

**FIFTH FIVE-YEAR REVIEW REPORT FOR
PAB OIL & CHEMICAL SERVICE, INC. SUPERFUND SITE
VERMILION PARISH, LOUISIANA**



April 11, 2022



Pre-remedy (undated)



2021

Prepared by

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

**FIFTH FIVE-YEAR REVIEW REPORT
PAB OIL & CHEMICAL SERVICE, INC. SUPERFUND SITE
VERMILION PARISH, LOUISIANA
EPA ID#: LAD980749139**

This memorandum documents the U.S. Environmental Protection Agency's performance, determinations and approval of the fifth five-year review for the PAB Oil & Chemical Service, Inc. Superfund site (the Site) under Section 121 (c) of the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S. Code Section 9621 (c), as provided in the attached fifth Five-Year Review Report.

Summary of the Fifth Five-Year Review Report

The Site is a former disposal facility for oil and gas exploration and production wastes. The Site's remedy consisted of dewatering and backfilling the saltwater pond and excavation and stabilization/solidification of contaminated soils and sludge with placement in an on-site disposal unit. Long-term response action activities are ongoing. They include monitoring and maintenance of the Site's cap and groundwater monitoring. All constituents detected in groundwater, including metals, have been below maximum contaminant levels since 2016. Institutional controls are in place for the Site. The Site is not in use. There are no known exposures to contaminated media.

Actions Needed

The following actions must be taken for the remedy to be protective over the long term: evaluate options to formalize the institutional controls in place as a component of the remedy.

Determination

I have determined that the selected remedy for the PAB Oil & Chemical Service, Inc. Superfund site is currently protective of human health and the environment in the short term. This Five-Year Review Report specifies the actions that need to be taken for the remedy to remain protective over the long term.

Price, Lisa

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Lisa Price, Acting Division Director
Superfund and Emergency Management Division
U.S. Environmental Protection Agency, Region 6

ISSUES/RECOMMENDATIONS

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OU(s): 1	Issue Category: Institutional Controls			
	Issue: Institutional controls are in place, but they were not required by a decision document.			
	Recommendation: EPA should evaluate options to formalize the institutional controls in place as a component of the remedy.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party/Support Agency	Milestone Date
No	Yes	EPA	EPA/State	5/12/2024

Table of Contents

LIST OF ABBREVIATIONS AND ACRONYMS	3
I. INTRODUCTION.....	4
Site Background.....	4
FIVE-YEAR REVIEW SUMMARY FORM	5
II. RESPONSE ACTION SUMMARY	7
Basis for Taking Action	7
Response Actions	7
Status of Implementation	9
Systems Operations/Operation and Maintenance (O&M)	10
III. PROGRESS SINCE THE PREVIOUS REVIEW.....	13
IV. FIVE-YEAR REVIEW PROCESS	13
Community Notification, Community Involvement and Site Interviews	13
Data Review	14
Site Inspection.....	14
V. TECHNICAL ASSESSMENT	17
QUESTION A: Is the remedy functioning as intended by the decision documents?	17
QUESTION B: Are the exposure assumptions, toxicity data, cleanup levels and RAOs used at the time of the remedy selection still valid?.....	17
QUESTION C: Has any other information come to light that could call into question the protectiveness of the remedy?.....	18
VI. ISSUES/RECOMMENDATIONS	18
OTHER FINDINGS	19
VII. PROTECTIVENESS STATEMENT.....	19
VIII. NEXT REVIEW	19
APPENDIX A – REFERENCE LIST	A-1
APPENDIX B – SITE CHRONOLOGY	B-1
APPENDIX C – ADDITIONAL FIGURES	C-1
APPENDIX D – CONVEYANCE NOTICE	D-1
APPENDIX E – PRESS NOTICE	E-1
APPENDIX F – INTERVIEW FORMS	F-1
APPENDIX G – DATA REVIEW TABLES.....	G-1
APPENDIX H – SITE PHOTOGRAPHS	H-1
APPENDIX I – SITE INSPECTION CHECKLIST	I-1
APPENDIX J – ARARS REVIEW	J-1
APPENDIX K – SCREENING-LEVEL RISK REVIEW.....	K-1

Tables

Table 1: Site COCs, by Media.....	7
Table 2: Sludge, Soil and Sediment COC Remedial Goals.....	8
Table 3: Summary of Planned and/or Implemented Institutional Controls (ICs).....	10
Table 4: Protectiveness Determination/Statement from the 2017 FYR Report.....	13
Table B-1: Site Chronology.....	B-1
Table G-1: Historical Settlement Monument Survey Data.....	G-1
Table G-2: Analytical Results – Metals	G-2
Table G-3: Analytical Results – Volatiles and Semi-Volatiles	G-5
Table J-1: Groundwater Drinking Water Standard Review	J-2
Table K-1: Screening-Level Review of Soil, Sludge and Sediment Remedial Goals.....	K-1

Table K-2: Screening-Level Review of Soil, Sludge and Sediment Maximum On-Site Value of Non-Carcinogenic PAHs K-1

Figures

Figure 1: Site Vicinity Map6
Figure 2: Institutional Control Map12
Figure 3: Site Detail Map16
Figure C-1: Historical Site Features C-1
Figure C-2: Potentiometric Surface Map, 2021 C-2

LIST OF ABBREVIATIONS AND ACRONYMS

ARAR	Applicable or Relevant and Appropriate Requirement
AST	Aboveground Storage Tank
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
cPAH	Carcinogenic Polycyclic Aromatic Hydrocarbon
COC	Contaminant of Concern
EPA	United States Environmental Protection Agency
ESD	Explanation of Significant Differences
FS	Feasibility Study
FYR	Five-Year Review
HI	Hazard Index
HQ	Hazard Quotient
IC	Institutional Control
LDEQ	Louisiana Department of Environmental Quality
LDNR	Louisiana Department of Natural Resources
MCL	Maximum Contaminant Level
mg/kg	Milligrams per Kilogram
µg/L	Micrograms Per Liter
NCP	National Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
OIG	Office of Inspector General
OU	Operable Unit
PAB Group	PAB Site Remediation Group, LLC
PAH	Polycyclic Aromatic Hydrocarbon
PRP	Potentially Responsible Party
RAO	Remedial Action Objective
RI	Remedial Investigation
ROD	Record of Decision
RPM	Remedial Project Manager
RSL	Regional Screening Level
TBC	To-be-considered
SDWA	Safe Drinking Water Act
SVOC	Semi-Volatile Organic Compound
UU/UE	Unlimited Use and 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, 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 fifth FYR for the PAB Oil & Chemical Service, Inc. Superfund site (the Site). The triggering action for this statutory review is the completion date of the previous FYR. 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 one operable unit (OU) and the selected remedy addressed contaminated surface water, groundwater, soil and sludge. This FYR Report addresses the OU.

EPA remedial project manager (RPM) Michael Hebert led the FYR. Destin Hooks of the Louisiana Department of Environmental Quality (LDEQ) also participated in this FYR. The potentially responsible parties (PRPs), known as the PAB Site Remediation Group, LLC (PAB Group), were notified of the initiation of the FYR. The review began on 11/8/2021.

Appendix A includes a list of documents reviewed for this FYR. Appendix B includes a chronology of site events.

Site Background

The 16.7-acre Site is located on Route 167 in Vermilion Parish, Louisiana, about 3 miles north of the city of Abbeville (Figure 1). From 1978 to 1983, PAB Oil operated a disposal facility on-site for wastes from oil and gas exploration and production. These wastes included drilling muds and fluids. Facility operations included disposal of wastes in pits and ponds. The waste disposal areas, associated levees, and berms, once covered nearly 82% of the Site. After cleanup, the Site includes a capped disposal unit and a flat grassy area where ponds were once located. A perimeter fence and thick vegetation along the site boundaries deter trespassing. The Site is not in use.

The Site and surrounding area are flat. They have a general surface elevation about 20 feet above mean sea level. Drainage ditches border the Site to the north, south and east. Groundwater at the Site is encountered at about 30 feet below ground surface in the Abbeville unit of the upper Chicot aquifer system. Groundwater flow direction is generally west/northwest.

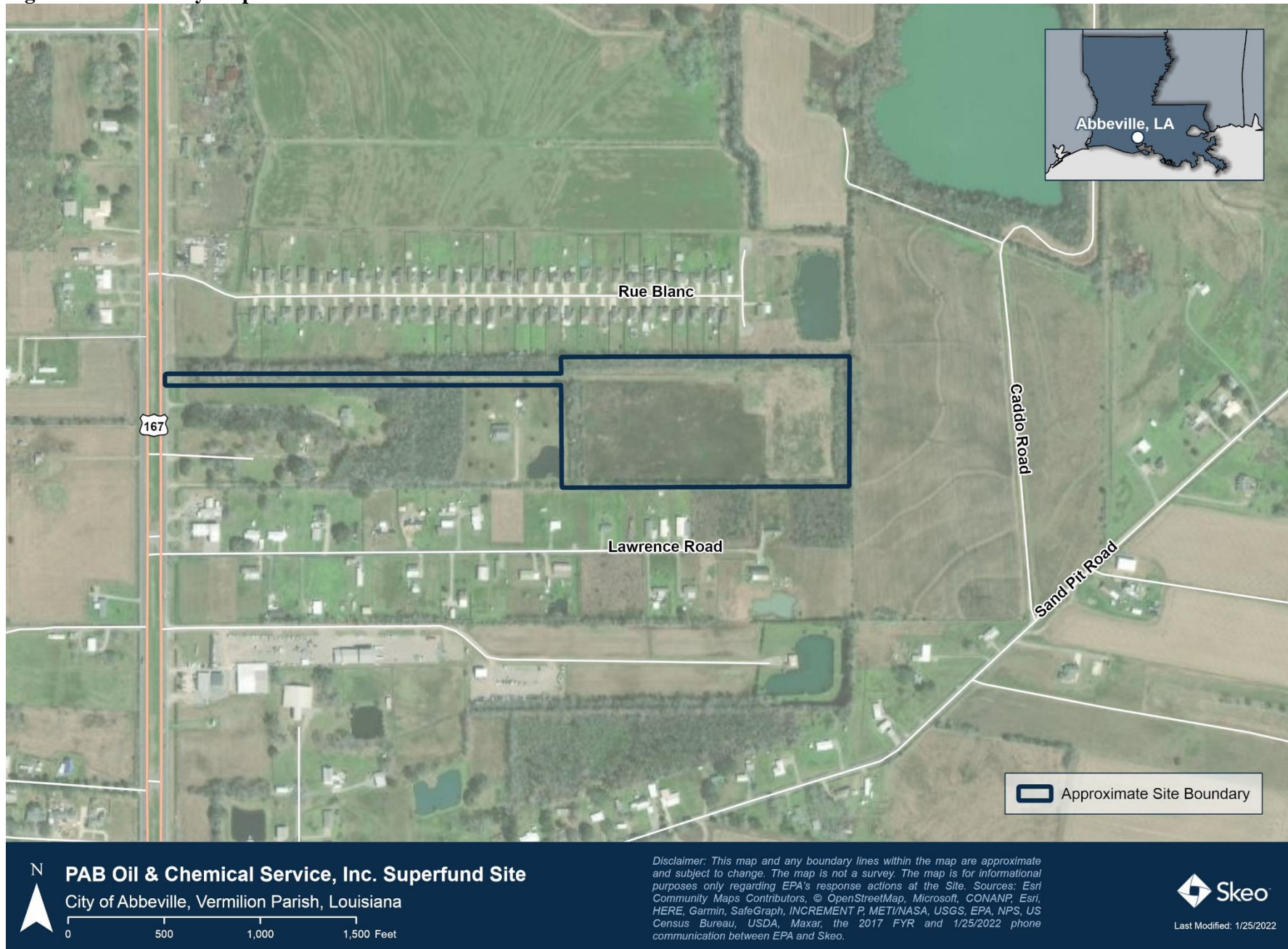
Primary land use near the Site is agricultural to the east and residential to the north, south and west (Figure 1). The Vermilion Chateau Subdivision is north of the Site. The homes are connected to public water. The Louisiana Department of Natural Resources (LDNR) Strategic Online Natural Resources Information System database identifies one active domestic water well on a property next to the Site (Figure 3).¹ This well is southwest of the Site (side gradient). The database indicates the domestic well is about 80 feet deep and in the Chicot aquifer. Sampling of domestic wells during investigations in the early 1990s did not identify site-related contamination in the wells. Recent groundwater data collected during this FYR period did not identify contamination in monitoring wells above federal maximum contaminant levels (MCLs).

¹ The Strategic Online Natural Resources Information System database is available at <http://www.dnr.louisiana.gov/index.cfm?md=navigation&tmp=iframe&pnid=0&nid=340>, accessed December 1, 2021.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: PAB Oil & Chemical Service, Inc.		
EPA ID: LAD980749139		
Region: 6	State: Louisiana	City/County: Abbeville/Vermilion Parish
SITE STATUS		
NPL Status: Deleted		
Multiple OUs? No	Has the Site achieved construction completion? Yes	
REVIEW STATUS		
Lead agency: EPA		
Author name: Michael Hebert, with additional support provided by Skeo		
Author affiliation: EPA Region 6		
Review period: 11/8/2021 - 5/2/2022		
Date of site inspection: 12/8/2021		
Type of review: Statutory		
Review number: 5		
Triggering action date: 5/12/2017		
Due date (five years after triggering action date): 5/12/2022		

Figure 1: Site Vicinity Map



II. RESPONSE ACTION SUMMARY

Basis for Taking Action

EPA became aware of the Site in June 1980 after a citizen complaint of illegal discharges from the Site into an off-site drainage ditch. EPA, LDNR and LDEQ investigated the Site in the 1980s. These investigations identified contaminated sludges, soil, sediment, surface water and groundwater as actual or potential threats to human health and the environment. EPA added the Site to the Superfund program's National Priorities List (NPL) in March 1989.

EPA conducted a remedial investigation (RI) and feasibility study (FS) at the Site from 1990 to 1993. The main site features or potential source areas identified and investigated during the RI included three open waste impoundments or pits (the northwest pit, the northeast pit and the south pit) and their associated berms, two other impoundment areas referred to as the saltwater pond and the northwest pond, four aboveground storage tanks (ASTs) and associated underlying soil, site drainage ditches/runoff areas, an abandoned canal that borders the eastern edge of the Site, and other areas of suspected waste dumping. Figure C-1 in Appendix C shows historical site features.

