl)	Top of Casing Elevation (ft amsl)	Well Depth (ft bls)	Screen Length (ft)	Depth to Top of Screen (ft bls)	Depth to Bottom of Screen (ft bls)	Well Diameter (inches)	Well Material
200 Series	MW200	unknown	521005.57	1104752.5	12.70	14.05	100.45	3.0	97.45	100.45	2.0	GS
	MW220	unknown	520987.59	1104751.3	12.82	14.36	23.21	3.0	20.21	23.21	2.0	PVC
	MW260	unknown	520995.47	1104751.9	12.80	14.41	61.82	5.0	56.82	61.82	2.0	PVC
300 Series	MW300	unknown	520733.37	1105177.50	abandoned	abandoned	100	3.0	97.00	100.00	abandoned	SS
	MW320	unknown	520725.79	1105165.56	abandoned	abandoned	20	3.0	17.00	20.00	abandoned	SS
	MW340	unknown	520746.95	1105214.43	abandoned	abandoned	40	3.0	37.00	40.00	abandoned	SS
	MW360	unknown	520737.97	1105206.38	abandoned	abandoned	60	3.0	57.00	60.00	abandoned	SS
	MW380	unknown	520739.51	1105195.95	abandoned	abandoned	80	3.0	77.00	80.00	abandoned	SS
400 Series	MW400	unknown	520402.77	1105299.96	7.27	6.87	99.12	3.0	96.12	99.12	1.0	GS/SS
	MW420	unknown	520403.84	1105288.85	7.37	7.23	18.20	3.0	15.20	18.20	1.0	GS/SS
	MW440	unknown	520403.16	1105292.72	7.37	7.21	39.76	3.0	36.76	39.76	1.0	GS/SS
	MW480	unknown	520403.15	1105295.89	7.32	7.06	78.39	3.0	75.39	78.39	1.0	GS/SS
600 Series	MW600	unknown	520322.241	1105076.218	unknown	unknown	99.74	3	97	100	unknown	unknown
	MW660	unknown	520311.9366	1105073.36	unknown	unknown	57.26	3	55	58	unknown	unknown
	MW680	unknown	520317.7076	1105074.693	unknown	unknown	78.07	3	76	79	unknown	unknown
700 Series	MW700	unknown	519944.69	1105186.1	6.66	8.24	101.47	3.0	98.47	101.47	2.0	GS/SS
	MW720	unknown	519940.70	1105187.5	6.68	8.29	20.72	3.0	17.72	20.72	2.0	GS/SS
	MW760	unknown	519936.03	1105189.5	6.71	8.20	65.78	3.0	62.78	65.78	2.0	GS/SS
PYC Ditch - MW-28 Cluster	MW28-1	unknown	519816.76	1105174.1	8.30	9.95	58.70	5.0	53.70	58.70	1.0	PVC
	MW28-2	unknown	519810.98	1105174.4	8.52	9.74	13.29	5.0	8.29	13.29	1.0	PVC
	MW28-3	unknown	519805.91	1105174.8	8.50	10.00	16.59	5.0	11.85	16.85	1.0	PVC
	MW28-4	unknown	519803.66	1105174.6	8.51	10.19	10.37	5.0	5.37	10.37	1.0	PVC
	MW28-5	unknown	519798.80	1105172.4	8.54	9.46	91.20	5.0	86.20	91.20	2.0	PVC
	MW28-6	unknown	519793.67	1105171.3	8.64	10.33	20.88	5.0	15.88	20.88	2.0	PVC
ACW Northside Shallow Wells	ACW4	unknown	521148.46	1106237.8	12.88	13.55	13.04	3.0	10.04	13.04	4.0	PVC
	ACW5	unknown	521112.12	1106917.9	12.48	13.27	9.74	3.0	6.74	9.74	4.0	PVC
ACW Southside Wells	ACW-MW1	unknown	520903.02	1105557.3	11.99	11.94	15.00	10.0	5.00	15.00	2.0	PVC
	ACW-MW2	unknown	520847.05	1105904.3	11.83	11.44	15.00	10.0	5.00	15.00	2.0	PVC
	ACW-MW2B	4/5/2018	520850.5	1105896.2	12.4	14.93	33.00	10.0	23.00	33.00	2.0	PVC
	ACW-MW3	unknown	520823.63	1106255.4	11.88	11.66	14.00	10.0	4.00	14.00	2.0	PVC
	ACW-MW3D	4/3/2018	520814.3	1106264.4	12.3	14.50	79.50	10.0	69.50	79.50	2.0	PVC
PYC Ditch MW1, 1A, 2, 3 Cluster	MW1	unknown	520082.79	1105268.6	5.26	7.87	185.00	10.0	175.00	185.00	4.0	PVC
	MW1A	unknown	520081.34	1105276.8	5.12	5.01	28.35	10.0	18.35	28.35	2.0	PVC
	MW2	unknown	520070.88	1105267.9	5.34	7.82	150.00	10.0	140.00	150.00	4.0	PVC
	MW3	unknown	520060.78	1105267.7	5.48	7.86	98.52	10.0	88.52	98.52	4.0	PVC
L Street MW4, 5, 6 Cluster	MW4	unknown	520624.48	1105052.7	8.92	11.03	192.50	10.0	182.50	192.50	4.0	PVC
	MW5	unknown	520621.27	1105042.5	8.98	11.04	141.79	10.0	131.79	141.79	4.0	PVC
	MW6	unknown	520618.08	1105032.3	9.06	11.09	101.00	10.0	91.00	101.00	4.0	PVC
Observation Wells	OW9	unknown	520756.00	1106267.7	11.82	10.61	77.40	3.0	74.40	77.40	4.0	PVC
	OW10	unknown	520626.56	1105787.4	11.13	11.72	14.15	3.0	11.15	14.15	4.0	PVC
West Side PYC Cluster Wells	PYCDS-M	unknown	519940.90	1104499.4	7.51	6.84	88.02	10.0	78.02	88.02	2.0	PVC
	PYCDS-N	unknown	519947.02	1104500.0	7.49	7.23	53.43	5.0	48.43	53.43	2.0	PVC
	PYCDS-S	unknown	519935.94	1104499.6	7.56	6.20	18.28	10.0	8.28	18.28	2.0	PVC
	PYCWC-B	unknown	519756.59	1105167.1	9.05	10.50	158.00	20.0	138.00	158.00	2.0	PVC

Table 3-25
Monitoring Well Construction Table
American Creosote Works Site
Pensacola, Escambia County, Florida

Series/Cluster/Location	Well ID	Date Installed	Northing	Easting	Well Pad Elevation (ft amsl)	Top of Casing Elevation (ft amsl)	Well Depth (ft bls)	Screen Length (ft)	Depth to Top of Screen (ft bls)	Depth to Bottom of Screen (ft bls)	Well Diameter (inches)	Well Material
Marina Wells	MW10A	4/4/2018	520230.7	1104124.8	8.8	9.12	26.50	10.0	16.50	26.50	2.0	PVC
	MW10B	4/4/2018	520239.1	1104125.4	8.8	9.11	47.00	10.0	37.00	47.00	2.0	PVC
Steam Pilot Inj Wells	SIW-1-1S	6/20/2018	520883.6	1105842.4	TBD	TBD	26.00	10.0	14.80	24.80	2.0	SS
	SIW-1-1D	6/20/2018	520883.0	1105845.3	TBD	TBD	81.20	10.0	70.00	80.00	2.0	SS
Pilot Injection Wells	IW-01	7/29/2018	520812.5	1106334.8	TBD	14.87	60.40	20.0	40.40	60.40	4.0	PVC
	IW-02	7/30/2018	520812.7	1106339.1	TBD	14.80	60.50	20.0	40.50	60.50	4.0	PVC
Pilot Performance Monitoring Wells	PMW-01	7/27/2018	520808.69	1106334.4	TBD	12.24	59.50	20.0	39.50	59.50	2.0	PVC
	PMW-02	7/28/2018	520808.58	1106338.2	TBD	14.78	60.40	20.0	40.40	60.40	2.0	PVC
	PMW-03	7/24/2018	520804.41	1106332.1	TBD	14.59	60.40	20.0	40.40	60.40	2.0	PVC
	PMW-04	7/25/2018	520804.46	1106336.2	TBD	14.71	59.75	20.0	39.75	59.75	2.0	PVC
	PMW-05	7/26/2018	520804.47	1106340.4	TBD	14.72	59.50	20.0	39.50	59.50	2.0	PVC
Neighborhood Wells	MW7A	4/6/2018	520310.4	1106062.6	10.6	10.24	20.00	10.0	10.00	20.00	2.0	PVC
	MW7B	4/6/2018	520306.6	1106060.8	10.7	10.34	79.50	10.0	69.50	79.50	2.0	PVC
	MW7C	unknown	520310.9	1106122.6	TBD	TBD	100.00	unknown	unknown	unknown	2.0	PVC
	MW8A	5/16/2018	520239.43	1106528.2	TBD	10.22	45.00	10.0	35.00	45.00	2.0	PVC
	MW8B	5/16/2018	520251.19	1106529.1	TBD	10.27	65.00	10.0	55.00	65.00	2.0	PVC
	MW8C	5/15/2018	520263.02	1106530.0	TBD	10.40	85.00	10.0	75.00	85.00	2.0	PVC
	MW9A	4/8/2018	520236.5	1105562.3	8.3	8.10	18.00	10.0	8.00	18.00	2.0	PVC
Cluster Well 1	C1-MW01	4/10/2007	519534.04	1105487.9	4.24	7.04	251.00	10.0	241.00	251.00	2.0	SS
	C1-MW02	5/4/2007	519532.98	1105493.9	4.38	7.13	207.00	10.0	196.00	206.00	2.0	SS
	C1-MW03	5/5/2007	519532.52	1105500.3	4.37	7.02	147.00	10.0	137.00	147.00	2.0	SS
	C1-MW04	5/5/2007	519532.20	1105506.8	4.50	7.01	67.00	10.0	57.00	67.00	2.0	SS
	C1-MW05	5/6/2007	519531.79	1105513.9	4.43	6.93	27.00	10.0	17.00	27.00	2.0	SS
Cluster Well 2	C2-MW01	4/13/2007	519654.49	1106024.7	5.70	8.77	247.00	10.0	236.00	246.00	2.0	SS
	C2-MW02	5/4/2007	519655.78	1106014.1	5.71	8.79	227.00	10.0	217.00	227.00	2.0	SS
	C2-MW03	5/6/2007	519658.34	1106006.9	5.77	8.96	167.00	10.0	157.00	167.00	2.0	SS
	C2-MW04	5/7/2007	519659.45	1105998.4	5.83	8.92	128.00	10.0	118.00	128.00	2.0	SS
	C2-MW05	5/7/2007	519660.51	1105988.3	5.89	9.14	67.00	10.0	57.00	67.00	2.0	SS
	C2-MW06	5/7/2007	519661.18	1105980.5	6.01	9.22	23.00	10.0	11.00	21.00	2.0	SS
Cluster Well 3	C3-MW01	3/20/2007	520032.20	1104472.6	8.17	7.92	246.00	10.0	236.00	246.00	2.0	SS
	C3-MW02	5/23/2007	520025.65	1104472.9	8.21	7.94	227.00	10.0	217.00	227.00	2.0	SS
	C3-MW03	5/30/2007	520019.23	1104472.6	8.20	7.93	147.00	10.0	137.00	147.00	2.0	SS
Cluster Well 4	C4-MW01	3/27/2007	519513.69	1104457.1	5.80	5.44	247.00	10.0	235.00	245.00	2.0	SS
	C4-MW02	5/17/2007	519512.86	1104464.7	5.71	5.38	207.00	10.0	197.00	207.00	2.0	SS
	C4-MW03	5/18/2007	519512.24	1104470.6	5.82	5.61	147.00	10.0	137.00	147.00	2.0	SS
	C4-MW04	5/19/2007	519511.80	1104477.6	5.75	5.50	127.00	10.0	117.00	127.00	2.0	SS
	C4-MW05	5/20/2007	519511.06	1104484.9	5.79	5.53	87.00	10.0	77.00	87.00	2.0	SS
	C4-MW06	5/21/2007	519510.51	1104491.5	5.81	5.55	33.00	10.0	23.00	33.00	2.0	SS
Cluster Well 5	C5-MW01	4/19/2007	520469.95	1104664.1	10.63	10.38	248.00	10.0	238.00	248.00	2.0	SS
	C5-MW02	5/7/2007	520470.20	1104655.6	10.75	10.47	207.00	10.0	197.00	207.00	2.0	SS
	C5-MW03	5/8/2007	520470.72	1104647.8	10.86	10.67	147.00	10.0	137.00	147.00	2.0	SS
	C5-MW04	5/8/2007	520471.29	1104640.4	10.87	10.62	77.00	10.0	67.00	77.00	2.0	SS
	C5-MW05	5/14/2007	520472.24	1104631.4	10.94	10.71	47.00	10.0	37.00	47.00	2.0	SS
	C5-MW06	5/14/2007	520473.13	1104624.5	10.99	10.80	27.00	10.0	17.00	27.00	2.0	SS

Table 3-25
Monitoring Well Construction Table
American Creosote Works Site
Pensacola, Escambia County, Florida

Series/Cluster/Location	Well ID	Date Installed	Northing	Easting	Well Pad Elevation (ft amsl)	Top of Casing Elevation (ft amsl)	Well Depth (ft bls)	Screen Length (ft)	Depth to Top of Screen (ft bls)	Depth to Bottom of Screen (ft bls)	Well Diameter (inches)	Well Material
Cluster Well 6	C6-MW01	3/9/2007	520782.89	1106365.5	11.45	11.18	243.00	10.0	232.50	242.50	2.0	SS
	C6-MW02	4/26/2007	520783.44	1106359.0	11.34	11.09	207.00	10.0	197.00	207.00	2.0	SS
	C6-MW03	5/1/2007	520784.10	1106353.0	11.40	11.10	147.00	10.0	137.00	147.00	2.0	SS
	C6-MW04	5/2/2007	520784.42	1106345.8	11.40	11.08	67.00	10.0	57.00	67.00	2.0	SS
	C6-MW05	5/3/2007	520784.90	1106338.7	11.40	11.08	19.50	10.0	9.00	19.00	2.0	SS
Cluster Well 7	C7-MW01	3/18/2007	520908.28	1105194.1	16.66	16.40	243.00	10.0	233.00	243.00	2.0	SS
	C7-MW02	5/18/2007	520907.71	1105203.9	16.60	16.35	207.00	10.0	197.00	207.00	2.0	SS
	C7-MW03	5/20/2007	520905.99	1105215.2	16.41	16.17	171.00	10.0	161.00	171.00	2.0	SS
	C7-MW04	5/20/2007	520904.46	1105224.1	16.55	16.33	108.00	10.0	98.00	108.00	2.0	SS
Cluster Well 8	C8-MW01	4/24/2007	521872.48	1106346.9	14.23	13.99	242.00	10.0	232.00	242.00	2.0	SS
	C8-MW02	5/8/2007	521872.15	1106355.4	14.12	13.93	207.00	10.0	197.00	207.00	2.0	SS
	C8-MW03	5/15/2007	521871.13	1106366.8	13.91	13.70	147.00	10.0	137.00	147.00	2.0	SS
	C8-MW04	5/16/2007	521870.92	1106371.0	14.02	13.83	67.00	10.0	57.00	67.00	2.0	SS
	C8-MW05	5/16/2007	521870.47	1106376.4	13.99	13.77	27.00	10.0	17.00	27.00	2.0	SS
Cluster Well 9	C9-MW01	3/30/2007	519946.40	1105732.2	7.41	7.06	249.00	10.0	239.00	249.00	2.0	SS
	C9-MW02	5/1/2007	519936.72	1105731.2	7.35	7.12	177.00	10.0	167.00	177.00	2.0	SS
	C9-MW03	5/2/2007	519929.36	1105730.5	7.32	7.13	156.00	10.0	144.00	154.00	2.0	SS
	C9-MW04	5/3/2007	519922.67	1105729.8	7.30	7.11	87.00	10.0	77.00	87.00	2.0	SS
	C9-MW05	5/3/2007	519916.20	1105729.3	7.24	7.05	36.00	10.0	26.00	36.00	2.0	SS
Cluster Well 10	C10-MW01	5/30/2007	520729.13	1107112.1	11.80	11.47	250.00	10.0	240.00	250.00	2.0	SS
	C10-MW02	6/6/2007	520729.50	1107104.1	11.76	11.46	217.00	10.0	205.00	215.00	2.0	SS
	C10-MW03	6/8/2007	520729.82	1107098.6	11.81	11.53	117.00	10.0	107.00	117.00	2.0	SS
	C10-MW04	6/8/2007	520730.06	1107091.6	11.85	11.58	67.00	10.0	56.50	66.50	2.0	SS
	C10-MW05	6/8/2007	520730.74	1107084.2	11.75	11.45	27.00	10.0	17.00	27.00	2.0	SS

Notes:

Northings and Eastings in State Plane, NAD83; 0903 Florida North, US Feet

amsl - above mean sea level

SS - Stainless Steel

GS - Galvinized Steel

PVC - Polyvinyl chloride

ft - feet

bls - below land surface

Table 3-26
Groundwater Quality Field Parameters
American Creosote Works Site
Pensacola, Escambia County, Florida

Station ID	Screen Interval (ft bls)	Sample ID	Sample Date	Dissolved Oxygen (mg/L)	Ferrous Iron (mg/L)	Oxidation Reduction Potential (mV)	pH (standard units)	Specific Conductivity (µs/cm)	Temperature (°C)	Turbidity (NTU)
West of ACW Facility 200 Series Wells										
200	97.45 - 100.45	200-0112	02/07/12	0.34	2.53	36.8	5.9	96.6	22.8	12.1
		200-0313	03/20/13	0.54	5.2	-153.2	6.27	114.7	21.6	7.9
		200-0216	02/04/16	0.19	7.75	-150	6.18	96.2	22.1	1
		200-0217	02/06/17	0.25	6.75	-40	6.22	105.2	22.9	3.80
		200-0218	01/31/18	0.25	5.00	-210	6.14	96.8	22.8	5.76
220	20.21 - 23.21	220-0112	02/07/12	0.09	0.9	-278.4	6.2	384	23.3	79.1
		220-0313	03/20/13	0.19	2.6	-317.7	6.36	255.7	21.7	52.1
		220-0216	02/08/16	0.07	1.13	-90	6.27	148	23.1	49.9
		220-0217	02/06/17	0.11	2.11	-150	6.27	139.4	23.5	31
		220-0218	01/31/18	0.1	1.68	-210	6.18	125.4	23.9	27.6
260	56.82 - 61.82	260-0112	02/07/12	0.38	0.57	0	4.41	114.7	23	5.65
		260-0313	03/20/13	0.31	0.43	-174.7	4.53	109.2	21.5	4.54
		260-0216	02/04/16	0.05	0.37	-210	4.79	93.7	22.9	0.94
		260-0217	02/06/17	0.13	0.28	-50	4.86	98.44	23.9	7.62
		260-0218	01/31/18	0.16	0.37	-260	4.82	82.58	22.9	2.9
Pensacola Yacht Club Ditch 400 Series Wells										
400	96.12 - 99.12	400-0111	01/27/11	0.09	2.44	-140	6.31	112.6	20.8	1.15
		400-0112	02/03/12	0.76	2.34	-72.3	6.3	110.7	22.4	1.54
420	15.2 - 18.2	420-0111	01/27/11	0.15	7.76	-90	6.08	262	21	3.24
		420-0112	02/03/12	0.18	2.12	-36.6	6.15	306	22.2	5.56
		420-0313	03/27/13	0.19	2.17	-319.4	6.03	214	20.6	9.77
		420-0216	02/08/16	0.1	37	-150	6.15	252	21.9	1.47
		420-0217	02/02/17	0.21	16.50	-140	5.97	210.6	23.9	3.20
		420-0218	02/02/18	0.58	26.00	-50	6.31	276.6	19.9	9
440	36.76 - 39.76	440-0111	01/27/11	0.03	8.72	-240	5.7	133.2	21.6	1.34
		440-0112	02/03/12	0.27	0.96	NR	5.83	122.3	22.3	3.52
		440-0313	03/27/13	0.18	6.36	-249.2	5.65	96.1	21.2	9.81
		440-0216	02/08/16	0.42	2.85	-170	5.8	84.9	22.2	1.27
		440-0217	02/02/17	0.11	3.00	-250	5.49	95.49	23.2	1.28
		440-0218	02/02/18	0.88	5.00	-110	5.83	142.6	21.4	7.04
480	75.39 - 78.39	480-0111	01/27/11	0	2.57	10	5.78	111.4	21.6	34
		480-0112	02/03/12	0.22	0.67	-189.2	5.94	111.7	22.5	25.4
		480-0313	03/27/13	0	4.52	-278.3	6.24	177.9	20.3	81.9
		480-0216	02/08/16	0.15	8.4	-90	6.14	91.8	20.7	16.6
		480-0217	02/02/17	0.16	10.25	-250	5.79	108.2	22.6	12.2
		480-0218	02/02/18	0.2	8.00	-50	6.13	100.4	22	16.1
Pensacola Yacht Club Ditch 600 Series Wells										
600	96.74 - 99.74	600-0216	02/06/16	4.39	0.03 U	50	5.34	77.36	21.4	2.45
		600-0217	02/03/17	4.15	0.06	70	5.39	79.85	22.1	2.23
		600-0218	02/02/18	3.99	0.10	50	5.41	84	21.8	1.85
660	54.26 - 57.26	660-0216	02/06/16	0.02	8.5	-210	5.36	73.08	21.4	55.5
		660-0217	02/03/17	0.10	7.25	-230	5.41	75.80	20.1	32.3
		660-0218	02/05/18	0.1	6.00	-230	5.28	74	21.3	43.5
680	75.07 - 78.07	680-0216	02/06/16	0.32	2.1	-90	5.77	81.05	21.5	3.94
		680-0217	02/03/17	0.25	2.18	-130	5.62	93.91	21.8	2.68
		680-0218	02/02/18	0.06	15.25	-110	6.55	158	21.1	5.83

Created By: A. Callaway 09/27/2016
Updated by:M. Randolph
Checked By:Justice W.

Table 3-26
Groundwater Quality Field Parameters
American Creosote Works Site
Pensacola, Escambia County, Florida

Station ID	Screen Interval (ft bls)	Sample ID	Sample Date	Dissolved Oxygen (mg/L)	Ferrous Iron (mg/L)	Oxidation Reduction Potential (mV)	pH (standard units)	Specific Conductivity (µs/cm)	Temperature (°C)	Turbidity (NTU)
Pensacola Yacht Club Ditch 700 Series Wells										
700	98.47 - 101.47	700-0111	01/27/11	0.33	0.86	-10	5.77	66	21	15.5
		700-0112	02/06/12	0.32	1.55	-138.9	5.48	63	22.1	11.9
		700-0313	03/26/13	0.23	2.25	-112.8	5.86	66.8	20.7	32
		700-0216	02/06/16	0.24	1.91	-160	5.78	60	22.0	9.11
		700-0217	02/03/17	0.29	1.48	80	5.71	66.24	21.0	15.5
		700-0218	02/03/18	0.26	2.00	50	5.75	61	20.8	13.5
720	17.72 - 20.72	720-0111	01/27/11	0.06	2.69	-220	6.26	408	21.9	13.4
		720-0112	02/06/12	0.1	0.65	-257.5	6.46	360	22.7	14.4
		720-0313	03/26/13	0.38	7.92	-200.5	6.58	428	21.7	9.88
		720-0216	02/06/16	0.1	3.5	-200	6.46	331	22.3	18.6
		720-0217	02/03/17	0.26	2.75	-100	6.13	169.4	20.1	9.33
		720-0218	02/01/18	0.06	1.50	-210	6.11	125	19.5	13.5
760	62.78 - 65.78	760-0111	01/28/11	0.04	4.9	-210	5.51	170.6	20.4	12.3
		760-0112	02/06/12	0.11	0.89	-180.7	5.36	158.1	22.2	32.3
ACW Facility Wells										
ACWMW1	5 - 15	ACWMW1-0112	02/07/12	0.19	2.06	-228.3	6.26	469	20.3	5.29
		ACWMW1-0313	03/19/13	0.17	1.92	-249.5	6.14	488	19.7	9.7
		ACWMW1-0216	02/08/16	0.07	4.25	-140	6.28	525.4	19.5	3.8
		ACMMW1-0217	02/06/17	0.03	3.25	-270	6.16	470.5	21.0	2.66
		ACMMW1-0218	02/06/18	0.08	1.20	-170	6.37	567.6	18.8	1.3
		ACWMW1	04/10/18	0.08	2.31	-164.4	7.94	619	20.45	3.09
ACWMW2	5 - 15	ACWMW2-0112	02/07/12	0.11	0.3	-263	6.26	256.3	20	2.96
		ACMW2-0217	02/07/17	0.12	0.16	-270	6.42	228.9	21.6	5.44
		ACMW2-0218	02/06/18	0.24	0.10	-250	6.53	238	19.7	0.83
ACWMW2B	23 - 33	ACWMW2B	04/11/18	0.03	>3.3	-82.3	5.72	187	22.62	665
ACWMW3	4 - 14	ACWMW3-0112	02/07/12	1.43	0.09	70.7	6.12	271.2	19.7	7.87
		ACMW3-0217	02/07/17	1.59	0.04	-190	6.24	126.6	20.8	30.3
		ACMW3-0218	02/06/18	0.25	< 0.03 U	20	6.43	277.9	17.7	6.87
ACWMW3D	69.5 - 79.5	ACWMW3D	04/10/18	0	>3.3	-405.3	7.27	371	22.96	2.05
Source Wells										
ACW4	10.04 - 13.04	ACW4-0112	02/05/12	0.86	0.17	184	6.6	251.5	21	17.3
		ACW4-0217	01/31/17	2.00	0.05	-90	6.23	169.7	21.5	44
		ACW4-0218	01/30/18	1.14	0.21	90	6.27	145	19.7	24.1
ACW5	6.74 - 9.74	ACW5-0112	02/05/12	0.93	0.05	180	7.01	313	19.6	2.67
		ACW5-0217	01/31/17	1.17	< 0.03 U	-150	6.69	230.6	20.2	2.35
		ACW5-0218	01/31/18	2.68	< 0.03 U	110	6.9	271	18.2	0.81
Cluster Wells 1 though 10										
C1MW01	241 - 251	C101-0111	01/31/11	0.7	0.9	50	6.49	87.4	20.8	99.6
		C101-0112	01/31/12	0.59	0.8	54.8	6.57	109.2	21.3	572
		C101-0313	03/25/13	0.81	0.23	-217.4	6.48	102.2	20.9	22.9
		C101-0216	02/05/16	0.13	0.22	-210	6.54	85.5	21.1	7.43
		C101-0217	02/03/17	0.47	0.26	30	6.55	95.27	22.1	5.5
		C101-0218	02/03/18	0.29	0.21	50	6.57	96.54	21.7	6.54
C1MW02	196 - 206	C102-0111	01/31/11	5.54	< 0.02	310	4.97	36	22.3	1.23
		C102-0112	01/31/12	5.51	0.09	100.4	5.49	23.56	22	10.7
		C102-0313	03/25/13	5.52	0.11	-147.1	5.18	36.7	21.9	8.22
		C102-0216	02/05/16	8.15	0.03 U	10	5.23	29.8	21.0	2.53
		C102-0217	02/03/17	6.04	< 0.03 U	80.7	5.27	33.69	22.3	6.35
		C102-0218	02/03/18	6.04	< 0.03 U	10	4.68	34.05	21.8	1.7

Created By: A. Callaway 09/27/2016
Updated by:M. Randolph
Checked By:Justice W.

Table 3-26
Groundwater Quality Field Parameters
American Creosote Works Site
Pensacola, Escambia County, Florida

Station ID	Screen Interval (ft bls)	Sample ID	Sample Date	Dissolved Oxygen (mg/L)	Ferrous Iron (mg/L)	Oxidation Reduction Potential (mV)	pH (standard units)	Specific Conductivity (µs/cm)	Temperature (°C)	Turbidity (NTU)
Cluster Wells 1 though 10 - cont'd.										
C1MW03	134 - 147	C103-0111	01/31/11	0.01	8.44	-160	6.74	149.5	22.3	0.21
		C103-0112	01/31/12	0.48	1.47	-140.4	6.7	142.8	21.6	1.4
		C103-0313	03/25/13	0.05	11.8	-283.7	6.6	133.6	21.2	3.56
		C103-0216	02/05/16	3.34	16.5	-230	6.88	133	21.7	2.08
		C103-0217	02/02/17	0.11	15.00	-150	6.80	145.6	23.5	5.55
		C103-0218	02/03/18	0.11	17.50	-150	6.94	150.9	21.5	3.91
C1MW04	57 - 67	C104-0111	01/31/11	0.02	11.6	-200	6.81	245.7	23.6	0.23
		C104-0112	01/31/12	0.23	2.4	-138.9	6.67	243.1	22.2	0.98
		C104-0313	03/25/13	0.22	9.92	-290.4	6.59	241.5	21.7	1.33
		C104-0216	02/05/16	0.03	23.75	-190	6.78	210	22.1	1.36
		C104-0217	02/02/17	0.32	15	-130	6.70	226.1	22.8	1.85
		C104-0218	02/03/18	0.57	23.75	-90	6.69	234.9	21.8	1.31
C1MW05	17 - 27	C105-0112	01/31/12	0.12	2.35	-122.9	6.38	1047	22.4	15.6
		C105-0313	03/25/13	0.51	4.5	-317.7	6.46	1069	21.6	9.73
		C105-0216	02/05/16	0.13	6.25	-170	6.5	1154	21.6	6.11
		C105-0217	02/03/17	0.28	7.20	-110	6.45	1358	22.4	11.9
		C105-0218	02/03/18	0.13	6.50	-40	6.46	1425	22	8.95
C2MW01	236 - 246	C201-0111	01/29/11	3.18	0.1	220	4.59	46.2	22.5	1.7
		C201-0112	02/07/12	1.07	0.27	0.1	4.8	49.8	22.3	3.8
		C201-0313	03/28/13	0.71	0.05	-129.9	4.37	47.9	20.9	2.93
		C201-0216	02/05/16	3.4	0.08	60	4.55	44.17	20.7	5.98
		C201-0217	02/06/17	2.91	0.06	-120	4.39	43.59	22.5	5.93
		C201-0218	02/03/18	1.15	0.17	30	4.53	45	19.6	9.74
C2MW02	217 - 227	C202-0111	01/29/11	3.36	0.06	210	5	46.6	22.6	2.43
		C202-0112	02/07/12	3.55	0.12	238.8	5.08	45.3	22.3	8.44
		C202-0313	03/28/13	4.22	0.1	-177.3	5.18	41.5	21.4	8.63
		C202-0216	02/05/16	4.27	0.03 U	50	5.02	40.33	21	6.17
		C202-0217	02/06/17	4.78	< 0.03 U	-50	5.04	37.88	22.4	6.7
		C202-0218	02/03/18	5.01	< 0.03 U	40	5.06	38	21.1	4.87
C2MW03	157 - 167	C203-0111	01/30/11	2	0.72	-20	5.58	45.4	22.4	2.47
		C203-0112	02/07/12	0.39	0.18	-19.5	5.68	45.5	22.3	1.88
		C203-0313	03/28/13	1.32	0.84	-163.5	5.51	39.9	21.1	4.9
		C203-0216	02/06/16	0.43	0.03 U	20	5.36	38.16	21.4	1.59
		C203-0217	02/06/17	0.73	< 0.03 U	-250	5.62	41.78	22.3	1.88
		C203-0218	02/03/18	1.51	< 0.03 U	0	5.6	46	21.3	3.58
C2MW04	118 - 128	C204-0111	01/29/11	2.6	1.39	120	5.03	38.1	24	15.9
		C204-0112	02/07/12	0.9	1.71	0	5.51	41.9	22.3	46.5
		C204-0313	03/28/13	1.63	0.67	-229.7	5.76	41.5	21.2	19.8
		C204-0216	02/06/16	3.55	0.03 U	20	5.06	44.61	21.4	3.19
		C204-0217	02/06/17	3.53	< 0.03 U	20	5.11	47.57	22.00	6.44
		C204-0218	02/03/18	3.62	< 0.03 U	160	5.31	42	20.9	0.75
C2MW05	57 - 67	C205-0111	01/29/11	0.51	1.93	-220	5.78	113.9	23.9	1.65
		C205-0112	02/07/12	0.2	2.15	-225.9	5.75	108.5	22.4	5.83
		C205-0313	03/27/13	0.23	1.33	-311.4	5.95	110.3	21.6	7.74
		C205-0216	02/05/16	0.11	0.36	-90	5.75	103.7	20.7	1.01
		C205-0217	02/06/17	0.29	0.46	-260	5.86	108.5	22.2	0.98
		C205-0218	02/03/18	0.12	0.36	-100	5.95	97	20.6	0.93

Created By: A. Callaway 09/27/2016
Updated by:M. Randolph
Checked By:Justice W.

Table 3-26
Groundwater Quality Field Parameters
American Creosote Works Site
Pensacola, Escambia County, Florida

Station ID	Screen Interval (ft bls)	Sample ID	Sample Date	Dissolved Oxygen (mg/L)	Ferrous Iron (mg/L)	Oxidation Reduction Potential (mV)	pH (standard units)	Specific Conductivity (µs/cm)	Temperature (°C)	Turbidity (NTU)
Cluster Wells 1 though 10 - cont'd.										
C2MW06	11 - 21	C206-0112	02/07/12	0.16	0.23	-257.6	5.82	2983	21.9	10.8
		C206-0313	03/28/13	0.27	0.12	-271.2	5.97	2832	21.1	7.55
		C206-0216	02/05/16	0.21	0.09	-160	5.88	2453	20.7	4.95
		C206-0217	02/06/17	0.23	0.32	-280	5.68	3339	21.7	8.47
		C206-0218	02/03/18	0.17	0.10	-190	5.95	2456	20.5	7.15
C3MW01	236 - 246	C301-0112	02/08/12	3.67	NR	210.8	5.18	648	21.7	0.78
		C301-0313	03/21/13	1.04	0.18	52	5.57	784	20.3	8.95
		C301-0216	02/04/16	2.05	0.03 U	80	5.72	703	20.4	2.69
		C301-0217	02/01/17	1.21	< 0.03 U	220	5.85	674.2	21.5	5.54
		C301-0218	01/30/18	2.47	< 0.03 U	180	5.67	601.1	20.6	2.22
C3MW02	217 - 227	C302-0112	02/02/12	4.89	0.13	219.3	5.96	185.1	21.7	15.1
		C302-0313	03/21/13	5.17	0.02 U	100.2	5.33	155	21.3	4.96
		C302-0216	02/02/16	5.67	0.03 U	180	5.32	233	21.3	2.25
		C302-0217	02/01/17	5.65	0.03 U	290	5.28	247.3	21.3	2.66
		C302-0218	01/30/18	5.54	< 0.03 U	110	5.3	312.5	20.7	2.31
C3MW03	137 - 147	C303-0112	02/02/12	6.39	0.11	167.9	5.16	73	21.9	9.07
		C303-0313	03/21/13	6.71	0.01 U	125.8	5.18	71	20	3.64
		C303-0216	02/02/16	6.69	0.03 U	200	5.15	76.37	21.3	1.61
		C303-0217	02/02/17	6.66	< 0.03 U	250	5.05	75.78	21.3	1.01
		C303-0218	01/31/18	6.92	< 0.03 U	90	5.11	69.12	20.8	0.59
C4MW01	235 - 245	C401-0112	02/02/12	1.9	0.35	272.5	4.41	692	21.2	28.3
		C401-0313	03/20/13	1.55	0.17	99.1	4.26	744	20.7	4.92
		C401-0216	02/04/16	1.59	0.09	-90	4.28	727.1	21.4	8.51
		C401-0217	02/01/17	1.09	0.09	-80	4.23	638.5	22.1	6.55
		C401-0218	01/31/18	1.27	0.10	260	4.23	1364	20.8	5.72
C4MW02	197 - 207	C402-0112	02/02/12	6.75	0.34	227.9	5.53	95.2	21.1	67.1
		C402-0313	03/20/13	6.4	0.03	168.2	5.17	77.7	21.5	1.92
		C402-0216	02/06/16	6.62	0.03 U	140	5.35	48	21.3	2.53
		C402-0217	02/01/17	6.27	< 0.03 U	-20	5.05	50.02	21.5	5.8
		C402-0218	01/31/18	7.42	< 0.03 U	220	5.2	108	21.1	6.12
C4MW03	137 - 147	C403-0112	02/02/12	2.81	0.11	216.9	5.68	124	21.1	23
		C403-0313	03/20/13	2.43	0.3	51.3	5.37	123.1	20	7.52
		C403-0216	02/04/16	5.36	0.03 U	-20	5.3	158	21.7	1.22
		C403-0217	02/01/17	4.98	0.06	-60	4.91	131.3	21.6	4.74
		C403-0218	01/31/18	5.38	< 0.03 U	200	5.03	143	20.9	1.52
C4MW04	117 - 127	C404-0112	02/02/12	1.57	0.17	132.1	5.35	152.2	21.3	54.3
		C404-0313	03/20/13	1.31	0.06	-47.5	5.17	154.8	19.4	9.11
		C404-0216	02/05/16	1.24	0.07	70	5.03	140.2	21.3	8.49
		C404-0217	02/01/17	1.81	< 0.03 U	-60	4.74	124.7	21.7	6.64
		C404-0218	01/31/18	1.53	< 0.03 U	240	4.96	140.2	21.2	8.69
C4MW05	77 - 87	C405-0112	02/02/12	0.29	2.99	-77.2	6.34	178.8	21	1.38
		C405-0313	03/20/13	0.22	8.36	-91.6	6.24	187.1	20.1	2
		C405-0216	02/04/16	0.07	5.25	20	5.66	814	21.9	0.21
		C405-0217	02/01/17	0.17	9.75	10	6.23	189.2	21.1	0.56
		C405-0218	01/31/18	0.16	5.35	20	6.2	192.4	20.8	0.67
C4MW06	23 - 33	C406-0112	02/02/12	0.16	0.99	-42.2	6.25	7620	21.5	5.61
		C406T-0112	*02/02/12*	*0.14*	*1.17*	*-29.7*	*6.25*	*8.27*	*21.9*	*52.9*
		C406-0313	03/19/13	0.08	1.58	-138	6.22	6.55	20.9	21.4
		C406-0216	02/04/16	0.07	8.25	-60	6.24	3241	21.5	2.85
		C406-0217	02/01/17	0.14	6.5	-20	6.24	1772	22	4.38
		C406-0218	01/31/18	0.31	2.50	0	6.2	2230	21.3	7.72

Created By: A. Callaway 09/27/2016
Updated by:M. Randolph
Checked By:Justice W.

Table 3-26
Groundwater Quality Field Parameters
American Creosote Works Site
Pensacola, Escambia County, Florida

Station ID	Screen Interval (ft bls)	Sample ID	Sample Date	Dissolved Oxygen (mg/L)	Ferrous Iron (mg/L)	Oxidation Reduction Potential (mV)	pH (standard units)	Specific Conductivity (µs/cm)	Temperature (°C)	Turbidity (NTU)
Cluster Wells 1 though 10 - cont'd.										
C5MW01	238 - 248	C501-0111	02/01/11	4.58	0.48	210	4.92	352	22.5	0.69
		C501-0112	02/03/12	2.29	1.04	177.8	5.34	377	22.1	2.3
		C501-0313	03/23/13	0.71	1.15	139.5	5.11	446	21.1	6.39
		C501-0216	02/08/16	2.16	0.4	120	4.74	330.5	20.6	1.8
		C501-0217	02/06/17	2.58	0.33	-160	4.66	318.9	22.1	1.06
		C501-0218	02/05/18	2.86	0.24	240	4.58	278	21.4	1.62
C5MW02	197 - 207	C502-0111	02/01/11	6.21	0.33	150	5.65	92	22.6	11.4
		C502-0112	02/05/12	5.16	0.27	182	6.58	109.4	22	17
		C502D-0112	*02/05/12*	*5.16*	*0.27*	*182*	*6.58*	*109.4*	*22*	*17*
		C502-0313	03/23/13	5.1	0.13	44.8	6.64	99.4	21.1	9.44
		C502-0216	02/08/16	6.24	0.08	50	6.13	70.82	19.5	26.3
		C502-0217	02/06/17	6.61	<0.03 U	110	5.95	61.42	22.4	8.38
		C502-0218	02/05/18	7.06	< 0.03 U	250	5.61	50	20.9	8.23
C5MW03	137 - 147	C503-0111	02/01/11	4.32	<0.02	230	5.41	75.4	23	1.58
		C503-0112	02/05/12	5.47	0.07	293.6	5.05	69.8	22.3	10.6
		C503-0313	03/23/13	5.49	0.15	88.5	5.15	72.2	20.3	11.5
		C503-0216	02/08/16	5.75	0.03 U	90	5.05	76.02	20.9	8.62
		C503-0217	02/06/17	5.58	< 0.03 U	50	5.26	75.61	21.9	11.5
		C503-0218	02/05/18	5.43	< 0.03 U	260	5.04	66	21.9	4.58
C5MW04	67 - 77	C504-0111	02/01/11	0.03	0.46	220	4.6	89.1	22.4	0.56
		C504-0111	*02/01/11*	*0.03*	*0.46*	*220*	*4.6*	*89.1*	*22.4*	*0.56*
		C504-0112	02/05/12	0.19	0.8	212.8	4.69	90.2	22.2	5.6
		C504-0313	03/23/13	0.06	0.82	94.5	4.68	95.4	21.2	5.48
		C504-0216	02/08/16	0.15	0.9	10	4.48	107.4	21.3	1.82
		C504-0217	02/06/17	0.10	0.99	-180	4.68	106.3	22.2	8.33
		C504-0218	02/05/18	0.21	1.04	-80	4.66	107	21.7	6.88
C5MW05	37 - 47	C505-0111	01/31/11	0.02	*	-260	5.15	152.1	24.6	> 1000
		C505-0112	02/05/12	0	1.11	0	5.18	156.1	22.6	171
		C505-0313	03/23/13	0.01	2.69	-187.3	5.12	160.9	21.7	7.11
		C505-0216	02/08/16	0.02	4.25	-180	5.21	199.9	21.5	3.9
		C505-0217	02/06/17	0.09	4.75	-170	5.21	259.4	22.5	5.10
		C505-0218	02/05/18	0.39	4.5	-200	5.29	291.3	22	2.11
C5MW06	17 - 27	C506-0111	01/31/11	0.02	2.55	-200	5.26	258.5	21.5	9.45
		C506-0112	02/05/12	0.02	1.93	-138.8	5.27	180.8	22.5	8.21
		C506-0313	03/23/13	0.09	1.57	-176.6	5.27	186.4	20.9	6.89
		C506-0216	02/09/16	0.04	3.4	-160	5.12	237.4	21.2	6.35
		C506-0217	02/06/17	0.16	4.25	-200	5.29	364.9	22.3	9.36
		C506-0218	02/05/18	0.1	2.00	-240	5.45	384.4	21.2	14.5
C6MW01	232.5 - 242.5	C601-0112	02/04/12	4.6	0.03	120.8	5.5	40.8	22.7	2.76
		C601-0313	03/22/13	4.62	NA	26	5	37	21.6	1.35
		C601-0216	02/04/16	5.2	0.03 U	80	5.1	39.28	21.5	0.66
		C601-0217	01/31/17	5.97	< 0.03 U	210	5.11	40.71	23.0	1.94
C6MW02	197 - 207	C602-0112	02/04/12	7.49	0.06	123.8	5.4	38.4	22.5	3.87
		C602-0313	03/22/13	7.14	0.07	68.7	5.4	48.4	21.5	6.19
		C602-0216	02/04/16	7.06	0.03 U	100	5.3	52.43	21.8	1.3
		C602-0217	01/31/17	7.19	0.07	210	5.33	50.89	22.6	1.65
C6MW03	137 - 147	C603-0112	02/04/12	0.61	0.41	NR	5.2	121.3	22.6	121
		C603-0313	03/22/13	0.41	0.34	-58.5	5.25	136.2	21.8	9.76
		C603-0216	02/04/16	0.77	0.03 U	60	5.32	142.9	22.2	4.59
		C603-0217	01/31/17	0.96	< 0.03 U	220	5.26	130.4	21.5	8.61

Created By: A. Callaway 09/27/2016
Updated by:M. Randolph
Checked By:Justice W.

Table 3-26
Groundwater Quality Field Parameters
American Creosote Works Site
Pensacola, Escambia County, Florida

Station ID	Screen Interval (ft bls)	Sample ID	Sample Date	Dissolved Oxygen (mg/L)	Ferrous Iron (mg/L)	Oxidation Reduction Potential (mV)	pH (standard units)	Specific Conductivity (µs/cm)	Temperature (°C)	Turbidity (NTU)
Cluster Wells 1 though 10 - cont'd.										
C6MW04	57 - 67	C604-0111	01/28/11	0.12	1.9	-180	5.28	139.6	23.3	1.18
		C604-0112	02/04/12	0.31	2.68	-191.5	5.82	175.4	22.4	2.6
		C604-0313	03/22/13	0.04	2.91	-88.5	5.42	166	22	1.09
		C604-0216	02/04/16	0.07	2.66	-150	5.46	159.4	21.3	1.46
		C604-0217	01/31/17	0.24	3.00	-120	5.59	171.6	22.3	3.55
		C604-0218	02/05/18	0.18	1.75	-160	5.27	183.4	22	4.15
C6MW05	9 - 19	C605-0111	01/28/11	0.06	1.44	-200	5.48	206.8	18.9	1.08
		C605-0112	02/04/12	0.19	1.97	-219.5	5.78	297.8	21	3.27
		C605-0313	03/22/13	0.18	2.42	-100.5	6	434	20.6	1.96
		C605-0216	02/04/16	0.01	1.11	-180	6.25	317.9	19.2	3
		C605-0217	01/31/17	0.35	1.45	-110	6.28	353.5	21.7	1.47
C7MW01	233 - 243	C701-0112	02/05/12	2.64	2.85	0	6.28	64.5	22.4	115
		C701-0313	03/23/13	1.48	1.25	-1.2	6.31	72	21.9	23.8
		C701-0216	02/09/16	2.78	0.91	80	5.76	47.16	22	18.5
		C701-0218	02/05/18	2.25	0.71	-30	5.42	47	22.3	12.8
C7MW02	197 - 207	C702-0112	02/05/12	6.41	0.61	0	5.98	42.5	22.4	62.1
		C702-0313	03/23/13	5.31	0.15	115.9	6.74	51.7	21.8	12.2
		C702-0216	02/09/16	5.54	0.03 U	-70	6.47	40.1	21.8	4.39
		C702-02168	02/05/18	5.51	< 0.03 U	-30	6.57	51	22.7	3.73
C7WM03	161 - 171	C703-0112	02/05/12	7.08	0.07	317.4	5.32	61.4	22.4	3.48
		C703-0313	03/23/13	7.05	0.17	61.6	5	77.3	22.1	4.71
		C703-0216	02/09/16	7.31	0.03 U	-60	5.14	60.4	21.6	1.27
		C703-0218	02/05/18	7.38	< 0.03 U	20	4.97	63	22.3	4.31
C7MW04	98 - 108	C704-0112	02/05/12	0.24	2.24	-250.6	6.04	83.8	22.5	9.72
		C704-0313	03/23/13	0.74	1.96	-48.1	6.01	77.8	21.4	14.4
		C704-0216	02/09/16	0.41	2.9	-40	5.78	54.77	21.2	18.2
		C704-0218	02/05/18	0.39	1.50	-130	5.95	62.33	22.6	9.9
C8MW01	232 - 242	C801-0112	02/03/12	0.65	1.84	27	6.21	69	22.7	60.3
		C801-0313	03/22/13	0.52	1.06	19.4	6.19	69.1	21.8	5.1
		C801-0216	02/02/16	0.32	1.03	20	6.32	68.27	22.4	4.33
C8MW02	197 - 207	C802-0112	02/03/12	5.75	0.05	NR	5.94	40.3	22.5	6.54
		C802-0313	03/22/13	5.95	0.05	65.4	5.96	38.3	22.4	4.89
		C802-0216	02/02/16	5.99	0.03 U	-60	6.03	37.8	22.4	1.09
C8MW03	137 - 147	C803-0112	02/03/12	4.92	0	345	4.95	115.2	22.5	1.32
		C803-0313	03/22/13	4.9	0.04	-12.1	4.94	106.5	22.3	1.08
		C803-0216	02/02/16	4.56	0.03 U	-20	4.93	98.5	22.5	1.51
C8MW04	57 - 67	C804-0112	02/03/12	4.68	0.18	265.2	5.7	172.4	22.5	26.6
		C804-0313	03/22/13	5.1	0.07	-13.4	5.38	111.3	22.1	9.24
		C804-0216	02/02/16	5.77	0.04	130	5.15	93.73	22.4	3.78
C8MW05	17 - 27	C805-0112	02/03/12	1.5	0	163.7	6.28	326	22.7	1.5
		C805-0313	03/22/13	0.13	0.1	-57.8	6.17	305	21.2	2.51
		C805-0216	02/02/16	0.07	0.03 U	-50	6.3	240.8	22.9	0.56
C9MW01	239 - 249	C901-0111	01/30/11	1.33	0.49	150	5.09	41.9	22.9	26
		C901-0112	01/31/12	0.43	0.32	224	4.71	28.59	23.3	10.2
		C901-0313	03/21/13	0.61	0.57	-150	4.82	44.5	22.6	31.5
		C901-0216	02/05/16	0.59	0.14	20	4.74	45.25	22.7	9.92
		C901-0217	02/04/17	0.44	0.09	80	4.73	44.87	23.8	8.23
		C901-0218	02/01/18	0.73	0.17	20	4.56	44	23.1	9.99

Created By: A. Callaway 09/27/2016
Updated by:M. Randolph
Checked By:Justice W.

Table 3-26
Groundwater Quality Field Parameters
American Creosote Works Site
Pensacola, Escambia County, Florida

Station ID	Screen Interval (ft bls)	Sample ID	Sample Date	Dissolved Oxygen (mg/L)	Ferrous Iron (mg/L)	Oxidation Reduction Potential (mV)	pH (standard units)	Specific Conductivity (µs/cm)	Temperature (°C)	Turbidity (NTU)
Cluster Wells 1 though 10 - cont'd.										
C9MW02	167 - 177	C902-0111	01/30/11	0.01	2.26	200	6	79.6	22.8	1.93
		C902-0112	01/31/12	0.3	2.57	-202.5	6.15	84	23.4	5.41
		C902-0313	03/21/13	1.02	3.84	-209	5.81	72.8	22	11.2
		C902-0216	02/05/16	0.1	4	-110	5.97	63.29	22.4	4.29
		C902-0217	02/04/17	0.40	3.85	-110	5.90	63.19	23.0	4.75
		C902-0218	02/01/18	0.13	4.00	-110	5.82	67	23.1	3.08
C9MW03	144 - 154	C903-0111	01/30/11	0.01	2.24	-220	6.47	95.3	22.8	0.39
		C903-0112	01/31/12	0.58	2.76	205.7	6.21	52.4	23.2	9.63
		C903-0313	03/21/13	0.31	1.94	-226	6.25	83.6	21.8	8.37
		C903-0216	02/05/16	0.11	6	-150	6.3	80.25	22.5	2.34
		C903-0217	02/04/17	0.30	6.50	-30	6.36	84.27	22.9	7.48
		C903-0218	02/01/18	0.2	5.00	-90	6.3	67	22.9	1.58
C9MW04	77 - 87	C904-0111	01/30/11	0.08	3.98	230	6.22	124.1	24.6	9.45
		C904-0112	01/31/12	0.17	1.7	-159.8	6.33	126.2	23.4	20.4
		C904-0313	03/21/13	1.33	6.16	-77	6.39	122.8	23.7	6.7
		C904-0216	02/05/16	0.15	7.25	-90	6.38	98.92	22.9	5.99
		C904-0217	02/04/17	0.10	7.05	-230	6.26	88.34	23.1	3.13
		C904-0218	02/01/18	0.6	7.50	-120	6.38	74	23.3	2.57
C9MW05	26 - 36	C905-0111	01/30/11	0.05	1.88	-220	6.53	148.1	24.3	0.66
		C905-0112	01/31/12	0.42	2	178.5	6.51	92.4	24.4	2.08
		C905-0313	03/21/13	0.28	4.24	-97.6	6.52	148	24	0.43
		C905-0216	02/05/16	0.4	4	-80	6.55	148.7	23.5	2.92
		C905-0217	02/04/17	0.44	4.70	-40	6.54	155.0	23.4	5.51
		C905-0218	02/01/18	0.18	4.50	-150	6.56	132	24.5	0.42
C10MW01	240 - 250	C1001-0112	02/04/12	0.83	1.29	-104.3	7.02	87.3	22.2	54.1
		C1001-0313	03/25/13	0.79	0.35	-262.4	6.94	91	21.6	51.9
		C1001-0216	02/03/16	0.93	0.38	-140	6.76	75.4	20.4	14.2
C10MW02	205 - 215	C1002-0112	02/04/12	7.07	0.06	236.4	5.25	82	21.6	4.61
		C1002-0313	03/25/13	7	0.02 U	-147.6	5.17	78.3	21.3	3.11
		C1002-0216	02/03/16	7.07	0.03 U	90	5.11	68.71	21.3	1.19
C10MW03	107 - 117	C1003-0112	02/04/12	1.54	0.32	NM	6.92	124.2	22.2	42.4
		C1003-0313	03/25/13	1.65	0.13	-36.6	6.65	121.4	21.9	17.8
		C1003-0216	02/03/16	2.61	0.07	20	6.47	107.4	21.2	9.2
C10MW04	56.5 - 66.5	C1004-0112	02/04/12	0.59	0.1	171.5	4.56	95.2	22	12.7
		C1004-0313	03/25/13	0.17	0.05	-52.7	4.5	94.5	21.3	9.79
		C1004-0216	02/02/16	0.08	0.03	60	4.61	99.71	21.3	6.34
C10MW05	17 - 27	C1005-0112	02/04/12	0.25	1.11	-134.3	5.49	209.6	21.6	8.92
		C1005-0313	03/25/13	0.27	0.63	-183.1	5.5	181.7	19.8	6.45
		C1005-0216	02/02/16	0.16	0.59	-200	5.67	171	21.3	1.77
Pensacola Yacht Club Ditch										
MW1	175 - 185	MW1-0111	01/28/11	2.32	0.45	130	5.4	47.2	22.9	11.2
		MW1-0112	02/03/12	0.52	1.28	163.7	5.36	57.2	21.8	9.31
		MW1-0217	02/06/17	1.79	1.28	-190	5.22	57.73	21.8	11.3
		MW1-0218	01/31/18	0.84	2.00	140	5.46	72.47	20.3	9.64
MW1A	18.35 - 28.35	MW1A-0111	01/28/11	0.08	4.84	240	6.52	438	21.9	2.24
		MW1A-0112	02/01/12	0.26	2.02	-145.5	6.69	380	22	5.81
		MW1A-0217	02/04/17	0.12	10.00	-210	6.21	667.2	21.6	6.41
		MW1A-0218	01/31/18	0.09	5.25	-160	6.19	1044	20.3	2.84

Created By: A. Callaway 09/27/2016
Updated by:M. Randolph
Checked By:Justice W.

