

**FOURTH FIVE-YEAR REVIEW REPORT FOR
PETRO-PROCESSORS OF LOUISIANA, INC. (PPI) SUPERFUND SITE
EAST BATON ROUGE COUNTY, LOUISIANA**



May 2021



During Remediation



After Remediation

Prepared by

**U.S. Environmental Protection Agency
Region 6
Dallas, Texas**

**FOURTH FIVE-YEAR REVIEW REPORT
PETRO-PROCESSORS OF LOUISIANA, INC. (PPI) SUPERFUND SITE
EPA ID#: LAD057482713
LDEQ AI#: 2469 & 83225
EAST BATON ROUGE COUNTY, LA**

This memorandum documents the U.S. Environmental Protection Agency's performance, determinations and approval of the Petro-Processors of Louisiana, Inc. Superfund site (Site) Fourth five-year review under Section 121(c) of the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S. Code §9621(c), as provided in the attached Fourth Five-Year review Report.

Summary of the Fourth Five-Year Review Report

This Five-Year review Report summarizes the current status of the remedy at the Petro-Processors of Louisiana, Inc. Superfund site. From late 1961 to 1978, property owners operated two petrochemical waste disposal facilities, referred to as the Brooklawn operable unit (OU) and the Scenic OU. Site disposal practices resulted in the contamination of sediment, surface water, soil, groundwater and air with waste oils and organic contaminants. After a series of legal actions by the U.S. Justice Department and the State of Louisiana against the potentially responsible parties (PRPs), a federal judge approved a Consent Decree in February 1984 requiring that the PRPs clean up the Site. The cleanup activities initially implemented at both OUs included excavation, solidification and landfilling of all visible waste and recovery of deeper waste and treatment by incineration. Incineration ceased when unacceptable levels were detected in air at the fence line. Additional remedy components were selected in revisions to the Consent Decree. In 2001 additional remedy components for the Brooklawn OU included hydraulic containment and recovery of contaminated groundwater, treatment of recovered contaminated groundwater and oils, protective fill and biota monitoring in the middle channel of the Bayou Baton Rouge (BBR) distributaries and monitored natural attenuation (MNA) of contaminated groundwater. In 2003, additional remedy components were selected for the Scenic OU that include source control in the disposal area using substrate injections to enhance contaminant attenuation, natural recovery of BBR sediment and MNA of contaminated groundwater. In 2011, enhanced contaminant attenuation was expanded for the Scenic OU in the distal treatment zone (DTZ).

Long-term monitoring of the Brooklawn OU shows that capped areas are in good condition and MNA continues to show that contaminants of concern (COCs) remain below detection in groundwater prior to discharging to the Mississippi River. Long-term monitoring of the Scenic OU shows that BBR sediments achieved natural recovery in 2008 and that capped areas are in good condition. Enhanced attenuation continues to reduce groundwater contamination in the source area; however, substrate injections are ongoing to address groundwater contamination downgradient of the source area. The PRPs own most of the Site property and control restricted Site access and groundwater use; however, the Scenic OU groundwater plume is located under two structures (one recently built) on a Site parcel not owned by the PRPs and not covered by institutional controls. The potential for vapor intrusion exposure at these structures, which are located on a Louisiana State Police (LSP) training center, is unknown.

Environmental Indicators

Human Exposure Status: While human exposures at this Site with respect to the groundwater exposure pathway have been under control since the last five-year review, EPA is reviewing this environmental indicator and working to determine whether, under current conditions, there are any actual human exposures to contaminants at the Site through the potential indoor air vapor intrusion pathway for residential land use. At this time, there are no data on residential indoor air quality or sub-slab soil gas to determine human exposure control status. EPA and Louisiana Department of Environmental Quality (LDEQ) will work with the potentially responsible parties to develop a workplan to perform sampling at the LSP training facility and an occupied building in the vicinity to determine if the indoor air vapor intrusion pathway is complete.

Contaminated Groundwater Status: Groundwater migration under control

Sitewide Ready for Reuse: The Site has not achieved Sitewide Ready for Anticipated Use status.

Actions Needed

The following actions must be taken for the remedy to be protective: complete an evaluation by performing sampling to assess the potential indoor air vapor intrusion pathway for residential land use at the LSP training facility and an occupied building in the vicinity; continue implementation of the near-source and distal end enhanced attenuation actions; conduct sampling at a public water supply well located near the edge of the groundwater contamination plume northern boundary; and investigate the feasibility to implement additional institutional controls to address land use, groundwater use and possible vapor intrusion exposures.

Determination

I have determined that a protectiveness determination of the selected remedy for the Petro-Processors of Louisiana, Inc. Superfund site cannot be made at this time until further information is obtained. This Five-Year review Report specifies the actions that need to be taken to obtain the information required to complete the protectiveness determination and for the remedy to be protective in the long-term. It is expected that these actions to obtain information will take approximately 24 – 28 months, at which time a protectiveness determination will be made.

Wren Stenger
Director
Superfund and Emergency Management Division
U.S. Environmental Protection Agency, Region 6

Date

CONCURRENCES

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EPA ID#: LAD057482713
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EAST BATON ROUGE COUNTY, LOUISIANA

NICHOLE FOSTER

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Date: 2021.04.21 15:27:59 -05'00'

Nichole M. Foster, P.E.
Remedial Project Manager

Date

BLAKE ATKINS

Digitally signed by BLAKE ATKINS
DN: c=US, o=U.S. Government, ou=Environmental Protection
Agency, cn=BLAKE ATKINS,
0.9.2342.19200300.100.1.1=68001003652741
Date: 2021.04.23 13:41:07 -05'00'

Blake L. Atkins
Chief, Louisiana, New Mexico and Oklahoma Section

Date

JOHN MEYER

Digitally signed by JOHN MEYER
DN: c=US, o=U.S. Government, ou=Environmental Protection
Agency, cn=JOHN MEYER,
0.9.2342.19200300.100.1.1=68001003655626
Date: 2021.04.23 14:56:16 -05'00'

John C. Meyer
Chief, Superfund Remedial Branch

Date

**LEONARD
SCHILLING**

Digitally signed by LEONARD SCHILLING
DN: c=US, o=U.S. Government,
ou=Environmental Protection Agency,
cn=LEONARD SCHILLING,
0.9.2342.19200300.100.1.1=68001003655677
Date: 2021.05.14 16:35:28 -05'00'

Leonard E. Schilling Jr.
Attorney, Office of Regional Counsel

Date

I-JUNG CHIANG

Digitally signed by I-JUNG CHIANG
DN: c=US, o=U.S. Government, ou=Environmental Protection Agency, cn=I-JUNG
CHIANG, 0.9.2342.19200300.100.1.1=68001003655489
Date: 2021.05.21 14:40:08 -05'00'

I-Jung Chiang
Chief, Superfund Branch, Office of Regional Counsel

Date

ISSUES/RECOMMENDATIONS
FOURTH FIVE-YEAR REVIEW REPORT
PETRO-PROCESSORS OF LOUISIANA, INC. (PPI) SUPERFUND SITE
EPA ID#: LAD057482713
EAST BATON ROUGE COUNTY, LOUISIANA

OU(s): OU2 - Scenic	Issue Category: Institutional Controls			
	Issue: The 1984 Consent Decree requires notification if properties will be sold, but it does not explicitly restrict groundwater and land use. In addition, groundwater contamination is located under two structures (one recently built) on Site property in the vicinity of Well-SBP-089 that is currently not covered by existing institutional controls.			
	Recommendation: Investigate the feasibility to implement additional institutional controls to address land use, groundwater use and possible vapor intrusion exposures.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party/Support Agency	Milestone Date
No	Yes	PRP	EPA/State	3/18/2023

OU(s): OU2 Scenic	Issue Category: Monitoring			
	Issue: The Louisiana Department of Natural Resources' registered well database shows a public water supply well owned by East Baton Rouge Parish was drilled in 2012 and located within 1,500 feet of the groundwater contamination plume northern boundary. There is no monitoring data at this well to determine whether the well meets potable water standards. There is no COC sample data at this site to determine if the groundwater contamination plume extends to this public water supply well.			
	Recommendation: The East Baton Rouge Parish well location and its current use should be verified. In addition, monitoring for contaminants of concern is recommended at this well due to its proximity to the groundwater contamination plume and due to its public water supply use status.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party/Support Agency	Milestone Date
No	Yes	PRP	EPA/State	3/18/2022

OU(s): OU2 - Scenic	Issue Category: Changed Site Conditions			
	Issue: A screening-level vapor intrusion risk evaluation of groundwater contamination in the vicinity of Well-SBP-089 results in a cancer risk above 1×10^{-4} and noncancer hazard above 1 under commercial and residential land use assumptions.			
	Recommendation: Evaluate the vapor intrusion pathway using multiple lines of evidence to determine if any mitigation or remedial measures are warranted. In the meanwhile, continue implementation of the near-source and distal end enhanced attenuation actions, which includes the vicinity of SBP-089.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party/Support Agency	Milestone Date
Yes	Yes	PRP	EPA/State	9/18/2023

OTHER FINDINGS

In addition, the following are recommendations that have been identified during the FYR that may improve public outreach efforts, but do not affect current and/or future protectiveness:

- Increase the frequency of public updates and dissemination of information with the Louisiana Department of Natural Resources and the Louisiana Department of Health concerning the extent and location of the Petro-Processors Superfund site groundwater contamination plume and the concentrations of contaminants.
- Accurately visualize the size of the contaminant plumes in maps by drawing the plumes to each respective maximum contaminant level (MCL). Currently, the iso-concentration maps showing COC plumes in the Long-Term Monitoring Plan (LTMP) reports for both OUs do not draw the plumes to the MCL. Thus, it obscures the actual size of the contaminant plumes.

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LIST OF ABBREVIATIONS AND ACRONYMS

ARAR	Applicable or Relevant and Appropriate Requirement
BBR	Bayou Baton Rouge
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
cis-DCE	cis-1,2-Dichloroethylene
COC	Contaminant of Concern
DCA	1,2-Dichloroethane
DNAPL	Dense Non-Aqueous Phase Liquid
DTZ	Distal Treatment Zone
DWT	Deep Water Table
EA	Enhanced Attenuation
EPA	United States Environmental Protection Agency
FYR	Five-Year Review
HCB	Hexachlorobenzene
HCBD	Hexachlorobutadiene
HQ	Hazard Quotient
IC	Institutional Control
LDEQ	Louisiana Department of Environmental Quality
LDNR	Louisiana Department of Natural Resources
LPDES	Louisiana Pollutant Discharge Elimination System
LSP	Louisiana State Police
LTMP	Long-Term Monitoring Plan
MCL	Maximum Contaminant Level
µg/L	Micrograms per Liter
MNA	Monitored Natural Attenuation
MSL	Mean Sea Level
NCP	National Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
OU	Operable Unit
PCE	Tetrachloroethene
POC	Point of Compliance
PPI	Petro-Processors of Louisiana, Inc.
PRP	Potentially Responsible Party
RAO	Remedial Action Objective
RI/FS	Remedial Investigation/Feasibility Study
RPA	Remedial Planning Activity
RPM	Remedial Project Manager
RSL	Regional Screening Level
STZ	Source Treatment Zone
SWT	Shallow Water Table
TCA	1,1,2-Trichloroethane
TCE	Trichloroethylene
TeCA	1,1,2,2-Tetrachloroethane
trans-DCE	trans-1,2-Dichloroethylene
USACE	U.S. Army Corps of Engineers
UU/UE	Unlimited Use/Unrestricted Exposure
VOC	Volatile Organic Compound

I. INTRODUCTION

The purpose of a five-year review (FYR) is to evaluate the implementation and performance of a remedy to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings and conclusions of reviews are documented in FYR reports such as this one. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The U.S. Environmental Protection Agency (EPA) is preparing this FYR pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, 42 U.S.C. §9621, consistent with the National Contingency Plan (NCP), 40 Code of Federal Regulations (CFR) Section 300.430(f)(4)(ii), and considering EPA policy.

This is the fourth FYR for the Petro-Processors of Louisiana, Inc. Superfund site (the Site). The triggering action for this policy review is the completion date of the previous FYR.¹ The FYR has been prepared because hazardous substances, pollutants or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure (UU/UE).

The Site consists of two operable units (OUs), both of which are addressed in this FYR Report. OU1 includes the Brooklawn Area and the Bayou Baton Rouge (BBR) Area and is also referred to as the Brooklawn OU. The Brooklawn OU addresses remedies for waste and contaminated soil, sediment and groundwater. OU2 addresses remedies for waste, contaminated soil, sediment and groundwater in the Scenic Area, and is also referred to as the Scenic OU.

EPA remedial project manager (RPM) Nancy Hanna led the FYR, while the assigned EPA RPM Nichole Foster was assigned to other duties outside of the Remedial Section. Ms. Foster was assigned the Site after the retirement of EPA remedial project manager Mr. Bart Canellas. Mr. Canellas started the FYR process before retiring in late December 2020. Participants in the FYR included Louisiana Department of Environmental Quality (LDEQ) project manager Keith Horn and Johnny Zimmerman-Ward and Claire Marcussen from EPA FYR contractor Skeo. The potentially responsible party representatives (PRPs) were notified of the initiation of the FYR. The review began on 5/14/2020. Appendix A provides a list of the documents used to prepare this FYR Report. Appendix B provides a brief site chronology.

Site Background

The 97-acre Site is located in Scotlandville, in unincorporated East Baton Rouge Parish, in a rural area about 6 miles north of Baton Rouge, Louisiana. Land use in the vicinity of the Site consists of largely undeveloped areas in the bottomlands, near the Mississippi River, with some industrial development in the upland areas and along U.S. Highway 61. An industrial district of Baton Rouge is located southeast of the Site, in and around Scotlandville. From 1961 to 1978, Petro-Processors of Louisiana, Inc. operated two petrochemical waste disposal facilities, about 1.5 miles apart. The 80-acre Brooklawn OU includes a portion of BBR and is located off Brooklawn Drive. The 17-acre Scenic OU is located off U.S. Highway 61 (Scenic Highway) and also includes a portion of BBR. Groundwater contamination is located under two structures (one recently built)² on part of the Site property used by the Louisiana State Police (LSP) for training (Figure 1). During facility operations, PRPs disposed of petrochemical wastes in a borrow pit at the Scenic OU that was later used for construction of the overpass at the intersection of U.S Highway 61 and State Highway 964. In the Brooklawn OU, PRPs disposed of petrochemical wastes in two lagoons along the BBR floodplain and in pits in the northern portion of the OU. Site disposal practices resulted in the contamination of sediment, surface water, soil, groundwater and air with organic contaminants.

¹ The Site is being addressed under a pre-Superfund Amendments and Reauthorization Act remedial action that will leave contaminants on site above levels that allow for unlimited use and unrestricted exposure.

² The building was constructed in April 2017.

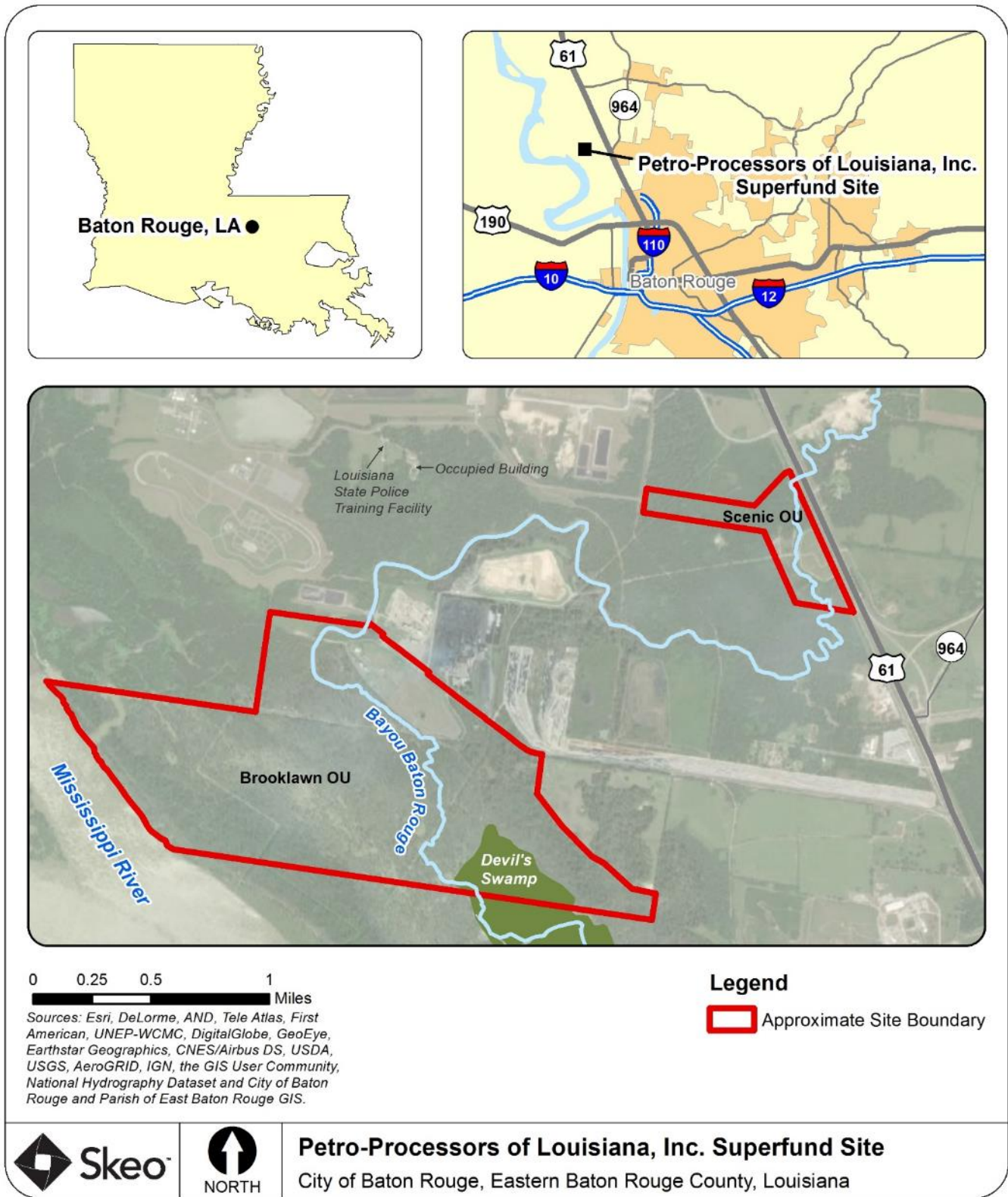
Both site areas are in the BBR floodplain. BBR originates in uplands about 6 miles north of the Scenic OU, crosses U.S. Highway 61 about a quarter-mile north of the Site, and flows southwest adjacent to the Site. The bayou turns near the confluence with Baker Canal, flows west for about 2 miles, and then turns south and enters the Mississippi River floodplain, adjacent to the Brooklawn OU.

The Brooklawn OU is also in the Mississippi River floodplain with wetlands located south of this area, also known as Devil’s Swamp. Groundwater underlying the northern portion of the Brooklawn OU (also referred to as the Bluff Area) generally occurs in the following zones: water table, the below 40 feet (-40) mean sea level (MSL) zone, the -60 MSL zone, the intermediate sand zone, and the 400-foot aquifer (Figure C-1). Groundwater underlying the Brooklawn floodplain area occurs within the alluvial deposits of the Mississippi River, including the shallow water table (SWT) and deep water table (DWT) and the semi-confined alluvial base (Figure C-2). In the Scenic OU, groundwater generally occurs in the following zones: the above 40 feet (+40) MSL zone and the +20 MSL channel deposits, the -40 MSL zone, the intermediate sand zone and the 400-foot aquifer (Figure C-3). The 400-foot aquifer is a major source for drinking water. Groundwater flow across the Site is toward the Mississippi River. Most residents in the area are connected to the Baton Rouge water supply system. The nearest private drinking water well is 3,000 feet upgradient of the Site.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: Petro-Processors of Louisiana, Inc.		
EPA ID: LAD057482713		
Region: 6	State: LA	City/County: Scotlandville/East Baton Rouge
SITE STATUS		
NPL Status: Final		
Multiple OUs? Yes	Has the Site achieved construction completion? Yes	
REVIEW STATUS		
Lead agency: EPA		
Authors name: Bart Canellas, Nancy Hanna, & Nichole Foster with additional support provided by Skeo		
Author affiliation: EPA Region 6		
Review period: 5/14/2020 – 3/1/2021		
Date of site inspection: 9/3/2020		
Type of review: Policy		
Review number: 4		
Triggering action date: 3/11/2016		
Due date (five years after triggering action date): 3/11/2021		

Figure 1: Site Vicinity Map



Disclaimer: This map and any boundary lines within the map are approximate and subject to change. The map is not a survey. The map is for informational purposes only regarding EPA's response actions at the Site.

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

The Consent Decree, signed in Federal Court on February 16, 1984, outlined various remedial activities. As stated in the Consent Decree, the primary goal of the PPI Site remediation project is “to protect public health and the environment from releases of hazardous wastes, solid wastes, hazardous substances and pollutants and contaminants from the Brooklawn and Scenic Highway sites, by the investigation, development, design and implementation of remedial and long-term monitoring programs.”

The Consent Decree included a Conceptual Closure Plan designed to guard against contamination of the regionally significant 400-foot aquifer. The Consent Decree outlined various activities for the Industry Defendants to investigate, develop, design, and implement remedial actions to effect closure of the PPI Site. The 1984 Consent Decree became the framework for subsequent Work Plans, that were developed specifically for the Brooklawn and Scenic OUs. Each approved document is incorporated by reference and has become part of the Consent Decree.

Through additional investigations conducted at the site, EPA determined that hazardous substances, including certain Contaminants of Concern (COC) were found in various site media as summarized in Table 1.

Table 1: Site-wide COCs, by Media

COC	Groundwater	Surface Water	Sediment	Surface Soil	Lagoons	Air
1,2-Dichloroethane (DCA)	X	X			X	
cis-1,2-Dichloroethylene (cis-DCE)	X	X			X	
trans-1,2-Dichloroethylene (trans-DCE)	X	X			X	
Hexachlorobenzene (HCB)			X	X	X	X
Hexachlorobutadiene (HCBd)			X	X	X	X
Tetrachloroethene (PCE)	X	X			X	
1,1,2,2-Tetrachloroethane (TeCA)	X	X			X	
1,1,2-Trichloroethane (TCA)	X	X			X	
Trichloroethylene (TCE)	X	X			X	
Vinyl Chloride	X	X			X	
<i>Notes:</i> X = site COC Blank = not considered a COC in this environmental medium. <i>Source:</i> Preliminary Close-Out Report. Petro-Processors of Louisiana, Inc. July 2003.						

