RECORD OF DECISION
SUMMARY OF REMEDIAL ALTERNATIVE SELECTION

FAIRFAX STREET WOOD TREATERS SUPERFUND SITE
JACKSONVILLE, DUVAL COUNTY, FLORIDA

PREPARED BY:

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 4
ATLANTA, GEORGIA

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ACRONYMS AND ABBREVIATIONS

ADD	Average daily dose
ARARs	Applicable or relevant and appropriate requirements
ATSDR	Agency for Toxic Substances and Disease Registry
bls	Below land surface
BRA	Baseline Risk Assessment
cBaP-TEQ	Carcinogenic benzo(a)pyrene toxicity equivalent
CCA	Chromated copper arsenate
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CIC	Community Involvement Coordinator
CIP	Community Involvement Plan
COCs	Contaminants of concern
COPCs	Contaminants of potential concern
COPECs	Contaminants of potential ecological concern
cPAH	Carcinogenic polycyclic aromatic hydrocarbon
CSE	Cancer slope factor
CSM	Conceptual Site Model
DOT	U.S. Department of Transportation
EJ	Environmental justice
EPA	U.S. Environmental Protection Agency
EPC	Exposure Point Concentrations
ER	Emergency response
ESD	Explanation of Significant Differences
ESV	Ecological screening value
ERAGS	Ecological Risk Assessment Guidance for Superfund
F.A.C.	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FDER	Florida Department of Environmental Regulation
FS	Feasibility Study
GCTL	Groundwater Cleanup Target Level
HQ	Hazard Quotient
HHRA	Human Health Risk Assessment
HI	Hazard index
HQ	Hazard quotient
ISI	Integrated site inspection
JEA	Jacksonville Electric Authority

LADD	Lifetime average daily dose
LDR	Land Disposal Restrictions
LOAEL	Lowest Observed Adverse Effect Level
LUC	Land use control
MCL	Maximum Contaminant Level
µg/L	Micrograms per liter
mg/kg/day	Milligrams per kilogram per day
msl	Mean sea level
NAPL	Non-aqueous phase liquid
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
OSHA	Occupational Safety and Health Administration
OSWER	Office of Solid Waste and Emergency Response
PAH	Polycyclic aromatic hydrocarbon
ppb	Parts per billion
ppm	parts per million
PRPs	Potentially Responsible Parties
PTW	Principal threat waste
RAOs	Remedial Action Objectives
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RfC	Reference concentration
RfD	Reference dose
RI	Remedial Investigation
RME	Reasonable maximum exposure
RML	Removal Management Level
ROD	Record of Decision
ROW	Right-of-way
RPM	Remedial Project Manager
RVDES	R.V. Daniels Elementary School
S/S	Solidification/stabilization
SARA	Superfund Amendments and Reauthorization Act
SCTL	Soil Cleanup Target Levels
SI	Site Inspection
SLERA	Screening-level ecological risk assessment
SQG	Small quantity generator
STES	Susie E. Tolbert Elementary School
SVOCs	Semi-volatile organic compounds
SWCTL	Surface water cleanup target levels
SWSV	Surface water screening value

TBC	To be considered
TCLP	Toxicity characteristic leaching procedure
T/M/V	Toxicity/Mobility/Volume
TRVs	toxicological reference values
UTL	Upper threshold limit
UU/UE	Unlimited use and unrestricted exposure

PART 1: DECLARATION FOR THE RECORD OF DECISION FOR THE FAIRFAX STREET WOOD TREATERS SUPERFUND SITE

SITE NAME AND LOCATION

Site Name: Fairfax Street Wood Treaters
Location: 2610 Fairfax Street
Jacksonville, Duval County, Florida 32209
EPA Site ID Number: FLD000623041

STATEMENT OF BASIS AND PURPOSE

This Record of Decision (ROD) documents the U.S. Environmental Protection Agency's (EPA's) Selected Remedy for the Fairfax Street Wood Treaters (FSWT) site in Jacksonville, Duval County, Florida, which was chosen in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, 42 U.S.C. §§ 9601-9675 and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. Part 300. This decision document explains the factual and legal basis for selecting a remedy to address contamination at the FSWT site and is based on the Administrative Record for the site.

The State of Florida, as represented by the Florida Department of Environmental Protection (FDEP), has been the support agency during the remedial investigation/feasibility study (RI/FS) process for the FSWT site. The State has worked closely with the EPA in evaluation and selection of the site remedy.

ASSESSMENT OF THE SITE

The response action selected in this ROD for the FSWT site is necessary to protect public health or welfare, or the environment from actual or threatened releases of hazardous substances, pollutants, or contaminants from this site, which may present an imminent and substantial endangerment to public health or welfare, or the environment.

DESCRIPTION OF THE SELECTED REMEDY

The Selected Remedy is the final action for the site and addresses contamination in on-site soils, retention pond sediments, debris, and residual waste material, as well as off-site residential soils.

The major components of the Selected Remedy include:

- Excavate contaminated surface soil and remove debris from on-site structures and pavement demolition to meet residential cleanup levels.
- Temporary on-site storage and segregation of stockpiled soil and demolition debris.

- Transport excavated soil and demolition debris to an off-site Resource Conservation and Recovery Act (RCRA) permitted Subtitle C or D treatment and disposal facility.
- Excavate off-site residential surface soils to meet residential cleanup levels.
- Transport excavated residential soils to RCRA-permitted off-site disposal facility.
- Excavate on-site retention pond sediments to meet ecological cleanup levels.
- Transport excavated sediments to a RCRA-permitted off-site disposal facility.
- Excavate on-site residual waste material located in subsurface piping and drains.
- Temporary on-site storage of waste material.
- Transport excavated residual waste material to a RCRA-permitted off-site treatment and disposal facility.
- Backfill excavated areas with clean material.
- Restore excavated areas.

The Selected Remedy is expected to allow unlimited use and unrestricted exposure (UU/UE) of the property; therefore, no institutional controls will be implemented. Source materials constituting principal threat wastes may be present in the pipes and drains. Because this waste is a listed hazardous waste (F035) under RCRA, a limited amount will require off-site treatment in order to comply with RCRA land disposal restrictions and treatment standards prior to disposal in an off-site RCRA-permitted landfill.

STATUTORY DETERMINATIONS

The Selected Remedy meets the requirements for remedial actions set forth in CERCLA § 121,42 U.S.C. § 9621, in that it: 1) is protective of human health and the environment; 2) meets a level or standard of control of the hazardous substances, pollutants, and contaminants which at least attains the legally applicable or relevant and appropriate requirements under federal and more stringent state laws or regulations (unless a statutory waiver is justified); 3) is cost-effective; and 4) utilizes permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable. In addition, the remedy satisfies CERCLA's preference for remedies that employ treatment to permanently and significantly reduce the volume, toxicity, or mobility of hazardous substances as a principal element.

Because this remedy will not result in hazardous substances, pollutants, or contaminants remaining on site above levels that allow for UU/UE, a five-year review will not be required for this remedial action.

ROD DATA CERTIFICATION CHECKLIST

1	Chemicals of Concern and their Respective Concentrations (Tables 1 through 6)	Section 6.0
2	Baseline Risk Represented by the Chemicals of Concern (Tables 9 through 20)	Section 8.0
3	Cleanup Levels Established for Chemicals of Concern and the Basis for the Levels (Table 24)	Section 9.2
4	Currently and Reasonably Anticipated Future Land Use and Assumptions and Current and Potential Future Beneficial Uses of Groundwater Used in the Baseline Risk Assessment and Record of Decision	Section 7.0
5	Potential Land and Groundwater Use that will be Available at the Site as a Result of the Selected Remedy	Section 7.0
6	Estimated Capital, Operation and Maintenance, and Total Present Worth Costs; Discount Rate; and the Number of Years Over Which the Remedy Cost Estimates are Projected (Table 27)	Section 10.0
7	Key Factors that Led to Selecting the Remedy	Sections 11.0 & 13.0

AUTHORIZING SIGNATURE

This Record of Decision documents the Selected Remedy for the Fairfax Street Wood Treaters Superfund Site. This remedy was selected by the U.S. Environmental Protection Agency with Florida Department of Environmental Protection support.

for [signature]

Franklin E. Hill, Director
Superfund Division
U.S. Environmental Protection Agency, Region 4

8/22/17
Date

PART 2: THE DECISION SUMMARY

1.0 SITE NAME, LOCATION, AND DESCRIPTION

The Fairfax Street Wood Treaters (FSWT) Superfund site encompasses 12.5 acres at 2610 Fairfax Street in a predominantly residential area of Jacksonville, Duval County, Florida (see Figure 1 in Appendix A). The geographic coordinates for the FSWT property are latitude 30.353402 north and longitude 81.687128 west (as measured from the approximate center of the property) (Ref. 1). Features of the FSWT facility include a burned building, parking lot, drip pad, former tank farm, and retention pond (see Figure 2 in Appendix A). FSWT is bordered to the north by St. Johns/CSX railroad tracks, to the east by Fairfax Street and residential properties beyond, to the south by West 14th Street and residential properties beyond, and to the west by Susie E. Tolbert and R.V. Daniels Elementary Schools (STES and RVDES) and by residential properties on Pullman Court. Moncrief Creek is located about 1,000 feet west of the FSWT property. Overflow from the FSWT retention pond flows into Moncrief Creek via a City drainage pipe, which collects stormwater from the general area (see Figure 2 in Appendix A).

The U.S. Environmental Protection Agency (EPA) is the lead agency for the site and the Florida Department of Environmental Protection (FDEP) is the support agency. The EPA Site Identification Number is FLD000623041. The FSWT site is listed on the National Priorities List (NPL) and site remediation will be conducted and funded by the EPA.

2.0 SITE HISTORY AND ENFORCEMENT ACTIVITIES

From 1980 to 2010, Wood Treaters, LLC operated a wood treating facility that pressure treated utility poles, pilings, heavy timber items, and plywood lumber products using the wood treating preservative chromated copper arsenate (CCA). Wood Treaters, LLC did not treat wood products with creosote or pentachlorophenol (Ref. 2). CCA is characterized by a bright green color and is composed of waterborne oxides, or salts, of chromium, copper, and arsenic. The copper serves as a fungicide, the arsenic serves as an insecticide, and the chromium binds the copper and arsenic to the wood (Ref. 3). In a typical pressure treatment process, wood is placed into horizontal cylinders or tanks. The air is then evacuated from the tanks, creating a vacuum. Later, the tanks are filled with the preservative chemical and the pressure is increased to 140 to 150 pounds per square inch for several hours, forcing the wood-treating chemical into the wood. After that step is complete, the preservative is drained from the tanks, and a vacuum is once again applied to clear any excess preservative left on the surface of the wood. This process takes approximately 6 hours to complete (Ref. 4). After treatment, the wood is transferred to drying racks to drip dry, where the water evaporates, leaving only the salts. The salts react with the wood surface, rendering the wood insoluble (Refs. 5; 6). After drip-drying, the treated wood was stored on the gravel areas along the northern, southern, and western portions of the property (Ref. 7).

Between 1980 and 1990, there was no stormwater management system on the facility. The topography of the FSWT property and the surrounding area is generally flat; therefore, stormwater was either directed to the STES retention pond or flowed overland across the FSWT property. Uncontrolled stormwater contaminated with CCA from the wood treating process is believed to have overflowed onto neighboring properties during this time, resulting in CCA-contaminated soil. In 1990, FSWT installed a stormwater collection and retention system, including site grading and paving for drainage, stormwater collection swales, diversion berms, and a polyethylene-lined retention pond (Ref. 2). CCA deposited onto the drip pad during the drip-dry process mixed with stormwater, resulting in a CCA solution. CCA-contaminated stormwater from the drip pad was diverted to an underground sump located adjacent to the storage tanks. Once the stormwater inside the sump reached a specified volume, a pump transferred the stormwater to one of two effluent tanks, where it was recycled into the high-concentrate CCA treatment solution (Refs. 6; 8). The building at the FSWT site, which once stored wood treating product, was destroyed in a fire in January 2017. There is still residual waste material in pipes and drains in the process areas. These wastes are classified as Resource Conservation and Recovery Act (RCRA) hazardous listed waste F035. Hazardous waste F035 is defined as "wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use inorganic preservatives containing arsenic or chromium." Building and other man-made debris that is contaminated with this waste may be hazardous debris under RCRA regulations. The contaminated soil located on site may be classified as RCRA listed hazardous waste F035 under EPA's "contained-in" policy and/or considered RCRA characteristic waste (D004 and/or D007) due to elevated concentrations of arsenic and/or chromium that fails Toxicity Characteristic Leaching Procedure (TCLP).

After 1990, stormwater that collected in the treated wood storage yard and areas other than the drip pad was diverted to ditches located along the northern, southern, and western property boundaries. These ditches drained into the retention pond at the northwestern corner of the property. An overflow pipe is located in the retention pond so that water overflows into the pipe and discharges into nearby Moncrief Creek, a tributary of the Trout River, when the pond reaches a certain volume (Refs. 6; 7). Even with the stormwater management system, heavy rain or storm events may have moved contaminants from the facility onto adjacent properties.

While in operation, Wood Treaters, LLC was classified as a RCRA small quantity generator (SQG) of D004 (arsenic) and D007 (chromium) characteristic hazardous wastes. The facility was periodically inspected by the Florida Department of Environmental Regulation (FDER), now FDEP. Throughout its operation, the facility received several violations related to accumulation time, personnel training, maintenance and operation of the facility, design and operation requirements, arrangements with local authorities, deficiencies regarding its contingency plan, and emergency procedures (Refs. 9; 10; 11; 12; 13).

Wood Treaters, LLC filed for bankruptcy in July 2010. In August 2010, after Wood Treaters, LLC, abandoned the facility, the EPA, at the request of the FDEP, conducted emergency response (ER) activities at the facility that included pumping out the water contained in the secondary containment area and retention pond, removing product in tanks, and collecting soil, surface water, sediment, and residual waste material samples. Upon arrival, EPA plugged the overflow pipe in the on-site retention pond to prevent contaminated water in the pond from flowing into Moncrief Creek. Once the on-site retention pond was stabilized, the plug was removed (Ref. 2).

In January 2011, EPA conducted a removal investigation at the FSWT property. During the removal investigation, soil samples were collected from 17 residential properties, the STES and RVDES properties, and the FSWT property. Arsenic, chromium, and copper were detected in surface and subsurface soil samples collected from the FSWT property. The highest concentrations of arsenic (64 parts per million [ppm]), chromium (237 ppm), and copper (110 ppm) were detected in a surface soil sample located near the fence line separating the STES and FSWT properties. The highest concentration of arsenic (36.3 ppm) was detected in soil sample collected from a community garden along Pullman Court.

In May 2011, EPA conducted a pre-remedial investigation (pre-RI) at the FSWT property (Ref. 14). During the pre-RI, soil samples were collected along the northern and western portions of the FSWT property (0 to 6 inches below the surface of the removal excavation), along the southern FSWT property boundary (0 to 6 inches below land surface [bls]), beneath the concrete that covered the majority of the FSWT property (0 to 6 inches below the concrete), and from nearby residential properties (0 to 6 inches bls) (Refs. 14; 15). The northern, western, and southern portions of the FSWT property were used as storage areas for the treated wood during operations (Ref. 7). Groundwater samples were also collected from monitoring wells installed by Wood Treaters, LLC throughout the property and around the STES retention pond (Ref. 14).

In July 2011, EPA conducted a removal confirmation and residential sampling event at the FSWT property. Removal activities included excavation of gravel and soil down to 1.5 feet bls along the northern, western, and southern portions of the property. Composite soil samples were collected from the northern, western, and southern portions of the property post-excavation to confirm contaminant levels remaining after the removal. Confirmation samples were collected from the bottom of the excavation at three depth intervals: 0 to 6 inches below excavation surface, 18 to 24 inches below excavation surface, and 36 to 42 inches below excavation surface (Refs. 16; 17). Arsenic, chromium, and copper were detected above background in surface and subsurface soil samples collected from the excavated area.

Between March and October 2011, EPA conducted removal activities at the FSWT property and the adjacent STES and RVDES shared playground (see Figure 3 in Appendix A). A pervious fabric liner was encountered on the FSWT property about 6 to 8 inches bls along the northern, western, and southern portions of the property that are not covered with concrete. EPA excavated these areas down to about 1.5 feet bls and separated the contaminated "fines" material from the gravel (Refs. 18; 19). The fines were sampled and results did not exceed the TCLP regulatory limits; therefore, the fines were disposed of as nonhazardous waste. The excavated areas on the FSWT property were not backfilled, instead the gravel was power washed and spread back on top of the excavation surface to control dust and limit exposure to the soil. The FSWT retention pond water was drained, treated, and disposed, and the sediments were partially excavated and disposed. EPA cleaned and cut up the tanks (seven in all) in the tank farm; the metal was taken to a recycler. Once the tanks were removed, the secondary containment area was cleaned. About 150,000 gallons of CCA-contaminated water was transported for reuse to a wood treater in Savannah, Georgia. The remaining contaminated water was treated on site with titanium dioxide, neutralized, and disposed of in the City of Jacksonville sewer system, with concurrence from the Jacksonville Electric Authority (JEA) (Ref. 18).

Between 2012 and 2013, EPA conducted a remedial investigation (RI) and risk assessment to fully characterize site contaminants, fate and transport, and receptors for all exposure routes. During the RI, EPA collected surface and subsurface soil samples from on-site drainage ditches and other areas that had not previously been sampled. EPA also installed and sampled eight permanent monitoring wells around the site. Additionally, EPA collected surface and subsurface soil samples from 64 residential properties north, east, south, and west of the FSWT site, as well as from the STES and RVDES properties. Surface water and sediment samples were collected from the STES retention pond, on-site underground pipes, the City of Jacksonville stormwater drainage pipe, and Moncrief Creek. Based on analytical results for soil samples, the extent of on-site arsenic, chromium, and copper contamination appears to be primarily within the top 4 feet of soil. Hexavalent chromium contamination appears to be confined to the process area. Arsenic contamination in residential and school areas north, east, south, and west of the FSWT property appears to be primarily within the top 1 foot of soil. Furthermore, the concentrations of arsenic detected in soil at FSWT and the surrounding properties show a gradient that decreases with distance from FSWT. Chromium and copper contamination does not appear to extend off site. Sediment in Moncrief Creek downstream of the FSWT retention pond outfall is also contaminated with arsenic. Arsenic was detected above its screening value of 9.8 ppm in six of the 13 sediment samples collected during the RI. Samples collected from material inside drains located on the FSWT property contained arsenic at concentrations ranging from 150 ppm to 11,000 ppm and hexavalent chromium at concentrations ranging from non-detect to 29J (estimated) ppm. Surface soil samples collected from the on-site drainage ditches also contained arsenic at concentrations ranging from 16 ppm to 1,300 ppm (Ref. 20).

A Human Health Risk Assessment (HHRA) and Screening-Level Ecological Risk Assessment (SLERA) were also conducted during the RI. The HHRA concluded that total risks exceed 1E-04, the upper end of EPA's acceptable risk range, for future residents, future industrial/commercial workers, future child recreationalist, and future utility workers at the FSWT site (see Section 8.1). The SLERA concluded that concentrations of several constituents, primarily metals in sediments in the on-site retention pond and Moncrief Creek, exceed SLERA ecological screening values (ESV) for benthic aquatic wildlife receptors; and that the surface water concentrations of the constituents associated with the FSWT site in the on-site retention pond were above chronic water quality standards for the protection of aquatic life for arsenic and copper (see Section 8.2) (Ref. 20).

In 2017, EPA completed the Feasibility Study (FS) and Proposed Plan for the FSWT site. The FS process includes three main phases: (1) data gathering for a detailed definition of the extent and scope of remediation needed; (2) development and screening of alternatives; and (3) a detailed analysis of the alternatives against specific criteria established by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The primary objective of the FS process is to develop an appropriate range of remedial alternatives for the site that will protect human health and the environment, achieve the remedial action objectives (RAO) identified to guide alternative development, and meet site-specific applicable or relevant and appropriate requirements (ARARs). Based on its evaluation, EPA chose excavation and off-site treatment and disposal as the best option for remedial action at the site (Ref. 21). The Proposed Plan presented EPA's preliminary recommendation on how to best address contamination at the site, described the alternatives evaluated, and provided EPA's recommended Preferred Alternative (Appendix C).

3.0 COMMUNITY PARTICIPATION

Since the FSWT site was included on the National Priorities List (NPL) in September 2012, EPA has conducted extensive community relations activities to inform and involve the community about site activities. Community involvement activities included mailing information fact sheets regarding the RI/FS, a stakeholders reuse work shop hosted by EPA, an availability session summarizing the findings from the Agency for Toxic Substances and Disease Registry's (ATSDR) Public Health Assessment, a town hall meeting hosted by the Director of the Historical Preservation Culture Society, and a public meeting to introduce the preferred remedial alternative as summarized in the Proposed Plan (Appendix C). The site Remedial Project Manager (RPM) and Community Involvement Coordinators (CIC) met with residents in the community throughout investigation activities.

As part of the on-going community involvement program, EPA continues to pro-actively engage and respond to community members, and federal/state/local elected officials. EPA's Community Involvement Plan (CIP), revised in July 2017, is a site-specific strategy that enables meaningful community involvement throughout the Superfund cleanup process. The CIP specifies planned community involvement activities to address community needs, concerns, expectations, and will enable community members affected by the site to understand ways in which they can participate in decision-making throughout the cleanup process. Public interest in the site remains high.

The RI report, FS, and Proposed Plan for the site were made available to the public on May 1, 2017. Those documents, along with other documents included in the Administrative Record file, are maintained in the EPA Docket Room located at EPA Region 4 in Atlanta, Georgia, and at the Dallas Graham Branch Library in Jacksonville, Florida. The notice of availability of the Proposed Plan was published in the Times-Union on May 1, 2017. A public comment period was held from May 1, 2017 to May 31, 2017. The Proposed Plan for the remedial action at the site was presented to the community at the public meeting held on May 16, 2017 at the Emmett Reed Community Center. At this meeting, representatives from the EPA and FDEP answered questions about the site and the remedial alternatives.

After the public comment period ended, EPA reviewed comments received from the community as part of the process of reaching a final decision on the most appropriate remedial alternative or combination of alternatives to address contamination found at the FSWT site. EPA's remedy decision is documented in this Record of Decision (ROD). EPA's responses to the questions and comments received at the public meeting and during the public comment period, as well as the public meeting's transcript, are included in the Responsiveness Summary as Appendix D in this ROD.

4.0 SCOPE AND ROLE OF THE ACTION WITHIN THE SITE STRATEGY

Many Superfund sites are complex and thus planned work is split into multiple operable units. EPA has decided to address the FSWT site as a single entity and, therefore, did not split the work into multiple operating units. However, further investigation of sediments in Moncrief Creek located off site will be undertaken to determine if a response action is warranted. If a response action is warranted, a focused feasibility study will be completed and the additional contaminated areas will be remediated as a second operable unit under the FSWT site.

EPA conducted removal activities at the FSWT property and the adjacent STES and RVDES shared playground in 2011. During these removal activities, EPA excavated these areas down to about 1.5 feet bls and separated the contaminated "fines" material from the gravel. The fines were disposed of and the gravel was then power washed and spread back on top of the excavated surface to control dust and limit exposure to the soil below. The FSWT retention pond water was drained, treated, and disposed of, and the sediments were partially excavated and disposed.

Water from the STES retention pond was pumped out and sediments were excavated. The excavated sediments were replaced with clean fill material and the area surrounding the pond was re-sodded. A small area on the STES and RVDES shared playground was excavated down to 24 inches bls. The excavated area was then backfilled with clean fill material and re-sodded.

In 2011, EPA also conducted removal activities at three nearby residential properties where arsenic concentrations were identified near or above its 2011 EPA Removal Management Level (RML) of 39 ppm for residential soil, and where concerns were raised regarding the possibility that children could come into contact with the contaminated soil. Soil was excavated down to 1.5 feet in some areas. Excavated areas were then backfilled with clean fill material and re-sodded or covered with mulch.

The entire FSWT site, including perimeter residential properties, is the subject of this ROD and addresses the contamination present in the surface and subsurface soils, sediment, demolition debris, and residual waste material remaining in underground drains and piping in the former process areas (see Figure 15 in Appendix A). As described in Section 8.0 of this ROD, Summary of Site Risks, contact with the chemicals of concern (COCs), chromium, copper, arsenic, and polycyclic aromatic hydrocarbons (PAHs), present in the surface/subsurface soils, sediment, debris, and residual waste material pose an unacceptable risk to human health. The Selected Remedy for FSWT is necessary to protect public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

5.0 SITE CHARACTERISTICS

This section describes the site characteristics, including the physical characteristics of the site, the topography and drainage, the geology and hydrology, and the conceptual site model.

5.1 Physical Characteristics of the Site

FSWT encompasses 12.5 acres at 2610 Fairfax Street in a predominantly residential area of Jacksonville, Duval County, Florida (see Figure 1 in Appendix A). The geographic coordinates for the FSWT property are latitude 30.353402 north and longitude 81.687128 west (as measured from the approximate center of the property) (Ref. 1). Features of the former FSWT facility include a burned building, parking lot, drip pad, former tank farm, and retention pond (see Figure 2 in Appendix A). FSWT is bordered to the north by St. Johns/CSX railroad tracks, to the east by Fairfax Street and residential properties beyond, to the south by West 14th Street and residential properties beyond, and to the west by STES and RVDES and by residential properties on Pullman Court. Moncrief Creek is located about 1,000 feet west of the FSWT property. Overflow from the FSWT retention pond flows into Moncrief Creek via a City drainage pipe, which collects stormwater from the general area (see Figure 2 in Appendix A).

5.2 Topography and Drainage

The topography of the FSWT property and the surrounding area is generally flat and, prior to 1990, overland flow of stormwater across the FSWT property was uncontrolled (Refs. 18; 19).

The elevation at the FSWT property is about 25 feet above mean sea level (msl) (see Figure 1 in Appendix A). The type of soil present at the FSWT property is classified as Pelham-Urban land complex (Ref. 22). According to the U.S. Department of Agriculture's soil survey of Duval County, this complex is about 40 to 70 percent Pelham fine sand, of which about 20 percent has been modified by cutting, grading, and shaping. About 25 to 45 percent is urban land, or areas covered by houses, streets, driveways, buildings, parking lots, and urban construction. The open areas of Pelham fine sand are mostly lawns, vacant lots, or playgrounds, and generally they are so small and intermixed with urban land that it is impractical to map them separately. Slopes range from 0 to 2 percent. These soils have been reworked less in the older communities than in the newer, more densely populated ones. Excavating for streets to a depth below the original surface and spreading the soil on adjacent areas is a common practice in the newer developments. The excavated material is also used to fill in low areas (Ref. 23).

Until 1990, stormwater flow from the FSWT property was routed to the STES retention pond via an underground conduit. In addition, stormwater also flowed, uncontrolled, onto surrounding properties. In 1990, this conduit was closed off when FSWT installed a stormwater collection and management system. Surface water runoff from the FSWT property is currently directed to the stormwater collection and retention system, including site grading and paving for drainage, stormwater collection swales, diversion berms, and a lined retention pond (Ref. 2). Overflow from the FSWT retention pond flows west through an underground, City-owned stormwater drainage pipe for about 1,000 feet then enters Moncrief Creek. Along Moncrief Creek, about 0.5 mile downstream of the FSWT stormwater drainage pipe outfall, a retention basin receives stormwater from the general area; six stormwater culverts empty into the basin. Moncrief Creek flows north about 3.5 miles then converges with the Trout River. The Trout River flows east about 2 miles then converges with the St. Johns River (Ref. 14). The FSWT property is located outside of the 500-year flood plain of Moncrief Creek (Ref. 24).

5.3 Regional and Site-Specific Geology and Hydrogeology

Duval County lies within five physiographic subdivisions of the Coastal Plain Province: Atlantic Coastal Ridge, Center Park Ridge, Trail Ridge, Eastern Valley, and Duval Uplands. The majority of Duval County is in the Eastern Valley, while the southwestern portion of the county lies in the Trail Ridge and Duval Uplands physiographic features; the Atlantic beaches lie in the Atlantic Coastal Ridge. The FSWT property lies within the Eastern Valley. These features are the result of primary deposition and subsequent erosion. Ridges are composed of sand that accumulated as beaches and offshore bars on the terraces of the Eastern Valley and are characterized by thick sand sections at comparatively high land surface elevations (Ref. 25). The elevation at the FSWT property is about 25 feet above msl (see Figure 1 in Appendix A).

The geology in the vicinity of the FSWT property may include, in descending stratigraphic order, some or all of the following units: Holocene and Pleistocene alluvium and terrace deposits, Pliocene deposits (consisting of the Charlton Formation), the Hawthorn Group (consisting of the Coosawhatchee, Marks Head, and Penney Farms Formations); the Ocala Group (consisting of the Crystal River, Williston, and Inglis Formations); and the Avon Park, Oldsmar, and Cedar Keys Formations (Refs. 26; 27; 28; 29; 30).

Two major sources of groundwater exist in the region: a shallow-aquifer system (composed of the surficial aquifer and water-bearing zones of the Hawthorne Group) and the underlying

Floridan aquifer system. The major water-yielding zone in the shallow-aquifer is typically found in the porous limestone section of the Hawthorn Group and extends to an approximate depth of 100 feet bls (Refs. 31; 32). The surficial aquifer lies within the permeable units of the post-Miocene deposits and is generally under unconfined conditions (Ref. 26). However, some shallow wells located in low areas adjacent to the St. Johns River and its tributaries can yield water under artesian conditions, indicating the presence of confining units, likely in the shell and limestone beds near the base of the deposits (Ref. 35).

The water level in the surficial aquifer fluctuates seasonally, corresponding to variations in precipitation and evaporation (Refs. 26; 30). The surficial aquifer is recharged primarily by the infiltration of precipitation that falls in the area and is generally hydrologically interconnected with water from lakes, streams, and marshes (Refs. 26; 31).

Regional groundwater flow in the shallow-aquifer system in Duval County varies, but the overall trend is to the east-northeast (Ref. 31). The surficial aquifer is separated from the Floridan aquifer system by the confining beds of the Hawthorn Group. Throughout most of northeast Florida, the middle Miocene age clays and silty clays of low permeability of the Hawthorn Group provide an upper confining unit that retards the movement of water from the underlying Floridan aquifer system. It is generally encountered between depths of 100 and 525 feet bls (Refs. 26; 32).

On average, at the FSWT site the surficial aquifer was encountered between 3.6 feet and 7.3 feet bls. The potentiometric surface maps prepared based on groundwater elevations collected during the three groundwater monitoring and sampling events conducted during the RI indicate that there is a westerly groundwater flow pattern originating from well PMW-01 (see Figures 4A, 4B, and 4C in Appendix A and Table 1 in Appendix B). However, the dominant groundwater flow pattern underlying the FSWT property appears to be to the north-northwest.

Well logs for wells within 2 miles of the FSWT property indicate that the combined thickness of the post-Miocene deposits (Holocene, Pleistocene, and Pliocene) may range from 45 to 180 feet. These deposits are encountered at depths ranging from ground surface to approximately 165 feet below msl (Ref. 33). During RI activities, eight permanent groundwater monitoring wells were installed within the surficial aquifer of Holocene and Pleistocene deposits. Seven of the eight wells were installed to approximately 20 feet bls. One well (PMW-06D) was extended to 40 feet bls to assess whether contaminants have migrated into Holocene and Pleistocene deposits. Lithologic logs of the permanent monitoring wells indicate the presence of sand, sandy clay, and clay in the subsurface throughout the site (see Figure 5 in Appendix A). Samples collected from on-site permanent monitoring wells did not indicate that these aquifers have been affected by site contamination (see Section 6.4 of this ROD).

5.4 Conceptual Site Model

A preliminary conceptual site model (CSM) was prepared for the FSWT site encompassing all EPA investigations prior to the RI and was included as Appendix A of the final RI work plan (Ref. 34). Samples collected during the 2012 and 2013 RI were intended to fill data gaps and further define the lateral and vertical extent of contamination. Based on the updated CSM, which includes all samples representing current site conditions collected during previous EPA investigations, as well as samples collected during the 2012 and 2013 RI events, arsenic is the risk driver for the FSWT site (Ref. 35) (see Figures 6A through 8 in Appendix A).

Arsenic contamination in the surface soil extends laterally from the FSWT property to the west, east, and south. It was determined that the site-related contamination migrated due to stormwater runoff and spray from the tires of the trucks leaving the site from the south, east, and west. Furthermore, the concentrations of arsenic detected in soil at FSWT and the surrounding properties show a gradient that decreases with distance from FSWT. The highest concentrations of arsenic were detected in the on-site subsurface process area drainage pipes, the area between the perimeter drainage ditch and the property fence line, and in the process area located in the northwestern portion of the FSWT property (see Figure 6A in Appendix A).

Based on analytical results for soil samples, the vertical extent of on-site arsenic, chromium, and copper contamination appears to be primarily within the top 4 feet of soil (see Figures 6B and 6C in Appendix A). Arsenic contamination in residential and school areas east, south, and west of the FSWT property appears to be primarily within the top 1 foot of soil (see Figures 6A and 6B in Appendix A).

Chromium and copper contamination does not appear to extend off site, with the exception of one sample collected north of the FSWT property that contained copper above its FDEP Soil Cleanup Target Level (SCTL) of 150 ppm (see Figures 7 and 8 in Appendix A).

Copper is highly toxic to aquatic life; therefore, the sediment and surface water of Moncrief Creek and other water bodies are the primary media of concern. Arsenic is best known for its human toxicity, especially its carcinogenicity by all routes of exposure; therefore, all exposure routes in the human health CSM are of concern. Chromium, like arsenic, is primarily a concern for human health by all routes of exposure, as shown in human health. However, the transport of chromium is complicated by its complex chemistry. CCA contains hexavalent (chromic) chromium, which is readily soluble in water and is an active oxidizer. Therefore, when a suitable reducing agent (a compound that is readily oxidized) is also dissolved in the water, it will react with the hexavalent chromium, transforming it into trivalent (chromous) chromium. However, trivalent chromium compounds are relatively insoluble, so they will remain in the solid phase (soil or sediment). Chemically, hexavalent chromium is a potent oxidizer; therefore, it will react, often rapidly, with targets in the environment. Examples include reduced metal forms, such as ferrous iron and arsenite, and organic matter. These targets are generally more common in solid phases (soil and sediment, especially near the surface) than in water. Therefore, the released chromium will start in the water (as discharged) as hexavalent chromium, and then begin reacting, first with dissolved targets, then suspended targets, then sediment targets, and last (as the water carrying it infiltrates further) with soil targets. Refer to Section 6.0 of the RI report for more information regarding CCA's fate and transport in the environment (Ref. 20).

Hexavalent chromium contamination appears to be limited to the process area and the on-site retention pond. Between August 2010 and February 2013, a total of 122 environmental samples were analyzed for hexavalent chromium: 64 soil, 12 drain material, 8 sediment, 9 surface water, 22 groundwater, and 7 aqueous/product samples. Soil samples collected from two locations in the process area contained hexavalent chromium, as did samples collected from underground pipes and drains in the process area. In addition, the surface water sample collected from the on-site retention pond contained hexavalent chromium. Soil samples collected from other areas on site, as well as residential properties, did not contain hexavalent chromium, nor did surface water and sediment samples collected off site. Hexavalent chromium has been detected only in aqueous, residual waste material, sediment, and soil samples collected from the process area and the on-site retention pond.

6.0 NATURE AND EXTENT OF CONTAMINATION

This section discusses the current extent of arsenic, chromium, and copper contamination in soil and sediment. This section also discusses PAH contamination in subsurface soils. The results of surface water and groundwater sample analyses are also briefly summarized at the end of this section. Analytical results for soil and sediment samples collected during all EPA sampling events, including the RI, that represent current conditions are summarized below. Samples that were collected from areas that were subsequently removed as part of the removal action are not discussed. Throughout all of EPA's investigations at FSWT, most of the surface soil samples were collected from 0 to 6 inches bls, and first-interval subsurface soil samples were collected from 18 to 24 inches bls. However, different surface and subsurface intervals were used during certain investigations. Therefore, all samples collected between 0 and 12 inches bls are considered surface and all samples collected below 12 inches bls are considered subsurface. Appendix B contains summary data tables for samples representing current conditions collected during all previous EPA investigations. Additional details regarding these investigations are found in the final RI report (Ref. 20), which is part of the Administrative Record.

6.1 Soil

Soil samples were collected from the FSWT property, the STES property, residential properties surrounding the FSWT property, and from the City right-of-way (ROW). Residential and on-site soil samples were compared with screening values consisting of either the background or FDEP SCTLs, whichever is greater. The SCTL for arsenic in residential soil is 2.1 ppm and the background concentration is 2.36 ppm. The SCTL for chromium in residential soil is 210 ppm, and the background concentration is 7.03 ppm. The SCTL for copper in residential soil is 150 ppm and the background concentration in surface soil is 10.6 ppm. For soil samples collected on the school properties, arsenic, chromium, and copper analytical results were compared with the calculated 95 percent Upper Threshold Limit (UTL) background values or the risk-based screening values for the school scenario discussed in the risk assessment (Appendix J of the RI), whichever is greater (Ref. 36). Figure 9 in Appendix A depicts all locations sampled during the RI and Figure 21 in Appendix A depicts all locations sampled prior to the RI.

During the January 2011 removal investigation, soil samples were collected along the northern, western, and southern portions of the FSWT property at three depth intervals: 0 to 12 inches bls, 12 to 24 inches bls, and 24 to 36 inches bls. The top 12 inches of soil was subsequently excavated during the EPA removal action; therefore, samples collected from the surface interval no longer represent current conditions and will not be discussed. Subsurface soil samples collected from the 12- to 24-inch interval contained arsenic above 2.1 ppm in three of the six samples (see Table 3 in Appendix C of the RI). Soil samples collected from the 24- to 36-inch interval contained arsenic above its screening value of 2.1 ppm in three samples (Ref. 13).

During the May 2011 pre-RI, surface soil (0 to 6 inches bls) samples were collected along the northern, western, and southern portions of the FSWT property post removal excavation. Soil samples were also collected from beneath the drip pad and the concrete throughout the property. Of the 10 samples collected along the perimeter of the property, all but one sample contained arsenic above 2.36 ppm, three samples contained chromium above 210 ppm, and two samples contained copper above 150 ppm. Most of the FSWT property is covered by concrete. Twelve soil samples were collected from beneath the concrete to determine whether wood treating operations contaminated the underlying soil. Three of the 12 soil samples were collected from beneath the drip pad. Two of the samples collected from beneath the drip pad contained arsenic and chromium at concentrations exceeding their screening values. Specifically, arsenic was detected at 39 ppm and 80 ppm, and chromium was detected at 1,300 ppm and 150 ppm. Three of the nine soil samples that were collected from beneath the concrete throughout the property contained arsenic (up to 9.5 ppm) above 2.36 ppm. Chromium and copper did not exceed their screening values (see Table 2 in Appendix C of the RI). Contamination beneath the concrete is localized beneath the drip pad (Ref. 15).

During the July 2011 removal confirmation and residential sampling event, the northern, southern, and western portions of the FSWT property were divided into 15 grids measuring about 100 feet by 100 feet. Composite soil samples were collected from the previously excavated grids, including three depth intervals at each grid: 0 to 6 inches bls, 18 to 24 inches bls, and 36 to 42 inches bls. The sampling depth is measured from the post-excavation land surface, which is approximately 12 inches below the original land surface. For the surface interval (0 to 6 inches bls), all 15 grids contained arsenic (up to 44J ppm) above its 2.36 ppm screening value, two grids contained chromium (up to 280J ppm) at or above its screening value of 210 ppm, and one grid contained copper (at 300 ppm) above its screening value of 150 ppm (see Table 2 in Appendix C of the RI). For the 18- to 24-inch interval, eight grids contained arsenic (up to 14J ppm) above 2.1 ppm. Chromium and copper did not exceed their screening values (see Table 3 in Appendix C of the RI). For the 36 to 42-inch interval, only two grids contained arsenic (up to 7.0 ppm) above 2.1 ppm. Chromium and copper did not exceed their screening values (see Table 5 in Appendix C of the RI) (Ref. 17).

During the RI, the drainage ditches and the area between the perimeter drainage ditch and the property fence line within each of the 15 grids were sampled. This area was not previously excavated. Two additional grids (Grids 16 and 17) were established in the area adjacent to the drip pad (see Table 2 in Appendix B of the RI). The results are summarized as follows:

- For the 0- to 6-inch depth interval, arsenic (up to 1,300 ppm) was detected above its screening value of 2.36 ppm in all drainage ditch samples. Chromium (up to 2,000 ppm) was detected above its screening value of 210 ppm in drainage ditch samples collected from 13 grids, and copper (up to 1,400 ppm) was detected above its screening value of 150 ppm in drainage ditch samples collected from 11 grids. Hexavalent chromium was detected in the perimeter drainage ditch in Grid 3 at up to 38J ppm.
- For the 18- to 24-inch depth interval, arsenic (up to 30 ppm) was detected in drainage ditches above 2.1 ppm in 10 grids. Chromium and copper did not exceed their screening values in subsurface drainage ditch soil samples.
- For the 0- to 6-inch depth interval, arsenic (up to 200 ppm) was detected above its screening value of 2.36 ppm in all samples collected from the area between the perimeter

drainage ditch and the property fence line. Chromium (up to 610 ppm) was detected above its screening value of 210 ppm in samples collected from nine grids, and copper (up to 410 ppm) was detected above its screening value of 150 ppm in samples collected from six grids.

- For the 18- to 24-inch depth interval, arsenic (96J- [estimated, low bias] ppm) was detected above its screening value of 2.1 ppm in all samples collected from the area between the perimeter drainage ditch and the property fence line. Chromium was detected at 230J- ppm in one grid above its screening value of 210 ppm, and copper was not detected in any grids above its screening value.
- Arsenic (up to 440J ppm) was detected in both Grid 16 and Grid 17 above its screening value at both surface (0 to 6 inches bls) and subsurface (18 to 24 inches bls) intervals, chromium (up to 620 ppm) was detected in Grids 16 and 17 above its screening value at the surface interval, and copper (at 330J ppm) was detected in Grid 17 above its screening value at the surface interval. Hexavalent chromium was detected at 7.9J ppm in the subsurface soil sample collected from Grid 16.

The on-site retention pond is lined with high-density polyethylene; however, the liner is breached in many areas. A soil sample was collected from beneath the pond liner and the sample contained arsenic (94 ppm) and chromium (410 ppm) at concentrations exceeding their screening values.

During the 2012 RI, 10 subsurface soil (2 to 3 feet bls and 5 to 6 feet bls) samples were collected from five locations beneath the concrete floor of the Old Feed Building, below the building foundation. PAHs, including benzo(a)pyrene and dibenzo(a,h)anthracene, were detected in each of the five soil samples collected from the 5- to 6-foot interval beneath the concrete floor of the Old Feed Building (benzene at concentrations up to 25,000J parts per billion [ppb] and dibenzo(a,h)anthracene at concentrations up to 4,400J ppb) (see Figures 10A and 10B in Appendix A). PAHs were not detected above screening levels in the six subsurface soil samples (including one duplicate) collected from 2 to 3 feet bls. The source of the PAHs is not known; however, the source is likely an historical operation. Arsenic, chromium, and copper were not detected above screening values in subsurface soil samples collected from beneath the Old Feed Building (see Table 2 in Appendix B).

During the January 2011 removal investigation and 2012 RI, 26 surface (0 to 12 inches bls) and eight subsurface (12 to 24 inches bls) soil samples were collected from the STES and RVDES properties. Surface soil samples contained arsenic at concentrations ranging from non-detect to 12.3 ppm, chromium at concentrations ranging from 1.36J ppm to 28.5 ppm, and copper at concentrations ranging from 0.649J ppm to 74.5 ppm (see Table 6 in Appendix C of the RI). Subsurface soil samples contained arsenic at concentrations ranging from non-detect to 0.759 ppm, chromium at concentrations ranging from 1.25 ppm to 4.66 ppm, and copper at concentrations ranging from non-detect to 2.81 ppm (see Tables 6 and 7 in Appendix C of the RI) (Ref. 14). In March 2011, a small area on the STES and RVDES shared playground — where arsenic had been detected at a concentration exceeding its EPA RML of 39 ppm — was excavated down to a maximum of 24 inches bls. Three confirmation soil samples were collected from beneath the excavation surface (two samples were collected from 6 to 12 inches bls and one sample was collected from 18 to 24 inches bls). Confirmation samples contained arsenic ranging from non-detect to 4.09 ppm, chromium ranging from 6.53 ppm to 13.1 ppm, and copper ranging from 0.783J ppm to 6.49 ppm (see Table 7 in Appendix C of the RI). The excavation was backfilled with clean soil and covered with turf.

Thirty residential properties located along West 19th Street and West 20th Street, north of the FSWT property, were sampled during the 2012 and 2013 RI. Surface soil samples collected from 24 of those properties contained arsenic above the 2.36 ppm screening value. Subsurface soil samples collected from three properties contained arsenic above the 2.1 ppm screening value. Copper was detected above its screening value of 150 ppm in one surface soil sample (see Figures 9 and 21 in Appendix A and Table 3 in Appendix B). However, evidence suggests that these concentrations above the screening values are not from the site.

In total, 33 residential properties located east of the FSWT property were sampled during the May 2011 pre-RI, July 2011 removal confirmation and residential sampling event, and the 2012 and 2013 RI. Arsenic was detected above 2.36 ppm in surface soil samples collected from 24 residential properties. Only one residential property sampled during the 2012 RI contained arsenic above 2.1 ppm in the subsurface soil. No residential properties east of FSWT contained chromium or copper in surface or subsurface soil above screening values (Refs. 14; 17). In October 2011, removals occurred on two residential properties east of FSWT. Two confirmation soil samples were collected from each property. Arsenic was detected above its screening value of 2.36 ppm in confirmation soil samples collected beneath the excavation surface (6 to 12 inches bls) on one of the properties (Ref. 19) (see Figures 9 and 21 in Appendix A and Table 4 in Appendix B).

A total of 17 residential properties located south of FSWT were sampled during the January 2011 removal investigation, the July 2011 removal confirmation and residential sampling event, and the 2012 RI. Surface soil samples collected from 11 of these residential properties contained arsenic above 2.36 ppm. No residential properties contained chromium or copper in surface soil above screening values. None of the subsurface soil samples collected during the 2012 RI contained arsenic, chromium, or copper above screening values (Refs. 14; 17). A removal down to 6 inches bls occurred on one residential property south of FSWT in October 2011. One confirmation soil sample (6 to 12 inches bls) was collected beneath the excavation surface of the removal area. Arsenic was detected at 4.81 ppm, which is above its screening value of 2.36 ppm (Ref. 19) (see Figures 9 and 21 in Appendix A and Table 5 in Appendix B). The excavation was backfilled with clean soil and covered with landscaping mulch.

Seventeen residential properties located along Pullman Court, west of FSWT, were sampled during the January 2011 removal investigation, the July 2011 removal confirmation and residential sampling event, and the 2012 RI. Of the 17 properties, 13 contained arsenic above 2.36 ppm in surface soil samples. Arsenic, chromium, and copper were not detected above their screening values in subsurface soil samples (Refs. 15; 25). Three surface soil samples were collected from the western portion of the FSWT property that abuts Pullman Court. Two of the three samples contained arsenic above 2.36 ppm. No residential properties west of FSWT contained chromium or copper in surface or subsurface soil above screening values (see Figures 9 and 21 in Appendix A and Table 6 in Appendix B).

The City ROW along the railroad tracks north of the FSWT property was divided into seven grids. A composite surface soil (0 to 6 inches bls) sample was collected from every other grid during the 2012 RI. Arsenic was detected above the 2.36 ppm screening value in all four grids sampled. Arsenic concentrations ranged from 13 ppm to 43 ppm (see Figure 9 in Appendix A and Table 7 in Appendix B).

6.2 Sediment

During the August 2010 ER and the 2012 RI, sediment samples were collected along Moncrief Creek at and downstream of the City stormwater drainage pipe outfall (the FSWT retention pond discharges into this stormwater drainage pipe). During the August 2010 ER, two sediment samples were collected from Moncrief Creek at the City stormwater drainage pipe outfall, and one sediment sample was collected downstream of the outfall. Sediment samples contained arsenic up to 40.2 ppm, chromium up to 103 ppm, and copper up to 139 ppm. Arsenic, chromium, and copper exceeded their respective screening values (Ref. 14) (see Table 11 in Appendix C of the RI).

During the 2012 RI, sediment samples were collected along Moncrief Creek at the City stormwater drainage pipe outfall and downstream of the outfall, the FSWT retention pond discharges into the City stormwater drainage pipe. Thirteen sediment samples were collected from Moncrief Creek downstream of the City stormwater drainage pipe outfall. Arsenic was detected above its screening value of 9.8 ppm in six of the 13 downstream sediment samples, with 200 ppm the highest detected concentration. Chromium was detected above its screening value of 43 ppm in six of the downstream sediment samples, with 330 ppm the highest detected concentration. Copper was detected above its screening value of 32 ppm in five of the downstream sediment samples, with 110 ppm the highest detected concentration (see Figures 11A, 11B, and 11C in Appendix A and Table 8 in Appendix B).

6.3 Surface Water

One surface water sample was collected from the FSWT retention pond and fourteen surface water samples were collected along Moncrief Creek at the City stormwater drainage pipe outfall and downstream of the outfall. Surface water samples were compared to EPA Region 4 surface water screening values (SWSV) and FDEP surface water cleanup target levels (SWCTL) (Refs. 38; 39). The surface water sample collected from the FSWT retention pond contained arsenic (760 ppb) and copper (42 ppb) above their screening values. Copper was detected above its EPA SWSV of 6.54 ppb in only one surface water sample collected from Moncrief Creek, but does not exceed its calculated FDEP SWCTL of 13.78 ppb. Arsenic and chromium were not detected above screening values in any surface water samples collected from Moncrief Creek (Refs. 14; 20) (see Figures 12A, 12B, and 12C in Appendix A and Tables 9 and 10 in Appendix B).

6.4 Groundwater

Eight permanent monitoring wells were installed on the FSWT property during the 2012 RI (Ref. 20). Groundwater samples collected from these wells were compared with EPA Maximum Contaminant Levels (MCL) and FDEP Groundwater Cleanup Target Levels (GCTL). Groundwater sampling and monitoring occurred every 6 months in the winter and summer over three sampling events. Groundwater samples did not contain arsenic, chromium, or copper at concentrations that exceeded their respective EPA MCLs or FDEP GCTLs. The second groundwater sampling event was conducted the week of August 13, 2012. One monitoring well contained arsenic at 10 micrograms per liter (μg/L), which is equal to its EPA MCL and FDEP GCTL. The third groundwater sampling event was conducted the week of February 25, 2013. Groundwater samples collected during this event did not contain arsenic, chromium, or copper at concentrations that exceeded their respective EPA MCLs and FDEP GCTLs; however, the sample from one monitoring well contained arsenic slightly below its EPA MCL and FDEP GCTL at 9.3 μg/L (Ref. 20).