Contaminants at the Site included typical petroleum-related constituents, including volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and metals. EPA's 1993 baseline human health risk assessment determined that the risks posed by the contaminants were from possible ingestion, dermal contact or migration into the surrounding environment. EPA identified the sludges in the disposal pits as the principal threat at the Site. These sludges, if left alone, would continue to be a potential threat to groundwater through leachate migration and to human health and the environment through direct exposure. A 1993 ecological risk assessment also found potential concerns for aquatic life in surface water of the saltwater pond and off-site ditch, plants in soil in the southeast marsh area, and rabbits ingesting potentially contaminated vegetation in the southeast marsh area.

Table 1 summarizes the Site's contaminants of concern (COCs) for surface water, sludge and soil, as identified in the Site's 1993 Record of Decision (ROD). The ROD did not select groundwater COCs because the sporadic presence of groundwater contaminants found during the RI was not believed to be related to the Site.

Table 1: Site COCs, by Media

COC	Medium
Beryllium, barium, benzene, toluene	surface water
Arsenic, barium, total carcinogenic polycyclic aromatic hydrocarbons (PAHs), non-carcinogenic PAHs	sludge and soil

Response Actions

Early Actions

During the RI, EPA determined that a removal action was needed to address ignitable wastes in a damaged AST. Under an Administrative Order on Consent with EPA, several of the Site's PRPs, now the PAB Group, removed the wastes from four ASTs and dismantled the tanks. They treated and disposed of the wastes at an off-site incinerator. The PAB Group conducted the removal in February 1992.

Remedy Selection

EPA selected the Site's long-term remedy in the Site's September 1993 ROD. The ROD identifies the following remedial action objectives (RAOs):

- Prevent direct contact, ingestion, and migration of the disposal pit sludges and associated soils.
- Prevent direct contact with contaminated surface waters.

- Prevent the potential for human exposure to contaminated groundwater.

The 1993 ROD identified the following major remedy components:

- Removal and on-site treatment of all surface water with final discharge to site drainage ditches.
- Excavation and biological treatment of organic contaminated sludges, soil and sediment.
- Solidification/stabilization of contaminated material to address inorganics and, if necessary, any remaining organic contamination.
- Final disposal of treated residuals in a fenced on-site disposal unit.²
- Long-term groundwater monitoring.
- Long-term operation and maintenance (O&M).

Table 2 identifies the sludge, soil, and sediment COC remedial goals identified in the 1993 ROD. The 1993 ROD also identified remedial goals for surface water. However, these remedial goals applied only during the surface water treatment component of the remedial action. The 1993 ROD did not identify groundwater remedial goals but required a comparison of groundwater data from long-term monitoring to appropriate drinking water standards.

Table 2: Sludge, Soil and Sediment COC Remedial Goals

Sludge, Soil and Sediment COC	Remedial Goal	Basis
Arsenic	10 milligrams per kilogram (mg/kg)	state regulation ^a
Barium	5,400 mg/kg	risk-based ^b
Total carcinogenic PAHs	3 mg/kg	risk-based ^c
Non-carcinogenic PAHs	hazard index (HI) of 1	risk-based ^d

Notes:

a) Louisiana Statewide Order No. 29B, Section 129.B.6, Pit Closure.

b) Exposure limit based on non-carcinogenic risk with an HI of 1, based on residential exposure scenario.

c) The remedial goal for carcinogenic PAHs is based on a residential exposure scenario and falls within EPA's acceptable risk range of 1×10^{-4} to 1×10^{-6} . The 3 mg/kg is expressed as a carcinogenic benzo(a)pyrene equivalent, which corresponds to a risk of 3×10^{-5} . Although EPA has flexibility in its risk range for identifying an appropriate cleanup goal, the decision to use 3 mg/kg was an effort to be consistent with similar past cleanup decisions in the EPA Region.

d) For non-carcinogenic PAHs, the ROD specified the following risk-based concentration be used to achieve a HI of 1: 16,500 mg/kg acenaphthene, 82,000 mg/kg anthracene, 11,000 mg/kg fluoranthene, 11,000 mg/kg fluorene, 11,000 mg/kg naphthalene and 8,000 mg/kg pyrene. A conservative estimate of 8,000 mg/kg was selected as a surrogate risk-based concentration for all other non-carcinogenic PAHs that do not have a reference dose.

Source: Pdf page 133 of the 1993 ROD.

EPA modified the remedy in a March 1997 Explanation of Significant Differences (ESD). It eliminated the required biological treatment of excavated materials. Extensive sampling of soil, sediment and sludge during 1993 and 1995 pre-design investigations using updated laboratory methods found that concentrations of carcinogenic polycyclic aromatic hydrocarbons (cPAHs) and PAHs were already well below remedial goals. Biological treatment was deemed unnecessary as part of the remedial action. The sludge and soil remedial action, therefore, addressed only arsenic and barium. All other aspects of the remedy remained the same.

² Section IX on page 45 of the ROD required perimeter fencing during remedial action construction. The ROD notes that the perimeter fencing could be removed after construction and replaced with a fence around the final disposal unit.

Status of Implementation

In September 1994, EPA issued a Unilateral Administrative Order to the PAB Group, directing them to perform the remedial design and remedial action. The PAB Group conducted the remedial action between June 1997 and August 1998.

Initial remedial activities included dewatering and backfilling of the saltwater pond and northwest pond (shown combined as the saltwater pond area in Figure 3). Contractors for the PAB Group removed about 6 million gallons of water and treated it in an electro-precipitation unit. Treated water was discharged into a drainage ditch that leads to the drainage system along Route 167. Treated water met discharge limits established in the ROD.

Sediment samples collected from the saltwater pond bottom initially had barium and arsenic concentrations higher than remedial goals. Therefore, PRP contractors removed the top 6 inches of the entire saltwater pond bottom (about 7,000 cubic yards) and solidified and stabilized the sediment. They placed the stabilized material in the consolidated pit area, or disposal unit. After the additional removal, concentrations of COCs in all samples from the pond met the remedial goals. PRP contractors backfilled the pond with clean soil and revegetated the area.

The major component of the remedy was stabilization and solidification of the sludge pit material. PRP contractors excavated the contaminated soil and sludge and combined it with reagent materials, including cement, ferrous sulfate and organophilic clay, to stabilize the material. Contractors placed the treated material back into the disposal unit. About 25,000 cubic yards of material was treated in this manner.

PRP contractors installed a low-permeability cap on the disposal unit. The 3.6-acre cap consisted of 2 feet of compacted low-permeability clay covered by 2 feet of vegetative soil cover to prevent surface water infiltration. PRP contractors constructed a clay-lined drainage ditch to convey stormwater runoff to two major drainage ditches, south and north of the Site. Upon completion, PRP contractors surveyed the cap and installed settlement monuments on top of the cap. Instead of constructing a fence around the final cap, the perimeter fence around the entire Site was kept in place to deter trespassing. EPA issued the Site's Final Close-Out Report in August 1998.

Long-term groundwater monitoring and O&M activities began shortly after cap construction. The initial groundwater sampling event occurred in July 1998. The groundwater monitoring network originally consisted of 12 groundwater monitoring wells. There were nine wells on the Site and three wells off site (two upgradient and one downgradient). In 2004, because concentrations in off-site monitoring wells had been below drinking water levels for all site COCs since 1999, PRP contractors plugged and abandoned all three off-site monitoring wells with EPA and LDEQ approval. Groundwater monitoring and O&M activities are ongoing.

EPA deleted the Site from the NPL in January 2000.

Institutional Control (IC) Review

Decision documents did not require institutional controls as a component of the remedy. However, institutional controls are needed due to waste being left in place in the capped disposal unit. In the 2002 FYR, EPA identified the need for institutional controls to restrict the use of the property, restrict drilling and/or excavation activities that could breach the integrity of the cap, and restrict the use of groundwater at the Site.

The PAB Group filed a conveyance notice for the Site with the Vermilion Parish Clerk of Court in October 2007. The conveyance notice identifies the property as being subject to a response action under CERCLA. It also places restrictions on excavation, drilling or other activities to depths that could create exposure to contaminated media or interfere with the integrity of the disposal unit cap. The conveyance notice restricts extraction of groundwater for any use other than groundwater monitoring or remediation. Table 3 summarizes implemented institutional controls at the Site. Figure 2 shows the area subject to the institutional controls. Appendix D contains the full conveyance notice.

Table 3: 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 Parcel	IC Objective	Title of IC Instrument Implemented and Date
Disposal unit (soil), groundwater	Yes	No	R3459200	Restrict excavation, drilling or other activities to depths that could create exposure to any contaminated media or interfere with the integrity of the clay cover; restrict extraction of groundwater for consumption or any other purpose other than groundwater monitoring and remediation; may restrict use of the property to commercial or industrial use. ^b	Conveyance Notice, October 16, 2007 ^a
<p><i>Notes:</i></p> <p>a) The conveyance notice is available online at the Vermilion Parish Clerk of Court as instrument number 20712726: https://www.vermilionclerk.com/online-land-records-search (accessed 12/3/2021).</p> <p>b) The conveyance notice states, “Under La. Admin Code 33: V, Chapter 35 (2005), future use of this property may be restricted to commercial or industrial use. Hazardous constituents above levels that allow for unrestricted exposure may remain in the soil and the groundwater. This notification shall remain effective from the date of its filing until the property (soil and groundwater) subject to this notification can support unlimited use and unrestricted exposure.”</p>					

Systems Operations/Operation and Maintenance (O&M)

The PAB Group is responsible for long-term O&M and groundwater monitoring activities at the Site. Contractors for the PAB Group conduct O&M activities in accordance with a September 2011 Revised Operations and Maintenance Plan, Addendum 1 (Revised O&M Plan). The Revised O&M Plan describes the following activities and schedule for implementation of these activities:

- Annual inspections of the cap, drainage ditches, roadway, fencing and monitoring wells.
- Semi-annual mowing of site vegetation.
- Biennial cap settlement monument surveys.
- Annual depth to groundwater measurements at wells MW-1 through MW-9.
- Sampling of wells MW-2, MW-6, MW-8 and MW-9 for metals, VOCs, SVOCs and field parameters – twice prior to the next FYR.
- Sampling of well MW-5 for metals, VOCs, SVOCs and field parameters – once prior to the next FYR.

The PAB Group submits annual inspection and monitoring reports to EPA and LDEQ. Overall, the annual inspection and monitoring reports indicate the Site is in good condition. The PRP contractor addresses any maintenance issues as they arise. The summary below lists major O&M and monitoring activities during this FYR period, in addition to annual inspections and mowing:

- The O&M contractor conducted monument settlement surveys in March 2017, May 2018 and July 2020.
- The O&M contractor sampled groundwater from MW-2, MW-5, MW-6, MW-8 and MW-9 in April 2019 and May 2021.
- In 2017, the O&M contractor repaired fencing, added fill material around the well pads that had been removed by animal burrowing, and painted wells and bollards.
- In 2018, the O&M contractor replaced damaged survey monument protective bollards. They also added a 10-foot vertical section of 2-inch polyvinyl chloride pipe to the survey monument and monitoring well bollards. The pipe serves as a visual marker for the wells and monuments when vegetation is high (bollards were damaged during a mowing event).

- In 2021, the O&M contractor replaced one side of the main entrance gate, cleared vegetation around the monitoring wells, and trimmed overhanging tree limbs at the site entrance.

Figure 2: Institutional Control Map



III. PROGRESS SINCE THE PREVIOUS REVIEW

Table 4 identifies the protectiveness determination and statement from the 2017 FYR Report. The 2017 FYR Report did not identify any issues or recommendations.

Table 4: Protectiveness Determination/Statement from the 2017 FYR Report

OU #	Protectiveness Determination	Protectiveness Statement
Sitewide	Protective	The remedy is protective of human health and the environment because exposure pathways that could result in unacceptable risks are currently being controlled, the remedy is functioning as intended, contaminant levels remain below [maximum contaminant levels] MCLs in groundwater, and the necessary institutional controls are in place to restrict future site use and the use of groundwater.

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Community Involvement and Site Interviews

A public notice was published in the *Abbeville Meridional* newspaper on November 16, 2021. 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, Vermilion Parish Library – Abbeville Branch, located at 405 East Saint Victor Street in Abbeville, Louisiana 70510. Appendix E includes a copy of the public notice.

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. Appendix F includes the completed interview forms.

Mr. Destin Hooks, LDEQ Project Manager, stated that the Site is being monitored to ensure that contamination is contained in order to protect human health and the environment. The Site is monitored annually and before and after hurricane events. He is comfortable with the current institutional controls and is not aware of any changes in projected land use at the Site.

Mr. Brian Moore, PRP contractor representative, has a positive impression of the Site’s cleanup. He noted that the remedy continues to work and is protective of human health and the environment. Monitoring data has shown no indication of contaminant migration or cap settlement. PRP contractors conduct annual inspections of the Site. Mowing also occurs twice a year. Mr. Moore noted that he has a good working relationship with an adjacent property owner who informs him of any concerns. He also noted that there is potential to request a reduction of certain O&M activities due to favorable groundwater analysis and cap survey data over the last 25 years.

Two residents who live next to the Site participated in interviews. One resident is aware of the former environmental issues at the Site. They would like to see the site property reused. They suggested the gate at the road be fixed so that it cannot be lifted off its hinges. They feel informed about activities at the Site. The other resident was unaware of the former environmental issues at the Site. When they bought their property, they were told of arsenic in the groundwater. They would like to be kept informed of site-related activities via email. They do not have any other comments, suggestions or recommendations regarding any aspect of the project.

Data Review

Data evaluated during this FYR include settlement monument survey data, groundwater elevation data and groundwater quality data, as originally presented in the 2017 through 2021 annual inspection monitoring reports, prepared by the PRP's O&M contractor. The data reviewed indicates the disposal unit cap is functioning as intended, with little to no settlement and no site-related impacts to groundwater. None of the monitored chemicals in groundwater exceed federal MCLs. More detailed discussion of the data is below.

Settlement Monument Surveys

Monument settlement survey data from 2017, 2018 and 2020 indicate the cap has remained stable. Little to no settlement has occurred since the initial survey in 1998. Table G-1 in Appendix G includes current and historical survey elevation data.