The PPI site posed potential threats to human health and the environment through dermal contact with or ingestion of contaminated surface soil, groundwater, surface water and lagoon waste, and from inhalation of air and airborne particulate matter. The Site also posed potential human health threats from ingestion of contaminated crawfish. In addition, EPA’s ecological risk assessment concluded that the Site poses threats to ecological receptors (primarily crawfish) inhabiting contaminated surface water and sediment.

Additional exposure pathways were identified in 2001 and required further remedial action for the Site. These exposure pathways were: (1) surface materials in BBR sediments contaminated with hexachlorobenzene (HCB) and hexachlorobutadiene (HCBd) immediately south of the Brooklawn OU; and (2) groundwater below the Brooklawn OU contaminated with 1,1,2,2-tetrachloroethane (TeCA), 1,1,2-trichloroethane (TCA), 1,2-dichloroethane (DCA), tetrachloroethylene (PCE), trichloroethylene (TCE), cis-1,2-dichloroethylene (cis-DCE), trans-DCE and vinyl chloride.

Response Actions

In July 1980, the United States Department of Justice filed suit against Petro-Processors of Louisiana, Inc. and several waste generators, also referred to collectively as PRPs, alleging they disposed of petrochemical wastes at the Site that reached local waterways, eventually finding their way to the Mississippi River, and posing a threat to an underground drinking water supply. In September 1983, EPA proposed the Site for listing on the Superfund program's National Priorities List (NPL). After a series of legal actions by the U.S. Justice Department and the State of Louisiana against the PRPs, a federal judge approved a Consent Decree in February 1984 requiring that the PRPs clean up the Site. The Consent Decree became the framework for subsequent work plans, remedial planning activity (RPA) reports, and remedial design and construction plans for both OUs. Each approved RPA document is incorporated by reference and becomes part of the Consent Decree. In September 1984, EPA finalized the Site's listing on the NPL.

The 1984 Consent Decree specified that the initial response action at both OUs would include the following remedy components:

- Design of a vault.
- Excavation, solidification and landfilling of all visible waste.
- Recovery of deeper waste and treatment by incineration.
- Air quality monitoring.

Following issuance of the Consent Decree, the PRPs created NPC Services to carry out the Consent Decree requirements to remediate the Site. In late 1987 NPC Services built the vault and conducted waste solidification activities at the Brooklawn OU and the Scenic OU. During this initial response action, air quality monitoring showed releases of volatile organic compounds (VOCs) above previously-agreed fence line concentrations. At that time, it was determined that closure could not proceed under the approved plan. Following supplemental investigations, the Federal Court approved a Supplemental Remedial Action Plan in 1989. It amended the 1984 remedy to include the following remedy components in addition to the incinerator remedy component selected in the 1984 Consent Decree:

- Hydraulic containment and recovery of groundwater and dense non-aqueous phase liquid (DNAPL) contamination.
- Treatment of contaminated groundwater.

Furthermore, a major component of the 1984 Consent Decree, was that it specified the use of EPA water quality criteria as trigger levels in groundwater, which, if exceeded, would trigger the need for additional remedial action. Therefore, the remedial actions at the Site were expanded or modified as site characterization progressed and new remedial technologies became available, as summarized below for the two OUs.

Status of Implementation

Brooklawn OU

In January 2003, PRPs completed all construction activities associated with the Brooklawn OU. A summary of the remedial action goal and the current status of the implemented remedy are provided in the following subsections.

Soil Remedy

The remedial goal identified for the soil exposure pathway at the Brooklawn OU is to provide a clean surface for stormwater drainage and discharge through a permitted Louisiana Pollutant Discharge Elimination System (LPDES) outfall (Permit No. LA0066214). In 1991, the PRPs drained the disposal pits and backfilled the area with two feet of clay protective cover and six inches of topsoil (seeded and mulched for erosion control). Additionally, a segment of BBR was diverted away from the Brooklawn disposal area to allow for natural

drainage to continue through uncontaminated areas. To control access, the Brooklawn area was fenced and security was provided. As of this FYR, the Brooklawn area remains fenced and with controlled security access.

Groundwater/DNAPL Remedy

The remedial objective identified for the groundwater exposure pathway at the Brooklawn OU is the prevention of unacceptable contamination reaching the downgradient Point of Exposure (POE), the Mississippi River. Historical remedial actions implemented by the PRPs for this OU goal included:

- 1994 – 1999: Design, construction, and operation of an extensive system of recovery wells and collection sumps in the Brooklawn OU disposal area to provide hydraulic containment of the contaminated groundwater. Additionally, the PRPs installed and operated a liquid treatment and disposal system to treat liquids produced from the recovery wells and collection sumps. This system included separation liquids from water, storage, air stripping contaminated groundwater, incineration of DNAPL, and water treatment facilities. Treated groundwater was further treated with activated carbon and discharged to the Mississippi River through an LPDES-permitted outfall. DNAPL was recovered for offsite disposal from the upper lagoon, followed by installation of a protective cover.
- 2000 – 2014: Operation of liquid treatment and disposal system previously in place was discontinued in September 2000 when declining DNAPL levels made onsite incineration impractical. Active recovery (source reduction) in July 2006 was terminated and the lower lagoon was filled and covered. Two monitoring wells were installed in 2002, and an additional five wells were installed in 2014 in the 400-foot aquifer downgradient of the contaminant plume to assist in measuring the performance of the MNA remedy.

As of this FYR, the PRPs continue to collect groundwater monitoring samples to determine COC concentrations along transects parallel with the dominant migration pathway. Sentry POC wells at the expected plume boundaries are monitored to assess the extent of plume migration. In addition, geochemical data are collected to verify that conditions favorable for natural attenuation continue to occur in the aquifer and hydraulic head data are collected to aid in interpreting chemical data. The Data Review section of this FYR Report discusses the results of the MNA remedy further.

Sediment Remedy

The remedial objective identified for the sediment exposure pathway is to eliminate contact with contaminated sediments and consumption of contaminated biota (e.g., crawfish). Historical remedial actions implemented by the PRPs for this OU goal included:

- 2003 – 2008: The PRPs designed and constructed the protective fill cover by placing about 3,000 linear feet of protective fill in the distributary channel. In addition, the PRPs conducted biomonitoring until 2008, when it was determined that the surface material exposure pathway was successfully interrupted by the Middle Channel fill construction.
- 2009 – current: The PRPs monitoring downgradient sentry POC wells to ensure source area contamination is not migrating to the Mississippi River.

The PRPs continue to conduct protective fill inspections annually for the prescribed 20-year period to ensure continued conformance with performance requirements. These inspections are expected to continue until at least calendar year 2023.

Scenic OU

Construction activities are ongoing at the Scenic OU. The groundwater remedy has been expanded to EA in groundwater. Summaries of the remedies implemented are provided below.

Soil Remedy

The remedial objective identified for the soil remedy at the Scenic OU is to provide a clean surface for stormwater drainage and discharge through a permitted LPDES outfall (Permit No. LA0066214). Historical remedial actions implemented by the PRPs for this OU goal included:

- 1991 - 2003: The PRPs filled and graded the Scenic OU disposal area with two feet of a clay protective cover and six inches of topsoil (seeded and mulched for erosion control). The PRPs also placed fill to reinforce the existing dikes at the closed waste pit. Two segments of BBR were diverted away from the waste pit as a part of the overall site development. The PRPs also constructed a fence around the OU and provided security.

As of this FYR, the Scenic area remains fenced and with controlled security access.

Groundwater/DNAPL Remedy

A stated goal for the distal treatment zone (DTZ) is to reduce COC concentrations (Table 1) to levels protective of human health and the environment without additional active downgradient treatment. MCLs have been used as the performance goals, as stated in the Long-Term Monitoring Plan (LTMP) reports, to meet the stated goal. In addition, the remedial objective identified for the groundwater exposure pathway at the Scenic OU is to provide a source control remedy to disrupt the continuing downgradient flow of contaminants that are presently supplying the plume west of the Scenic OU.

Historical remedial actions implemented by the PRPs for this OU goal included:

- 2000 – 2003: The PRPs constructed a DNAPL and contaminated groundwater recovery system. DNAPL and groundwater were pumped from recovery wells installed in the waste pit. Recovered liquids were pumped to a trailer-mounted tank kept in a covered, bermed area and then transported to the Brooklawn OU for treatment. Active recovery of DNAPL and contaminated groundwater (source reduction) was completed in August 2003.
- 2004 – 2010: The PRPs conducted additional characterization focused on the +20 MSL channel and discovered that higher concentrations of COCs had migrated further than previously known. The PRPs evaluated enhancements to the natural attenuation remedial action and proposed near-source EA treatment zones in the +20 MSL channel. EPA and LDEQ approved the EA treatment in 2010. In 2010, the PRPs completed the installation of injection wells and additional monitoring wells to augment the remedy at the +20 MSL channel in an attempt to cut off the downgradient plume from the source of additional contamination.
- 2011 – 2015: The PRPs completed multiple injections of molasses in the source areas and installed the DTZ on the LSP property.
- 2016 – 2019: The PRPs conducted supplemental groundwater and lithology investigations downgradient of the DTZ and discovered locations with contaminant concentrations above protective levels. The PRPs installed additional extraction wells and expanded the boundaries to include city/parish property for conducting supplemental interim remedial actions. The PRPs conducted groundwater extraction with activated carbon treatment of the downgradient plume.

As of this FYR, the PRPs continue to collect groundwater monitoring samples to determine COC concentrations along transects parallel with the dominant migration pathway between the STZ and DTZ to assess the extent of plume migration. The Data Review section of this FYR Report discusses the results of the EA remedy further.

Sediment Remedy

The remedial objective identified for the sediment exposure pathway is to reduce contaminants levels to levels protective of environmental receptors. Natural recovery was selected for remediation of BBR sediments south of the Scenic OU prior to convergence with Baker Canal. Sampling of sediments in BBR south of the Scenic OU was required to demonstrate if natural recovery was occurring. Historical activities implemented by the PRPs for this OU goal included:

- 2000 - 2009: The PRPs sampled sediments to demonstrate that the remedial action of natural recovery is effective and protective.
- 2010: EPA and LDEQ approved the discontinuation of sediment sampling.

As documented in the 2018 LTMP Report, the last sediment sampling event took place in 2009. It demonstrated that the natural recovery remedy had resulted in contaminant concentrations significantly below levels that are protective of potential receptors.

Institutional Control (IC) Review

The PRPs, EPA and the state of Louisiana have implemented some institutional controls to minimize and, where possible, prevent exposure to contamination that could result in unacceptable risk. Table 2 provides a summary of institutional controls for the two OUs. The 1984 Consent Decree requires notification if properties will be sold but does not explicitly restrict groundwater and land use. In addition, groundwater contamination from the Scenic OU is located under two structures (one recently built) on property not owned by the PRPs, at the Scenic OU property boundary in the area of the DTZ. This property is owned by the State of Louisiana and includes a LSP training facility and separate occupied building. The LSP training facility and the occupied building are not covered under the 2013 Negative Servitude. Figure 2 shows the parcels where the institutional controls apply. This FYR recommends that the feasibility of additional enforceable institutional controls be considered to restrict current and future land and groundwater use at the Site.

Table 2: Summary of Planned and/or Implemented Institutional Controls (ICs)

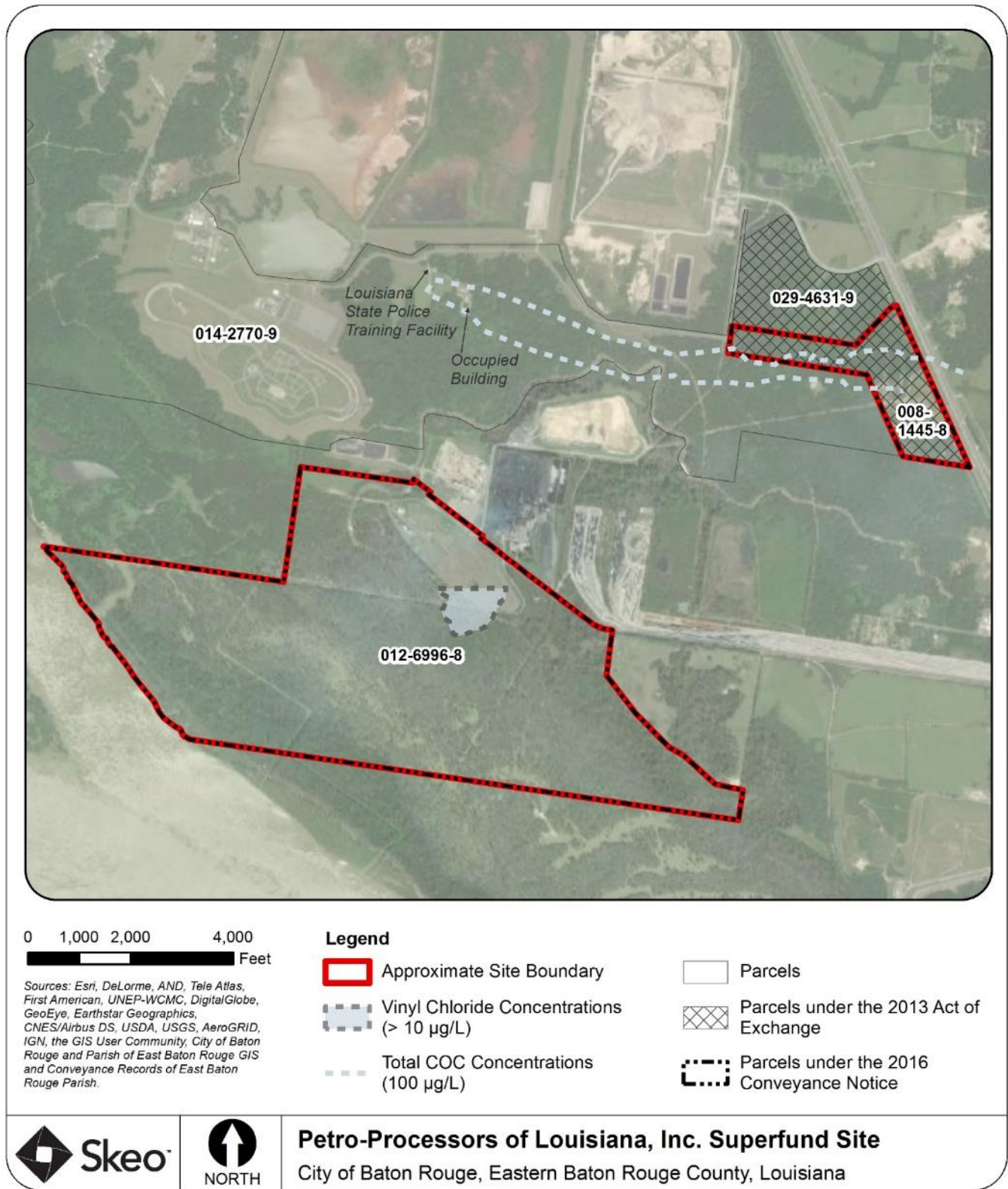
Media, Engineered Controls, and Areas That Do Not Support UU/UE Based on Current Conditions	ICs Needed	ICs Called for in the Decision Documents*	Impacted Areas and Parcel Number	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Fish and Crawfish Devil's Swamp and Bayou Baton Rouge	No	No	Brooklawn OU 012-6996-8	Governmental control to advise to not consume fish or crawfish from the area	Health Advisory for Devil's Swamp/Bayou Baton Rouge August 12, 2015 ^a
Soils and Sediment	Yes	Yes	Brooklawn OU 012-6996-8 Scenic OU 08-1445-8	Informational devices to prevent exposure to soils	Fencing and Signage, Educational Materials and Additional Sources of Site Information ^b
				Enforcement tool to prevent exposure	Consent Decree ^c February 1984
				Enforcement tool to prevent exposure	Supplemental Remedial Action Plan August 28, 1989 ^d
			Enforcement tool to inform and notify interested persons of information and restrictions for the Site	Recordation of the Consent Decree in the Conveyance Records of East Baton Rouge Parish April 25, 2016	
			Scenic OU 008-1445-8 LSP Parcel 029-4631-9	Land use restrictions	Negative Servitudes in the Act of Exchange ^e September 26, 2013
Groundwater	Yes	Yes	Brooklawn OU 012-6996-8	Enforcement tool to prevent exposure	Consent Decree ^c February 1984 and Recordation of the Consent Decree in the Conveyance Records of East Baton Rouge Parish April 25, 2016
	Yes	No	Scenic OU 008-1445-8 LSP Parcel 029-4631-9	Proprietary controls prohibiting water wells for irrigation or drinking purposes	Negative Servitudes in the Act of Exchange ^e September 26, 2013
	Yes	No	LSP training facility 014-2770-9	Prohibit groundwater use	None in place

Notes:

- a. This advisory was issued as a precaution in response to several Superfund sites located near BBR. Any further sampling data from this area will be evaluated to determine the need for modifications to the current recommendations. Advisory accessed on 9/4/2020 at https://ldh.la.gov/assets/oph/Center-EH/envepi/fishadvisory/Documents/devils_swamp_advisory_2015.pdf.
- b. EPA-issued fact sheets distributed to the public through the site mailing list. The LDEQ Electronic Data Management System includes information on the Site as well as EPA's website.

Media, Engineered Controls, and Areas That Do Not Support UU/UE Based on Current Conditions	ICs Needed	ICs Called for in the Decision Documents*	Impacted Areas and Parcel Number	IC Objective	Title of IC Instrument Implemented and Date (or planned)
<p>c. Article 28 of the February 1984 Consent Decree states: “Any Industry Defendant possessed of any interest in real property upon which a site which is the subject of this Decree is located shall give sixty (60) days prior notice in writing, together with a copy of the conveyance documents, to each Plaintiff of its intent to convey any interest in such property. Any Plaintiff may object to the conveyance or terms thereof. Conveyance shall not proceed until all such objections are finally resolved. This notice shall set forth the conditions of the conveyance, adequate and complete provision for access, continued maintenance of any monitoring systems, and completion of all remedial activities at the sites. Notwithstanding any conveyance, the Industry Defendants shall record a copy of this Consent Decree with the appropriate Parish official.”</p> <p>d. The 1988 Supplemental Remedial Action Plan is consistent with the provisions of the Consent Decree and was approved on August 28, 1989, through an order issued by U.S. Middle District Court of Louisiana. This document outlines the operation and maintenance activities to be conducted by the PRPs as part of post-closure operations.</p> <p>e. Negative servitudes have been established for the sale of non-impacted property such as the property east of U.S. Route 61 and north of the Scenic OU. The act of sale established a negative servitude prohibiting water wells for irrigation or drinking purpose, prohibiting residential land uses, and prohibiting basement construction.</p> <p>* The Consent Decree is the decision document, along with each approved Remedial Planning Activity document, which is incorporated by reference and becomes part of the Consent Decree.</p>					

Figure 2: Institutional Control Map



Disclaimer: This map and any boundary lines within the map are approximate and subject to change. The map is not a survey. The map is for informational purposes only regarding EPA's response actions at the Site.

Systems Operations/Operation and Maintenance (O&M)

O&M activities continue to be implemented by the PRPs. They include maintaining and inspecting all capped areas such as the former disposal pits and lagoons at the Brooklawn OU and the former disposal area at the Scenic OU. In addition, a summary of the monitoring requirements for groundwater and sediment are provided below for each OU.

Brooklawn OU

The monitoring requirements for the Brooklawn OU were updated in 2006 and presented in the LTMP Protocol (Addendum F to the 2006 RPA Report, Section 7.0). The objectives of the long-term monitoring, as outlined in the LTMP Protocol with additional specifics from the 2001 RPA Report, are:

Groundwater

- For at least 30 years, monitoring the contaminant plume and geochemical parameters in the subsurface to evaluate the effectiveness of the natural attenuation process.
- For at least 30 years, protecting the identified downgradient POCs (the Mississippi River) through monitoring sentry wells for the appearance of site COCs.

Sediment

- For at least three years, collecting and analyzing crawfish from the BBR channels and North Swamp sub-areas to ensure the success of the remedial action.
- For 20 years, inspecting BBR fill material to ensure continued conformance with performance requirements.

The PRPs' inspections of protective coverings in the former disposal areas and in BBR distributaries at the Brooklawn OU found no integrity concerns during the FYR period. The biota monitoring objective listed in Addendum F to the RPA Report was achieved in the 2008 LTMP Report and discontinued as agreed upon by EPA and LDEQ.

Scenic OU

The monitoring requirements for the Scenic OU were updated in 2018 and presented in the LTMP Protocol (Addendum E to the 2003 RPA Report, Section 6.0). The objectives of the MNA long-term monitoring, as outlined in the LTMP Protocol, are:

- Detect any new releases of contamination to the environment that could impact the effectiveness of the selected remedy.
- Ensure the effectiveness of the administrative controls put in place to protect potential receptors.
- Evaluate the natural attenuation process.

The updated LTMP Protocol identifies the monitoring locations, analytes and frequencies necessary to comply with the monitoring plan objectives. Monitoring of transect wells are included to verify the natural attenuation processes and include wells along the centerline of contaminant migration and wells near the source area. Wells at selected plume boundaries (i.e., sentry wells) are chosen to verify that COC migration does not exceed model predictions. In addition, the results of the transect and sentry wells are reviewed collectively to determine if the contaminant plumes are expanding (either downgradient, laterally or vertically).

III. PROGRESS SINCE THE PREVIOUS REVIEW

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

Table 3: Protectiveness Determinations/Statements from the 2016 FYR Report

OU #	Protectiveness Determination	Protectiveness Statement
1 – Brooklawn	Protective	The remedy at the Brooklawn OU is protective of human health and the environment, and in the interim, exposure pathways that could result in unacceptable risks are being controlled.
2 – Scenic	Short-term Protective	The remedy at the Scenic OU currently protects human health and the environment and is protective in the short-term. With the implementation of the near-source and distal end enhanced attenuation actions the remedy would generally be considered protective in the long-term, as long as these actions continue, no exposures are occurring, and effective ICs are maintained until cleanup standards have been achieved.
Sitewide	Short-term Protective	The remedy at the Site currently protects human health and the environment and is protective in the short-term. With the implementation of the near-source and distal end enhanced attenuation actions at the Scenic OU, the remedy is expected to be protective in the long-term.

Table 4: Status of Recommendations from the 2016 FYR Report

OU #	Issue	Recommendations	Current Status	Current Implementation Status Description	Completion Date (if applicable)
Sitewide	Ensure long-term protectiveness through institutional controls	Select additional institutional controls (filing Consent Decree as conveyance notice) to “layer” with institutional controls already in place	Completed	PRPs recorded the Consent Decree in the conveyance records of East Baton Rouge Parish	4/25/2016

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Community Involvement and Site Interviews

A public notice was made available by a newspaper posting in the *Advocate* newspaper on 6/17/2020 (Appendix D). It stated that the FYR was underway and invited the public to submit any comments to EPA. The results of the review and the report will be made available at the Site’s information repository, Scotlandville Branch Library, located at 7373 Scenic Highway in Baton Rouge, Louisiana.