7.0 CURRENT AND POTENTIAL FUTURE LAND AND RESOURCE USES

The FSWT site is relatively flat, clear of vegetation, and was used for light industrial purposes. FSWT is bordered to the north by St. Johns/CSX railroad tracks, to the east by Fairfax Street and residential properties beyond, to the south by West 14th Street and residential properties beyond, and to the west by STES and RVDES and by residential properties on Pullman Court. Moncrief Creek is located about 1,000 feet west of the FSWT property. The neighborhood consists of homeowners, as well as individuals who rent from property owners. The groundwater beneath the site and the surrounding area is classified as a potential drinking water aquifer by the State of Florida. Currently, the groundwater is not used as a drinking water supply. Drinking water for the surrounding area is provided by the City of Jacksonville and is drawn from the Floridan Aquifer.

EPA worked with the community through interviews, meetings, and a community reuse workshop to identify the reasonably anticipated future use of the site. The reasonably anticipated future land use of the residential area will continue to be residential. The reasonably anticipated future land use of the 12-acre former wood treating facility, based on the information available at the time of this report, is a mix of multi-family or senior housing and commercial services (such as pharmacy, bank, and market spaces) and stormwater retention. There also may be a recreational component, such as a playground or walking path. Continued industrial use is not anticipated based on current zoning and community input.

8.0 SUMMMARY OF SITE RISKS

The baseline risk assessment (BRA) estimates what risks the site poses if no actions were taken, provides the basis for taking action, and identifies the contaminants and exposure pathways that need to be addressed by the remedial action. Data collected during the pre-RI, the integrated site inspection (ISI), and the removal action, as well as the RI, were used to complete the BRA. This section of the ROD summarizes the results of the BRA, which includes an evaluation of human health and ecological risks for the site. The complete BRA is included as Appendix J of the RI report (Ref. 20).

8.1 Summary of Human Health Risk Assessment

The HHRA included the identification of COCs, an exposure assessment, identification of exposure pathways, and risk characterization. The HHRA estimates what risks the site poses if no actions were taken. It provides the basis for taking action and identifies the contaminants and exposure pathways that need to be addressed by the remedial action. This section of the ROD summarizes the results of the HRRA for this site.

8.1.1 Identification of Chemicals of Concern

Carcinogenic and non-carcinogenic COCs are a subset of the site-related chemicals that were carried through the risk assessment. COCs are chemicals of potential concern (COPCs) that significantly contribute to a cumulative site cancer risk for a given receptor that exceeds 1E-04 total carcinogenic risk or non-cancer hazard index (HI) of 1.

The carcinogen trigger represents the summed risks to a receptor considering all pathways, media, and routes per land use scenario. The HI represents the total of the hazard quotients (HQs) of all COPCs in all pathways, media, and routes to which the receptor is exposed. Chemicals are not considered significant contributors to risk if their individual carcinogenic risk contribution is less than 1E-06 and their non-carcinogenic HQ is less than 1.0. Therefore, these chemicals are not included as COCs.

The media evaluated at the site were segregated into multiple exposure units. The exposure units were determined based on current usage, site features, and the likely areal extent of a receptor's movements during a single day. The FSWT property was used for industrial purposes. It is expected that future use of the site will not remain industrial. Adjacent to the site is a neighborhood and two schools that are expected to remain.

The exposure units associated with the soil/sediment and surface water were segregated into on-site and off-site areas. The on-site soil/sediment areas include the FSWT property. The off-site soil/sediment areas include the Off-Site Residential Area and Moncrief Creek. The on-site surface water area is the retention pond. The off-site surface water exposure unit is Moncrief Creek.

The risk assessment discussion in this section is limited to the receptors and media of concern. The media and the exposure routes associated with these receptors result in the greatest potential risk. The primary COCs for the FSWT site are arsenic, chromium, and copper associated with CCA wood preserving operations at the site, as well as PAHs beneath the Old Feed Building associated with an unknown historical operation.

Based on analytical results for soil samples, the extent of on-site arsenic, chromium, and copper contamination at the former wood treating facility appears to be primarily within the top 4 feet of soil. Arsenic contamination in residential and school areas east, south, and west of the FSWT property appears to be primarily within the top 1 foot of soil. Furthermore, the concentrations of arsenic detected in soil at FSWT and the surrounding properties show a gradient that decreases with distance from FSWT. Chromium and copper contamination does not extend beyond the former facility. PAHs were detected in five soil samples collected from the 5- to 6-foot interval beneath the concrete floor of the Old Feed Building.

8.1.2 Exposure Assessment

An exposure assessment identifies pathways whereby receptors may be exposed to site contaminants and estimates the frequency, duration, and magnitude of such exposures. The exposure assessment process involves four main steps:

1. Characterization of the exposure setting,

2. Identification of the exposure pathways,
3. Quantification of the exposure, and
4. Identification of uncertainties in the exposure assessment.

8.1.3 Identification of Exposure Pathways

As defined in EPA's Risk Assessment Guidance for Superfund (RAGS), the four elements necessary to form a complete exposure pathway include:

- A source or release from a source,
- A mechanism of release and transport,
- A point of contact for potential receptors, and
- An exposure route (Ref. 40).

In general, only potentially complete exposure pathways were evaluated in the HHRA. The assessment of pathways by which human receptors may be exposed to COCs includes an examination of existing migration pathways (i.e. soil) and exposure routes (i.e., ingestion, inhalation, and/or dermal absorption), as well as migration pathways that may be reasonably expected in the future. The FSWT human health CSM is diagrammatically presented in Figure 13 of Appendix A and summarized in Table 11 of Appendix B.

The primary sources of contamination at the site are wood-treating chemicals that were released from process areas when the site was active, as well as PAHs from an unknown historical source beneath the Old Feed Building. The risk drivers are arsenic, copper, chromium, and PAHs. Based on the understanding of the fate and transport of contaminants and the potential for human exposure, the receptors and exposure routes considered quantitatively or qualitatively in the FSWT HHRA include the following:

- ***Future Commercial/Industrial Workers*:** Incidental ingestion of, dermal contact with, and inhalation of particulates from surface soil.
- ***Current and Future Utility and Construction Worker*:** Incidental ingestion of, dermal contact with, and inhalation of particulates from surface and subsurface soil at the site; and incidental ingestion of and dermal contact with groundwater (if present) at less than 10 feet bls.
- ***Current and Future Trespasser*:** Incidental ingestion of, dermal contact with, and inhalation of particulates from surface soil; incidental ingestion of and dermal contact with sediment and surface water in the on-site retention pond.
- ***Future On-Site Recreationalist*:** Incidental ingestion of, dermal contact with, and inhalation of particulates from surface soil.
- ***Current and Future Off-Site Resident*:** Incidental ingestion of, dermal contact with, and inhalation of particulates and produce grown in surface and subsurface soils at the off-site residential areas.

- ***Future On-Site Resident***: Incidental ingestion of, dermal contact with, and inhalation of particulates from surface and subsurface soil and ingestion of and dermal contact with groundwater.
- ***Current and Future School Staff and Students***: Incidental ingestion of, dermal contact with, and inhalation of particulates from surface soil.
- ***Current and Future Off-Site Recreationalist***: Incidental ingestion of and dermal contact with sediment and surface water in Moncrief Creek.

8.1.4 Toxicity Assessment

The estimation of potential human health impacts due to exposure to site-related contamination utilizes various toxicity values derived by EPA or approved by EPA for use in HHRAs. These values are developed based on information derived from direct exposure of animals or from human epidemiological studies. See Appendix J of the RI for summary tables and primary target organs and health effects of concern for non-carcinogenic COCs.

Based on EPA guidance, the most current toxicity values (slope factors, inhalation unit risks, reference doses [RfDs], and reference concentrations [RfCs]) were obtained from the following hierarchy of sources: (I) EPA Integrated Risk Information System, (2) EPA Provisional Peer-Reviewed Toxicity Values Database, (3) California Environmental Protection Agency values, (4) Health Effects Assessment Summary Tables, (5) ATSDR Minimal Risk Levels, and (6) other peer-reviewed sources (see Tables 12.1, 12.2, 13.1, and 13.2 in Appendix B).

8.1.5 Risk Characterization

The following sections summarize the risk assessment results and conclusions for the FSWT site. Potential risks (carcinogenic and non-carcinogenic) for individual chemicals detected in the various media were estimated using excess lifetime cancer risk (for carcinogenic effects) and EPA's HI approach (for non-carcinogenic health effects).

Carcinogenic Risk - The incremental risk of developing cancer from exposure to a chemical at the site is defined as the additional probability that an individual exposed will develop cancer during his or her lifetime (assumed to be 70 years). This value is calculated from the lifetime average daily dose (LADD) and the route-specific cancer slope factor (CSE) for the chemical as follows:

$$Risk = LADD \times CSE$$

Non-Carcinogenic Risk - The risk of adverse non-carcinogenic effects from chemical exposure is expressed in terms of the HQ. The HQ is the ratio of the estimated dose (daily intake [ADD]) that a human receives to the RfD, the estimated dose below which it is unlikely to cause adverse health effects for even sensitive populations. The HQ is calculated as follows:

$$HQ = ADD - RfD$$

Where:
HQ = Hazard Quotient (unitless)

ADD = Average Daily Dose (milligrams per kilogram per day [mg/kg/day])
RfD = Reference Dose (mg/kg/day)

All the HQ values for chemicals within each exposure pathway are totaled to yield the HI. Each pathway HI within a land use scenario (e.g. future resident) is summed to yield the total HI for the receptor. If the value of the total HI is less than 1, it is interpreted to mean that the risk of non-carcinogenic injury is low. If the total HI is greater than 1, it is indicative of some degree of non-carcinogenic risk or effect.

Risk estimates were calculated for individual COPCs for the complete exposure pathways associated with each receptor and exposure medium and are presented in Appendix J of the RI. COPCs contributing to a cancer risk of greater than 1E-04 or an HI for non-cancer effects greater than 1 were identified as COCs for human health.

Total and COPC-specific risks and hazards under reasonable maximum exposure (RME) conditions for each of the FSWT exposure areas are discussed below, and include On-Site, Off-Site Residential Properties (Residential – E, Residential – S, and Residential – W), School Property, and Moncrief Creek. Each residential property was also evaluated as an individual exposure unit for risk assessment purposes. The risks and hazards have been calculated for each exposure unit.

On-site, eight different receptors were evaluated: future industrial/commercial workers; future construction workers; future utility workers; current and future adolescent and adult trespassers; future child recreationalists; future adolescent recreationalists, future adult recreationalist; and future residents. Only the current and future utility worker and current residents were evaluated for the residential areas. Only adolescent and adult recreationalists were evaluated for Moncrief Creek. Current and future staff and current and future students were evaluated for the school property. Risks for the FSWT exposure areas are summarized in Tables 14.1 through 14.7 of Appendix B.

On-Site

On-site represents the former FSWT facility and includes the former wood treatment area. The on-site area is currently unoccupied, but may be redeveloped in the future. Risks and hazards for each of the receptors evaluated for this exposure area are summarized and discussed below.

Future Industrial/Commercial Workers

Industrial/commercial workers were evaluated only under future land use conditions. Total hazards and risks were evaluated for potential exposure to surface and subsurface soil and groundwater (as described below for residents).

Total hazards do not exceed 1 for the exposures to surface soils and groundwater (0.62) or surface and subsurface soils and groundwater (0.39) that were evaluated. This hazard is considered insignificant.

Total risks exceed 1E-04, when exposures to surface soil and groundwater are considered. The total risks associated with exposures to surface and subsurface soils and groundwater are at the upper end of EPA's risk range (6E-05). The medium-specific total risks are driven by arsenic and are as follows: surface soil (8E-05), surface and subsurface soils (5E-05), and groundwater (2E-05).

Future Utility Workers
Utility workers were evaluated only under future land use conditions. Total hazards and risks were evaluated for potential exposure to surface and subsurface soil and groundwater. It is assumed that utility workers would be exposed to the maximum concentration in soil because they will not be exposed to the entire site, as construction workers are likely to be.

Total hazards do not exceed 1 for the exposures to surface and subsurface soils and groundwater (0.78) that were evaluated. This hazard is considered insignificant.

Total risks exceed 2E-04 when exposures to surface and subsurface soil and groundwater are considered. The medium-specific total risks are driven by arsenic and PAHs and are as follows: surface and subsurface soils (2E-04).

Future Construction Workers
Construction workers were evaluated only under future land use conditions. Total hazards and risks were evaluated for potential exposure to surface and subsurface soil and groundwater. It is assumed that surface and subsurface soils will be mixed as part of the construction process.

Total hazards do not exceed 1 for the exposures to surface and subsurface soils and groundwater (0.61) that were evaluated. This hazard is considered insignificant.

The total risks associated with exposures to surface and subsurface soils and groundwater are at the lower end of EPA's risk range (2E-05). The medium-specific total risks, with arsenic as the predominate contributor, are as follows: surface and subsurface soils (2E-05).

Current and Future Adolescent and Adult Trespassers
Adolescent and adult trespassers were evaluated only under current land use conditions. While trespassing may continue to occur in the future, it was assumed that other, more regularly exposed, receptors (for example, residents or industrial/commercial workers) would be protective of potential trespassers. No significant hazards were identified.

Total hazards were less than 1 and are considered insignificant for the exposures to surface soils, sediment, and surface water for the adolescent trespasser (0.28) and for the adult trespasser (0.19). Total risks for both the adolescent and adult trespassers (2E-05 and 4E-05) are within EPA's acceptable risk range and arsenic is the predominant contributor to the risk by potential exposure to surface soil and sediment.

Future Child Recreationalists
Child recreationalists were evaluated only under future land use conditions, and potential exposure to surface soil (no intrusive activity) was assumed. Total hazards are greater than 1 and are considered significant for surface soil (4.2).

Total risks are greater than EPA's acceptable risk range, assuming potential exposure to surface soil (2E-04). Risks are driven by potential exposure to arsenic.

Future Adolescent Recreationalists

Adolescent recreationalists were evaluated only under future land use conditions and assumed potential exposure to surface soil (no intrusive activity). Total hazards are less than 1 and are considered insignificant for surface soils (0.73).

Total risks are within EPA's acceptable risk range, assuming potential exposure to surface soil (5E-05). Arsenic is the predominate contributor to the risks.

Future Adult Recreationalists

Adult recreationalists were evaluated only under future land use conditions and assumed potential exposure to surface soil (no intrusive activity). Total hazards are less than 1 and are considered insignificant for surface soils (0.48).

Total risks are within EPA's acceptable risk range, assuming potential exposure to surface soil (9E-05). Arsenic is the predominate contributor to the risks.

Future Residents

Residents were evaluated only under future land use conditions. Total hazards and risks were evaluated for potential exposure to surface and subsurface soil (assuming homes will be built using slab-on-grade construction [surface soil] or with basements, requiring excavation [subsurface soil]) and groundwater (assuming groundwater is developed as a source of drinking water).

Total hazards exceed 1 under all soil and groundwater combinations: 8.2 (surface soil/groundwater) and 4.9 (subsurface soil/groundwater). The medium-specific total hazards are as follows: surface soil (7.6) and subsurface soil (4.2), driven by arsenic.

Total risks exceed 1E-04 for surface soil and groundwater (7E-04), the upper end of EPA's acceptable risk range, by one order of magnitude; total risks are just above the acceptable risk range for subsurface soils and groundwater (4E-04). The medium-specific total risks are as follows: surface soil (7E-04), surface and subsurface soil (4E-04), and groundwater (7E-05), all driven by arsenic.

Off-Site Residential Properties

Residences were divided into areas based on their location relative to the FSWT site. Residences directly east of FSWT (Residential – E), residences directly south of FSWT (Residential – S), and residences directly west of FSWT (Residential – W). The risks associated with residences north of the railroad tracks north of FSWT are not summarized below because any contamination is not believed to be site-related. The data from the residential areas were evaluated by two means. The first was to evaluate the potential risks and hazards for the entire residential area based on a calculated exposure point concentration (EPC) (95 percent upper confidence limit value) for the surface soils, as well as the surface and subsurface soils combined. The other was to evaluate the risks and hazards associated with the maximum surface soil concentration for each individual residential lot. Risks and hazards for each of the receptors evaluated for these exposure areas are discussed below.

Residential – E

Residential – E represents the residential area east of the site, south of the City ROW, and north of West 14th Street. This area is currently residential and is assumed to remain this land use into the future. Risks and hazards for each of the receptors evaluated for this exposure area are discussed below.

Current and Future Residents

Residents were evaluated under both current and future land use conditions, since they are assumed to be the same. Total hazards and risks were evaluated for potential exposure to surface and subsurface soils, with the assumption that the current residents will uncover soils below 6 inches (surface soils) as part of routine activities; therefore, risks were calculated for the combined surface and subsurface soil data. In addition, it was assumed there is no current or future exposure to groundwater, because groundwater contamination above the Safe Drinking Water Act maximum concentration limit was not identified on the FSWT site, and it is not used as a potable water source in this area. Total hazards do not exceed 1 for either surface or subsurface soils, with HQs of 0.18 and 0.24. This hazard is considered insignificant. For surface soils, total risk (3E-05), is within the EPA's acceptable risk range. For surface and subsurface soils, total risk (2E-05) is within the EPA's acceptable risk range. Of the 33 individual lots evaluated using the maximum concentration values, none were found to have cancer risks exceeding EPA's acceptable range or hazards above one.

Current and Future Utility Workers

Utility workers were evaluated under current and future land use conditions. Total hazards and risks were evaluated for potential exposure to subsurface soil.

Total hazard (0.0023) is less than 1 and is considered insignificant. Total risk (3E-07) is below EPA's acceptable risk range and is considered insignificant.

Residential – S

Residential – S represents the residential area south of the site and west of Fairfax Street. This area is currently residential and is assumed to remain this land use into the future. Risks and hazards for each of the receptors evaluated for this exposure area are discussed below.

Current and Future Residents

Residents were evaluated under both current and future land use conditions, because they are assumed to be the same. Total hazards and risks were evaluated for potential exposure to surface and subsurface soils, with the assumption the current residents will uncover soils below 6 inches (surface soils) as part of routine activities; therefore, risks were calculated for the combined surface and subsurface soil data. In addition, it was assumed there is no current or future exposure to groundwater, because groundwater contamination above the Safe Drinking Water Act maximum concentration limit was not identified on the FSWT site, and it is not used as a potable water source in this area.

Total hazards do not exceed 1 for either surface or subsurface soils, with HQs of 0.20 and 0.15. This hazard is considered insignificant.

For surface soils, total risks are within EPA's acceptable risk range. For surface and subsurface soils, total risks are within EPA's acceptable risk range.

Of the 17 individual lots evaluated using the maximum concentration value, none were found to have cancer risks exceeding EPA's acceptable range or hazards above one.

Current and Future Utility Workers

Utility workers were evaluated under current and future land use conditions. Total hazards and risks were evaluated for potential exposure to subsurface soil.

Total hazard (0.0021) is less than 1 and is considered insignificant. Total risk (3E-07) is below EPA's acceptable risk range and is considered insignificant.

Residential – W

Residential – W represents the residential area west of the site and south of the City ROW. This area is currently a residential area and is assumed to remain this land use into the future. Risks and hazards for each of the receptors evaluated for this exposure area are discussed below.

Current and Future Residents

Residents were evaluated under both current and future land use conditions, because they are assumed to be the same. Total hazards and risks were evaluated for potential exposure to surface and subsurface soils, with the assumption the current residents will uncover soils below 6 inches (surface soils) as part of routine activities; therefore, risks were calculated for the combined surface and subsurface soil data. In addition, it was assumed there is no current or future exposure to groundwater, because groundwater contamination above the Safe Drinking Water Act maximum concentration limit was not identified on the FSWT site, and it is not used as a potable water source in this area.

Total hazards do not exceed 1 for either surface or subsurface soils, with HQs of 0.50 and 0.42. This hazard is considered insignificant.

For surface soils, total risks are within EPA's acceptable risk range. For surface and subsurface soils, total risks are within EPA's acceptable risk range.

Of the 17 individual lots evaluated using the maximum concentration value, none were found to have cancer risks exceeding EPA's acceptable range (1 E-04) and two had a hazard above 1 (1.0 and 1.1).

Current and Future Utility Workers

Utility workers were evaluated only under current and future land use conditions. Total hazards and risks were evaluated for potential exposure to subsurface soil.

Total hazard (0.0066) is less than 1 and is considered insignificant. Total risk (1E-06) is below EPA's acceptable risk range and is considered insignificant.

School Property

The STES and RVDES properties are adjacent to the FSWT site and have been affected by releases from the site. The school properties are currently being used for recreation and physical education classes, and it is assumed this land use will continue in the future. Risk and hazards for students and staff were evaluated and are discussed below.

Current and Future Students

Students were evaluated under both current and future land use conditions, because they are assumed to be the same. Total hazards and risks were evaluated for potential exposure to surface soils only, with the assumption that no excavations will occur on the school property as part of routine activities. In addition, it was assumed there is no current or future exposure to groundwater, because the school uses City water.

Total hazards did not exceed 1 for surface soils, with an HQ of 0.0093. This hazard is considered insignificant.

Total risks do not exceed 1E-04 for surface soils, the upper end of EPA's acceptable risk range, and are not above EPA's point of departure for risk of 1E-06.

Current and Future Staff

School staff was evaluated under both current and future land use conditions, since they are assumed to be the same. Total hazards and risks were evaluated for potential exposure to surface soils only, with the assumption that no excavations will occur on the school property as part of routine activities. In addition, it was assumed there is no current or future exposure to groundwater, since the school uses City water.

Total hazards did not exceed 1 for surface soils, with an HQ of 0.0068. This hazard is considered insignificant.

Total risks do not exceed 1E-04 for surface soils, the upper end of EPA's acceptable risk range, and are not above EPA's point of departure for risk of 1E-06.

Moncrief Creek

Moncrief Creek is located about 1,000 feet west of the FSWT site. It was assumed that limited exposure to surface water and sediment will occur to adolescents and adult recreationalists. The exposure will occur through incidental ingestion and dermal contact for both sediment and surface water. It is assumed the current exposures will also occur in the future. Risks and hazards for each of the receptors evaluated for this exposure area are summarized and discussed below.

Current and Future Adolescent Recreationalists

Adolescent recreationalists were evaluated under current and future land use conditions and assumed potential exposure to sediment and surface water. Total hazards are less than 1 and are considered insignificant for sediment (0.085) and surface water (0.0000017).

Total risks for sediments and surface water are within EPA's acceptable risk range.

Current and Future Adult Recreationalists

Adult recreationalists were evaluated under current and future land use conditions and assumed potential exposure to sediment and surface water. Total hazards are less than 1 and are considered insignificant for both sediment (0.058) and surface water (0.000001).

Total risks for sediments and surface water are within EPA's acceptable risk range.

8.1.6 Uncertainty

Within the Superfund process, baseline quantitative risk assessments are performed in order to assess the potential human health impacts of a given site under currently existing conditions and potential future land use. The assessments are performed in order to provide project and risk managers with a numerical representation of the severity of contamination present at a site, as well as to provide an indication of the potential for adverse public health effects. There are imposed uncertainties in the risk assessment methodologies, and each stage of the risk assessment process includes a degree of uncertainty.

Data Evaluation and COPC Selection - Risk may have been underestimated or overestimated for the following reasons:

- Sample locations - since sampling was concentrated more in areas believed to be contaminated based on past operations and site investigations, the potential for underestimating risk using the available data set was minimal.
- Contaminant identification - low uncertainty because sampling protocols generally target analytes based on historical information and guidance, and chemicals excluded are those detected at concentrations below conservative risk-based screening levels based on the most current EPA guidance.

Exposure Assessment- Factors that contribute to uncertainty in the exposure assessment include the identification of exposure pathways, assumptions for scenario development, intake parameters, and EPCs.

- Identification of potential exposure pathways and receptors - based on site-specific, plausible, current, and hypothetical future land use scenarios. These exposure parameters are generally based on conservative assumptions and would tend to overestimate rather than underestimate risk.
- Assumptions for scenario development - conservative default assumptions, such as unlimited access to the site and no vegetation to prevent fugitive dust. Professional judgment is used to modify the assumptions as required, but the conservatism is retained. Estimated risks were based on an assumed residential land use. In the unlikely event that the land use was to change, the health risks would need to be further assessed.
- Intake parameters - default assumptions used for this risk assessment were the EPA RME factors. Site-specific factors were used where appropriate. The chemical intakes represent the maximum exposure that could reasonably be expected for the given pathways. The chemical concentrations were assumed to be constant with time. This assumption may have resulted in overestimating the risk where the concentrations of chemicals have decreased and will continue to decrease over time.

Toxicity Assessment - The estimation of potential human health impacts due to exposure to site-related contamination utilizes various toxicity constants derived or approved by EPA. Extrapolations used in deriving these values may result in inherent errors that increase the uncertainty in estimates of potential effect. Modifying factors and uncertainty factors are inserted, and they intentionally increase the risk estimates in order to ensure the protection of human health.

The interpretation of the results of the animal studies upon which the initial toxicity evaluation is founded can be difficult, and guidelines demand extremely conservative interpretations. The uncertainty that this builds into the estimates of toxicity is acknowledged, but this conservative approach provides a level of protection for the potentially exposed individuals.

The toxicity factors for some chemicals were not available. As such, these chemicals were evaluated using toxicity factors for similar chemicals. This approach could potentially lead to the over or underestimation of the calculated risk.

Risk Characterization - Uncertainties in the exposure and toxicity assessments are reflected in the quantitative risk estimates developed for the COPCs in the risk characterization. Some of the procedures used and uncertainties inherent in the process may tend to underestimate potential risk. Overall, however, the numerous conservative assumptions built into the assessment, including dose additivity for multiple substance exposure and the combining of risk across pathways are considered more likely to overestimate rather than underestimate potential risks.

Uncertainties in the toxicity assessment are compounded under the assumption of dose additivity for multiple substance exposure. This assumption ignores possible synergisms and antagonisms among chemicals. The use of target organ HIs to identify COCs instead of summing HQs for all COPCs regardless of critical effect reduces the uncertainty. In addition, the use of modeling to evaluate risk due to exposure to lead in soil and groundwater and to estimate fish tissue concentrations may overestimate or underestimate risk.

8.2 Summary of Ecological Risks

The SLERA identified objectives, ecological exposure pathways, the approach, and results. See Appendix J of the RI for information concerning the ecological effects assessment and the ecological risk characterization.

8.2.1 Objective of the Screening-Level Ecological Risk Assessment

The purpose of a SLERA is to evaluate the likelihood that adverse ecological effects are occurring or may occur as a result of the site-specific constituent concentrations in environmental media. The SLERA conservatively characterized ecological risks associated with the FSWT site under conditions at the time of the RI (un-remediated conditions).

The FSWT SLERA was performed in accordance with the EPA Ecological Risk Assessment Guidance for Superfund (ERAGS) eight-step process (Ref. 41, Exhibit I-2). Step 1 includes a site visit and problem formulation, and toxicity evaluation. Step 2 includes exposure estimation and risk calculation. Step 3 is the re-evaluation of the problem formulation based on information learned during Steps 1 and 2, which includes toxicity evaluation, assessment endpoints, conceptual model exposure pathways, and questions and hypotheses. Step 4 is the study design and data quality objectives (DQO) process, which includes lines of evidence and measurement endpoints. Step 5 is the verification of the field sampling design. Step 6 is the site investigation and data analysis. Step 7 is the risk characterization. Step 8 is risk management.

8.2.2 Ecological Exposure Pathways

The ecological habitats identified for the FSWT site include (1) a terrestrial habitat that would encompass the current site, (2) the aquatic habitat of the on-site retention pond, and (3) Moncrief Creek, which receives surface water runoff and stormwater from the site. Because the terrestrial habitat is located in an urban setting, a viable terrestrial habitat was not considered present at the site, and any exposure would be considered *de minimis* and was not evaluated as part of the SLERA (see Figure 14 in Appendix A). Therefore, the only ecological receptors evaluated as part of this risk assessment are receptors present in the on-site retention pond and Moncrief Creek.

8.2.3 SLERA Approach

The primary objective of the second step in the SLERA is to identify chemicals of potential ecological concern (COPEC) and provide a conservative evaluation of the potential for adverse ecological effects related to constituent concentrations in environmental media. This step combines the ESV with exposure information to yield an estimate of potential ecological risks at the site. The identification of the ESVs, exposure estimates, and risk calculations are summarized below.

An ecological CSM was prepared using information on the habitats present and known areas of contamination that identifies likely categories of receptors with anticipated complete exposure pathways and assessment endpoints for the ecological evaluation (see Figure 14 in Appendix A). Potential exposure points, exposure routes, and ecological receptors at the FSWT site are discussed below for the on-site retention pond and Moncrief Creek. The ecological CSM is presented in the risk assessment contained in Appendix J of the RI (Ref. 20).

Sediment is the major contaminated medium identified for aquatic habitat of the on-site retention pond and Moncrief Creek, and surface water is the secondary contaminated medium of concern. Impacts to sediment and surface water are primarily the result of historical wood treating operations at the FSWT site, as described in the RI report (Ref. 20).

The SLERA focused on benthic and aquatic receptors for the aquatic portions of the on-site retention pond and Moncrief Creek.

The specific assessment endpoints evaluated in the SLERA are:

- Ensure adequate protection of the benthic and aquatic communities in the on-site retention pond and Moncrief Creek by protecting them from the deleterious effects of acute and chronic exposures to site-related constituents present in the retention pond and creek.

- Ensure adequate protection of the aquatic-dependent avian populations along the shoreline of the on-site retention pond and Moncrief Creek by protecting them from the deleterious effects of acute and chronic exposures to site-related constituents caused by biotic uptake of constituents in sediment and surface water.

- Ensure adequate protection of threatened and endangered species (including candidate species) and species of special concern and their habitats by protecting them from the deleterious effects of acute and chronic exposures to site-related constituents.

Measurement endpoints define the measures that will be employed to quantify and predict attainment of assessment endpoints. Measurement endpoints are measures of adverse effects on ecological receptors in response to a stressor. Measures of ecosystem characteristics are measures that influence behaviors and locations of ecological receptors, distribution of stressors, and life-history characteristics of ecological receptors that may affect exposure or response to the stressor (Ref. 42). The measurement endpoints selected for each assessment are presented as follows:

Assessment Endpoint	Receptors	Measurement Attribute
Protection of the benthic community function and viability	Benthic organisms	Comparison to sediment threshold benchmarks for the protection of benthic/aquatic receptors
Protection of the aquatic community function and viability	Aquatic organisms	Comparison to chronic water quality standards for the protection of aquatic receptors
Protection of avian community function and viability	Avian	Comparison of dose from a food chain model to toxicity reference values for avian receptors

The final component is the screening-level ecological effects evaluation that identifies threshold exposure concentrations for constituents in environmental media below which adverse effects are not expected to occur. These highly conservative constituent concentrations are unlikely to result in adverse ecological effects, even to the most sensitive ecological receptors. In Step 2, these values are used as the basis for evaluating whether there may be a potential for adverse ecological effects as a result of exposure to constituents in environmental media. Several potential sources were reviewed to identify appropriate ESVs for the SLERA.

EPCs for the SLERA are maximum detected concentrations of constituents in exposure media. Thus, the EPCs represent the maximum exposures expected at a given exposure area. The comparison resulted in an HQ such that:

$$HQ = \frac{EPC}{ESV}$$

The EPA HQ threshold value of 1 was used to identify COPECs. Generally, the greater the HQ, the greater the likelihood an effect will occur. Although probabilities cannot be specified based on a point-estimate approach, an HQ of approximately 1 is generally regarded as indicating a low probability of adverse ecological effects. When a constituent yields an HQ greater than 1, it is present at levels above its threshold concentration; however, this HQ does not imply that adverse effects will occur, only that the potential for adverse effects exists.

8.2.4 SLERA Results

The SLERA results for aquatic life in the on-site retention pond identified that sediments from the pond had an HQ greater than 1 based on maximum concentrations. The contaminants identified in the sediments were the three metals associated with the site: arsenic (HQ = 13), chromium (HQ = 7.8), and copper (HQ = 6.4). These three metals were also detected in the dissolved form in the surface water. Two were found above the aquatic life chronic screening values: arsenic (HQ = 5.1) and copper (HQ = 6.4), while chromium was below (HQ = 0.08).

The SLERA results for aquatic life in Moncrief Creek identified that sediments from the creek had an HQ greater than 1 based on maximum concentrations. The contaminants identified in the sediments were the three metals associated with the site: arsenic (HQ = 27.6), chromium (HQ = 6.3), and copper (HQ = 7.4). Arsenic was the only COPEC detected in surface water, and its maximum concentration was below the chronic water quality standard for arsenic in Florida.

The SLERA results for avian receptors that may use the retention pond as a source for food and water yielded HQs greater than 1, indicating a potential risk. Using the low and high toxicity reference values (TRV), the HQ values were the following – arsenic (220 and 22), chromium (79 and 14) and copper (85 and 8.6). The SLERA also evaluated the potential risks to the avian receptors in Moncrief Creek, focusing on the stormwater collection basin within the creek's watershed, downstream from FSWT stormwater discharge to the creek. The results for avian receptors that may use the stormwater collection basin as a source for food and water yielded HQs less than 1 based on the high TRVs (lowest observed adverse effect level [LOAEL]), indicating no significant risk.

8.3 Basis for Response Action

The response action selected in this ROD is necessary to protect the public health or welfare, or the environment from actual or threatened releases of hazardous substances, pollutants, or contaminants into the environment.

Unacceptable risks were estimated for non-residential and residential exposures to arsenic, copper, chromium, and PAHs on site. Further, residual waste material from drains and pipes below the process area pose an unacceptable risk due to the extremely high levels of metals. These wastes are classified as RCRA hazardous listed waste (F035).

For off-site residential soils, EPA believes that soils immediately adjacent to the FSWT property and nearby residential yards have been contaminated by former wood treating operations conducted at the site. The HHRA determined that several residential yards exceed a HI of 1. It was determined that the site-related contamination migrated due to stormwater runoff and spray from the tires of the trucks leaving the site from the south, east, and west. EPA and FDEP decided to address all residential parcels that were impacted by site-related contamination and where arsenic concentrations are above the background concentration of 2.36 ppm. EPA has made the risk management decision to include these additional residential properties in the remedial action (RA) for the site based on the fact that the Mid-Westside Neighborhood community surrounding the site is considered an overburdened community with environmental justice (EJ) concerns and suffers from cumulative negative environmental impacts and health-based stressors explained in more detail in Appendix E of the final FS (Ref. 21).

Remedial action is needed for on-site soils because the risk exceeds EPA's target risk of 1E-04, the upper level of acceptable risk for carcinogens, as well as FDEP's 1E-06 carcinogenic threshold. Because risks were identified under current and reasonably anticipated future land use scenarios, a response action is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances, pollutants, or contaminants into the environment that may present an imminent and substantial endangerment to public health or welfare.

The SLERA also identified a risk for an avian receptor that may use the on-site retention pond as a primary food source and the sediments warrant a response action. Within Moncrief Creek, the major area of sediment contamination is located about 1,800 feet downstream of the discharge point of stormwater from the FSWT site to the creek. However, further investigation of stream sediments in Moncrief Creek located off site will be undertaken to determine if a response action is warranted to protect the environment. If a response action is warranted, a focused feasibility study will be completed and the additional contaminated areas will be remediated as a second operable unit under the FSWT site.

9.0 REMEDIAL ACTION OBJECTIVES

RAOs and cleanup levels were identified for the FSWT site to protect human health and the environment.

9.1 Remedial Action Objectives (RAOs)

RAOs are media-specific goals that define the objective of conducting remedial actions to protect human health and the environment. RAOs specify the COCs, potential exposure routes and receptors, and acceptable concentrations (i.e., cleanup levels) for a site and provide a general description of what the cleanup will accomplish. The RAOs relate to the statutory requirements for the development of remedial actions. RAOs for the contaminated on-site soils, on-site retention pond water and sediments, residual waste material in on-site drains located beneath the process area, and off-site residential soil have been developed for the site.

The RAOs developed are as follows:

- Prevent human exposure (direct contact and ingestion) to on-site soil with concentrations of COCs above levels protective of residential use.
- Prevent migration of contaminated stormwater runoff from the FSWT site to adjacent properties and Moncrief Creek.
- Prevent unacceptable risk to ecological receptors (benthic organisms and avian) from contaminated sediments and surface water in the on-site retention pond.
- Prevent direct contact with residual waste material and contaminated building structures located on the site, including the drip pad and process containment areas.

- Prevent off-site residential human exposure (direct contact and ingestion) to soil with concentrations of arsenic above levels protective of residential use.

9.2 Cleanup Levels

The cleanup levels for contaminated media at the site were developed specifically to protect human health and the environment; and to address the unacceptable risks identified in the HHRA and the SLERA. These levels are based on federal or state regulatory standards, including ARARs, and risk-based levels established in the HHRA and SLERA. The purpose of this response action is to control risks on site and off site posed by direct contact and ingestion with soils and sediments.

The cleanup levels for contaminated media at the FSWT site were developed specifically to protect human health and the environment and to address the unacceptable risks. This will be achieved by reducing contaminant concentrations to the following cleanup levels:

Medium	Cleanup Levels
Soil/Source Material	Arsenic: 2.36 ppm
	Chromium: 210 ppm
	Copper: 150 ppm
	cPAH: 0.1 ppm *
Sediment	Arsenic: 9.8 ppm
	Chromium: 43 ppm
	Copper: 32 ppm

*Benzo(a)pyrene equivalents

With the exception of arsenic, the cleanup levels for the on-site and off-site contaminated surface soils are based on FDEP's SCTLs for direct exposure and residential use (Florida Administrative Code [F.A.C.] 62 -777 Table II) (Ref. 43). These SCTLs are identified as chemical-specific ARARs. Neither EPA (as a policy matter) nor Florida set cleanup levels for an individual contaminant that is more stringent than the site-specific background concentration for that contaminant, provided that the background level is protective of human health and the environment. Therefore, EPA will use the site-specific background level of 2.36 ppm for arsenic instead of the FDEP SCTL, as provided in F.A.C. 62-780.650(1)(d).

The cleanup levels for sediments are based on Florida's sediment quality assessment guidelines for the protection of sediment-dwelling organisms (Ref. 37).

10.0 DESCRIPTION OF ALTERNATIVES

As required in the NCP, remedial alternatives were developed and remedial technologies were screened for effectiveness, implementability, and cost. After screening, the remedial alternatives described in this section were retained for evaluation. The FS evaluated remedial technologies from a technical, environmental, and cost-effectiveness perspective (Ref. 21). The FS also provided for each alternative (where possible) the estimated time for implementation, capital costs, and total operation and maintenance (O&M) costs over the life of the cleanup.

The contaminated material may be classified as RCRA listed hazardous waste F035 under EPA's "contained-in" policy and/or considered RCRA characteristic waste (D004 and/or D007) due to elevated concentrations of arsenic and/or chromium that fail TCLP. Under RCRA, land disposal restriction (LDR) requirements that are identified as ARARs, may require treatment prior to disposal for some disposal options. When stabilization is required prior to disposal at an appropriately permitted, off-site landfill, the stabilized product classified as listed hazardous waste F035 must meet the RCRA hazardous waste LDR treatment standards for soil of 10 times the Universal Treatment Standard (UTS) values of 5.0 ppm leachable arsenic and 0.60 ppm leachable chromium, as measured by TCLP (40 CFR §§ 268.40, 268.48, and 264.49). Contaminated subsurface soil excavated from beneath the Old Feed Building slab that is classified as RCRA listed or characteristic hazardous waste also may require treatment to meet the applicable LDR treatment standards for carcinogenic PAHs (cPAHs). Debris considered RCRA characteristic waste must meet the alternative LDR treatment standards listed in 40 CFR § 268.45.

Contaminated soil that contains RCRA listed waste (F035) must be treated to meet alternative LDR treatment standards for soil at 40 CFR § 268.49 in order to be disposed of in an off-site, RCRA-permitted Subtitle C landfill. If the soil meets LDR treatment standards, is considered to no longer contain hazardous waste F035, and does not fail TCLP levels for D004 and D007, then it may be disposed of in a RCRA-permitted Subtitle D landfill. The receiving landfill will operate under state or federal permits and will be in compliance with the CERCLA off-site rule under 40 CFR § 300.440. This technology, preceded by physical separation, was used as part of the EPA removal action conducted at the site.

Five remedial alternatives were developed for the following on-site media: on-site surface soil, sediment from the on-site retention pond, and residual waste material in the process area drains and associated piping. Technologies that most effectively address the contaminants and provide a range of cleanup options were evaluated together with sufficient information to adequately compare alternatives using the prescribed NCP evaluation criteria. The calculated volume of soil (both on site and off site) that will be addressed by remedial alternatives is approximately 35,650 cubic yards. The calculated volume of sediment that will be addressed by remedial alternatives is approximately 1,270 cubic yards. In addition, the calculated volume of residual waste material in process area drains and piping is approximately 2 cubic yards.

10.1 Alternative 1: No Action

Estimated Capital Cost: $0
Estimated Annual O&M Cost: $0
Estimated Present Worth Cost: $0
Estimated Construction Timeframe: Not Applicable (N/A)
Estimated Time to Achieve RAOs: N/A

The no remedial action scenario is required under NCP rules as a baseline for comparison to other alternatives. It allows evaluation of future adverse environmental impacts and risks/hazards resulting from not taking an action to address the existing contamination at the site. This alternative does not achieve cleanup levels, some of which are based upon chemical-specific ARARs. This alternative achieves none of the RAOs developed for this site because no remedial actions are implemented at the site to address the contamination. The No Action alternative is not protective of human health and the environment.

10.2 Alternative 2: Excavation and Off-Site Treatment and Disposal

Estimated Capital Cost: $7,860,000
Estimated Construction Timeframe: 6 months to 1 year
Estimated Time to Achieve RAOs: RAOs achieved after excavation and removal of soils, sediments, debris, and residual waste material.

This alternative will be applicable to on-site debris, on-site soils, off-site residential soils, retention pond sediments, and residual waste material. The locations and volumes of material requiring remedial action are shown on Figures 15 through 20 in Appendix A. After issuance of the ROD, a Remedial Design (RD) and RA Work Plan will be developed before remedial actions begin. These planning documents will detail site preparation requirements; sampling to further determine the extent of excavation; implementation and sequence of facility demolition and excavation; and decontamination, staging of contaminated soil, transportation, and disposal requirements for contaminated soil, demolition debris, and residuals waste material. The plan will also include provisions for worker safety while conducting remedial action activities, such as excavation and demolition. The safety of remediation workers, on-site employees, and the public will be addressed in a site-specific health and safety plan. The health and safety plan will address potential exposures and monitoring requirements to ensure protection.

Components for this alternative include:

- Site preparation
- Site facilities demolition
- Excavation of contaminated soil and residual waste material
- Waste characterization sampling
- Temporary staging
- Transportation
- Off-site disposal
- Off-site treatment (for RCRA characteristic and listed hazardous waste soil)
- Confirmatory sampling
- Site restoration

Contaminated soils and debris from structure and pavement demolition at on-site locations identified on Figures 18 and 19 in Appendix A will be excavated and disposed of at a permitted off-site disposal facility. The total volume of on-site soils to be excavated is estimated at 25,000 cubic yards (estimated in-place, prior to disturbance) and the volume of debris is estimated to be 2,025 cubic yards (after pavement demolition).

Contaminated soils at off-site residential locations identified on Figures 16A, 16B, and 16C in Appendix A will be excavated and disposed of at a permitted off-site disposal facility. The total volume of off-site residential soils to be excavated is estimated at 10,545 cubic yards (estimated in-place, prior to disturbance, using the initial grids evaluated during the RI and the sampling results from the RI).

The location and estimated volume of contaminated sediments within the on-site retention pond are shown on Figure 17 in Appendix A. These sediments will be excavated and disposed of at a permitted off-site disposal facility. The total volume of retention pond sediments to be excavated is estimated at 1,270 cubic yards (estimated in-place, prior to disturbance, using the initial grids evaluated during the RI and the sampling results from the RI).

The residual waste material requiring remedial action is located inside subsurface piping and drains located beneath the former process area at the site. The locations of the subsurface piping and drains containing residual waste material are shown on Figure 20 in Appendix A. The total volume of residual waste material to be excavated is estimated at 2.04 cubic yards (estimated in-place, prior to disturbance, using the locations of the subsurface piping evaluated during the RI and the sampling results from the RI).

The site contaminants in the soil and debris requiring remediation at the FSWT site resulted in part from releases of RCRA listed hazardous waste F035 from the process area, including the residual waste material. Hazardous waste F035 is defined as "wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use inorganic preservatives containing arsenic or chromium." Under EPA's "contained-in" policy, soil contaminated with the arsenic and chromium from F035 wastes are considered to contain F035 and must be managed as such unless the EPA determines that the soil no longer contains the waste. The EPA considers contaminated environmental media (e.g., soil and sediments) to no longer contain hazardous waste: (1) when they no longer exhibit a characteristic of hazardous waste, and (2) when the concentrations of hazardous constituents from the listed hazardous waste are below conservative health-based levels. The waste classifications of the contaminated soil will be based on the TCLP and total concentrations of chromium and arsenic present in the soil compared against the "no longer contains levels" established by EPA (Ref. 44).

Off-site transportation of hazardous waste is subject to specific RCRA hazardous waste and U.S. Department of Transportation (DOT) hazardous materials regulations. In addition, off-site treatment of RCRA hazardous wastes must be performed at a RCRA Subtitle C facility. The requirement for RCRA hazardous waste to meet LDRs applies at the point-of-generation (point of demolition for debris and point of excavation or removal from the ground for soil or sediment). Remediation wastes classified as RCRA hazardous wastes that are sent off-site for treatment and disposal must meet the LDR requirements identified in the list of ARARs in Table 16 of Appendix B. Depending on the total arsenic, chromium, and cPAH levels, some of the treated wastes that meet the LDR treatment standard and are no longer considered characteristic waste may be disposed of at a RCRA Subtitle D-permitted solid waste landfill, as opposed to a RCRA Subtitle C-permitted hazardous waste landfill.

Standard construction equipment, such as excavators, bulldozers, and front-end loaders, will be used to remove contaminated material. Site preparation will include removing the office building debris and building slab, the former Feed Building slab, treatment areas, piping and drying areas, and paved areas within the proposed excavation areas. Erosion control materials, such as silt fences and straw bales, will be installed to minimize erosion. Contaminated soils will be kept moist or covered with tarps to minimize dust generation. Existing pavement areas will be utilized as long as practical during excavation to minimize erosion and dust generation.

During the RD, additional on-site sampling will be conducted to establish the farthest extent of contamination in each area (referred to as cut-line sampling). Where cut-line sampling is insufficient, confirmatory sampling will be conducted after the excavation of each area to confirm RAOs are achieved. After excavation of contaminated material is confirmed, the excavation will then be backfilled with clean soil and completed in accordance with the approved remedial design plan. Before it is placed, the backfill will be tested to ensure the design criteria are met. Cut-line sampling, excavation, and site restoration can progress area by area to prevent the occurrence of large disturbed areas, minimizing erosion and dust generation, and to limit excavation water management. A new stormwater retention pond will also be constructed in place of the current pond, with new underground piping for discharge to Moncrief Creek. No Land Use Controls (LUCs) or 5-year reviews will be required under this alternative because no contaminated material will remain on site above the cleanup level based on residential land use and background.

10.3 Alternative 3: Excavation, Physical Separation and Volume Reduction, and Off-Site Treatment and Disposal

Estimated Capital Cost: $8,059,000
Estimated Construction Timeframe: 6 months to 1 year
Estimated Time to Achieve RAOs: RAOs achieved after excavation and removal of soils, sediments, debris, and residual waste material.

This alternative would be applicable only to on-site soils and off-site residential soils, and only if treatability studies indicate that contaminants have been preferentially adsorbed onto the smaller particles in the soil. This technology would not be applicable for contaminated debris or sediments, because it would be counterproductive to perform size reduction on debris to facilitate physical separation, while sediments would consist mainly of finer particles and would require drying prior to attempting separation. In addition, the residual waste material in subsurface piping and drains is likely to contain high contaminant levels that would not be easy to isolate using only physical separation. The on-site demolition debris, retention pond sediments, and residual waste material in the subsurface piping and drains would not be treated and instead would be disposed of appropriately.

This alternative requires excavating the soil and treating it ex situ using physical methods to separate potentially clean, large-diameter particles from smaller fine soil particles where the contaminants reside. This alternative would be feasible only if the contaminants are concentrated in the fine soil particles. The total volume of on-site soils to be excavated and treated on site is estimated at 25,000 cubic yards (estimated in-place, prior to disturbance). In addition, an estimated 10,550 cubic yards of off-site residential soil (estimated in-place, prior to disturbance) will also require excavation, transportation to the site for treatment or stockpiling, and disposal. Up to 35 percent of the contaminated soil excavated at off-site residential properties would be transported to the site for further treatment, if necessary, prior to disposal at an EPA-approved off-site, RCRA-permitted landfill. The remaining contaminated soil excavated from residential properties would not require treatment prior to shipment to a RCRA Subtitle D Landfill for disposal, although on-site stockpiling may be required.

Disposal will occur at an EPA-approved RCRA Subtitle C or D (hazardous or solid waste) facility (e.g., permitted landfill), depending on the waste classification, and hazardous wastes (soil and hazardous debris) would be treated off site to meet RCRA LDR treatment standards prior to disposal.

Components for this alternative include:

- Treatability study
- Extent of contamination sampling
- Site preparation
- Site facilities demolition
- Excavation
- Temporary staging
- On-site physical separation of soils
- Waste characterization sampling
- Transportation
- Off-site disposal
- Off-site treatment (for RCRA characteristic and listed hazardous waste soil)
- Confirmatory sampling
- Site restoration

The site facilities demolition and excavation would be the same as described in Alternative 2. Excavated soil from off-site residential areas would be transported to the site and combined with the on-site soils for further treatment and disposal. The excavated soils would require a large staging area for separation and storage. Unless treatability studies are conducted, there is a great deal of uncertainty concerning the particle size in which the contamination resides, and the quantity of contaminated soil resulting from physical separation is difficult to estimate.

Physical separation would be performed using one of two methods: gravity separation or sieving. Gravity separation is a solid/liquid separation process, which relies on a density difference between the liquid and solid phases. Equipment size and effectiveness of gravity separation depend on the solids settling velocity, which is a function of the particle's size, density difference, fluid viscosity, and concentration (hindered settling). Gravity separation is also used for classification where particles of different sizes are separated. It is often preceded by coagulation and flocculation to increase particle size, thereby allowing removal of fine particles.

