THIRD FIVE-YEAR REVIEW REPORT FOR WHITEHOUSE OIL PITS SUPERFUND SITE DUVAL COUNTY, FL

MAY 2019

Prepared by

U.S. Environmental Protection Agency
Region 4
Atlanta, Georgia

for **Franklin E. Hill, Director**
Superfund Division

5/7/19
Date

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LIST OF ABBREVIATIONS AND ACRONYMS

AOC	Administrative Order on Consent
ARAR	Applicable or Relevant and Appropriate Requirement
AROD	Amended Record of Decision
$CaCO_3$	Calcium Carbonate
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CIC	Community Involvement Coordinator
COC	Contaminant of Concern
EPA	United States Environmental Protection Agency
ESD	Explanation of Significant Differences
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FDER	Florida Department of Environmental Regulation
FDOT	Florida Department of Transportation
FYR	Five-Year Review
GV	Gas Vent
HI	Hazard Index
HQ	Hazard Quotient
IC	Institutional Control
IRIS	Integrated Risk Information System
JEA	Jacksonville Electric Authority
µg/L	Micrograms per Liter
$\mu g/m^3$	Micrograms per Cubic Meter
mg/kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
MCL	Maximum Contaminant Level
NCP	National Contingency Plan
NPL	National Priorities List
OM&M	Operations, Maintenance and Monitoring
OSWER	Office of Solid Waste and Emergency Response
O&M	Operation and Maintenance
OU	Operable Unit
PCB	Polychlorinated Biphenyl
POTW	Publicly Owned Treatment Works
PRP	Potentially Responsible Party
RAO	Remedial Action Objective
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RPM	Remedial Project Manager
RSL	Regional Screening Level
SVOC	Semi-Volatile Organic Compound
UU/UE	Unlimited Use and Unrestricted Exposure
VOC	Volatile Organic Compound
WRAG	Whitehouse Remedial Action Group

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 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 third FYR for the Whitehouse Oil Pits 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) that addresses the soil, groundwater, surface water, and sediment remedies.

EPA remedial project manager (RPM) Joydeb Majumder led the FYR. Participants included EPA community involvement coordinator (CIC) L'Tonya Spencer, Florida Department of Environmental Protection (FDEP) project manager John Sykes, III, and Treat Suomi and Claire Marcussen from EPA support contractor Skeo. The review began on 10/19/2018. Documents used to prepare this FYR are listed in Appendix A. Appendix B includes Site status information.

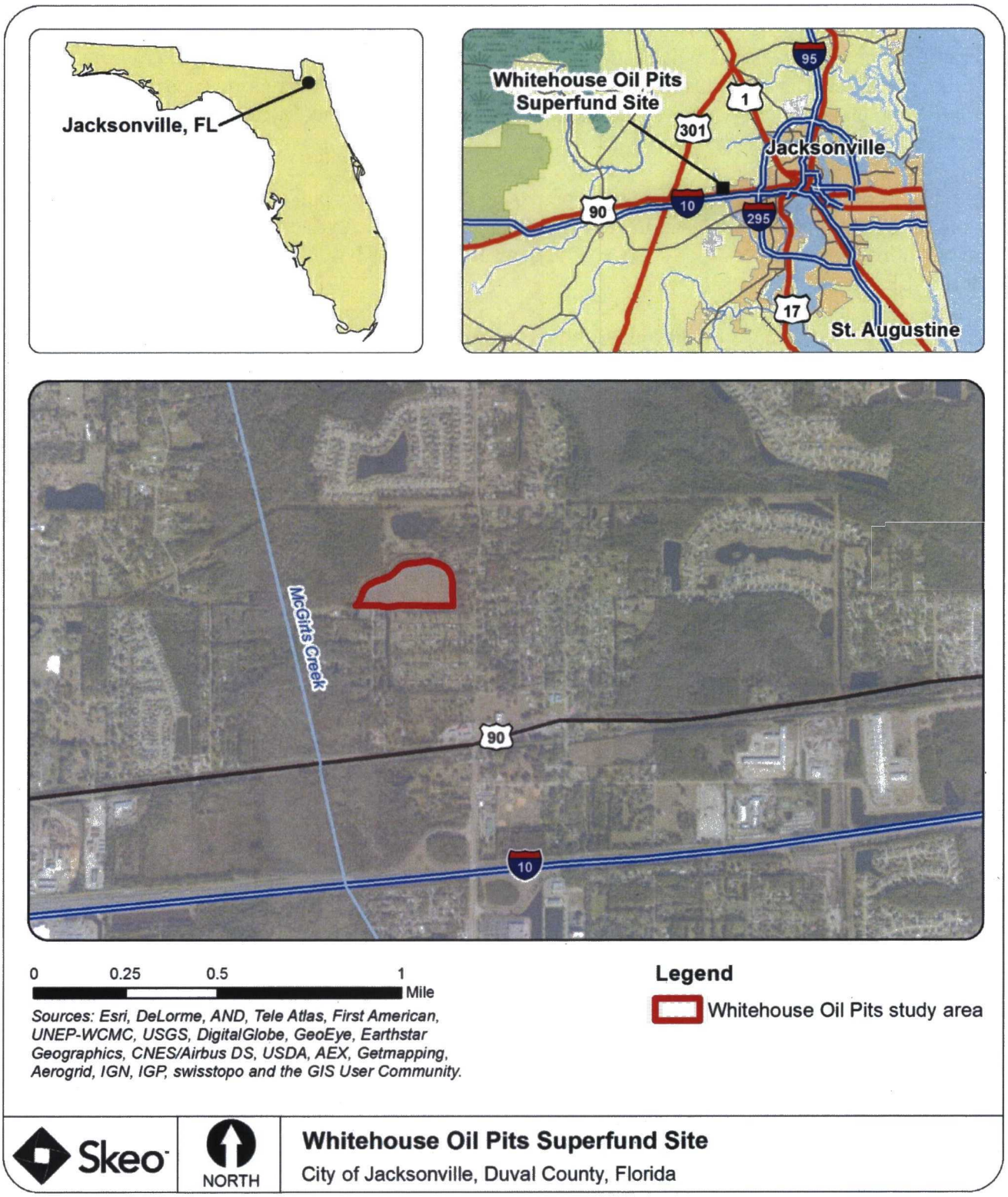
Site Background

The 7-acre Site is located in the community of Whitehouse, which is part of the city of Jacksonville in Duval County, Florida. Two major highways, U.S. Highway 90 and Interstate 10, are within a half mile of the Site, to the south (Figure 1). Between 1958 and 1968, Allied Petro Product, Inc. (Allied) used the Site as a repository for waste oil sludge and acidic soil refinery byproducts. Allied disposed of waste in seven unlined pits on the Site. Site operations ceased in 1968 when Allied declared bankruptcy, and the city of Jacksonville (City) assumed ownership of the Site. Waste handling practices contaminated groundwater, soil, surface water, and sediment with heavy metals and organic compounds.

The southern side of the Site is bordered by open grassland, except for the southwestern corner, which is bordered by a residential area. Residents also live east of the Site; the nearest residence is located 200 feet from the southwestern Site boundary. The northern and western sides of the Site border a swamp system. The northeast tributary of McGirts Creek runs through the system.

Groundwater occurs in the surficial aquifer, which is confined from the deeper aquifer by the 350-foot thick Hawthorne unit. Groundwater flow in the surficial aquifer is generally from the southeast to the northwest towards the tributary of McGirts Creek. Local residents adjacent to the Site obtain their water from individual wells drilled into the lower zone of the surficial unit or use the municipal water supply. The surficial groundwater contributes to local streams through a series of manmade ditches and natural drainage ways. The surface of the Site is slightly elevated because of the vegetated cap. A fence surrounds the entire Site.

Figure 1: Site Vicinity



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

FIVE-YEAR REVIEW SUMMARY FORM

Site Name: Whitehouse Oil Pits		
EPA ID: FLD980602767		
Region: 4	**State:** Florida	**City/County:** Jacksonville/Duval

NPL Status: Deleted	
Multiple OUs? No	**Has the Site achieved construction completion?** Yes

Lead agency: EPA
Author name: Joydeb Majumder (EPA) and Claire Marcussen (Skeo)
Author affiliation: EPA and Skeo
Review period: 10/15/2018 - 5/7/2019
Date of Site inspection: 11/15/2018
Type of review: Statutory
Review number: 3
Triggering action date: 5/7/2014
Due date *(five years after triggering action date)*: 5/7/2019

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

The Site was abandoned in 1968. In 1976, EPA Region 4 was contacted by the city of Jacksonville to address a 200,000-gallon oil spill from a dike that failed during the city's repair work on one of the pits. The EPA took control of the spill assessment and cleanup of McGirts Creek under the authority of Section 311 of the Clean Water Act. The city's later efforts to contain releases from the waste oil pits failed due to either heavy rains and erosion or vandalism of the controls the city put into place. Between 1982 and 1985, the EPA completed a series of investigations which identified source materials contaminating groundwater and surface water. A risk assessment completed in 1991 evaluated current and future human exposures to contaminated soil and concluded that the risk exceeded the EPA's acceptable cancer risk range of 1×10^{-6} to 1×10^{-4} based on unlimited use and unlimited exposure. Residents in the area obtained their drinking water from private wells screened in the lower zone of the surficial aquifer. Analytical results from those wells indicated there was no contamination above drinking water standards. The 1991 risk assessment on surficial groundwater underlying the Site property concluded that future exposures would result in a in a noncancer hazard index (HI) above 1 due to several metals.

The 1991 ecological risk assessment concluded that aquatic biota living in the tributary to McGirts Creek have been subject to severe adverse conditions in the past due to spills from the oil pits. The leachate and groundwater that historically flowed into the stream were acutely toxic according to historical bioassays conducted by the Florida Department of Environmental Regulation (FDER, now FDEP). The environmental assessment also identified the importance of limiting the potential for leachate flow into the surface waters, because it may still be detrimental to the aquatic environment. A summary of the environmental media and contaminants of concern (COCs) identified in the human and ecological risk assessments are presented in Table 1.

Table 1: Site COCs, by Media

COC	Soil/Sediment	Groundwater	Surface Water
Inorganic			
Antimony	X	X	X
Arsenic	X	X	X
Barium	X	X	X
Cadmium	X	X	X
Chromium	X	X	X
Copper	X	X	X
Lead	X	X	X
Manganese	--	X	--
Nickel	X	X	X
Selenium	--	X	X
Vanadium	--	X	--
Zinc	--	X	X
Organic			
Acetone	--	X	--
Benzene	X	X	X
Benzo(a)pyrene	X	X	X
PCB 1260	X	--	X
Bis(2-ethylhexyl)phthalate	X	X	--
Carbon Disulfide	--	X	--
Chlorobenzene	X	--	--
1,4-Dichlorobenzene	X	--	--
Di-N-butylphthalate	X	--	--
Ethylbenzene	--	X	--
Methylene chloride	X	--	--
Methyl ethyl ketone	--	X	--
3,4-Methylphenol	--	X	--
2-Methylnaphthalene	--	X	--
Naphthalene	X	X	--
Phenol	X	X	X
Toluene	X	X	--
Tetrachloroethene	X	--	X
Trichloroethene	X	X	X
Xylene	--	X	--

Notes:
X = COC in this environmental medium
-- = not a COC in this environmental medium
PCB = polychlorinated biphenyl
Source: 1998 Amended Record of Decision (AROD)

Response Actions

As stated earlier, the City contacted EPA in 1976 when 200,000 gallons of oil were released after a dike at the Site breached during repairs. After EPA took control of the spill assessment and cleanup of McGirts Creek. The EPA also recognized the potential hazard posed by the remaining five pits and, with the assistance of the city, constructed a treatment system to drain the pits. Between 1976 and 1979, this system was destroyed by vandals; subsequent monitoring by the city in 1979 showed continuing releases of contaminants to surface water and groundwater. Following the monitoring, the city covered the surface and sides of the pits and dike with 6 inches of low-permeability local clay, followed by 12 inches of topsoil. This cover was revegetated using local grasses. The drainage system was again modified and lined with clay to keep leachate out of the surface water and drop structures were constructed to control flow velocity and erosion. This arrangement diverted surface water away from the waste oil pits, thus reducing the mechanism for contaminant transport. This second stabilization project was completed in the summer of 1980.

The EPA proposed the Site for listing on the Superfund program's National Priorities List (NPL) in December 1982, after monitoring results indicated the migration of site contaminants to surface water and groundwater. The EPA finalized the listing in September 1983.

The EPA selected the remedy for Site groundwater, soil, surface water, sediment and waste oils and sludge in the Site's 1985 Record of Decision (ROD). Due to the passage of the Superfund Amendments Reauthorization Action (SARA) in 1986, the EPA determined it was necessary to re-evaluate the containment remedy to identify alternatives that would permanently and significantly reduce the mobility, toxicity and volume of hazardous substances at the Site. The EPA selected additional technologies (soil washing, biotreatment) in a amended ROD (AROD), however, after conducting treatability studies, the EPA issued an AROD in September 1998 to incorporate elements of the contingency remedy in the 1992 AROD, as well as elements of the original 1985 ROD. The EPA determined that several remedy changes were further necessary based on additional site characterization during design of the remedy selected in the 1998 AROD. The EPA issued an Explanation of Significant Differences (ESD) in 2001 which clarified the final remedy to remove the lime curtain from the groundwater containment system, increased the size of the slurry wall, required additional realignment of the adjacent tributary, and additional excavation of off-site contaminated soil from residential areas along McGirts Creek and placement of these materials beneath the site cap. Finally, the 2001 ESD also increased the estimated cost of the remedy as the remedy scope increased.

The EPA established most of the remedial action objectives (RAOs) for the Site remedy in the 1985 ROD. The 1992 AROD and 1998 AROD added several RAOs. A summary of the RAOs and remedy components is presented in Table 2. Table 3 summarizes the final remedial goals. Appendix C provides a detailed Site chronology.

Table 2: Final RAOs and Remedy Components

Medium	RAO[a]	Remedy Components
Soil and Sediment	• Reduce or eliminate the migration of contaminated soil and sediments. • Prevent contamination of the local drinking water supply. • Prevent direct contact with soil and sediment[b]	• In situ stabilization/solidification of waste using a combination of materials (topsoil, clay, a thin layer of shredded foam rubber and plastic overlying a layer of sawdust, wood chips, dimensional lumber, debris and silty sand) with incorporation of a geogrid to enhance structural stability. (1998 AROD) • Installation of a vertical barrier (slurry wall or geosynthetic sheet pile wall) to isolate and contain contaminated soil and sediment. (1985 ROD and 1998 AROD)

Medium	RAO[a]	Remedy Components
		• Excavation of contaminated sediment from McGirts Creek and placement beneath the Site cap (1985 ROD) • Excavation of off-Site contaminated soil from residential areas along McGirts Creek and placement beneath the Site cap (2001 ESD AROD) • Construction of a low-permeability cap over the contained area that meets Resource Conservation and Recovery Act (RCRA) closure requirements under 40 CFR 264.228(a)(2) (1998 AROD). • Installation of a passive gas vent system on the RCRA cap (1998 AROD). • Installation of a permanent security fence around the containment area and installation and maintenance of appropriate stormwater management controls (1998 AROD) • Imposition of deed restrictions to control future land and groundwater use (1992 AROD and 1998 AROD).
Waste	• Eliminate the source sludge, treat the source sludge to a less hazardous or non-hazardous state, or contain the release of the hazardous pollutants off Site. • Prevent direct contact with sludge[b]	• Installation of a vertical barrier (slurry wall or geosynthetic sheet pile wall) to isolate and contain contaminated sludge (1985 ROD and 1998 AROD). • Imposition of deed restrictions to control future land and groundwater use (1992 AROD and 1998 AROD).
Groundwater	• Prevent further migration of contaminated groundwater into the underlying aquitard. • Prevent current and future exposure to contaminated groundwater.[c]	• Extension of the municipal water supply to residents along Machelle Drive and Chaffee Road and plugging of private supply wells (1998 AROD). • Installation of a vertical barrier (slurry wall or geosynthetic sheet pile wall) to isolate and contain contaminated groundwater (1985 ROD and 1998 AROD).[d] • Monitored natural attenuation of contaminated groundwater outside the containment system (1998 AROD). • Imposition of deed restrictions to control future land and groundwater use (1992 AROD and 1998 AROD).
Surface Water	• Reduce or eliminate migration of contamination to surface water.	• Realignment of the McGirts Creek tributary to optimize the area of groundwater containment (1998 AROD).