During the FYR process, interviews were conducted to document any perceived problems or successes with the remedy implemented to date. The interviews are summarized below.

In addition to community interviews for the Site, EPA’s community involvement coordinator has received input from the community regarding environmental concerns. During this FYR, community members have informed EPA’s community involvement coordinator of their continued concerns about living in a toxic environment. Specifically, the community members stated they would like to see more frequent site monitoring and expressed concerns of exposure to contaminants from the Site and nearby landfill and industrial developments.

Furthermore, the community has expressed an interest in an improved understanding of the remedy in place and how institutional controls may impact the Site.

EPA's FYR support contractor attempted to obtain contact information for staff at the occupied building to interview, but attempts were not successful.

Mel Collins (NPC Services): Mr. Collins stated that the Site is well maintained and controlled by adequate fencing and signage and that the remedial activities are protective of human health and the environment. He believes the MNA and the EA remedies are effectively reducing groundwater contaminant concentrations at the Brooklawn and Scenic OUs, respectively. Since the previous FYR, additional wells have been installed along with a carbon-treating unit to treat contaminants in groundwater immediately downgradient of the DTZ at the Scenic OU.

Keith Horn (LDEQ Project Manager): Mr. Horn believes that the remediation has been executed well after NPC Services was created to manage remediation on behalf of the PRPs. He indicated that all minor O&M problems are swiftly addressed. Reuse of the Site remains a challenge. Although research showed solar power options to be unfeasible, Mr. Horn believes pollinator meadows may be a good option for the capped areas. Mr. Horn stated that while the remedy is working well, he expects a long timeframe for the cleanup based on Site conditions. He stated that LDEQ performs many Site inspections to ensure that the remedy is being implemented as approved. There are concerns that the U.S. Army Corps of Engineers (USACE) may make changes in the Site area or on Site property as part of the Comite River Diversion Project. Mr. Horn continues to work with EPA and USACE to ensure these changes will not negatively impact the Site.

Member of the of the LSP: The LSP representative indicated that they are aware of the Site and related environmental cleanup activities. The representative believes overall the project work is excellent and the LSP is kept informed of all environmental activities. The LSP has not observed any effects on the local community and that NPC has been great to work with.

Data Review

Groundwater monitoring results at the Brooklawn OU indicate that the MNA remedy is protective. All COC concentrations at sentry POC wells, located downgradient of the primary migration pathway, are below quantitative levels.

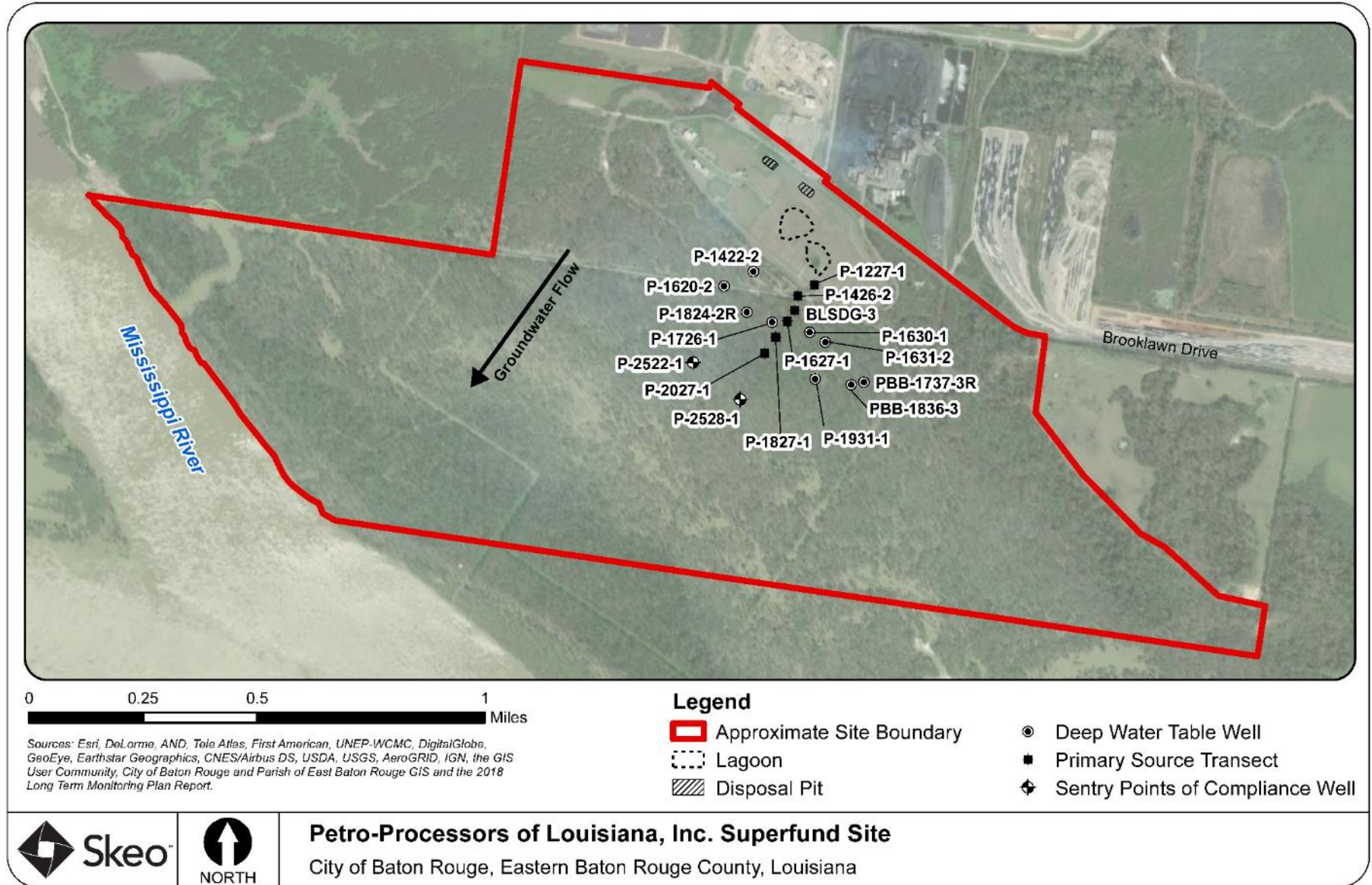
At the Scenic OU, the EA groundwater remedy is successfully impeding the transport of contaminants within the +20 MSL channel and preventing the continued migration of COCs downgradient of the source area. EA at the Scenic OU showed reduction in contaminant mass within the STZ and DTZ. EA injections are ongoing to further reduce mass and contaminant migration within the Scenic OU. In addition, extraction of contaminated groundwater followed by treatment using activated carbon units at the DTZ have reduced contaminants to the north. A more detailed summary of the data is presented below for each OU.

Brooklawn OU

The remedial objective identified for the groundwater exposure pathway at the Brooklawn OU is the prevention of unacceptable contamination reaching the downgradient point of exposure, the Mississippi River. The remedial action includes thirty years of long-term monitoring of natural attenuation processes and sentry wells to verify that no COCs reach a potential receptor at the point of exposure, the Mississippi River. In addition, the PRPs monitor several additional wells to evaluate the plume geometry.

The PRPs monitor six wells located downgradient from the source and refer to these as the primary source transect wells. In addition, the PRPs monitor two downgradient sentry POC wells, P-2522-1 and P-2528-1, for site COCs to assess potential downgradient exposure to the Mississippi (Figure 3).

Figure 3: Brooklawn Sentry POC Wells and Primary Source Transect Wells



Disclaimer: This map and any boundary lines within the map are approximate and subject to change. The map is not a survey. The map is for informational purposes only regarding EPA's response actions at the Site.

Table 5 shows that COC groundwater concentrations in 2018 exceed MCLs at the primary source transect well (P-1227-1) closest to the source but concentrations decreases significantly to below detection at the two sentry POC wells (P-2522-1 and P-2528-1). This is consistent with the previous four years of monitoring with all COCs below detection in the sentry wells. The previous five years of data were also reviewed for the transect wells that consistently exceeded MCLs in 2018 (Table G-1). The trends are shown in Figure G-1 and show stable or decreasing trends for PCE and TCE with slight increases in the degradation products such as cis-DCE and vinyl chloride, which demonstrates that natural attenuation is occurring. A summary of the 2018 results for all wells monitored (Table G-2) shows COCs exceeding MCLs are limited to the DWT.

Table 5: Brooklawn 2018 Monitoring Results (µg/L) for the Primary Source Transect and Sentry POC Wells

Well	Well Type	Distance from Source (feet)	Screened Zone	PCE	TCE	TeCA	TCA	DCA	cis-DCE	trans-DCE	Vinyl Chloride
MCL				5	5	-	5	5	70	100	2
P-1227-1	Primary Source Transect	0	DWT	1,120	2,510	1,500	12,400	8,960	10,200	1,950	89,200
P-1426-2		199	DWT	< 100	349	< 100	5,650	9,780	4,300	657	33,600
BLSDG-3		325	DWT	< 1	< 1	< 1	< 1	< 1	2	< 1	28
P-1627-1		451	DWT	< 100	1,410	< 100	18,400	24,800	1,170	294	12,000
P-1827-1		651	DWT	< 1	< 1	< 1	< 1	11	< 1	< 1	10
P-2027-1		841	DWT	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
P-2528-1	Sentry POC	1400	400-foot	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
P-2522-1		1400	400-foot	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1

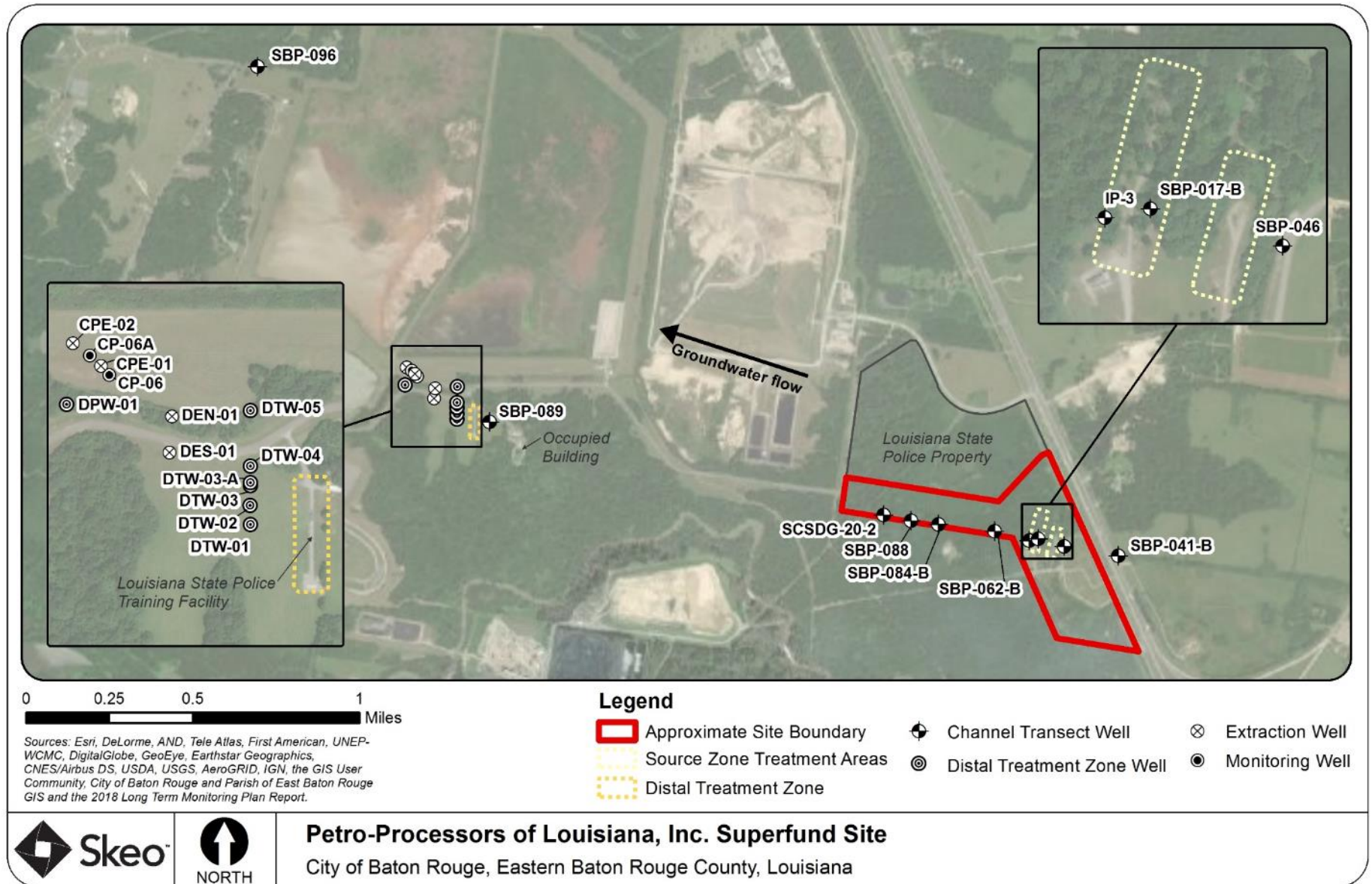
Notes:
MCL = maximum contaminant level established under the Safe Drinking Water Act, as required by the 1984 Consent Decree and RPA reports.
- = MCL not established for this COC.
µg/L – micrograms per liter
Source: Post-Construction Monitoring Activities: Long-Term Monitoring Plan Report – Brooklawn OU. Prepared by NPC Services. December 2019. Table 2-3 and Table 4-1.

The PRPs developed maps showing the approximate aerial extent of groundwater contamination in the DWT, based on 2018 data for vinyl chloride, DCA and TCA in relation to the POC wells. The contaminant plumes for these three COCs are very similar. Thus, the vinyl chloride plume is presented for perspective (Figure G-2). The plume maps are not delineated to the MCL thus, the plume is likely larger as the plumes are drawn to a concentration of 10 µg/L instead of the MCL of 2 µg/L.

Scenic OU

The highest COC concentrations at the Scenic OU are predominantly in the shallow +20 MSL. The PRPs designed the EA remedy to impede the transport of contaminants within the +20 MSL channel and prevent the continued migration of COC downgradient of the source area, and subsequently isolate the source area from the existing downgradient contaminant plume. The PRPs initiated EA amendment injections in STZ in 2011. The location of the STZ and DTZ monitoring wells is presented in Figure 4. Work is ongoing to implement EA in the downgradient portions of the +20 MSL channel at the DTZ to prevent contaminant migration further west of the LSP property (overlying the DTZ). The data reviewed include the results from the STZ and the DTZ to determine if the EA injections at both locations are effective in reducing COC concentrations below the MCLs.

Figure 4: CY2020 Locations of Treatments Zones and Wells in the +20 MSL of the Scenic OU



Disclaimer: This map and any boundary lines within the map are approximate and subject to change. The map is not a survey. The map is for informational purposes only regarding EPA's response actions at the Site.

STZ

The LTMP Report presented in Addendum E to the 2003 RPA Report stipulated COC monitoring along a transect parallel with the dominant migration pathway within the +20 MSL channel and at sentry wells. The 2018 LTMP Report shows that data collected within the +20 MSL channel show no lateral spread of groundwater contamination to the north of the existing plume near the STZ (Figure G-4). Concentrations in monitoring wells upgradient of SBP-041-B (SCSUG-20-1 and SBP-040-B) are all below contaminant MCLs. Likewise, concentrations at monitoring wells located laterally along the northern extent of the +20 MSL channel remain below the MCL for all COCs (monitoring wells SBP-065-B, SCSDG-1, SBP-070-B, SCSDG-20-1 and SBP-069-B). Monitoring well SBP-041-B, located directly upgradient of the source area, has shown historical contamination concentrations that increased over a four-year period (2013 to 2017) but appear to have stabilized and remain significantly below historical highs.

The PRPs conduct transect trend analyses (Table G-3) based on averaged values for each COC over the corresponding monitoring year for each transect well, starting with the source area location (SBP-041-B). Contaminant data for TeCA and trans-DCE were not included in the analysis due to their relatively low concentrations within the Scenic OU source area and along the downgradient transect. The data show a decrease in parent COCs (PCE, TCE, TCA and DCA) at transect locations downgradient of source area well SBP-046. Decreasing parent contaminant concentrations observed at monitoring locations SBP-017-B, IP-3 and ED01 demonstrate that substrate injections are effective. Concentrations of cis-DCE and vinyl chloride have increased as expected since they are degradation products of the parent compounds PCE and TCE. However, following injections, these daughter products decrease, as evidenced by downgradient wells MW-01, IP-3 and ED01. Additionally, concentrations of cis-DCE and vinyl chloride at monitoring location SBP-017-B have decreased by one order of magnitude since 2013.

DTZ

The PRPs began pilot testing with initial substrate injections in June 2012 at the distal end of the groundwater plume (on LSP property) and injections at all DTZ wells started in April 2013, with reinjection of molasses in 2014 and 2015. Contaminant results (Table G-4) and contaminant trend charts (Figure G-3) are presented for the three performance wells immediately downgradient of the DTZ and the four new extraction wells (Appendix G, Figure G-3 and G-4, respectively). The charts show that, overall following injections in 2015, COC concentrations decreased for DTW-01 and DTW-04; however, concentrations in DTW-05 increased, a well located north of DTW-01 and -04 (Figure 4). Between 2016 and 2019, the PRPs installed four extraction wells downgradient of the DTZ and initiated activated carbon treatment of the downgradient plume. Two extraction wells, Distal Extraction Northern (DEN-01) well and Distal Extraction Southern (DES-01), were installed in 2016 west of performance wells DTW-04 and DTW-05 (Figure 4). Due to contamination being detected further west of DEN-01 and DES-01 downgradient of the DTZ in wells CP-06 and CP-06A, the PRPs installed additional extraction wells on the City-Parish property northwest in 2017, designated as City Parish Extraction (CPE) wells CPE-1 and CPE-02 (Figure 4). The following observations are reported in the Scenic OU Update to Addendum K to the Work Plan, Supplement to the Interim Remedial Action. Prepared by NPC Services. December 2020:

- COC concentrations in DTW-05 increased from December 2015 to March 2017, decreased from March 2017 to June 2019 and then increased slightly in May 2020. May 2020 sample results were above the MCLs for TCA, PCE, TCE, and vinyl chloride at DTW-05.
- COC concentrations in DEN-01 and DES-01 initially increased with pumping, and the parent compounds decreased by November 2016 with increases in concentrations of the daughter products (cis-DCE and vinyl chloride) through November 2017. COC concentrations decreased and were below the MCL in DEN-01 and DES-01 since June 2020 and July 2019, respectively.
- COC concentrations in CPE-01 and CPE-02 initially decreased below the MCL in May 2018 and then increased in March 2019. From March 2019 to September 2020, all COC concentrations have

decreased. However, September 2020 sample results were still above the MCLs for PCE, TCE, and vinyl chloride at both sites.

The objective of the four extraction wells with GAC treatment was to reduce the groundwater contaminant concentrations to the north and west of the DTZ. These results show that the extraction from wells DEN-01, DES-01, CPE-01 and CPE-02 have provided some remediation of the transitional plume downgradient of the DTZ. Based on these interim results, NPC proposed to discontinue production of the four extraction wells upon Agency approval and utilize these wells for quarterly sampling for one year. In December 2020, EPA and LDEQ approved NPC's request to discontinue production from the four extraction wells. However, EPA and LDEQ required that monitoring be conducted quarterly until all compounds are measured below their established remedial standards for four consecutive quarters. In addition, EPA and LDEQ will reevaluate the implementation of additional treatment, removal of treatment facilities and removal of extraction wells after the four consecutive quarters of monitoring.

Site Inspection

The site inspection took place on 9/3/2020. Participants included LDEQ project manager Keith Horn, PRPs' contractor representative Mel Collins with NPC Services support staff, and Eric Marsh with EPA FYR support contractor Skeo. The EPA Region 6 Remedial Program Manager, Mr. Bart Canellas, was not present at the FYR site inspection due to EPA COVID-19 travel restrictions. The purpose of the inspection was to assess the protectiveness of the remedy. The site inspection checklist and photographs are provided in Appendix E and Appendix F, respectively.

Participants arrived on site at the Brooklawn OU and the NPC facility entrance. Participants were briefed on current operations and updates since the previous FYR. Participants then traveled to the Scenic OU where treatment injections were being completed at the DTZ at the LSP's Joint Emergency Services Training Center. Participants observed the mixing unit at the DTZ where groundwater extraction and re-injection after mixing with molasses solution was being conducted. Participants also observed the carbon filtration units that treat water from four recovery wells on the northern side of the DTZ on the LSP property. Proximal (primary and secondary) treatment wells, the capped borrow pit and the three LPDES Outfalls were also observed at the Scenic OU.

Participants completed the inspection at the Brooklawn OU, where the three LPDES outfalls and capped areas were observed. The fish advisory sign in Devils Swamp was observed and in good condition. Overall, there were no signs of vandalism or trespassing, and the landfill covers, monitoring wells and extraction wells appeared to be in good condition.

A second site visit was conducted January 25, 2021 with LDEQ and the PRPs' contractor representative. Participants included LDEQ project manager Keith Horn and PRPs' contractor representative Mel Collins with NPC Services support staff. The purpose of this inspection was to obtain information and photographs of structures present near the Scenic OU DTZ, to determine if these structures may or may not need further evaluation of the enclosed space or subsurface vapor intrusion pathway. The structures are located in an area that is an offsite migration pathway from the Scenic OU. Photographs of the structures were taken and are included in Appendix F. This Site inspection form can be found in Appendix J.

V. TECHNICAL ASSESSMENT

QUESTION A: Is the remedy functioning as intended by the decision documents?

Question A Summary:

The Brooklawn OU source control remedy includes protective coverings that have reduced risks associated with direct contact with Site contamination. Placement of protective fill in the BBR distributaries has mitigated risks to human and ecological receptors. The MNA groundwater remedy continues to show that

COCs remain below detection at the Mississippi River. The capped areas were inspected and were in good condition.

At the Scenic OU, sampling of BBR sediments has demonstrated that the remedial action of natural recovery was achieved in 2008. The PRPs continue to conduct protective fill inspections annually for the prescribed 20-year period to ensure continued conformance with performance requirements. The capped areas were inspected and were in good condition. At the Scenic OU, sampling of sediments in BBR, as defined in the LTMP Report, demonstrated that the natural recovery remedy had resulted in contaminant concentrations significantly below levels protective of potential receptors. In March 2010, the agencies approved the discontinuation of sediment sampling.

