

U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
Francis Street Assessment
Removal Site Evaluation POLREP



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region IV

Subject: POLREP
Removal Site Evaluation
Francis Street Site Assessment (Concerning the "Seven Out Tank Site")
901 Francis Street, Waycross, Ware County, Georgia

Latitude: 31.207401° North
Longitude: 082.363473° West

To: Matt Taylor, USEPA R4 ERRB
Jeff Cown, GA EPD Land Protection Branch

From: Matthew J. Huyser, On-Scene Coordinator

Date: June 20, 2014

Reporting Period: September 19, 2013 – April 15, 2014

1.0 INTRODUCTION

Site Number: N/A
Response Authority: CERCLA
Response Type: Time-Critical
Response Lead: EPA
Incident Category: Removal Assessment
NPL Status: Non NPL

1.1. SITE DESCRIPTION

Information on the Seven Out Tank Site and Francis Street Site Assessment Site Description is provided in greater detail in the attached Francis Street Special Site Assessment Report.

1.1.1. SEVEN OUT TANK SITE

The Seven Out facility (the "Site") was an industrial wastewater treatment plant in Waycross, Ware County, Georgia, that operated from 2002 to 2004. The Site once held a tank farm of 37 tanks with a

combined capacity of approximately 400,000 gallons. Effluents regularly exceeded requirements of the company's pre-treatment discharge permit and facility received several Notices of Violation plus an Administrative Order from the City of Waycross. On March 1, 2004, the City of Waycross disconnected the facility's connection to the POTW. Shortly thereafter and since that time, the facility ceased all operations without discharging the remaining waste in storage.

Georgia Environmental Protection Division (GAEPD) referred the Site to the U.S. Environmental Protection Agency (EPA) Region 4 (R4) Emergency Response and Removal Branch (ERRB) for a Removal Site Evaluation (RSE). An emergency action was initiated by EPA on January 27, 2005 and pumpable liquids in the tanks and standing water in the secondary containment area were removed. An administrative order was signed on July 30, 2008, between EPA and Respondents (consisting of several generators that sent waste to the facility) to conduct a time-critical removal action to remove all remaining waste materials from the Site. When the work was concluded, EPA issued the notice of completion letter on November 16, 2009.

1.1.2. FRANCIS STREET SITE ASSESSMENT

In August of 2013, EPA was contacted by residents of Waycross, Georgia, regarding health problems experienced by occupants of homes surrounding Mary Street Park (also known as "Folks Park") and the potential relationship of these symptoms to contaminants originating from the Seven Out Tank Site. Due to the proximity of the Site to the Mary Street Park residences, the stormwater drainage flow from the Site to the unnamed creek, and the reported detections of PAHs in the unnamed creek sediments at the park, the community group believes that contamination originating from the Seven Out Tank Site may be the cause of local health and environmental problems that they have observed.

1.2. PRELIMINARY REMOVAL ASSESSMENT/REMOVAL SITE INSPECTION RESULTS

Information on the Francis Street Site Assessment Preliminary Removal Assessment and Removal Site Inspection Results are provided in greater detail in the attached Francis Street Special Site Assessment Report.

EPA On-Scene Coordinator (OSC) Matthew Huyser visited the Site on September 5, 2013 and observed that no visible significant changes had occurred at the facility since the removal action had been completed in 2009. Also on September 5, OSC Huyser met with representatives of the community group and observed areas of concern in the unnamed creek and the residential yards.

The analytical results from a sediment sample collected by the community group from the unnamed creek in Mary Street Park point to a presence of PAHs that correspond to a list of PAHs detected in a soil sample collected by EPA during a RSE on August 26, 2004 at the Seven Out Tank Site. Sample SO-SW was collected from discolored surface soils outside the containment area of the tank farm. Of the four soil samples collected during EPA's 2004 assessment, this was the only sample which showed detectable levels of PAHs.

The community's primary concern regarding EPA's samples was in the EPA's December 9, 2004 Removal Assessment Report in which the soil sample results are evaluated against to the EPA Region 9 Preliminary Remediation Goal (PRG) Residential Screening Levels (RSLs) and Industrial Screening Levels (ISLs). When compared to the Region 9 PRGs, sample SO-SW exceeds the industrial soil

screening level for Benz(a)anthracene, Benzo(a)pyrene, Benzo(k)fluoranthene, Dibenz[a,h]anthracene, and Indeno[1,2,3-cd]pyrene; and also exceeds the residential soil screening level for Benzo(b)fluoranthene.

Additional sampling was recommended to delineate the potential contaminants in the drainage pathway that may have been released from the Site. Also, a detailed and up-to-date drainage path evaluation was recommended to determine whether previous determinations of runoff behavior from the Site were either inaccurate or have changed.

1.3. SITE LOCATION

The Seven Out Tank Site includes an office building, storage building, tank farm, and paved parking areas. The tank farm is not fenced and is accessible to the public via Folks Street, Francis Street, or McDonald Street. The property is immediately surrounded by commercial buildings to the east, west, and north with a major CSX Railroad terminal to the south. A lot to the south was previously used for staging mobile tanks that the facility used to store untreated waste water. The nearest residential property is located at 103 Folks Street approximately 220 feet from the tank farm area; nearby residential neighborhoods are located to the west and north.

The facility lies in an area of minimal flooding outside of both the 100-year flood zone. Rainfall on the Site drains into a ditch between the tank farm and a railroad line; this ditch flows west roughly parallel to the railroad line for approximately 1200 feet and discharges into a branch of the city drainage canal. The canal flows northeast for approximately 5000 feet, flowing through Mary Street Park and underground through the city center.

2.0 REMOVAL SITE EVALUATION

Information on Francis Street Site Assessment Removal Site Evaluation is provided in greater detail in the attached Francis Street Special Site Assessment Report.

The additional sampling proposed by EPA focuses on the drainage pathway from the Site and evaluates whether contaminants of concern in sample SO-SW from the 2004 RSE have migrated downstream. Incremental Sampling Method (ISM) was selected to provide a high quality representative sample of mean contaminant concentrations in distinct sections (known as: decision units or “DU”s) of the drainage path.

Decision Unit (DU)-01 is within the drainage ditch but located upstream of the Seven Out facility. DU-02 is a short section of ditch located at the southeast corner of the Seven Out facility that transports drainage water from the east side of the facility to the larger drainage ditch along the south boundary of the property. DU-03 is within the drainage ditch section that receives stormwater from the facility, beginning downstream of the intersection of DU-01 and DU-02. DU-04 is located within a branch of the city drainage canal but is upstream of the intersection (i.e. “confluence”) of the drainage ditch (DU-03) with the canal. DU-05 is located within the canal and is downstream of the confluence with the drainage ditch; this section begins at the confluence with the drainage ditch then ends at Folks Street, and includes the section of the canal that traverses through Mary Street Park. Additionally, a soil sample was collected from the same location as EPA’s 2004 “SO-SW” sample at the Seven Out Tank Site. Sample

results were compared with a series of generic criteria including RSLs, RMLs, and GAEPD Type 1 Soil Risk Reduction Standards (“GA Type 1 RRS”).

New soil sample results show that the soil outside the south perimeter of the tank farm at the Seven Out facility from which sample SO-SW was collected during the EPA RSE in 2004 have remained relatively unchanged. Concentrations of Benzo(a)pyrene in these samples meet or exceed some parameters in the EPA generic RML for Residential Soils and the Georgia Type 1 RRS but do not exceed the EPA generic RML for Industrial Soils or the Georgia Type 3 RRS for non-residential use areas.

The soil represented by samples outside the tank farm cover an area no greater than 200 square feet; less than 0.15% of the total property surface. Concentrations in these samples are therefore not representative of average surface concentrations at the Site. Migration of contaminants to groundwater is also not considered a serious threat due to the relatively low concentration, small size of the source area, low mobility of PAHs compared, and lack of receptors. Due to the lack of threat posed by the soils adjacent to the tank farm, excavation or other response action to address this area is not necessary and is not recommended.

Sampling in the drainage ditch provides information on whether PAHs from the Site are being transported downstream. Results show that the concentrations of PAHs in the ditch are significantly lower than those found in the small area of soil near the tank farm. None of the constituents measured in samples taken from DU01, DU02, or DU03 exceed either the residential or industrial EPA generic RMLs nor do they exceed the Georgia Type I or Type 3 RRSs. Due to the lack of threat posed by the sediments represented in samples FSA-SD-DU01, FSA-SD-DU02, and FSA-SD-DU03, excavation or other response action to address the ditch is not necessary and is not recommended.

Sampling in the drainage canal provides information on whether PAHs that were measured in the drainage ditch are being transported into residential areas. Results show that the concentrations of PAHs in the drainage canal are significantly lower than those found in the small area of soil near the tank farm *and* the drainage ditch. None of the constituents measured in samples taken from DU04, DU05, or the confluence (intersection) with the drainage ditch exceed either the residential or industrial EPA generic RMLs nor do they exceed the Georgia Type I or Type 3 RRSs. Due to the lack of threat posed by the sediments represented in samples FSA-SD-DU04, FSA-SD-CO, and FSA-SD-DU05, excavation or other response action to address the canal is not necessary and is not recommended.

A site-specific exposure dose calculation was made by the Georgia Department of Public Health (DPH) Chemical Hazards Program in a 2013 Health Consultation. The calculations were made using analytical data provided by a resident who collected a sediment sample¹ from the canal in the park. DPH calculated an estimated *cumulative* exposure dose as well as an estimated *cumulative* cancer risk that children may have from exposure in the park based on very conservative exposure scenarios. DPH’s findings reported that the exposure dose and cancer risk in these scenarios was significantly lower than the assumptions that are used by EPA to calculate generic RSL values.

EPA’s recommendation for additional work in the September 19, 2013 Special POLREP included the completion of a detailed and up-to-date drainage path evaluation to determine whether previous

¹ This sample and the laboratory analysis that was obtained is useful for comparative purposes only. The sample was not collected under any sampling and analysis plan or a quality assurance project plan and therefore the results cannot be validated for decision-making purposes.

statements of runoff behavior from the Site were either inaccurate or have changed. The evaluation concluded that observed drainage patterns at the Seven Out Tank Site and surrounding area (within the boundaries of the Site and DU01 through DU05) have not changed since 2004.

3.0 RECOMMENDATION

The additional sampling that was recommended in EPA's Seven Out Tank Site Special POLREP dated September 19, 2013 was conducted on December 19, 2013. Sample results were thoroughly reviewed by EPA with supporting reviews by GAEPD and Georgia DPH. A Special Site Assessment Report (attached) has been prepared to document EPA Region 4 ERRB's justification for recommending no further assessment or removal action at the Francis Street Site or Seven Out Tank Site.

Section 300.415 of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) lists factors to be considered in determining the appropriateness of a removal action [40 CFR §300.414(b)(2)(i-vii)]. After careful review of the recent and historical data available for the Site, EPA Region 4 ERRB finds that the Francis Street Site and the Seven Out Tank Site do not meet these criteria and that a removal action is not recommended.

EPA did not encounter an indication of additional contaminants or contaminated media that could have been overlooked by the December 19, 2013 sampling event. The sampling design was based on available information of probable compounds and exposure scenarios resulting from the Seven Out Tank Site. Without additional information on actual or potential releases to the environment of contaminants associated with Seven Out Tank, LLC that have not already been evaluated, EPA Region 4 ERRB recommends no additional sampling for RSE purposes.

GAEPD and Georgia DPH have and/or will release additional reports or other materials in response to community concerns in Waycross, Georgia. EPA will continue to support the State of Georgia wherever possible in order to ensure that these concerns are adequately addressed.

U.S. ENVIRONMENTAL PROTECTION AGENCY
SPECIAL SITE ASSESSMENT REPORT (Rev. 1)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region IV
Superfund Division
Emergency Response and Removal Branch

Francis Street Site Assessment
Waycross, Ware County, Georgia

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July 15, 2014

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Appendix 1 – Glossary of Acronyms

Appendix 2 – References

Appendix 3 – Drainage Path Evaluation

Addendum 1 – Answers to Questions Following Release of 2014 EPA Francis Street Special Site Assessment

Addendum 2 – Record of Changes to 2014 EPA Francis Street Special Site Assessment

Attachment 1 – Special POLREP for Seven Out Tank Site. September 19,2013

Attachment 2 – Final Assessment Letter Report for Francis Street Site. April 3, 2014

Table 1. Soil Samples Collected by EPA and by Community Group

Table 2. Screening Levels used for Comparison in Removal Assessment Report

Table 4. Concentrations of PAHs from Tanks CT-1 and CT-4

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Table 6. Comparison of Soil Samples in Same Area from 2004 to 2013

Table 7. Results of Sediment Samples from Drainage Ditch at South Border of Site

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Table 9. Sediment Samples Collected in Canal by EPA and by Community Group

1.0 INTRODUCTION

Site Number: N/A
Response Authority: CERCLA
Response Type: Time-Critical
Response Lead: EPA
Incident Category: Removal Assessment
NPL Status: Non NPL

Much of the following information was provided in a Seven Out Tank Site Special Pollution Report (“POLREP”) dated September 19, 2013 (Attachment 1). The site description and removal site evaluation information is repeated in this report to provide a complete narrative of the completion of the Seven Out Tank Site removal action and the work done under the Francis Street Site Assessment.

1.1. SITE DESCRIPTION

1.1.1. SEVEN OUT TANK SITE

The Seven Out facility (the “Site”) was an industrial wastewater treatment plant in Waycross, Ware County, Georgia, that operated from 2002 to 2004. The Site consists of a tank farm, an abandoned office building, and a small warehouse. The tank farm had 37 tanks ranging in volume of 8,000 gallons to 44,000 gallons, and a combined capacity of approximately 400,000 gallons. It is approximately one-half acre and is made of a concrete floor with a short concrete containment berm. South of the containment area is an office building of about 3,000 square feet. Around the south and east sides of the office building is a fenced lot that contains the warehouse of about 4,500 square feet. The warehouse contained several drums, totes, and dry bags of material.

When the facility operated, treated wastewater was discharged to the City of Waycross publicly owned treatment works (POTW) using the City’s collection system. Precipitated solids were treated in a filter press, and then transported off-Site for disposal at a landfill. The treatment process was generally unsuccessful and effluents regularly exceeded requirements of the company’s pre-treatment discharge permit. The Seven Out facility received several Notices of Violation and an Administrative Order from the City of Waycross. On March 1, 2004, the City of Waycross disconnected the facility’s connection to the POTW. The facility discontinued processing wastewaters, although it still received shipments. Incoming wastewaters were stored in tanks on-Site as well as four rented portable tanks that were placed on an adjoining property. Shortly thereafter and since that time, the facility ceased all operations without discharging the remaining waste in storage. Georgia Environmental Protection Division (GAEPD) determined the facility to be incorrectly storing hazardous wastes and out of compliance with State of Georgia regulations.

GAEPD referred the Site to the U.S. Environmental Protection Agency (EPA) Region 4 (R4) Emergency Response and Removal Branch (ERRB) for a Removal Site Evaluation (RSE). From August 23-26, 2004, EPA collected samples from onsite storage and treatment tanks. Because discolored soil was observed in some areas, soil samples were collected from a drainage ditch near the containment

area, an area adjacent to frac tanks¹ that had been stored outside the containment area, and along the south wall of the containment area. An emergency action was initiated by EPA on January 27, 2005 following a request for assistance from GAEPD on January 21, 2005. Under the emergency response action, pumpable liquids in the tanks and standing water in the secondary containment area were removed to mitigate the threat of release.

From August 28 - September 1, 2006, GAEPD collected samples from the Site and the surrounding area as part of a remedial Site Inspection (SI) (Ref. 3). Their findings were submitted to EPA's Superfund Site Assessment Section on November 20, 2006 where it was determined that the Site did not qualify for further remedial site assessment due to lack of releases and targets for groundwater, surface water, and soil pathways.

After the 2005 emergency response, significant quantities of liquid and solid waste remained at the Site. An administrative order was signed on July 30, 2008, between EPA and Respondents, consisting of several generators that sent waste to the facility, to conduct a time-critical removal action to remove all remaining waste materials from the Site. The work to be performed under the order included:

- Implementation of the OSC-approved removal action in accordance with the schedule and requirements of a Removal Action Work Plan;
- Removal of waste material from all tanks, drums, and other containers on the Site, as well as from the secondary containment area;
- Decontamination and/or disposal of all tanks, drums, and other containers on the Site, as well as decontamination of the secondary containment area; and,
- Disposal of the waste material removed from the Site, including any sampling and analysis necessary to determine proper treatment and disposal methods.

EPA conducted oversight of all removal activities, including collection of split-samples from several tanks. Over the course of the removal action, a total of 300,000 gallons of rainwater was discharged to the Waycross POTW, 905 tons of nonhazardous solid wastes were sent to an off-site landfill for disposal, and 3,900 gallons plus 108 tons of hazardous wastes (HW codes D002, D006, D007, and D018) were sent off-site for treatment and disposal. When the work was concluded and a final report was received, EPA issued the notice of completion letter on November 16, 2009.

1.1.1.1. *SEVEN OUT TANK SITE LOCATION*

The Site includes an office building, storage building, tank farm, and paved parking areas. The tank farm is not fenced and is accessible to the public via Folks Street, Francis Street, or McDonald Street. The property is immediately surrounded by commercial buildings to the east, west, and north with a major CSX Railroad terminal to the south. A lot to the south was previously used for staging mobile tanks that the facility used to store untreated waste water. The nearest residential property is located at 103 Folks Street approximately 220 feet from the tank farm area; nearby residential neighborhoods are located to the west and north.

¹ "Frac Tank" is an industry term for a category of temporary mobile tanks used for storage of water and other liquids

The Site lies in an area of minimal flooding outside of both the 100-year and 500-year flood zones. Rainfall on the Site drains into a ditch between the tank farm and a railroad line; this ditch flows west roughly parallel to the railroad line for approximately 1200 feet and discharges into an unnamed creek. Just south of the ditch is a petroleum facility, C & M Oil Company, which also discharges overland runoff to the drainage ditch. Immediately south of this intersection is a former BP fuel tank farm, which also discharges overland runoff to the unnamed creek. The creek flows northeast for approximately 5000 feet, flowing through Mary Street Park and underground through the city center after which it emerges at Lee Avenue and Memorial Drive (Hwy 23). Water then flows east for less than 1000 feet then joins the Waycross City Drainage Canal the PPE. The City Drainage Canal flows in a northeast direction for approximately 3 miles before joining the Satilla River.

1.1.2. FRANCIS STREET SITE ASSESSMENT

In August of 2013, EPA was contacted by residents of Waycross, Georgia, regarding health problems experienced by occupants of homes surrounding Mary Street Park (also known as “Folks Park”) and the potential relationship of these symptoms to contaminants originating from the Seven Out Tank Site. Information and concerns from the community are being posted and documented at a website (www.silentdisaster.org) as well as an accompanying facebook group page.

The community group has documented complaints from individuals at residences surrounding Mary Street Park, as well as from members of a church at the perimeter of the park. The group has also documented complaints from employees of a bank and the Waycross City Hall which are located over or near the underground unnamed creek. Reported health problems include the following:

- Tumors or “masses” (both benign and malignant)
- Cancer
- Respiratory problems
- Neurological problems
- Headaches
- Shaking or tremors
- Fatigue
- Vision and hearing trouble
- Sores

The community group has also documented unidentifiable sheen(s) emanating from lawns around Mary Street Park and within the unnamed creek through the park. The sheen is observed on pavement and surface water after rain events and a “dry white substance” is deposited when the sheen has dried. Additional concerns include the deterioration and death of trees in Mary Street Park and deformation of amphibians in the unnamed creek within the park.

The community group collected a sediment sample² from the unnamed creek in Mary Street Park on July 3, 2013, and sent the sample to an environmental analytical laboratory for analysis³. The laboratory returned a report⁴ with detections of Polycyclic Aromatic Hydrocarbons (PAHs) (also known as “Poly-Aromatic Hydrocarbons” or “Polynuclear Aromatic Hydrocarbons”) including Benz(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene, Fluoranthrene, Phenanthrene, and Pyrene. These constituents correspond to a list of PAHs detected in a soil sample collected by EPA during a RSE on August 26, 2004 (Ref. 10) at the Seven Out Tank Site (Table 1).

Due to the proximity of the Site to the Mary Street Park residences, the stormwater drainage flow from the Site to the unnamed creek, and the reported detections of PAHs in the unnamed creek sediments at the park, the community group believes that contamination originating from the Seven Out Tank Site may be the cause of local health and environmental problems that they have observed.

1.2. FRANCIS STREET SITE ASSESSMENT - PRELIMINARY REMOVAL ASSESSMENT/REMOVAL SITE INSPECTION RESULTS

1.2.1. INITIAL SITE VISIT

EPA On-Scene Coordinator (OSC) Matthew Huyser visited the Site on September 5, 2013 and observed that no visible significant changes had occurred at the facility since the removal action had been completed in 2009. Thick vegetation had grown outside the south border of the tank farm and has reached heights in excess of 10 feet. Standing water was observed on the east side of the property both inside and outside the containment area; the inability of the Site to fully shed rainwater is consistent with observations made during the 2008-2009 removal action. This behavior is likely due to an intentional design that would help keep liquids on-site in the event of a spill.