Notes:
a. RAOs from the 1985 ROD except where noted.
b. RAO added in from the 1998 AROD.
c. RAO added in the 1992 AROD.
d. The 2001 ESD removed the need for the lime curtain from the groundwater containment system.

Table 3: Cleanup Goals for Groundwater, Surface Water and Soil/Sediment

Contaminant	Groundwater (µg/L)[a]	Surface Water (µg/L)[b]	Soil/Sediment (mg/kg)[c]
Inorganics			
Antimony	5	4,300	42
Arsenic	50	50	32
Barium	2,000	NA	5,262
Cadmium	5	$e^{(0.7852[\ln H]-3.49)}$	53
Chromium	100	11	526
Copper	1,300[d]	$e^{(0.8545[\ln H]-1.465)}$	3,905
Lead	15[d]	$e^{(1.273[\ln H]-4.705)}$	400[e]
Manganese	50[f]	NA	NA
Nickel	100	$e^{(0.846[\ln H]+1.1645)}$	2,105
Selenium	50	5	NA

Contaminant	Groundwater (µg/L)[a]	Surface Water (µg/L)[b]	Soil/Sediment (mg/kg)[c]
Vanadium	150[g]	NA	NA
Zinc	5,000[f]	$e^{(0.8473[lnH]+0.7614)}$	NA
Organics			
Acetone	1,700[g]	NA	NA
Benzene	1	71.28[h]	0.4
Benzo(a)pyrene	0.2	0.031[h]	0.1
PCB 1260	NA	0.014	1
Bis(2-ethylhexyl)phthalate	6	NA	61.5
Carbon Disulfide	1,640[g]	NA	NA
Chlorobenzene	NA	NA	42
1,4-Dichlorobenzene	NA	NA	36
Di-N-Butyl Phthalate	NA	NA	7,911
Ethylbenzene	30[f]	NA	NA
Methylene chloride	NA	NA	115
Methylethyl Ketone	8,460[g]	NA	NA
3,4-Methylphenol	850[g]	NA	NA
2-Methylnaphthalene	67[g]	NA	NA
Naphthalene	1,500[i]	NA	317
Phenol	10,000[g]	300	47,467
Toluene	40[f]	NA	2,000
Tetrachloroethene	NA	8.85	4
Trichloroethene	3	80.7	1
Xylene	20[f]	NA	NA

Notes:

a. Groundwater cleanup goals from Table 8 of the 1998 AROD are federal and/or state primary maximum contaminant levels (MCLs), unless otherwise noted.
b. Values are from Table 9 of the 1998 AROD and represent the Class III state surface water maximum concentration not to be exceeded at any time, unless otherwise noted.
c. Risk-based soil cleanup goals calculated by the EPA and presented in June 11, 1992 memorandum (in the administrative record).
d. Treatment technique action level enforceable under federal and state drinking water regulations.
e. Lead soil cleanup goal based on Office of Solid Waste and Emergency Response (OSWER) Directive 9355.4-12 (July 1994) and PCB soil cleanup goal based on OSWER Directive 9355.4-01 (August 1990).
f. Florida secondary MCLs.
g. Risk-based groundwater cleanup goals from Table 8-2 of Final Risk Assessment, September 1991.
h. The maximum concentration at average annual flow conditions; see Florida Administrative Code (FAC) 62-4.020(1)).
i. Risk-based groundwater cleanup goal corresponding to a hazard index (HI) of 1.0.

lnH = means the natural logarithm of total hardness expressed as milligrams per liter (mg/L) of calcium carbonate ($CaCO_3$). For metals criteria involving equations with hardness, the hardness shall be set a 25 mg/L if actual hardness is < 25 mg/L and set at 400 mg/L if actual hardness is > 400 mg/L.
NA = no cleanup level established for this contaminant in this medium.
µg/L = micrograms per liter
mg/kg = milligrams per kilogram

Status of Implementation

With the passage of SARA in 1986, EPA determined it was necessary to re-evaluate the containment remedy and placed implementation of the 1985 ROD remedy on hold while EPA conducted additional studies between 1989 and 1992. The studies led to the EPA's issuance of the 1992 AROD. In 1993, the EPA proceeded with a fund-lead remedial design but determined that additional investigatory work was needed to define the nature and quantities of waste material in the pits. Between

1994 and 1997, the Whitehouse Remedial Action Group (WRAG) conducted the additional studies, resulting in the EPA issuing an AROD in September 1998 to incorporate elements of the contingency remedy in the 1992 AROD, as well as elements of the original 1985 ROD. The second remedial design began in September 1998 and was approved in September 2000. Remedial action negotiations with the WRAG and the EPA finished in September 2001. In November 2003, the WRAG began construction of the remedy to realign the on-site McGirts Creek tributary. The off-site McGirts Creek response action began in January 2004. A cofferdam and access road were constructed around a 5.7-acre wetland area, and contaminated sediment was excavated for on-site disposal. Following confirmatory sampling, the WRAG restored the wetland area to the pre-existing grade using the clean cofferdam material and a blend of topsoil and wood chips from the selective clearing. The WRAG planted a mix of wetland tree species in the restored area.

The WRAG monitored private wells on Machelle Drive in 1998 and none contained contamination. To protect residents against potential future effects, in 2004, the Jacksonville Electric Authority (JEA) constructed a water main extension to provide water service to residents along Machelle Drive (downgradient of the Site) and portions of Chaffee Road (adjacent to the Site) on a voluntary basis and at no cost to the homeowners. All residents that were offered municipal water accepted JEA's offer. The residents were not required to abandon their private wells, but their water piping had to be modified to ensure their well water would not enter the municipal water supply. Once the water main extension was implemented, monitoring continued at the perimeter of the Site and private wells were no longer sampled. Residents were connected to the municipal supply as long as they agreed to use their private wells for outdoor, non-potable uses, including watering lawns and washing cars.

The WRAG implemented the following remedial activities between February 2004 and 2006:

1. Solidification/stabilization of contaminated off-site and on-site soil with concrete over a 5.4-acre area with a minimum thickness of 3 feet.
2. Installation of 3,100 linear feet of barrier wall to an average depth of 65 feet.
3. Construction of a multi-layer cap and cover system consisting of fill to establish the base grade, a geonet gas vent layer, a geosynthetic clay layer, a 40-mil liner, a composite drainage layer, an 18-inch protective soil cover layer and a vegetated 6-inch topsoil cover, a passive gas vent system, and drainage improvements, followed by seeding for the cap.
4. Installation of monitoring wells and a fence.

All substantial elements of physical remedy construction were completed in May 2006, when the EPA completed the Site's Preliminary Close-out Report. Figure 2 shows the location of the remedy components. Groundwater monitoring began in August of 2006 to monitor natural attenuation at the Site.

In September 2018, the EPA deleted the Site from the NPL. All appropriate response actions under CERCLA, other than operations and maintenance (O&M) activities, monitoring and FYRs, had been completed.

Institutional Control (IC) Review

The city entered into a restrictive covenant with FDEP in January 2011; the covenant was finalized in February 2011 (Table 4) (Appendix K). The restrictive covenant prohibits agricultural use of the land including forestry, fishing, and mining, as well as unrestricted uses. The covenant also prohibits any activities that may compromise the well network, surface cap, or slurry wall. In addition, the covenant restricts potable use of shallow groundwater until the groundwater remedy is complete. Further, the

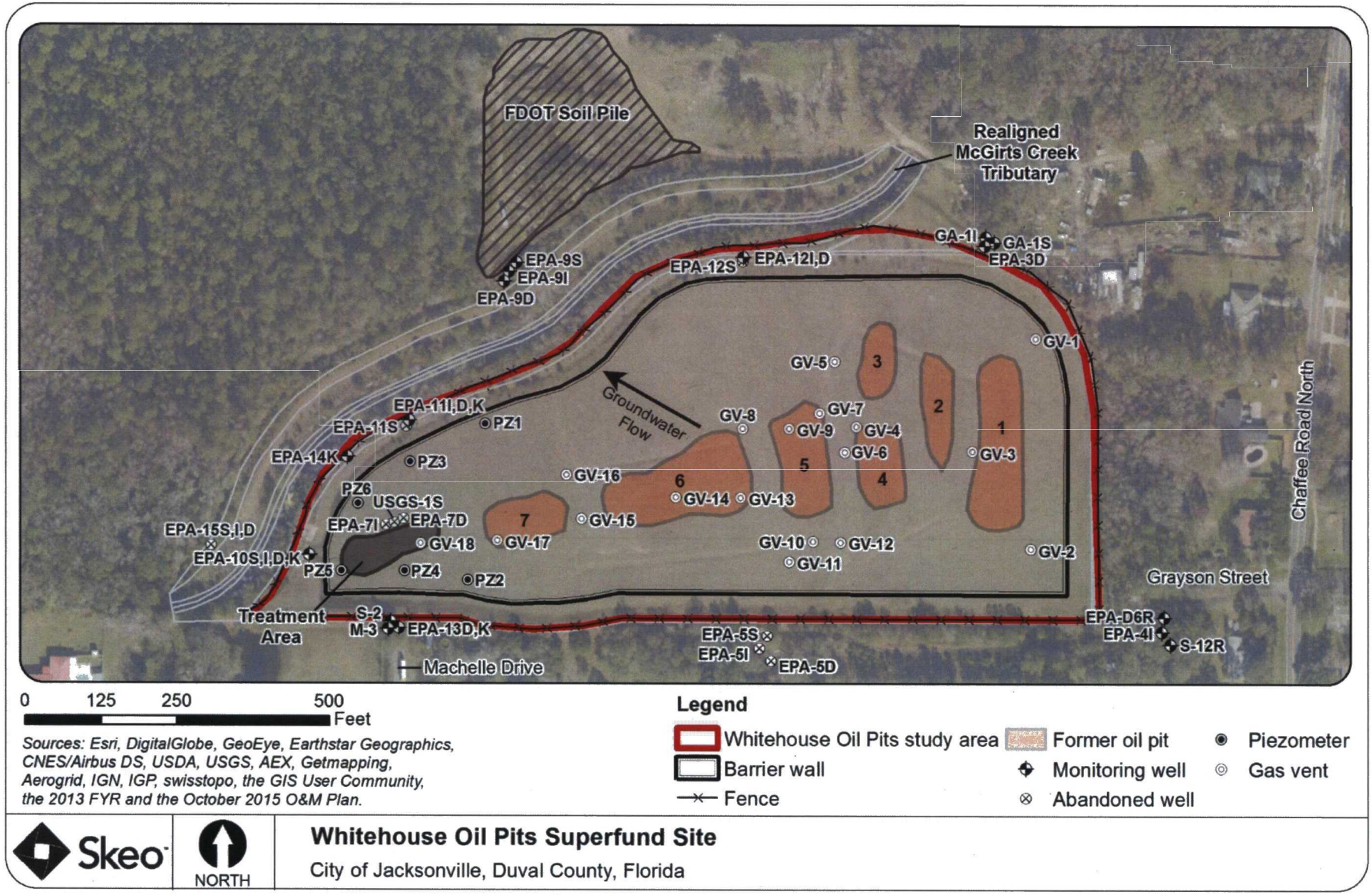
FDEP designated the Site and its surroundings as a Florida Groundwater Delineation Area.[1] This designation restricts well installations. Figure 3 shows the property parcels located within the Site boundary and within the Groundwater Delineation Area.

Table 4: Summary of Planned and/or Implemented Institutional Controls (ICs)

Media That Do Not Support UU/UE Based on Current Conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Soil	Yes	Yes	0014740100R 0014740060R 0014740050R 0014740030R 0014740020R 0014740010R 0014740100R 0014770000R 0014720000R 0018390200R 0018220020R 0018250200R	Restrict land use	Restrictive Covenant, February 2011
Groundwater	Yes	Yes		Restrict potable use of shallow groundwater until the groundwater remedy is complete	Restrictive Covenant February 2011 Site lies within a Florida Delineated Groundwater Area, which restricts well placement.[1]

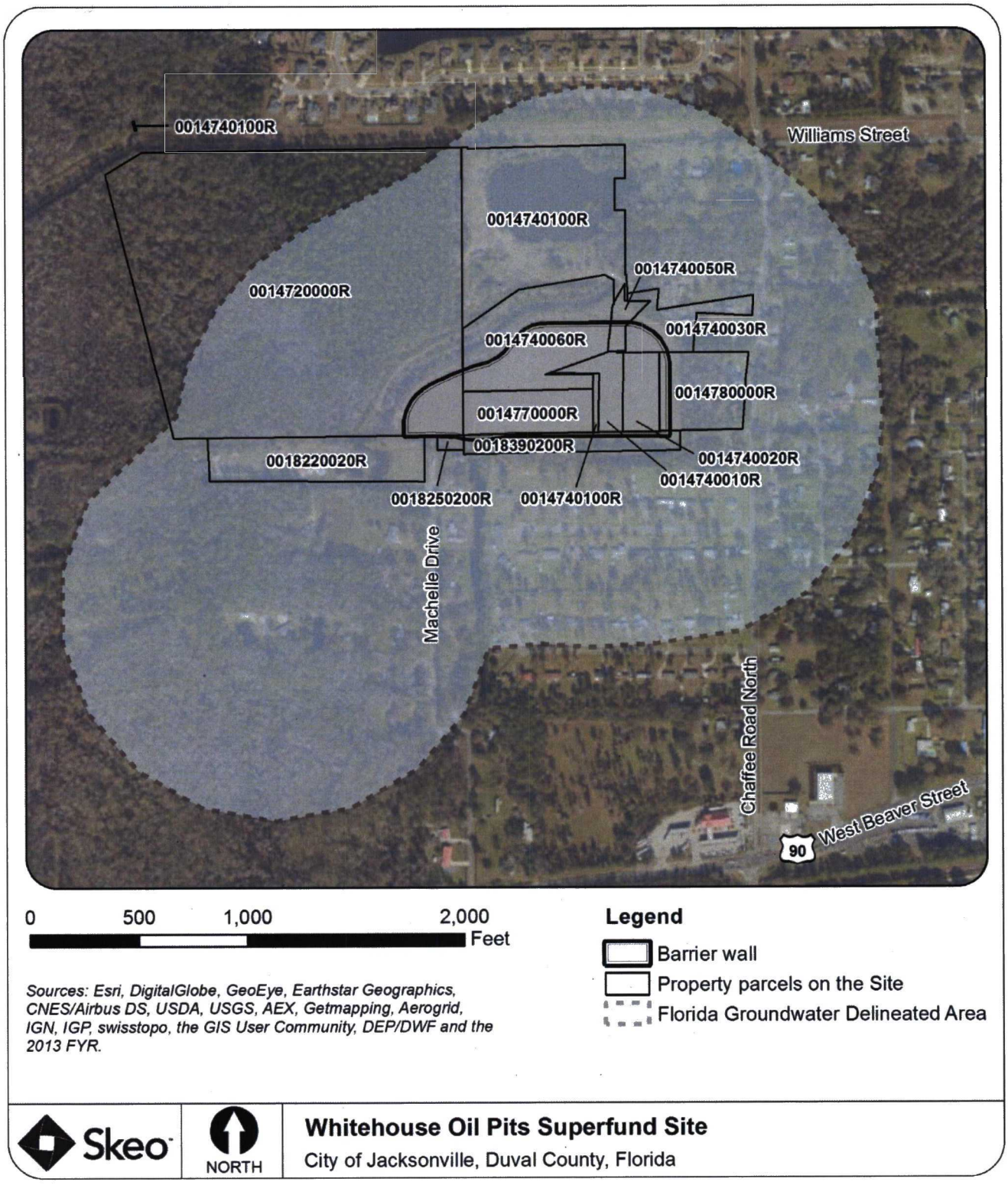
[1] Florida's groundwater delineation information is available online at: http://www.dep.state.fl.us/water/groundwater/delineate.htm

Figure 2: Detailed Site Map



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

Figure 3: Institutional Control Map



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Systems Operations/Operation and Maintenance (O&M)

O&M activities at the Site followed the requirements as outlined in the 2006 O&M Plan until 2015, when the WRAG revised the plan to address an issue raised in the 2014 FYR Report. The 2015 O&M Plan now includes specific contingency actions to address groundwater overtopping the containment area and includes monitoring of groundwater flow gradients inside and outside the barrier wall to assess the effectiveness of the containment remedy. In addition, the 2015 O&M Plan includes procedures that pertain to the following remedy components:

- Cap and cover system
- Passive gas management system.
- Stormwater management system.
- Site security.
- Groundwater monitoring system.