In 2016 EPA and LDEQ approved additional interim actions to be performed to treat two areas north and west of the DTZ to reduce contaminants to protective levels. The groundwater EA remedy continues to reduce STZ and DTZ groundwater contamination, except the contaminant plume extends north and west of the DTZ in the area where the LSP operates a training facility and where an occupied building in the vicinity is located. The location of the LSP training facility and occupied building in the vicinity is on an area not addressed by the current institutional controls in place.

Administrative controls in place at both OUs limit access to the Site. The 1984 Consent Decree requires notification if Site properties will be sold but does not explicitly restrict groundwater and land use. In addition, the groundwater plume extends beyond the Scenic OU under two structures (one recently built) on property not currently addressed by existing institutional controls. Therefore, the feasibility of additional enforceable land use and groundwater institutional controls should be evaluated.

QUESTION B: Are the exposure assumptions, toxicity data, cleanup levels and RAOs used at the time of the remedy selection still valid?

Question B Summary:

Brooklawn OU

The exposure assumptions, toxicity data and performance objectives remain valid based on a review of current applicable and relevant or appropriate requirements (ARARs) and current toxicity data (Appendix H and Appendix I, respectively). Current and anticipated future use of the land and resources surrounding the Brooklawn OU has not changed. The current and future land use continues to be an industrial land use. There are no new buildings, land use changes, newly identified contaminants or sources that may present a potential vapor intrusion risk at the Brooklawn OU. The Site is located in an industrial area and is not adjacent to any residential properties. Buildings at the Brooklawn OU are located on the west side of the property, away from major sources of contamination. There are no buildings or structures with basements and no buildings or structures used for residential properties at the Site. Further, the highest COC concentrations are present in the DWT at the Brooklawn OU, while the more shallow groundwater overlying the DWT as represented by wells BLSGDG-1 and BLSUG-1 was below detection (<1 µg/L) for site COCs.

Scenic OU

The performance objectives remain valid based on a review of current applicable and relevant or appropriate requirements (ARARs) and current toxicity data (Appendix H and Appendix I, respectively). At the Scenic OU, the EA groundwater remedy is currently impeding the transport of contaminants within the +20 MSL channel and preventing the continued migration of COCs downgradient of the source area. However, prior to the EA groundwater remedy, the contaminant plume at the Scenic OU had already migrated past the DTZ, and the current use of the land and resources surrounding the Scenic OU have changed that would require additional investigation to determine if there is human exposure to the indoor air vapor intrusion pathway. As of this FYR, COCs have been detected downgradient of the Scenic OU property boundary underlying two structures constructed. Of the two structures (near the DTZ at monitoring well SBP-089 (as shown in

Appendix F), one is an open air structure consisting of a slab with an incinerator used by the LSP, while the other is an enclosed occupied building that was constructed in April 2017. Therefore, the exposure assumptions near the Scenic OU have changed since the last FYR. Because the occupied building has persons residing for potentially more than 12 hours each day, a screening-level vapor intrusion evaluation was conducted using Site groundwater data. The evaluation demonstrates that this exposure pathway should be evaluated further using multiple lines of evaluation (Appendix I).

Physical conditions at the Site have not changed in a manner that would affect the protectiveness of the remedy. The soil and sediment remedies have eliminated exposure to any residual contamination. The groundwater MNA remedy at the Brooklawn OU continues to achieve the RAO of protecting the Mississippi River from contaminant migration. The groundwater EA remedy at the Scenic OU is continuing to reduce contaminant concentrations within the +20 MSL channel to meet the RAO of effectively isolating the source area from the existing downgradient contaminant plume.

QUESTION C: Has any other information come to light that could call into question the protectiveness of the remedy?

The PRPs completed remedial work as per approved work plans, and the remedy is performing as planned. The Site is currently in the O&M phase, which includes monitoring by groundwater sampling and yearly reporting, EA operations with molasses injections, and groundwater extraction at the DTZ.

While the vapor intrusion pathway requires investigation, no other additional information has been discovered that could call into question the remedy's performance. The Consent Decree focused on the protection of the 400-foot aquifer used as a source of drinking water to ensure that it is safe, protected and can be used. During this FYR, there was no evidence of contamination to the 400-foot screened zone of the aquifer that is used as a source of drinking water. While the occupied building will need an indoor air vapor intrusion evaluation, the occupants receive water from the local city public water supply and are not exposed to the contaminants' groundwater exposure pathway.

In addition, LDEQ conducted a search of the Louisiana Department of Natural Resources' registered well database for all the registered wells within a one mile radius of the occupied building in the Scenic OU DTZ area. There are three active wells classified as public water supply wells listed in the registry within a one-mile radius (Figure 5). These wells are located to the north, outside of the 2018 boundary of the Scenic OU DTZ groundwater contamination plume. One of the three wells is operated by a public water system and is routinely monitored according to drinking water regulations. For this public water system supply well, the most recent VOC drinking water sample results (from calendar year 2019) indicate there is no evidence of contamination to the 400-foot screen zone of the aquifer for this public water supply well.³ The second well classified as a public water supply well by the LDNR is owned and operated by East Baton Rouge Parish.⁴ The East Baton Rouge Parish well (number 1418 on Figure 5) is currently within 1,500 feet of the Scenic OU DTZ 2018 groundwater contamination plume northern boundary. There is no groundwater monitoring data at this well. The third well is located at the LSP training center north and upgradient of the Brooklawn OU and was installed in March 2021. This FYR report includes a recommendation that the East Baton Rouge Parish well location and its current use be verified. In addition, monitoring for contaminants of concern is recommended at this well due to its proximity to the groundwater contamination plume boundary and due to its public water supply use status.

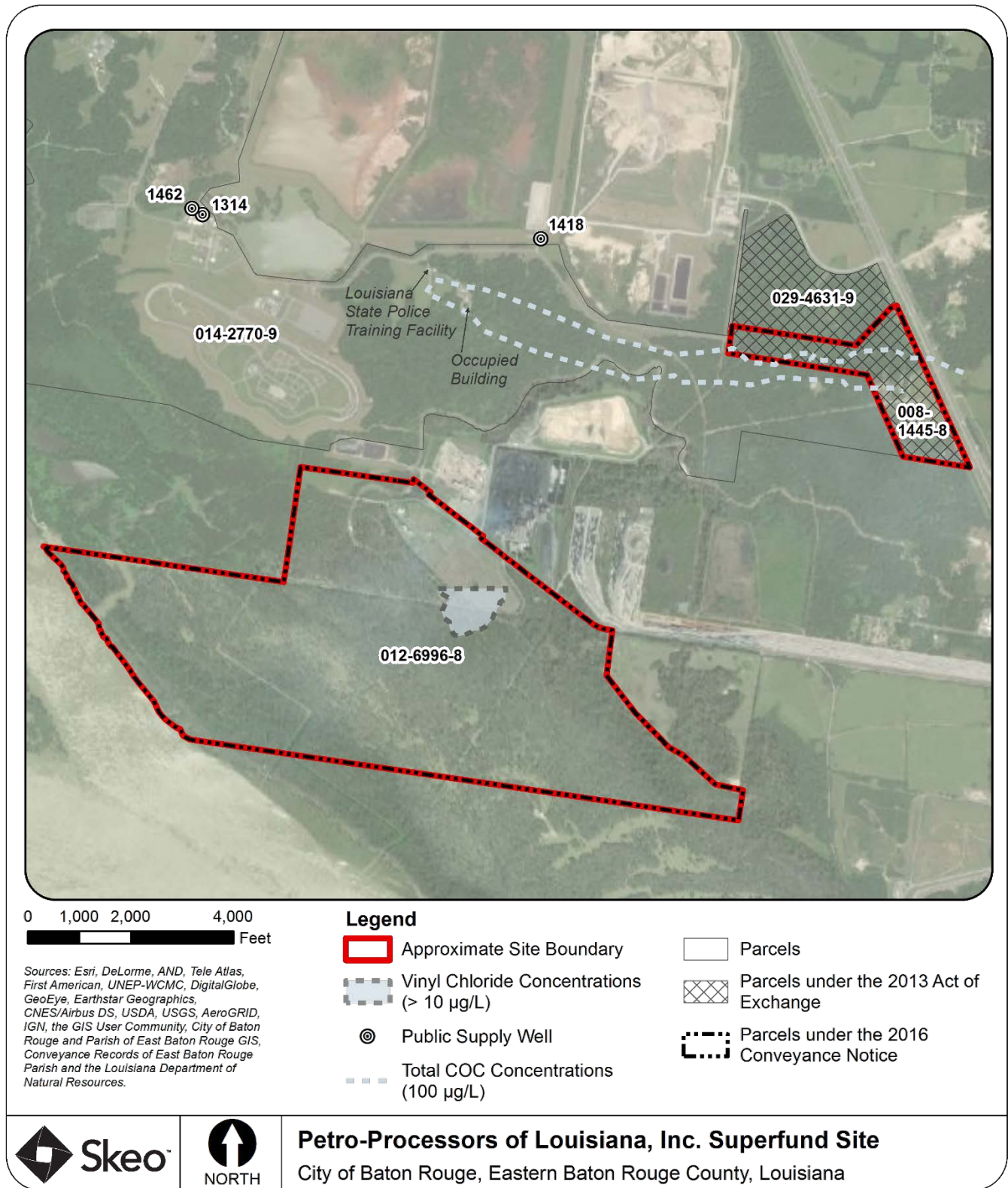
³ 2019 well sampling data:

https://sdw.ldh.la.gov/DWW/JSP/AnalyteList.jsp?tinwsys_is_number=2233&tinwsys_st_code=LA

⁴

https://ucmwww.dnr.state.la.us/ucmsearch/UCMRedir.aspx?url=http%3a%2f%2fucmprod%3a16200%2fcs%2fidcplg%3fidcService%3dGET_FILE%26dDocName%3d5562070%26Rendition%3dWeb%26RevisionSelectionMethod%3dLatest

Figure 5: Public Supply Wells within a One Mile Radius of Occupied Building



Disclaimer: This map and any boundary lines within the map are approximate and subject to change. The map is not a survey. The map is for informational purposes only regarding EPA's response actions at the Site.

VI. ISSUES/RECOMMENDATIONS

Issues/Recommendations
OU(s) without Issues/Recommendations Identified in the FYR:
OU1 Brooklawn

Issues and Recommendations Identified in the FYR:

OU(s): OU2 Scenic	Issue Category: Monitoring			
	<p>Issue: The Louisiana Department of Natural Resources' registered well database shows that a public water supply well owned by East Baton Rouge Parish was drilled in 2012 and is located within 1,500 feet of the groundwater contamination plume northern boundary. There is no monitoring data at this well to determine whether the well meets potable water standards. There is no COC sample data at this site to determine if the groundwater contamination plume extends to this public water supply well.</p> <p>Recommendation: The East Baton Rouge Parish well location and its current use should be verified. In addition, monitoring for contaminants of concern is recommended at this well due to its proximity downstream of the groundwater contamination plume and due to its public water supply use status.</p>			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party/Support Agency	Milestone Date
No	Yes	PRP	EPA/State	3/18/2022

OU(s): OU2 - Scenic	Issue Category: Institutional Controls			
	<p>Issue: The 1984 Consent Decree requires notification if properties will be sold, but it does not explicitly restrict groundwater and land use. In addition, groundwater contamination is located under two structures (one recently built) on Site property in the vicinity of SBP-089 that is currently not covered by existing institutional controls.</p> <p>Recommendation: Investigate the feasibility of implementing additional institutional controls to address land use, groundwater use and possible vapor intrusion exposures.</p>			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party/Support Agency	Milestone Date
No	Yes	PRP	EPA/State	3/18/2023

OU(s): OU2 Scenic	Issue Category: Changed Site Conditions			
	Issue: A screening-level vapor intrusion risk evaluation of groundwater contamination in the vicinity of SBP-089 results in a cancer risk above 1×10^{-4} and noncancer hazard above 1 under commercial and residential land use assumptions.			
	Recommendation: Evaluate the vapor intrusion pathway using multiple lines of evidence to determine if any mitigation or remedial measures are warranted. In the meanwhile, continue implementation of the near-source and distal end enhanced attenuation actions, which includes the vicinity of SBP-089.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party/Support Agency	Milestone Date
Yes	Yes	PRP	EPA/State	9/18/2023

OTHER FINDINGS

In addition, the following are recommendations that have been identified during the FYR that may improve public outreach efforts, but do not affect current and/or future protectiveness:

- Increase the frequency of public updates and dissemination of information with the Louisiana Department of Natural Resources and the Louisiana Department of Health concerning the extent and location of the groundwater contamination plume and the concentrations of contaminants at the Petro-Processors Superfund site.
- Accurately visualize the size of the contaminant plumes in maps by drawing the plumes to each respective MCL. Currently, the iso-concentration maps showing COC plumes in the Long-Term Monitoring Plan (LTMP) reports for both OUs do not draw the plumes to the MCL. Thus, it obscures the actual size of the contaminant plumes.

VII. PROTECTIVENESS STATEMENT

Protectiveness Statement	
<i>Operable Unit:</i> OU1-Brooklawn	<i>Protectiveness Determination:</i> Protective
<i>Protectiveness Statement:</i> The remedy at the Brooklawn OU is protective of human health and the environment because engineered clay caps covering the disposal areas reduced the migration of contaminants and prevented air emissions from the source areas as well as exposure to nearby industries and residences. Ecological and human health risks have been reduced to acceptable levels in the BBR distributaries portion of the Brooklawn OU through the placement of protective fill. The groundwater remedy is effective at reducing contaminant concentrations and institutional controls are in place for current owners that prevent groundwater use and prevents unrestricted use of the Site.	

Protectiveness Statement

Operable Unit:
OU2-Scenic

Protectiveness Determination:
Protectiveness Deferred

*Planned Addendum
Completion Date:*
9/18/2023

Protectiveness Statement: A protectiveness determination of the remedy at the Scenic OU cannot be made at this time until further information is obtained. Further information will be obtained by performing sampling to assess the potential indoor air vapor intrusion pathway for residential land use. It is expected that the vapor intrusion evaluation will take approximately 24 – 28 months to complete, at which time a protectiveness statement will be made. In addition, in order to ensure long-term protectiveness of this remedy the following actions are recommended: continue implementation of the near-source and distal end enhanced attenuation actions; conduct sampling at a public water supply well located near the edge of the groundwater contamination plume northern boundary; and investigate the feasibility of implementing additional institutional controls to address land use, groundwater use and possible vapor intrusion exposures.

Sitewide Protectiveness Statement

Protectiveness Determination:
Protectiveness Deferred

*Planned Addendum
Completion Date:*
9/18/2023

Protectiveness Statement: A protectiveness determination of the remedy for the Petro-Processors of Louisiana, Inc. Superfund site cannot be made at this time until further information is obtained. This Five-Year review Report specifies the actions that need to be taken to obtain the information required to complete the protectiveness determination and for the remedy to be protective in the long-term. It is expected that these actions to obtain information will take approximately 24 – 28 months, at which time a protectiveness determination will be made.

VIII. NEXT REVIEW

The next FYR Report for the Petro-Processors of Louisiana, Inc. Superfund site is required in May 2026, five years from the completion date of this review.

APPENDIX A – REFERENCE LIST

Addendum A. Remedial Planning Activities Report. Brooklawn Site. Prepared by NPC Services, Inc. Volume 4, Book of 3. Waste Processing and Risk Based Remedial Action. May 2001.

Advisory for Devil's Swamp /Bayou Baton Rouge. Issued by the Department of Health and Hospitals, the Department of Environmental Quality and the Department of Wildlife and Fisheries. August 2015.

Consent Decree. United States District Court. Middle District of Louisiana. Civil Cation No. 80-358-E. Approved February 1984.

Fact Sheet. Petro-Processors of Louisiana, Inc. Louisiana. East Baton Rouge, Louisiana. Prepared by EPA Region 6. February 2010.

Fact Sheet. Petro-Processors of Louisiana, Inc. Louisiana. East Baton Rouge, Louisiana. Prepared by EPA Region 6. April 2012.

Interim Remedial Action Report – OU1 and OU2. Petro-Processors of Louisiana, Inc. Baton Rouge, Louisiana. July 2003

Louisiana Department of Environmental Quality – Field Interview Form - Petro-Processors of Louisiana, Inc. Brooklawn and Scenic Sites January 25, 2021.

Long-term Monitoring Plan Report – 2018. Post-Construction Monitoring Activities at the Brooklawn OU. Prepared by NPC Services, Inc. December 2019.

Long-term Monitoring Plan Report – 2018. Post-Construction Monitoring Activities at the Scenic OU. Prepared by NPC Services, Inc. December 2019.

Negative Servitudes in the Act of Exchange September 26, 2013.

Preliminary Close-Out Report, Petro-Processors of Louisiana, Inc. Louisiana. Prepared by NPC Services, Inc. July 2003.

Recordation of Consent Decree (and accompanying affidavit) in the Conveyance Records of East Baton Rouge Parish. Original 943, Bundle 12726. April 2016.

Remedial Design and Construction Plan – Brooklawn OU. Volume 3. Addendum B. Prepared by NPC Services, Inc. January 2002.

Scenic OU Update to Addendum K to the Work Plan, Supplement to the Interim Remedial Action. Prepared by NPC Services. December 2020.

Site Inspection Summary. Petro-Processors of Louisiana, Inc. Louisiana. Agency Interest No. 2469 and 83225. Prepared by LDEQ. September 2020.

Supplemental Remedial Action Plan. Petro-Processors of Louisiana, Inc. Baton Rouge, Louisiana. Prepared by NPC Services, Inc. August 1989.

Supplement to the Interim Remedial Action Addendum K to the Work Plan – Scenic OU. Addendum K to the Work Plan. Prepared by NPC Services, Inc. Baton Rouge, Louisiana. April 2017.

Third Five-Year Review Report for Petro-Processors of Louisiana, Inc. Superfund Site, East Baton Rouge Parish, Louisiana. January 2016.

APPENDIX B – SITE CHRONOLOGY

Table B-1: Site Chronology

Event	Date
PRPs discharged site wastes to Bayou Baton Rouge	1970
U.S. Department of Justice filed suit against the PRPs alleging that they disposed of wastes, including hazardous substances, at the Site	July 1980
EPA proposed the Site for listing on the NPL	September 8, 1983
Consent Decree Signed in Federal Court by site PRPs; this document acted as the Record of Decision for the Site	February 16, 1984
EPA finalized the Site's listing on the NPL	September 21, 1984
PRPs completed the initial phase of the remedial investigation/feasibility study (RI/FS) at the Brooklawn OU	September 1, 1985
PRPs completed the first Remedial Design Report and initiated remedial action at the Brooklawn OU	June 30, 1987
PRPs completed the supplemental RI/FS at the Brooklawn OU	August 31, 1989
PRPs completed the second Remedial Design Report	November 12, 1994
PRPs completed the third Remedial Design Report	December 25, 1995
EPA approved the Ecological Risk Assessment and Human Health Risk Assessment for Devil's Swamp	1997-1999
PRPs completed the RI/FS and remedial design for the Scenic OU	July 29, 1999
PRPs began the remedial action for the Scenic OU	January 27, 2000
PRPs completed the remedial action for the Scenic OU	November 29, 2001
PRPs completed the fourth Remedial Design Report	March 13, 2002
PRPs completed final remedial construction at the Brooklawn OU	January 10, 2003
PRPs completed the remedial action at the Brooklawn OU and EPA issued the Site's Preliminary Close-Out Report.	July 31, 2003
EPA approved terminating active source recovery at the Scenic OU	July 2003
EPA signed the Site's first FYR Report	December 22, 2005
EPA approved suspension of active source recovery at the Brooklawn OU	May 2006
PRPs dismantled Brooklawn OU facilities associated with the liquid treatment and disposal system as well as incineration and storage facilities.	2006 - 2007
EPA approved a phased approach to implementing EA at the Scenic OU	August 2007
PRPs conducted a field test of EA at the Scenic OU	March 2009
EPA approved discontinuing of biota sampling at the Brooklawn OU	March 2010
EPA approved discontinuing sediment sampling at the Scenic OU	March 2010
EPA approved the use of EA as a near-source remedy for the +20 MSL Channel at the Scenic OU	August 2010
EPA signed the Site's second FYR Report	December 28, 2010
PRPs began EA injections at the STZ	April – May 2011
PRPs completed the second supplemental RI/FS at the Brooklawn OU	November 29, 2011
PRPs began a field test of EA at the DTZ	June - July 2012
PRPs completed the first full-scale injections at the DTZ	April - June 2013
PRPs completed the second full-scale injections at the DTZ	July – September 2014
PRPs completed the third full-scale injections at the DTZ	July – August 2015
EPA signed the Site's third FYR Report	March 11, 2016
EPA and LDEQ approved an Interim Remedial Action Report to address groundwater contamination downgradient of the Scenic OU DTZ	March 17, 2016
Recordation of the Consent Decree in the Conveyance Records of East Baton Rouge Parish	April 25, 2016
PRPs completed the fourth full-scale injections at the DTZ	June – September 2016
PRPs installed four additional extraction wells northwest of the DTZ	March 2016 – June 2017

Event	Date
PRPs completed the fifth full-scale injections at the DTZ	May – September 2018
PRPs installed an updated carbon unit downgradient of the DTZ	2018
PRPs completed Supplement to the Interim Remedial Action, Addendum K to the WP to expand EA injections on the city-parish property northwest of the DTZ treatment zone	December 7, 2020
EPA and LDEQ partially approved the Supplement to the Interim Remedial Action, Addendum K, specifically approving temporary suspension of groundwater extraction and GAC treatment in the DTZ and also requiring quarterly monitoring for all COCs. Investigation and reporting activities should continue in accordance with the referenced workplan, and directed by LDEQ and EPA.	December 21, 2020