Also on September 5, OSC Huyser met with representatives of the community group and observed the areas in the unnamed creek and the residential yards where sheens had been observed and photographed. A light sheen of approximately 5 square centimeters was observed between vegetation within the creek flowing through Mary Street Park; this sheen presented characteristics perceptibly consistent with a hydrocarbon source as opposed to a discharge from a bacterial or other localized organic source. The sheen and/or residue on paved surfaces that had been reported from residential yards after rain events were not visible on September 5. Another area observed was near a culvert where the drainage ditch at the southern border of the Site passed under S Nicholls Street; concerns of dying or absent vegetation were pointed out in an area at the northwest corner of a property owned by CSX Railroad. The final area observed was at the intersection of the unnamed creek and Margaret Street, approximately 2500 feet upstream from Mary Street Park and 1000 feet upstream from the confluence with the drainage ditch that passes the southern border of the Seven Out Tank Site. Concerns of previously observed sheens and

² This sample and the laboratory analysis that was obtained is useful for comparative purposes only. The sample was not collected under any sampling and analysis plan or a quality assurance project plan and therefore the results cannot be validated for decision-making purposes.

³ Ana-Lab Corp., Kilgore, TX

⁴ Ana-Lab Corp. *Report of Soil Sample Results from Mary Street (Folks) Park, Waycross, GA, Project # 619468*. July 3, 2013.

light tan foam were pointed out; no sheen was visible on September 5 but light foam was observed collecting around debris in the creek.

1.2.2. INITIAL REVIEW OF AVAILABLE DATA

1.2.2.1. REVIEW OF 2004 RSE DATA

The analytical results from a sediment sample collected by the community group from the unnamed creek in Mary Street Park point to a presence of PAHs that correspond to a list of PAHs detected in a soil sample collected by EPA during a RSE on August 26, 2004 (Ref. 10) at the Seven Out Tank Site (See Table 1):

Table 1. Soil Samples Collected by EPA and by Community Group

		Source:	Soil Sample SO-SW Taken by EPA Near South Perimeter of Seven Out Site	Soil Sample SO-DD Taken by EPA Near Drainage Area of Seven Out Site	Sediment Sample Collected by Resident in Unnamed Creek at Mary Street Park
		Date:	Collected 8/26/2004	Collected 8/26/2004	Collected 7/3/2013
		Units:	mg/kg	mg/kg	mg/kg
Polynuclear Aromatic Hydrocarbons (PAHs)	Benz(a)anthracene		2.4	0.33 UJ	0.556
	Benzo(a)pyrene		2.8	0.33 U	ND
	Benzo(b)fluoranthene		1.8	0.33 U	0.827
	Benzo(k)fluoranthene		3.2	0.33 U	0.398
	Chrysene		3.1	0.330 UJ	0.671
	Dibenz[a,h]anthracene		0.65	0.33 U	ND
	Fluoranthrene		4.6	0.33 U	0.691
	Indeno[1,2,3-cd]pyrene		3	0.33 U	ND
	Phenanthrene		1.8	0.4	0.378
	Pyrene		4	0.330 UJ	1.52

Sample SO-SW was collected from discolored surface soils outside the containment area of the tank farm, near the mechanical sludge press at the southeast corner. Of the four samples collected during EPA's assessment, this was the only sample which showed detectable levels of PAHs. One of the samples which did not show detectable of PAHs was sample SO-DD, which was collected within the drainage path (but not in the drainage ditch) exiting the Site at the southeast corner. The two other soil samples were collected from discolored soils near the frac tanks at the south lot from the facility.

Although lead and arsenic were detected in samples SO-SW and SO-DD during the 2004 EPA RSE, neither exceeded generic RMLs for industrial soils (800 mg/kg for Lead and 240 mg/kg for Arsenic) (U.S. EPA, Region 4, 2013a) and neither was found within the contents of materials at the Site during the 2004 RSE or the 2008-2009 removal action (U.S. EPA, 2009; and Winter Environmental, 2009) to indicate a potential source of these metals. The metals were not identified as a contaminant of concern

for the removal action. The Toxicity Characteristic Leaching Procedure⁵ (TCLP) lead concentration for sample SO-DD of 8.13 mg/L exceeded the regulatory disposal limit of 5 mg/L [40 CFR §261.24(b)] while the TCLP lead concentration for sample SO-SW was only 0.069 mg/L; this occurred despite the measurements that showed a total lead concentration in SO-DD of 17.7 mg/kg below the total lead concentration in SO-SW of 264 mg/kg. Typically, it would be anticipated that a higher concentration of total lead would result in a comparable increase in lead leachate concentration. No cause for this discrepancy is proposed in the 2004 Removal Assessment Report and it is unlikely that the cause can be determined from the available data.

1.2.2.2. DISCUSSION OF COMPARISON VALUES: RSLs, RMLs, AND PRGs

The community's primary concern regarding EPA's samples relates to a comparison that was made in EPA's December 9, 2004 Removal Assessment Report in which the soil sample results are evaluated against to the EPA Region 9 Preliminary Remediation Goal (PRG) (Ref. 9) Residential Screening Levels (RSLs) and Industrial Screening Levels (ISLs) (See Table 2):

Table 2. Screening Levels used for Comparison in Removal Assessment Report

	Source:	R9 PRG RSLs for Residential Soil Use for Comparison in RSE Report	R9 PRG ISLs for Industrial Soil Used for Comparison in RSE Report	R9 PRGs for Residential Soils	R9 PRGs for Industrial Soils
	Date:	Referenced on 12/9/2004	Referenced on 12/9/2004	Distributed Oct, 2004	Distributed Oct, 2004
	Units:	mg/kg	mg/kg	mg/kg	mg/kg
Polynuclear Aromatic Hydrocarbons (PAHs)	Benz(a)anthracene	0.621	2.11	0.62	2.1
	Benzo(a)pyrene	0.0621	0.211	0.062	0.21
	Benzo(b)fluoranthene	0.621	2.11	0.62	2.1
	Benzo(k)fluoranthene (*California-Modified)	0.378	1.28	6.2 (*0.38)	21 (*1.3)
	Chrysene (*California-Modified)	3.78	12.8	62 (*3.8)	210 (*13)
	Dibenz[a,h]anthracene	0.0621	0.211	0.062	210
	Fluoranthrene	2290	22000	2300	22000
	Indeno[1,2,3-cd]pyrene	0.621	2.11	0.62	21
	Phenanthrene	NSA	NSA	NSA	NSA
	Pyrene	2320	29100	2300	29000

When compared to the Region 9 PRGs, sample SO-SW exceeds the industrial soil screening level for Benz(a)anthracene, Benzo(a)pyrene, Benzo(k)fluoranthene, Dibenz[a,h]anthracene, and Indeno[1,2,3-cd]pyrene; and also exceeds the residential soil screening level for Benzo(b)fluoranthene. Only Benzo(a)pyrene is exceeded by an order of magnitude (2.8 mg/kg in the sample against an industrial

⁵ See Code of Federal Regulations: 40 CFR §261.24(a)

PRG of 0.211 mg/kg) while the remaining exceedences are within a range of 150% to 300% of the PRG value.

Section 3.2 of the 2004 Removal Assessment Report for the Seven Out Tank Site quotes the EPA Region 9 PRG website⁶ to provide the following explanation of why this comparison was made:

PRGs "are risk-based concentrations that are intended to assist risk assessors and others in initial screening-level evaluations of environmental measurements. The PRGs contained in the Region 9 PRG Table are generic; they are calculated without site specific information". The website also states that "PRGs should be viewed as Agency guidelines, not legally enforceable standards. They are used for site 'screening' and as initial cleanup goals, if applicable. PRGs are not de facto cleanup standards and should not be applied as such. However, they are helpful in providing long-term targets to use during the analysis of different remedial alternatives."

It should be noted that PRGs (e.g., RSLs) are used to narrow down the list of detected chemicals that need further evaluation for health risk which then is used to help determine the need for remedial action. For EPA Removal sites, comparison with RMLs serve to complete this further evaluation step. Screening levels that are used to evaluate sites for an emergency or a time critical removal action are typically higher than the PRG value and have been referred to as "Removal Action Levels" (RALs) or "Removal Management Levels" (RMLs) (Ref. 16). These values are similar to PRGs in that they are not site-specific and not enforceable, but are different in that they are used to provide guidance for initiating an action. Table 3 compares the most recent version of RMLs to the most recent version of RSLs (Ref. 18):

Table 3. Latest versions of Regional Screening Levels and Removal Management Levels

	Source:	RSL for Residential Soils	RSL for Industrial Soils	RML for Residential Soils	RML for Industrial Soils
	Date:	Distributed November, 2013	Distributed November, 2013	Distributed Dec, 2013	Distributed Dec, 2013
	Units:	mg/kg	mg/kg	mg/kg	mg/kg
Polynuclear Aromatic Hydrocarbons (PAHs)	Benz(a)anthracene	0.15	2.1	15	210
	Benzo(a)pyrene	0.015	0.21	1.5	21
	Benzo(b)fluoranthene	0.15	2.1	15	210
	Benzo(k)fluoranthene	1.5	21	150	2100
	Chrysene	15	210	1500	21000
	Dibenz[a,h]anthracene	0.015	0.21	1.5	21
	Fluoranthrene	2300	22000	6900	66000
	Indeno[1,2,3-cd]pyrene	0.15	2.1	15	210
	Phenanthrene	NSA	NSA	NSA	NSA
	Pyrene	1700	17000	5200	50000

⁶ <http://www.epa.gov/region09Avaste/srund/prg/rndex.htm>

When compared to the RMLs for residential and industrial soils, a single RML for residential soil (1.5 mg/kg) is exceeded by Benzo(a)pyrene in sample SO-SW (2.8 mg/kg). Despite exceeding the residential RML by 180%, the concentration is still one eighth of the industrial RML and is merely a single location within an industrial property (it is not representative of the property as a whole). Moreover, PAHs were not detected within the contents of the tanks on-site when samples were collected during EPA's removal assessment in 2004.

1.2.2.3. PAH CONCENTRATIONS IN ABOVE GROUND STORAGE TANKS AT THE SEVEN OUT TANK SITE

PAHs were reported in samples that were taken from tanks at the Site as part of the 2008 removal action. Several of these samples were split for independent analysis by EPA's START contractor, but many of the results were flagged during quality assurance review as estimates of an actual concentration. This may have been due to the relatively low concentrations that were detected in the samples. Tables 4 and 5 present the data from samples that were collected from the tanks during November 2008 (Ref. 11 and Ref. 21):

Table 4. Concentrations of PAHs from Tanks CT-1 and CT-4

Source:		Tank CT-1 (Liquid)		Tank CT-1 (Solid)		CT-4 (Solid)
		EPA START Contractor Tetra Tech (split)	RP Group Contractor Winter Environmental	EPA START Contractor Tetra Tech (split)	RP Group Contractor Winter Environmental	RP Group Contractor Winter Environmental
Date:		11/11/2008	11/11/2008	11/11/2008	11/11/2008	11/11/2008
Units:		mg/L	mg/L	mg/kg	mg/kg	mg/kg
Polynuclear Aromatic Hydrocarbons (PAHs)	Benz(a)anthracene	ND	0.0346 J	ND	ND	0.66 J
	Benzo(a)pyrene	ND	0.0262 J	ND	ND	0.54 J
	Benzo(b)fluoranthene	ND	0.0341 J	ND	ND	0.69 J
	Benzo(k)fluoranthene	0.0045 J	0.0287 J	ND	0.67 J	1.1 J
	Chrysene	0.0089 J	0.0463 J	ND	0.57 J	1.2 J
	Dibenz[a,h]anthracene	ND	ND	ND	ND	ND
	Fluoranthrene	0.027 J	153	28 J	1.3 J	2.7 J
	Indeno[1,2,3-cd]pyrene	ND	0.0147 J	ND	ND	ND
	Phenanthrene	0.011 J	221	54 J	1.8 J	1.6 J
	Pyrene	0.0071 J	88.8	ND	ND	1.4 J

Table 5. Concentrations of PAHs from Tank CT-5

		Tank CT-5 (Liquid)		Tank CT-5 (Solid)		
		EPA START Contractor Tetra Tech (split)	RP Group Contractor Winter Environmental	EPA START Contractor Tetra Tech (split)	EPA START Contractor Tetra Tech (split duplicate)	RP Group Contractor Winter Environmental
Date:		11/11/2008	11/11/2008	11/11/2008	11/11/2008	11/11/2008
Units:		mg/L	mg/L	mg/kg	mg/kg	mg/kg
Polynuclear Aromatic Hydrocarbons (PAHs)	Benz(a)anthracene	ND	ND	10 J	17 J	ND
	Benzo(a)pyrene	0.0060 J	ND	ND	ND	ND
	Benzo(b)fluoranthene	0.01 J	ND	ND	24 J	ND
	Benzo(k)fluoranthene	0.0084 J	ND	ND	19 J	0.59 J
	Chrysene	0.017 J	ND	25 J	ND	0.63 J
	Dibenz[a,h]anthracene	ND	ND	ND	ND	ND
	Fluoranthrene	0.037 J	0.0032 J	95 J	130 J	2.8 J
	Indeno[1,2,3-cd]pyrene	ND	ND	ND	ND	ND
	Phenanthrene	0.0099 J	ND	55 J	78 J	2.3 J
	Pyrene	ND	0.00305 J	14 J	24 J	0.8 J

Upon initial inspection, it appears that the sludge in Tank CT-5 was the only potential source of PAHs (the 250 gallons of sludge in tank CT-5 represented less than 1/25 of the tank's total contents and less than 1/2,000 of all waste at the Site) but the values were difficult to discern and could only be estimated. Split samples were analyzed by two separate laboratories using the same EPA extraction methods (SW-846 3510C) and analysis methods (SW-846 8270C)⁷. Discrepancies between split samples were not consistent and values within the same sample could not be repeated (as evidenced by the duplicate sample for CT-5-Solid) which indicates a high level of interference within the sample itself.

Not represented in Tables 4 and 5 are samples that EPA collected from the tanks as of the 2004 RSE. No PAHs were detected in these 2004 tank samples and thus PAHs were not identified as a contaminant of concern at the Site. The contaminants of concern that were cited in EPA's 2007 Enforcement Action Memorandum included: acetone, benzene, sulfuric acid, sodium hydroxide, D002 hazardous wastes⁸ (corrosives), and used oil.

1.2.3. INITIAL SITE RECOMMENDATION

Additional sampling was recommended to delineate the potential contaminants in the drainage pathway that may have been released from the Site. Also, a detailed and up-to-date drainage path evaluation was recommended to determine whether previous determinations of runoff behavior from the Site were either inaccurate or have changed.

⁷ SW-846 is an EPA publication titled *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*. More information on SW-846 methods is available at: <http://www.epa.gov/waste/hazard/testmethods/sw846/index.htm>

⁸ Resource Conservation and Recovery Act (RCRA) waste code D002 identifies corrosives with a pH less than or equal to 2 or greater than or equal to 12.5 as characteristic hazardous wastes (40 CFR §261.22)

1.2.4. ADDITIONAL ACTIVITIES

1.2.4.1. REVIEW OF CONCERNS AT RUSKIN ELEMENTARY SCHOOL

Concerns identified by the community representatives had included illnesses and surface waters at the Ruskin Elementary School in Ware County. OSC Huyser visited the Ruskin Elementary School on September 5, 2013 and observed that the school is in a remote location, it is relatively distant from the Seven Out Tank Site (more than 5.5 miles), and there were no visible surface water contaminants or potential sources of contamination (additionally, no mobilized groundwater contamination has been suspected or attributed to the Site and no groundwater wells exist at-, or are used by-, the school). OSC Huyser informed representatives from Ware County Schools that there is no available information to suggest that the Ruskin Elementary School has been impacted by the Seven Out Tank Site. Assistance regarding any other health or environmental concerns at the school can be communicated through agencies of Ware County and the State of Georgia.

1.2.4.2. REMOVAL OF RECYCLABLE MATERIALS FROM SEVEN OUT TANK SITE

On October 30, 2013, OSC Huyser was contacted by an individual stating that he had been hired by the owner of Seven Out, LLC to dismantle and recycle the tanks at the Site. The recycler was requesting information about necessary permits or other approvals to initiate the work. OSC Huyser informed the caller that EPA's work at the Site had been completed and there was no reason to believe that contaminated materials remained at the Site; but that this did not relieve the recycler from responsibility for securing any applicable city, county, or state permits for the work, or from responsibility for reporting spills or discharges that may be caused or discovered.

1.2.4.3. PUBLIC AVAILABILITY SESSION

EPA hosted a public availability session at Waycross City Hall on the evening of November 14, 2013, to discuss the history of EPA's cleanup with the Seven Out Tank Site and receive comments from the community on issues that individuals felt needed to be addressed. EPA was joined by GAEPD and Georgia DPH to cover a wider range of expertise and other concerns. GAEPD was able to address cleanup activities related to other nearby facilities such as the CSX Rice Yard and the former manufactured gas plant (MGP) on Glenmore Avenue which was formerly addressed by Atlanta Gas Light. DPH was able to address the health data review and health consultation that was prepared in response to community requests beginning in July, 2013.

The event was attended by approximately 75 residents, interested parties from the surrounding area, media, and representatives of various government and non-government organizations. Both EPA and GAEPD discussed sampling events that would be conducted in the near future to evaluate whether contamination from the Seven Out Tank facility and the CSX Rice Yard, respectively, had migrated to the surrounding neighborhood.

2.0 FRANCIS STREET SITE ASSESSMENT - REMOVAL SITE EVALUATION

2.1. ADDITIONAL SAMPLING

The additional sampling proposed by EPA focuses on the drainage pathway from the Site and evaluates whether contaminants of concern in sample SO-SW from the 2004 RSE have migrated downstream.

2.1.1. INCREMENTAL SAMPLING METHOD

Incremental Sampling Method (ISM) (ITRC, 2012) was selected to provide a high quality representative sample of mean contaminant concentrations in distinct sections of the drainage path. The method utilizes a large quantity of sample locations (“aliquots”) to provide a representative sample (“decision unit”⁹) from a specific area; the aliquots are then mixed and processed and analyzed in the laboratory. Due to the increased density of aliquots and systematic mixing (“homogenizing”) of the material, results from ISM samples can yield a greater degree of confidence when compared to other sampling methods such as discrete sampling (i.e. “grab sampling”) or composite sampling (i.e. “representative sampling”, see Ref. 6).

As employed on the Francis Street Site Assessment, the ISM approach provided a clear picture of PAH concentrations downstream of the Site and the ability to compare those to PAH concentrations upstream of the drainage path. The “decision units” (DUs) identified by EPA were selected based on criteria that included:

- Location relative to drainage path;
- Influence of potential contaminant sources;
- Use of area and contributing stormwater sources
- Access to waterway; and,
- Condition or features of waterway.

Each decision unit is characterized by both comparable features with neighboring units and distinct elements designed to illustrate contaminant migration through the drainage path. Drainage from the Site enters a ditch along the south border of the property via both a drainage pipe and overland flow. The ditch flows several hundred feet through an industrial area and discharges to a canal. The canal flows through a residential neighborhood, including a public park, and then underground as it passes the main city center. Based on this information and the above criteria, five decision units were identified for this project:

2.1.1.1. *DECISION UNIT 01 – DU01*

DU-01 is within the drainage ditch but located southeast of the Seven Out facility. This DU was selected to evaluate whether upstream sources of PAHs were being transported into the drainage ditch.

⁹ The ISM term for “decision unit” refers to a representative sample specific area which is selected for a set of features that are generally uniform throughout the area itself.

2.1.1.2. *DECISION UNIT 02 – DU02*

DU-02 is a short section of ditch located at the southeast corner of the Seven Out facility; this short ditch transports drainage water from the east side of the facility to the larger drainage ditch along the south boundary of the property. This DU was selected to evaluate whether noticeably different concentrations of PAHs could be detected at the immediate outfall.

2.1.1.3. *DECISION UNIT 03 – DU03*

DU-03 is within the drainage ditch section that receives stormwater from the facility, beginning downstream of the intersection of DU-01 and DU-02 but ending before the intersection with a drainage ditch from the CSX Rice Yard property near S Nichols Street. The size, condition, and features of DU-03 are similar to DU-01 and DU-02. This DU was selected for two reasons: 1) measure PAH concentrations in the ditch prior to entering the canal; and, 2) to evaluate whether downstream concentrations of PAHs were measurably higher than upstream concentrations immediately adjacent to the Site.

2.1.1.4. *DECISION UNIT 04 – DU04*

DU-04 is located within a branch of the city drainage canal but is upstream of the intersection (i.e. “confluence”) of the drainage ditch with the canal. The section begins at Alpha Street, then continues north past Margaret Street where it then ends before (on the south side of-) a double railroad bridge over the canal; the confluence with the drainage ditch occurs on the opposing side (the north side-) of the railroad bridge. This DU was selected to evaluate whether upstream sources of PAHs were being transported into the canal.