Starting in April 2013, the frequency of remedy inspections was agreed to be reduced from quarterly to semi-annually and wetland monitoring was no longer required because the on-site and off-site wetlands were re-established. Current groundwater monitoring requirements include semiannual monitoring of 23 wells for metals only and semi-annual water level monitoring of 23 wells and 6 piezometers. FDEP completed a post-hurricane site inspection in September 2017, following Hurricane Irma. FDEP observed that all features associated with the site remedy were determined to be functioning as designed. A brief summary of the results of the O&M activities and observations made since the previous FYR are provided below.

Cap and Cover System

Overall, the integrity of the cap is good, based on a review of the O&M semi-annual progress reports between 2015 and 2018. No bulging or areas of erosion were noted. Occasionally, areas of erosion are observed but the progress reports indicate the areas are repaired and re-seeded on a routine basis.

Passive Gas Management System

O&M activities for the passive gas management system consist of quarterly monitoring for methane and total volatile organic compounds (VOCs) of each passive gas vent (GV-1 through GV-18). Based on the data collected since the previous FYR, the passive gas vent system is fulfilling its purpose of releasing gas that may be generated from the cover system. Methane gas has been sporadically detected in wells; however, it was generally detected below the performance standard of 5 percent methane by volume or below detection (Appendix H). These results indicate that this component of the remedy is functioning as designed.

Stormwater Management System

The O&M contractor inspects the stormwater management system on a semi-annual basis. O&M inspections during this FYR period identified the presence of beaver dams that impeded flow. If the dams impeded stream flow, the O&M contractor removed the dams. The O&M contractor observed in May 2017 that earthmoving activity had occurred on the property where the Florida Department of Transportation (FDOT) stockpile of soil is located. Activity included the addition of a drainage feature that runs parallel and adjacent to the northern and western Site boundary and connects to the existing engineered stream near the far western extent of the Site. Following Hurricane Irma in September 2017, the O&M contractor observed that a drainage trench had been dug outside of the fence north of the north gate but away from the cap. It did not appear to affect the remedy.

Site Security

Site security O&M activities include the inspection and maintenance of fencing and gates, and repairing and at times replacing them, as necessary, to maintain Site access control. Signs and benchmarks are also inspected for integrity. Based on a review of the O&M reports for this FYR reporting period, the Site security system appears mostly to be functioning as designed. The only issue of concern during the last five years was the stockpiled fill adjacent to the Site near well cluster 9. This pile remains in place. However, O&M inspections indicate that the reinforced silt fence installed by the O&M contractor in 2009 along the southern perimeter of the stockpile remains in good condition. Following the 2017 hurricane, a portion of the silt fence was repaired.

Groundwater Monitoring System

The O&M Plan provides details of sampling techniques and analytical requirements for monitoring groundwater contamination. According to the 2015 O&M Plan, the WRAG collects and analyzes groundwater samples from 23 monitoring wells on a semi-annual basis for metals only. The EPA and FDEP approved the discontinuation of VOC and semi-VOC (SVOC) monitoring in all monitoring wells in April 2013, because the organic COCs have met the cleanup goals. A summary of the data evaluation is presented in Section IV. In addition, groundwater elevation measurements are collected quarterly from the six piezometers located inside the barrier wall and from four wells (EPA-10K, EPA-11K, EPA-l3K and EPA-14K) located outside the wall.

O&M Costs

The 1998 AROD estimated total annual O&M costs of $60,000 to maintain the barrier wall, $40,000 for groundwater monitoring, and $5,600 for annual reports and Site inspections, along with an additional $33,000 annually for the support team carrying out O&M activities. Table 5 shows the annual costs for O&M during this review period.

Table 5: O&M Costs Over the FYR Period

Date Range	Total Cost
July 2014 – June 2015	$84,000
July 2015 – June 2016	$90,000
July 2016 – June 2017	$99,000
July 2017 – June 2018	$57,000
July 2018 – June 2019	$54,000

III. PROGRESS SINCE THE PREVIOUS REVIEW

This section includes the protectiveness determinations and statements from the previous FYR Report (Table 6) as well as the recommendations from the previous FYR Report and the status of those recommendations (Table 7).

Table 6: Protectiveness Determinations/Statements from the 2014 FYR Report

OU #	Protectiveness Determination	Protectiveness Statement
Sitewide	Short-term Protective	The remedy at the Site currently protects human health and the environment because a multilayered cap covers all impacted soil, a barrier wall contains contaminated groundwater, and the municipal water supply was extended to residents who live near the Site. However, in order for the remedy to be protective in the long term, the following action needs to be taken to ensure protectiveness: Modify the O&M plan to include contingency actions to address groundwater overtopping the barrier wall as well as include monitoring of internal gradients to evaluate the effectiveness of the remedy.

Table 7: Status of Recommendations from the 2014 FYR Report

Issue	Recommendations	Current Status	Current Implementation Status Description*	Completion Date (if applicable)
The O&M Plan does not include contingency activities to address groundwater overtopping the containment area.	Modify the O&M Plan to include contingency actions if groundwater overtops the barrier (e.g., install temporary pump-and-treat system to lower water level inside slurry wall, with discharge to the drainage ditch or publicly owned treatment works [POTW]).	Completed	The WRAG prepared an O&M Plan that was approved by the EPA and FDEP and includes contingency actions if groundwater overtops the barrier wall.	11/3/2015
Internal flow gradients have not been adequately monitored to assess the structural integrity of the containment system.	Modify the O&M Plan to monitor internal flow gradients, which may require installation of additional piezometers near the east end of the containment unit.	Completed	The WRAG prepared an O&M Plan that was approved by the EPA and FDEP and includes monitoring of groundwater flow gradients inside and outside the barrier wall to assess effectiveness of containment.	11/3/2015

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Community Involvement and Site Interviews

A public notice was made available by a public notice published in the *Star* newspaper on 11/3/2018 (Appendix D). It stated that the FYR was underway and invited the public to submit any comments to the EPA. The results of the review and the report will be made available at the EPA's website (https://www.epa.gov/superfund/search-superfund-five-year-reviews).

During the FYR process, interviews were conducted to document any perceived problems or successes with the remedy that has been implemented to date. The interviews are summarized below. The completed interview forms are included in Appendix E.

John Sykes, III: John Sykes III is the FDEP representative for the Site. He stated that the project, including cleanup and maintenance is going well. He also indicated that the remedy appears to be working as designed and is not aware of any complaints or inquiries from residents about site-related environmental issues or remedial activities in the past five years. Mr. Sykes indicated that the Site was not affected by the hurricanes this past year.

Ms. Kristi Hess: Ms. Hess works for Golder and Associates, the Site's O&M contractor. Ms. Hess believes that the remedy is functioning properly to protect human health and the environment. Since May 2013, groundwater monitoring has been limited to metals, with only manganese exceeding the groundwater cleanup goal in the past five years. Ms. Hess recommends reducing the monitoring frequency for landfill gas and groundwater from semi-annual monitoring to annual monitoring.

Data Review

Groundwater and methane gas are the media sampled at the Site. Groundwater contamination and water levels are monitored to evaluate the effectiveness of the barrier wall and cap to contain and prevent the migration of soil contaminants to groundwater. Methane gas is monitored to evaluate the effectiveness of the passive gas management system. A summary of the data collected over the past five years is provided in the following sections.

Groundwater

The 1998 AROD called for monitored natural attenuation of contaminated groundwater outside the containment system. According to the 2015 O&M Plan, the WRAG collects and analyzes groundwater samples from 23 monitoring wells on a semi-annual basis for metals analysis. The background wells include EPA-D6R, EPA-4I and S-12R. A review of the monitoring results shows that the only COC currently exceeding the 1998 AROD cleanup goal is manganese in six wells (EPA-3D, EPA-4I, EPA-11I, EPA-12D, GA-1S and M-3). The analytical historical trends since monitoring began in 2006 show that manganese was also elevated above the cleanup goal in well EPA-10I. However, the concentrations showed a decline below the cleanup goal starting in May 2016 and continued to decline through 2018 (Table H-1). Since monitoring began in 2006, manganese has been detected at levels above the State of Florida secondary MCL of 50 µg/L upgradient and downgradient of the contaminant source. Therefore, since the first FYR, the EPA determined that elevated manganese levels are not Site related.

The trend plots show an overall decline of manganese concentrations since the previous FYR, except for wells EPA-11I and EPA-3D (Appendix H; Figure H-1). Well EPA-11I has shown an increase from May 2016 (91 µg/L) to May 2018 (170 µg/L). However, in November 2018, the concentrations declined to 100 µg/L (Table H-1). Similarly, in side-gradient well EPA-3D, the manganese concentration appears to have increased in May 2018, when concentrations increased from 20 µg/L in May 2017 to 290 µg/L. The concentrations then dropped to 75 µg/L in November 2018. Since monitoring began in 2006 manganese has consistently been detected in Site groundwater outside the containment zone at levels above cleanup goals, which EPA has determined indicates that manganese is naturally occurring at these levels in the Site ground water.

Similarly, arsenic is below the 1998 AROD cleanup goal of 50 µg/L, the concentrations in well EPA-3D have fluctuated, with exceedances of the current MCL of 10 µg/L occurring in November 2015 (11 µg/L) and May 2018 (12 µg/L) sampling events (Table H-2). In November 2018, the arsenic concentrations declined below the current MCL, with a concentration of 5.3 µg/L. Sampling events for well EPA-3D in May and November 2016 and 2017 resulted in arsenic concentrations of less than 3 µg/L.

The WRAG completes water level measurements from 23 monitoring wells and six piezometers on a semi-annual basis to ensure that the barrier wall functions as a hydraulic barrier around the former waste pits. As intended, the average groundwater levels inside the barrier wall are higher than the groundwater levels of those wells outside of the barrier wall in the same general vicinity, demonstrating that the barrier is hydraulically containing the wastes. A review of the average groundwater levels indicates that water levels inside and outside the barrier wall have achieved an equilibrium and fluctuations inside and outside the wall appear to coincide. Water levels within the remedy barrier wall were of special concern following Hurricane Irma in September 2017. However, the groundwater level inside the barrier wall is between 3 and 6 feet lower than the top of the barrier wall. (Appendix H, Figure H-2).

Passive gas vents

The semi-annual VOC and methane measurements collected since the previous FYR show that there were sporadic detections above 5 percent in one vent in November 2012 (GV-4) and in nine gas vents (GV-3, GV-4, GV-9, GV-10, GV-12, GV-13, GV-14, GV-16 and GV-18) in May 2014 (Appendix H, Table H-2). From November 2014 through May 2018, only one gas vent slightly exceeded the methane lower explosive limit of 5 percent methane by volume (GV-4). However, there was no methane detected in nearby gas vents (GV-3, GV-5, GV-6 and GV-7), which indicates that methane is limited to a small interior area of the Site. Further, the measurements in May and November 2017 were below detection for GV-4. These results indicate there are no established patterns of methane detections, as the wells with positive detections were not the same from event to event. The passive gas management system appears to be functioning as designed.

Site Inspection

The Site inspection took place on 11/15/2018. Participants included current EPA RPM Joydeb Majumder, former EPA RPM Rusty Kestle, Kristi Hess and Don Miller with Golder Associates (the PRP's O&M contractor) and Treat Suomi and Claire Marcussen with Skeo (EPA FYR support contractor). The purpose of the inspection was to assess the protectiveness of the remedy. A completed checklist and Site inspection photos are included in Appendices F and G, respectively.

The Site inspection began at the south entrance of the Site, off Machelle Drive. Site participants observed that the entire Site was secured by a chain-link fence with barbed wire. No breaches were observed in the fence. "No Trespassing" signs are posted at each gate, and the signs also include the phone numbers for EPA Region 4 and the city of Jacksonville Solid Waste Division. Participants walked the perimeter of the Site and the interior portion of the cap. All piezometers, wells and passive gas vents were in good condition. The surface of the cap was vegetated with grass; several trees were present on the perimeter to stabilize outside of the edge of the cap. No trees are present on the cap. Site participants also observed the wetland areas outside the northern and southern Site boundaries. FDOT leases an off-site property adjacent to the northern Site boundary for storage of soil used in road construction projects. A siltation fence has been constructed around wells adjacent to this pile to prevent damage to the wells from possible soil pile erosion or collapse. The FDOT soil pile could be seen beyond the swampy area north of the Site. Wells were in good condition with legible labels. The participants also observed McGirts Creek flowing under Interstate 90 southwest of the Site. The creek was unobstructed.

On November 14, 2018, Skeo staff visited the designated Site repository, Jacksonville Public Library, West Branch, as part of the Site inspection. The library no longer contained hard copies of site-related documents. Federal documents are stored electronically and can be accessed through the library's electronic catalog. The librarian indicated that the FYR reports can be accessed from the library's publicly accessible computers. In addition, once the FYR is published it will be made available at the EPA's website (https://www.epa.gov/superfund/search-superfund-five-year-reviews).

V. TECHNICAL ASSESSMENT

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

Question A Summary:

The remedy implemented, as selected in the 1998 AROD and the 2001 ESD, is functioning as intended using stabilization/solidification, vertical barriers, a cap, and a fence to control the potential spread of contamination. Private wells near the Site are not impacted by Site contamination. However, as a precaution, the municipal water supply was extended to residents near the Site and all potentially impacted residents connected to the municipal water supply for potable water use.

A review of the monitoring results shows that the only COC exceeding the 1998 AROD cleanup goal is manganese. Since monitoring began in 2006 manganese has consistently been detected in Site groundwater outside the containment zone at levels above cleanup goals, which EPA has determined indicates that manganese is naturally occurring at these levels in the Site ground water.

The gas vents continue to operate to specifications. During the Site inspection, the cap was in good condition with an established vegetative cover. The perimeter fence appeared to be in good condition and secured.

Institutional controls in the form of restrictive covenants are in place prohibiting specific types of land use on the cap and prohibiting any activities that may compromise the well network, surface cap and slurry wall. The covenant also restricts the use of shallow groundwater for drinking or other domestic or industrial uses until the groundwater cleanup goals are achieved. In addition, the Site is located within a groundwater delineation area that further restricts future groundwater use in the greater area.

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:

The RAOs established at the time of remedy selection are still valid at the Site. Some of the regulatory levels associated with applicable or relevant and appropriate requirements (ARARs) for groundwater and surface water have changed since the 1998 AROD (Appendix I). Although new federal MCLs have become available for ethylbenzene, toluene and xylene at 700 µg/L, 1,000 µg/L and 10,000 µg/L, respectively, the cleanup levels remain valid for the Site since the Florida secondary maximum contaminant levels (MCLs) were selected as the cleanup goals and they are more stringent than the federal MCLs for these compounds. In addition, the MCL has become more stringent for arsenic as noted earlier however, current concentrations are below the current MCL.

The vapor intrusion pathway is not a currently completed exposure pathway as there are no buildings on Site and a restriction is in place that prohibits any activities that may compromise the well network, surface cap and slurry wall. Further, analytical results verify that VOC and SVOC concentrations have historically been below detection limits or well below Site cleanup levels. From November 2008 to May 2013, there have been no VOC or SVOC cleanup goal exceedances at any well. Thus, monitoring is no longer required for VOCs and SVOCs. These results indicate that vapor intrusion would not present a concern at the Site now or in the future.

The regulatory levels associated with cadmium, copper and nickel in surface water are more stringent than at the time of the 1998 AROD. However, the changes in regulatory levels associated with groundwater and surface water ARARs do not affect the protectiveness of the remedy because the slurry wall data demonstrate it is containing Site contamination.

To determine if the health-based cleanup goals remain valid, a screening level risk evaluation was conducted. The evaluation determined that the health-based cleanup goals remain valid (Appendix J).

QUESTION C: Has any other information come to light that could call into question the protectiveness of the remedy?
No.

VI. ISSUES/RECOMMENDATIONS

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

VII. PROTECTIVENESS STATEMENT

Operable Unit:	*Protectiveness Determination:*
OU1	Protective
Protectiveness Statement: The remedy at the Site currently protects human health and the environment because a multi-layered cap covers all impacted soil, a barrier wall contains contaminated groundwater, institutional controls are in place to restrict land use and groundwater use. In addition, the municipal water supply was extended to residents who live near the Site.	

VIII. NEXT REVIEW

The next FYR Report for the Whitehouse Oil Pits Superfund Site is required five years from the completion date of this review.

APPENDIX A – REFERENCE LIST

Administrative Order on Consent, prepared by U.S. EPA. November 20, 2001.

Administrative Order on Consent, prepared by U.S. EPA. October 15, 2004.

Consent Decree Agreement, Civil Action No.3:01-CV-1424-J-21-TEM. United States of America, Plaintiff v. City of Jacksonville, et al., Defendants. September 20, 2001.