APPENDIX C – SITE FIGURES

Figure C-1: General Hydrogeology of the Brooklawn Bluff Area

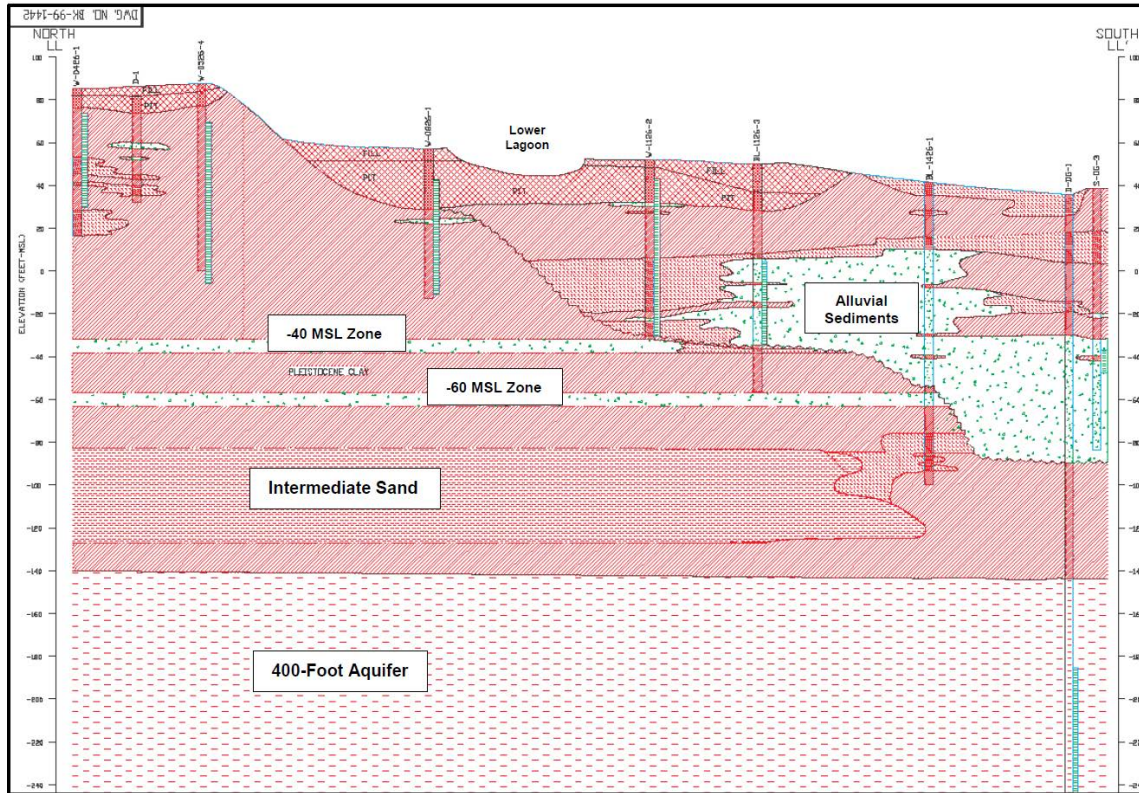
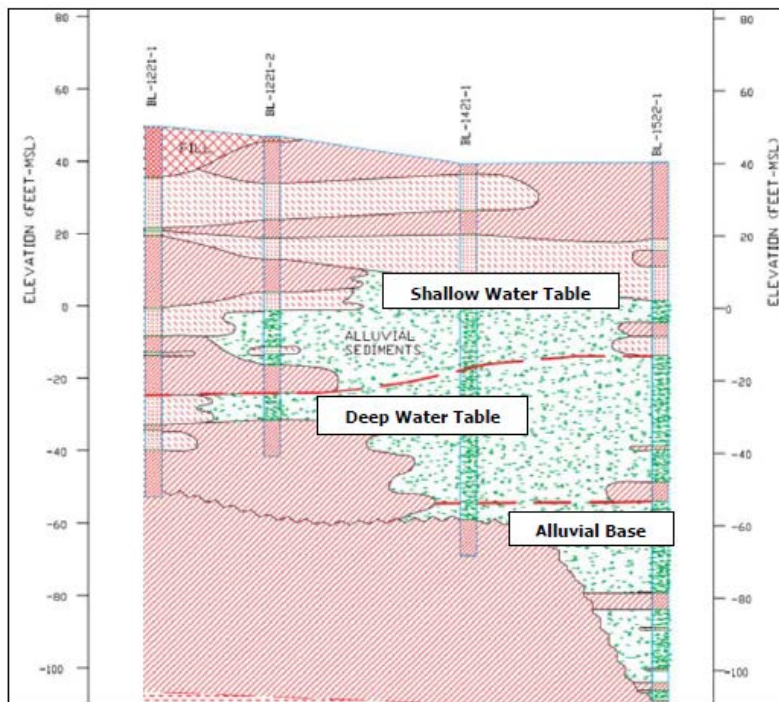
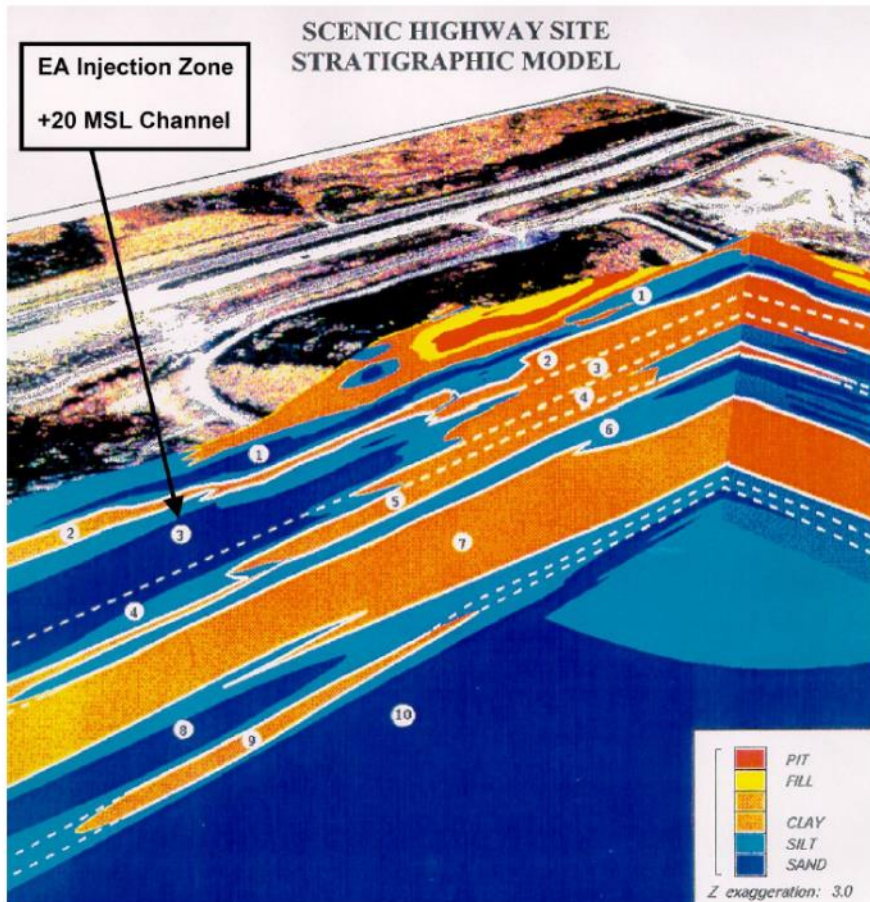


Figure C-2: General Hydrogeology of the Brooklawn Floodplain Area⁵



⁵ Source: Long-term Monitoring Plan Report – 2018. Post-Construction Monitoring Activities at the Brooklawn OU. Prepared by NPC Services, Inc. December 2019

Figure C-3: General Hydrogeology of the Scenic Area



Model Layers (1) +40 MSL Zone, (2) Confining Clay, (3) North: Upper +20 Channel Deposit, South: Confining clay, (4) North: Lower +20 Channel Deposit, South: Confining clay, (5) Confining Clay, (6) -40 MSL Zone, (7) Confining Clay, (8) Intermediate Sand, (9) Semi-Confining Clay, (10) 400-foot aquifer. Source: NPC Services, Inc., 1999. Addendum D to the Remedial Planning Activities Report, Volume Three, Figure 3.17, Petro-Processors of Louisiana, Inc. Site. Approved by EPA on July 29, 1999 and LDEQ on August 18, 1999.

Source: Long-term Monitoring Plan Report – 2018. Post-Construction Monitoring Activities at the Scenic OU. Prepared by NPC Services, Inc. December 2019.

APPENDIX D – PRESS NOTICE

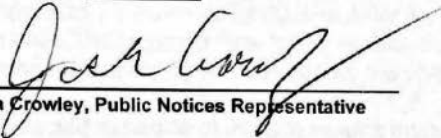
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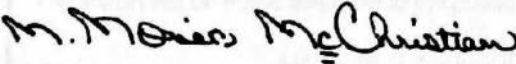
06/17/2020



Joshua Crowley, Public Notices Representative

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whose signature appears above

6/17/2020



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**Petro-Processors of Louisiana, Inc.
Superfund Site
Public Notice
U.S. Environmental Protection
Agency, Region 6**

June 2020

The U.S. Environmental Protection Agency, Region 6 (EPA) will be conducting the fourth five-year review of remedy implementation and performance at the Petro-Processors of Louisiana, Inc. (PPI) Superfund site (Site) in East Baton Rouge Parish, Louisiana. The 77-acre Site includes two sub-areas, the Scenic site and the Brooklawn site. The Brooklawn site includes the disposal area with the former lagoons and pits and a portion of Bayou Baton Rouge. The Scenic site was a borrow pit for the construction of the overpass at the intersection of U.S. Highway 61 and State Highway 964; it also includes the former disposal area and a portion of Bayou Baton Rouge.

PPI operated depositories for various petrochemical wastes at these sites during the 1960s and the 1970s. These operations contaminated surface soil, surface water, groundwater, air and airborne particulate matter with hazardous chemicals.

The selected remedies at the Site include monitored natural attenuation, enhanced attenuation, long-term monitoring, source control, source reduction, natural recovery and protective fill placement. The remedial action began in 1984. Construction complete status was achieved in July 2003. The five-year review will determine if the remedies are still protective of human health and the environment. The five-year review is scheduled for completion in March 2021.

The report will be made available to the public at the following local information repositories:

Louisiana Department of Environmental Quality
Public Records Center
Galvez Building, 1st Floor – Room 127
602 North Fifth Street
Baton Rouge, Louisiana 70802
(225) 219-3181

Petro-Processors of Louisiana, Inc.
2401 Brooklawn Drive
Baton Rouge, Louisiana 70807

Site status updates are available on the Internet at
www.epa.gov/superfund/petro-processors

All media inquiries should be directed to the EPA Press Office at (214) 665-2200

For more information about the Site, contact:

Bart Canellas/Remedial Project Manager
(214) 665-6662 or 1-800-533-3508 (toll-free)
or by email at canellas.bart@epa.gov
Janetta Coats/Community Involvement Coordinator
(214) 665-7308 or 1-800-533-3508 (toll-free)
or by email at coats.janetta@epa.gov

436303-1t-Jun 5

4. Other Interviews (optional) <input type="checkbox"/> Report attached: _____			
Mel Collins (PRPs contractor with NPC Services)			
III. ON-SITE DOCUMENTS AND RECORDS VERIFIED (check all that apply)			
1.	O&M Documents	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date
	<input checked="" type="checkbox"/> O&M manual	<input checked="" type="checkbox"/> Readily available	<input type="checkbox"/> N/A
	<input checked="" type="checkbox"/> As-built drawings	<input checked="" type="checkbox"/> Readily available	<input type="checkbox"/> N/A
	<input checked="" type="checkbox"/> Maintenance logs	<input checked="" type="checkbox"/> Readily available	<input type="checkbox"/> N/A
	Remarks: _____		
2.	Site-Specific Health and Safety Plan	<input checked="" type="checkbox"/> Readily available	<input type="checkbox"/> Up to date
	<input checked="" type="checkbox"/> Contingency plan/emergency response plan	<input checked="" type="checkbox"/> Readily available	<input type="checkbox"/> Up to date
	Remarks: _____		
3.	O&M and OSHA Training Records	<input checked="" type="checkbox"/> Readily available	<input type="checkbox"/> Up to date
	Remarks: _____		
4.	Permits and Service Agreements	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date
	<input type="checkbox"/> Air discharge permit	<input type="checkbox"/> Readily available	<input checked="" type="checkbox"/> N/A
	<input checked="" type="checkbox"/> Effluent discharge	<input checked="" type="checkbox"/> Readily available	<input type="checkbox"/> Up to date
	<input type="checkbox"/> Waste disposal, POTW	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date
	<input type="checkbox"/> Other permits: _____	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date
	Remarks: <u>The Site has an LPDES permit (LA0066214).</u>		
5.	Gas Generation Records	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date
	Remarks: _____		
6.	Settlement Monument Records	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date
	Remarks: _____		
7.	Groundwater Monitoring Records	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date
	Remarks: <u>Annual long-term monitoring reports are submitted for both OUs.</u>		
8.	Leachate Extraction Records	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date
	Remarks: _____		
9.	Discharge Compliance Records	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date
	<input type="checkbox"/> Air	<input type="checkbox"/> Readily available	<input checked="" type="checkbox"/> N/A
	<input checked="" type="checkbox"/> Water (effluent)	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date
	Remarks: <u>The Site discharges process water and stormwater via an LPDES permit.</u>		
10.	Daily Access/Security Logs	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date
	Remarks: <u>The PRPs use an access card key system with computer access logs at the Brooklawn OU. The Scenic OU can be accessed through the LPS property.</u>		
IV. O&M COSTS			
1.	O&M Organization	<input type="checkbox"/> Contractor for state	
	<input type="checkbox"/> State in-house	<input checked="" type="checkbox"/> Contractor for PRPs	
	<input type="checkbox"/> PRP in-house	<input type="checkbox"/> Contractor for Federal facility	
	<input type="checkbox"/> Federal facility in-house		
	<input type="checkbox"/> _____		
2.	O&M Cost Records	<input type="checkbox"/> Up to date	
	<input type="checkbox"/> Readily available	<input type="checkbox"/> Unavailable	
	<input checked="" type="checkbox"/> Funding mechanism/agreement in place		
	Original O&M cost estimate: <u>Funding information is not publicly available.</u> <input type="checkbox"/> Breakdown attached		
	Total annual cost by year for review period if available		
	From: _____	To: _____	<input type="checkbox"/> Breakdown attached
	Date	Date	Total cost
	From: _____	To: _____	<input type="checkbox"/> Breakdown attached
	Date	Date	Total cost
	From: _____	To: _____	<input type="checkbox"/> Breakdown attached
	Date	Date	Total cost

From: _____ Date	To: _____ Date	_____ Total cost	<input type="checkbox"/> Breakdown attached
From: _____ Date	To: _____ Date	_____ Total cost	<input type="checkbox"/> Breakdown attached
3. Unanticipated or Unusually High O&M Costs during Review Period Describe costs and reasons: _____			
V. ACCESS AND INSTITUTIONAL CONTROLS <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A			
A. Fencing			
1. Fencing Damaged <input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Gates secured <input type="checkbox"/> N/A Remarks: <u>The Site has a perimeter fence with secured gates. All are in good condition.</u>			
B. Other Access Restrictions			
1. Signs and Other Security Measures <input type="checkbox"/> Location shown on site map <input type="checkbox"/> N/A Remarks: <u>The site perimeter signs are posted at both the Brooklawn and Scenic OUs. The swamp portions of the Site are posted with signs for the fish consumption advisory.</u>			
C. Institutional Controls (ICs)			
1. Implementation and Enforcement Site conditions imply ICs not properly implemented <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A Site conditions imply ICs not being fully enforced <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A Type of monitoring (e.g., self-reporting, drive by): <u>Self inspection, self-monitoring and reporting.</u> Frequency: <u>Operations personnel conduct daily site inspections.</u> Responsible party/agency: <u>PRPs' contractor NPC Services</u> Contact Name _____ Title _____ Date _____ Phone no. _____ Reporting is up to date <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Reports are verified by the lead agency <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Specific requirements in deed or decision documents have been met <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Violations have been reported <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A Other problems or suggestions: <input type="checkbox"/> Report attached			
2. Adequacy <input checked="" type="checkbox"/> ICs are adequate <input type="checkbox"/> ICs are inadequate <input type="checkbox"/> N/A Remarks: _____			
D. General			
1. Vandalism/Trespassing <input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> No vandalism evident Remarks: _____			
2. Land Use Changes On Site <input checked="" type="checkbox"/> N/A Remarks: _____			
3. Land Use Changes Off Site <input type="checkbox"/> N/A Remarks: _____			
VI. GENERAL SITE CONDITIONS			
A. Roads <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A			
1. Roads Damaged <input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Roads adequate <input type="checkbox"/> N/A Remarks: _____			
B. Other Site Conditions Remarks: _____			
VII. LANDFILL COVERS <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A			
A. Landfill Surface Remarks: <u>Protective covers are in place over the former disposal areas at both OUs and protective fill has been placed in the BBR distributaries.</u>			
1. Settlement (low spots) <input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Settlement not evident Area extent: _____ Depth: _____ Remarks: _____			
2. Cracks <input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Cracking not evident Lengths: _____ Widths: _____ Depths: _____ Remarks: _____			

3.	Erosion Area extent: _____ Remarks: _____	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Erosion not evident Depth: _____
4.	Holes Area extent: _____ Remarks: _____	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Holes not evident Depth: _____
5.	Vegetative Cover <input checked="" type="checkbox"/> No signs of stress Remarks: _____	<input checked="" type="checkbox"/> Grass <input type="checkbox"/> Trees/shrubs (indicate size and locations on a diagram)	<input checked="" type="checkbox"/> Cover properly established
6.	Alternative Cover (e.g., armored rock, concrete) Remarks: _____		<input checked="" type="checkbox"/> N/A
7.	Bulges Area extent: _____ Remarks: _____	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Bulges not evident Height: _____
8.	Wet Areas/Water Damage <input type="checkbox"/> Wet areas <input type="checkbox"/> Ponding <input type="checkbox"/> Seeps <input type="checkbox"/> Soft subgrade Remarks: _____	<input checked="" type="checkbox"/> Wet areas/water damage not evident <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Location shown on site map	Area extent: _____ Area extent: _____ Area extent: _____ Area extent: _____
9.	Slope Instability <input checked="" type="checkbox"/> No evidence of slope instability Area extent: _____ Remarks: _____	<input checked="" type="checkbox"/> Slides	<input type="checkbox"/> Location shown on site map
B. Benches <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A (Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)			
1.	Flow Bypass Bench Remarks: _____	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> N/A or okay
2.	Bench Breached Remarks: _____	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> N/A or okay
3.	Bench Overtopped Remarks: _____	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> N/A or okay
C. Letdown Channels <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A (Channel lined with erosion control mats, riprap, grout bags or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)			
1.	Settlement (Low spots) Area extent: _____ Remarks: _____	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> No evidence of settlement Depth: _____
2.	Material Degradation Material type: _____ Remarks: _____	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> No evidence of degradation Area extent: _____
3.	Erosion Area extent: _____ Remarks: _____	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> No evidence of erosion Depth: _____
4.	Undercutting Area extent: _____ Remarks: _____	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> No evidence of undercutting Depth: _____
5.	Obstructions <input type="checkbox"/> Location shown on site map Size: _____ Remarks: _____	Type: _____ Area extent: _____	<input type="checkbox"/> No obstructions
6.	Excessive Vegetative Growth <input type="checkbox"/> No evidence of excessive growth <input type="checkbox"/> Vegetation in channels does not obstruct flow <input type="checkbox"/> Location shown on site map	Type: _____ Area extent: _____	

Remarks: _____			
D. Cover Penetrations <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A			
1.	Gas Vents	<input type="checkbox"/> Active	<input type="checkbox"/> Passive
	<input type="checkbox"/> Properly secured/locked	<input type="checkbox"/> Functioning	<input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition
	<input type="checkbox"/> Evidence of leakage at penetration	<input type="checkbox"/> Needs maintenance	<input checked="" type="checkbox"/> N/A
Remarks: _____			
2.	Gas Monitoring Probes	<input type="checkbox"/> Properly secured/locked	<input type="checkbox"/> Functioning
	<input type="checkbox"/> Evidence of leakage at penetration	<input type="checkbox"/> Routinely sampled	<input type="checkbox"/> Good condition
		<input type="checkbox"/> Needs maintenance	<input checked="" type="checkbox"/> N/A
Remarks: _____			
3.	Monitoring Wells (within surface area of landfill)		
	<input checked="" type="checkbox"/> Properly secured/locked	<input checked="" type="checkbox"/> Functioning	<input checked="" type="checkbox"/> Routinely sampled <input checked="" type="checkbox"/> Good condition
	<input type="checkbox"/> Evidence of leakage at penetration	<input type="checkbox"/> Needs maintenance	<input type="checkbox"/> N/A
Remarks: _____			
4.	Extraction Wells Leachate	<input type="checkbox"/> Properly secured/locked	<input type="checkbox"/> Functioning
	<input type="checkbox"/> Evidence of leakage at penetration	<input type="checkbox"/> Routinely sampled	<input type="checkbox"/> Good condition
		<input type="checkbox"/> Needs maintenance	<input checked="" type="checkbox"/> N/A
Remarks: _____			
5.	Settlement Monuments	<input type="checkbox"/> Located	<input type="checkbox"/> Routinely surveyed <input checked="" type="checkbox"/> N/A
Remarks: _____			
E. Gas Collection and Treatment <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A			
1.	Gas Treatment Facilities	<input type="checkbox"/> Flaring	<input type="checkbox"/> Thermal destruction
	<input type="checkbox"/> Good condition	<input type="checkbox"/> Needs maintenance	<input type="checkbox"/> Collection for reuse
Remarks: _____			
2.	Gas Collection Wells, Manifolds and Piping		
	<input type="checkbox"/> Good condition	<input type="checkbox"/> Needs maintenance	
Remarks: _____			
3.	Gas Monitoring Facilities (e.g., gas monitoring of adjacent homes or buildings)		
	<input type="checkbox"/> Good condition	<input type="checkbox"/> Needs maintenance	<input type="checkbox"/> N/A
Remarks: _____			
F. Cover Drainage Layer <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A			
1.	Outlet Pipes Inspected	<input type="checkbox"/> Functioning	<input type="checkbox"/> N/A
Remarks: _____			
2.	Outlet Rock Inspected	<input type="checkbox"/> Functioning	<input type="checkbox"/> N/A
Remarks: _____			
G. Detention/Sedimentation Ponds <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A			
1.	Siltation	Area extent: _____	Depth: _____ <input type="checkbox"/> N/A
	<input type="checkbox"/> Siltation not evident		
Remarks: _____			
2.	Erosion	Area extent: _____	Depth: _____
	<input type="checkbox"/> Erosion not evident		
Remarks: _____			
3.	Outlet Works	<input type="checkbox"/> Functioning	<input type="checkbox"/> N/A
Remarks: _____			
4.	Dam	<input type="checkbox"/> Functioning	<input type="checkbox"/> N/A
Remarks: _____			
H. Retaining Walls <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A			
1.	Deformations	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Deformation not evident
	Horizontal displacement: _____	Vertical displacement: _____	
	Rotational displacement: _____		
Remarks: _____			
2.	Degradation	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Degradation not evident
Remarks: _____			
I. Perimeter Ditches/Off-Site Discharge <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A			
1.	Siltation	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Siltation not evident