Sieving and physical separation processes use different size sieves and screens to effectively concentrate contaminants into smaller volumes. Physical separation is based on the fact that most organic and inorganic contaminants tend to bind, either chemically or physically, to the fine (clay and silt) fraction of the soil. The clay and silt soil particles are, in turn, physically bound to the coarser sand and gravel particles by compaction and adhesion. Thus, separating the fine clay and silt particles from the coarser sand and gravel particles would effectively concentrate the contaminants into a smaller volume of soil that could then be further treated or disposed.

The selection of an appropriate disposal facility will consider the types of wastes to be generated, the RCRA waste classifications that apply to each type of waste, the disposal facility location, number of transportation options, and cost.

The advantage for using physical separation with volume reduction is that the contaminated fraction requiring treatment and disposal as RCRA hazardous waste will be concentrated into a small volume in comparison to the total volume generated. In this alternative, all soils would be disposed of at EPA-approved RCRA-permitted off-site facilities (either RCRA Subtitle-D or Subtitle-C facilities). No LUCs or 5-year reviews would be required under this alternative because no contaminated material would remain on site above the cleanup level based on residential land use and background.

10.4 Alternative 4: Excavation, Physical Separation and Volume Reduction, On-Site Solidification/Stabilization, and Off-Site Disposal

Estimated Capital Cost: $11,674,000
Estimated Construction Timeframe: 6 months to 1 year
Estimated Time to Achieve RAOs: RAOs achieved after excavation and removal of soils, sediments, debris, and residual waste material.

This alternative would be applicable only for on-site soils and off-site residential soils; it would not be applicable to debris, sediments, or residual waste material since physical separation would be impractical or unfeasible for those materials. Excavated off-site residential soils would be transported to the site and treated in separate batches using the same equipment and processes used for on-site soils. The retention pond sediments and residual waste material in the subsurface piping and drains would be disposed of off-site.

This process requires excavating the soil and treating it ex situ using physical separation as discussed in Alternative 3. The selection of an appropriate disposal facility will consider the types of wastes to be generated, the RCRA waste classifications, the disposal facility location, transportation options, and cost. The large particle fraction resulting from physical separation that meets the site cleanup levels can be disposed of in a RCRA Subtitle D landfill as long as it is not classified as RCRA characteristic hazardous waste and/or RCRA listed hazardous waste F035. However, before off-site disposal of the fraction of soil resulting from separation that does not meet the site cleanup levels, the soil would be sampled for waste characterization (TCLP tested). Any portion that is considered to contain F035 and does not meet the LDR treatment standards would be treated on site using solidification/stabilization (S/S) prior to shipment off site for disposal and would require disposal in a RCRA Subtitle-C landfill.

In the solidification process, contaminants are physically bound or enclosed in an impervious matrix. Stabilization involves the addition of a stabilization agent that induces a chemical reaction between the stabilization agent and the contaminants, which results in reduced contaminant mobility. A treatability study would be needed to determine the type of treatment to be used for the contaminated soil fraction resulting from physical separation and how effective it will be to use this alternative.

Ex situ techniques involve machine-mixing soils with the solidifying agent. Contaminated fractions from physical separation that are classified as RCRA characteristic hazardous waste or contain F035 and do not meet LDR treatment standards would be treated using an appropriate S/S agent at a staging area. Treated soil would be sampled to ensure the soils have been properly stabilized and meet LDR treatment standards before they are shipped off-site for disposal at an appropriately permitted disposal facility.

The treatability studies, site facilities demolition, site preparation requirements, and methods used for excavation and physical separation would be similar to those required for Alternative 3. However, additional treatability studies would be needed to determine the proper type of S/S agent and amount required to achieve the acceptance limits at the disposal facility. This alternative would be feasible only if the contaminants are present in the fine soil particles.

Components for this alternative include:

- Treatability studies
- Extent of contamination sampling
- Site preparation
- Site facilities demolition
- Excavation
- Temporary staging
- On-site physical separation
- Waste characterization sampling
- On-site S/S
- Confirmatory sampling
- Transportation
- Off-site disposal
- Site restoration

Confirmation sampling and site restoration requirements would be similar to those under Alternatives 2 and 3. No LUCs or 5-year reviews would be required under this alternative because no contaminated material would remain on site.

10.5 Alternative 5: Excavation, On-Site S/S, and Off-Site Disposal

Estimated Capital Cost: $11,095,000
Estimated Construction Timeframe: 6 months to 1 year
Estimated Time to Achieve RAOs: RAOs achieved after excavation and removal of soils, sediments, debris, and residual waste material.

This alternative would be applicable for on-site demolition debris, on-site soils, off-site residential soils, retention pond sediments, and residual waste material in subsurface piping and drains. This process requires excavating and treating the materials ex situ, with off-site disposal of the treated material. Excavated off-site residential soils would be transported to the site and treated as separate batches using the same equipment and process used for on-site soils. This alternative would be feasible for any of the contaminated material at the site.

Components for this alternative include:

- Treatability studies
- Extent of contamination sampling
- Site preparation
- Site facilities demolition
- Excavation
- Temporary staging
- Waste characterization sampling
- On-site S/S
- Confirmatory sampling
- Transportation
- Off-site disposal
- Site restoration

The site facilities demolition activities, site preparation, dewatering requirements (for sediments only), and the excavation process would be the same as described in Alternative 2. The excavated material would require a large staging area for separation, mixing, and storage. In the solidification process, contaminants are physically bound or enclosed in an impervious matrix. Stabilization involves the addition of a stabilization agent that induces a chemical reaction between the stabilization agent and the contaminants, which results in reduced contaminant mobility. A treatability study would be needed to determine the type of treatment to be used and how effective it will be to use this alternative. The volume of the treated material will increase through the addition of the stabilization agent for ex situ S/S. Treatability studies would also be required to determine the amount of volume increase that would result from solidification.

Ex situ techniques involve machine-mixing soils with the solidifying agent. According to the Federal Remediation Technologies Roundtable, larger particles, such as coarse gravel or cobbles, may not be suitable for the S/S technology (Ref. 44). As a result, pre-treating soil for S/S (crushing) may be required to facilitate the treatment process.

Ex situ S/S process options that may be feasible include the use of cement S/S and chemical S/S. Cement S/S processes involve the addition of cement or a cement-based mixture to attenuate the solubility or mobility of the contaminated material by generation of a monolithic mass. Cement S/S is best suited for highly porous, coarse-grained contamination in permeable matrices (Ref. 45). Cement S/S has a long history of usage and is easily implemented.

Chemical S/S involves adding chemical reagents to the contaminated material to limit the solubility and mobility. Chemical S/S reagents include thermoplastic materials (such as asphalt bitumen, paraffin, and polyethylene), thermosetting polymers (such as vinyl ester monomers, urea formaldehyde, and epoxy polymers), and other proprietary additives. Chemical S/S is better suited for fine-grained soil with small pores (Ref. 45).

Material classified as RCRA characteristic waste or listed hazardous waste F035 must meet the applicable LDR treatment standards following stabilization before is transported off site for disposal in a RCRA Subtitle C landfill. No LUCs or 5-year reviews would be required under this alternative because no contaminated material would remain on site above the cleanup level based on residential land use and background.

11.0 SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

In this section, each alternative is assessed using the nine evaluation criteria required under the NCP 40 CFR § 300.430(f)(5)(i). Comparison of the alternatives with respect to these evaluation criteria is presented in summary form in the text of this section. The comparative analysis of the remedial alternatives is based on the threshold and balancing evaluation criteria. The first two criteria, the threshold criteria, are requirements that each alternative must meet in order to be considered in the evaluation. The next five criteria are the primary balancing criteria and are used to weigh major trade-offs among alternatives. The required nine evaluation criteria serve as the basis for conducting a comparative detailed analysis and selecting the remedy. The comparison is summarized by evaluation criteria in the next paragraphs.

Each alternative is evaluated using the nine criteria below:

1. Overall protection of human health and the environment
2. Compliance with ARARs
3. Long-term effectiveness and permanence
4. Reduction of toxicity, mobility, or volume through treatment
5. Short-term effectiveness
6. Implementability
7. Cost
8. State/support agency acceptance
9. Community acceptance

11.1 Overall Protection of Human Health and the Environment

This section addresses whether each alternative provides adequate protection of human health and the environment and describes how risks posed through each exposure pathway are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.

This criterion describes to what degree the alternatives achieve and maintain protection of human health and the environment.

Alternative 1 (No Action) would not be protective of human health and the environment beyond what already exists at the site.

Alternatives 2 through 5 would provide the highest level of protection because all contaminated material that contains COCs above the cleanup levels would be removed and disposed off site.

11.2 Compliance with ARARs

Section 121(d) of CERCLA, as amended, specifies in part, that remedial actions for cleanup of hazardous substances must comply with requirements and standards under federal or more stringent state environmental laws and regulations that are applicable or relevant and appropriate (i.e., ARARs) to the hazardous substances or particular circumstances at a site unless such ARAR(s) are waived under CERCLA Section 121(d)(4). See also 40 CFR § 300.430(f)(1)(ii)(B). ARARs include only federal and state environmental or facility citing laws/regulations and do not include occupational safety or worker protection requirements. Compliance with Occupational Safety and Health Administration (OSHA) standards is required by 40 CFR § 300.150 and, therefore, the CERCLA requirement for compliance with or wavier of ARARs does not apply to OSHA standards.

Applicable requirements are those cleanup levels, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal or state environmental laws or facility citing laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance(s) found at a Superfund site. Relevant and appropriate requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility citing laws that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well-suited to the particular site. Pursuant to 40 CFR § 300.400(g)(5), only those state standards that are promulgated, identified in a timely manner, and more stringent than federal requirements may be applicable or relevant and appropriate. For purposes of identification and notification of promulgated state standards, the term promulgated means that the standards are of general applicability and are legally enforceable. State standards are considered more stringent where there is no corresponding federal standard, the state standard provides a more stringent concentration of a contaminant, or the state standard is broader in scope than a federal requirement.

In addition to ARARs, the lead and support agencies may, as appropriate, identify other advisories, criteria, or guidance to be considered for a particular release. The "to-be-considered" (TBC) category consists of advisories, criteria, or guidance that were developed by EPA, other federal agencies, or states that may be useful in developing CERCLA remedies. See 40 CFR § 300.400(g)(3). TBCs are not considered legally enforceable and, therefore, are not considered to be applicable for a site, but are evaluated along with ARARs as part of the risk assessment to set protective cleanup levels. TBCs can be used in the absence of ARARs when ARARs are insufficient to develop cleanup levels, or when multiple contaminants may be posing a cumulative risk. See EPA, Office of Solid Waste and Emergency Response (OSWER) Directive No. 9234.0-05, *Interim Guidance on Compliance with Applicable or Relevant and Appropriate Requirements* (July 9, 1987).

There are three different categories of ARARs:

Chemical–specific requirements include those laws and regulations governing the release of materials possessing certain chemical or physical characteristics, or containing specified chemical compounds. Chemical-specific requirements set health- or risk-based concentration limits or ranges in various environmental media for specific hazardous substances, contaminants, and pollutants.

Action-specific requirements are technology-based or establish performance, design, or other similar action-specific controls or regulations for the activities related to the management of hazardous substances or pollutants. Action-specific ARARs are triggered by the types of remedial activities and types of wastes that are generated, stored, treated, disposed, emitted, discharged, or otherwise managed.

Location-specific requirements are design requirements or activity restrictions based on the geographic or physical position of the site and its surrounding area. Location-specific requirements set restrictions on the types of remedial activities that can be performed based on site-specific characteristics or location.

Compliance with ARARs addresses whether a remedy will meet all of the applicable or relevant and appropriate requirements of other federal and state environmental statutes or provides a basis for invoking a waiver.

Alternative 1 would not result in the site achieving compliance with the identified ARARs.

Alternatives 2 through 5 would achieve compliance with identified ARARs because all contaminated soils that contained COCs above the cleanup levels would be removed and disposed of off site. Disposal would be done at appropriately-permitted RCRA solid or hazardous waste facilities, depending on the waste classification, and hazardous wastes would be treated to meet the LDR treatment standards prior to disposal. However, only Alternatives 2 and 5 address all areas of concern at the site. Alternatives 3 and 4 are not applicable to retention pond sediment or residual waste material in subsurface piping and drains.

11.3 Long-Term Effectiveness and Permanence

Long-term effectiveness and permanence refers to expected residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup levels have been met. This criterion includes the consideration of residual risk that will remain on site following remediation and the adequacy and reliability of controls. Long-term effectiveness is evaluated based on the following three factors:

- Magnitude of the risk remaining from untreated waste or treatment residuals at the end of the remedial activities;
- Adequacy of controls used to manage the treatment residuals or untreated wastes that remain at the site; and
- Reliability of the controls to provide protection from the treatment residuals or untreated waste.

Alternative 1 would not provide any long-term effectiveness or permanence, as it would not mitigate soil contamination or involve any active treatment processes. The inorganic COCs in the soils are highly unlikely to be reduced by natural degradation processes.

Alternatives 2 through 5 have the potential to provide long-term effectiveness and permanence as the contaminated material with COCs above cleanup levels would be removed from the site and replaced with clean soil. Although the potential for harm to human health or the environment would be transferred to an off-site facility, disposal at appropriately-permitted RCRA solid and hazardous waste landfills, with treatment of hazardous waste to meet treatment standards, would mitigate this risk. However, only Alternatives 2 and 5 address all areas of concern at the site. Alternatives 3 and 4 are not applicable to retention pond sediment or residual waste material in subsurface piping and drains.

11.4 Reduction of Toxicity, Mobility, or Volume (T/M/V) of Contaminants through Treatment

Reduction of T/M/V refers to the anticipated performance of the treatment technologies that may be included as part of the remedy. This criterion addresses the statutory preference for selecting remedial action that permanently and significantly reduces the T/M/V of the COCs. The ability of a remedial alternative to reduce the T/M/V of the COCs is evaluated based on the following five factors:

- The treatment processes, the remedies employed, and the materials they treat;
- The amount (mass and or volume) of hazardous materials that will be destroyed or treated by the remedial alternative, including how the principal threat(s) will be addressed;
- The degree of expected reduction in the T/M/V of COCs, measured as a percentage of reduction or order of magnitude;
- The degree to which the treatment is irreversible; and
- The type and quantity of treatment residuals that would remain following the treatment.

Under Alternative 1, no treatment or containment would be conducted; therefore, this alternative would not contribute to the reduction of toxicity, mobility, or volume of contaminants.

Alternative 2 does not include any treatment of contaminated material on site, but would reduce the toxicity, mobility, and volume of contaminants for wastes and contaminated soil through treatment off site. RCRA wastes and soils considered contaminated with RCRA wastes would be treated off site at a hazardous waste disposal facility in order to meet LDR treatment standards. Although the potential for harm to human health or the environment would be transferred to an off-site facility, disposal at appropriately-permitted RCRA solid and hazardous waste landfills, with treatment of hazardous waste to meet treatment standards, would mitigate this risk.

Alternatives 3 through 5 include treatment of contaminated material at the site and would effectively reduce the T/M/V of these contaminants on site. Off-site disposal of some treated material would be required. However, only Alternatives 2 and 5 address all areas of concern at the site. Alternatives 3 and 4 are not applicable to retention pond sediment or residual waste material in subsurface piping and drains.

11.5 Short-Term Effectiveness

Short-term effectiveness refers to the period of time needed to implement the remedy and any adverse impacts that may be posed to workers, the community, and the environment during construction and operation of the remedy until cleanup levels are achieved. Short-term effectiveness is based on the following factors:

- Protection of the community during the remedial action. This addresses any risk that results from the implementation of the remedial action (i.e. dust from an excavation) that may affect human health.
- Protection of workers during the remedial action. This addresses threats that may affect workers and the effectiveness and reliability of protective measures that may be taken.
- Environmental impacts. This addresses the potential adverse environmental impact from the implementation of the remedial alternative and evaluates how the impact could be mitigated, prevented, or reduced.
- The amount of time required until the RAOs are achieved. This includes an estimate of the time required to achieve RAOs for the entire site or for individual elements associated with specific areas or threats.

Alternatives 2 through 5 all have approximately the same level of short-term protection. However, only Alternatives 2 and 5 address all areas of concern at the site. Alternatives 3 and 4 are not applicable to retention pond sediment or residual waste material in subsurface piping and drains.

Alternatives 2 through 5 include excavation and off-site disposal of contaminated material and will result in meeting the established RAOs by removing the contamination from the site. These alternatives will, therefore, be protective of human health and the environment in the long term and short term. These alternatives would result in a temporary increase in nuisance noise and dust. Therefore, as a precaution, site workers would be required to protect against dermal contact and inhalation of contaminated dust during soil excavation and handling. The excavated and treated material would be transported on public roads to the disposal facility, thereby increasing the short-term risk to the local community. However, housekeeping controls and dust suppression would be employed to limit this risk. Existing security fences will remain to control access to the site.

11.6 Implementability

Implementability addresses the technical and administrative feasibility of the remedy from design to construction and operation. Factors such as the relative availability of services and materials, administrative feasibility, and coordination with other government entities are also considered. The implementability of a given remedial alternative is evaluated based on the following factors:

Technical Feasibility

- Construction and operation. This consideration relates to the technical difficulties and unknown aspects associated with a given technology.
- Reliability of a technology. This consideration focuses on the ability of a technology to meet specified process efficiencies and performance goals, including whether technical problems may lead to schedule delay.
- Ease of undertaking additional remedial actions. This consideration includes a discussion of what, if any, future remedial actions may need to occur and how difficult it would be to implement them.
- Monitoring considerations. This consideration addresses the ability to monitor the effectiveness of the remedial actions and includes an evaluation of the risks of exposure if monitoring is determined to be insufficient to detect a system failure.

Administrative Feasibility

- Both the ability and time required to coordinate with other offices and regulatory agencies (i.e., obtaining permits for off-site activities or rights-of-way for construction activities).
- Availability of services and materials/supplies;
- Availability of adequate off-site treatment, storage capacity, and disposal services;
- Availability of necessary equipment, specialists, and provisions to ensure any necessary resources;
- Timing of the availability of each technology; and
- Availability of services and materials, and the potential for obtaining competitive bids, especially for innovative technologies

Alternative 1 (No Action) can be easily implemented. Implementation includes no monitoring or additional institutional controls. Implementability is high.

Alternative 2 (Excavation and Off-site Treatment and Disposal): Implementability of this alternative is high, provided that the excavated, contaminated material meets the LDR treatment standards for hazardous waste with no additional treatment required or can be treated to meet treatment standards at an off-site disposal facility. Materials and equipment necessary for implementation of this alternative are readily available, and excavation can be completed using common construction techniques, as well as transportation of material to a disposal facility.
Alternative 3 (Excavation, Physical Separation and Volume Reduction, and Off-site Disposal): Implementability of this alternative is expected to be moderate. Materials and equipment necessary for implementation of this alternative are readily available, but the process is limited to soils in which contaminants are preferentially adsorbed onto the fines fraction and works best on relatively simple contaminant mixtures. Disposal of resulting contaminated fractions from the separation process would be easily implementable.

Alternative 4 (Excavation, Physical Separation and Volume Reduction, On-site S/S, and Off-site Disposal): Implementability of this alternative is expected to be moderate. Equipment necessary for physical separation and solidification is readily available, and excavation can be completed using common construction techniques. However, the separation process is limited to soils in which contaminants are preferentially adsorbed onto the fines fraction and works best on relatively simple contaminant mixtures. Disposal of treated material at an appropriately-permitted, off-site facility would be easy to implement.

Alternative 5 (Excavation, On-site S/S, and Off-site Disposal): Implementability of this alternative is expected to be high. Equipment necessary for solidification is readily available, and excavation can be completed using common construction techniques. Disposal of treated material at an appropriately-permitted, off-site facility would be easy to implement.

11.7 Costs

This assessment evaluates the capital and O&M costs of each alternative. A discount rate of 5 percent was assumed for O&M costs. Alternatives 2 through 5 will not incur any O&M costs. This estimate assumes a total volume of 35,545 cubic yards of contaminated soil and 1,270 cubic yards of contaminated sediment to be excavated. The cost estimate details and associated assumptions are presented in Appendix C of the FS (Ref. 21). The costs presented below are from a preliminary estimate and are accurate to +50 percent to -30 percent.

Alternative 1 (No Action): The estimated capital and total O&M costs for implementing Alternative 1 is minimal. The property has to be secure and inspected at least once a year.

Alternative 2 (Excavation and Off-site Treatment and Disposal): The cost for excavation and off-site disposal is approximately $340 per cubic yard of soil removed. This estimate includes demolition of building slabs and pavement, excavation of contaminated material, waste transportation and disposal, field oversight, premobilization, site preparation, and site restoration costs. The disposal cost also includes solidification of contaminated material at the disposal facility to meet LDR treatment standards.

Total Estimated Capital Costs for Alternative 2: $7,860,000.

Alternative 3 (Excavation, Physical Separation and Volume Reduction, and Off-Site Disposal): The cost estimate for excavation, physical separation, and off-site disposal of contaminated fractions is $350 per cubic yard of soil removed. This estimate includes a treatability study, demolition of building slabs and pavement, excavation of contaminated material, physical separation, waste transportation and disposal, field oversight, premobilization, site preparation, and site restoration costs. The disposal cost also includes solidification of contaminated material at the disposal facility to meet LDR treatment standards.

Total Estimated Capital Costs for Alternative 3: $8,059,000.

Alternative 4 (Excavation, Physical Separation and Volume Reduction, On-site S/S, and Off-site Disposal): The cost for excavation, physical separation, on-site S/S, and off-site disposal is approximately $500 per cubic yard of soil removed. This estimate includes a treatability study, demolition of building slabs, and pavement, excavation of contaminated material, physical separation, solidification, waste transportation and disposal, field oversight, premobilization, site preparation, and site restoration costs. The liquid solution and contaminated treatment residuals must be disposed of as hazardous waste.

Total Estimated Capital Costs for Alternative 4: $11,674,000.

Alternative 5 (Excavation, On-site S/S, and Off-site Disposal): The estimated cost of excavation, solidification, and off-site disposal is approximately $550 per cubic yard of soil removed. This estimate includes a treatability study, demolition of buildings slabs and pavement, excavation of contaminated material, solidification, waste transportation and disposal, field oversight, premobilization, site preparation, and site restoration costs.

Total Estimated Capital Costs for Alternative 5: $11,095,000.

11.8 State/Support Agency Acceptance

The State of Florida, as represented by FDEP, was actively involved in the development and review of the FS report and the Proposed Plan. FDEP has expressed its support for the Selected Remedy. See Appendix E for state correspondence related to the ROD.

11.9 Community Acceptance

The RI and FS reports and Proposed Plan were made available to the public May 1, 2017. Over 1,000 copies of the Proposed Plan were mailed to citizens in the community and to residents living in neighborhoods surrounding the site (Appendix C). The RI/FS and Proposed Plan, along with other documents, are included in the Administrative Record file maintained in the EPA Docket Room located at EPA Region 4 in Atlanta, Georgia, and at the Dallas Graham Public Library located at 2304 Myrtle Avenue in Jacksonville, Florida. The notice of availability of the Proposed Plan was published in The Times-Union on May 1, 2017 (Appendix C). A public comment period was held from May 1, 2010, to May 31, 2017. The Proposed Plan for the remedial action at the site was presented at the public meeting held on May 16, 2017 at the Emmett Reed Community Center. At this meeting, representatives from the EPA and FDEP answered questions about the site and the remedial alternatives. EPA's responses to the comments received during the meeting, as well as during the public comment period, are included in the Responsiveness Summary; see Part 3 of this ROD and Appendix D.

12.0 PRINCIPAL THREAT WASTE

The NCP establishes an expectation that EPA will use treatment to address principal threats posed by a site wherever practicable (NCP 40 CFR § 300.430(a)(1)(iii)(A)). The principal threat waste (PTW) concept is applied to the characterization of "source material" at a Superfund site. Source material includes or contains hazardous substances, pollutants, or contaminants that act as a reservoir for migration of contamination to groundwater, surface water, or air, or acts as a source for direct exposure. EPA has defined PTWs as those source materials considered to be highly toxic or highly mobile, and generally cannot be reliably contained or would present a significant risk to human health or the environment. For example, the presence of non-aqueous phase liquid (NAPL) in groundwater is considered source material and is treated as a PTW.

Residual waste material, which may be source material, was collected from underground drains and pipes in the process area during the RI and analyzed. Arsenic was detected at concentrations ranging from 150 ppm to 11,000 ppm, total chromium concentrations ranged from 270 ppm to 5,800 ppm, and copper concentrations ranged from 160 ppm to 8,900 ppm. This highly toxic sludge (that is also considered RCRA hazardous waste) is considered principal threat waste. It will be removed and treated off site in order to meet RCRA LDR treatment standards. As a result, the preference for treatment of sources considered principal threats will be satisfied.

13.0 SELECTED REMEDY

This section describes the rationale for the Selected Remedy, as well as a description of the Selected Remedy, including institutional controls, 5-year reviews, costs, and expected outcomes.

13.1 Summary of the Rationale for the Selected Remedy

Excavation and off-site treatment and disposal is the Selected Remedy because it will achieve a substantial risk reduction by excavating the contaminated media and residual waste material and disposing of it off site along with off-site treatment to meet RCRA hazardous waste treatment and disposal requirements. Alternative 2 provides protection of human health and the environment, reduction of T/M/V through off-site treatment and short-term effectiveness. Costs associated with this alternative are moderate. Permitted off-site disposal facilities are available for disposal of the contaminated soil, and to treat hazardous waste at the disposal facility, when required to meet the RCRA LDRs. Alternative 2 is easy to implement, is commonly used at contaminated soil sites, will meet the RAOs and attain ARARs, and will likely be the most cost-effective remedy.

Based on information currently available, the Selected Remedy meets the threshold criteria and provides the best balance of tradeoffs among the other alternatives with respect to the balancing and modifying criteria. The Selected Remedy satisfies the following statutory requirements of CERCLA Section 121(b): (1) be protective of human health and the environment; (2) comply with ARARs; (3) be cost effective; (4) utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and (5) satisfy the preference for treatment as a principal element of the Selected Remedy. FDEP supports the Selected Remedy.

13.2 Description of the Selected Remedy

This Selected Remedy (Alternative 2) applies to all surface soils contaminated with COCs above their respective cleanup levels, including on the FSWT property and residential properties around the FSWT site, and also applies to sediments from the on-site retention pond, contaminated demolition debris, and residual waste material in underground pipes and drains. The locations and volumes of material requiring remedial action are shown on Figures 15 through 20 in Appendix A. This remedy involves physically removing the contaminated soil via excavation and transporting it to a waste disposal facility, where RCRA hazardous waste will be treated if necessary before disposal. Disposal will be done at EPA-approved and permitted RCRA solid [Subtitle D] or hazardous waste [Subtitle C] facilities, depending on the waste classification, and hazardous wastes will be treated to meet the LDR treatment standards prior to disposal. The proposed excavation areas and depths are shown on Figure 15 in Appendix A. An RD and RA Work Plan will be developed to outline details about site preparation; the extent of excavation; demolition of structures on the FSWT site; excavation; decontamination; transportation; and off-site disposal of the removed material. The plan will also include developing safety measures for workers, on-site employees, and the public during remedial activities. Engineering controls for dust and stormwater runoff during excavation will minimize exposure during site activities. As part of the RD, additional sampling to delineate potential site-related contamination on the eastern edge of residential neighborhood east of the FSWT site and on the eastern boundary of the school will be completed. If the investigation demonstrates contaminant concentrations above cleanup levels, then the area will be excavated. In addition, cut-line sampling will be completed off site to minimize the need for confirmatory sampling. The RA will follow the procedures and requirements established in the RA Work Plan.

13.2.1 Summary of Estimated Remedy Costs

The information in this cost estimate summary is based on the best available information regarding the anticipated scope of the remedial alternative. Changes in the cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. Major changes may be documented in the form of a memorandum in the Administrative Record file, an Explanation of Significant Differences (ESD), or a ROD amendment. This is an order-of-magnitude engineering cost estimate that is expected to be within +50 and -30 percent of the actual project cost. See Table 15 in Appendix B for a complete cost estimate summary of the Selected Remedy. A summary of the estimated costs of the Selected Remedy is as follows:

Capital Costs:	$7,860,000
Total Present Worth Costs:	$7,860,000

13.2.2 Expected Outcomes of the Selected Remedy

The EPA and FDEP expect that the Selected Remedy will be protective of human health and the environment while allowing for unlimited use and unrestricted exposure (UU/UE). The soil excavation effort will result in short-term disruptions to local residents, but the longer-term on-site effort will have no impact on future property usage. The Selected Remedy also meets the statutory preference for treatment of PTW materials to the extent practicable. Depending on the characteristics of the PTW, off-site treatment to meet RCRA LDRs might be required prior to disposal at a RCRA Subtitle C or D facility.

After the remedy has been implemented, the site will not have any land use restrictions and will be suitable for unlimited use; therefore, 5-year reviews are not required.

14.0 STATUTORY DETERMINATIONS

The Selected Remedy satisfies the requirement of Section 121 of CERCLA(b), 42 U.S. Code (U.S.C.) § 9621, and to the extent practicable, the NCP 40 CFR § 300.430. The EPA expects the Selected Remedy to satisfy the following statutory requirements (1) be protective of human health and the environment; (2) comply with ARARs (or justify a waiver); (3) be cost-effective; (4) utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and (5) satisfy the preference for treatment as a principal element to the extent practical. The following sections discuss how the Selected Remedy meets these statutory requirements.

14.1 Protection of Human Health and the Environment

The Selected Remedy will protect human health and the environment through the excavation of contaminated on-site soils, excavation of soils from the impacted residential parcels, excavation of sediments from the retention pond (on site), and the removal of on-site demolition debris and residual waste material. Disposal will be done at EPA-approved and permitted RCRA solid (Subtitle D) or hazardous waste (Subtitle C) facilities, depending on the waste classification, and hazardous wastes will be treated to meet the LDR treatment standards prior to disposal. The Selected Remedy will reduce the cancer risks on site from exposure to 1E-06 and the HI to less than 1.0. This level is within EPA's target risk range of 1E-04 to 1E-06. There are no short-term threats associated with the Selected Remedy that cannot be readily controlled. In addition, no adverse cross-media impacts are expected from the Selected Remedy.

14.2 Compliance with ARARs

Section 121(d) of CERCLA and NCP Section § 300.430(f)(1)(ii)(B) requires that remedial actions at CERCLA sites at least attain legally applicable or relevant and appropriate federal and state requirements, standards, criteria, and limitations, which are collectively referred to as "ARARs," unless such ARARs are waived under CERCLA Section 121(d)(4). The Selected Remedy is expected to comply with all identified chemical- and action-specific ARARs, and no ARAR waiver is sought for this remedy.

The chemical-specific ARARs for the Selected Remedy include the FDEP SCTLs and are the basis for the surface soil cleanup levels. These available standards or criteria, along with the numeric risk-based values, are used as remediation criteria for this site, and are presented in Table 16 in Appendix B. For contaminated soil, compliance with the FDEP SCTLs is expected for those areas at the site exceeding the relevant regulatory levels which are excavated.

Table 16 in Appendix B identifies the action-specific ARARs for the Selected Remedy. Action-specific ARARs that will be met by this remedy include requirements for control of fugitive dust and stormwater runoff from land-disturbing activities, as well as RCRA regulations associated with excavation, temporary staging, and disposal of arsenic-contaminated media, which are considered contaminated with a RCRA listed hazardous waste (F035). For some soils potentially contaminated with RCRA listed hazardous waste, EPA may determine that the soil "no longer contains" such waste in accordance with EPA's "contained-in policy" under RCRA. The levels for this contained-in determination will be established in a post-ROD document, such as the RD or RA Work Plan.

14.3 Cost Effectiveness

In EPA's judgment, the Selected Remedy is cost-effective and represents a reasonable value for the money to be spent. A cost-effective remedy is one where "costs are proportional to its overall effectiveness." The EPA evaluated the overall effectiveness of those alternatives that satisfied the threshold criteria by assessing three of the five balancing criteria in combination. Those three criteria are: (1) long-term effectiveness and permanence; (2) reduction in toxicity, mobility, and volume through treatment; and (3) short-term effectiveness. Overall effectiveness was then compared to costs to determine cost effectiveness. The Selected Remedy is considered cost effective because it is a permanent solution that reduces contaminants to acceptable levels at less expense than the other permanent, risk-reducing alternatives evaluated. Detailed cost estimates for the Selected Remedy may be found in Table 15 in Appendix B.

14.4 Utilization of Permanent Solutions and Alternative Treatment Technologies or Resource Recovery Technologies to the Maximum Extent Practicable

The EPA and FDEP have determined that the Selected Remedy represents the maximum extent to which permanent solutions and treatment technologies can be utilized in a cost-effective manner, given the specific conditions at the site. The EPA and FDEP have determined that the Selected Remedy provides the best balance of trade-offs in terms of long-term effectiveness and permanence; reduction of T/M/V; short-term effectiveness; implementability; and cost, while also considering state and community acceptance.

The Selected Remedy satisfies the criteria for long-term effectiveness by removing source material, contaminated soil, sediment, and contaminated demolition debris from the site and treating/disposing of them off-site.

14.5 Preference for Treatment as a Principal Element

The NCP establishes an expectation that the EPA will use treatment to address the principal threats posed by a site wherever practicable (NCP 40 CFR § 300.430(a)(1)(iii)(A)). The "principal threat" concept is applied to the characterization of "source materials" at a Superfund site. Source material is material that includes or contains hazardous substances, pollutants, or contaminants that act as a reservoir for migration of contamination to groundwater, surface water, or air, or acts as a source for direct exposure. Principal threat wastes are those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained, or would present a significant risk to human health or the environment should exposure occur. The Selected Remedy utilizes a combination of excavation and off-site treatment/disposal of the source materials [residual waste material] constituting PTW at the site, which will be treated off-site to meet RCRA LDRs and thus satisfy this preference.

14.6 Five-Year Review Requirement

NCP 40 CFR § 300.430(f)(4)(ii) requires a 5-year review if a remedial action results in hazardous substances, pollutants, or contaminants remaining on site above levels that allow for UU/UE. The Selected Remedy will clean up to UU/UE. Therefore, a 5-year review is not required.

14.7 Document of Significant Changes

Pursuant to CERCLA Section 117(b) and NCP 40 CFR § 300.430(f)(3)(ii), the ROD must document any significant changes made to the Selected Remedy discussed in the Proposed Plan (Appendix C). The Proposed Plan for the FSWT site was released for public comment on May 1, 2017. The Proposed Plan identified Alternative 2 as the Preferred Alternative for soil and sediment remediation. EPA reviewed all written and verbal comments submitted during the public comment period. It was determined that no significant changes to the remedy, as originally identified in the Proposed Plan, were necessary or appropriate.

PART 3: RESPONSIVENESS SUMMARY

The Responsiveness Summary for the site has been prepared in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), and the National Contingency Plan (NCP), 40 CFR §300.430.

The Proposed Plan for the site was issued on May 1, 2017. A public meeting to discuss the Proposed Plan were held on May 16, 2017 at the Emmett Reed Community Center located at 1093 West 6th Street, Jacksonville, Florida. The 30-day public comment period started on May 1, 2017 and ended on May 30, 2017. EPA's responses to comments received on the Proposed Plan during the public comment period are included as Appendix D to this ROD.

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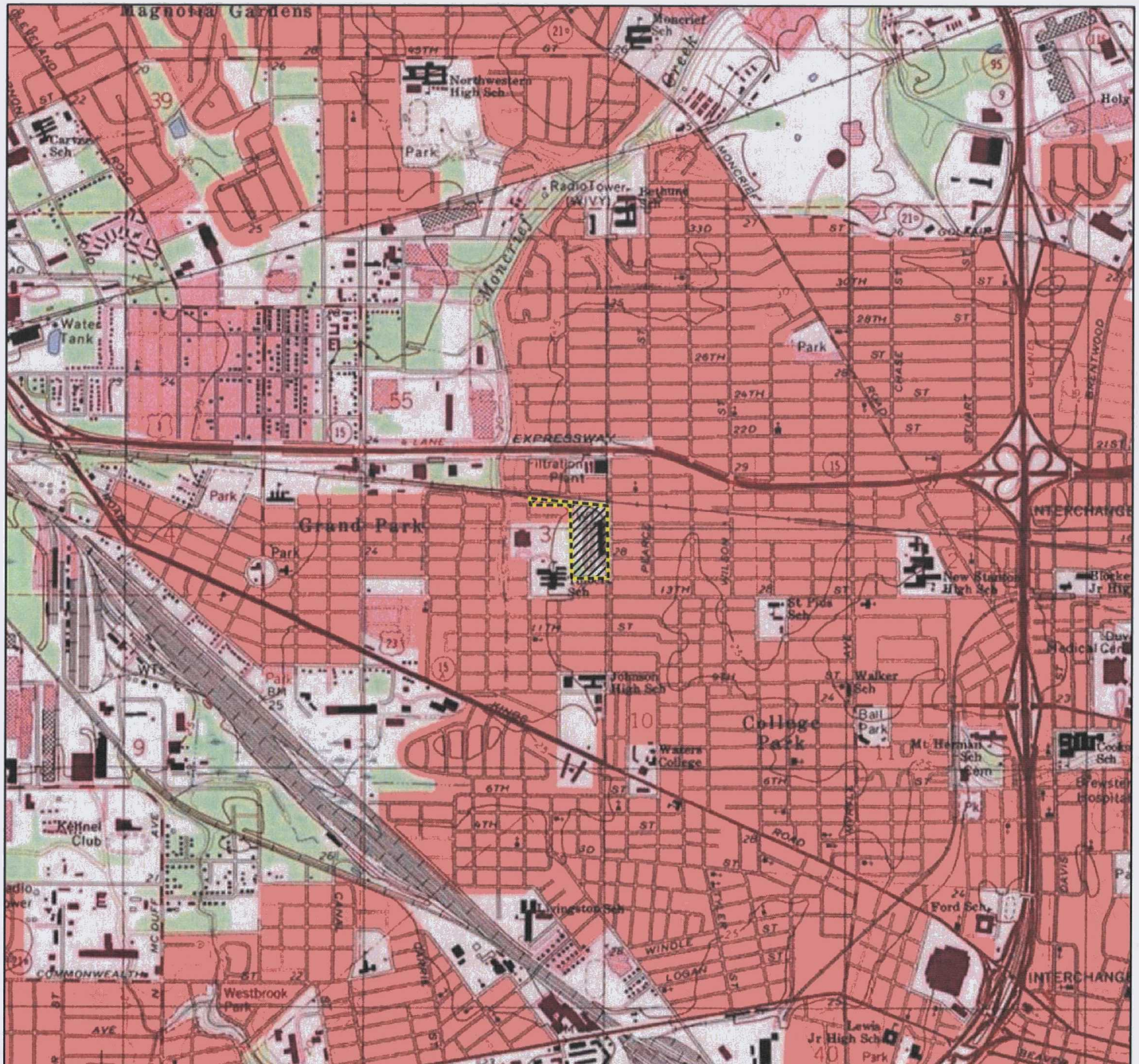
APPENDIX A

FIGURES

(32 Pages)



Legend

Fairfax St. Wood Treaters Property Boundary

N
W E
S

0 1,000 2,000
Feet
1:24,000

Map Source:
USGS, 7.5 Minute Series Topographic Quadrangle Map, Jacksonville, FL, 1983
Property Boundary - Duval County Property Appraiser's Office.

United States Environmental Protection Agency

FAIRFAX ST. WOOD TREATERS
JACKSONVILLE,
DUVAL COUNTY,
FLORIDA

FIGURE 1
SITE LOCATION

TETRA TECH

Path: C:\GIS_Workspace\TTEMI-05-003-0134_Fairfax_Street_Removal_Investigation\GIS\MXDs\Site_Location\FAIRFAX SITE LOC MAP 8.5x11 10-25-11.mxd Date Saved: 10/25/2011 7:56:20 AM User: dale.vonbusch

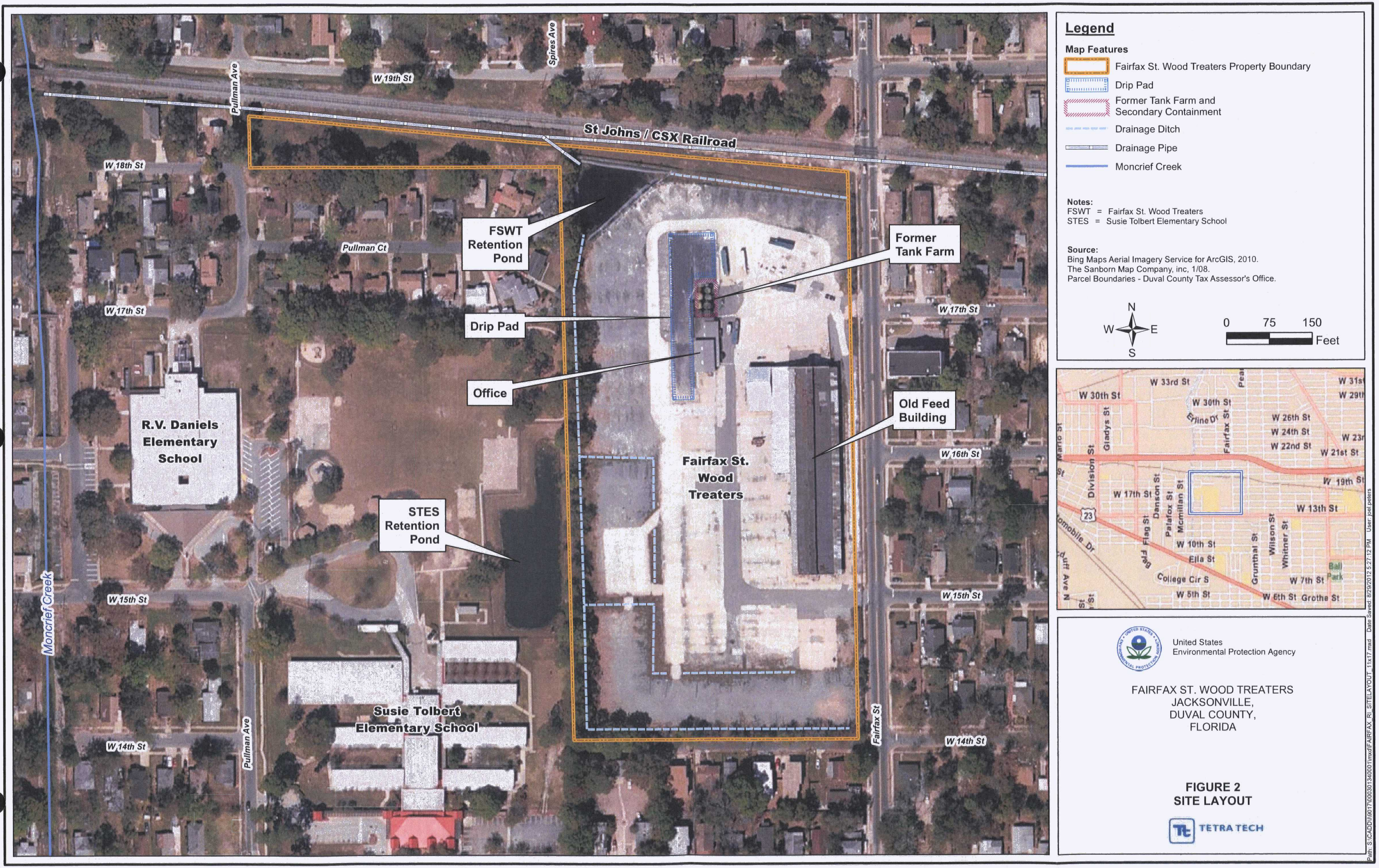
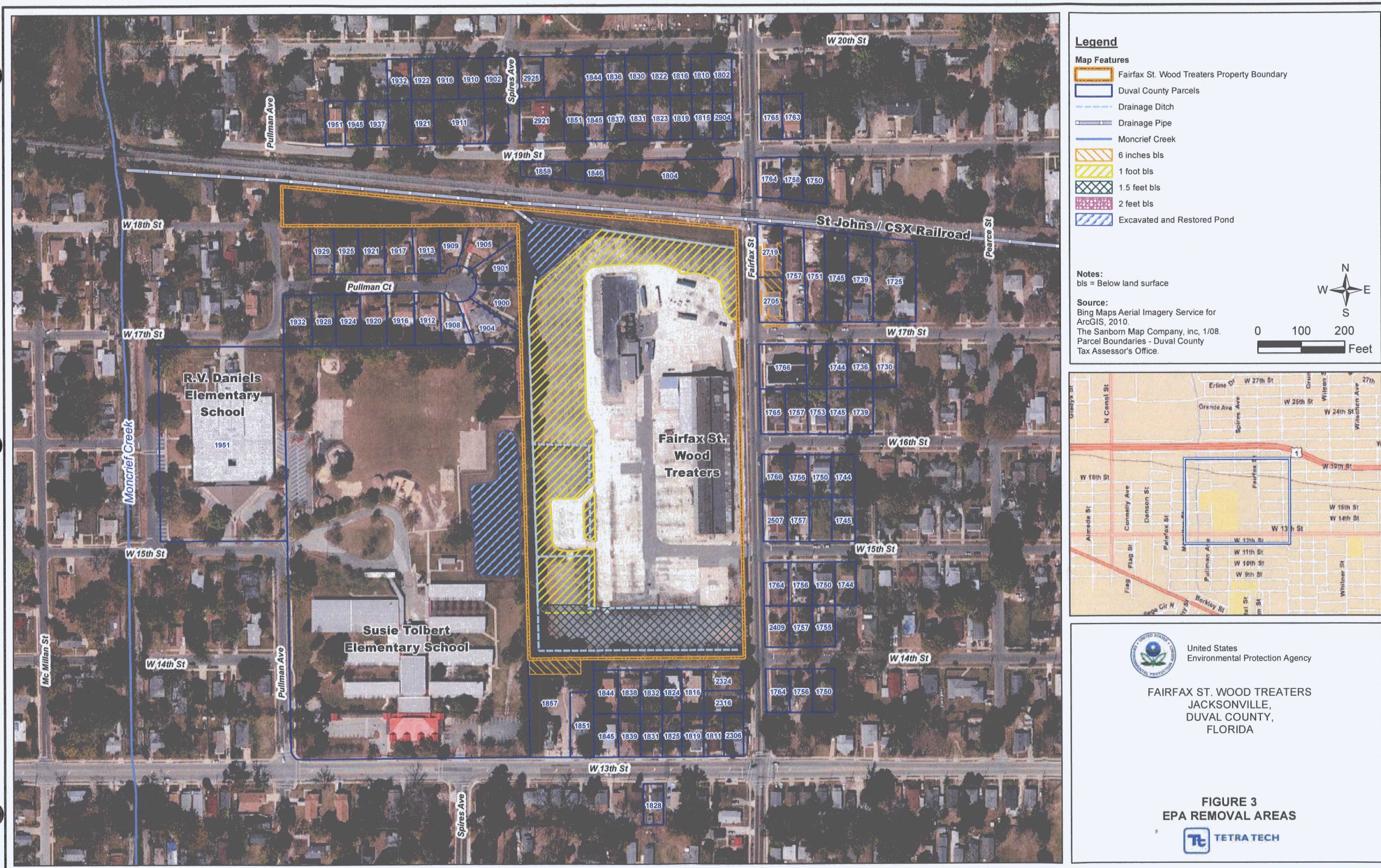
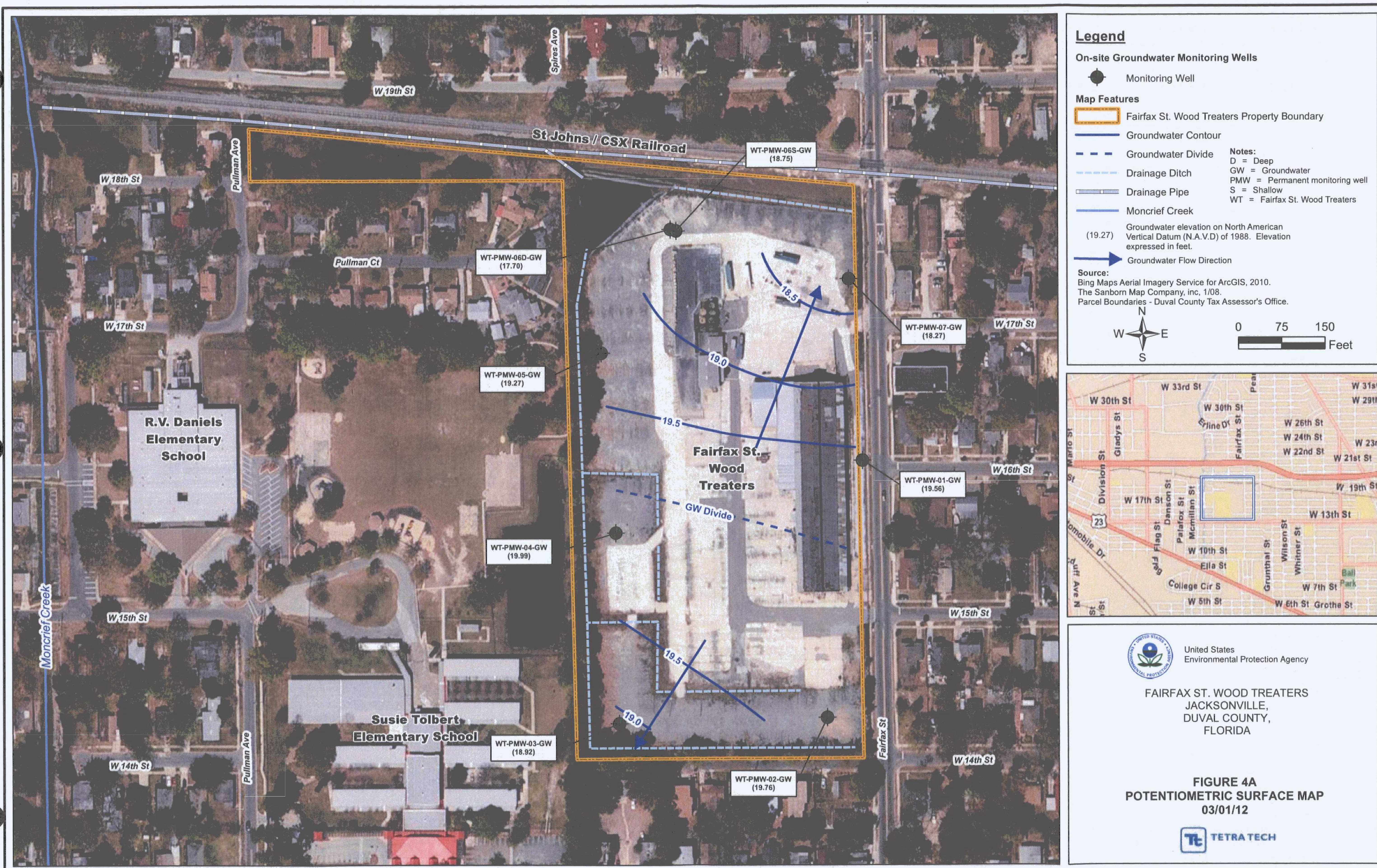
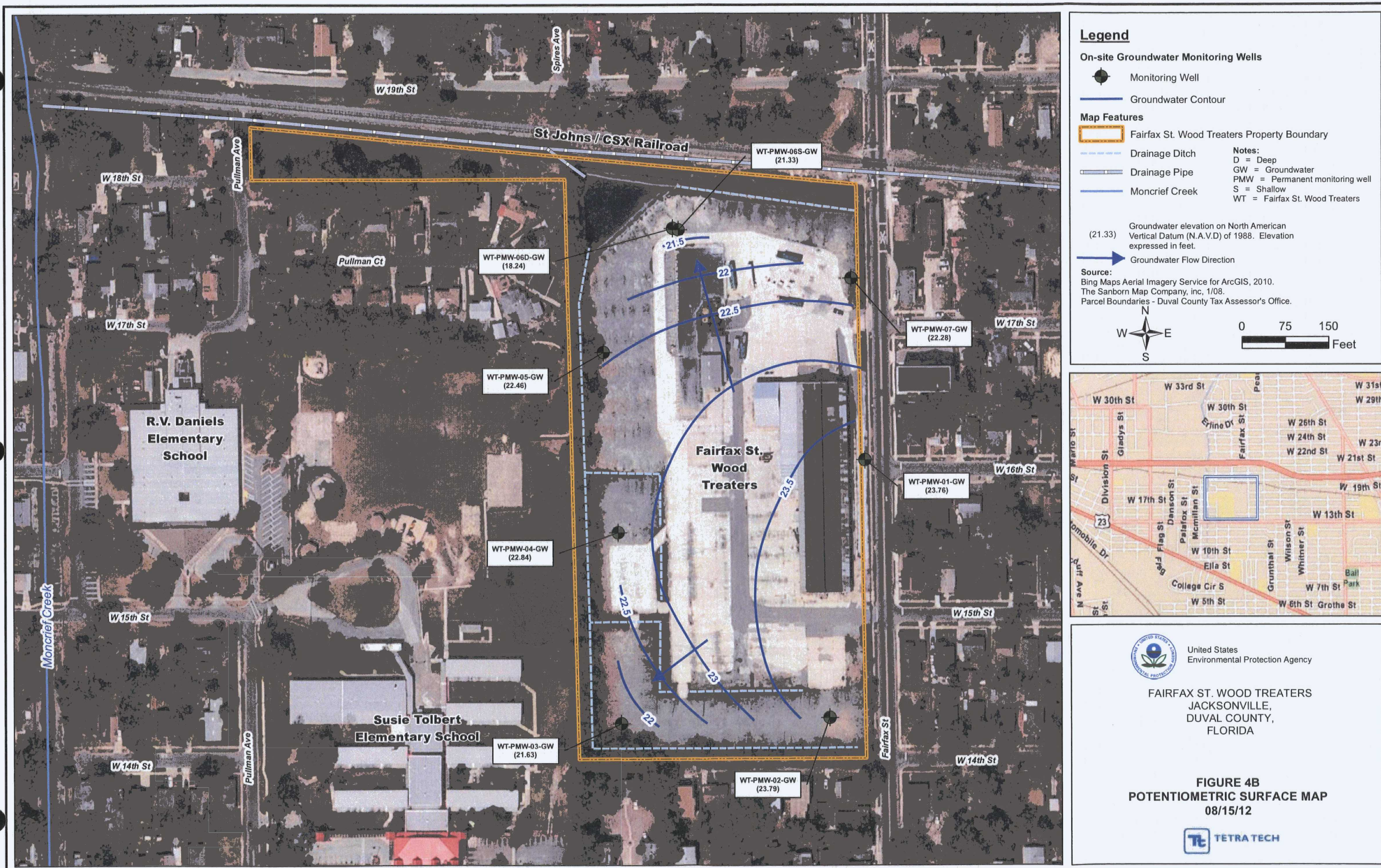