Groundwater Elevation Data

Groundwater elevation measurements were collected annually during this FYR period and used to determine groundwater flow direction at the Site. Groundwater flow direction is primarily to the west/northwest, consistent with historical observations. Figure C-2 in Appendix C includes the 2021 potentiometric surface map. The Site consistently has a flat hydraulic gradient.

Annual groundwater elevation measurements continue to show that depth to groundwater in wells MW-3 and MW-4 is below the screened interval of these wells. This observation has been noted since 2000. This would be a potential concern if representative groundwater samples were required from these wells. However, both MW-3 and MW-4 are upgradient wells and not included in the groundwater sampling program at this time.

Groundwater Quality Data

The purpose of the groundwater monitoring program is to monitor the effectiveness of the disposal unit and potential migration of contaminants from the disposal unit into the upper Chicot aquifer. The PRP contractor collected groundwater samples from site monitoring wells in April 2019 and May 2021. Samples were analyzed for VOCs, SVOCs and metals. Figure 3 shows the monitoring well locations. Tables G-2 and G-3 present the analytical results from 2001 to 2021.

Decision documents did not select groundwater COCs or cleanup levels. However, the 1993 ROD required the comparison of groundwater concentrations to appropriate drinking water standards. Therefore, this data review compares the groundwater data to MCLs, when available. For those chemicals without MCLs (silver, nickel and zinc), this data review compares detected concentrations to EPA regional screening levels (RSLs).

Metals are the only chemicals consistently detected in site groundwater. All metals, VOCs and SVOCs were below MCLs in 2019 and 2021. There were some exceedances of the screening levels for metals including nickel in MW-2 (676 micrograms per liter [$\mu\text{g/L}$]) exceeded its RSL of 390 $\mu\text{g/L}$ in the 2021 sampling event but was below the RSL in 2019 (91.5 $\mu\text{g/L}$). Nickel has sporadically exceeded the RSL in MW-2 since 2001 (Table G-2, Appendix G). The 2021 nickel concentration in MW-2 is lower than the maximum detected concentration (780 $\mu\text{g/L}$) in 2005. Nickel was also below the RSL in downgradient well MW-5.

The 1993 ROD noted that sporadic presence of groundwater contaminants was not believed to be a result of site activities. During the RI, naturally occurring inorganic contaminants detected sporadically in groundwater were detected in similar concentrations in the upgradient background well. The ROD also noted that natural soils underlying the sludge pits did not appear to be contaminated with inorganics.

Site Inspection

The site inspection took place on December 8, 2021. Participants included Destin Hooks from LDEQ, Brian Moore from Project Navigator, Ltd. (PRP contractor) and Kirby Webster from Skeo (FYR contractor), collectively the "Participants". The purpose of the inspection was to assess the protectiveness of the remedy. Appendix H includes photographs from the site inspection. Appendix I includes the completed site inspection checklist.

Site inspection participants met at the entrance to the Site, off Route 167 North. The access road to the Site has a locked gate. The access road is in good condition. The gate to the site property is also locked, with a “no trespassing” sign present.

Participants inspected the northern side of the Site, including the Site’s northern drainage ditch that runs east-west. The northern drainage ditch is surrounded by heavy vegetation. However, there were no signs of sediment buildup or standing water. The perimeter fencing along the northern boundary was difficult to see because of heavy vegetation that provides a good screen between the residential development and the Site. Some homeowners have constructed their own fences that were evident. There were no signs of trespassing, nor any locations that provided easy access to the Site. Participants observed the eastern fence line and drainage ditch running north-south (the abandoned canal). The barbed wire fence was distinguishable in some places, and difficult to discern in others. The drainage ditch did not have any sedimentation or standing water. One tire was observed in the ditch. Land use to the east of the Site is a cow pasture.

Participants inspected the capped part of the Site. The settlement monuments located on the cap are monitored regularly and have not shown any indication of settlement. Nearby monitoring wells were locked and labeled. The cap had been recently mowed – it had been thick with vegetation. Animal burrows were noted in several locations. The O&M contractor said that this is fairly common, and holes are filled as they are identified. There was no evidence that the animal burrows are a widespread problem or a cause for concern.

Participants observed the southern perimeter of the Site, which includes perimeter fencing and a drainage ditch running east-west. There is a gap in the fence in the middle part of the southern perimeter fence. Vegetation is minimal in this area, and it provides an access point to the Site from a residential property. The O&M contractor plans to fix the fence in this section. A new section of fence was observed in the southwestern corner with a “no trespassing” sign posted. There was no evidence of trespassing. Participants examined the western part of the Site and former saltwater pond area, which covers about 13 acres. No issues were identified.

Skeo called the site repository (Vermilion Parish Library – Abbeville Branch) to check for site-related documents on December 13, 2021. The librarian told Skeo that the library has all site-related documents.

Figure 3: Site Detail Map



V. TECHNICAL ASSESSMENT

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

Question A Summary:

Yes, the remedy is functioning as intended by the decision documents. The remedy included dewatering and backfilling of the northwest pond and saltwater pond, excavation and treatment of contaminated soil and sludges, and consolidation of the treated material into a capped disposal unit. These activities, completed by 1998, met remedial goals and eliminated any direct exposure pathways to contamination. The cap is vegetated, well maintained and monitored on a regular basis. Significant settlement has not occurred. Groundwater monitoring since completion of the remedial action indicates that no contaminants are migrating from the capped disposal unit.

Groundwater monitoring is ongoing, as required by the ROD. Groundwater is sampled for VOCs, SVOCs and metals twice every five years. VOCs and SVOCs are generally not detected. When detected, all constituents, including metals, have been below MCLs since 2016. Based on the lack of site-related contamination in groundwater, a reduction in sampling frequency could be considered. Any changes in O&M or sampling frequencies will be documented and approved in an update to the O&M plan.

A locked and gated entrance and perimeter fencing deter trespassing at the Site. However, there is a breach in the fence, on the southern perimeter. The PRP contractor plans to fix the fence. The ROD originally required perimeter fencing only during remedy construction. The ROD noted that the perimeter fence was to be replaced with a fence around the capped disposal unit. Instead of the construction of a fence around the disposal unit, the perimeter fence around the entire Site was kept in place to deter trespassing and acts in place of the fence around the capped disposal unit.

Although not required by decision documents, institutional controls are required to ensure protectiveness and are in place in the form of a convenance notice at the Site to restrict excavation, drilling, or other activities and restrict groundwater use.

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:

Yes, the exposure assumptions, toxicity data, cleanup levels and RAOs used at the time of remedy selection are still valid.

There have been no changes to standards or to-be-considered criteria (TBC) for the Site since the ROD and ESD (Appendix J). Based on a review of the updated Louisiana Administrative Code and metals limitation criteria for pit closure, the arsenic applicable or relevant and appropriate requirement (ARAR) for pit closure has not changed. During the 2007 FYR, EPA noted that the drinking water standards, Maximum Contaminant Levels (MCLs), established under the Safe Drinking Water Act (SDWA) (40 CFR 141.11) may be applicable requirements for the Site, although they were not originally identified as ARARs in decision documents. There have been no changes to MCLs since the 2007 FYR Report first identified these criteria.

EPA selected health-based levels as the remedial goals for barium and carcinogenic and non-carcinogenic PAHs in soil, sludge, and sediment. Toxicity values for several COCs have changed since the ROD. In 2014, EPA updated default exposure assumptions. To determine if the cleanup goals for soil, sludge and sediment remain protective, the remedial goals were compared to EPA's 2021 residential RSLs since the RSLs incorporate current toxicity values and standard default exposure assumptions. The cleanup levels for barium and cPAHs remain valid, as the concentrations correspond to risks within or below EPA's risk management range of 1×10^{-4} to 1×10^{-6} and/or noncancer hazards below a hazard quotient of 1 (Table K-1, Appendix K). The target risk-based

concentrations for non-carcinogenic PAHs (acenaphthene, anthracene, fluoranthene, fluorene, naphthalene and pyrene) correspond to noncancer hazards above 1 and for naphthalene, an estimated cancer risk above 1×10^{-4} under a residential exposure scenario. However, the maximum on-site value of non-carcinogenic PAHs reported in the 1993 ROD corresponds to cumulative risks within or below EPA’s risk management range of 1×10^{-4} to 1×10^{-6} and a noncancer hazard below a hazard quotient of 1 under a commercial use scenario (Table K-2, Appendix K).

In February 2012, EPA released the final human health noncancer dioxin reassessment, publishing an oral noncancer toxicity value, or reference dose, of 7×10^{-10} milligrams per kilograms per day for 2,3,7,8-tetrachlorodibenzo-p-dioxin in EPA’s Integrated Risk Information System. As dioxins were sampled for and detected in soil and sludge during the RI, an evaluation was done at the time of the 2017 FYR to determine the effect of the toxicity change on the protectiveness of the site remedy. It was determined that all soil and source material containing dioxin had been stabilized and placed into the capped disposal unit. The capped materials that contain dioxin are not threats to human health and the environment. The 2017 FYR Report documented that the remedy to address to dioxins remained protective of human health and the environment. No changes have been made since the 2017 FYR that would change this protectiveness.

The remedy is meeting the RAOs identified in the ROD. There are no complete exposures to contamination at the Site. There have been no changes in site conditions that would suggest the presence of new exposure pathways.

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

Hurricane Harvey made landfall in Texas and Louisiana in late August 2017. The EPA collected soil and groundwater samples from the Site in September 2017 to assess the effects of the hurricane. No issues of concern were noted.

No other information has come to light that could call into question the protectiveness of the remedy.

VI. ISSUES/RECOMMENDATIONS

Issues/Recommendations	
OU(s) without Issues/Recommendations Identified in the FYR:	
None.	

Issues and Recommendations Identified in the FYR:	
--	--

OU(s): 1	Issue Category: Institutional Controls			
	Issue: Institutional controls are in place, but they were not required by a decision document.			
	Recommendation: EPA should evaluate options to formalize the institutional controls in place as a component of the remedy.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party/Support Agency	Milestone Date
No	Yes	EPA	EPA/State	5/12/2024

OTHER FINDINGS

Several more recommendations were identified during the FYR. The recommendations do not affect current and/or future protectiveness.

- Due to travel restrictions related to COVID-19, the EPA RPM was unable to attend the FYR site inspection. When travel restrictions allow, the EPA RPM will visit the site to confirm the findings of the site inspection.

VII. PROTECTIVENESS STATEMENT

Sitewide Protectiveness Statement
<i>Protectiveness Determination:</i> Short-term Protective
<i>Protectiveness Statement:</i> The remedy is currently protective of human health and the environment because the capped disposal unit is functioning as designed, groundwater monitoring since completion of cap construction has indicated that no contaminants are migrating from the capped disposal unit, institutional controls are in place to prevent exposure, and operation and maintenance is occurring. For the remedy to be protective over the long term, EPA should evaluate options to formalize the institutional controls in place as a component of the remedy.

VIII. NEXT REVIEW

The next FYR Report for the PAB Oil & Chemical Service, Inc. Superfund site is required five years from the completion date of this review.

APPENDIX A – REFERENCE LIST

2017 Annual Inspection and Monitoring Report, Operations and Maintenance Activities. PAB Oil & Chemical Services, Inc. Site. Abbeville, Louisiana. October 23, 2017.

2018 Annual Inspection and Monitoring Report, Operations and Maintenance Activities. PAB Oil & Chemical Services, Inc. Site. Abbeville, Louisiana. December 19, 2018.

2019 Annual Inspection and Monitoring Report, Operations and Maintenance Activities. PAB Oil & Chemical Services, Inc. Site. Abbeville, Louisiana. October 2019.

2020 Annual Inspection and Monitoring Report, Operations and Maintenance Activities. PAB Oil & Chemical Services, Inc. Site. Abbeville, Louisiana. October 19, 2020.

2021 Annual Inspection and Monitoring Report, Operations and Maintenance Activities. PAB Oil & Chemical Services, Inc. Site. Abbeville, Louisiana. October 4, 2021.

Explanation of Significant Differences. United State Environmental Protection Agency Region 6. March 12, 1997.

Final Close-Out Report, PAB Oil & Chemical Service, Inc. Superfund Site, Abbeville, Louisiana. EPA Region 6. August 28, 1998.

First Five-Year Review Report for PAB Oil and Chemical Services, Inc. Superfund Site, Abbeville, Vermilion Parish, Louisiana. EPA Region 6. July 22, 2002.

Fourth Five-Year Review Report for PAB Oil & Chemical Services, Inc. Superfund Site. Vermilion Parish, Louisiana. United States Environmental Protection Agency. May 12, 2017.

Record of Decision. PAB Oil and Chemical Services, Inc. Site. Vermilion Parish, Louisiana. U.S. Environmental Protection Agency Region 6. September 1993.

Revised Operations and Maintenance Plan. Addendum 1. PAB Oil & Chemical Services, Inc. Abbeville, Louisiana. Prepared for PAB Site Remediation Group, LLC by Project Navigator, Ltd. September 2011.

Second Five-Year Review Report for the PAB Oil and Chemical Services, Inc. Superfund Site, Abbeville, Vermilion Parish, Louisiana. EPA Region 6. July 2007.

Third Five-Year Review Report for PAB Oil and Chemical Services, Inc. Superfund Site, Abbeville, Vermilion Parish, Louisiana. EPA Region 6. July 19, 2012.