Table 3-26
Groundwater Quality Field Parameters
American Creosote Works Site
Pensacola, Escambia County, Florida

Station ID	Screen Interval (ft bls)	Sample ID	Sample Date	Dissolved Oxygen (mg/L)	Ferrous Iron (mg/L)	Oxidation Reduction Potential (mV)	pH (standard units)	Specific Conductivity (µs/cm)	Temperature (°C)	Turbidity (NTU)
Pensacola Yacht Club Ditch - cont'd.										
MW2	140 - 150	MW2-0112	02/01/12	0.34	1.63	-9.6	6.57	53.6	21.3	31.9
		MW2-0217	02/04/17	2.25	0.09	-30	4.80	68.84	20.2	24.4
		MW2-0218	02/01/18	2.7	< 0.03 U	240	4.76	64.75	21	8.67
MW3	88.52 - 98.52	MW3-0111	01/28/11	0.54	0.62	-120	6.81	170.1	22.3	2.44
		MW3-0217	02/04/17	0.23	1.71	-110	6.54	132.50	21.1	6.48
		MW3-0218	02/01/18	0.34	1.75	20	6.47	116.6	21	9.36
MW4	182.5 - 192.5	MW4-0112	02/01/12	5.59	0.03	5.4	10.5	222	22.2	3.5
		MW4-0217	2/3/2017	5.57	< 0.03 U	-150	10.01	162.7	22.1	0.88
		MW4-0218	02/01/18	5.31	< 0.03 U	-80	10.16	155.4	21.9	1.63
MW5	131.79 - 141.79	MW5-0111	01/29/11	4.6	<0.02	190	4.89	64.8	22.5	1.57
		MW5-0112	02/01/12	3.77	0.09	178	4.92	66.5	22.1	7.02
		MW5-0217	02/03/17	5.65	< 0.03 U	-30	4.52	88.06	22.1	2.49
		MW5-0218	02/01/18	5.55	< 0.03 U	60	4.48	89.25	22.1	3
MW6	91 - 101	MW6-0111	01/30/11	1.64	0.03	150	9.5	145.7	19.6	2.7
		MW6-0112	02/01/12	1.78	<0.02	91.5	9.48	189.1	22.1	1.34
		MW6-0217	02/03/17	1.52	< 0.03 U	-200	10.03	238.5	21.7	2.40
		MW6-0218	02/01/18	2	< 0.03 U	-130	10.58	274.4	21.7	2.34
Neighborhood Monitoring Wells										
MW7A	10 - 20	MW7A	04/10/19	0.03	>3.30	-341.3	6.93	428	21.44	23.9
MW7B	69.5 - 79.5	MW7B	04/10/18	0.55	1.26	-310.2	6.99	187	23.69	32.4
MW7C	unknown	MW7C-0218	02/03/18	0.49	N/A	-70	5.21	65.27	21.8	3.62
MW8A	35 44.75	MW08A	06/07/18	NM	29.5	-249	6.30	187	24.0	7.65
MW8B	55 - 64.75	MW08B	06/07/18	0.09	20.2	-153.5	6.02	142	22.0	192
MW8C	75 - 84.75	MW08C	06/07/18	0.13	40.2	-219.7	6.62	241	22.0	13.4
MW9A	8 - 18	MW9A	04/11/18	2.64	>3.30	-75.6	5.89	421	25.54	635
Marina Wells										
MW10A	16.5 - 26.5	MW10A	04/11/18	0	>3.30	-132.1	5.99	168	23.31	52.9
MW10B	37 - 47	MW10B	04/11/18	0.22	0.44	-131.5	5.58	144	24.28	>4000
Pensacola Yacht Club Ditch - MW-28 Cluster										
MW28-1	53.7 - 58.7	281-0112	02/06/12	0.18	1.06	NR	5.85	191.8	22.3	4.39
		281-0313	03/27/13	0.17	2.99	-272.2	5.81	174.5	21.7	3.04
		281-0216	02/06/18	0.07	6.5	-150	5.84	166	22.3	3.84
		281-0217	02/02/17	0.30	6.75	-40	5.79	172.3	22.4	1.39
		281-0218	02/01/18	0.25	7.00	-140	5.75	176	21.9	0.94
MW28-2	8.29 - 13.29	282-0112	02/06/12	0.28	0.75	-45.7	5.86	1736	22.4	2.5
		282-0313	03/26/13	0.43	2.97	-298.5	5.93	1566	21.9	1.97
		282-0216	02/08/18	0.08	1.55	-170	6.18	363	23	2.34
		282-0217	02/02/17	0.56	0.71	-70	6.21	246.2	23.3	2.09
		282-0218	02/01/18	0.29	0.83	-150	6.09	318	22.2	2.52

Created By: A. Callaway 09/27/2016
Updated by:M. Randolph
Checked By:Justice W.

Table 3-26
Groundwater Quality Field Parameters
American Creosote Works Site
Pensacola, Escambia County, Florida

Station ID	Screen Interval (ft bls)	Sample ID	Sample Date	Dissolved Oxygen (mg/L)	Ferrous Iron (mg/L)	Oxidation Reduction Potential (mV)	pH (standard units)	Specific Conductivity (µs/cm)	Temperature (°C)	Turbidity (NTU)
Pensacola Yacht Club Ditch - MW-28 Cluster - cont'd.										
MW28-3	11.85 - 16.85	283-0112	02/06/12	0.64	1.54	58	6.29	670	21.7	2.3
		283-0313	03/26/13	0.62	0.58	-312.5	6.39	229.6	21.1	2.1
		283-0216	02/06/16	0.25	0.67	-30	6.24	180.4	22.4	1.95
		283-0217	02/02/17	0.31	0.51	-10	6.22	154.4	22.8	6.47
		283-0218	02/02/18	0.35	0.07	-120	6.21	153	20	3.8
MW28-4	5.37 - 10.37	285-0112	02/06/12	0.14	1.13	-196.2	6.45	225	22.2	1.01
MW28-5	86.2 - 91.2	286-0112	02/06/12	0.34	0.6	-115.8	6.04	1139	22.6	2.35
		285-0313	03/26/13	0.37	6.28	-205.6	6.58	215.4	21.9	3.4
		285-0216	02/06/16	0.22	17.5	-90	6.59	221.3	22.2	0.41
		285-0217	02/02/17	0.33	15.50	-50	6.37	205.70	22.6	0.44
		285-0218	02/01/18	0.11	14.00	-90	6.56	208.9	22.2	0.61
Observation Wells										
OW09	74.4 - 77.4	OW9-0112	02/04/12	0.16	2.67	53	4.68	77.5	22.1	43.4
		OW9-0313	03/22/13	0.27	2.92	4.9	4.74	126.5	20.5	10.9
		OW9-0216	02/03/16	0.34	1.06	-160	4.76	105	21.3	9.26
		OW9-0217	02/02/17	0.23	0.66	-30	4.74	111.4	22.1	10.8
		OW9-0218	02/02/18	0.27	0.46	-140	4.78	106.5	22	3.83
OW10	11.15 - 14.15	OW10-0112	02/06/12	4.09	0.11	-68.9	6.76	309	21	1.82
		OW10-0217	02/02/17	2.27	0.13	-200	6.33	222.1	21.5	3.59
		OW10-0218	02/05/18	3.20	0.27	-40	6.58	332.3	19	0.99
West Side of Pensacola Yacht Club Cluster Wells										
PYCDSM	78.02 - 88.02	PYCDSM-0112	02/02/12	0.33	2.49	-151.8	5.57	722	21.3	13.8
		PYCDSM-0217	02/01/17	0.28	1.9	-180	5.78	622.5	21.5	9.69
		PYCDSM-0218	02/02/2018	0.31	1.75	-20	5.7	303	20.4	9.04
PYCDSN	48.43 - 53.43	PYCDSN-0112	02/02/12	0.4	0.72	-197.8	6.09	178.8	21.2	180
		PYCDSN-0217	02/01/2017	0.07	2.24	-180	6.05	174.5	22.7	40.80
		PYCDSN-0218	02/02/18	2.1 (%Sat)	1.75	-60	6.14	159	20.1	8.07
PYCDSS	8.28 - 18.28	PYCDSS-0112	02/01/17	0.25	4	-230	5.98	261.2	22.1	1.23
		PYCDSS-0217	02/01/17	0.25	4.00	-230	5.98	261.2	22.1	1.23
		PYCDSS-0218	02/05/18	0.09	5.50	-140	6.2	1128	19.6	8.67
PYCWCB	138 - 158	PYCWCB-0112	02/06/12	0.5	1.69	0	5.67	44.5	21.9	25.1
		PYCWCB-0217	02/03/17	1.89	0.30	240	4.93	48.08	21.9	9.4
		PYCWCB-01218	02/01/18	1.56	0.17	220	4.75	49.91	22.1	9.01
Injection Wells and Performance Monitoring Wells										
IW-01	40.4 - 60.4	IW01	08/18/18	0.03	NM	-86.3	6.70	230	20.4	6.82
		IW01	11/05/18	0.12	NM	-179.5	6.06	234	23.2	1.50
IW-02	40.5 - 60.5	IW02	08/18/18	0.05	NM	-95.0	6.91	273	20.5	11.26
PMW-01	39.5 - 59.5	PMW01	08/17/18	0.05	NM	-65.7	6.31	254	21.2	15.6
PMW-02	40.4 - 60.4	PMW02	08/18/18	0.02	NM	-100.7	6.86	268	20.7	51.4
PMW-03	40.4 - 60.4	PMW03	08/19/18	0.05	NM	-84.7	6.11	257	20.4	34.6
PMW--04	39.75 - 59.75	PMW04	08/19/18	0.04	NM	-87.9	6.15	243	20.6	7.14
PMW-05	39.5 - 59.5	PMW05	08/19/18	0.03	NM	-80.3	6.15	260	20.7	10.68
October 2018 DPT Hydropunch Locations										
GW1000	6 - 10	GW1000-10	11/03/18	0.16	NM	-287.4	6.45	151	24.8	>4000
	16 - 20	GW1000-20	11/03/18	0.44	NM	-311.6	6.26	120	24.1	>4000
	28 - 32	GW1000-32	11/03/18	0.15	NM	-352.0	6.14	125	23.2	>4000
	42 - 46	GW1000-46	11/03/18	0.14	NM	-295.8	6.29	159	23.3	>4000
	46 - 50	GW1000-50	11/03/18	0.13	NM	-315.2	5.37	79	23.0	>4000
	56 - 60	GW1000-60	11/03/18	0.15	NM	-243.2	5.79	142	24.0	>4000

Created By: A. Callaway 09/27/2016
Updated by:M. Randolph
Checked By:Justice W.

Table 3-26
Groundwater Quality Field Parameters
American Creosote Works Site
Pensacola, Escambia County, Florida

Station ID	Screen Interval (ft bls)	Sample ID	Sample Date	Dissolved Oxygen (mg/L)	Ferrous Iron (mg/L)	Oxidation Reduction Potential (mV)	pH (standard units)	Specific Conductivity (µs/cm)	Temperature (°C)	Turbidity (NTU)
October 2018 DPT Hydropunch Locations - cont'd.										
GW1001	6 - 10	GW1001-10	10/31/18	3.13	NM	-12.3	6.38	151	28.7	>4000
	15 - 19	GW1001-19	10/31/18	4.16	NM	-47.9	6.28	149	27.8	>4000
	26 - 30	GW1001-30	10/31/18	1.43	NM	-129.0	6.29	163	25.2	>4000
	36 - 40	GW1001-40	10/31/18	4.16	NM	-14.2	6.72	183	25.1	>4000
	46 - 50	GW1001-50	10/31/18	0.89	NM	-184.1	6.52	177	24.7	>4000
GW1002	6 - 10	GW1002-10	11/02/18	0.16	NM	-258.2	6.95	355	23.8	42.4
	16 - 20	GW1002-20	11/02/18	0.12	NM	-230.9	6.40	172	24.3	>4000
	26 - 30	GW1002-30	11/02/18	0.12	NM	-256.4	5.82	189	23.5	>4000
	38 - 42	GW1002-42	11/02/18	0.08	NM	-235.7	5.22	50	23.1	>4000
	50 - 54	GW1002-54	11/02/18	0.28	NM	-39.1	5.72	112	22.9	1401
GW1004	6 - 10	GW1004-10	11/04/18	0.18	NM	-190.6	6.26	167	24.8	>4000
	16 - 20	GW1004-20	11/04/18	0.16	NM	-230.1	5.89	108	24.2	>4000
	26 - 30	GW1004-30	11/04/18	0.22	NM	-249.7	6.11	184	24.0	>4000
	36 - 40	GW1004-40	11/04/18	0.26	NM	-145.5	5.82	113	24.1	>4000
GW1005	10 - 14	GW1005-14	10/29/18	0.10	NM	-338.7	6.01	169.0	25.1	>4000
	18 - 22	GW1005-22	10/29/18	0.01	NM	-309.1	5.46	132.5	24.9	>4000
	26 - 30	GW1005-30	10/29/18	0.50	NM	-236.1	5.66	163.1	24.7	>4000
GW1006	12 - 16	GW1006-16	10/30/18	0.05	NM	-261.2	5.64	235.2	26.2	>4000

Notes:

< - less than
°C - degrees Celsius
ACW - American Creosote Works
mg/L - milligrams per liter
mV - milli Volts
pH - hydrogen ion concentration
NTU - Nephelometric Turbidity Units
µs/cm - microSeimens per centemeter
NM - Not Measured
NR - Not Recorded
* - turbidity too high
U - <0.03 mg/L

Created By: A. Callaway 09/27/2016
Updated by:M. Randolph
Checked By:Justice W.

Table 3-27
MNA Parameter Groundwater Analytical Results - January 2018 to April 2018
American Creosote Works Site
Pensacola, Escambia County, Florida

Location	Screen Interval (ft bls)	Sample ID	Sample Date	Total Organic Carbon (mg/L)	Ammonia (as N) (mg/L)	Nitrate / Nitrite (as N) (mg/L)	Total Phosphorous (mg/L)	Sulfate (as SO4) (mg/L)	Total Alkalinity (as CaCO3) (mg/L)
West of ACW Facility 200 Series Wells									
200	97.45 - 100.45	200-0218	01/31/18	*NA*	*NA*	*NA*	*NA*	*0.82*	*NA*
220	20.21 - 23.21	220-0218	01/31/18	*NA*	*NA*	*NA*	*NA*	*0.93*	*NA*
260	56.82 - 61.82	260-0218	01/31/18	*NA*	*NA*	*NA*	*NA*	*13*	*NA*
Pensacola Yacht Club Ditch 400 Series Wells									
420	15.2 - 18.2	420-0218	02/02/18	*NA*	*NA*	*NA*	*NA*	*0.1 U*	*NA*
440	36.76 - 39.76	440-0218	02/02/18	*NA*	*NA*	*0.050 U*	*NA*	*0.1 U*	*NA*
480	75.39 - 78.39	480-0218	02/02/18	*NA*	*NA*	*NA*	*NA*	*0.1 U*	*NA*
Pensacola Yacht Club Ditch 600 Series Wells									
600	unk-60	600-0218	02/02/18	*NA*	*NA*	*NA*	*NA*	*0.96*	*NA*
660	unk-60	660-0218	02/05/18	*NA*	*NA*	*NA*	*NA*	*0.26*	*NA*
680	unk-60	680-0218	02/02/18	*NA*	*NA*	*NA*	*NA*	*1.3*	*NA*
Pensacola Yacht Club Ditch 700 Series Wells									
700	98.47 - 101.47	700-0218	02/03/18	*NA*	*NA*	*NA*	*NA*	*4.2*	*NA*
720	17.72 - 20.72	720-0218	02/01/18	*NA*	*NA*	*NA*	*NA*	*0.8*	*NA*
Facility Wells									
ACW1	5 - 15	ACMMW1-0218	02/06/18	*NA*	*NA*	*NA*	*NA*	*3.5*	*NA*
		ACWMW1D-0218 (dup)	02/06/18	*NA*	*NA*	*NA*	*NA*	*3.3*	*NA*
		ACW-MW1	04/10/18	*NA*	*NA*	*NA*	*0.14*	*NA*	*NA*
ACW 2	5 - 15	ACWMW2-0218	02/06/18	*NA*	*NA*	*NA*	*NA*	*6*	*NA*
ACW-MW2B	23 - 33	ACW-MW2B	04/11/18	9.9	0.22	0.05 U	0.25	2.8	41
		ACW-MW92B (dup)	04/11/18	*7.6*	*0.22*	*0.05 U*	*0.24*	*2.9*	*42*
ACW-MW3D	69.5 - 79.5	ACW-MW3D	04/10/18	4 O	0.13	0.05 U	0.012	8.4	49
Source Wells									
ACW4	10.04 - 13.04	ACW4-0218	01/30/18	*NA*	*NA*	*NA*	*NA*	*7.2*	*NA*
ACW5	6.74 - 9.74	ACW5-0218	01/31/18	*NA*	*NA*	*NA*	*NA*	*1*	*NA*

Created by: J. Richardson 8/1/2016
Updated by: M. Randolph 9/27/18
Checked by:

Table 3-27
MNA Parameter Groundwater Analytical Results - January 2018 to April 2018
American Creosote Works Site
Pensacola, Escambia County, Florida

Location	Screen Interval (ft bls)			Sample ID	Sample Date	Total Organic Carbon (mg/L)	Ammonia (as N) (mg/L)	Nitrate / Nitrite (as N) (mg/L)	Total Phosphorous (mg/L)	Sulfate (as SO4) (mg/L)	Total Alkalinity (as CaCO3) (mg/L)
Cluster Wells 1 though 10											
C1MW01	241	-	251	C101-0218	02/03/18	*NA*	*NA*	*NA*	*NA*	*6.9*	*NA*
C1MW02	196	-	206	C102-0218	02/03/18	*NA*	*NA*	*NA*	*NA*	*1.5*	*NA*
C1MW03	157	-	167	C103-0218	02/03/18	*NA*	*NA*	*NA*	*NA*	*0.6*	*NA*
				C103D-0218 (dup)	02/03/18	*NA*	*NA*	*NA*	*NA*	*0.68*	*NA*
C1MW04	57	-	67	C104-0218	02/03/18	*NA*	*NA*	*NA*	*NA*	*0.1 U*	*NA*
C1MW05	17	-	27	C105-0218	02/03/18	*NA*	*NA*	*NA*	*NA*	*0.1 U*	*NA*
C2MW01	236	-	246	C201-0218	02/03/18	*NA*	*NA*	*NA*	*NA*	*6.4*	*NA*
C2MW02	217	-	227	C202-0218	02/03/18	*NA*	*NA*	*NA*	*NA*	*1.5*	*NA*
C2MW03	157	-	167	C203-0218	02/03/18	*NA*	*NA*	*NA*	*NA*	*0.63*	*NA*
C2MW04	118	-	128	C204-0218	02/03/18	*NA*	*NA*	*NA*	*NA*	*1.4*	*NA*
C2MW05	57	-	67	C205-0218	02/03/18	*NA*	*NA*	*NA*	*NA*	*9.4*	*NA*
C2MW06	11	-	21	C206-0218	02/03/18	*NA*	*NA*	*NA*	*NA*	*15*	*NA*
C3MW01	236	-	246	C301-0218	01/30/18	*NA*	*NA*	*NA*	*NA*	*14*	*NA*
C3MW02	217	-	227	C302-0218	01/30/18	*NA*	*NA*	*NA*	*NA*	*13*	*NA*
C3MW03	137	-	147	C303-0218	01/31/18	*NA*	*NA*	*NA*	*NA*	*2.1*	*NA*
C4MW01	235	-	245	C401-0218	01/31/18	*NA*	*NA*	*NA*	*NA*	*4.1*	*NA*
C4MW02	197	-	207	C402-0218	01/31/18	*NA*	*NA*	*NA*	*NA*	*4.8*	*NA*
C4MW03	137	-	147	C403-0218	01/31/18	*NA*	*NA*	*NA*	*NA*	*4*	*NA*
C4MW04	117	-	127	C404-0218	01/31/18	*NA*	*NA*	*NA*	*NA*	*4.6*	*NA*
C4MW05	77	-	87	C405-0218	01/31/18	*NA*	*NA*	*NA*	*NA*	*3*	*NA*
C4MW06	23	-	33	C406-0218	01/31/18	*NA*	*NA*	*NA*	*NA*	*26*	*NA*
C5MW01	238	-	248	C501-0218	02/05/18	*NA*	*NA*	*NA*	*NA*	*7.5*	*NA*
C5MW02	197	-	207	C502-0218	02/05/18	*NA*	*NA*	*NA*	*NA*	*1.1*	*NA*
C5MW03	137	-	147	C503-0218	02/05/18	*NA*	*NA*	*NA*	*NA*	*0.74*	*NA*
C5MW04	67	-	77	C504-0218	02/05/18	*NA*	*NA*	*NA*	*NA*	*15*	*NA*
C5MW05	37	-	47	C505-0218	02/05/18	*NA*	*NA*	*0.05 U*	*NA*	*12*	*NA*
C5MW06	17	-	27	C506-0218	02/05/18	*NA*	*NA*	*0.05 U*	*NA*	*5*	*NA*
				C506D-0218 (dup)	02/05/18	*NA*	*NA*	*0.05 U*	*NA*	*4.6*	*NA*

Created by: J. Richardson 8/1/2016
Updated by: M. Randolph 9/27/18
Checked by:

Table 3-27
MNA Parameter Groundwater Analytical Results - January 2018 to April 2018
American Creosote Works Site
Pensacola, Escambia County, Florida

Location	Screen Interval (ft bls)			Sample ID	Sample Date	Total Organic Carbon (mg/L)	Ammonia (as N) (mg/L)	Nitrate / Nitrite (as N) (mg/L)	Total Phosphorous (mg/L)	Sulfate (as SO4) (mg/L)	Total Alkalinity (as CaCO3) (mg/L)
Cluster Wells 1 though 10 - cont'd.											
C6MW04	57		67	C604-0218	02/05/18	*NA*	*NA*	*NA*	*NA*	*10*	*NA*
C7MW01	233	-	243	C701-0218	02/05/18	*NA*	*NA*	*NA*	*NA*	*5.8*	*NA*
C7MW02	197	-	207	C702-0218	02/05/18	*NA*	*NA*	*NA*	*NA*	*0.65*	*NA*
C7MW03	161	-	171	C703-0218	02/05/18	*NA*	*NA*	*NA*	*NA*	*0.44*	*NA*
C7MW04	67	-	77	C704-0218	02/05/18	*NA*	*NA*	*0.05 U*	*NA*	*1.3*	*NA*
C9MW01	238	-	248	C901-0218	02/01/18	*NA*	*NA*	*NA*	*NA*	*6.9*	*NA*
C9MW02	197	-	207	C902-0218	02/01/18	*NA*	*NA*	*NA*	*NA*	*1.5*	*NA*
C9MW03	137	-	147	C903-0218	02/01/18	*NA*	*NA*	*NA*	*NA*	*0.1 U*	*NA*
C9MW04	67	-	77	C904-0218	02/01/18	*NA*	*NA*	*NA*	*NA*	*0.1 U*	*NA*
C9MW05	37	-	47	C905-0218	02/01/18	*NA*	*NA*	*0.05 U*	*NA*	*0.1 U*	*NA*
Pensacola Yacht Club Ditch											
MW1	175	-	185	MW1-0218	01/31/18	*NA*	*NA*	*NA*	*NA*	*14*	*NA*
MW1A	18.35	-	28.35	MW1A-0218	01/31/18	*NA*	*NA*	*NA*	*NA*	*1.5*	*NA*
MW2	140	-	150	MW2-0218	02/01/18	*NA*	*NA*	*NA*	*NA*	*2.7*	*NA*
MW3	88.52	-	98.52	MW3-0218	02/01/18	*NA*	*NA*	*NA*	*NA*	*5.5*	*NA*
MW4	182.5	-	192.5	MW4-0218	02/01/18	*NA*	*NA*	*NA*	*NA*	*1*	*NA*
MW5	131.79	-	141.79	MW5-0218	02/01/18	*NA*	*NA*	*NA*	*NA*	*0.96*	*NA*
MW6	91	-	101	MW6-0218	02/01/18	*NA*	*NA*	*NA*	*NA*	*2.6*	*NA*
Neighborhood Monitoring Wells											
MW7A	10	-	20	MW7A	04/11/18	10 O	0.39	0.05 U,O	0.092	5.8	150
MW7B	69.5	-	79.5	MW7B	04/10/18	3.3 O	0.88 O	0.26 O	0.032 O	18	63 O
MW9A	8	-	18	MW9A	04/11/18	32	1.7	0.97	0.39	4.2	110
Marina Wells											
MW10A	16.5	-	26.5	MW10A	04/11/18	8.1	0.2	0.05 U	0.15	8.3	50
MW10B	37	-	47	MW10B	04/11/18	13	0.46	0.05 U	0.32	5.3	34
Pensacola Yacht Club Ditch - MW-28 Cluster											
MW28-1	53.7	-	58.7	281-0218	02/01/18	*NA*	*NA*	*NA*	*NA*	*0.1 U*	*NA*
MW28-2	8.29	-	13.29	282-0218	02/01/18	*NA*	*NA*	*NA*	*NA*	*4.6*	*NA*
MW28-3	11.85	-	16.85	283-0218	02/02/18	*NA*	*NA*	*NA*	*NA*	*0.1 U*	*NA*
MW28-5	86.2	-	91.2	285-0218	02/01/18	*NA*	*NA*	*NA*	*NA*	*0.1 U*	*NA*

Created by: J. Richardson 8/1/2016
Updated by: M. Randolph 9/27/18
Checked by:

Table 3-27
MNA Parameter Groundwater Analytical Results - January 2018 to April 2018
American Creosote Works Site
Pensacola, Escambia County, Florida

Location	Screen Interval (ft bls)			Sample ID	Sample Date	Total Organic Carbon (mg/L)	Ammonia (as N) (mg/L)	Nitrate / Nitrite (as N) (mg/L)	Total Phosphorous (mg/L)	Sulfate (as SO4) (mg/L)	Total Alkalinity (as CaCO3) (mg/L)
Observation Wells											
OW09	74.4	-	77.4	OW9-0218	02/02/18	*NA*	*NA*	*NA*	*NA*	*8.2*	*NA*
OW10	11.15	-	14.15	OW10-0218	02/05/18	*NA*	*NA*	*NA*	*NA*	*39*	*NA*
West Side of Pensacola Yacht Club Cluster Wells											
PYCDSM	78.02	-	88.02	PYCDSM-0218	02/02/18	*NA*	*NA*	*NA*	*NA*	*4.1*	*NA*
PYCDSN	48.43	-	53.43	PYCDSN-0218	02/02/18	*NA*	*NA*	*NA*	*NA*	*0.1 U*	*NA*
PYCDSS	8.28	-	18.28	PYCDSS-0218	02/05/18	*NA*	*NA*	*NA*	*NA*	*1.8*	*NA*
PYCWCB	138	-	158	PYCWCB-0218	02/01/18	*NA*	*NA*	*NA*	*NA*	*3.4*	*NA*

Notes:

CaCO3 - calcium carbonate

ft bls - feet below land surface

mg/L - milligrams per liter

N - nitrogen

NA - not applicable

SO4 - sulfate

O - Other Qualifiers

U - Analyte not detected at or above laboratory reporting limit.

Created by: J. Richardson 8/1/2016
Updated by: M. Randolph 9/27/18
Checked by:

Table 4-1
Record of Decision Soil Cleanup Levels
American Creosote Works Site
Pensacola, Escambia County, Florida

Chemical of Concern	Residential Cleanup Goal[1]	Commercial/Industrial Cleanup Goal[1]
BaP TEQ	0.1 mg/kg	0.7 mg/kg
Pentachlorophenol	7.2 mg/kg	28 mg/kg
2-Methylnaphthalene	210 mg/kg	2,100 mg/kg
2,3,7,8 TCDD TEQ (dioxin)	7 ng/kg	30 ng/kg

Notes:

BaP TEQ = Benzo(a)pyrene Toxicity Equivalent

TCDD TEQ = Tetrachlorodibenzo-p-dioxin (dioxin) Toxicity Equivalent

mg/kg - milligrams per kilogram

ng/kg - nanograms per kilogram

[1] FDEP Soil Cleanup Target Level (SCTL) based on 1E-06 cancer risk or hazard index of 1

Table 6-1
Proposed Wells to Abandoned in CMZ-1
American Creosote Works Site
Pensacola, Escambia County, Florida

Series/Cluster/Location	Well ID	Date Installed	Northing	Easting	Well Pad Elevation (ft amsl)	Top of Casing Elevation (ft amsl)	Well Depth (ft bls)	Screen Length (ft)	Depth to Top of Screen (ft bls)	Depth to Bottom of Screen (ft bls)	Well Diameter (inches)	Well Material
Cluster Well 7	C7-MW01	3/18/2007	520908.28	1105194.1	16.66	16.40	243.00	10.0	233.00	243.00	2	SS
	C7-MW02	5/18/2007	520907.71	1105203.9	16.60	16.35	207.00	10.0	197.00	207.00	2	SS
	C7-MW03	5/20/2007	520905.99	1105215.2	16.41	16.17	171.00	10.0	161.00	171.00	2	SS
	C7-MW04	5/20/2007	520904.46	1105224.1	16.55	16.33	108.00	10.0	98.00	108.00	2	SS
ACW Source Wells	ACWMW05LS	unknown	521417.02	1105266.63	unknown	12.67	74.7	5.0	69.00	74.00	2	SS
	ACWMW05US	unknown	521415.40	1105272.12	unknown	12.67	29.5	5.0	24.00	29.00	2	SS
ACW Source Wells	ACWMW06LS	unknown	520774.28	1105180.78	unknown	9.3	74.5	5.0	69.00	74.00	2	SS
	ACWMW06US	unknown	520765.63	1105179.63	unknown	9.75	21.1	5.0	16.00	21.00	2	SS
Average							**116.1**					
ACW Extraction Wells	ACWEW01	unknown	521119.99	1105374.12	unknown	15.85	32.5	5.0	26.00	31.00	4	SS
	ACWEW01A	unknown	521154.26	1105355.55	unknown	15.85	70	25.0	43.00	68.00	4	SS
	ACWEW02	unknown	521046.84	1105416.47	unknown	16.38	34	5.0	27.00	32.00	4	SS
	ACWEW02A	unknown	520981.71	1105470.34	unknown	13.96	42	20.0	20.00	40.00	4	SS
	ACWEW03	unknown	520973.69	1105458.83	unknown	14.84	33.2	5.0	26.50	31.50	4	SS
	ACWEW03A	unknown	521067.25	1105393.67	unknown	16.40	42	25.0	15.00	40.00	4	SS
	ACWEW04	unknown	521176.63	1105463.69	unknown	16.06	33.2	5.0	27.00	32.00	4	SS
	ACWEW05	unknown	521127.98	1105581.51	unknown	15.98	31.2	5.0	25.00	30.00	4	SS
	ACWEW06	unknown	520965.29	1105555.98	unknown	14.87	30.7	5.0	24.00	29.00	4	SS
	ACWEW07	unknown	520818.75	1105223.11	unknown	10.01	19	5.0	13.00	18.00	4	SS
	ACWEW08	unknown	520996.58	1105274.11	unknown	15.96	33	5.0	27.00	32.00	4	SS
	ACWEW08A	unknown	521025.50	1105277.14	unknown	16.49	88	10	76	86.00	4	SS
	ACWEW09	unknown	520921.62	1105256.78	unknown	15.66	24	5.0	18.50	23.50	4	SS
	ACWEW09A	unknown	520941.03	1105258.72	unknown	15.64	70	25.0	43.00	68.00	4	SS
	ACWEW10	unknown	521064.31	1105335.25	unknown	16.89	34	5.0	27.00	32.00	4	SS
	ACWEW11	unknown	521042.38	1105476.02	unknown	17.26	62	25.0	35.00	60.00	4	SS
	ACWEW12	unknown	521086.98	1105304.36	unknown	17.01	76	25.0	35.00	60.00	4	SS
	ACWEW13	unknown	521063.95	1105495.34	unknown	17.27	33.5	5.0	27.00	32.00	4	SS
Average							**43.8**					

Notes:

Northings and Eastings in State Plane, NAD83; 0903 Florida North, US Feet

amsl - above mean sea level

SS - Stainless Steel

GS - Galvinized Steel

PVC - Polyvinyl chloride

ft - feet

bls - below land surface

Created by: A. Callaway

Checked by: D. Scherbak

Table 16-1
Bid Tab (Subcontract Pricing Schedule) - Part 1
American Creosote Works Site
Pensacola, Escambia County, Florida

No.	Description	Estimated Quantity	Units	EXTENDED PRICE
PHASE 1 - EXCAVATION OF CMZ-4B OFFSITE SOILS AND ON SITE STOCKPILING				
1.0 Procurement				
1.1	General Conditions (Bonds, Insurance, Licenses, etc.)	1	lump	
1.2	Submittals Preparation, Pre-Construction Meetings	1	lump	
2.0 Mobilization and Site Preparation				
2.1	Mobilization	1	lump	
2.2	Temporary Facilities (2 - 12 ft x 56 ft office trailers)	3	month	
2.3	Baseline Surveys and Controls	1	lump	
2.4	Health and Safety (Plan, Execute, Monitor & Control). Onsite H&S Person.	1	lump	
2.5	Work Plan/Submittals (Draft, Rev 1, Final)	1	lump	
2.6	Project Meetings (4 1-day meetings with contractor and client)	4	day	
2.7	Stabilized Site Construction Entrance	2	each	
2.8	Utility Clearing and Protecting	1	lump	
2.9	Clearing and Grubbing (Yard and Site Preparation) CMZ-4B	19.09	residential / commercial yards (acres)	
2.10	On-Site Demolition (Above-Ground Features Within Barrier Wall Footprint)	1	lump	
2.11	Erosion Control (Silt Fence) for Offsite - Includes maintenance/replacement as needed	16,800	LF	
2.12	Residential Fence Removal (see 4.4 for replacement)	4,800	LF	
3.0 Soil Loading, Transport, and Stockpiling Onsite				
3.1	Excavate and Load Soils (Includes Hand Excavation and Vacuum-Assisted Excavation)	34,900	BCY	
3.2	Transport Soils to Site, Stockpile, Shape, and Compact	34,900	BCY	
3.3	Installation 40mil HDPE Temporary Liner Over Stockpile (Includes 2ft Deep Temporary Anchor Trench)	3.44	acre	
3.4	Post Removal Surveys	1	lump	
3.5	Perimeter Air Monitoring and Reporting (3 locations of monitoring)	3	month	
4.0 Phase 1 Restoration and Demobilization				
4.1	Import, Place, Compact, and Grade Clean Backfill (Residential Yards)	19,430	BCY	
4.2	Import, Place, Compact, and Grade Topsoil (Residential Yards - 6 in)	15,470	BCY	
4.3	Replacement of Trees and Shrubs	960	ea	
4.4	Residential Fencing Reconstruction/Replacement	4,800	residential/ commercial yard LF	
4.5	Sodding	19.1	acre	
4.6	Watering of Sod (8 weeks)	1	lump	
4.7	Seeding and Establishment of vegetation (on Site)	6.00	acre	
4.8	Watering and Reseeding Vegetation On-Site Vegetation While Getting Established (8 Weeks)	1	lump	
4.9	Post Restoration Surveys	1	lump	
4.10	Removal of Debris	60	CY	
4.11	Demobilization	1	lump	
4.12	Phase 1 Remedial Action Report (Draft, Rev 1, Final)	1	lump	
PHASE 2A - BARRIER WALL CONSTRUCTION				
5.0 Procurement				
5.1	General Conditions (Bonds, Insurance, Licenses, etc.)	1	lump	
5.2	Submittals Preparation, Pre-Construction Meetings	1	lump	
6.0 Mobilization and Site Preparation				
6.1	Mobilization	1	lump	
6.2	Temporary Facilities (2 @ 12 ft x 56 ft office trailers)	4	month	
6.3	Baseline Surveys and Controls (12.4 acres)	1	lump	
6.4	Health and Safety (Plan, Execute, Monitor & Control)	1	lump	
6.5	Work Plan/Submittals (Draft, Rev 1, Final)	1	lump	
6.6	Project Meetings	1	lump	

Table 16-1
Bid Tab (Subcontract Pricing Schedule) - Part 1
American Creosote Works Site
Pensacola, Escambia County, Florida

No.	Description	Estimated Quantity	Units	EXTENDED PRICE
6.7	Utility Clearing and Protecting	1	lump	
6.8	Clearing and Grubbing	12.4	acres	
6.9	Removal and Disposal of 40-mil HDPE Liner	3,100	SF	
6.10	Electrical Conduit/ Wire Demolition and Removal	3,600	LF	
6.11	Removal and Disposal of Existing Site Trailer and Utillty Service Lines	1	lump	
6.12	Removal and Disposal of Three (3) Steel Product Storage Tanks, Associated steel Structures (RECYCLE), and Utility Service Lines	1	lump	
6.13	Monitoring Well Abandonment (MW-1, MW-2, MW-3, MW-4, MW-5 (5 wells): Stainless Steel (RECYCLE), Avg 116.1 ft bls, 2" ID)	1	lump	
6.14	Extraction Well Abandonment (11 Stainless Steel Wells (RECYCLE), Avg 43.8 ft bls, 4" ID)	1	lump	
6.15	Erosion Control Logs (9" terra tubes)	3,275	LF	
7.0 Barrier Wall Construction				
7.1	Rough Grading (1.77 acres) to Establish Working Platform - Top of BW Grade	1	lump	
7.2	Placement of Cut soil from platform to cap area (Cut & Fill)	3,000	BCY	
7.3	Wall Construction (1,770 LF; 115 ft average depth)	203,550	VSF	
7.4	Placement of excess spoils from wall installation	4,327	BCY	
7.5	QC Testing every 150 LF (20, 3-pt composite samples to be tested for unconfined compressive strength & hydraulic conductivity)	1	lump	
7.6	Perimeter Air Monitoring and Reporting	4	month	
7.7	As-Built Survey	1	lump	
7.8	Pre-Final Inspections	1	lump	
7.9	Final Inspections	1	lump	
7.10	Rip Rap at Toe of Slope	973	CY	
PHASE 2B - SURFACE SOIL EXCAVATION, GRADING ECC SURFACE, & INSTALLATION OF ECC BOTTOM LINER				
8.0 Excavate CMZ-1 Beyond Barrier Wall, CMZ-2A, and CMZ-4A				
8.1	Removal and Disposal of Debris Pile E. of CMZ-1 (concrete, etc)	1,832	BCY	
8.2	Excavate and Load Soils	51,047	BCY	
8.3	Perimeter Air Monitoring and Reporting	2	month	
8.4	Dewatering and Stormwater Controls During Excavation	1	lump	
8.5	Transport and Temporary Stockpiling of (ECC, Stockpile) Soils	51,047	BCY	
8.6	As-Excavated Survey (12.4 Acres)	12.4	acres	
9.0 ECC Grading and Liner Placement				
9.1	Grading of Excavation Surface to Prepare for Liner Installation (5.33 acre)	1	lump	
9.2	Excavation of Anchor Trench	3,070	LF	
9.3	Perimeter Air Monitoring and Reporting	2	month	
9.4	Installation of Monitoring Wells	7	each	
9.5	Installation of Piezometers	8	each	
9.6	Installation of 60-mil HDPE/LLDPE Bottom Liner	5.33	acre	
9.7	As-Built Survey of Bottom Liner Surface (5.33 acre)	1	lump	
PHASE 2C - CONTAMINATED SOIL PLACEMENT, CAP CONSTRUCTION				
10.0 Place and Grade Contaminated Soil, Cap Construction				
10.1	Grading and Compaction of Excavated Soil (Cut & Fill)	111,295	BCY	
10.2	Install 40-mil HDPE/LLDPE Top Liner - Barrier Wall and ECC	10.44	acre	
10.3	Install Geosynthetic Gas Collection Layer and Vents (8)	0.97	acre	
10.4	Install Augmented Clay Cap on top of Barrier Wall	2,500	BCY	
10.5	Install Geosynthetic Clay Liner - Barrier Wall and ECC	10.44	acre	
10.6	Install HDPE Drainage Net - Barrier Wall and ECC	10.44	acre	
10.7	Perimeter Air Monitoring and Reporting	3	month	
10.8	Construct Anchor Trench (3,650 LF)	1	lump	
10.9	As-Built Surveys	1	lump	

Table 16-1
Bid Tab (Subcontract Pricing Schedule) - Part 1
American Creosote Works Site
Pensacola, Escambia County, Florida

No.	Description	Estimated Quantity	Units	EXTENDED PRICE
PHASE 2D - FINISH GRADING, STORM DRAINAGE, POND CONSTRUCTION				
11.0 Finish Grading				
11.1	Import, Grading, and Compaction of 18" Clean Common Fill Layer (Cap) - Barrier Wall and ECC	10.44	acre	
11.2	Import, Grading, and Compaction of 6" Topsoil Layer (Cap) - Barrier Wall and ECC	10.44	acre	
11.3	Seeding and Mulching of Disturbed Areas	6.50	acres	
11.4	Watering to Establish Vegetation (8 weeks)	1	lump	
11.5	Rough Grading - Roads, Swales, Stormwater Detention Pond, Installation of graded outlet structure	13,000	SY	
11.6	Perimeter Air Monitoring and Reporting	1	month	
11.7	As-Built Surveys (2.6 acres)	1	lump	
11.8	Demobilization	1	lump	
11.9	Phase 2 Remedial Action Report (Draft, Rev 1, Final)	1	lump	
Phase 1 Total Price				$ -
Phase 2A Total Price				$ -
Phase 2B Total Price				$ -
Phase 2C Total Price				$ -
Phase 2D Total Price				$ -
TOTAL PRICE (PHASES 1 and 2)				$ -

Company Name:

Authorized Representative:

Date: _____

Notes:

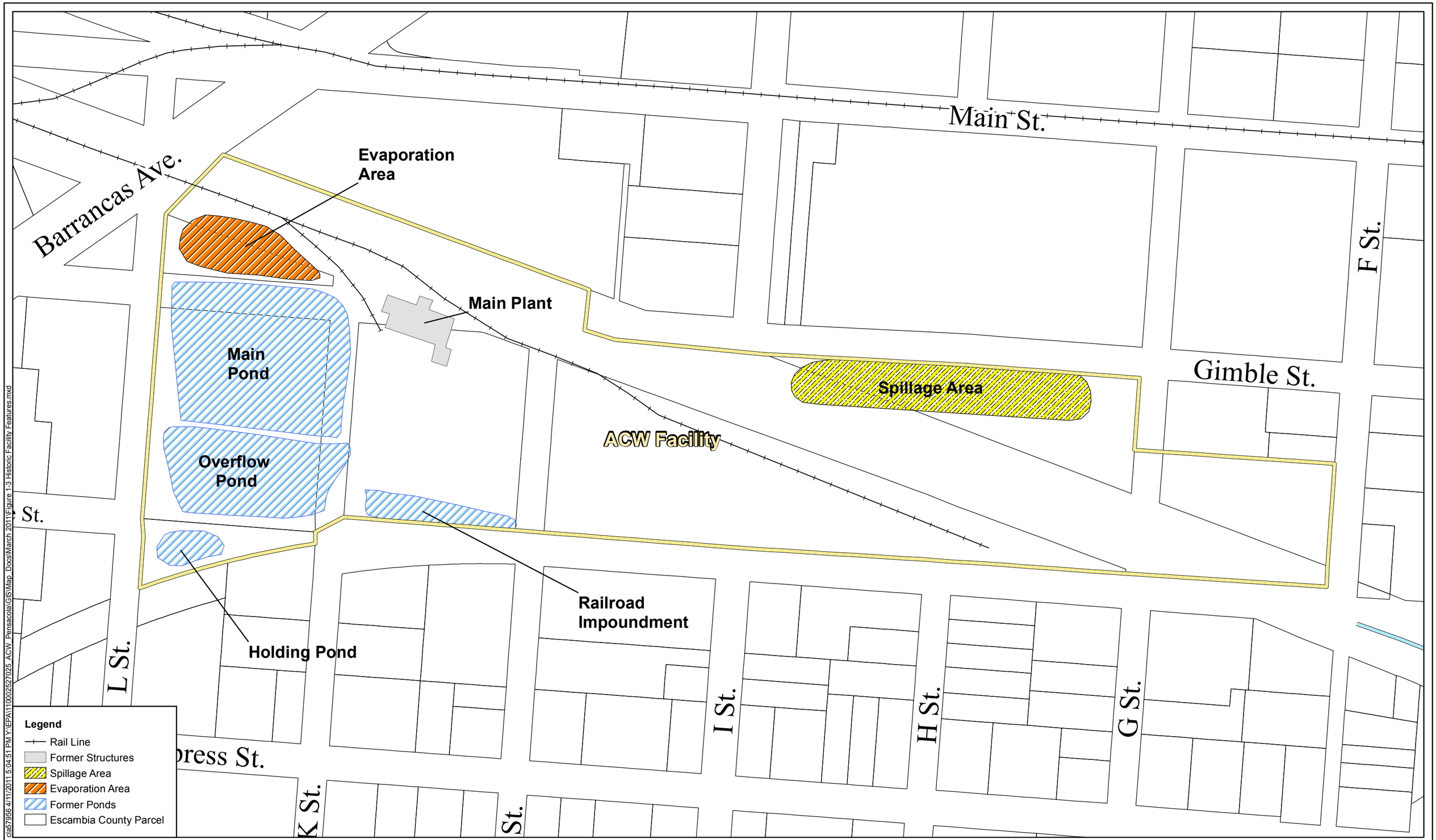
BCY - bank cubic yards
CY - cubic yards
ea - each
LF - linear feet
SF - square feet
VSF - vertical square feet

Figures

cla57956 4/11/2011 4:55:52 PM Y:\EPA\110002527025_ACW_Pensacola\GIS\Map_Docs\April 2011\Figure 1-1 Site Location Map.mxd

Site Location Map
American Creosote Works Site
Pensacola, Escambia County, Florida

Figure 2-1



Former ACW Pensacola Facility, circa 1960's
American Creosote Works
Pensacola, Escambia County, Florida

Figure 2-2

cla57956 4/11/2011 5:04:51 PM Y:\EPA\110002527025_ACW_Pensacola\GIS\Map_Docs\March 2011\Figure 1-3 Historic Facility Features.mxd

N

0 125 250 500

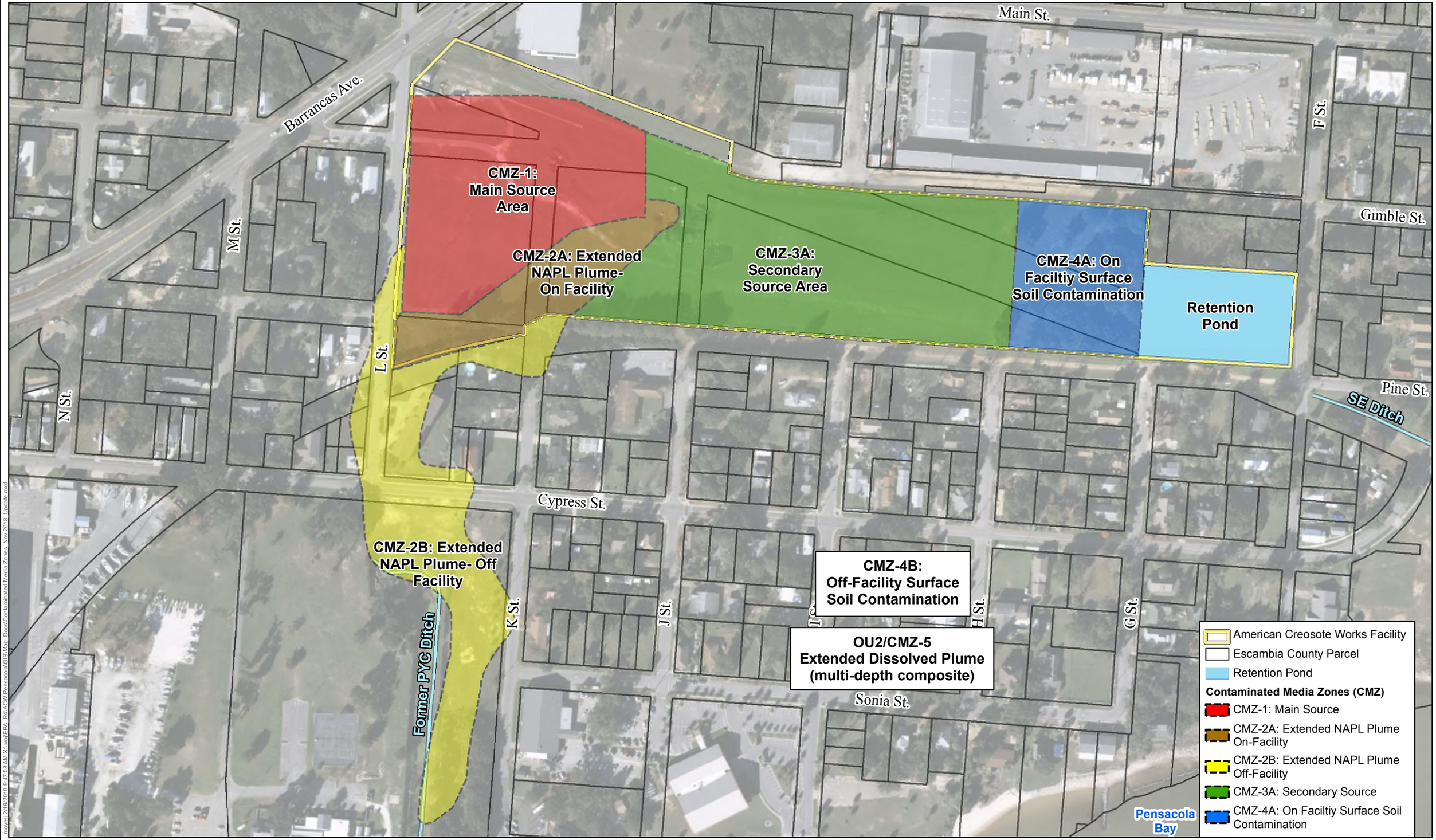
Feet

NAD83 StatePlane FL North, Feet

Site Layout Map
American Creosote Works
Pensacola, Escambia County, Florida

Figure 2-3

fre47957 10/22/2012 1:17:17 PM C:\Projects\110002527025_ACW_Pensacola\GIS\Map_Docs\October 2012\Figure 1-2 ACW Site Layout Map.mxd



N

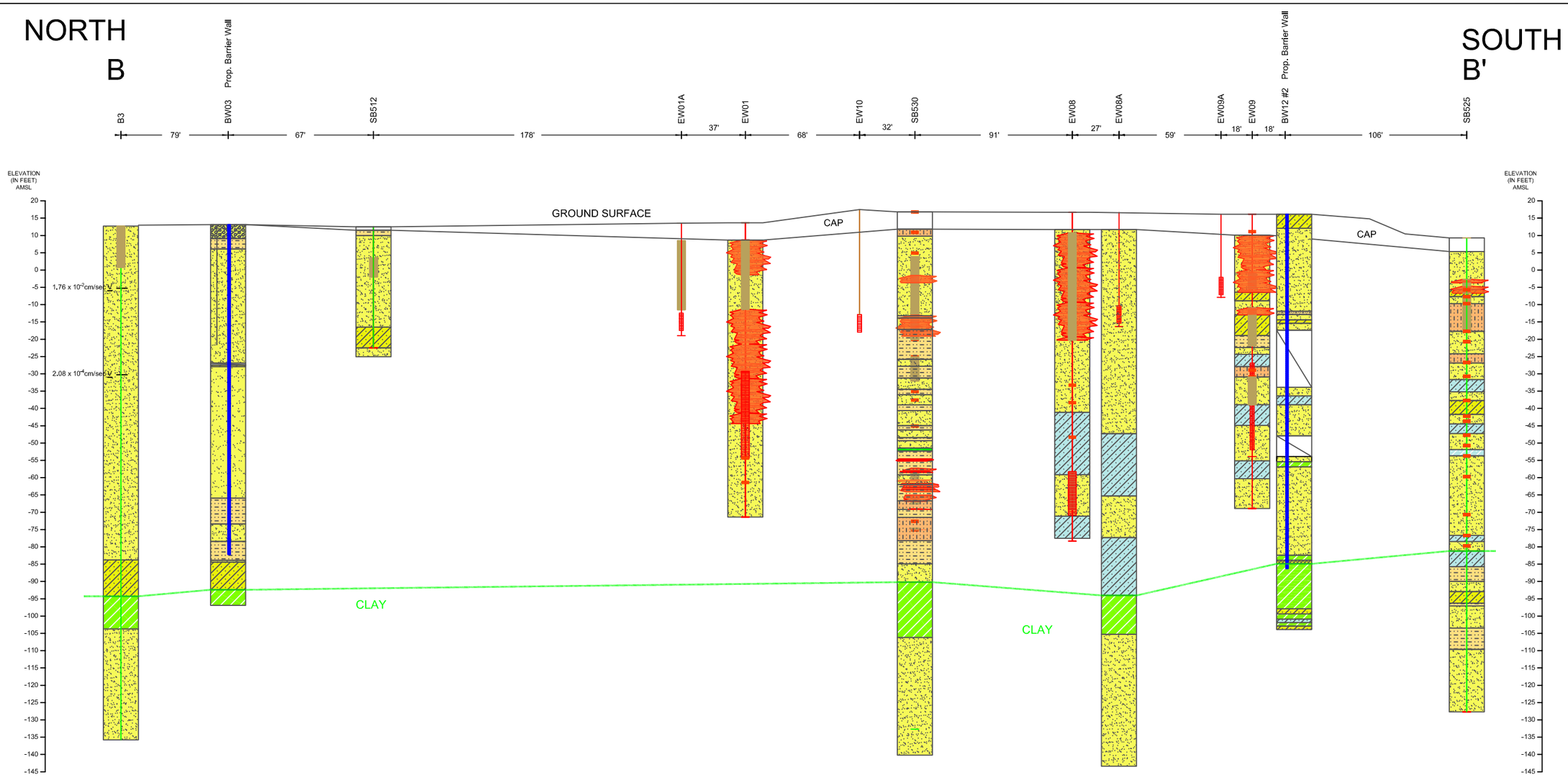
0 200 400

Feet

NAD83 State Plane Fl North, Feet

Contaminated Media Zones
American Creosote Works
Pensacola, Escambia County, Florida

Figure 2-4



SAND
Clayey SAND
Silty SAND
Clayey Silty SAND
Gravelly Clayey SAND
Gravelly SAND
CLAY
Sandy CLAY
SILT
Sandy SILT
No Recovery

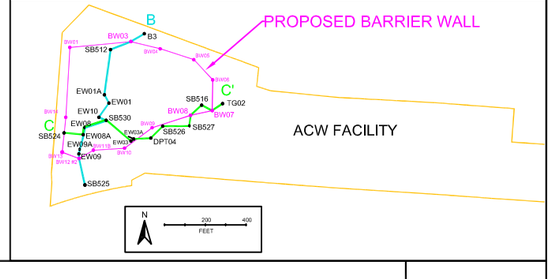
PROPOSED BARRIER WALL
SOIL BORING
WELL LOCATION AND SCREEN INTERVAL
1.87x 10-4cm/sec V VERTICAL PERMEABILITY
2.08 x 10-4cm/sec P HORIZONTAL PERMEABILITY
C7 = CLUSTER WELL
EW = EXTRACTION WELL
SB = SOIL BORING

DETECTED ODOR
NAPL STAINING
NAPL

VERTICAL SCALE
10 FEET
0 FEET

HORIZONTAL SCALE
0 20 FEET

(VERTICAL EXAGGERATION = 2X HORIZONTAL)

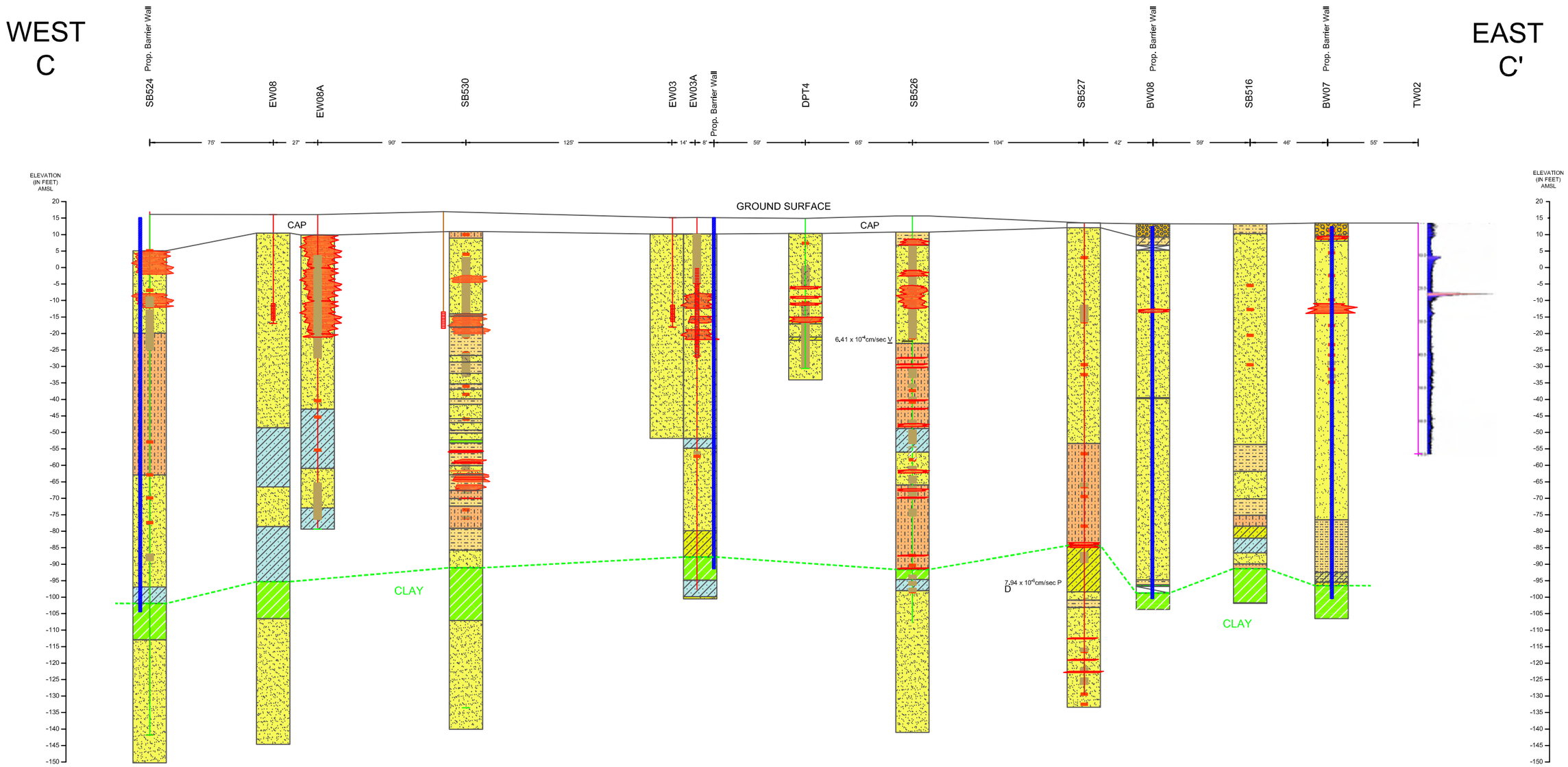


R:\49089 - ACW Pensacola RD\ACAD\ACW CrossSections.dwg 3/1/2019 1:15:43 PM

AMERICAN CREOSOTE WORKS SITE
PENSACOLA, FLORIDA

HYDROGEOLOGIC SECTION B-B'