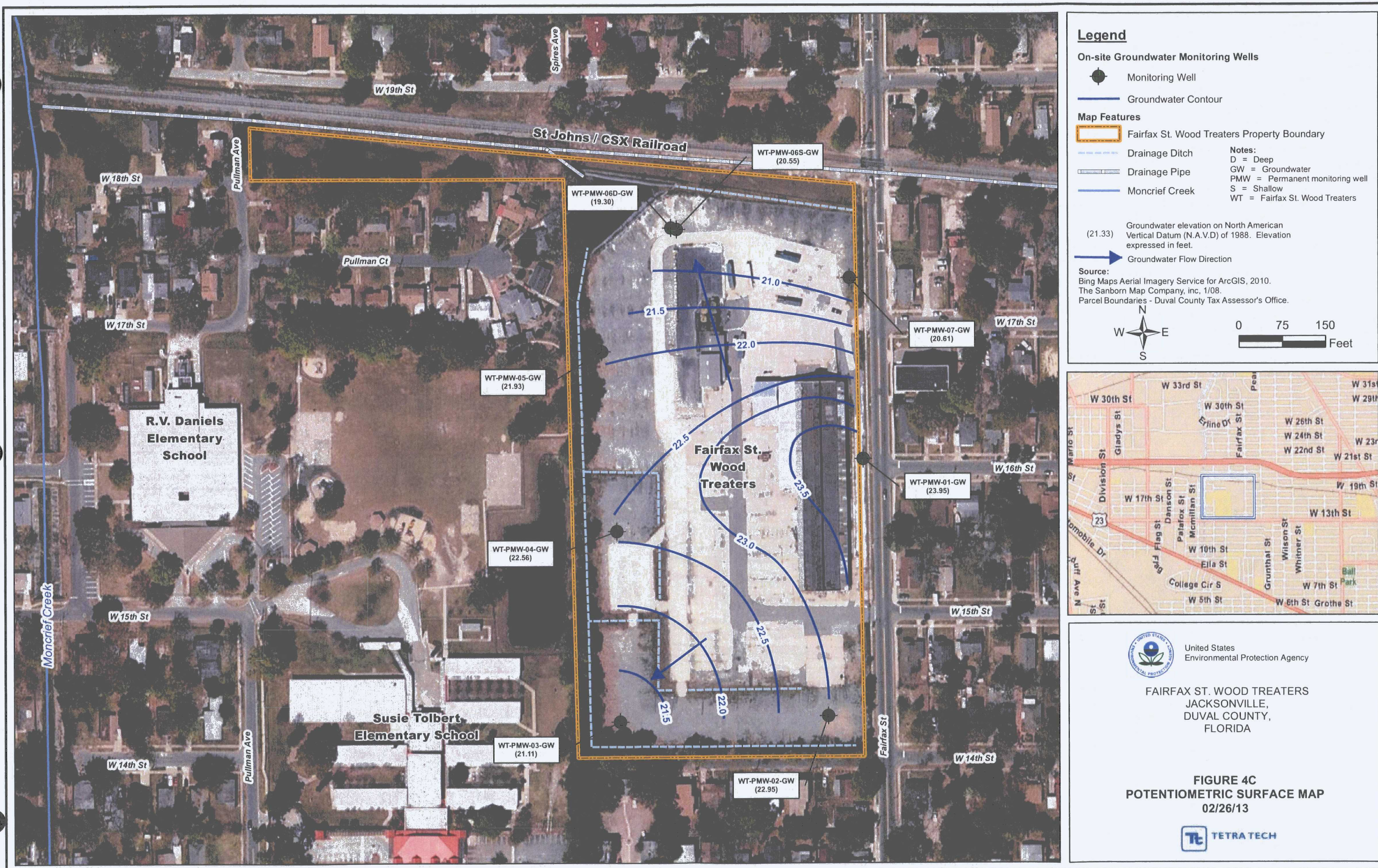
FIGURE 2
SITE LAYOUT

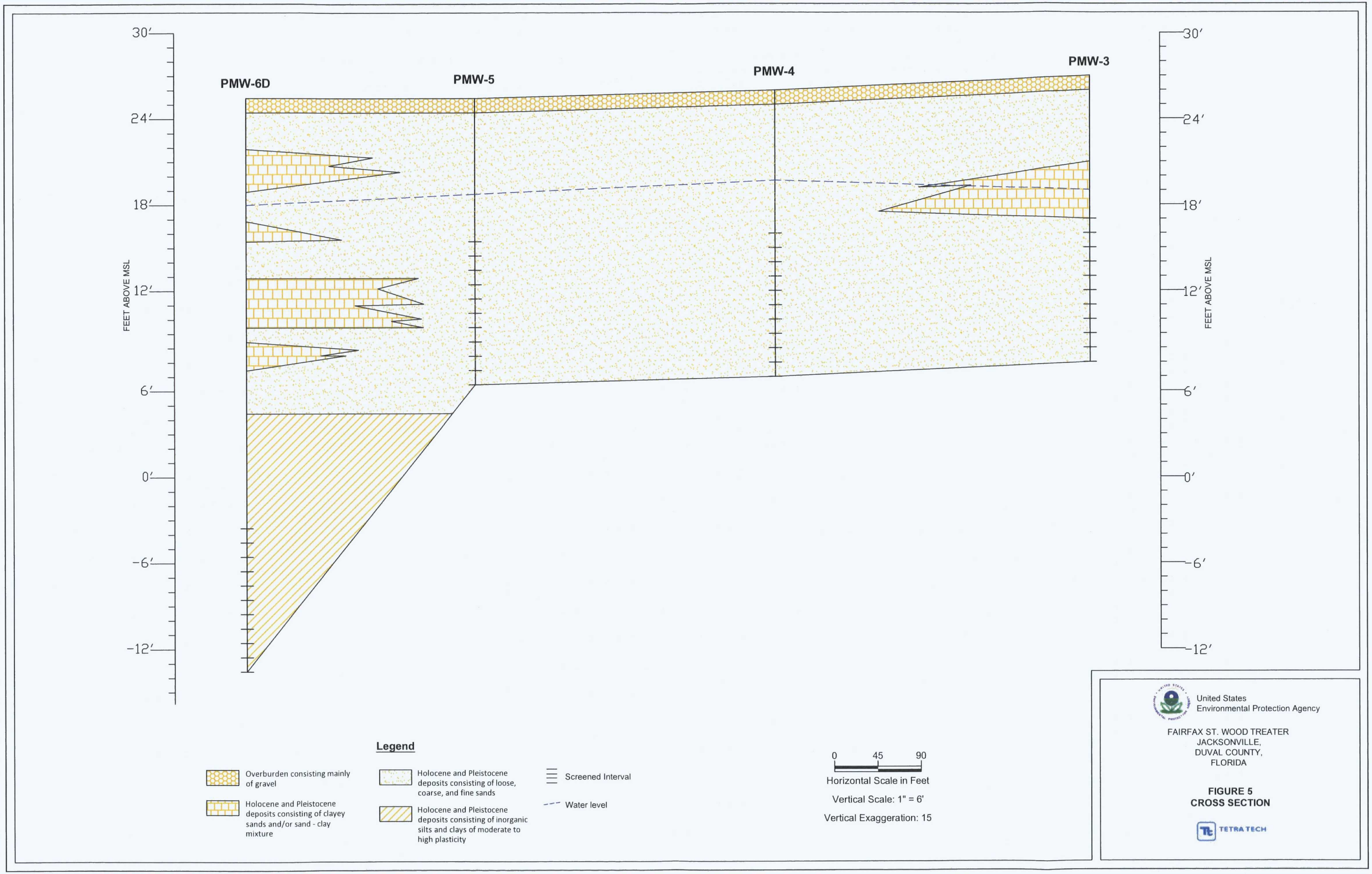

W 20th St
W 19th St
W 18th St
W 17th St
W 16th St
W 15th St
W 14th St
W 13th St
Pullman Ave
Spires Ave
Pullman Ct
Fairfax St
Pearce St
Mc Millan St
Moncrief Creek
St Johns / CSX Railroad
R.V. Daniels Elementary School
Susie Tolbert Elementary School
Fairfax St. Wood Treaters
Legend
Map Features
Fairfax St. Wood Treaters Property Boundary
Duval County Parcels
Drainage Ditch
Drainage Pipe
Moncrief Creek
6 inches bls
1 foot bls
1.5 feet bls
2 feet bls
Excavated and Restored Pond
Notes:
bls = Below land surface
Source:
Bing Maps Aerial Imagery Service for ArcGIS, 2010.
The Sanborn Map Company, inc, 1/08.
Parcel Boundaries - Duval County Tax Assessor's Office.
N
W
E
S
0
100
200
Feet
United States Environmental Protection Agency
FAIRFAX ST. WOOD TREATERS
JACKSONVILLE,
DUVAL COUNTY,
FLORIDA
FIGURE 3
EPA REMOVAL AREAS
TETRA TECH



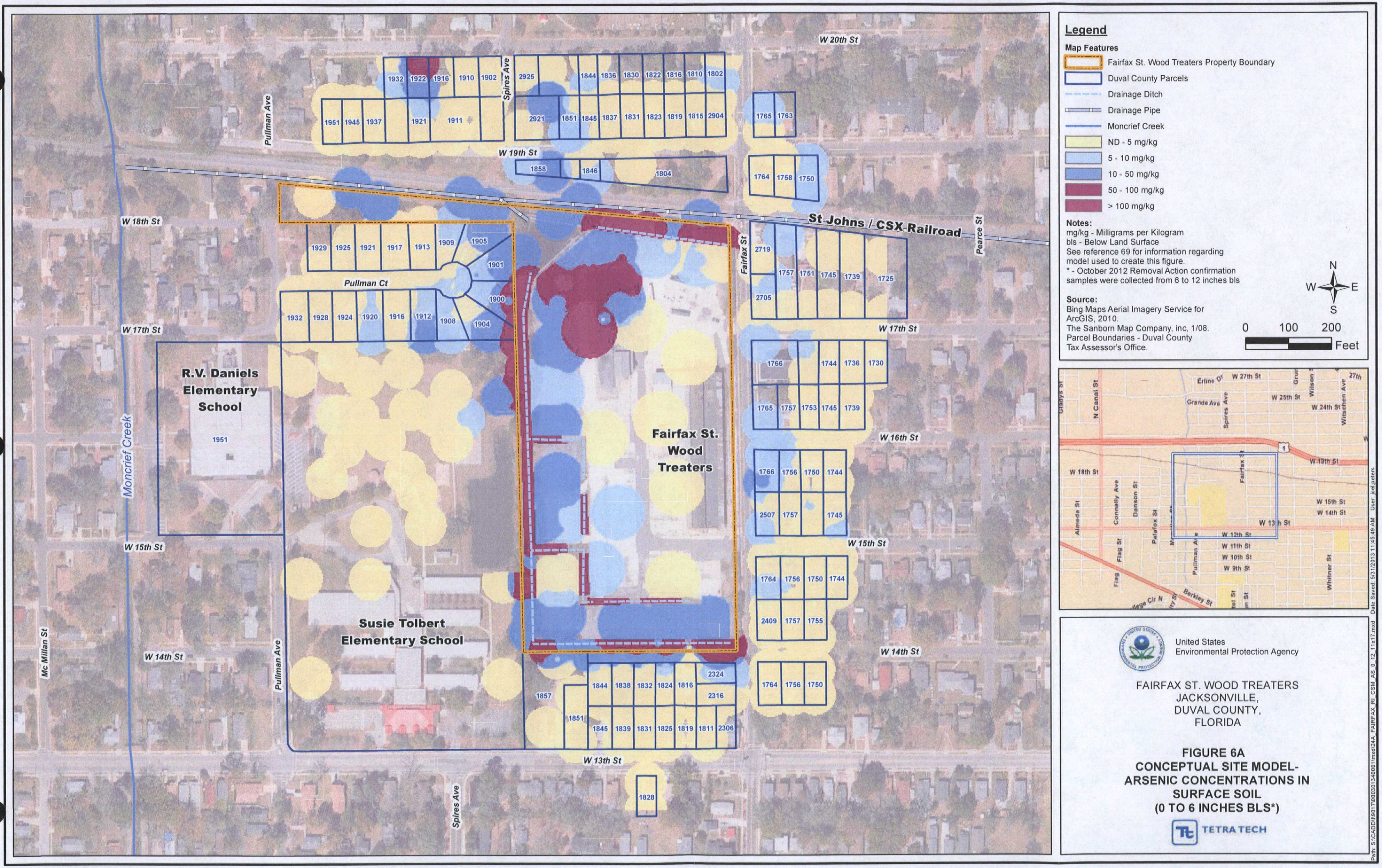
Legend
On-site Groundwater Monitoring Wells
Monitoring Well
Map Features
Fairfax St. Wood Treaters Property Boundary
Groundwater Contour
Groundwater Divide
Drainage Ditch
Drainage Pipe
Moncrief Creek
(19.27) Groundwater elevation on North American Vertical Datum (N.A.V.D) of 1988. Elevation expressed in feet.
Groundwater Flow Direction
Notes:
D = Deep
GW = Groundwater
PMW = Permanent monitoring well
S = Shallow
WT = Fairfax St. Wood Treaters
Source:
Bing Maps Aerial Imagery Service for ArcGIS, 2010.
The Sanborn Map Company, inc, 1/08.
Parcel Boundaries - Duval County Tax Assessor's Office.
N
W
E
S
0 75 150
Feet
St Johns / CSX Railroad
W 19th St
Spires Ave
Pullman Ave
W 18th St
Pullman Ct
W 17th St
W 16th St
W 15th St
W 14th St
Fairfax St
Moncrief Creek
R.V. Daniels Elementary School
Susie Tolbert Elementary School
Fairfax St. Wood Treaters
GW Divide
18.5
19.0
19.5
WT-PMW-06S-GW (18.75)
WT-PMW-06D-GW (17.70)
WT-PMW-07-GW (18.27)
WT-PMW-05-GW (19.27)
WT-PMW-01-GW (19.56)
WT-PMW-04-GW (19.99)
WT-PMW-03-GW (18.92)
WT-PMW-02-GW (19.76)
United States Environmental Protection Agency
FAIRFAX ST. WOOD TREATERS
JACKSONVILLE,
DUVAL COUNTY,
FLORIDA
FIGURE 4A
POTENTIOMETRIC SURFACE MAP
03/01/12
TETRA TECH

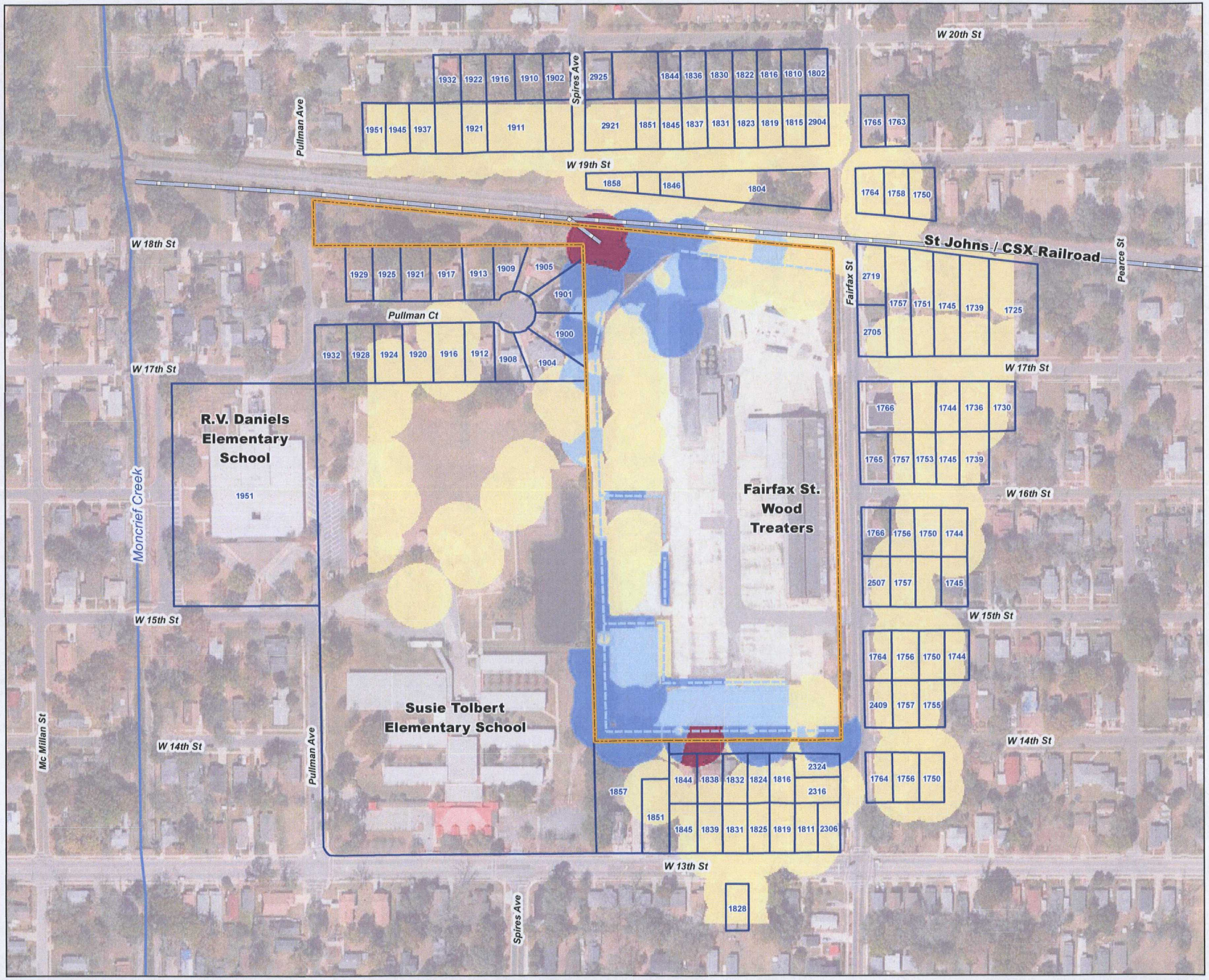

W 19th St
Spires Ave
St Johns / CSX Railroad
W 18th St
Pullman Ave
Pullman Ct
W 17th St
R.V. Daniels Elementary School
W 15th St
W 14th St
Moncrief Creek
Susie Tolbert Elementary School
Fairfax St. Wood Treaters
Fairfax St
W 16th St
WT-PMW-06S-GW (21.33)
WT-PMW-06D-GW (18.24)
WT-PMW-07-GW (22.28)
WT-PMW-05-GW (22.46)
WT-PMW-01-GW (23.76)
WT-PMW-04-GW (22.84)
WT-PMW-03-GW (21.63)
WT-PMW-02-GW (23.79)
21.5
22
22.5
23
23.5
Legend
On-site Groundwater Monitoring Wells
Monitoring Well
Groundwater Contour
Map Features
Fairfax St. Wood Treaters Property Boundary
Drainage Ditch
Drainage Pipe
Moncrief Creek
Notes:
D = Deep
GW = Groundwater
PMW = Permanent monitoring well
S = Shallow
WT = Fairfax St. Wood Treaters
(21.33) Groundwater elevation on North American Vertical Datum (N.A.V.D) of 1988. Elevation expressed in feet.
Groundwater Flow Direction
Source:
Bing Maps Aerial Imagery Service for ArcGIS, 2010.
The Sanborn Map Company, inc, 1/08.
Parcel Boundaries - Duval County Tax Assessor's Office.
N E S W
0 75 150 Feet
W 33rd St
W 30th St
W 26th St
W 24th St
W 22nd St
W 21st St
W 19th St
W 17th St
W 13th St
W 10th St
Ella St
College Cir S
W 5th St
W 7th St
W 6th St
Grothe St
Division St
Gladys St
Fairfax St
Danson St
Palafox St
Mcmillan St
Grunthal St
Wilson St
Whitner St
Flag St
Ball Park
United States Environmental Protection Agency
FAIRFAX ST. WOOD TREATERS
JACKSONVILLE,
DUVAL COUNTY,
FLORIDA
FIGURE 4B
POTENTIOMETRIC SURFACE MAP
08/15/12
TETRA TECH
Path: S:\CADD\\9017\00030134000\1\mxd\7B_FAIRFAX_RI_POTENTIOMETRIC_081512_11x17.mxd Date Saved: 5/31/2013 10:02:35 AM User: joel.peters


Legend
On-site Groundwater Monitoring Wells
Monitoring Well
Groundwater Contour
Map Features
Fairfax St. Wood Treaters Property Boundary
Drainage Ditch
Drainage Pipe
Moncrief Creek
Notes:
D = Deep
GW = Groundwater
PMW = Permanent monitoring well
S = Shallow
WT = Fairfax St. Wood Treaters
(21.33) Groundwater elevation on North American Vertical Datum (N.A.V.D) of 1988. Elevation expressed in feet.
Groundwater Flow Direction
Source:
Bing Maps Aerial Imagery Service for ArcGIS, 2010.
The Sanborn Map Company, inc, 1/08.
Parcel Boundaries - Duval County Tax Assessor's Office.
N
W
E
S
0 75 150
Feet
W 19th St
Spires Ave
St Johns / CSX Railroad
W 18th St
Pullman Ave
Pullman Ct
W 17th St
W 16th St
W 15th St
W 14th St
Fairfax St
Moncrief Creek
R.V. Daniels Elementary School
Susie Tolbert Elementary School
Fairfax St. Wood Treaters
WT-PMW-06S-GW (20.55)
WT-PMW-06D-GW (19.30)
WT-PMW-07-GW (20.61)
WT-PMW-05-GW (21.93)
WT-PMW-01-GW (23.95)
WT-PMW-04-GW (22.56)
WT-PMW-03-GW (21.11)
WT-PMW-02-GW (22.95)
21.0
21.5
22.0
22.5
23.0
23.5
22.5
22.0
21.5
United States Environmental Protection Agency
FAIRFAX ST. WOOD TREATERS
JACKSONVILLE,
DUVAL COUNTY,
FLORIDA
FIGURE 4C
POTENTIOMETRIC SURFACE MAP
02/26/13
TETRA TECH



S:\CADD\I\9017\000301340001\mxd\Fairfax_Cross_Section_v3.dwg, 5/31/2013 12:42:10 PM, joel.peters


Legend
Map Features
Fairfax St. Wood Treaters Property Boundary
Duval County Parcels
Drainage Ditch
Drainage Pipe
Moncrief Creek
ND - 5 mg/kg
5 - 10 mg/kg
10 - 50 mg/kg
50 - 100 mg/kg
> 100 mg/kg
Notes:
mg/kg - Milligrams per Kilogram
bls - Below Land Surface
See reference 69 for information regarding model used to create this figure.
* - October 2012 Removal Action confirmation samples were collected from 6 to 12 inches bls
Source:
Bing Maps Aerial Imagery Service for ArcGIS, 2010.
The Sanborn Map Company, inc. 1/08.
Parcel Boundaries - Duval County Tax Assessor's Office.
N
W
E
S
0 100 200
Feet
United States Environmental Protection Agency
FAIRFAX ST. WOOD TREATERS
JACKSONVILLE,
DUVAL COUNTY,
FLORIDA
FIGURE 6A
CONCEPTUAL SITE MODEL-
ARSENIC CONCENTRATIONS IN
SURFACE SOIL
(0 TO 6 INCHES BLS*)
TETRA TECH
Fairfax St. Wood Treaters
R.V. Daniels Elementary School
Susie Tolbert Elementary School
St Johns / CSX Railroad
Moncrief Creek
W 20th St
W 19th St
W 18th St
W 17th St
W 16th St
W 15th St
W 14th St
W 13th St
Pullman Ave
Pullman Ct
Spires Ave
Fairfax St
Pearce St
Mc Millan St



Legend

Map Features

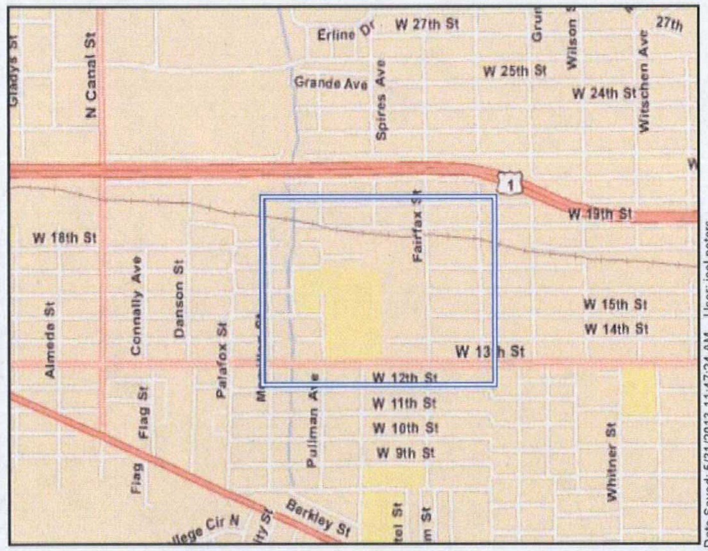
- Fairfax St. Wood Treaters Property Boundary
- Duval County Parcels
- Drainage Ditch
- Drainage Pipe
- Moncrief Creek
- ND - 5 mg/kg
- 5 - 10 mg/kg
- 10 - 50 mg/kg
- 50 - 100 mg/kg
- > 100 mg/kg

Notes:
mg/kg - Milligrams per Kilogram
bls - Below Land Surface
See reference 69 for information regarding model used to create this figure.
* - January 2011 Removal Assessment samples were collected from 12 to 24 inches bls

Source:
Bing Maps Aerial Imagery Service for ArcGIS, 2010.
The Sanborn Map Company, inc, 1/08.
Parcel Boundaries - Duval County Tax Assessor's Office.

N W E S

0 100 200 Feet



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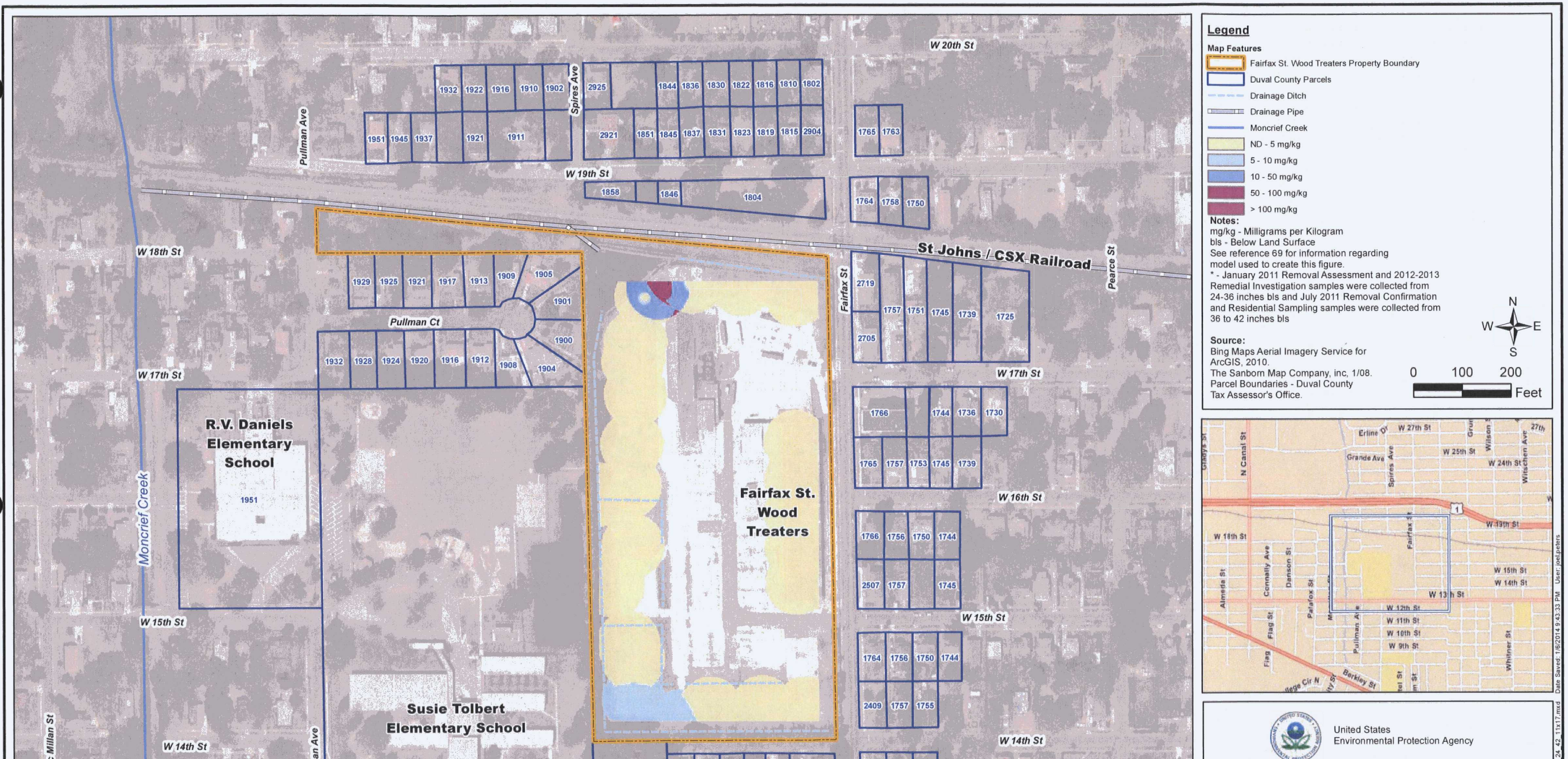
FAIRFAX ST. WOOD TREATERS
JACKSONVILLE,
DUVAL COUNTY,
FLORIDA

FIGURE 6B
**CONCEPTUAL SITE MODEL-
ARSENIC CONCENTRATIONS IN
SUBSURFACE SOIL
(18 TO 24 INCHES BLS*)**

TETRA TECH



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JACKSONVILLE,
DUVAL COUNTY,
FLORIDA

FIGURE 6C
CONCEPTUAL SITE MODEL-ARSENIC CONCENTRATIONS IN SUBSURFACE SOIL (24 TO 42 INCHES BLS*)

TETRA TECH

Path: S:\CADD\8917\0003\01340001\mxd\24C_FAIRFAX_RI_CSM_AS_24_42_11x17.mxd Date Saved: 1/6/2014 9:43:33 PM User: joel.peters

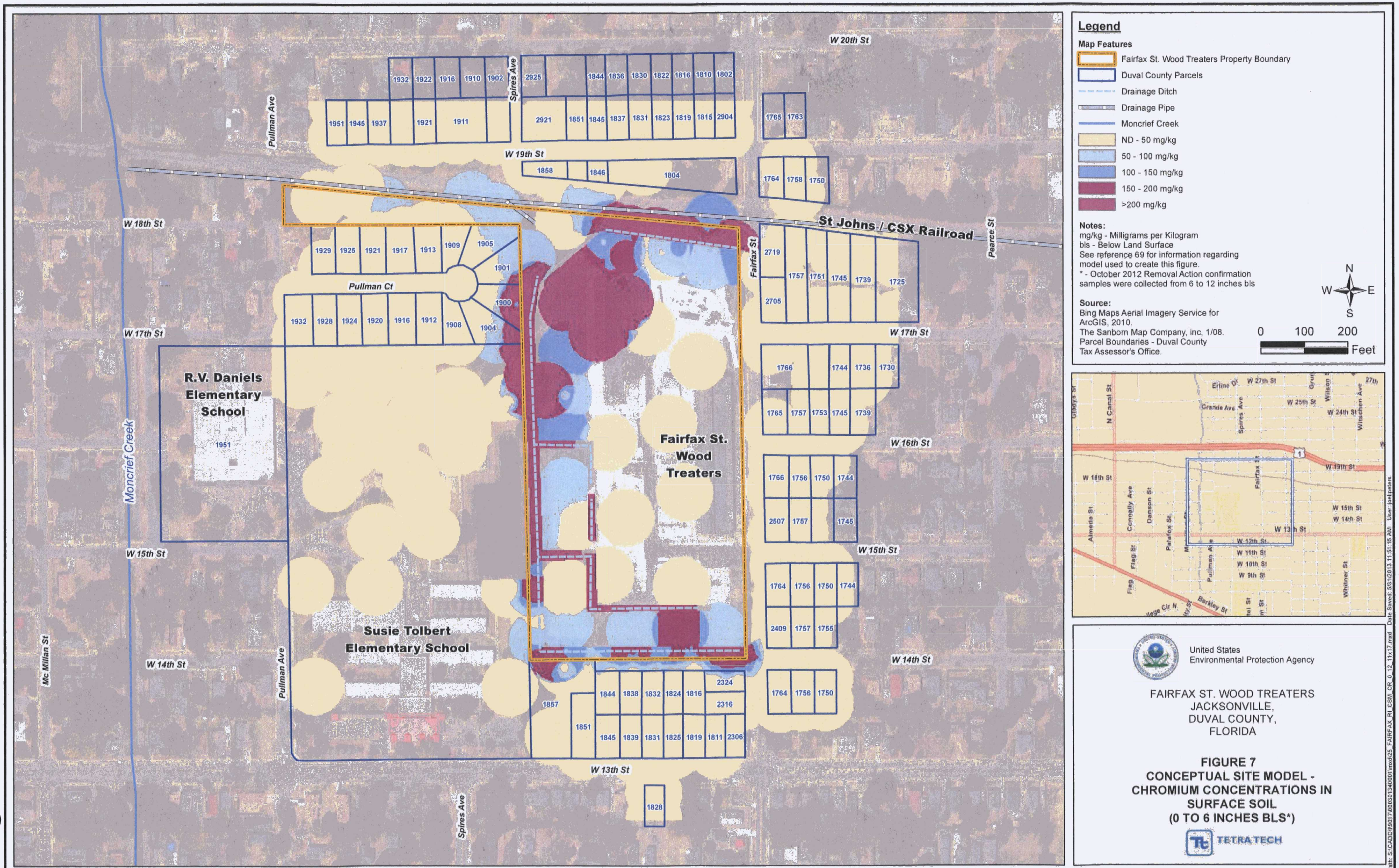


FIGURE 7
CONCEPTUAL SITE MODEL - CHROMIUM CONCENTRATIONS IN SURFACE SOIL
(0 TO 6 INCHES BLS*)

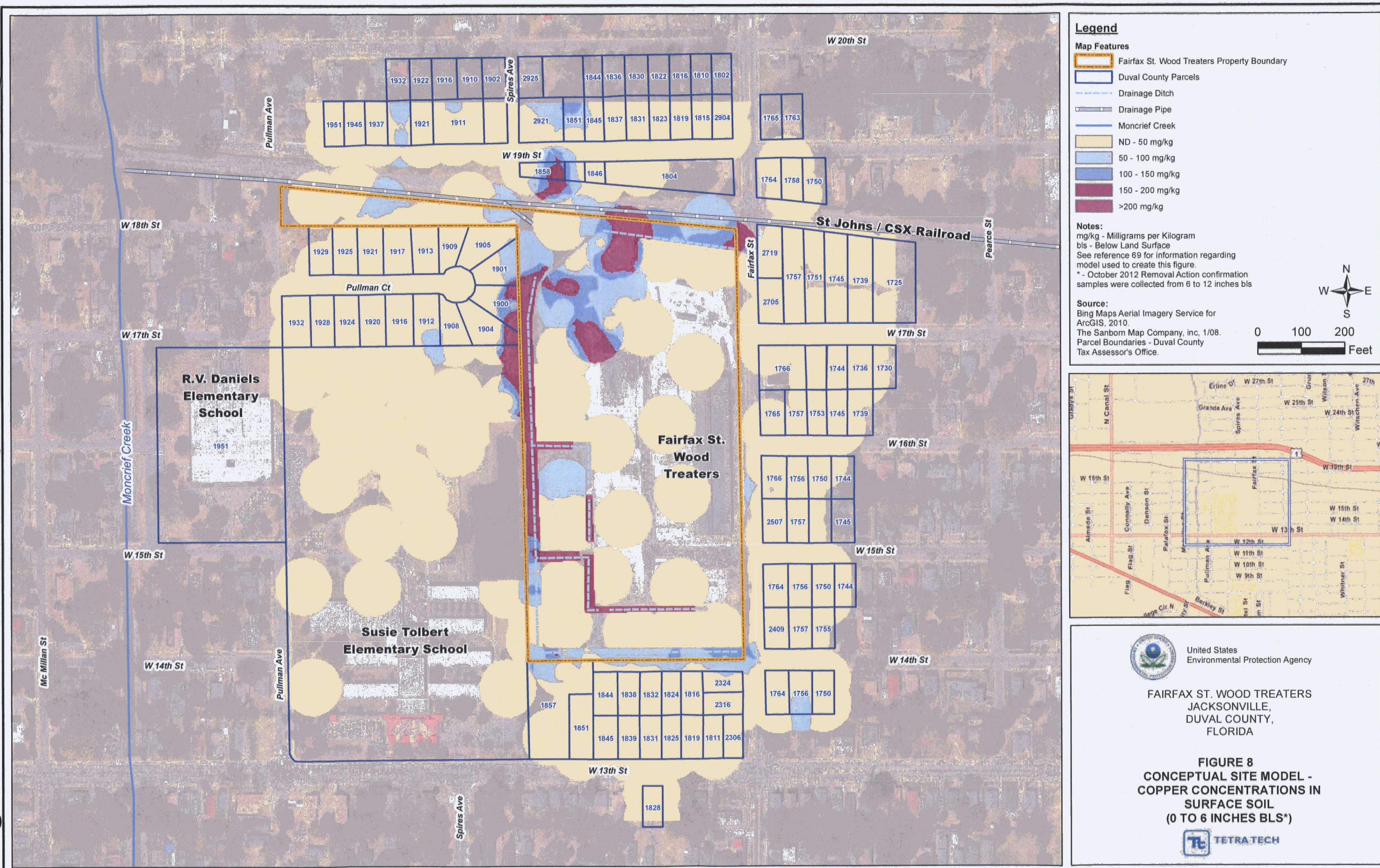
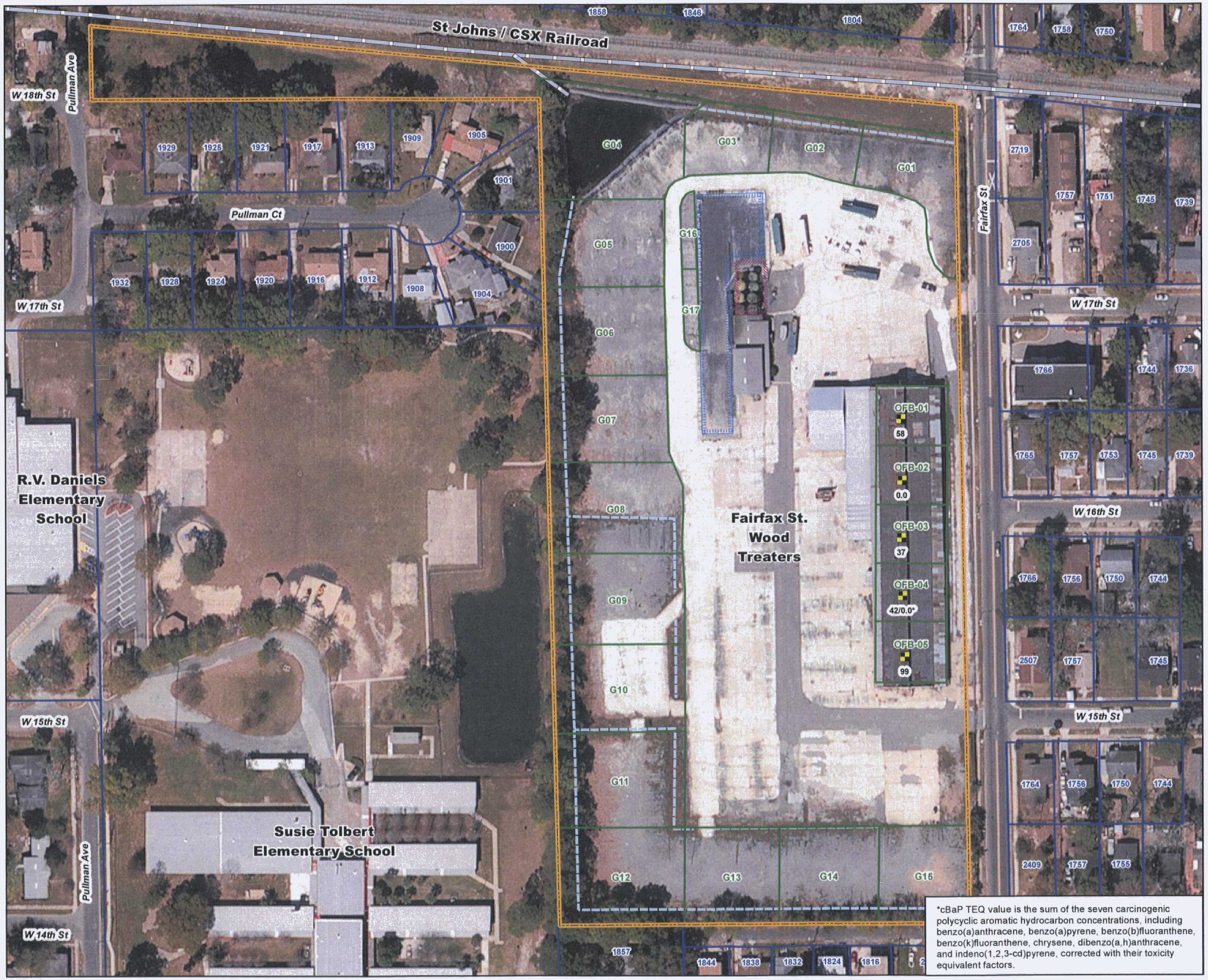

Legend
Map Features
Fairfax St. Wood Treaters Property Boundary
Duval County Parcels
Drainage Ditch
Drainage Pipe
Moncrief Creek
ND - 50 mg/kg
50 - 100 mg/kg
100 - 150 mg/kg
150 - 200 mg/kg
>200 mg/kg
Notes:
mg/kg - Milligrams per Kilogram
bls - Below Land Surface
See reference 69 for information regarding model used to create this figure.
* - October 2012 Removal Action confirmation samples were collected from 6 to 12 inches bls
Source:
Bing Maps Aerial Imagery Service for ArcGIS, 2010.
The Sanborn Map Company, inc, 1/08.
Parcel Boundaries - Duval County Tax Assessor's Office.
N
W
E
S
0
100
200
Feet
United States Environmental Protection Agency
FAIRFAX ST. WOOD TREATERS
JACKSONVILLE,
DUVAL COUNTY,
FLORIDA
FIGURE 8
CONCEPTUAL SITE MODEL -
COPPER CONCENTRATIONS IN
SURFACE SOIL
(0 TO 6 INCHES BLS*)
TETRA TECH
W 20th St
W 19th St
W 18th St
W 17th St
W 16th St
W 15th St
W 14th St
W 13th St
Pullman Ave
Pullman Ct
Spires Ave
Fairfax St
Pearce St
Mc Millan St
Moncrief Creek
St Johns / CSX Railroad
R.V. Daniels Elementary School
Susie Tolbert Elementary School
Fairfax St. Wood Treaters

FIGURE 9
REMEDIAL INVESTIGATION SAMPLING LOCATIONS



*cBaP TEQ value is the sum of the seven carcinogenic polycyclic aromatic hydrocarbon concentrations, including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene, corrected with their toxicity equivalent factors.

Legend

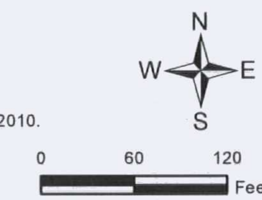
On-Site Sampling Location

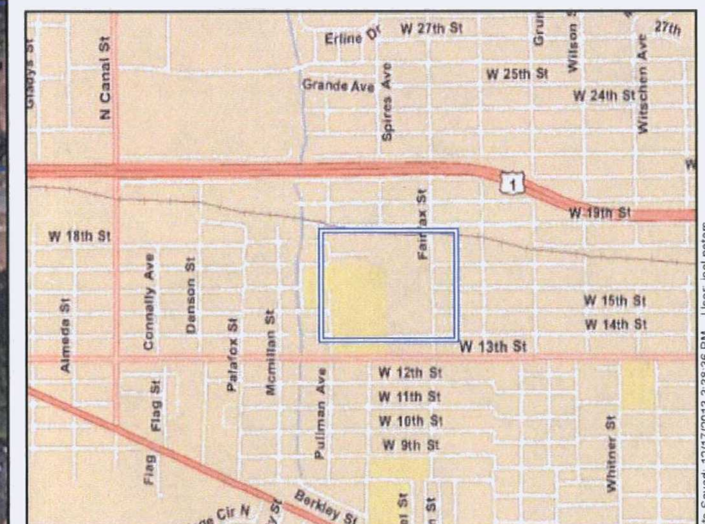
Map Features

- Fairfax St. Wood Treaters Property Boundary
- Sampling Grid
- Duval County Parcels
- Drainage Ditch
- Drainage Pipe
- Drip Pad
- Former Tank Farm and Secondary Containment

Notes:
cBaP-TEQ - Carcinogenic benzo(a)pyrene toxicity equivalent
µg/kg - Micrograms per Kilogram
bls - Below Land Surface
G - Grid
OFB - Old Feed Building

Source:
Bing Maps Aerial Imagery Service for ArcGIS, 2010.
The Sanborn Map Company, inc, 1/08.
Parcel Boundaries - Duval County Tax Assessor's Office.