EPA Explanation of Significant Differences: Whitehouse Waste Oil Pits. (OU 1). EPA/ESD/R04-01/539. July 16, 2001.

EPA Record of Decision: Whitehouse Waste Oil Pits. (OU 1). EPA/ROD/R04-85/003. May 30, 1985.

EPA Record of Decision Amendment: Whitehouse Waste Oil Pits. (OU 1). EPA/AMD/R04-92/113. June 16, 1992.

EPA Record of Decision Amendment: Whitehouse Waste Oil Pits. (OU 1). EPA/AMD/R04-98/088. September 24, 1998.

Final Risk Assessment: Whitehouse Waste Oil Pits Site. Prepared by Ebasco Services Incorporated. Volume 1. September 1991.

Florida Department of Environmental Protection's Review of Progress Report for July through December 2017, dated March 13, 2018. Memorandum from Mark Stukey, Professional Geologist for FDEP to Johns Sykes, Project Manager for FDEP, dated April 4, 2018.

Geosynthetic Quality Assurance of Construction of Cap: Whitehouse Waste Oil Pits. Prepared by Golder Associates, Inc. for U.S. EPA on behalf of the Whitehouse Remedial Action Group. July 2006.

Notice of Availability: Draft Restoration Plan for the Restoration of Injuries Associated with Whitehouse Waste Oil Pits Superfund Site, prepared by the Department of Interior. Published in the *Florida Times-Union.* June 11, 2012.

NPL Site Narrative for Whitehouse Waste Oil Pits. Federal Register Notice: September 8, 1983.

Preliminary Close-Out Report: Whitehouse Waste Oil Pits Superfund Site. May 4, 2006.
Progress Report for January through June 2014, Whitehouse Waste Oil Pits Superfund Site. Prepared by Golder Associates, Inc. for U.S. EPA. August 13, 2014.

Progress Report for July through November 2014, Whitehouse Waste Oil Pits Superfund Site. Prepared by Golder Associates, Inc. for U.S. EPA. February 11, 2015.

Progress Report for December 2014 to May 2015, Whitehouse Waste Oil Pits Superfund Site. Prepared by Golder Associates, Inc. for U.S. EPA. July 15, 2015.

Progress Report for July through December 2015, Whitehouse Waste Oil Pits Superfund Site. Prepared by Golder Associates, Inc. for U.S. EPA. February 12, 2016.

Progress Report for January through June 2016, Whitehouse Waste Oil Pits Superfund Site. Prepared by Golder Associates, Inc. for U.S. EPA. February 13, 2017.

Progress Report for July through December 2016, Whitehouse Waste Oil Pits Superfund Site. Prepared by Golder Associates, Inc. for U.S. EPA. April 5, 2017.

Progress Report for January through June 2017, Whitehouse Waste Oil Pits Superfund Site. Prepared by Golder Associates, Inc. for U.S. EPA. July 31, 2017.

Progress Report for July through December 2017, Whitehouse Waste Oil Pits Superfund Site. Prepared by Golder Associates, Inc. for U.S. EPA. March 13, 2018.

Progress Report for January through June 2018, Whitehouse Waste Oil Pits Superfund Site. Prepared by Golder Associates, Inc. for U.S. EPA. August 24, 2018.

Ready for Reuse: Whitehouse Former Industrial Property Fact Sheet. Prepared by EPA Region 4. December 2004.

Revised Operations and Maintenance Plan, Whitehouse Waste Oil Pits Superfund Site. Prepared by Golder Associates, Inc. for U.S. EPA. October 2015.

Treatability Study Report: Whitehouse Waste Oil Pits Site. USEPA Work Assignment No. 037-RDRD-0434. Prepared by Camp Dresser & McGee. October 2000.

Triennial Operation, Maintenance and Monitoring Report for the Whitehouse Waste Oil Pits Superfund Site. Prepared by Golder Associates, Inc. for U.S. EPA. February 2015.

Triennial Operation, Maintenance and Monitoring Report for the Whitehouse Waste Oil Pits Superfund Site. Prepared by Golder Associates, Inc. for U.S. EPA. April 2016.

Whitehouse Waste Oil Pits Fact Sheet. Prepared by EPA Region 4. March 2001.

Whitehouse Waste Oil Pits Fact Sheet. Prepared by EPA Region 4. October 2003.

Whitehouse Waste Oil Pits Fact Sheet. Prepared by EPA Region 4. January 2004.

APPENDIX B – CURRENT SITE STATUS

- *Current human exposures at the Site are under control.*
- *Current groundwater migration is under control.*

☒ All ☐ Some ☐ None

☒ Yes ☐ No

☐ Used ☒ Unused

APPENDIX C – SITE CHRONOLOGY

Table C-1: Site Chronology

Event	Date
The EPA discovered the contamination at the Site	January 1, 1976
The EPA conducted a spill assessment to clean up McGirts Creek and constructed a treatment system to drain the pits and stabilize waste	June 29, 1976
The city modified the drainage system and completed a second stabilization project	June 1980
The EPA issued notice letters	March 4, 1982
The EPA initiated a remedial investigation/feasibility study (RI/FS) and FDER initiated an interim remedial measure	June 29, 1982
The EPA proposed the Site for listing on the NPL	December 30, 1982
FDER completed an initial remedial measure	April 30, 1983
The EPA finalized the Site on the NPL	September 8, 1983
The EPA completed the RI/FS and issued a ROD	May 30, 1985
The EPA started the remedial design	June 26, 1985
The EPA conducted an NPL responsible party search	August 15, 1985
The EPA initiated removal #1	August 13, 1986
The EPA completed removal #1	August 15, 1986
The EPA initiated removal #2	November 16, 1987
The EPA completed removal #2	February 15, 1988
The EPA initiated a second RI/FS	February 15, 1989
The EPA initiated a treatability study	April 28, 1989
The EPA completed a human health risk assessment and ecological risk assessment	May 15, 1991
The EPA completed a treatability study	September 16, 1991
The EPA completed the remedial design and second RI/FS and issued an AROD	June 16, 1992
The EPA initiated the remedial design and remedial action negotiations	August 11, 1992
The EPA initiated removal #3	October 5, 1992
The EPA completed removal #3	October 29, 1992
The EPA and Site PRPs completed remedial design and remedial action negotiations	April 27, 1993
The EPA initiated the third RI/FS	April 15, 1994
The EPA completed the third RI/FS and issued an AROD	September 24, 1998
The EPA started the second remedial design	September 25, 1998
The EPA completed the second remedial design	September 28, 2000
The EPA issued an ESD	July 16, 2001
The EPA issued a Consent Decree and completed the remedial design and remedial action negotiations with the WRAG	September 20, 2001
The EPA and the WRAG signed an Administrative Order on Consent (AOC)	November 20, 2001
The U.S. Department of Justice lodged an enforcement agreement	December 17, 2001
The EPA and the WRAG signed an AOC	June 6, 2003
The EPA began the remedial action	November 19, 2003
The EPA conducted an NPL responsible party search and issued an AOC	October 15, 2004
The EPA prepared the Site's Preliminary Close-out Report	May 4, 2006
The EPA declared the site remedy to be operational and functional	April 19, 2007
WRAG completed the PRP remedial action	September 26, 2007
The EPA signed the Site's first FYR Report	November 17, 2008
Restrictive covenant issued to restrict future land and groundwater use at the Site	February 2, 2011
The EPA signed the Site's second FYR Report	May 7, 2014
PRP abandoned 11 monitoring wells, as approved by the EPA and FDEP	April 19, 2016
Hurricane Irma occurred	September 2017
The EPA prepared a notice of intent to delete the Site from the NPL	July 17, 2018
The EPA deleted the Site from the NPL	September 19, 2018

APPENDIX D – PRESS NOTICE

The U.S. Environmental Protection Agency, Region 4 Announces the Third Five-Year Review for the Whitehouse Oil Pits Superfund Site, Jacksonville, Duval County, Florida

Purpose/Objective: The EPA is conducting a Five-Year Review of the remedy for the Whitehouse Oil Pits Superfund site (the Site) in Jacksonville, Florida. The purpose of the Five-Year Review is to make sure the selected cleanup actions effectively protect human health and the environment.

Site Background: The Site occupies about 7 acres in an area 10 miles west of downtown Jacksonville. Allied Petroleum disposed of contaminated acidic waste oil sludges from an oil reclaiming process in pits on the Site between 1958 and 1968. The company went bankrupt in 1968. The city of Jacksonville later assumed ownership of the property by tax default. In 1976, releases from two pits contaminated wetlands along McGirts Creek, the surficial groundwater aquifer beneath the Site, soil and sediment with heavy metals, polychlorinated biphenyl compounds, semi-volatile organic compounds and volatile organic compounds. The EPA listed the Site on the Superfund program's National Priorities List (NPL) in 1982.

Cleanup Actions: The EPA signed a Record of Decision (ROD) selecting the Site's remedy in 1985 and updated the remedy with amended RODs in 1992 and 1998 and an Explanation of Significant Differences in 2001. The final remedy included: 1) realignment of the northeast tributary to McGirts Creek; 2) excavation and on-site disposal of contaminated off-site wetlands; 3) installation of a vertical barrier to isolate and contain contaminated soil, sludge and groundwater; 4) solidification/ stabilization of the upper two soil lifts across the former pits area; 5) installation of a Resource Conservation and Recovery Act-type cap over the vertical barrier and solidification/ stabilization area; 6) extension of water lines to homes adjacent to and downgradient of the Site; 7) groundwater and surface water monitoring; and 8) engineering and institutional controls, including fencing and deed restrictions. Construction of the remedy finished in 2006.

Five-Year Review Schedule: The National Contingency Plan requires review of remedial actions that result in any hazardous substances, pollutants or contaminants remaining at the Site above levels that allow for unlimited use and unrestricted exposure every five years to ensure the protection of human health and the environment. The third of the Five-Year Reviews for the Site will be completed by July 2019.

The EPA Invites Community Participation in the Five-Year Review Process: The EPA is conducting this Five-Year Review to evaluate the effectiveness of the Site's remedy and to ensure that the remedy remains protective of human health and the environment. As part of the Five-Year Review process, EPA staff is available to answer any questions about the Site. Community members who have questions about the Site or the Five-Year Review process, or who would like to participate in a community interview, are asked to contact:

Joydeb Majumder, EPA Remedial Project Manager
Phone: (404) 562-9121
Email: majumder.joydeb@epa.gov

L'Tonya Spencer, EPA Community Involvement Coordinator
Phone: (404) 562-8463
Email: spencer.latonya@epa.gov

Mailing Address: U.S. EPA Region 4, 61 Forsyth Street, S.W., 11th Floor, Atlanta, GA 30303-8960

Additional site information is available at the Site's local document repository, located at Media Center, 11160 General Avenue, Jacksonville, FL 32220, and online at http://www.epa.gov/region4/superfund/sites/npl/florida/whthowsopfl.html.

APPENDIX E – INTERVIEW FORMS

Whitehouse Oil Pits Superfund Site **Five-Year Review Interview Form**

Site Name: Whitehouse Oil Pits **EPA ID No.:** FLD980602767

Interviewer Name: **Affiliation:**
Subject Name: Ms. Kristi Hess, P.G. **Affiliation:** Golder Associates, Inc.
Time: 9:00 a.m. **Date:** 12/14/2018

Interview Format (circle one): In Person Phone Mail Other: Email

Interview Category: O&M Contractor

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

   The Site is a landfill in a rural area. Remedy construction was completed in 2006, and operations, maintenance and monitoring (OM&M) has been conducted periodically since that time. OM&M has generally gone smoothly with no major issues. No reuse of the Site is currently planned.

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

   The remedy is protective of human health and the environment and is functioning as designed.

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?

   Groundwater is currently sampled for metals. Manganese is the only constituent with concentrations exceeding cleanup levels over the FYR period. Although the concentrations fluctuated to some degree, the manganese trends show an overall decline in recent years for wells EPA-4I and EPA-12I. Aside from anomalously low concentrations in August 2007 and November 2015, the concentrations in EPA-12D have been on a slow decline since February 2007. The concentrations in EPA-10I have generally hovered steadily around the 50 µg/L cleanup goal since November 2012, with increased fluctuation since May 2016. The concentrations in GA-1S have been stable, at or below 100 µg/L since November 2016. The concentrations in M-3 have been fluctuating between approximately 50 µg/L and 100 µg/L since November 2008. The manganese concentrations in EPA-3D had been generally decreasing (with fluctuation) since May 2011 but increased in May 2018. Manganese concentrations for EPA-11I have shown an increase in recent years (since 2012). The period of increased manganese concentrations in EPA-11I (November 2015 to May 2018) appears to correspond to a period of higher groundwater elevations, and lower pH, compared to the 2006 to 2012 time period.

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.

   The Site is a closed landfill, and there is not a continuous on-site O&M presence. OM&M is conducted on a semi-annual schedule, and includes the Site inspection, groundwater monitoring and

gas monitoring. The inspection includes the cap and cap cover, drainage features, the fence that secures the Site, the condition of wells and piezometers, and the condition of the gas vents. Water level measurements are also collected for monitoring wells and piezometers.

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.

   The number of wells in the groundwater monitoring program was increased from 15 wells to 23 wells in the October 2015 Revised OM&M Plan. This change does not change the protectiveness or effectiveness of the remedy.

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 no unexpected O&M difficulties or costs at the Site in the last five years. Activities of neighboring property owners have made access through the east and north gates more difficult, but alternate Site access is available through the south gate.

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

   No changes have been made during the current FYR period to optimize O&M activities or sampling efforts.

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

   Suggestions are below:
   - Gas monitoring frequency could be reduced from semi-annual to annual, with monitoring conducted during the May OM&M events. For the current FYR period, gas monitor readings above 5 percent methane have been sporadic and generally limited to GV-4. Gas monitor readings during the November OM&M events have typically been below 5 percent methane. In addition, measurements with the flame ionization detection could be eliminated, as this data is not adding value. Gas readings would continue to be collected with a gas monitor.
   - Groundwater monitoring frequency could also be reduced from semi-annual to annual. Although there are wells with consistent exceedances of the manganese MCL, the MCL is a secondary standard. Manganese concentrations during the FYR period have been below the FDEP health-based standard of 330 µg/L. In addition, the neighboring properties are connected to the municipal water supply. Reduced groundwater monitoring frequency will not affect the effectiveness of the remedy.

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

   Yes.

Whitehouse Oil Pits Superfund Site **Five-Year Review Interview Form**

Site Name: Whitehouse Oil Pits **EPA ID No.:** FLD980602767
Subject Name: John Sykes, III **Affiliation:** FDEP
Subject Contact Information John.Sykes@dep.state.fl.us (850) 245-8960
Time: 10:00 am **Date:** 2/21/29
Interview Location: Via email
Interview Format (circle one): In Person Phone Mail Other: Email
Interview Category: State Agency

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

   All going well, except no reuse activities, which we do not have a problem with.

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

   Remedy appears to be working as designed.

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.

   Post hurricane visits to check for damage (none noted).

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.

APPENDIX F – SITE INSPECTION CHECKLIST

FIVE-YEAR REVIEW SITE INSPECTION CHECKLIST

I. SITE INFORMATION

Site Name: Whitehouse Oil Pits	**Date of Inspection:** 11/15/2018
Location and Region: Jacksonville, FL 4	**EPA ID: FLD980602767**
Agency, Office or Company Leading the Five-Year Review: EPA Region 4	**Weather/Temperature:** 57°F, overcast

Remedy Includes: (Check all that apply)

- ☒ Landfill cover/containment
- ☒ Access controls
- ☒ Institutional controls
- ☐ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☒ Other: Slurry wall
- ☒ Monitored natural attenuation
- ☒ Groundwater containment
- ☒ Vertical barrier walls

Attachments: ☐ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (check all that apply)

1. **O&M Site Manager** Kristi Hess, P.G. (Name) | Project Manager (Title) | 12/13/2018 (Date)
   Interviewed ☐ at Site ☐ at office ☐ by phone Phone: _____
   Problems, suggestions ☐ Report attached: _____

2. **O&M Staff** _____ (Name) | _____ (Title) | _____ (Date)
   Interviewed ☐ at Site ☐ at office ☐ by phone Phone: _____
   Problems/suggestions ☐ Report attached: _____

3. **Local Regulatory Authorities and Response Agencies** (i.e., state and tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices). Fill in all that apply.