	Area extent: _____ Remarks: _____	Depth: _____
2.	Vegetative Growth <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Vegetation does not impede flow Area extent: _____ Remarks: _____	<input type="checkbox"/> N/A Type: _____
3.	Erosion <input type="checkbox"/> Location shown on site map Area extent: _____ Remarks: _____	<input type="checkbox"/> Erosion not evident Depth: _____
4.	Discharge Structure <input type="checkbox"/> Functioning Remarks: _____	<input type="checkbox"/> N/A
VIII. VERTICAL BARRIER WALLS <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A		
1.	Settlement <input type="checkbox"/> Location shown on site map Area extent: _____ Remarks: _____	<input type="checkbox"/> Settlement not evident Depth: _____
2.	Performance Monitoring Type of monitoring: _____ <input type="checkbox"/> Performance not monitored Frequency: _____ Head differential: _____ Remarks: _____	<input type="checkbox"/> Evidence of breaching
IX. GROUNDWATER/SURFACE WATER REMEDIES <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A		
A. Groundwater Extraction Wells, Pumps and Pipelines <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A		
1.	Pumps, Wellhead Plumbing and Electrical <input type="checkbox"/> Good condition <input type="checkbox"/> All required wells properly operating <input type="checkbox"/> Needs maintenance <input checked="" type="checkbox"/> N/A Remarks: <u>DNAPL and groundwater extraction ceased in 2000 at the Brooklawn OU and in 2003 at the Scenic OU due to declining DNAPL levels. In 2016, extraction wells were installed at the DTZ in the Scenic OU to address groundwater contamination.</u>	
2.	Extraction System Pipelines, Valves, Valve Boxes and Other Appurtenances <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Needs maintenance Remarks: _____	
3.	Spare Parts and Equipment <input type="checkbox"/> Readily available <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Requires upgrade <input type="checkbox"/> Needs to be provided Remarks: _____	
B. Surface Water Collection Structures, Pumps and Pipelines <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A		
1.	Collection Structures, Pumps and Electrical <input type="checkbox"/> Good condition <input type="checkbox"/> Needs maintenance Remarks: _____	
2.	Surface Water Collection System Pipelines, Valves, Valve Boxes and Other Appurtenances <input type="checkbox"/> Good condition <input type="checkbox"/> Needs maintenance Remarks: _____	
3.	Spare Parts and Equipment <input type="checkbox"/> Readily available <input type="checkbox"/> Good condition <input type="checkbox"/> Requires upgrade <input type="checkbox"/> Needs to be provided Remarks: _____	
C. Treatment System <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A		
1.	Treatment Train (check components that apply) <input type="checkbox"/> Metals removal <input type="checkbox"/> Oil/water separation <input type="checkbox"/> Bioremediation <input type="checkbox"/> Air stripping <input checked="" type="checkbox"/> Carbon adsorbers <input type="checkbox"/> Filters: _____ <input checked="" type="checkbox"/> Additive (e.g., chelation agent, flocculent): <u>Molasses is being injected at the Scenic OU DTZ area to enhance attenuation, followed by extraction and treatment with carbon adsorbers prior to discharge under an LPDES permit.</u> <input type="checkbox"/> Others: _____ <input type="checkbox"/> Good condition <input type="checkbox"/> Needs maintenance <input type="checkbox"/> Sampling ports properly marked and functional <input type="checkbox"/> Sampling/maintenance log displayed and up to date <input type="checkbox"/> Equipment properly identified <input type="checkbox"/> Quantity of groundwater treated annually: _____	

<input type="checkbox"/> Quantity of surface water treated annually: _____ Remarks: <u>Air stripping and oil/water separation was discontinued at the Brooklawn OU in 2000. Groundwater extraction and carbon adsorption and discharge through the LPDES permit began in 2016 for the Scenic OU DTZ as an interim remedial action.</u>	
2.	Electrical Enclosures and Panels (properly rated and functional) <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Needs maintenance Remarks: _____
3.	Tanks, Vaults, Storage Vessels <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Proper secondary containment <input type="checkbox"/> Needs maintenance Remarks: _____
4.	Discharge Structure and Appurtenances <input checked="" type="checkbox"/> N/A <input type="checkbox"/> Good condition <input type="checkbox"/> Needs maintenance Remarks: _____
5.	Treatment Building(s) <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition (esp. roof and doorways) <input type="checkbox"/> Needs repair <input type="checkbox"/> Chemicals and equipment properly stored Remarks: _____
6.	Monitoring Wells (pump and treatment remedy) <input checked="" type="checkbox"/> Properly secured/locked <input checked="" type="checkbox"/> Functioning <input checked="" type="checkbox"/> Routinely sampled <input checked="" type="checkbox"/> Good condition <input checked="" type="checkbox"/> All required wells located <input type="checkbox"/> Needs maintenance <input type="checkbox"/> N/A Remarks: <u>The extraction system applies to the Scenic OU only.</u>
D. Monitoring Data	
1.	Monitoring Data <input checked="" type="checkbox"/> Is routinely submitted on time <input checked="" type="checkbox"/> Is of acceptable quality
2.	Monitoring Data Suggests: <input checked="" type="checkbox"/> Groundwater plume is effectively contained <input type="checkbox"/> Contaminant concentrations are declining
E. Monitored Natural Attenuation	
1.	Monitoring Wells (natural attenuation remedy) <input checked="" type="checkbox"/> Properly secured/locked <input checked="" type="checkbox"/> Functioning <input checked="" type="checkbox"/> Routinely sampled <input checked="" type="checkbox"/> Good condition <input checked="" type="checkbox"/> All required wells located <input type="checkbox"/> Needs maintenance <input type="checkbox"/> N/A Remarks: _____
X. OTHER REMEDIES	
If there are remedies applied at the site and not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.	
XI. OVERALL OBSERVATIONS	
A.	Implementation of the Remedy Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is designed to accomplish (e.g., to contain contaminant plume, minimize infiltration and gas emissions). <u>At the Brooklawn OU, source control and protective coverings at the Site have reduced the risks associated with ingestion, inhalation and dermal contact with site contaminants through surface water and sediment pathways for both human and biota receptors. Disposal pits and lagoons were drained and backfilled, followed by placement of a protective cover. Placement of protective fill in the BBR distributaries has reduced risk to human and ecological receptors. The MNA remedy, through implementation of the monitoring plan at the Brooklawn OU, has been shown to be protective of the downgradient receptors in the Mississippi River. At the Scenic OU, sampling of BBR sediments south of the Scenic OU has shown that the remedial action of natural recovery is effective. EA is implemented in an area west of the Scenic OU. After pilot testing EA, three treatment zones are in operation. Monitoring of EA progress is routinely conducted and reported. Additional injections of substrate (molasses) for the EA process are routinely conducted. In 2016, extraction wells and carbon adsorption system were installed in the DTZ of the Scenic OU to expand remediation of the distal portion of the contaminant plume. Finally, administrative controls to limit access to the Site are in place. They continue to be effective in limiting entry to approved site OU.</u>
B.	Adequacy of O&M

	<p>Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy. <u>No issues were observed during the site inspection.</u></p>
C.	Early Indicators of Potential Remedy Problems
	<p>Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs that suggest that the protectiveness of the remedy may be compromised in the future. <u>No early indicators of potential remedy problems were noted.</u></p>
D.	Opportunities for Optimization
	<p>Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. <u>The groundwater remedy is currently being optimized through EA for the Scenic OU by expanding the EA injections and carbon adsorption treatment in the DTZ.</u></p>

APPENDIX F – SITE INSPECTION PHOTOS



Secured entrance to the Brooklawn OU at NPC Service's facility



Fencing along the northern edge of the capped area at the Brooklawn OU



View of the capped area at the Brooklawn OU Bluff Area



Filled upper lagoon at the Brooklawn OU, with recovery well field in the background



Stormwater catchment basin at the Brooklawn OU that is pumped and treated



Stormwater treatment facility at the Brooklawn OU



LPDES Outfall 006A at the Brooklawn OU



LPDES Outfall 006B at the Brooklawn OU



LPDES Outfall 006C at the Brooklawn OU



Health advisory sign in Devil's Swamp at the Brooklawn OU



Monitoring wells at the Brooklawn OU



Capped borrow pit at the Scenic OU



Fencing around the Scenic OU



Scenic OU DTZ area showing molasses tank (green), injection well and carbon treatment unit (blue tanks in background)



Extraction well at the DTZ of the Scenic OU



Monitoring well at the Scenic OU



LPDES Outfalls 013A, 103B and 013C at the Scenic OU



The LSP training center consisting of a slab with an incinerator.



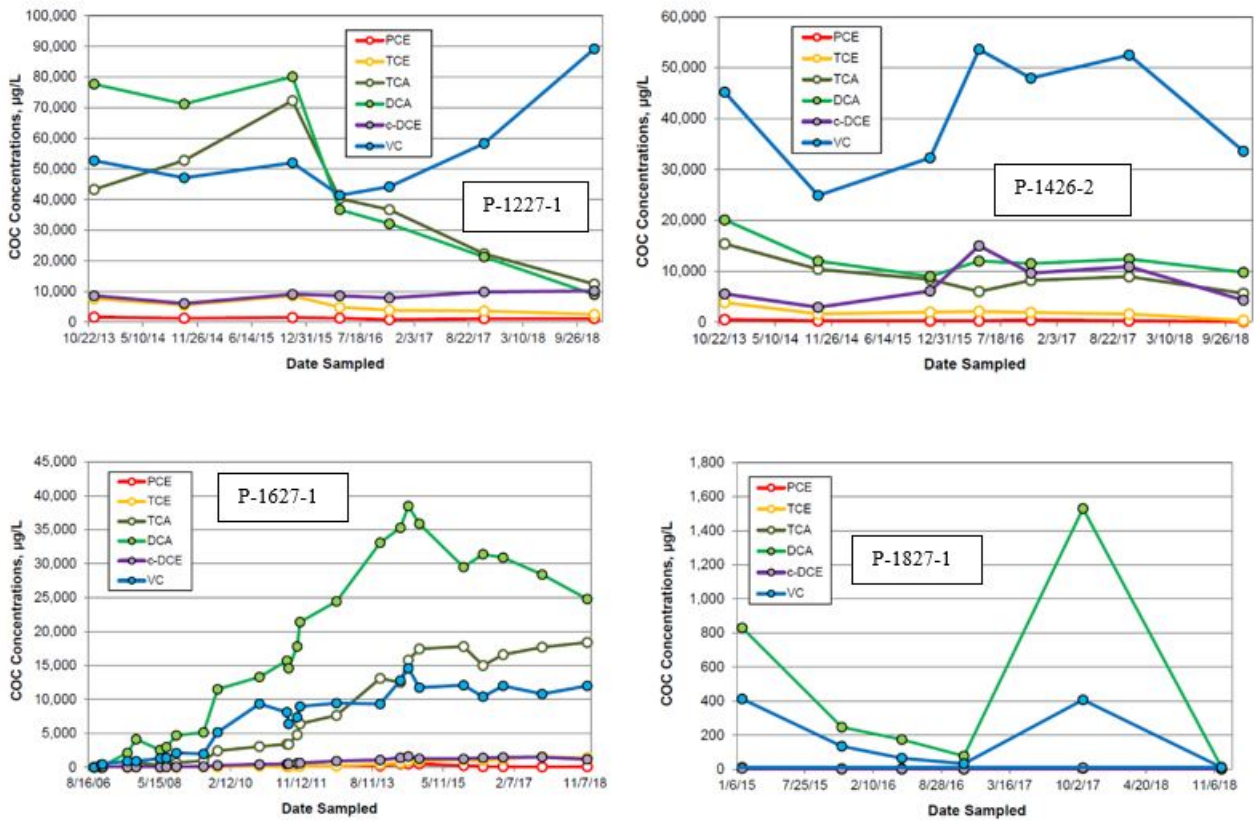
Occupied building east of the DTZ

APPENDIX G – DATA ANALYSIS – SUPPLEMENTAL TABLES AND FIGURES

Table G-1: COC Trends (µg/L) for Brooklawn Primary Source Transect Wells Exceeding MCLs

Well Location	Sample Year	PCE	TCE	TeCA	TCA	DCA	cis-DCE	trans-DCE	Vinyl Chloride
MCL		5	5	-	5	5	70	100	2
P-1227-1	2014	1,260	5,540	4,560	52,800	71,200	6,080	1,850	47,100
	2015	1,510	8,580	8,030	72,300	80,100	9,080	2,730	52,000
	2016	816	3,880	4,050	36,700	32,100	7,880	1,780	44,200
	2017	1,090	3,630	2,040	22,300	21,300	9,870	2,140	58,300
	2018	1,120	2,510	1,500	12,400	8,960	10,200	1,950	89,200
P-1426-2	2014	250	1,610	374	10,400	12,000	2,910	619	24,900
	2015	250	1,970	250	8,390	8,990	6,110	894	32,300
	2016	500	2,030	500	8,220	11,900	10,000	1,520	49,700
	2017	253	1,580	305	8,930	12,400	10,900	1,610	52,500
	2018	< 100	349	< 100	5,650	9,780	4,300	657	33,600
P-1627-1	2014	<500	933	<500	17,200	38,500	1,610	<500	14,600
	2015	<250	1,130	<250	17,800	29,500	1,250	139	12,100
	2016	< 100	1,220	< 100	16,600	30,900	1,470	180	12,000
	2017	50	1,560	59.8	17,700	28,400	1,510	278	10,800
	2018	< 100	1,410	< 100	18,400	24,800	1,170	294	12,000
P-1827-1	2014	<10	<10	<10	<10	830	4.55	<10	412
	2015	<2	<2	<2	1.85	288	1.63	<2	159
	2016	< 1	< 1	< 1	< 1	77.1	0.47	< 1	32.1
	2017	<5	<5	<5	<5	1530	8.5	<5	407
	2018	< 1	< 1	< 1	< 1	11	< 1	< 1	10.4
<p><i>Notes:</i> <i>Source:</i> Post-Construction Monitoring Activities: Long-Term Monitoring Plan Report – Brooklawn OU. Table H-2. Prepared by NPC Services. December 2019.</p>									

Figure G-1: Brooklawn OU – Contaminant Trends in Primary Source Transect Wells



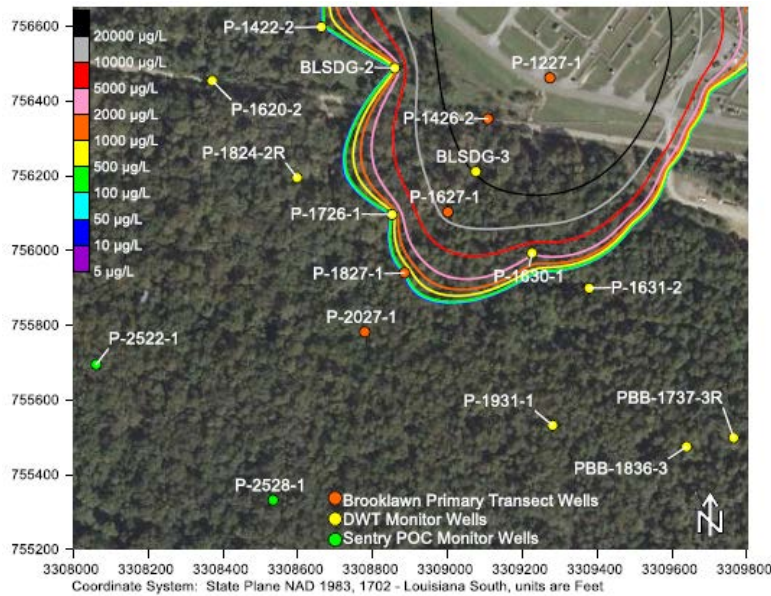
Source: 2018 Long-Term Monitoring Plan Report. Post-Construction Monitoring Activities at the Brooklawn OU. Figures 4-3 to 4-6. Prepared by NPC Services. December 2019.

Table G-2: Brooklawn OU – Long-Term Monitoring Results (µg/L) for COCs in All Wells, 2018

Location ID	Screened Zone	Well Type	PCE	TCE	TeCA	TCA	DCA	c-DCE	t-DCE	VC
BLSUG-1	-40 MSL	Background	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BLSDG-1	-40 MSL	Background	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BLDUG-1	400-foot	Background	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BLDDG-2	400-foot	Background	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BLDDG-1	400-foot	Sentry	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
PBB-1836-1	400-foot	Sentry	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
P-1931-3	400-foot	Sentry	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
P-2528-1	400-foot	Sentry/POC	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
P-2522-1	400-foot	Sentry/POC	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
PBB-1836-2	Alluvial Base	Bayou Area	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
PBB-2746-3	Alluvial Base	Sentry	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
P-1931-2	Alluvial Base	Sentry	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
P-1631-2	Deep WT	Background	< 1	3	< 1	< 1	< 1	< 1	< 1	< 1
PBB-1836-3	Deep WT	Bayou Area	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
PBB-1737-3R	Deep WT	Bayou Area	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BLSDG-3	Deep WT	Primary Source Transect	< 1	< 1	< 1	< 1	< 1	2	< 1	28
P-1827-1	Deep WT	Primary Source Transect	< 1	< 1	< 1	< 1	11	< 1	< 1	10
P-1627-1	Deep WT	Primary Source Transect	< 100	1,410	< 100	18,400	24,800	1,170	294	12,000
P-1426-2	Deep WT	Primary Source Transect	< 100	349	< 100	5,650	9,780	4,300	657	33,600
P-1227-1	Deep WT	Primary Source Transect	1,120	2,510	1,500	12,400	8,960	10,200	1,950	89,200
P-2027-1	Deep WT	Primary Source Transect	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
P-1630-1	Deep WT	Primary Source Transect Lateral	< 200	< 200	< 200	< 200	< 200	< 200	< 200	2,190
P-1726-1	Deep WT	Primary Source Transect Lateral	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BLSDG-2	Deep WT	Sentry	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
P-1824-2R	Deep WT	Sentry	< 1	< 1	< 1	< 1	< 1	< 1	< 1	2
P-1931-1	Deep WT	Sentry/Background	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
P-1620-2	Deep WT	Sentry/Background	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
PBB-1737-2	Shallow WT	Bayou Area	< 1	< 1	< 1	< 1	< 1	< 1	< 1	16
P-1620-1	Shallow WT	Sentry	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100

Source: Post-Construction Monitoring Activities: Long-Term Monitoring Plan Report – Brooklawn OU. Table 2-3. Prepared by NPC Services. December 2019.

Figure G-2: Approximate Extent of Vinyl Chloride in the DWT at the Brooklawn OU, 2018



Source: 2018 Long-Term Monitoring Plan Report. Post-Construction Monitoring Activities at the Brooklawn OU. Figure 4-10. Prepared by NPC Services. December 2019.

Table G-3: Scenic OU – Transect Monitoring Analysis within the +20 MSL Channel, 2009 to 2018

Location ID	Year	Contaminant Concentrations (µg/L)					
		PCE	TCE	TCA	DCA	c-DCE	Vinyl Chloride
SBP-041-B	2009	21	172	79	210	122	221
SBP-041-B	2010	2	108	6	72	146	190
SBP-041-B	2011	0	6	1	4	11	25
SBP-041-B	2012	1	9	1	4	23	42
SBP-041-B	2013	1	2	1	5	2	6
SBP-041-B	2014	9	33	30	74	52	73
SBP-041-B	2015	5	41	22	58	72	115
SBP-041-B	2016	45	108	90	228	185	237
SBP-041-B	2017	37	99	95	278	143	194
SBP-041-B	2018	32	93	101	277	97	140
SBP-046	2009	368	240	97	575	1,490	251
SBP-046	2010	677	184	229	708	629	132
SBP-046	2011	340	228	55	353	988	289
SBP-046	2012	120	122	21	132	1,920	391
SBP-046	2013	109	63	47	197	1,080	294
SBP-046	2014	174	48	36	177	908	339
SBP-046	2015	116	39	20	101	1,320	259
SBP-046	2016	99	38	20	84	988	271
SBP-046	2017	108	83	58	115	490	160
SBP-046	2018	42	32	12	38	27	30
SBP-017-B	2009	4,060	4,885	5,321	8,158	797	1,129
SBP-017-B	2010	4,416	4,461	5,150	7,176	683	1,120
SBP-017-B	2011	1,889	5,240	3,845	5,775	829	1,400
SBP-017-B	2012	139	70	66	138	7,923	3,877
SBP-017-B	2013	73	68	75	111	8,710	4,095
SBP-017-B	2014	32	33	50	76	7,220	4,000
SBP-017-B	2015	26	24	40	34	3,660	2,340
SBP-017-B	2016	5	4	5	26	1,880	2,980

Location ID	Year	Contaminant Concentrations (µg/L)					
		PCE	TCE	TCA	DCA	c-DCE	Vinyl Chloride
SBP-017-B	2017	1	1	1	11	428	807
SBP-017-B	2018	5	5	5	11	462	538
IP-3	2009	330	747	578	804	3,611	3,320
IP-3	2010	17	28	22	39	1,482	1,521
IP-3	2011	13	13	13	9	854	937
IP-3	2012	9	9	9	5	376	670
IP-3	2013	2	2	2	2	47	136
IP-3	2014	1	1	1	2	11	51
IP-3	2015	1	1	1	2	7	18
IP-3	2016	1	1	1	1	9	13
IP-3	2017	1	1	1	1	1	0
IP-3	2018	1	1	1	1	1	0
ED01	2009	540	1,885	1,087	1,955	2,738	3,035
ED01	2010	115	343	274	522	2,790	2,655
ED01	2011	4	2	4	12	406	245
ED01	2012	1	1	1	5	52	49
ED01	2013	1	1	1	1	2	4
ED01	2014	1	1	1	1	4	3
ED01	2015	1	1	1	1	1	1
ED01	2016	1	1	1	1	1	1
ED01	2017	1	1	1	1	1	1
ED01	2018	1	1	1	0	2	1
SBP-062-B	2009	3,130	2,080	1,910	2,040	175	264
SBP-062-B	2010	939	908	1,425	1,685	165	135
SBP-062-B	2011	1,440	1,340	1,240	1,440	168	198
SBP-062-B	2012	1,203	1,158	1,122	1,160	146	192
SBP-062-B	2013	1,300	1,450	1,320	1,330	143	262
SBP-062-B	2014	1,351	1,144	1,083	435	133	201
SBP-062-B	2015	1,410	910	878	251	114	162
SBP-062-B	2016	1,310	994	933	539	279	238
SBP-062-B	2018	924	1630	921	631	371	447
SBP-084-B	2009	1,490	720	1,065	131	65	118
SBP-084-B	2010	1,020	531	827	55	78	78
SBP-084-B	2011	1,035	518	725	49	63	96
SBP-084-B	2012	998	403	607	45	54	67
SBP-084-B	2013	869	501	703	55	74	98
SBP-084-B	2014	1,040	490	763	60	81	91
SBP-084-B	2015	1,120	590	715	40	88	118
SBP-084-B	2016	879	471	628	40	109	132
SBP-084-B	2017	757	551	661	67	96	124
SBP-084-B	2018	1,260	1,040	1,160	257	206	296

Notes:

- a. Sample results values shown as 0 are values less than 1. No sample qualifiers are shown.
- b. All values are in units of µg/L.