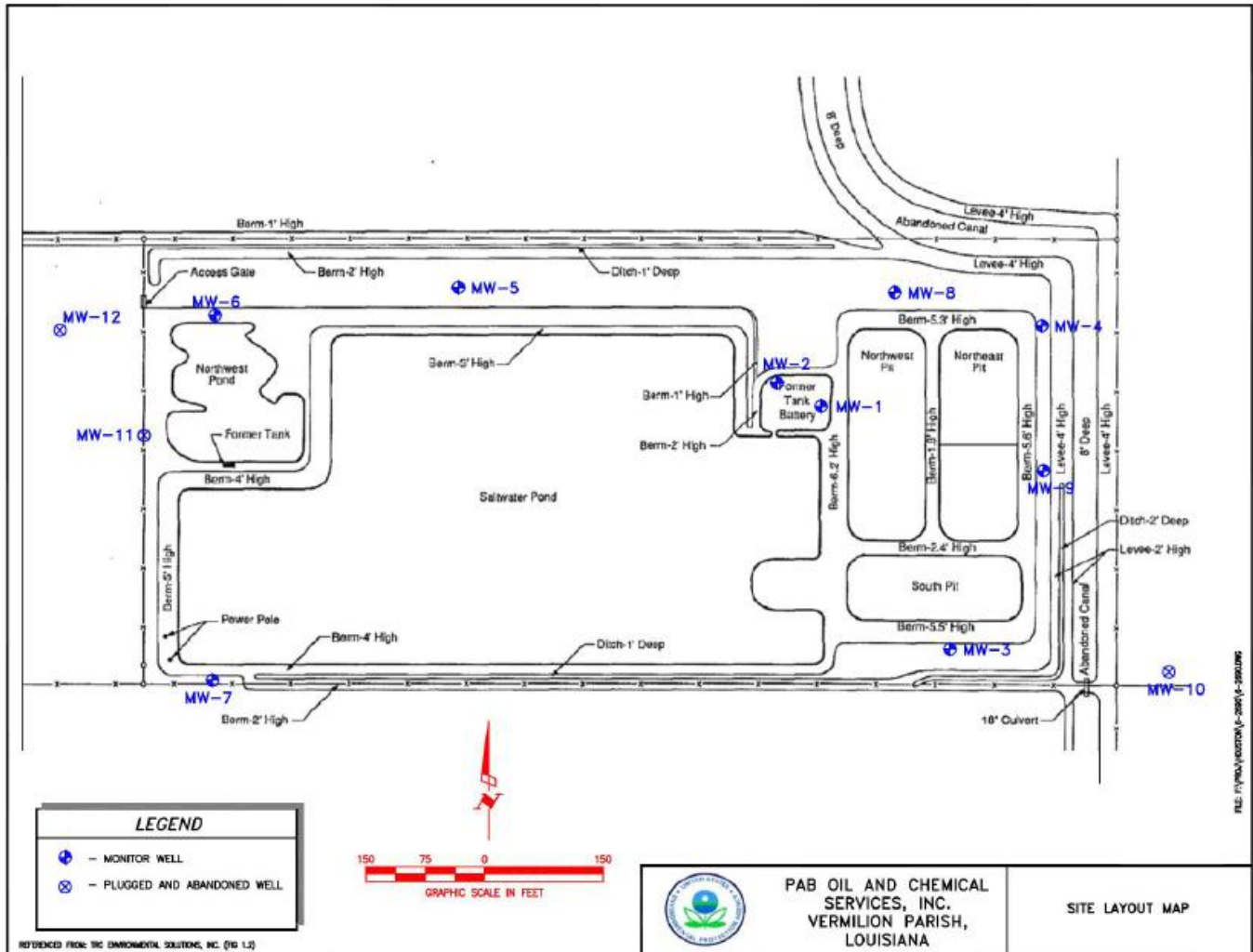
APPENDIX B – SITE CHRONOLOGY

Table B-1: Site Chronology

Event	Date
PAB Oil operated a disposal facility for oil and gas exploration and production wastes	1978 to 1983
EPA was made aware of the Site following a citizen complaint of illegal discharge from the Site EPA completed a preliminary assessment	1980
EPA completed the site inspection	September 1980
EPA added the Site to the NPL	March 1989
EPA began the RI/FS	June 1990
EPA issued an Administrative Order on Consent for the PRPs to conduct a removal action The PRPs began a removal action	October 1991
EPA completed a treatability study	January 1993
EPA completed the Site's human health risk assessment and ecological risk assessment	January 1993
EPA completed the RI/FS and signed the ROD	September 1993
EPA issued a Unilateral Administrative Order to the PRPs directing them to conduct the remedial design and remedial action	September 1994
The PRPs began the remedial design	November 1994
EPA issued an ESD to remove biological treatment as a required remedial action	March 1997
The PRPs finished the remedial design	May 1997
The PRPs began the remedial action	June 1997
The PRPs finished the remedial action EPA issued the Site's Preliminary Close-Out Report	August 1998
EPA deleted the Site from the NPL	January 2000
EPA issued the Site's first FYR Report	July 2002
EPA and LDEQ approved a reduction in the number and frequency of O&M activities	December 2003
The PRPs plugged and abandoned monitoring wells MW-10, MW-11 and MW-12	March 2004
EPA issued the Site's second FYR Report	July 2007
The PRPs submitted a memorandum that documented more changes to O&M requirements	August 2007
The PRPs filed a conveyance notice for the Site with the Vermilion Parish Clerk of Court The Site achieved EPA's Sitewide Ready for Anticipated Reuse status	October 16, 2007
The PRP conducted a groundwater sampling event and collected split groundwater samples in conjunction with the groundwater samples collected as part of an audit by EPA's Office of Inspector General (OIG)	March 2008
EPA's OIG published its evaluation report for the Site	September 2010
EPA completed the combined first FYR and second FYR Addendum Report in response to the OIG Report	February 2011
The PRP group prepared a Revised Operations and Maintenance Plan, Addendum I	September 2011
EPA issued the Site's third FYR Report	July 2012
EPA issued the Site's fourth FYR Report	May 2017

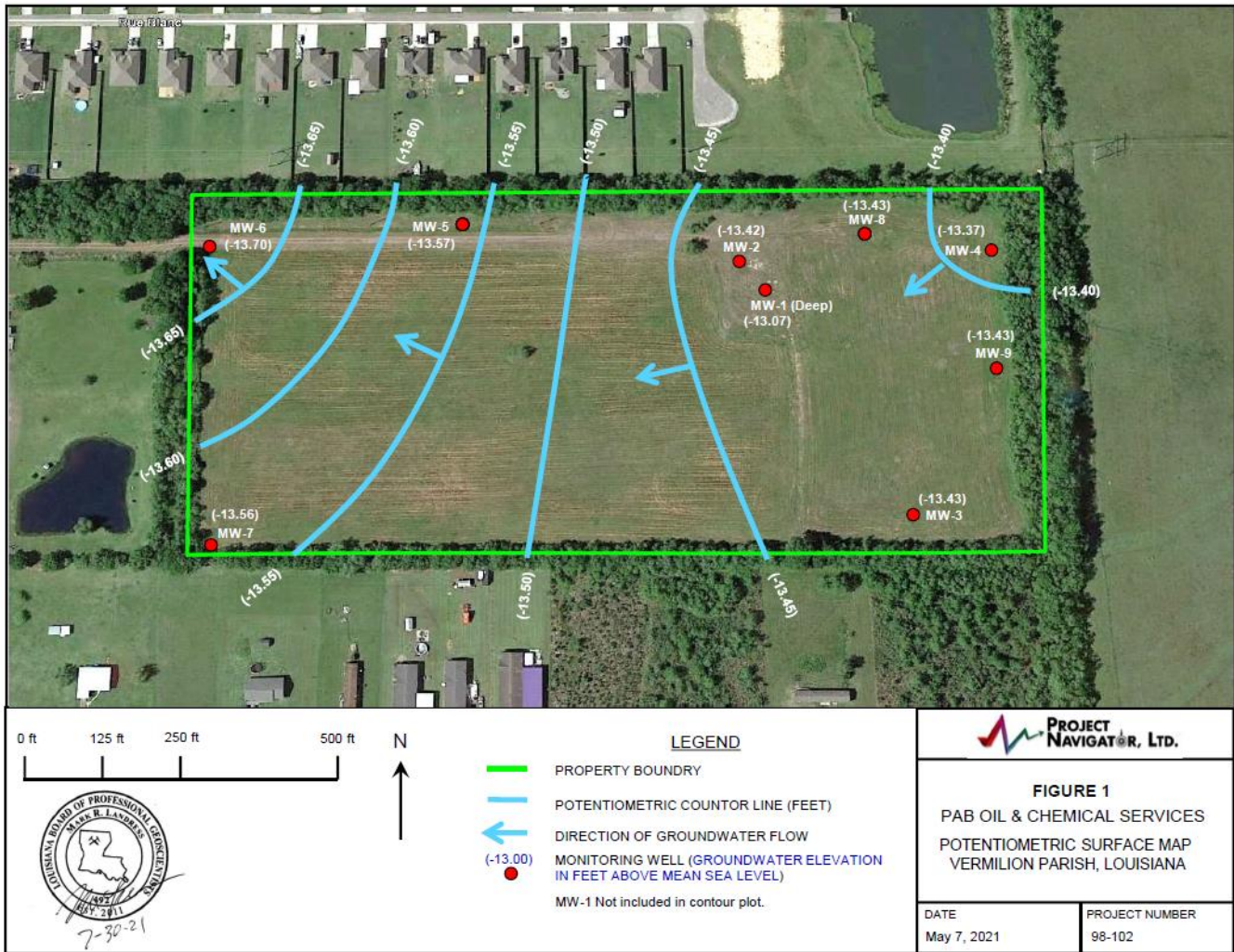
APPENDIX C – ADDITIONAL FIGURES

Figure C-1: Historical Site Features



Source: July 2007 FYR Report.

Figure C-2: Potentiometric Surface Map, 2021



Source: 2021 Annual Inspection and Monitoring Report.

APPENDIX D – CONVEYANCE NOTICE

STATE OF TEXAS

COUNTY OF SHACKELFORD

20712726

CONVEYANCE NOTICE

PLEASE TAKE NOTICE THAT: Pursuant to the Comprehensive Environmental Response, Compensation and Liability Act, (“CERCLA”), 42 U.S.C. § 9601, et seq., the National Oil and Hazardous Substances Contingency Plan (“NCP”), 40 C.F.R. Part 300, the Louisiana Environmental Quality Act (“LEQA”), La. Rev. Stat. Ann. Title 30, Subtitle II, Chapters 10 and 12, the Record of Decision dated September 22, 1993, and the Explanation of Significant Differences dated March 12, 1997, for the PAB Oil and Chemical Services, Inc. Superfund Site, EPA ID No. LAD980749139 (the above referenced Record of Decision and Explanation of Significant Differences are referred to collectively as “ROD”) (available at the Louisiana Department of Environmental Quality (“LDEQ”) file room, 602 N. Fifth Street, First Floor, Baton Rouge, LA 70802), PAB Site Remediation Group, L.L.C. hereby notifies the public that:

The property depicted in the plat attached hereto as Exhibit 1 (hereinafter “the PAB Superfund Site”) and described in the property description attached hereto as Exhibit 2 (“the Property”) has been used to manage hazardous constituents and is the subject of a response action under CERCLA.

Under La. Admin. Code 33:V.Chapter 35 (2005), future use of this property may be restricted to commercial or industrial use. Hazardous constituents above levels that allow for unrestricted exposure may remain in the soil and the groundwater. This notification shall remain effective from the date of its filing until the property (soil and groundwater) subject to this notification can support unlimited uses and unrestricted exposures. EPA and LDEQ shall determine if the hazardous constituents are at levels which allow unlimited use and unrestricted exposure.

Disturbing or removing soil or groundwater may subject the property owner and the party causing the disturbance to liability under CERCLA, the LEQA, or other laws.

The CERCLA remedy includes but is not limited to:

- solidification/stabilization of residuals
- onsite disposal
- a clay cover
- monitoring wells; and
- the fence and gate.

These features are depicted on Exhibit 1. Disturbance of, destruction of, interference with, or in any way damaging or altering elements of the CERCLA remedy without authorization

VERMILION PARISH LA
RECORDED THIS DAY
2007 OCT 16 A 10:21
JAMES M. STOUTS
CLERK OF COURT



822862

from LDEQ, EPA, or their successor agencies may result in legal liability under CERCLA, the LEQA, or other laws.

The following use restrictions are hereby placed on the Property which restrictions shall apply except as may be otherwise allowed or required by EPA, LDEQ, or their successor agencies:

- i. There shall be no excavating, drilling or other activities on the Property to depths that could create exposure to any contaminated media;
- ii. There shall be no excavating, drilling or other activities on the Property that could interfere with the integrity of the clay cover; and,
- iii. There shall be no extraction of groundwater for consumption or any other purpose other than groundwater monitoring or remediation.

The property may be subject to additional future environmental requirements under CERCLA or the LEQA as may be determined necessary by EPA, LDEQ, or their successor agencies. The property may be subject to restrictions under La. Admin. Code 33:V.Chapter 35 (Closure and Post-Closure).

Any owner of the property may become liable jointly and severally under federal law, or in solido under Louisiana law, for any environmental response action required on the property.

THUS DONE AND PASSED, in duplicate original, in Albany, Texas, on the date, month and year hereinabove first written, in the presence of the undersigned competent witnesses, who hereunto sign their names with the said appearers and me, Notary, after reading of the whole.