2.1.1.5. *DECISION UNIT 05 – DU05*

DU-05 is located within the canal and is downstream of the confluence with the drainage ditch. The section begins at the confluence with the drainage ditch then ends at Folks Street, and includes the section of the canal that traverses through Mary Street Park. This DU was selected for two reasons: 1) to evaluate whether downstream concentrations of PAHs were measurably higher than upstream concentrations in the canal after the confluence with stormwater drainage water from the Site; and, 2) this section represents the most probable location for direct contact exposure to canal sediments by residents in the community.

2.1.2. SAMPLING DESIGN

2.1.2.1. 30 ALIQUOTS FROM EACH DECISION UNIT

A total of 30 aliquots (i.e. sample locations) were collected from each DU at a depth of 0-3 inches utilizing a stainless steel incremental sampling tool equipped with a plunger that is designed to extract a uniform core at each point. Aliquots were collected strictly from sediment below the water surface, at the left, center, and right of the waterway; this was done at 10 stations along each DU (i.e. 3 points x 10 stations = 30 aliquots)¹⁰. Each core was placed into a stainless steel bowl, mixed (homogenized) on-site, and the mixture was transferred into a 32-ounce glass jar.

2.1.2.2. ANALYTICAL METHOD SW-846, 8270D

The samples were transported to a laboratory where each was dried, sieved¹¹, mixed, and subsampled according to ISM protocol. The samples were then analyzed for PAHs by Selected Ion Monitoring (SIM) using the EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846) Method 8270D.

Selection of analyses to determine which chemicals were contained within the samples was based on prior knowledge of materials discovered at the Seven Out Tank Site and suspected for release to the drainage pathway. The PAH family within the group of Semi-Volatile Organic Compounds (SVOCs) were selected based on the concerns that elevated levels of PAHs found in sample SO-SW during the 2004 EPA RSE and the sludge contents of tank CT-5 prior to the 2008-2009 removal action demonstrated the presence of these compounds within the waste process of the facility.

2.1.2.3. SAMPLE COLLECTION TRAVERSING UPSTREAM

Samples were taken in an upstream direction, beginning at the farthest point downstream (at Folks Street in DU05) and proceeding in the opposite direction of surface water flow. This was done to minimize the possibility that sediments stirred by sampling activities could be transported and impact samples in a separate decision unit.

2.1.2.4. ISM REPLICATE/TRIPPLICATE PROTOCOL

The sample process was simultaneously repeated in two decision units (DU03 and DU04) a total of three times for each (ex. DU03A, DU03B, and DU03C) according to ISM protocols. ISM refers to these

¹⁰ Sediment sample FSA-SD-DU02 was collected with only 5 stations (3 points x 5 stations = 15 aliquots) due to the short length of the decision unit; DU02 was only approximately 35 feet long

¹¹ 10-mesh, 2 millimeter sieve

repeated samples as “replicates” and they are used to calculate confidence (Ref. 8) and precision¹² in the analytical results. Not all decision units must undergo replicate sampling; it is only necessary to select a representative portion of the decision units that will provide an adequate illustration of sampling repeatability across varying conditions and analyte (i.e. “contaminant”) concentrations. DU03 and DU04 were selected for replicate sampling because they would be expected to yield the highest and lowest concentrations of PAHs, respectively, if it were discovered that PAH contaminants were migrating downstream from the Site.

2.1.2.5. *SAMPLES AT SEVEN OUT FACILITY AND CONFLUENCE WITH CANAL*

Additional samples were collected to characterize known and potential contaminant concentrations at the Seven Out property and downstream of the Site. Sediment sample FSA-SC-CO was collected near the intersection (“confluence”) of the drainage ditch and the canal to evaluate whether elevated concentrations of PAHs could be found in this immediate location. This sample consisted of a 5-point composite¹³. Although this method is not the same as the ISM samples taken from other decision units, this sample was processed in the laboratory in the same manner as the ISM samples because it was collected from the same sediment media and must be handled in the same manner in order to provide adequately comparable results.

Soil sample FSA-SF-SCW was collected outside the south border of the tank farm at the Seven Out property in the same location as sample SO-SW from the 2004 EPA RSE. Soil sample FSA-SF-CT was collected in a concrete trench at the northeast corner of the Seven Out property where rainwater traverses before draining through a pipe that discharges to the ditch at the southeast corner of the property. Both FSA-SF-SCW and FSA-SF-CT were collected as 5-point composite samples at depths of 0-6 inches.

2.1.2.6. *DATA QUALITY ASSURANCE SAMPLES*

Finally, specific data-quality samples were collected as part of the investigation process to ensure that no sources of contamination were inadvertently introduced as part of the sample collection or analysis processes (known as “cross-contamination”). These samples are designed to provide a high level of quality control (U.S. EPA, 2013b) when collecting field samples and are part of an overall quality assurance process for the project.

¹² Using Relative Standard Deviation (RSD) (aka “coefficient of variation”) which expresses standard deviation as a percentage. $RSD\% = \frac{s}{\bar{X}} \times 100$ where the standard deviation $s = \sqrt{\frac{\sum_{i=1}^n (X_i - \bar{X})^2}{n-1}}$ using X_i = the measured value of the replicate, \bar{X} = the mean of the measurements, and n = the number of replicates.

¹³ The “composite” sample means that 5 smaller samples from that location were mixed into a single sample to provide a representation of the actual concentration; this is similar but not the same as ISM

2.2. REVIEW OF ADDITIONAL SAMPLING DATA

2.2.1. DISCUSSION OF COMPARISON VALUES

Sample results were compared with a series of generic criteria including RSLs (U.S. EPA, 2013c), RMLs (U.S. EPA, 2013a), and GAEPD Type 1 Soil Risk Reduction Standards¹⁴ (“GA Type 1 RRS”).

2.2.1.1. DISCUSSION OF COMPARISON VALUES: RSLs AND RMLs

RMLs and RSLs are generated with “default exposure parameters and factors for Reasonable Maximum Exposure (RME) conditions for long-term/chronic exposures,” (U.S. EPA, 2013d) so these numbers can often be more conservative than a site-specific action level or cleanup criterion where concentrations are not widespread and observable exposures are not chronic – such is the case at the Seven Out Tank facility, where surface contamination is localized no occupancy or observable exposures are presently documented. During removal site assessments in EPA Region 4, the generic RML tables are commonly referenced as part of the process in evaluating whether to take a removal action. However, comparison with generic RMLs are just part of the initial evaluation process; only the factors listed in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP)¹⁵ can be used to determine the appropriateness of a removal action. Once a decision has been made to undertake a response or removal action, cleanup criteria for contaminants of concern are selected or calculated based on site-specific parameters. The generic RSL tables, by comparison, are used in the preliminary phase of an investigation to evaluate whether a compound has been detected in the environment at a concentration that may be elevated, thus noting that it may be a contaminant of concern; the generic RSLs should only be regarded as an initial *screening* tool and should not be interpreted as a de-facto cleanup standard.

2.2.1.2. DISCUSSION OF COMPARISON VALUES: GA TYPE 1 RRS

The GA Type 1 RRSs are State regulated cleanup standards used to demonstrate completion of a corrective action under Georgia Rule 391-3-19-.07; the Type 1 standards are designed to “provide for regulated substance concentrations that [will] pose no significant risk on the basis of standardized exposure assumptions and defined risk levels for residential properties,” [Ga. Comp. R. & Regs. R. 391-3-19-.07(6)(a)]. Using the GA Type 1 RRSs in evaluation of this Site is particularly applicable because these were the approved cleanup standards utilized during a remedial action conducted by the Atlanta Gas Light Company (AGL) and overseen by GAEPD between 1997 and 2002 to address contamination from a MGP Site on Glenmore Avenue in Waycross, GA (Ref. 20). The cleanup included removal and restoration of sediments in the canal which covered areas both upstream and downstream of the canal sections sampled during this assessment (decision units DU04 and DU05).

¹⁴ Georgia Compilation of Rules and Regulations Rule (“Ga. Comp. R. & Regs. R.”) 391-3-19-.07(6)

¹⁵ See 40 CFR §300.414(b)(2)(i-vii)

2.2.2. RESULTS FROM SOIL SAMPLES OUTSIDE SOUTH CONTAINMENT WALL

Results show that the soil outside the south perimeter of the tank farm at the Seven Out facility from which sample SO-SW was collected during the EPA RSE in 2004 have remained relatively unchanged:

Table 6. Comparison of Soil Samples in Same Area from 2004 to 2013

		Source:	Soil sample SO-SW Taken by EPA Near South Perimeter of Seven Out Site	Soil sample FSA-SF-SCW ¹⁶ taken by EPA in same location as SO-SW
		Date:	Collected 8/26/2004	Collected 12/19/2013
		Units:	mg/kg	mg/kg
Polynuclear Aromatic Hydrocarbons (PAHs)	Benz(a)anthracene		2.4	1.9
	Benzo(a)pyrene		2.8	2.0
	Benzo(b)fluoranthene		1.8	3.1
	Benzo(k)fluoranthene		3.2	1.1
	Chrysene		3.1	2.6
	Dibenz[a,h]anthracene		0.65	0.43 J+
	Fluoranthrene		4.6	5.1
	Indeno[1,2,3-cd]pyrene		3	1.7
	Phenanthrene		1.8	3.6
	Pyrene		4	5.2

The concerns regarding contamination at the Site are generally related to this location and the possibility that contaminants, particularly Benzo(a)pyrene, may migrate off-Site into residential areas. Samples FSA-SF-SCW and FSA-SF-SCW-DUP confirm that concentrations of PAHs have persisted in this location for several years. Concentrations of Benzo(a)pyrene in these samples meet or exceed both the EPA generic RML for Residential Soils (1.5 mg/kg) and the Georgia Type 1 RRS (1.64 mg/kg) but do not exceed the EPA generic RML for Industrial Soils (21 mg/kg) or a calculated value for the Georgia Type 3¹⁷ RRS (7.84 mg/kg)¹⁸ for non-residential use areas.

Both residential and industrial generic risk calculations are based on assumptions of frequent and chronic (“long term”) exposure. A site-specific calculation on actual exposure conditions where direct contact exposures are not frequent can be expected to yield action levels that are far greater than the generic values.

¹⁶ Average of FSA-SF-SCW and FSA-SF-SCW-DUP

¹⁷ Type 3 standards are used to “provide for regulated substance concentrations that pose not significant risk on the bases of standardized exposure assumptions and defined risk levels for the non-residential use scenario,” [Ga. Comp. R. & Regs. R. 391-3-19-.07(8)(a)].

¹⁸ The surface soil Type 3 RRS for Benzo(a)pyrene of 7.84 mg/kg was calculated using requirements of Type 3 Standards for soils listed in Ga. Comp. R. & Regs. R. 391-3-19-.07(8)(d)(2)(ii) supplemented with chemical-specific properties for Benzo(a)pyrene listed in Part 5 of U.S. EPA. *Soil Screening Guidance: Technical Background Document and User's Guide*. EPA/540/R-95/128. May, 1996

2.2.2.1. SOIL SAMPLES: DIRECT CONTACT EXPOSURE RISK

The soil represented in samples SO-SW and FSA-SF-SCW consist of an area no greater than 200 square feet, which is less than 0.5% of the non-paved surfaces on the property and less than 0.15% of the total property surface. Concentrations in these samples are therefore indicative of only a small area and are not representative of average surface concentrations at the Site. The soil in this section is also heavily vegetated, further impeding both risk of exposure and migration. In 2005, GAEPD completed a preliminary assessment of the Site (Ref. 2) and reviewed population data, threatened or endangered species, site conditions, and available data from EPA's 2004 RSE. Part of GAEPD's conclusion addressed the soil contamination that was found and determined that soil exposure was not considered a serious threat because no primary targets could be identified.

2.2.2.2. SOIL SAMPLES: GROUNDWATER CONTAMINATION RISK

Migration of contaminants to groundwater is also not considered a serious threat; this is due to the relatively low concentration, small size of the source area, and low mobility of PAHs compared with the depth and distance of ground water wells in the area. PAHs are only moderately soluble in water (i.e. "hydrophobic") and have a high affinity for organic carbon, which means that they bind to the soils and are less likely to infiltrate the soil to the groundwater. PAHs are more likely to be transported with erosion of surface soils through the surface water flow and drainage. The City of Waycross public water supply is provided by groundwater wells that exceed depths of 500 feet and are greater than 1300 feet from the site. GAEPD followed the 2005 Preliminary Assessment with a SI in 2006 (Ref. 3) which concluded that no targets exist in the groundwater aquifer and risk of groundwater contamination from the site appears negligible.

2.2.2.3. EPA RECOMMENDATION FOR SURFACE SOIL: NO ACTION

EPA agrees with GAEPD's conclusions from the 2006 SI (Ref. 3) and, based on sample results collected in December, 2013, determines that the conclusions remain applicable at this time. Due to the lack of threat posed by the soils represented in samples SO-SW and FSA-FS-SCW, excavation or other response action to address this area is not necessary and is not recommended.

2.2.3. RESULTS FROM SEDIMENT SAMPLES IN DRAINAGE DITCH SOUTH OF SITE

Sampling in the drainage ditch at the south border of the Site and the nearest branch of the city drainage canal provides information on whether PAHs from the Site are being transported downstream. Results show that the concentrations of PAHs in the sediments of the drainage ditch are significantly lower than those found in soils of 200 square foot area of concern outside the south containment wall of the Site:

Table 7. Results of Sediment Samples from Drainage Ditch at South Border of Site

	Source:	Sediment sample FSA-SD-DU01 taken by EPA in drainage ditch – southeast of Site	Sediment sample FSA-SD-DU02 taken by EPA in drainage ditch – near outfall from Site drain	Sediment sample FSA-SD-DU03-AVG ¹⁹ taken by EPA in drainage ditch – downstream of Site
	Date:	Collected 12/19/2013	Collected 12/19/2013	Collected 12/19/2013
	Units:	mg/kg	mg/kg	mg/kg
Polynuclear Aromatic Hydrocarbons (PAHs)	Benz(a)anthracene	0.37	0.32	0.18
	Benzo(a)pyrene	0.58	0.39	0.29
	Benzo(b)fluoranthene	1.5	0.76	0.66
	Benzo(k)fluoranthene	0.43	0.24	0.21
	Chrysene	0.51	0.42	0.26
	Dibenz[a,h]anthracene	0.15	0.087	0.076
	Fluoranthrene	0.58	0.79	0.32
	Indeno[1,2,3-cd]pyrene	0.021	0.34	0.28
	Phenanthrene	0.6	0.48	0.11 J
	Pyrene	0.23	0.78	0.38

None of the constituents measured in samples taken from DU01, DU02, or DU03 exceed either the residential or industrial EPA generic RMLs nor do they exceed the Georgia Type I or Type 3 RRSs. EPA generic RSLs for residential soils are exceeded for Benz(a)anthracene (0.15 mg/kg), Benzo(b)fluoranthene (0.15 mg/kg), Dibenz[a,h]anthracene (0.015 mg/kg), and Indeno [1,2,3-cd]pyrene (0.15 mg/kg) while EPA generic RSLs for industrial soils are exceeded for Benzo(a)pyrene (0.21 mg/kg). As stated in section 2.2.1.1., generic RSL values are used in the preliminary phase of an investigation to evaluate whether a compound has been detected in the environment at a concentration that may be elevated and are only to be regarded as an initial *screening* tool and should not be interpreted as a de-facto cleanup standard. Since RMLs are not exceeded, the reported levels are all below or within the EPA target cancer risk range based on residential soil (i.e., unrestricted use).

The ditch consists of steep banks, is heavily vegetated, and there is no indication the ditch is accessed regularly; therefore a site-specific calculation on actual exposure conditions where direct contact exposures are not frequent can be expected to yield action levels that are far greater than the generic values²⁰.

2.2.3.1. DITCH SAMPLES: DECREASING CONCENTRATIONS DOWNSTREAM

Comparison of the ditch samples suggests a trend of decreasing PAH concentrations from the sample in DU01 to the intersection with DU02 and again to the downstream sample in DU03. This decreasing

¹⁹ Average of FSA-SF-DU03-A, FSA-SF-DU03-B, and FSA-SF-DU03-C

²⁰ As stated previously, generic RSL and RML values for both residential and industrial soils are based on frequent and chronic (long term) exposure assumptions

concentration trend downstream through the three decision units occurs in 11 of the 17 analytes²¹ (a decreasing trend downstream from DU01 to DU03 occurs with higher concentrations in the middle at DU02 in the remaining 6 analytes²²). This might suggest that the occurrence of PAHs in the drainage ditch is primarily contributed by a source other than the Seven Out Tank Site. PAHs are associated with several common sources, including but not limited to, the incomplete combustion of fuels such as gasoline and diesel. The upstream source of storm water to the drainage ditch includes contributions from Francis Street, the adjacent commercial district, and a portion of the northeast corner of the CSX Rice Yard facility.

2.2.3.2. DITCH SAMPLES: EVALUATION OF DITCH ELEVATION PROFILE

EPA visited the Site on February 18, 2014, to survey the drainage ditch elevation profile (U.S. EPA, 2014) and determine whether the gradient in the ditch would allow rainwater from the Seven Out Tank Site to flow “upstream” into DU01. The survey indicated that the elevation drop from the beginning of DU01 to near the intersection with DU02 (over a distance of approximately 270 feet) was effectively zero with a range in elevation between the two endpoints of only 3 inches. In comparison, the elevation drop of DU03 from the beginning near DU02 to the culvert under S Nichols Street (over a distance of approximately 830 feet), was 3.3 feet (0.4% grade or 0.23-degrees). The shallow grade of DU01 means that drainage from the Site through the outfall in DU02 could potentially flow into DU01 and sediments could settle in this section of the ditch.

Surface water runoff from the Seven Out facility or general runoff from the surrounding area could be all be contributing factors to concentrations of PAHs in DU01 but no conclusion can be made that either is the primary source of PAHs in the decision unit area.

2.2.3.3. EPA RECOMMENDATION FOR DRAINAGE DITCH: NO ACTION

Due to the lack of threat posed by the sediments represented in samples FSA-SD-DU01, FSA-SD-DU02, and FSA-SD-DU03, excavation or other response action to address the ditch is not necessary and is not recommended.

2.2.4. RESULTS FROM SEDIMENT SAMPLES IN BRANCH OF CITY DRAINAGE CANAL

Sampling in the drainage canal provides information on whether PAHs that were measured in the drainage ditch are being transported into residential areas. Results show that the concentrations of PAHs in the sediments of the drainage canal are significantly lower than those found in both the soils of 200 square foot area of concern outside the south containment wall of the Site *and* the drainage ditch at the south border of the Site:

²¹ Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo[g,h,i]perylene, Benzo(k)fluoranthene, Chrysene, Dibenz[a,h]anthracene, and Indeno[1,2,3-cd]pyrene

²² 2-Methylnaphthalene, Fluoranthene, Fluorene, Naphthalene, Phenanthrene, and Pyrene

Table 8. Results of Sediment Samples from Drainage Canal

	Source:	Sediment sample FSA-SD-DU04-AVG ²³ taken by EPA in canal – upstream of FSA-SD-CO	Sediment sample FSA-SD-CO taken by EPA in canal – confluence ²⁴ of ditch and canal	Sediment sample FSA-SD-DU05 taken by EPA in canal – downstream of FSA-SD-CO
	Date:	Collected 12/19/2013	Collected 12/19/2013	Collected 12/19/2013
	Units:	mg/kg	mg/kg	mg/kg
Polynuclear Aromatic Hydrocarbons (PAHs)	Benz(a)anthracene	0.019 J	0.0045 J	0.013 J+
	Benzo(a)pyrene	0.027 J	0.006	0.015 J+
	Benzo(b)fluoranthene	0.044 J	0.01	0.02 J+
	Benzo(k)fluoranthene	0.014 J	0.003 J	0.008 J+
	Chrysene	0.024 J	0.0068	0.016 J+
	Dibenz[a,h]anthracene	0.0062 J	0.0048 U	0.0031 J+
	Fluoranthrene	0.032 J	0.01	0.02 J+
	Indeno[1,2,3-cd]pyrene	0.025 J	0.0051	0.011 J+
	Phenanthrene	0.0104	0.006	0.0061 J+
	Pyrene	0.036 J	0.014	0.027 J+

None of the constituents measured in samples taken from DU04, DU05, or the confluence (intersection) with the drainage ditch exceed either the residential or industrial EPA generic RMLs nor do they exceed the Georgia Type I or Type 3 RRSs. EPA generic RSLs for residential soils were exceeded only for Benzo(a)pyrene (0.015 mg/kg). As stated in section 2.2.1.1. and repeated in section 2.2.3., generic RSL values are only to be regarded as an initial *screening* tool and should not be interpreted as a de-facto cleanup standard.