   Agency FDEP
   Contact John Sykes, III (Name) | Project Manager (Title) | 2/21/2019 (Date) | (850) 245-8960 (Phone No.)
   Problems/suggestions ☐ Report attached: _____

   Agency _____
   Contact _____ (Name) | _____ (Title) | _____ (Date) | _____ (Phone No.)
   Problems/suggestions ☐ Report attached: _____

   Agency _____
   Contact _____ (Name) | _____ (Title) | _____ (Date) | _____ (Phone No.)
   Problems/suggestions ☐ Report attached: _____

4. **Other Interviews** (optional) ☐ Report attached: _____

III. ON-SITE DOCUMENTS AND RECORDS VERIFIED (check all that apply)

1. **O&M Documents**

	☒ O&M manual	☒ Readily available	☐ Up to date	☐ N/A
	☒ As-built drawings	☒ Readily available	☒ Up to date	☐ N/A
	☒ Maintenance logs	☒ Readily available	☒ Up to date	☐ N/A
	Remarks: _____			
2.	**Site-Specific Health and Safety Plan**	☐ Readily available	☐ Up to date	☒ N/A
	☐ Contingency plan/emergency response plan	☐ Readily available	☐ Up to date	☒ N/A
	Remarks: _____			
3.	**O&M and OSHA Training Records**	☒ Readily available	☐ Up to date	☐ N/A
	Remarks: _____			
4.	**Permits and Service Agreements**			
	☐ Air discharge permit	☐ Readily available	☐ Up to date	☒ N/A
	☐ Effluent discharge	☐ Readily available	☐ Up to date	☒ N/A
	☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	☒ N/A
	☐ Other permits: _____	☐ Readily available	☐ Up to date	☒ N/A
	Remarks: _____			
5.	**Gas Generation Records**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks: _____			
6.	**Settlement Monument Records**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks: _____			
7.	**Groundwater Monitoring Records**	☒ Readily available	☒ Up to date	☐ N/A
	Remarks: _____			
8.	**Leachate Extraction Records**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks: _____			
9.	**Discharge Compliance Records**			
	☐ Air	☐ Readily available	☐ Up to date	☒ N/A
	☐ Water (effluent)	☐ Readily available	☐ Up to date	☒ N/A
	Remarks: _____			
10.	**Daily Access/Security Logs**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks: _____			

IV. O&M COSTS

1.	**O&M Organization**	
	☐ State in-house	☐ Contractor for state
	☐ PRP in-house	☒ Contractor for PRP
	☐ Federal facility in-house	☐ Contractor for Federal facility
	☐ _____	

2. **O&M Cost Records**

☒ Readily available ☐ Up to date

☒ Funding mechanism/agreement in place ☐ Unavailable

Original O&M cost estimate: _____ ☐ Breakdown attached

Total annual cost by year for review period if available

From: July 2013 Date	To: June 2014 Date	$84,000 Total cost	☐ Breakdown attached
From: July 2014 Date	To: June 2015 Date	$90,000 Total cost	☐ Breakdown attached
From: July 2015 Date	To: June 2016 Date	$99,000 Total cost	☐ Breakdown attached
From: July 2016 Date	To: June 2017 Date	$57,000 Total cost	☐ Breakdown attached
From: July 2017 Date	To: June 2018 Date	$54,000 Total cost	☐ Breakdown attached

3. **Unanticipated or Unusually High O&M Costs during Review Period**

Describe costs and reasons: _____

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

A. Fencing

1. **Fencing Damaged** ☐ Location shown on Site map ☒ Gates secured ☐ N/A

Remarks: _____

B. Other Access Restrictions

1. **Signs and Other Security Measures** ☐ Location shown on Site map ☐ N/A

Remarks: Signs are present across the perimeter fence. They are legible and in good condition.

C. Institutional Controls (ICs)

1. **Implementation and Enforcement**

Site conditions imply ICs not properly implemented ☐ Yes ☒ No ☐ N/A

Site conditions imply ICs not being fully enforced ☐ Yes ☒ No ☐ N/A

Type of monitoring (e.g., self-reporting, drive by): _____

Frequency: _____

Responsible party/agency: _____

Contact _____ _____ _____ _____

Name Title Date Phone no.

Reporting is up to date ☐ Yes ☐ No ☒ N/A

Reports are verified by the lead agency ☐ Yes ☐ No ☒ N/A

Specific requirements in deed or decision documents have been met ☒ Yes ☐ No ☐ N/A

Violations have been reported ☐ Yes ☒ No ☐ N/A

Other problems or suggestions: ☐ Report attached

2. **Adequacy** ☒ ICs are adequate ☐ ICs are inadequate ☐ N/A

Remarks: _____

D. General

1. **Vandalism/Trespassing** ☐ Location shown on Site map ☒ No vandalism evident

Remarks: _____

2. **Land Use Changes On Site** ☒ N/A

Remarks: _____

3. **Land Use Changes Off Site** ☐ N/A

Remarks: Activities of neighboring property owners have made access through the east and north gates more difficult, but alternate site access is available through the south gate.

VI. GENERAL SITE CONDITIONS

A. Roads ☐ Applicable ☒ N/A

1. **Roads Damaged** ☐ Location shown on Site map ☐ Roads adequate ☒ N/A

Remarks: _____

B. Other Site Conditions

Remarks: Fencing is in good condition.

VII. LANDFILL COVERS ☒ Applicable ☐ N/A

A. Landfill Surface

1. **Settlement** (low spots) ☐ Location shown on Site map ☒ Settlement not evident

Area extent: _____ Depth: _____

Remarks: _____

2. **Cracks** ☐ Location shown on Site map ☒ Cracking not evident

Lengths: _____ Widths: _____ Depths: _____

Remarks: _____

3.	**Erosion**	☐ Location shown on Site map	☒ Erosion not evident
	Area extent: _____		Depth: _____
	Remarks: _____		
4.	**Holes**	☐ Location shown on Site map	☒ Holes not evident
	Area extent: _____		Depth: _____
	Remarks: _____		
5.	**Vegetative Cover**	☒ Grass	☒ Cover properly established
	☐ No signs of stress	☒ Trees/shrubs (indicate size and locations on a diagram)	
	Remarks: Trees located only on the perimeter of cap to stabilize the cap edges.		
6.	**Alternative Cover** (e.g., armored rock, concrete)		☒ N/A
	Remarks: _____		
7.	**Bulges**	☐ Location shown on Site map	☒ Bulges not evident
	Area extent: _____		Height: _____
	Remarks: _____		
8.	**Wet Areas/Water Damage**	☒ Wet areas/water damage not evident	
	☐ Wet areas	☐ Location shown on Site map	Area extent: _____
	☐ Ponding	☐ Location shown on Site map	Area extent: _____
	☐ Seeps	☐ Location shown on Site map	Area extent: _____
	☐ Soft subgrade	☐ Location shown on Site map	Area extent: _____
	Remarks: _____		
9.	**Slope Instability**	☐ Slides	☐ Location shown on site map
	☒ No evidence of slope instability		
	Area extent: _____		
	Remarks: _____		
B. Benches		☐ Applicable	☒ N/A
	(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)		
1.	**Flows Bypass Bench**	☐ Location shown on site map	☐ N/A or okay
	Remarks: _____		
2.	**Bench Breached**	☐ Location shown on site map	☐ N/A or okay
	Remarks: _____		
3.	**Bench Overtopped**	☐ Location shown on site map	☐ N/A or okay
	Remarks: _____		
C. Letdown Channels		☒ Applicable	☐ 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)	☐ Location shown on Site map	☒ No evidence of settlement
	Area extent: _____		Depth: _____
	Remarks: _____		
2.	**Material Degradation**	☐ Location shown on Site map	☒ No evidence of degradation
	Material type:_____		Area extent: _____
	Remarks: _____		
3.	**Erosion**	☐ Location shown on Site map	☒ No evidence of erosion
	Area extent: _____		Depth: _____
	Remarks: _____		
4.	**Undercutting**	☐ Location shown on Site map	☒ No evidence of undercutting
	Area extent: _____		Depth: _____
	Remarks: _____		
5.	**Obstructions**	Type: _____	☒ No obstructions
	☐ Location shown on Site map	Area extent: _____	
	Size: _____		
	Remarks: _____		
6.	**Excessive Vegetative Growth**	Type: _____	
	☒ No evidence of excessive growth		
	☐ Vegetation in channels does not obstruct flow		
	☐ Location shown on Site map	Area extent: _____	
	Remarks: _____		

D. Cover Penetrations	☒ Applicable	☐ N/A		
1.	**Gas Vents**	☐ Active	☒ Passive	
	☐ Properly secured/locked	☒ Functioning	☒ Routinely sampled	☒ Good condition
	☐ Evidence of leakage at penetration		☐ Needs maintenance	☐ N/A
	Remarks: _____			
2.	**Gas Monitoring Probes**			
	☐ Properly secured/locked	☐ Functioning	☐ Routinely sampled	☐ Good condition
	☐ Evidence of leakage at penetration		☐ Needs maintenance	☒ N/A
	Remarks: _____			
3.	**Monitoring Wells** (within surface area of landfill)			
	☒ Properly secured/locked	☒ Functioning	☒ Routinely sampled	☒ Good condition
	☐ Evidence of leakage at penetration		☐ Needs maintenance	☐ N/A
	Remarks: _____			
4.	**Extraction Wells Leachate**			
	☐ Properly secured/locked	☐ Functioning	☐ Routinely sampled	☐ Good condition

☐ Evidence of leakage at penetration ☐ Needs maintenance ☒ N/A

Remarks: _____

5. **Settlement Monuments** ☐ Located ☐ Routinely surveyed ☒ N/A

Remarks: _____

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

1. **Gas Treatment Facilities**

☐ Flaring ☐ Thermal destruction ☐ Collection for reuse

☐ Good condition ☐ Needs maintenance

Remarks: _____

2. **Gas Collection Wells, Manifolds and Piping**

☐ Good condition ☐ Needs maintenance

Remarks: _____

3. **Gas Monitoring Facilities** (e.g., gas monitoring of adjacent homes or buildings)

☐ Good condition ☐ Needs maintenance ☐ N/A

Remarks: _____

F. Cover Drainage Layer ☐ Applicable ☒ N/A

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

Remarks: _____

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

Remarks: _____

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

1. **Siltation** Area extent: _____ Depth: _____ ☐ N/A

☐ Siltation not evident

Remarks: _____

2. **Erosion** Area extent: _____ Depth: _____

☐ Erosion not evident

Remarks: _____

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

Remarks: _____

4. **Dam** ☐ Functioning ☐ N/A

Remarks: _____

H. Retaining Walls ☐ Applicable ☒ N/A

1. **Deformations** ☐ Location shown on Site map ☐ Deformation not evident

Horizontal displacement: _____ Vertical displacement: _____

Rotational displacement: _____

Remarks: _____

2.	**Degradation**	☐ Location shown on Site map	☐ Degradation not evident
	Remarks: _____		
I. Perimeter Ditches/Off-Site Discharge		☐ Applicable	☒ N/A
1.	**Siltation**	☐ Location shown on Site map	☐ Siltation not evident
	Area extent: _____		Depth: _____
	Remarks: _____		
2.	**Vegetative Growth**	☐ Location shown on Site map	☐ N/A
	☐ Vegetation does not impede flow		
	Area extent: _____		Type: _____
	Remarks: _____		
3.	**Erosion**	☐ Location shown on Site map	☐ Erosion not evident
	Area extent: _____		Depth: _____
	Remarks: _____		
4.	**Discharge Structure**	☐ Functioning	☐ N/A
	Remarks: _____		
VIII. VERTICAL BARRIER WALLS [2]		☒ Applicable	☐ N/A
1.	**Settlement**	☐ Location shown on ite map	☒ Settlement not evident
	Area extent: _____		Depth: _____
	Remarks: _____		
2.	**Performance Monitoring**	Type of monitoring: _____	
	☒ Performance not monitored		
	Frequency: Semi-annually		☐ Evidence of breaching
	Head differential: _____		
	Remarks: Data review indicates that the slurry wall is performing as intended.		
IX. GROUNDWATER/SURFACE WATER REMEDIES		☒ Applicable	☐ N/A
A. Groundwater Extraction Wells, Pumps and Pipelines		☐ Applicable	☒ N/A
1.	**Pumps, Wellhead Plumbing and Electrical**		
	☐ Good condition	☐ All required wells properly operating	☐ Needs maintenance ☐ N/A
	Remarks: _____		
2.	**Extraction System Pipelines, Valves, Valve Boxes and Other Appurtenances**		
	☐ Good condition	☐ Needs maintenance	
	Remarks: _____		
3.	**Spare Parts and Equipment**		
	☐ Readily available	☐ Good condition	☐ Requires upgrade ☐ Needs to be provided
	Remarks: _____		

[2] Slurry wall installed.

B. Surface Water Collection Structures, Pumps and Pipelines ☐ Applicable ☒ N/A

1. **Collection Structures, Pumps and Electrical**

   ☐ Good condition ☐ Needs maintenance

   Remarks: _____

2. **Surface Water Collection System Pipelines, Valves, Valve Boxes and Other Appurtenances**

   ☐ Good condition ☐ Needs maintenance

   Remarks: _____

3. **Spare Parts and Equipment**

   ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided

   Remarks: _____

C. Treatment System ☐ Applicable ☒ N/A

1. **Treatment Train** (check components that apply)

   ☐ Metals removal ☐ Oil/water separation ☐ Bioremediation

   ☐ Air stripping ☐ Carbon adsorbers

   ☐ Filters: _____

   ☐ Additive (e.g., chelation agent, flocculent): _____

   ☐ Others: _____

   ☐ Good condition ☐ Needs maintenance

   ☐ Sampling ports properly marked and functional

   ☐ Sampling/maintenance log displayed and up to date

   ☐ Equipment properly identified

   ☐ Quantity of groundwater treated annually: _____

   ☐ Quantity of surface water treated annually: _____

   Remarks: _____

2. **Electrical Enclosures and Panels** (properly rated and functional)

   ☐ N/A ☐ Good condition ☐ Needs maintenance

   Remarks: _____

3. **Tanks, Vaults, Storage Vessels**

   ☐ N/A ☐ Good condition ☐ Proper secondary containment ☐ Needs maintenance

   Remarks: _____

4. **Discharge Structure and Appurtenances**

   ☐ N/A ☐ Good condition ☐ Needs maintenance

   Remarks: _____

5. **Treatment Building(s)**

   ☐ N/A ☐ Good condition (esp. roof and doorways) ☐ Needs repair

   ☐ Chemicals and equipment properly stored

   Remarks: _____

6. **Monitoring Wells** (pump and treatment remedy)

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition

☐ All required wells located ☐ Needs maintenance ☐ N/A

Remarks: _____

D. Monitoring Data

1. **Monitoring Data**

☒ Is routinely submitted on time ☒ Is of acceptable quality

2. **Monitoring Data Suggests:**

☒ Groundwater plume is effectively contained ☒ Contaminant concentrations are declining

E. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)

☒ Properly secured/locked ☒ Functioning ☒ Routinely sampled ☒ Good condition

☒ All required wells located ☐ Needs maintenance ☐ N/A

Remarks: _____

X. OTHER REMEDIES

If there are remedies applied at the site 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).

The barrier wall is successfully containing the plume and the cap is minimizing infiltration; the gas vents address any vapors that may be emitted under the cap, the stormwater controls divert water away from the cap and the locked fence prevents trespassing.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

The vegetative cap is in good condition, and the passive gas vents and stormwater controls are inspected and are effective in addressing subsurface vapors and surface runoff, respectively. Groundwater is monitored on a semi-annual basis and has illustrated that only metals require continued monitoring.

C. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs that suggest that the protectiveness of the remedy may be compromised in the future.

None.

D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

None.