Source: 2018 Long-Term Monitoring Plan Report. Post-Construction Monitoring Activities at the Scenic OU. Table 3-2. Prepared by NPC Services. December 2019.

Table G-4: Scenic OU – Historic Monitoring Results in the DTZ +20 MSL Channel, 2015 to 2020

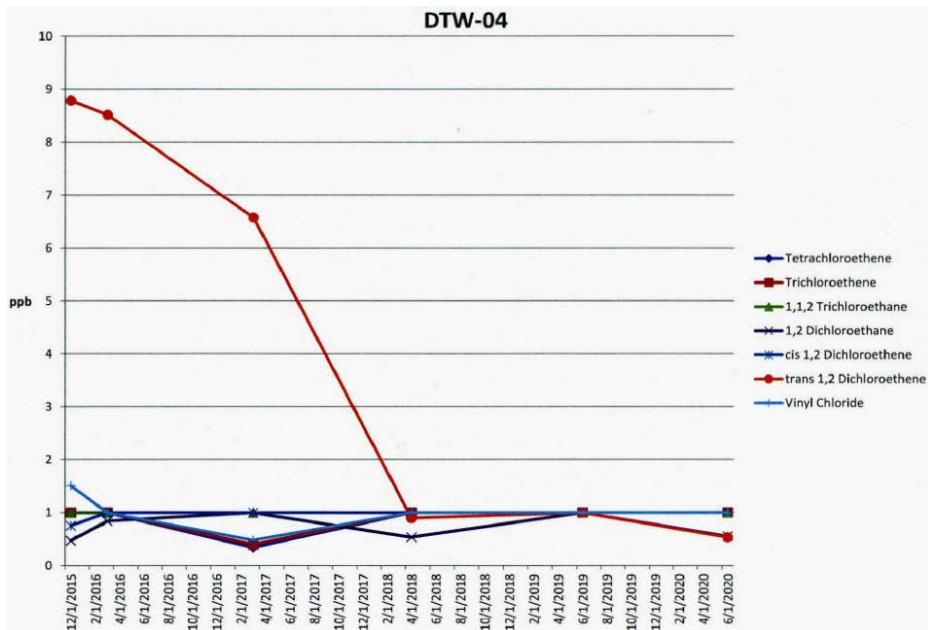
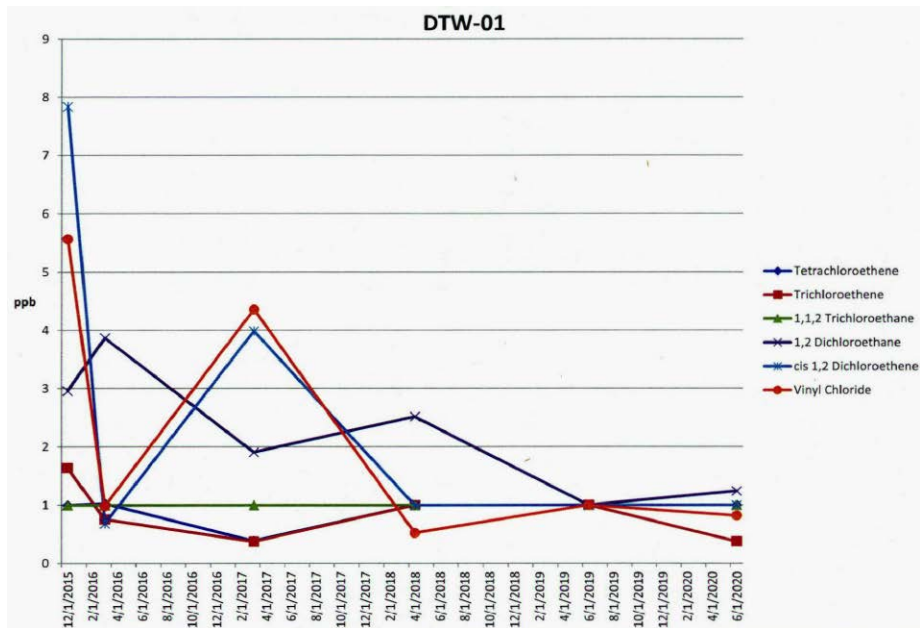
			Scenic OU							
Sample Location	Sample Date	MCL	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,2-Dichloroethane	cis-1,2-Dichloroethane	Tetrachloroethylene	trans-1,2-Dichloroethane	Trichloroethylene	Vinyl Chloride
			5	5	5	70	5	100	5	2
CPE-01	8/15/2017		<1	3.07	1.48	0.463	1.89	<1	1.65	0.486
CPE-01	4/30/2018		<1	1.32	1.32	<1	<1	<1	0.863	<1
CPE-01	4/8/2019		<1	33.6	7.99	23.5	41	3.52	42	15.7
CPE-01	5/23/2019		<1	27.6	7.07	21.6	28.2	3.16	29.8	11.2
CPE-01	7/17/2019		<1	20.6	5.4	18.4	24.4	2.48	25.7	12.6
CPE-01	9/17/2019		<1	22.7	6.84	18.7	22.1	3.23	23	14
CPE-01	12/18/2019		<1	12.5	5.96	21.2	13.7	3.41	13.6	12.1
CPE-01	2/5/2020		<1	10.5	4.57	16.7	9.84	2.68	9.66	9.22
CPE-01	6/10/2020		<1	12.4	6.06	16	9.04	2.53	9.58	8.57
CPE-01	9/23/2020		<1	2.86	3.58	26.4	5.19	4.26	6.55	13.4
CPE-02	8/15/2017		<1	11.6	2.31	1.67	12.1	<1	9.67	1.26
CPE-02	4/30/2018		<1	<1	5.1	0.622	1.69	<1	3.17	0.632
CPE-02	4/8/2019		<1	30	8.78	18.2	28	1.89	30.1	11
CPE-02	5/23/2019		<1	30.1	8.12	15.3	22.1	1.26	22.1	5.84
CPE-02	7/17/2019		<1	20.9	6.47	9.99	20	<1	20.7	6.77
CPE-02	9/17/2019		<1	23.1	7.05	9.44	17.7	0.871	17.1	3.48
CPE-02	12/18/2019		<1	16.1	5.95	6.09	11.6	0.55	12	3.18
CPE-02	2/5/2020		<1	13.5	4.2	3.71	8.27	<1	8.37	1.41
CPE-02	6/10/2020		<1	12.1	4.92	4.16	7.03	<1	7.61	1.94
CPE-02	9/23/2020		<1	6.93	2.78	2.51	5.19	<1	5.34	1.36
DEN-01	5/25/2016		<1	2.32	0.889	<1	<1	<1	0.499	<1
DEN-01	6/28/2016		<5	27.4	4.18	4.96	23.8	1.12	21.5	7.12
DEN-01	7/5/2016		<5	26.3	3.22	3.09	23.6	0.575	17.9	4.79
DEN-01	7/11/2016		<5	28.8	3.51	3.55	22.9	0.592	17.7	3.09
DEN-01	7/18/2016		<5	31.7	2.99	3.48	28.3	0.851	20.1	4.79
DEN-01	7/26/2016		<1	37.4	4.31	5.57	35.4	1.61	27.4	6.89
DEN-01	8/1/2016		<1	36.5	3.99	5.13	33.9	1.5	25.4	5.78
DEN-01	8/17/2016		<1	33.6	4.34	4.56	34.2	1.75	25.4	6.3
DEN-01	9/13/2016		<1	22.9	4.07	3.6	18.7	0.735	16.3	4.3
DEN-01	9/28/2016		<1	34.8	4.53	5.89	34.9	1.19	26.2	6.84
DEN-01	10/3/2016		<1	27.3	3.54	5.21	24.8	0.804	20	6.11
DEN-01	10/18/2016		<1	27.3	3.94	5.88	23	0.8	20.4	6.09
DEN-01	10/27/2016		<1	29	4.26	10.1	26.6	1.05	25.1	10.8
DEN-01	11/3/2016		<1	28.7	4.23	9.88	28.6	1.13	24.9	9.3
DEN-01	11/10/2016		<1	28.3	4.39	14	25.2	1.29	27.1	11.6
DEN-01	11/16/2016		<1	27.9	4.58	16.5	26.2	1.49	26.6	15
DEN-01	12/8/2016		<1	15.6	3.55	23.6	11.6	1.6	11.3	14.7
DEN-01	11/16/2017		<1	0.648	2.11	24.4	0.942	4.08	4.57	20.8
DEN-01	12/13/2017		<1	0.869	2.68	21	2.04	3.24	7.96	12.9
DEN-01	2/15/2018		<1	0.473	2.14	20.6	1.27	3.61	7.37	11.1
DEN-01	4/8/2019		<1	<1	1.61	6.77	<1	4.1	2.35	5.84
DEN-01	9/17/2019		<1	<1	1.15	6.02	0.429	4.72	2.3	5.77
DEN-01	12/18/2019		<1	<1	1.17	5.45	<1	3.55	1.65	3.12
DEN-01	2/5/2020		<1	<1	0.69	3.88	<1	3.48	1.29	2.07
DEN-01	6/10/2020		<1	<1	1.04	2.76	<1	3.46	1.06	1.91
DEN-01	9/23/2020		<1	<1	0.847	3.35	<1	2.79	1.22	1.47

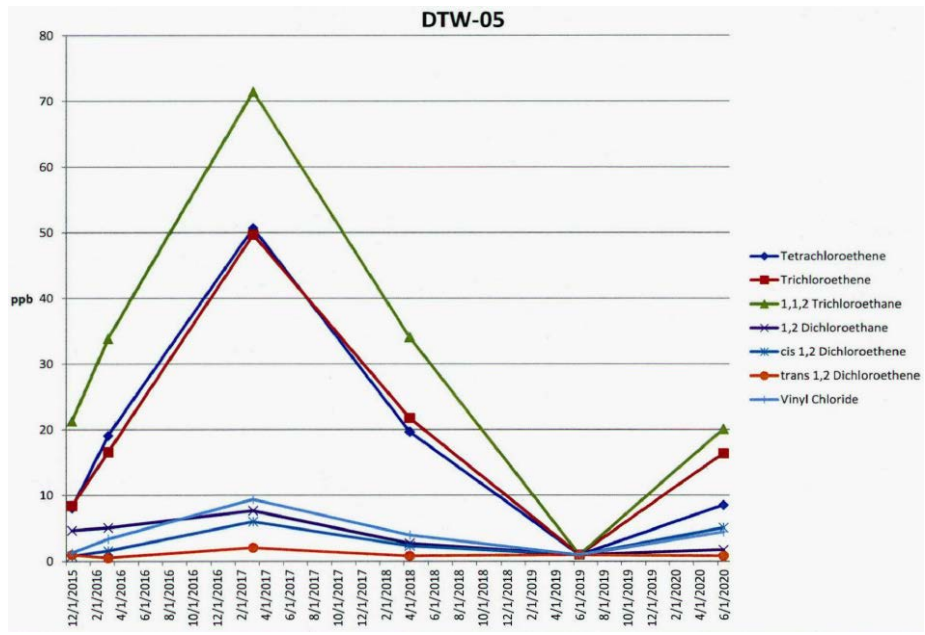
		Scenic OU								
Sample Location	Sample Date	MCL	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,2-Dichloroethane	cis-1,2-Dichloroethene	Tetrachloroethylene	trans-1,2-Dichloroethene	Trichloroethylene	Vinyl Chloride
			5	5	5	70	5	100	5	2
DES-01	5/23/2016		<1	<1	<1	<1	0.51	<1	<1	<1
DES-01	6/28/2016		<5	1.95	4.01	6.21	4.74	0.747	3.83	3.21
DES-01	7/5/2016		<5	2.94	3.1	6.13	5.37	0.612	4.28	3.07
DES-01	7/11/2016		<5	3.32	3.37	8.24	5.62	0.803	4.77	3.65
DES-01	7/18/2016		<5	4.88	3.12	7.46	7.9	0.848	5.81	3.68
DES-01	7/26/2016		<1	6.07	3.94	7.79	8.62	1.45	6.52	3.4
DES-01	8/1/2016		<1	6.11	3.7	7.14	8.2	1.54	5.95	3.4
DES-01	8/17/2016		<1	5.22	3.59	6.15	8.17	1.95	5.9	3
DES-01	9/13/2016		<1	2.12	3.13	4.98	3.23	1.77	2.68	2.73
DES-01	9/28/2016		<1	2.74	2.8	3.74	4.27	1.39	3.23	2.14
DES-01	7/17/2019		<1	<1	<1	0.944	<1	<1	<1	<1
DES-01	9/17/2019		<1	<1	1.73	1.16	<1	0.402	0.435	0.761
DES-01	12/18/2019		<1	<1	1.95	1.61	<1	0.314	0.404	1.08
DES-01	2/5/2020		<1	<1	1.61	1.81	<1	<1	<1	1.16
DES-01	6/10/2020		<1	<1	1.92	1.86	<1	<1	<1	1.3
DPW-01	12/15/2015		<1	<1	<1	<1	<1	<1	<1	<1
DPW-01	3/8/2016		<1	<1	<1	<1	<1	<1	<1	<1
DPW-01	2/28/2017		<1	<1	0.45	<1	0.371	<1	<1	<1
DPW-01	3/26/2018		<1	<1	<1	<1	<1	<1	<1	<1
DPW-01	6/10/2019		<1	<1	<1	<1	<1	<1	<1	<1
DPW-01	6/2/2020		<1	<1	<1	<1	<1	<1	<1	<1
DTW-01	12/15/2015		<1	<1	2.96	7.84	<1	<1	1.64	5.57
DTW-01	3/7/2016		<1	<1	3.87	0.683	1.03	<1	0.756	0.984
DTW-01	3/2/2017		<1	<1	1.91	3.99	0.387	0.378	0.375	4.36
DTW-01	4/2/2018		<1	<1	2.52	<1	<1	<1	<1	0.523
DTW-01	6/12/2019		<1	<1	<1	<1	<1	<1	<1	<1
DTW-01	5/27/2020		<1	<1	1.24	<1	<1	<1	0.376	0.819
DTW-02	12/14/2015		<1	<1	1.6	<1	<1	4.99	0.365	<1
DTW-02	3/7/2016		<1	<1	8.26	<1	0.629	6.29	0.649	0.349
DTW-02	3/1/2017		<1	<1	2.61	0.773	<1	<1	0.321	1.72
DTW-02	4/2/2018		<1	<1	1.11	<1	<1	<1	<1	<1
DTW-02	6/12/2019		<1	<1	<1	<1	<1	<1	<1	<1
DTW-02	5/27/2020		<1	<1	1.8	0.409	<1	<1	0.582	0.487
DTW-03	12/14/2015		<1	<1	0.612	<1	<1	0.53	0.388	<1
DTW-03	3/8/2016		<1	<1	0.748	<1	0.258	<1	0.443	<1
DTW-03	3/1/2017		<1	<1	0.881	0.851	0.344	<1	0.441	0.572
DTW-03	4/2/2018		<1	<1	1.13	<1	<1	<1	<1	<1
DTW-03	6/12/2019		<1	<1	<1	<1	<1	<1	<1	<1
DTW-03	5/27/2020		<1	<1	0.831	0.857	<1	<1	0.966	2.31
DTW-03-A	12/14/2015		<1	<1	4.49	5.95	<1	0.605	3.61	2.46
DTW-03-A	3/8/2016		<1	0.702	6.02	2.54	1.02	<1	6.29	3.77
DTW-03-A	3/1/2017		<1	<1	1.44	1.91	0.372	<1	1.07	0.504
DTW-03-A	4/2/2018		<1	<1	1.02	0.708	<1	<1	0.456	1.11
DTW-03-A	6/11/2019		<1	<1	<1	<1	<1	<1	<1	<1
DTW-03-A	5/28/2020		<1	<1	0.563	<1	<1	<1	<1	0.459

		Scenic OU								
Sample Location	Sample Date	MCL	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,2-Dichloroethane	cis-1,2-Dichloroethene	Tetrachloroethylene	trans-1,2-Dichloroethene	Trichloroethylene	Vinyl Chloride
			5	5	5	70	5	100	5	2
DTW-04	12/14/2015		< 1	< 1	0.473	0.755	< 1	8.79	< 1	1.51
DTW-04	3/8/2016		< 1	< 1	0.843	< 1	< 1	8.52	< 1	< 1
DTW-04	3/1/2017		< 1	< 1	< 1	< 1	0.345	6.58	0.398	0.482
DTW-04	4/3/2018		< 1	< 1	0.452	< 1	< 1	0.802	< 1	< 1
DTW-04	4/3/2018		< 1	< 1	0.538	< 1	< 1	0.898	< 1	< 1
DTW-04	6/11/2019		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DTW-04	5/28/2020		< 1	< 1	0.553	< 1	< 1	0.535	< 1	< 1
DTW-05	12/16/2015		< 1	21.3	4.71	0.816	8.08	< 1	8.43	1.31
DTW-05	3/8/2016		< 1	33.9	5.13	1.62	19.1	0.548	16.6	3.42
DTW-05	2/28/2017		< 1	71.5	7.69	6.04	50.7	2.1	49.7	9.42
DTW-05	3/26/2018		< 1	34.1	2.78	2.4	19.7	0.835	21.8	4.03
DTW-05	6/11/2019		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DTW-05	5/28/2020		< 1	20.1	1.77	5.1	8.53	0.825	16.4	4.48

Source: Scenic OU Update to Addendum K to the Work Plan, Supplement to the Interim Remedial Action. Prepared by NPC Services. December 2020.

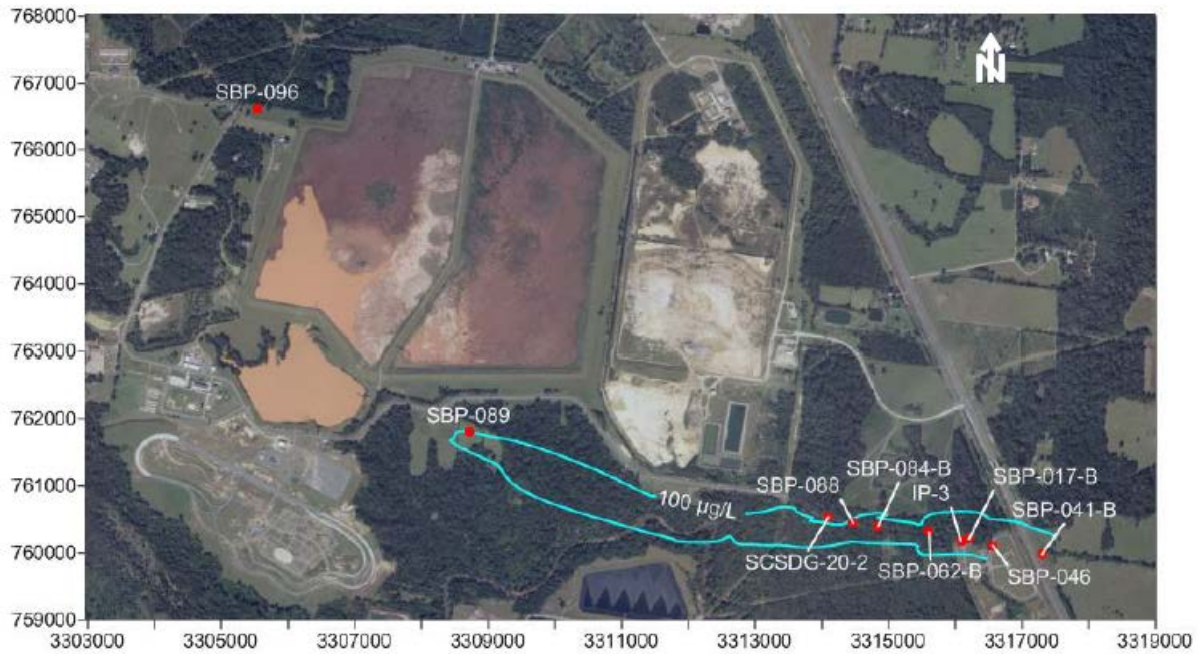
Figure G-3: Scenic OU – Contaminant Trends in the DTZ





Source: Scenic OU Update to Addendum K to the Work Plan, Supplement to the Interim Remedial Action. Prepared by NPC Services. December 2020.

Figure G-4: Scenic OU +20 MSL Groundwater Contaminant Plume⁶



Source: 2018 Long-Term Monitoring Plan Report. Post-Construction Monitoring Activities at the Scenic OU. Figure 3-1. Prepared by NPC Services. December 2019.

⁶ Represents a contaminant plume outline equal to 100 µg/L of total contaminants.

APPENDIX H – ARARS REVIEW

CERCLA Section 121(d)(1) requires that Superfund remedial actions attain “a degree of cleanup of hazardous substance, pollutants, and contaminants released into the environment and control of further release at a minimum which assures protection of human health and the environment.” The remedial action must achieve a level of cleanup that at least attains those requirements that are legally applicable or relevant and appropriate. In performing the FYR for compliance with Applicable or Relevant and Appropriate Requirements (ARARs), only those ARARs that address the protectiveness of the remedy are reviewed.

Groundwater ARARs

Addendum A of the 2001 RPA Report specified that MCLs established under 40 CFR 141 must be met at the sentry wells. Otherwise, alternative remedial actions may be warranted for the Brooklawn OU. The 2001 RPA Report did not list the MCL values. Similarly, at the Scenic OU, MCLs are used to evaluate remedy performance.

A review of the most current LTMP Report demonstrates that, except for TeCA, the most current MCLs are being used as the performance objectives to be met at the sentry wells for the Brooklawn OU and in evaluating groundwater remedy performance at the Scenic OU (Table H-1). For TeCA, the PRPs adopted the MCL for TCA in the approved RPA reports. This value was further reviewed in a screening-level risk evaluation to determine if this MCL is protective for TeCA.

Table H-1: Previous and Current ARARs for Groundwater COCs

COC	Sentry Well Performance Objective (µg/L)	Current MCL (µg/L) ^a	Change
DCA	5	5	None
cis-1,2-DCE	70	70	None
trans-1,2-DCE	100	100	None
TCA	5	5	None
TCE	5	5	None
TeCA	-	-	None
PCE	5	5	None
Vinyl chloride	2	2	None
<p><i>Notes:</i></p> <p>a. MCLs were obtained from https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations (accessed on 9/14/2020).</p> <p><i>Sources:</i> 2018 Long-term Monitoring Plan Report. Post-Construction Monitoring Activities at the Scenic OU. Table 1-2. Prepared by NPC Services. December 2019.</p> <p>2018 Long-Term Monitoring Plan Report. Post-Construction Monitoring Activities at the Brooklawn OU. Appendix A. Prepared by NPC Services. December 2019.</p>			

APPENDIX I – SCREENING-LEVEL RISK REVIEW

Groundwater remedy performance for both OUs is measured by comparing sentry well or DTZ groundwater COC concentrations to MCLs established under the Safe Drinking Water Act. Since there is no promulgated drinking standard for TeCA, a screening-level evaluation was performed by comparing the groundwater performance objective to the tap water regional screening level (RSL) that incorporates the most-current toxicity values. Table I-1 shows the cleanup goal is equivalent to a cancer risk that falls within EPA’s risk management range of 1×10^{-6} to 1×10^{-4} and is below EPA’s threshold noncancer hazard quotient (HQ) of 1, demonstrating that the cleanup goal remains valid.