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JACKSONVILLE,
DUVAL COUNTY,
FLORIDA

FIGURE 10A
cBaP-TEQ* IN SOIL
(24 to 36 inches bls)

TETRA TECH

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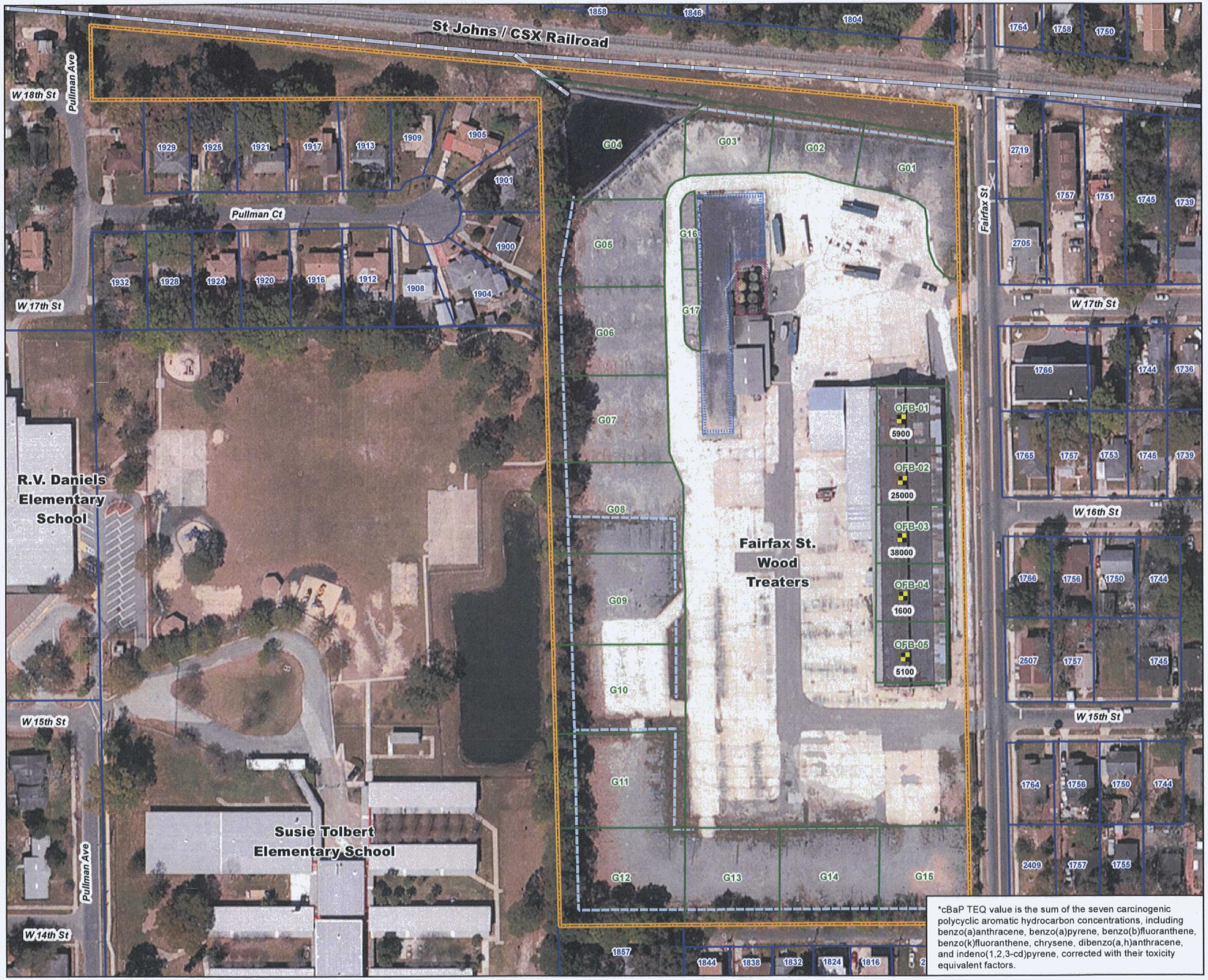


*cBaP TEQ value is the sum of the seven carcinogenic polycyclic aromatic hydrocarbon concentrations, including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene, corrected with their toxicity equivalent factors.

Legend

- On-site Sampling Location

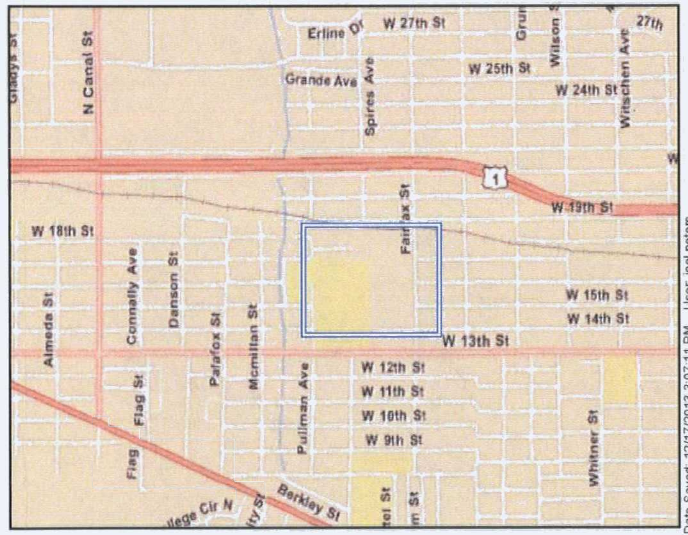
Map Features

- Fairfax St. Wood Treaters Property Boundary
- Sampling Grid
- Duval County Parcels
- Drainage Ditch
- Drainage Pipe
- Drip Pad
- Former Tank Farm and Secondary Containment

Notes:
cBaP-TEQ - Carcinogenic benzo(a)pyrene toxicity equivalent
µg/kg - Micrograms per Kilogram
bls - Below Land Surface
G - Grid
OFB - Old Feed Building

Source:
Bing Maps Aerial Imagery Service for ArcGIS, 2010.
The Sanborn Map Company, inc, 1/08.
Parcel Boundaries - Duval County Tax Assessor's Office.

0 60 120 Feet



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JACKSONVILLE,
DUVAL COUNTY,
FLORIDA

FIGURE 10B
cBaP-TEQ* IN SOIL
(60 TO 72 INCHES BLS)

TETRA TECH

Path: S:\CADD\6017\0003\01340001\mxd\9B_FAIRFAX_RI_cBaPTEQ_60_72_11x17.mxd Date Saved: 12/17/2013 3:07:11 PM User: joel.peters

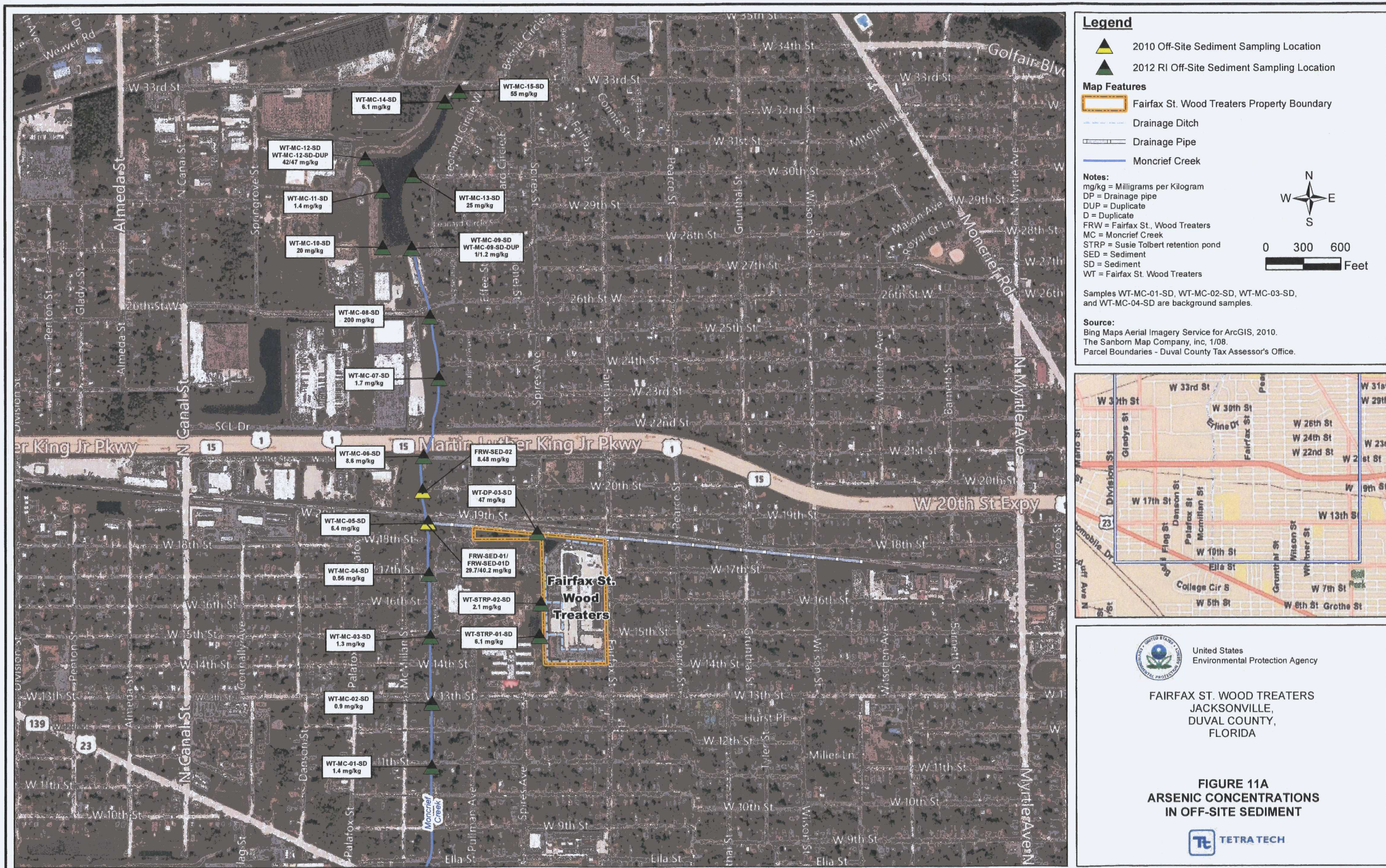

FIGURE 11A
ARSENIC CONCENTRATIONS
IN OFF-SITE SEDIMENT

Legend

- August 2010 Off-Site Sediment Sampling Location
- 2012 RI Off-Site Sediment Sampling Location

Map Features

- Fairfax St. Wood Treaters Property Boundary
- Drainage Ditch
- Drainage Pipe
- Moncrief Creek

Notes:
mg/kg = Milligrams per Kilogram
DP = Drainage pipe
DUP = Duplicate
D = Duplicate
FRW = Fairfax St., Wood Treaters
J = Estimated Value
MC = Moncrief Creek
STRP = Susie Tolbert retention pond
SED = Sediment
SD = Sediment
WT = Fairfax St. Wood Treaters

N / W / E / S

0 300 600 Feet

Samples WT-MC-01-SD, WT-MC-02-SD, WT-MC-03-SD, and WT-MC-04-SD are background samples.

Source:
Bing Maps Aerial Imagery Service for ArcGIS, 2010.
The Sanborn Map Company, inc, 1/08.
Parcel Boundaries - Duval County Tax Assessor's Office.

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JACKSONVILLE,
DUVAL COUNTY,
FLORIDA

FIGURE 11B
CHROMIUM CONCENTRATIONS IN OFF-SITE SEDIMENT

TETRA TECH

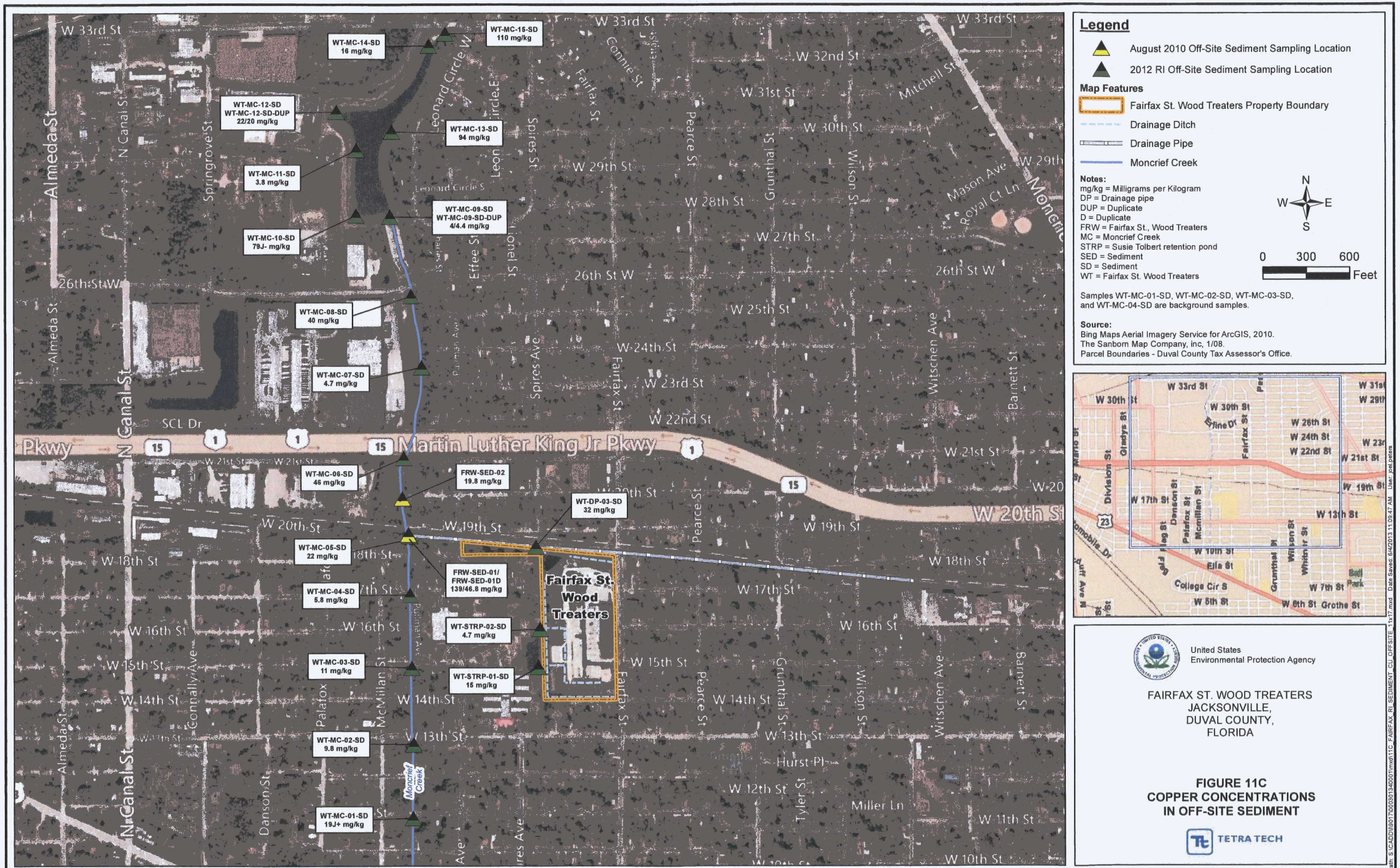


FIGURE 11C
COPPER CONCENTRATIONS IN OFF-SITE SEDIMENT

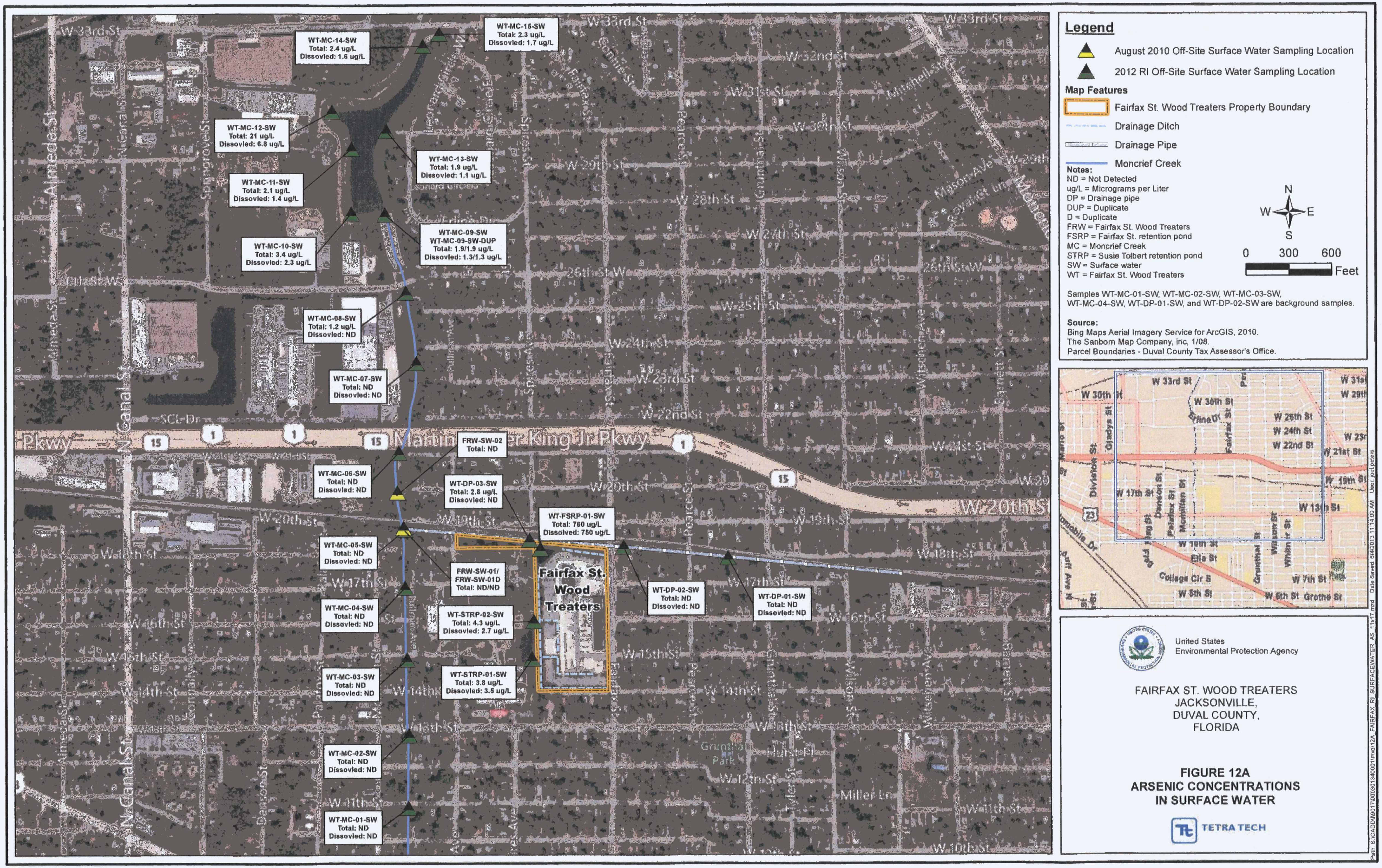


FIGURE 12A
ARSENIC CONCENTRATIONS IN SURFACE WATER

Legend

- August 2010 Off-Site Surface Water Sampling Location
- 2012 RI Off-Site Surface Water Sampling Location

Map Features

- Fairfax St. Wood Treaters Property Boundary
- Drainage Ditch
- Drainage Pipe
- Moncrief Creek

Notes:

ND = Not Detected
ug/L = Micrograms per Liter
DP = Drainage pipe
DUP = Duplicate
D = Duplicate
FRW = Fairfax St. Wood Treaters
FSRP = Fairfax St. retention pond
J = Estimated value
MC = Moncrief Creek
STRP = Susie Tolbert retention pond
SW = Surface water
WT = Fairfax St. Wood Treaters

N W E S

0 300 600 Feet

Samples WT-MC-01-SW, WT-MC-02-SW, WT-MC-03-SW, WT-MC-04-SW, WT-DP-01-SW, and WT-DP-02-SW are background samples.

Source:
Bing Maps Aerial Imagery Service for ArcGIS, 2010.
The Sanborn Map Company, inc, 1/08.
Parcel Boundaries - Duval County Tax Assessor's Office.

United States Environmental Protection Agency

FAIRFAX ST. WOOD TREATERS
JACKSONVILLE,
DUVAL COUNTY,
FLORIDA

FIGURE 12B
CHROMIUM CONCENTRATIONS IN SURFACE WATER

TETRA TECH

Path: S:\CADD\6901700003013400001\mxd\12B_FAIRFAX_RI_SURFACEWATER_CR_11x17.mxd Date Saved 6/4/2013 11:17:26 AM User: joel.peters

Legend

- August 2010 Off-Site Surface Water Sampling Location
- 2012 RI Off-Site Surface Water Sampling Location

Map Features

- Fairfax St. Wood Treaters Property Boundary
- Drainage Ditch
- Drainage Pipe
- Moncrief Creek

Notes:

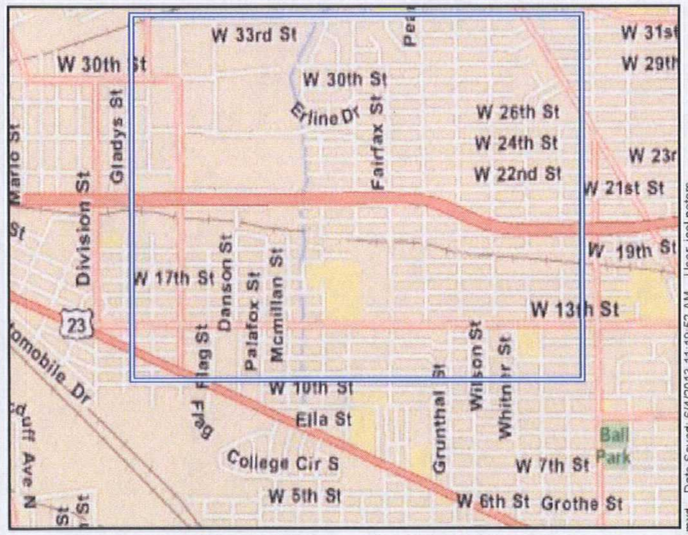
ND = Not Detected
ug/L = Micrograms per Liter
DP = Drainage pipe
DUP = Duplicate
D = Duplicate
FRW = Fairfax St. Wood Treaters
FSRP = Fairfax St. retention pond
MC = Moncrief Creek
STRP = Susie Tolbert retention pond
SW = Surface water
WT = Fairfax St. Wood Treaters

N / W / E / S

0 300 600 Feet

Samples WT-MC-01-SW, WT-MC-02-SW, WT-MC-03-SW, WT-MC-04-SW, WT-DP-01-SW, and WT-DP-02-SW are background samples.

Source:
Bing Maps Aerial Imagery Service for ArcGIS, 2010.
The Sanborn Map Company, inc, 1/08.
Parcel Boundaries - Duval County Tax Assessor's Office.

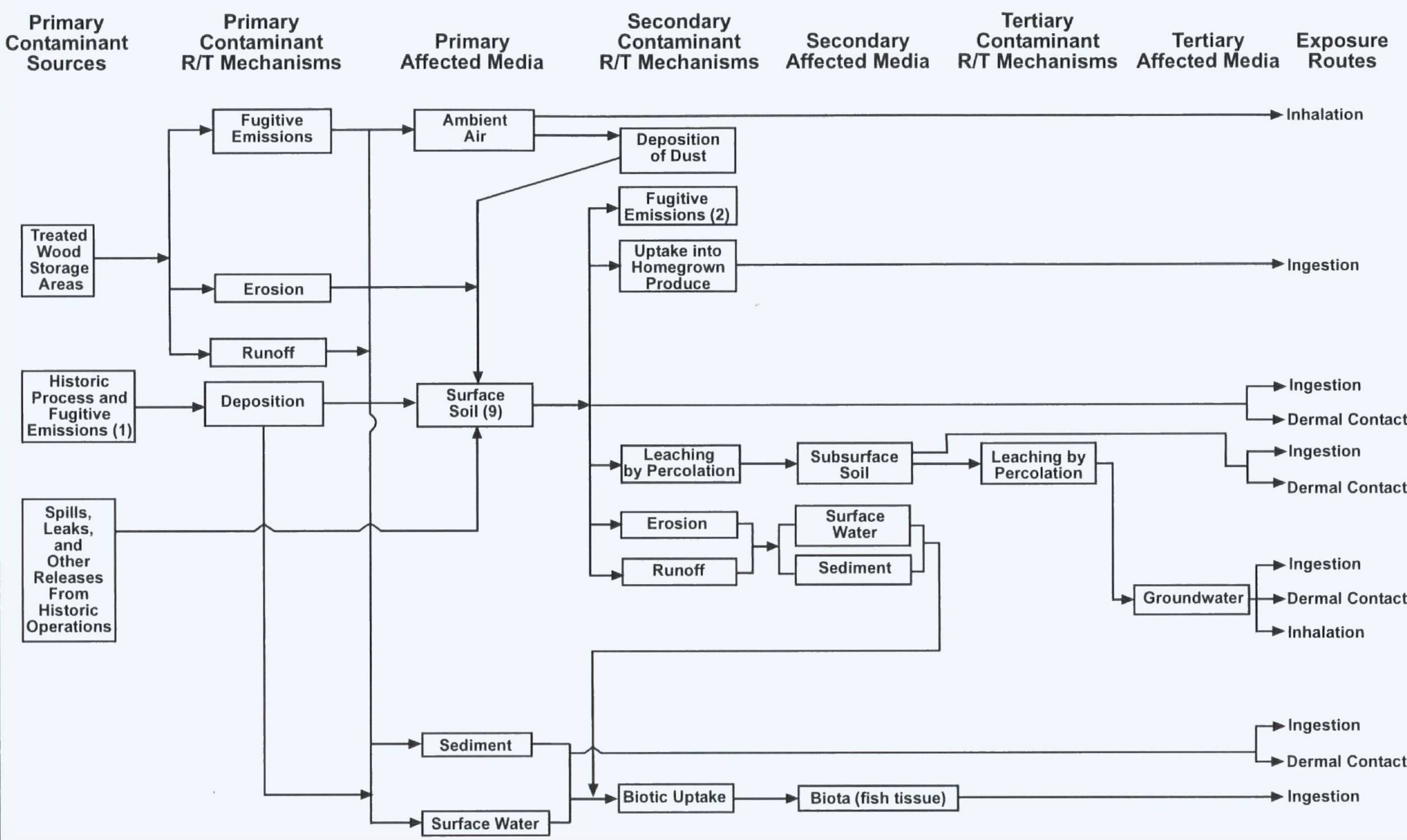


United States
Environmental Protection Agency

FAIRFAX ST. WOOD TREATERS
JACKSONVILLE,
DUVAL COUNTY,
FLORIDA

FIGURE 12C
COPPER CONCENTRATIONS IN SURFACE WATER

TETRA TECH



Exposure Routes	Current	Current and Future				Future			
	On-Site Adult and Youth Trespassers	Off-Site Adult/Child Resident (3)	Off-Site Adult Utility and Construction Workers (3)	Off-Site Adult/Child School Attendees and Staff (4)	Off-Site Adult/Youth/Child Recreationalist (5)	On-Site Adult/Child Resident (6)	On-Site Adult/Youth/Child Recreationalist (7)	On-Site Adult Utility and Construction Workers (7)	Commercial/ Industrial Workers (7)
Inhalation	●	●	●	●	●	●	●	●	●
Ingestion	--	●	--	--	--	●	--	--	--
Ingestion	●	●	●	●	●	●	●	●	●
Dermal Contact	●	●	●	●	●	●	●	●	●
Ingestion	--	--	●	--	--	--	--	●	●
Dermal Contact	--	--	●	--	--	--	--	●	●
Ingestion	--	--	--	--	--	●	--	●	●
Dermal Contact	--	--	--	--	--	●	--	●	--
Inhalation	--	--	--	--	--	●	--	●	--
Ingestion	●	--	--	--	● (8)	--	●	--	--
Dermal Contact	●	--	--	--	● (8)	--	●	--	--
Ingestion	--	● (10)	--	--	● (8)	--	--	--	--

Notes:
R/T = Release/Transport

● = Potentially complete exposure pathway -- retained for quantitative analysis.
-- = Incomplete exposure pathway -- will not be retained for quantitative analysis.

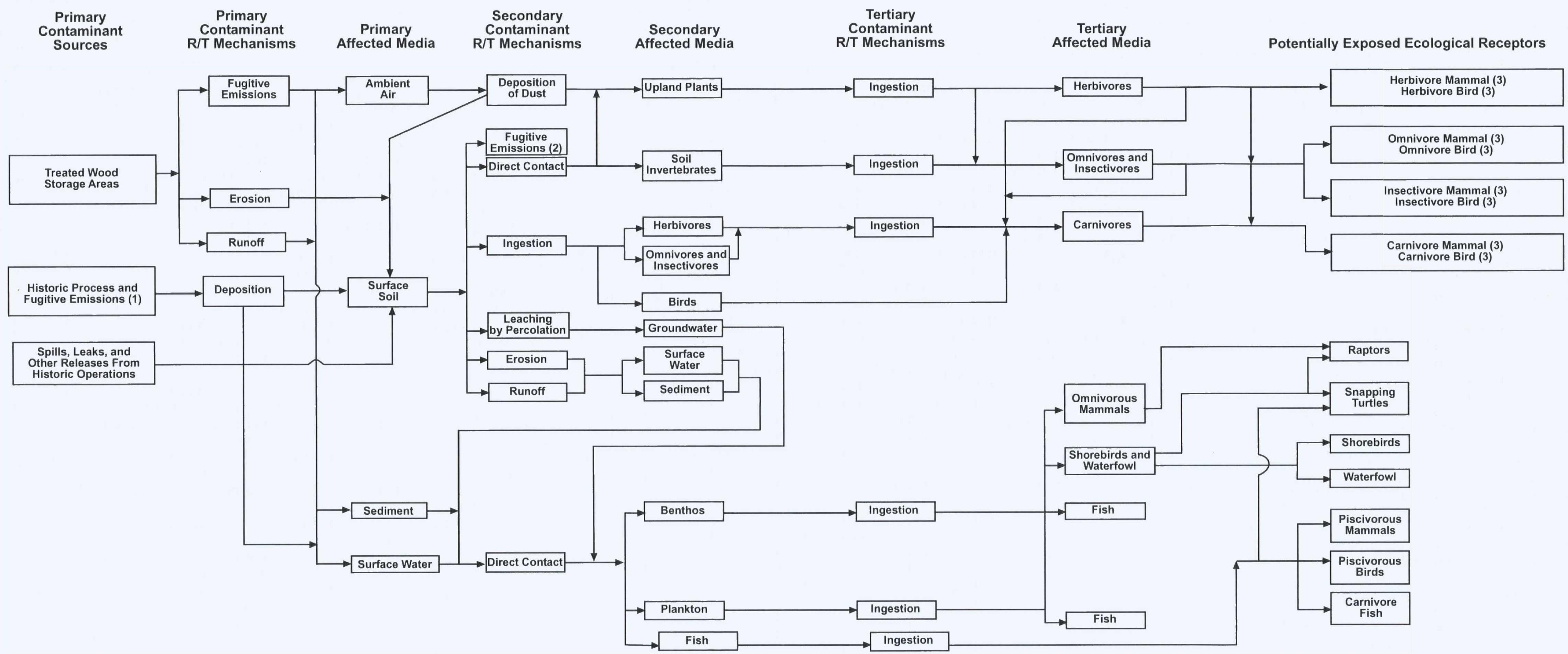
1. Emissions were expected to be in mist, particulate, and particle-bound forms.
2. As shown under primary contaminant R/T mechanisms.
3. Exposures assumed to occur in existing residential area.
4. Exposures assumed to occur on the current school yard while school is in session.
5. Exposures assumed to occur in school playground when school is not in session.
6. Exposures assumed to occur on the current plant site and assumes future development for residential use.
7. Future on-site exposures assumed to occur on the former plant site for industrial, recreational, or community use.
8. Potential exposures through incidental ingestion and dermal contact with Moncrief Creek surface water and sediment and ingestion of aquatic life (fish tissue).
9. Secondary R/T mechanisms originating from surface soil also apply to subsurface soil that is brought to the surface as the result of excavation and landscaping activities in the future.
10. Potential exposures through ingestion of aquatic life (fish tissue).

United States Environmental Protection Agency

FAIRFAX STREET WOOD TREATERS
JACKSONVILLE,
DUVAL COUNTY,
FLORIDA

FIGURE 13
REMEDIAL INVESTIGATION
HUMAN HEALTH RISK ASSESSMENT
CONCEPTUAL SITE MODEL

TETRA TECH



Notes:
R/T = Release/Transport

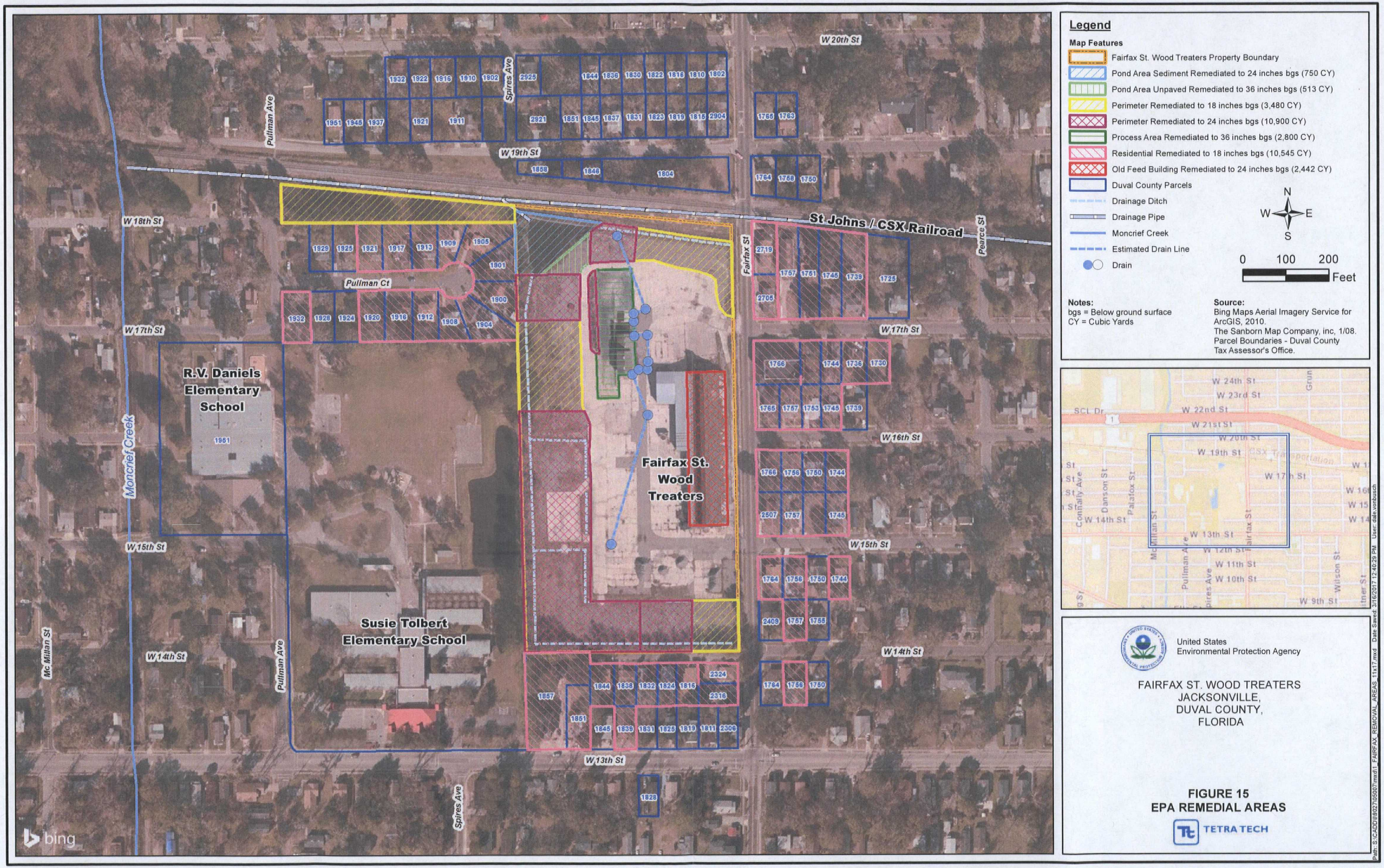
1. Emissions were expected to be in mist, particulate, and particle-bound forms.
2. As shown under primary contaminant R/T Mechanisms.
3. Due to urban setting for this site, exposure to these receptors is assumed to be de minimis.

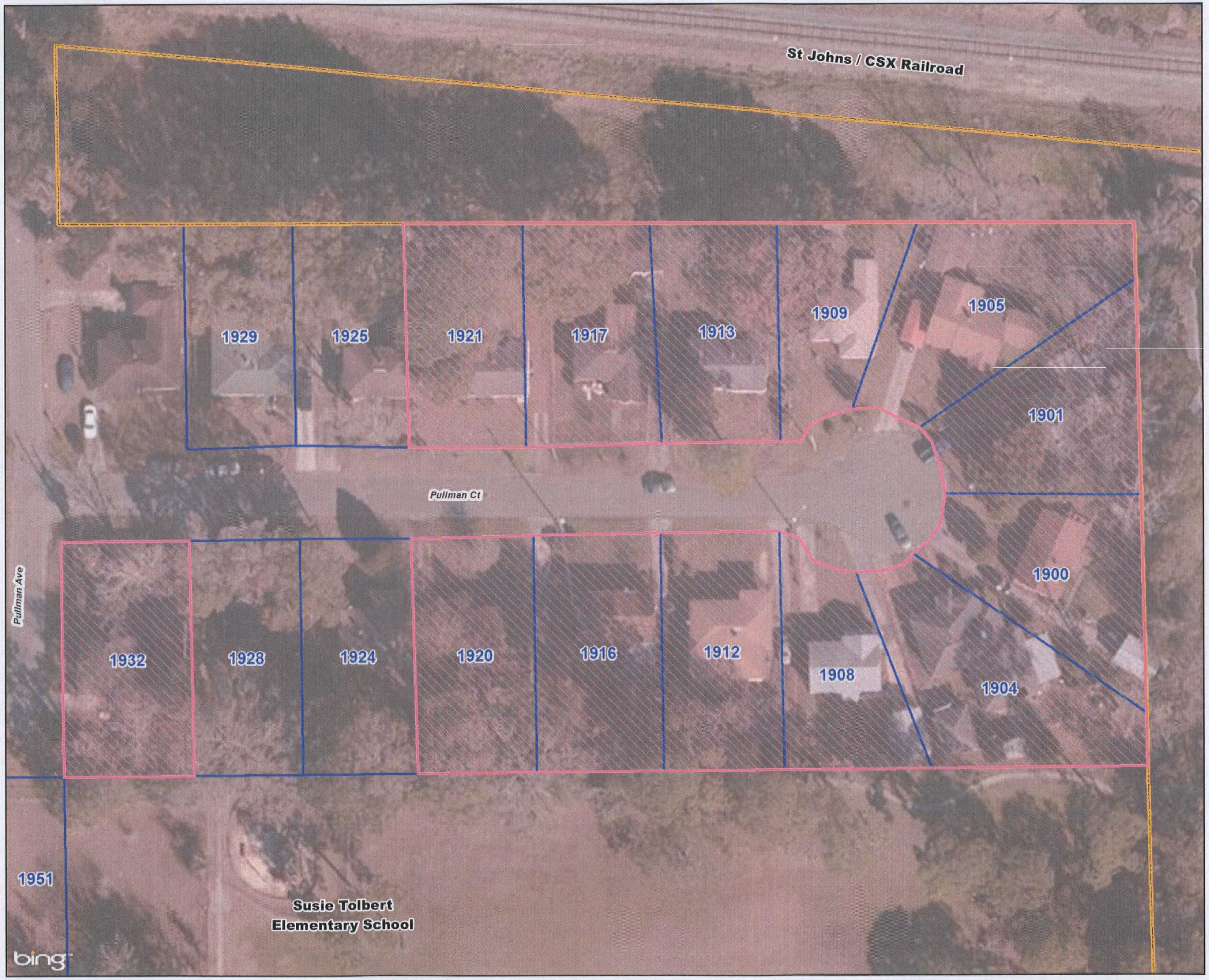
United States Environmental Protection Agency

FAIRFAX STREET WOOD TREATERS
JACKSONVILLE,
DUVAL COUNTY,
FLORIDA

FIGURE 14
REMEDIAL INVESTIGATION
ECOLOGICAL RISK ASSESSMENT
CONCEPTUAL SITE MODEL

TETRA TECH


Legend
Map Features
Fairfax St. Wood Treaters Property Boundary
Pond Area Sediment Remediated to 24 inches bgs (750 CY)
Pond Area Unpaved Remediated to 36 inches bgs (513 CY)
Perimeter Remediated to 18 inches bgs (3,480 CY)
Perimeter Remediated to 24 inches bgs (10,900 CY)
Process Area Remediated to 36 inches bgs (2,800 CY)
Residential Remediated to 18 inches bgs (10,545 CY)
Old Feed Building Remediated to 24 inches bgs (2,442 CY)
Duval County Parcels
Drainage Ditch
Drainage Pipe
Moncrief Creek
Estimated Drain Line
Drain
N
W
E
S
0 100 200
Feet
Notes:
bgs = Below ground surface
CY = Cubic Yards
Source:
Bing Maps Aerial Imagery Service for ArcGIS, 2010.
The Sanborn Map Company, inc, 1/08.
Parcel Boundaries - Duval County Tax Assessor's Office.
United States Environmental Protection Agency
FAIRFAX ST. WOOD TREATERS
JACKSONVILLE,
DUVAL COUNTY,
FLORIDA
FIGURE 15
EPA REMEDIAL AREAS
TETRA TECH
St Johns / CSX Railroad
Fairfax St. Wood Treaters
R.V. Daniels Elementary School
Susie Tolbert Elementary School
Moncrief Creek
W 20th St
W 19th St
W 18th St
W 17th St
W 16th St
W 15th St
W 14th St
W 13th St
Pullman Ave
Pullman Ct
Spires Ave
Fairfax St
Pearce St
Mc Millan St
bing



Legend

Map Features

- Fairfax St. Wood Treaters Property Boundary
- Residential Remediated to 18 inches bgs (2,742 CY)
- Duval County Parcels

Notes:
bgs = Below ground surface
CY = Cubic Yards

Source:
Bing Maps Aerial Imagery Service for ArcGIS, 2010.
The Sanborn Map Company, inc, 1/08.
Parcel Boundaries - Duval County Tax Assessor's Office.

N
W E
S

0 25 50
Feet

United States
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FAIRFAX ST. WOOD TREATERS
JACKSONVILLE,
DUVAL COUNTY,
FLORIDA

FIGURE 16A
RESIDENTIAL REMEDIAL AREA

TETRA TECH

Path: S:\CADD\6027\05007\mxd\2A_FAIRFAX_REMOVAL_RESIDENTIAL_11x17.mxd Date Saved: 1/13/2017 8:22:31 PM User: dale.vonbuch

Legend

Map Features

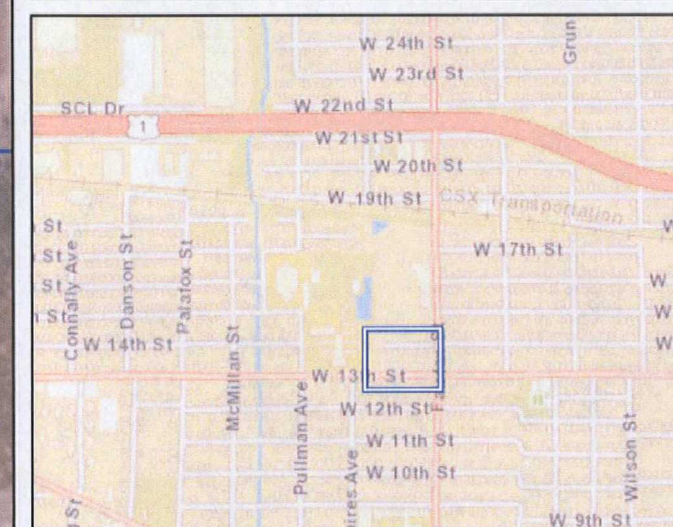
- Fairfax St. Wood Treaters Property Boundary
- Residential Remediated to 18 inches bgs (2,109 CY)
- Duval County Parcels

Notes:
bgs = Below ground surface
CY = Cubic Yards

Source:
Bing Maps Aerial Imagery Service for ArcGIS, 2010.
The Sanborn Map Company, inc, 1/08.
Parcel Boundaries - Duval County Tax Assessor's Office.

N W E S

0 25 50 Feet



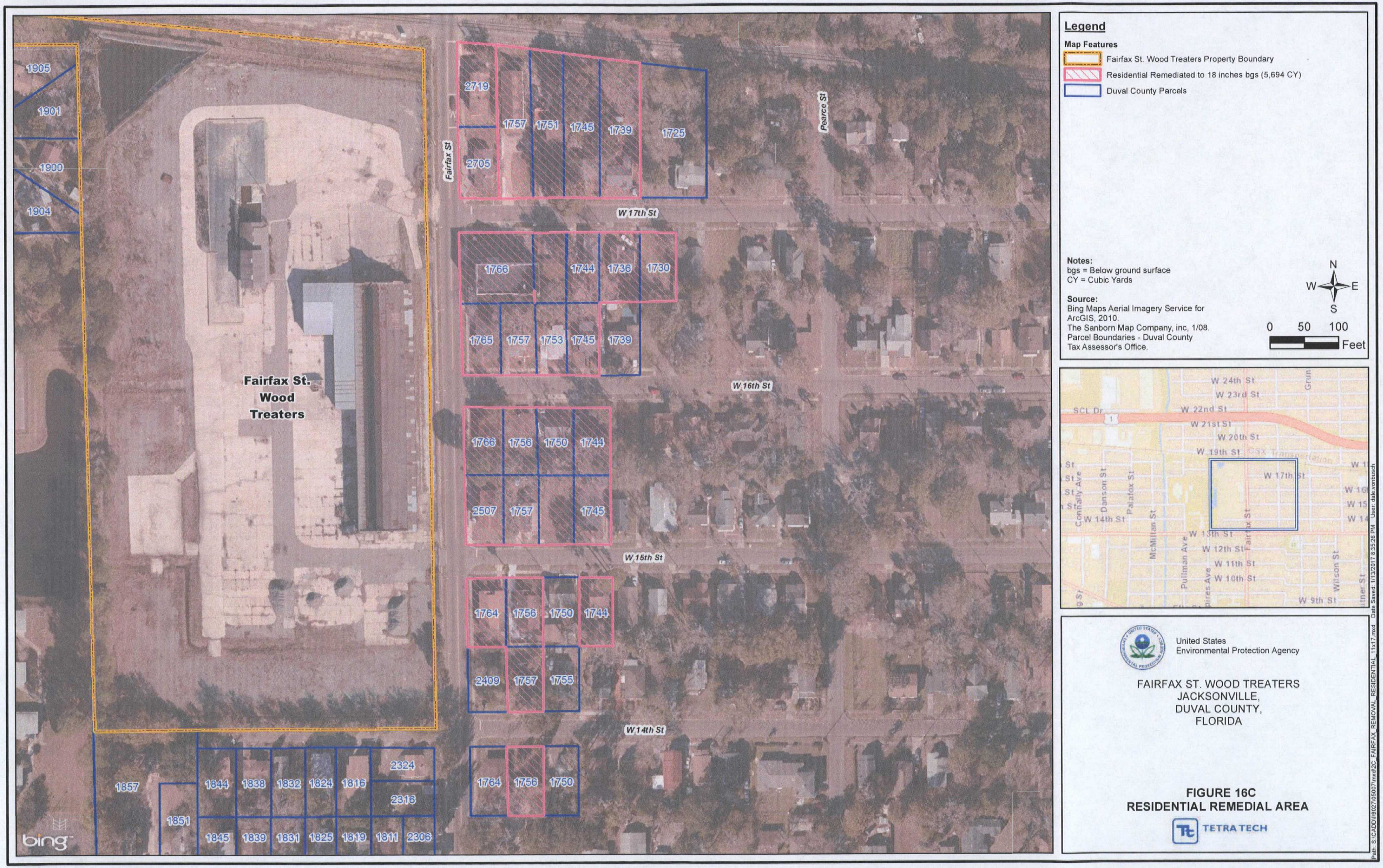
United States Environmental Protection Agency

FAIRFAX ST. WOOD TREATERS
JACKSONVILLE,
DUVAL COUNTY,
FLORIDA

FIGURE 16B
RESIDENTIAL REMEDIAL AREA

TETRA TECH

Path: S:\CADD\I9027\05007\mxd\2B_FAIRFAX_REMOVAL_RESIDENTIAL_11x17.mxd Date Saved: 1/13/2017 8:29:17 PM User: dale.vonbusch


Legend
Map Features
Fairfax St. Wood Treaters Property Boundary
Residential Remediated to 18 inches bgs (5,694 CY)
Duval County Parcels
Notes:
bgs = Below ground surface
CY = Cubic Yards
Source:
Bing Maps Aerial Imagery Service for ArcGIS, 2010.
The Sanborn Map Company, inc, 1/08.
Parcel Boundaries - Duval County Tax Assessor's Office.
N
W
E
S
0
50
100
Feet
Fairfax St. Wood Treaters
Fairfax St
Pearce St
W 17th St
W 16th St
W 15th St
W 14th St
1905
1901
1900
1904
2719
2705
1757
1751
1745
1739
1725
1766
1744
1736
1730
1765
1757
1753
1745
1739
1766
1756
1750
1744
2507
1757
1745
1764
1756
1750
1744
2409
1757
1755
1764
1756
1750
1857
1844
1838
1832
1824
1816
2324
2316
1851
1845
1839
1831
1825
1819
1811
2306
bing
W 24th St
W 23rd St
W 22nd St
SCL Dr
W 21st St
W 20th St
W 19th St
W 17th St
W 14th St
W 13th St
W 12th St
W 11th St
W 10th St
W 9th St
Connally Ave
Danson St
Palafox St
McMillan St
Pullman Ave
Fairfax St
Wilson St
United States Environmental Protection Agency
FAIRFAX ST. WOOD TREATERS
JACKSONVILLE,
DUVAL COUNTY,
FLORIDA
FIGURE 16C
RESIDENTIAL REMEDIAL AREA
TETRA TECH

Legend

Map Features

- Fairfax St. Wood Treaters Property Boundary
- Pond Area Sediment Remediated to 24 inches bgs (724 CY)
- Pond Area Unpaved Remediated to 36 inches bgs (513 CY)

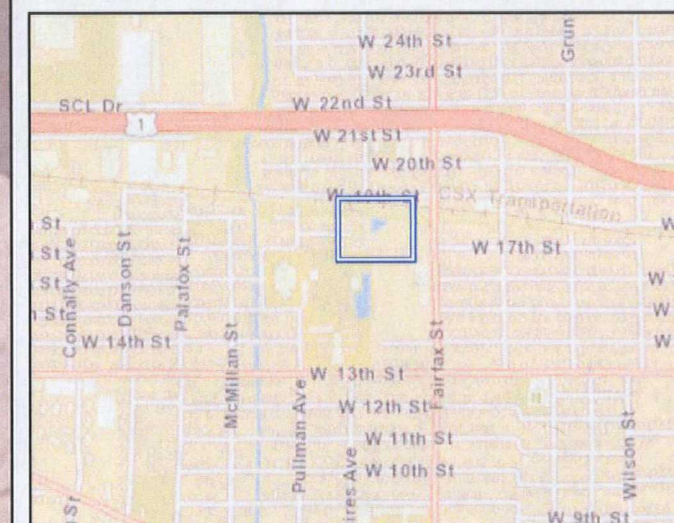
Notes:
bgs = Below ground surface
CY = Cubic Yards

The water in the pond will be treated on-site and removed off-site (1,124 CY)

Source:
Bing Maps Aerial Imagery Service for ArcGIS, 2010.
The Sanborn Map Company, inc, 1/08.
Parcel Boundaries - Duval County Tax Assessor's Office.