FIGURE
3-1



SAND
Clayey SAND
Silty SAND
Clayey Silty SAND
Gravelly Clayey SAND
Gravelly SAND
CLAY
Sandy CLAY
SILT
Sandy SILT
No Recovery

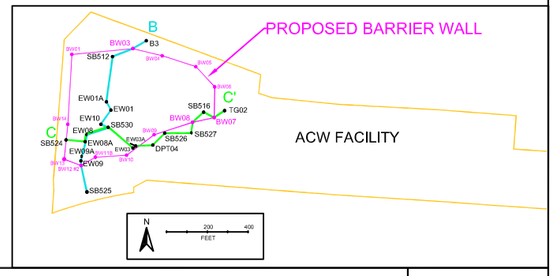
PROPOSED BARRIER WALL
SOIL BORING
WELL LOCATION AND SCREEN INTERVAL
1.87x 10^{-4}cm/sec V VERTICAL PERMEABILITY
2.08 x 10^{-4}cm/sec P HORIZONTAL PERMEABILITY
C7 = CLUSTER WELL
EW = EXTRACTION WELL
SB = SOIL BORING

DETECTED ODOR
NAPL STAINING
NAPL

VERTICAL SCALE
10 FEET
0 FEET

HORIZONTAL SCALE
0 20 FEET

(VERTICAL EXAGGERATION = 2X HORIZONTAL)



R:\49089 - ACW Pensacola RD\ACAD\ACW CrossSections.dwg 3/1/2019 11:43 PM

AMERICAN CREOSOTE WORKS SITE
PENSACOLA, FLORIDA

HYDROGEOLOGIC SECTION C-C'

FIGURE
3-2

N

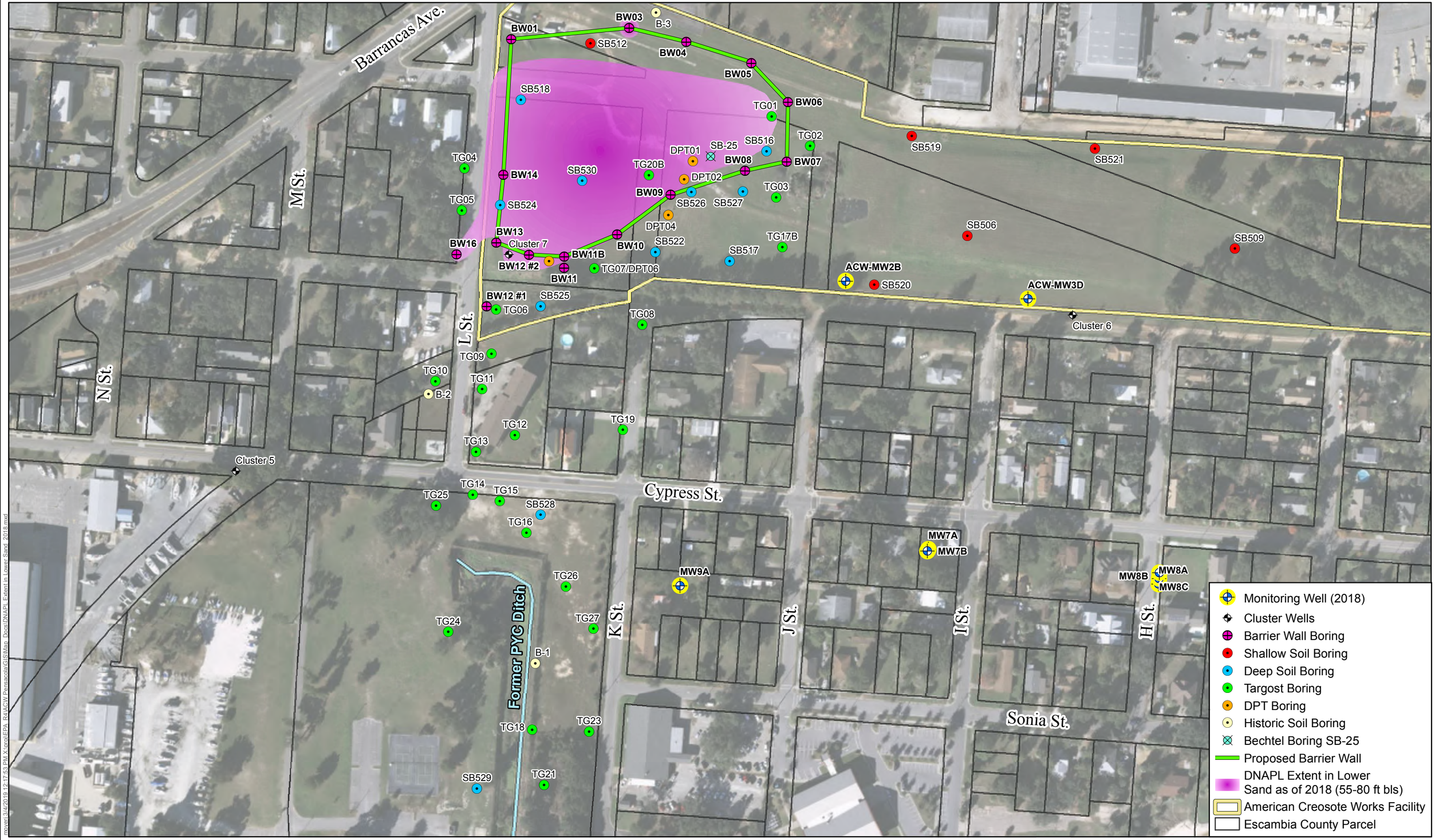
0 180 360

Feet

NAD83 State Plane Fl North, Feet

Approximate Extent of DNAPL in Upper Sand
American Creosote Works
Pensacola, Escambia County, Florida

Figure 3-3



N

0 180 360

Feet

NAD83 State Plane Fl North, Feet

Approximate Extent of DNAPL in Lower Sand
American Creosote Works
Pensacola, Escambia County, Florida

Figure 3-4

N

0 150 300 600

Feet

NAD83 StatePlane FL North, Feet

Groundwater Elevations, Wells Screened < 50 feet below land surface (ft bls) January 2018
American Creosote Works
Pensacola, Escambia County, Florida

Figure 3-5

moyer, 3/4/2019 12:22:01 PM X:\proj\EPA_R4\ACW Pensacola\GIS\Map_Docs\Groundwater Elevations, Wells less than 50ft January 2018.mxd

N

0 150 300 600
Feet

NAD83 StatePlane FL North, Feet

Groundwater Elevations, Wells Screened between 50-100 feet below land surface (ft bls) January 2018
American Creosote Works
Pensacola, Escambia County, Florida

Figure 3-6

moyerj 3/4/2019 12:25:07 PM X:\proj\EPA_R4\ACW Pensacola\GIS\Map_Docs\Groundwater Elevations, Wells 50-100ft January 2018.mxd

N

0 150 300 600

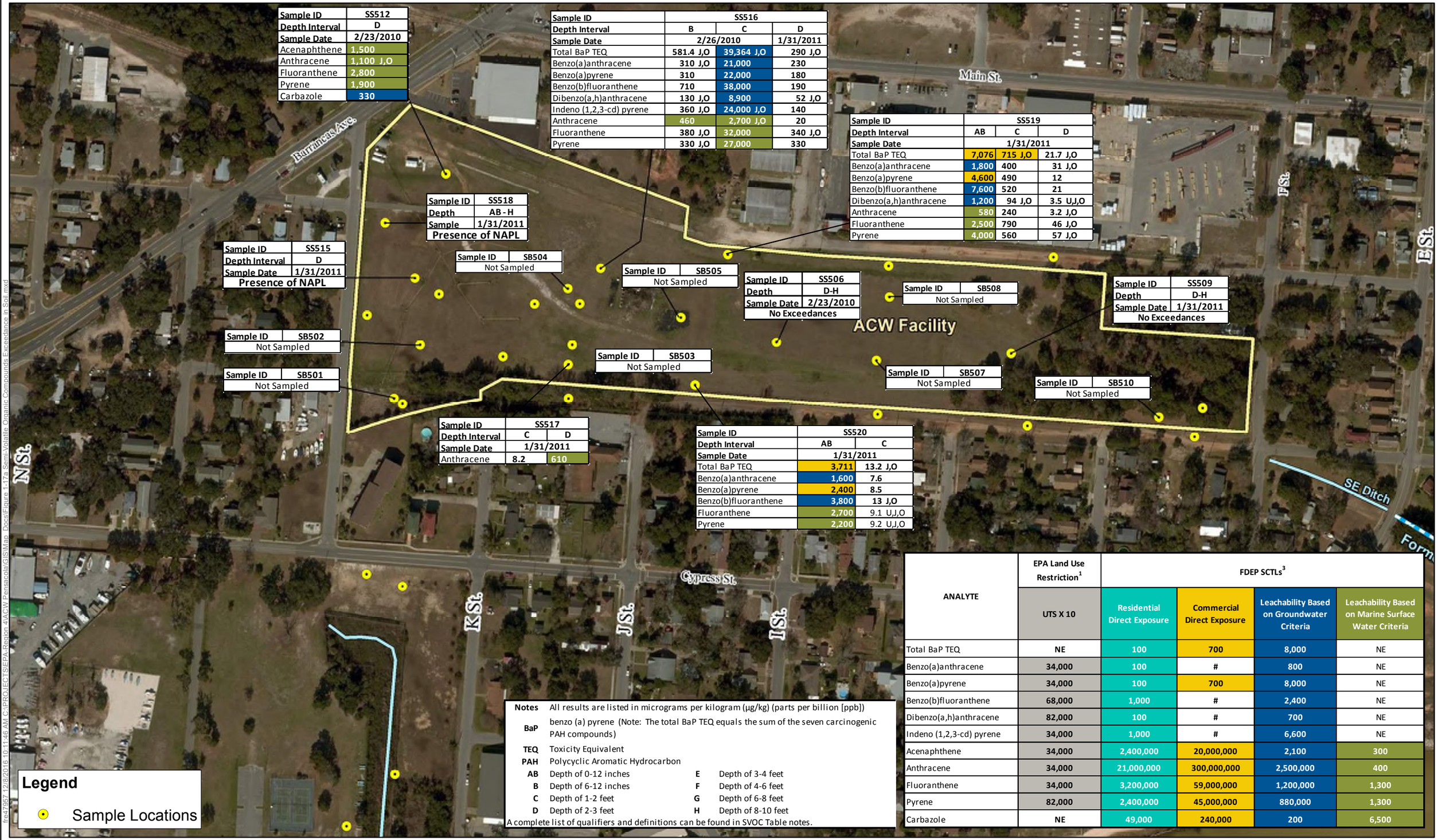
Feet

NAD83 StatePlane FL North, Feet

Groundwater Elevations, Wells Screened > 100 feet below land surface (ft bls) January 2018
American Creosote Works
Pensacola, Escambia County, Florida

Figure 3-7

moyer| 3/4/2019 12:23:44 PM X:\proj\EPA_R4\ACW Pensacola\GIS\Map_Docs\Groundwater Elevations, Wells greater than 100ft January 2018.mxd



Sample ID	SS512
Depth Interval	D
Sample Date	2/23/2010
Acenaphthene	1,500
Anthracene	1,100 J,O
Fluoranthene	2,800
Pyrene	1,900
Carbazole	330

Sample ID	SS516		
Depth Interval	B	C	D
Sample Date	2/26/2010		1/31/2011
Total BaP TEQ	581.4 J,O	39,364 J,O	290 J,O
Benzo(a)anthracene	310 J,O	21,000	230
Benzo(a)pyrene	310	22,000	180
Benzo(b)fluoranthene	710	38,000	190
Dibenzo(a,h)anthracene	130 J,O	8,900	52 J,O
Indeno (1,2,3-cd) pyrene	360 J,O	24,000 J,O	140
Anthracene	460	2,700 J,O	20
Fluoranthene	380 J,O	32,000	340 J,O
Pyrene	330 J,O	27,000	330

Sample ID	SS519		
Depth Interval	AB	C	D
Sample Date	1/31/2011		
Total BaP TEQ	7,076	715 J,O	21.7 J,O
Benzo(a)anthracene	1,800	400	31 J,O
Benzo(a)pyrene	4,600	490	12
Benzo(b)fluoranthene	7,600	520	21
Dibenzo(a,h)anthracene	1,200	94 J,O	3.5 U,J,O
Anthracene	580	240	3.2 J,O
Fluoranthene	2,500	790	46 J,O
Pyrene	4,000	560	57 J,O

Sample ID	SS518
Depth	AB - H
Sample	1/31/2011
Presence of NAPL	

Sample ID	SS515
Depth Interval	D
Sample Date	1/31/2011
Presence of NAPL	

Sample ID	SB504
Not Sampled	

Sample ID	SB505
Not Sampled	

Sample ID	SS506
Depth	D-H
Sample Date	2/23/2010
No Exceedances	

Sample ID	SB508
Not Sampled	

Sample ID	SS509
Depth	D-H
Sample Date	1/31/2011
No Exceedances	

Sample ID	SB502
Not Sampled	

Sample ID	SB501
Not Sampled	

Sample ID	SB503
Not Sampled	

Sample ID	SB507
Not Sampled	

Sample ID	SB510
Not Sampled	

Sample ID	SS517	
Depth Interval	C	D
Sample Date	1/31/2011	
Anthracene	8.2	610

Sample ID	SS520	
Depth Interval	AB	C
Sample Date	1/31/2011	
Total BaP TEQ	3,711	13.2 J,O
Benzo(a)anthracene	1,600	7.6
Benzo(a)pyrene	2,400	8.5
Benzo(b)fluoranthene	3,800	13 J,O
Fluoranthene	2,700	9.1 U,J,O
Pyrene	2,200	9.2 U,J,O

ANALYTE	EPA Land Use Restriction[1]	FDEP SCTLs[3]			
	UTS X 10	Residential Direct Exposure	Commercial Direct Exposure	Leachability Based on Groundwater Criteria	Leachability Based on Marine Surface Water Criteria
Total BaP TEQ	NE	100	700	8,000	NE
Benzo(a)anthracene	34,000	100	#	800	NE
Benzo(a)pyrene	34,000	100	700	8,000	NE
Benzo(b)fluoranthene	68,000	1,000	#	2,400	NE
Dibenzo(a,h)anthracene	82,000	100	#	700	NE
Indeno (1,2,3-cd) pyrene	34,000	1,000	#	6,600	NE
Acenaphthene	34,000	2,400,000	20,000,000	2,100	300
Anthracene	34,000	21,000,000	300,000,000	2,500,000	400
Fluoranthene	34,000	3,200,000	59,000,000	1,200,000	1,300
Pyrene	82,000	2,400,000	45,000,000	880,000	1,300
Carbazole	NE	49,000	240,000	200	6,500

Notes All results are listed in micrograms per kilogram (µg/kg) (parts per billion [ppb])

BaP benzo (a) pyrene (Note: The total BaP TEQ equals the sum of the seven carcinogenic PAH compounds)

TEQ Toxicity Equivalent

PAH Polycyclic Aromatic Hydrocarbon

AB Depth of 0-12 inches
B Depth of 6-12 inches
C Depth of 1-2 feet
D Depth of 2-3 feet
E Depth of 3-4 feet
F Depth of 4-6 feet
G Depth of 6-8 feet
H Depth of 8-10 feet

A complete list of qualifiers and definitions can be found in SVOC Table notes.

N

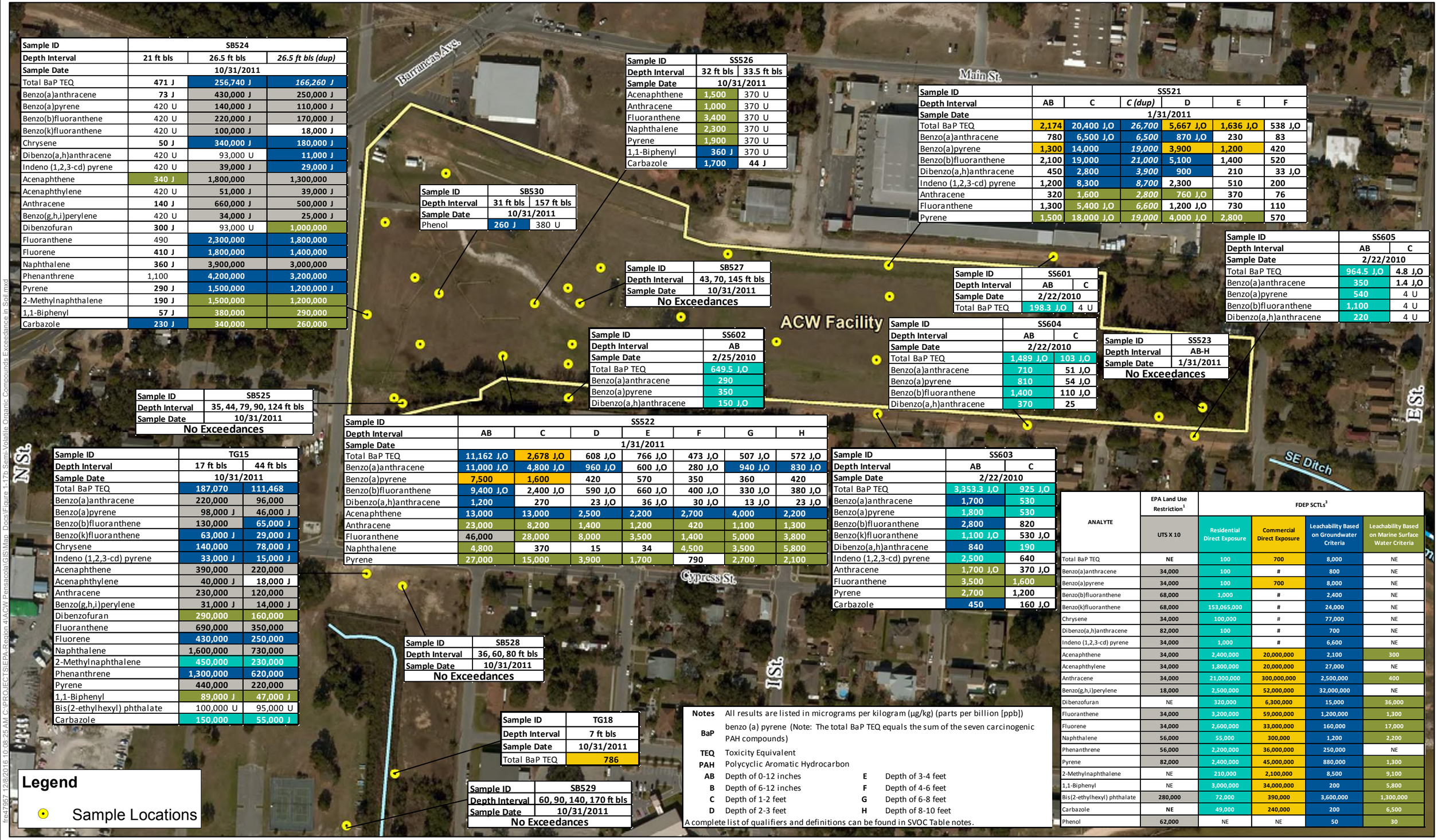
0 200 400
Feet

NAD83 State Plane Fl North, Feet

Semi-Volatile Organic Compounds Exceedance in Soil – ACW Facility and Gimble & Pine Streets
American Creosote Works
Pensacola, Escambia County, Florida

Figure 3-8a

fre47957 12/8/2016 10:11:46 AM C:\PROJECTS\EPA-Region 4\ACW Pensacola\GIS\Map_Docs\Figure 1-17a Semi-Volatile Organic Compounds Exceedance in Soil.mxd



Sample ID	SB524		
Depth Interval	21 ft bls	26.5 ft bls	*26.5 ft bls (dup)*
Sample Date	10/31/2011		
Total BaP TEQ	471 J	256,740 J	*166,260 J*
Benzo(a)anthracene	73 J	430,000 J	250,000 J
Benzo(a)pyrene	420 U	140,000 J	110,000 J
Benzo(b)fluoranthene	420 U	220,000 J	170,000 J
Benzo(k)fluoranthene	420 U	100,000 J	18,000 J
Chrysene	50 J	340,000 J	180,000 J
Dibenzo(a,h)anthracene	420 U	93,000 U	11,000 J
Indeno (1,2,3-cd) pyrene	420 U	39,000 J	29,000 J
Acenaphthene	340 J	1,800,000	1,300,000
Acenaphthylene	420 U	51,000 J	39,000 J
Anthracene	140 J	660,000 J	500,000 J
Benzo(g,h,i)perylene	420 U	34,000 J	25,000 J
Dibenzofuran	300 J	93,000 U	1,000,000
Fluoranthene	490	2,300,000	1,800,000
Fluorene	410 J	1,800,000	1,400,000
Naphthalene	360 J	3,900,000	3,000,000
Phenanthrene	1,100	4,200,000	3,200,000
Pyrene	290 J	1,500,000	1,200,000 J
2-Methylnaphthalene	190 J	1,500,000	1,200,000
1,1-Biphenyl	57 J	380,000	290,000
Carbazole	230 J	340,000	260,000

Sample ID	SS526	
Depth Interval	32 ft bls	33.5 ft bls
Sample Date	10/31/2011	
Acenaphthene	1,500	370 U
Anthracene	1,000	370 U
Fluoranthene	3,400	370 U
Naphthalene	2,300	370 U
Pyrene	1,900	370 U
1,1-Biphenyl	360 J	370 U
Carbazole	1,700	44 J

Sample ID	SS521					
Depth Interval	AB	C	*C (dup)*	D	E	F
Sample Date	1/31/2011					
Total BaP TEQ	2,174	20,400 J,O	*26,700*	5,667 J,O	1,636 J,O	538 J,O
Benzo(a)anthracene	780	6,500 J,O	*6,500*	870 J,O	230	83
Benzo(a)pyrene	1,300	14,000	*19,000*	3,900	1,200	420
Benzo(b)fluoranthene	2,100	19,000	*21,000*	5,100	1,400	520
Dibenzo(a,h)anthracene	450	2,800	*3,900*	900	210	33 J,O
Indeno (1,2,3-cd) pyrene	1,200	8,300	*8,700*	2,300	510	200
Anthracene	320	1,600	*2,800*	760 J,O	370	76
Fluoranthene	1,300	5,400 J,O	*6,600*	1,200 J,O	730	110
Pyrene	1,500	18,000 J,O	*19,000*	4,000 J,O	2,800	570

Sample ID	SB530	
Depth Interval	31 ft bls	157 ft bls
Sample Date	10/31/2011	
Phenol	260 J	380 U

Sample ID	SS605	
Depth Interval	AB	C
Sample Date	2/22/2010	
Total BaP TEQ	964.5 J,O	4.8 J,O
Benzo(a)anthracene	350	1.4 J,O
Benzo(a)pyrene	540	4 U
Benzo(b)fluoranthene	1,100	4 U
Dibenzo(a,h)anthracene	220	4 U

Sample ID	SB527
Depth Interval	43, 70, 145 ft bls
Sample Date	10/31/2011
No Exceedances	

Sample ID	SS601	
Depth Interval	AB	C
Sample Date	2/22/2010	
Total BaP TEQ	198.3 J,O	4 U

Sample ID	SS602
Depth Interval	AB
Sample Date	2/25/2010
Total BaP TEQ	649.5 J,O
Benzo(a)anthracene	290
Benzo(a)pyrene	350
Dibenzo(a,h)anthracene	150 J,O

Sample ID	SS604	
Depth Interval	AB	C
Sample Date	2/22/2010	
Total BaP TEQ	1,489 J,O	103 J,O
Benzo(a)anthracene	710	51 J,O
Benzo(a)pyrene	810	54 J,O
Benzo(b)fluoranthene	1,400	110 J,O
Dibenzo(a,h)anthracene	370	25

Sample ID	SS523
Depth Interval	AB-H
Sample Date	1/31/2011
No Exceedances	

Sample ID	SB525
Depth Interval	35, 44, 79, 90, 124 ft bls
Sample Date	10/31/2011
No Exceedances	

Sample ID	SS522						
Depth Interval	AB	C	D	E	F	G	H
Sample Date	1/31/2011						
Total BaP TEQ	11,162 J,O	2,678 J,O	608 J,O	766 J,O	473 J,O	507 J,O	572 J,O
Benzo(a)anthracene	11,000 J,O	4,800 J,O	960 J,O	600 J,O	280 J,O	940 J,O	830 J,O
Benzo(a)pyrene	7,500	1,600	420	570	350	360	420
Benzo(b)fluoranthene	9,400 J,O	2,400 J,O	590 J,O	660 J,O	400 J,O	330 J,O	380 J,O
Dibenzo(a,h)anthracene	1,200	270	23 J,O	36 J,O	30 J,O	13 J,O	23 J,O
Acenaphthene	13,000	13,000	2,500	2,200	2,700	4,000	2,200
Anthracene	23,000	8,200	1,400	1,200	420	1,100	1,300
Fluoranthene	46,000	28,000	8,000	3,500	1,400	5,000	3,800
Naphthalene	4,800	370	15	34	4,500	3,500	5,800
Pyrene	27,000	15,000	3,900	1,700	790	2,700	2,100

Sample ID	SS603	
Depth Interval	AB	C
Sample Date	2/22/2010	
Total BaP TEQ	3,353.3 J,O	925 J,O
Benzo(a)anthracene	1,700	530
Benzo(a)pyrene	1,800	530
Benzo(b)fluoranthene	2,800	820
Benzo(k)fluoranthene	1,100 J,O	530 J,O
Dibenzo(a,h)anthracene	840	190
Indeno (1,2,3-cd) pyrene	2,500	640
Anthracene	1,700 J,O	370 J,O
Fluoranthene	3,500	1,600
Pyrene	2,700	1,200
Carbazole	450	160 J,O

Sample ID	TG15	
Depth Interval	17 ft bls	44 ft bls
Sample Date	10/31/2011	
Total BaP TEQ	187,070	111,468
Benzo(a)anthracene	220,000	96,000
Benzo(a)pyrene	98,000 J	46,000 J
Benzo(b)fluoranthene	130,000	65,000 J
Benzo(k)fluoranthene	63,000 J	29,000 J
Chrysene	140,000	78,000 J
Indeno (1,2,3-cd) pyrene	33,000 J	15,000 J
Acenaphthene	390,000	220,000
Acenaphthylene	40,000 J	18,000 J
Anthracene	230,000	120,000
Benzo(g,h,i)perylene	31,000 J	14,000 J
Dibenzofuran	290,000	160,000
Fluoranthene	690,000	350,000
Fluorene	430,000	250,000
Naphthalene	1,600,000	730,000
2-Methylnaphthalene	450,000	230,000
Phenanthrene	1,300,000	620,000
Pyrene	440,000	220,000
1,1-Biphenyl	89,000 J	47,000 J
Bis(2-ethylhexyl) phthalate	100,000 U	95,000 U
Carbazole	150,000	55,000 J

Sample ID	SB528
Depth Interval	36, 60, 80 ft bls
Sample Date	10/31/2011
No Exceedances	

Sample ID	TG18
Depth Interval	7 ft bls
Sample Date	10/31/2011
Total BaP TEQ	786

Sample ID	SB529
Depth Interval	60, 90, 140, 170 ft bls
Sample Date	10/31/2011
No Exceedances	

ANALYTE	EPA Land Use Restriction[1]	FDEP SCTLs[3]			
	UTS X 10	Residential Direct Exposure	Commercial Direct Exposure	Leachability Based on Groundwater Criteria	Leachability Based on Marine Surface Water Criteria
Total BaP TEQ	NE	100	700	8,000	NE
Benzo(a)anthracene	34,000	100	#	800	NE
Benzo(a)pyrene	34,000	100	700	8,000	NE
Benzo(b)fluoranthene	68,000	1,000	#	2,400	NE
Benzo(k)fluoranthene	68,000	153,065,000	#	24,000	NE
Chrysene	34,000	100,000	#	77,000	NE
Dibenzo(a,h)anthracene	82,000	100	#	700	NE
Indeno (1,2,3-cd) pyrene	34,000	1,000	#	6,600	NE
Acenaphthene	34,000	2,400,000	20,000,000	2,100	300
Acenaphthylene	34,000	1,800,000	20,000,000	27,000	NE
Anthracene	34,000	21,000,000	300,000,000	2,500,000	400
Benzo(g,h,i)perylene	18,000	2,500,000	52,000,000	32,000,000	NE
Dibenzofuran	NE	320,000	6,300,000	15,000	36,000
Fluoranthene	34,000	3,200,000	59,000,000	1,200,000	1,300
Fluorene	34,000	2,600,000	33,000,000	160,000	17,000
Naphthalene	56,000	55,000	300,000	1,200	2,200
Phenanthrene	56,000	2,200,000	36,000,000	250,000	NE
Pyrene	82,000	2,400,000	45,000,000	880,000	1,300
2-Methylnaphthalene	NE	210,000	2,100,000	8,500	9,100
1,1-Biphenyl	NE	3,000,000	34,000,000	200	5,800
Bis(2-ethylhexyl) phthalate	280,000	72,000	390,000	3,600,000	1,300,000
Carbazole	NE	49,000	240,000	200	6,500
Phenol	62,000	NE	NE	50	30

Notes

All results are listed in micrograms per kilogram (µg/kg) (parts per billion [ppb])

BaP benzo (a) pyrene (Note: The total BaP TEQ equals the sum of the seven carcinogenic PAH compounds)

TEQ Toxicity Equivalent

PAH Polycyclic Aromatic Hydrocarbon

AB Depth of 0-12 inches
B Depth of 6-12 inches
C Depth of 1-2 feet
D Depth of 2-3 feet
E Depth of 3-4 feet
F Depth of 4-6 feet
G Depth of 6-8 feet
H Depth of 8-10 feet

A complete list of qualifiers and definitions can be found in SVOC Table notes.

Legend

Sample Locations

N

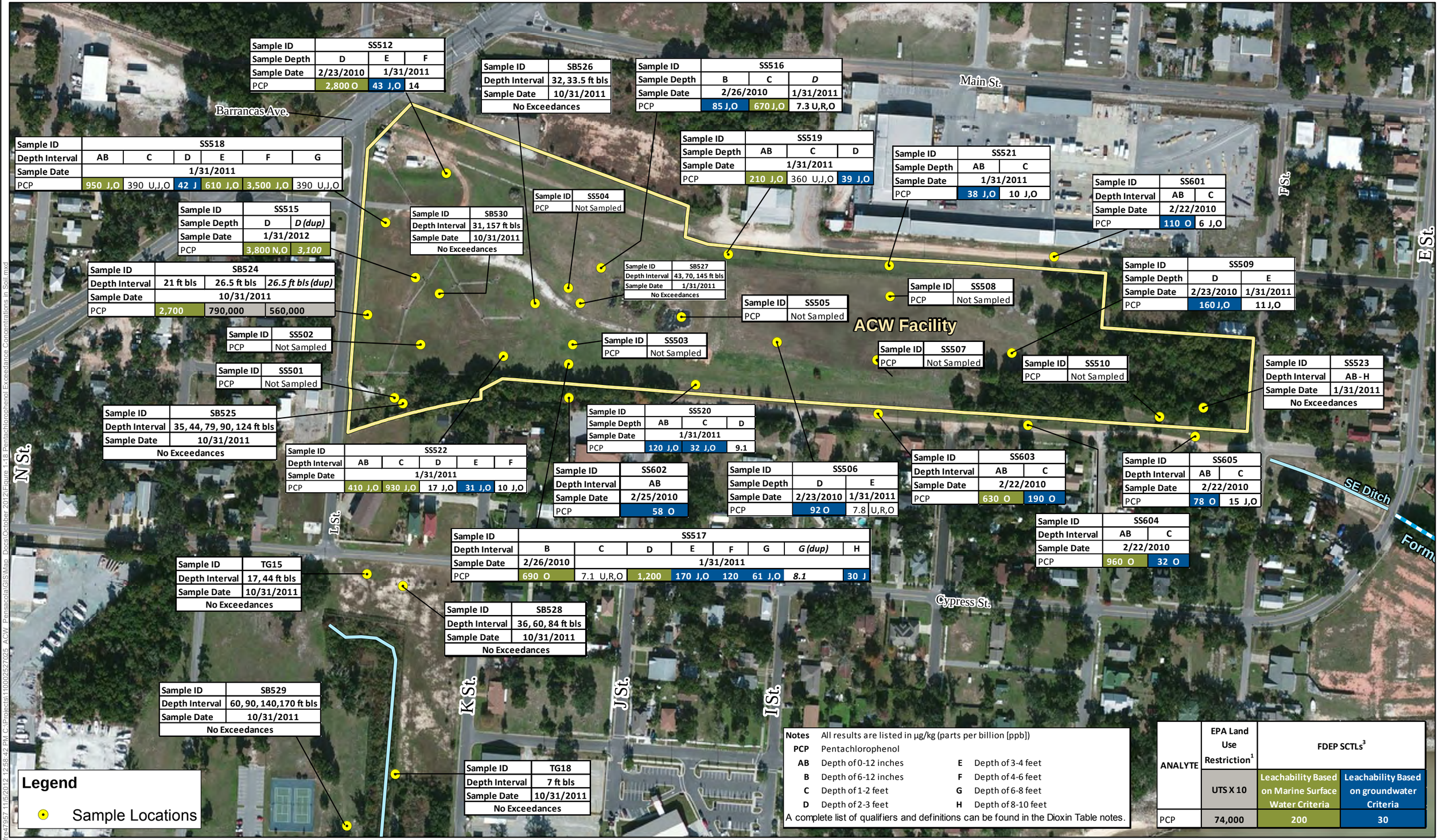
0 200 400
Feet

NAD83 State Plane Fl North, Feet

Semi-Volatile Organic Compounds Exceedance in Soil – ACW Facility and Gimble & Pine Streets
American Creosote Works
Pensacola, Escambia County, Florida

Figure 3-8b

fre47957 12/8/2016 10:08:25 AM C:\PROJECTS\EPA-Region 4\ACW Pensacola\GIS\Map_Docs\Figure 1-17b Semi-Volatile Organic Compounds Exceedance in Soil.mxd



Sample ID	SS512		
Sample Depth	D	E	F
Sample Date	2/23/2010	1/31/2011	
PCP	2,800 O	43 J,O	14

Sample ID	SB526
Depth Interval	32, 33.5 ft bls
Sample Date	10/31/2011
No Exceedances	

Sample ID	SS516		
Sample Depth	B	C	D
Sample Date	2/26/2010		1/31/2011
PCP	85 J,O	670 J,O	7.3 U,R,O

Sample ID	SS518					
Depth Interval	AB	C	D	E	F	G
Sample Date	1/31/2011					
PCP	950 J,O	390 U,J,O	42 J	610 J,O	3,500 J,O	390 U,J,O

Sample ID	SS519		
Sample Depth	AB	C	D
Sample Date	1/31/2011		
PCP	210 J,O	360 U,J,O	39 J,O

Sample ID	SS521	
Sample Depth	AB	C
Sample Date	1/31/2011	
PCP	38 J,O	10 J,O

Sample ID	SS601	
Depth Interval	AB	C
Sample Date	2/22/2010	
PCP	110 O	6 J,O

Sample ID	SS504
PCP	Not Sampled

Sample ID	SS515	
Sample Depth	D	*D (dup)*
Sample Date	1/31/2012	
PCP	3,800 N,O	*3,100*

Sample ID	SB530
Depth Interval	31, 157 ft bls
Sample Date	10/31/2011
No Exceedances	

Sample ID	SB527
Depth Interval	43, 70, 145 ft bls
Sample Date	1/31/2011
No Exceedances	

Sample ID	SS509	
Sample Depth	D	E
Sample Date	2/23/2010	1/31/2011
PCP	160 J,O	11 J,O

Sample ID	SS508
PCP	Not Sampled

Sample ID	SS505
PCP	Not Sampled

Sample ID	SB524		
Depth Interval	21 ft bls	26.5 ft bls	*26.5 ft bls (dup)*
Sample Date	10/31/2011		
PCP	2,700	790,000	560,000

Sample ID	SS502
PCP	Not Sampled

Sample ID	SS503
PCP	Not Sampled

Sample ID	SS507
PCP	Not Sampled

Sample ID	SS510
PCP	Not Sampled

Sample ID	SS523
Depth Interval	AB - H
Sample Date	1/31/2011
No Exceedances	

Sample ID	SS501
PCP	Not Sampled

Sample ID	SB525
Depth Interval	35, 44, 79, 90, 124 ft bls
Sample Date	10/31/2011
No Exceedances	

Sample ID	SS520		
Sample Depth	AB	C	D
Sample Date	1/31/2011		
PCP	120 J,O	32 J,O	9.1

Sample ID	SS522				
Depth Interval	AB	C	D	E	F
Sample Date	1/31/2011				
PCP	410 J,O	930 J,O	17 J,O	31 J,O	10 J,O

Sample ID	SS602
Depth Interval	AB
Sample Date	2/25/2010
PCP	58 O

Sample ID	SS506	
Sample Depth	D	E
Sample Date	2/23/2010	1/31/2011
PCP	92 O	7.8 U,R,O

Sample ID	SS603	
Depth Interval	AB	C
Sample Date	2/22/2010	
PCP	630 O	190 O

Sample ID	SS605	
Depth Interval	AB	C
Sample Date	2/22/2010	
PCP	78 O	15 J,O

Sample ID	SS604	
Depth Interval	AB	C
Sample Date	2/22/2010	
PCP	960 O	32 O

Sample ID	SS517							
Depth Interval	B	C	D	E	F	G	*G (dup)*	H
Sample Date	2/26/2010	1/31/2011						
PCP	690 O	7.1 U,R,O	1,200	170 J,O	120	61 J,O	*8.1*	30 J

Sample ID	TG15
Depth Interval	17, 44 ft bls
Sample Date	10/31/2011
No Exceedances	

Sample ID	SB528
Depth Interval	36, 60, 84 ft bls
Sample Date	10/31/2011
No Exceedances	

Sample ID	SB529
Depth Interval	60, 90, 140,170 ft bls
Sample Date	10/31/2011
No Exceedances	

Sample ID	TG18
Depth Interval	7 ft bls
Sample Date	10/31/2011
No Exceedances	

Notes All results are listed in µg/kg (parts per billion [ppb])

PCP Pentachlorophenol

AB Depth of 0-12 inches
B Depth of 6-12 inches
C Depth of 1-2 feet
D Depth of 2-3 feet
E Depth of 3-4 feet
F Depth of 4-6 feet
G Depth of 6-8 feet
H Depth of 8-10 feet

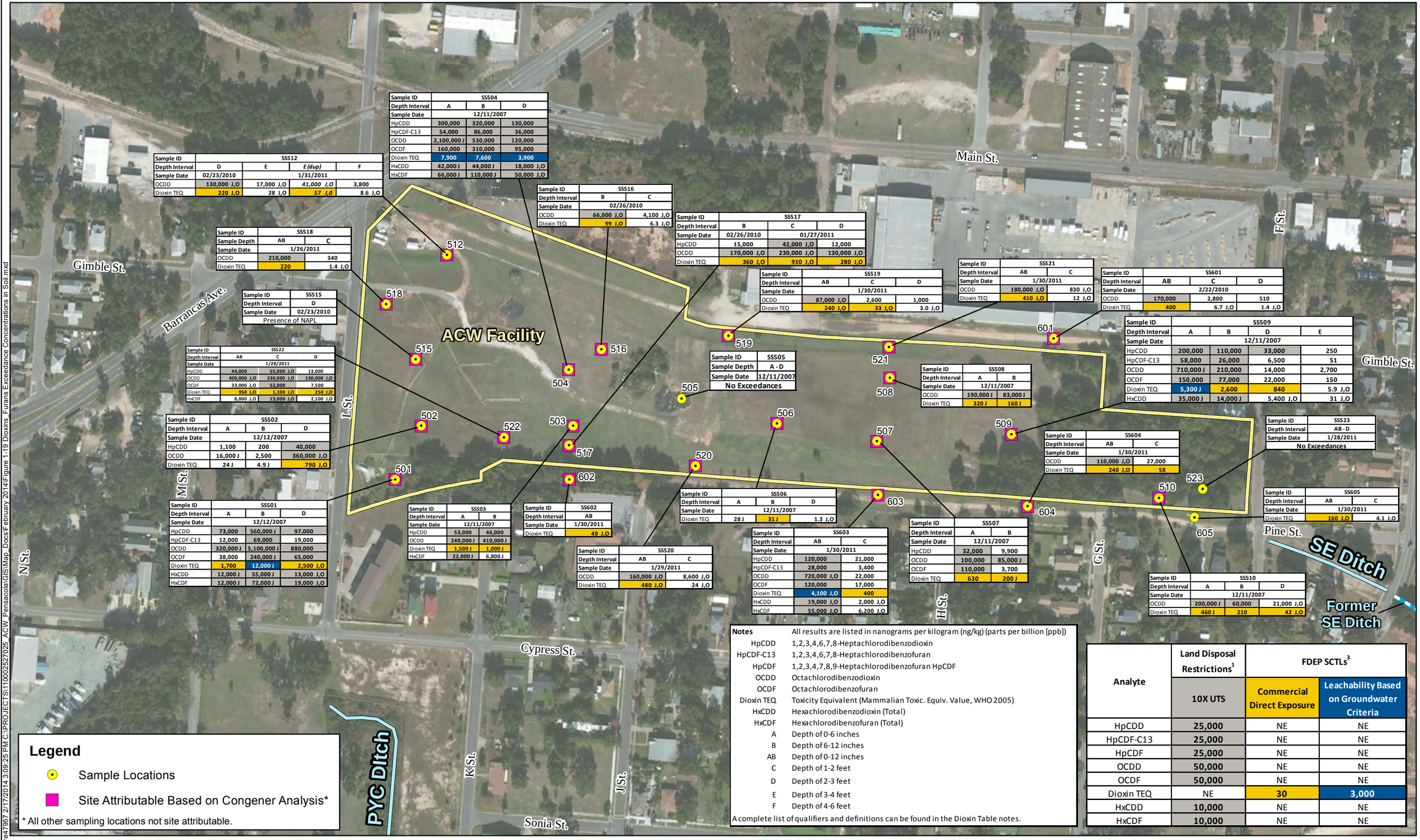
A complete list of qualifiers and definitions can be found in the Dioxin Table notes.

ANALYTE	EPA Land Use Restriction[1]	FDEP SCTLs[3]	
	UTS X 10	Leachability Based on Marine Surface Water Criteria	Leachability Based on groundwater Criteria
PCP	74,000	200	30

Pentachlorophenol Exceedance Concentrations in Soil – ACW Facility and Gimble & Pine Streets
American Creosote Works
Pensacola, Escambia County, Florida

Figure 3-9

fre47957 11/6/2012 12:58:42 PM C:\Projects\110002527025_ACW_Pensacola\GIS\Map_Docs\October 2012\Figure 1-18 Pentachlorophenol Exceedance Concentrations in Soil.mxd



Sample ID	SS504		
Depth Interval	A	B	D
Sample Date	12/11/2007		
HpCDD	300,000	320,000	130,000
HpCDF-C13	54,000	86,000	36,000
OCDD	2,100,000 J	530,000	120,000
OCDF	160,000	310,000	95,000
Dioxin TEQ	7,900	7,600	3,900
HxCDD	42,000 J	44,000 J	18,000 J,O
HxCDF	66,000 J	110,000 J	50,000 J,O

Sample ID	SS512			
Depth Interval	D	E	*E (dup)*	F
Sample Date	02/23/2010	1/31/2011		
OCDD	130,000 J,O	17,000 J,O	*41,000 J,O*	3,800
Dioxin TEQ	220 J,O	28 J,O	*57 J,O*	8.6 J,O

Sample ID	SS516	
Depth Interval	B	C
Sample Date	02/26/2010	
OCDD	66,000 J,O	4,100 J,O
Dioxin TEQ	99 J,O	6.3 J,O

Sample ID	SS517		
Depth Interval	B	C	D
Sample Date	02/26/2010	01/27/2011	
HpCDD	15,000	42,000 J,O	12,000
OCDD	170,000 J,O	230,000 J,O	130,000 J,O
Dioxin TEQ	360 J,O	910 J,O	280 J,O

Sample ID	SS518	
Sample Depth	AB	C
Sample Date	1/26/2011	
OCDD	210,000	340
Dioxin TEQ	220	1.4 J,O

Sample ID	SS515
Depth Interval	D
Sample Date	02/23/2010
Presence of NAPL	

Sample ID	SS519		
Depth Interval	AB	C	D
Sample Date	1/30/2011		
OCDD	87,000 J,O	2,600	1,000
Dioxin TEQ	240 J,O	33 J,O	3.0 J,O

Sample ID	SS521	
Depth Interval	AB	C
Sample Date	1/30/2011	
OCDD	180,000 J,O	830 J,O
Dioxin TEQ	410 J,O	12 J,O

Sample ID	SS601		
Depth Interval	AB	C	D
Sample Date	2/22/2010		
OCDD	170,000	2,800	510
Dioxin TEQ	400	6.7 J,O	1.4 J,O

Sample ID	SS509			
Depth Interval	A	B	D	E
Sample Date	12/11/2007			
HpCDD	200,000	110,000	33,000	250
HpCDF-C13	58,000	26,000	6,500	51
OCDD	710,000 J	210,000	14,000	2,700
OCDF	150,000	77,000	22,000	150
Dioxin TEQ	5,300 J	2,600	840	5.9 J,O
HxCDD	35,000 J	14,000 J	5,400 J,O	31 J,O

Sample ID	SS505
Sample Depth	A - D
Sample Date	12/11/2007
No Exceedances	

Sample ID	SS508	
Depth Interval	A	B
Sample Date	12/11/2007	
OCDD	190,000 J	83,000 J
Dioxin TEQ	320 J	160 J

Sample ID	SS522		
Depth Interval	AB	C	D
Sample Date	1/28/2011		
HpCDD	44,000	55,000 J,O	13,000
OCDD	400,000 J,O	230,000 J,O	130,000 J,O
OCDF	33,000 J,O	52,000	7,500
Dioxin TEQ	950 J,O	1,100 J,O	250 J,O
HxCDF	8,000 J,O	13,000 J,O	2,100 J,O

Sample ID	SS502		
Depth Interval	A	B	D
Sample Date	12/12/2007		
HpCDD	1,100	200	40,000
OCDD	16,000 J	2,500	360,000 J,O
Dioxin TEQ	24 J	4.9 J	790 J,O

Sample ID	SS604	
Depth Interval	AB	C
Sample Date	1/30/2011	
OCDD	110,000 J,O	27,000
Dioxin TEQ	240 J,O	58

Sample ID	SS523
Depth Interval	AB - D
Sample Date	1/28/2011
No Exceedances	

Sample ID	SS605	
Depth Interval	AB	C
Sample Date	1/30/2011	
Dioxin TEQ	160 J,O	4.1 J,O

Sample ID	SS501		
Depth Interval	A	B	D
Sample Date	12/12/2007		
HpCDD	73,000	560,000 J	97,000
HpCDF-C13	12,000	69,000	19,000
OCDD	320,000 J	5,100,000 J	880,000
OCDF	38,000	240,000 J	65,000
Dioxin TEQ	1,700	12,000 J	2,500 J,O
HxCDD	12,000 J	55,000 J	13,000 J,O
HxCDF	12,000 J	72,000 J	19,000 J,O

Sample ID	SS503	
Depth Interval	A	B
Sample Date	12/11/2007	
HpCDD	53,000	46,000
OCDD	240,000 J	410,000 J
Dioxin TEQ	1,500 J	1,000 J
HxCDF	22,000 J	6,800 J

Sample ID	SS602
Depth Interval	AB
Sample Date	1/30/2011
Dioxin TEQ	49 J,O

Sample ID	SS506		
Depth Interval	A	B	D
Sample Date	12/11/2007		
Dioxin TEQ	28 J	31 J	1.3 J,O

Sample ID	SS520	
Depth Interval	AB	C
Sample Date	1/29/2011	
OCDD	160,000 J,O	8,600 J,O
Dioxin TEQ	480 J,O	24 J,O

Sample ID	SS603	
Depth Interval	AB	C
Sample Date	1/30/2011	
HpCDD	120,000	21,000
HpCDF-C13	28,000	3,400
OCDD	720,000 J,O	22,000
OCDF	120,000	17,000
Dioxin TEQ	4,100 J,O	400
HxCDD	19,000 J,O	2,000 J,O
HxCDF	55,000 J,O	6,200 J,O

Sample ID	SS507	
Depth Interval	A	B
Sample Date	12/11/2007	
HpCDD	32,000	9,900
OCDD	100,000	85,000 J
OCDF	110,000	3,700
Dioxin TEQ	630	200 J

Sample ID	SS510		
Depth Interval	A	B	D
Sample Date	12/11/2007		
OCDD	200,000 J	60,000	21,000 J,O
Dioxin TEQ	460 J	210	42 J,O

Notes All results are listed in nanograms per kilogram (ng/kg) (parts per billion [ppb])

HpCDD	1,2,3,4,6,7,8-Heptachlorodibenzodioxin
HpCDF-C13	1,2,3,4,6,7,8-Heptachlorodibenzofuran
HpCDF	1,2,3,4,7,8,9-Heptachlorodibenzofuran HpCDF
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
Dioxin TEQ	Toxicity Equivalent (Mammalian Toxic. Equiv. Value, WHO 2005)
HxCDD	Hexachlorodibenzodioxin (Total)
HxCDF	Hexachlorodibenzofuran (Total)
A	Depth of 0-6 inches
B	Depth of 6-12 inches
AB	Depth of 0-12 inches
C	Depth of 1-2 feet
D	Depth of 2-3 feet
E	Depth of 3-4 feet
F	Depth of 4-6 feet

A complete list of qualifiers and definitions can be found in the Dioxin Table notes.