Table I-1: Screening-Level Risk Evaluation of TeCA Groundwater Performance Objective

COC	Sentry Well Performance Objective ^a (µg/L)	Tap Water ^a (µg/L)		Cancer Risk ^b	Noncancer HQ ^c
		1×10^{-6} Risk	HQ = 1.0		
TeCA	5.0	0.076	360	7×10^{-5}	0.01

Notes:

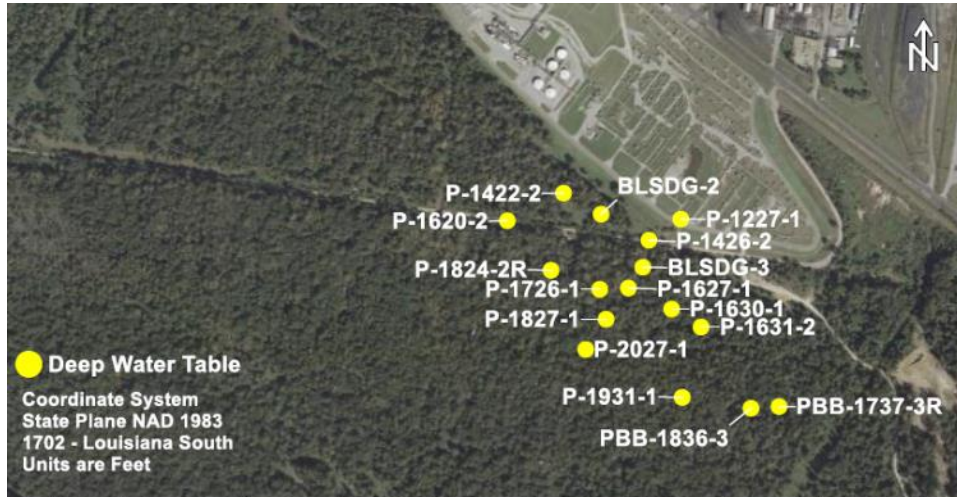
- Health-based level listed in the 2018 Long-Term Monitoring Plan Report.
- Current EPA RSLs, dated 2020, are available at <https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables> (accessed 9/14/2020).
- The cancer risks were calculated using the following equation, based on the fact that RSLs are derived based on 1×10^{-6} risk: cancer risk = (performance objective ÷ cancer-based RSL) $\times 10^{-6}$.
- The noncancer HQ was calculated using the following equation: HQ = performance objective ÷ noncancer-based RSL.

Vapor Intrusion

Brooklawn OU

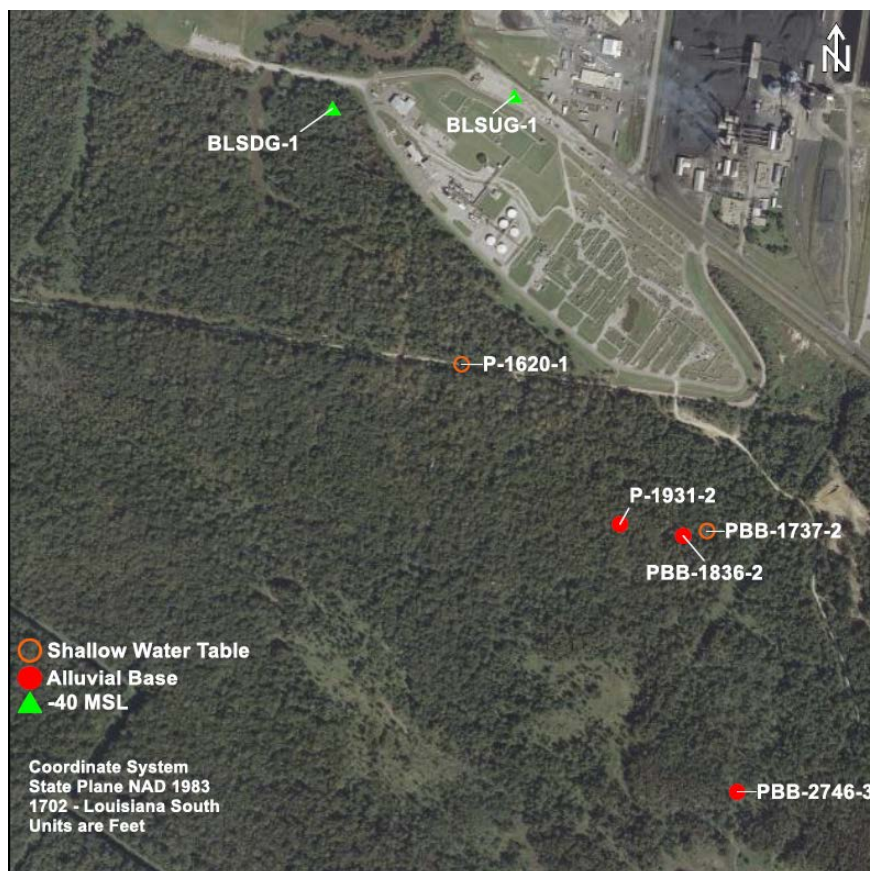
In 2012, there was a significant change to EPA’s standardized risk assessment methodology. A vapor intrusion pathway evaluation using multiple lines of evidence is now a part of the methodology. Current and anticipated future use of the land and resources surrounding the Site has not changed. There are no new buildings, land use changes, newly identified contaminants or sources that may present a potential vapor intrusion risk. The Site is located in an industrial area and is not adjacent to any residential properties. NPC Services has no permanent buildings located at the Scenic OU and buildings at the Brooklawn OU are located on the west side of the property, away from major sources of contamination. At the Brooklawn OU, the highest contaminant concentrations are present in the DWT (Figure I-1) in the northern portion of the Brooklawn OU, with much-shallower groundwater in the -40 MSL wells below detection for all COCs (<1 µg/L), as represented by wells BLS DG-1 and BLSUG-1 (Table I-2 and Figure I-2)).

Figure I-1: Brooklawn OU DWT Monitoring Locations



Source: 2018 Long-Term Monitoring Plan Report. Post-Construction Monitoring Activities at the Brooklawn OU. Prepared by NPC Services. December 2019.

Figure I-2: Brooklawn OU -40 MSL, SWT and Alluvial Base Monitoring Locations



Source: 2018 Long-Term Monitoring Plan Report. Post-Construction Monitoring Activities at the Brooklawn OU. Prepared by NPC Services. December 2019.

Table I-2: Monitoring Results for the Brooklawn OU, 2018

Location ID	Sample ID	Sample Date	Screened Zone	PCE	TCE	TeCA	TCA	DCA	c-DCE	t-DCE	VC
BLDUG-1	NABL-0629	10/23/2018	400-foot	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BLDDG-1	NABL-0630	10/24/2018	400-foot	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BLDDG-2	NABL-0631	10/24/2018	400-foot	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
PBB-2746-3	NABL-0632	10/30/2018	Alluvial Base	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
PBB-1836-1	NABL-0633	10/30/2018	400-foot	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
PBB-1836-2	NABL-0634	10/30/2018	Alluvial Base	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
PBB-1836-3	NABL-0635	10/30/2018	Deep WT	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
P-1931-3	NABL-0636	10/31/2018	400-foot	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
P-1931-2	NABL-0637	10/31/2018	Alluvial Base	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
P-1931-1	NABL-0638	10/31/2018	Deep WT	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
P-2528-1	NABL-0639	10/31/2018	400-foot	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
P-2522-1	NABL-0640	10/31/2018	400-foot	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
P-1620-1	NABL-0641	11/7/2018	Shallow WT	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100
P-1620-2	NABL-0642	11/7/2018	Deep WT	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BLSUG-1	NABL-0643	11/7/2018	-40 MSL	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
P-1631-2	NABL-0644	11/8/2018	Deep WT	< 1	3	< 1	< 1	< 1	< 1	< 1	< 1
BLSDG-1	NABL-0645	11/12/2018	-40 MSL	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BLSDG-2	NABL-0647	11/15/2018	Deep WT	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
PBB-1737-3R	NABL-0648	11/26/2018	Deep WT	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
PBB-1737-2	NABL-0649	11/26/2018	Shallow WT	< 1	< 1	< 1	< 1	< 1	< 1	< 1	16
BLSDG-3	NABL-0651	11/26/2018	Deep WT	< 1	< 1	< 1	< 1	< 1	2	< 1	28
P-1630-1	NABL-0652	11/27/2018	Deep WT	< 200	< 200	< 200	< 200	< 200	< 200	< 200	2,190
P-1827-1	NABL-0653	11/27/2018	Deep WT	< 1	< 1	< 1	< 1	11	< 1	< 1	10
P-1824-2R	NABL-0654	11/27/2018	Deep WT	< 1	< 1	< 1	< 1	< 1	< 1	< 1	2
P-1726-1	NABL-0655	11/27/2018	Deep WT	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
P-1627-1	NABL-0656	11/28/2018	Deep WT	< 100	1,410	< 100	18,400	24,800	1,170	294	12,000
P-1426-2	NABL-0657	11/28/2018	Deep WT	< 100	349	< 100	5,650	9,780	4,300	657	33,600
P-1227-1	NABL-0658	11/28/2018	Deep WT	1,120	2,510	1,500	12,400	8,960	10,200	1,950	89,200

Note: All COC data units are in µg/L.

Source: 2018 Long-Term Monitoring Plan Report. Post-Construction Monitoring Activities at the Brooklawn OU. Prepared by NPC Services. December 2019.

Scenic OU

The contaminant plume at the Scenic OU extends past the DTZ. This area of the plume is located in an area used by the LSP for training. There is also an occupied building in the vicinity where occupants may reside in the facility for potentially more than 12 hours per day. A building structure is located near SBP-089 which is screened in the +20 MSL channel and located on LSP property. Vapor intrusion exposure pathway was evaluated to determine if commercial or residential use of this building would pose a concern. Vapor intrusion was evaluated at this location using EPA’s Vapor Intrusion Screening-level Calculator and the most current COC concentrations available for this well under a commercial land use scenario (Table I-3). The screening-level analysis under a default commercial land use shows that the cumulative cancer risk for all COCs is within the EPA’s risk management range of 1×10^{-6} to 1×10^{-4} , but two groundwater COCs (1,1,2-trichloroethane and trichloroethylene) result in noncancer hazard quotients greater than 1. Under a residential land use the cumulative cancer risk exceeds the upper bound of EPA’s risk management range due to trichloroethylene and vinyl chloride and the noncancer HI exceeds 1 due to 1,1,2-trichloroethane, tetrachloroethylene and trichloroethylene. These results indicate the need to evaluate this potential exposure pathway using multiple lines of evidence to determine if site-specific conditions indicate the need for mitigating this exposure pathway.

Table I-3: Screening-Level Commercial Land Use Vapor Intrusion Evaluation

Parameter	2018 Groundwater Result (µg/L) ^a	Screening-Level Commercial Risk Evaluation ^c	
		Cancer risk	Noncancer HQ
1,1,2,2-Tetrachloroethane	< 1	7 x 10 ⁻⁸	-
1,1,2-Trichloroethane	82.8	4 x 10 ⁻⁶	3
1,2-Dichloroethane	39	4 x 10 ⁻⁶	0.06
cis-1,2-Dichloroethylene	14	-	-
trans-1,2-Dichloroethylene	4.14	-	0.009
Tetrachloroethylene	76.6	1 x 10 ⁻⁶	0.3
Trichloroethene	123	2 x 10 ⁻⁵	6
Vinyl Chloride	32.5	1 x 10 ⁻⁵	0.08
Total Risk or Noncancer HI		4 x 10 ⁻⁵	9

Notes:

a. Concentration from SBP-089 obtained from Table E-2 of the 2018 Long-Term Monitoring Plan Report. Post-Construction Monitoring Activities at the Scenic OU. Prepared by NPC Services. December 2019.

b. Entered detection limit or detected concentration in 2018 from well SBP-089 into EPA's vapor intrusion screening level calculator for commercial land use, obtained at https://epa-visl.ornl.gov/cgi-bin/visl_search (accessed 10/26/2020).

Bold – cumulative noncancer HI exceeds a threshold of 1.0.
 – no toxicity value established
 HQ – hazard quotient

Table I-4: Screening-Level Residential Land Use Vapor Intrusion Evaluation

Parameter	2018 Groundwater Result (µg/L) ^a	Screening-Level Residential Risk Evaluation ^c	
		Cancer risk	Noncancer HQ
1,1,2,2-Tetrachloroethane	< 1	3 x 10 ⁻⁷	-
1,1,2-Trichloroethane	82.8	2 x 10 ⁻⁵	13
1,2-Dichloroethane	39	2 x 10 ⁻⁵	0.3
cis-1,2-Dichloroethylene	14	-	-
trans-1,2-Dichloroethylene	4.14	-	0.04
Tetrachloroethylene	76.6	5 x 10 ⁻⁶	1
Trichloroethene	123	1 x 10⁻⁴	24
Vinyl Chloride	32.5	2 x 10⁻⁴	0.4
Total Risk or Noncancer HI		4 x 10⁻⁴	39

Notes:

c. Concentration from SBP-089 obtained from Table E-2 of the 2018 Long-Term Monitoring Plan Report. Post-Construction Monitoring Activities at the Scenic OU. Prepared by NPC Services. December 2019.

d. Entered detection limit or detected concentration in 2018 from well SBP-089 into EPA's vapor intrusion screening level calculator for commercial land use, obtained at https://epa-visl.ornl.gov/cgi-bin/visl_search (accessed 1/28/2021).

Bold – cumulative cancer risk exceeds 1 x 10⁻⁴ or the noncancer HI exceeds a threshold of 1.0.
 – no toxicity value established
 HQ – hazard quotient

APPENDIX J – INTERVIEW FORMS

PETRO-PROCESSORS OF LOUISIANA, INC. SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: PETRO-PROCESSORS OF LOUISIANA, INC.	
EPA ID: LAD057482713	
Interviewer name:	Interviewer affiliation:
Subject name: LSP representative	Subject affiliation: Louisiana State Police
Subject contact information:	
Interview date:	Interview time:
Interview location:	
Interview format (circle one): In Person Phone Mail <u>Email</u> Other:	
Interview category: Community	

1. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?
Yes

2. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

Excellent work including communication

3. What have been the effects of this Site on the surrounding community, if any?
No

4. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?
No

5. Has EPA kept involved parties and surrounding neighbors informed of activities at the Site? How can EPA best provide site-related information in the future?
NPC has kept neighbors informed

6. Do you own a private well in addition to or instead of accessing city/municipal water supplies? If so, for what purpose(s) is your private well used?
Yes, we have three wells on site – one is abandoned, a shallow well on opposite side of the property from the plume – two are potable water for the facility.

7. Do you have any comments, suggestions or recommendations regarding any aspects of the project?
NPC has been great to work with

PETRO-PROCESSORS OF LOUISIANA, INC. SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: Petro-Processors of Louisiana, Inc.	
EPA ID: LAD057482713	
Interviewer name:	Interviewer affiliation:
Subject name: Keith Horn	Subject affiliation: LDEQ
Subject contact information:	
Interview date: 09/24/2020	Interview time: 09:40AM – 10:10AM
Interview location: Working from home due to COVID-19	
Interview format (circle one): In Person Phone Mail (Email) Other:	

1. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

The project has been executed exceptionally well, with the creation of NPC Services to manage it for the PRP group being one of the best aspects. Maintenance of the Site is good, all minor problems are swiftly addressed. Reuse of the Site remains a challenge, research into solar power options found it was unfeasible. I would like for us to look at pollinator meadows being developed on the capped areas to reduce the need for mowing, and to provide habitat for native species.

2. What is your assessment of the current performance of the remedy in place at the Site?

The remedy is working well, and the contaminants of concern are being controlled and degraded. The only negative aspect is the extremely long timeframe that is likely. However, this appears to be necessary.

3. Are you aware of any complaints or inquiries regarding site-related environmental issues or remedial activities from residents in the past five years?

None have been reported to LDEQ.

4. Has your office conducted any site-related activities or communications in the past five years? If so, please describe the purpose and results of these activities.

LDEQ has performed numerous site inspections to ensure that the remedy is being implemented as approved. We stay in contact with both EPA and NPC Services to provide appropriate oversight and input. We review and respond to reports and plans produced by NPC Services in order to ensure remedial goals are being met.

5. Are you aware of any changes to state laws that might affect the protectiveness of the Site's remedy?

There do not appear to have been any in the last five years that would apply.

6. Are you comfortable with the status of the institutional controls at the Site? If not, what are the associated outstanding issues?

NPC Services filed documents with the Clerk of Court that act as legal institutional controls. On-site controls implemented by NPC Services remain protective.

7. Are you aware of any changes in projected land use(s) at the Site?

There are concerns that USACE may make changes in the site area or on site property as part of the Comite River Diversion Project. EPA and LDEQ are trying to work with USACE to insure these will not negatively impact the Site.

8. Do you have any comments, suggestions or recommendations regarding the management or operation of the Site's remedy?

NPC Services does an amazing job of running the Site, and is very responsive to the regulatory agencies.

9. Do you consent to have your name included along with your responses to this questionnaire in the FYR Report?

Yes.

PETRO-PROCESSORS OF LOUISIANA, INC. SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: Petro-Processors of Louisiana, Inc.	
EPA ID: LAD057482713	
Interviewer name:	Interviewer affiliation:
Subject name: Mel Collins	Subject affiliation: NPC Services
Subject contact information: mcollins@npc-services.com	
Interview date: September 28, 2020	Interview time:0800
Interview location: NPC Services, Inc. 2401 Brooklawn Drive Baton Rouge, LA 70807	
Interview format (circle one): In Person Phone Mail Email Other:	

1. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

The site is well maintained and controlled by adequate fencing and signage. The remedial activities are protective of human health and the environment.

2. What is your assessment of the current performance of the remedy in place at the Site?

The Monitored Natural Attenuation, Enhanced Attenuation and Middle Channel Fill have resulted in actions which continue to be protective of human health and the environment.

3. What are the findings from the monitoring data? What are the key trends in contaminant levels that are being documented over time at the Site?

Monitoring data indicates that the EA remedy is effective in reducing contaminants at the Scenic OU. The MNA remedy at the Brooklawn OU is effectively reducing contaminants.

4. Is there a continuous on-site O&M presence? If so, please describe staff responsibilities and activities. Alternatively, please describe staff responsibilities and the frequency of site inspections and activities if there is not a continuous on-site O&M presence. There is a continuous presence of O&M personnel at the site. Site personnel operate molasses injection equipment, operate carbon treating equipment, sample for performance monitoring, maintain site cover, perform routine maintenance.

5. Have there been any significant changes in site O&M requirements, maintenance schedules or sampling routines since start-up or in the last five years? If so, do they affect the protectiveness or effectiveness of the remedy? Please describe changes and impacts.

Since the last Five-Year Review four wells have been installed along with a GAC treating unit to treat contaminants in groundwater immediately downgradient of the DTZ at the Scenic OU. This additional interim remedial action is protective of human health and the environment.

6. Have there been unexpected O&M difficulties or costs at the Site since start-up or in the last five years? If so, please provide details.

No.

7. Have there been opportunities to optimize O&M activities or sampling efforts? Please describe changes and any resulting or desired cost savings or improved efficiencies.

No. There have been no changes.

8. Do you have any comments, suggestions or recommendations regarding O&M activities and schedules at the Site?

No.

9. Do you consent to have your name included along with your responses to this questionnaire in the FYR report?

Yes.

**Louisiana Department of Environmental Quality
FIELD INTERVIEW FORM**

Agency Interest #: 2469 & 83225 Inspection Date: 01/25/2021 Time of Arrival: 1:20 PM
 Departure Date: 01/25/2021 Time of Departure: 2:10 PM

Facility Name: Petro Processors, Inc.: Brooklawn & Scenic Sites Phone #: (225) 778-6200
 Location: Brooklawn Operable Unit – 2401 Brooklawn Drive, Baton Rouge, LA 70807-1069
Scenic Operable Unit – 15310 Samuels Road, Baker, LA 70714

Mailing Address: 2401 Brooklawn Drive Baton Rouge LA 70807-1069
Street/P.O. Box City State Zip

Facility Representative: Mr. Mel Collins Title: Facility Manager

Inspection Type: Remediation Program Involved: Air Waste Water Other Soil/Groundwater


Inspector's Observations: (e.g. Areas and Equipment Inspected, Problems, Deficiencies, Remarks, Verbal Commitments from Facility Representatives)
Purpose of inspection was to meet with site operators with NPC Services, Inc. (NPC), and to obtain additional information for the on-going EPA Five-Year Review. Arrived on site at the Brooklawn Operable Unit and met with Mr. Mel Collins, NPC Facility Manager. Mr. Collins and I then traveled to near the Scenic Operable Unit (OU) to the Distal Treatment Zone (DTZ) located on the Louisiana State Police (LSP) Joint Emergency Services Training Center (JESTC). The purpose of this inspection was to obtain information and photographs of structures present near the DTZ, to determine if they may or may not need further evaluation of the enclosed space or subsurface vapor intrusion pathway. The two structures in question are a incinerator used by the LSP immediately adjacent to the DTZ, and an occupied structure located east of the DTZ. Photographs of these structures were taken, and sent to Ms. Nancy Hanna, the EPA Remedial Project Manager (RPM).

Areas of Concern	Explanation	Resolved?
Northwestern Sand Formation Migration	Molasses solution injections into the +20 MSL migration pathway from the Scenic Operable Unit have been successful in facilitating bacterial de-chlorination of the constituents of concern in groundwater.	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO

Photos Taken? YES NO Samples Taken? YES NO (Attach Chain-of-Custody)

Received by: Signature: _____ Title: _____

Print Name: Copies to be delivered to parties via e-mail
 (NOTE: Signature DOES NOT indicate agreement with Inspector's Notes)

Inspector:  Attachments: Five photos which will be
Keith Horn, Remediation Team Leader (TL) sent to the LDEQ-EDMS
separately

NOTE: The information contained on this form reflects only the preliminary observations of the inspector(s). It should not be interpreted as a final determination by the Department of Environmental Quality or any of its officers or personnel as to any matter, including, but not limited to, a determination of compliance or lack thereof by the facility operator with any requirements of statutes regulations or permits. Each day of non-compliance constitutes a separate violation of the regulations and/or the Louisiana Environmental Quality Act.