N W E S

0 25 50 Feet



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FAIRFAX ST. WOOD TREATERS
JACKSONVILLE,
DUVAL COUNTY,
FLORIDA

FIGURE 17
FORMER POND REMEDIAL AREA

TETRA TECH

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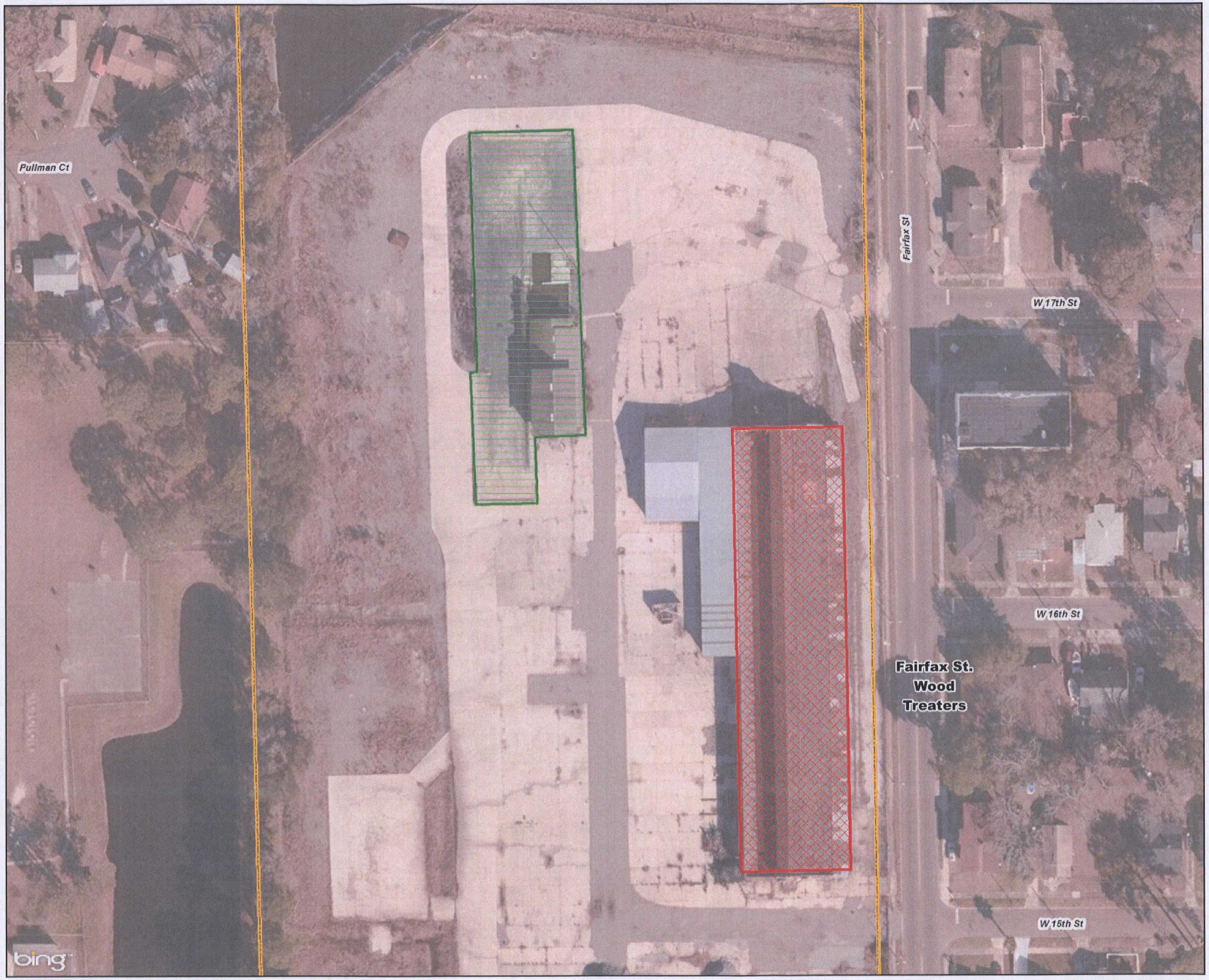


Legend

Map Features

- Fairfax St. Wood Treaters Property Boundary
- Process Area Remediated to 36 inches bgs (2,800 CY) Old Feed
- Building Remediated to 72 inches bgs (7,326 CY)

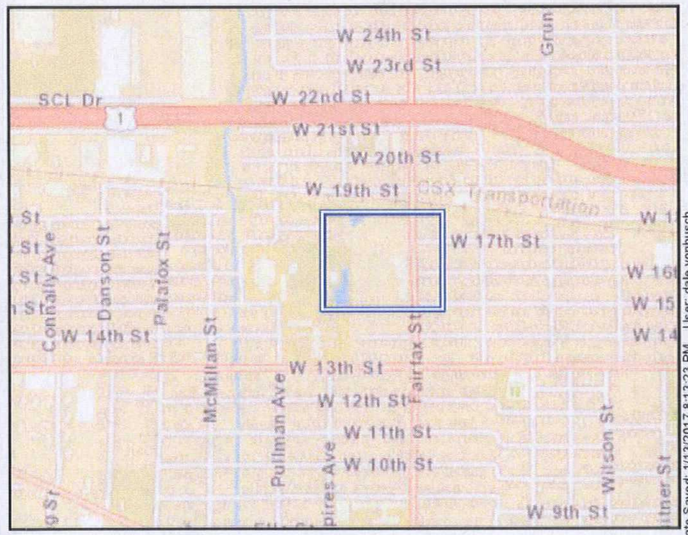
Notes:
bgs = Below ground surface
CY = Cubic Yards

Concrete, buildings, and underlying foundation will be demolished and resulting debris removed (810 Tons)

Source:
Bing Maps Aerial Imagery Service for ArcGIS, 2010.
The Sanborn Map Company, inc, 1/08.
Parcel Boundaries - Duval County Tax Assessor's Office.

N W E S

0 40 80 Feet



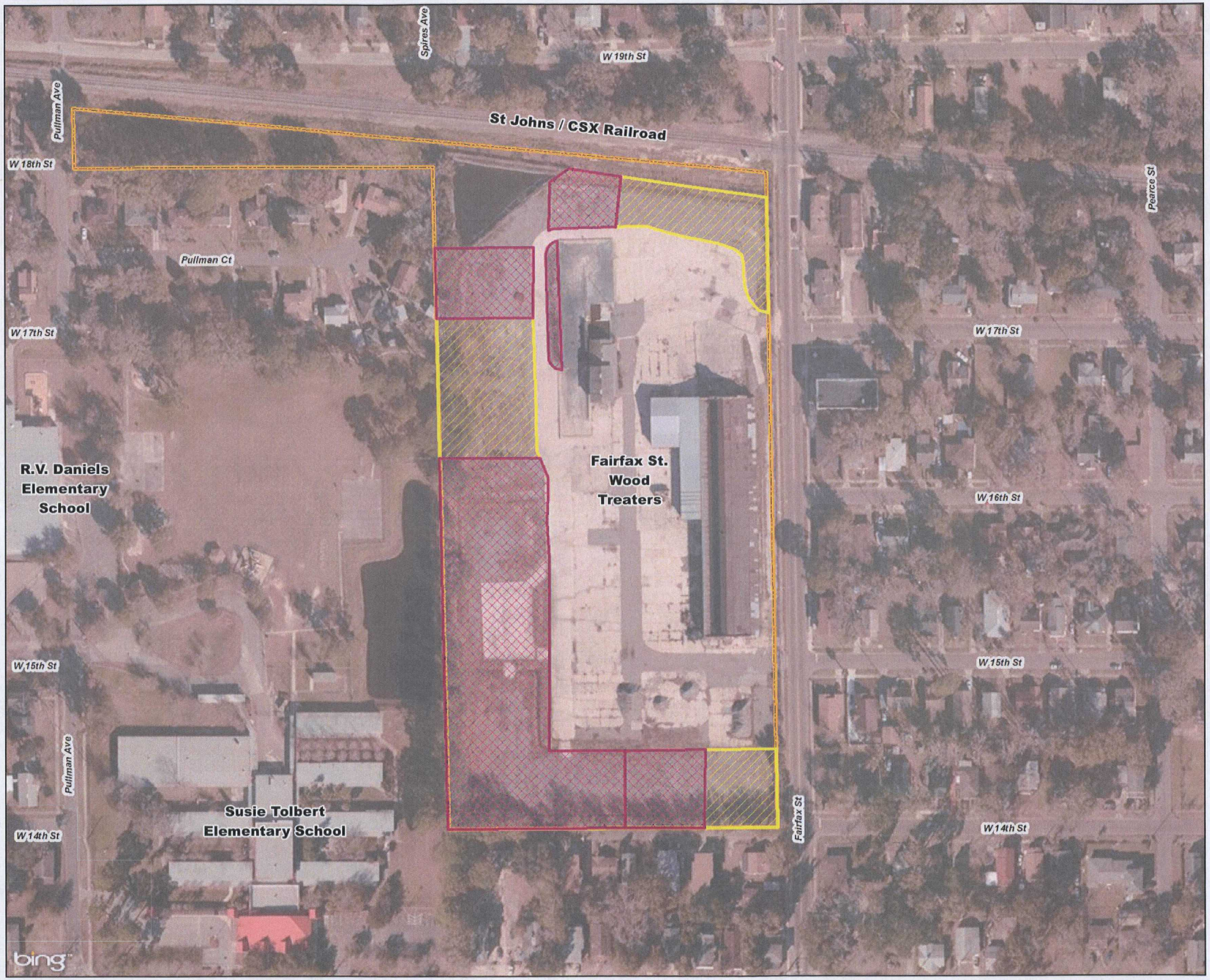
United States
Environmental Protection Agency

FAIRFAX ST. WOOD TREATERS
JACKSONVILLE,
DUVAL COUNTY,
FLORIDA

FIGURE 18
FORMER PROCESS AREA REMEDIAL AREA

TETRA TECH

Path: S:\CADD\9027\05007\mxd\4_FAIRFAX_REMOVAL_PROCESSAREA_11x17.mxd Date Saved: 1/13/2017 8:13:23 PM User: dale.vonbusch



Legend

Map Features

- Fairfax St. Wood Treaters Property Boundary
- Perimeter Remediated to 18 inches bgs (3,480 CY)
- Perimeter Remediated to 24 inches bgs (10,900 CY)

Notes:
bgs = Below ground surface
CY = Cubic Yards

Source:
Bing Maps Aerial Imagery Service for ArcGIS, 2010.
The Sanborn Map Company, inc, 1/08.
Parcel Boundaries - Duval County Tax Assessor's Office.

N
W E
S

0 75 150
Feet

United States
Environmental Protection Agency

FAIRFAX ST. WOOD TREATERS
JACKSONVILLE,
DUVAL COUNTY,
FLORIDA

FIGURE 19
SITE PERIMETER REMEDIAL AREAS

TETRA TECH

Path: S:\CADD\I9027\05007\mxd\5_FAIRFAX_REMOVAL_GRID_11x17.mxd Date Saved: 1/12/2017 8:35:16 PM User: dale.vonbusch

Legend

Map Features

Fairfax St. Wood Treaters Property Boundary

Estimated Drain Line (840 feet)

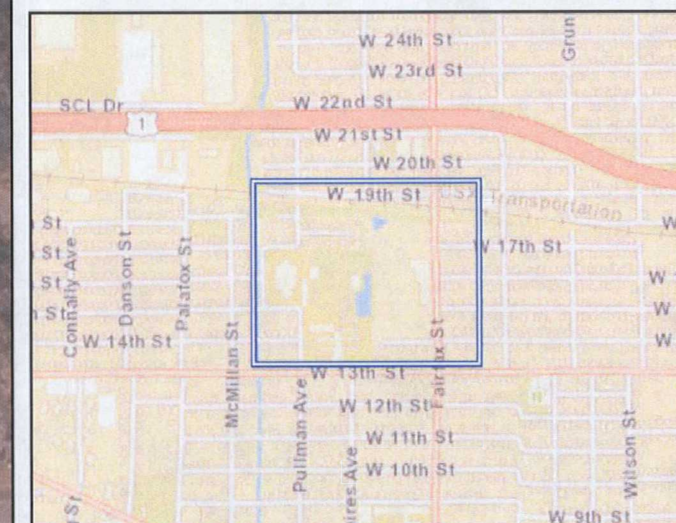
Drain

Notes:
bgs = Below ground surface

Source:
Bing Maps Aerial Imagery Service for ArcGIS, 2010.
The Sanborn Map Company, inc, 1/08.
Parcel Boundaries - Duval County Tax Assessor's Office.

N W E S

0 75 150 Feet



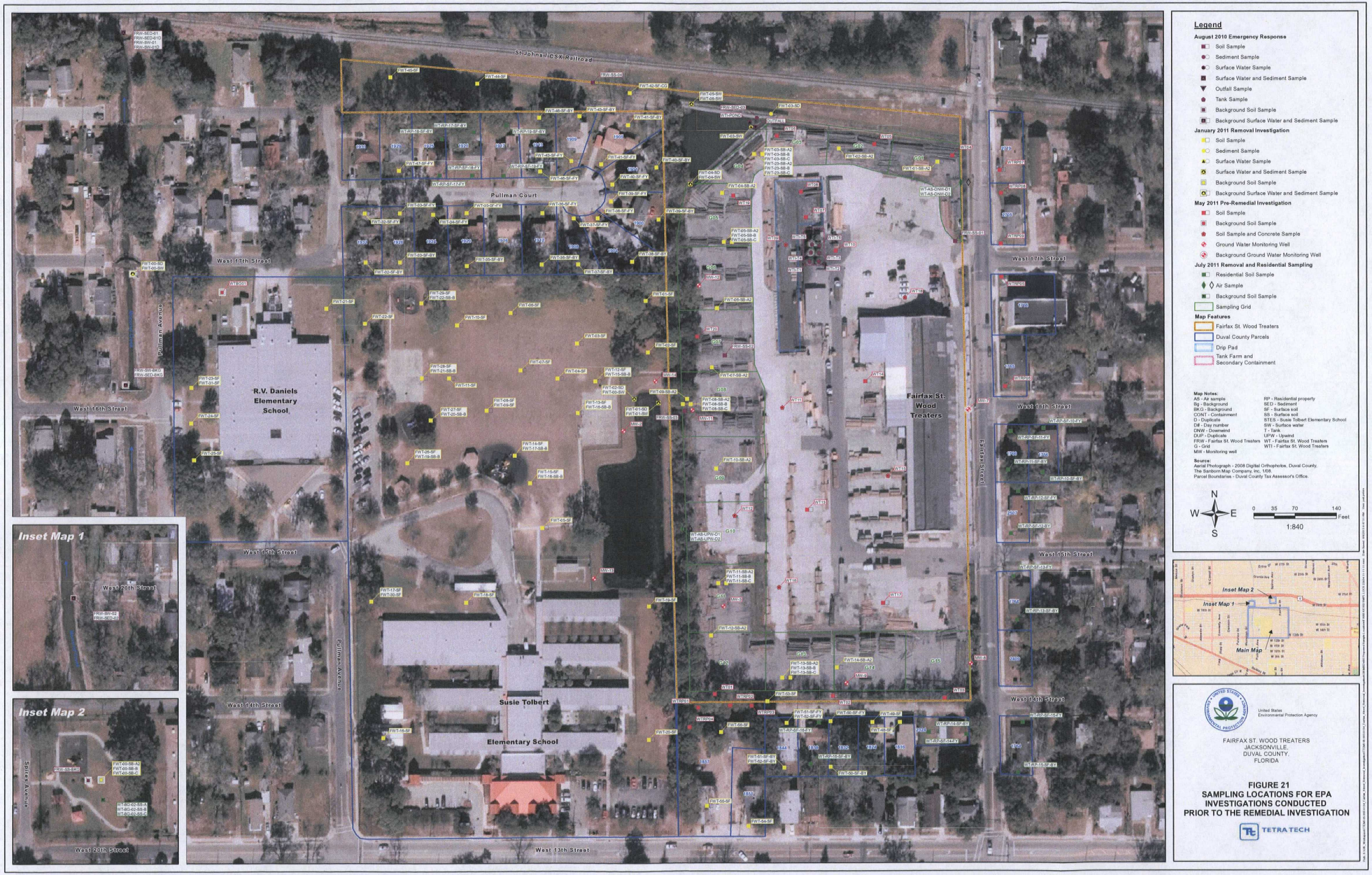
United States Environmental Protection Agency

FAIRFAX ST. WOOD TREATERS
JACKSONVILLE,
DUVAL COUNTY,
FLORIDA

FIGURE 20
DRAIN REMEDIAL AREAS

TETRA TECH

Path: S:\CADD\9027\05007\mxd\6_FAIRFAX_REMOVAL_DRAINS_11x17.mxd Date Saved: 1/12/2017 8:41:24 PM User: dale.vonbusch



St Johns / CSX Railroad
Pullman Court
West 17th Street
West 16th Street
West 15th Street
West 14th Street
West 13th Street
Pullman Avenue
Fairfax Street
R.V. Daniels Elementary School
Susie Tolbert Elementary School
Fairfax St. Wood Treaters
Inset Map 1
West 20th Street
Inset Map 2
Spires Avenue
Main Map
Legend
August 2010 Emergency Response
Soil Sample
Sediment Sample
Surface Water Sample
Surface Water and Sediment Sample
Outfall Sample
Tank Sample
Background Soil Sample
Background Surface Water and Sediment Sample
January 2011 Removal Investigation
Soil Sample
Sediment Sample
Surface Water Sample
Surface Water and Sediment Sample
Background Soil Sample
Background Surface Water and Sediment Sample
May 2011 Pre-Remedial Investigation
Soil Sample
Background Soil Sample
Soil Sample and Concrete Sample
Ground Water Monitoring Well
Background Ground Water Monitoring Well
July 2011 Removal and Residential Sampling
Residential Soil Sample
Air Sample
Background Soil Sample
Sampling Grid
Map Features
Fairfax St. Wood Treaters
Duval County Parcels
Drip Pad
Tank Farm and Secondary Containment
Map Notes:
AS - Air sample
Bg - Background
BKG - Background
CONT - Containment
D - Duplicate
D# - Day number
DNW - Downwind
DUP - Duplicate
FRW - Fairfax St. Wood Treaters
G - Grid
MW - Monitoring well
RP - Residential property
SED - Sediment
SF - Surface soil
SS - Surface soil
STES - Susie Tolbert Elementary School
SW - Surface water
T - Tank
UPW - Upwind
WT - Fairfax St. Wood Treaters
WTI - Fairfax St. Wood Treaters
Source:
Aerial Photograph - 2008 Digitial Orthophotos, Duval County,
The Sanborn Map Company, inc, 1/08.
Parcel Boundaries - Duval County Tax Assessor's Office.
N
W
E
S
0
35
70
140
Feet
1:840
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FAIRFAX ST. WOOD TREATERS
JACKSONVILLE,
DUVAL COUNTY,
FLORIDA
FIGURE 21
SAMPLING LOCATIONS FOR EPA
INVESTIGATIONS CONDUCTED
PRIOR TO THE REMEDIAL INVESTIGATION
TETRA TECH

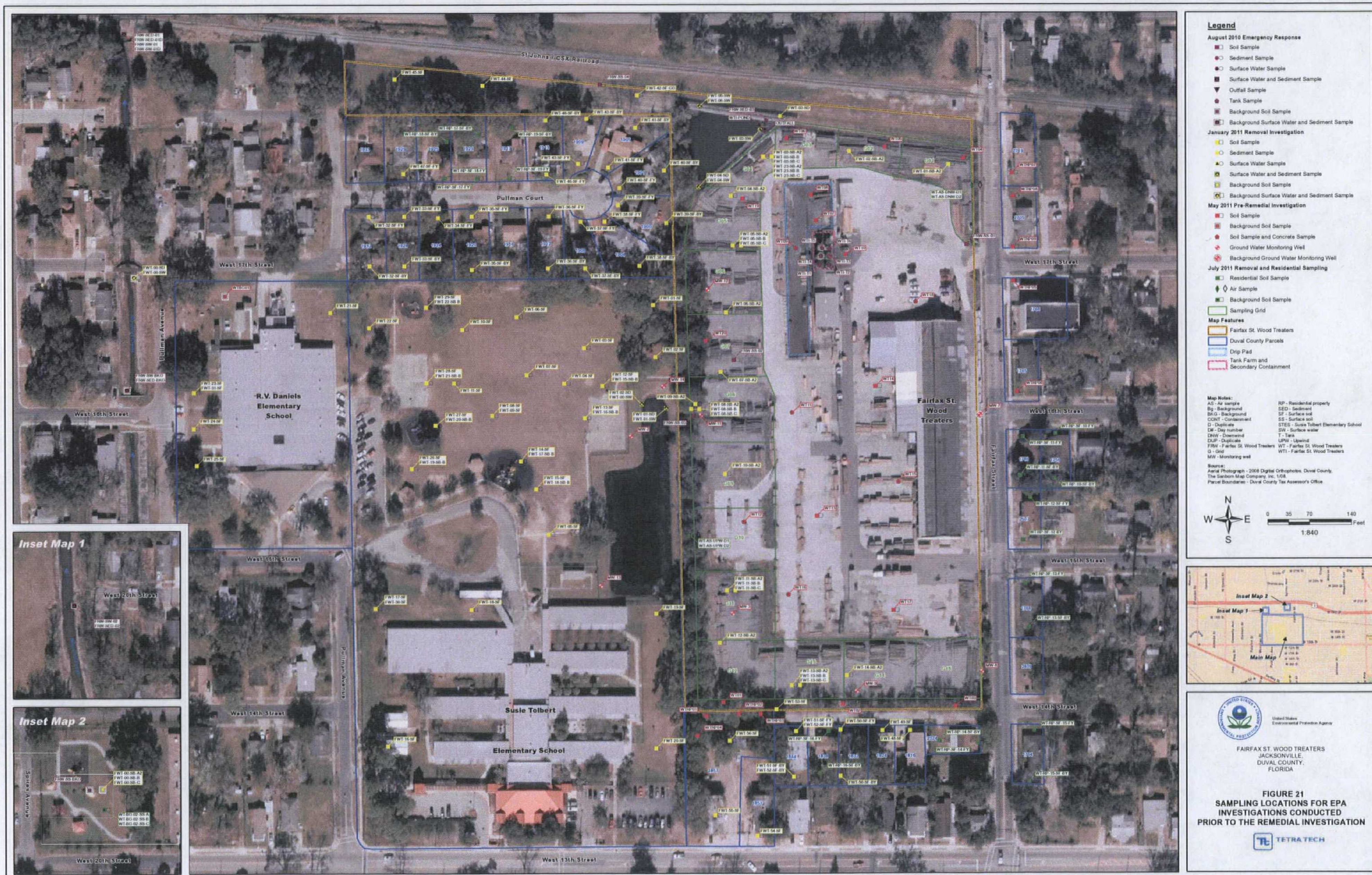

FIGURE 21
SAMPLING LOCATIONS FOR EPA INVESTIGATIONS CONDUCTED PRIOR TO THE REMEDIAL INVESTIGATION

APPENDIX B

TABLES

(74 Pages)

TABLE 1
FAIRFAX STREET WOOD TREATERS
PERMANENT MONITORING WELL GROUNDWATER PARAMETERS

Well ID	Sample ID	Elevation at Top of Casing (feet)*	Depth of Screen Interval (feet bls)	Total Well Depth (feet bls)	Depth to Water (feet bls)			Water Column (feet)			Purge Volume (gallons)		
					Feb-12	Aug-12	Feb-13	Feb-12	Aug-12	Feb-13	Feb-12	Aug-12	Feb-13
PMW-01	WT-PMW-01-GW	26.11	9.52 to 19.52	19.52	6.55	2.35	2.16	12.97	17	17.36	2.25	2.5	2.25
PMW-02	WT-PMW-02-GW	26.87	9.52 to 19.52	19.52	7.11	3.08	3.92	12.47	16.67	15.6	3.6	2.5	2.5
PMW-03	WT-PMW-03-GW	27.06	10.16 to 20.16	20.16	8.14	5.43	5.95	12.02	14.58	14.21	3	2	2.3
PMW-04	WT-PMW-04-GW	25.86	9.56 to 19.56	19.56	5.87	3.02	3.3	13.69	16.35	16.26	1.8	1.5	1.5
PMW-05	WT-PMW-05-GW	25.57	9.62 to 19.62	19.62	6.30	3.11	3.64	13.32	16.37	15.98	1.2	1.5	2.25
PMW-06S	WT-PMW-06S-GW	25.89	9.59 to 19.59	19.59	6.68	4.10	4.88	12.91	15.32	14.71	0.9	1.5	2.65
PMW-06D	WT-PMW-06D-GW	25.43	30.29 to 40.29	40.29	7.73	7.65	6.59	32.56	32.47	33.7	1.1	4	2.5
PMW-07	WT-PMW-07-GW	26.72	9.93 to 19.93	19.93	8.45	4.44	6.11	11.48	15.33	13.82	8.5	2	2.15

Well ID	Sample ID	Temperature (°C)			pH (std. units)			Conductivity (mS/cm)			Turbidity (NTU)		
		Feb-12	Aug-12	Feb-13	Feb-12	Aug-12	Feb-13	Feb-12	Aug-12	Feb-13	Feb-12	Aug-12	Feb-13
PMW-01	WT-PMW-01-GW	23.7	27.57	22.95	6.13	5.81	5.47	0.322	0.165	0.191	2.84	9.85	1.75
PMW-02	WT-PMW-02-GW	22.4	26.66	21.78	5.50	5.62	4.70	0.316	0.195	0.123	8.51	9.56	7.75
PMW-03	WT-PMW-03-GW	20.7	25.64	20.44	5.74	5.77	5.59	0.856	0.278	0.437	9.59	3.21	0.30
PMW-04	WT-PMW-04-GW	22.8	26.02	22.35	5.55	5.06	4.63	0.359	0.147	0.155	6.66	4.13	6.92
PMW-05	WT-PMW-05-GW	22.4	26.09	22.46	5.50	5.10	4.58	0.452	0.189	0.213	9.7	4.47	0.31
PMW-06S	WT-PMW-06S-GW	22.6	26.89	22.8	5.10	5.02	4.59	0.797	0.388	0.397	3.18	8.69	1.18
PMW-06D	WT-PMW-06D-GW	23.8	24.74	23.8	6.95	7.11	6.85	0.665	0.555	0.683	6.37	2.13	1.07
PMW-07	WT-PMW-07-GW	23.3	26.03	22.61	6.21	6.30	6.11	0.774	0.724	0.867	6.36	1.75	1.93

Notes:

*	Elevations are on North American Vertical Datum (NAVD) 1988 and are expressed in feet in relation to mean high sea level.
bls	Below land surface
°C	Degrees Celsius
D	Deep
GW	Groundwater
ID	Identification
mS/cm	Millisiemens per centimeter
NTU	Nephelometric turbidity units
PMW	Permanent monitoring well
S	Shallow
std.	Standard
WT	Fairfax Street Wood Treaters

TABLE 2
FAIRFAX STREET WOOD TREATERS
OLD FEED BUILDING SOIL ANALYTICAL RESULTS

	FDEP SCTL	Grid 01		Grid 02		Grid 03	
Analyte	Residential Soil	WT-FB-G01-SB-A	WT-FB-G01-SB-B	WT-FB-G02-SB-A	WT-FB-G02-SB-B	WT-FB-G03-SB-A	WT-FB-G03-SB-B
Volatile Organic Compounds (µg/kg)							
Carbon disulfide	270,000	0.45 U	0.47	0.63 U	0.43 U	0.46 U	26 U
Methyl Acetate	6,800,000	0.90 UJ	0.88 UJ	1.3 UJ	0.86 UJ	0.92 UJ	210 J-
Methylcyclohexane	NL	0.45 U	0.44 U	0.63 U	0.43 U	0.46 U	37
Toluene	7,500,000	0.45 U	0.44 U	0.56 J'	0.43 U	0.46 U	26 U
Semivolatile Organic Compounds (µg/kg)							
1,1-Biphenyl	3,000,000	270 U	400 J'	300 U	2,300 U	210 U	26,000 U
2-Methylnaphthalene	210,000	270 U	2,100	300 U	230 J'	28 J'	6,600 J'
Acenaphthene	2,400,000	270 U	440 J'	300 U	2,300 U	210 U	26,000 U
Acenaphthylene	1,800,000	29 J'	4,200	300 U	5,300	25 J'	15,000 J'
Anthracene	21,000,000	270 U	3,200	300 U	5,500	210 U	15,000 J'
Benzo(a)anthracene	NL	71 J'	6,200	300 U	22,000	40 J'	37,000
Benzo(a)pyrene	100	46 J'	4,000	300 U	17,000	29 J'	25,000 J'
Benzo(b)fluoranthene	NL	52 J'	5,200	300 U	21,000	35 J'	31,000
Benzo(g,h,i)perylene	2,500,000	270 U	1,400	300 U	6,700	210 U	8,800 J'
Benzo(k)fluoranthene	NL	270 U	1,600	300 U	7,800	210 U	11,000 J'
Benzyl butyl phthalate	17,000,000	270 U	1,300 U	300 U	2,300 U	210 U	26,000 U
Bis(2-ethylhexyl) phthalate	72,000	270 U	1,300 U	300 U	2,300 U	210 U	26,000 U
Carbazole	49,000	270 U	1,800	300 U	1,100 J'	210 U	5,500 J'
Chrysene	NL	64 J'	5,500	300 U	20,000	38 J'	31,000
Dibenzo(a,h)anthracene	NL	270 U	570 J'	300 U	2,800	210 U	4,400 J'
Dibenzofuran	320,000	270 U	2,900	300 U	1,100 J'	210 U	8,000 J'
Fluoranthene	3,200,000	100 J'	17,000	37 J'	46,000	82 J'	83,000
Fluorene	2,600,000	270 U	1,800	300 U	1,100 J'	210 U	6,800 J'
Indeno (1,2,3-cd) pyrene	NL	270 U	2,000	300 U	7,800	210 U	16,000 J'
Naphthalene	55,000	270 U	1,300 U	U	2,300 U	210 U	4,600 J'
Phenanthrene	2,200,000	70 J'	25,000	300 U	31,000	110 J'	97,000
Pyrene	2,400,000	180 J'	15,000	42 J'	52,000	97 J'	86,000
cBaP-TEQ*	100	58	5,900	0.0	25,000	37	38,000
Pesticides (µg/kg)							
4,4'-DDE (p,p'-DDE)	2,900[a]	5.2 U	4.9 U	5.9 U	44 U	4.0 U	45 U
4,4'-DDT (p,p'-DDT)	2,900[b]	5.2 U	6.2 U	5.9 U	44 U	4.0 U	85 U
Aldrin	60	0.46 NJ	2.5 U	3.0 U	23 U	2.1 U	23 U
alpha-Chlordane	2,800[c]	2.7 U	2.5 U	3.0 U	23 U	2.1 U	23 U

TABLE 2
FAIRFAX STREET WOOD TREATERS
OLD FEED BUILDING SOIL ANALYTICAL RESULTS

Analyte	FDEP SCTL Residential Soil	Grid 01 WT-FB-G01-SB-A	Grid 01 WT-FB-G01-SB-B	Grid 02 WT-FB-G02-SB-A	Grid 02 WT-FB-G02-SB-B	Grid 03 WT-FB-G03-SB-A	Grid 03 WT-FB-G03-SB-B
Pesticides (µg/kg)							
Endosulfan Sulfate	450,000	5.2 U	3.3 NJ	5.9 U	29 NJ	4.0 U	82 J+
Endrin	25,000	5.2 U	4.9 U	5.9 U	44 U	1.1 NJ	45 U
Endrin aldehyde	25,000[d]	5.2 U	4.9 U	5.9 U	44 U	4.0 U	45 U
Endrin ketone	25,000[d]	5.2 U	13	5.9 U	100	4.0 U	190 J+
gamma-Chlordane	2,800[c]	2.7 U	2.5 U	3.0 U	23 U	2.1 U	23 U
Heptachlor	200	2.7 U	2.5 U	3.0 U	23 U	2.1 U	23 U
Heptachlor epoxide	100	2.7 U	2.5 U	3.0 U	23 U	2.1 U	23 U
PCBs (µg/kg)	500	ND	ND	ND	ND	ND	ND
Metals (mg/kg)							
Aluminum	80,000	1,100	4,800	470	2,000	690	3,800
Arsenic	2.1	0.31 J-	0.46 J-	0.25 UJ	0.27 J-	0.25 U	1.4
Barium	120[e]	6.7	33	4.9	13	3.8	21
Beryllium	120	0.30 U	0.33	0.30 U	0.30 U	0.29 U	0.30 U
Cadmium	82	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Calcium	NL	190	7,700	66	1,600	94	8,200
Chromium	210[f]	1.1	3.1	0.70 U	1.8	1.0	5.7
Chromium VI	210	NA	NA	5.0 U	4.5 U	NA	NA
Chromium III	110,000	NC	NC	0.70 U	1.8	NC	NC
Cobalt	1,700	0.50 U	0.50 U	0.50 U	0.50 U	0.49 U	0.50 U
Copper	150	0.31	0.64	0.25 U	0.34	0.98 U	2.3
Iron	53,000	1,400 J-	1,100	890	560	780	660
Lead	400	2.2	2.8	1.5	1.6	1.8	3.6
Magnesium	NL	25 U	780	25 U	190	25 U	740
Manganese	3,500	1.1	88	0.58	11	0.53	92
Mercury	3	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Nickel	340	1.0 U	1.0 U	1.0 U	0.99 U	0.98 U	1.0 U
Potassium	NL	100 U	180	100 U	99 U	98 U	220
Strontium	52,000	2.2	15	1.6	4.4	1.6	12
Tin	47,000	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
Titanium	NL	9.3	35	6.1	14	4.6	37
Vanadium	67	1.5	6.0	0.99	2.8	0.93	3.1
Yttrium	NL	0.45	2.6	0.30 U	0.46	0.29 U	2.1
Zinc	26,000	3.8	2.1	1.0 U	2.5	0.98 U	5.5

TABLE 2
FAIRFAX STREET WOOD TREATERS
OLD FEED BUILDING SOIL ANALYTICAL RESULTS

Analyte	FDEP SCTL Residential Soil	Grid 04 WT-FB-G04-SB-A	Grid 04 WT-FB-G04-SB-A-DUP	Grid 04 WT-FB-G04-SB-B	Grid 05 WT-FB-G05-SB-A	Grid 05 WT-FB-G05-SB-B
Volatile Organic Compounds (µg/kg)						
Carbon disulfide	270,000	0.46 U	0.46 U	0.48 U	0.44 U	0.47 U
Methyl Acetate	6,800,000	0.91 UJ	0.91 UJ	0.96 UJ	0.88 UJ	0.93 UJ
Methylcyclohexane	NL	0.46 U	0.46 U	0.48 U	0.44 U	0.47 U
Toluene	7,500,000	0.46 U	0.46 U	0.48 U	0.44 U	0.47 U
Semivolatile Organic Compounds (µg/kg)						
1,1-Biphenyl	3,000,000	280 U	290 U	1,500 U	180 U	1,800 U
2-Methylnaphthalene	210,000	280 U	290 U	1,500 U	180 U	1,800 U
Acenaphthene	2,400,000	280 U	290 U	1,500 U	180 U	1,800 U
Acenaphthylene	1,800,000	280 U	290 U	450 J'	29 J'	1,500 J'
Anthracene	21,000,000	280 U	290 U	570 J'	28 J'	2,300
Benzo(a)anthracene	NL	45 J'	290 U	1,500	100 J'	5,000
Benzo(a)pyrene	100	33 J'	290 U	1,100 J'	75 J'	3,400
Benzo(b)fluoranthene	NL	41 J'	290 U	1,500 J'	110 J'	4,200
Benzo(g,h,i)perylene	2,500,000	280 U	290 U	390 J'	180 U	1,500 J'
Benzo(k)fluoranthene	NL	280 U	290 U	440 J'	31 J'	1,600 J'
Benzyl butyl phthalate	17,000,000	280 U	290 U	1,500 U	6,700	1,800 U
Bis(2-ethylhexyl) phthalate	72,000	280 U	290 U	1,500 U	1,600	1,800 U
Carbazole	49,000	280 U	290 U	270 J'	180 U	1,300 J'
Chrysene	NL	40 J'	290 U	1,300 J'	95 J'	4,200
Dibenzo(a,h)anthracene	NL	280 U	290 U	170 J'	180 U	530 J'
Dibenzofuran	320,000	280 U	290 U	220 J'	180 U	980 J'
Fluoranthene	3,200,000	83 J'	47 J'	3,400	160 J'	11,000
Fluorene	2,600,000	280 U	290 U	170 J'	180 U	920 J'
Indeno (1,2,3-cd) pyrene	NL	280 U	290 U	590 J'	28 J'	1,900
Naphthalene	55,000	280 U	290 U	1,500 U	180 U	1,800 U
Phenanthrene	2,200,000	73 J'	41 J'	3,200	110 J'	15,000
Pyrene	2,400,000	96 J'	51 J'	3,300	160 J'	11,000
cBaP-TEQ*	100	42	0.0	1,600	99	5,100
Pesticides (µg/kg)						
4,4'-DDE (p,p'-DDE)	2,900[a]	5.4 U	0.71 J'	5.9 U	5.8	35 U
4,4'-DDT (p,p'-DDT)	2,900[b]	5.4 U	5.6 U	5.9 U	23	23 NJ
Aldrin	60	2.8 U	2.9 U	3.0 U	1.8 U	18 U
alpha-Chlordane	2,800[c]	2.8 U	2.9 U	3.0 U	21	18 U

TABLE 2
FAIRFAX STREET WOOD TREATERS
OLD FEED BUILDING SOIL ANALYTICAL RESULTS

	FDEP SCTL	Grid 04			Grid 05	
Analyte	**Residential Soil**	**WT-FB-G04-SB-A**	**WT-FB-G04-SB-A-DUP**	**WT-FB-G04-SB-B**	**WT-FB-G05-SB-A**	**WT-FB-G05-SB-B**
Pesticides (µg/kg)						
Endosulfan Sulfate	450,000	5.4 U	5.6 U	1.9 NJ	3.6 U	12 NJ
Endrin	25,000	5.4 U	5.6 U	5.9 U	3.6 U	35 U
Endrin aldehyde	25,000[d]	5.4 U	5.6 U	5.9 U	3.6 U	27 NJ
Endrin ketone	25,000[d]	5.4 U	5.6 U	5.9 U	3.6 U	35 U
gamma-Chlordane	2,800[c]	2.8 U	2.9 U	3.0 U	110 N	25 NJ
Heptachlor	200	2.8 U	2.9 U	3.0 U	20 N	21 J+
Heptachlor epoxide	100	2.8 U	2.9 U	3.0 U	23 N	18 U
PCBs (µg/kg)	500	ND	ND	ND	ND	ND
Metals (mg/kg)						
Aluminum	80,000	800	1,100	3,400	1,000	2,500
Arsenic	2.1	0.30	0.28	0.26	0.44	1.2
Barium	120[e]	5.2	6.8	3.8	110	97
Beryllium	120	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U
Cadmium	82	0.12 U	0.12 U	0.12 U	0.22	0.12 U
Calcium	NL	120 J	230 J	300	8,300	3,700
Chromium	210[f]	0.74	0.99	2.4	100	5.2
Chromium VI	210	4.6 U	5.2 U	4.8 U	NA	NA
Chromium III	110,000	0.74	0.99	2.4	NC	NC
Cobalt	1,700	0.50 U	0.49 U	0.50 U	2.3	0.49 U
Copper	150	0.99 U	0.99 U	0.99 U	1.1	1.7
Iron	53,000	630	620	400	1,700	610
Lead	400	2.4 J	6.3 J	1.9	470	9.7
Magnesium	NL	25 U	31	49	6,200	360
Manganese	3,500	0.50 U	2.3	2.0	29	22
Mercury	3	0.050 U	0.050 U	0.050 U	1.4	0.050 U
Nickel	340	0.99 U	0.99 U	0.99 U	46	0.98 U
Potassium	NL	99 U	99 U	99 U	150	140
Strontium	52,000	1.9 J	3.8 J	1.8	43	13
Tin	47,000	1.5 U	1.5 U	1.5 U	5.1	1.5 U
Titanium	NL	5.4	5.5	6.2	17	20
Vanadium	67	1.2	1.1	2.8	2.0	3.0
Yttrium	NL	0.30 U	0.30 U	0.31	0.49	0.92
Zinc	26,000	7.7 J	1.1 J	6.8	140	45

TABLE 2
FAIRFAX STREET WOOD TREATERS
OLD FEED BUILDING SOIL ANALYTICAL RESULTS

Notes:

a	Value listed is for p,p'-dichlorodiphenyldichloroethylene.
b	Value listed is for p,p'-dichlorodiphenyltrichloroethane.
c	Value listed is for total chlordane.
d	Value listed is for endrin.
e	Value listed is for soluble salts of barium.
f	Value listed is for total chromium.
A	Sampling interval of 2 to 3 feet below land surface
B	Sampling interval of 5 to 6 feet below land surface
cBaP-TEQ	Carcinogenic benzo(a)pyrene toxicity equivalent
DUP	Field duplicate
FB	Feed building
FDEP	Florida Department of Environmental Protection
G	Grid
J	The identification of the analyte is acceptable; the reported value is an estimate.
J+	The identification of the analyte is acceptable; the reported value is an estimate with a possible high bias.
J-	The identification of the analyte is acceptable; the reported value is an estimate with a possible low bias.
J'	Concentration reported is less than the lowest standard on the calibration curve.
µg/kg	Micrograms per kilogram
mg/kg	Milligrams per kilogram
N	There is presumptive evidence that the analyte is present; the analyte is reported as a tentative identification.
NA	Not analyzed
NC	Not calculable
ND	Not detected
NL	Not listed
NJ	Presumptive evidence that analyte is present; reported as a tentative identification with an estimated value.
SCTL	Soil Cleanup Target Levels, Residenital, Direct Exposure, April 2005
SB	Subsurface soil
U	The analyte was not detected at or above the minimum reporting limit.
UJ	The analyte was not detected at or above the minimum reporting limit; the reported value is an estimate.
WT	Fairfax Street Wood Treaters
[ ]	Shaded values are above the FDEP SCTL.
*	Value is the sum of the seven carcinogenic polycyclic aromatic hydrocarbon concentrations, including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene, corrected with their toxicity equivalent factors.

TABLE 3
FAIRFAX STREET WOOD TREATERS
RESIDENTIAL PROPERTIES NORTH OF FSWT SOIL ANALYTICAL RESULTS

Analyte	Screening Value*		1764 West 19th Street (WTRP24)			
	SF	SB	WT-RP-24-SF-FY	WT-RP-24-SB-FY	WT-RP-24-SF-BY	WT-RP-24-SB-BY
Metals (mg/kg)						
Arsenic	2.36	2.1	5.0	0.6	3.5	0.59

Analyte	Screening Value*		1758 West 19th Street (WTRP25)				
	SF	SB	WT-RP-25-SF-FY	WT-RP-25-SF-FY-DUP	WT-RP-25-SB-FY	WT-RP-25-SF-BY	WT-RP-25-SB-BY
Metals (mg/kg)							
Arsenic	2.36	2.1	4.0	2.6	0.34	4.9	0.69
Chromium	210[a]	210[a]	11	9.1	2.7	8.4	2.9
Chromium VI	210	210	5.3 U	4.5 U	NA	4.3 U	NA
Chromium III	110,000	110,000	11	9.1	NC	8.4	NC
Copper	150	150	33	39	8.2	27	6.4

Analyte	Screening Value*		1804 West 19th Street (WTRP26)		
	SF	SB	WT-RP-26-SF-FY	WT-RP-26-SF-FY-DUP	WT-RP-26-SB-FY
Metals (mg/kg)					
Arsenic	2.36	2.1	3.4	3.2	0.25 UJ
Chromium	210[a]	210[a]	11	9.4	2.2
Copper	150	150	17	12	1.0 U

Analyte	Screening Value*		1846 West 19th Street (WTRP27)			
	SF	SB	WT-RP-27-SF-FY	WT-RP-27-SB-FY	WT-RP-27-SF-BY	WT-RP-27-SB-BY
Metals (mg/kg)						
Arsenic	2.36	2.1	4.5	0.39 J-	5.5	1.7
Chromium	210[a]	210[a]	15	2.9	17	6.0
Copper	150	150	16	1.0 U	21	7.8

Analyte	Screening Value*		1858 West 19th Street (WTRP29)			
	SF	SB	WT-RP-29-SF-FY	WT-RP-29-SB-FY	WT-RP-29-SF-BY	WT-RP-29-SB-BY
Metals (mg/kg)						
Arsenic	2.36	2.1	7.5	0.46	12	3.2
Chromium	210[a]	210[a]	21	2.3	41	5.8
Copper	150	150	18	0.98 U	170	13

TABLE 3
FAIRFAX STREET WOOD TREATERS
RESIDENTIAL PROPERTIES NORTH OF FSWT SOIL ANALYTICAL RESULTS

Analyte	Screening Value*		2904 Fairfax Street (WTRP30)			
	SF	SB	WT-RP-30-SF-FY	WT-RP-30-SB-FY	WT-RP-30-SF-BY	WT-RP-30-SB-BY
Metals (mg/kg)						
Arsenic	2.36	2.1	1.2	0.25 U	2.2	0.47
Chromium	210[a]	210[a]	5.8	1.9	12	2.4
Chromium VI	210	210	5.1 U	NA	5.5 U	NA
Chromium III	110,000	110,000	5.8	NC	12	NC
Copper	150	150	16	1.0	33	3.5

Analyte	Screening Value*		1815 West 19th Street (WTRP31)			
	SF	SB	WT-RP-31-SF-FY	WT-RP-31-SB-FY	WT-RP-31-SF-BY	WT-RP-31-SB-BY
Metals (mg/kg)						
Arsenic	2.36	2.1	2.5	0.26	2.8	0.25 U
Chromium	210[a]	210[a]	12	1.8	12	1.2
Copper	150	150	28	0.99 U	30	0.99 U

Analyte	Screening Value*		1819 West 19th Street (WTRP32)			
	SF	SB	WT-RP-32-SF-FY	WT-RP-32-SB-FY	WT-RP-32-SF-BY	WT-RP-32-SB-BY
Metals (mg/kg)						
Arsenic	2.36	2.1	2.3	0.35	2.1	2.6
Chromium	210[a]	210[a]	10	2.2	8.5	3.4
Copper	150	150	18	1.4	33	6.4

Analyte	Screening Value*		1823 West 19th Street (WTRP33)			
	SF	SB	WT-RP-33-SF-FY	WT-RP-33-SB-FY	WT-RP-33-SF-BY	WT-RP-33-SB-BY
Metals (mg/kg)						
Arsenic	2.36	2.1	2.9	0.25 U	1.9	0.34
Chromium	210[a]	210[a]	11	2.5	8.5	2.3
Copper	150	150	14	0.99 U	17	1.2

Analyte	Screening Value*		1831 West 19th Street (WTRP34)			
	SF	SB	WT-RP-34-SF-FY	WT-RP-34-SB-FY	WT-RP-34-SF-BY	WT-RP-34-SB-BY
Metals (mg/kg)						
Arsenic	2.36	2.1	3.5	0.77	2.3	0.36
Chromium	210[a]	210[a]	12	3.3	8.0	1.9
Copper	150	150	40	11	30	1.8

TABLE 3
FAIRFAX STREET WOOD TREATERS
RESIDENTIAL PROPERTIES NORTH OF FSWT SOIL ANALYTICAL RESULTS

Analyte	Screening Value*		1837 West 19th Street (WTRP35)					
	SF	SB	WT-RP-35-SF-FY	WT-RP-35-SF-FY-DUP	WT-RP-35-SB-FY	WT-RP-35-SF-BY	WT-RP-35-SF-BY-DUP	WT-RP-35-SB-BY
Metals (mg/kg)								
Arsenic	2.36	2.1	1.4 J	2.6 J	0.25 U	2.9	3.6	0.31
Chromium	210[a]	210[a]	4.3 J	7.7 J	0.93	10	12	1.6
Chromium VI	210	210	5.4 U	5.3 U	NA	5.4 U	5.4 U	NA
Chromium III	110,000	110,000	4.3	7.7	NC	10	12	NC
Copper	150	150	9.7	12	0.98 U	12	13	1.3

Analyte	Screening Value*		1845 West 19th Street (WTRP36)		
	SF	SB	WT-RP-36-SF-BY	WT-RP-36-SF-BY-DUP	WT-RP-36-SB-BY
Metals (mg/kg)					
Arsenic	2.36	2.1	3.8	5.5	0.75
Chromium	210[a]	210[a]	17	19	2.9
Copper	150	150	43	46	5.3

Analyte	Screening Value*		1851 West 19th Street (WTRP37)			
	SF	SB	WT-RP-37-SF-FY	WT-RP-37-SB-FY	WT-RP-37-SF-BY	WT-RP-37-SB-BY
Metals (mg/kg)						
Arsenic	2.36	2.1	6.3	0.51	5.0	0.85
Chromium	210[a]	210[a]	22	2.2	21	6.6
Copper	150	150	39	1.6	140	47

Analyte	Screening Value*		2921 Spires Avenue (WTRP38)			
	SF	SB	WT-RP-38-SF-FY	WT-RP-38-SB-FY	WT-RP-38-SF-BY	WT-RP-38-SB-BY
Metals (mg/kg)						
Arsenic	2.36	2.1	3.0	0.35	34	0.74
Chromium	210[a]	210[a]	8.4	1.8	30	2.7
Copper	150	150	14	1.1	82 J-	2.7

Analyte	Screening Value*		Vacant Lot on the Corner of West 19th Street and Spires Avenue (WTRP39)			
	SF	SB	WT-RP-39-SF-FY	WT-RP-39-SB-FY	WT-RP-39-SF-BY	WT-RP-39-SB-BY
Metals (mg/kg)						
Arsenic	2.36	2.1	2.0	0.37	1.5	0.25 U
Chromium	210[a]	210[a]	6.5	0.50 U	5.1	1.0
Copper	150	150	9.7	1.0 U	11	0.99 U

TABLE 3
FAIRFAX STREET WOOD TREATERS
RESIDENTIAL PROPERTIES NORTH OF FSWT SOIL ANALYTICAL RESULTS

Analyte	Screening Value*		1911 West 19th Street (WTRP40)			
	SF	SB	WT-RP-40-SF-FY	WT-RP-40-SB-FY	WT-RP-40-SF-BY	WT-RP-40-SB-BY
Metals (mg/kg)						
Arsenic	2.36	2.1	2.7	0.39	4.9	0.79
Chromium	210[a]	210[a]	6.7	0.50 U	9.9	1.0
Chromium VI	210	210	5.5 U	NA	5.5 U	NA
Chromium III	110,000	110,000	6.7	NC	9.9	NC
Copper	150	150	8.4	1.0 U	53	1.1

Analyte	Screening Value*		1921 West 19th Street (WTRP41)			
	SF	SB	WT-RP-41-SF-FY	WT-RP-41-SB-FY	WT-RP-41-SF-BY	WT-RP-41-SB-BY
Metals (mg/kg)						
Arsenic	2.36	2.1	3.0	1.6	6.0	1.3
Chromium	210[a]	210[a]	9.6	0.92	11	0.83
Copper	150	150	13	1.1	30	1.3

Analyte	Screening Value*		Vacant Lot between 1937 and 1921 West 19th Street (WTRP42)			
	SF	SB	WT-RP-42-SF-FY	WT-RP-42-SB-FY	WT-RP-42-SF-BY	WT-RP-42-SB-BY
Metals (mg/kg)						
Arsenic	2.36	2.1	4.9	2.4	2.7	1.7
Chromium	210[a]	210[a]	17	3.7	11	8.0
Copper	150	150	58	14	71	130

Analyte	Screening Value*		1937 West 19th Street (WTRP43)			
	SF	SB	WT-RP-43-SF-FY	WT-RP-43-SB-FY	WT-RP-43-SF-BY	WT-RP-43-SB-BY
Metals (mg/kg)						
Arsenic	2.36	2.1	0.57	0.61	1.6	1.0
Chromium	210[a]	210[a]	3.7	2.5 J+	14	6.5
Copper	150	150	12	5.2	19	28

Analyte	Screening Value*		1945 West 19th Street (WTRP44)			
	SF	SB	WT-RP-44-SF-FY	WT-RP-44-SB-FY	WT-RP-44-SF-BY	WT-RP-44-SB-BY
Metals (mg/kg)						
Arsenic	2.36	2.1	1.4	0.86	0.94	1.5
Chromium	210[a]	210[a]	5.5	3.2	4.1	4.4
Copper	150	150	4.8	6.9	1.2	14

TABLE 3
FAIRFAX STREET WOOD TREATERS
RESIDENTIAL PROPERTIES NORTH OF FSWT SOIL ANALYTICAL RESULTS

Analyte	Screening Value* SF	Screening Value* SB	1951 West 19th Street (WTRP45) WT-RP-45-SF-FY	WT-RP-45-SB-FY	WT-RP-45-SF-BY	WT-RP-45-SB-BY
Metals (mg/kg)						
Arsenic	2.36	2.1	0.76	2.0	1.4	0.46
Chromium	210[a]	210[a]	2.8	5.6	4.2	1.2
Chromium VI	210	210	5.5 U	NA	5.7 U	NA
Chromium III	110,000	110,000	2.8	NC	4.2	NC
Copper	150	150	7.3	77	10	21

Analyte	Screening Value* SF	1932 West 20th Street (WTRP76) WT-RP-76-SF-FY	WT-RP-76-SF-BY
Metals (mg/kg)			
Arsenic	2.36	2.7	8.6

Analyte	Screening Value* SF	1922 West 20th Street (WTRP77) WT-RP-77-SF-FY	WT-RP-77-SF-BY
Metals (mg/kg)			
Arsenic	2.36	110	24

Analyte	Screening Value* SF	1910 West 20th Street (WTRP79) WT-RP-79-SF-FY	WT-RP-79-SF-BY
Metals (mg/kg)			
Arsenic	2.36	2.5	3.6

Analyte	Screening Value* SF	1902 West 20th Street (WTRP80) WT-RP-80-SF-FY	WT-RP-80-SF-BY
Metals (mg/kg)			
Arsenic	2.36	0.83	2.7

Analyte	Screening Value* SF	2925 Spires Ave (WTRP81) WT-RP-81-SF-FY	WT-RP-81-SF-BY
Metals (mg/kg)			
Arsenic	2.36	1.6	2.7

TABLE 3
FAIRFAX STREET WOOD TREATERS
RESIDENTIAL PROPERTIES NORTH OF FSWT SOIL ANALYTICAL RESULTS

Analyte	Screening Value* SF	1844 West 20th Street (WTRP83) WT-RP-83-SF-FY	WT-RP-83-SF-BY
Metals (mg/kg)			
Arsenic	2.36	2.3	5.6

Analyte	Screening Value* SF	1802 West 20th Street (WTRP89) WT-RP-89-SF-FY	WT-RP-89-SF-BY
Metals (mg/kg)			
Arsenic	2.36	3.8	6.7

Analyte	Screening Value* SF	1765 West 19th Street (WTRP90) WT-RP-90-SF-FY	WT-RP-90-SF-BY
Metals (mg/kg)			
Arsenic	2.36	4.2	6.4

Analyte	Screening Value* SF	1750 West 19th Street (WTRP92) WT-RP-92-SF-FY	WT-RP-92-SF-BY
Metals (mg/kg)			
Arsenic	2.36	5.6	5.2

TABLE 3
FAIRFAX STREET WOOD TREATERS
RESIDENTIAL PROPERTIES NORTH OF FSWT SOIL ANALYTICAL RESULTS

Notes:

*	Screening values are either the calculated 95 percent upper tolerance limit (Ref. 52) or the FDEP SCTL (Ref. 53), whichever is greater.
a	Value listed is for total chromium.
BY	Back yard
Chromium VI	Hexavalent chromium
Chromium III	Trivalent chromium
DUP	Field duplicate
FDEP	Florida Department of Environmental Protection
FSWT	Fairfax Street Wood Treaters
FY	Front yard
J	The identification of the analyte is acceptable; the reported value is an estimate.
J+	The identification of the analyte is acceptable; the reported value is an estimate with a possible high bias.
J-	The identification of the analyte is acceptable; the reported value is an estimate with a possible low bias.
mg/kg	Milligrams per kilogram
NA	Not analyzed
NC	Not calculable
RP	Residential property
SCTL	Soil Cleanup Target Levels, Residenital, Direct Exposure, April 2005
SF	Surface soil (0 to 6 inches below land surface)
SB	Subsurface soil (18 to 24 inches below land surface)
U	The analyte was not detected at or above the minimum reporting limit.
UJ	The analyte was not detected at or above the minimum reporting limit; the reported value is an estimate.
WT	Fairfax Street Wood Treaters
[box]	Shaded values are above the screening value.