Analyte	Land Disposal Restrictions[1]	FDEP SCTLs[3]	
	10X UTS	Commercial Direct Exposure	Leachability Based on Groundwater Criteria
HpCDD	25,000	NE	NE
HpCDF-C13	25,000	NE	NE
HpCDF	25,000	NE	NE
OCDD	50,000	NE	NE
OCDF	50,000	NE	NE
Dioxin TEQ	NE	30	3,000
HxCDD	10,000	NE	NE
HxCDF	10,000	NE	NE

N

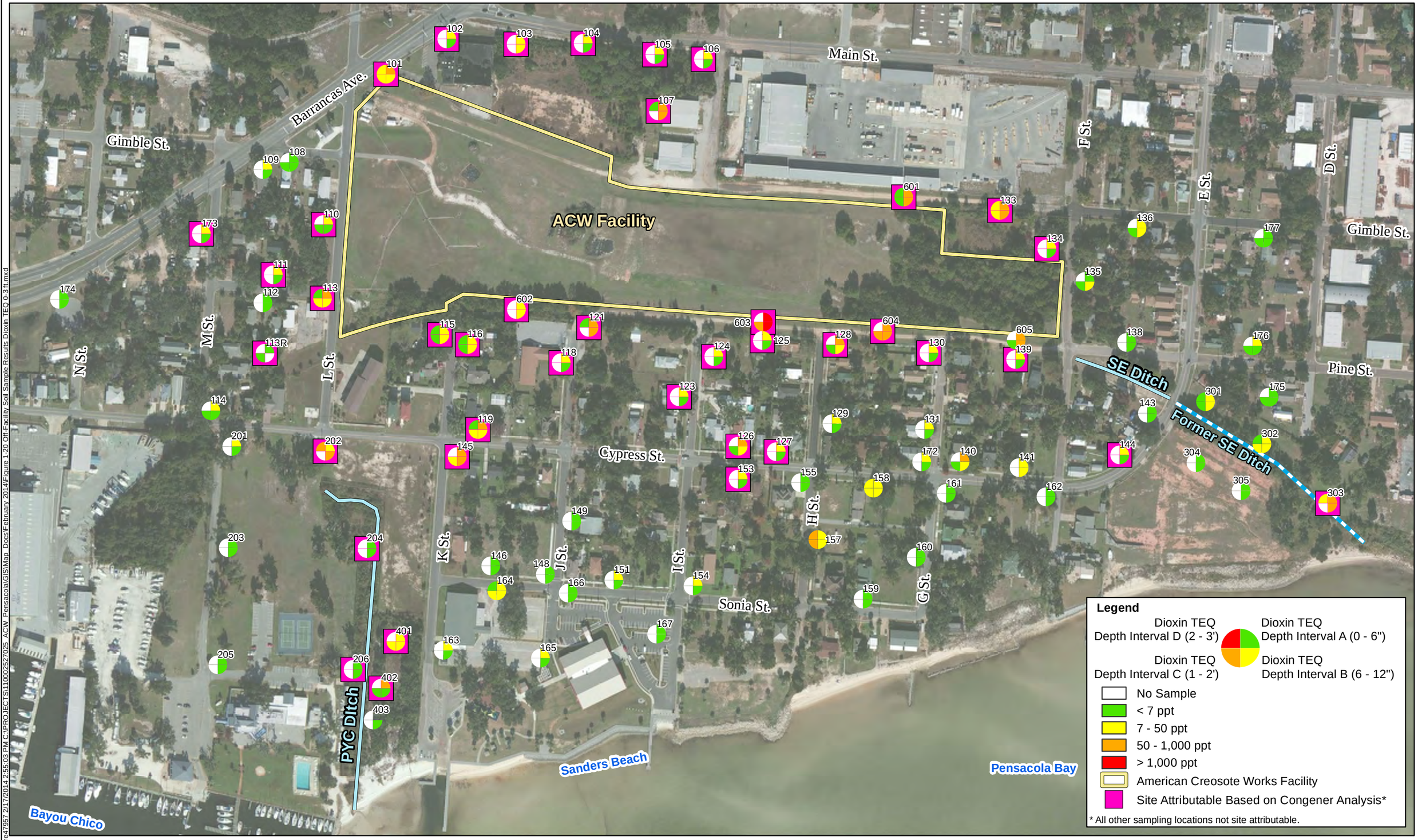
0 200 400
Feet

NAD83 State Plane Fl North, Feet

Dioxins/Furans Exceedance Concentrations in Soil – ACW Facility and Pine and Gimble Streets (2007 - 2011)
American Creosote Works
Pensacola, Escambia County, Florida

Figure 3-10

fre47957 2/17/2014 3:09:25 PM C:\PROJECTS\110002527025_ACW_Pensacola\GIS\Map_Docs\February 2014\Figure 1-19 Dioxins_Furans Exceedance Concentrations in Soil.mxd



N

0 250 500

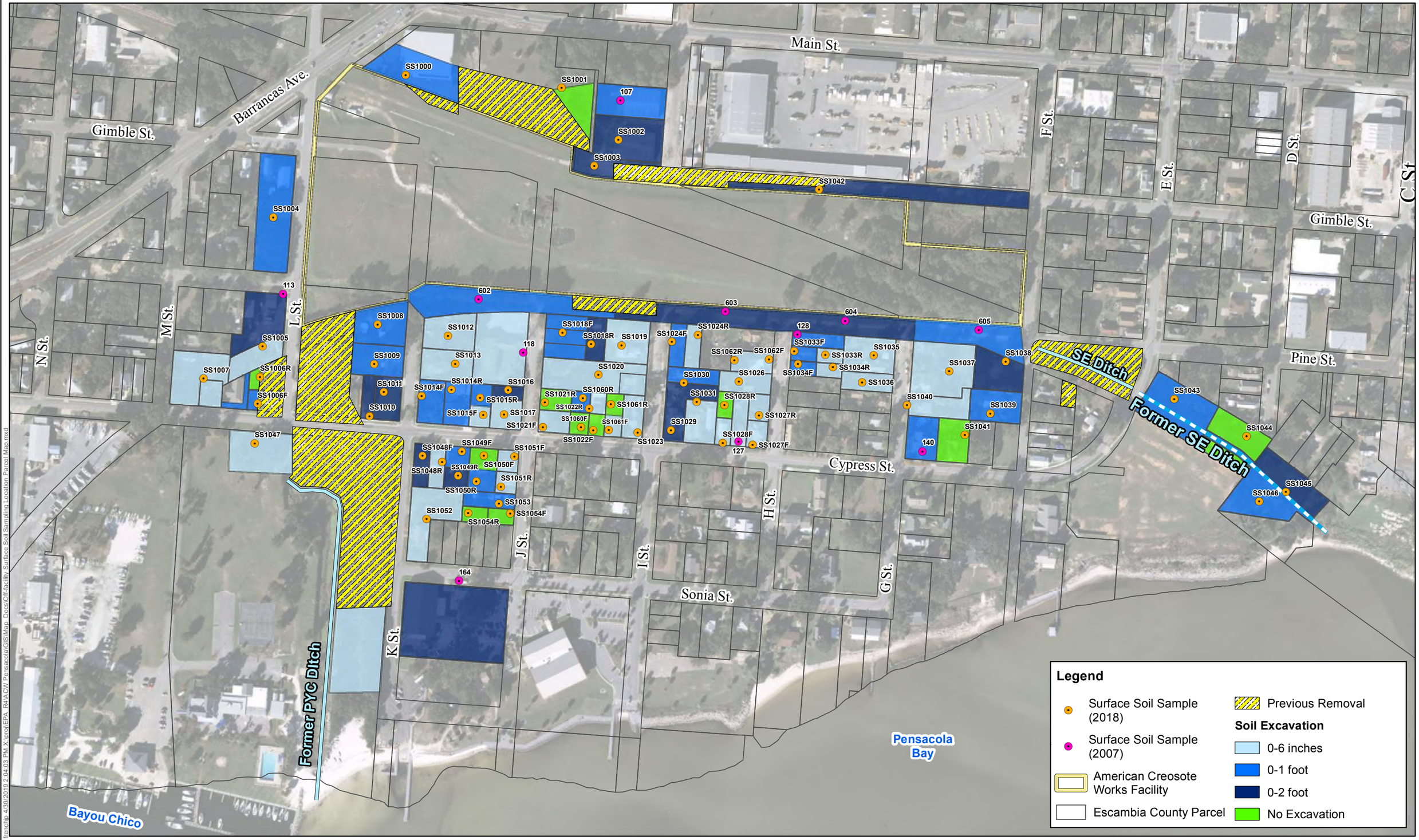
Feet

NAD83 State Plane Fl North, Feet

Dioxin TEQ Concentrations in Off-facility Surface Soil (2007 - 2011)
American Creosote Works
Pensacola, Escambia County, Florida

Figure 3-11a

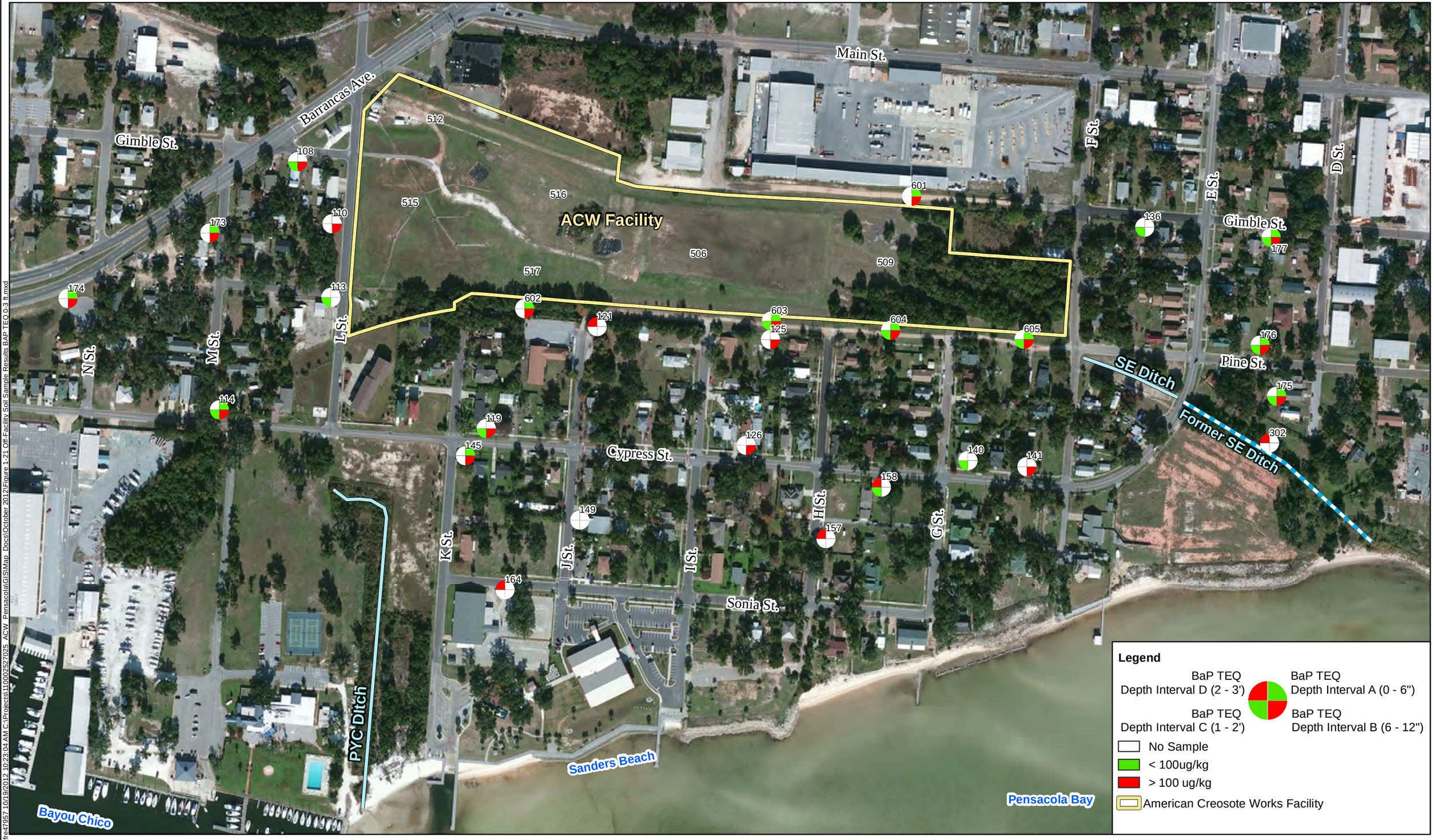
fre47957 2/17/2014 2:55:03 PM C:\PROJECTS\110002527025_ACW_Pensacola\GIS\Map_Docs\February 2014\Figure 1-20 Off-Facility Soil Sample Results Dioxin TEQ 0-3 ft.mxd



Off-facility Surface Soil Sampling Locations - 2018
American Creosote Works
Pensacola, Escambia County, Florida

Figure 3-11b

franchip 4/30/2019 2:04:03 PM X:\proj\EPA_R4\ACW Pensacola\GIS\Map_Docs\Off-facility_Surface_Soil_Sampling_Location_Parcel_Map.mxd



N

0 250 500

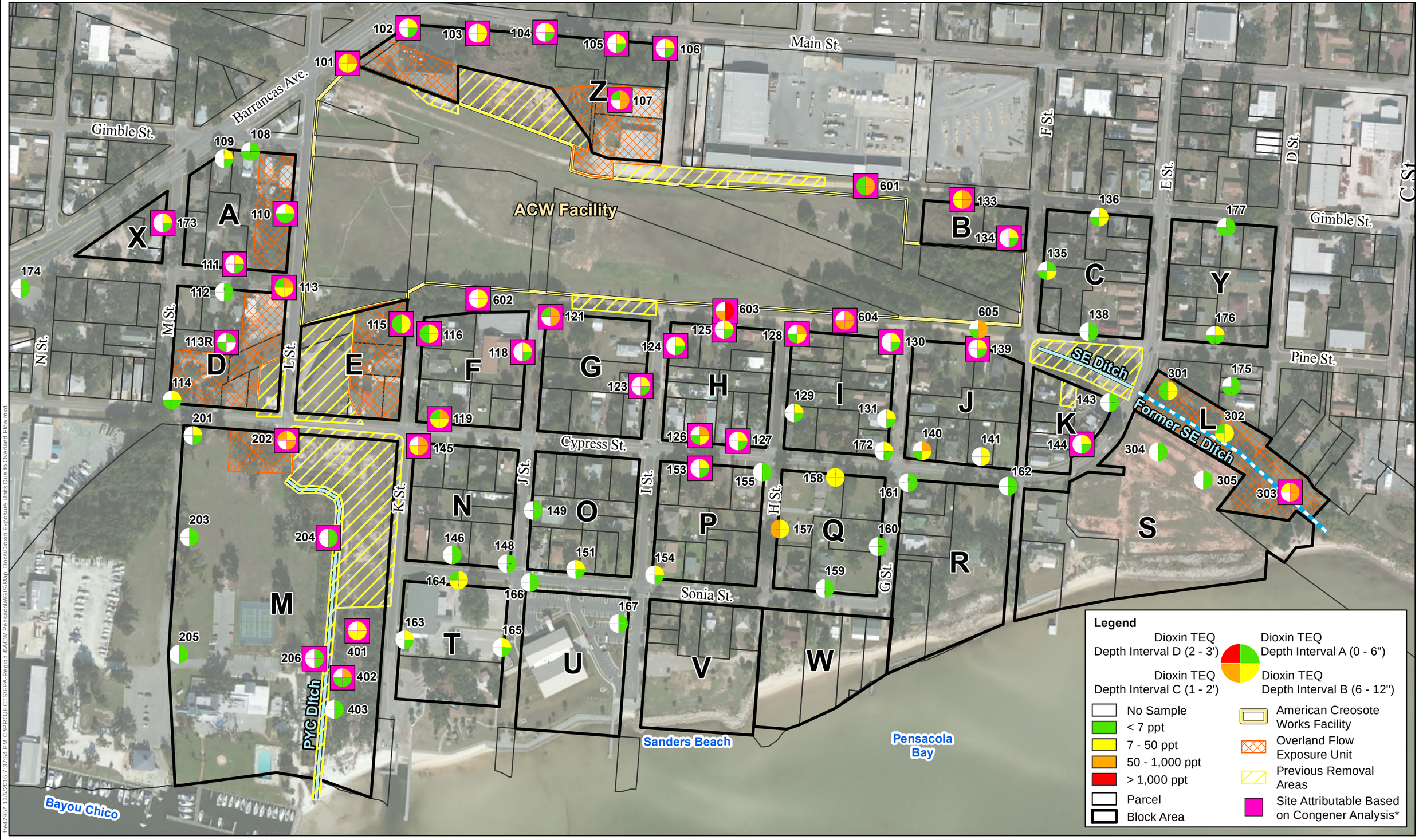
Feet

NAD83 State Plane Fl North, Feet

Benzo(a)pyrene TEQ Concentrations in Off-facility Surface Soil
American Creosote Works
Pensacola, Escambia County, Florida

Figure 3-12

fre47957 10/19/2012 10:23:04 AM C:\Projects\110002527025_ACW_Pensacola\GIS\Map_Docs\October 2012\Figure 1-21 Off-Facility Soil Sample Results BAP TEQ 0-3 ft.mxd



N

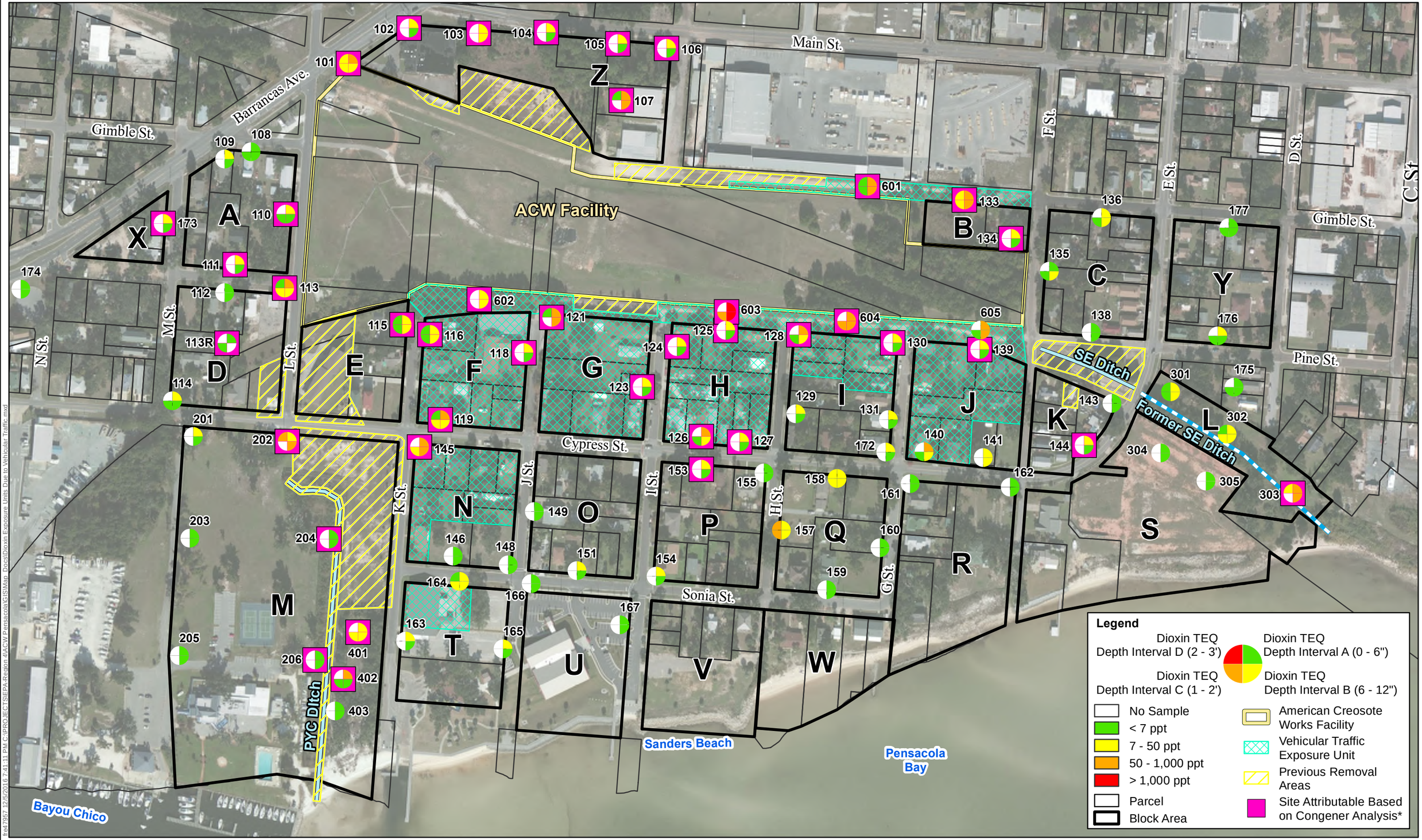
0 250 500
Feet

NAD83 State Plane Fl North, Feet

Notes:
101 Sample ID
* All other sampling locations not site attributable.

Dioxin Exposure Units Due to Overland Flow
American Creosote Works
Pensacola, Escambia County, Florida

Figure 3-13



N

0 250 500

Feet

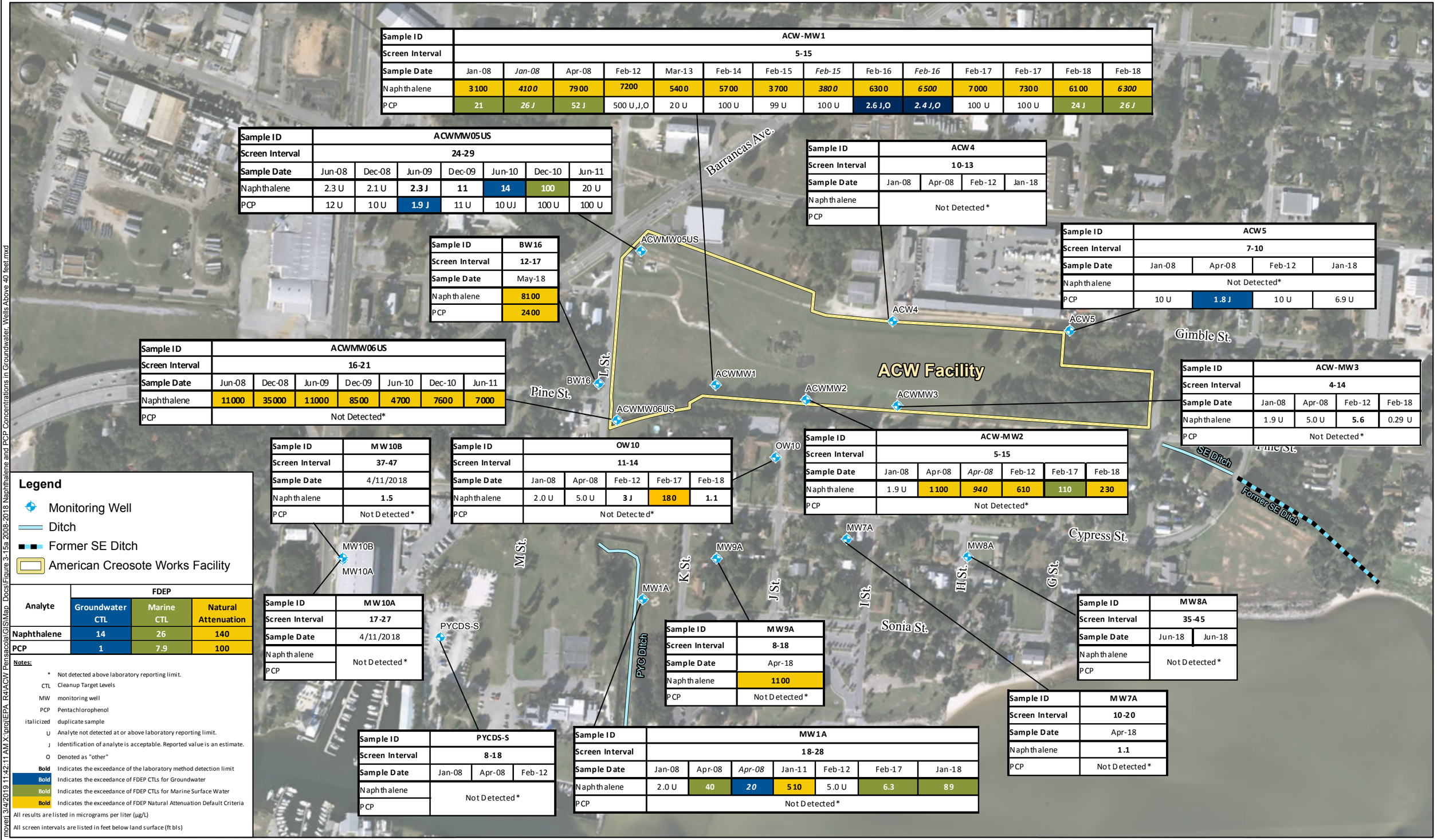
NAD83 State Plane Fl North, Feet

Notes:
101 Sample ID
* All other sampling locations not site attributable.

Dioxin Exposure Units Due to Vehicular Traffic
American Creosote Works
Pensacola, Escambia County, Florida

Figure 3-14

fre47957 12/5/2016 7:41:11 PM C:\PROJECTS\EPA-Region 4\ACW Pensacola\GIS\Map_Docs\Dioxin Exposure Units Due to Vehicular Traffic.mxd



Sample ID	ACW-MW1													
Screen Interval	5-15													
Sample Date	Jan-08	*Jan-08*	Apr-08	Feb-12	Mar-13	Feb-14	Feb-15	*Feb-15*	Feb-16	*Feb-16*	Feb-17	Feb-17	Feb-18	Feb-18
Naphthalene	3100	*4100*	7900	7200	5400	5700	3700	*3800*	6300	*6500*	7000	7300	6100	*6300*
PCP	21	*26 J*	52 J	500 U,J,O	20 U	100 U	99 U	100 U	2.6 J,O	*2.4 J,O*	100 U	100 U	24 J	*26 J*

Sample ID	ACWMW05US						
Screen Interval	24-29						
Sample Date	Jun-08	Dec-08	Jun-09	Dec-09	Jun-10	Dec-10	Jun-11
Naphthalene	2.3 U	2.1 U	2.3 J	11	14	100	20 U
PCP	12 U	10 U	1.9 J	11 U	10 UJ	100 U	100 U

Sample ID	ACW4			
Screen Interval	10-13			
Sample Date	Jan-08	Apr-08	Feb-12	Jan-18
Naphthalene	Not Detected*			
PCP				

Sample ID	ACW5			
Screen Interval	7-10			
Sample Date	Jan-08	Apr-08	Feb-12	Jan-18
Naphthalene	Not Detected*			
PCP	10 U	1.8 J	10 U	6.9 U

Sample ID	BW16
Screen Interval	12-17
Sample Date	May-18
Naphthalene	8100
PCP	2400

Sample ID	ACWMW06US						
Screen Interval	16-21						
Sample Date	Jun-08	Dec-08	Jun-09	Dec-09	Jun-10	Dec-10	Jun-11
Naphthalene	11000	35000	11000	8500	4700	7600	7000
PCP	Not Detected*						

Sample ID	ACW-MW3			
Screen Interval	4-14			
Sample Date	Jan-08	Apr-08	Feb-12	Feb-18
Naphthalene	1.9 U	5.0 U	5.6	0.29 U
PCP	Not Detected*			

Sample ID	MW10B
Screen Interval	37-47
Sample Date	4/11/2018
Naphthalene	1.5
PCP	Not Detected*

Sample ID	OW10				
Screen Interval	11-14				
Sample Date	Jan-08	Apr-08	Feb-12	Feb-17	Feb-18
Naphthalene	2.0 U	5.0 U	3 J	180	1.1
PCP	Not Detected*				

Sample ID	ACW-MW2					
Screen Interval	5-15					
Sample Date	Jan-08	Apr-08	*Apr-08*	Feb-12	Feb-17	Feb-18
Naphthalene	1.9 U	1100	*940*	610	110	230
PCP	Not Detected*					

Sample ID	MW10A
Screen Interval	17-27
Sample Date	4/11/2018
Naphthalene	Not Detected*
PCP	

Sample ID	MW9A
Screen Interval	8-18
Sample Date	Apr-18
Naphthalene	1100
PCP	Not Detected*

Sample ID	MW8A	
Screen Interval	35-45	
Sample Date	Jun-18	Jun-18
Naphthalene	Not Detected*	
PCP		

Sample ID	MW7A
Screen Interval	10-20
Sample Date	Apr-18
Naphthalene	1.1
PCP	Not Detected*

Sample ID	PYCDS-S		
Screen Interval	8-18		
Sample Date	Jan-08	Apr-08	Feb-12
Naphthalene	Not Detected*		
PCP			

Sample ID	MW1A						
Screen Interval	18-28						
Sample Date	Jan-08	Apr-08	*Apr-08*	Jan-11	Feb-12	Feb-17	Jan-18
Naphthalene	2.0 U	40	*20*	510	5.0 U	6.3	89
PCP	Not Detected*						

Analyte	FDEP Groundwater CTL	FDEP Marine CTL	FDEP Natural Attenuation
Naphthalene	14	26	140
PCP	1	7.9	100

Notes:

*	Not detected above laboratory reporting limit.
CTL	Cleanup Target Levels
MW	monitoring well
PCP	Pentachlorophenol
italicized	duplicate sample
U	Analyte not detected at or above laboratory reporting limit.
J	Identification of analyte is acceptable. Reported value is an estimate.
O	Denoted as "other"
Bold	Indicates the exceedance of the laboratory method detection limit
Bold	Indicates the exceedance of FDEP CTLs for Groundwater
Bold	Indicates the exceedance of FDEP CTLs for Marine Surface Water
Bold	Indicates the exceedance of FDEP Natural Attenuation Default Criteria

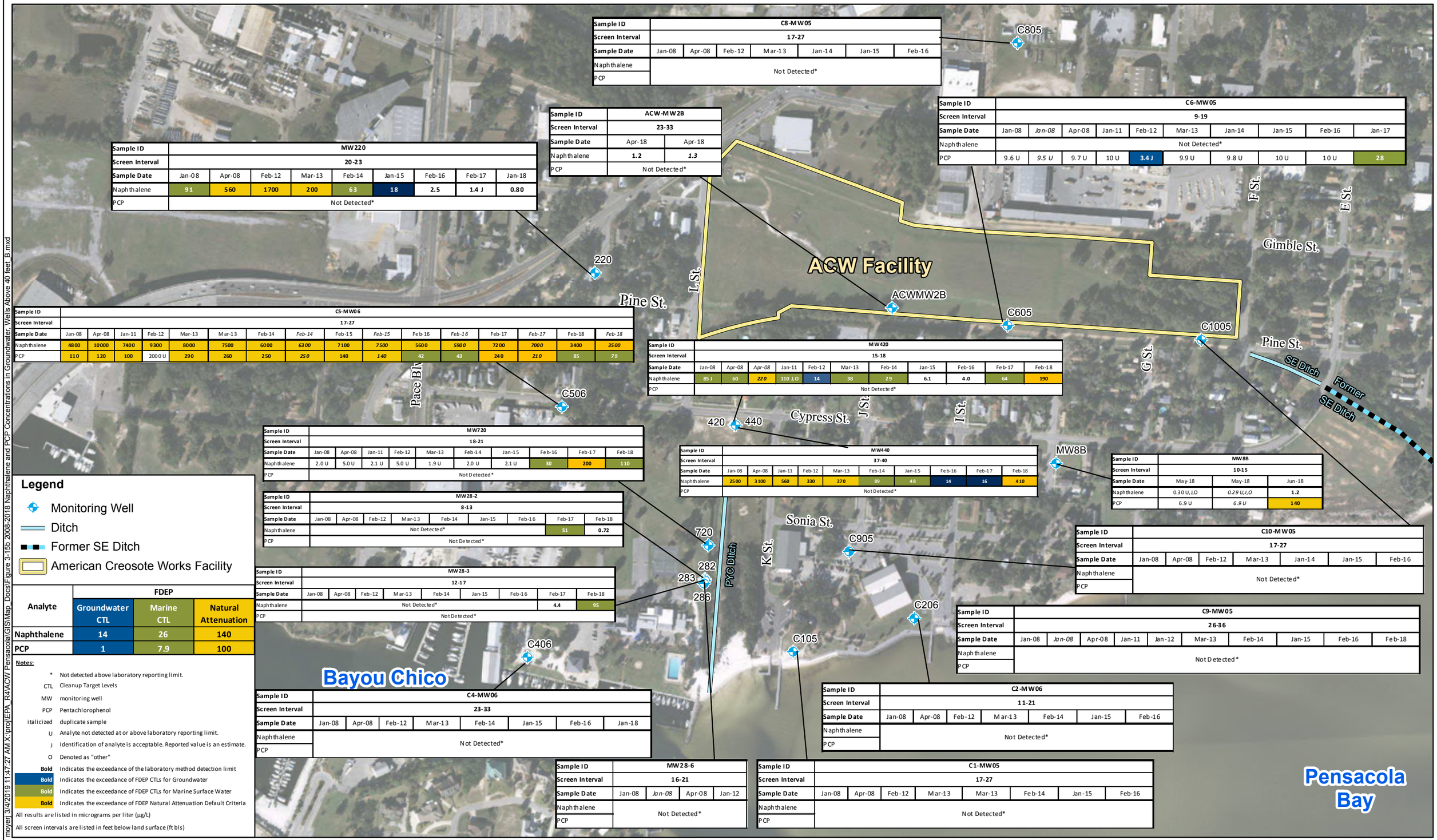
All results are listed in micrograms per liter (µg/L)

All screen intervals are listed in feet below land surface (ft bls)

moyeri 3/4/2019 11:42:11 AM X:\proj\EPA_R4\ACW Pensacola\GIS\Map Docs\Figure 3-15a 2008-2018 Naphthalene and PCP Concentrations in Groundwater, Wells Above 40 feet.mxd

2008-2018 Naphthalene and PCP Concentrations in Groundwater (*Sample Interval < 40 ft bls*)
American Creosote Works
Pensacola, Escambia County, Florida

Figure 3-15a



Sample ID	C8-MW05						
Screen Interval	17-27						
Sample Date	Jan-08	Apr-08	Feb-12	Mar-13	Jan-14	Jan-15	Feb-16
Naphthalene	Not Detected*						
PCP							

Sample ID	ACW-MW2B	
Screen Interval	23-33	
Sample Date	Apr-18	Apr-18
Naphthalene	1.2	*1.3*
PCP	Not Detected*	

Sample ID	C6-MW05									
Screen Interval	9-19									
Sample Date	Jan-08	*Jan-08*	Apr-08	Jan-11	Feb-12	Mar-13	Jan-14	Jan-15	Feb-16	Jan-17
Naphthalene	Not Detected*									
PCP	9.6 U	*9.5 U*	9.7 U	10 U	3.4 J	9.9 U	9.8 U	10 U	10 U	28

Sample ID	MW220								
Screen Interval	20-23								
Sample Date	Jan-08	Apr-08	Feb-12	Mar-13	Feb-14	Jan-15	Feb-16	Feb-17	Jan-18
Naphthalene	91	560	1700	200	63	18	2.5	1.4 J	0.80
PCP	Not Detected*								

Sample ID	C5-MW06															
Screen Interval	17-27															
Sample Date	Jan-08	Apr-08	Jan-11	Feb-12	Mar-13	Mar-13	Feb-14	*Feb-14*	Feb-15	*Feb-15*	Feb-16	*Feb-16*	Feb-17	*Feb-17*	Feb-18	*Feb-18*
Naphthalene	4800	10000	7400	9300	8000	7500	6000	*6300*	7100	*7500*	5600	*5900*	7200	*7000*	3400	*3500*
PCP	110	120	100	2000 U	290	260	250	*250*	140	*140*	42	*43*	240	*210*	85	*79*

Sample ID	MW420										
Screen Interval	15-18										
Sample Date	Jan-08	Apr-08	*Apr-08*	Jan-11	Feb-12	Mar-13	Feb-14	Jan-15	Feb-16	Feb-17	Feb-18
Naphthalene	85 J	60	*220*	110 J,O	14	38	29	6.1	4.0	64	190
PCP	Not Detected*										

Sample ID	MW720									
Screen Interval	18-21									
Sample Date	Jan-08	Apr-08	Jan-11	Feb-12	Mar-13	Feb-14	Jan-15	Feb-16	Feb-17	Feb-18
Naphthalene	2.0 U	5.0 U	2.1 U	5.0 U	1.9 U	2.0 U	2.1 U	30	200	110
PCP	Not Detected*									

Sample ID	MW440									
Screen Interval	37-40									
Sample Date	Jan-08	Apr-08	Jan-11	Feb-12	Mar-13	Feb-14	Jan-15	Feb-16	Feb-17	Feb-18
Naphthalene	2500	3100	560	330	270	89	48	14	16	410
PCP	Not Detected*									

Sample ID	MW8B		
Screen Interval	10-15		
Sample Date	May-18	May-18	Jun-18
Naphthalene	0.30 U,J,O	*0.29 U,J,O*	1.2
PCP	6.9 U	*6.9 U*	140

Sample ID	MW28-2								
Screen Interval	8-13								
Sample Date	Jan-08	Apr-08	Feb-12	Mar-13	Feb-14	Jan-15	Feb-16	Feb-17	Feb-18
Naphthalene	Not Detected*							51	0.72
PCP	Not Detected*								

Sample ID	MW28-3								
Screen Interval	12-17								
Sample Date	Jan-08	Apr-08	Feb-12	Mar-13	Feb-14	Jan-15	Feb-16	Feb-17	Feb-18
Naphthalene	Not Detected*							4.4	95
PCP	Not Detected*								

Sample ID	C10-MW05						
Screen Interval	17-27						
Sample Date	Jan-08	Apr-08	Feb-12	Mar-13	Jan-14	Jan-15	Feb-16
Naphthalene	Not Detected*						
PCP							

Sample ID	C9-MW05									
Screen Interval	26-36									
Sample Date	Jan-08	*Jan-08*	Apr-08	Jan-11	Jan-12	Mar-13	Feb-14	Jan-15	Feb-16	Feb-18
Naphthalene	Not Detected*									
PCP										

Sample ID	C4-MW06							
Screen Interval	23-33							
Sample Date	Jan-08	Apr-08	Feb-12	Mar-13	Feb-14	Jan-15	Feb-16	Jan-18
Naphthalene	Not Detected*							
PCP								

Sample ID	C2-MW06						
Screen Interval	11-21						
Sample Date	Jan-08	Apr-08	Feb-12	Mar-13	Feb-14	Jan-15	Feb-16
Naphthalene	Not Detected*						
PCP							

Sample ID	MW28-6			
Screen Interval	16-21			
Sample Date	Jan-08	*Jan-08*	Apr-08	Jan-12
Naphthalene	Not Detected*			
PCP				

Sample ID	C1-MW05							
Screen Interval	17-27							
Sample Date	Jan-08	Apr-08	Feb-12	Mar-13	Mar-13	Feb-14	Jan-15	Feb-16
Naphthalene	Not Detected*							
PCP								

Legend

- Monitoring Well
- Ditch
- Former SE Ditch
- American Creosote Works Facility

Analyte	FDEP Groundwater CTL	FDEP Marine CTL	FDEP Natural Attenuation
Naphthalene	14	26	140
PCP	1	7.9	100

Notes:

- * Not detected above laboratory reporting limit.
- CTL Cleanup Target Levels
- MW monitoring well
- PCP Pentachlorophenol
- italicized duplicate sample
- U Analyte not detected at or above laboratory reporting limit.
- J Identification of analyte is acceptable. Reported value is an estimate.
- O Denoted as "other"
- **Bold** Indicates the exceedance of the laboratory method detection limit
- **Bold** Indicates the exceedance of FDEP CTLs for Groundwater
- **Bold** Indicates the exceedance of FDEP CTLs for Marine Surface Water
- **Bold** Indicates the exceedance of FDEP Natural Attenuation Default Criteria

All results are listed in micrograms per liter (µg/L)

All screen intervals are listed in feet below land surface (ft bls)

N

0 150 300 600

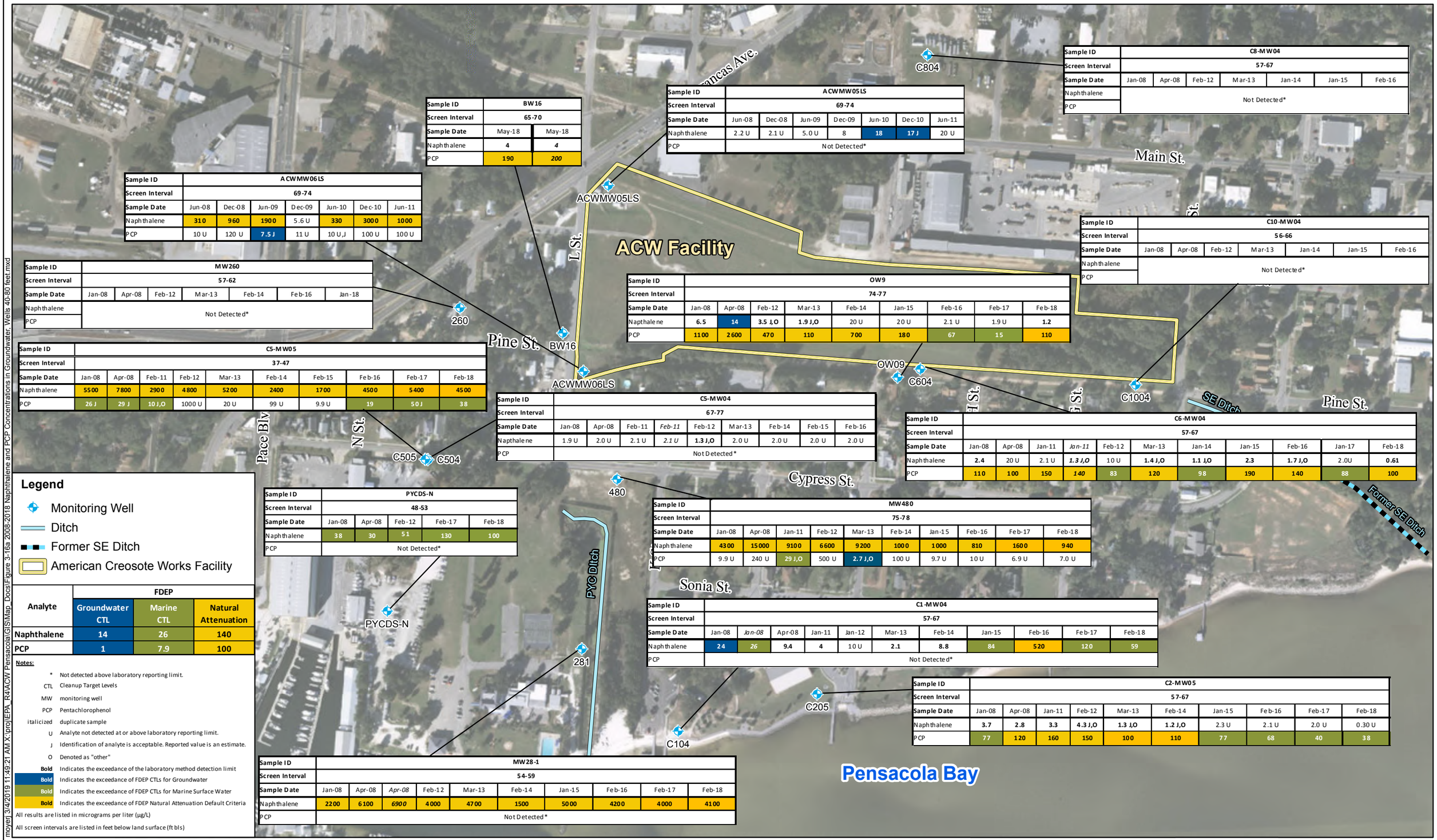
Feet

NAD83 State Plane FL North, Feet

2008-2018 Naphthalene and PCP Concentrations in Groundwater (*Sample Interval < 40 ft bls*)
American Creosote Works
Pensacola, Escambia County, Florida

Figure 3-15b

moyerj 3/4/2019 11:47:27 AM X:\proj\EPA_R4\ACW Pensacola\GIS\Map_Docs\Figure 3-15b 2008-2018 Naphthalene and PCP Concentrations in Groundwater, Wells Above 40 feet_B.mxd



Sample ID	BW16	
Screen Interval	65-70	
Sample Date	May-18	May-18
Naphthalene	4	4
PCP	190	200

Sample ID	ACWMW05LS						
Screen Interval	69-74						
Sample Date	Jun-08	Dec-08	Jun-09	Dec-09	Jun-10	Dec-10	Jun-11
Naphthalene	2.2 U	2.1 U	5.0 U	8	18	17 J	20 U
PCP	Not Detected*						

Sample ID	C8-MW04						
Screen Interval	57-67						
Sample Date	Jan-08	Apr-08	Feb-12	Mar-13	Jan-14	Jan-15	Feb-16
Naphthalene	Not Detected*						
PCP							

Sample ID	ACWMW06LS						
Screen Interval	69-74						
Sample Date	Jun-08	Dec-08	Jun-09	Dec-09	Jun-10	Dec-10	Jun-11
Naphthalene	310	960	1900	5.6 U	330	3000	1000
PCP	10 U	120 U	7.5 J	11 U	10 U,J	100 U	100 U

Sample ID	C10-MW04						
Screen Interval	56-66						
Sample Date	Jan-08	Apr-08	Feb-12	Mar-13	Jan-14	Jan-15	Feb-16
Naphthalene	Not Detected*						
PCP							

Sample ID	MW260						
Screen Interval	57-62						
Sample Date	Jan-08	Apr-08	Feb-12	Mar-13	Feb-14	Feb-16	Jan-18
Naphthalene	Not Detected*						
PCP							

Sample ID	OW9								
Screen Interval	74-77								
Sample Date	Jan-08	Apr-08	Feb-12	Mar-13	Feb-14	Jan-15	Feb-16	Feb-17	Feb-18
Napthalene	6.5	14	3.5 J,O	1.9 J,O	20 U	20 U	2.1 U	1.9 U	1.2
PCP	1100	2600	470	110	700	180	67	15	110

Sample ID	C5-MW05									
Screen Interval	37-47									
Sample Date	Jan-08	Apr-08	Feb-11	Feb-12	Mar-13	Feb-14	Feb-15	Feb-16	Feb-17	Feb-18
Naphthalene	5500	7800	2900	4800	5200	2400	1700	4500	5400	4500
PCP	26 J	29 J	10 J,O	1000 U	20 U	99 U	9.9 U	19	50 J	38

Sample ID	C5-MW04								
Screen Interval	67-77								
Sample Date	Jan-08	Apr-08	Feb-11	*Feb-11*	Feb-12	Mar-13	Feb-14	Feb-15	Feb-16
Napthalene	1.9 U	2.0 U	2.1 U	*2.1 U*	1.3 J,O	2.0 U	2.0 U	2.0 U	2.0 U
PCP	Not Detected*								

Sample ID	C6-MW04										
Screen Interval	57-67										
Sample Date	Jan-08	Apr-08	Jan-11	*Jan-11*	Feb-12	Mar-13	Jan-14	Jan-15	Feb-16	Jan-17	Feb-18
Naphthalene	2.4	20 U	2.1 U	*1.3 J,O*	10 U	1.4 J,O	1.1 J,O	2.3	1.7 J,O	2.0U	0.61
PCP	110	100	150	*140*	83	120	98	190	140	88	100

Sample ID	PYCDS-N				
Screen Interval	48-53				
Sample Date	Jan-08	Apr-08	Feb-12	Feb-17	Feb-18
Naphthalene	38	30	51	130	100
PCP	Not Detected*				

Sample ID	MW480									
Screen Interval	75-78									
Sample Date	Jan-08	Apr-08	Jan-11	Feb-12	Mar-13	Feb-14	Jan-15	Feb-16	Feb-17	Feb-18
Naphthalene	4300	15000	9100	6600	9200	1000	1000	810	1600	940
PCP	9.9 U	240 U	29 J,O	500 U	2.7 J,O	100 U	9.7 U	10 U	6.9 U	7.0 U

Sample ID	C1-MW04										
Screen Interval	57-67										
Sample Date	Jan-08	*Jan-08*	Apr-08	Jan-11	Jan-12	Mar-13	Feb-14	Jan-15	Feb-16	Feb-17	Feb-18
Naphthalene	24	*26*	9.4	4	10 U	2.1	8.8	84	520	120	59
PCP	Not Detected*										

Sample ID	C2-MW05									
Screen Interval	57-67									
Sample Date	Jan-08	Apr-08	Jan-11	Feb-12	Mar-13	Feb-14	Jan-15	Feb-16	Feb-17	Feb-18
Naphthalene	3.7	2.8	3.3	4.3 J,O	1.3 J,O	1.2 J,O	2.3 U	2.1 U	2.0 U	0.30 U
PCP	77	120	160	150	100	110	77	68	40	38

Sample ID	MW28-1									
Screen Interval	54-59									
Sample Date	Jan-08	Apr-08	*Apr-08*	Feb-12	Mar-13	Feb-14	Jan-15	Feb-16	Feb-17	Feb-18
Naphthalene	2200	6100	*6900*	4000	4700	1500	5000	4200	4000	4100
PCP	Not Detected*									

Legend

- Monitoring Well
- Ditch
- Former SE Ditch
- American Creosote Works Facility

Analyte	FDEP Groundwater CTL	FDEP Marine CTL	FDEP Natural Attenuation
Naphthalene	14	26	140
PCP	1	7.9	100

Notes:

- * Not detected above laboratory reporting limit.
- CTL Cleanup Target Levels
- MW monitoring well
- PCP Pentachlorophenol
- italicized duplicate sample
- U Analyte not detected at or above laboratory reporting limit.
- J Identification of analyte is acceptable. Reported value is an estimate.
- O Denoted as "other"
- **Bold** Indicates the exceedance of the laboratory method detection limit
- **Bold** Indicates the exceedance of FDEP CTLs for Groundwater
- **Bold** Indicates the exceedance of FDEP CTLs for Marine Surface Water
- **Bold** Indicates the exceedance of FDEP Natural Attenuation Default Criteria

All results are listed in micrograms per liter (µg/L)

All screen intervals are listed in feet below land surface (ft bls)

N

0 150 300 600

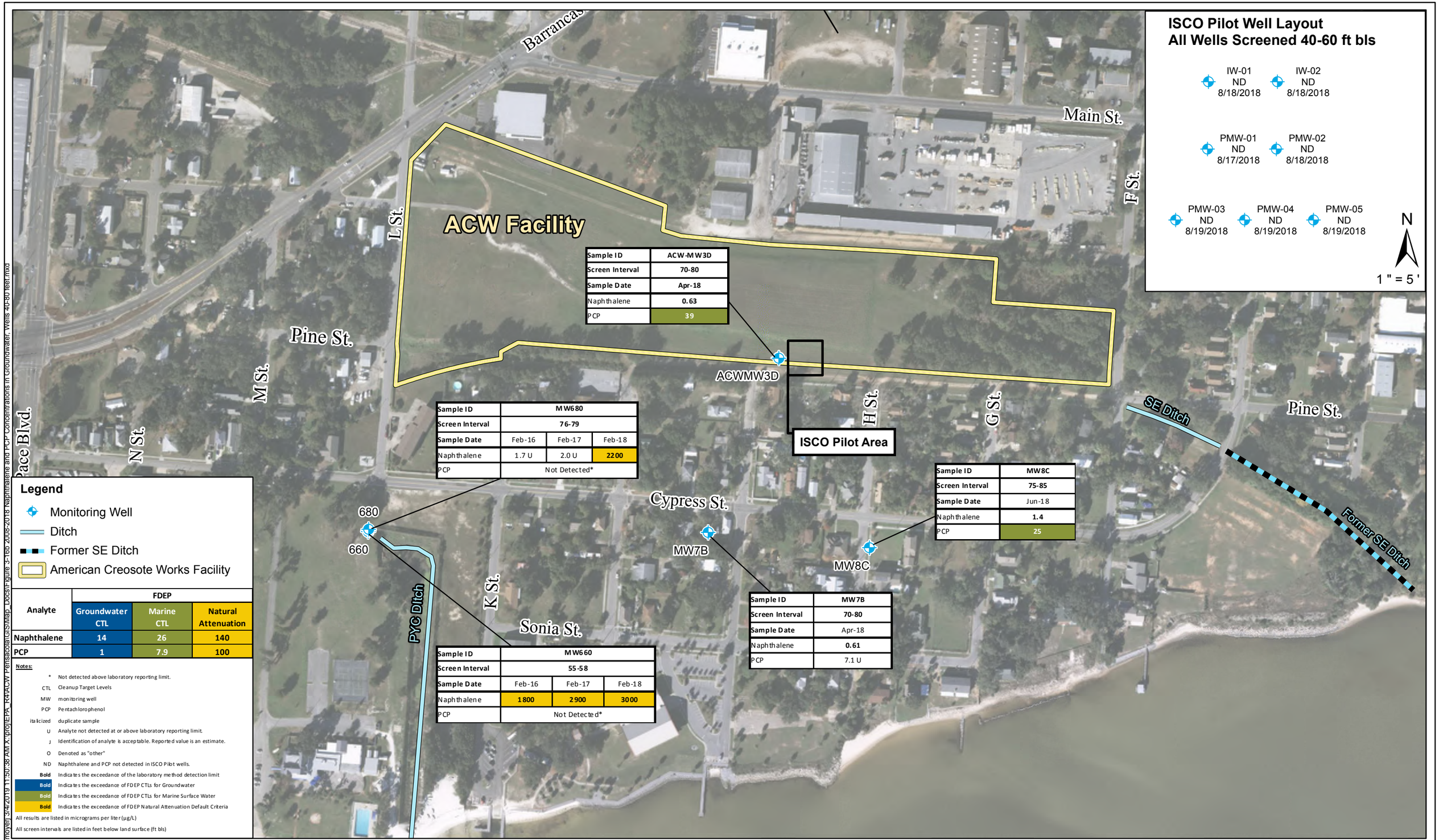
Feet

NAD83 State Plane FL North, Feet

2008-2018 Naphthalene and PCP Concentrations in Groundwater (*Sample Interval 40 - 80 ft bls*)
American Creosote Works
Pensacola, Escambia County, Florida

Figure 3-16a

moyen 3/4/2019 11:49:21 AM X:\proj\EPA_R4\ACW Pensacola\GIS\Map_Docs\Figure 3-16a 2008-2018 Naphthalene and PCP Concentrations in Groundwater, Wells 40-80 feet.mxd



Sample ID	ACW-MW3D
Screen Interval	70-80
Sample Date	Apr-18
Naphthalene	0.63
PCP	39

Sample ID	MW680		
Screen Interval	76-79		
Sample Date	Feb-16	Feb-17	Feb-18
Naphthalene	1.7 U	2.0 U	2200
PCP	Not Detected*		

Sample ID	MW8C
Screen Interval	75-85
Sample Date	Jun-18
Naphthalene	1.4
PCP	25

Sample ID	MW7B
Screen Interval	70-80
Sample Date	Apr-18
Naphthalene	0.61
PCP	7.1 U

Sample ID	MW660		
Screen Interval	55-58		
Sample Date	Feb-16	Feb-17	Feb-18
Naphthalene	1800	2900	3000
PCP	Not Detected*		

Analyte	FDEP		
	Groundwater CTL	Marine CTL	Natural Attenuation
Naphthalene	14	26	140
PCP	1	7.9	100

Notes:

- * Not detected above laboratory reporting limit.
- CTL Cleanup Target Levels
- MW monitoring well
- PCP Pentachlorophenol
- italicized duplicate sample
- U Analyte not detected at or above laboratory reporting limit
- J Identification of analyte is acceptable. Reported value is an estimate.
- O Denoted as "other"
- ND Naphthalene and PCP not detected in ISCO Pilot wells.
- **Bold** Indicates the exceedance of the laboratory method detection limit
- **Bold** Indicates the exceedance of FDEP CTLs for Groundwater
- **Bold** Indicates the exceedance of FDEP CTLs for Marine Surface Water
- **Bold** Indicates the exceedance of FDEP Natural Attenuation Default Criteria

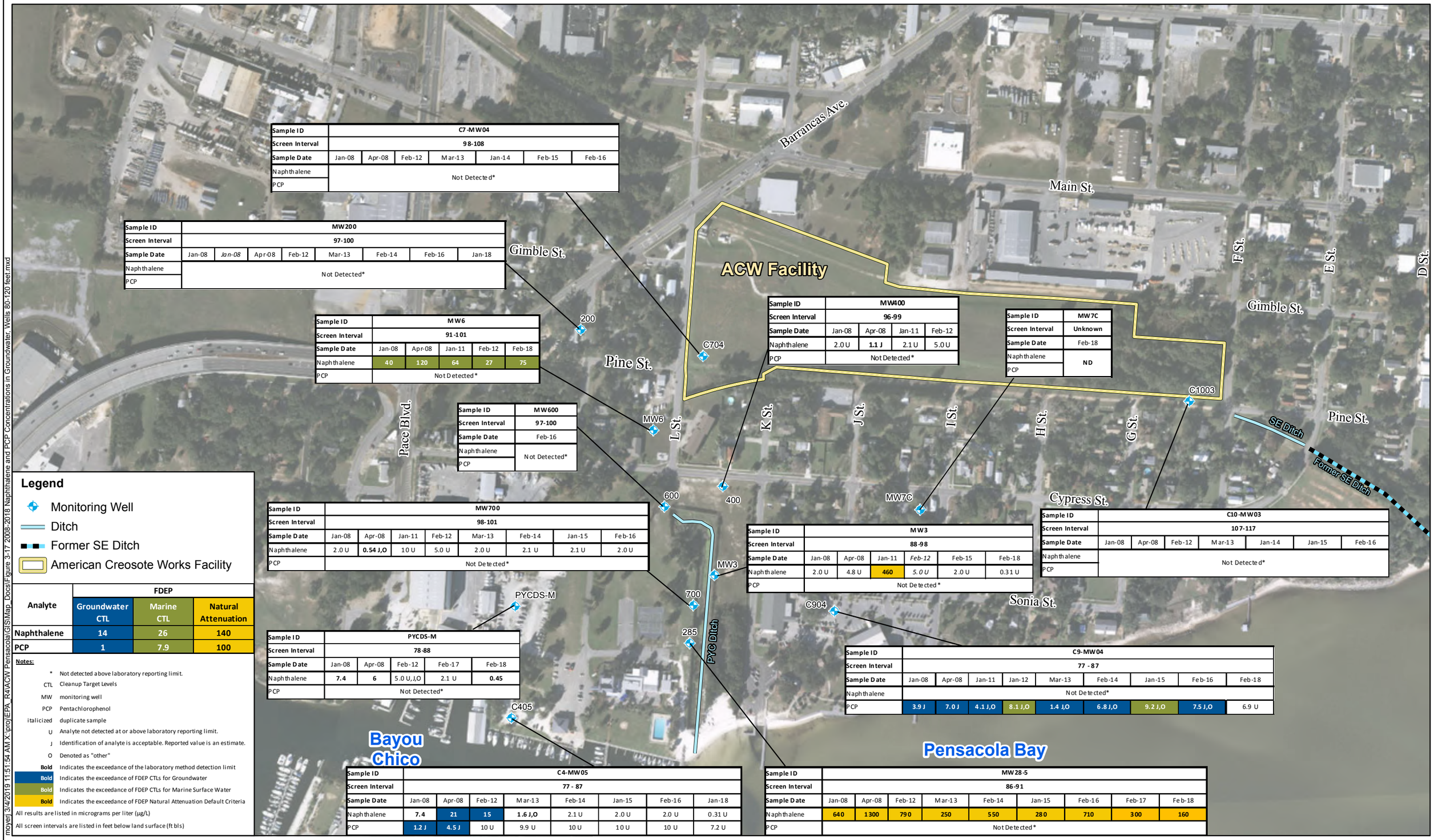
All results are listed in micrograms per liter (µg/L)

All screen intervals are listed in feet below land surface (ft bls)

2008-2018 Naphthalene and PCP Concentrations in Groundwater (*Sample Interval 40 - 80 ft bls*)
American Creosote Works
Pensacola, Escambia County, Florida

Figure 3-16b

moyerj 3/4/2019 11:50:38 AM X:\proj\EPA_R4\ACW Pensacola\GIS\Map_Docs\Figure 3-16b 2008-2018 Naphthalene and PCP Concentrations in Groundwater, Wells 40-80 feet.mxd



Sample ID	C7-MW04						
Screen Interval	98-108						
Sample Date	Jan-08	Apr-08	Feb-12	Mar-13	Jan-14	Feb-15	Feb-16
Naphthalene	Not Detected*						
PCP							

Sample ID	MW200							
Screen Interval	97-100							
Sample Date	Jan-08	*Jan-08*	Apr-08	Feb-12	Mar-13	Feb-14	Feb-16	Jan-18
Naphthalene	Not Detected*							
PCP								

Sample ID	MW6				
Screen Interval	91-101				
Sample Date	Jan-08	Apr-08	Jan-11	Feb-12	Feb-18
Naphthalene	40	120	64	27	75
PCP	Not Detected*				

Sample ID	MW600
Screen Interval	97-100
Sample Date	Feb-16
Naphthalene	Not Detected*
PCP	

Sample ID	MW400			
Screen Interval	96-99			
Sample Date	Jan-08	Apr-08	Jan-11	Feb-12
Naphthalene	2.0 U	**1.1 J**	2.1 U	5.0 U
PCP	Not Detected*			

Sample ID	MW7C
Screen Interval	Unknown
Sample Date	Feb-18
Naphthalene	ND
PCP	

Sample ID	MW700							
Screen Interval	98-101							
Sample Date	Jan-08	Apr-08	Jan-11	Feb-12	Mar-13	Feb-14	Jan-15	Feb-16
Naphthalene	2.0 U	**0.54 J,O**	10 U	5.0 U	2.0 U	2.1 U	2.1 U	2.0 U
PCP	Not Detected*							

Sample ID	MW3					
Screen Interval	88-98					
Sample Date	Jan-08	Apr-08	Jan-11	*Feb-12*	Feb-15	Feb-18
Naphthalene	2.0 U	4.8 U	**460**	*5.0 U*	2.0 U	0.31 U
PCP	Not Detected*					

Sample ID	C10-MW03						
Screen Interval	107-117						
Sample Date	Jan-08	Apr-08	Feb-12	Mar-13	Jan-14	Jan-15	Feb-16
Naphthalene	Not Detected*						
PCP							

Sample ID	PYCDS-M				
Screen Interval	78-88				
Sample Date	Jan-08	Apr-08	Feb-12	Feb-17	Feb-18
Naphthalene	**7.4**	**6**	5.0 U,J,O	2.1 U	**0.45**
PCP	Not Detected*				

Sample ID	C9-MW04								
Screen Interval	77 - 87								
Sample Date	Jan-08	Apr-08	Jan-11	Jan-12	Mar-13	Feb-14	Jan-15	Feb-16	Feb-18
Naphthalene	Not Detected*								
PCP	3.9 J	7.0 J	4.1 J,O	8.1 J,O	1.4 J,O	6.8 J,O	9.2 J,O	7.5 J,O	6.9 U