WITNESSES:

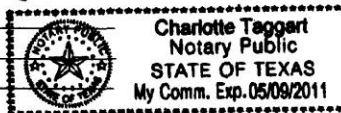
Kim Nuce
Kim NUCE
Kim Bryan
Kim Bryan

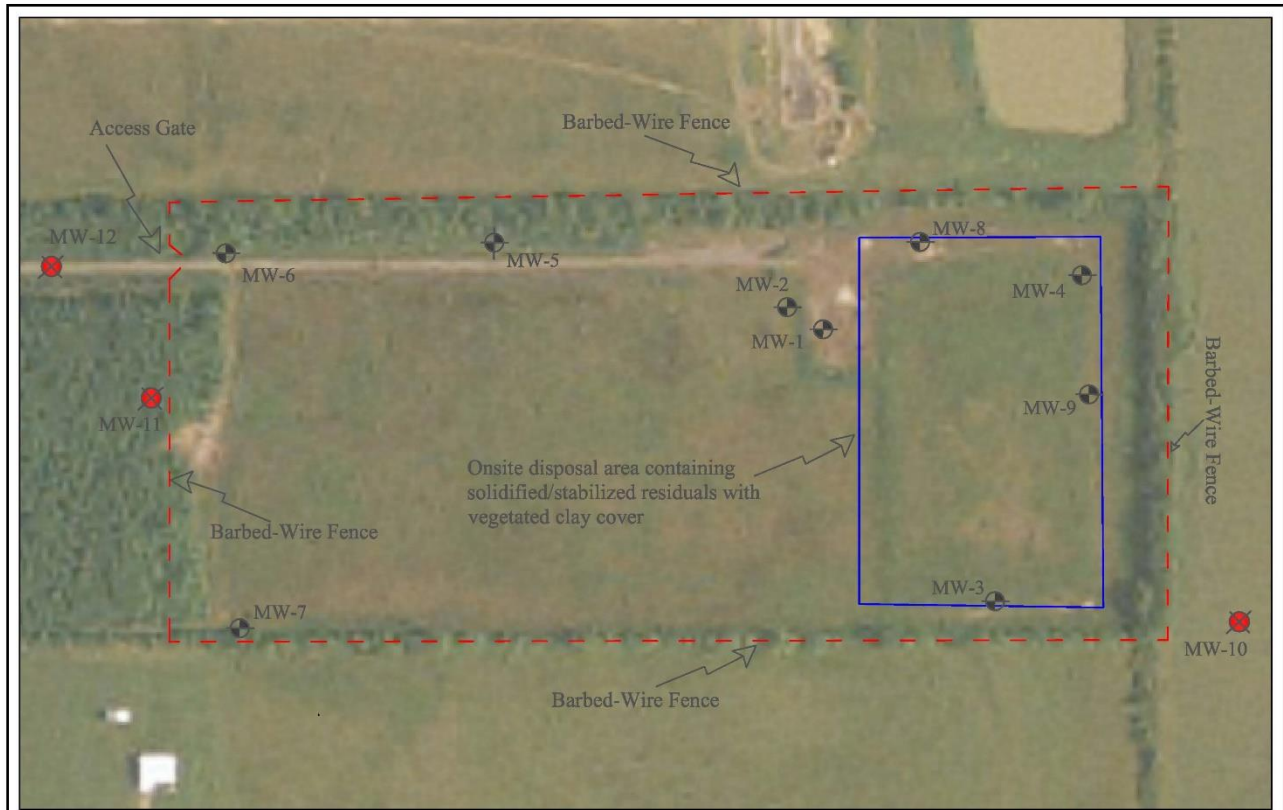
PAB SITE REMEDIATION GROUP, L.L.C.

BY: [Signature]
DONALD R. FITZGIBBONS, MANAGER

Charlotte Taggart
NOTARY PUBLIC

Name: _____
Notarial #: _____
My commission expires _____








<p>LEGEND</p> <ul style="list-style-type: none"> - - - Perimeter Fence Disposal Area X Plugged & Abandoned Wells Existing Monitor Wells 	  <p>SCALE: 1" = 150'</p> 	<p>SITE MAP PAB Oil & Chemical Services Superfund Site Project Navigator, Ltd. PAB Oil & Chemical Superfund Site Vermilion Parish, Louisiana</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Job Number</th> <th>File Name</th> <th>Drawn By</th> <th>Approved</th> <th>Date</th> <th>Revised</th> </tr> </thead> <tbody> <tr> <td>07-0220</td> <td>mwlocations</td> <td>JM</td> <td>TAO</td> <td>9/28/07</td> <td>10/1/07</td> </tr> </tbody> </table>	Job Number	File Name	Drawn By	Approved	Date	Revised	07-0220	mwlocations	JM	TAO	9/28/07	10/1/07	<p>EXHIBIT</p> <h1 style="font-size: 2em; margin: 0;">1</h1>
Job Number	File Name	Drawn By	Approved	Date	Revised										
07-0220	mwlocations	JM	TAO	9/28/07	10/1/07										

Exhibit 2

Property Description

TRACT 1

A CERTAIN TRACT OF LAND LYING AND BEING SITUATED IN THE PARISH OF VERMILION, LOUISIANA, CONTAINING 16.66 ACRES, AND BEING LOCATED PARTLY IN THE SOUTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 12, TOWNSHIP 12 SOUTH, RANGE 3 EAST, AND IN THE SOUTHEAST QUARTER OF THE NORTHWEST QUARTER OF SECTION 12, TOWNSHIP 12 SOUTH, RANGE 3 EAST, AND BEING DESCRIBED AS MEASURING 571.5 FEET ON THE EAST LINE, 1270.4 FEET ON THE NORTH LINE, 571.5 FEET ON THE WEST LINE, AND 1270.4 FEET ON THE SOUTH LINE, AND BEING BOUNDED ON THE EAST BY LOTS 5 AND 5A, ON THE NORTH BY LOT 8A, ON THE WEST BY LOT 7 OR OTTO BROUSSARD OR ASSIGNS, AND ON THE SOUTH BY OTTO BROUSSARD OR ASSIGNS, AND BEING FURTHER DESIGNATED AS LOT 7A OF PLAT ATTACHED TO ACT OF PARTITION RECORDED IN BOOK 243, PAGE 648, UNDER ENTRY NO. 113705, CONVEYANCE RECORDS OF VERMILION PARISH, LOUISIANA.

TOGETHER WITH ALL BUILDINGS AND IMPROVEMENTS THEREON SITUATED AND THERETO BELONGING.

BEING THE SAME PROPERTY ACQUIRED BY EDMOND MOUTON FROM LULA BROUSSARD BY AN ACT OF EXCHANGE AND RATIFICATION DATED JUNE 28, 1977 AND RECORDED IN CONVEYANCE BOOK 845, AT PAGE 430 OF THE CONVEYANCE RECORDS OF VERMILION PARISH, LOUISIANA, ON JUNE 30, 1977, UNDER ENTRY NUMBER 242442. THE PROPERTY WAS ORIGINALLY ACQUIRED BY EDMOND MOUTON IN VOLUME 355, AT PAGE 350, UNDER ENTRY NUMBER 137992, CONVEYANCE RECORDS OF VERMILION PARISH, LOUISIANA.

TRACT 2:

THAT CERTAIN TRACT OR PARCEL OF LAND CONTAINING 0.052 ACRE, SITUATED IN FRACTIONAL SECTION 12, T 12 S - R 3 E, THIRD WARD OF VERMILION PARISH, STATE OF LOUISIANA:

COMMENCING AT A POINT FORMED BY THE INTERSECTION OF THE CENTERLINE OF ROMERO ROAD AND THE EASTERN RIGHT-OF-WAY LINE OF U. S. HIGHWAY 167, THENCE PROCEEDING S 03° 07' 03" W ALONG SAID RIGHT-OF-WAY LINE, FOR A DISTANCE OF 62.32 FEET TO A POINT; THENCE PROCEEDING S 00° 15' 18" W ALONG SAID RIGHT-OF-WAY LINE, FOR A DISTANCE OF 57.68 FEET TO A POINT; THENCE PROCEEDING S 89° 46' 01" E, FOR A DISTANCE OF 1,744.01 FEET TO THE POINT OF BEGINNING; THENCE PROCEEDING N 00° 33' 59" E, FOR A DISTANCE OF 227.59 FEET TO A POINT; THENCE PROCEEDING S 89° 44' 55" E, FOR A DISTANCE OF 10.00

FEET TO A POINT; THENCE PROCEEDING S 00° 33' 59" W, FOR A DISTANCE OF 227.59 FEET TO A POINT; THENCE PROCEEDING N 89° 46' 01" W, FOR A DISTANCE OF 10.00 FEET TO THE POINT OF BEGINNING; BEING BOUNDED ON THE NORTH BY TRACT 7-A2B, ON THE SOUTH AND EAST BY PAB SITE REMEDIATION GROUP, L.L.C.; AND ON THE WEST BY JASON PAUL LATIOLAIS & ASHLEY BROUSSARD LATIOLAIS, BEING TRACT NO. "7-C2" AS PER PLAT BY RICHARD J. PRIMEAUX, DATED MARCH 19, 2003, ATTACHED TO THAT CERTAIN ACT OF EXCHANGE BETWEEN PAB SITE REMEDIATION GROUP, L.L.C. AND ASHLEY BROUSSARD, WIFE OF/AND JASON PAUL LATIOLAIS, DATED APRIL 29, 2003, RECORDED IN THE CONVEYANCE RECORDS OF VERMILION PARISH, LOUISIANA UNDER ENTRY NO. 20305042 ("PAB SITE ACT OF EXCHANGE").

TRACT 3:

THAT CERTAIN TRACT OR PARCEL OF LAND CONTAINING 0.039 ACRE, SITUATED IN FRACTIONAL SECTION 12, T 12 S - R 3 E, THIRD WARD OF VERMILION PARISH, STATE OF LOUISIANA:

COMMENCING AT A POINT FORMED BY THE INTERSECTION OF THE CENTERLINE OF ROMERO ROAD AND THE EASTERN RIGHT-OF-WAY LINE OF U. S. HIGHWAY 167, THENCE PROCEEDING S 03° 07' 03" W ALONG SAID RIGHT-OF-WAY LINE, FOR A DISTANCE OF 62.32 FEET TO A POINT; THENCE PROCEEDING S 00° 15' 18" W ALONG SAID RIGHT-OF-WAY LINE, FOR A DISTANCE OF 57.68 FEET TO A POINT; THENCE PROCEEDING S 89° 46' 01" E, FOR A DISTANCE OF 1,744.01 FEET TO A POINT; THENCE PROCEEDING N 00° 33' 59" E, FOR A DISTANCE OF 227.59 FEET TO THE POINT OF BEGINNING; THENCE PROCEEDING N 00° 33' 59" E, FOR A DISTANCE OF 169.41 FEET TO A POINT; THENCE PROCEEDING S 89° 44' 27" E, FOR A DISTANCE OF 10.00 FEET TO A POINT; THENCE PROCEEDING S 00° 33' 59" W, FOR A DISTANCE OF 169.41 FEET A POINT; THENCE PROCEEDING N 89° 44' 55" W, FOR A DISTANCE OF 10.00 FEET TO THE POINT OF BEGINNING; BEING BOUNDED ON THE NORTH AND EAST BY PAB SITE REMEDIATION GROUP, L.L.C.; ON THE SOUTH BY TRACT 7-C2 AND ON THE WEST BY JASON PAUL LATIOLAIS & ASHLEY BROUSSARD LATIOLAIS, BEING TRACT NO. "7-A2B" AS PER PLAT BY RICHARD J. PRIMEAUX, DATED MARCH 19, 2003, ATTACHED TO THE PAB SITE ACT OF EXCHANGE.

STATE OF LOUISIANA
PARISH OF VERMILION

I HEREBY CERTIFY THAT THE ABOVE AND FOREGOING IS A TRUE
AND CORRECT COPY OF ORIGINAL FILED AND RECORDED ON

October 16 2007 IN Conv.
BOOK _____ FOLIO _____ UNDER NUMBER 20712226
ALSO IN _____ BOOK _____ FOLIO _____
UNDER NUMBER _____

RECORDS OF VERMILION PARISH, LOUISIANA.

IN FAITH WHEREOF WITNESS MY HAND AND SEAL OF OFFICE
AT ABBEVILLE, LA THIS 16 DAY OF October 2007

Priscilla D. Belhomme
BY: CLERK AND RECORDER, VERMILION PARISH, LA.

APPENDIX E – PRESS NOTICE

ABBEVILLE MERIDIONAL

owner operated a disposal facility for oil field drilling mud and salt-water. The Site includes a capped disposal unit and a flat grassy area. It is not currently in use. Monitoring and maintenance of the Site's cap and groundwater monitoring are ongoing. The site-wide remedy included surface water treatment, excavation, solidification/stabilization of residuals, on-site disposal, a clay cover and groundwater monitoring. 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 May 2022. The Five-Year Review Report will be made available to the public at the following local information repository:

Vermilion Parish Library – Abbeville Branch
405 East Saint Victor Street
Abbeville, Louisiana, 70510
(337) 893-2674

Site status updates are available on the internet at www.epa.gov/superfund/pab-oil-chemical-service

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

For more information about the Site, contact:

Mike Hebert – EPA Remedial Project Manager
(214) 665-8315 or by email at hebert.mike@epa.gov

Jason McKinney – EPA Community Involvement Coordinator
(214) 665-8132 or 1-800-887-6063 (toll-free) or by email at mckinney.jason@epa.gov

(PUBLISHED: NOVEMBER 16, 2021)

PUBLIC NOTICE

**PAB Oil & Chemical Service, Inc. Superfund Site
Public Notice
U.S. Environmental Protection Agency, Region 6
November 2021**

The U.S. Environmental Protection Agency, Region 6 (EPA) will be conducting the fifth five-year review of remedy implementation and performance at the PAB Oil & Chemical Service, Inc. Superfund site (Site) in Abbeville, Louisiana. From 1978 to about 1983, the site

APPENDIX F – INTERVIEW FORMS

PAB OIL & CHEMICAL SERVICES, INC. SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: PAB Oil & Chemical Services, Inc.	
EPA ID: LAD980749139	
Interviewer name: Kirby Webster	Interviewer affiliation: Skeo
Subject name: Destin Hooks	Subject affiliation: LDEQ
Subject contact information: (337) 262-5572 or destin.hooks@la.gov	
Interview date: 12/2/2021	Interview time: Not applicable
Interview format (circle one): In Person Phone Mail Email Other:	
Interview category: State Agency	

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

My impression of the project is that the Site is being monitored, while natural attenuation takes place, in order to ensure that contamination is contained in order to protect human health and the environment.

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

The current monitored natural attenuation phase of the remedy is adequately monitoring groundwater and cap conditions of the area of interest (AOI).

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

No.

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.

Yes. Inspection of the site occur to observe site conditions, specifically the general condition of the cap and monitoring wells. Annual inspection and monitoring reports, submitted by the PRP group, are reviewed by LDEQ and commented on if necessary. Finally, inspections or contact with site management was conducted prior and subsequent to Hurricane events.

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

No.

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

Yes.

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

No.

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

No.

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

Yes.

PAB OIL & CHEMICAL SERVICES, INC. SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: PAB Oil & Chemical Services, Inc.	
EPA ID: LAD980749139	
Interviewer name: Kirby Webster	Interviewer affiliation: Skeo
Subject name: Nearby resident	Subject affiliation: Not applicable
Interview date: 12/8/2021	Interview time: 1 p.m.
Interview format (circle one): In Person <u>Phone</u> Mail Email Other:	
Interview category: Resident	

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)?

I think it is time to do something with the property. Honestly, I wish they had gotten rid of the chemicals and hauled it away from here and disposed of it or something. I don't know the logistics or if that is even a possibility.