TABLE 4
FAIRFAX STREET WOOD TREATERS
RESIDENTIAL PROPERTIES EAST OF FSWT SOIL ANALYTICAL RESULTS

Analyte	Screening Value*	1766 West 17th St, Temple College Preparatory
	SF	WT-RP-SF-05
Metals (mg/kg)		
Arsenic	2.36	6.5
Chromium	210[a]	20
Copper	150	14 J

Analyte	Screening Value*	1765 West 16th Street
	SF	WT-RP-SF-06
Metals (mg/kg)		
Arsenic	2.36	8.5
Chromium	210[a]	19
Copper	150	20 J

Analyte	Screening Value*	1756 West 16th Street (WTRP10)	
	SF	WT-RP-10-SF-FY	WT-RP-10-SF-BY
Metals (mg/kg)			
Arsenic	2.36	5.6 J	4.6 J
Chromium	210[a]	17	17 J
Copper	150	33	15

Analyte	Screening Value*	1766 West 16th Street (WTRP11)	
	SF	WT-RP-11-SF-FY	WT-RP-11-SF-BY
Metals (mg/kg)			
Arsenic	2.36	6.5 J	11 J
Chromium	210[a]	23	34
Copper	150	19	51 J+

TABLE 4
FAIRFAX STREET WOOD TREATERS
RESIDENTIAL PROPERTIES EAST OF FSWT SOIL ANALYTICAL RESULTS

Analyte	Screening Value* SF	2507 Fairfax Street (WTRP12) WT-RP-12-SF-FY	WT-RP-12-SF-BY
Metals (mg/kg)			
Arsenic	2.36	3.8 J	6.0 J
Chromium	210[a]	13	20
Copper	150	12	25

Analyte	Screening Value* SF	1754 West 15th Street (WTRP13) WT-RP-13-SF-FY	WT-RP-13-SF-BY
Metals (mg/kg)			
Arsenic	2.36	3.9 J	6.8 J
Chromium	210[a]	14	24
Copper	150	18	26

Analyte	Screening Value* SF	2719 Fairfax Street WT-CS-2719Fairfax	WT-CS-2719Fairfax-Dup
Metals (mg/kg)			
Arsenic	2.36	2.25	1.81
Chromium	210[a]	4.79	3.97
Chromium VI	210	0.076 UJ	0.075 UJ
Chromium III	110,000	4.79	3.97
Copper	150	10.3	8.1

Analyte	Screening Value* SF	2705 Fairfax Street FWT-CS-2705WS	FWT-CS-2705NE
Metals (mg/kg)			
Arsenic	2.36	4.68	6.43
Chromium	210[a]	10.6 J+	13.9 J+
Chromium VI	210	0.077 UJ	0.077 U
Chromium III	110,000	10.6 J+	13.9 J+
Copper	150	9.13	11.4

TABLE 4
FAIRFAX STREET WOOD TREATERS
RESIDENTIAL PROPERTIES EAST OF FSWT SOIL ANALYTICAL RESULTS

Analyte	Screening Value*		1757 West 17th Street, Faith Deliverance Church (WTRP20)			
	SF	SB	WT-RP-20-SF-FY	WT-RP-20-SB-FY	WT-RP-20-SF-BY	WT-RP-20-SB-BY
Metals (mg/kg)						
Arsenic	2.36	2.1	1.6	0.30	6.9	0.42
Chromium	210[a]	210[a]	5.3	1.8	17	1.2
Chromium VI	210	210	3.3 U	NA	3.7 U	NA
Chromium III	110,000	110,000	5.3	NC	17	NC
Copper	150	150	12	1.0	15	0.99 U

Analyte	Screening Value*		1751 West 17th Street (WTRP21)	
	SF	SB	WT-RP-21-SF-FY	WT-RP-21-SB-FY
Metals (mg/kg)				
Arsenic	2.36	2.1	3.8	0.50
Chromium	210[a]	210[a]	16	2.3
Copper	150	150	17	1.7

Analyte	Screening Value*		1744 West 17th Street (WTRP22)				
	SF	SB	WT-RP-22-SF-FY	WT-RP-22-SF-FY-DUP	WT-RP-22-SB-FY	WT-RP-22-SF-BY	WT-RP-22-SB-BY
Metals (mg/kg)							
Arsenic	2.36	2.1	2.3	3.3	0.25 UJ	2.9	0.54 J-
Chromium	210[a]	210[a]	6.2	9.7	2.4	8.5	3.1
Copper	150	150	9.2	11	0.99 U	19	3.9

Analyte	Screening Value*		1753 West 16th Street (WTRP47)				
	SF	SB	WT-RP-47-SF-FY	WT-RP-47-SB-FY	WT-RP-47-SF-BY	WT-RP-47-SF-BY-DUP	WT-RP-47-SB-BY
Metals (mg/kg)							
Arsenic	2.36	2.1	2.6	0.41	2.1	3.3	0.44
Chromium	210[a]	210[a]	11	2.5	9.2	13	2.2
Copper	150	150	16	3.9	13	15	1.6

Analyte	Screening Value*		1745 West 16th Street (WTRP48)			
	SF	SB	WT-RP-48-SF-FY	WT-RP-48-SB-FY	WT-RP-48-SF-BY	WT-RP-48-SB-BY
Metals (mg/kg)						
Arsenic	2.36	2.1	1.9	0.41	3.3	0.39
Chromium	210[a]	210[a]	9.7	2.4	12	1.8
Copper	150	150	16	1.0 U	20	7.7

TABLE 4
FAIRFAX STREET WOOD TREATERS
RESIDENTIAL PROPERTIES EAST OF FSWT SOIL ANALYTICAL RESULTS

Analyte	Screening Value*		1750 West 16th Street (WTRP49)	
	SF	SB	WT-RP-49-SF-FY	WT-RP-49-SB-FY
Metals (mg/kg)				
Arsenic	2.36	2.1	1.9	3.5
Chromium	210[a]	210[a]	7.7	2.3
Copper	150	150	12	1.3

Analyte	Screening Value*		1757 West 15th Street (WTRP50)			
	SF	SB	WT-RP-50-SF-FY	WT-RP-50-SB-FY	WT-RP-50-SF-BY	WT-RP-50-SB-BY
Metals (mg/kg)						
Arsenic	2.36	2.1	2.2	0.51	4.2	1.9
Chromium	210[a]	210[a]	6.0	2.2	12	3.7
Chromium VI	210	210	4.7 U	NA	5.2 U	NA
Chromium III	110,000	110,000	6.0	NC	12	NC
Copper	150	150	12	1.9	19	6.6

Analyte	Screening Value*		1756 West 15th Street (WTRP51)	
	SF	SB	WT-RP-51-SF-FY	WT-RP-51-SB-FY
Metals (mg/kg)				
Arsenic	2.36	2.1	3.0	0.68
Chromium	210[a]	210[a]	9.5	2.2
Copper	150	150	17	29

Analyte	Screening Value*	2409 Fairfax Street (WTRP52)	
	SF	WT-RP-52-SF-FY	WT-RP-52-SF-BY
Metals (mg/kg)			
Arsenic	2.36	0.88	2.0
Chromium	210[a]	4.0	9.6
Chromium VI	210	5.5 U	5.5 U
Chromium III	110,000	4.0	9.6
Copper	150	4.8	15

TABLE 4
FAIRFAX STREET WOOD TREATERS
RESIDENTIAL PROPERTIES EAST OF FSWT SOIL ANALYTICAL RESULTS

Analyte	Screening Value*		1757 West 14th Street (WTRP53)			
	SF	SB	WT-RP-53-SF-FY	WT-RP-53-SB-FY	WT-RP-53-SF-BY	WT-RP-53-SB-BY
Metals (mg/kg)						
Arsenic	2.36	2.1	2.0	0.25 U	2.9	0.27 U
Chromium	210[a]	210[a]	5.0	2.6	7.6	2.2
Copper	150	150	7.6	0.99 U	13	0.99 U

Analyte	Screening Value*		1756 West 14th Street (WTRP54)			
	SF	SB	WT-RP-54-SF-FY	WT-RP-54-SB-FY	WT-RP-54-SF-BY	WT-RP-54-SB-BY
Metals (mg/kg)						
Arsenic	2.36	2.1	0.79	0.33	2.0	0.25 U
Chromium	210[a]	210[a]	11	3.1	6.8	2.1
Copper	150	150	11	1.0 U	88	3.0

Analyte	Screening Value*		Lot Adjacent to 1766 West 17th Street (WTRP69)			
	SF	SB	WT-RP-69-SF-FY	WT-RP-69-SB-FY	WT-RP-69-SF-BY	WT-RP-69-SB-BY
Metals (mg/kg)						
Arsenic	2.36	2.1	6.0	0.78	3.5	0.28
Chromium	210[a]	210[a]	18 J+	2.5	19	2.1
Copper	150	150	23	3.8	26	1.7

Analyte	Screening Value*		1750 West 15th Street (WTRP70)				
	SF	SB	WT-RP-70-SF-FY	WT-RP-70-SF-FY-DUP	WT-RP-70-SB-FY	WT-RP-70-SF-BY	WT-RP-70-SB-BY
Metals (mg/kg)							
Arsenic	2.36	2.1	3.3 J	1.9 J	0.30	1.3	0.70
Chromium	210[a]	210[a]	11	13	2.4	6.2	3.0
Copper	150	150	13	10	0.99 U	47	6.1

Analyte	Screening Value*		1745 West 17th Street (WTRP71)			
	SF	SB	WT-RP-71-SF-FY	WT-RP-71-SB-FY	WT-RP-71-SF-BY	WT-RP-71-SB-BY
Metals (mg/kg)						
Arsenic	2.36	2.1	2.1	0.31	4.1	0.45
Chromium	210[a]	210[a]	4.9	1.7	10	2.2
Copper	150	150	7.7	0.99 U	19	1.0 U

TABLE 4
FAIRFAX STREET WOOD TREATERS
RESIDENTIAL PROPERTIES EAST OF FSWT SOIL ANALYTICAL RESULTS

Analyte	Screening Value*		1739 West 17th Street (WTRP72)			
	SF	SB	WT-RP-72-SF-FY	WT-RP-72-SB-FY	WT-RP-72-SF-BY	WT-RP-72-SB-BY
Metals (mg/kg)						
Arsenic	2.36	2.1	1.7	0.25	1.8	0.46
Chromium	210[a]	210[a]	8.4	1.8	7.4	2.0
Copper	150	150	8.4	1.1	21	2.5

Analyte	Screening Value*		1736 West 17th Street (WTRP73)			
	SF	SB	WT-RP-73-SF-FY	WT-RP-73-SB-FY	WT-RP-73-SF-BY	WT-RP-73-SB-BY
Metals (mg/kg)						
Arsenic	2.36	2.1	2.1	0.72	2.6	0.87
Chromium	210[a]	210[a]	7.5	2.1	8.8	2.2
Copper	150	150	15	0.99 U	16	1.4

Analyte	Screening Value*		1725 West 17th Street (WTRP74)			
	SF	SB	WT-RP-74-SF-FY	WT-RP-74-SB-FY	WT-RP-74-SF-BY	WT-RP-74-SB-BY
Metals (mg/kg)						
Arsenic	2.36	2.1	1.4	0.25	1.7	0.25 U
Chromium	210[a]	210[a]	5.7	1.7	6.5	1.6
Copper	150	150	11	0.99 U	9.8	1.0 U

Analyte	Screening Value*		1750 West 14th Street (WTRP75)			
	SF	SB	WT-RP-75-SF-FY	WT-RP-75-SB-FY	WT-RP-75-SF-BY	WT-RP-75-SB-BY
Metals (mg/kg)						
Arsenic	2.36	2.1	1.5	0.25 U	1.5	0.26
Chromium	210[a]	210[a]	12	2.6	6.0	1.8
Copper	150	150	9.5	1.7	9.0	1.7

Analyte	Screening Value*	1730 West 17th Street (WTRP93)			
	SF	WT-RP-93-SF-FY	WT-RP-93-SF-FY-DUP	WT-RP-93-SF-BY	WT-RP-93-SF-BY-DUP
Metals (mg/kg)					
Arsenic	2.36	2.1	2.6	2.9	1.9

TABLE 4
FAIRFAX STREET WOOD TREATERS
RESIDENTIAL PROPERTIES EAST OF FSWT SOIL ANALYTICAL RESULTS

Analyte	Screening Value*	1739 West 16th Street (WTRP94)	
	SF	WT-RP-94-SF-FY	WT-RP-94-SF-BY
Metals (mg/kg)			
Arsenic	2.36	4.0	4.2

Analyte	Screening Value*	Vacant Lot Between 1757 and 1745 West 15th Street (WTRP95)		
	SF	WT-RP-95-SF-FY	WT-RP-95-SF-FY-DUP	WT-RP-95-SF-BY
Metals (mg/kg)				
Arsenic	2.36	2.2	3.3	5.2

Analyte	Screening Value*	1745 West 15th Street (WTRP96)	
	SF	WT-RP-96-SF-FY	WT-RP-96-SF-BY
Metals (mg/kg)			
Arsenic	2.36	5.3	2.1

Analyte	Screening Value*	1755 West 14th Street (WTRP97)	
	SF	WT-RP-97-SF-FY	WT-RP-97-SF-BY
Metals (mg/kg)			
Arsenic	2.36	0.98	1.6

Analyte	Screening Value*		1744 West 16th Street (WTRP98)			
	SF	SB	WT-RP-98-SF-FY	WT-RP-98-SB-FY	WT-RP-98-SF-BY	WT-RP-98-SB-BY
Metals (mg/kg)						
Arsenic	2.36	2.1	4.3	1.5	1.9	0.61

Analyte	Screening Value*	1744 West 15th Street (WTRP99)	
	SF	WT-RP-99-SF-FY	WT-RP-99-SF-BY
Metals (mg/kg)			
Arsenic	2.36	2.7	2.5

TABLE 4
FAIRFAX STREET WOOD TREATERS
RESIDENTIAL PROPERTIES EAST OF FSWT SOIL ANALYTICAL RESULTS

Notes:

*	Screening values are either the calculated 95 percent upper tolerance limit (Ref. 36) or the FDEP SCTL (Ref. 43), whichever is greater.
[a]	Value listed is for total chromium.
BY	Back yard
Chromium VI	Hexavalent chromium
Chromium III	Trivalent chromium
CS	Confirmation sample collected 0 to 6 inches below excavation surface
DUP	Field duplicate
FDEP	Florida Department of Environmental Protection
FSWT	Fairfax Street Wood Treaters
FWT	Fairfax Street Wood Treaters
FY	Front yard
J	The identification of the analyte is acceptable; the reported value is an estimate.
J+	The identification of the analyte is acceptable; the reported value is an estimate with a possible high bias.
J-	The identification of the analyte is acceptable; the reported value is an estimate with a possible low bias.
mg/kg	Milligrams per kilogram
NA	Not analyzed
NC	Not calculable
NE	North and east
RP	Residential property
SCTL	Soil Cleanup Target Levels, Residenital, Direct Exposure, April 2005
SF	Surface soil (0 to 6 inches below land surface)
SB	Subsurface soil (18 to 24 inches below land surface)
U	The analyte was not detected at or above the minimum reporting limit.
UJ	The analyte was not detected at or above the minimum reporting limit; the reported value is an estimate.
WS	West and south
WT	Fairfax Street Wood Treaters
	Shaded values equal or exceed the screening value.

TABLE 5
FAIRFAX STREET WOOD TREATERS
RESIDENTIAL PROPERTIES SOUTH OF FSWT SOIL ANALYTICAL RESULTS

Analyte	Screening Value* SF	1816 West 14th Street FWT-48-SF
Metals (mg/kg)		
Arsenic	2.36	2.89
Chromium	210[a]	7.69
Copper	150	22.2

Analyte	Screening Value* SF	1824 West 14th Street FWT-49-SF
Metals (mg/kg)		
Arsenic	2.36	5.99
Chromium	210[a]	14.2
Copper	150	42.5

Analyte	Screening Value*	1832 West 14th Street	
	SF	FWT-50-SF-FY	FWT-50-SF-BY
Metals (mg/kg)			
Arsenic	2.36	3.67	2.26
Chromium	210[a]	10.4	7.9
Copper	150	13.7	11.1

Analyte	Screening Value*	1844 West 14th Street			
	SF	FWT-51-SF-FY	FWT-52-SF-FY[b]	FWT-51-SF-BY	FWT-52-SF-BY[c]
Metals (mg/kg)					
Arsenic	2.36	4.49	4.04	1.8	1.95
Chromium	210[a]	9.28	7.64	4.91	4.86
Copper	150	16.6	15	7.9	6.69

TABLE 5
FAIRFAX STREET WOOD TREATERS
RESIDENTIAL PROPERTIES SOUTH OF FSWT SOIL ANALYTICAL RESULTS

Analyte	Screening Value* SF	End of West 14th Street Alley FWT-53-SF
Metals (mg/kg)		
Arsenic	2.36	17
Chromium	210[a]	40.7
Copper	150	32.9

Analyte	Screening Value*	1851 West 13th Street	
	SF	FWT-54-SF	WT-CS-1857West13
Metals (mg/kg)			
Arsenic	2.36	2.77	4.81
Chromium	210[a]	7.51	7.17
Copper	150	11.4	9.75

Analyte	Screening Value* SF	1857 West 13th Street FWT-55-SF
Metals (mg/kg)		
Arsenic	2.36	1.71
Chromium	210[a]	6.03
Copper	150	9.28

Analyte	Screening Value*	2324 Fairfax Street (WTRP14)		
	SF	WT-RP-14-SF-FY	WT-RP-14-SF-FY-DUP	WT-RP-14-SF-BY
Metals (mg/kg)				
Arsenic	2.36	8.5 J	7.5 J	5.5 J
Chromium	210[a]	28	24	21
Copper	150	22	23	20

TABLE 5
FAIRFAX STREET WOOD TREATERS
RESIDENTIAL PROPERTIES SOUTH OF FSWT SOIL ANALYTICAL RESULTS

Analyte	Screening Value*	1764 West 14th Street (WTRP15)	
	SF	WT-RP-15-SF-FY	WT-RP-15-SF-BY
Metals (mg/kg)			
Arsenic	2.36	2.1 J	1.4 J
Chromium	210[a]	10	8.1
Copper	150	9.7	8.2

Analyte	Screening Value*	1838 West 14th Street (WTRP16)	
	SF	WT-RP-16-SF-FY	WT-RP-16-SF-BY
Metals (mg/kg)			
Arsenic	2.36	3.1 J	4.3 J
Chromium	210[a]	11	15
Copper	150	14	19

Analyte	Screening Value*		2316 Fairfax Street (WTRP55)			
	SF	SB	WT-RP-55-SF-FY	WT-RP-55-SB-FY	WT-RP-55-SF-BY	WT-RP-55-SB-BY
Metals (mg/kg)						
Arsenic	2.36	2.1	3.1	0.25 U	2.0	0.26 U
Chromium	210[a]	210[a]	10	1.8	6.2	1.8
Chromium VI	210	210	3.5 U	NA	4.0 U	NA
Chromium III	110,000	110,000	10	NC	6.2	NC
Copper	150	150	14	0.98 U	7.9	0.99 U

Analyte	Screening Value*		1811 West 13th Street (WTRP57)			
	SF	SB	WT-RP-57-SF-FY	WT-RP-57-SB-FY	WT-RP-57-SF-BY	WT-RP-57-SB-BY
Metals (mg/kg)						
Arsenic	2.36	2.1	1.5	0.44	1.7	0.25 U
Chromium	210[a]	210[a]	6.3	3.1	5.1	1.8
Copper	150	150	8.2	2.1	19	7.1

TABLE 5
FAIRFAX STREET WOOD TREATERS
RESIDENTIAL PROPERTIES SOUTH OF FSWT SOIL ANALYTICAL RESULTS

Analyte	Screening Value*		1825 West 13th Street (WTRP59)				
	SF	SB	WT-RP-59-SF-FY	WT-RP-59-SF-FY-DUP	WT-RP-59-SB-FY	WT-RP-59-SF-BY	WT-RP-59-SB-BY
Metals (mg/kg)							
Arsenic	2.36	2.1	1.1	0.96	0.25	2.0	0.25 U
Chromium	210[a]	210[a]	4.0	3.6	2.0	6.4	1.0
Copper	150	150	7.4	6.1	1.0	15	2.0

Analyte	Screening Value*		1831 West 13th Street (WTRP60)			
	SF	SB	WT-RP-60-SF-FY	WT-RP-60-SB-FY	WT-RP-60-SF-BY	WT-RP-60-SB-BY
Metals (mg/kg)						
Arsenic	2.36	2.1	2.2	0.25 U	1.2	0.25 U
Chromium	210[a]	210[a]	5.5	2.2	5.5	1.3
Chromium VI	210	210	5.2 U	NA	5.1 U	NA
Chromium III	110,000	110,000	5.5	NC	5.5	NC
Copper	150	150	16	3.3	20	5.3

Analyte	Screening Value*		1839 West 13th Street (WTRP61)			
	SF	SB	WT-RP-61-SF-FY	WT-RP-61-SB-FY	WT-RP-61-SF-BY	WT-RP-61-SB-BY
Metals (mg/kg)						
Arsenic	2.36	2.1	1.9	0.25 U	2.9	1.1
Chromium	210[a]	210[a]	4.5	2.2	7.3	4.1
Copper	150	150	13	1.2	27	8.1

Analyte	Screening Value*		1828 West 13th Street (WTRP63)			
	SF	SB	WT-RP-63-SF-FY	WT-RP-63-SB-FY	WT-RP-63-SF-BY	WT-RP-63-SB-BY
Metals (mg/kg)						
Arsenic	2.36	2.1	0.65	0.25 U	0.57	0.25 U
Chromium	210[a]	210[a]	3.4	0.89	2.6	0.95
Copper	150	150	7.1	0.99 U	5.5	2.7

TABLE 5
FAIRFAX STREET WOOD TREATERS
RESIDENTIAL PROPERTIES SOUTH OF FSWT SOIL ANALYTICAL RESULTS

Analyte	Screening Value*		1824 West 14th Street (WTRP66)	
	SF	SB	WT-RP-66-SF-BY	WT-RP-66-SB-BY
Metals (mg/kg)				
Arsenic	2.36	2.1	2.6	0.33
Chromium	210[a]	210[a]	8.5	1.9
Copper	150	150	13	0.99 U

Analyte	Screening Value*		1851 West 13th Street (WTRP68)		
	SF	SB	WT-RP-68-SF-BY	WT-RP-68-SF-BY-DUP	WT-RP-68-SB-BY
Metals (mg/kg)					
Arsenic	2.36	2.1	1.5	1.7	0.25 U
Chromium	210[a]	210[a]	4.6	4.3	2.4
Copper	150	150	4.4	3.6	0.99 U

TABLE 5
FAIRFAX STREET WOOD TREATERS
RESIDENTIAL PROPERTIES SOUTH OF FSWT SOIL ANALYTICAL RESULTS

Notes:

*	Screening values are either the calculated 95 percent upper tolerance limit (Ref. 36) or the FDEP SCTL (Ref. 43), whichever is greater.
a	Value listed is for total chromium.
b	Surface soil sample FWT-52-SF-FY is a duplicate of FWT-51-SF-FY.
c	Surface soil sample FWT-52-SF-BY is a duplicate of FWT-51-SF-BY.
BY	Back yard
CS	Confirmation sample collected 0 to 6 inches below excavation surface
Chromium VI	Hexavalent chromium
Chromium III	Trivalent chromium
DUP	Field duplicate
FDEP	Florida Department of Environmental Protection
FSWT	Fairfax Street Wood Treaters
FWT	Fairfax Street Wood Treaters
FY	Front yard
J	The identification of the analyte is acceptable; the reported value is an estimate.
mg/kg	Milligrams per kilogram
NA	Not analyzed
NC	Not calculable
RP	Residential property
SCTL	Soil Cleanup Target Levels, Residenital, Direct Exposure, April 2005
SF	Surface soil (0 to 6 inches below land surface)
SB	Subsurface soil (18 to 24 inches below land surface)
U	The analyte was not detected at or above the minimum reporting limit.
WT	Fairfax Street Wood Treaters
	Shaded values equal or exceed the screening value.

TABLE 6
FAIRFAX STREET WOOD TREATERS
RESIDENTIAL WEST OF FSWT SOIL ANALYTICAL RESULTS

Analyte	Screening Value*	1932 Pullman Court	
	SF	FWT-32-SF-FY	FWT-32-SF-BY
Metals (mg/kg)			
Arsenic	2.36	1.35	4.15
Chromium	210[a]	4.91	8.44
Copper	150	5.15	19

Analyte	Screening Value*	1928 Pullman Court	
	SF	FWT-33-SF-FY	FWT-33-SF-BY
Metals (mg/kg)			
Arsenic	2.36	2.19	1.63
Chromium	210[a]	7.02	5.0
Copper	150	5.34	4.69

Analyte	Screening Value*		1924 Pullman Court (WTRP67)		
	SF	SB	FWT-34-SF-FY	WT-RP-67-SF-BY	WT-RP-67-SB-BY
Metals (mg/kg)					
Arsenic	2.36	2.1	1.83	1.6	0.38
Chromium	210[a]	210[a]	7.18	4.1	2.4
Copper	150	150	18.4	5.7	0.99 U

Analyte	Screening Value*	1920 Pullman Court	
	SF	FWT-35-SF-FY	FWT-35-SF-BY
Metals (mg/kg)			
Arsenic	2.36	5.21	7.33
Chromium	210[a]	8.78	9.92
Copper	150	18.2	8.64

TABLE 6
FAIRFAX STREET WOOD TREATERS
RESIDENTIAL WEST OF FSWT SOIL ANALYTICAL RESULTS

Analyte	Screening Value*		1916 Pullman Court (WTRP64)			
	SF	SB	WT-RP-64-SF-FY	WT-RP-64-SB-FY	WT-RP-64-SF-BY	WT-RP-64-SB-BY
Metals (mg/kg)						
Arsenic	2.36	2.1	1.6	0.25 U	2.6	0.25 U
Chromium	210[a]	210[a]	9.2	0.67	13	2.2
Copper	150	150	12	1.4	18	0.98 U

Analyte	Screening Value*	1912 Pullman Court	
	SF	FWT-36-SF-FY	FWT-36-SF-BY
Metals (mg/kg)			
Arsenic	2.36	5.21	12.4
Chromium	210[a]	14	36.3
Copper	150	18.6	53.3

Analyte	Screening Value*	1908 Pullman Court	
	SF	FWT-37-SF-FY	FWT-37-SF-BY
Metals (mg/kg)			
Arsenic	2.36	5.51	5.01
Chromium	210[a]	17.5	17.3
Copper	150	26.5	47.6

Analyte	Screening Value*	1904 Pullman Court	
	SF	FWT-38-SF-FY	FWT-38-SF-BY
Metals (mg/kg)			
Arsenic	2.36	3.87	15
Chromium	210[a]	15.6	52.4
Copper	150	12.9	33.7

TABLE 6
FAIRFAX STREET WOOD TREATERS
RESIDENTIAL WEST OF FSWT SOIL ANALYTICAL RESULTS

Analyte	Screening Value* SF	1900 Pullman Court FWT-39-SF-FY	1900 Pullman Court FWT-39-SF-BY
Metals (mg/kg)			
Arsenic	2.36	7.18	30.4
Chromium	210[a]	23.3	127
Copper	150	18.4	70.6

Analyte	Screening Value* SF	1901 Pullman Court FWT-40-SF-FY	1901 Pullman Court FWT-40-SF-BY
Metals (mg/kg)			
Arsenic	2.36	10.2	22.4
Chromium	210[a]	29.9	71.8
Copper	150	23.6	58.4

Analyte	Screening Value* SF	1905 Pullman Court FWT-41-SF-FY	1905 Pullman Court FWT-41-SF-BY
Metals (mg/kg)			
Arsenic	2.36	3.71	28.7
Chromium	210[a]	23.5	58
Copper	150	11.2	44

Analyte	Screening Value* SF	1909 Pullman Court FWT-43-SF-FY	1909 Pullman Court FWT-43-SF-BY
Metals (mg/kg)			
Arsenic	2.36	4.88	7.69
Chromium	210[a]	13.7	22.7
Copper	150	12.9	36.1

TABLE 6
FAIRFAX STREET WOOD TREATERS
RESIDENTIAL WEST OF FSWT SOIL ANALYTICAL RESULTS

Analyte	Screening Value* SF	1913 Pullman Court FWT-46-SF-FY	1913 Pullman Court FWT-46-SF-BY
Metals (mg/kg)			
Arsenic	2.36	3.9	2.63
Chromium	210[a]	10.2	7.02
Copper	150	11	12

Analyte	Screening Value* SF	1917 Pullman Court (WTRP19) WT-RP-19-SF-FY	1917 Pullman Court (WTRP19) WT-RP-19-SF-BY
Metals (mg/kg)			
Arsenic	2.36	1.7 J	3.1 J
Chromium	210[a]	13	21
Copper	150	8.1	16

Analyte	Screening Value* SF	1921 Pullman Court (WTRP17) WT-RP-17-SF-FY	1921 Pullman Court (WTRP17) WT-RP-17-SF-BY
Metals (mg/kg)			
Arsenic	2.36	2.2 J	3.1 J
Chromium	210[a]	9.9 J	12
Copper	150	13	24

Analyte	Screening Value* SF	1925 Pullman Court (WTRP18) WT-RP-18-SF-FY	1925 Pullman Court (WTRP18) WT-RP-18-SF-BY
Metals (mg/kg)			
Arsenic	2.36	1.4 J-	1.5 J
Chromium	210[a]	11	9.8
Copper	150	13	10

TABLE 6
FAIRFAX STREET WOOD TREATERS
RESIDENTIAL WEST OF FSWT SOIL ANALYTICAL RESULTS

Analyte	Screening Value* SF	1929 Pullman Court FWT-47-SF-FY
Metals (mg/kg)		
Arsenic	2.36	1.39
Chromium	210[a]	9.09
Copper	150	9.64

Notes:

*	Screening values are either the calculated 95 percent upper tolerance limit (Ref. 36) or the FDEP SCTL (Ref. 43), whichever is greater.
a	Value listed is for total chromium.
BY	Back yard
FDEP	Florida Department of Environmental Protection
FSWT	Fairfax Street Wood Treaters
FWT	Fairfax Street Wood Treaters
FY	Front yard
J	The identification of the analyte is acceptable; the reported value is an estimate.
J-	The identification of the analyte is acceptable; the reported value is an estimate with a possible low bias.
mg/kg	Milligrams per kilogram
RP	Residential property
SCTL	Soil Cleanup Target Levels, Residenital, Direct Exposure, April 2005
SF	Surface soil (0 to 6 inches below land surface)
SB	Subsurface soil (18 to 24 inches below land surface)
U	The analyte was not detected at or above the minimum reporting limit.
WT	Fairfax Street Wood Treaters
	Shaded values equal or exceed the screenig value.

TABLE 7
FAIRFAX STREET WOOD TREATERS
CITY RIGHT-OF-WAY SOIL ANALYTICAL RESULTS

Analyte	Screening Value* SF	Grid 02 WT-ROW-G02-SF	Grid 04 WT-ROW-G04-SF	Grid 06 WT-ROW-G06-SF	Grid 08 WT-ROW-G08-SF
Metals (mg/kg)					
Arsenic	2.36	42	43	25	13
Chromium	210[a]	110 J-	100	61	40
Chromium VI	210	NA	NA	5.2 U	NA
Chromium III	110,000	NC	NC	61	NC
Copper	150	63 J-	59	40	41

Notes:

*	Screening values are either the calculated 95 percent upper tolerance limit (Ref. 52) or the FDEP SCTL (Ref. 53), whichever is greater.
a	Value listed is for total chromium.
Chromium VI	Hexavalent chromium
Chromium III	Trivalent chromium
FDEP	Florida Department of Environmental Protection
G	Grid
J-	The identification of the analyte is acceptable; the reported value is an estimate with a possible low bias.
mg/kg	Milligrams per kilogram
NA	Not analyzed
NC	Not calculable
ROW	Right-of-way
SCTL	Soil Cleanup Target Levels, Residenital, Direct Exposure, April 2005
SF	Surface soil (0 to 6 inches below land surface)
U	The analyte was not detected at or above the minimum reporting limit.
WT	Fairfax Street Wood Treaters
[ ]	Shaded values are above the screening value.

TABLE 8
FAIRFAX STREET WOOD TREATERS
MONCRIEF CREEK SEDIMENT ANALYTICAL RESULTS

Analyte	FDEP Quality Assessment Guidelines[a]	Background				
	Sediment	WT-MC-01-SD	WT-MC-02-SD	WT-MC-03-SD	WT-MC-04-SD	WT-MC-05-SD
Metals (mg/kg)						
Arsenic	9.8	1.4	0.90	1.3	0.56	**6.4**
Chromium	43	5.6	3.3	3.9	3.1	**35**
Chromium VI	NL	6.6 U	5.2 U	5.7 U	5.0 U	6.2 U
Chromium III	NL	5.6	3.3	3.9	3.1	**35**
Copper	32	19 J+	9.8	11	5.8	**22**

Analyte	FDEP Quality Assessment Guidelines[a]					
	Sediment	WT-MC-06-SD	WT-MC-07-SD	WT-MC-08-SD	WT-MC-09-SD	WT-MC-09-SD-DUP
Metals (mg/kg)						
Arsenic	9.8	**8.6**	**1.7**	**200**	1.0	1.2
Chromium	43	**34**	**20**	**330**	**7.0**	**9.0**
Chromium VI	NL	NA	NA	NA	4.8 UJ	5.7 U
Chromium III	NL	NC	NC	NC	7.0	9.0
Copper	32	**46**	4.7	**40**	4.0	4.4

Analyte	FDEP Quality Assessment Guidelines[a]					
	Sediment	WT-MC-10-SD	WT-MC-11-SD	WT-MC-12-SD	WT-MC-12-SD-DUP	WT-MC-13-SD
Metals (mg/kg)						
Arsenic	9.8	**20**	**1.4**	**42**	**47**	**25**
Chromium	43	**220 J-**	4.3	**61**	**43**	**75**
Copper	32	**79 J-**	3.8	**22**	**20**	**94**

TABLE 8
FAIRFAX STREET WOOD TREATERS
MONCRIEF CREEK SEDIMENT ANALYTICAL RESULTS

Analyte	FDEP Quality Assessment Guidelines[a] Sediment	WT-MC-14-SD	WT-MC-15-SD
Metals (mg/kg)			
Arsenic	9.8	**6.1**	**55**
Chromium	43	**26**	**190**
Copper	32	16	**110**

Notes:

a	Values listed were obtained from the 2003 FDEP Sediment Quality Assessment Guidelines for Florida Inland Waters, and are thres concentrations (TEC).
Chromium VI	Hexavalent chromium
Chromium III	Trivalent chromium
DUP	Field duplicate
EPA	U.S. Environmental Protection Agency
FDEP	Florida Department of Environmental Protection
J+	The identification of the analyte is acceptable; the reported value is an estimate with a possible high bias.
J-	The identification of the analyte is acceptable; the reported value is an estimate with a possible low bias.
mg/kg	Micrograms per kilogram
MC	Moncrief Creek
NA	Not analyzed
NC	Not calculable
NL	Not listed
SD	Sediment
U	The analyte was not detected at or above the minimum reporting limit.
UJ	The analyte was not detected at or above the minimum reporting limit; the reported value is an estimate.
WT	Fairfax Street Wood Treaters
BOLD	Bolded values are above the highest background concentration for each analyte.
	Shaded values are above the FDEP quality assessment guideline.
BOLD	Bolded and shaded values are above background and the FDEP quality assessment guideline.

TABLE 9
FAIRFAX STREET WOOD TREATERS
MONCRIEF CREEK SURFACE WATER ANALYTICAL RESULTS

Analyte	EPA Region 4 Screening Value[a] Surface Water	FDEP SWCTL Freshwater	Background WT-MC-01-SW	WT-MC-02-SW	WT-MC-03-SW	WT-MC-04-SW
Metals (µg/L)						
Arsenic	190[b]	50[c]	1.0 U	1.0 U	1.0 U	1.0 U
Chromium	NL	11	1.0 U	1.0 U	1.0 U	1.0 U
Copper	6.54	13.78[d]	10 U	10 U	10 U	10 U
Dissolved Metals (µg/L)						
Arsenic	190[b]	50[c]	1.0 U	1.0 U	1.0 U	1.0 U
Chromium	NL	11	1.0 U	1.0 U	1.0 U	1.0 U
Chromium VI	11	11[c]	1.0 U	1.0 U	1.0 U	1.0 U
Chromium III	117.32	NL	1.0 U	1.0 U	1.0 U	1.0 U
Copper	6.54	13.22[d]	10 U	10 U	10 U	10 U

Analyte	EPA Region 4 Screening Value[a] Surface Water	FDEP SWCTL Freshwater	WT-MC-05-SW	WT-MC-06-SW	WT-MC-07-SW	WT-MC-08-SW
Metals (µg/L)						
Arsenic	190[b]	50[c]	1.0 U	1.0 U	1.0 U	**1.2**
Chromium	NL	11	1.0 U	1.0 UJ	1.0 UJ	1.0 UJ
Copper	6.54	13.78[d]	10 U	10 U	**10**	10 U
Dissolved Metals (µg/L)						
Arsenic	190[b]	50[c]	1.0 U	1.0 U	1.0 U	1.0 U
Chromium	NL	11	1.0 U	1.0 UJ	1.0 UJ	1.0 UJ
Chromium VI	11	11[c]	1.0 U	NA	NA	NA
Chromium III	117.32	NL	1.0 U	NC	NC	NC
Copper	6.54	13.22[d]	10 U	10 U	10 U	10 U

TABLE 9
FAIRFAX STREET WOOD TREATERS
MONCRIEF CREEK SURFACE WATER ANALYTICAL RESULTS

Analyte	EPA Region 4 Screening Value[a] Surface Water	FDEP SWCTL Freshwater	WT-MC-09-SW	WT-MC-09-SW-DUP	WT-MC-10-SW	WT-MC-11-SW
Metals (µg/L)						
Arsenic	190[b]	50[c]	**1.9**	**1.9**	**3.4**	**2.1**
Chromium	NL	11	1.0 UJ	5.0 U	**6.6**	5.0 U
Copper	6.54	13.78[d]	10 U	10 U	10 U	10 U
Dissolved Metals (µg/L)						
Arsenic	190[b]	50[c]	**1.3**	**1.3**	**2.3**	**1.4**
Chromium	NL	11	5.0 U	5.0 U	5.0 U	5.0 U
Chromium VI	11	11[c]	1.0 U	1.0 U	NA	NA
Chromium III	117.32	NL	5.0 U	5.0 U	NC	NC
Copper	6.54	13.22[d]	10 U	10 U	10 U	10 U

Analyte	EPA Region 4 Screening Value[a] Surface Water	FDEP SWCTL Freshwater	WT-MC-12-SW	WT-MC-13-SW	WT-MC-14-SW	WT-MC-15-SW
Metals (µg/L)						
Arsenic	190[b]	50[c]	**21**	**1.9**	**2.4**	**2.3**
Chromium	NL	11	5.0 U	5.0 U	5.0 U	5.0 U
Copper	6.54	13.78[d]	10 U	10 U	10 U	10 U
Dissolved Metals (µg/L)						
Arsenic	190[b]	50[c]	**6.8**	**1.1**	**1.6**	**1.7**
Chromium	NL	11	5.0 U	5.0 U	5.0 U	5.0 U
Chromium VI	11	11[c]	NA	NA	NA	NA
Chromium III	117.32	NL	NC	NC	NC	NC
Copper	6.54	13.22[d]	10 U	10 U	10 U	10 U

TABLE 9
FAIRFAX STREET WOOD TREATERS
MONCRIEF CREEK SURFACE WATER ANALYTICAL RESULTS

Notes:

a	Surface water chronic screening values were obtained from the EPA Region 4 Ecological Risk Assessment Bulletin, November 2001, Table 1.
b	Value listed is for arsenic III.
c	Value listed was obtained from the Florida Administrative Code, Chapter 62-302.530 for Potable Water Supply.
d	Value listed was calculated based on hardness of surface water in Moncrief Creek (see Appendix J).
Chromium VI	Hexavalent chromium
Chromium III	Trivalent chromium
DUP	Field duplicate
EPA	U.S. Environmental Protection Agency
FDEP	Florida Department of Environmental Protection
µg/L	Micrograms per liter
MC	Moncrief Creek
NA	Not analyzed
NC	Not calculable
NL	Not listed
SW	Surface water
SWCTL	Surface Water Cleanup Target Levels
U	The analyte was not detected at or above the minimum reporting limit.
UJ	The analyte was not detected at or above the minimum reporting limit; the reported value is an estimate.
WT	Fairfax Street Wood Treaters
BOLD	Bolded values are above the highest background value for each analyte for total and dissolved metals.
BOLD	Bolded and shaded values are above background and either the EPA Region 4 screening value or the FDEP SWCTL.

TABLE 10
PREVIOUS EPA INVESTIGATIONS: SAMPLES REPRESENTING CURRENT CONDITIONS
ANALYTICAL RESULTS FOR MONCRIEF CREEK SURFACE WATER SAMPLES

Investigation	Analyte: / Sample ID	Arsenic (µg/L)	Chromium (µg/L)	Hex Chromium (µg/L)	Copper (µg/L)
	Screening Value*	**50**	**11**	**11**	**13.78[a]**
August 2010	FRW-SW-01	6.70 U	1.65 J′	4 U	1.50 U
	FRW-SW-01D	6.70 U	1.60 J′	4 U	1.50 U
	FRW-SW-02	6.70 U	1.61 J′	4 U	1.50 U

Notes:

*	Screening values are either the EPA Region 4 chronic surface water screening value for freshwater or the FDEP SWCTL for freshwater, whichever is greater.
a	Value listed was calculated based on hardness of surface water in Moncrief Creek (see Appendix J).
D	Duplicate
EPA	U.S. Environmental Protection Agency
FRW	Fairfax Street Wood Treaters
Hex	Hexavalent
ID	Identification
J′	Concentration reported is less than the lowest standard on the calibration curve.
µg/L	Micrograms per liter
NL	Not listed
SW	Surface water
U	The analyte was not detected at or above the minimum or method reporting limit.