Sample ID	C4-MW05							
Screen Interval	77 - 87							
Sample Date	Jan-08	Apr-08	Feb-12	Mar-13	Feb-14	Jan-15	Feb-16	Jan-18
Naphthalene	**7.4**	**21**	**15**	**1.6 J,O**	2.1 U	2.0 U	2.0 U	0.31 U
PCP	**1.2 J**	**4.5 J**	10 U	9.9 U	10 U	10 U	10 U	7.2 U

Sample ID	MW28-5								
Screen Interval	86-91								
Sample Date	Jan-08	Apr-08	Feb-12	Mar-13	Feb-14	Jan-15	Feb-16	Feb-17	Feb-18
Naphthalene	**640**	**1300**	**790**	**250**	**550**	**280**	**710**	**300**	**160**
PCP	Not Detected*								

Legend

- Monitoring Well
- Ditch
- Former SE Ditch
- American Creosote Works Facility

Analyte	FDEP		
	Groundwater CTL	Marine CTL	Natural Attenuation
Naphthalene	14	26	140
PCP	1	7.9	100

Notes:

*	Not detected above laboratory reporting limit.
CTL	Cleanup Target Levels
MW	monitoring well
PCP	Pentachlorophenol
italicized	duplicate sample
U	Analyte not detected at or above laboratory reporting limit.
J	Identification of analyte is acceptable. Reported value is an estimate.
O	Denoted as "other"
Bold	Indicates the exceedance of the laboratory method detection limit
Bold	Indicates the exceedance of FDEP CTLs for Groundwater
Bold	Indicates the exceedance of FDEP CTLs for Marine Surface Water
Bold	Indicates the exceedance of FDEP Natural Attenuation Default Criteria

All results are listed in micrograms per liter (µg/L)

All screen intervals are listed in feet below land surface (ft bls)

moyerj 3/4/2019 11:51:54 AM X:\proj\EPA_R4\ACW Pensacola\GIS\Map_Docs\Figure 3-17 2008-2018 Naphthalene and PCP Concentrations in Groundwater, Wells 80-120 feet.mxd

N

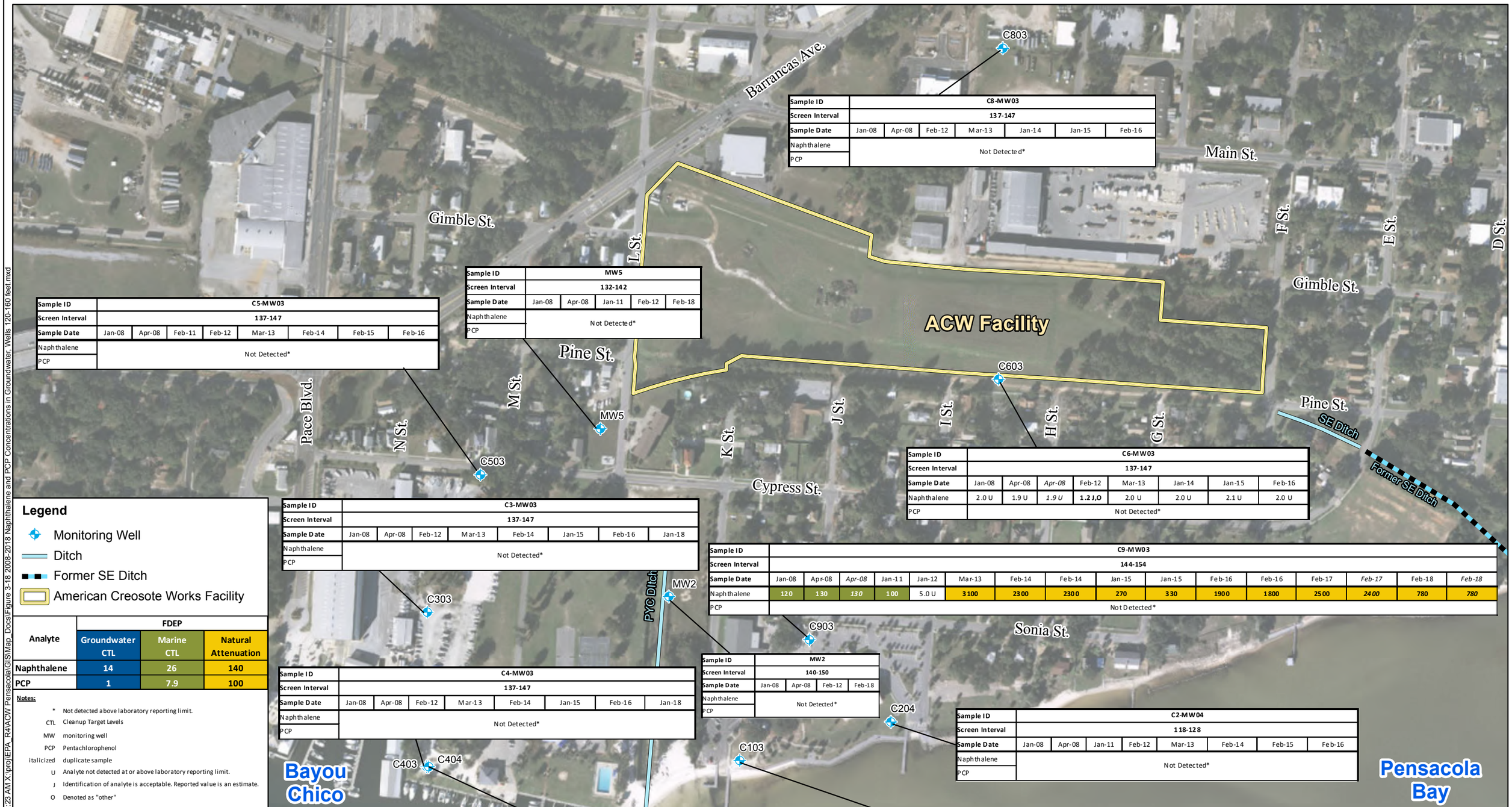
0 150 300 600

Feet

NAD83 State Plane FL North, Feet

2008-2018 Naphthalene and PCP Concentrations in Groundwater (*Sample Interval 80 - 120 ft bls*)
American Creosote Works
Pensacola, Escambia County, Florida

Figure 3-17



Sample ID	C8-MW03						
Screen Interval	137-147						
Sample Date	Jan-08	Apr-08	Feb-12	Mar-13	Jan-14	Jan-15	Feb-16
Naphthalene	Not Detected*						
PCP							

Sample ID	MW5				
Screen Interval	132-142				
Sample Date	Jan-08	Apr-08	Jan-11	Feb-12	Feb-18
Naphthalene	Not Detected*				
PCP					

Sample ID	C5-MW03							
Screen Interval	137-147							
Sample Date	Jan-08	Apr-08	Feb-11	Feb-12	Mar-13	Feb-14	Feb-15	Feb-16
Naphthalene	Not Detected*							
PCP								

Sample ID	C6-MW03							
Screen Interval	137-147							
Sample Date	Jan-08	Apr-08	*Apr-08*	Feb-12	Mar-13	Jan-14	Jan-15	Feb-16
Naphthalene	2.0 U	1.9 U	*1.9 U*	**1.2 J,O**	2.0 U	2.0 U	2.1 U	2.0 U
PCP	Not Detected*							

Sample ID	C3-MW03							
Screen Interval	137-147							
Sample Date	Jan-08	Apr-08	Feb-12	Mar-13	Feb-14	Jan-15	Feb-16	Jan-18
Naphthalene	Not Detected*							
PCP								

Sample ID	C9-MW03															
Screen Interval	144-154															
Sample Date	Jan-08	Apr-08	*Apr-08*	Jan-11	Jan-12	Mar-13	Feb-14	Feb-14	Jan-15	Jan-15	Feb-16	Feb-16	Feb-17	*Feb-17*	Feb-18	*Feb-18*
Naphthalene	**120**	**130**	***130***	**100**	5.0 U	**3100**	**2300**	**2300**	**270**	**330**	**1900**	**1800**	**2500**	***2400***	**780**	***780***
PCP	Not Detected*															

Sample ID	MW2			
Screen Interval	140-150			
Sample Date	Jan-08	Apr-08	Feb-12	Feb-18
Naphthalene	Not Detected*			
PCP				

Sample ID	C4-MW03							
Screen Interval	137-147							
Sample Date	Jan-08	Apr-08	Feb-12	Mar-13	Feb-14	Jan-15	Feb-16	Jan-18
Naphthalene	Not Detected*							
PCP								

Sample ID	C2-MW04							
Screen Interval	118-128							
Sample Date	Jan-08	Apr-08	Jan-11	Feb-12	Mar-13	Feb-14	Feb-15	Feb-16
Naphthalene	Not Detected*							
PCP								

Sample ID	C4-MW04								
Screen Interval	117-127								
Sample Date	Jan-08	*Jan-08*	Apr-08	Feb-12	Mar-13	Feb-14	Jan-15	Feb-16	Jan-18
Naphthalene	Not Detected*								
PCP									

Sample ID	C1-MW03															
Screen Interval	137-147															
Sample Date	Jan-08	Apr-08	Jan-11	Jan-12	Mar-13	Feb-14	*Feb-14*	Jan-15	*Jan-15*	Feb-16	*Feb-16*	Feb-17	*Feb-17*	Feb-18	*Feb-18*
Naphthalene	**1900**	**4500**	**2700**	**4800**	**6500**	**5000**	***5100***	**5500**	***4800***	**6300**	***6700***	**5900**	***7900***	**7300**	***7300***
PCP	**1.2 J**	64 U	**4.6 J,O**	1000 U	**9.3 J,O**	**18 J,O**	***18 J,O***	**17 J,O**	***18 J,O***	**21**	***20***	100 U	*100 U*	**9.6**	***9.8***

Legend

- Monitoring Well
- Ditch
- Former SE Ditch
- American Creosote Works Facility

Analyte	FDEP Groundwater CTL	FDEP Marine CTL	FDEP Natural Attenuation
Naphthalene	14	26	140
PCP	1	7.9	100

Notes:

*	Not detected above laboratory reporting limit.
CTL	Cleanup Target Levels
MW	monitoring well
PCP	Pentachlorophenol
italicized	duplicate sample
U	Analyte not detected at or above laboratory reporting limit.
J	Identification of analyte is acceptable. Reported value is an estimate.
O	Denoted as "other"
Bold	Indicates the exceedance of the laboratory method detection limit
Bold	Indicates the exceedance of FDEP CTLs for Groundwater
Bold	Indicates the exceedance of FDEP CTLs for Marine Surface Water
Bold	Indicates the exceedance of FDEP Natural Attenuation Default Criteria

All results are listed in micrograms per liter (µg/L)

All screen intervals are listed in feet below land surface (ft bls)

N

0 150 300 600

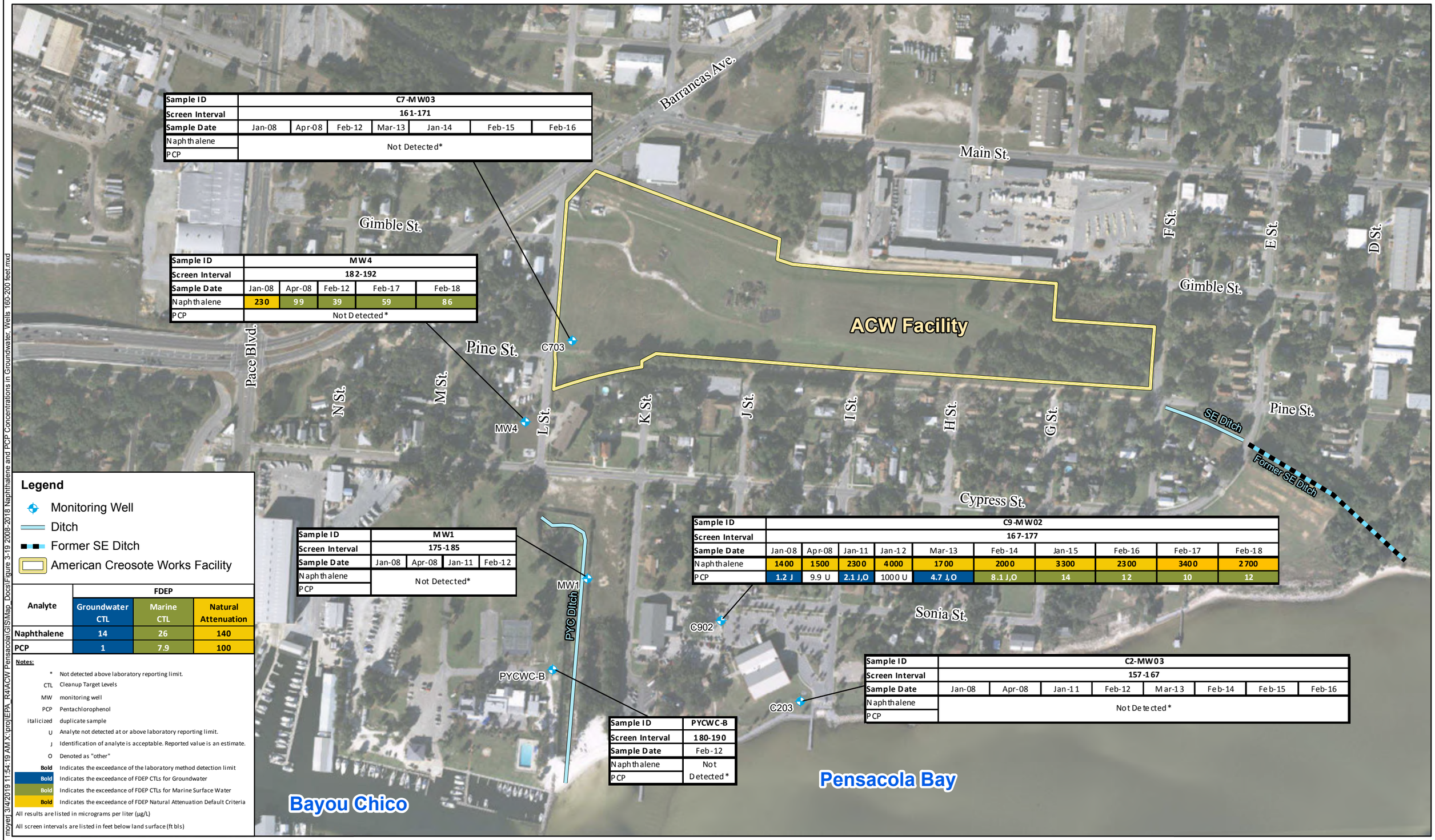
Feet

NAD83 State Plane FL North, Feet

2008-2018 Naphthalene and PCP Concentrations in Groundwater (*Sample Interval 120 - 160 ft bls*)
American Creosote Works
Pensacola, Escambia County, Florida

Figure 3-18

moyerj 3/4/2019 11:53:23 AM X:\proj\EPA_R4\ACW Pensacola\GIS\Map_Docs\Figure 3-18 2008-2018 Naphthalene and PCP Concentrations in Groundwater, Wells 120-160 feet.mxd



Sample ID	C7-MW03						
Screen Interval	161-171						
Sample Date	Jan-08	Apr-08	Feb-12	Mar-13	Jan-14	Feb-15	Feb-16
Naphthalene	Not Detected*						
PCP							

Sample ID	MW4				
Screen Interval	182-192				
Sample Date	Jan-08	Apr-08	Feb-12	Feb-17	Feb-18
Naphthalene	230	99	39	59	86
PCP	Not Detected*				

Sample ID	MW1			
Screen Interval	175-185			
Sample Date	Jan-08	Apr-08	Jan-11	Feb-12
Naphthalene	Not Detected*			
PCP				

Sample ID	C9-MW02									
Screen Interval	167-177									
Sample Date	Jan-08	Apr-08	Jan-11	Jan-12	Mar-13	Feb-14	Jan-15	Feb-16	Feb-17	Feb-18
Naphthalene	1400	1500	2300	4000	1700	2000	3300	2300	3400	2700
PCP	1.2 J	9.9 U	2.1 J,O	1000 U	4.7 J,O	8.1 J,O	14	12	10	12

Sample ID	C2-MW03							
Screen Interval	157-167							
Sample Date	Jan-08	Apr-08	Jan-11	Feb-12	Mar-13	Feb-14	Feb-15	Feb-16
Naphthalene	Not Detected*							
PCP								

Sample ID	PYCWC-B
Screen Interval	180-190
Sample Date	Feb-12
Naphthalene	Not Detected*
PCP	

Legend

- Monitoring Well
- Ditch
- Former SE Ditch
- American Creosote Works Facility

Analyte	FDEP Groundwater CTL	FDEP Marine CTL	FDEP Natural Attenuation
Naphthalene	14	26	140
PCP	1	7.9	100

Notes:

*	Not detected above laboratory reporting limit.
CTL	Cleanup Target Levels
MW	monitoring well
PCP	Pentachlorophenol
italicized	duplicate sample
U	Analyte not detected at or above laboratory reporting limit.
J	Identification of analyte is acceptable. Reported value is an estimate.
O	Denoted as "other"
Bold	Indicates the exceedance of the laboratory method detection limit
Bold	Indicates the exceedance of FDEP CTLs for Groundwater
Bold	Indicates the exceedance of FDEP CTLs for Marine Surface Water
Bold	Indicates the exceedance of FDEP Natural Attenuation Default Criteria

All results are listed in micrograms per liter (µg/L)

All screen intervals are listed in feet below land surface (ft bls)

N

0 150 300 600

Feet

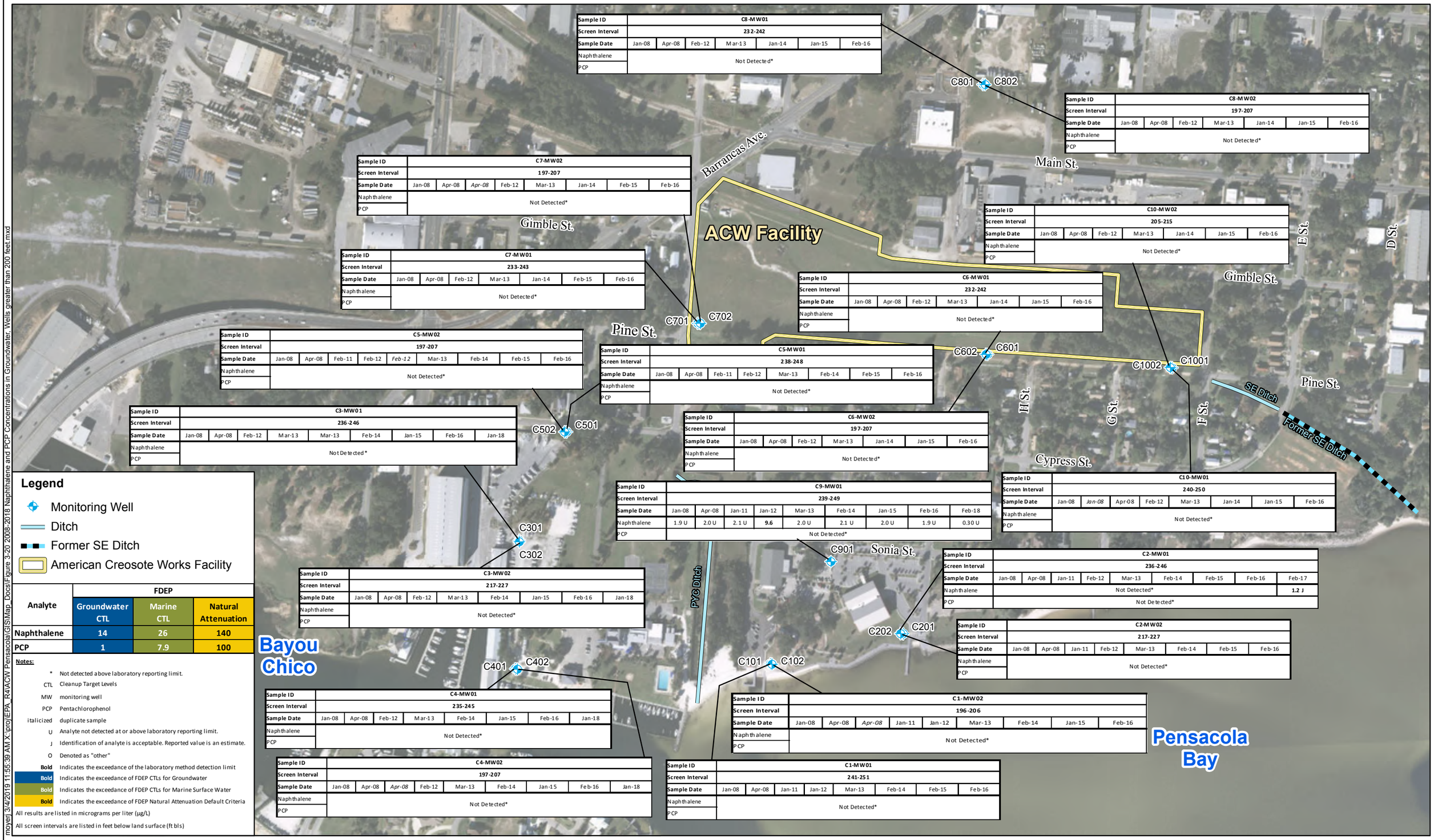
NAD83 State Plane FL North, Feet

2008-2018 Naphthalene and PCP Concentrations in Groundwater (*Sample Interval 160 - 200 ft bls*)
American Creosote Works
Pensacola, Escambia County, Florida

Figure 3-19

moyen 3/4/2019 11:54:19 AM X:\proj\EPA_R4\ACW Pensacola\GIS\Map_Docs\Figure 3-19 2008-2018 Naphthalene and PCP Concentrations in Groundwater, Wells 160-200 feet.mxd

moyerj 3/4/2019 11:55:39 AM X:\proj\EPA_R4\ACW Pensacola\GIS\Map_Docs\Figure 3-20 2008-2018 Naphthalene and PCP Concentrations in Groundwater, Wells greater than 200 feet.mxd



Sample ID	C8-MW01						
Screen Interval	232-242						
Sample Date	Jan-08	Apr-08	Feb-12	Mar-13	Jan-14	Jan-15	Feb-16
Naphthalene	Not Detected*						
PCP							

Sample ID	C8-MW02						
Screen Interval	197-207						
Sample Date	Jan-08	Apr-08	Feb-12	Mar-13	Jan-14	Jan-15	Feb-16
Naphthalene	Not Detected*						
PCP							

Sample ID	C7-MW02							
Screen Interval	197-207							
Sample Date	Jan-08	Apr-08	*Apr-08*	Feb-12	Mar-13	Jan-14	Feb-15	Feb-16
Naphthalene	Not Detected*							
PCP								

Sample ID	C7-MW01						
Screen Interval	233-243						
Sample Date	Jan-08	Apr-08	Feb-12	Mar-13	Jan-14	Feb-15	Feb-16
Naphthalene	Not Detected*						
PCP							

Sample ID	C10-MW02						
Screen Interval	205-215						
Sample Date	Jan-08	Apr-08	Feb-12	Mar-13	Jan-14	Jan-15	Feb-16
Naphthalene	Not Detected*						
PCP							

Sample ID	C6-MW01						
Screen Interval	232-242						
Sample Date	Jan-08	Apr-08	Feb-12	Mar-13	Jan-14	Jan-15	Feb-16
Naphthalene	Not Detected*						
PCP							

Sample ID	C5-MW02								
Screen Interval	197-207								
Sample Date	Jan-08	Apr-08	Feb-11	Feb-12	*Feb-12*	Mar-13	Feb-14	Feb-15	Feb-16
Naphthalene	Not Detected*								
PCP									

Sample ID	C5-MW01							
Screen Interval	238-248							
Sample Date	Jan-08	Apr-08	Feb-11	Feb-12	Mar-13	Feb-14	Feb-15	Feb-16
Naphthalene	Not Detected*							
PCP								

Sample ID	C3-MW01								
Screen Interval	236-246								
Sample Date	Jan-08	Apr-08	Feb-12	Mar-13	Mar-13	Feb-14	Jan-15	Feb-16	Jan-18
Naphthalene	Not Detected*								
PCP									

Sample ID	C6-MW02						
Screen Interval	197-207						
Sample Date	Jan-08	Apr-08	Feb-12	Mar-13	Jan-14	Jan-15	Feb-16
Naphthalene	Not Detected*						
PCP							

Sample ID	C9-MW01								
Screen Interval	239-249								
Sample Date	Jan-08	Apr-08	Jan-11	Jan-12	Mar-13	Feb-14	Jan-15	Feb-16	Feb-18
Naphthalene	1.9 U	2.0 U	2.1 U	**9.6**	2.0 U	2.1 U	2.0 U	1.9 U	0.30 U
PCP	Not Detected*								

Sample ID	C10-MW01							
Screen Interval	240-250							
Sample Date	Jan-08	*Jan-08*	Apr-08	Feb-12	Mar-13	Jan-14	Jan-15	Feb-16
Naphthalene	Not Detected*							
PCP								

Sample ID	C2-MW01								
Screen Interval	236-246								
Sample Date	Jan-08	Apr-08	Jan-11	Feb-12	Mar-13	Feb-14	Feb-15	Feb-16	Feb-17
Naphthalene	Not Detected*								**1.2 J**
PCP	Not Detected*								

Sample ID	C3-MW02							
Screen Interval	217-227							
Sample Date	Jan-08	Apr-08	Feb-12	Mar-13	Feb-14	Jan-15	Feb-16	Jan-18
Naphthalene	Not Detected*							
PCP								

Sample ID	C2-MW02							
Screen Interval	217-227							
Sample Date	Jan-08	Apr-08	Jan-11	Feb-12	Mar-13	Feb-14	Feb-15	Feb-16
Naphthalene	Not Detected*							
PCP								

Sample ID	C4-MW01							
Screen Interval	235-245							
Sample Date	Jan-08	Apr-08	Feb-12	Mar-13	Feb-14	Jan-15	Feb-16	Jan-18
Naphthalene	Not Detected*							
PCP								

Sample ID	C1-MW02								
Screen Interval	196-206								
Sample Date	Jan-08	Apr-08	*Apr-08*	Jan-11	Jan-12	Mar-13	Feb-14	Jan-15	Feb-16
Naphthalene	Not Detected*								
PCP									

Sample ID	C4-MW02								
Screen Interval	197-207								
Sample Date	Jan-08	Apr-08	*Apr-08*	Feb-12	Mar-13	Feb-14	Jan-15	Feb-16	Jan-18
Naphthalene	Not Detected*								
PCP									

Sample ID	C1-MW01							
Screen Interval	241-251							
Sample Date	Jan-08	Apr-08	Jan-11	Jan-12	Mar-13	Feb-14	Feb-15	Feb-16
Naphthalene	Not Detected*							
PCP								

Legend

- Monitoring Well
- Ditch
- Former SE Ditch
- American Creosote Works Facility

Analyte	FDEP Groundwater CTL	FDEP Marine CTL	FDEP Natural Attenuation
Naphthalene	14	26	140
PCP	1	7.9	100

Notes:

*	Not detected above laboratory reporting limit.
CTL	Cleanup Target Levels
MW	monitoring well
PCP	Pentachlorophenol
italicized	duplicate sample
U	Analyte not detected at or above laboratory reporting limit.
J	Identification of analyte is acceptable. Reported value is an estimate.
O	Denoted as "other"
Bold	Indicates the exceedance of the laboratory method detection limit
Bold	Indicates the exceedance of FDEP CTLs for Groundwater
Bold	Indicates the exceedance of FDEP CTLs for Marine Surface Water
Bold	Indicates the exceedance of FDEP Natural Attenuation Default Criteria

All results are listed in micrograms per liter (µg/L)

All screen intervals are listed in feet below land surface (ft bls)

N

0 175 350 700

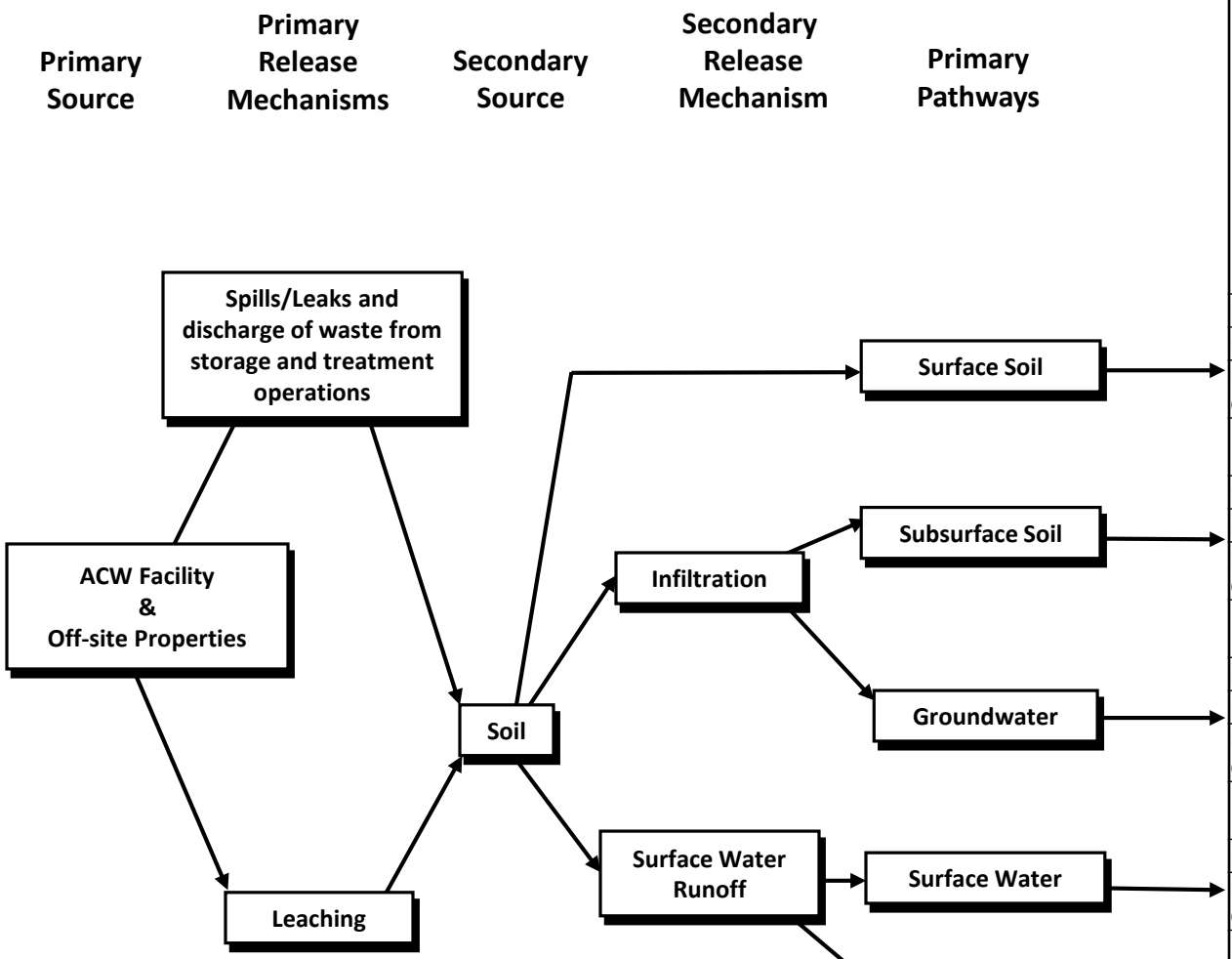
Feet

NAD83 State Plane FL North, Feet

2008-2018 Naphthalene and PCP Concentrations in Groundwater (*Sample Interval > 200 ft bls*)
American Creosote Works
Pensacola, Escambia County, Florida

Figure 3-20

Figure 3-21
Human Health Conceptual Site Model
American Creosote Works
Pensacola, Escambia County, Florida



Potential Human Receptors

Exposure Route	Current			Future		
	Industrial/Commercial Worker	Resident (Lifetime & Child)	Recreational User (Lifetime & Child)	Industrial/Commercial Worker	Resident (Lifetime & Child)	Recreational User (Lifetime & Child)
Ingestion	X	X	X	X	X	X
Inhalation	X	X	X	X	X	X
Dermal Contact	X	X	X	X	X	X
Ingestion	NA	NA	NA	NA	NA	NA
Inhalation	NA	NA	NA	NA	NA	NA
Dermal Contact	NA	NA	NA	NA	NA	NA
Ingestion	NA	NA	NA	NA	X	NA
Inhalation	NA	NA	NA	NA	X	NA
Dermal Contact	NA	NA	NA	NA	X	NA
Ingestion	NA	NA	NA	NA	NA	NA
Dermal Contact	NA	NA	NA	NA	NA	NA
Ingestion	NA	X	X	NA	X	X
Dermal Contact	NA	X	X	NA	X	X

X Pathway was quantitatively evaluated
NA Not applicable.

N

0 125 250

Feet

NAD83 State Plane Fl North, Feet

Barrier Wall Boring Locations
American Creosote Works
Pensacola, Escambia County, Florida

Figure 5-1

100% REMEDIAL DESIGN SUBMITTAL

SOIL EXCAVATION, BARRIER WALL CONSTRUCTION, SURFACE CAP CONSTRUCTION, AND STORMWATER FEATURE CONSTRUCTION PLANS

AMERICAN CREOSOTE WORKS SUPERFUND SITE

AUGUST 2019

PENSACOLA, ESCAMBIA COUNTY, FLORIDA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH
Building a world of difference.®

100% SUBMITTAL

AUGUST 26, 2019

Symbol	Description	Date	Appr.

Designed by:
Date: AUGUST 26, 2019
Drawn by:
Checked by: M. CLAXTON
Submitted by: T. MOYER
File name:
Approved by:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH
Building a world of difference.®

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

COVER SHEET

Sheet Number:
G-001

Revision:

gug96278
R:\49089 - ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_G-001.dwg 8/21/2019 1:21:52 PM

DRAWING INDEX

PLATE NO.	SHEET NO.	DRAWING TITLE
GENERAL		
1	G-001	COVER SHEET
2	G-002	SHEET INDEX AND LEGEND
3	G-003	LOCATION MAP
4	G-004	OVERALL PROJECT PLAN AND LIMITS
5	G-005	CIVIL GENERAL NOTES AND ABBREVIATIONS
6	G-006	ON-SITE AND OFF-SITE HAUL ROUTES
SURVEY		
7	V-010	SURVEY CONTROL PLAN
8	V-100	EXISTING CONDITIONS KEY PLAN
9	V-101	EXISTING CONDITIONS - PANEL A1
10	V-102	EXISTING CONDITIONS - PANEL B1
11	V-103	EXISTING CONDITIONS - PANEL C1
12	V-104	EXISTING CONDITIONS - PANEL D1
13	V-105	EXISTING CONDITIONS - PANEL A2
14	V-106	EXISTING CONDITIONS - PANEL B2
15	V-107	EXISTING CONDITIONS - PANEL C2
16	V-108	EXISTING CONDITIONS - PANEL D2
17	V-109	EXISTING CONDITIONS - PANEL E2
18	V-110	EXISTING CONDITIONS - PANEL A3
19	V-111	EXISTING CONDITIONS - PANEL B3
20	V-112	EXISTING CONDITIONS - PANEL C3
21	V-113	EXISTING CONDITIONS - PANEL D3
GEOTECHNICAL		
22	B-200	BORING AND CROSS SECTION LOCATION PLAN
23	B-210	LITHOLOGIC CROSS SECTION - SHEET 1 (SECTION A-A')
24	B-211	LITHOLOGIC CROSS SECTION - SHEET 1 (SECTION B-B')
25	B-212	LITHOLOGIC CROSS SECTION - SHEET 2 (SECTION C-C')
CIVIL		
26	C-001	SITE LAYOUT KEY PLAN
27	C-100	SITE LAYOUT PLAN
28	C-101	DEMOLITION PLAN - PANEL A1
29	C-102	DEMOLITION PLAN - PANEL B1
30	C-110	OFF-SITE SOIL EXCAVATION AND RESTORATION LOCATIONS PLAN
31	C-301	GRADING AND DRAINAGE - PH 1 PANEL A1
32	C-311	GRADING AND DRAINAGE - PH 2A PANEL A1
33	C-321	GRADING AND DRAINAGE - PH 2B PANEL A1
34	C-322	GRADING AND DRAINAGE - PH 2B PANEL B1
35	C-323	GRADING AND DRAINAGE - PH 2B PANEL C1
36	C-330	GAS VENT LAYOUT PLAN
37	C-331	GRADING AND DRAINAGE - PH 2C/2D PANEL A1
38	C-332	GRADING AND DRAINAGE - PH 2C/2D PANEL B1
39	C-333	GRADING AND DRAINAGE - PH 2C/2D PANEL C1
40	C-401	EROSION AND SEDIMENT CONTROL - PH 1 & PH2A PANEL A1
41	C-500	SITE CROSS SECTIONS - SHEET 1
42	C-501	SITE CROSS SECTIONS - SHEET 2
43	C-502	SITE CROSS SECTIONS - SHEET 3
44	C-503	SITE CROSS SECTIONS - SHEET 4
45	C-504	SITE CROSS SECTIONS - SHEET 5
46	C-510	BARRIER WALL PROFILE - SHEET 1
47	C-600	GENERAL SITE DETAILS - SHEET 1
48	C-601	GENERAL SITE DETAILS - SHEET 2
49	C-640	EROSION AND SEDIMENT CONTROL DETAILS - SHEET 1
50	C-700	HORIZONTAL ALIGNMENT DATA

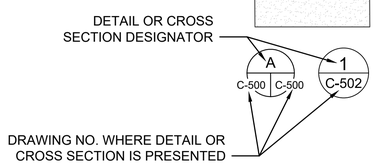
LEGEND

EXISTING FEATURES

- TREE/BRUSH LINE
- EXISTING CONTOUR (18)
- SPOT ELEVATION (+ 11.3)
- WATER LEVEL (H20 927.7)
- OVERHEAD ELECTRIC (OHE)
- SURVEY LIMIT
- EXISTING STRUCTURE
- WATERLINE (W)
- UTILITY POLE
- CONCRETE PAD
- CULVERT
- SIGN
- UNPAVED ROAD
- PAVED ROAD
- GUARD RAIL
- PAVED ROAD (US 67)
- BORE HOLE (210 871.85 BH-B1)
- SITE CONTROL POINT
- MONITORING WELL (MW, MW-)
- TEST PIT (TP-1)
- WELL (W)
- CONTROL POINT (746 571.71 NAIL- CONTROL)

PROPOSED FEATURES

- COMPOST LOG (CL)
- LIMIT OF DISTURBANCE (LOD)
- MAJOR CONTOUR (350)
- MINOR CONTOUR
- UNTREATED WATERLINE (W)
- BARRIER WALL
- CUTLINE LIMITS
- EXTENT OF CAP
- FENCE (CHAIN LINK)
- RAILROAD CENTERLINE
- SILT FENCE
- STORM WATER FLOW AND SURFACE WATER FLOW
- FEATURE CONTINUES
- GRADING POINT (G-XXX)
- STABILIZED CONSTRUCTION ENTRANCE
- STONE FILTER RING
- ACCESS ROAD
- GRAVEL ROAD
- CONCRETE
- CLEAR AND GRUB
- DEMOLITION
- RIPRAP
- DECONTAMINATION AREA
- HAUL ROAD (TEMPORARY)
- SOIL TO BE EXCAVATED
- ASPHALT



DETAIL/CROSS SECTION BUBBLE

LEGEND

PROPOSED FEATURES, CONT.

- SOIL BORING 2017
- DPT SAMPLE 2017
- TARGOST® 2017
- TARGOST® 2013
- BORE OR SAMPLE PRE-2017
- MONITORING WELL
- PASSIVE GAS VENT
- CULVERT , FLARED END SECTION AND RIP RAP
- ROCK CHECK DAM
- MONITORING WELL (TO BE ABANDONED)
- HAUL ROUTE (EMPTY)
- HAUL ROUTE (FULL)
- PERCENT SLOPE (1%)
- SLOPE RATIO (H:V) (4:1)
- TOP FINISHED CAP
- SIDE SLOPE FINISHED CAP

100% SUBMITTAL

AUGUST 26, 2019

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Symbol	Description	Date	Appr.

Designed by:
Date: AUGUST 26, 2019
Drawn by:
Checked by: M. CLAXTON
Submitted by: T. MOYER
File name:
Approved by:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

SHEET INDEX & LEGEND

Sheet Number: G-002

Revision:

gugr9278
R:\48968 - ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_G-002.dwg 8/23/2019 11:12:10 AM

VICINITY MAP

SCALE: NTS

PROJECT LOCATION MAP

SCALE: 1" = 200' (APPROXIMATE)

100% SUBMITTAL

AUGUST 26, 2019

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Symbol	Description	Date	Appr

Designed by:
Date: AUGUST 26, 2019
Drawn by:
Checked by: M. CLAXTON
Submitted by: T. MOYER
File name:
Approved by:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

LOCATION MAP

Sheet Number: G-003

Revision:

guq86278
R:\49089 – ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_G-003.dwg 8/21/2019 9:28:11 PM

NOTES:

1. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEET C-001 FOR SITE LAYOUT KEY PLAN.
3. SEE SHEET V-100 FOR EXISTING CONDITIONS KEY PLAN.
4. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.

N

200' 100' 0' 200'

SCALE: 1" = 200'

CONSTRUCTION ACTIVITIES PHASING TABLE

PHASE 1 – EXCAVATION OF OFFSITE SOILS AND ONSITE STOCKPILING
-MOBILIZATION AND SITE PREPARATION: MOBILIZATION; TEMPORARY FACILITIES; BASELINE SURVEYS; CONSTRUCT STABILIZED SITE CONSTRUCTION ENTRANCES; CLEARING AND GRUBBING OF OFFSITE LOCATIONS (YARD AND SITE PREPARATION); ON-SITE DEMOLITION ACTIVITIES (ABOVE GROUND WITHIN BARRIER WALL); EROSION CONTROL (SILT FENCE) FOR OFFSITE; RESIDENTIAL FENCE REMOVAL AND REPLACEMENT. -SOIL LOADING, TRANSPORTATION, AND STOCKPILING ONSITE: EXCAVATE AND LOAD SOILS; TRANSPORT SOILS FROM OFFSITE TO ONSITE; STOCKPILE SOIL ONSITE (SHAPE AND COMPACT); INSTALLATION OF TEMPORARY LINER COVER; POST-REMEDIAL SURVEYS. -RESTORATION AND DEMOBILIZATION: IMPORT, PLACE, COMPACT, AND GRADE OFFSITE BACKFILL; IMPORT, PLACE, COMPACT, AND GRADE OFFSITE TOP SOIL; REPLACE OFFSITE TREES AND SHRUBS; REPLACE/RE-CONSTRUCT RESIDENTIAL FENCING; SODDING OF OFFSITE RESIDENTIAL LOCATIONS; SEEDING AND ESTABLISHMENT OF ONSITE VEGETATION; POST RESTORATION SURVEYS; REMOVAL OF DEBRIS; DEMOBILIZATION.
PHASE 2A – BARRIER WALL (BW) CONSTRUCTION
-MOBILIZATION AND SITE PREPARATION: MOBILIZATION, TEMPORARY FACILITIES, BASELINE SURVEYS, CLEARING AND GRUBBING, REMOVAL DISPOSAL OF LINER COVER; DEMOLITION/REMOVAL OF ELECTRICAL CONDUIT/WIRING; REMOVAL AND DISPOSAL OF EXISTING SITE TRAILER AND UTILITY SERVICE LINES; REMOVAL AND DISPOSAL OF ONSITE STORAGE TANKS, ASSOCIATED FACILITIES, AND UTILITY SERVICE LINES; MONITORING AND EXTRACTION WELL ABANDONMENT; EROSION CONTROL. -BARRIER WALL (BW) CONSTRUCTION: ROUGH GRADING TO ESTABLISH WORKING PLATFORM (TOP OF BW GRADE), PLACEMENT OF CUT SOIL FROM PLATFORM TO CAP AREA; BW CONSTRUCTION, PLACEMENT OF EXCESS SOILS INSIDE BW; QC TESTING; AS-BUILT SURVEY.
PHASE 2B - SURFACE SOIL EXCAVATION, GRADING ENGINEERED CONTAINMENT CELL (ECC) SURFACE AND INSTALLATION OF BOTTOM LINER
-EXCAVATE ONSITE SOILS BEYOND BARRIER WALL REMOVAL AND DISPOSAL OF DEBRIS PILE; ON-SITE SOIL EXCAVATION AND LOAD, TRANSPORT AND TEMPORARY STOCKING OF SOILS; AS-EXCAVATED SURVEY. -ENGINEERED CONTAINMENT CELL (ECC) GRADING AND BOTTOM LINER PLACEMENT: GRADING OF EXCAVATION SURFACE FOR BOTTOM LINER INSTALLATION; EXCAVATION OF ANCHOR TRENCH; INSTALLATION OF BOTTOM LINER.
PHASE 2C - CONTAMINATED SOIL PLACEMENT, CAP CONSTRUCTION (ECC AND BW)
-GRADING AND COMPACTION OF EXCAVATED SOIL; -CAP CONSTRUCTION (ECC AND BW) INSTALLATION OF AUGMENTED CLAY (TOP OF BW ONLY); INSTALL OF GEOSYNTHETIC CLAY LINER; INSTALLATION OF TOP LINERS; INSTALL GEOSYNTHETIC DRAINAGE LAYER AND VENTS.
PHASE 2D - FINISH GRADING, STORM DRAINAGE, POND CONSTRUCTION, AND DEMOBILIZATION
FINISH GRADING (ENGINEERED CONTAINMENT CELL AND BARRIER WALL CAPS): IMPORT, PLACE, COMPACT, AND GRADE BACKFILL; IMPORT, PLACE, COMPACT, AND GRADE TOP SOIL; SEEDING AND MULCHING. -ROUGH GRADING: ROADS; SWALES; STORMWATER DETENTION POND; GRADED OUTLET STRUCTURES. -DEMOBILIZATION: AS-BUILT SURVEY, DEMOBILIZATION.

100% SUBMITTAL

AUGUST 26, 2019

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Symbol	Description	Date	Appr.

Designed by:
Date: AUGUST 26, 2019
Drawn by:
Checked by: M. CLAXTON
Submitted by: T. MOYER
File name:
Approved by:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

OVERALL PROJECT
PLAN AND LIMITS

Sheet Number:
G-004

Revision:

guq96278
R:\49089 – ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_G-004.dwg 8/23/2019 8:56:33 AM

GENERAL NOTES

1. THE LIMITS OF CONSTRUCTION SHOWN ON THE PLANS SHALL BE STRICTLY OBSERVED BY THE CONTRACTOR. ALL INGRESS, EGRESS, AND TRAFFIC PATTERNS ON THE SITE SHALL BE WITHIN THE LIMITS OF CONSTRUCTION OR ON HAUL ROADS SHOWN ON THE DRAWINGS.

2. EXISTING UTILITY LOCATIONS SHOWN ARE APPROXIMATE AND MAY NOT REFLECT FIELD CONDITIONS. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING UTILITIES PRIOR TO EXCAVATION. UTILIZE THE SERVICES OF A SPECIALITY UTILITY LOCATION SUBCONTRACTOR, LOCATE ALL UTILITIES BY POTHOLING, PHYSICALLY EXPOSING, AND RECORDING THE VERTICAL AND HORIZONTAL POSITION BY A SURVEYOR OR OTHER COMPETENT PERSON. IF UTILITY LOCATIONS CONFLICT WITH EXCAVATION PLANS SHOWN, CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY. CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND All DAMAGES CAUSED BY ITS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND All EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES AFFECTING THE WORK.

3. THE CONTRACTOR SHALL NOT DISTURB OR BLOCK ACCESS TO OTHER FACILITIES AND AREAS ADJACENT TO THE SITE.

4. THE CONTRACTOR SHALL PROTECT EXISTING UTILITIES.

5. CONCRETE STRUCTURES ARE TO BE LEFT IN PLACE UNLESS OTHERWISE SPECIFIED OR INDICATED.

6. EXISTING CONDITIONS ARE BASED ON BASEMAP PROVIDED TO BLACK & VEATCH FROM SURVEY PERFORMED IN APPROXIMATELY 2003 AND SUPPLEMENTED BY SURVEY PERFORMED IN APRIL 2018.

7. AT A MINIMUM A SURVEY SHALL BE PERFORMED AT THE END OF THE REMEDIAL ACTION (FINAL GRADES) FOR VERIFICATION OF WORK PERFORMED. SURVEY DATA FOR THESE ITEMS SHALL BE COLLECTED UNDER THE SUPERVISION OF A PROFESSIONAL LAND SURVEYOR LICENSED IN THE STATE OF FLORIDA.

8. DRAWING COORDINATE SYSTEM: HORIZONTAL – STATE PLANE FLORIDA NORTH ZONE; VERTICAL - NAVD 1988. ALL STATIONING AND OFFSET REFERS TO CONSTRUCTION BASELINE UNLESS OTHERWISE NOTED ON PLANS.

9. ALL PERMANENT FENCE CONSTRUCTION SHOULD BE NEW. CONTRACTOR SHALL MAINTAIN PERIMETER FENCING AND GATES.

10. THE CONTRACTOR SHALL, BY REPAIR OR REPLACEMENT, RETURN TO EQUAL OR BETTER CONDITION ALL PAVEMENT, SIDEWALK, LAWN, UTILITIES, AND OTHER ITEMS DAMAGED BY CONSTRUCTION ACTIVITY.

EROSION CONTROL

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO IMPLEMENT THE EROSION AND TURBIDITY CONTROLS AS SHOWN ON THE EROSION AND TURBIDITY CONTROL PLAN. IT IS ALSO THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THESE CONTROLS ARE PROPERLY INSTALLED AND MAINTAINED AND FUNCTIONING PROPERLY TO PREVENT TURBID OR POLLUTED WATER FROM LEAVING THE PROJECT SITE. THE CONTRACTOR WILL ADJUST THE EROSION AND TURBIDITY CONTROLS SHOWN ON THE EROSION AND TURBIDITY CONTROL PLAN AND IS RESPONSIBLE FOR ADDITIONAL CONTROL MEASURES, EVEN IF NOT SHOWN ON THE PLANS, TO ENSURE THE SITE MEETS ALL FEDERAL STATE AND LOCAL EROSION AND TURBIDITY CONTROL REQUIREMENTS. THE FOLLOWING BEST MANAGEMENT PRACTICES WILL BE IMPLEMENTED BY THE CONTRACTOR AS REQUIRED BY THE EROSION AND TURBIDITY CONTROL PLAN AND AS REQUIRED BY THE REGULATORY AGENCIES.

2. SEDIMENT BASINS AND TRAPS, PERIMETER DITCHES, SEDIMENT BARRIERS, AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP BEFORE ANY LAND-DISTURBING TAKES PLACE TO MEET THE EROSION AND TURBIDITY REQUIREMENTS IMPOSED ON THE PROJECT.

3. ALL SEDIMENT CONTROL MEASURES ARE TO BE ADJUSTED TO MEET FIELD CONDITIONS AT THE TIME OF CONSTRUCTION AND BE CONSTRUCTED PRIOR TO ANY GRADING OR DISTURBANCE OF EXISTING SURFACE MATERIAL ON SITE PERIMETER. SEDIMENT BARRIERS SHALL BE CONSTRUCTED TO PREVENT SEDIMENT OR TRASH FROM FLOWING OR FLOATING ONTO ADJACENT PROPERTIES.

4. DURING CONSTRUCTION OF THE PROJECT SOIL STOCKPILES SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES.

5. AFTER ANY SIGNIFICANT RAINFALL SEDIMENT CONTROL STRUCTURES WILL BE INSPECTED FOR INTEGRITY. ANY DAMAGED DEVICES SHALL BE REPAIRED IMMEDIATELY.

6. CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL FLUME OR SLOPE DRAIN STRUCTURE.

7. WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.

8. SEDIMENT WILL BE PREVENTED FROM ENTERING ANY STORM DRAIN SYSTEM DITCH OR CHANNEL. ALL STORM SEWER INLETS THAT ARE MADE OPERABLE CURING CONSTRUCTION SHALL BE PROTECTED SO THAT SEDIMENT-LADEN WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT. GRATE INLETS AND CURB INLETS SHALL BE PROTECTED WITH GRATE INLET PROTECTION AND CURB INLET PROTECTION.

9. BEFORE TEMPORARY OR NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS ARE MADE OPERATIONAL, ADEQUATE OUTLET PROTECTION AND ANY REQUIRED TEMPORARY OR PERMANENT CHANNEL LINING SHALL BE INSTALLED IN BOTH THE CONVEYANCE CHANNEL AND RECEIVING CHANNEL.

10. STOCKPILING MATERIAL - NO EXCAVATED MATERIAL SHALL BE STOCKPILED IN SUCH A MANNER AS TO DIRECT RUNOFF DIRECTLY OFF THE PROJECT SITE INTO ANY ADJACENT WATER BODY OR STORMWATER COLLECTION FACILITY.

EROSION CONTROL

12. THE CONTRACTOR WILL BE RESPONSIBLE FOR PREPARING A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) IN ACCORDANCE WITH NPDES REGULATIONS. THE CONTRACTOR WILL BE RESPONSIBLE FOR SUBMITTING A NOTICE OF INTENT (NOI) TO MDEQ AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION.

13. MAINTENANCE - All FEATURES OF THE PROJECT DESIGNED AND CONSTRUCTED TO PREVENT EROSION AND SEDIMENT SHALL BE MAINTAINED DURING THE LIFE OF THE CONSTRUCTION SO AS TO FUNCTION AS THEY WERE ORIGINALLY DESIGNED AND CONSTRUCTED.

14. PERMANENT EROSION CONTROL - THE EROSION CONTROL MEASURES MUST BE PROVIDED TO MINIMIZE THE IMPACT OF FLOW SEDIMENT AND CHEMICALS OF CONCERN ON OFFSITE FACILITIES.

MAINTENANCE OF TRAFFIC

1. THE CONTRACTOR SHALL ADHERE TO FLORIDA DOT 2019 STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

2. TRAFFIC SHALL BE MAINTAINED ON PAVED SURFACES OR IMPROVED TEMPORARY SURFACES AT ALL TIMES.

3. THE CONTRACTOR SHALL RETURN THE GROUND TO ITS ORIGINAL CONDITION OR IMPROVED TEMPORARY SURFACES AND FINAL GRADE AS APPROPRIATE WHEN REMOVING ANY TEMPORARY PAVEMENT.

4. TRAFFIC CONDITIONS - ACCIDENTS AND OTHER EMERGENCY CONDITIONS MAY REQUIRE THE ENGINEER TO MODIFY ANY CHANNELIZATON SHOWN IN THESE PLANS. THE CONTRACTOR SHALL MAKE THE NECESSARY ADJUSTMENTS, AS DIRECTED BY THE ENGINEER, WITHOUT DELAY.

5. THE CONTRACTOR SUBMIT A PROPOSED MAINTENANCE OF TRAFFIC (MOT) PLAN FOR FAVORABLE REVIEW PRIOR TO CONSTRUCTION, IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), PART VI.

6. ACCESS FOR LOCAL TRAFFIC WITH DESTINATIONS WITHIN THE PROJECT LIMITS SHALL BE MAINTAINED. IF DURING CONSTRUCTION, ACCESS FOR LOCAL TRAFFIC IS CHANGED THEN THE CONTRACTOR SHALL OBTAIN PRIOR APPROVALS FROM ALL NECESSARY AUTHORITIES IN ACCORDANCE WITH LAWS AND REGULATIONS.

ABBREVIATIONS

AC	ASPHALTIC CONCRETE
BOC	BOTTOM OF CONCRETE
BOT	BOTTOM
BW	BARRIER WALL
C/C	CENTER TO CENTER
CJ	CONTRACTION JOINT
CMP	CORRUGATED METAL PIPE
CONC	CONCRETE
C.P.	SURVEY CONTROL POINT
CPP	CORRUGATED PLASTIC PIPE
DIA	DIAMETER
DS	DOWNSTREAM
E	EAST, EASTING, ELECTRICAL
ECC	ENGINEERED CONTAINMENT CELL
EJ	EXPANSION JOINT
EL, ELEV	ELEVATION
EX	EXISTING
EW	EACH WAY, EXTRACTION WELL
FDN	FOUNDATION
FG	FINISH GRADE
GCL	GEOSYTHETIC CLAY LINER
HDPE	HIGH DENSITY POLYETHYLENE
H, HORIZ	HORIZONTAL
IE	INVERT ELEVATION
INV	INVERT
JJ	CONSTRUCTION JOINT
K	RATE OF VERTICAL CURVE
L	LENGTH OF CURVE/LENGTH
LF	LINEAR FEET
LLDPE	LINEAR LOW DENSITY POLYETHYLENE
MIN	MINIMUM
MP	MONUMENT POINT
MW	MONITORING WELL
N	NORTH, NORTHING
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OC	ON CENTER
O.D.	OUTSIDE DIAMETER
OHW	OVERHEAD WIRES
PC	POINT OF CURVATURE
PE	POLYETHYLENE
PI	POINT OF INTERSECTION
PP	POWER POLE
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE, POLYVINYL CHLORIDE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PW	POTABLE WATER
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
RE	RIM ELEVATION
REF	REFERENCE
ROWS	RIGHT - OF - WAY
S	SLOPE
SCH	SCHEDULE
SD	STORM DRAIN
SF	SQUARE FEET, SILT FENCE
SIM	SIMILAR
SQ	SQUARE
STA	STATION
T	TANGENT, TELEPHONE
TOC	TOP OF CONCRETE
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
US	UPSTREAM
V	VERTICAL
WBF	WOOD BOARD FENCE
WL	WATER LINE

100% SUBMITTAL
AUGUST 26, 2019

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Symbol	Description	Date	Appr.