3. What have been the effects of the Site on the surrounding community, if any?

Everyone talks about it – it was a big deal back in those days. Other than that, nothing that I know of in my generation as far as environmental impacts.

4. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?

More than one time, I've had to tell people to get off the site property. There are constantly four wheelers in there – it hasn't been going on lately. It has been maybe a year since I've seen anyone.

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?

EPA keeps me informed for sure. By phone is the best way to provide information.

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?

I do. I do not use it for drinking. I have city water. I use the well for my pond.

7. Do you have any comments, suggestions or recommendations regarding any aspects of the project?

No. Maybe they should fix the gate at the road so that people can't pull it off the hinges. I've often seen that people can lift the gate off the post. It would probably keep people from going back there.

PAB OIL & CHEMICAL SERVICES, INC. SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: PAB Oil & Chemical Services, Inc.	
EPA ID: LAD980749139	
Interviewer name: Kirby Webster	Interviewer affiliation: Skeo
Subject name: Nearby resident	Subject affiliation: Not applicable
Interview date: 12/8/21	Interview time: 11 a.m.
Interview format (circle one): In Person <u>Phone</u> Mail Email Other:	
Interview category: Resident	

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

I had no idea.

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

None.

3. What have been the effects of the Site on the surrounding community, if any?

None known. When I bought my property one person said there was arsenic in the groundwater.

4. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?

I've had trespassing on my property, not on the Site.

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?

No. They can keep be abreast of what is going on via email.

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?

No.

7. Do you have any comments, suggestions or recommendations regarding any aspects of the project?

No.

PAB OIL & CHEMICAL SERVICES, INC. SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: PAB Oil & Chemical Services, Inc.	
EPA ID: LAD980749139	
Interviewer name: Kirby Webster	Interviewer affiliation: Skeo
Subject name: Brian Moore	Subject affiliation: Project Navigator, Ltd.
Subject contact information: bmoore@projectnavigator.com	
Interview date: 12/14/21	Interview time: 1430
Interview location: Via E-mail questionnaire	
Interview format (circle one): In Person Phone Mail <u>Email</u> Other:	
Interview category: O&M Contractor	

1. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)? **I have worked on the project since 2018 and my overall impression has been good. The remedy continues to be working and protective of human health and the environment.**
2. What is your assessment of the current performance of the remedy in place at the Site? **It appears to be working and 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? **The monitoring data has shown that there has been no indication of COC migration or cap settlement.**
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 not continuous on-site presence, though we have good working relationship with an adjacent property owner who informs of anything of concern. The site is mowed twice per year and an annual comprehensive site inspection is completed.**
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. **There have been no significant changes.**
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. **There have been none.**
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. **There have been none.**

8. Do you have any comments, suggestions or recommendations regarding O&M activities and schedules at the Site? **Due to favorable groundwater analysis and cap survey data over the last 25 years, there is the potential to request a reduction of certain O&M activities.**
9. Do you consent to have your name included along with your responses to this questionnaire in the FYR report? **Yes.**

APPENDIX G – DATA REVIEW TABLES

Table G-1: Historical Settlement Monument Survey Data

Settlement Monument	Date Surveyed (1,2)	Elevation (Feet Amsl)	Initial (1998) Elevation	Change in Elevation (ft)
A	1/27/1999	23.56	23.57	-0.01
	4/19/1999	23.57	23.57	0.00
	7/20/1999	23.57	23.57	0.00
	10/18/1999	23.56	23.57	-0.01
	1/19/2000	23.60	23.57	0.03
	1/15/2001	23.54	23.57	-0.03
	2/20/2002	23.52	23.57	-0.05
	3/17/2003	23.53	23.57	-0.04
	3/9/2005	23.54	23.57	-0.03
	3/26/2007	23.53	23.57	-0.04
	12/19/2008	23.59	23.57	0.02
	2/17/2011	23.58	23.57	0.01
	2/18/2013	23.59	23.57	0.02
	2/19/2015	23.56	23.57	-0.01
	4/19/2016	23.55	23.57	-0.02
	3/27/2017	23.56	23.57	-0.01
5/11/2018	23.58	23.57	0.01	
7/8/2020	23.59	23.57	0.02	
B	1/27/1999	23.41	23.37	0.04
	4/19/1999	23.39	23.37	0.02
	7/20/1999	23.39	23.37	0.02
	10/18/1999	23.38	23.37	0.01
	1/19/2000	23.43	23.37	0.06
	1/15/2001	23.36	23.37	-0.01
	2/20/2002	23.33	23.37	-0.04
	3/17/2003	23.34	23.37	-0.03
	3/9/2005	23.32	23.37	-0.05
	3/26/2007	23.31	23.37	-0.06
	12/19/2008	23.36	23.37	-0.01
	2/17/2011	23.39	23.37	0.02
	2/18/2013	23.38	23.37	0.01
	2/19/2015	23.37	23.37	0.00
	4/19/2016	23.36	23.37	-0.01
	3/27/2017	23.38	23.37	0.01
5/11/2018	23.39	23.37	0.02	
7/8/2020	23.36	23.37	-0.01	
C	1/27/1999	23.74	23.77	-0.03
	4/19/1999	23.75	23.77	-0.02
	7/20/1999	23.77	23.77	0.00
	10/18/1999	23.77	23.77	0.00
	1/19/2000	23.76	23.77	-0.01
	1/15/2001	23.72	23.77	-0.05
	2/20/2002	23.72	23.77	-0.05
	3/17/2003	23.73	23.77	-0.04
	3/9/2005	23.73	23.77	-0.04
	3/26/2007	23.70	23.77	-0.07
	12/19/2008	23.78	23.77	0.01
	2/17/2011	23.78	23.77	0.01
	2/18/2013	23.77	23.77	0.00
	2/19/2015	23.77	23.77	0.00
	4/19/2016	23.78	23.77	0.01
	3/27/2017	23.79	23.77	0.02
5/11/2018	23.8	23.77	0.03	
7/8/2020	23.78	23.77	0.01	

Amsl = Above mean sea level

- = Decrease in elevation

+ = Increase in elevation

Notes:

1. In a letter dated January 7, 2000, the Environmental Protection Agency (EPA) approved the reduction of frequency from quarterly monitoring to annual.

2. Reduction in monitoring frequency reduced to alternate years.



Source: Table 1, 2020 Annual Inspection and Monitoring Report, Operations and Maintenance Activities.

Table G-2: Analytical Results – Metals

Well ID	Date	Metals														Organic	Units
		Arsenic	Silver	Barium	Berillium	Cadmium	Chromium	Copper	Mercury	Lead	Nickel	Antimony	Selenium	Thallium	Zinc	TOC	
MCL	--	0.01	--	2.00	0.004	0.005	0.1	1.3	0.002	0.015	--	0.006	0.05	0.002	--	--	mg/l
MW-2	1/15/2001	<DL	<DL	0.367	<DL	<DL	0.159	<DL	<DL	<DL	0.19	<DL	<DL	<DL	0.1	-	mg/l
	8/1/2001	<DL	<DL	0.270	<DL	<DL	<DL	<DL	<DL	<DL	0.207	<DL	<DL	<DL	0.077	-	mg/l
	2/20/2002	<DL	<DL	0.250	<DL	<DL	<DL	<DL	<DL	<DL	0.11	<DL	<DL	<DL	<DL	-	mg/l
	9/19/2002	<DL	<DL	0.230	<DL	<DL	<DL	<DL	<DL	<DL	0.14	<DL	<DL	<DL	0.061	-	mg/l
	3/17/2003	<DL	<DL	0.200	<DL	<DL	<DL	<DL	<DL	<DL	0.041	<DL	<DL	<DL	0.1	-	mg/l
	8/20/2003	<DL	<DL	0.210	<DL	<DL	<DL	0.011	<DL	<DL	<DL	<DL	<DL	<DL	0.024	-	mg/l
	3/23/2004	<DL	<DL	0.200	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	2	mg/l
	3/8/2005	0.012	<DL	0.210	<DL	<DL	<DL	<DL	<DL	<DL	0.78	<DL	<DL	<DL	<DL	<DL	mg/l
	3/31/2006	<DL	<DL	0.160	<DL	<DL	<DL	<DL	<DL	<DL	0.56	<DL	<DL	<DL	<DL	2.9	mg/l
	3/1/2007	0.00431	<DL	0.208	<DL	<DL	0.00661	<DL	<DL	<DL	0.685	<DL	0.0127	<DL	<DL	1.16	mg/l
	3/4/2008	0.00252	<DL	0.216	<DL	<DL	<DL	<DL	<DL	<DL	0.376	<DL	0.0166	<DL	0.00723	-	mg/l
	2/17/2011	<DL	<DL	0.200	<DL	<DL	0.0559	<DL	<DL	<DL	0.122	<DL	0.0104	<DL	0.00684	-	mg/l
	2/7/2012	<DL	<DL	0.256	<DL	<DL	<DL	<DL	<DL	<DL	0.118	<DL	0.0108	<DL	<DL	-	mg/l
	7/30/2014	<DL	<DL	0.176	<DL	<DL	<DL	<DL	<DL	<DL	0.165	<DL	<DL	<DL	<DL	-	mg/l
	7/30/2014	<DL	<DL	0.147	<DL	<DL	<DL	<DL	<DL	<DL	0.487	0.0018	0.0032	<DL	0.0073	-	mg/l
4/19/2016	<DL	<DL	0.212	<DL	<DL	<DL	<DL	<DL	<DL	0.53	<DL	<DL	<DL	<DL	-	mg/l	
4/24/2019	<DL	<DL	0.205	<DL	<DL	0.0136	<DL	<DL	<DL	0.0915	<DL	<DL	<DL	<DL	-	mg/l	
5/7/2021	<DL	<DL	0.195	<DL	<DL	<DL	<DL	<DL	<DL	0.676	<DL	<DL	<DL	<DL	-	mg/l	
MW-2FD	1/15/2001	<DL	<DL	0.345	<DL	<DL	0.458	<DL	<DL	<DL	0.226	<DL	<DL	<DL	0.092	-	mg/l
	8/20/2003	<DL	<DL	0.210	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.044	-	mg/l
	2/17/2011	<DL	<DL	0.218	<DL	<DL	0.026	<DL	<DL	<DL	0.12	<DL	0.011	<DL	<DL	-	mg/l
	4/24/2019	<DL	<DL	0.203	<DL	<DL	0.0014	<DL	<DL	<DL	0.087	<DL	<DL	<DL	<DL	-	mg/l
	5/7/2021	<DL	<DL	0.160	<DL	<DL	<DL	<DL	<DL	<DL	0.0021	<DL	<DL	<DL	<DL	-	mg/l
MW-3	1/15/2001	<DL	<DL	0.183	<DL	<DL	0.612	<DL	<DL	<DL	0.097	<DL	<DL	<DL	0.064	-	mg/l
	8/1/2001	<DL	<DL	0.133	<DL	<DL	<DL	<DL	<DL	<DL	0.05	<DL	<DL	<DL	<DL	-	mg/l
	2/20/2002	<DL	<DL	0.120	<DL	<DL	<DL	<DL	<DL	<DL	0.32	<DL	<DL	<DL	0.021	-	mg/l
	9/19/2002	<DL	<DL	0.100	<DL	<DL	0.013	<DL	<DL	<DL	0.076	<DL	<DL	<DL	<DL	-	mg/l
	3/17/2003	<DL	<DL	0.160	<DL	<DL	<DL	<DL	<DL	<DL	0.28	<DL	<DL	<DL	0.18	-	mg/l
	8/20/2003	<DL	<DL	0.140	<DL	<DL	<DL	0.012	0.00023	<DL	0.2	<DL	<DL	<DL	0.11	-	mg/l
3/5/2008	0.00836	<DL	0.188	<DL	<DL	0.00414	<DL	<DL	<DL	0.289	<DL	0.0238	<DL	0.101	-	mg/l	
MW-4	3/5/2008	<DL	<DL	0.0754	<DL	<DL	<DL	<DL	<DL	<DL	0.402	<DL	<DL	<DL	0.00667	-	mg/l
MW-5	1/15/2001	<DL	<DL	0.238	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.07	-	mg/l
	8/1/2001	<DL	<DL	0.159	<DL	<DL	<DL	<DL	<DL	<DL	0.05	<DL	<DL	<DL	0.049	-	mg/l
	2/20/2002	<DL	<DL	0.150	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	-	mg/l
	9/19/2002	<DL	<DL	0.110	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.026	-	mg/l
	3/17/2003	<DL	<DL	0.240	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.077	-	mg/l
	8/20/2003	<DL	<DL	0.210	<DL	<DL	<DL	0.016	<DL	<DL	<DL	<DL	<DL	<DL	0.035	-	mg/l
	3/5/2008	0.0085	<DL	0.259	<DL	<DL	<DL	<DL	<DL	<DL	0.0277	<DL	0.0235	<DL	0.00745	-	mg/l
	5/13/2011	<DL	<DL	0.203	<DL	<DL	<DL	<DL	<DL	<DL	0.00357	<DL	<DL	<DL	0.00615	-	mg/l
	7/30/2014	<DL	<DL	0.200	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	-	mg/l
	7/30/2014	<DL	<DL	0.190	<DL	<DL	0.0015	<DL	<DL	<DL	0.0022	0.0016	0.0012	<DL	<DL	-	mg/l
	4/19/2016	<DL	<DL	0.143	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	-	mg/l
4/24/2019	0.0018	<DL	0.200	<DL	<DL	0.0012	<DL	<DL	<DL	0.0016	<DL	<DL	<DL	<DL	-	mg/l	
5/7/2021	<DL	<DL	0.159	<DL	<DL	<DL	<DL	<DL	<DL	0.17	<DL	<DL	<DL	<DL	-	mg/l	
MW-5FD	3/17/2003	<DL	<DL	0.220	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.055	-	mg/l