APPENDIX G – SITE INSPECTION PHOTOS

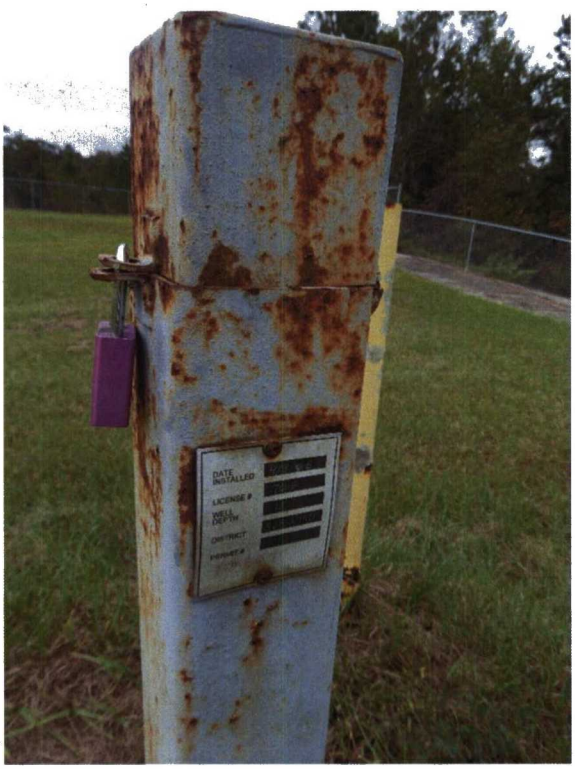
Locked gate to enter southwest corner of the Site

Locked monitoring wells at southwest entrance of the Site

View of vegetated cap and gas vent, looking northeast

Locked gate at northeast entrance of the Site

Stormwater drainage feature along southwest corner of the capped area



Locked monitoring well in southwest portion of the capped area

View of vegetated cap, monitor well cluster and gas vents, looking east

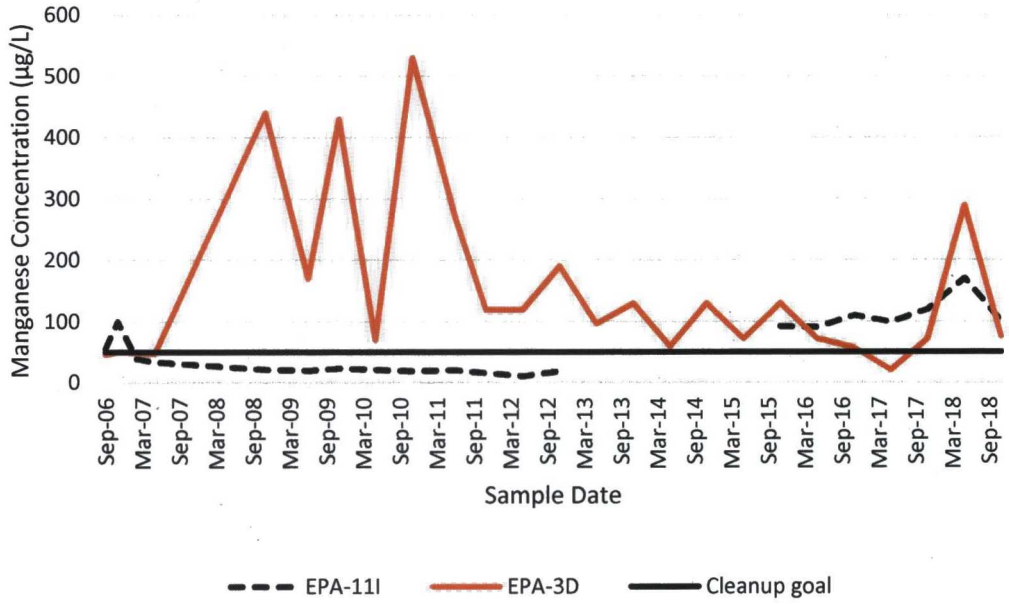
Gas vent on vegetated capped area

McGirts Creek, north of Interstate 90

McGirts Creek, south of Interstate 90

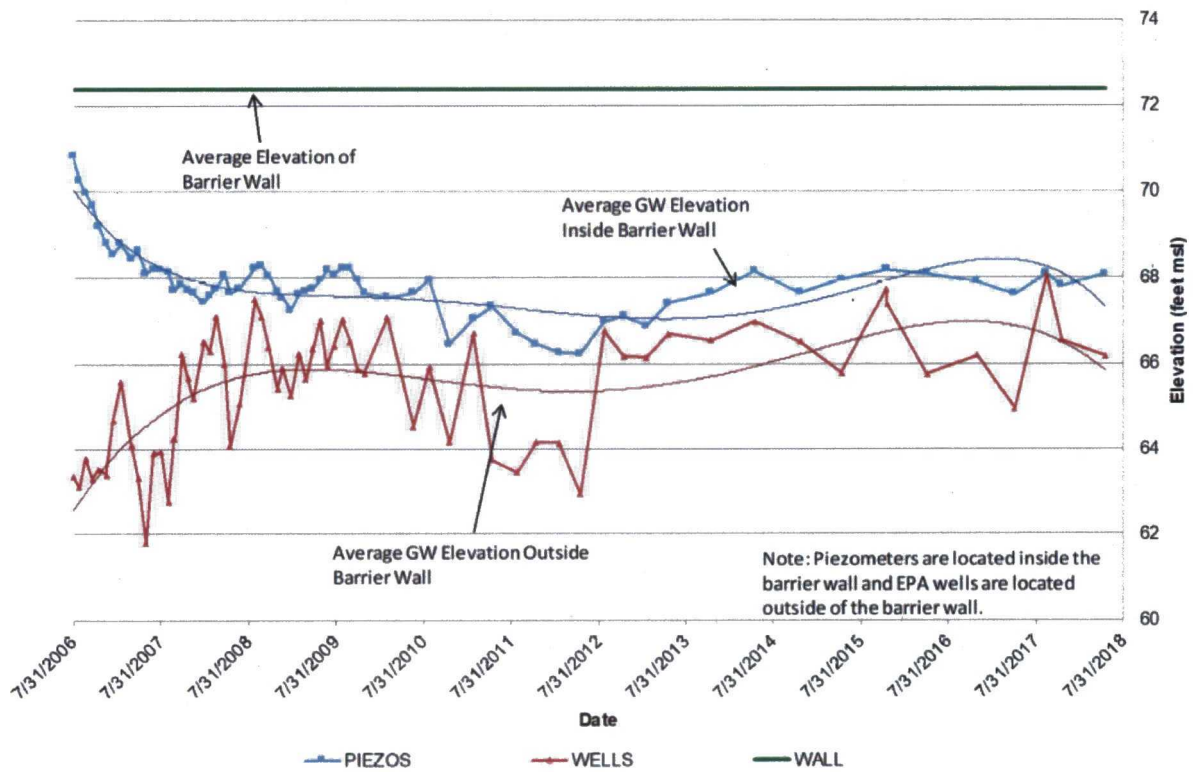
APPENDIX H – DETAILED DATA ANALYSIS

Figure H-1: Trends of Manganese in Groundwater in EPA-3D and EPA-11I



Sources: 2008 and 2013 FYRs.
Progress Report for January through June 2018. Prepared by Golder Associates, Inc. August 2018.

Figure H-2: Average Water Level Elevations after Remediation



Source: Progress Report for January through June 2018. Prepared by Golder Associates, Inc. August 2018.

Table H-1: Summary of Manganese Groundwater Results (µg/L)[a]

Well	Nov. 2013	May 2014	Nov. 2014	May 2015	Nov. 2015	May 2016	Nov. 2016	May 2017	Nov. 2017	May 2018	Nov. 2018
EPA-10S	--	--	--	--	4.7	3.4	4.4	2.8	4.6	2.9	4.6
EPA-10I	**52**	44	44	47	**55**	**98**	34	50	33	36	35
EPA-10D	-	-	-	-	31	**24**	22	24	25	26	25
EPA-10K	--	--	--	--	26	23	21	36	16	23	21
EPA-11I	--	--	--	--	**92**	**91**	**110**	**99**	**120**	**170**	**100**
EPA-11K	34	31	30	33	34	28	29	27	27	34	28
EPA-11D	--	--	--	--	28	25	21	27	25	27	25
EPA-12I	46	39	37	44	48	35	32	30	30	30	30
EPA-12D	--	--	--	--	13	**57**	**53**	**54**	**52**	**53**	**56**
EPA-13K	--	--	--	--	13	12	11	12	11	12	11
EPA-13D	--	--	--	--	11	13	12	18	11	12	11
EPA-14K	30	30	29	28	35	26	25	25	24	24	4.7
EPA-3D	**130**	**59**	**130**	**72**	**130**	**72**	**57**	20	**72**	**290**	**75**
S-12R*	2.8	1.3	1.6	0.91	1.1	1.2	1.8	0.84	1.4	1.2	1.7
EPA-4I*	**110**	**100**	**80**	**120**	**80**	**83**	**64**	**75**	**66**	**87**	**62**
EPA-D6R	38	34	34	36	34	32	31	34	31	32	30
GA-1S	**140**	**110**	**130**	**130**	**140**	**130**	**100**	**97**	**100**	**88**	**90**
GA-1I	--	--	--	--	4.5	6.1	3	3.1	1.9	2.0	1.8
S-2	6.6	6.3	6.8	13	14	18	15	23	18	21	20
M-3	**79**	**71**	**67**	**89**	**91**	**100**	**69**	**80**	**57**	**80**	**67**
EPA-9S	6.8	4	8.7	11	10	8	8.8	9.6	7.5	8.1	9.8
EPA-9I	3.2	3	3.4	4.3	3.9	3.4	2.8	2.9	4.1	2.8	2.1
EPA-9D	40	37	36	38	43	37	31	33	33	34	32

Notes:
a. If duplicate samples were collected, the maximum of the two samples is presented.
-- = well not sampled.
µg/L = micrograms per liter
Bold = value exceeds the cleanup goal of 50 µg/L.
*Denotes a background well.

Table H-2: Summary of Arsenic Groundwater Results (µg/L)

Well	Nov-13	May-14	Nov-14	May-15	Nov-15	May-16	Nov-16	May-17	Nov-17	May-18	Nov-18
EPA-3D	4.1	3.7	7.2	2.5	**11**	1.4	1.3	1.1	2.2	**12**	5.3

Notes:
µg/L = micrograms per liter
Bold = value exceeds the current MCL of 10 µg/L.

Table H-3: Summary of Percent (%) by Volume Methane Measure from Passive Gas Vents

Sample Location	Nov-13	May-14	Nov-14	May-15	Nov-15	May-16	Nov-16	May-17	Nov-17	May-18
GV-1	0	0	0	0.7	0.1	0	0	0	0	0
GV-2	0	0	0	0.5	0.1	0	0	0	0	0
GV-3	0.1	**11.4**	0	0.4	0.1	0	0	0	0	0
GV-4	**6.7**	**7.3**	0	**5.1**	4.3	0	0.1	0	0	**7.5**
GV-5	0	0	0	0.5	0.9	0	1.3	0	0	0
GV-6	0	0	0	1.2	4.6	0	0	0	0	0
GV-7	0.1	0	0	1	0.1	0.5	0	0	0	0
GV-8	0	0	0	0.5	0	0	0	0	0	0
GV-9	0	**6.4**	0	0.5	0.1	0.1	0	0	0	0
GV-10	0	**5.1**	0	1.5	0.1	0	0	0	0	0
GV-11	0	0	0	0.9	0.2	0	0	0	0	0
GV-12	0	**5.5**	0	0.4	0.2	0	0	0	0	0
GV-13	2.9	**12.9**	0	1.2	2.1	0.5	0	0	0	0
GV-14	0	**5.5**	0	1.5	0.4	0	0	0	0	0
GV-15	0.1	0	0	0.5	1.9	0	0	0	0	0
GV-16	0.1	**6.5**	0	0.4	0.1	0.1	0	0	0	0
GV-17	0.1	0	0	0.5	0.1	0	0	0	0	0
GV-18	0.1	**10.3**	0	0.5	0.1	0	0	0	0	0

Notes:
Bold = methane result exceeds the lower explosive limit by volume of 5 percent.
Source: Obtained from progress reports prepared by Golder and Associates, Inc.

APPENDIX I – APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (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 ARARs that address the protectiveness of the remedy are reviewed. The 1998 AROD established chemical-specific ARARs for groundwater and surface water as summarized below.

Groundwater

The 1998 AROD established chemical-specific groundwater ARARs for 16 of the 26 COCs based on federal drinking water MCLs (40 CFR 141-143) and Florida primary and secondary drinking water MCLs (FAC 62-550.310-320). Since the previous FYR, no additional changes in ARARs have occurred. Table I-1 shows that the 1998 AROD cleanup goal for arsenic of 50 µg/L has become more stringent; the current MCL is 10 µg/L. The monitoring results show that arsenic occasionally exceeds the current MCL in one well, EPA-3D, in 2015 and 2018. These exceedances should be reviewed to determine if additional response action is necessary

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

COC	1998 AROD ARAR (µg/L)[a]	Current ARAR (µg/L)[b]	ARAR Change
Antimony	6	6	none
Arsenic	50	10	more stringent
Barium	2,000	2,000	none
Cadmium	5	5	none
Chromium	100	100	none
Copper	1,300	1,300[c]	none
Lead	15	15[c]	none
Manganese	50	50	none
Nickel	100	100	none
Selenium	50	50	none
Vanadium	NA	NA	none
Zinc	5,000	5,000	none
Acetone	NA	NA	none
Benzene	1	1	none
Benzo(a)pyrene	0.2	0.2	none
Bis(2-ethylhexyl)phthalate	6	6	none
Carbon disulfide	NA	NA	none
Ethylbenzene	30	30	none
Methyl ethyl ketone	NA	NA	none
Methylphenol, 3,4-	NA	NA	none
Methylnaphthalene, 2-	NA	NA	none
Naphthalene	NA	NA	none
Phenol	NA	NA	none
Toluene	40	40	none
Trichloroethene	3	3	none

COC	1998 AROD ARAR (µg/L)[a]	Current ARAR (µg/L)[b]	ARAR Change
Xylene	NA	10,000	new value

Notes:

a. According to the 1998 AROD, the chemical-specific ARARs are the lower of the federal drinking water MCLs (40 CFR 141-143) and the Florida primary and secondary drinking water MCLs (FAC 62-550.310-320).

b. Federal and state primary MCLs available at https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations (last accessed 9/20/2018); FDEP MCLs and secondary MCLs available at: https://www.flrules.org/gateway/notice_Files.asp?ID=17870715 (accessed 9/21/2018).

c. MCL is based on a treatment technology.

NA = primary MCLs not established for these COCs.

Surface Water

The 1998 AROD established chemical-specific ARARs for the 15 COCs in surface water based on the Florida Surface Water Quality Criteria for Class III Surface Water (FAC 62-302.530). This review examined the current Florida surface water quality criteria and found that, since the 1998 AROD, the regulatory levels associated with surface water ARARs have become more stringent for cadmium, copper and nickel, and less stringent for zinc (Table I-2). The more stringent ARARs for cadmium, copper and nickel do not effect remedy protectiveness, as these COCs were not detected in groundwater detected above cleanup goals and the slurry wall is effective in containing contamination on site.

Table I-2: Previous and Current ARARs for Surface Water COCs

COC	Class III State Water Quality Criteria for Class III Surface Water as of 1998 (µg/L)	Current State Water Quality Criteria for Class III Surface Water as of 2018[a] (µg/L)	ARAR Change
Inorganics			
Antimony	4,300	4,300	none
Arsenic	50	50	none
Cadmium	$e^{(0.7852[lnH]-3.49)}$	$e^{(0.7409[lnH]-4.719)b}$	more stringent
Chromium	11	11	none
Copper	$e^{(0.8545[lnH]-1.465)}$	$e^{(0.8545[lnH]-1.702)b}$	more stringent
Lead	$e^{(1.273[lnH]-4.705)}$	$e^{(1.273\ [lnH]\ -4.705)}$	none
Nickel	$e^{(0.846[lnH]+1.1645)}$	$e^{(0.846[lnH]+0.0584)b}$	more stringent
Selenium	5	5	none
Zinc	$e^{(0.8473[lnH]+0.7614)}$	$e^{(0.8473[lnH]+0.884)b}$	less stringent
Organics			
Benzene	71.28	71.28	none
Benzo(a)pyrene	0.031	0.031	none
PCB 1260	0.014	0.014	none
Phenol	300	300	none
Tetrachloroethene	8.85	8.85	none
Trichloroethene	80.7	80.7	none

Notes:

a. Florida surface water quality criteria. The metals criteria are directly related to the hardness of the water. "lnH" means the natural logarithm of total hardness expressed as µg/L of CaCO3 values obtained from https://www.flrules.org/gateway/RuleNo.asp?title=SURFACE WATER QUALITY STANDARDS&ID=62-302.530 (accessed 9/21/18). For metals criteria involving equations with

COC	Class III State Water Quality Criteria for Class III Surface Water as of 1998 (µg/L)	Current State Water Quality Criteria for Class III Surface Water as of 2018[a] (µg/L)	ARAR Change
hardness, the hardness shall be set at 25 mg/L if actual hardness is < 25 mg/L and set at 400 mg/L if actual hardness is > 400 mg/L. b. Concentrations for cadmium, copper, nickel and zinc are presented as a range based on a hardness of 25 mg/L and 400 mg/L as follows: • Cadmium concentration would range from 0.097 µg/L - 0.756 µg/L. • Copper concentration would range from 2.85 µg/L - 30.5 µg/L. • Nickel concentration would range from 27.3 µg/L - 285.1µg/L. • Zinc concentration would range from 37.0 µg/L - 387.8 µg/L.			