Designed by:
Date: AUGUST 26, 2019
Drawn by:
Checked by: M. CLAXTON
Submitted by: T. MOYER
File name:
Approved by:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH
Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

CIVIL
GENERAL NOTES
AND ABBREVIATIONS

Sheet Number:
G-005

Revision:

gugi95278
R:\49089 – ACW Pensacola RD\0131 Pre-Final and Final Design\01 Barrier Wall\03 Drawings\ACW_G-005.dwg 8/23/2019 6:59:52 AM

NOTES:

1. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.
2. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
3. SEE SHEET C-001 FOR SITE LAYOUT KEY PLAN.
4. TRUCK AND EQUIPMENT TRAFFIC SHALL BE RATED FOR RESIDENTIAL STREET USE.
5. VEHICLE TIRES COMING INTO CONTACT WITH CONTAMINATED SOIL SHALL BE CLEANED AT DECON STATION PRIOR TO LEAVING SITE.

LEGEND

EXTENT OF ON-SITE CONSTRUCTION LIMITS

HAUL ROUTE

N

150' 75 0' 150'

SCALE: 1" = 150'

100% SUBMITTAL

AUGUST 26, 2019

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Symbol	Description	Date	Appr.

Designed by:
Drawn by:
Submitted by: T. MOYER
Approved by:
Date: AUGUST 26, 2019
Checked by: M. CLAXTON
File name:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH
Building a world of difference.

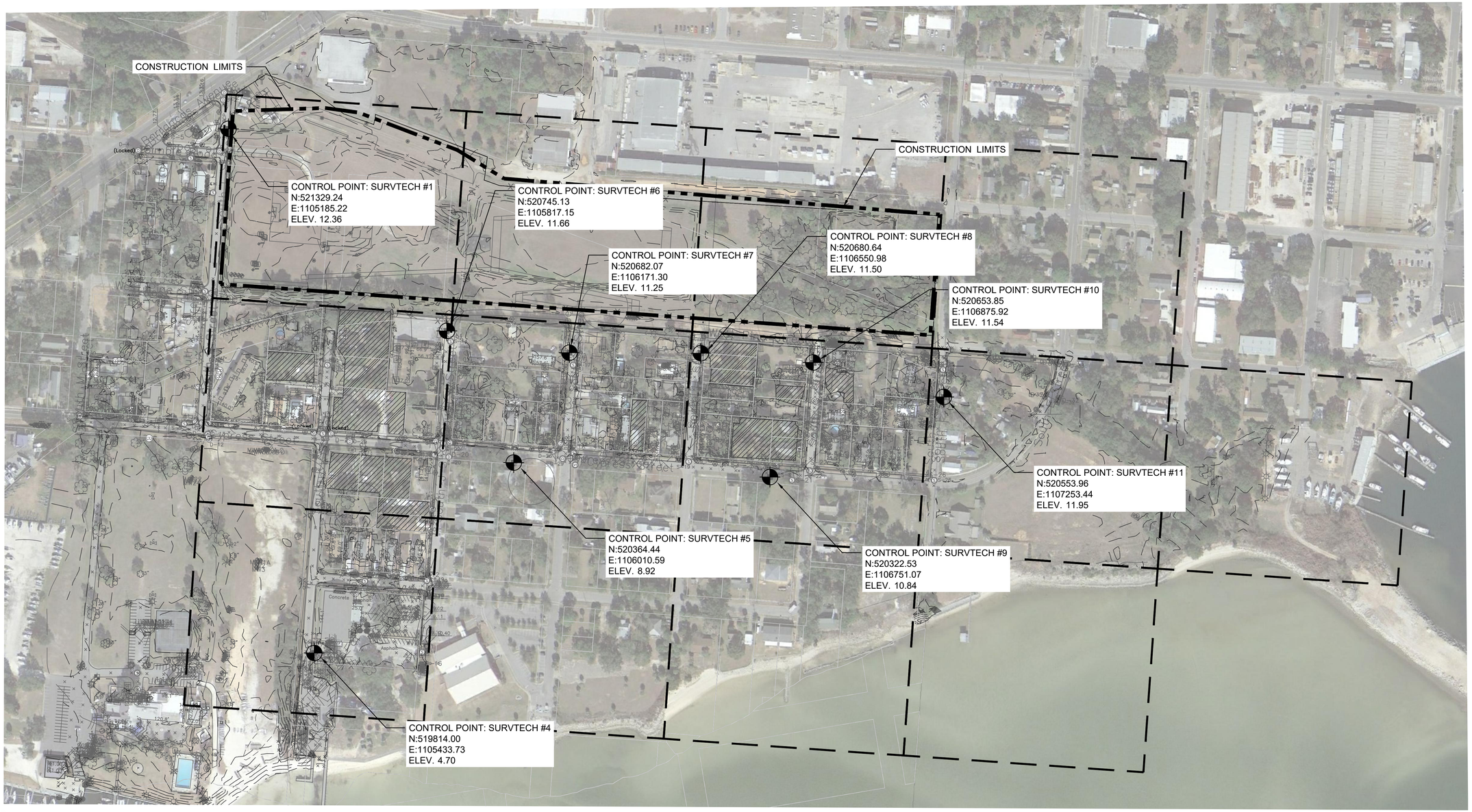
AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

ONSITE AND OFFSITE
HAUL ROUTES

Sheet Number:
G-006

Revision:

gug96278
R:\49089 - ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_C-006.dwg 8/23/2019 9:22:17 AM



NOTES:

1. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.
2. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
3. SEE SHEET C-001 FOR SITE LAYOUT KEY PLAN.
4. ALL COORDINATES ARE IN STATE PLANE FLORIDA NORTH ZONE NAD83.
5. CONTROL POINTS #1- #6 ARE NGVD 1929. CONTROL POINTS #7 - #11 ARE NGAVG 1929.

N

150' 75 0' 150'

SCALE: 1" = 150'

100% SUBMITTAL

AUGUST 26, 2019

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Symbol	Description	Date	Appr.

Designed by:
Date: AUGUST 26, 2019
Drawn by:
Checked by: M. CLAXTON
Submitted by: T. MOYER
File name:
Approved by:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH
Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

SURVEY CONTROL PLAN

Sheet Number:
V-010

Revision:

FEN65161
R:\V49089 – ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_V-010.dwg 5/6/2019 9:16:25 AM

NOTES:

1. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.
2. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
3. SEE SHEET C-001 FOR SITE LAYOUT KEY PLAN.
4. SEE SHEETS V-101 THROUGH V-113 FOR PANELS A1 THROUGH D1, PANELS A2 THROUGH E2, AND PANELS A3 THROUGH D3, RESPECTIVELY.

N

150' 75 0' 150'

SCALE: 1" = 150'

100% SUBMITTAL

AUGUST 26, 2019

Symbol	Description	Date	Appr.

Designed by:
Drawn by:
Submitted by: T. MOYER
Approved by:
Date: AUGUST 26, 2019
Checked by: M. CLAXTON
File name:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

EXISTING CONDITIONS
KEY PLAN

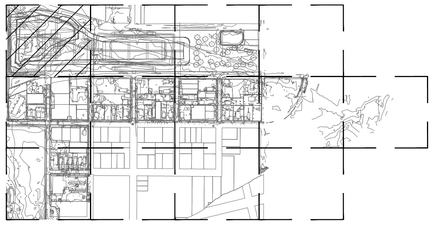
Sheet Number: V-100

Revision:

FEN65161
R:\49089 - ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_V-100.dwg 5/6/2019 9:19:19 AM

NOTES:

1. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEET C-001 FOR SITE LAYOUT KEY PLAN.
3. SEE SHEET V-100 FOR EXISTING CONDITIONS KEY PLAN.
4. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.



KEY MAP

N

30' 15' 0' 30'

SCALE: 1" = 30'

100% SUBMITTAL

AUGUST 26, 2019

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Symbol	Description	Date	Appr.

Designed by:
Drawn by:
Submitted by: T. MOYER
Approved by:
Date: AUGUST 26, 2019
Checked by: M. CLAXTON
File name:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH
Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

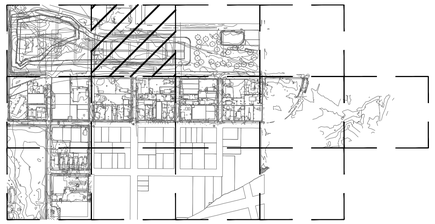
EXISTING CONDITIONS
PANEL A1

Sheet Number:
V-101
Revision:

gug96278
R:\49089 – ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_V-101.dwg 8/21/2019 8:32:53 PM

NOTES:

1. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEET C-001 FOR SITE LAYOUT KEY PLAN.
3. SEE SHEET V-100 FOR EXISTING CONDITIONS KEY PLAN.
4. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.



KEY MAP

N

30' 15' 0' 30'

SCALE: 1" = 30'

100% SUBMITTAL

AUGUST 26, 2019

Symbol	Description	Date	Appr.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Designed by:
Date: AUGUST 26, 2019
Drawn by:
Checked by: M. CLAXTON
Submitted by: T. MOYER
File name:
Approved by:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH
Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

EXISTING CONDITIONS
PANEL B1

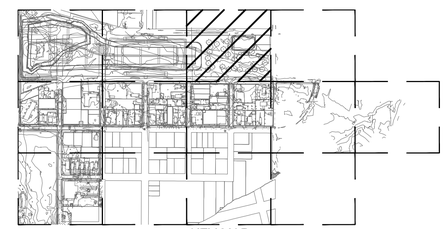
Sheet Number:
V-102

Revision:

guq96278
R:\49089 – ACW Pensacola RD\131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_V-102.dwg 8/21/2019 8:35:13 PM

NOTES:

1. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEET C-001 FOR SITE LAYOUT KEY PLAN.
3. SEE SHEET V-100 FOR EXISTING CONDITIONS KEY PLAN.
4. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.



KEY MAP

N

30' 15' 0' 30'

SCALE: 1" = 30'

100% SUBMITTAL

AUGUST 26, 2019

Symbol	Description	Date	Appr.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Designed by:
Date: AUGUST 26, 2019
Drawn by:
Checked by: M. CLAXTON
Submitted by: T. MOYER
File name:
Approved by:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH
Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

EXISTING CONDITIONS
PANEL C1

Sheet Number:
V-103

Revision:

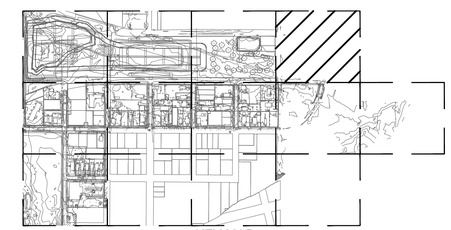
guy98278
R:\49089 - ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_V-103.dwg 8/21/2019 8:41:27 PM

MATCH LINE
SEE SHEET V-103

MATCH LINE
SEE SHEET V-108

NOTES:

1. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEET C-001 FOR SITE LAYOUT KEY PLAN.
3. SEE SHEET V-100 FOR EXISTING CONDITIONS KEY PLAN.
4. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.



KEY MAP

N

30' 15' 0' 30'
SCALE: 1" = 30'

100% SUBMITTAL

AUGUST 26, 2019

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Symbol	Description	Date	Appr.

Designed by:
Date: AUGUST 26, 2019
Drawn by:
Checked by: M. CLAXTON
Submitted by: T. MOYER
File name:
Approved by:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH
Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

EXISTING CONDITIONS
PANEL D1

Sheet Number:
V-104

Revision:

guq96278
R:\49089 - ACW Pensacola RD\131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_V-104.dwg 8/21/2019 8:52:22 PM

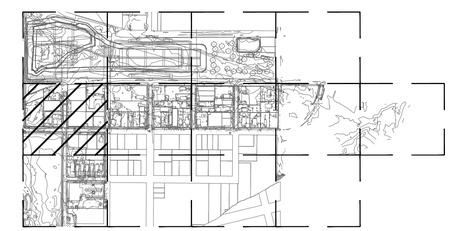
MATCH LINE
SEE SHEET V-101

MATCH LINE
SEE SHEET V-106

MATCH LINE
SEE SHEET V-110

NOTES:

1. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEET C-001 FOR SITE LAYOUT KEY PLAN.
3. SEE SHEET V-100 FOR EXISTING CONDITIONS KEY PLAN.
4. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.



KEY MAP

N

30' 15' 0' 30'
SCALE: 1" = 30'

100% SUBMITTAL

AUGUST 26, 2019

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Symbol	Description	Date	Appr

Designed by:
Date: AUGUST 26, 2019
Drawn by:
Checked by: M. CLAXTON
Submitted by: T. MOYER
File name:
Approved by:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH
Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

EXISTING CONDITIONS
PANEL A2

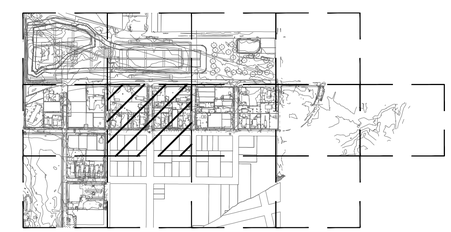
Sheet Number:
V-105

Revision:

gugs96278
R:\49089 - ACW Pensacola RD\131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_V-105.dwg 8/21/2019 8:47:01 PM

NOTES:

1. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEET C-001 FOR SITE LAYOUT KEY PLAN.
3. SEE SHEET V-100 FOR EXISTING CONDITIONS KEY PLAN.
4. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.



KEY MAP

N

30' 15' 0' 30'

SCALE: 1" = 30'

100% SUBMITTAL

AUGUST 26, 2019

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Symbol	Description	Date	Appr

Designed by:
Drawn by:
Submitted by: T. MOYER
Approved by:

Date: AUGUST 26, 2019
Checked by: M. CLAXTON
File name:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH
Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

EXISTING CONDITIONS
PANEL B2

Sheet Number:
V-106

Revision:

guy96278
R:\49089 – ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_V-106.dwg 8/21/2019 9:12:23 PM

MATCH LINE
SEE SHEET V-103

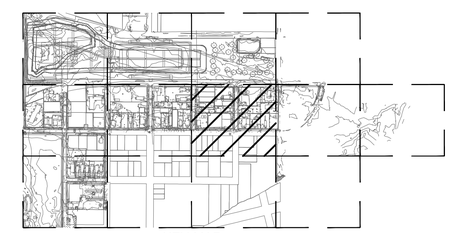
MATCH LINE
SEE SHEET V-106

MATCH LINE
SEE SHEET V-108

MATCH LINE
SEE SHEET V-112

NOTES:

1. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEET C-001 FOR SITE LAYOUT KEY PLAN.
3. SEE SHEET V-100 FOR EXISTING CONDITIONS KEY PLAN.
4. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.



KEY MAP

N

30' 15' 0' 30'
SCALE: 1" = 30'

100% SUBMITTAL

AUGUST 26, 2019

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Symbol	Description	Date	Appr

Designed by:
Date: AUGUST 26, 2019
Drawn by:
Checked by: M. CLAXTON
Submitted by: T. MOYER
File name:
Approved by:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH
Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

EXISTING CONDITIONS
PANEL C2

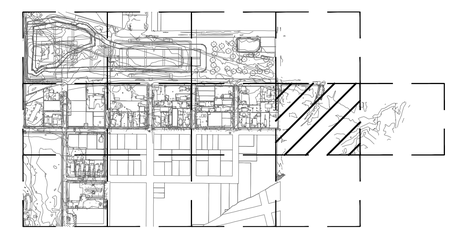
Sheet Number:
V-107

Revision:

gug96278
R:\49089 - ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_V-107.dwg 8/21/2019 9:08:41 PM

NOTES:

1. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEET C-001 FOR SITE LAYOUT KEY PLAN.
3. SEE SHEET V-100 FOR EXISTING CONDITIONS KEY PLAN.
4. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.



KEY MAP

N

30' 15' 0' 30'

SCALE: 1" = 30'

100% SUBMITTAL

AUGUST 26, 2019

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Symbol	Description	Date	Appr.

Designed by:
Drawn by:
Submitted by: T. MOYER
Approved by:
Date: AUGUST 26, 2019
Checked by: M. CLAXTON
File name:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH
Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

EXISTING CONDITIONS
PANEL D2

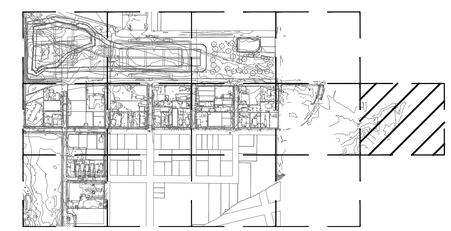
Sheet Number:
V-108

Revision:

gvg96278
R:\49089 - ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_V-108.dwg 8/21/2019 9:14:47 PM

NOTES:

1. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEET C-001 FOR SITE LAYOUT KEY PLAN.
3. SEE SHEET V-100 FOR EXISTING CONDITIONS KEY PLAN.
4. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.



KEY MAP

N

30' 15' 0' 30'

SCALE: 1" = 30'

100% SUBMITTAL

AUGUST 26, 2019

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Symbol	Description	Date	Appr.

Designed by:
Drawn by:
Submitted by: T. MOYER
Approved by:
Date: AUGUST 26, 2019
Checked by: M. CLAXTON
File name:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH
Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

EXISTING CONDITIONS
PANEL E2

Sheet Number:
V-109

Revision:

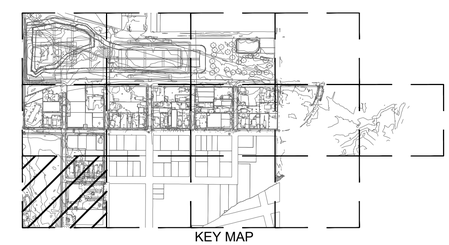
gug96278
R:\49089 - ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_V-109.dwg 8/21/2019 9:16:32 PM

MATCH LINE
SEE SHEET V-105

MATCH LINE
SEE SHEET V-111

NOTES:

1. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEET C-001 FOR SITE LAYOUT KEY PLAN.
3. SEE SHEET V-100 FOR EXISTING CONDITIONS KEY PLAN.
4. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.



KEY MAP

N

30' 15' 0' 30'
SCALE: 1" = 30'

100% SUBMITTAL

AUGUST 26, 2019

Symbol	Description	Date	Appr.

Designed by:
Date: AUGUST 26, 2019
Drawn by:
Checked by: M. CLAXTON
Submitted by: T. MOYER
File name:
Approved by:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH
Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

EXISTING CONDITIONS
PANEL A3

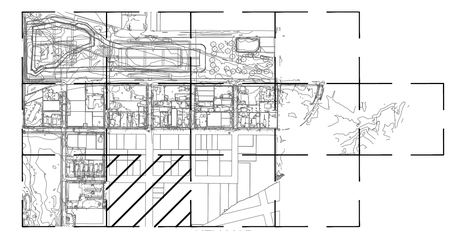
Sheet Number:
V-110

Revision:

gug96278
R:\49089 – ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_V-110.dwg 8/21/2019 9:18:58 PM

NOTES:

1. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEET C-001 FOR SITE LAYOUT KEY PLAN.
3. SEE SHEET V-100 FOR EXISTING CONDITIONS KEY PLAN.
4. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.



KEY MAP

N

30' 15' 0' 30'

SCALE: 1" = 30'

100% SUBMITTAL

AUGUST 26, 2019

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Symbol	Description	Date	Appr.

Designed by:
Date: AUGUST 26, 2019
Drawn by:
Checked by: M. CLAXTON
Submitted by: T. MOYER
File name:
Approved by:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH
Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

EXISTING CONDITIONS
PANEL B3

Sheet Number:
V-111

Revision:

qug96278
R:\49089 - ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_V-111.dwg 8/21/2019 9:21:22 PM

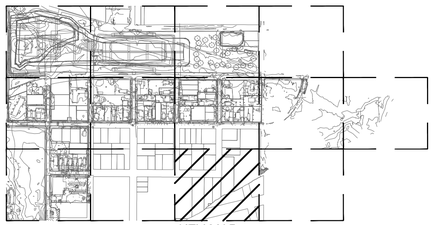
MATCH LINE
SEE SHEET V-107

MATCH LINE
SEE SHEET V-111

MATCH LINE
SEE SHEET V-113

NOTES:

1. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEET C-001 FOR SITE LAYOUT KEY PLAN.
3. SEE SHEET V-100 FOR EXISTING CONDITIONS KEY PLAN.
4. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.



KEY MAP

N

30' 15' 0' 30'

SCALE: 1" = 30'

100% SUBMITTAL

AUGUST 26, 2019

Symbol	Description	Date	Appr

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Designed by:
Drawn by:
Submitted by: T. MOYER
Approved by:
Date: AUGUST 26, 2019
Checked by: M. CLAXTON
File name:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH
Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

EXISTING CONDITIONS
PANEL C3

Sheet Number:
V-112

Revision:

gug96278
R:\49089 - ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_V-112.dwg 8/21/2019 9:23:29 PM

MATCH LINE

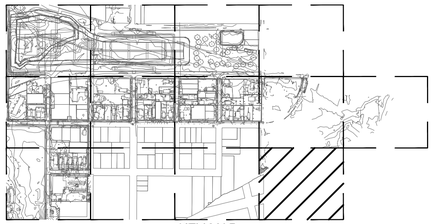
SEE SHEET V-108

MATCH LINE

SEE SHEET V-112

NOTES:

1. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEET C-001 FOR SITE LAYOUT KEY PLAN.
3. SEE SHEET V-100 FOR EXISTING CONDITIONS KEY PLAN.
4. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.



KEY MAP

N

30' 15' 0' 30'

SCALE: 1" = 30'

100% SUBMITTAL

AUGUST 26, 2019

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Symbol	Description	Date	Appr.

Designed by:

Date: AUGUST 26, 2019

Drawn by:

Checked by: M. CLAXTON

Submitted by: T. MOYER

File name:

Approved by:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH
Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

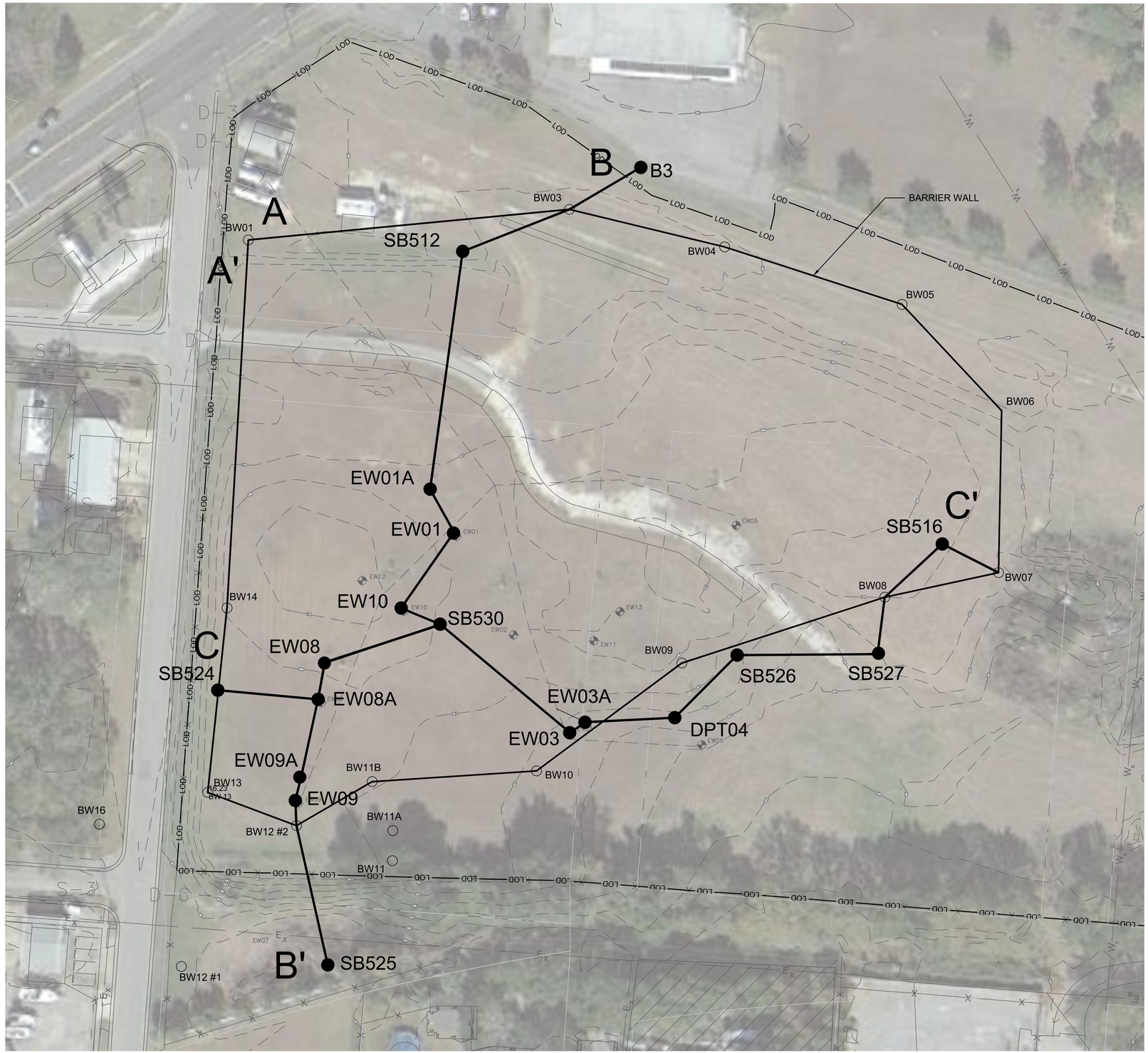
EXISTING CONDITIONS
PANEL D3

Sheet Number:

V-113

Revision:

qug95278
R:\49089 - ACW Pensacola RD\0131 Pre-Final and Final Design\01 Barrier Wall\03 Drawings\ACW_V-113.dwg 8/21/2019 9:25:35 PM



NOTES:

1. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.
3. SEE SHEET C-100 FOR SITE LAYOUT PLAN.

N

SCALE: 1" = 40'

100% SUBMITTAL

AUGUST 26, 2019

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Symbol	Description	Date	Appr

Designed by:
Date: AUGUST 26, 2019
Drawn by:
Checked by: M. CLAXTON
Submitted by: T. MOYER
File name:
Approved by:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH
Building a world of difference.

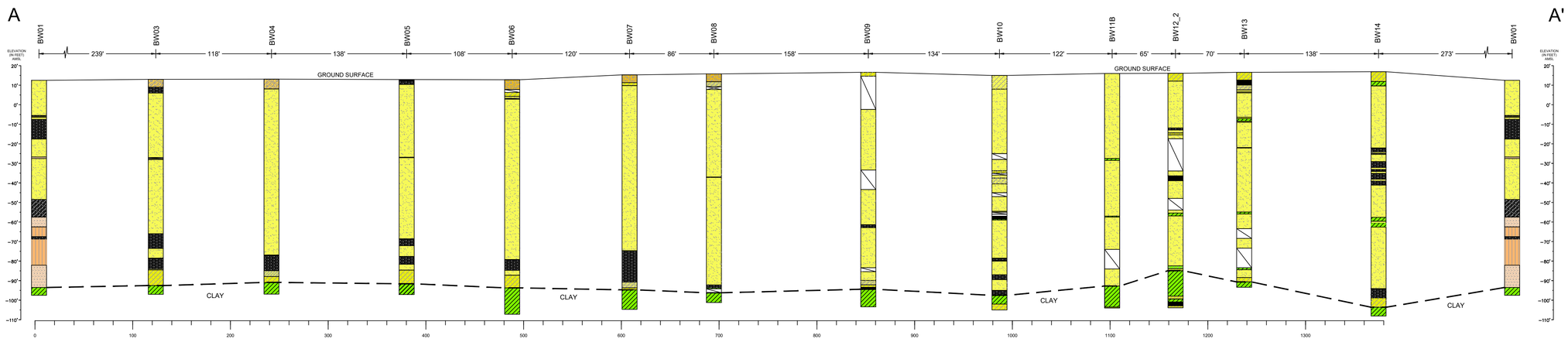
AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

BORING AND CROSS SECTION
LOCATION PLAN

Sheet Number:
B-200

Revision:

guy96278
R:\49089 – ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_B-200.dwg 8/22/2019 9:34:47 PM



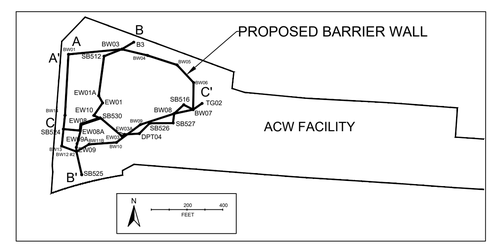
SAND
Clayey SAND
Silty SAND
Clayey Silty SAND
Gravelly Clayey SAND
Gravelly SAND
CLAY
Sandy CLAY
SILT
Sandy SILT
No Recovery

PROPOSED BARRIER WALL
SOIL BORING
WELL LOCATION AND SCREEN INTERVAL
1.87×10^{-4} cm/sec V VERTICAL PERMEABILITY
2.08×10^{-4} cm/sec P HORIZONTAL PERMEABILITY
C7 = CLUSTER WELL
EW = EXTRACTION WELL
SB = SOIL BORING

DETECTED ODOR
NAPL STAINING
NAPL

VERTICAL SCALE
10 FEET
0 FEET

HORIZONTAL SCALE
0 40 FEET
(VERTICAL EXAGGERATION = 2X HORIZONTAL)



NOTES:

1. SEE SHEET B-200 FOR CROSS SECTION LOCATION.

100% SUBMITTAL

AUGUST 26, 2019

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Symbol	Description	Date	Appr.

Designed by:
Date: AUGUST 26, 2019
Drawn by:
Checked by: M. CLAXTON
Submitted by: T. MOYER
File name:
Approved by:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH
Building a world of difference.

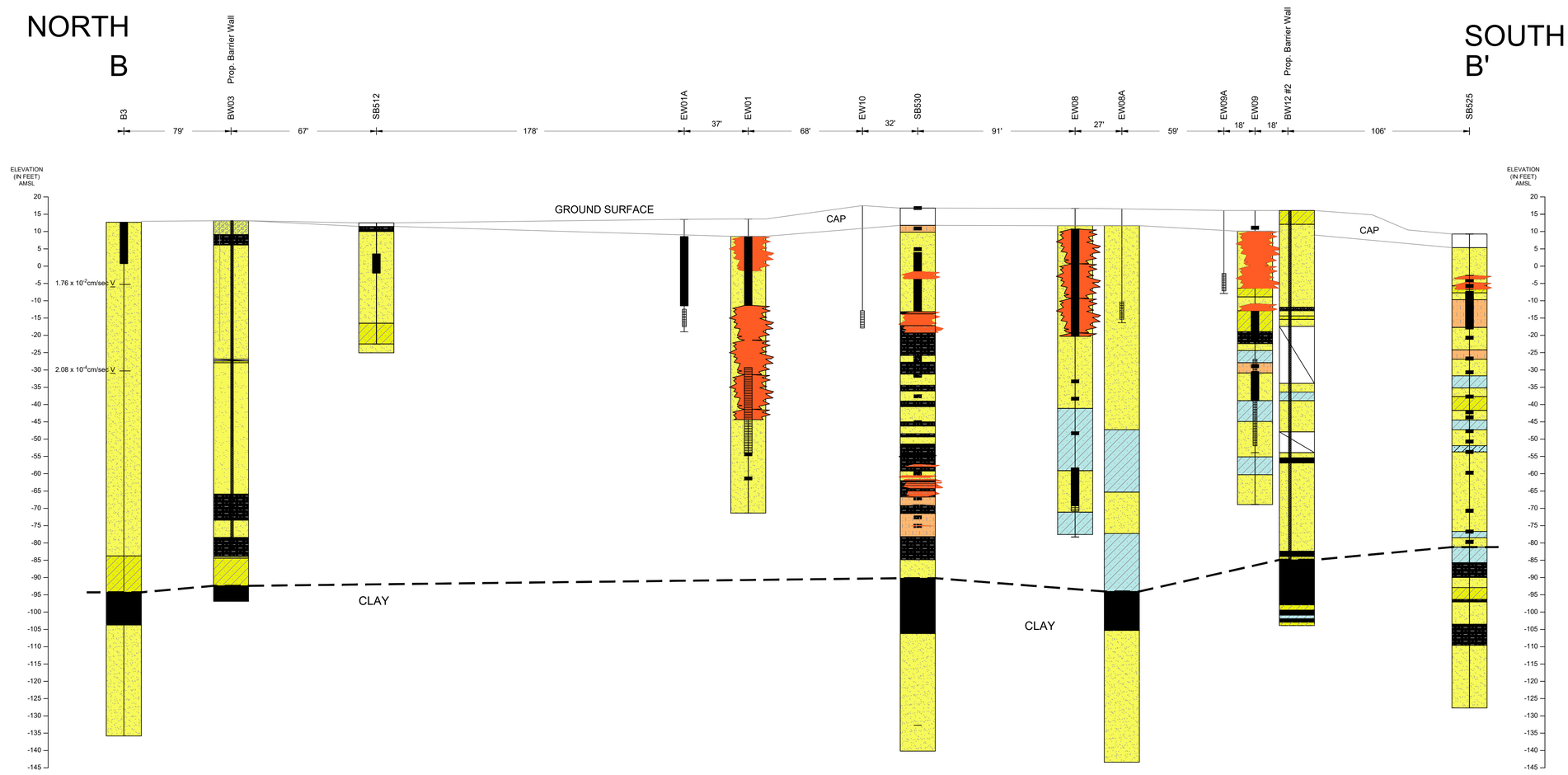
AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

LITHOLOGIC CROSS SECTION
SHEET 1

Sheet Number:
B-210

Revision:

guy96278
R:\49089 - ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_B-210.dwg 8/22/2019 9:38:03 PM

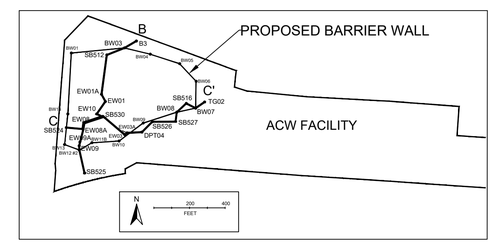


SAND	CLAY	PROPOSED BARRIER WALL	DETECTED ODOR
Clayey SAND	Sandy CLAY	SOIL BORING	NAPL STAINING
Silty SAND	SILT	WELL LOCATION AND SCREEN INTERVAL	NAPL
Clayey Silty SAND	Sandy SILT	1.87x 10^{-4}cm/sec V — VERTICAL PERMEABILITY	
Gravelly Clayey SAND	No Recovery	2.08 x 10^{-4}cm/sec P — HORIZONTAL PERMEABILITY	
Gravelly SAND		C7 = CLUSTER WELL	
		EW = EXTRACTION WELL	
		SB = SOIL BORING	

VERTICAL SCALE: 10 FEET — 0 FEET

HORIZONTAL SCALE: 0 — 40 FEET

(VERTICAL EXAGGERATION = 2X HORIZONTAL)



NOTES:

1. SEE SHEET B-100 FOR CROSS SECTION LOCATION.

100% SUBMITTAL

AUGUST 26, 2019

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Symbol	Description	Date	Appr.

Designed by:
Date: AUGUST 26, 2019
Drawn by:
Checked by: M. CLAXTON
Submitted by: T. MOYER
File name:
Approved by:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH
Building a world of difference.

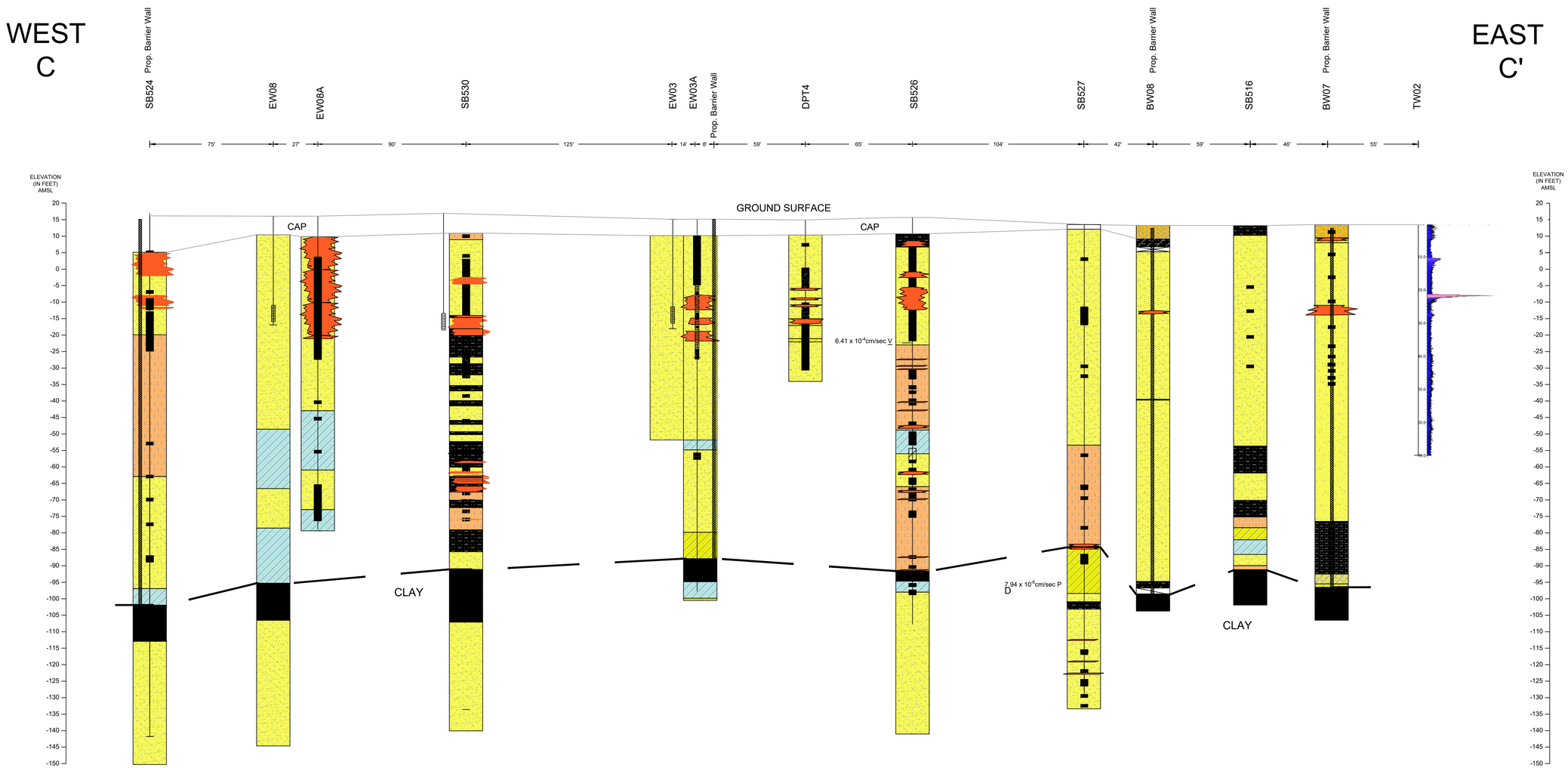
AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

LITHOLOGIC CROSS SECTION
SHEET 2

Sheet Number:
B-211

Revision:

gug96278
R:\49089 – ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_B-211.dwg 8/22/2019 9:39:52 PM



SAND
Clayey SAND
Silty SAND
Clayey Silty SAND
Gravelly Clayey SAND
Gravelly SAND

CLAY
Sandy CLAY
SILT
Sandy SILT
No Recovery

PROPOSED BARRIER WALL
SOIL BORING
WELL LOCATION AND SCREEN INTERVAL

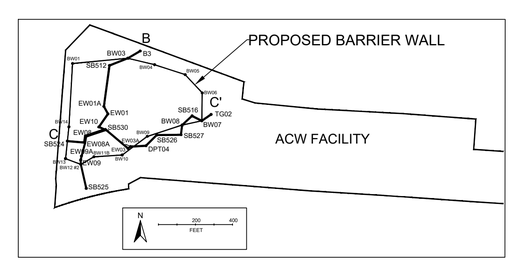
1.87x 10^{-4}cm/sec V — VERTICAL PERMEABILITY
2.08 x 10^{-4}cm/sec P — HORIZONTAL PERMEABILITY
C7 = CLUSTER WELL
EW = EXTRACTION WELL
SB = SOIL BORING

DETECTED ODOR
NAPL STAINING
NAPL

VERTICAL SCALE
10 FEET
0 FEET

HORIZONTAL SCALE
0 20 FEET

(VERTICAL EXAGGERATION = 2X HORIZONTAL)



NOTES:

1. SEE SHEET B-100 FOR CROSS SECTION LOCATION.

100% SUBMITTAL
AUGUST 26, 2019

Sheet Number:
B-212
Revision:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Symbol	Description	Date	Appr.

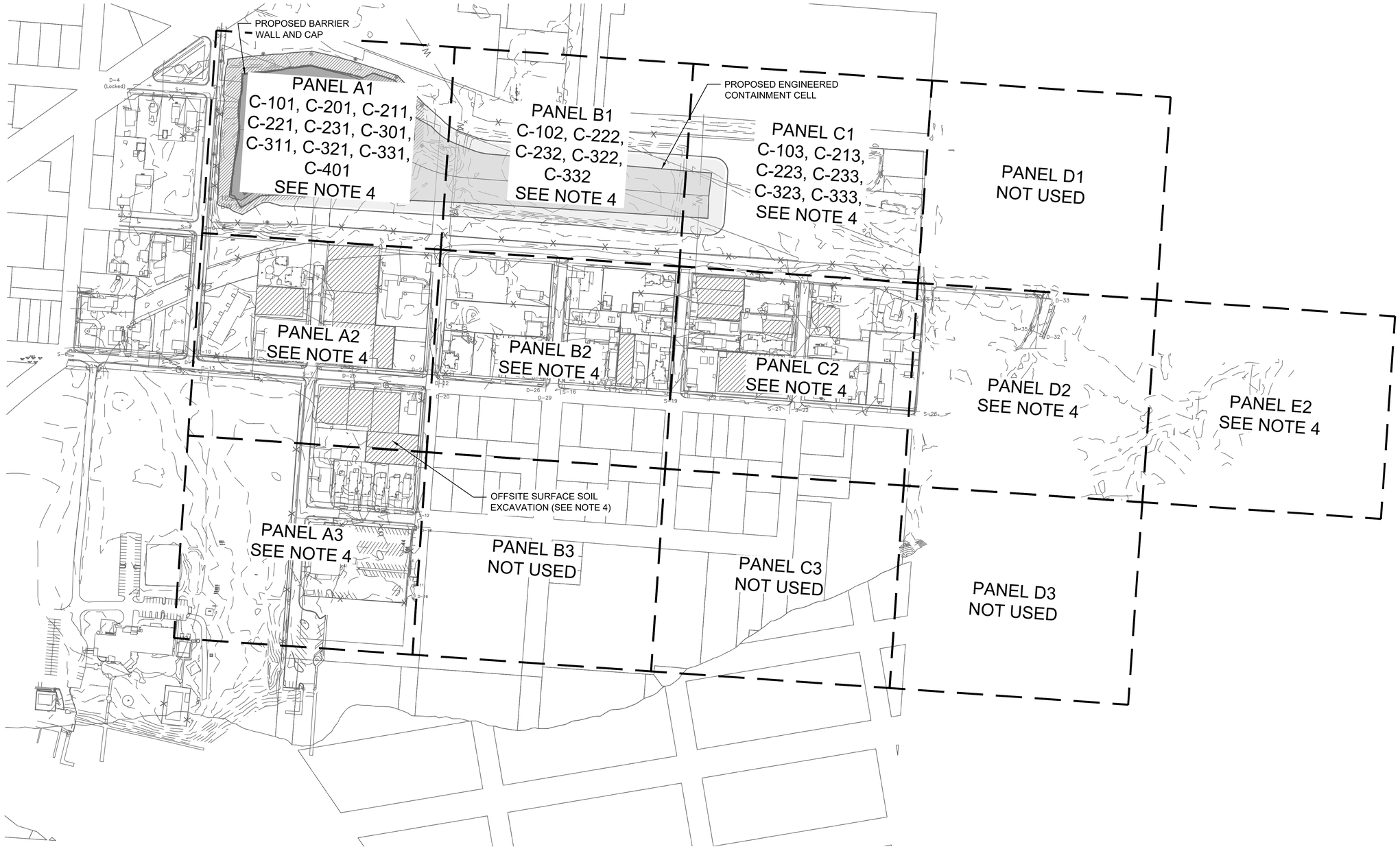
Designed by:
Date: AUGUST 26, 2019
Drawn by:
Checked by: M. CLAXTON
Submitted by: T. MOYER
File name:
Approved by:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
BLACK & VEATCH
Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

LITHOLOGIC CROSS SECTION
SHEET 3

gwq96278
R:\49089 – ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_B-212.dwg 8/22/2019 9:41:56 PM



NOTES:

1. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.
2. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
3. SEE SHEET C-100 FOR SITE LAYOUT KEY PLAN, AND FOR PROPOSED EXTENTS OF BARRIER WALL AND CAP; AND ENGINEERED CONTAINMENT CELL.
4. SEE SHEET C-110 FOR OFFSITE SOIL EXCAVATION LOCATIONS.

150' 75 0' 150'

SCALE: 1" = 150'

N

100% SUBMITTAL

AUGUST 26, 2019

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Symbol	Description	Date	Appr

Designed by:
Date: AUGUST 26, 2019
Drawn by:
Checked by: M. CLAXTON
Submitted by: T. MOYER
File name:
Approved by:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH Building a world of difference.

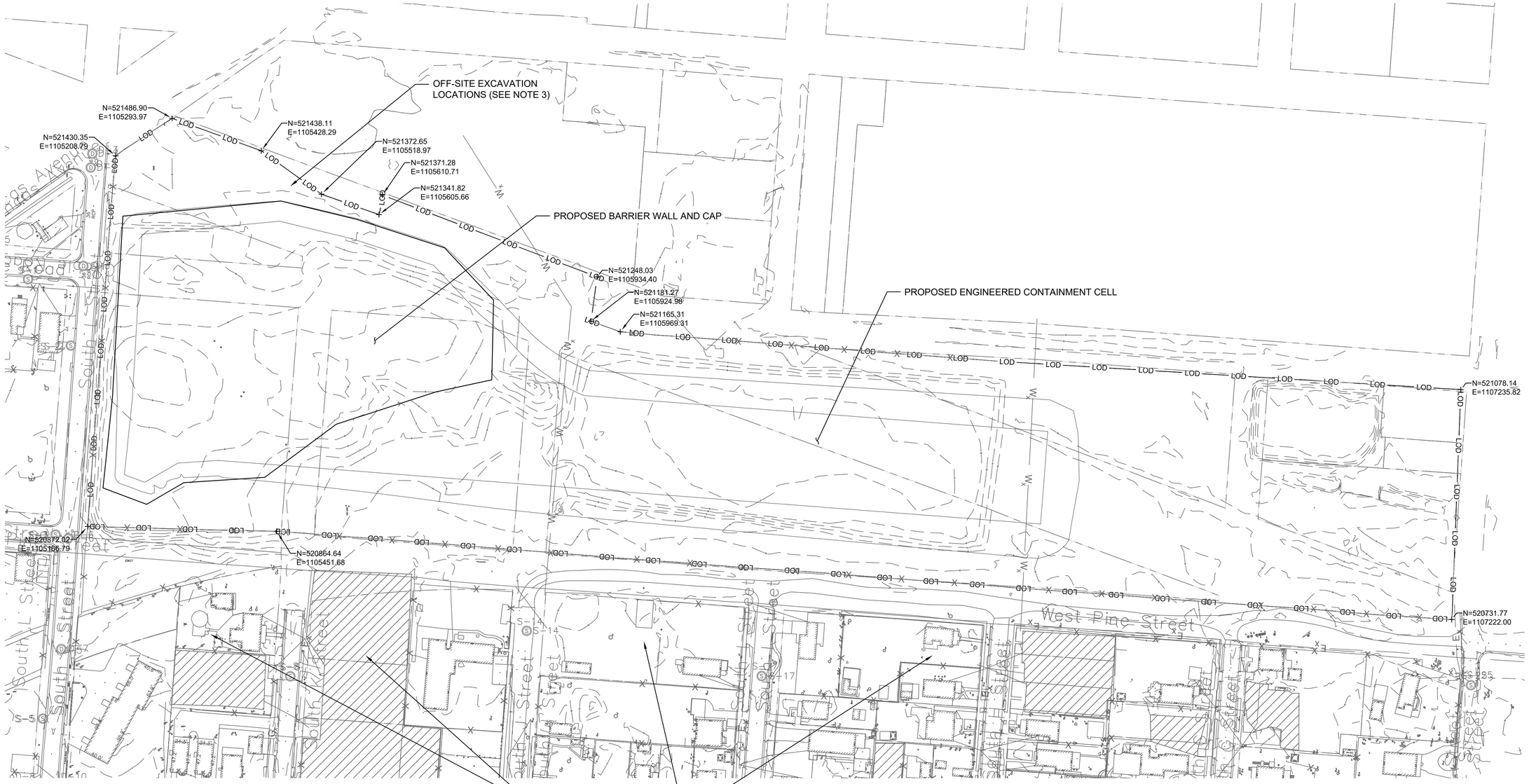
AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

SITE LAYOUT
KEY PLAN

Sheet Number: C-001

Revision:

gugr86278
R:\49089 – ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_C-001.dwg 8/21/2019 9:40:59 PM



NOTES:

1. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.
2. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
3. SEE SHEET C-110 FOR OFF-SITE SOIL EXCAVATION LOCATIONS.

N

80' 40' 0' 80'

SCALE: 1" = 80'

100% SUBMITTAL

AUGUST 26, 2019

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Symbol	Description	Date	Appr.

Designed by:
Date: AUGUST 26, 2019
Drawn by:
Checked by: M. CLAXTON
Submitted by: T. MOYER
File name:
Approved by:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH Building a world of difference.

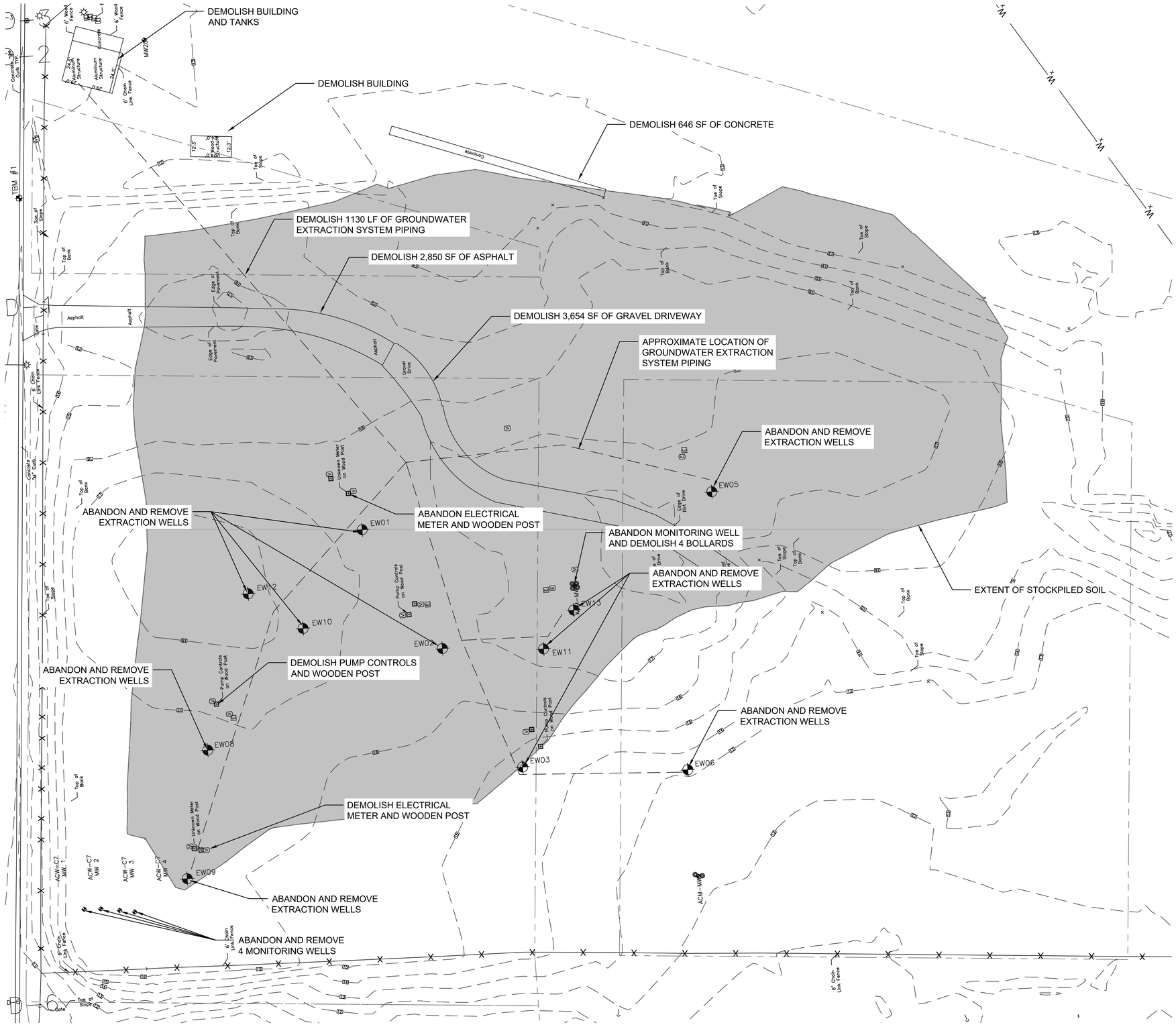
AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

SITE LAYOUT PLAN

Sheet Number: C-100

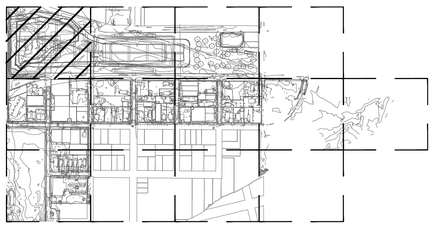
Revision:

guy98278
R:\49089 – ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_C-100.dwg 8/26/2019 12:03:06 PM



NOTES:

1. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEET C-001 FOR SITE LAYOUT KEY PLAN.
3. SEE SHEET V-100 FOR EXISTING CONDITIONS KEY PLAN.
4. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.
5. CONTRACTOR SHALL CONFIRM ALL QUANTITIES OF DEMOLITION IDENTIFIED.
6. ITEMS WITHIN SHADED AREA OF STOCKPILE SHALL BE REMOVED PRIOR TO PHASE 1 ACTIVITIES. ALL OTHER ITEMS IDENTIFIED SHALL BE REMOVED PRIOR TO PHASE 2A ACTIVITIES.
7. SEE SHEET G-004 FOR DESCRIPTION OF ALL PHASE 1 AND PHASE 2A ACTIVITIES.



KEY MAP

SCALE: 1" = 30'

100% SUBMITTAL

AUGUST 26, 2019

Symbol	Description	Date	Appr.