MW-6	1/15/2001	<DL	<DL	0.216	<DL	<DL	0.25	<DL	<DL	<DL	0.156	<DL	<DL	<DL	0.085	-	mg/l
	8/1/2001	<DL	<DL	0.162	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.068	-	mg/l
	2/20/2002	<DL	<DL	0.160	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	-	mg/l
	9/19/2002	<DL	<DL	0.180	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.023	-	mg/l
	3/17/2003	<DL	<DL	0.160	<DL	<DL	0.029	<DL	<DL	<DL	0.085	<DL	<DL	<DL	0.086	-	mg/l
	8/19/2003	<DL	<DL	0.170	<DL	<DL	<DL	0.029	<DL	<DL	0.13	<DL	<DL	<DL	0.042	-	mg/l
	3/23/2004	<DL	<DL	0.170	<DL	<DL	<DL	<DL	<DL	<DL	0.073	<DL	<DL	<DL	<DL	2.2	mg/l
	3/8/2005	0.014	<DL	0.160	<DL	<DL	<DL	<DL	<DL	<DL	0.19	<DL	<DL	<DL	<DL	<DL	mg/l
	3/31/2005	<DL	<DL	0.120	<DL	<DL	<DL	<DL	<DL	<DL	0.11	<DL	<DL	<DL	<DL	5.0	mg/l
	3/1/2007	0.00533	<DL	0.089	<DL	<DL	0.0142	<DL	<DL	<DL	0.151	<DL	0.00826	<DL	0.0157	2.3	mg/l
	3/5/2008	0.00618	<DL	0.132	<DL	<DL	<DL	<DL	<DL	<DL	0.0363	<DL	0.0151	<DL	<DL	-	mg/l
	5/12/2011	<DL	<DL	0.0632	<DL	<DL	0.009	<DL	<DL	<DL	0.0661	<DL	<DL	<DL	0.00927	-	mg/l
	2/7/2012	<DL	<DL	0.147	<DL	<DL	<DL	<DL	<DL	<DL	0.1	<DL	<DL	<DL	<DL	-	mg/l
	7/30/2014	<DL	<DL	0.139	<DL	<DL	<DL	<DL	<DL	<DL	0.0258	<DL	<DL	<DL	<DL	-	mg/l
	7/30/2014	<DL	<DL	0.140	<DL	<DL	0.0033	<DL	<DL	<DL	0.017	<DL	<DL	<DL	<DL	-	mg/l
4/19/2016	<DL	<DL	0.145	<DL	<DL	<DL	<DL	<DL	<DL	0.0492	<DL	<DL	<DL	<DL	-	mg/l	
4/24/2019	<DL	<DL	0.173	<DL	<DL	0.0045	<DL	<DL	<DL	0.13	<DL	<DL	<DL	<DL	-	mg/l	
5/7/2021	<DL	<DL	0.133	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	-	mg/l	
MW-6FD	2/20/2002	<DL	<DL	0.160	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.025	-	mg/l
	9/19/2002	<DL	<DL	0.190	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.032	-	mg/l
	7/30/2014	<DL	<DL	0.144	<DL	<DL	<DL	<DL	<DL	0.0175	<DL	<DL	<DL	<DL	-	mg/l	
7/30/2014	<DL	<DL	0.134	<DL	<DL	0.0072	<DL	<DL	<DL	0.0206	0.0013	0.0011	<DL	<DL	-	mg/l	
MW-8	3/23/2004	<DL	<DL	0.110	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	1.4	mg/l
	3/8/2005	0.016	<DL	0.017	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	mg/l
	3/31/2005	<DL	<DL	0.140	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	7.7	mg/l
	3/1/2007	0.00556	<DL	0.157	<DL	<DL	0.00728	<DL	<DL	0.00306	<DL	0.00877	<DL	0.00712	1.81	mg/l	
	3/4/2008	0.00938	<DL	0.191	<DL	<DL	<DL	0.0229	<DL	0.0319	<DL	0.0271	<DL	0.011	-	mg/l	
	2/17/2011	<DL	<DL	0.185	<DL	<DL	<DL	<DL	<DL	0.00148	0.00655	<DL	0.00775	<DL	0.00722	-	mg/l
	2/6/2012	<DL	<DL	0.203	<DL	<DL	<DL	<DL	<DL	<DL	0.00424	<DL	<DL	<DL	<DL	-	mg/l
	7/30/2014	<DL	<DL	0.166	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	-	mg/l
	7/30/2014	<DL	<DL	0.153	<DL	<DL	<DL	<DL	<DL	<DL	0.0022	0.0011	<DL	<DL	<DL	-	mg/l
	4/19/2016	<DL	<DL	0.186	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	-	mg/l
4/24/2019	<DL	<DL	0.157	<DL	<DL	<DL	<DL	<DL	<DL	0.0024	<DL	<DL	<DL	<DL	-	mg/l	
5/7/2021	<DL	<DL	0.159	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	-	mg/l	
MW-8FD	3/23/2004	<DL	<DL	0.120	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	1.9	mg/l
	3/8/2005	<DL	<DL	0.016	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.029	<DL	mg/l
	3/4/2008	0.00999	<DL	0.196	<DL	<DL	<DL	<DL	<DL	<DL	0.00378	<DL	0.0296	<DL	<DL	-	mg/l
2/6/2012	<DL	<DL	0.198	<DL	<DL	<DL	<DL	<DL	<DL	0.00368	<DL	<DL	<DL	<DL	-	mg/l	

MW-9	1/15/2001	<DL	<DL	0.164	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.053	-	mg/l	
	8/1/2001	<DL	<DL	0.101	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.051	-	mg/l	
	2/20/2002	<DL	<DL	0.15	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	-	mg/l	
	9/19/2002	<DL	<DL	0.14	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.023	-	mg/l	
	3/17/2003	<DL	<DL	0.11	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.033	-	mg/l	
	8/20/2003	<DL	<DL	0.12	<DL	<DL	<DL	0.012	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.027	-	mg/l	
	3/23/2004	<DL	<DL	0.12	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	1.7	mg/l	
	3/8/2005	<DL	<DL	0.12	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	mg/l	
	3/31/2006	<DL	<DL	0.11	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	3.9	mg/l	
	3/1/2007	<DL	<DL	0.11	<DL	<DL	0.00442	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.0135	1.21	mg/l	
	3/5/2008	<DL	<DL	0.123	<DL	<DL	<DL	<DL	<DL	<DL	0.00229	<DL	<DL	<DL	<DL	<DL	-	mg/l	
	2/17/2011	<DL	<DL	0.132	<DL	<DL	<DL	<DL	<DL	0.00178	0.00754	<DL	<DL	<DL	<DL	0.00786	-	mg/l	
	2/6/2012	<DL	<DL	0.125	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	-	mg/l
	7/30/2014	<DL	<DL	0.137	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.0694	-	mg/l	
	7/30/2014	<DL	<DL	0.133	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.0011	0.0023	<DL	<DL	-	mg/l	
4/19/2016	<DL	<DL	0.221	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	-	mg/l	
4/24/2019	<DL	<DL	0.128	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.001	<DL	<DL	<DL	<DL	<DL	-	mg/l	
5/7/2021	<DL	<DL	0.124	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	-	mg/l	
MW-9FD	8/1/2001	<DL	<DL	0.101	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.05	-	mg/l	
	3/31/2006	<DL	<DL	0.11	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	1.2	mg/l	
	3/1/2007	<DL	<DL	0.109	<DL	<DL	0.00436	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.006	1.3	mg/l	
	4/19/2016	<DL	<DL	0.162	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	-	mg/l	

FD = Field Duplicate

<DL = Less than detection limit

mg/L = milligrams per liter

- = Not Measured

Note:

1. Bold numbers represent concentrations above detection limits.
2. Refer to First Quarter 2002 Groundwater Monitoring Report for 1999 and 2000 analytical data.



Source: 2021 Annual Inspection and Monitoring Report.

Table G-3: Analytical Results – Volatiles and Semi-Volatiles

MONITORING WELL	DATE SAMPLED	VOLATILES (METHOD 8260) ANALYSES RESULTS (1) (ug/L)	SEMI-VOLATILES (METHOD 8270) ANALYSES RESULTS (1)(2) (ug/L)
MW-1	1/15/2001	<DL	<DL
	8/1/2001	<DL	-
	2/20/2002	<DL	<DL
	9/19/2002	<DL	-
	3/17/2003	<DL	<DL
	3/15-16/07	<DL	<DL
MW-2	1/15/2001	<DL	<DL
	8/1/2001	<DL	-
	2/20/2002	<DL	<DL
	9/19/2002	<DL	-
	3/17/2003	<DL	<DL
	3/15-16/07	<DL	<DL
	3/4/2008	<DL	<DL
	2/17/2011	<DL	<DL
	2/7/2012	<DL	<DL
	6/6/2014	Toluene - 0.56 J	<DL
	4/19/2016	<DL	<DL
4/24/2019	<DL	<DL	
5/7/2021	<DL	<DL	
MW-3	1/15/2001	<DL	-
	8/1/2001	<DL	-
	2/20/2002	<DL	<DL
	9/19/2002	<DL	-
	3/17/2003	<DL	<DL
	3/15-16/07	<DL	<DL
3/5/2008	<DL	<DL	
MW-4	3/15-16/07	<DL	<DL
	3/5/2008	<DL	<DL
MW-5	1/15/2001	<DL	<DL
	8/1/2001	<DL	-
	2/20/2002	<DL	<DL
	9/19/2002	<DL	-
	3/17/2003	<DL	<DL
	3/15-16/07	<DL	<DL
	3/5/2008	<DL	<DL
	2/17/2011	<DL	<DL
	6/6/2014	<DL	<DL
	4/19/2016	<DL	<DL
4/24/2019	<DL	<DL	
5/7/2021	<DL	<DL	
MW-6	1/15/2001	<DL	<DL
	8/1/2001	<DL	-
	2/20/2002	<DL	<DL
	9/19/2002	<DL	-
	3/17/2003	<DL	<DL
	3/15-16/07	<DL	<DL
	3/5/2008	<DL	<DL
	2/17/2011	<DL	<DL
	2/7/2012	<DL	<DL
	6/6/2014	Benzene - 0.82 J	<DL
	4/19/2016	<DL	<DL
	4/24/2019	<DL	<DL
5/7/2021	<DL	<DL	

MW-7	3/15-16/07	<DL	Bis(2-ethylhexyl)phthalate – 7.4
MW-8	3/15-16/07	<DL	<DL
	3/4/2008	<DL	<DL
	2/17/2011	<DL	<DL
	2/6/2012	<DL	<DL
	6/6/2014	<DL	<DL
	4/19/2016	<DL	<DL
	4/24/2019	<DL	<DL
	5/7/2021	<DL	<DL
MW-9	1/15/2001	<DL	<DL
	8/1/2001	<DL	-
	2/20/2002	<DL	<DL
	9/19/2002	<DL	-
	3/17/2003	<DL	<DL
	3/15-16/07	<DL	<DL
	3/5/2008	<DL	<DL
	2/17/2011	<DL	<DL
	2/6/2012	<DL	<DL
	6/6/2014	<DL	<DL
	4/19/2016	<DL	<DL
	4/24/2019	<DL	<DL
	5/7/2021	<DL	<DL

Notes:

- (1) EPA Methods 624 and 625 were used prior to 2007.
 - (2) VOCs and SVOCs analyzed in 2007 due to TOC detects in 2005 and 2006.
 - (3) Field duplicates, field blanks and trip blanks were <DL for each sampling event.
 - (4) For 1999 and 2000 analytical results refer to First Quarter 2002 Quarterly Groundwater Monitoring Report.
- <DL = Less than detection limit for all analytes in method
 - = Not analyzed
 ug/L = micrograms per Liter
 J = Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.



Source: 2021 Annual Inspection and Monitoring Report.

APPENDIX H – SITE PHOTOGRAPHS

Remedial Action Photos: 1997



Remedial action access road



Saltwater pond



Dewatered pond area



Cap construction

Site Inspection Photos: 2021



Gate at beginning of site access road



Gate at site entrance (in northwest corner)



Looking south, across the edge of the disposal unit cap



Dense vegetation separating the Site from residences to the north



Disposal unit, with settlement monuments in background



Settlement monument #2



Wells MW-1 and MW-2



Animal burrow on the disposal unit



Missing fence along the southern site perimeter



Saltwater pond area, from the south



Well MW-7 in the southwestern corner of the Site, with new fence behind it



“No trespassing” sign in the southwest corner of the Site



Well MW-6



Well MW-5



Ditch running east-west along the northern part of the Site, looking toward the access road

10.	Daily Access/Security Logs	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
Remarks: _____				
IV. O&M COSTS				
1.	O&M Organization	<input type="checkbox"/> State in-house	<input type="checkbox"/> Contractor for state	
		<input type="checkbox"/> PRP in-house	<input checked="" type="checkbox"/> Contractor for PRP	
		<input type="checkbox"/> Federal facility in-house	<input type="checkbox"/> Contractor for Federal facility	
		<input type="checkbox"/> _____		
2.	O&M Cost Records	<input type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	
		<input checked="" type="checkbox"/> Funding mechanism/agreement in place	<input type="checkbox"/> Unavailable	
		Original O&M cost estimate: <u>\$86,000</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: _____	To: _____	_____	<input type="checkbox"/> Breakdown attached
	Date	Date	Total cost	
	From: _____	To: _____	_____	<input type="checkbox"/> Breakdown attached
	Date	Date	Total cost	
3.	Unanticipated or Unusually High O&M Costs during Review Period			
	Describe costs and reasons: _____			
V. ACCESS AND INSTITUTIONAL CONTROLS <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>Barbed wire fence on the southern side is visibly missing in several locations. Vegetation is thick along the fenceline making it difficult to determine if the fence is present. Gates are locked.</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>A "no trespassing" sign is present in the southwest corner and on the entrance gate.</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>site inspection</u>			
Frequency: <u>annually</u>			
Responsible party/agency: <u>PRP (PAB Group)</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 type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Violations have been reported	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input 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: <u>Institutional controls are not required in the ROD but are needed.</u>			
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 checked="" 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			
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: _____		Depths: _____	
Widths: _____			
Remarks: _____			