2.2.4.1. CANAL SAMPLES: DISCUSSION OF DISTINCTION BETWEEN DRY SOIL AND SEDIMENT

When the samples were collected, water in the canal was observed at widths from 6-10 feet, average depths of 6-24 inches and surface water flow at approximately 0.5 feet per second. It flows through residential neighborhoods, including Mary Street park, where it is reported that children regularly play in the water. Even under these circumstances, a site-specific calculation on actual exposure conditions where direct contact exposures are not frequent can be expected to yield action levels that are far greater than the generic values for at least two reasons: 1) The generic RMLs and RSLs are based on frequent and long-term exposures requiring direct contact with the contaminant and despite the proximity of the residences and the activity in the waterway, the site-specific conditions do not amount to the frequent contact assumptions that are made in the generic calculations; and, 2) Exposure conditions in the generic values are calculated for dry surface soils which are used as comparison tools because they are readily available, but do not directly translate to sediment exposure conditions (the water in the canal provides a

²³ Average of FSA-SF-DU04-A, FSA-SF-DU04-B, and FSA-SF-DU04-C

²⁴ The “confluence” is the intersection point where drainage water from the ditch enters the canal

transport mechanism for contaminants but also provides a protective cover which can reduce exposure incidences to sediments at the bottom).

2.2.4.2. CANAL SAMPLES: GA DPH HEALTH CONSULTATION SITE-SPECIFIC CALCULATIONS

A site-specific exposure dose calculation was made by the Georgia Department of Public Health (DPH) Chemical Hazards Program in a Health Consultation (GA DPH, 2013) that was completed to address concerns at the Seven Out facility and Mary Street Park. The calculations were made using analytical data provided by a resident who collected a sediment sample²⁵ from the canal in the park and sent the sample to be analyzed by a private laboratory²⁶.

Table 9. Sediment Samples Collected in Canal by EPA and by Community Group

	Source:	Sediment sample FSA-SD-DU05 taken by EPA in canal – downstream of FSA-SD-CO	Sediment Sample Collected by Resident ²⁷ in Unnamed Creek at Mary Street Park
	Analytical Method:	8270C SIM	8270C
	Date:	Collected 12/19/2013	Collected 7/3/2013
	Units:	mg/kg	mg/kg
Polynuclear Aromatic Hydrocarbons (PAHs)	Benz(a)anthracene	0.013 J+	0.556
	Benzo(a)pyrene	0.015 J+	ND
	Benzo(b)fluoranthene	0.02 J+	0.827
	Benzo(k)fluoranthene	0.008 J+	0.398
	Chrysene	0.016 J+	0.067
	Dibenz[a,h]anthracene	0.0031 J+	ND
	Fluoranthrene	0.02 J+	0.691
	Indeno[1,2,3-cd]pyrene	0.011 J+	ND
	Phenanthrene	0.0061 J+	0.378
	Pyrene	0.027 J+	1.52

The results of the sample collected by the resident (Table 9) showed levels of PAHs that were generally higher than those detected in EPA sample FSA-SD-DU05²⁸ although they showed no levels for Benzo(a)pyrene, Dibenz[a,h]anthracene, or Indeno[1,2,3-cd]pyrene above a detection limit of 0.282 mg/kg. As with sample FSA-SD-DU05, none of the constituents measured in sample taken by the resident exceed either the residential or industrial EPA generic RMLs nor do they exceed the Georgia

²⁵ This sample and the laboratory analysis that was obtained is useful for comparative purposes only. The sample was not collected under any sampling and analysis plan or a quality assurance project plan and therefore the results cannot be validated for decision-making purposes.

²⁶ Ana-Lab Corp., Kilgore, TX

²⁷ Ana-Lab Corp., Project # 619468, Report of Soil Sample Results from Mary Street (Folks) Park, Waycross, GA, 07/03/2013.

²⁸ Note that all results in Table 9 for FSA-SD-DU05 have been flagged with a "J+"; this means that the analyte was positively identified but the associated value is the approximate concentration of the analyte in the sample and may be biased high

Type I or Type 3 RRSs. EPA generic RSLs for residential soils in the resident's sample were exceeded for Benzo(a)anthracene (0.15 mg/kg) and Benzo(b)fluoranthene (0.15 mg/kg).

In order to account for the mixture of PAHs that were detected, DPH calculated an estimated *cumulative* exposure dose (Ref. 5) as well as an estimated *cumulative* cancer risk that children may have from exposure in the park based on very conservative exposure scenarios. DPH's findings reported that the exposure dose and cancer risk in these scenarios was significantly lower than the assumptions that are used by EPA to calculate generic RSL values.

The absence of Benzo(a)pyrene, Dibenz[a,h]anthracene, or Indeno[1,2,3-cd]pyrene in the resident's sample compared to their presence in sample FSA-SD-DU05 is inconsequential due to the relatively higher concentrations of the remaining compounds in the resident's sample. The method that is used to calculate a cumulative PAH concentration (known as "Benzo[a]pyrene toxic equivalents" or "BaP-TE") yields a cumulative PAH concentration in sample FSA-SD-DU05 that is six times lower than the equivalent value in the resident's sample. Repeating DPH's calculations using results from sample FSA-SD-DU05 would provide exposure dose and cancer risk values that are even lower than the initial findings²⁹.

2.2.4.3. CANAL SAMPLES: DECREASING CONCENTRATIONS DOWNSTREAM

Comparison of canal samples suggest a trend of decreasing PAH concentrations from the upstream sample in DU04 to the downstream sample in DU05 (concentrations of PAHs at the intersection with the drainage ditch in sample FSA-SD-CO are generally lower than those in both DU04 and DU05).

Although values in FSA-SD-DU05 are less than those in the average of FSA-SD-DU04-(A, B, and C) and is outside the standard deviation for triplicate samples FSA-SD-DU04-(A, B, and C) presented in Table 3 of EPA START Final Letter report (U.S. EPA, 2014), the difference is less than a factor of 10 (an "order of magnitude") and the concentrations are still very low³⁰. Laboratory triplicate analysis performed on sample FSA-SD-DU04-A showed greater variability among the results resulting in a relatively large relative standard deviation (RSD \approx 13-24%) for the results in samples FSA-SD-DU04-(A, B, and C). By comparison, the relative standard deviation for the results in triplicate samples FSA-SD-DU03-(A,B, and C) from the drainage ditch were much narrower (RSD \approx 2-6%) which is likely due to the relatively higher concentrations in these samples.

²⁹ The distinction between *exposure dose & cancer risk* and *screening level & action level* is critical in this case. Sections 2.2.2., 2.2.3., and 2.2.4.1. point out that site-specific calculations for *screening levels* and *action levels* would be *greater* than generic valued due to less actual exposures than the assumptions used in calculating the generic value. *Screening levels* and *action levels* refer to a comparative value for concentrations of a contaminant in soil. *Exposure dose* and *cancer risks* are different terms that refer, respectively, to the quantity of a contaminant entering a body and resulting cancer risk under specific circumstances and soil concentrations.

³⁰ This is additionally supported by the fact that all results in FSA-SD-DU04-A and FSA-SD-DU05 are flagged with a "J" which means that the analyte was positively identified but the associated value is the approximate concentration of the analyte in the sample; this flag is not uncommon for very low concentrations

Although Table 9 appears to show a decreasing concentration in PAHs along the downstream direction, the difference between PAH values in DU04 and DU05 is too narrow and no definitive conclusion can be made on this matter.

2.2.4.4. CANAL SAMPLES: REMEDIATION OF CANAL WAS SUCCESSFUL FOR PAH REMOVAL

Results of the samples presented in Table 9 demonstrate that the remedial action conducted by the Atlanta Gas Light Company between 1997 and 2002 to address contamination from a former MGP Site on Glenmore Avenue successfully removed PAHs in the areas of decision units DU04 and DU05 below the cleanup goal of Georgia Type 1 RRSs. GAEPD has determined that this remedial action is complete and EPA does not object to GAEPD's decision.

2.2.4.5. EPA RECOMMENDATION FOR DRAINAGE DITCH: NO ACTION

Due to the lack of threat posed by the sediments represented in samples FSA-SD-DU04, FSA-SD-CO, and FSA-SD-DU05, excavation or other response action to address the canal is not necessary and is not recommended.

2.3. DRAINAGE PATH EVALUATION

EPA's recommendation for additional work in the September 19, 2013 Special POLREP (Attachment 1) included the completion of a detailed and up-to-date drainage path evaluation to determine whether previous statements of runoff behavior from the Site were either inaccurate or have changed. The Drainage Path Evaluation is provided in Appendix 3. The evaluation concluded that observed drainage patterns at the Seven Out Tank Site and surrounding area (within the boundaries of the Site and DU01 through DU05) have not changed since 2004.

3.0 RECOMMENDATION

The additional sampling that was recommended in EPA's Seven Out Tank Site Special POLREP dated September 19, 2013 (Attachment 1) was conducted on December 19, 2013. Prior to sampling the Quality Assurance Project Plan (QAPP) which described the sampling even was evaluated by team members from both GAEPD and Georgia DPH. The QAPP was also distributed to several interested public and private parties identified during the November 14, 2013 public availability session. Sample results were thoroughly reviewed by EPA with supporting reviews by GAEPD and Georgia DPH. Prior to completion of a formal report, the data from the sampling event was distributed to the same group of public and private parties. The purpose of this report has been to document EPA Region 4 ERRB's decision regarding further assessment or removal action at the Francis Street Site or Seven Out Tank Site.

Section 300.415 of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) lists factors to be considered in determining the appropriateness of a removal action [40 CFR §300.414(b)(2)(i-vii)]. After careful review of the recent and historical data available for the Site, EPA Region 4 ERRB finds that the Francis Street Site and the Seven Out Tank Site do not meet these criteria and that a removal action is not recommended.

EPA did not encounter an indication of additional contaminants or contaminated media that could have been overlooked by the December 19, 2013 sampling event. The sampling design was based on available information of probable compounds and exposure scenarios resulting from the Seven Out Tank Site. Without additional information on actual or potential releases to the environment of contaminants associated with Seven Out Tank, LLC that have not already been evaluated, EPA Region 4 ERRB does not recommend an additional sampling event for RSE purposes.

GAEPD and Georgia DPH have and/or will release additional reports or other materials in response to community concerns in Waycross, Georgia. EPA will continue to support the State of Georgia wherever possible in order to ensure that these concerns are adequately addressed.

APPENDIX 1 – GLOSSARY OF ACRONYMS

GLOSSARY OF ACRONYMS

AGL	Atlanta Gas Light Company
BaP-TE	Benzo(a)pyrene - Toxicity Equivalent
CO	Confluence
CT	Concrete trench
DU	Decision Unit
DUP	Duplicate
EPA	U.S. Environmental Protection Agency
ERRB	U.S. EPA Region 4 Emergency Response and Removal Branch
FSA	Francis Street Assessment
GAEPD	Georgia Environmental Protection Division
HW	Hazardous waste
ISL	Industrial Screening Level
ISM	Incremental Sampling Method
J	Data validation flag indicating that the analyte was positively identified but the associated value is the approximate concentration of the analyte in the sample
J+	Data validation flag indicating that the analyte was positively identified but the associated value is the approximate concentration of the analyte in the sample and may be biased high
LLC	Limited Liability Corporation
mg/kg	milligrams per kilogram (= 1,000 µg/kg)
mg/L	milligrams per liter
MGP	Manufactured Gas Plant
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NL	Not listed

OSC	On-Scene Coordinator
PAHs	Polycyclic Aromatic Hydrocarbons
POLREP	Pollution Report
POTW	Publicly-Owned Treatment Works
ppm	parts per million (= 1 mg/kg)
PRG	Preliminary Remediation Goal
QAPP	Quality Assurance Project Plan
R4	Region 4
RAL	Removal Action Level
RME	Reasonable Maximum Exposure
RML	Removal Management Level
RRS	Risk Reduction Standard
RSD	Relative Standard Deviation
RSE	Removal Site Evaluation
RSL	Regional Screening Level
SCW	South containment wall
SD	Sediment
SF	Surface soil
SIM	Selected Ion Monitoring
SVOC	Semi-Volatile Organic Compounds
U	Data validation flag indicating that the analyte was analyzed for but was not detected and the number reported is the laboratory-derived reporting limit (RL) for the constituent in the sample
µg/kg	micrograms per kilogram (= 0.001 mg/kg)

APPENDIX 2 – REFERENCES

REFERENCES

- (1) Georgia DPH. *Health Consultation. Seven Out, LLC Facility and Soil Contamination Concerns at Mary Street Park (Folks Park). Waycross, Ware County, Georgia.* 2013
- (2) Georgia EPD. *Preliminary Assessment. Seven Out LLC Tank. EPA ID # GAN000407811. Waycross, Ware County, Georgia.* August 8, 2005.
- (3) Georgia EPD. *Site Inspection Report, Seven Out LLC Tank. CERCLIS ID. No. GAN000407811.* October, 2006
- (4) Interstate Technology & Regulatory Council (ITRC). *Incremental Sampling Methodology. ISM-1.* 2012.
- (5) U.S. Environmental Protection Agency. *Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons.* EPA/600/R-93/089. July, 1993.
- (6) U.S. Environmental Protection Agency. *Superfund Program Representative Sampling Guidance, Vol. 1: Soil Interim Final.* EPA/540/R-95/141. OSWER Directive 9360.4-10. December, 1995
- (7) U.S. Environmental Protection Agency. *Soil Screening Guidance: Technical Background Document and User's Guide.* EPA/540/R-95/128. May, 1996.
- (8) U.S. Environmental Protection Agency. *Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites.* OSWER Publication 9285.6-10. December, 2002.
- (9) U.S. Environmental Protection Agency, Region 9. *Preliminary Remediation Goals Table.* October, 2004.
- (10) U.S. Environmental Protection Agency. *Removal Assessment Report, Seven Out, LLC Site, Waycross, Ware County, Georgia.* December 9, 2004.
- (11) U.S. Environmental Protection Agency. *Final Sampling Event Letter Report, Seven Out, Waycross, Ware County, Georgia.* November 30, 2009.
- (12) U.S. Environmental Protection Agency. *Final CERCLA Removal Action Letter Report, Seven Out, Waycross, Ware County, Georgia.* March 2, 2010.
- (13) U.S. Environmental Protection Agency, Region 4. *Regional Removal Management Level (RML) Summary Table.* December, 2012.
- (14) U.S. Environmental Protection Agency. *Field Branches Quality System and Technical Procedures: Field Sampling Quality Control Standard Operating Procedure.* SESDPROC-011-R4. February 5, 2013.

- (15) U.S. Environmental Protection Agency, Mid-Atlantic Risk Assessment. *Regional Screening Level (RSL) Summary Table*. May, 2013.
- (16) U.S. Environmental Protection Agency, Mid-Atlantic Risk Assessment. *Regional Screening Level (RSL) Summary Table*. November, 2013.
- (17) U.S. Environmental Protection Agency, Mid-Atlantic Risk Assessment. *Regional Screening Table – User’s Guide*. November, 2013.
- (18) U.S. Environmental Protection Agency, Region 4. *Regional Removal Management Levels (RML) Summary Table*. December, 2013.
- (19) U.S. Environmental Protection Agency. *Final Assessment Letter Report, Francis Street Site, Waycross, Ware County, Georgia*. April 3, 2014.
- (20) Williams Environmental Services, Inc. *Compliance Status Report, Volume 1: Waycross MGP Drainage Canal Project*. Prepared for Atlanta Gas Light Company. May 24, 2000.
- (21) Winter Environmental. *Removal Action Report, Seven Out Tank Superfund Site, Waycross, Georgia*. Winter Project No. 08040. Prepared For: Rogers/Towers, Attorneys at Law & U.S. EPA Region 4. September 17, 2009.

APPENDIX 3 – DRAINAGE PATH EVALUATION

DRAINAGE PATH EVALUATION**Francis Street Assessment / Seven Out Tank Site
Waycross, Ware County, Georgia**

EPA's recommendation for additional work in the September 19, 2013 Special POLREP³¹ included the completion of a detailed and up-to-date drainage path evaluation to determine whether previous statements of runoff behavior from the Seven Out Tank Site (the "Site") were either inaccurate or have changed. Detailed site drainage descriptions can also be found in Georgia Environmental Protection Division's (GA EPD) 2005 Preliminary Assessment³² and 2006 Site Investigation³³.

Descriptions of drainage features are described here and are considered applicable as-of April 2014. The evaluation concludes that observed drainage patterns at the Seven Out Tank Site and surrounding area (within the boundaries described herein) have not changed since EPA first visited the Site during a 2004 Removal Site Evaluation³⁴. A visualization of the size and location of each feature can be found in Figure 1.

- **Seven Out Tank Site – Tank Farm**

- **Tank Farm – Size**

Approximately >18,000 square feet

- **Tank Farm – Route of Discharge**

None; the area is sloped to the east where it is retained by the unbroken concrete curb surrounding the entirety of the tank farm. Excessive rainwater could overflow to the east following intense successive rain events

- **Tank Farm – Observations December, 2013**

No discernible odor or visible contamination on the pooled water surface

³¹ U.S. Environmental Protection Agency. *Special POLREP for Seven Out Tank Site*. September 19, 2013.

³² Georgia EPA. *Preliminary Assessment. Seven Out LLC Tank. EPA ID # GAN000407811. Waycross, Ware County, Georgia*. August 8, 2005.

³³ Georgia EPD. *Site Inspection Report, Seven Out LLC Tank. CERCLIS ID. No. GAN000407811*. October, 2006.

³⁴ U.S. Environmental Protection Agency. *Removal Assessment Report, Seven Out, LLC Site, Waycross, Ware County, Georgia*. December 9, 2004.

- **Seven Out Tank Site – East Loading/Unloading Area**

- **East Loading/Unloading Area – Size**

Approximately >3,400 square feet

- **East Loading/Unloading Area – Route of Discharge**

Sloped to the west where it is designed to drain northward via a grated trench (location of sample FSA-SF-CT) to a sump and drain pipe (approximately 6-8” diameter) that discharges to the drainage ditch at the southern border of the facility

- **East Loading/Unloading Area – Observations December, 2013**

The drainage trench and pipe were generally overgrown and clogged, resulting in standing water at the eastern loading/unloading area. As with the standing water in the tank farm, no discernible odor or visible contamination in the pooled water was observed

- **Seven Out Tank Site – Shallow Trench Outside North Edge of Tank Farm**

- **Trench Outside North Edge of Tank Farm – Size**

Approximately >300 feet long

- **Trench Outside North Edge of Tank Farm – Route of Discharge**

Sloped to the east and flows into the drain pipe that discharges to the ditch at the southern border of the facility. This shallow trench receives rainwater from the western paved area of the facility and from the southern sloped roof of the Omni Sports Awards building located north of the tank farm.

- **Trench Outside North Edge of Tank Farm – Observations December, 2013**

The trench was observed to be dry and contained no discernible visual impacts

- **Seven Out Tank Site – West Loading/Unloading Area**

- **West Loading/Unloading Area – Size**

Approximately >5,000 square feet

- **West Loading/Unloading Area – Route of Discharge**

Sloped to the east and drains both to the shallow drainage trench outside the north end of the tank farm and to the south where rainwater flows around the south end of the tank farm

- **West Loading/Unloading Area – Observations December, 2013**

The paved surface of the west side was observed to be dry and contained no discernible visual impacts

- **Seven Out Tank Site – Soil Outside South Border of Tank Farm**

- **Soil on South Side – Size**

- ***Size of area that flows to South into drainage ditch***

Approximately >24,000 square feet

- ***Size of area that flows to East Loading/Unloading Area***

Approximately >2,000 square feet

- **Soil on South Side – Route of Discharge**

A majority of the area (>24,000 square feet) sheet flows on a gradient to the south where it enters the drainage ditch at the southern border of the facility. A small area (>2,000 square feet) flow to the east and then enters the paved loading/unloading area at the east side of the tank farm where it eventually is transported to the same drainage ditch (samples SO-SW and FSA-SF-SCW were collected from within this smaller section)

- **Soil on South Side – Observations December, 2013**

Vegetation in this area has grown significantly since the removal action was completed in 2009, but there were no discernible visual impacts to the soil or the vegetation

- **Off-Site Drainage Path – Drainage Ditch at South Border of Site**

- **Drainage Ditch – Size**

Approximately 1,600 feet long. Includes decision units DU-01, DU-02, and DU-03

- **Drainage Ditch – Route of Discharge**

The ditch receives stormwater from some sections of Francis Street and overland flow from the immediate area within a range of approximately 200-500 feet.

- ***Drainage Ditch Route of Discharge – Southeast of Site (decision unit DU01)***

A small drainage line discharges to an open vegetated ditch, approximately 15 feet wide and 8 feet deep, approximately 250 feet south of Francis Street and 210 feet east of Folks Street. The ditch flows west for 270 feet where it reaches the south border of the Seven Out Tank Site and intersects with DU-02 and continues to DU-03. The net elevation drop along this section was zero, where elevation measurements were taken at water surfaces of the left descending bank (LDB) and remained within a range of 3 inches.

- ***Drainage Ditch Route of Discharge – Site Drainage (decision unit DU02)***

The drain pipe from the east side of the Site discharges to a short vegetated ditch where it travels for only 35 feet before intersecting with the drainage ditch at the south border.