APPENDIX J – SCREENING-LEVEL RISK REVIEW

To determine if the residential health-based soil cleanup goals remain valid, a screening-level risk evaluation was conducted by comparing the cleanup goals to the EPA's 2018 regional screening levels (RSLs), because the RSLs incorporate current toxicity values and standard default exposure factors. As shown in Table J-1, none of the cleanup goals exceed the EPA's cancer risk management range. However, chromium, naphthalene and phenol slightly exceed the noncancer hazard quotient (HQ) threshold of 1.0. These changes in toxicity values do not impact the protectiveness of the remedy, because the entire Site is covered by a multilayer cap that prevents exposure to and migration of subsurface contamination.

Table J-1: Screening-Level Risk Evaluation of Site Soil Cleanup Goals

Contaminant	1998 Cleanup Goal (mg/kg)[a]	EPA Residential RSL (mg/kg)[b]		Risk[c]	Noncancer HQ[d]
		Risk-Based	Noncancer HQ=1		
Inorganics					
Antimony	42	NA	31	--	1
Arsenic	32	0.68	35	5×10^{-5}	0.9
Barium	5,262	NA	15,000	--	0.4
Cadmium	53	2,100	71	3×10^{-8}	0.8
Chromium	526	109[e]	230	5×10^{-6}	***2***
Copper	3,905	NA	3,100	--	1
Lead	400[f]	NA	400	--	--
Nickel (as soluble salts)	2,105	15,000	1,500	1×10^{-7}	1
Organics					
Benzene	0.4	1.2	82	3×10^{-7}	0.005
Benzo(a)pyrene	0.1	0.11	18	9×10^{-7}	0.006
PCB 1260	1	0.24	NA	4×10^{-6}	--
Bis(2-ethylhexyl)phthalate	61.5	39	1,300	2×10^{-6}	0.05
Chlorobenzene	42	NA	280	NA	0.2
1,4-Dichlorobenzene	36	2.6	3,400	1×10^{-5}	0.01
Di-N-Butyl Phthalate	7,911	NA	6,300	--	1
Methylene chloride	115	57	350	2×10^{-6}	0.3
Naphthalene	317	3.8	130	8×10^{-5}	***2***
Phenol	47,467	NA	19,000	--	***3***
Toluene	2,000	NA	4,900	--	0.4
Tetrachloroethene	4	24	81	2×10^{-7}	0.05
Trichloroethene	1	0.94	4.1	1×10^{-6}	0.2

Notes:

a. Cleanup goals listed in Table 3 of the 1998 AROD.

b. RSLs obtained from the EPA's website https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables (accessed 1/14/2019)

c. The cancer risks were calculated using the following equation, since RSLs are derived based on 10^{-6} risk: cancer risk = (1998 AROD cleanup level ÷ residential soil cancer RSL) × 10^{-6}.

d. Noncancer HQ was calculated using the following equation and reported as one significant figure as per EPA Region 4 risk assessment guidance:
Hazard Quotient (HQ) = (1998 AROD cleanup level ÷ residential soil noncancer RSL).

e. The carcinogenic potential of ingested hexavalent chromium is still under review by EPA's Integrated Risk Information System (IRIS) while for inhaled hexavalent chromium, the RSLs have multiplied the inhalation unit risk factor by a factor of 7. EPA Region 4 has indicated that the overly conservative RSL is acceptable for screening. However, the unaltered inhalation unit risk factor from IRIS should be used for EPA Region 4 risk assessments and FYRs. RSL was calculated using the EPA RSL calculator and all default residential assumptions except the oral cancer slope factor was not used and the inhalation unit risk factor from IRIS was used [1.2×10^{-2} micrograms per cubic meter $(\mu g/m^3)^{-1}$].

f. The EPA has no consensus on toxicity values for inorganic lead, so it is not possible to calculate RSLs. The EPA evaluates lead exposure by using blood-lead modeling and established a default residential level of 400 mg/kg. If this value is exceeded, use of site-specific information is recommended in the blood-lead model.

NA – not applicable; the EPA has not established a toxicity value for this COC.

APPENDIX K – DECLARATION OF RESTRICTIVE COVENANT

Site: Whitehouse Oil Pits
Break: 7.8
Other: v.134

OFFICE OF GENERAL COUNSEL
CITY OF JACKSONVILLE

CITY HALL, ST. JAMES BUILDING
117 WEST DUVAL STREET, SUITE 480
JACKSONVILLE, FLORIDA 32202

February 2, 2011

VIA U.S. Mail
John Sykes
Bob Martinez Center
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Re: Declaration of Restrictive Covenant for the Whitehouse Waste Oil Pits Superfund Site

Dear Mr. Sykes:

Enclosed is the recorded and certified copy of the Declaration of Restrictive Covenant for the Whitehouse Waste Oil Pits Superfund Site. Please let me know if you need anything further. Thank you.

Sincerely,

Kristina G. Nelson

Kristina G. Nelson
Assistant General Counsel

Cc: Rusty Kestle
US EPA, Region IV
Atlanta Federal Center
61 Forsyth Street S.W.
Atlanta, GA 30303

Enclosures

10805642

Office Telephone	Writer's Direct Line	Facsimile	Writer's E-Mail Address	Office Web Site
(904) 630-1700	(904) 630-1736	(904) 630-2388	KGNelson@coj.net	GeneralCounsel.coj.com

Doc # 2011025847, OR BK 15503 Page 499, Number Pages: 11, Recorded 02/01/2011 at 03:54 PM, JIM FULLER CLERK CIRCUIT COURT DUVAL COUNTY RECORDING $95.00

This instrument prepared by:
Kristina G. Nelson
Assistant General Counsel
Office of General Counsel
117 West Duval Street
Suite 480
Jacksonville, FL 32202

DECLARATION OF RESTRICTIVE COVENANTS

THIS DECLARATION OF RESTRICTIVE COVENANT (hereinafter "Declaration") is made this 27 day of January, 2011, by the CITY OF JACKSONVILLE, a Florida municipal corporation, (hereinafter "Grantor"), having an address of 117 West Duval Street, Suite 480, Jacksonville, FL 32202 and the FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, a political subdivision of the State of Florida (hereinafter "FDEP" or "Grantee").

RECITALS

A. **WHEREAS**, Grantor is the fee simple owner of a parcel of land situated in Duval County, State of Florida, more particularly described in **Exhibit "A1" and "A2"**attached hereto and made a part hereof (hereinafter the "Property").

B. **WHEREAS**, the Property subject to this restrictive covenant is the property known as the Whitehouse Waste Oil Pits Superfund Site ("Site"), which the U.S. Environmental Protection Agency ("EPA"), pursuant to Section 105 of the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), 42 U.S.C. § 9605, proposed for the National Priorities List, set forth at 40 C.F.R. Part 300, Appendix B, by publication in the Federal Register on September 8, 1983.

C. **WHEREAS**, in a Second Amended Record of Decision dated September 24, 1998 (the "1998 Amended ROD") and an Explanation of Significant Differences dated July 16, 2001 ("ESD"), the EPA Region 4 Regional Administrator selected a "remedial action" for the Site.

D. **WHEREAS**, the remedial action selected pursuant to the EPA 1998 Amended ROD, as amended by the March 2001 and July 2001 Explanation of Significant Differences ("ESDs"), was performed on the Site.

E. **WHEREAS**, contaminants in excess of allowable concentrations for unrestricted use will remain at the Property after completion of the remedial action.

F. **WHEREAS**, it is the intent of the restrictions in this declaration to reduce or eliminate the risk of exposure of the contaminants to the environment and to users or occupants of

the property and to reduce or eliminate the threat of migration of the contaminants.

G. **WHEREAS**, it is the intention of all parties that EPA is a third party beneficiary of said restrictions and said restrictions shall be enforceable by the EPA, FDEP, and their successor agencies.

H. **WHEREAS**, the parties hereto have agreed 1) to impose on the Property use restrictions as covenants that will run with the land for the purpose of protecting human health and the environment; and 2) to grant an irrevocable right of access over the Property to the Grantee and its agents or representatives for purposes of implementing, facilitating and monitoring the remedial action; and

I. **WHEREAS**, Grantor deems its desirable and in the best interest of all present and future owners of the Property that the Property be held subject to certain restrictions and changes, that will run with the land, for the purpose of protecting human health and the environment, all of which are more particularly hereinafter set forth.

NOW THEREFORE, Grantor, on behalf of itself, its successors, its heirs, and assigns, in consideration of the recitals above, the terms of the Record of Decision, and other good and valuable consideration, the adequacy and receipt of which is hereby acknowledged, does hereby covenant and declare that the Property shall be subject to the restrictions on use set forth below, which shall touch and concern and run with the title of the property, and does give, grant and convey to the Grantee, and its assigns, with general warranties of title, 1) an irrevocable use restriction and site access covenant of the nature and character, and for the purposes hereinafter set forth and 2), the perpetual right to enforce said covenants and use restrictions, with respect to the Property. Grantor further agrees as follows:

a. The foregoing recitals are true and correct and are incorporated herein by reference.

b. Grantor hereby imposes on the Property the following restrictions:

1. **Restrictions on use**: The following covenants, conditions, and restrictions apply to the use of the Property:

   a. Generally, there shall be no agricultural use of the land including forestry, fishing and mining; no hotels or lodging; no residential uses; and no educational uses such as elementary and secondary schools, or day care services. These prohibited uses are specifically defined by using the North American Industry Classification System, United States, 2002 (NAICS), Executive Office of the President, Office of Management and Budget. The prohibited uses by code are: Sector 11 Agriculture, Forestry, Fishing and Hunting; Subsection 212 Mining (except Oil and Gas); Code 512132 Drive-In Motion Picture Theaters; Code 51412 Libraries and Archives; Code 53111 Lessors of Residential Buildings and Dwellings; Subsector 611 Elementary and Secondary Schools; Subsector 623 Nursing and Residential Care Facilities; Subsector 721 Accommodation (hotels, motels, RV parks, etc.); and Subsection 814

Private Households.

b. The shallow groundwater aquifer shall not be used for drinking or other domestic or industrial uses unless and until notified by EPA that the groundwater remedy is complete. The use of the deeper aquifers shall remain unrestricted.

c. The groundwater monitoring wells and network shall not be disturbed in any manner without the Grantor obtaining prior written approval of the Director of EPA Region 4 Superfund Division and FDEP.

d. All activities that may compromise the surface cap and slurry wall as shown on **Exhibit "B"** are prohibited and shall not be disturbed in any manner without the Grantor obtaining prior written approval of the Director of EPA Region 4 Superfund Division and FDEP.

2. **Irrevocable Covenant for Site Access:** Grantor hereby grants to the Grantee, its agents and representatives, an irrevocable, permanent and continuing right of access at all reasonable times to the Property for purposes of:

a) Implementing the response actions in the 1998 Amended ROD;

b) Verifying any data or information submitted to EPA and Grantee;

c) Verifying that no action is being taken on the Property in violation of the terms of this instrument or of any federal or state environmental laws or regulations;

d) Monitoring response actions on the Site and conducting investigations relating to contamination on or near the Site, including, without limitation, sampling of air, water, sediments, soils, and specifically, without limitation, obtaining split or duplicate samples;

e) Conducting periodic reviews of the remedial action, including but not limited to, reviews required by applicable statutes and/or regulations; and

f) Implementing additional or new response actions if EPA determines: i) that such actions are necessary to protect the environment because either the original remedial action has proven to be ineffective, and ii) that the additional or new response actions will not impose any significantly greater burden on the Property or unduly interfere with the then existing uses of the Property.

3. **Modification:** This Declaration shall not be modified, amended, or terminated without the written consent of FDEP or its successor agency. FDEP shall not consent to any such modification, amendment or termination without the written consent of EPA.

4. (a) **Reserved rights of Grantor:** Grantor hereby reserves unto itself, its successors, its heirs, and assigns, all rights and privileges in and to the use of the Property which are not incompatible with the restrictions, rights and covenants granted herein.

(b) **Reserved Rights of EPA:** Nothing in this document shall limit or otherwise affect EPA's rights of entry and access or EPA's authority to take response actions under CERCLA, the NCP, or other federal law.

(c) **Reserved Rights of Grantee:** Nothing in this document shall limit or otherwise affect Grantee's rights of entry and access or authority to act under state or federal law.

5. **Notice requirement:** Grantor agrees to include in any instrument conveying any interest in any portion of the Property, including but not limited to deeds, leases and mortgages, a notice which is in substantially the following form:

NOTICE: THE INTEREST CONVEYED HEREBY IS SUBJECT TO A DECLARATION OF RESTRICTIVE AND AFFIRMATIVE COVENANTS, DATED_____, 200_, RECORDED IN THE PUBLIC LAND RECORDS ON _____, 20__, IN BOOK _____, PAGE ____, IN FAVOR OF, AND ENFORCEABLE BY, THE STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION.

Within thirty (30) days of the date any such instrument of conveyance is executed, Grantor must provide Grantee and EPA with a certified true copy of said instrument and, if it has been recorded in the public land records, its recording reference.

6. **Enforcement:** The Grantee shall be entitled to enforce the terms of this instrument by resort to specific performance or legal process. All remedies available hereunder shall be in addition to any and all other remedies at law or in equity, including CERCLA. Enforcement of the terms of this instrument shall be at the discretion of the Grantee, and any forbearance, delay or omission to exercise its rights under this instrument in the event of a breach of any term of this instrument shall not be deemed to be a waiver by the Grantee of such term or of any subsequent breach of the same or any other term, or of any of the rights of the Grantee under this instrument. It is expressly agreed that EPA is not the recipient of a real property interest but is a third party beneficiary of the Declaration of Restrictive Covenants, and as such, has the right of enforcement.

7. **Damages:** Grantee shall be entitled to recover damages for violations of the terms of this instrument, or for any injury to the remedial action, to the public or to the environment protected by this instrument.

8. **Waiver of certain defenses:** Grantor hereby waives any defense of laches, estoppel, or prescription.

9. **Covenants:** Grantor hereby covenants to and with the Grantee, that the Grantor is lawfully seized in fee simple of the Property, that the Grantor has a good and lawful right and power to sell and convey it or any interest therein, that the Property is free and clear of encumbrances, except those noted on Exhibit B attached hereto, and that the Grantor will forever warrant and defend the title thereto and the quiet possession thereof.

10. **Notices:** Any notice, demand, request, consent, approval, or communication that either party desires or is required to give to the other shall be in writing and shall either be served personally or sent by first class mail, postage prepaid, referencing the Site name and Site ID number and addressed as follows:

To Grantor:
Assistant General Counsel
Environmental Department
Office of General Counsel
117 West Duval Street
Suite 480
Jacksonville, FL 32202

To Grantee:
Florida Department of Environmental Protection
2600 Blairstone Rd.
Tallahassee, FL32399

To EPA:
Director, Superfund Division
The United States Environmental Protection Agency
Region 4
61 Forsyth Street, SW
Atlanta, GA 30303

11. **Recording in Land Records:** Grantor shall record this Declaration of Restrictive and Affirmative Covenants in timely fashion in the Official Records of Duval County, Florida, and shall rerecord it at any time Grantee may require to preserve its rights. Grantor shall pay all recording costs and taxes necessary to record this document in the public records.