3.	Erosion	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Erosion not evident
	Area extent: _____		Depth: _____
	Remarks: _____		
4.	Holes	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Holes not evident
	Area extent: _____		Depth: _____
	Remarks: <u>A couple of animal burrows were observed on the cap.</u>		
5.	Vegetative Cover	<input checked="" type="checkbox"/> Grass	<input checked="" type="checkbox"/> Cover properly established
	<input checked="" type="checkbox"/> No signs of stress	<input type="checkbox"/> Trees/shrubs (indicate size and locations on a diagram)	
	Remarks: _____		
6.	Alternative Cover (e.g., armored rock, concrete)		<input checked="" type="checkbox"/> N/A
	Remarks: _____		
7.	Bulges	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Bulges not evident
	Area extent: _____		Height: _____
	Remarks: _____		
8.	Wet Areas/Water Damage	<input checked="" type="checkbox"/> Wet areas/water damage not evident	
	<input type="checkbox"/> Wet areas	<input type="checkbox"/> Location shown on site map	Area extent: _____
	<input type="checkbox"/> Ponding	<input type="checkbox"/> Location shown on site map	Area extent: _____
	<input type="checkbox"/> Seeps	<input type="checkbox"/> Location shown on site map	Area extent: _____
	<input type="checkbox"/> Soft subgrade	<input type="checkbox"/> Location shown on site map	Area extent: _____
	Remarks: _____		
9.	Slope Instability	<input type="checkbox"/> Slides	<input type="checkbox"/> Location shown on site map
	<input checked="" type="checkbox"/> No evidence of slope instability		
	Area extent: _____		
	Remarks: _____		
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.	Flows Bypass Bench	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> N/A or okay
	Remarks: _____		
2.	Bench Breached	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> N/A or okay
	Remarks: _____		
3.	Bench Overtopped	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> N/A or okay
	Remarks: _____		
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)	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> No evidence of settlement
	Area extent: _____		Depth: _____
	Remarks: _____		
2.	Material Degradation	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> No evidence of degradation
	Material type: _____		Area extent: _____
	Remarks: _____		
3.	Erosion	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> No evidence of erosion
	Area extent: _____		Depth: _____
	Remarks: _____		
4.	Undercutting	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> No evidence of undercutting
	Area extent: _____		Depth: _____
	Remarks: _____		
5.	Obstructions	Type: _____	<input type="checkbox"/> No obstructions
	<input type="checkbox"/> Location shown on site map	Area extent: _____	
	Size: _____		
	Remarks: _____		
6.	Excessive Vegetative Growth	Type: _____	
	<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	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"/> 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: _____		
3.	Monitoring Wells (within surface area of landfill)		
	<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: _____		
4.	Extraction Wells Leachate		
	<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: _____	
5. Settlement Monuments	<input type="checkbox"/> Located <input checked="" type="checkbox"/> Routinely surveyed <input 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"/> Collection for reuse	
<input type="checkbox"/> Good condition <input type="checkbox"/> Needs maintenance	
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 checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A
1.	Siltation	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Siltation not evident
Area extent: _____		Depth: _____	
Remarks: _____			
2.	Vegetative Growth	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> N/A
<input checked="" type="checkbox"/> Vegetation does not impede flow			
Area extent: _____		Type: _____	
Remarks: _____			
3.	Erosion	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Erosion not evident
Area extent: _____		Depth: _____	
Remarks: _____			
4.	Discharge Structure	<input checked="" type="checkbox"/> Functioning	<input type="checkbox"/> N/A
Remarks: _____			
VIII. VERTICAL BARRIER WALLS		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A
1.	Settlement	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Settlement not evident
Area extent: _____		Depth: _____	
Remarks: _____			
2.	Performance Monitoring	Type of monitoring: _____	
<input type="checkbox"/> Performance not monitored			
Frequency: _____		<input type="checkbox"/> Evidence of breaching	
Head differential: _____			
Remarks: _____			
IX. GROUNDWATER/SURFACE WATER REMEDIES		<input checked="" type="checkbox"/> Applicable – Monitoring only	<input type="checkbox"/> N/A
A. Groundwater Extraction Wells, Pumps and Pipelines		<input type="checkbox"/> Applicable	<input checked="" 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 type="checkbox"/> N/A			
Remarks: _____			
2.	Extraction 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: _____			
B. Surface Water Collection Structures, Pumps and Pipelines		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A

<p>1. Collection Structures, Pumps and Electrical</p> <p><input type="checkbox"/> Good condition <input type="checkbox"/> Needs maintenance</p> <p>Remarks: _____</p>
<p>2. Surface Water Collection System Pipelines, Valves, Valve Boxes and Other Appurtenances</p> <p><input type="checkbox"/> Good condition <input type="checkbox"/> Needs maintenance</p> <p>Remarks: _____</p>
<p>3. Spare Parts and Equipment</p> <p><input type="checkbox"/> Readily available <input type="checkbox"/> Good condition <input type="checkbox"/> Requires upgrade <input type="checkbox"/> Needs to be provided</p> <p>Remarks: _____</p>
<p>C. Treatment System <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A</p>
<p>1. Treatment Train (check components that apply)</p> <p><input type="checkbox"/> Metals removal <input type="checkbox"/> Oil/water separation <input type="checkbox"/> Bioremediation</p> <p><input type="checkbox"/> Air stripping <input type="checkbox"/> Carbon adsorbers</p> <p><input type="checkbox"/> Filters: _____</p> <p><input type="checkbox"/> Additive (e.g., chelation agent, flocculent): _____</p> <p><input type="checkbox"/> Others: _____</p> <p><input type="checkbox"/> Good condition <input type="checkbox"/> Needs maintenance</p> <p><input type="checkbox"/> Sampling ports properly marked and functional</p> <p><input type="checkbox"/> Sampling/maintenance log displayed and up to date</p> <p><input type="checkbox"/> Equipment properly identified</p> <p><input type="checkbox"/> Quantity of groundwater treated annually: _____</p> <p><input type="checkbox"/> Quantity of surface water treated annually: _____</p> <p>Remarks: _____</p>
<p>2. Electrical Enclosures and Panels (properly rated and functional)</p> <p><input type="checkbox"/> N/A <input type="checkbox"/> Good condition <input type="checkbox"/> Needs maintenance</p> <p>Remarks: _____</p>
<p>3. Tanks, Vaults, Storage Vessels</p> <p><input type="checkbox"/> N/A <input type="checkbox"/> Good condition <input type="checkbox"/> Proper secondary containment <input type="checkbox"/> Needs maintenance</p> <p>Remarks: _____</p>
<p>4. Discharge Structure and Appurtenances</p> <p><input type="checkbox"/> N/A <input type="checkbox"/> Good condition <input type="checkbox"/> Needs maintenance</p> <p>Remarks: _____</p>
<p>5. Treatment Building(s)</p> <p><input type="checkbox"/> N/A <input type="checkbox"/> Good condition (esp. roof and doorways) <input type="checkbox"/> Needs repair</p> <p><input type="checkbox"/> Chemicals and equipment properly stored</p> <p>Remarks: _____</p>
<p>6. Monitoring Wells (pump and treatment remedy)</p>

<input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition <input type="checkbox"/> All required wells located <input type="checkbox"/> Needs maintenance <input type="checkbox"/> N/A Remarks: _____
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 type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition <input type="checkbox"/> All required wells located <input type="checkbox"/> Needs maintenance <input checked="" 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>The remedy was designed to prevent direct contact, ingestion and migration of the disposal pit sludges and associated soils. Contaminated soil and sludge were consolidated and treated on site, placed in the disposal cell and covered with a low-permeability cap. The cap is vegetated, well maintained and monitored on a regular basis. Animal burrows are identified periodically in the vegetative soil cover on the cap but have not compromised the integrity of the cap. The PRP contractor fills in the animal burrows as soon as they are identified. Damage to the perimeter fence was noted during the site inspection; the PRP contractor will fix the damage to continue to restrict unauthorized access. Groundwater at the Site is monitored regularly. The remedy is effective and functioning as designed.</u>
B. Adequacy of O&M
Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy. <u>Current O&M activities appear to be adequate at this time.</u>
C. Early Indicators of Potential Remedy Problems
Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs that suggest that the protectiveness of the remedy may be compromised in the future. <u>There are no indicators of potential remedy problems.</u>
D. Opportunities for Optimization
Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. <u>A reduction in sampling frequency and settlement monitoring surveys should be evaluated.</u>

Site inspection participants:
Destin Hooks, LDEQ
Brian Moore, Project Navigator, Ltd.
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APPENDIX J – 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 of 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 ARARs, only those chemical-specific ARARs that address the protectiveness of the remedy are reviewed.

Surface Water ARARs

The 1993 ROD selected the following ARARs and TBC criteria for surface water:

- Federal water quality standards established under the Clean Water Act (Section 303, Clean Water Act, 1987, as amended).
- State water quality standards established under Title 33 of the Louisiana Administrative Code, Chapter 11.

Because the surface water treatment process is complete and no surface water is currently collected, treated or discharged, these standards are no longer relevant.

Air ARARs

The 1993 ROD selected the following ARARs for air:

- National Ambient Air Quality Standards (40 CFR 50.6).

These air quality standards were relevant and appropriate when applied to the vapors and particulate matter released during the excavation, treatment and consolidation of wastes. Because waste excavation, treatment and consolidation are complete, these standards are no longer relevant.

Soil ARARs

The 1993 ROD stated that the source of the arsenic remedial goal for soil and sediment of 10 milligrams per kilogram (mg/kg) was Louisiana Statewide Order 29-B, Section 129.B.6, Pit Closure. In December 2000, Section 129 was restructured and pit closure is now addressed in Title 43, Sections 311 through 313 of the Louisiana Administrative Code. Title 43 of the Louisiana Administrative Code was updated in November 2021 (<https://www.doa.la.gov/media/t3qldhn5/43v19.pdf>). Based on review of the updated code and metals limitation criteria for pit closure, the arsenic ARAR for pit closure has not changed.

Groundwater ARARs

The 1993 ROD stated that groundwater data in the long-term groundwater monitoring program would be compared to appropriate drinking water standards. However, the 1993 ROD did not identify groundwater COCs or chemical-specific groundwater ARARs for the Site. During the 2007 FYR, EPA noted that the drinking water standards established under the SDWA (40 CFR 141.11) were applicable requirements for the Site.

Under the SDWA, MCLs serve as the applicable regulatory treatment standard for groundwater unless more stringent standards are promulgated. Table J-1 lists the MCLs in effect at the time of the 2007 FYR for those COCs historically detected in groundwater. There have been no changes to MCLs since the 2007 FYR Report first included these criteria.

Table J-1: Groundwater Drinking Water Standard Review

Chemical	2007 MCL^a (µg/L)	2021 MCL^b (µg/L)	Change
Antimony	6	6	None
Arsenic	10	10	None
Barium	2,000	2,000	None
Beryllium	4	4	None
Cadmium	5	5	None
Chromium (total)	100	100	None
Copper	1,300	1,300	None
Lead	15	15	None
Mercury	2	2	None
Nickel	NS	NS	None
Selenium	50	50	None
Silver	NS	NS	None
Thallium	2	2	None
Zinc	NS	NS	None

Notes:

a) The ROD did not identify groundwater ARARs. However, the 2007 FYR Report noted that the federal MCLs may be applicable requirements for the Site. This ARAR review compares the chemicals and MCLs being sampled for in the 2007 FYR Report (pdf page 57) with current MCLs for those same chemicals.

b) Current MCLs available at <https://www.epa.gov/ground-water-and-drinking-water/table-regulated-drinking-water-contaminants> (accessed 12/2/21).

NS = no standard established.

APPENDIX K – SCREENING-LEVEL RISK REVIEW

Table K-1: Screening-Level Review of Soil, Sludge and Sediment Remedial Goals

COC	1993 ROD Remedial Goal (mg/kg)	Residential RSL ^a (mg/kg)		Cancer Risk ^b	Noncancer HQ ^c
		1 x 10 ⁻⁶ Risk	HQ = 1.0		
Arsenic	10	0.68	35	1 x 10 ⁻⁵	0.3
Barium	5,400	--	15,000	--	0.4
Total carcinogenic PAHs ^d	3	0.11	18	3 x 10 ⁻⁵	0.2
Acenaphthene	16,500 ^e	--	3,600	--	4.6
Anthracene	82,000 ^e	--	18,000	--	4.5
Fluoranthene	11,000 ^e	--	2,400	--	4.6
Fluorene	11,000 ^e	--	2,400	--	4.6
Naphthalene	11,000 ^e	2	130	6 x 10⁻³	85
Pyrene	8,000 ^e	--	1,800	--	4

Notes:

a) Current EPA RSLs, dated November 2021, are available at <https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables> (accessed 12/2/2021).

b) The cancer risks were calculated using the following equation, based on the fact that RSLs are derived based on 1 x 10⁻⁶ risk: cancer risk = (remedial goal ÷ cancer-based RSL) × 10⁻⁶.

c) The noncancer hazard quotient (HQ) was calculated using the following equation: HQ = remedial goal ÷ noncancer-based RSL.

d) The 1993 ROD cleanup level was based on a benzo(a)pyrene equivalent. Therefore, this FYR uses RSLs for benzo(a)pyrene.

e) Risk-based concentrations for non-carcinogens used to achieve an HI of 1.
 -- = not applicable; toxicity criteria not established.
Bold = Exceeds EPA acceptable cancer risk range or noncancer HQ of 1.

Table K-2: Screening-Level Review of Soil, Sludge and Sediment Maximum On-Site Value of Non-Carcinogenic PAHs

COC	1993 ROD Maximum Onsite Value of Non-Carcinogenic PAHs ^a (mg/kg)	Commercial/Industrial RSL ^b (mg/kg)		Cancer Risk ^c	Noncancer HQ ^d
		1 x 10 ⁻⁶ Risk	HQ = 1.0		
Acenaphthene	407	--	45,000	--	0.009
Anthracene	407	--	230,000	--	0.002
Fluoranthene	407	--	30,000	--	0.01
Fluorene	407	--	30,000	--	0.01
Naphthalene	407	8.6	590	5 x 10 ⁻⁵	0.7
Pyrene	407	--	23,000	--	0.02
Cumulative				5 x 10 ⁻⁵	0.8

Notes:

a) Table 11 of the 1993 ROD (pdf page 133).

b) Current EPA RSLs, dated November 2021, are available at <https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables> (accessed 12/2/2021).

c) The cancer risks were calculated using the following equation, based on the fact that RSLs are derived based on 1 x 10⁻⁶ risk: cancer risk = (remedial goal ÷ cancer-based RSL) × 10⁻⁶.

d) The noncancer hazard quotient (HQ) was calculated using the following equation: HQ = remedial goal ÷ noncancer-based RSL.
 -- = not applicable; toxicity criteria not established.