- ***Drainage Ditch Route of Discharge – Downstream of Site (decision unit DU03)***

The ditch continues west behind the Site for 550 feet and then another 280 feet where it enters a culvert under S Nichols Street. Prior to entering the culvert it is joined by a similarly-sized stormwater drainage ditch from the CSX Rice Yard property. It emerges from the culvert after 290 feet and then proceeds 210 feet northwest on the south border of the Waycross Coca-Cola Bottling Company property along a rip-rapped ditch before intersecting the city drainage canal (between DU-04 and DU-05). The section sampled in DU-03 includes only the 830 foot portion beginning at the south border of the Seven Out Tank Site at DU-02 and ending prior to the intersection with the ditch from the CSX Rice Yard; the total elevation drop along this portion was measured at 3.3 feet (0.4% grade).

- **Drainage Ditch – Observations December, 2013**

Water depth in the ditch was observed at depths ranging from 1-6 inches with a noticeable flow downstream but at a minute rate that could not be estimated. Minute flows were also observed from the discharges at the beginning of the ditch and the drain line from the east side of the Site (both flow rates approximately less than 0.5 liters per minute). Vegetation and brush along the ditch was heavy with no distinguishable points where regular pedestrian or vehicle access appeared to occur. No visible impacts to the ditch were observed.

- **Off-Site Drainage Path – Branch of City Drainage Canal**

- **Canal – Size**

The branch of the City Drainage Canal that includes decision units DU-04 and DU-05 is approximately 3,800 feet long.

- **Canal – Route of Discharge**

- ***Canal Route of Discharge – Upstream of Intersection with Ditch (decision unit DU04)***

DU-04 is approximately 1,900 feet long beginning at Alpha Street and ending at the intersection with the drainage ditch; this is approximately 3,400 feet downstream of the former MGP Site on Glenmore Avenue which was addressed by Atlanta Gas Light between 1997 and 2002 and included remediation of canal areas traversing through both DU-04 and DU-05. The canal itself is approximately 25 feet wide and 8 feet deep with vegetated banks that are regularly mowed. Within DU-04, it flows through culverts under Ga Street, Ann Street, and Margaret Street.

- ***Canal Route of Discharge – Intersection between ditch and canal (sample FSA-SD-CO)***

The ditch at the south border of the Site ultimately discharges into this branch of the City Drainage Canal at a location 250 feet south of Corridor Z (also known as South Georgia Parkway and Highway 82) and 320 feet west of S Nichols Street, directly adjacent to a dual railroad bridge over the canal and at the west side of the Waycross Coca-Cola Bottling Company property. Sample FSA-SD-CO was collected at this intersection.

- ***Canal Route of Discharge – Downstream of Intersection with Ditch (decision unit DU05)***

DU-05 is approximately 1,900 feet long beginning at the intersection and ending at Folks Street and throughout this section it flows through culverts under Corridor Z, Elizabeth Street, N Nichols Street, Mary Street, and McDonald Street. The culverts under Corridor Z and Elizabeth Street & Mary Street are each 250 feet long; combined with the other culverts this means that only 1150 feet of the DU-05 section (60%) is accessible. The canal traverses through Mary Street Park for 310 feet of its length.

- **Canal – Observations December, 2013**

Water in the canal was observed at widths from 6-10 feet and depths of 6-24 inches. Surface water flow averaged approximately 0.5 feet per second. The canal was primarily vegetated at the banks and contained an estimated sediment mix of approximately 60-70% coarse to medium sand (0.5-.25mm) and 30-40% very fine sand to silt (3.9-125µm). The canal is easily accessible to pedestrians but no patterns of activity (such as paths or other worn areas) were observed and no impacts were discernible.

**ADDENDUM 1 – ANSWERS TO QUESTIONS FOLLOWING RELEASE OF 2014 EPA
FRANCIS STREET SPECIAL SITE ASSESSMENT**

ANSWERS TO QUESTIONS FOLLOWING RELEASE OF *2014 EPA FRANCIS STREET SPECIAL SITE ASSESSMENT*

The following is a collection of answers to questions and comments that have been communicated to the U.S. Environmental Protection Agency (EPA) regarding sampling events that took place from December 2013 to February 2014 in Waycross, Georgia as part of the response to community concerns over several local facilities, including the former Seven Out Tank Site, the former Atlanta Gas Light (AGL) Manufactured Gas Plant (MGP), and the CSX Rice Yard facility. Individuals or entities who submitted questions and/or comments are referred to in this document only as “respondent” and the specific language of their statement(s) are not repeated within this document; rather, the language of the questions or statements are developed from the content and context of their submissions. The subjects covered this document are not intended to address all activities and findings of both EPA’s and the Georgia Environmental Protection Division’s (GAEPD) work; this document is focused only on answering specific concerns that have been posed regarding the work that was done. For a complete description of the sampling events and its findings, EPA and GAEPD have each completed final reports that describe and interpret their respective projects. EPA has posted the planning and reporting documents of its sampling event at the “documents” Section of the following webpage: www.epaosc.org/sevenout. GAEPD will make planning and reporting documents of its sampling events available upon request by contacting: Jim.Brown@dnr.state.ga.us

1) EPA 2013 SEDIMENT SAMPLING

a) EPA SAMPLING RESULTS

- i) ***ONE RESPONDENT STATED THAT HIGHEST LEVELS OF POLYCYCLIC AROMATIC HYDROCARBONS (PAH) IN THE DITCH BETWEEN THE SEVEN OUT AND CSX PROPERTIES WERE “UP GRADIENT” FROM SEVEN OUT AND INDICATE THAT CSX IS THE MOST LIKELY SOURCE. RESPONDENT ALSO STATED THAT CSX REPORTS WIDESPREAD PRESENCE OF PAHS AT THE CSX FACILITY.***

There appears to be an error that was overlooked before the *2014 EPA Francis Street Special Site Assessment* Report: Table 7 refers to sediment sample FSA-SD-DU01 as “upstream of Site” despite the conclusion in Section 2.2.3.2. of the report that this cannot truly be considered “upstream” or “up-gradient” since the elevation drop from the area where this sample was taken to the next Section of the ditch was negligible. The language in Table 7 should be adjusted and a corrected version of the report will be released.

The ditch between the Seven Out Tank Site and the CSC Rice Yard property was divided into two “decision units” referred to as DU-01 and DU-03. The ditch drains to the west; DU-01 is located to the east of the Seven Out Tank Site. Analytical results showed a slightly higher concentration of PAHs in the DU-01 location compared to DU-03. However an elevation survey of the ditch reveals that the difference between the eastern edge of DU-01 and the intersection with rainwater discharge from the Seven Out Tank Site is “effectively zero”. As a result, surface water runoff from the Seven Out Tank facility or general runoff from the surrounding area could all be contributing factors to concentrations of PAHs in DU-01 but no conclusion can be made that either is the primary source of PAHs in this location. This issue is addressed in Sections 2.2.3.2. and 2.2.3.3. of the 2014 EPA Francis Street Special Site Assessment Report.

ii) A RESPONDENT STATED THAT THE SEDIMENT SAMPLE RESULTS REPORTED BY EPA IN MARY STREET PARK FROM DECISION UNIT DU-05 WAS USED BY GEORGIA DEPARTMENT OF PUBLIC HEALTH (DPH) AS THE BASIS FOR DPH’S HEALTH CONSULTATION. THE RESPONDENT BELIEVES THAT DPH’S CONCLUSION IS THEREFORE “FAULTY”.

DPH utilized data provided by the Respondent as well as data provided by EPA. The Respondent is concerned over differences in analytical results of samples collected from the waterway in Mary Street Park by the Respondent and analytical results of samples collected by EPA. Georgia Department of Public Health Chemical Hazards Program has, to date, published *two* Health Consultations relating to the community concerns in Waycross being addressed here. As part of the first Health Consultation, DPH calculated a cumulative lifetime exposure dose of PAHs using analytical data provided by the Respondent. DPH stated that, based on this data set, children playing in or near the waterway in Mary Street Park are not likely to be harmed by the levels of PAHs found in the sediment. As part of the second Health Consultation, DPH completed a second calculation of cumulative lifetime exposure dose of PAHs using analytical data provided by EPA. DPH made the same statement based on the second set of results. This issue is addressed in Section 2.2.4.2. of the 2014 EPA Francis Street Special Site Assessment.

iii) ONE RESPONDENT STATED THAT GROUNDWATER FLOW FROM AGL SITE FLOWED NORTHEAST AND SUGGESTS THAT GROUNDWATER FROM CSX SHOULD HAVE FLOWED IN THE SAME DIRECTION, RESULTING IN ELEVATED LEVELS OF PAHs IN DU-04 THAT WOULD BE HIGHER THAN THOSE IN DU-01

The assumption in this statement, that PAH concentrations in the ditch and canal are the result of contaminated groundwater, cannot be confirmed or corroborated by any data that is available to either EPA or GAEPD. PAH concentrations in all of EPA’s ditch samples (DU-01, DU-02, and DU-03) and both of EPA’s canal samples (DU-04 and DU-05) were very low. In this case a particular “source” is indeterminable and may well be the result of general influences within the populated area. PAHs are the result of incomplete combustion of several types of organic materials, including gasoline and diesel - so the presence of PAHs in storm water drainage

systems is not unexpected. This issue is addressed in Section 2.2.3.1. of the *2014 EPA Francis Street Special Site Assessment*.

The statement that groundwater flow at the former AGL MGP Site flows northeast is not correct. The latest groundwater monitoring report from the former MGP Site (September, 2013) shows that shallow and intermediate groundwater was flowing northwest towards the nearest surface waterway: a branch of the city drainage canal. Although groundwater flow directions behave differently under varying influences of rainwater infiltration and positive or negative pressure sources, a flow direction towards surface water systems is common so this report is consistent with expected behavior of shallow groundwater. Likewise, there would be no expectation that shallow groundwater at the nearby CSX Rice Yard facility should flow in the same northwest direction as a system of wells more than 1,000 feet away. Rather, the regular monitoring well reports submitted by CSX demonstrate that groundwater flows, as expected, towards extraction wells (negative pressure source) and would otherwise flow to the nearest surface water pathway (to the south or the east in most cases).

b) EPA SAMPLING METHODOLOGY

i) ONE RESPONDENT EXPRESSED CONCERNS THAT EPA ONLY ANALYZED FOR PAHS WITHIN SAMPLES COLLECTED FROM SEDIMENT AND SURFACE SOIL DURING THE FRANCIS STREET SITE ASSESSMENT SAMPLING EVENT

Selection of target compounds and analytical methods must be based on existing knowledge or reasonable suspicion of an actual or potential release to the environment. From Section 3 of the *2014 EPA Francis Street Special Site Assessment*: “EPA did not encounter an indication of additional contaminants or contaminated media that could have been overlooked by the December 19, 2013 sampling event. The sampling design was based on available information of probable compounds and exposure scenarios resulting from the Seven Out Tank Site.” Sampling for PAHs within sediment and soil samples was intentionally focused on the drainage pathway from the Seven Out Tank Site. This strategy was designed to evaluate whether contaminants of concern, that were identified by community members in sample “SO-SW” from the *2004 EPA Removal Site Evaluation*, migrated downstream from the facility. This issue is addressed in Sections 1.2.3. and 2.1. of the *2014 EPA Francis Street Special Site Assessment*.

ii) ONE RESPONDENT EXPRESSED DISAPPROVAL IN THE INCREMENTAL SAMPLING METHOD (ISM) USED BY EPA, STATING THAT THIS METHOD SKEWS OR DILUTES CONCENTRATIONS

Sample dilution with the incremental method is a misconception. The method was deliberately selected to provide reliable and representative data for this project. The ISM process includes collecting a large quantity of sample points (“aliquots” or “increments”) from a specific and unique area of interest (“decision unit”) then systematically mixing (“homogenizing”) those points into a single sample provides a higher quality representation of the area of interest than

most other sampling methods. Other common methods such as a single point (“grab sample”) or a five-point-composite cannot be assumed to achieve the degree of representativeness and repeatability that ISM provides. In any environment, concentrations of compounds will be found in higher concentrations of an area than in others - but since the distribution of compounds in these areas is unknown, any single sample may be taken from a higher or lower relative concentration. Sample designs that include higher sample density and frequency are more likely to find areas of concern. This issue is addressed in Section 2.1.1 of the 2014 EPA Francis Street Special Site Assessment Report.

iii) ONE RESPONDENT STATED THAT ANALYTICAL RESULTS OF A SEDIMENT SAMPLE COLLECTED BY THE RESPONDENT FROM THE CITY DRAINAGE CANAL IN MARY STREET PARK (A.K.A. “FOLKS PARK”) AND SURFACE SOIL SAMPLES COLLECTED BY GAEPD FROM A RESIDENTIAL YARD ON McDONALD STREET RETURNED HIGHER CONCENTRATIONS OF CERTAIN PAHS THAN THE RESULTS REPORTED BY EPA IN DU-05. THE RESPONDENT BELIEVES THAT THE DISCREPANCY IS DUE TO DILUTION CAUSED BY THE ISM METHOD USED BY EPA.

The sample collected by EPA in December, 2013 from what is known as “DU-05” in the 2014 EPA Francis Street Special Site Assessment Report is representative of the entire segment of the canal from the intersection with the ditch (which discharges rainwater from the Seven Out Tank Site) to the First Christian Church property; this segment includes not only Mary Street Park but also other areas of the canal which are open to the air and easily accessible to the public. There is no indication that sediments within the canal portion of Mary Street Park are exceptionally different than the sediments near residences along Elizabeth Street or those near First Christian Church. As was stated in answer 1)b)ii) above, and in Section 2.1.1 of the 2014 EPA Francis Street Special Site Assessment Report: “Sample dilution with the incremental method is a misconception. The method was deliberately selected to provide reliable and representative data for this project.” The project undertaken by EPA in this instance was governed by a site-specific quality assurance project plan (QAPP). The QAPP assures that this project adhered to applicable standard operating procedures and guidance documents for sample collection and preparation to avoid cross-contamination, ensured EPA-approved laboratory analytical methods were followed, verified lab quality assurance procedures, conducted post-analytical data quality assurance evaluation, and calculated statistical analysis for data reliability. While EPA does not expect samples collected by the Respondent to meet these same data quality standards, it is important to illustrate the high standards that must be met to produce data that can be used in an action or no-action decision. Nonetheless, the analytical results of PAH concentrations in sediments of Mary Street Park provided by residents would not result in a different conclusion than that stated in Section 2.2.4.5. of the 2014 EPA Francis Street Special Site Assessment. Also, the Georgia DPH demonstrated in a 2013 Health Consultation for the Seven Out, LLC Facility and Soil Contamination Concerns at Mary Street Park (Folks Park) that:

even when calculating actual exposure levels using data provided by residents, children are not likely to be harmed by the levels of PAHs reported in the sediment.

iv) ONE RESPONDENT STATED THAT SAMPLING METHODOLOGY USED BY EPA ADDITIONALLY SKEWED RESULTS BY COLLECTING OF SAMPLES FROM THE BANKS (SIDES) OF THE DITCH AS OPPOSED TO STRICTLY THE CENTER OF THE WATERWAY.

Samples were not collected on the bank of the ditch. Sample points (“aliquots”) were collected from the left, right and center of the ditch/canal bed. In practice, this means that the sample was collected from the edges and center of the water height what was observed on the day the sample was taken (descriptively, all sample points were at or below the wetted surface). This practice is particularly useful in areas where the ditch or canal surface is wide and influences of sediment deposition may differ from the left or the right side. A description of this procedure was stated in Section 1.4. of the *December, 2013 Quality Assurance Project Plan for the Francis Street Assessment*.

c) EPA CONCLUSIONS

i) ONE RESPONDENT RAISED A QUESTION ABOUT WHETHER EPA REGION 9 PRELIMINARY REMEDIATION GOALS (PRGs) THAT WERE REFERENCED IN EPA’S 2004 REMOVAL SITE EVALUATION AT THE SEVEN OUT TANK SITE. THE RESPONDENT QUESTIONED WHETHER PRGs IN THE 2004 REPORT ARE MORE PROTECTIVE THAN CRITERIA THAT WERE CITED IN 2014 BY EPA AND GAEPD IN THE EVALUATION OF RECENT SAMPLE DATA.

It is inaccurate to claim that a PRG is more or less protective than a RSL or RML due to the type of information that is used to generate these values. The term “Preliminary Remediation Goal” is no longer in use and has been replaced by Regional Screening Levels (RSLs) (or known simply as “Screening Levels) developed by a team led from EPA Regions 3 & 6 and utilized nationwide, including by EPA Region 4 and EPA Region 9. Exceedance of RSLs indicates the need for site-specific risk evaluation to determine whether detected chemicals pose health risks exceeding EPA’s acceptable risk range. EPA’s further evaluation of the Francis Street data concluded that EPA’s risk range is not exceeded. Therefore remediation is not needed. The Removal Management Levels (RMLs) are another criteria developed by a team led from EPA Region 4. Both RSLs and RMLs are adjusted annually based on, among other things, new research data received on individual compounds or groups of compounds; this could cause the relative RSL or RML for a given compound to increase or decrease without a change in “protectiveness”. The reader is asked to keep in mind that all of these values (PRGs, RSLs, and RMLs) are calculated as generic numbers for use as part of the data evaluation and decision-making processes. These values do not represent enforceable standards, they are not de-facto actionable cleanup standards, and they do not represent an absolute position on cleanliness or

protectiveness. This issue was addressed in Section 1.2.2.2. of the 2014 EPA Francis Street Special Site Assessment Report.

The Georgia Type 1 RRSs are State regulated cleanup standards used to demonstrate completion of a corrective action under Georgia Rule 391-3-19-.07; the Type 1 standards are designed to “provide for regulated substance concentrations that [will] pose no significant risk on the basis of standardized exposure assumptions and defined risk levels for residential properties,” [Ga. Comp. R. & Regs. R. 391-3-19-.07(6)(a)]. This issue was addressed in Section 2.2.1.2. of the of the 2014 EPA Francis Street Special Site Assessment Report.

ii) ONE RESPONDENT POINTED OUT THAT ELEVATED LEVELS OF PAHS WERE REPORTED IN SAMPLE SF-SCW AT THE SEVEN OUT TANK SITE AND ASKED WHAT MEASURES WOULD BE TAKEN TO ADDRESS THEIR PRESENCE AND PREVENT MIGRATION.

The soil represented in samples SF-SCW consists of an area no greater than 200 square feet (less than 0.15% of the total property surface) and is not representative of average surface concentrations at the Site. The soil in this Section is also heavily vegetated, impeding possibility of both exposure and migration. In 2005 and 2006, GAEPD completed a preliminary assessment and site investigation of the Site where it stated that soil exposure was not considered a serious threat because no primary targets could be identified. Migration of contaminants to groundwater is also not considered a serious threat; this is due to the relatively low concentration, small size of the source area, and low mobility of PAHs compared with the depth and distance of ground water wells in the area. EPA agrees with GAEPD’s conclusions and, based on sample results collected in December, 2013, determines that the conclusions remain applicable at this time. Due to the lack of threat posed by the soils represented in sample FS-SCW, excavation or other response action to address this area is not necessary and is not recommended. These issues are addressed in Sections 2.2.2.1, 2.2.2.2., and 2.2.2.3. of the 2014 EPA Francis Street Special Site Assessment Report.

iii) WITHIN ONE RESPONDENT’S MESSAGE REGARDING SAMPLE COLLECTION FROM BANKS OF THE WATERWAY, A SPECULATIVE STATEMENT WAS MADE ABOUT WHETHER PAHS IN THE WATER WAY WERE THE RESULT OF GROUNDWATER FLOW FROM THE CSX FACILITY AND AN ASSERTION WAS MADE THAT THE HIGHEST CONCENTRATIONS OF PAHS WERE FOUND UP-GRADIENT FROM THE SEVEN OUT FACILITY.

There are several reasons why this assertion is not supported by existing data. Shallow groundwater levels and flow patterns within the northeast Section of the CSX Rice Yard Facility have been frequently mapped and documented. The pattern of flow in this area where known shallow groundwater resides favors the south and eastern directions (not north toward the Seven Out Tank Site). PAHs have not been identified as a primary contaminant of concern for

the CSX Rice Yard RCRA Corrective Action – the contaminants of concern in this project are primarily focused on chlorinated solvents. Due to the low detections of PAHs in samples that were collected by EPA in the ditch behind the Seven Out Tank Site (DU-01 and DU-03) and the drainage path from the containment area of the Site (SF-CT and DU-02), no conclusion can be made about the primary source of PAHs in the ditch and no segment of the ditch can be regarded as upgradient of the Seven Out Tank Site. This issue was addressed in Section 2.2.3.2. of the 2014 EPA Francis Street Special Site Assessment.

iv) ONE RESPONDENT COLLECTED SAMPLES FROM SOIL IN YARDS AROUND THE AREAS WHERE EPA COLLECTED SEDIMENT SAMPLES FROM DU-04; THE RESPONDENT'S ANALYTICAL RESULTS RETURNED DETECTIONS FOR METHYLENE CHLORIDE AND ACETONE IN SURFACE SOIL (0-6 INCHES). RESPONDENT BELIEVES THAT THE PRESENCES OF THESE COMPOUNDS ARE RELATED TO GROUNDWATER FLOW.