Designed by:
Drawn by:
Submitted by: T. MOYER
Approved by:
Date: AUGUST 26, 2019
Checked by: M. CLAXTON
File name:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

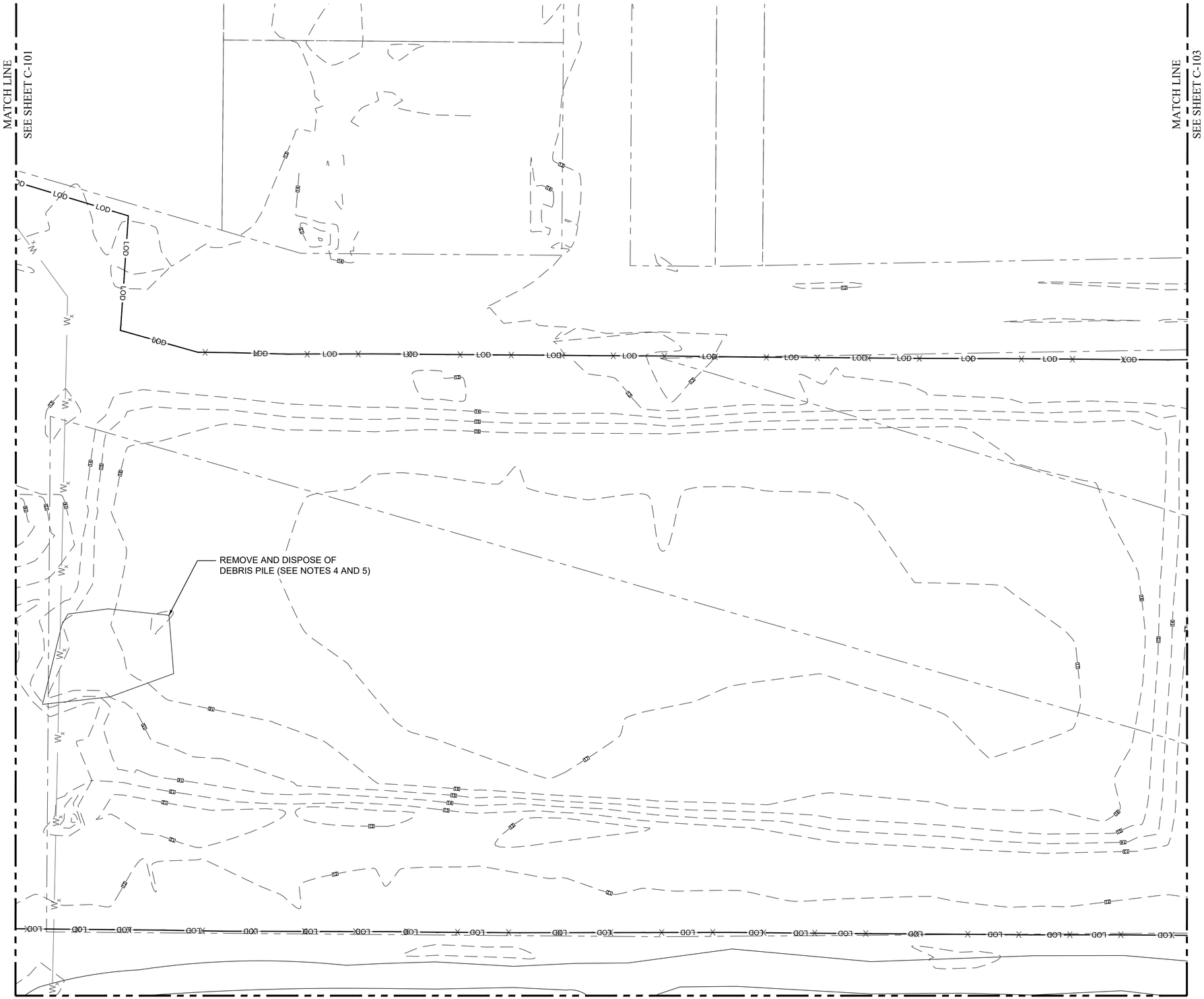
BLACK & VEATCH Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION
DEMOLITION PLAN - PHASES 1 AND 2A
PANEL A1

Sheet Number: C-101

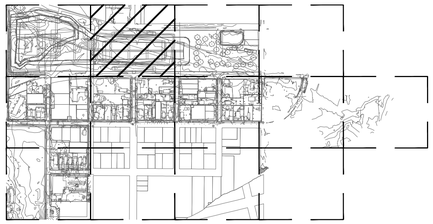
Revision:

gwg96278
R:\49089 – ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_C-101.dwg 8/22/2019 8:45:59 PM

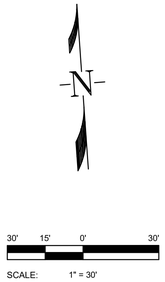


NOTES:

1. SEE SHEET G-002 FOR DRAING INDEX AND LEGEND.
2. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.
3. SEE SHEET C-100 FOR SITE LAYOUT KEY PLAN.
4. CONTRACTOR SHALL CONFIRM THE VOLUME OF DEBRIS TO BE REMOVED.
5. REMOVE DEBRIS PILE PRIOR TO IMPLEMENTING PHASE 2B ACTIVITIES.
6. SEE SHEET G-004 FOR DESCRIPTION OF ALL PHASE 2 ACTIVITIES.



KEY MAP



100% SUBMITTAL

AUGUST 26, 2019

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Symbol	Description	Date	Appr.

Designed by:
Drawn by:
Submitted by: T. MOYER
Approved by:

Date: AUGUST 26, 2019
Checked by: M. CLAXTON
File name:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH Building a world of difference.

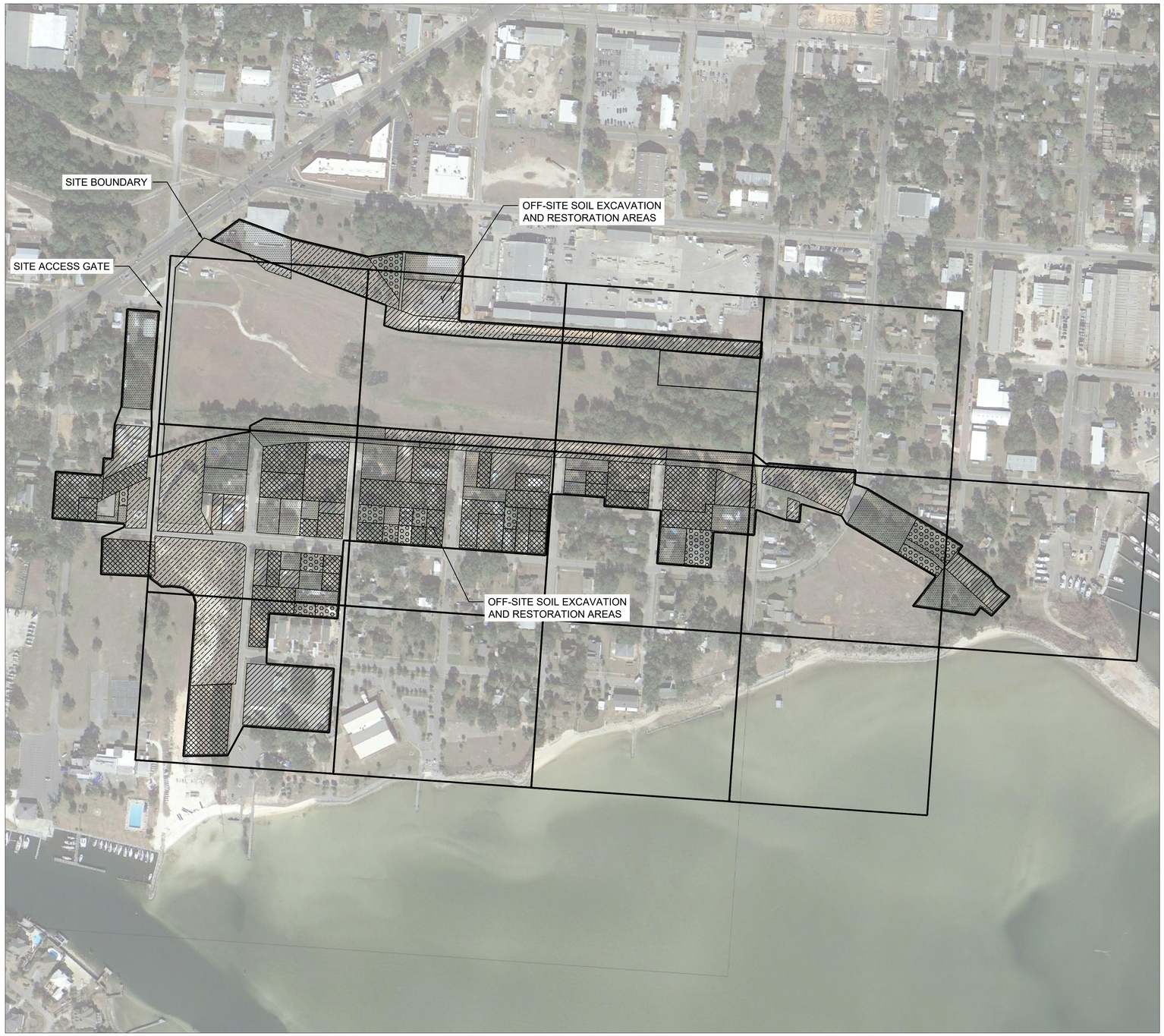
AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

DEMOLITION PLAN - PHASE 2B
PANEL B1

Sheet Number: C-102

Revision:

guq96278
R:\49089 – ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_C-102.dwg 8/22/2019 4:28:05 PM



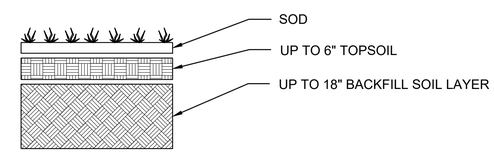
NOTES:

1. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.
3. CONTRACTOR SHALL PROVIDE PRE-SITE SURVEY OF PROPERTIES TO ESTABLISH POST REMEDIAL FENCING AND RE-VEGETATION REQUIREMENTS.
4. CLEARING, GRUBBING, AND DEMOLITION ACTIVITIES (FENCE REMOVAL) SHALL BE PROVIDED TO ALLOW FOR EXCAVATION ACTIVITIES.
5. EROSION CONTROL USING MEASURES SUCH AS SILT FENCING SHALL BE PROVIDED DURING EXCAVATION ON A PROPERTY BY PROPERTY BASIS. SEE SHEET C-640 FOR TYPICAL SILT FENCE DETAIL.
6. SOIL EXCAVATION SHALL BE PROVIDED BASED ON THE DEPTHS INDICATED.
7. RESIDENTIAL PROPERTIES WILL BE RE-CONSTRUCTED (REPLACE TREES/SHRUBS AND FENCING REMOVED) TO PRE-SURVEY CONDITIONS AND IN ACCORDANCE TO RESTORATION DETAIL INDICATED.

SOIL EXCAVATION ACTIVITIES

- PREVIOUS REMOVAL AREA
- NO EXCAVATION
- 0-6" EXCAVATION AREA
- 0-1' EXCAVATION AREA
- 0-2' EXCAVATION AREA
- AMERICAN CREOSOTE WORKS FACILITY SITE BOUNDARY
- OFF-SITE SOIL EXCAVATION BOUNDARY

TOTAL OF 31,300 BCY OF OFF-SITE SOIL TO BE EXCAVATED.



RESTORATION DETAIL

N

200' 100' 0' 200'

SCALE: 1" = 200'

100% SUBMITTAL

AUGUST 26, 2019

Symbol	Description	Date	Appr.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Designed by:
Date: AUGUST 26, 2019
Drawn by:
Checked by: M. CLAXTON
Submitted by: T. MOYER
File name:
Approved by:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH
Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION
PHASE 1 OFF-SITE SOIL
EXCAVATION AND RESTORATION
LOCATIONS PLAN

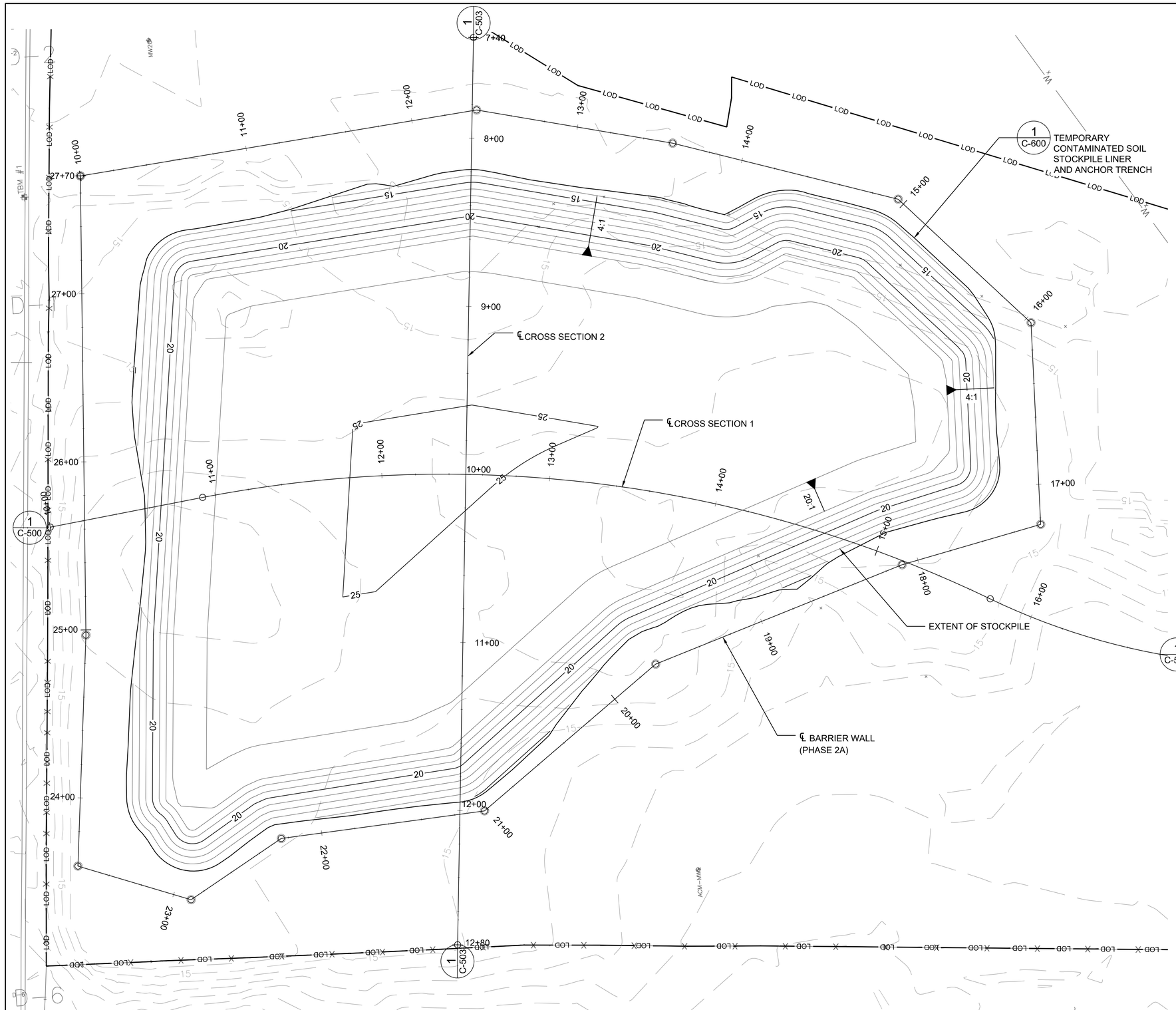
Sheet Number: C-110

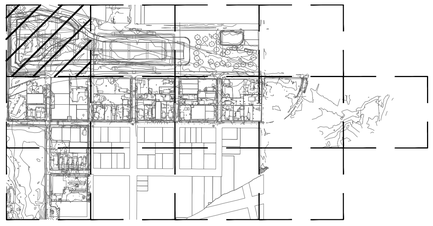
Revision:

guq86278
R:\49089 – ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_C-110.dwg 8/21/2019 10:00:19 PM

NOTES:

1. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEET C-001 FOR SITE LAYOUT KEY PLAN.
3. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.
4. SEE SHEET G-004 FOR DETAILED DESCRIPTION OF PHASE 1 ACTIVITIES.
5. SEE SHEETS C-700 FOR HORIZONTAL ALIGNMENT DATA.





KEY MAP

30' 15' 0' 30'

SCALE: 1" = 30'

100% SUBMITTAL

AUGUST 26, 2019

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Symbol	Description	Date	Appr.

Designed by:
Date: AUGUST 26, 2019
Drawn by:
Checked by: M. CLAXTON
Submitted by: T. MOYER
File name:
Approved by:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

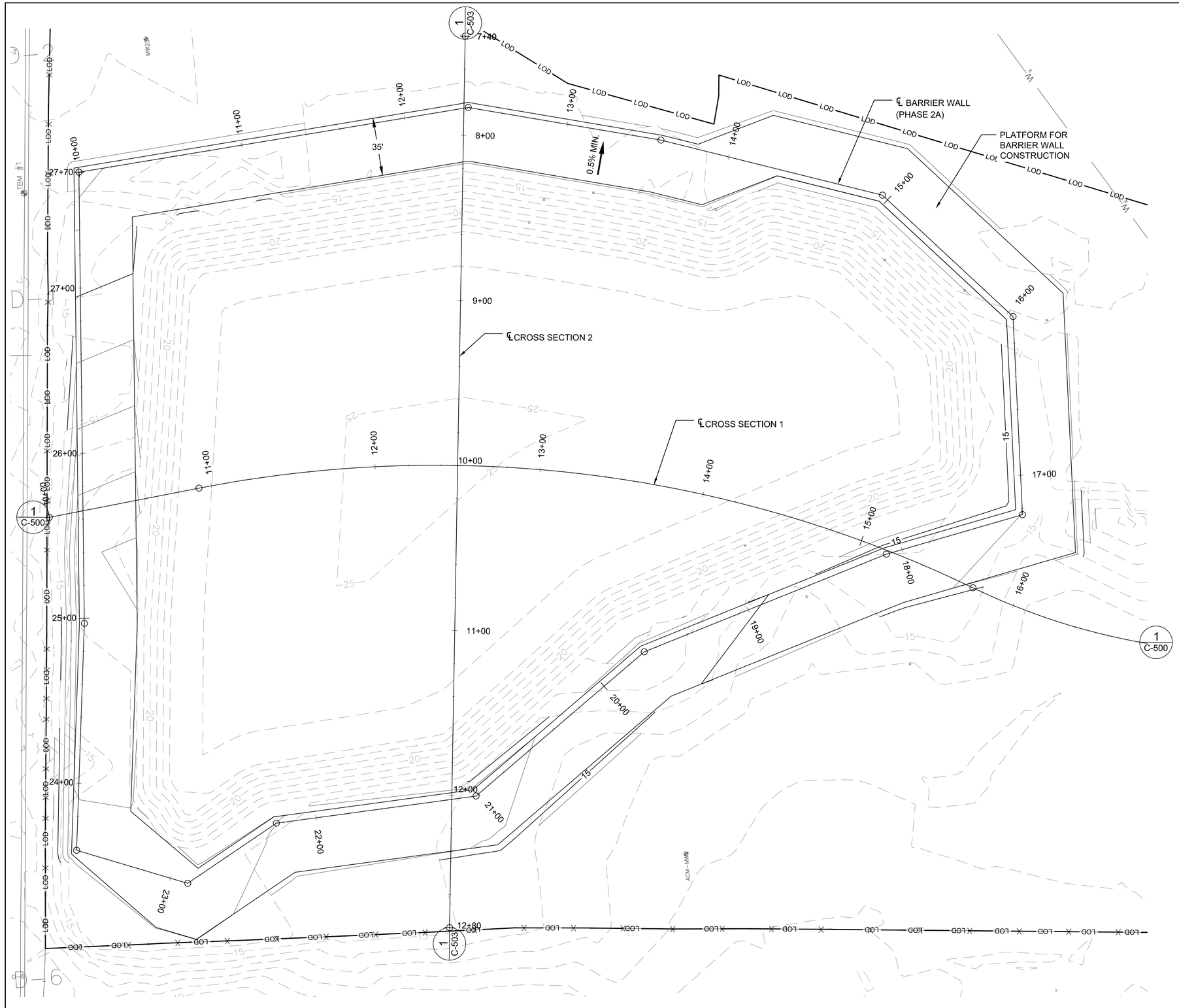
BLACK & VEATCH Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION
GRADING AND DRAINAGE - PHASE 1
PANEL A1

Sheet Number: C-301

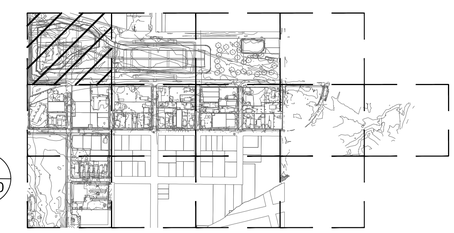
Revision:

gwg98278
R:\49089 – ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_C-301.dwg 8/22/2019 11:32:25 AM



NOTES:

1. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEET C-001 FOR SITE LAYOUT KEY PLAN.
3. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.
4. SEE SHEET G-004 FOR ALL PHASE 2A ACTIVITIES.
5. SEE SHEET C-700 FOR HORIZONTAL ALIGNMENT DATA.
6. SEE SHEET C-510 FOR BARRIER WALL PROFILE. PLATFORM PROFILE IS 2' ABOVE BARRIER WALL PROFILE. CONTRACTOR TO ADJUST AS REQUIRED.



KEY MAP

SCALE: 1" = 30'

100% SUBMITTAL

AUGUST 26, 2019

Symbol	Description	Date	Appr

Designed by:
Drawn by:
Submitted by: T. MOYER
Approved by:
Date: AUGUST 26, 2019
Checked by: M. CLAXTON
File name:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

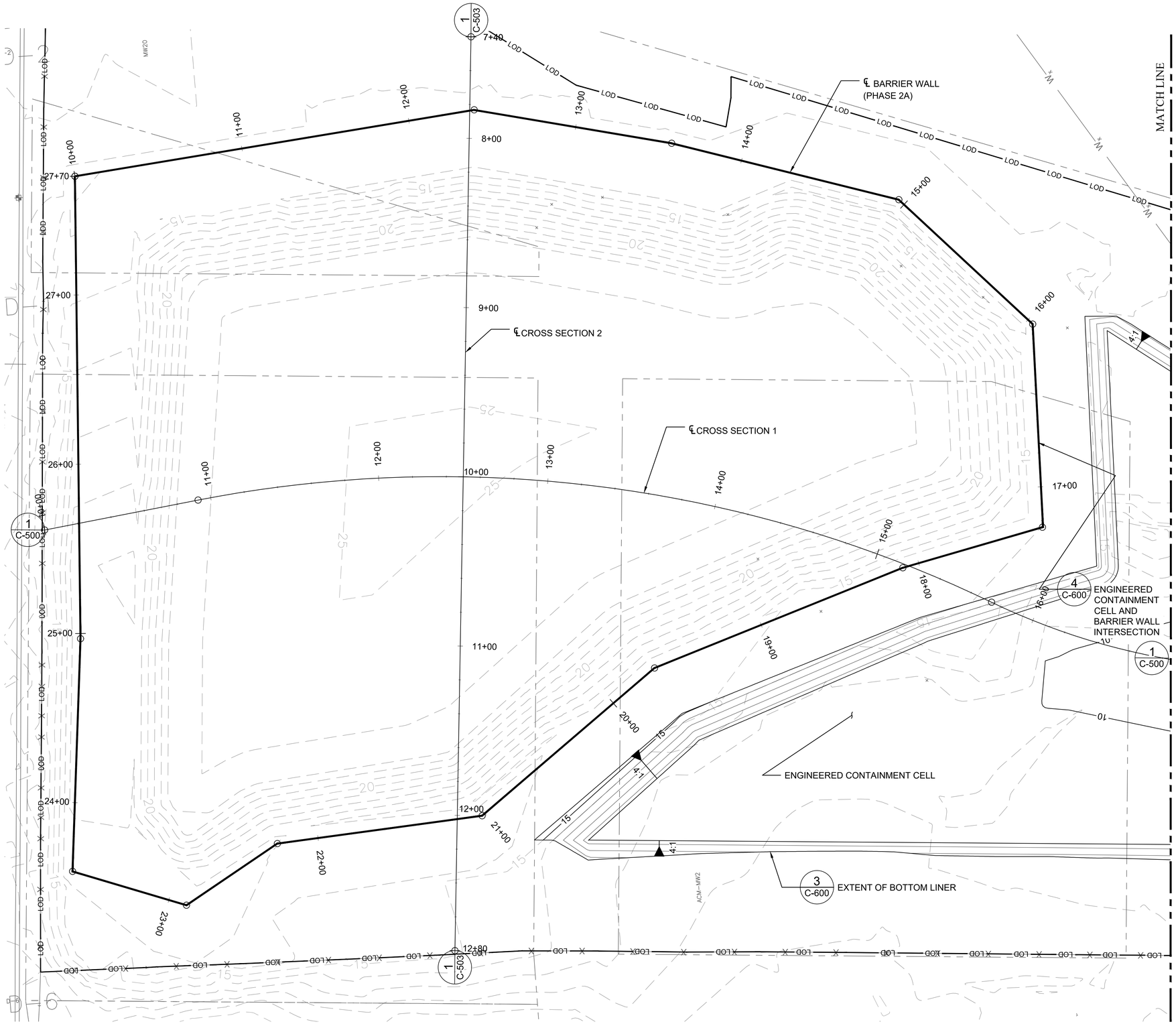
BLACK & VEATCH Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION
GRADING AND DRAINAGE - PHASE 2A
PANEL A1

Sheet Number: C-311

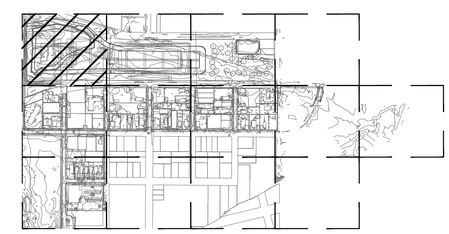
Revision:

gugt8278
R:\49089 – ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_C-311.dwg 8/22/2019 11:41:39 AM



NOTES:

1. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEET C-001 FOR SITE LAYOUT KEY PLAN.
3. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.
4. SEE SHEET G-004 FOR ALL PHASE 2B ACTIVITIES.
5. SEE SHEET C-700 FOR HORIZONTAL ALIGNMENT DATA.



KEY MAP

N

30' 15' 0' 30'

SCALE: 1" = 30'

100% SUBMITTAL

AUGUST 26, 2019

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Symbol	Description	Date	Appr.

Designed by:
Drawn by:
Submitted by: T. MOYER
Approved by:
Date: AUGUST 26, 2019
Checked by: M. CLAXTON
File name:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

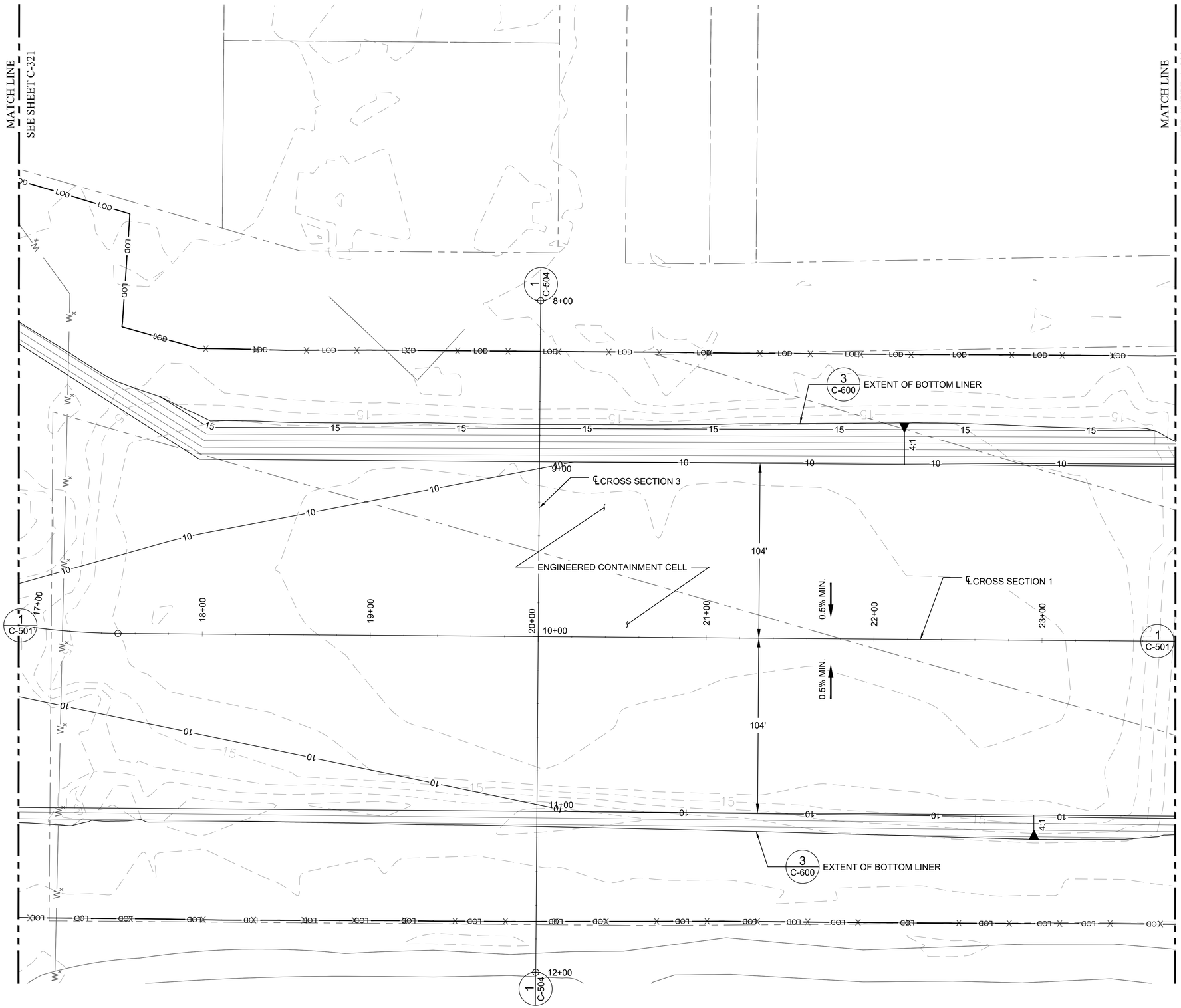
BLACK & VEATCH
Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION
GRADING AND DRAINAGE - PHASE 2B
PANEL A1

Sheet Number: C-321

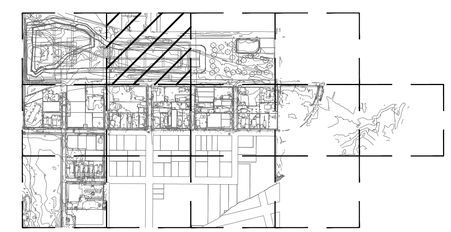
Revision:

gvg96278
R:\49089 - ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_C-321.dwg 8/23/2019 9:48:36 AM



NOTES:

1. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEET C-001 FOR SITE LAYOUT KEY PLAN.
3. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.
4. SEE SHEET G-004 FOR ALL PHASE 2A ACTIVITIES.
5. SEE SHEET C-700 FOR HORIZONTAL ALIGNMENT DATA.



KEY MAP

SCALE: 1" = 30'

100% SUBMITTAL

AUGUST 26, 2019

Symbol	Description	Date	Appr

Designed by:
Drawn by:
Submitted by: T. MOYER
Approved by:
Date: AUGUST 26, 2019
Checked by: M. CLAXTON
File name:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH
Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

GRADING AND DRAINAGE - PHASE 2B
PANEL B1

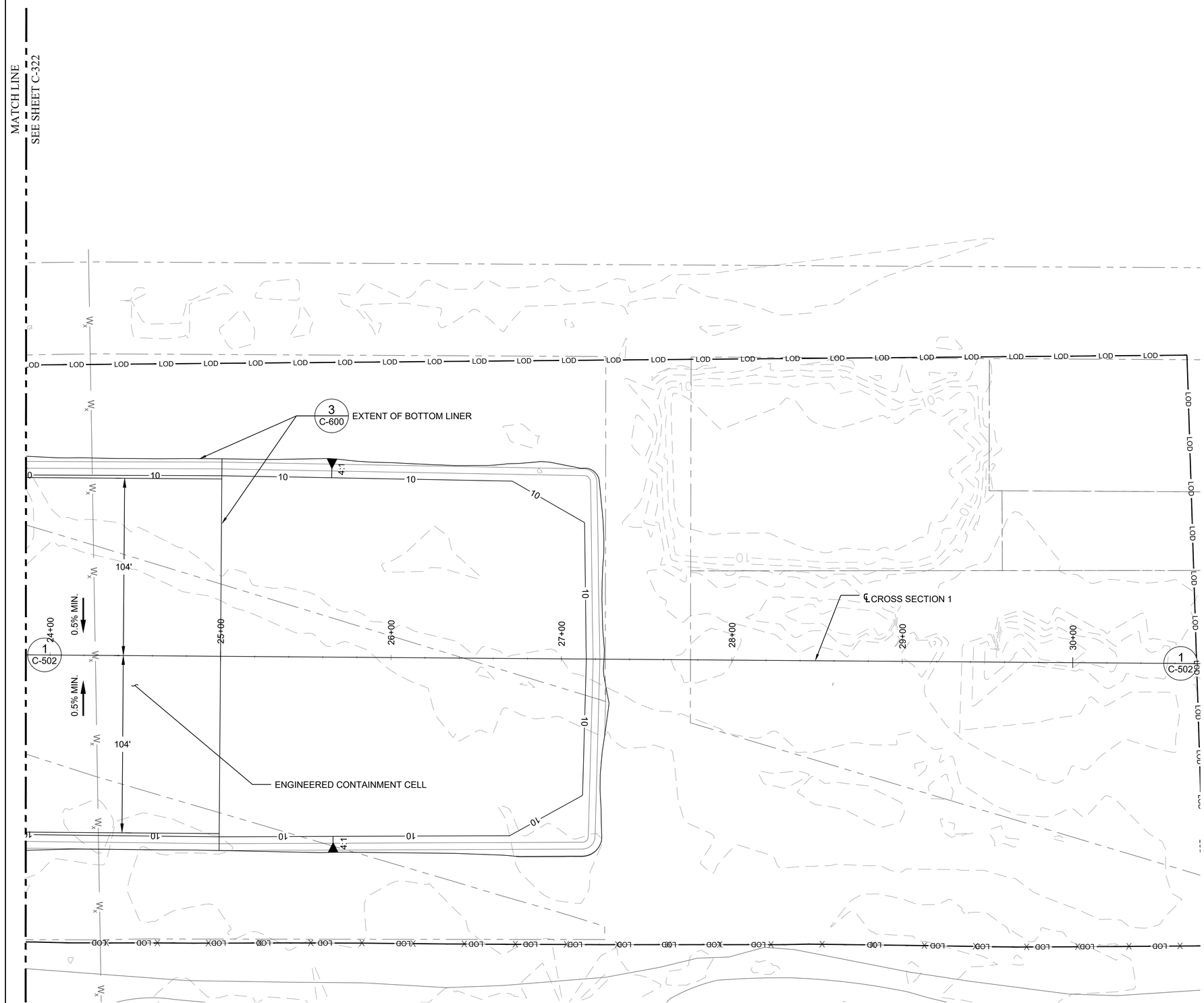
Sheet Number:
C-322

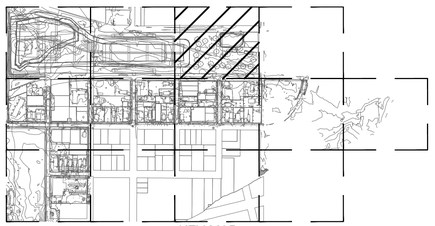
Revision:

gug98278
R:\V9089 – ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_C-322.dwg 8/23/2019 9:57:37 AM

NOTES:

1. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEET C-001 FOR SITE LAYOUT KEY PLAN.
3. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.
4. SEE SHEET G-004 FOR ALL PHASE 2B ACTIVITIES.
5. SEE SHEET C-700 FOR HORIZONTAL ALIGNMENT DATA.





30' 15' 0' 30'
SCALE: 1" = 30'

100% SUBMITTAL

AUGUST 26, 2019

Symbol	Description	Date	Appr.

Designed by:
Date: AUGUST 26, 2019
Drawn by:
Checked by: M. CLAXTON
Submitted by: T. MOYER
File name:
Approved by:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH
Building a world of difference.

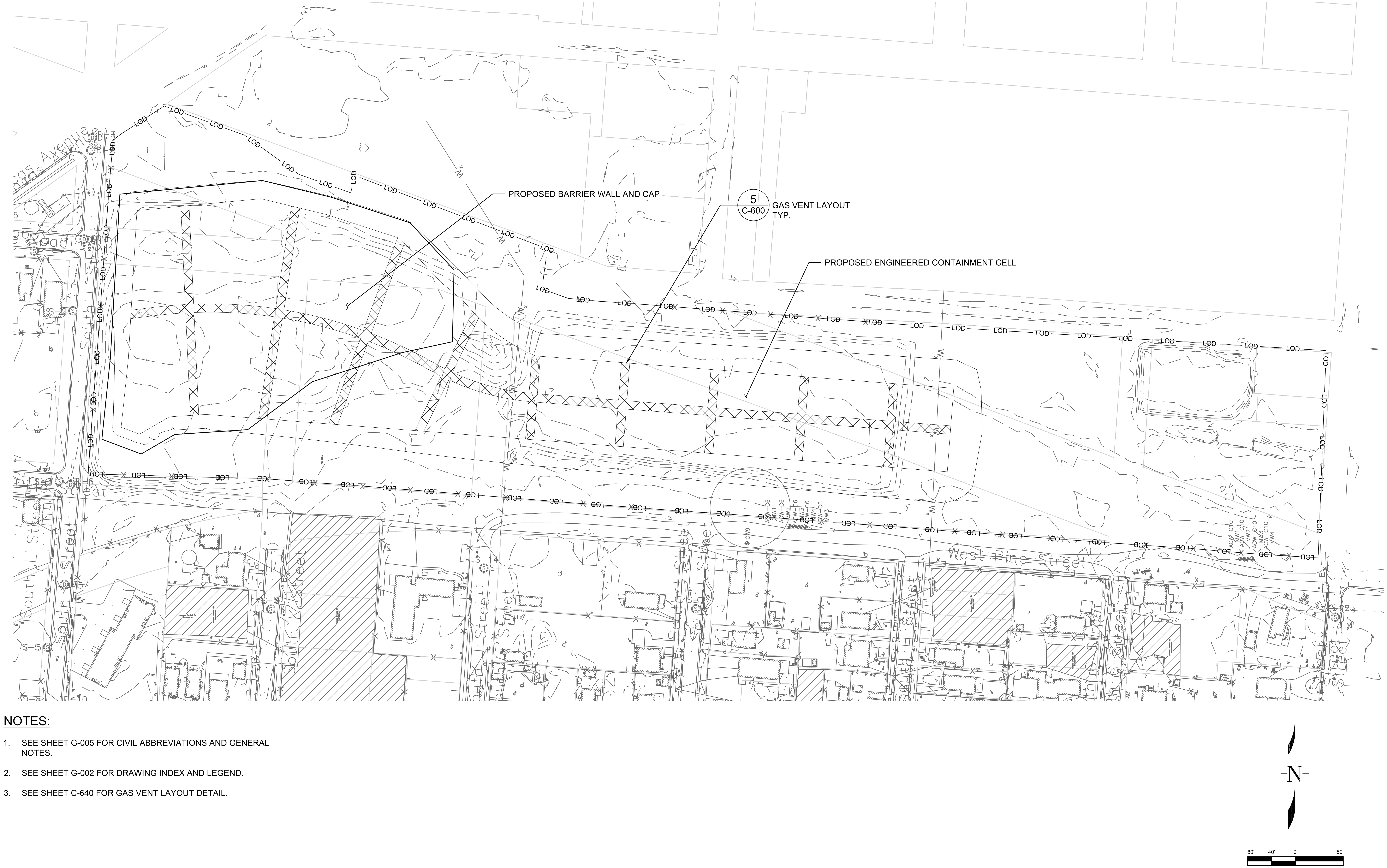
AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

GRADING AND DRAINAGE - PHASE 2B
PANEL C1

Sheet Number:
C-323

Revision:

gug96278
R:\49089 – ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_C-323.dwg 8/23/2019 10:07:01 AM



NOTES:

1. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.
2. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
3. SEE SHEET C-640 FOR GAS VENT LAYOUT DETAIL.

100% SUBMITTAL

AUGUST 26, 2019

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Symbol	Description	Date	Appr.

Designed by:	Date: AUGUST 26, 2019
Drawn by:	Checked by: M. CLAXTON
Submitted by: T. MOYER	File name:
Approved by:	

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH
Building a world of difference.

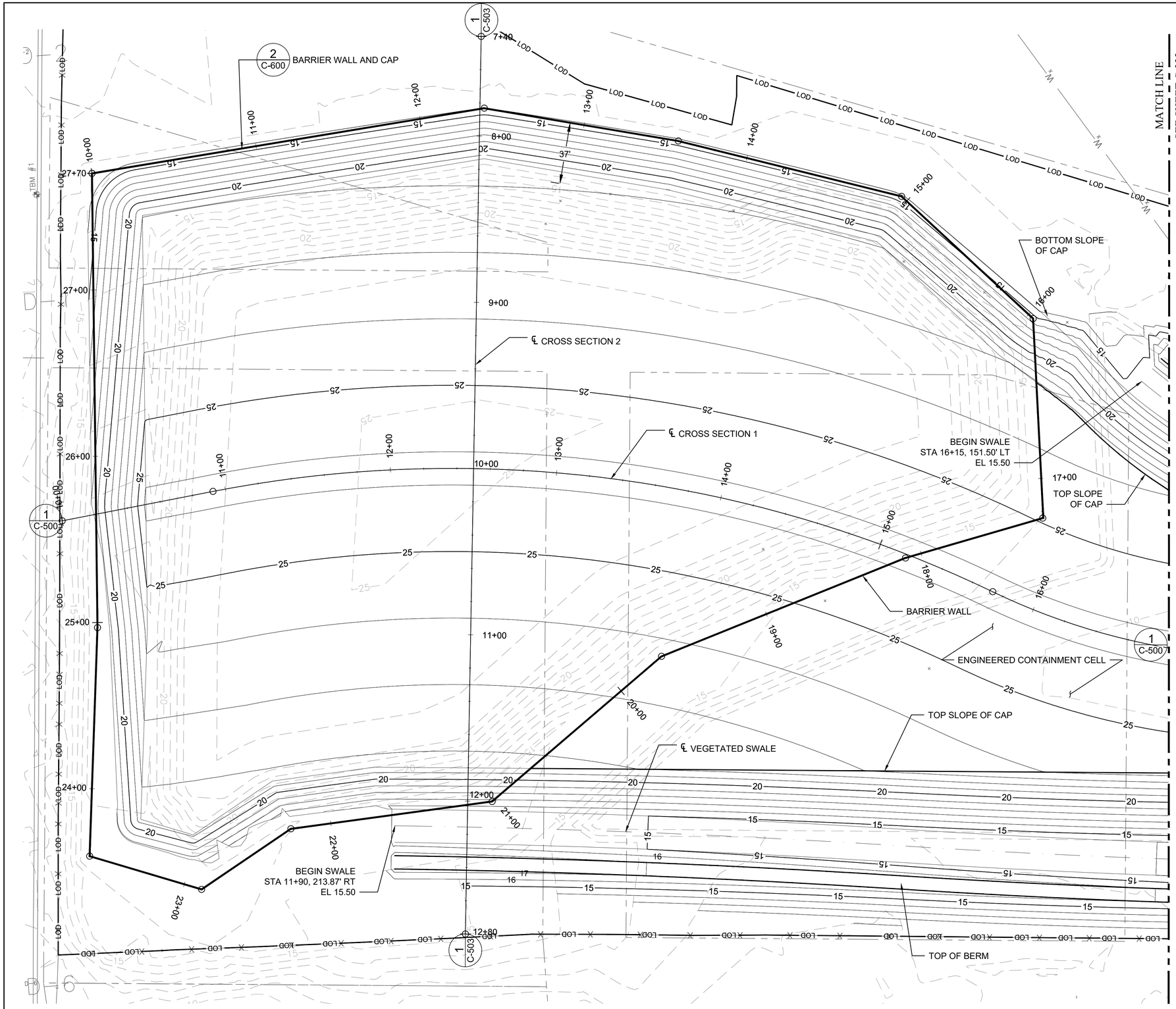
AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

GAS VENT LAYOUT PLAN

Sheet Number: C-330

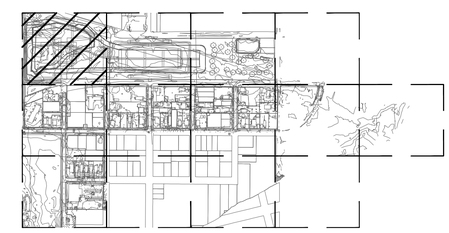
Revision:

gw96278
R:\49089 – ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_C-330.dwg 8/23/2019 9:30:42 AM



NOTES:

1. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEET C-001 FOR SITE LAYOUT KEY PLAN.
3. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.
4. SEE SHEET G-004 FOR DETAILED DESCRIPTION OF PHASE 2C/2D ACTIVITIES.
5. SEE SHEET C-700 FOR HORIZONTAL ALIGNMENT DATA.
6. SEE SHEET C-640 FOR VEGETATED SWALE AND BERM DETAIL.



KEY MAP

SCALE: 1" = 30'

100% SUBMITTAL

AUGUST 26, 2019

Symbol	Description	Date	Appr.

Designed by:
Date: AUGUST 26, 2019
Drawn by:
Checked by: M. CLAXTON
Submitted by: T. MOYER
File name:
Approved by:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

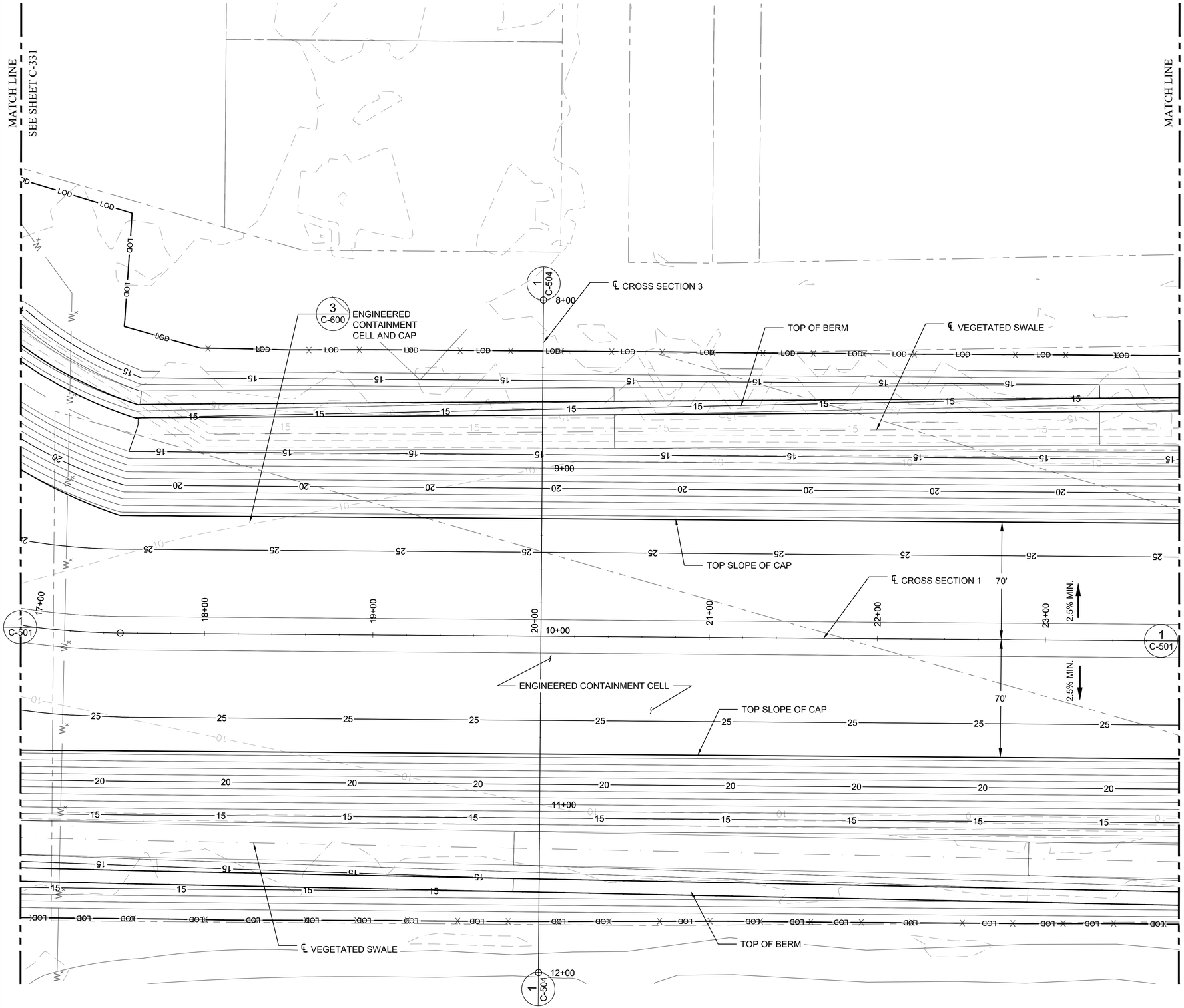
BLACK & VEATCH
Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION
GRADING AND DRAINAGE - PHASE 2C/2D
PANEL A1

Sheet Number:
C-331

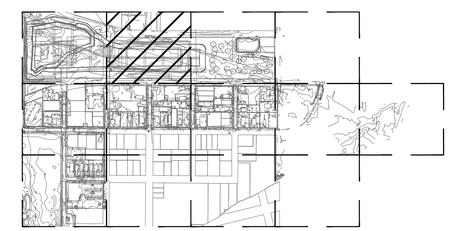
Revision:

guy86278
R:\49089 – ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_C-331.dwg 8/23/2019 10:40:39 AM

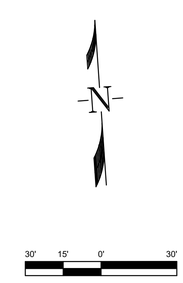


NOTES:

1. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEET C-001 FOR SITE LAYOUT KEY PLAN.
3. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.
4. SEE SHEET G-004 FOR ALL PHASE 2C/2D ACTIVITIES.
5. SEE SHEET C-700 FOR HORIZONTAL ALIGNMENT DATA.
6. SEE SHEET C-640 FOR VEGETATED SWALE AND BERM DETAIL.



KEY MAP



100% SUBMITTAL

AUGUST 26, 2019

Symbol	Description	Date	Appr.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Designed by:
Date: AUGUST 26, 2019
Drawn by:
Checked by: M. CLAXTON
Submitted by: T. MOYER
File name:
Approved by:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH
Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

GRADING AND DRAINAGE - PHASE 2C/2D
PANEL B1

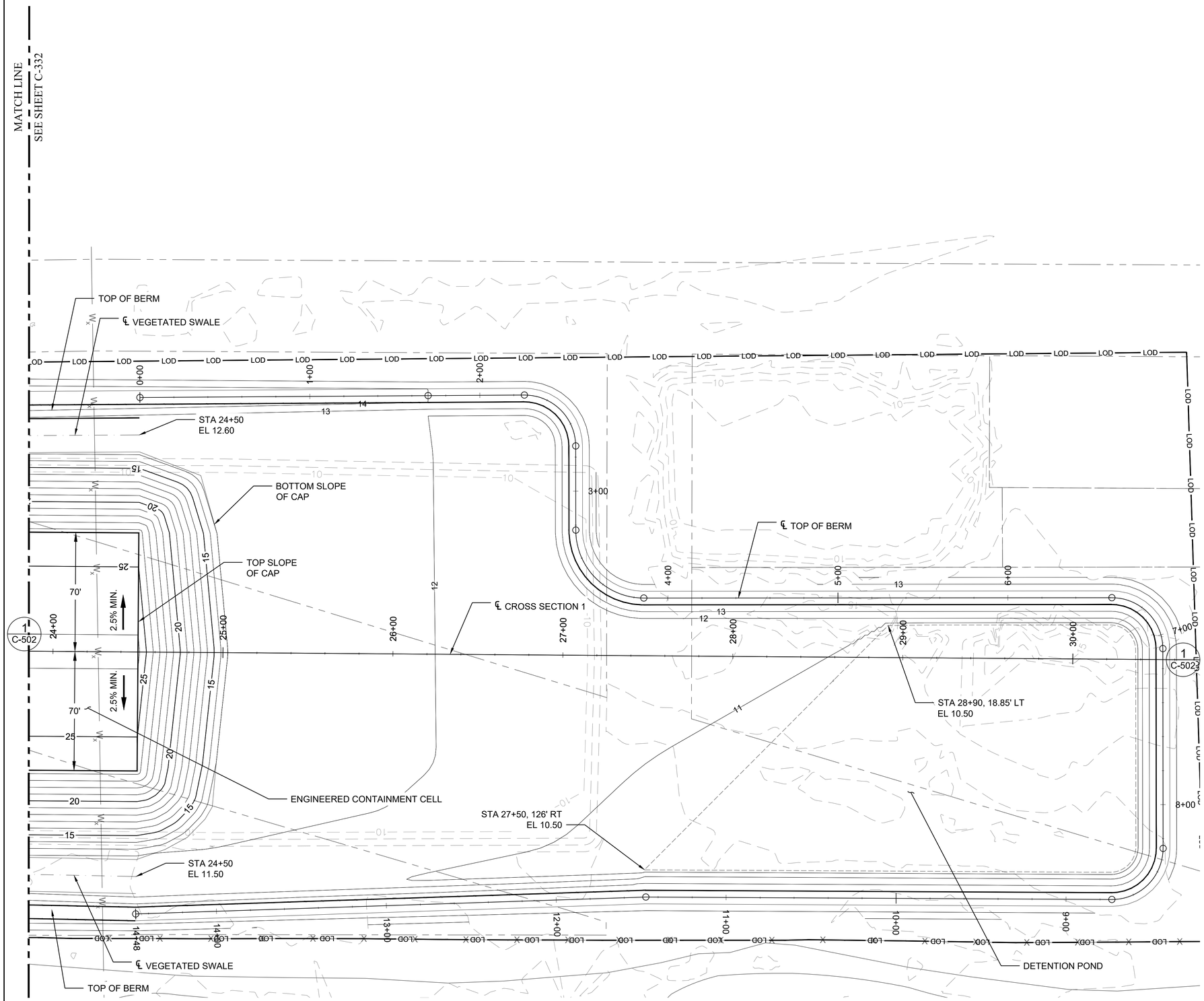
Sheet Number:
C-332

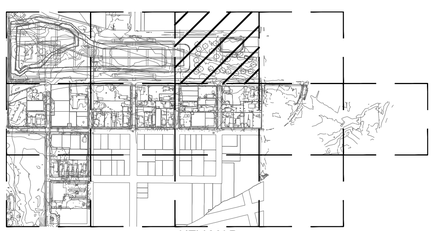
Revision:

guq96278
R:\49089 – ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_C-332.dwg 8/23/2019 11:06:06 AM

NOTES:

1. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEET C-001 FOR SITE LAYOUT KEY PLAN.
3. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.
4. SEE SHEET G-004 FOR ALL PHASE 2C/2D ACTIVITIES.
5. SEE SHEET C-700 FOR HORIZONTAL ALIGNMENT DATA.
6. SEE SHEET C-640 FOR VEGETATED SWALE AND BERM DETAIL.





30' 15' 0' 30'
SCALE: 1" = 30'

100% SUBMITTAL

AUGUST 26, 2019

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Symbol	Description	Date	Appr.

Designed by:
Date: AUGUST 26, 2019
Drawn by:
Checked by: M. CLAXTON
Submitted by: T. MOYER
File name:
Approved by:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH
Building a world of difference.