12. **General provisions:**

a) Controlling law: The interpretation and performance of this instrument shall be governed by the laws of the United States or, if there are no applicable federal laws, by the law of the state where the Property is located.

b) Liberal construction: Any general rule of construction to the contrary notwithstanding, this instrument shall be liberally construed in favor of the grant to effect the purpose of this instrument and the policy and purpose of CERCLA. If any provision of this instrument is found to be ambiguous, an interpretation consistent with the purpose of this instrument that would render the provision valid shall be favored over any

interpretation that would render it invalid.

c) Severability: If any provision of this instrument, or the application of it to any person or circumstance, is found to be invalid, the remainder of the provisions of this instrument, or the application of such provisions to persons or circumstances other than those to which it is found to be invalid, as the case may be, shall not be affected thereby.

d) Entire Agreement: This instrument sets forth the entire agreement of the parties with respect to rights and restrictions created hereby, and supersedes all prior discussions, negotiations, understandings, or agreements relating thereto, all of which are merged herein.

e) No Forfeiture: Nothing contained herein will result in a forfeiture or reversion of Grantor's title in any respect.

f) Joint Obligation: If there are two or more parties identified as Grantor herein, the obligations imposed by this instrument upon them shall be joint and several.

g) Successors: The term "Grantor", wherever used herein, and any pronouns used in place thereof, shall include the persons and/or entities named at the beginning of this document, identified as "Grantor" and their personal representatives, heirs, successors, and assigns. The term "Grantee", wherever used herein, and any pronouns used in place thereof, shall include the persons and/or entities named at the beginning of this document, identified as "Grantee" and any successor state agency having administrative jurisdiction. The rights of the Grantee and Grantor under this instrument are freely assignable, subject to the notice provisions hereof.

h) Termination of Rights and Obligations: A party's rights and obligations under this instrument terminate upon transfer of the party's interest in the Property, except that liability for acts or omissions occurring prior to transfer shall survive transfer.

i) Captions: The captions in this instrument have been inserted solely for convenience of reference and are not a part of this instrument and shall have no effect upon construction or interpretation.

j) Counterparts: The parties may execute this instrument in two or more counterparts, which shall, in the aggregate, be signed by both parties; each counterpart shall be deemed an original instrument as against any party who has signed it. In the event of any disparity between the counterparts produced, the recorded counterpart shall be controlling.

TO HAVE AND TO HOLD unto the State of Florida Department of Environmental Protection and its successors and assigns forever.

IN WITNESS WHEREOF, Grantor has caused this Agreement to be signed in its name.

Executed this 27 day of January 2011.

WITNESSES:

By: Laquita Brown
Name: Laquita Brown

By: Ivy L Dwyer-Frazee
Name: Ivy Dwyer-Frazee

CITY OF JACKSONVILLE

By: _____
Name: John Peyton, Mayor
117 West Duval Street
Jacksonville, FL 32202

Derek Igou
Deputy Chief Administrative Officer
For: Mayor John Peyton
Under Authority of:
Executive Order No. 10-02

Attest:

Neill W. McArthur, Jr.,
Corporation Secretary

(CORPORATION SEAL)

CITY OF JACKSONVILLE FLORIDA

Derek Igou
Deputy Chief Administrative Officer
For: Mayor John Peyton
Under Authority of:
Executive Order No. 10-02

STATE OF FLORIDA
COUNTY OF DUVAL

The foregoing instrument was acknowledged before me this 27 day of Jan. 2011, by John Peyton and Neill W. McArthur, Jr., the Mayor and Corporation Secretary, respectively, of the City of Jacksonville, a Florida municipal corporation, on behalf of the corporation, who are personally known to me.

Ivy L Dwyer-Frazee
Print Name: Ivy Dwyer-Frazee
Notary Public, State of Florida
My Commission Expires: _____

(Notary Seal)

IVY L. DWYER-FRAZEE
Commission DD 809402
Expires July 28, 2012
Bonded Thru Troy Fain Insurance 800-385-7019

Form approved:

Kristin B. Nelson
Assistant General Counsel

Approved as to form by the Florida Department of Environmental Protection, Office of General Counsel. _____

IN WITNESS WHEREOF, the Florida Department of Environmental Protection has executed this instrument, this 23rd day of December, 2010.

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

By: _____
Mary Jean Yon
Director of the Division of Waste Management
Division of Waste Management
2600 Blair Stone Road
Tallahassee, Florida 32399

Witness: _____
Print Name: Judy Duggan

Witness: _____
Print Name: Megan Greene

STATE OF FLORIDA
COUNTY OF LEON

On this 23rd day of December 2010, before me, the undersigned, a Notary Public in and for the State of Florida, duly commissioned and sworn, personally appeared MARY JEAN YON, known to be the Director of the Division of Waste Management, the State Agency that executed the foregoing instrument, and acknowledged the said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that they are authorized to execute said instrument.

Witness my hand and official seal hereto affixed the day and year written above.

JUDITH PENNINGTON
MY COMMISSION # EE 082562
EXPIRES: September 10, 2014
Bonded Thru Budget Notary Services

_____
Notary Public in and for the State of Florida

My Commission Expires: 09/10/2014

Exhibit A1

A PORTION OF SECTIONS 13 AND 24, TOWNSHIP 2 SOUTH, RANGE 24 EAST, DUVAL COUNTY, FLORIDA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

FOR A POINT OF REFERENCE, COMMENCE AT THE CORNER COMMON TO SECTIONS 13 AND 24, TOWNSHIP 2 SOUTH, RANGE 24 EAST, DUVAL COUNTY, FLORIDA; THENCE SOUTH 89°06'43" WEST, ALONG THE SOUTHERLY LINE OF SAID SECTION 13, A DISTANCE OF 300.18 FEET TO THE POINT OF BEGINNING.

FROM SAID POINT OF BEGINNING, THENCE SOUTH 00°35'18" WEST, 92.03 FEET; THENCE SOUTH 89°06'43" WEST, 140.00 FEET; THENCE NORTH 00°53'17" WEST, 2.01 FEET; THENCE SOUTH 89°06'43" WEST, 717.46 FEET; THENCE SOUTH 00°53'17" EAST, 2.00 FEET; THENCE SOUTH 89°06'43" WEST, 150.00 FEET TO A POINT LYING ON THE WESTERLY LINE OF THE NORTHEAST 1/4 OF THE NORTHEAST 1/4 OF SAID SECTION 24; THENCE NORTH 00°02'42" EAST, ALONG SAID WESTERLY LINE, 11.23 FEET TO THE NORTHEAST CORNER OF THOSE LANDS DESCRIBED AND RECORDED IN OFFICIAL RECORDS VOLUME 7103, PAGE 437 OF THE CURRENT PUBLIC RECORDS OF SAID DUVAL COUNTY, FLORIDA; THENCE SOUTH 89°06'43" WEST, ALONG THE NORTHERLY LINE OF SAID LANDS, 120.10 FEET TO A POINT LYING ON THE EASTERLY RIGHT OF WAY OF MACHELLE DRIVE, (A 60 FOOT RIGHT OF WAY PER OFFICIAL RECORDS VOLUME 2638, PAGE 646 OF SAID CURRENT PUBLIC RECORDS); THENCE NORTH 00°02'42" EAST, ALONG SAID EASTERLY RIGHT OF WAY LINE, 80.77 FEET TO A POINT LYING ON AFORESAID SOUTHERLY LINE OF SECTION 13; THENCE SOUTH 89°06'43" WEST, ALONG SAID SOUTHELRY LINE, 1204.25 FEET; THENCE NORTH 15°39'13" WEST, 1278.00 FEET TO A POINT LYING ON THE SOUTHERLY LINE OF A (100 FOOT JEA RIGHT OF WAY PER OFFICIAL RECORDS VOLUME 3519, PAGE 248 OF SAID CURRENT PUBLIC RECORDS); THENCE NORTH 58°49'01" EAST, ALONG SAID SOUTHERLY LINE, 212.87 FEET; THENCE NORTH 89°12'18" EAST, ALONG SAID SOUTHERLY LINE, 1488.11 FEET TO A POINT LYING ON THE WESTERLY LINE OF THE SOUTHEAST 1/4 OF THE SOUTHEAST 1/4 OF SAID SECTION 13; THENCE SOUTH 00°02'42" WEST, ALONG SAID WESTERLY LINE, 843.61 FEET TO A POINT LYING ON THE NORTHERLY BOUNDARY OF THOSE LANDS DESCRIBED AND RECORDED IN OFFICIAL RECORDS VOLUME 12391, PAGE 1406; THENCE NORTHEASTERLY, SOUTHEASTERLY, AND SOUTHWESTERLY, ALONG SAID NORTHERLY BOUNDARY, RUN THE FOLLOWING FIVE (5) COURSES AND DISTANCE: COURSE No. 1: NORTH 67°21'02" EAST, 14.64 FEET; COURSE No. 2: NORTH 55°00'12" EAST, 300.16 FEET; COURSE No. 3: NORTH 80°04'33" EAST, 400.04 FEET; COURSE No. 4: SOUTH 59°56'10" EAST, 49.98 FEET; COURSE No. 5: SOUTH 00°02'46" WEST, 53.49 FEET TO A POINT LYING ON THE EASTERLY BOUNDARY OF THOSE LANDS DESCRIBED AND RECORDED IN OFFICIAL RECORDS VOLUME 11490, PAGE 1023 OF SAID CURRENT PUBLIC RECORDS; THENCE NORTHEASTERLY, SOUTHEASTERLY, AND SOUTHWESTERLY, ALONG SAID EASTERLY BOUNDARY, RUN THE FOLLOWING FIVE (5) COURSES AND DISTANCES: COURSE No. 1: NORTH 29°08'11" EAST, 21.18 FEET; COURSE No. 2: SOUTH 00°54'37" EAST, 81.78 FEET; COURSE No. 3: NORTH 89°08'17" EAST, 116.41 FEET; COURSE No. 4: SOUTH 44°11'00" WEST, 160.89 FEET; COURSE No. 5: SOUTH 00°24'05" WEST, 116.17 FEET TO A POINT LYING ON THE NORTHERLY LINE OF THOSE LANDS DESCRIBED AND RECORDED IN OFFICIAL RECORDS VOLUME 11490, PAGE 1023 OF SAID CURRENT PUBLIC RECORDS; THENCE NORTH 89°07'25" EAST, 195.82 FEET TO THE NORTHWEST CORNER OF SAID LANDS; THENCE SOUTH 00°35'18" WEST, ALONG THE WESTERLY LINE OF SAID LANDS, 361.48 FEET TO A POINT LYING ON SAID SOUTHERLY LINE OF SECTION 13, THENCE NORTH 89°06'43" EAST, ALONG SAID SOUTHERLY LINE, 104.03 FEET TO THE POINT OF BEGINNING.

CONTAINING 61.17 ACRES (2,664,571 SQUARE FEET), MORE OR LESS.

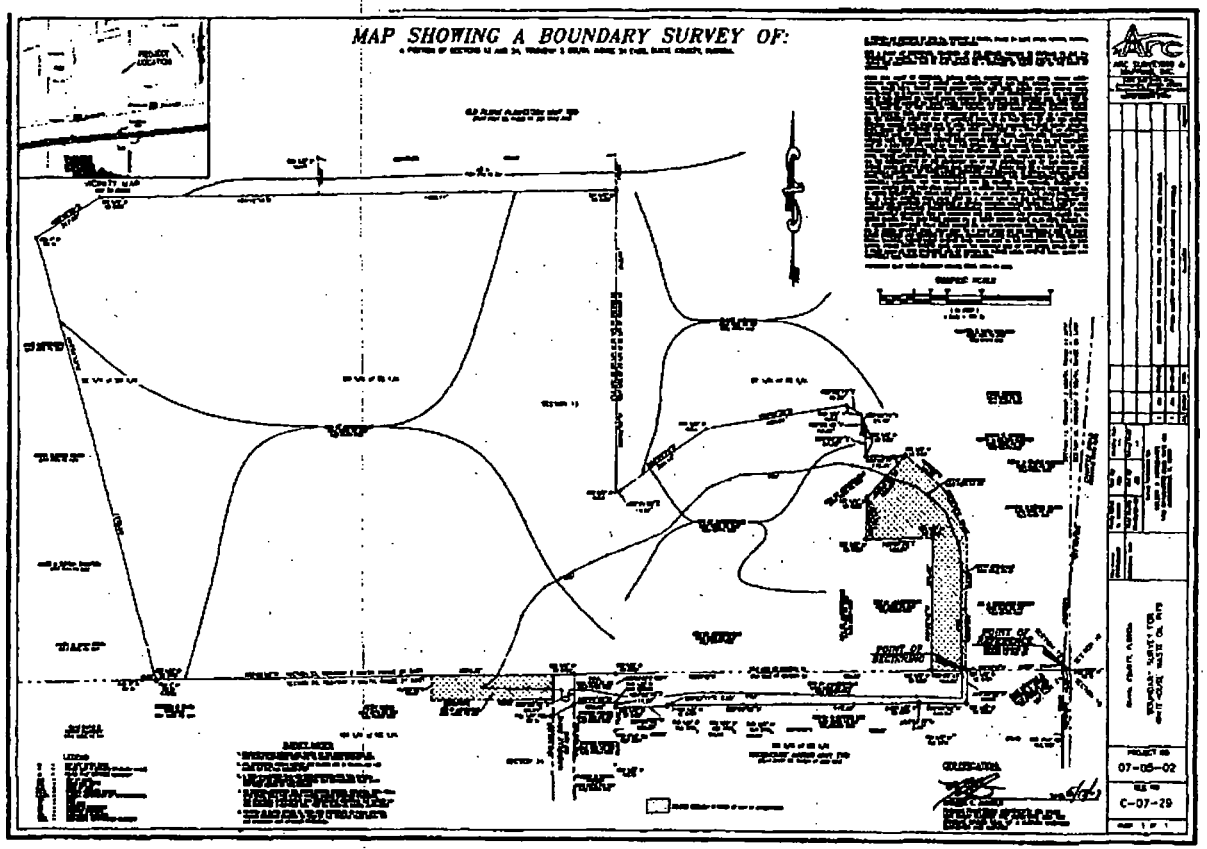


Exhibit A-2

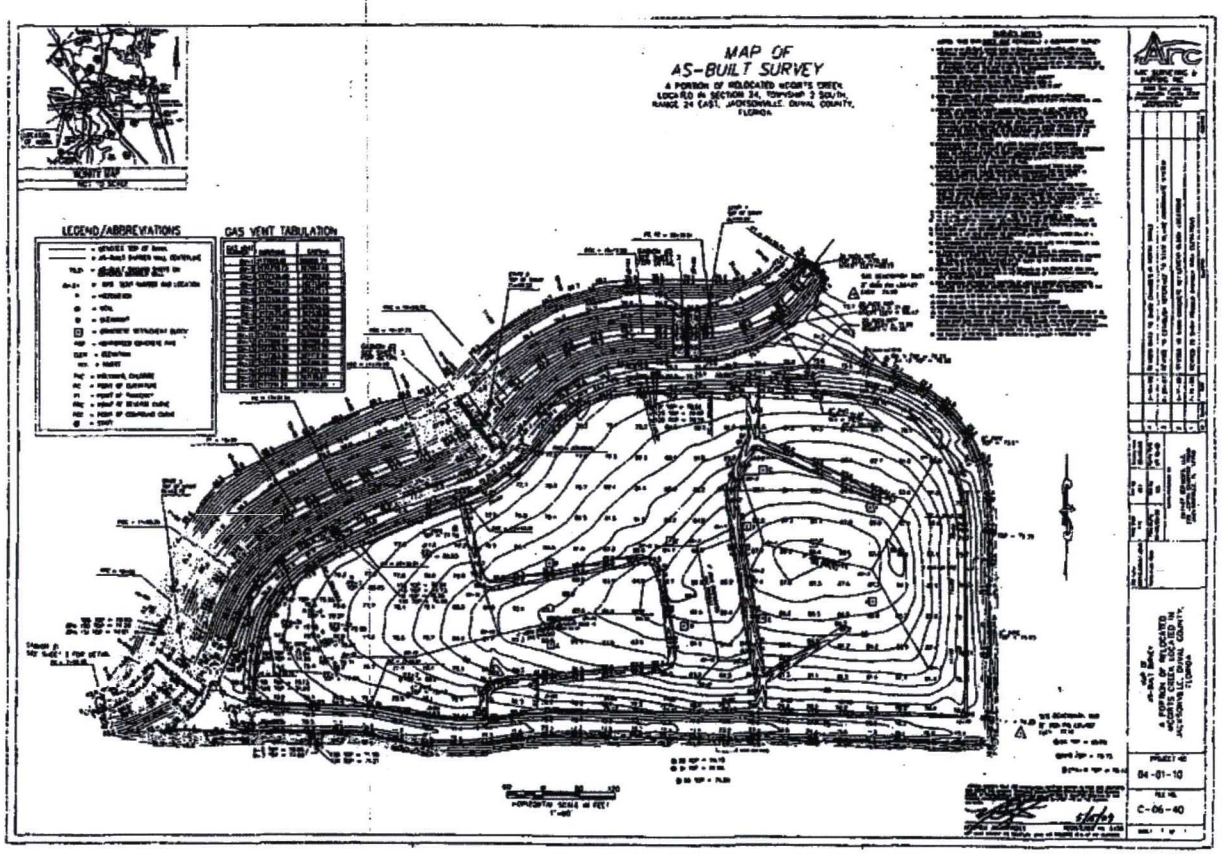

MAP OF
AS-BUILT SURVEY
LEGEND/ABBREVIATIONS
GAS VENT TABULATION

Exhibit B