The Respondent's data summary of these samples that was provided to EPA indicates a single detection of acetone within sediment of the city drainage canal (0.027 mg/kg) and three potential detections of methylene chloride in soil samples (0.0059 – 0.019 mg/kg, all with "J" qualifier added) at depths ranging from <0.5ft to 3ft. The "J" qualifier in the potential detections of methylene chloride means that the analyte was measured at a level below quantitation limit and is only an estimated value. The Regional Screening Level³⁵ (RSL) for acetone in residential surface soil is 6,100-61,000 mg/kg³⁶ and the RSL for methylene chloride is 35-57 mg/kg³⁷; the detected and potentially detected values in the samples are significantly below a concentration of concern. Furthermore, there is no information to support the claim that the presence of these compounds in the canal or in surface soil would be related to groundwater flow; this claim cannot be confirmed or corroborated by any data that is available to either EPA or GAEPD.

³⁵ EPA generic Regional Screening Level (RSL). The reader is asked to keep in mind that generic RSLs are used in the initial screening process; RSLs do not represent enforceable standards and are not actionable cleanup levels. However, RSLs usually provide concentrations that are far lower than an enforcement standard or an action level where such measures exist. A detailed discussion of RSLs is provided in Sections 1.2.2.2. and 2.1.1.1. of the 2014 EPA Francis Street Special Site Assessment Report.

³⁶ This RSL is provided as a range because acetone is not classified as a carcinogen - so concentration is based on toxicity criteria. Part of the equation for calculating a RSL uses a component known as a hazard quotient (HQ) which represents the ratio at which no adverse effects are expected. The range is defined by using HQ=0.1 and HQ=1.0. It is critical to point out that HQ>1.0 does *not* mean that adverse effects will occur.

³⁷ This RSL is provided as a range because methylene chloride is classified as both a possible carcinogen and a non-carcinogenic hazard. As with all RSLs, the target cancer (TR) risk level of 1×10^{-6} (1/1,000,000) is used in the calculation. For the non-carcinogenic hazard component, the calculation uses a variable known as a hazard quotient (HQ) which represents the ratio at which no adverse effects are expected. The range is defined by using HQ=0.1 and HQ=1.0. It is critical to point out that a TR= 1×10^{-6} does *not* mean that cancer occurs at this ratio and a HQ>1.0 does *not* mean that adverse effects will occur.

v) ONE RESPONDENT ASKS FOR EXPLANATION OF WHY PAH CONCENTRATIONS WERE FOUND IN DU-01 AND DU-05 (MARY STREET PARK) AND “THE SURROUNDING HOMES” WHERE HIGHER THAN PAH CONCENTRATIONS IN DU-04. THE RESPONDENT STATED THAT THIS WAS CONFIRMED BY SAMPLES COLLECTED BY THE RESPONDENT’S CONTRACTOR.

EPA samples showed that concentrations of PAHs in DU-05 (“decision unit” number 5) were lower, not higher, than those in DU-04. DU-05 consists of the city drainage canal beginning at the intersection with the ditch (a portion of which is behind the Seven Out Tank Site) downstream to the First Christian Church property, and includes the canal segment in Mary Street Park. DU-04 consists of the same city drainage canal but is upstream of the intersection with the ditch along a distance of approximately 1,900 feet. Only one soil sample was collected from a residence near Mary Street Park (by GAEPD, not by EPA) and the sample returned a single detection for one compound in the PAH family³⁸. There is no clear reason why concentrations of PAHs in DU-01 (a segment of the ditch near the Seven Out Tank Site) were higher than those in DU-04 or DU-05. Surface water flow in ditch is intermittent and significantly slower than surface water flow in the canal. A lower flow rate would allow light sediments to settle and remain in the ditch and could account for the difference. There is also no clear reason why concentrations of PAHs in DU-04 were slightly higher than those in DU-05. The concentrations of PAHs were very low in both sediment and soil samples collected by EPA and GAEPD. Since PAHs are produced by multiple sources in a populated area, any claim that a pattern exists within the results which points to any single source would be highly speculative and would not be supported by the data that is available. This issue is addressed in Section 2.2.3.1. of the 2014 EPA Francis Street Special Site Assessment.

vi) ONE RESPONDENT ASKED WHETHER EPA WOULD BE CONDUCTING ANY AIR OR VOLATILE ORGANIC COMPOUND (VOC) SAMPLING IN THE SEVEN OUT VICINITY.

EPA has no plans to collect further samples relating to the Seven Out Tank Site. There is no indication that contaminants remain at the Site which could become airborne. Sample design (including location, media, target compounds, and analytical methods) must have a clear purpose that is based on existing knowledge or reasonable suspicion of an actual or potential release to the environment. From Section 3 of the Special Site Assessment Report: “EPA did not encounter an indication of additional contaminants or contaminated media that could have been overlooked by the December 19, 2013 sampling event. The sampling design was based on

³⁸ EPA recognizes that GAEPD’s laboratory found 6 compounds in the PAH family were potentially indicated by the instrument but were measured below the minimum reporting limit for the instrument during the data quality review process so these were marked as “not detected”. EPA also recognizes that the Respondent collected a split of this particular sample for an independent laboratory analysis. While the quality procedures for this effort do not meet EPA’s standards, it is fair to note that the laboratory analysis (which utilized the same EPA method 8270C method for semivolatile analysis) returned detections of 7 compounds in the PAH family but that it did not detect the single compound reported by GAEPD.

available information of probable compounds and exposure scenarios resulting from the Seven Out Tank Site.” All materials which could have presented a threat of release to the air were removed in 2008 and 2009 as mentioned in Section 1.1.1. of the *2014 EPA Francis Street Special Site Assessment*. The area of the Site which contains a measured amount of elevated PAHs is small (200 square feet and <0.15% of the total site area) and is heavily vegetated. This area does not present a threat of release of contaminants to the air that would warrant further sampling or action. Information on this area can be found in Sections 2.2.2.1. and 2.2.2.3. of the *2014 EPA Francis Street Special Site Assessment*.

vii) ONE RESPONDENT ASKED WHETHER EPA WILL COLLECT SAMPLES FROM GROUNDWATER OR SURFACE WATER.

EPA has no plans to collect further samples relating to the Seven Out Tank Site. There is no indication that groundwater or surface water has been impacted by the Seven Out Tank Site. Sample design (including location, media, target compounds, and analytical methods) must have a clear purpose that is based on existing knowledge or reasonable suspicion of an actual or potential release to the environment. From Section 3 of the Special Site Assessment Report: “EPA did not encounter an indication of additional contaminants or contaminated media that could have been overlooked by the December 19, 2013 sampling event. The sampling design was based on available information of probable compounds and exposure scenarios resulting from the Seven Out Tank Site.” Discussions and decisions regarding groundwater near the Site are provided in Sections 2.2.2.2. and 2.2.2.3. of the *2014 EPA Francis Street Special Site Assessment*.

2) GAEPD 2014 GROUNDWATER AND SURFACE SOIL SAMPLING

a) GAEPD PROJECT

i) ONE RESPONDENT REQUESTED AN EXPLANATION REGARDING THE PROCESS OF UNIT CONVERSION FROM $\mu\text{G}/\text{ML}$ TO $\mu\text{G}/\text{KG}$

Units reported by an instrument are based on the type, part, or kind of sample that was “injected” into the instrument and is not directly transferrable to a real-world concentration. Conversion from instrument output units to real-world concentration units require direct knowledge of both the instrument and the method by which the sample was prepared. With this knowledge, the technician or data quality reviewer can usually convert the instrument output figures to a real-world concentration unit with a single multiplier. Part of this multiplier is calculated using a dilution factor (DF). “Dilutions” are a necessary part of the preparation process for soil samples since the instrument, by design, requires that the input (the “injection”) be in the form of a liquid.

ii) ONE RESPONDENT REQUESTED AN EXPLANATION FOR THE PROCESS USED TO INTERPRET INFORMATION PROVIDED BY THE LABORATORY AS A “NON-DETECT” RESULT IN THE SUMMARY DOCUMENTS PROVIDED TO RESIDENTS.

There are a number of reasons why the appearance of detection from the instrument is reported as “Not Detected” and is usually a result of the data quality review process. The procedures are often specific to the method being used to analyze the sample. The following is a summary of various issues considered during the data quality review from GAEPD’s sample project:

BELOW REPORTING LIMIT

A handwritten note of “BRL” or “<MRL” stands for “below reporting limit” and “below minimum reporting limit,” respectively. The reporting limit for the instrument is established during a series of instrument calibration activities which are conducted periodically (may be done annually, quarterly, or more often but are based on the laboratory’s standard operating procedures). The reporting limit (RL) is not stated in the Quantitation Report but is provided in the “Laboratory Report” (which has been referred to by some Respondents as the “Summary Report” or “Summary Document”).

QUALITY VALUE

Possible detections from an instrument may be evaluated based on their signal quality, which is a number between 0-100 and is listed under “Qvalue” in the Quantitation Report. A higher quality value suggests a higher likelihood that the analyte was successfully identified. However, even with a quality value of 100, results below the reporting limit are still unreliable.

NO PATTERN

Some analytes are actually a *mixture* of compounds, also known as multicomponent constituents. The sample mass spectra returned by the instrument are reviewed by the technician and data quality reviewer for the distinctive pattern of the mixture. Peaks that do not correspond to the pattern are likely due to unrelated interferences within the sample that the method is not designed to identify.

BELOW CALIBRATION

The “Below Cal” designation in quantitation reports means that the response returned by the instrument was below the calibration standard used for that compound and it could not be measured within the sample. “Below Cal” is different from other incidences that were marked “BRL” or “<MRL” during the data quality review process since, in those cases, the instrument is able to attempt a measured value. Where a measurement is designated as “Below Cal”, the instrument’s response limit for the analyte is still valid.

QUALIFIER OUT OF RANGE

The “#” designation means “qualifier out of range”. The best way to explain this mark is that the shape of the spectrum used to accurately identify the compound’s presence did not exactly match the shape that was observed. A similar but imprecise shape that was observed could therefore be the result of an unidentified interference.

iii) ONE RESPONDENT INQUIRED ABOUT WHICH SCREENING STANDARDS OR OTHER CLEANUP STANDARDS ARE USED BY GEORGIA EPD

The state of Georgia does not have its own list of screening levels to use for site evaluation. GAEPD utilizes Regional Screening Levels (RSLs) that are produced and released by EPA.

Georgia *does* define state cleanup and treatment standards for soil and drinking water. For soil, the Georgia Type 1 Risk Reduction Standards (RRSs) are State-regulated cleanup standards used to demonstrate completion of a corrective action under Georgia Rule 391-3-19-.07; the Type 1 standards are designed to “provide for regulated substance concentrations that [will] pose no significant risk on the basis of standardized exposure assumptions and defined risk levels for residential properties,” [Ga. Comp. R. & Regs. R. 391-3-19-.07(6)(a)]. This issue was addressed in Section 2.2.1.2. of the of the 2014 EPA Francis Street Special Site Assessment Report. For drinking water, the Georgia Rules for Safe Drinking Water [Ga. Comp. R. & Regs. R. 391-3-5 *et seq*] establishes policies, procedures, requirements and standards to implement the Georgia Safe Drinking Water Act of 1977 [Act No. 231 O.C.G.A. Section 12-5-170 *et seq.*, as amended]. These rules include Primary and Secondary Maximum Contaminant Levels for Drinking Water.

iv) ONE RESPONDENT REQUESTED AN EXPLANATION OF THE DESIGNATIONS “#3” AND “RERUN” IN THE SAMPLE NAME OF THE QUANTITATION REPORT.

These designations appear in the quantitation report for semivolatile analysis using EPA method 8260B for two of the soil samples. The time stamps for these two samples indicate that they were the first two of the three samples that entered the instrument. The most likely reasons for this designation are: a) the operator noticed a potential error in the instrument’s parameters then reinitiated the run after correcting the settings; and/or b) the operator noticed that only two of the three samples had been entered into the instrument and reinitiated the run so that all three samples could be completed concurrently.

b) GAEPD GROUNDWATER SAMPLING***i) ONE RESPONDENT REQUESTED AN EXPLANATION ABOUT NUMBERS THAT WERE ACCOMPANIED BY HAND-WRITTEN MARKS IN REPORTS PROVIDED BY THE LABORATORY BUT WERE THEN STATED AS “NON-DETECT” IN A SUMMARY DOCUMENT THAT WAS PROVIDED TO RESIDENTS.***

This question relates to detections that were printed in the “Quantitation Report” provided by the GAEPD laboratory but were manually removed during the quality assurance review. A note of “BRL” or “<MRL” was written adjacent to several numbers that appear to be detections of an analyte; these acronyms stand for “below reporting limit” and “below minimum reporting limit,” respectively. The reporting limit for the instrument is established during a series of instrument calibration activities which are conducted periodically (these calibrations may be done annually, quarterly, or more often but are based on the laboratory’s standard operating procedures). The reporting limit (RL) is not stated in the Quantitation Report but is provided in the “Laboratory Report” (which has been referred to by some Respondents as the “Summary Report” or “Summary Document”). Possible detections which appear below the reporting limit may be evaluated based on their signal quality, which is a number between 0-100 and is listed under “Qvalue” in the Quantitation Report; a higher quality suggests a higher likelihood that the analyte was successfully identified. However, even with a quality value of 100, results below the reporting limit are unreliable.

ii) ONE RESPONDENT STATED THAT BENZO(A)PYRENE DOES NOT APPEAR ON THE LABORATORY ANALYTICAL REPORTS. THE RESPONDENT BELIEVES THAT THERE ARE PEAKS ON ONE OF THE MASS SPECTRA WHICH COULD BE BENZO(A)PYRENE BUT ARE NOT ADEQUATELY ADDRESSED.

Benzo(a)pyrene was included in the list of target compounds measured all samples under the semi-volatile standard EPA method 8270C. There were no peaks in any of the 8270C method mass spectra which would indicate a presence of benzo(a)pyrene which was not identified. Benzo(a)pyrene was also measured under the drinking water determination of PAHs using EPA method 550. There were no peaks in any of the method 550 mass spectra which would indicate a presence of benzo(a)pyrene which was not identified. Unlabeled peaks that appear in these graphs neither correspond to the proper relative location of benzo(a)pyrene nor show the presence of any other PAH group member (PAHs often appear as a group so additional PAH compounds would be anticipated if benzo(a)pyrene were present in the environment). Only the surrogate³⁹ compound, phenanthrene, was detected in method 550.

³⁹ A surrogate is applied in the laboratory as part of sample preparation and is used to measure recovery rate

iii) ONE RESPONDENT REQUESTED AND EXPLANATION OF DILUTION FACTORS THAT WERE USED IN ANALYSIS OF PESTICIDES AND HERBICIDES, PARTICULARLY HEPTACHLOR AND HEPTACHLOR EPOXIDE, AND HOW THESE DILUTION FACTORS INFLUENCE RESULTS STATED BOTH THE LABORATORY REPORT AND SUMMARY DOCUMENT.

The resulting mass spectrum for a well sample analyzed under drinking water determination of chlorinated pesticides using EPA method 508 which returned high detections for heptachlor was likely an interference of a non-target compound. The sample was diluted to remove the interference and the reporting limit was increased to compensate; the resulting dilution was unable to quantify the presence of heptachlor. Although the resulting reporting limit for heptachlor was greater than 8 µg/L, the reporting limit for heptachlor epoxide (which was not detected) remained at 0.044 µg/L (sufficiently below the MCL⁴⁰ of 0.2 µg/L). In the environment, heptachlor breaks down quickly into heptachlor epoxide. It would be expected that actual detections of these compounds yield relatively higher concentrations of heptachlor epoxide over the precursor, heptachlor. However, since this was not the case, the cause for these detections was likely due to an interfering compound within the sample for which method 508 was not designed to identify.

iv) ONE RESPONDENT EXPRESSED CONCERN OVER APPARENTLY ELEVATED CONCENTRATIONS OF TOXAPHENE IN TWO GROUNDWATER WELLS.

The resulting mass spectrum for well samples which appeared to return detections for toxaphene was eliminated as not-detected and a hand-written note of “no pattern” was added. Toxaphene is actually a *mixture* of compounds, so the laboratory’s sample report lists a series of 8 precise toxaphene peaks that are used to identify and quantify the presence of the group as a whole. A detection of toxaphene would yield a recognizable pattern of peaks across this group; peaks that do not correspond to this pattern are likely due to unrelated interferences within the sample that the method is not designed to identify.

v) ONE RESPONDENT STATED THAT ALL OF GEORGIA EPD’S GROUNDWATER SAMPLES RETURNED DETECTABLE CONCENTRATIONS OF 2,2,3,3 TETRAMETHYL-BUTANE. THE RESPONDENT POINTS OUT THAT THIS COMPOUND IS A FUEL ADDITIVE AND SHOULD NOT BE IN GROUNDWATER WELLS

While 2,2,3,3-tetramethyl-butane is a petroleum product, the detections within groundwater samples are listed only as “TIE” which means “tentatively identified or estimated.” One reason for this note is that the method is not designed to detect the compound since 2,2,3,3-tetramethyl-butane [CAS No. 594-82-1] is not within the list of compounds that can be quantified using EPA analytical method 8270C. In the event that a peak on the mass spectrum cannot be identified, it is compared to a database of potential compounds from which an

⁴⁰ Maximum Contaminant Level (for public drinking water systems)

estimated match can be made. Reporting the potential detection of a compound despite the fact that it does not appear on the target compound list for the method is advantageous to provide additional information to the laboratory technician or the data quality reviewer. However, when viewing each of the groundwater results simultaneously, it can be seen that each sample reports a “tentative” detection of 2,2,3,3-tetramethyl-butane within a range of 410-460 µg/L; this is an extremely narrow range considering the wells cover a ground area of nearly 1,000 acres and at least one of the wells is much deeper than the others. The more likely cause of this detection is an unknown interference related to the sampling or analytical process.

vi) RESPONDENT STATED THAT GROUNDWATER WELL SAMPLES COLLECTED BY GEORGIA EPD FROM A DEEP WELL ACROSS THE STREET FROM THE RUSKIN ELEMENTARY SCHOOL RETURNED “A CONCERNING AMOUNT OF TOTAL HYDROCARBONS.”

As with 2,2,3,3 tetramethyl-butane discussed in answer 2)b)v) above, detections of “total hydrocarbons” and “2,4(1H,3H)-pyrimidineodione” were reported separately as “TIE” or “tentatively identified or estimated” in at least one groundwater sample. Also, as with 2,2,3,3 tetramethyl-butane, a reason for this is that the method is not designed to detect the compound since 2,4(1H,3H)-pyrimidineodione [CAS No. 66-22-8] is not within the list of compounds that can be quantified using EPA analytical method 525.2 and total hydrocarbons is a complex group of compounds that also cannot be quantified using method 525.2. In the event where a peak cannot be identified on the mass spectrum, it is compared to a database of potential compounds from which an estimated match can be made. Unlike 2,2,3,3 tetramethyl-butane, there is no consistency between sample results since only one sample returned this value. While there is no clear explanation for the tentative report of 2,4(1H,3H)-pyrimidineodione, the report of “total hydrocarbons” is likely caused by an unknown interference since the sample did not appear to contain common volatile organic compounds that would be associated with the hydrocarbon group, such as: hexane, benzene, toluene, xylene, naphthalene, or fluorine.

vii) ONE RESPONDENT STATED THAT GEORGIA EPD’S GROUNDWATER SAMPLES RETURNED CONCENTRATIONS OF DI-(2-ETHYLHEXYL)ADIPATE, DI-(2-ETHYLHEXYL)PHTHALATE, DI-N BUTYLPHTHALATE, AND TCE IN SOME OR ALL OF THE WELLS THAT WERE SAMPLED

None of the compounds mentioned by the respondent were reported as actual or estimated concentrations due to conflicting parameters that were identified during the data quality review process. An explanation for each compound is provided below along with the generic EPA Regional Screening Level (RSL) for each. The RSLs provided here are calculated for tapwater, which represents a scenario that must be significantly more protective than groundwater or surface soil. The reader is asked to keep in mind that generic RSLs are used in the initial screening process; RSLs do not represent enforceable standards and are not actionable cleanup levels. However, RSLs usually provide concentrations that are far lower than

an enforcement standard or an action level where such measures exist. A detailed discussion of RSLs is provided in Sections 1.2.2.2. and 2.1.1.1. of the 2014 EPA Francis Street Special Site Assessment Report.

The reader is also asked to keep in mind that units reported by an instrument are based on the fraction that was provided to the instrument and is not directly transferrable to a real-world concentration. Conversion from instrument output units to real-world concentration units require direct knowledge of both the instrument and the method by which the sample was prepared. For this reason, units are not provided for instrument output figures stated in the paragraphs below.