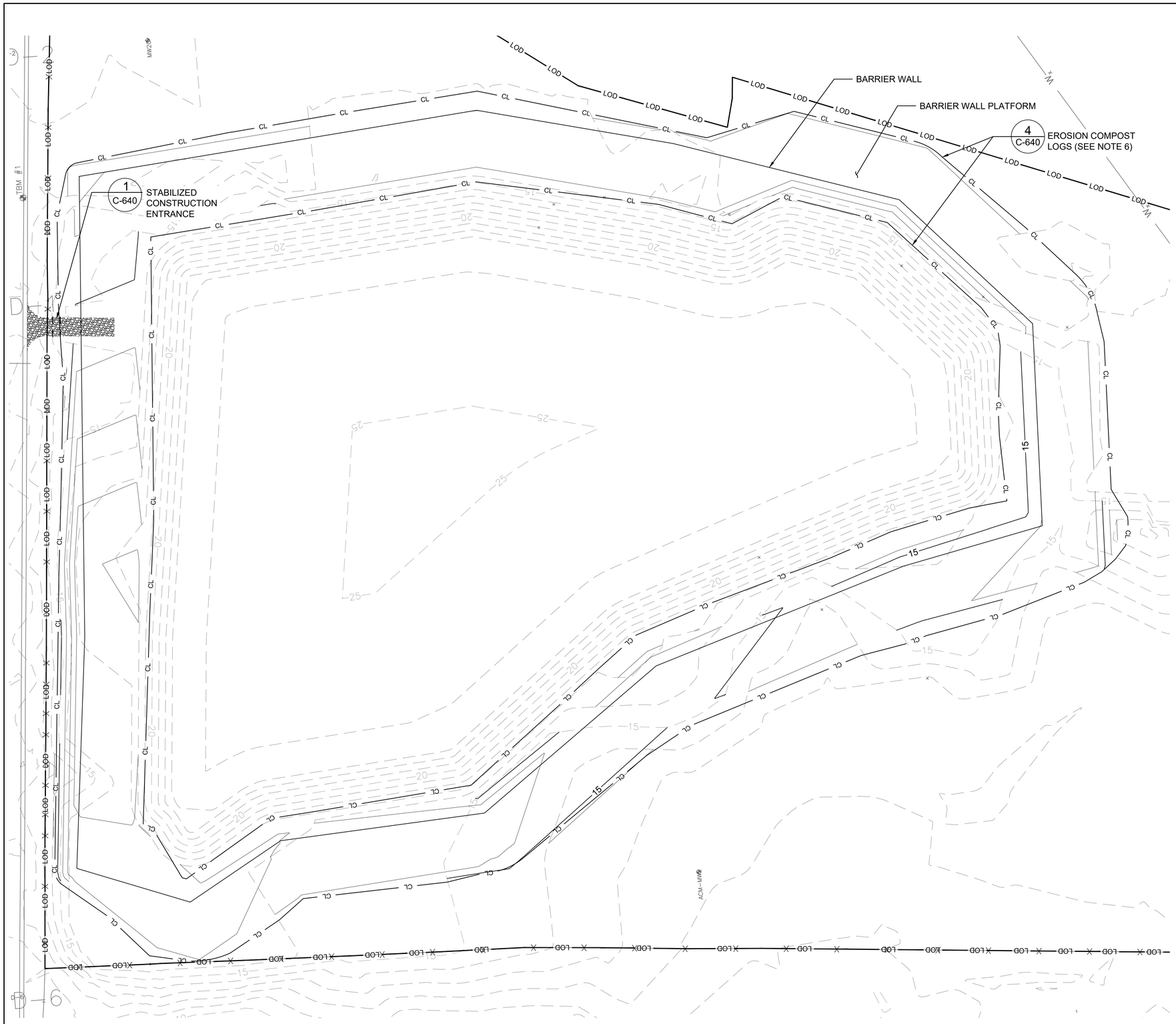
AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

GRADING AND DRAINAGE - PHASE 2C/2D
PANEL C1

Sheet Number:
C-333

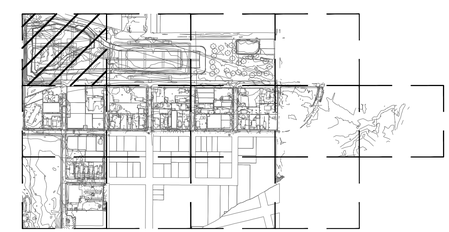
Revision:

gugi86278
R:\49089 – ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_C-333.dwg 8/23/2019 11:15:54 AM



NOTES:

1. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEET C-001 FOR SITE LAYOUT KEY PLAN.
3. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.
4. SEE SHEET G-004 FOR CONSTRUCTION PHASING.
5. SEE SHEET G-005 FOR GENERAL EROSION CONTROL MEASURES.
6. EROSION COMPOST LOGS SHALL BE INSTALLED ON SLOPES ADJACENT TO BARRIER WALL PLATFORM.
7. STABILIZED CONSTRUCTION ENTRANCES TO BE INSTALLED AT ALL CONTRACTOR ACCESS LOCATIONS.



KEY MAP

N

30' 15' 0' 30'

SCALE: 1" = 30'

100% SUBMITTAL

AUGUST 26, 2019

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Symbol	Description	Date	Appr.

Designed by:
Drawn by:
Submitted by: T. MOYER
Approved by:
Date: AUGUST 26, 2019
Checked by: M. CLAXTON
File name:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH
Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

EROSION AND SEDIMENT CONTROL - PHASE 1
& PHASE 2A
PANEL A1

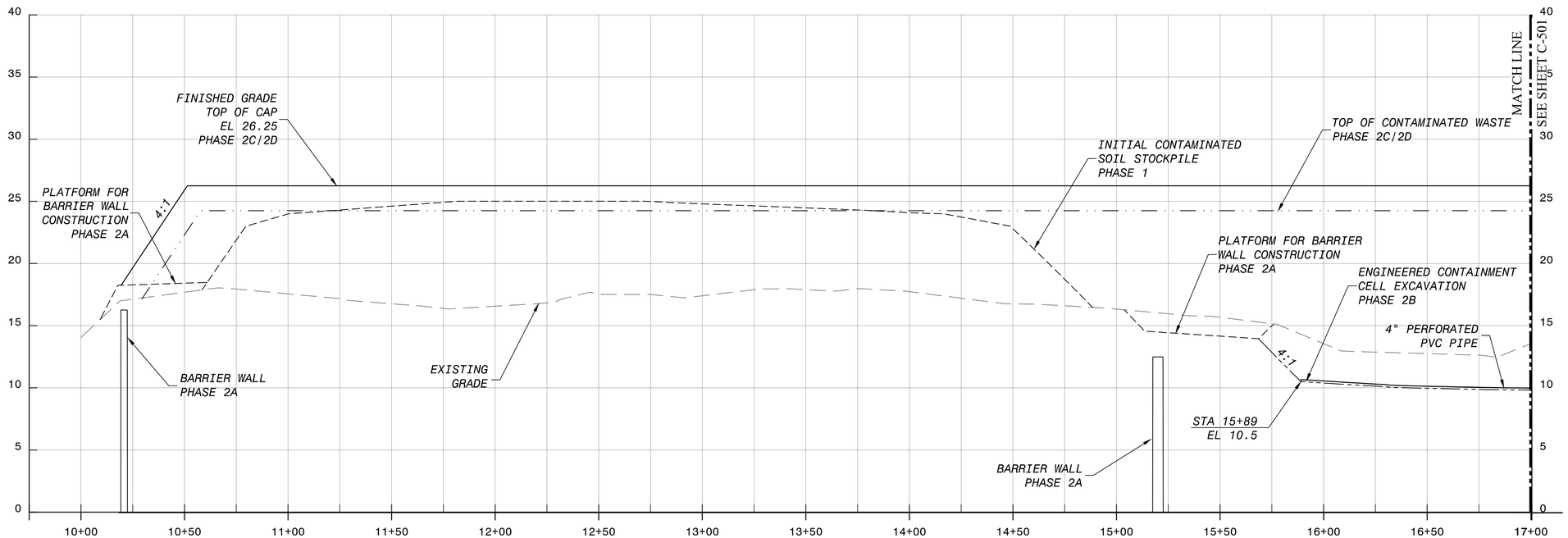
Sheet Number:
C-401

Revision:

gug96278
R:\49089 - ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_C-401.dwg 8/22/2019 10:58:12 AM

NOTES:

1. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.



SITE CROSS SECTION 1 STA 10+00 TO STA 17+00 (EAST–WEST)
(FOR PLAN SEE SHEETS C–301, C–311, C–321, AND C–331)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Symbol	Description	Date	Appr.

Designed by:
Drawn by:
Submitted by: T. MOYER
Approved by:
Date: AUGUST 26, 2019
Checked by: M. CLAXTON
File name:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH
Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

SITE CROSS SECTIONS
CAP CROSS SECTION - SHEET 1

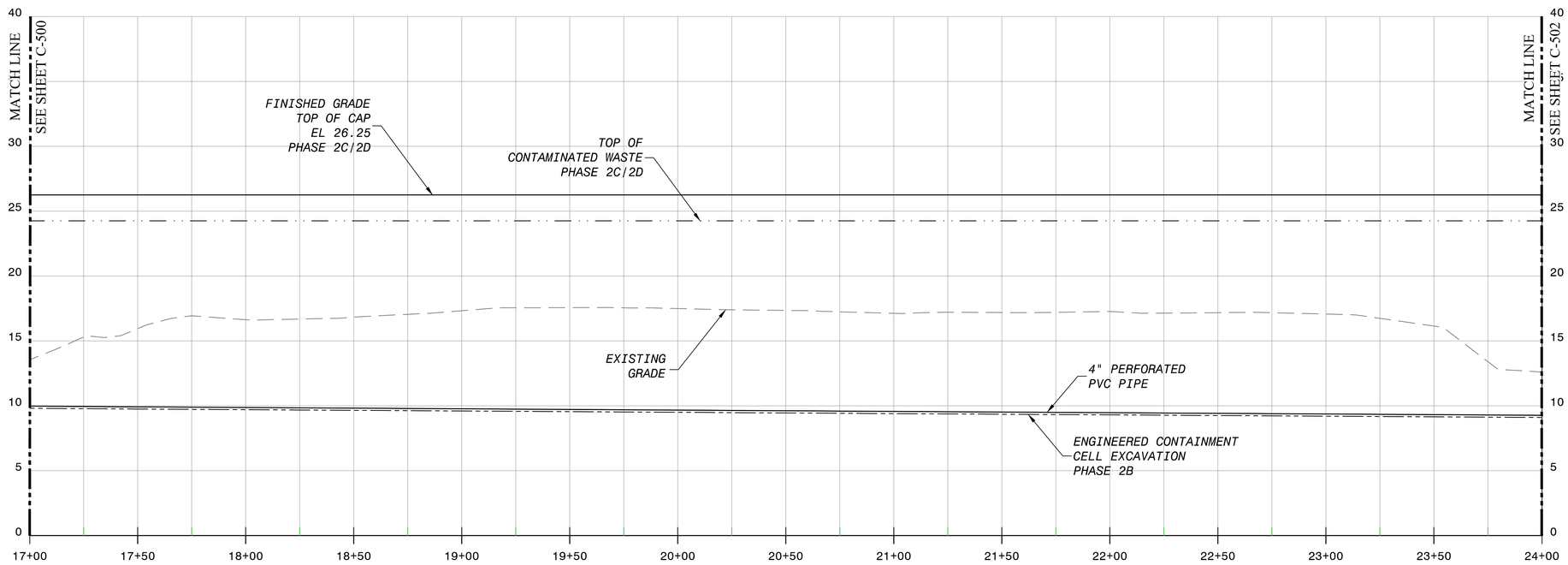
Sheet Number:
C-500
Revision:

100% SUBMITTAL
AUGUST 26, 2019

gug96278
R:\49089 – ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_C-500.dwg 8/21/2019 3:38:58 PM

NOTES:

1. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.



SITE CROSS SECTION 1 STA 17+00 TO STA 24+00 (EAST-WEST)
(FOR PLAN SEE SHEETS C-322 AND C-332)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Symbol	Description	Date	Appr.

Designed by:
Drawn by:
Submitted by: T. MOYER
Approved by:
Date: AUGUST 26, 2019
Checked by: M. CLAXTON
File name:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH
Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

SITE CROSS SECTIONS
CAP CROSS SECTION - SHEET 2

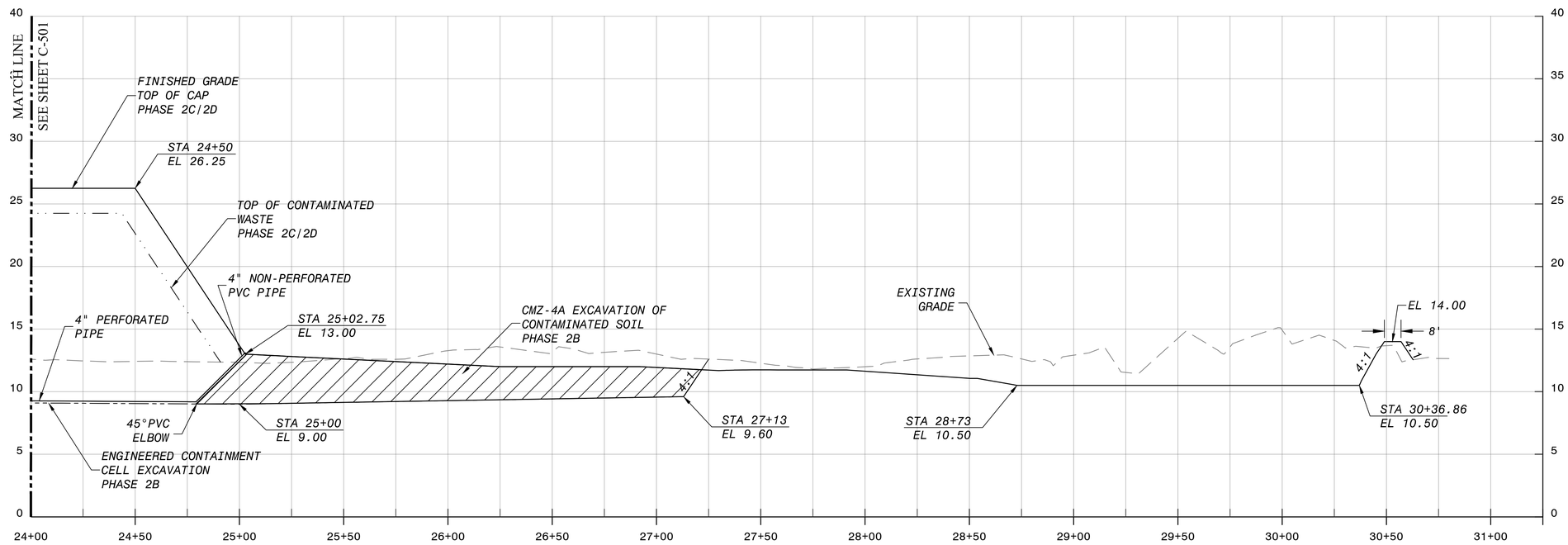
100% SUBMITTAL
AUGUST 26, 2019

Sheet Number: C-501
Revision:

gug96278
R:\49089 - ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_C-501.dwg 8/21/2019 3:40:57 PM

NOTES:

1. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.



SITE CROSS SECTION 1 STA 24+00 TO STA 30+78 (EAST–WEST)
(FOR PLAN SEE SHEETS C–323 AND C–333)

100% SUBMITTAL
AUGUST 26, 2019

Symbol	Description	Date	Appr.

Designed by:
Date: AUGUST 26, 2019
Drawn by:
Checked by: M. CLAXTON
Submitted by: T. MOYER
File name:
Approved by:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH
Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

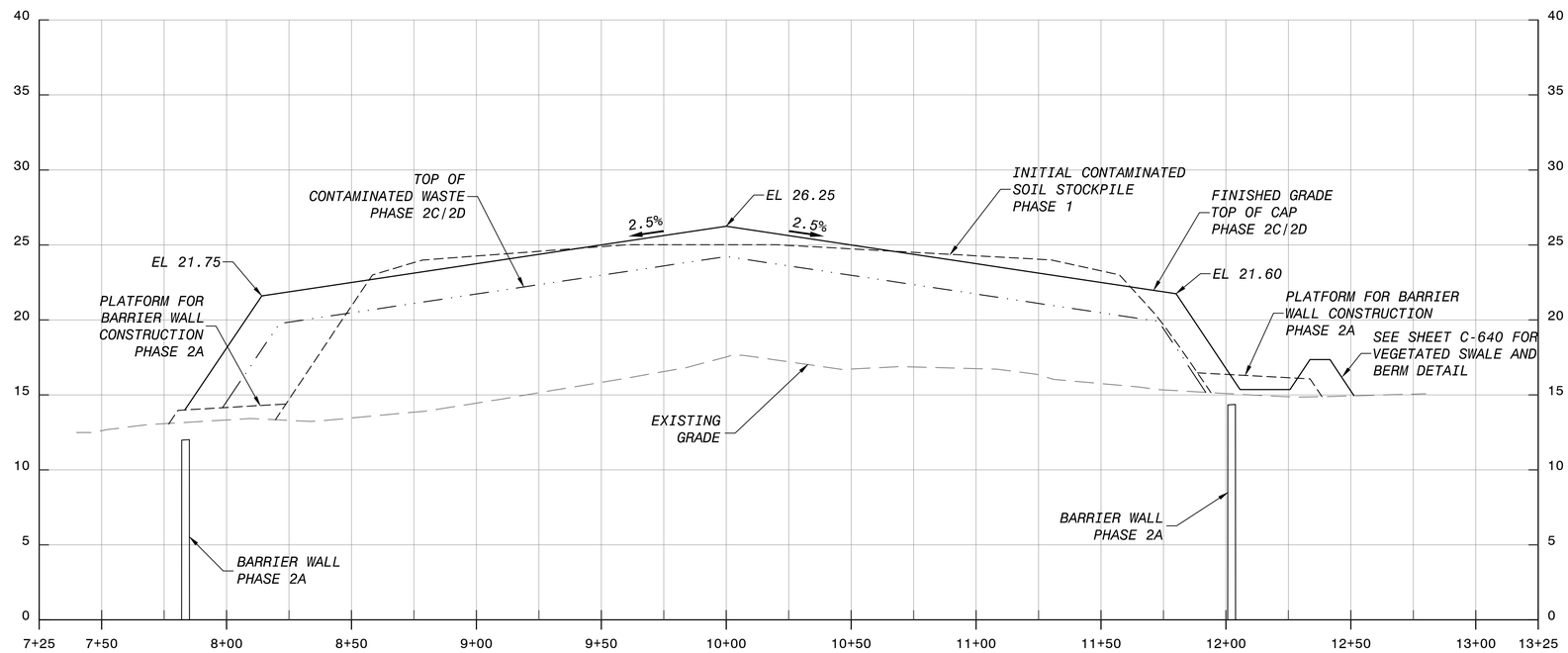
SITE CROSS SECTIONS
CAP CROSS SECTION - SHEET 3

Sheet Number: C-502
Revision:

guy98278
R:\49089 – ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_C-502.dwg 8/26/2019 12:13:44 PM

NOTES:

1. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.



SITE CROSS SECTION 2 STA 7+40 TO STA 12+80 (NORTH–SOUTH)
(FOR PLAN SEE SHEETS C–301, C–311, C–321, AND C–331)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Symbol	Description	Date	Appr.

Designed by:
Drawn by:
Submitted by: T. MOYER
Approved by:
Date: AUGUST 26, 2019
Checked by: M. CLAXTON
File name:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH
Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

SITE CROSS SECTIONS
CAP CROSS SECTION - SHEET 4

Sheet Number: C-503

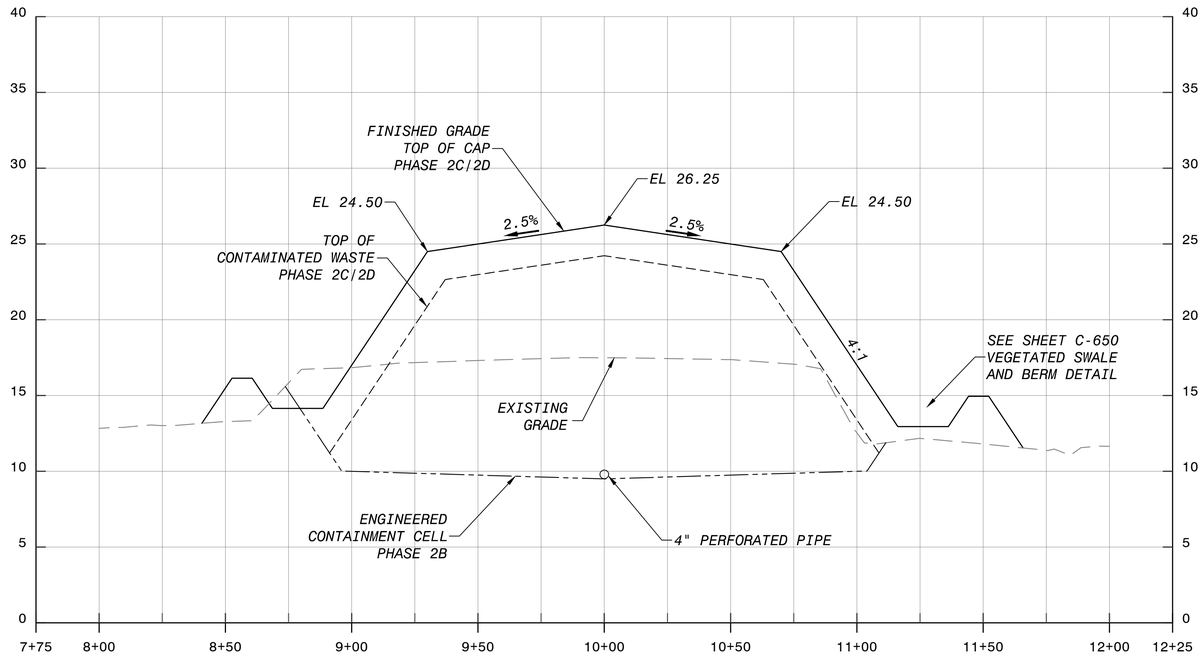
Revision:

100% SUBMITTAL
AUGUST 26, 2019

gvg96278
R:\49089 – ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_C-503.dwg 8/22/2019 8:19:59 PM

NOTES:

1. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.



SITE CROSS SECTION 3 STA 10+00 TO STA 14+00 (NORTH-SOUTH)
(FOR PLAN SEE SHEETS C-322 AND C-332)

Symbol	Description	Date	Appr.

Designed by:
Date: AUGUST 26, 2019
Drawn by:
Checked by: M. CLAXTON
Submitted by: T. MOYER
File name:
Approved by:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

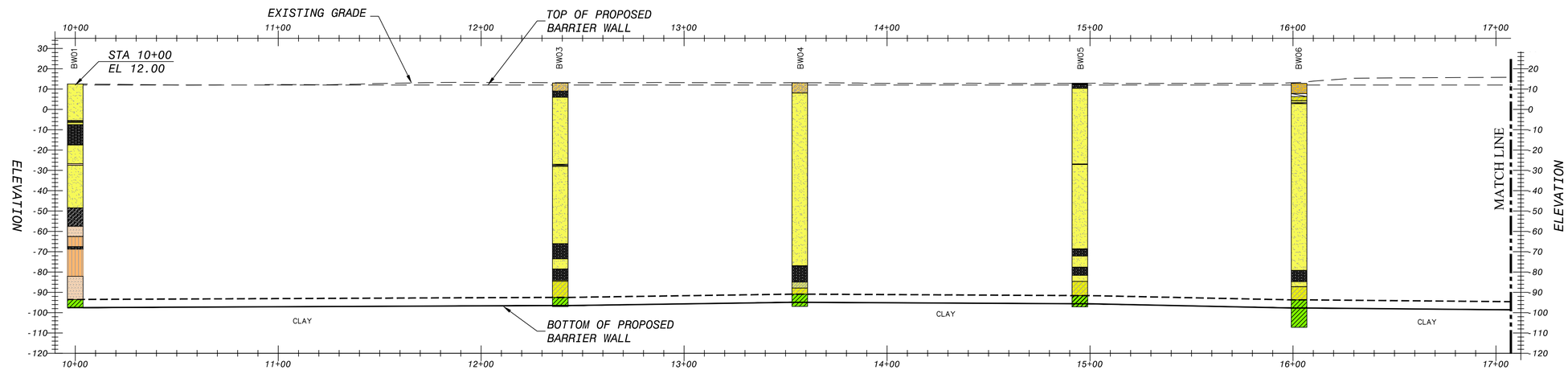
SITE CROSS SECTIONS
CAP CROSS SECTION - SHEET 5

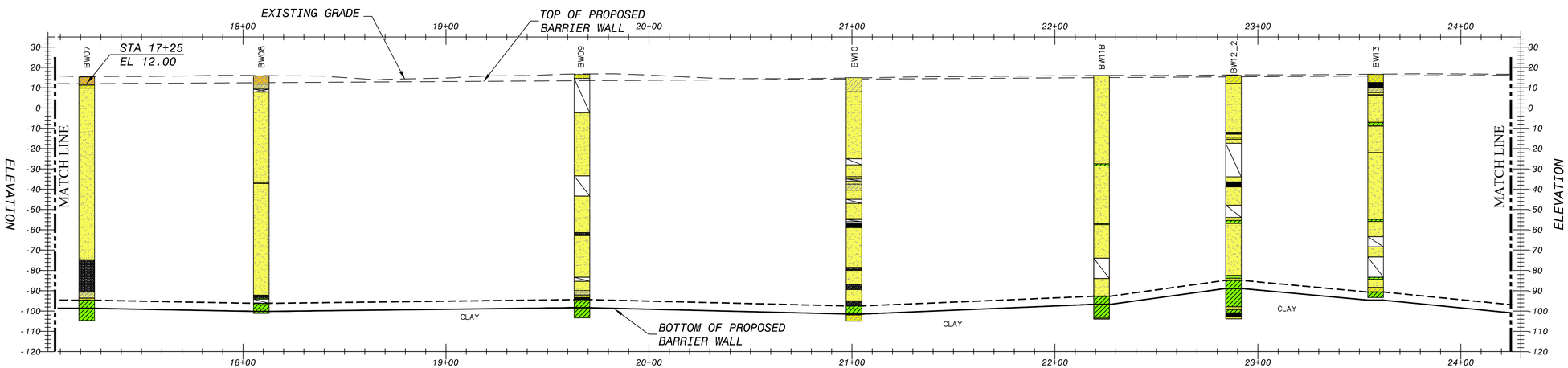
Sheet Number: C-504

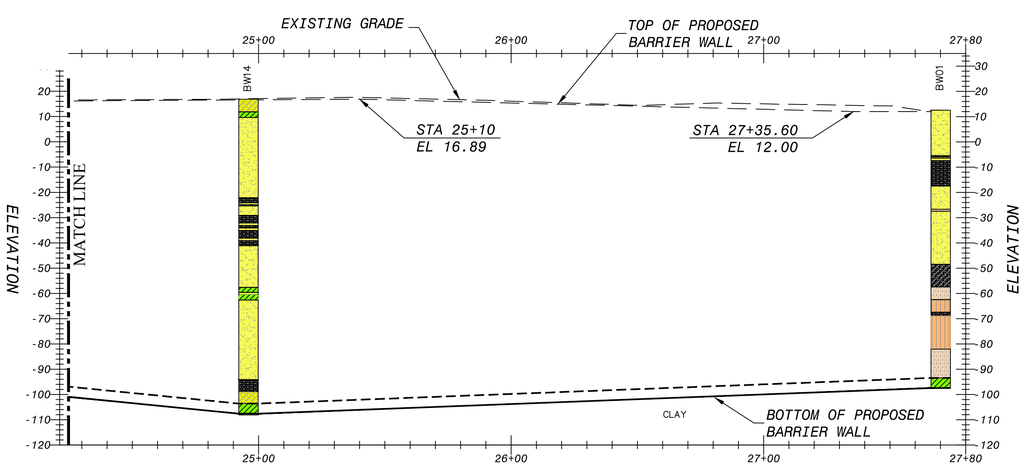
Revision:

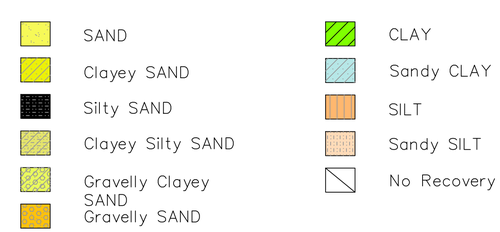
100% SUBMITTAL
AUGUST 26, 2019

guq96278
R:\49089 - ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_C-504.dwg 8/22/2019 8:34:05 PM









NOTES:

1. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Symbol	Description	Date	Appr.

Designed by:
Drawn by:
Submitted by: T. MOYER
Approved by:
Date: AUGUST 26, 2019
Checked by: M. CLAXTON
File name:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH
Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

BARRIER WALL PROFILE

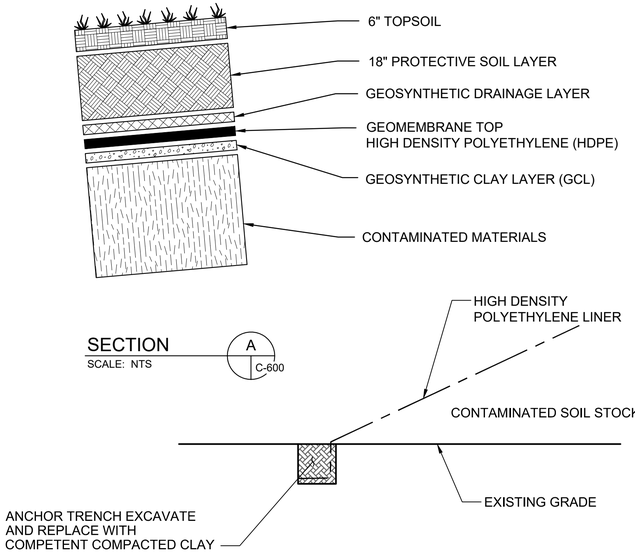
Sheet Number: C-510

Revision:

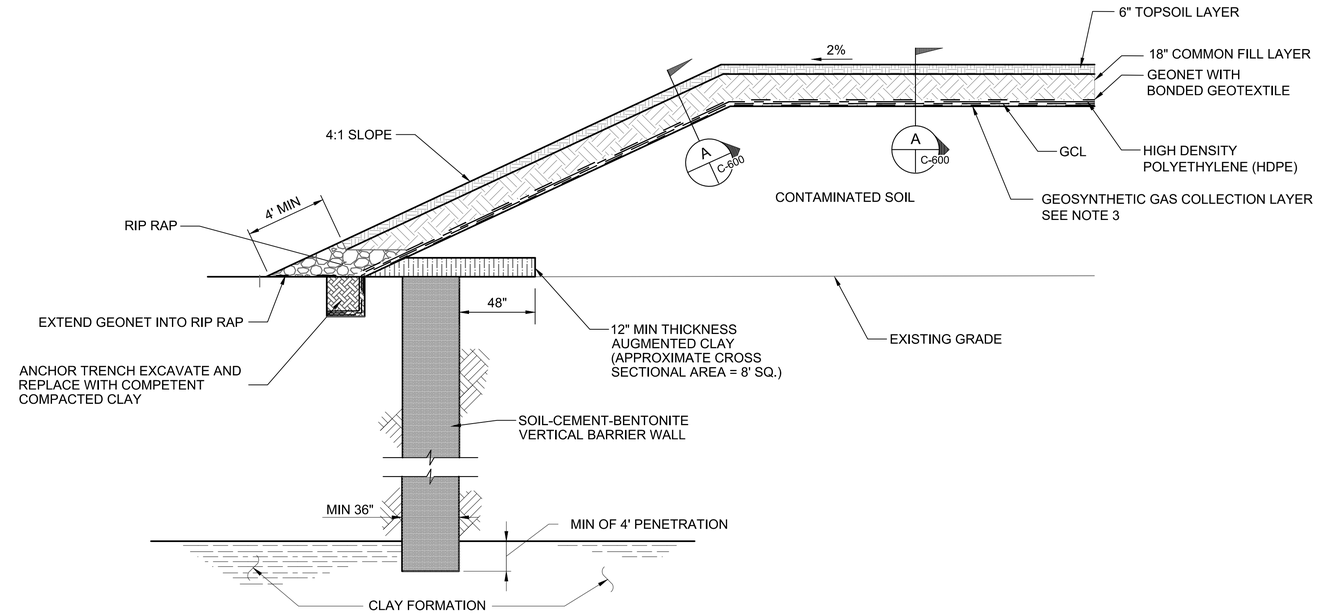
100% SUBMITTAL

AUGUST 26, 2019

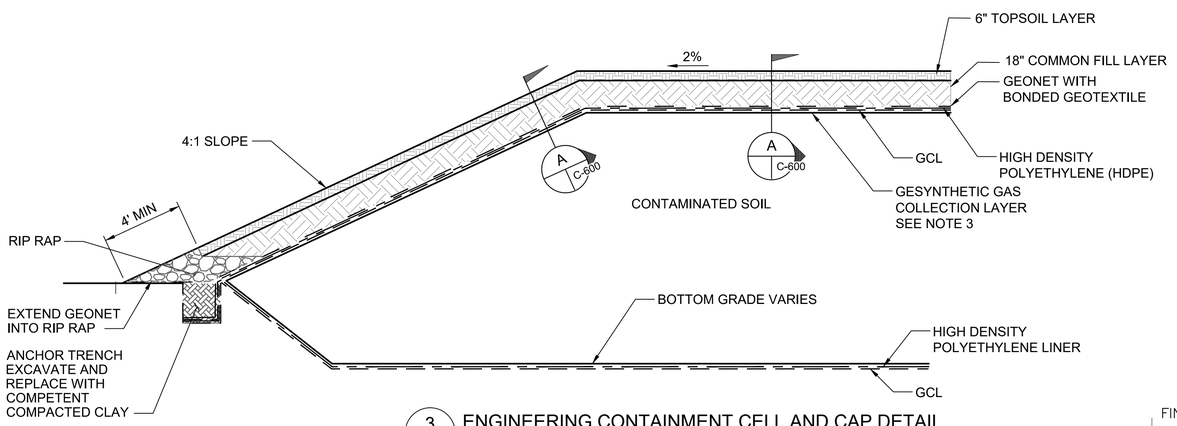
gug96278
R:\49089 - ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_C-510.dwg 8/22/2019 8:16:58 PM



1 C-600 TEMPORARY CONTAMINATED SOIL STOCKPILE LINER DETAIL
SCALE: NTS



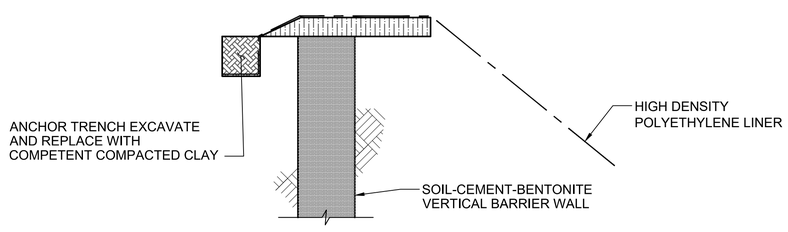
2 C-600 BARRIER WALL AND CAP DETAIL
SCALE: NTS



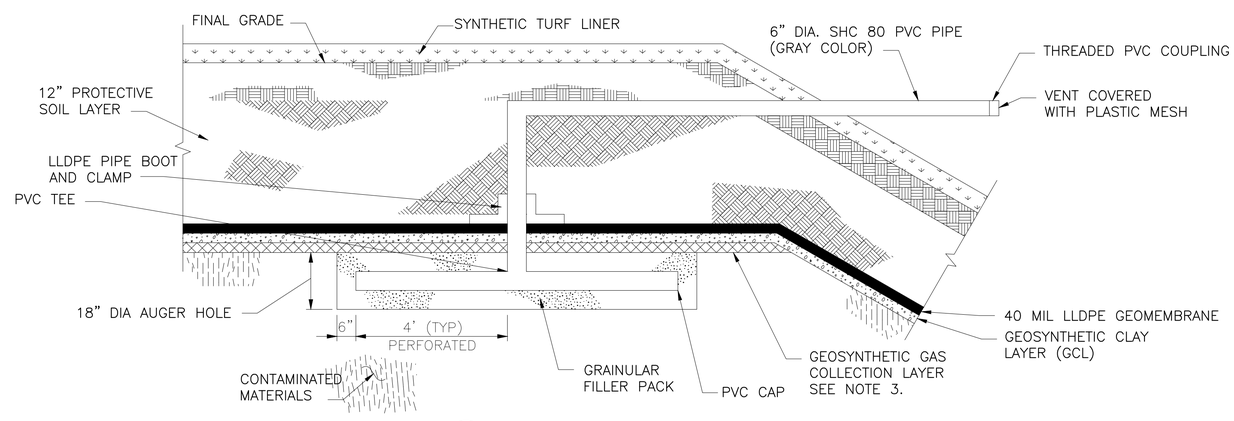
3 C-600 ENGINEERING CONTAINMENT CELL AND CAP DETAIL
SCALE: NTS

NOTES:

1. SEE SHEETG-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEETG-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.
3. SPACE MINIMUM 14' WIDE GEOCOMPOSITE DRAINAGE NET PANELS WITH DOUBLE SIDE GEOTEXTILES 150' CENTER TO CENTER.



4 C-600 ENGINEERING CONTAINMENT CELL AND BARRIER WALL INTERSECTION DETAIL
SCALE: NTS



5 C-600 TYPICAL PASSIVE GAS VENT DETAIL
SCALE: NTS

100% SUBMITTAL

AUGUST 26, 2019

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Symbol	Description	Date	Appr.

Designed by:
Drawn by:
Submitted by: T. MOYER
Approved by:
Date: AUGUST 26, 2019
Checked by: M. CLAXTON
File name:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH
Building a world of difference.

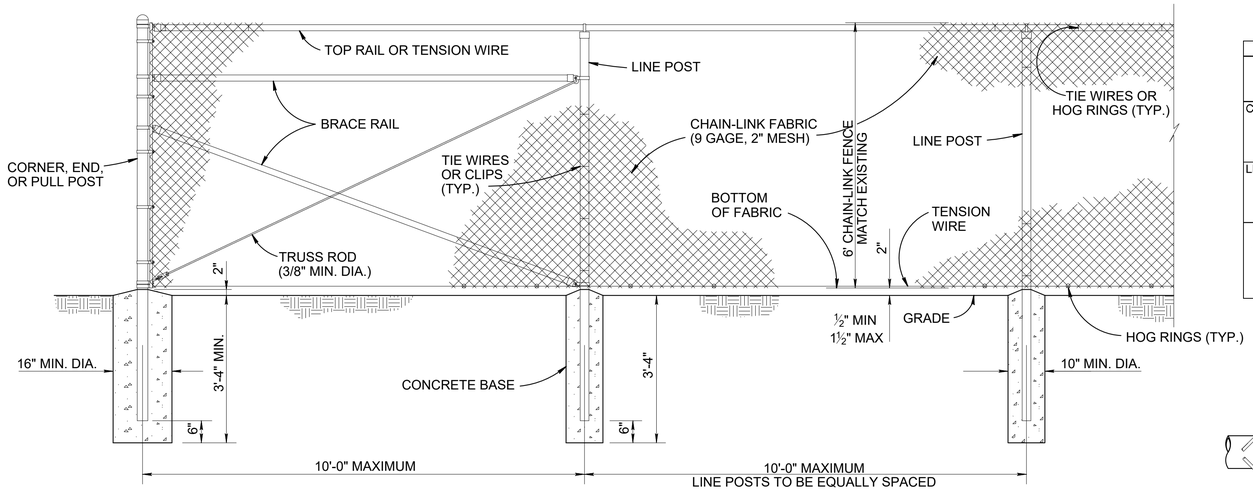
AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

GENERAL SITE DETAILS
SHEET 1

Sheet Number: C-600

Revision:

gug98278
R:\49089 - ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_C-600.dwg 8/22/2019 11:23:31 AM

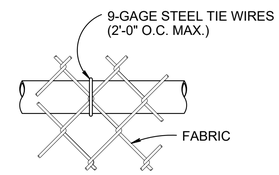


CHAIN-LINK FENCE DETAIL
NO SCALE

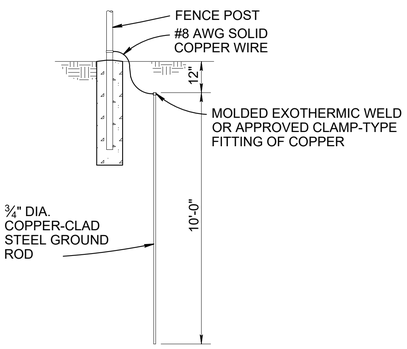
STEEL POST SCHEDULE			
USE AND SECTION	MINIMUM OUTSIDE DIMENSIONS (NOMINAL)		
	FABRIC WIDTH 72" OR LESS	FABRIC WIDTH 84" TO 96"	FABRIC WIDTH 108" AND OVER
CORNER, END & PULL POSTS TUBULAR - ROUND	2.375" O.D.	2.875" O.D.	4.00" O.D.
LINE POSTS TUBULAR - ROUND	1.90" O.D.	2.375" O.D.	2.875" O.D.
TOP, BOTTOM & BRACE RAILS TUBULAR - ROUND	1.66" O.D.		

NOTES:

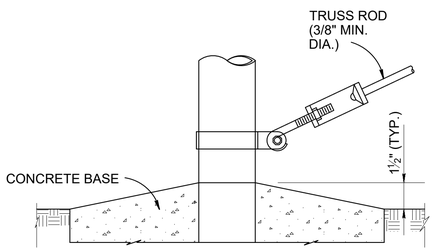
1. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEET G-005 FOR GENERAL CIVIL NOTES AND ABBREVIATIONS.
3. DETAILS SHOWN ARE TO CLARIFY REQUIREMENTS AND ARE NOT INTENDED TO LIMIT OTHER TYPES OF FENCE SECTIONS AND METHODS OF INSTALLATION THAT COMPLY WITH THE SPECIFICATIONS.
4. WIRE TIES, RAILS, POSTS, AND BRACES SHALL BE CONSTRUCTED ON THE SECURE SIDE OF THE FENCE ALIGNMENT. CHAIN-LINK FABRIC SHALL BE PLACED ON THE SIDE OPPOSITE THE SECURED AREA.



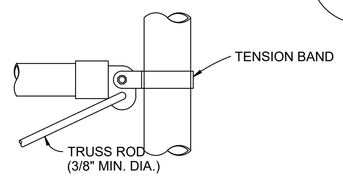
TOP OR BRACE RAIL ATTACHMENT
NO SCALE



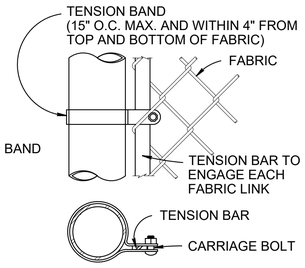
GROUNDING DETAIL
NO SCALE



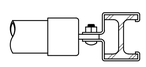
TRUSS ROD AND BAND



ROUND POST

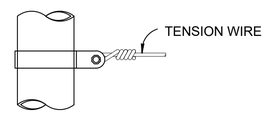


END OR GATE POST DETAIL



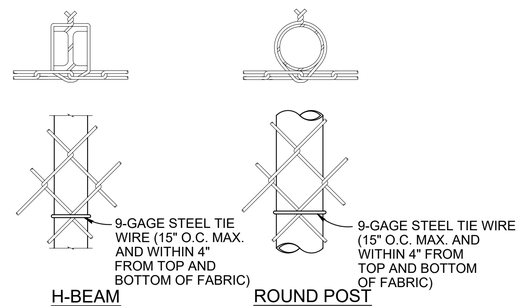
H-BEAM

BRACE RAIL CLAMP DETAILS



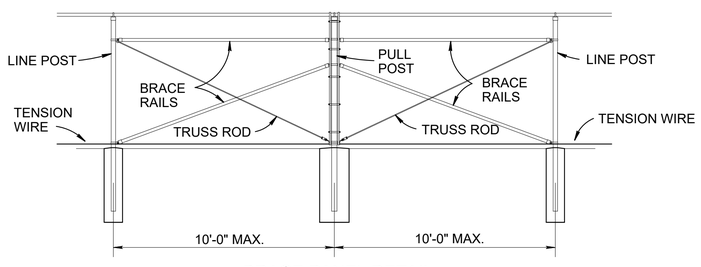
TENSION BAND DETAIL

FASTENING DETAILS
NO SCALE



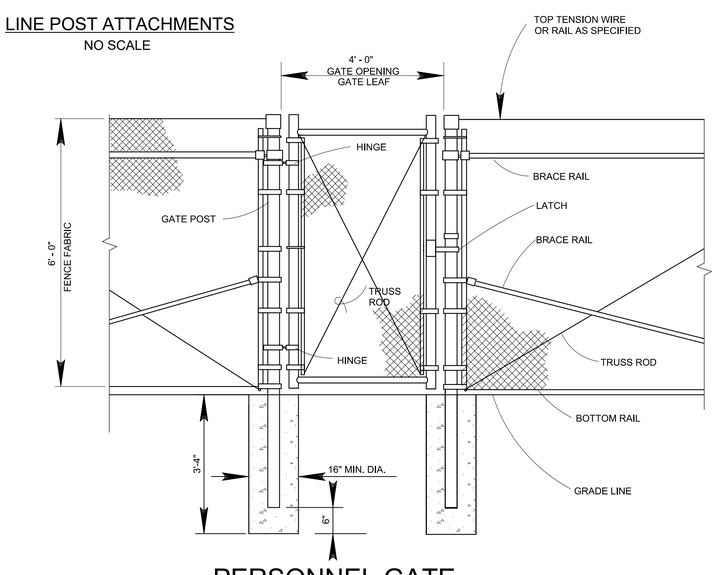
H-BEAM ROUND POST

LINE POST ATTACHMENTS
NO SCALE



BRACE PANEL DETAIL
NO SCALE

NOTE:
PROVIDE BRACE PANEL WHENEVER STRAIGHT RUNS EXCEED 500 FEET.



PERSONNEL GATE
SCALE: NTS

100% SUBMITTAL
AUGUST 26, 2019

Symbol	Description	Date	Appr.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Designed by:
Drawn by:
Submitted by: T. MOYER
Approved by:
Date: AUGUST 26, 2019
Checked by: M. CLAXTON
File name:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH
Building a world of difference.

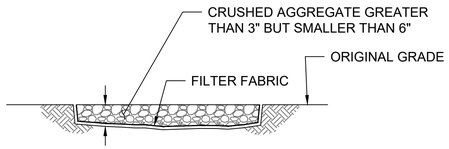
AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

GENERAL SITE DETAILS
SHEET 2

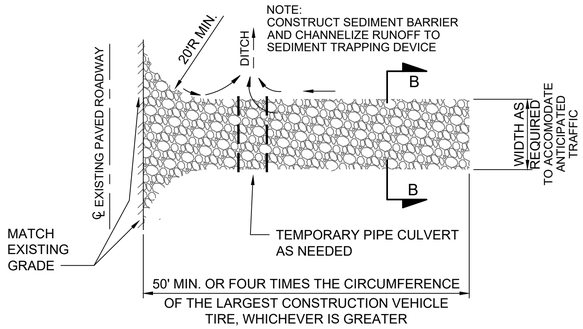
Sheet Number:
C-601

Revision:

gwg96278
R:\49089 – ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_C-601.dwg 8/21/2019 10:07:12 PM



SECTION B-B



1 C-640 DETAIL: STABILIZED CONSTRUCTION ENTRANCE

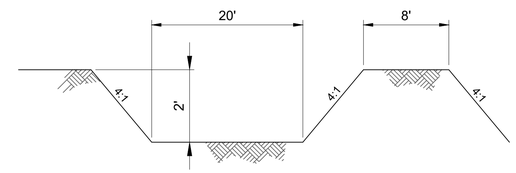
SCALE: NTS

ENTRANCE NOTES

1. WIDTH: NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.
2. WASHING: WHEN NECESSARY. WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED TRAP OR SEDIMENT BASIN. ALL SEDIMENTS SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH, OR WATER COURSE USING APPROVED METHODS.
3. MAINTENANCE: THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH SHALL PREVENT TRACING OR FLOWING OF SEDIMENT ONTO ROADWAYS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED WASHED OR TRACKED ONTO ROADWAY SHALL BE REMOVED IMMEDIATELY.
4. DRAINAGE: ENTRANCE SHALL BE PROPERLY GRADED OR A DRAINAGE SWALE SHALL BE INCORPORATED TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.

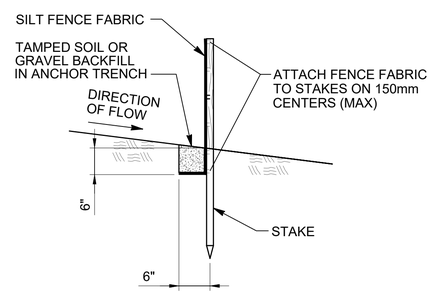
NOTES:

1. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.



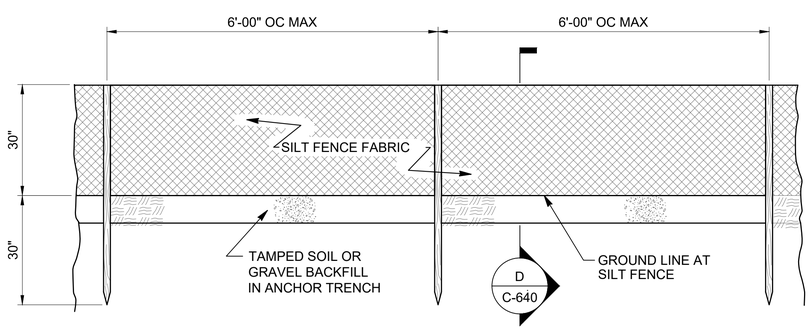
2 C-640 TYPICAL VEGETATED SWALE AND BERM DETAIL

SCALE: NTS



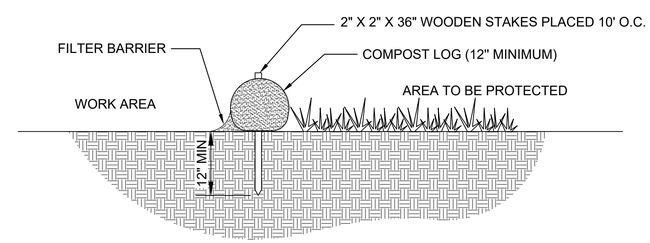
D C-640 SECTION

SCALE: NTS



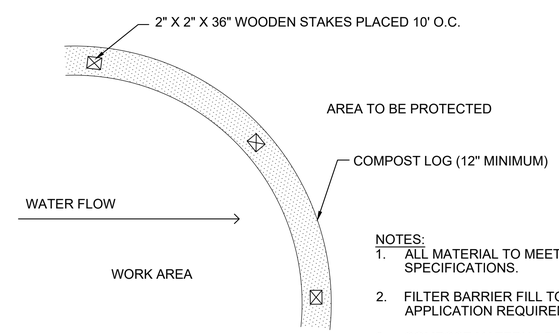
3 C-640 TYPICAL SILT FENCE DETAIL

SCALE: NTS



SECTION

NTS



PLAN

NTS

NOTES:

1. ALL MATERIAL TO MEET MANUFACTURER'S SPECIFICATIONS.
2. FILTER BARRIER FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER. IT CAN BE SPREAD AS A FORM OF STABILIZATION PRIOR TO SEEDING.

4 C-640 DETAIL: COMPOST LOG

SCALE: AS SHOWN
FILTREXX SOXX OR APPROVED EQUIVALENT

100% SUBMITTAL

AUGUST 26, 2019

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Symbol	Description	Date	Appr.

Designed by:
Drawn by:
Submitted by: T. MOYER
Approved by:
Date: AUGUST 26, 2019
Checked by: M. CLAXTON
File name:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

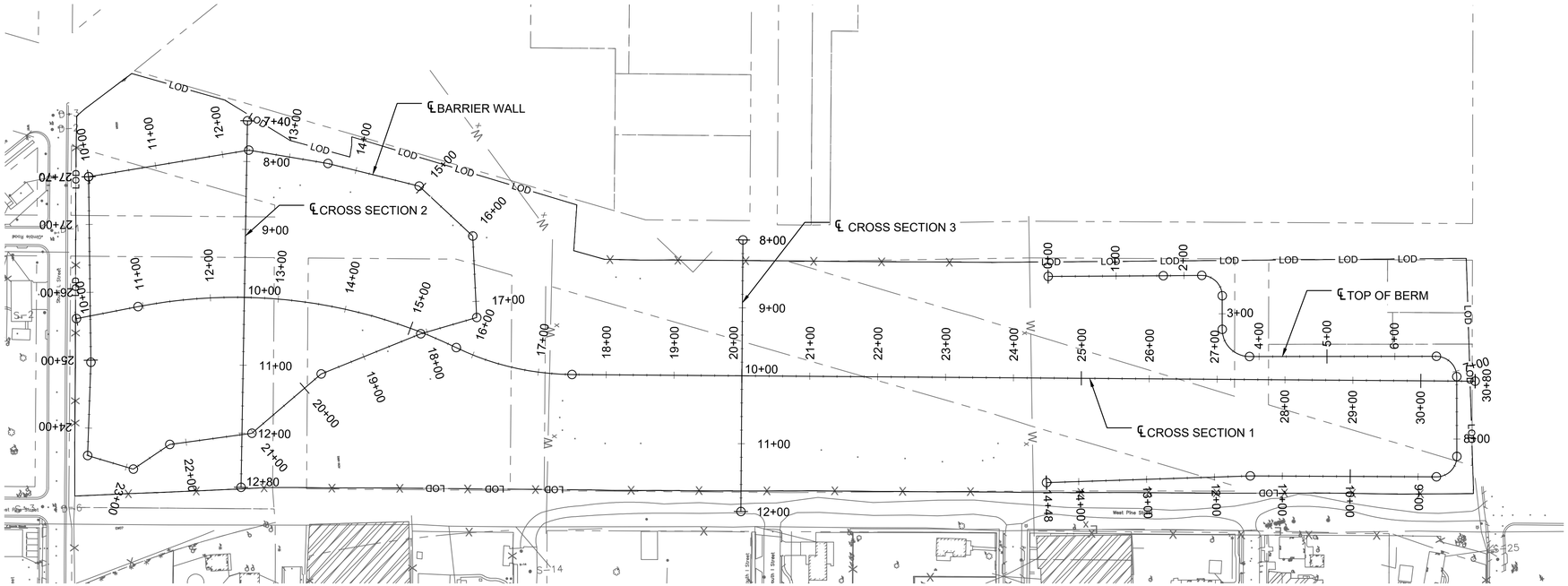
BLACK & VEATCH Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION
EROSION AND
SEDIMENT CONTROL DETAILS

Sheet Number: C-640

Revision:

guy98278
R:\49089 – ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_C-640.dwg 8/22/2019 8:33:11 PM



NOTES:

1. SEE SHEET G-002 FOR DRAWING INDEX AND LEGEND.
2. SEE SHEET C-001 FOR SITE LAYOUT KEY PLAN.
3. SEE SHEET G-005 FOR CIVIL ABBREVIATIONS AND GENERAL NOTES.

BARRIER WALL

POINT TYPE	STATION	NORTHING	EASTING
POB	10+00.00	521339.6029	1105219.8407
PI	12+39.09	521362.2962	1105457.8556
PI	13+57.48	521334.4329	1105572.9107
PI	14+95.79	521291.8029	1105704.4907
PI	16+03.76	521212.9829	1105778.2807
PI	17+23.90	521092.872	1105775.6266
PI	18+09.81	521074.7229	1105691.6507
PI	19+67.97	521025.9229	1105541.2107
PI	21+02.17	520945.9229	1105433.4607
PI	22+24.28	520937.9729	1105311.6107
PI	22+89.15	520905.3729	1105255.5307
PI	23+59.39	520930.0229	1105189.7607
PI	24+96.92	521066.8129	1105204.0807
POE	27+70.17	521339.6029	1105219.8407

CROSS SECTION 2

POINT TYPE	STATION	NORTHING	EASTING
POB	7+40.00	521405.4738	1105459.0313
POE	12+80.00	520867.5329	1105411.9192

CROSS SECTION 3

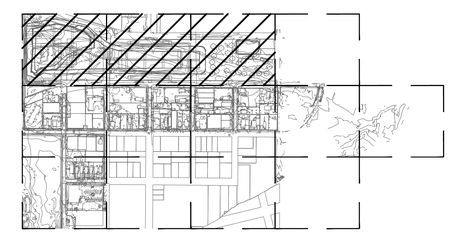
POINT TYPE	STATION	NORTHING	EASTING
POB	8+00.00	521179.4960	1106174.8053
POE	12+00.00	520780.6896	1106143.9269

TOP OF BERM

POINT TYPE	STATION	NORTHING	EASTING	RADIUS	LENGTH	DELTA	ROTATION DIRECTION
POB	0+00.00	521094.5548	1106619.5754				
PI	1+69.56	521083.8100	1106788.7910				
PC	2+26.20	521080.2202	1106845.3252				
PI	2+56.36	521078.3090	1106875.4240	30'	47.28'	90.3039	RT
PT	2+73.49	521048.2207	1106873.3533				
PC	3+22.96	520998.8605	1106869.9561				
PI	3+62.95	520958.9662	1106867.2103	40'	62.82'	89.9839	LT
PT	3+85.78	520956.2092	1106907.1039				
PC	6+61.16	520937.2240	1107181.8226				
PI	6+91.15	520935.1562	1107211.7434	30'	47.12'	89.985	RT
PT	7+08.27	520905.2349	1107209.6835				
PC	8+25.75	520788.0369	1107201.6150				
PI	8+55.94	520757.9187	1107199.5415	30'	47.31'	90.3608	RT
PT	8+73.06	520760.1818	1107169.4369				
PI	11+47.25	520780.7357	1106896.0227				
POE	14+47.55	520791.7574	1106595.9264				

CROSS SECTION 1

POINT TYPE	STATION	NORTHING	EASTING	RADIUS	LENGTH	DELTA	ROTATION DIRECTION
POB	10+00.00	521132.3632	1105187.3577				
PC	10+92.40	521143.6794	1105279.0630				
PI	13+41.44	521174.179	1105526.2299	750'	480.90'	36.7381	RT
PRC	15+73.30	521050.7761	1105742.5478				
PI	16+62.99	521006.3339	1105820.4522	400'	176.46'	25.2761	LT
PT	17+49.76	520999.4102	1105909.8740				
POE	30+80.00	520896.7213	1107236.1433				



KEY MAP

N

SCALE: 1" = 100'

100% SUBMITTAL

AUGUST 26, 2019

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Symbol	Description	Date	Appr

Designed by:
Drawn by:
Submitted by: T. MOYER
Approved by:
Date: AUGUST 26, 2019
Checked by: M. CLAXTON
File name:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BLACK & VEATCH Building a world of difference.

AMERICAN CREOSOTE WORKS SUPERFUND SITE
FINAL (100%) REMEDIAL DESIGN PART 1
BARRIER WALL AND EXCAVATION

HORIZONTAL ALIGNMENT DATA

Sheet Number: C-700

Revision:

guy96278
R:\49089 – ACW Pensacola RD\0131 Pre-final and Final Design\01 Barrier Wall\03 Drawings\ACW_C-700.dwg 8/23/2019 11:19:17 AM