DI-(2-ETHYLHEXYL)ADIPATE (RSL FOR TAPWATER = 65 µG/L)

Di-(2-ethylhexyl)adipate was measured as part of a determination of organic compounds in drinking water using EPA method 525.2. Data that was returned from the instrument included three detections from two wells, within an output range of 0.03-0.36⁴¹). Two detections were marked during the data quality review process as “<MRL” which means “below minimum reporting limit”. The reporting limit of this compound for the laboratory’s instrument at the time was 1.3 µg/L and is sufficiently below the RSL. One detection was marked by the instrument with a “#” which means “qualifier out of range”; the best way to explain this mark is that the shape of the spectrum used to accurately identify the compound’s presence did not exactly match the shape that was observed. The peak that was observed could therefore be the result of an unidentified interference.

DI(2-ETHYLHEXYL)PHTHALATE (RSL FOR TAPWATER = 5.6 µG/L)

Di(2-ethylhexyl)phthalate was also measured as part of a determination of organic compounds in drinking water using EPA method 525.2. Data that was returned from the instrument included two detections from two wells, within an output range of 0.31-0.38⁴²). One detection was marked during the data quality review process as “<MRL” which means “below minimum reporting limit”. The reporting limit of this compound for the laboratory’s instrument at the time was 1.3 µg/L and is below the RSL. One detection was marked by the instrument with a “#” which means “qualifier out of range”; this mark is explained in the previous paragraph.

DI-N BUTYLPHTHALATE (RSL FOR TAPWATER = 90-900 µG/L⁴³)

Di-n butylphthalate was measured as part of a determination of semivolatile organic compounds using EPA method 8270C. Data that was returned from the instrument included

⁴¹ No units will be provided here to prevent confusion between instrument output units and real-world concentration units.

⁴² No units will be provided here to prevent confusion between instrument output units and real-world concentration units.

⁴³ This RSL is provided as a range because di-n-butylphthalate is not classified as a carcinogen - so concentration is based on toxicity criteria. Part of the equation for calculating a RSL uses a component known as a hazard quotient (HQ) which represents the ratio at which no adverse effects are expected. The range is defined by using HQ=0.1 and HQ=1.0. It is critical to point out that HQ>1.0 does *not* mean that adverse effects will occur.

three detections from three wells, within an output range of 5.86-7.00 (⁴⁴). All three detections were marked during the data quality review process as “BRL” which means “below reporting limit”. The reporting limit of this compound for the laboratory’s instrument at the time was 10 µg/L and is sufficiently below the RSL. Even if the data that was reported were accurate, the range of 5.86-7.00 (⁴⁵) is extremely narrow and would not be anticipated across samples that span a land area of nearly 1,000 acres across both shallow and deep well locations; such a small range would reasonably be expected from an unknown interference for which EPA method 8270C is not designed to identify.

TRICHLOROETHYLENE (A.K.A. TRICHLOROETHENE OF TCE) (RSL FOR TAPWATER = 0.28-0.49 µG/L⁴⁶)

Trichloroethylene was measured both as part of a determination of volatile organic compounds using EPA method 8260 and as part of a measurement of purge-able organic compounds in water using EPA method 524.2. Data that was returned from the instrument included two detections from one well, both using method 524.2 and within an output range of 0.30-0.48 (⁴⁷). One detection was marked during the data quality review process as “<MRL” which means “below minimum reporting limit”. The reporting limit of this compound for the laboratory’s instrument for method 524.2 at the time was 0.50 µg/L which is nearly at the RSL. Both detections were marked by the instrument with a “#” which means “qualifier out of range”; this mark is explained in a previous paragraph (above, see *di-(2-ethylhexyl)adipate*). Even if the data that was reported were accurate, concentrations did not exceed the reporting limit of 0.50 µg/L which is within range of the RSL (0.28-0.49 µg/L) but is sufficiently below the the Removal Management Level (RML) of 2.8-8.5 µg/L and the Maximum Contaminant Level⁴⁸ (MCL) for drinking water of 5.0 µg/L. Groundwater sources actively being used as residential drinking water with contaminant concentrations above the RML or MCL would warrant consideration of a corrective measure. The MCL is enforceable for public drinking water sources and is not directly enforceable for private water wells but it remains a useful measure to evaluate whether an actual concentration in private wells meets a level of concern.

⁴⁴ No units will be provided here to prevent confusion between instrument output units and real-world concentration units.

⁴⁵ No units will be provided here to prevent confusion between instrument output units and real-world concentration units.

⁴⁶ This RSL is provided as a range because Trichloroethylene classified as both a carcinogen and a non-carcinogenic hazard. As with all RSLs, the target cancer (TR) risk level of 1×10^{-6} (1/1,000,000) is used in the calculation. For the non-carcinogenic hazard component, the calculation uses a variable known as a hazard quotient (HQ) which represents the ratio at which no adverse effects are expected. The range is defined by using HQ=0.1 and HQ=1.0. It is critical to point out that a TR= 1×10^{-6} does *not* mean that cancer occurs at this ratio and a HQ>1.0 does *not* mean that adverse effects will occur.

⁴⁷ No units will be provided here to prevent confusion between instrument output units and real-world concentration units.

⁴⁸ While RSLs and RMLs are not enforceable standards or actionable cleanup levels, the MCL is an enforceable regulated limit, created by the federal Safe Drinking Water Act (SDWA), for concentrations of contaminants in public drinking waters. The regulatory limit for Trichloroethylene can be found in the code of federal regulations: 40 CFR §141.61(a)

viii) ONE RESPONDENT STATED THAT ALL OF GEORGIA EPD'S GROUNDWATER SAMPLES RETURNED DETECTABLE CONCENTRATIONS OF 1,4 DIOXANE BUT THAT THE VALUES RETURNED WERE BELOW CALIBRATION LEVELS

There is no indication that 1,4-dioxane was ever detected in any of the analytical results. 1,4-Dioxane was measured as part of the target compound list in the determination of semivolatile organic compounds using EPA method 8270C. The quantitation report returned by the instrument indicated, for all three wells, that the anticipated response value was "Below Cal" which means that it was less than the calibration standard used for the instrument and could not be measured. "Below Cal" is different from other incidences that were marked "BRL" or "<MRL" during the data quality review process since, in those cases, the instrument is able to attempt a measured value. Also, the "#" designation appears and a Qvalue (quality value) of "32" is provided for each of the three wells. The "#" means "qualifier out of range" and the Qvalue is a number used to measure the confidence that the compound was properly identified; Qvalue is graded on a scale of 0 to 100 so a value of 32 is extremely low. The best way to explain this situation is that the shape of the spectrum used to accurately identify the compound's presence did not exactly match the shape that was measured, so the shape that was measured in the sample is likely the result of an unidentified interference.

ix) ONE RESPONDENT INQUIRED ABOUT THE LACK OF POLYCHLORINATED BIPHENYLS (PCB) ANALYSIS IN GEORGIA EPD SAMPLES

PCB analysis was conducted as part of the determination of chlorinated compounds using EPA method 508. This method allows for the evaluation of toxaphene, chlordane, and PCBs, which are considered multicomponent constituents (mixtures). The sample mass spectrum returned by the instrument was reviewed by the technician and data quality reviewer for the distinctive patterns of toxaphene, chlordane, or PCBs. None of the samples contained any pattern resembling toxaphene, chlordane, or PCBs; therefore these concentrations were reported as less than the reporting limit.

x) ONE RESPONDENT QUESTIONED WHY FOUR CHEMICALS (O-CHLOROTOLUENE, P-CHLOROTOLUENE, O-DICHLOROBENZENE, AND P-DICHLOROBENZENE) WERE REPORTED AS "NOT DETECTED" IN THE GAEPD LABORATORY REPORT PROVIDED TO RESIDENTS BUT DO NOT APPEAR ON THE QUANTITATION REPORT FROM THE LABORATORY.

As was stated in the laboratory report that was provided to the residents, all four of the compounds were analyzed for as part of a measurement of purgeable organic compounds in water using EPA method 524.2. The quantitation report provided by the laboratory used synonyms for these compounds. Reporting chemicals by name is often confusing because there are usually more than three, and often a dozen, different names for the same chemical structure. The CAS Number (Chemical Abstracts Service Number) is a better mechanism to identify chemicals because each compound receives only one CAS Number.

- *o*-Dichlorobenzene is the same as 1,2-Dichlorobenzene with CAS No. 95-50-1
- *p*-Dichlorobenzene is the same as 1,4-Dichlorobenzene with CAS No. 104-46-7
- *o*-Chlorotoluene is the same as 2-Chlorotoluene with CAS No. 95-49-8)
- *p*-Chlorotoluene is the same as 4-Chlorotoluene with CAS No. 106-43-4

***x*i) ONE RESPONDENT REQUESTED A DEFINITION OF THE “D” DESIGNATION IN SOME OF THE QUANTITATION REPORTS FROM THE LABORATORY.**

The “d” designation in quantitation reports for some sample analyses using EPA methods 8260B and 8270C is possibly due to a deletion of a tentative compound that was not sufficiently corroborated by the reference ion response. The response value may have been deleted by the instrument and/or the technician when it was determined that the compound was not identified and the removal may improve the evaluation of other compounds with similar signals which the removed response may have impeded. There should be no concern that a response for a compound would have been deleted if there were a positive and confirmed detection near or above the response limit.

***x*ii) ONE RESPONDENT INQUIRED ABOUT THE DEFINITION OF THE “BELOW CAL” DESIGNATION IN SOME OF THE QUANTITATION REPORTS FROM THE LABORATORY.**

The “Below Cal” designation in quantitation reports for some sample analyses using EPA methods 8260B and 8270C means that the response returned by the instrument was below the calibration standard used for that compound and it could not be measured within the sample. “Below Cal” is different from other incidences that were marked “BRL” or “<MRL” during the data quality review process since, in those cases, the instrument is able to attempt a measured value. The response limit for these compounds is still valid and is still provided in the laboratory report that was delivered to the residents. In some cases, the “#” designation also appears which means “qualifier out of range”; the best way to explain this mark is that the shape of the spectrum used to accurately identify the compound’s presence did not exactly match the shape that was observed. The peak that was observed could therefore be the result of an unidentified interference.

c) GAEPD SURFACE SOIL SAMPLING

***i*) ONE RESPONDENT EXPRESS DISSATISFACTION WITH GEORGIA EPD’S DECISION TO COLLECT SOIL SAMPLES AT THE SURFACE SOIL STRATUM OF 0-6 INCHES.**

As with selection of target compounds and analytical methods, sample locations are selected based on existing knowledge of-, or reasonable suspicion of-, an actual or potential release to the environment. The concern(s) addressed by this sample design are focused on direct contact threats and contaminant transport via: 1) aerial deposition (in the case of soil samples); and, 2) groundwater (in the case of well samples). Direct human contact with soil is generally limited to

the immediate surface as well as dust that can be agitated then inhaled or ingested. Aerial deposition can be measured in several ways; the collection of a surface soil sample (interpreted as the top 6 inches) yields a representation of historical deposition onto the ground including those compounds which may penetrate the initial surface. Collection of soil samples beyond 6 inches on properties not associated with the perceived source location would not provide information that meets the goals of the study.

ii) ONE RESPONDENT STATED THAT ANALYTICAL RESULTS OF A SURFACE SOIL SAMPLES FROM A RESIDENCE RETURNED EQUIVALENT LEVELS OF PAHS AS THOSE COLLECTED BY EPA IN LOCATIONS “UP-GRADIENT” OF THE SEVEN OUT TANK SITE.

The assertion made in this statement is not accurate. GAEPD reported a single detection of 1.8 mg/kg (1,800 µg/kg) indeo[1,2,3-cd]pyrene in the surface soil (0-6 inches) at the residence in question but reported no other PAH detections. EPA reported a detection of 0.021 mg/kg (21 µg/kg) indeo[1,2,3-cd]pyrene in location DU-01 within the drainage ditch to the southeast of the Seven Out Tank Site. As discussed in answer 1)c)3) of this document and Section 2.2.3.2. of the 2014 EPA Francis Street Special Site Assessment, the Section of the ditch being addressed cannot be regarded as “up-gradient” of the Seven Out Tank Site. EPA reported low detections for other PAHs in the drainage ditch as well which are summarized in Table 7 of the 2014 EPA Francis Street Special Site Assessment Report. Georgia EPD concluded that the detection of indeo[1,2,3-cd]pyrene at the residence is below the State’s residential cleanup criteria. EPA concluded in Section 2.2.3.3. of the 2014 EPA Francis Street Special Site Assessment Report that excavation or other response action to address the drainage ditch is not necessary and is not recommended.

iii) ONE RESPONDENT REQUESTED AN EXPLANATION OF THE PROCESS USED TO EVALUATE NUMBERS STATED IN LABORATORY ANALYTICAL REPORTS FOR GEORGIA EPD’S SOIL SAMPLES WHICH RETURNED VALUES OF ACETONE, 2-BUTANONE, AND BENZENE.

This question relates to detections that were printed in the “Quantitation Report” provided by the GAEPD laboratory but were manually removed during the quality assurance review. A note of “BRL” or “<MRL” was written adjacent to several numbers that appear to be detections of an analyte; these acronyms stand for “below reporting limit” and “below minimum reporting limit,” respectively. The reporting limit for the instrument is established during a series of instrument calibration activities which are conducted periodically (these calibrations may be done annually, quarterly, or more often but are based on the laboratory’s standard operating procedures). The reporting limit (RL) is not stated in the Quantitation Report but is provided in the “Laboratory Report” (which has been referred to by some Respondents as the “Summary Report” or “Summary Document”). Possible detections which appear below the reporting limit may be evaluated based on their signal quality, which is a number between 0-100 and is listed

under “Qvalue” in the Quantitation Report. A higher quality suggests a higher likelihood that the analyte was successfully identified. However, even with a quality value of 100, results below the reporting limit are unreliable.

Acetone, specifically, is recognized as a common sample contaminant due to its use in several critical procedures throughout the laboratory. For this reason, the reporting limit for acetone is often higher than other compounds in order to ensure that detections of acetone are not the result of cross-contamination from the laboratory.

iv) ONE RESPONDENT REQUESTED EXPLANATION AND PROPOSED REMEDIES FOR “HIGH REPORTING LEVELS” ON RESULTS OF SOIL SAMPLES THAT WERE COLLECTED BY GEORGIA EPD

As discussed in answer 2)c)3), the reporting limit for the instrument is established during a series of instrument calibration activities which are conducted periodically - these calibrations may be done annually, quarterly, or more often but are based on the laboratory’s standard operating procedures. The reporting limit (RL) is not stated in the Quantitation Report but is provided in the “Laboratory Report” (which has been referred to by some Respondents as the “Summary Report” or “Summary Document”). Possible detections which appear below the reporting limit may be evaluated based on their signal quality, which is a number between 0-100 and is listed under “Qvalue” in the Quantitation Report; a higher quality suggests a higher likelihood that the analyte was successfully identified. However, even with a quality value of 100, results below the reporting limit are unreliable.

v) RESPONDENT STATED THAT ALL OF GEORGIA EPD’S SAMPLE, INCLUDING BOTH GROUNDWATER AND SURFACE SOIL SAMPLES, RETURNED DETECTABLE CONCENTRATIONS OF DI-N BUTYLPHTHALATE

Di-n butylphthalate was measured as part of a determination of semivolatile organic compounds using EPA method 8270C. Data that was returned from the instrument included three detections from three yards, within an instrument output range of 5.98-6.31⁽⁴⁹⁾ (dilution factors ranging from 1.17-1.44 were used and although not all variables are known for unit conversion, the resulting dry mass units for these detections would likely be 700-909 µg/kg). All three detections were marked during the data quality review process as “BRL” which means “below reporting limit”. The reporting limit of this compound for the laboratory’s instrument at the time was 950 µg/kg, which is sufficiently below the RSL⁵⁰ for residential soil of 620,000-

⁴⁹ No units will be provided here to prevent confusion between instrument output units and real-world concentration units. Soil samples are commonly reported with units of (mass of analyte) per (mass of dry soil) such as “mg/kg” or “µg/kg”, however the instrument requires that the sample be suspended in a liquid and thus the instrument inherently reports a unit with (mass of analyte) per (volume of liquid) such as “µg/L”. The dilution factor and other known variables are used to convert the instrument’s volume-based unit to a unit based on dry soil mass.

⁵⁰ EPA generic Regional Screening Level (RSL). The reader is asked to keep in mind that generic RSLs are used in the initial screening process; RSLs do not represent enforceable standards and are not actionable cleanup levels.

6,200,000 ug/kg⁵¹. Even if the data that was reported were accurate, an output range of 5.98-6.31 is extremely narrow and would not be anticipated across samples that span a land area of over 300 acres; such a small range would reasonably be expected from an unknown interference for which EPA method 8270C is not designed to identify.

3) **GENERAL ISSUES**

i) ONE RESPONDENT MADE STATEMENT THAT RAILROAD TRACKS ARE INFLUENCING AND MOVING GROUNDWATER BY EITHER PUSHING OR IMPEDING FLOW

Influence to shallow groundwater within approximately 10 feet below ground surface is possible from any structure. Buildings impose a consistent pressure in an area distributed over its footprint. Large paved areas prevent infiltration of rainwater so that shallow groundwater becomes depleted and has difficulty recharging. Railroad lines impose an intermittent pressure along a one-dimensional path. None of these factors influences the sample design or subsequent decisions that were made by EPA or GAEPD to address the community concerns. The known groundwater issues at the former AGL MGP facility and the northeast end of the CSX Rice Yard facility are tracked and monitored by ongoing sampling programs.

ii) ONE RESPONDENT SIMPLY STATED THAT “TOXINS” HAVE MOVED THROUGH THE CANALS AND ARE UNDER HOMES IN NEIGHBORHOODS.

The assumption in this statement is not confirmed or corroborated by any data that is available to either EPA or GAEPD.

iii) ONE RESPONDENT REQUESTED A BRIEF AND SIMPLE DESCRIPTION OF WHAT THE REGIONAL SCREEN LEVEL MEANS.

Regional Screening Level (RSL) is a value used by EPA to help determine if a contaminant should be considered for further evaluation. A determination that a sample result is higher than a RSL does not imply that adverse health effects will occur. Removal Management Level (RML) is a value used by EPA to help determine if any future actions may be needed. A determination that a sample result is higher than a RML by itself does not imply that adverse health effects will occur. This issue is addressed in Sections 1.2.2.2. and 2.1.1.1. of the 2014 EPA Francis Street Special Site Assessment.

However, RSLs usually provide concentrations that are far lower than an enforcement standard or an action level where such measures exist. A detailed discussion of RSLs is provided in Sections 1.2.2.2. and 2.1.1.1. of the 2014 EPA Francis Street Special Site Assessment Report.

⁵¹ This RSL is provided as a range because di-n-butylphthalate is not classified as a carcinogen - so concentration is based on toxicity criteria. Part of the equation for calculating a RSL uses a component known as a hazard quotient (HQ) which represents the ratio at which no adverse effects are expected. The range is defined by using HQ=0.1 and HQ=1.0. It is critical to point out that HQ>1.0 does *not* mean that adverse effects will occur.

**ADDENDUM 2 – RECORD OF CHANGES TO 2014 EPA FRANCIS STREET SPECIAL SITE
ASSESSMENT**

RECORD OF CHANGES TO 2014 EPA FRANCIS STREET SPECIAL SITE ASSESSMENT

4.0 2.1.1.1. DECISION UNIT 01 – DU01

- Original
“...located upstream of the Seven Out facility”
- Revised
“...located southeast of the Seven Out facility”

5.0 TABLE 7. RESULTS OF SEDIMENT SAMPLES FROM DRAINAGE DITCH AT SOUTH BORDER OF SITE

- Original
“...FSA-SD-DU01 taken by EPA in drainage ditch – upstream of Site”
- Revised
“...FSA-SD-DU01 taken by EPA in drainage ditch – southeast of Site”

6.0 2.2.3.1. DITCH SAMPLES: DECREASING CONCENTRATIONS DOWNSTREAM

- Original
“...trend of decreasing PAH concentrations from the ‘upstream’ sample in DU01...”
- Revised
“...trend of decreasing concentrations from the sample in DU01...”

7.0 2.2.3.2. DITCH SAMPLES: EVALUATION OF DITCH ELEVATION PROFILE

- Original
“...could all be contributing factors to concentrations of PAHs in the ‘upstream’ decision unit...”
- Revised
“...could all be contributing factors to concentrations of PAHs in DU01...”

8.0 APPENDIX 3 – DRAINAGE PATH EVALUATION

OFF-SITE DRAINAGE PATH – DRAINAGE DITCH AT SOUTH BORDER OF SITE

- Original
“Drainage Ditch Route of Discharge – Upstream of Site (decision unit DU01)”
- Revised
“Drainage Ditch Route of Discharge – Southeast of Site (decision unit DU01)”

ATTACHMENT 1 – SPECIAL POLREP FOR SEVEN OUT TANK SITE

U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
Copiah County Manufacturing Site
Removal Site Evaluation POLREP



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region IV

Subject: POLREP
Seven Out Tank Site
901 Francis Street, Waycross, Ware County, Georgia

Latitude: 31.207401° North
Longitude: 082.363473° West

To: James Webster, USEPA R4 ERRB
Jeff Cown, GA EPD Land Protection Branch

From: Matthew J. Huyser, On-Scene Coordinator

Date: September 19, 2013

Reporting Period: September 5, 2013

1 Introduction

Site Number: A4FY
Response Authority: CERCLA
Response Type: Time-Critical
Response Lead: EPA
Incident Category: Removal Assessment
NPL Status: Non NPL

1.1 Site Description

The Seven Out facility (the "Site") is an industrial wastewater treatment plant in Waycross, Ware County, Georgia, that operated from 2002 to 2004. The Site consists of a tank farm, an abandoned office building, and a small warehouse. The tank farm has 37 tanks ranging in volume of 8,000 gallons to 44,000 gallons, and a combined capacity of approximately 400,000 gallons. It is approximately one-half acre and is made of a concrete floor with a short concrete containment berm. South of the containment area is an office building of about 3,000 square feet. Around the south and east sides of the office building is a fenced lot

that contains the warehouse of about 4,500 square feet. The warehouse contains several drums, totes, and dry bags of material.

When the facility operated, treated wastewater was discharged to the City of Waycross publicly owned treatment works (POTW) using the City's collection system. Precipitated solids were treated in a filter press, and then transported off-Site for disposal at a landfill. The treatment process was generally unsuccessful and effluents regularly exceeded requirements of the company's pre-treatment discharge permit. The Seven Out facility received several Notices of Violation and an Administrative Order from the City of Waycross. On March 1, 2004, the City of Waycross disconnected the facility's connection to the POTW. The facility discontinued processing wastewaters, although it still received shipments. Incoming wastewaters were stored in tanks on-Site as well as four rented portable tanks that were placed on an adjoining property. Shortly thereafter and since that time, the facility ceased all operations without discharging the remaining waste in storage. Georgia EPD determined the facility to be incorrectly storing hazardous wastes and out of compliance with State of Georgia regulations.

GAEPD referred the Site to EPA for a Removal Site Evaluation. From August 23-26, 2004, EPA collected samples from onsite storage and treatment tanks. Because discolored soil was observed in some areas, soil samples were collected from a drainage ditch near the containment area, an area adjacent to frac tanks that had been stored outside the containment area, and along the south wall of the containment area. An emergency action was initiated by EPA on January 27, 2005 following a request for assistance from GAEPD on January 21, 2005. Under the emergency response action, pumpable liquids in the tanks and standing water in the secondary containment area were removed to mitigate the threat of release.

From 8/28-9/1/2006, GAEPD collected samples from the Site and the surrounding area as part of a remedial Site Inspection (SI). Their findings were submitted to EPA's Superfund Site Assessment Section on 11/20/2006 where it was determined that the Site did not qualify for further remedial site assessment due to lack of releases and targets for groundwater, surface water, and soil pathways.

After the 2005 emergency response, significant quantities of liquid and solid waste remained at the Site. An administrative order was signed on July 30, 2008, between EPA and Respondents, consisting of several generators that sent waste to the facility, to conduct a time-critical removal action to remove all remaining waste materials from the Site. The work to be performed under the order included:

- Implementation of the OSC-approved removal action in accordance with the schedule and requirements of a Removal Action Work Plan;
- Removal of waste material from all tanks, drums, and other containers on the Site, as well as from the secondary containment area;
- Decontamination and/or disposal of all tanks, drums, and other containers on the Site, as well as decontamination of the secondary containment area; and,

- Disposal of the waste material removed from the Site, including any sampling and analysis necessary to determine proper treatment and disposal methods.

EPA conducted oversight of all removal activities, including collection of split-samples from several tanks. Over the course of the removal action, a total of 300,000 gallons of rainwater was discharged to the Waycross POTW, 905 tons of nonhazardous solid wastes were sent to an off-site landfill for disposal, and 3,900 gallons plus 108 tons of hazardous wastes (HW codes D002, D006, D007, and D018) were sent off-site for treatment and disposal. When the work was concluded and a final report was received, EPA issued the notice of completion letter on 11/16/2009.

1.2 Preliminary Removal Assessment/Removal Site Inspection Results

In August of 2013, EPA was contacted by residents of Waycross, Georgia, regarding health problems experienced by occupants of homes surrounding Folks Park (also known as “Mary Street Park”) and the potential relationship of these symptoms to contaminants originating from the Seven Out Tank Site. Information and concerns from the community are being posted and documented at a website (www.silentdisaster.org) as well as an accompanying facebook group page.

The community group has documented complaints from 13 individuals at residences surrounding Folks Park, as well as from members of a church at the perimeter of the park. The group has also documented complaints from employees of a bank and the Waycross City Hall which are located over or near the underground unnamed creek. Reported health problems include the following:

- Tumors or “masses” (both benign and malignant)
- Cancer
- Respiratory problems
- Neurological problems
- Headaches
- Shaking or tremors
- Fatigue
- Vision and hearing trouble
- Sores

The community group has also documented unidentifiable sheen(s) emanating from lawns around Folks Park and within the unnamed creek through Folks Park. The sheen is observed on pavement and surface water after rain events and a “dry white substance” is deposited when the sheen has dried. Additional concerns include the deterioration and death of trees in Folks Park and deformation of amphibians in the unnamed creek within Folks Park.

The community group collected a sediment sample from the unnamed creek in Folks Park on July 3, 2013, and sent the sample to an environmental analytical laboratory for analysis. The laboratory returned a report with detections of Polynuclear Aromatic Hydrocarbons (PAHs) including Benz[a]anthracene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Chrysene, Fluoranthrene, Phenanthrene, and Pyrene. These constituents correspond to a list of PAHs detected in a soil sample collected by EPA during a Removal Site Evaluation (RSE) on August 26, 2004 at the Seven Out Tank Site.

Due to the proximity of the Site to the Folks Park residences, the stormwater drainage flow from the Site to the unnamed creek, and the reported detections of PAHs in the unnamed creek sediments at Folks Park, the community group believes that contamination originating from the Seven Out Tank Site may be the cause of local health and environmental problems that they have observed.

1.3 Site Location

The Site includes an office building, storage building, tank farm, and paved parking areas. The tank farm is not fenced and is accessible to the public via Folks Street, Francis Street, or McDonald Street. The property is immediately surrounded by commercial buildings to the east, west, and north with a major CSX Railroad terminal to the south. A lot to the south was previously used for staging mobile tanks that the facility used to store untreated waste water. The nearest residential property is located at 103 Folks Street approximately 220 feet from the tank farm area; nearby residential neighborhoods are located to the west and north.

The Site lies in an area of minimal flooding outside of both the 100-year and 500-year flood zones. Overland flow from the Site flows into a drainage ditch south of the tank farm and north of the railroad tracks on the Site drainage ditch continues west, roughly parallel to the railroad tracks, for approximately 1200 feet into an unnamed creek. Just south of the ditch is a petroleum facility, C & M Oil Company, which also discharges overland runoff to the drainage ditch. Immediately south of this intersection is a former BP fuel tank farm, which also discharges overland runoff to the unnamed creek. The creek flows northeast for approximately 5000 feet, flowing through Folks Park and underground through the city center after which it emerges at Lee Avenue and Memorial Drive (Hwy 23). Water then flows east for less than 1000 feet then joins the Waycross City Drainage Canal the PPE. The City Drainage Canal flows in a northeast direction for approximately 3 miles before joining the Satilla River.

2 Removal Site Evaluation

EPA OSC Huyser visited the Site on September 5, 2013 and observed that no significant changes had occurred at the facility. Thick vegetative growth has occurred outside the south border of the tank farm and has reached heights in excess of 10 feet. Standing water was observed on the east side of the property both inside and outside the containment area; the inability of the Site to fully shed rainwater is consistent with observations made during the 2008-2009 removal action. This behavior is likely due to an intentional design that would help keep liquids on-site in the event of a spill.

Also on September 5, OSC Huyser met with representatives of the community group and observed the areas in the unnamed creek and the residential yards where sheens had been observed and photographed. A light sheen of approximately 5 cubic centimeters was observed between vegetation within the creek flowing through Folks Park; this sheen presented characteristics consistent with a hydrocarbon source as opposed to a discharge from a bacterial or other local organic source. The sheen and/or residue on paved surfaces that had been reported from residential yards after rain events were not visible on September 5. Another area observed was near a culvert where the drainage ditch at the southern border of the Site passed under S Nicholls Street; concerns of dying or absent vegetation were pointed out in an area at the northwest corner of a property owned by CSX Railroad. The final area observed was at the intersection of the unnamed creek and Margaret Street, approximately 2500 feet upstream from Folks Park and 1000 feet upstream from the confluence with

the drainage ditch that passes the southern border of the Site. Concerns of previously observed sheens and light tan foam were pointed out; no sheen was visible on September 5 but light foam was observed collecting around debris in the creek.

The analytical results from a sediment sample collected by the community group from the unnamed creek in Folks Park point to a presence of PAHs that correspond to a list of PAHs detected in a soil sample collected by EPA during a Removal Site Evaluation (RSE) on August 26, 2004 at the Seven Out Tank Site (See Table 1):

Table 1. Soil Samples Collected by EPA (2 of 4) and by Community Group (1 of 1)

	Source:	Soil Sample SO-SW Taken by EPA Near South Perimeter of Seven Out Site	Soil Sample SO-DD Taken by EPA Near Drainage Area of Seven Out Site	Sediment Sample Collected by Resident in Unnamed Creek at Folks Park
	Date:	Collected 8/26/2004	Collected 8/26/2004	Collected 7/3/2013
	Units:	mg/kg	mg/kg	mg/kg
Polynuclear Aromatic Hydrocarbons (PAHs)	Benz[a]anthracene	2.4	0.33 UJ	0.556
	Benzo[a]pyrene	2.8	0.33 U	ND
	Benzo[b]fluoranthene	1.8	0.33 U	0.827
	Benzo[k]fluoranthene (*California-Modified)	3.2	0.33 U	0.398
	Chrysene (*California-Modified)	3.1	0.330UJ	0.067
	Dibenz[a,h]anthracene	0.65	0.33 U	ND
	Fluoranthrene	4.6	0.33 U	0.069
	Indeno[1,2,3-cd]pyrene	3	0.33 U	ND
	Phenanthrene	1.8	0.4	0.378
	Pyrene	4	0.330UJ	1.52

Sample SO-SW was collected from discolored surface soils outside the containment area of the tank farm, near the mechanical sludge press at the southeast corner. Of the four samples collected during EPA’s assessment, this was the only sample which showed detectable levels of PAHs. One of the samples which did not show detectable of PAHs was sample SO-DD, which was collected within the drainage path (but no, in the drainage ditch) exiting the Site at the southeast corner. The two other soil samples were collected from discolored soils near the frac tanks at the south lot from the facility.

The community’s primary concern regarding EPA’s samples relates to a comparison that was made in EPA’s December 9, 2004 Removal Assessment Report in which the soil sample results are evaluated against to the EPA Region 9 Preliminary Remediation Goal (PRG) Residential Screening Levels (RSLs) and Industrial Screening Levels (ISLs) (See Table 2):

Table 2. Screening Levels used for Comparison in Removal Assessment Report

		Source:	R9 PRG RSLs for Residential Soil Use for Comparison in RSE Report	R9 PRG ISLs for Industrial Soil Used for Comparison in RSE Report	R9 PRGs for Residential Soils	R9 PRGs for Industrial Soils
		Date:	Referenced on 12/9/2004	Referenced on 12/9/2004	Distributed Oct, 2004	Distributed Oct, 2004
		Units:	mg/kg	mg/kg	mg/kg	mg/kg
Polynuclear Aromatic Hydrocarbons (PAHs)	Benz[a]anthracene		0.621	2.11	0.62	2.1
	Benzo[a]pyrene		0.0621	0.211	0.062	0.21
	Benzo[b]fluoranthene		0.621	2.11	0.62	2.1
	Benzo[k]fluoranthene (*California-Modified)		0.378	1.28	6.2 (*0.38)	21 (*1.3)
	Chrysene (*California-Modified)		3.78	12.8	62 (*3.8)	210 (*13)
	Dibenz[a,h]anthracene		0.0621	0.211	0.062	210
	Fluoranthrene		2290	22000	2300	22000
	Indeno[1,2,3-cd]pyrene		0.621	2.11	0.62	21
	Phenanthrene		NSA	NSA	NSA	NSA
	Pyrene		2320	29100	2300	29000

When compared to the Region 9 PRGs, sample SO-SW exceeds the industrial soil screening level for Benz[a]anthracene, Benzo[a]pyrene, Benzo[k]fluoranthene, Dibenz[a,h]anthracene, and Indeno[1,2,3-cd]pyrene; and also exceeds the residential soil screening level for Benzo[b]fluoranthene. Only Benzo[a]pyrene is exceeded by an order of magnitude (2.8 mg/kg in the sample against an industrial PRG of 0.211 mg/kg) while the remaining exceedences are within a range of 150% to 300% of the PRG value.

Section 3.2 of the 2004 Removal Assessment Report for the Seven Out Tank Site quotes the EPA Region 9 PRG website (<http://www.epa.gov/region09Avaste/srund/prg/rndex.htm>.) to provide the following explanation of why this comparison was made:

PRGs "are risk-based concentrations that are intended to assist risk assessors and others in initial screening-level evaluations of environmental measurements. The PRGs contained in the Region 9 PRG Table are generic; they are calculated without site specific information". The website also states that "PRGs should be viewed as Agency guidelines, not legally enforceable standards. They are used for site 'screening' and as initial cleanup goals, if applicable. PRGs are not de facto cleanup standards and should not be applied as such. However, they are helpful in providing long-term targets to use during the analysis of different remedial alternatives."

Screening levels that are used to evaluate sites for an emergency or a time critical removal action are typically higher than the PRG value and have been referred to as "Removal Action Levels" (RALs) or "Removal Management Levels" (RMLs). These values are similar to PRGs in that they are not site-specific and not enforceable, but are different in that they are used to provide guidance for initiating an action. Table 3 compares the most recent version of RMLs to the most recent version of RSLs:

Table 3. Latest versions of Regional Screening Levels and Removal Management Levels

		Source:	RSL for Residential Soils	RSL for Industrial Soils	RML for Residential Soils	RML for Industrial Soils
		Date:	Distributed May, 2013	Distributed May, 2013	Distributed Dec, 2012	Distributed Dec, 2012
		Units:	mg/kg	mg/kg	mg/kg	mg/kg
Polynuclear Aromatic Hydrocarbons (PAHs)	Benz[a]anthracene		0.15	2.1	15	210
	Benzo[a]pyrene		0.015	0.21	1.5	21
	Benzo[b]fluoranthene		0.15	2.1	15	210
	Benzo[k]fluoranthene		1.5	21	150	2100
	Chrysene		150	210	1500	21000
	Dibenz[a,h]anthracene		0.015	0.021	1.5	210
	Fluoranthrene		230	2100	6900	66000
	Indeno[1,2,3-cd]pyrene		0.15	2.1	15	210
	Phenanthrene		NSA	NSA	NSA	NSA
	Pyrene		170	1700	5200	50000

When compared to the RMLs for residential and industrial soils, a single RML for residential soil (1.5 mg/kg) is exceeded by Benzo[a]pyrene in sample SO-SW (2.8 mg/kg). Despite exceeding the residential RML by 180%, the concentration is still only 13% of the industrial RML and is merely a single location within an industrial property (it is not representative of the property as a whole). Moreover, PAHs were not detected within the contents of the tanks on-site when samples were collected during EPA’s removal assessment in 2004. PAHs were reported in samples that were taken from the tanks as part of the 2008 removal action, and several of these samples were split for independent analysis by EPA’s START contractor, but all results were flagged as unreliable estimates of an actual concentration. Tables 4 and 5 present the data from samples that were collected from the tanks during November 2008; the acronym “ND” means that the analyte was “not detected” while the letter “J” means that the value is merely an approximated concentration:

Table 4. Concentrations of PAHs from Tanks CT-1 and CT-4

	Source:	Tank CT-1 (Liquid)		Tank CT-1 (Solid)		CT-4 (Solid)	id)
	Sampler:	EPA START Contractor Tetra Tech (split)	RP Group Contractor Winter Environmental	EPA START Contractor Tetra Tech (split)	RP Group Contractor Winter Environmental	RP Group Contractor Winter Environmental	
		Date:	11/11/2008	11/11/2008	11/11/2008	11/11/2008	
	Units:	mg/L	mg/L	mg/kg	mg/kg	mg/kg	
	Polynuclear Aromatic Hydrocarbons (PAHs)	Benz[a]anthracene	ND	0.0346 J	ND	ND	
Benzo[a]pyrene		ND	0.0262 J	ND	ND	0.54 J	
Benzo[b]fluoranthene		ND	0.0341 J	ND	ND	0.69 J	
Benzo[k]fluoranthene		0.0045 J	0.0287 J	ND	0.67 J	1.1 J	
Chrysene		0.0089 J	0.0463 J	ND	0.57 J	1.2 J	
Dibenz[a,h]anthracene		ND	ND	ND	ND	ND	
Fluoranthrene		0.027 J	153	28 J	1.3 J	2.7 J	
Indeno[1,2,3-cd]pyrene		ND	0.0147 J	ND	ND	ND	
Phenanthrene		0.011 J	221	54 J	1.8 J	1.6 J	
Pyrene		0.0071 J	88.8	ND	ND	1.4 J	

Table 5. Concentrations of PAHs from Tank CT-5

	Source:	Tank CT-5 (Liquid)		Tank CT-5 (Solid)		id)	
	Sampler:	EPA START Contractor Tetra Tech (split)	RP Group Contractor Winter Environmental	EPA START Contractor Tetra Tech (split)	EPA START Contractor Tetra Tech (split duplicate)		RP Group Contractor Winter Environmental
		Date:	11/11/2008	11/11/2008	11/11/2008		11/11/2008
	Units:	mg/L	mg/L	mg/kg	mg/kg		mg/kg
	Polynuclear Aromatic Hydrocarbons (PAHs)	Benz[a]anthracene	ND	ND	10 J		17 J
Benzo[a]pyrene		0.0060 J	ND	ND	ND	ND	
Benzo[b]fluoranthene		0.01 J	ND	ND	24 J	ND	
Benzo[k]fluoranthene		0.0084 J	ND	ND	19 J	0.59 J	
Chrysene		0.017 J	ND	25 J	ND	0.63 J	
Dibenz[a,h]anthracene		ND	ND	ND	ND	ND	
Fluoranthrene		0.037 J	0.0032 J	95 J	130 J	2.8 J	
Indeno[1,2,3-cd]pyrene		ND	ND	ND	ND	ND	
Phenanthrene		0.0099 J	ND	55 J	78 J	2.3 J	
Pyrene		ND	0.00305 J	14 J	24 J	0.8 J	

Upon initial inspection, it appears that the sludge in Tank CT-5 was the only potential source of PAHs (the 250 gallons of sludge in tank CT-5 represented less than 1/25 of the tank’s total contents and less than 1/2,000 of all waste at the Site) but the values were difficult to discern and could only be estimated. Split samples were analyzed by two separate laboratories using the same EPA extraction methods (SW-846 3510C) and analysis methods (SW-846 8270C). Discrepancies between split samples were not consistent and values within the same sample could not be repeated (as evidenced

by the duplicate sample for CT-5-Solid) which indicates a high level of interference within the sample itself.

Not represented in Tables 4 and 5 are samples that EPA collected from the tanks as of the 2004 RSE. No PAHs were detected in these 2004 tank samples and thus PAHs were not identified as a contaminant of concern at the Site. The contaminants of concern that were cited in EPA's 2007 Enforcement Action Memorandum included: acetone, benzene, sulfuric acid, sodium hydroxide, D002 hazardous wastes (corrosives), and used oil.

3 Recommendation

Additional sampling is recommended to delineate the potential contaminants in the drainage pathway that may have been released from the Site. Furthermore, a detailed and up-to-date drainage path evaluation should be conducted to determine whether previous determinations of runoff behavior from the Site were either inaccurate or have changed.

Concerns identified by the community representatives had included illnesses and surface waters at the Ruskin Elementary School in Ware County. OSC Huyser visited the Ruskin Elementary School on September 5th and observed that the school is in a remote location, it is relatively distant from the Site (more than 5.5 miles), and there were no visible surface water contaminants or potential sources of contamination (additionally, no groundwater contamination has been suspected or attributed to the Site and no groundwater wells exist at-, or are used by-, the school). OSC Huyser informed representatives from Ware County Schools that there is no available information to suggest that the Ruskin Elementary School has been impacted by the Seven Out Tank Site. Assistance regarding any other health or environmental concerns at the school can be elevated through agencies of Ware County and the State of Georgia.

ATTACHMENT 2 – FINAL ASSESSMENT LETTER REPORT FOR FRANCIS STREET SITE