TABLE 11
SELECTION OF EXPOSURE PATHWAYS
FAIRFAX STREET WOOD TREATERS SITE, JACKSONVILLE, FLORIDA

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current	Surface Soil	Surface Soil	Surface Soil	On-Site Trespasser	Adult	Ingestion	Quant.	Trespassers may incidentally ingest surface soil.
						Dermal	Quant.	Trespassers may have exposed skin come into contact with surface soil.
		Particulates and Vapors	Outdoor Air	On-Site Trespasser	Adult	Inhalation	Quant.	Trespassers may inhale volatiles and fugitive dust that migrate from surface soil to air.
	Surface Soil	Surface Soil	Surface Soil	On-Site Trespasser	Youth (7-16 years)	Ingestion	Quant.	Trespassers may incidentally ingest surface soil.
						Dermal	Quant.	Trespassers may have exposed skin come into contact with surface soil.
		Particulates and Vapors	Outdoor Air	On-Site Trespasser	Youth (7-16 years)	Inhalation	Quant.	Trespassers may inhale volatiles and fugitive dust that migrate from surface soil to air.
	Sediment	Sediment	Sediment	On-Site Trespasser	Adult	Ingestion	Quant.	Trespassers may incidentally ingest on-site sediment.
						Dermal	Quant.	Trespassers may have exposed skin come into contact with on-site sediment.
					Youth (7-16 years)	Ingestion	Quant.	Trespassers may incidentally ingest on-site sediment.
						Dermal	Quant.	Trespassers may have exposed skin come into contact with on-site sediment.
	Surface Water	Surface Water	Surface Water	On-Site Trespasser	Adult	Ingestion	Quant.	Trespassers may incidentally ingest on-site surface water.
						Dermal	Quant.	Trespassers may have exposed skin come into contact with on-site surface water.
					Youth (7-16 years)	Ingestion	Quant.	Trespassers may incidentally ingest on-site surface water.
						Dermal	Quant.	Trespassers may have exposed skin come into contact with on-site surface water.
Current/Future	Surface Soil	Surface Soil	Surface Soil	Off-Site Resident	Adult	Ingestion	Quant.	Off-site residents in the existing residential area adjacent to FSWT may incidentally ingest surface soil.
						Dermal	Quant.	FSWT may have exposed skin come into contact with surface soil.
		Particulates	Outdoor Air	Off-Site Resident	Adult	Inhalation	Quant.	Off-site residents in the existing residential area adjacent to FSWT may inhale fugitive dust that migrates from surface soil to air. Inhalation of volatiles from surface soils is expected to be insignificant for off-site residents.
	Surface Soil	Surface Soil	Surface Soil	Off-Site Resident	Child	Ingestion	Quant.	Off-site residents in the existing residential area adjacent to FSWT may incidentally ingest surface soil.
						Dermal	Quant.	Off-site residents in the existing residential area adjacent to FSWT may have exposed skin come into contact with surface soil.
		Particulates	Outdoor Air	Off-Site Resident	Child	Inhalation	Quant.	Off-site residents in the existing residential area adjacent to FSWT may inhale fugitive dust that migrates from surface soil to air. Inhalation of volatiles from surface soils is expected to be insignificant for off-site residents.
	Surface Soil	Homegrown Produce	Homegrown Produce	Off-Site Resident	Adult	Ingestion	Quant.	Off-site residents in the existing residential area adjacent to FSWT may ingest homegrown produce that have taken up contaminants from surface soil.
					Child	Ingestion	Quant.	Off-site residents in the existing residential area adjacent to FSWT may ingest homegrown produce that have taken up contaminants from surface soil.
	Surface Soil	Surface Soil	Surface Soil	Off-Site Construction Worker	Adult	Ingestion	Quant.	Off-site construction workers in the existing residential area adjacent to FSWT may incidentally ingest surface soil.
						Dermal	Quant.	Off-site construction workers in the existing residential area adjacent to FSWT may have exposed skin come into contact with surface soil.
		Particulates	Outdoor Air	Off-Site Construction Worker	Adult	Inhalation	Quant.	adjacent to FSWT may inhale fugitive dust that migrates from surface soil to outdoor air. Inhalation of volatiles from surface soils is expected to be incomplete for off-site construction workers.

TABLE 11
SELECTION OF EXPOSURE PATHWAYS
FAIRFAX STREET WOOD TREATERS SITE, JACKSONVILLE, FLORIDA

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
	Surface Soil	Surface Soil	Surface Soil	Off-Site Utility Worker	Adult	Ingestion	Quant.	Off-site utility workers in the existing residential area adjacent to FSWT may incidentally ingest surface soil.
						Dermal	Quant.	Off-site utility workers in the existing residential area adjacent to FSWT may have exposed skin come into contact with surface soil.
		Particulates	Outdoor Air	Off-Site Utility Worker	Adult	Inhalation	Quant.	Off-site utility workers in the existing residential area adjacent to FSWT may inhale fugitive dust that migrates from surface soil to outdoor air. Inhalation of volatiles from surface soils is expected to be incomplete for off-site utility workers.
	Surface Soil	Surface Soil	Surface Soil	School Staff	Adult	Ingestion	Quant.	School staff in the school yard adjacent to FSWT may incidentally ingest surface soil.
						Dermal	Quant.	School staff in the school yard adjacent to FSWT may have exposed skin come into contact with surface soil.
		Particulates	Outdoor Air	School Staff	Adult	Inhalation	Quant.	School staff in the school yard adjacent to FSWT may inhale fugitive dust that migrates from surface soil to air. Inhalation of volatiles from surface soils is expected to be incomplete for school staff.
	Surface Soil	Surface Soil	Surface Soil	School Students	Adolescent (6-13 years)	Ingestion	Quant.	School studnets in the school yard adjacent to FSWT may incidentally ingest surface soil.
						Dermal	Quant.	School studnets in the school yard adjacent to FSWT may have exposed skin come into contact with surface soil.
		Particulates	Outdoor Air	School Students	Adolescent (6-13 years)	Inhalation	Quant.	School studnets in the school yard adjacent to FSWT may inhale fugitive dust that migrates from surface soil to air. Inhalation of volatiles from surface soils is expected to be incomplete for school students.
	Sediment	Sediment	Sediment	Off-Site Recreationalist	Adult	Ingestion	Quant.	Recreationalist may incidentally ingest Moncrief Creek sediment.
						Dermal	Quant.	Recreationalists may have exposed skin come into contact with Moncrief Creek sediment.
					Youth (7-16 years)	Ingestion	Quant.	Recreationalists may incidentally ingest Moncrief Creek sediment.
						Dermal	Quant.	Recreationalists may have exposed skin come into contact with Moncrief Creek sediment.
	Surface Water	Surface Water	Surface Water	Off-Site Recreationalist	Adult	Ingestion	Quant.	Recreationalists may incidentally ingest Moncrief Creek surface water.
						Dermal	Quant.	Recreationalists may have exposed skin come into contact with Moncrief Creek surface water.
					Youth (7-16 years)	Ingestion	Quant.	Recreationalists may incidentally ingest Moncrief Creek surface water.

TABLE 11
SELECTION OF EXPOSURE PATHWAYS
FAIRFAX STREET WOOD TREATERS SITE, JACKSONVILLE, FLORIDA

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
						Dermal	Quant.	Recreationalists may have exposed skin come into contact with Moncrief Creek surface water.
Future	Surface Soil	Homegrown Produce	Homegrown Produce	On-Site Resident	Adult	Ingestion	Quant.	Future residents may ingest homegrown produce that have taken up contaminants from surface soil.
					Child	Ingestion	Quant.	Future residents may ingest homegrown produce that have taken up contaminants from surface soil.
	Subsurface Soil	Homegrown Produce	Homegrown Produce	On-Site Resident	Adult	Ingestion	Quant.	Future residents may ingest homegrown produce that have taken up contaminants from subsurface soil if subsurface soil is brought to the surface and mixed with surface soil as the result of Site development.
					Child	Ingestion	Quant.	Future residents may ingest homegrown produce that have taken up contaminants from subsurface soil if subsurface soil is brought to the surface and mixed with surface soil as the result of Site development.
	Surface Soil	Surface Soil	Surface Soil	On-Site Resident	Adult	Ingestion	Quant.	Future residents may incidentally ingest surface soil.
						Dermal	Quant.	Future residents may have exposed skin come into contact with surface soil.
		Particulates and Vapors	Outdoor Air	On-Site Resident	Adult	Inhalation	Quant.	Future residents may inhale volatiles and fugitive dust that migrate from surface soil to air.
	Subsurface Soil	Subsurface Soil	Subsurface Soil	On-Site Resident	Adult	Ingestion	Quant.	Future residents may incidentally ingest subsurface soil if subsurface soil is brought to the surface and mixed with surface soil as the result of Site development.
						Dermal	Quant.	Future residents may have exposed skin come into contact with subsurface soil if subsurface soil is brought to the surface and mixed with surface soil as the result of Site development.
		Particulates and Vapors	Outdoor Air	On-Site Resident	Adult	Inhalation	Quant.	Future residents may inhale volatiles and fugitive dust that migrate from subsurface soil to air, if subsurface soil is brought to the surface and mixed with surface soil as a result of Site development.
	Surface Soil	Surface Soil	Surface Soil	On-Site Resident	Child	Ingestion	Quant.	Future residents may incidentally ingest surface soil.
						Dermal	Quant.	Future residents may have exposed skin come into contact with surface soil.
		Particulates and Vapors	Outdoor Air	On-Site Resident	Child	Inhalation	Quant.	Future residents may inhale volatiles and fugitive dust that migrate from surface soil to air.
	Subsurface Soil	Subsurface Soil	Subsurface Soil	On-Site Resident	Child	Ingestion	Quant.	subsurface soil is brought to the surface and mixed with surface soil as the result of Site development.
						Dermal	Quant.	Future residents may have exposed skin come into contact with subsurface soil if subsurface soil is brought to the surface and mixed with surface soil as the result of Site development.
		Particulates and Vapors	Outdoor Air	On-Site Resident	Child	Inhalation	Quant.	Future residents may inhale volatiles and fugitive dust that migrate from subsurface soil to air, if subsurface soil is brought to the surface and mixed with surface soil as a result of Site development.
	Groundwater	Vapors	Indoor Air	On-Site Resident	Adult	Inhalation	Quant.	Future residents may be exposed to volatile groundwater contaminants migrating into indoor air via vapor intrusion.
					Child	Inhalation	Quant.	Future residents may be exposed to volatile groundwater contaminants migrating into indoor air via vapor intrusion.
	Groundwater	Groundwater	Groundwater	On-Site Resident	Adult	Ingestion	Quant.	Future residents may ingest groundwater from the Site.
						Dermal Contact	Quant.	Future residents may have exposed skin come into contact with groundwater from the Site; however, per the RSL User's Guide (EPA 2008), the tap water calculations do not include the dermal exposure route.

TABLE 11
SELECTION OF EXPOSURE PATHWAYS
FAIRFAX STREET WOOD TREATERS SITE, JACKSONVILLE, FLORIDA

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
		Vapors	Indoor Air	On-Site Resident	Adult	Inhalation	Quant.	Future residents may be exposed to volatile groundwater contaminants released from groundwater to indoor air from household groundwater use (e.g., showering).

TABLE 11
SELECTION OF EXPOSURE PATHWAYS
FAIRFAX STREET WOOD TREATERS SITE, JACKSONVILLE, FLORIDA

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
		Vapors	Outdoor Air	On-Site Resident	Adult	Inhalation	Quant.	Future residents may inhale groundwater vapors from the Site. However, this exposure is expected to be insignificant.
	Groundwater	Groundwater	Groundwater	On-Site Resident	Child	Ingestion	Quant.	Future residents may ingest groundwater from the Site.
						Dermal Contact	Quant.	Future residents may have exposed skin come into contact with groundwater from the Site; however, per the RSL User's Guide (EPA 2008), the tap water calculations do not include the dermal exposure route.
		Vapors	Indoor Air	On-Site Resident	Child	Inhalation	Quant.	Future residents may be exposed to volatile groundwater contaminants released from groundwater to indoor air from household groundwater use (e.g., showering).
		Vapors	Outdoor Air	On-Site Resident	Child	Inhalation	Quant.	Future residents may inhale groundwater vapors from the Site. However, this exposure is expected to be insignificant.
	Surface Soil	Surface Soil	Surface Soil	On-Site Recreationalist	Adult	Ingestion	Quant.	Future recreationalists may incidentally ingest surface soil.
						Dermal	Quant.	Future recreationalists may have exposed skin come into contact with surface soil.
		Particulates and Vapors	Outdoor Air	On-Site Recreationalist	Adult	Inhalation	Quant.	Future recreationalists may inhale volatiles and fugitive dust that migrate from surface soil to air.
	Surface Soil	Surface Soil	Surface Soil	On-Site Recreationalist	Youth (7-16 years)	Ingestion	Quant.	Future recreationalists may incidentally ingest surface soil.
						Dermal	Quant.	Future recreationalists may have exposed skin come into contact with surface soil.
		Particulates and Vapors	Outdoor Air	On-Site Recreationalist	Youth (7-16 years)	Inhalation	Quant.	Future recreationalists may inhale volatiles and fugitive dust that migrate from surface soil to air.
	Surface Soil	Surface Soil	Surface Soil	On-Site Recreationalist	Child	Ingestion	Quant.	Future recreationalists may incidentally ingest surface soil.
						Dermal	Quant.	Future recreationalists may have exposed skin come into contact with surface soil.
		Particulates and Vapors	Outdoor Air	On-Site Recreationalist	Child	Inhalation	Quant.	Future recreationalists may inhale volatiles and fugitive dust that migrate from surface soil to air.
	Subsurface Soil	Subsurface Soil	Subsurface Soil	On-Site Recreationalist	Adult	Ingestion	Quant.	Future recreationalists may incidentally ingest subsurface soil if subsurface soil is brought to the surface and mixed with surface soil as a result of Site development.
						Dermal	Quant.	Future recreationalists may have exposed skin come into contact with subsurface soil if subsurface soil is brought to the surface and mixed with surface soil as a result of Site development.
		Particulates and Vapors	Outdoor Air	On-Site Recreationalist	Adult	Inhalation	Quant.	Future recreationalists may inhale volatiles and fugitive dust that migrate from subsurface soil to air if subsurface soil is brought to the surface and mixed with surface soil as a result of Site development.
	Subsurface Soil	Subsurface Soil	Subsurface Soil	On-Site Recreationalist	Youth (7-16 years)	Ingestion	Quant.	Future recreationalists may incidentally ingest subsurface soil if subsurface soil is brought to the surface and mixed with surface soil as a result of Site development.
						Dermal	Quant.	Future recreationalists may have exposed skin come into contact with subsurface soil if subsurface soil is brought to the surface and mixed with surface soil as a result of Site development.
		Particulates and Vapors	Outdoor Air	On-Site Recreationalist	Youth (7-16 years)	Inhalation	Quant.	Future recreationalists may inhale volatiles and fugitive dust that migrate from subsurface soil to air if subsurface soil is brought to the surface and mixed with surface soil as a result of Site development.
	Subsurface Soil	Subsurface Soil	Subsurface Soil	On-Site Recreationalist	Child	Ingestion	Quant.	Future recreationalists may incidentally ingest subsurface soil if subsurface soil is brought to the surface and mixed with surface soil as a result of Site development.

TABLE 11
SELECTION OF EXPOSURE PATHWAYS
FAIRFAX STREET WOOD TREATERS SITE, JACKSONVILLE, FLORIDA

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
						Dermal	Quant.	Future recreationalists may have exposed skin come into contact with subsurface soil if subsurface soil is brought to the surface and mixed with surface soil as a result of Site development.
		Particulates and Vapors	Outdoor Air	On-Site Recreationalist	Child	Inhalation	Quant.	Future recreationalists may inhale volatiles and fugitive dust that migrate from subsurface soil to air if subsurface soil is brought to the surface and mixed with surface soil as a result of Site development.
	Surface Soil	Surface Soil	Surface Soil	On-Site Commercial/Industrial Worker	Adult	Ingestion	Quant.	Future commercial/industrial workers may incidentally ingest surface soil.
						Dermal	Quant.	come into contact with surface soil.
		Particulates and Vapors	Outdoor Air	On-Site Commercial/Industrial Worker	Adult	Inhalation	Quant.	Future commercial/industrial workers may inhale volatiles and fugitive dust that migrate from surface soil to air.
	Subsurface Soil	Subsurface Soil	Subsurface Soil	On-Site Commercial/Industrial Worker	Adult	Ingestion	Quant.	Future commercial/industrial workers may incidentally ingest subsurface soil if subsurface soil is brought to the surface and mixed with surface soil as the result of Site development.
						Dermal	Quant.	Future commercial/industrial workers may have exposed skin come into contact with subsurface soil if subsurface soil is brought to the surface and mixed with surface soil as the result of Site development.
		Particulates and Vapors	Outdoor Air	On-Site Commercial/Industrial Worker	Adult	Inhalation	Quant.	Future commercial/industrial workers may inhale volatiles and fugitive dust that migrate from subsurface soil to air if subsurface soil is brought to the surface and mixed with surface soil as the result of Site development.
	Groundwater	Vapors	Indoor Air	On-Site Commercial/Industrial Worker	Adult	Inhalation	Quant.	Future commercial/industrial workers may be exposed to volatile groundwater contaminants migrating into indoor air via vapor intrusion.
	Groundwater	Groundwater	Groundwater	On-Site Commercial/Industrial Worker	Adult	Ingestion	Quant.	Future commercial/industrial workers may ingest groundwater from the Site.
		Vapors	Outdoor Air	On-Site Commercial/Industrial Worker	Adult	Inhalation	Quant.	Future commercial/industrial workers may inhale groundwater vapors from the Site. However, this exposure is expected to be insignificant.
	Surface Soil	Surface Soil	Surface Soil	On-Site Construction Worker	Adult	Ingestion	Quant.	Future construction workers may incidentally ingest surface soil.
						Dermal	Quant.	Future construction workers may have exposed skin come into contact with surface soil.
		Particulates and Vapors	Outdoor Air	On-Site Construction Worker	Adult	Inhalation	Quant.	Future construction workers may inhale volatiles and fugitive dust that migrate from surface soil to outdoor air.
	Subsurface Soil	Subsurface Soil	Subsurface Soil	On-Site Construction Worker	Adult	Ingestion	Quant.	Future construction workers may incidentally ingest subsurface soil.
						Dermal	Quant.	Future construction workers may have exposed skin come into contact with subsurface soil.
		Particulates and Vapors	Outdoor Air	On-Site Construction Worker	Adult	Inhalation	Quant.	Future construction workers may inhale volatiles and fugitive dust that migrate from subsurface soil to outdoor air.
	Groundwater	Groundwater	Groundwater	On-Site Construction Worker	Adult	Ingestion	Quant.	Future construction workers may ingest groundwater from the Site.
						Dermal Contact	Quant.	Future construction workers may have exposed skin come into contact with groundwater from the Site.
		Vapors	Outdoor Air (trenches)	On-Site Construction Worker	Adult	Inhalation	Quant.	Future construction workers may inhale groundwater vapors from trench air.
	Surface Soil	Surface Soil	Surface Soil	On-Site Utility Worker	Adult	Ingestion	Quant.	Future utility workers may incidentally ingest surface soil.
						Dermal	Quant.	with surface soil.
		Particulates and Vapors	Outdoor Air	On-Site Utility Worker	Adult	Inhalation	Quant.	migrate from surface soil to trench air.

TABLE 11
SELECTION OF EXPOSURE PATHWAYS
FAIRFAX STREET WOOD TREATERS SITE, JACKSONVILLE, FLORIDA

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
	Subsurface Soil	Subsurface Soil	Subsurface Soil	On-Site Utility Worker	Adult	Ingestion	Quant.	Future utility workers may incidentally ingest subsurface soil.
						Dermal	Quant.	with subsurface soil.
		Particulates and Vapors	Outdoor Air	On-Site Utility Worker	Adult	Inhalation	Quant.	migrate from subsurface soil to trench air.
	Groundwater	Groundwater	Groundwater	On-Site Utility Worker	Adult	Ingestion	Quant.	Future utility workers may ingest groundwater from the Site.
						Dermal Contact	Quant.	with groundwater from the Site.
		Vapors	Outdoor Air (trenches)	On-Site Utility Worker	Adult	Inhalation	Quant.	air.

Notes:

Quant. Quantitative; this scenario was quantitatively assessed in the human health risk assessment

TABLE 12.1

NON-CANCER TOXICITY DATA - ORAL/DERMAL

FAIRFAX STREET WOOD TREATERS SITE, JACKSONVILLE, FLORIDA

Category	COPC	CAS No.	Chronic / Subchronic	RfDo (1)			GIABS (2)	RfDd (3)		Primary Target Organ/System (4)	Combined UF & MF (5)	RfDo Reference (6)	
				Value		Units	(Unitless)	Value	Units			Source	Date
Metal	Arsenic	7440-38-2	Chronic	3.0E-04	I	(mg/kg-day)	1	3.0E-04	(mg/kg-day)	Cardio/Derm	3	IRIS	4/2012
Metal	Chromium III	16065-83-1	Chronic	1.5E+00	I	(mg/kg-day)	0.013	2.0E-02	(mg/kg-day)	None Specified	1000	IRIS	4/2012
Metal	Chromium, VI	18540-29-9	Chronic	3.0E-03	I	(mg/kg-day)	1	3.0E-03	(mg/kg-day)	GI/Blood	NR	IRIS	4/2012
Metal	Copper	7440-50-8	Chronic	4.0E-02	H	(mg/kg-day)	1	4.0E-02	(mg/kg-day)	GI/Kidney	NR	HEAST	4/2012
SVOC	Benz[a]anthracene	56-55-3	--	--	--	--	--	--	--	--	--	--	--
SVOC	Benzo[a]pyrene	50-32-8	--	--	--	--	--	--	--	--	--	--	--
SVOC	Benzo[b]fluoranthene	205-99-2	--	--	--	--	--	--	--	--	--	--	--
SVOC	Dibenz[a,h]anthracene	53-70-3	--	--	--	--	--	--	--	--	--	--	--
SVOC	Indeno[1,2,3-cd]pyrene	193-39-5	--	--	--	--	--	--	--	--	--	--	--

Notes:

(1) RfDo = Oral reference dose (EPA, 2012a)

(2) GIABS = Gastrointestinal absorption efficiency (EPA, 2012a)

(3) RfDd = Dermal reference dose calculated as: RfDd = RfDo x GIABS

(4) Primary target organ/system based on information from the Agency for Toxic Substances and Disease Registry "ToxFAQs" (ATSDR, 2012).

(5) UF/MF = Uncertainty factor/modifying factor (EPA, 2012b)

(6) Primary source of RfDo as cited in the RSL Tables (EPA, 2012a) and date of RSL Table update. Primary sources include: 1) IRIS - Integrated Risk Information System; 2) PPRTV - Provisional Peer Reviewed Toxicity Values; 3) ATSDR = Agency for Toxic Substances and Disease Registry; 4) CalEPA - California Environmental Protection Agency; 5) HEAST - Health Effects Assessment Summary Table; 6) NJ - New Jersey Department of Environmental Quality; 7) X-PPRTV = PPRTV Appendix; 8) ECAO = Environmental Criteria and Assessment Office.

(7) Surrogates used:

Mercury – mercuric chloride used as surrogate

Sources:

ATSDR. May 2012. Toxicological Information Profile Sheets. Available on-line at: http://www.atsdr.cdc.gov/tfacts22.html

EPA. 2012a. Regional Screening Level (RSL) Summary Table April 2012. http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/pdf/master_sl_table_bwrun/MAY2012.pdf.

EPA. 2012b. Integrated Risk Information System (IRIS). Available on-line at: http://www.epa.gov/iris/index.html.

Definitions:

COPC	Chemical of potential concern
SVOC	Semivolatile organic compound
VOC	Volatile organic compound
GI	Gastrointestinal
Immuno	Immunological
--	Value not available/not calculated
NR	Value not reported
CNS	Central nervous system
Cardio	Cardiovascular
Derm	Dermal (skin)
Reprod	Reproductive sytem
POD	Point of departure
PEST	Pesticide

TABLE 12.2

NON-CANCER TOXICITY DATA - INHALATION

FAIRFAX STREET WOOD TREATERS SITE, JACKSONVILLE, FLORIDA

Category	COPC	CAS No.	RfC [1]			Primary Target Organ/System [2]	Combined UF & MF [3]	RfC Reference [4]	
			Value		Units			Source	Date
Metal	Arsenic	7440-38-2	1.5E-05	C	(mg/m^3)	Cardio/Derm	NR	CalEPA	4/2012
Metal	Chromium III	16065-83-1	--	--	--	--	--	--	--
Metal	Copper	7440-50-8	--	--	--	--	--	--	--
SVOC	Benz[a]anthracene	56-55-3	--	--	--	--	--	--	--
SVOC	Benzo[a]pyrene	50-32-8	--	--	--	--	--	--	--
SVOC	Benzo[b]fluoranthene	205-99-2	--	--	--	--	--	--	--
SVOC	Dibenz[a,h]anthracene	53-70-3	--	--	--	--	--	--	--
SVOC	Indeno[1,2,3-cd]pyrene	193-39-5	--	--	--	--	--	--	--

Notes:

(1) RfC = Inhlation reference concentration (EPA, 2012a)

(2) Primary target organ/system based on information from the Agency for Toxic Substances and Disease Registry Toxicological Profiles (ATSDR, 2012).

(3) UF/MF = Uncertainty factor/modifying factor (EPA, 2012b)

(4) Primary source of RfDo as cited in the RSL Tables (EPA, 2012a) and date of RSL Table update. Primary sources include: 1) IRIS - Integrated Risk Information System; 2) PPRTV - Provisional Peer Reviewed Toxicity Values; 3) ATSDR = Agency for Toxic Substances and Disease Registry; 4) CalEPA - California Environmental Protection Agency; 5) HEAST - Health Effects Assessment Summary Table; 6) NJ - New Jersey Department of Environmental Quality; 7) X-PPRTV = PPRTV Appendix; 8) ECAO = Environmental Criteria and Assessment Office.

(5) Mercuric chloride was used as a surrogate.

Definitions:

COPC	Chemical of potential concern
SVOC	Semivolatile organic compound
VOC	Volatile organic compound
--	Value not available/not calculatec
NR	Value not reported
CNS	Central nervous system
Cardio	Cardiovascular
Derm	Dermal (skin)
Resp	Respiratory
CBD	Chronic beryllium disease
Immune	Immune system

Sources:

ATSDR. 2012. Toxicological Profiles. Available on-line at: http://www.atsdr.cdc.gov/toxprofiles/index.asp#M. Accessed May 2012.

EPA. 2012a. Regional Screening Level (RSL) Summary Table April 2012. http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tablesw/pdf/master_sl_table_bwrun/MAY2012.pdf.

EPA. 2012b. Integrated Risk Information System (IRIS). Available on-line at: http://www.epa.gov/iris/index.html.

TABLE 13.1

CANCER TOXICITY DATA - ORAL/DERMAL

FAIRFAX STREET WOOD TREATERS SITE, JACKSONVILLE, FLORIDA

Category	COPC	CAS No.	CSFo (1)			GIABS (2)	CSFd (3)		Cancer Class (4)	Mutagen (Y/N) (5)	CSFo Reference (6)	
			Value		Units	(Unitless)	Value	Units			Source	Date
Metal	Arsenic	7440-38-2	1.5E+00	I	$(mg/kg\text{-}day)^{-1}$	1	1.5E+00	$(mg/kg\text{-}day)^{-1}$	A	N	IRIS	4/2012
Metal	Chromium III	16065-83-1	--	--	--	--	--	--	--	--	--	--
Metal	Chromium VI	18540-29-9	5.0E-01	J	$(mg/kg\text{-}day)^{-1}$	0.025	2.0E+01	$(mg/kg\text{-}day)^{-1}$	A	Y	NJ	4/2012
Metal	Copper	7440-50-8	--	--	--	--	--	--	--	--	--	--
SVOC	Benz[a]anthracene	56-55-3	7.3E-01	E	$(mg/kg\text{-}day)^{-1}$	1	7.3E-01	$(mg/kg\text{-}day)^{-1}$	B2	Y	ECAO	4/2012
SVOC	Benzo[a]pyrene	50-32-8	7.3E+00	I	$(mg/kg\text{-}day)^{-1}$	1	7.3E+00	$(mg/kg\text{-}day)^{-1}$	B2	Y	IRIS	4/2012
SVOC	Benzo[b]fluoranthene	205-99-2	7.3E-01	E	$(mg/kg\text{-}day)^{-1}$	1	7.3E-01	$(mg/kg\text{-}day)^{-1}$	B2	Y	ECAO	4/2012
SVOC	Benzo[k]fluoranthene	207-08-9	7.3E-02	E	$(mg/kg\text{-}day)^{-1}$	1	7.3E-02	$(mg/kg\text{-}day)^{-1}$	B2	Y	ECAO	4/2012
SVOC	Dibenz[a,h]anthracene	53-70-3	7.3E+00	E	$(mg/kg\text{-}day)^{-1}$	1	7.3E+00	$(mg/kg\text{-}day)^{-1}$	B2	Y	ECAO	4/2012
SVOC	Indeno[1,2,3-cd]pyrene	193-39-5	7.3E-01	E	$(mg/kg\text{-}day)^{-1}$	1	7.3E-01	$(mg/kg\text{-}day)^{-1}$	B2	Y	ECAO	4/2012

Notes:

(1) CSFo = Oral cancer slope factor (EPA, 2012a) (Note: surrogates were not used for cancer toxicity endpoints.)

(2) GIABS = Gastrointestinal absorption efficiency (EPA, 2012a).

(3) CSFd = Dermal cancer slope factor calculated as: CSFd = CSFo / GIABS

(4) Cancer class designations (EPA, 2012b) are as follows: A - human carcinogen; B2 - probable human carcinogen; D - not classifiable as to human carcinogenicity

(5) Mutagenic potential as reported in the RSL Tables (EPA, 2012a).

(6) Primary source of RfDo as cited in the RSL Tables (EPA, 2009) and date of RSL Table update. Primary sources include: 1) IRIS - Integrated Risk Information System; 2) PPRTV - Provisional Peer Reviewed Toxicity Values; 3) ATSDR = Agency for Toxic Substances and Disease Registry; 4) CalEPA - California Environmental Protection Agency; 5) HEAST - Health Effects Assessment Summary Table; 6) NJ - New Jersey Department of Environmental Quality; 7) X-PPRTV = PPRTV Appendix; 8) ECAO = Environmental Criteria and Assessment Office.

Definitions:

COPC Chemical of potential concern
NR Value not reported
PCB Polychlorinated biphenyl

SVOC Semivolatile organic compound
VOC Volatile organic compound
Inadq Inadequate evidence

Sources:

EPA. 2012a. Regional Screening Level (RSL) Summary Table April 2012. http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/pdf/master_sl_table_bwrun/MAY2012.pdf.

EPA. 2012b. Integrated Risk Information System (IRIS). Available on-line at: http://www.epa.gov/iris/index.html.

TABLE 13.2

CANCER TOXICITY DATA - INHALATION

FAIRFAX STREET WOOD TREATERS SITE, JACKSONVILLE, FLORIDA

Category	COPC	CAS No.	URF [1]			Cancer Class [2]	Mutagen (Y/N) [3]	URf Reference [4]	
			Value		Units			Source	Date
Metal	Arsenic	7440-38-2	4.3E-03	I	$(\mu g/m^3)^{-1}$	A	N	IRIS	4/2012
Metal	Chromium III	16065-83-1	--	--	--	--	--	--	--
Metal	Copper	7440-50-8	--	--	--	--	--	--	--
SVOC	Benz[a]anthracene	56-55-3	1.1E-04	C	$(\mu g/m^3)^{-1}$	B2	Y	CalEPA	4/2012
SVOC	Benzo[a]pyrene	50-32-8	1.1E-03	C	$(\mu g/m^3)^{-1}$	B2	Y	CalEPA	4/2012
SVOC	Benzo[b]fluoranthene	205-99-2	1.1E-04	C	$(\mu g/m^3)^{-1}$	B2	Y	CalEPA	4/2012
SVOC	Dibenz[a,h]anthracene	53-70-3	1.2E-03	C	$(\mu g/m^3)^{-1}$	B2	Y	CalEPA	4/2012
SVOC	Indeno[1,2,3-cd]pyrene	193-39-5	1.1E-04	C	$(\mu g/m^3)^{-1}$	B2	Y	CalEPA	4/2012

Notes:

(1) URF = Inhalation unit risk factor (EPA, 2012a) (Note: surrogates were not used for cancer toxicity endpoints.)

(2) Cancer class designations (EPA, 2012b) are as follows: A - human carcinogen; B1/B2 - probable human carcinogen; and C - possible human carcinogen.

(3) Mutagenic potential as reported in the RSL Tables (EPA, 2012a)

(4) Primary source of RfDo as cited in the RSL Tables (EPA, 2012a) and date of RSL Table update. Primary sources include: 1) IRIS - Integrated Risk Information System; 2) PPRTV - Provisional Peer Reviewed Toxicity Values; 3) ATSDR = Agency for Toxic Substances and Disease Registry; 4) CalEPA - California Environmental Protection Agency; 5) HEAST - Health Effects Assessment Summary Table; 6) NJ - New Jersey Department of Environmental Quality; 7) X-PPRTV = PPRTV Appendix; 8) ECAO = Environmental Criteria and Assessment Office.

Definitions:

COPC Chemical of potential concern

SVOC Semivolatile organic compound

VOC Volatile organic compound

-- Value not available/not calculate(

NR Value not reported

Sources:

CalEPA. 2012. Toxicity Criteria Database. Office of Health Hazard Assessment. Available on-line at: http://www.oehha.ca.gov/risk/chemicalDB/start.asp

EPA. 2012a. Regional Screening Level (RSL) Summary Table April 2012. Available on-line at: http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/pdf/master_sl_table_bwrun/MAY2012.pdf.

EPA. 2012b. Integrated Risk Information System (IRIS). Available on-line at: http://www.epa.gov/iris/index.html.

TABLE 14.1

RISK AND HAZARD SUMMARY
FSWT ON-SITE, RME
REASONABLE MAXIMUM EXPOSURE
FAIRFAX STREET WOOD TREATERS SITE
JACKSONVILLE, FLORIDA

Receptor	RAGS D Table	Total Risk	Risk Driver		Total HI	HI Drivers
Future Commercial/ Industrial Worker	7.1.1.RME	1E-04	Surface Soil: 8E-05	As (8.4E-05)	0.62	NA
			Surface and Subsurface Soils 5E-05	As (4.7E-05)	0.39	NA
			GW: 2E-05	As (1.5E-05)		
Future Utility Worker	7.2.1.RME	2E-04	Soils: 2E-04	As (1.2E-04) BaA (3.5E-06) BaP (2.3E-05) BbF (2.9E-06) DiB (4.1E-06) Ind (1.5 E-06)	0.78	NA
			GW: 3E-08	NA		
Future Construction Worker	7.3.1.RME	2E-05	Soil: 2E-05	NA	0.61	NA
			GW: 2E-08	NA		
Current and Future Trespasser – Adolescent	7.4.1.RME	2E-05	Soil: 1E-05	NA	0.28	NA
			Sediment: 6E-06	NA		
			Surface Water 1E-08			
Current and Future Trespasser – Adult	7.5.1.RME	4E-05	Soil: 2E-05	NA	0.19	NA
			Sediment: 1E-05	NA		
			Surface Water 2E-08			
Future Child Recreationalist	7.6.1.RME	2E-04	Soil: 2E-04	As (1.6E-04)	4.2	As (4.2)
Future Adolescent Recreationalist	7.7.1.RME	5E-05	Soil: 5E-05	NA	0.73	NA

TABLE 14.1

RISK AND HAZARD SUMMARY
FSWT ON-SITE, RME
REASONABLE MAXIMUM EXPOSURE
FAIRFAX STREET WOOD TREATERS SITE
JACKSONVILLE, FLORIDA

Receptor	RAGS D Table	Total Risk	Risk Driver		Total HI	HI Drivers
Future Adult Recreationalist	7.8.1.RME	9E-05	Soil: 9E-05	NA	0.48	NA
Future Resident	7.9.1.RME	7E-04	Surface Soil: 7E-04	As (6.0E-04)	8.2	As (7.1),
			Surface and Subsurface soil: 4E-04	As (3.3E-04)	4.9	As (4.0),
			GW: 7 E-05	As (7.4 E-05)		

Notes

BaA Benzo(a)anthracene

BaP Benzo(a)pyrene

BbF Benzo(b)fluoranthene

DiB Dibenz(a,h)anthracene

Ind Indeno(1,2,3-cd)pyrene

TABLE 14.2

RISK AND HAZARD SUMMARY
FSWT RESIDENTIAL – NORTH, RME
REASONABLE MAXIMUM EXPOSURE
FAIRFAX STREET WOOD TREATERS SITE
JACKSONVILLE, FLORIDA

Receptor	RAGS D Table	Total Risk	Risk Driver		Total HI	HI Drivers
Current and Future Resident	7.1.2.RME	2E-05	Surface Soil: 2E-05	NA	0.26	NA
			Surface and Subsurface Soil 2E-05	NA	0.24	
Current and Future Utility Worker	7.2.2.RME	5E-07	NA		0.0032	NA

TABLE 14.3

RISK AND HAZARD SUMMARY
FSWT RESIDENTIAL – EAST, RME
REASONABLE MAXIMUM EXPOSURE
FAIRFAX STREET WOOD TREATERS SITE
JACKSONVILLE, FLORIDA

Receptor	RAGS D Table	Total Risk	Risk Driver	Total HI	HI Drivers
Current and Future Resident	7.1.3.RME	3E-05	Surface Soil: NA 3E-05	0.18	NA
			Surface and NA Subsurface Soil – 2E-05	0.24	NA
Current and Future Utility Worker	7.2.3.RME	3E-07	NA	0.0023	NA

TABLE 14.4

RISK AND HAZARD SUMMARY
FSWT RESIDENTIAL – SOUTH, RME
REASONABLE MAXIMUM EXPOSURE
FAIRFAX STREET WOOD TREATERS SITE
JACKSONVILLE, FLORIDA

Receptor	RAGS D Table	Total Risk	Risk Driver	Total HI	HI Drivers
Current and Future Resident	7.1.4.RME	1E-05	Surface Soil: 1E-05 NA	0.20	NA
			Surface and Subsurface Soil: 1E-05 NA	0.15	NA
Current and Future Utility Worker	7.2.4.RME	3E-07	NA	0.0021	NA

TABLE 14.5

RISK AND HAZARD SUMMARY
FSWT RESIDENTIAL – WEST, RME
REASONABLE MAXIMUM EXPOSURE
FAIRFAX STREET WOOD TREATERS SITE
JACKSONVILLE, FLORIDA

Receptor	RAGS D Table	Total Risk	Risk Driver	Total HI	HI Drivers
Current and Future Resident	7.1.5.RME	4E-05	Surface Soil: 4E-05	0.50	NA
			Surface and Subsurface Soil: 3E-05	0.42	NA
Current and Future Utility Worker	7.2.5.RME	1E-06	NA	0.0066	NA

TABLE 14.6

RISK AND HAZARD SUMMARY
SCHOOL PROPERTY, RME
REASONABLE MAXIMUM EXPOSURE
FAIRFAX STREET WOOD TREATERS SITE
JACKSONVILLE, FLORIDA

Receptor	RAGS D Table	Total Risk	Risk Driver	Total HI	HI Drivers
Current and Future School Student	7.1.6.RME	4E-07	NA	0.0093	NA
Current and Future School Staff	7.2.6.RME	3E-07	NA	0.0068	NA

TABLE 14.7

RISK AND HAZARD SUMMARY
MONCRIEF CREEK, RME
REASONABLE MAXIMUM EXPOSURE
FAIRFAX STREET WOOD TREATERS SITE
JACKSONVILLE, FLORIDA

Receptor	RAGS D Table	Total Risk	Risk Driver		Total HI	HI Drivers
Current and Future Adolescent Recreationalist	7.1.7.RME	5E-06	Sediment: (5E-06)	NA	0.085	NA
			Surface Water: (1E-10)	NA		
Current and Future Adult Recreationalist	7.2.7.RME	1E-05	Sediment: (1E-05)	NA	0.058	NA
			Surface Water: (2E-10)	NA		

Table 15

Cost Estimate Summary for Selected Remedy

Item	Basis and Assumptions	Cost
Premobilization		
Remedial Design Documents	Contract administrator, $41 per hour salary	$205
	Office engineer, $50 per hour salary	$9,988
	Project engineer (senior technical reviewer), $91 per hour salary	$454
	Project engineer, $91 per hour salary	$2,727
Work Plan, HASP, Sampling and Analysis Plan, QAPP	Contract administrator, $41 per hour salary	$82
	Office engineer, $50 per hour salary	$4,994
	Project engineer (senior technical reviewer), $91 per hour salary	$182
	Project engineer, $91 per hour salary	$1,091
Permits (POTW discharge permt, stormwater permit, offsite construction permit for storm sewer line)	Field engineer, $73 per hour salary	$468
	Contract administrator, $41 per hour salary	$82
	Office engineer, $116 per hour salary	$464
	Project engineer, $142 per hour salary	$142
Project Management	Project manager, $120 per hour salary	$10,204
	Office engineer, $66 per hour salary	$8,572
	Contract administrator, $36 per hour salary	$1,804
	Administrative clerk, $27 per hour salary	$1,883
	Operations manager, $44 per hour salary	$1,557
Total Premobilization Cost		**$44,899**
Site Preparation		
Mobilization	Large equipment, lump sum	$827
	Small equipment, lump sum	$266
Erosion Control	Instalation of silt fence, $0.78 per linear foot	$9,061
On-Site Well Abandonment	Well abandonment for 8 wells, $19 per foot	$5,186
	Mobilization/demobilization, lump sum	$640
Construction of Equipment Decontamination Area	Aggregate, $24 per ton	$474
	Excavation of sump, $2 per cubic foot	$87
	Plastic sheeting, $75 per roll	$301
	Labor, $544 per day	$1,633
Construction of Stockpile Areas for Contaminated Soil	Berm soil, excludes transportation and disposal, $37 per cubic yard	$374
	Plastic sheeting, $75 per roll	$1,506
	Labor, $544 per day	$1,633
	Aggregate, $24 per ton	$593

Table 15

Cost Estimate Summary for Selected Remedy

Item	Basis and Assumptions	Cost
Construction of Stockpile Area for Clean Backfill	Plastic sheeting, $75 per roll	$753
	Aggregate, $24 per ton	$474
	Labor, $544 per day	$1,633
Field Oversight	Superintendent, $89 per hour	$3,553
	Construction lab technicians, $42 per hour	$1,664
	Safety engineer, $38 per hour	$1,517
Total Site Preparation Cost		**$32,175**
Site Restoration and Demobilization		
Delivery of Clean Backfill	Includes soil, transportation, and loading, $3 per cubic yard	$118,185
Placement and Compaction of Backfill	Bulldozer for spreading and compaction via vibrating roller, $2 per bank cubic yard	$80,728
	Front end loader, $54 per hour	$22,139
	Dump truck for hauling, $3 per loaded cubic yard	$92,164
Grading to Promote Surface Runoff	Bulldozer to perform final grading after backfilling, $1 per loaded cubic yard	$37,870
Construction of new Retention Pond for Surface Water Runoff	Hydraulic excavator, $83 per hour	$3,973
	Public storm utility drainage piping, $97 per linear foot	$8,779
	Aggregate, $33 per cubic yards	$66
	Labor, $240 per hour	$11,513
Equipment Decontamination	Disposal of decontamination water, $20 per mile (distance from dispossal facility)	$298
	Labor, $544 per day	$1,633
Site Seeding	Lime, fertilizer, and seed with wood fiber mulch, $3 per square yard	$113,205
Removal of Silt Fence	Fence demolition, $2 per linear foot	$17,973
Demobilization	Equipment demobilization, lump sum	$266
	Bulldozer, loader, backhoe, or excavator demobilization, lump sum	$827
Field Oversight	Superintendent, $89 per hour	$10,660
	Construction lab technicians, $42 per hour	$4,993
	Safety engineer, $38 per hour	$4,550
Total Site Restoration and Demobilization Cost		**$529,822**
Total Fixed Costs		**$606,895**

Table 15

Cost Estimate Summary for Selected Remedy

Item	Basis and Assumptions	Cost
Variable Costs		
Demolition	Pavement and curb removal, $13 per square yard	$79,711
Excavation of Contaminated Material	Labor and large equipment (excavator, dump truck, front end loader), $3,251 per day	$208,066
	Dewatering, $184 per day	$11,762
	Watering by truck (for dust control), $985 per day	$63,040
	Dust monitoring equipment, lump sum	$4,463
	Soil sampling, $58 per sample	$10,545
Solid Non-Hazardous Waste Transportation and Disposal	Disposal, $50 per loaded cubic yard	$1,888,981
	Transportation, $52 per loaded cubic yard	$1,976,129
	Waste characterization sampling, $115 per sample	$3,227
Solid Hazardous Waste Transportation and Disposal	Disposal, $139 per loaded cubic yard	$1,255,601
	Transportation, $184 per loaded cubic yard	$1,661,925
	Waste characterization sampling, $115 per sample	$2,190
Liquid Non-Hazardous Waste Transportation and Disposal	Disposal, $5 per thousand gallons	$1,238
	Transportation $10 per thousand gallons	$2,241
	Waste characterization sampling, $115 per sample	$576
Field Oversight	Superintendent, $89 per hour	$39,090
	Construction lab technicians, $42 per hour	$18,311
	Safety engineer, $38 per hour	$16,683
Sediment Bioavailability Study for Metals	Sediment sample collection, lump sum	$1,921
	Analysis of toxicity testing samples, $1,280 per sample	$3,842
	Evaluation by a senior toxicologist, $192 per hour	$3,842
Total Variable Costs		**$7,253,383**
Total Project Cost		**$7,860,000**

Table 16
List of ARARs and TBCs for the Fairfax Street Wood Treaters Site Record of Decision

Chemical-Specific ARARs/TBC			
Action/Media	**Requirement**	**Prerequisite**	**Citation**
Removal of contaminated soil for Residential use	Specifies Soil Contaminant Cleanup Target Levels (CTLs) for site rehabilitation. FAC 62-777 Table II lists the cleanup levels for Residential Direct Exposure. • Arsenic – 2.1 mg/kg • Chromium – 210 mg/kg • Copper – 150 mg/kg • Benzo(a)pyrene – 0.1 mg/kg*	Rehabilitation (i.e., remediation) of site contaminated soil and sediment – **relevant and appropriate**	F.A.C. 62-777, Table II Soil Cleanup Target Levels
	Does not require site rehabilitation to achieve a CTL for an individual contaminant that is more stringent than the site-specific background concentration for that contaminant • Arsenic – 2.36 mg/kg (background in surface soil)	Establishment of Alternative cleanup target levels (CTLs) for contaminants of concern at the Site – **relevant and appropriate**	F.A.C. 62-780.650(1)(d)
Removal of contaminated sediment for protection of ecological receptors	Provides Sediment quality guidelines that reflect threshold effect concentrations (TECs; i.e., below which harmful effects are unlikely to be observed. • Arsenic – 9.8 mg/kg • Chromium – 43 mg/kg • Copper – 32 mg/kg	Assessment of contaminated sediment in Florida inland waters for adverse biological effects – **TBC**	Development and Evaluation of Numerical Sediment Quality Assessment Guidelines for Florida Inland Waters – Technical Report (2003) Table 4.4

ARAR = applicable *or* relevant and appropriate requirement
CFR = Code of Federal Regulations
CTL = Cleanup Target Level
F.A.C. = Florida Administrative Code, Chapters as specified
F.S. = Florida Statutes
TBC = To be Considered guidance

* Site concentrations for carcinogenic polycyclic aromatic hydrocarbons will be converted to benzo(a)pyrene equivalents before comparison with the appropriate direct exposure SCTL for benzo(a)pyrene

Table 16
List of ARARs and TBCs for the Fairfax Street Wood Treaters Site Record of Decision

Action-Specific ARARs and TBC			
Action	**Requirement**	**Prerequisite**	**Citation**
General Construction Standards — All Land-disturbing Activities (i.e., excavation, clearing, grading, etc.)			
Control of storm water runoff from soil disturbing activities	Must comply with the substantive provisions in the "Generic Permit for Stormwater Discharge from Large and Small Construction Activities," document number 62-621.300(4)(a), issued by the FDEP and effective February 17, 2009. Requires development of storm water pollution prevention plan and implementation of best management practices and erosion and sedimentation controls for stormwater runoff to ensure protection of the surface waters of the state. *Note*: Plan would be part of CERCLA document such as Remedial or Removal Action Work Plan.	Stormwater discharges from large and small construction activities to surface waters of the State as defined in Section 403.031, F.S. – **applicable**	F.A.C. 62-621.300(4)(a) *Generic Permit for Stormwater Discharge from Large and Small Construction Activities*
Control of storm water runoff from soil disturbing activities	No discharge from a stormwater discharge facility shall cause or contribute to a violation of water quality standards in waters of the state.	Construction activity (e.g., alteration of land contours or land clearing) that results in creation *of stormwater management system* as defined in F.AC. 62-25.020(15) – **applicable**	F.A.C. 62-25.025 *Regulation of Stormwater Discharge*
	Erosion and sediment control best management practices shall be used as necessary during construction activity to retain sediment on site. These practices shall be designed by an engineer or other competent professional experienced in the fields of soil conservation or sediment control according to specific site conditions and shall be shown or noted on the plans of the stormwater management system. *Note*: Plan would be part of CERCLA document such as Remedial or Removal Action Work Plan.		F.A.C. 62-25.025 (7)
Control of Fugitive Dust	No person shall cause, let, permit, suffer or allow the emissions of unconfined particulate matter from any activity, including vehicular movement; transportation of materials; construction, alteration, demolition or wrecking; or industrially related activities such as loading, unloading, storing or handling; without taking reasonable precautions to prevent such emissions.	Land disturbing activity that has potential for unconfined emissions of particulate matter – **applicable**	F.A.C. 62-296.320(4)(c) General Pollutant Emission Limiting Standards

Table 16
List of ARARs and TBCs for the Fairfax Street Wood Treaters Site Record of Decision

Action-Specific ARARs and TBC			
Action	**Requirement**	**Prerequisite**	**Citation**
Operation of Stormwater management system	No discharge from a stormwater discharge facility shall cause or contribute to a violation of water quality standards in waters of the state.	Stormwater discharge facility (including retention basin) – **applicable**	F.A.C. 6225.025
	Detention basins shall again provide the capacity for the specified treatment volume of stormwater within 72 hours following a storm event.		F.A.C. 6225.025(1)
	Retention basins shall again provide the capacity for the specified treatment volume of stormwater within 72 hours following a storm event. The additional storage volume must be provided by a decrease of strored water caused only by percolation through soil, evaporation or evapotranspiration.		F.A.C. 6225.025(4)
	Unless applicable local regulations are more restrictive, for purposes of public safety, permanently wet retention and detention basins shall either be fenced or otherwise restricted from public access or contain side slopes that are no steeper than 4:1 (horizontal; vertical) out to a depth of two feet below control elevation. All side slopes shall be stabilized by either vegetation or other materials to minimize erosion and subsequent sedimentation of the basins.		F.A.C. 6225.025(6)
Monitoring Wells – Abandonment			
Plugging and Abandonment of Groundwater Monitoring Wells	All abandoned wells shall be plugged by filling them from bottom to top with neat cement grout or bentonite and capped with a minimum of one foot of neat cement grout. An alternate method providing equivalent protection shall be approved by the Department and EPA.	Abandonment of water well as defined in F.A.C. 62-532.200 – **relevant and appropriate**	F.A.C. 62-532.500(5)
	In the abandonment of a water well, caution shall be taken to minimize the potential entrance of contaminants into the bore hole and ground water resource.		F.A.C. 62-532.500(3)(f)
	Only water from a potable water source shall be used in the abandonment of a water well.		F.A.C. 62-532.500(3)(g)

Table 16
List of ARARs and TBCs for the Fairfax Street Wood Treaters Site Record of Decision

Action-Specific ARARs and TBC			
Action	**Requirement**	**Prerequisite**	**Citation**
Waste Characterization – Primary Waste (e.g., excavated soils, sludge, debris and wastewaters) and Secondary Wastes (e.g., contaminated equipment)			
Characterization of ***solid waste*** (all primary and secondary wastes)	Must determine if solid waste is a hazardous waste using the following method: • Should first determine if waste is excluded from regulation under 40 CFR 261.4; and • Must then determine if waste is listed as hazardous waste under subpart D 40 CFR Part 261.	Generation of solid waste as defined in 40 CFR 261.2 – **applicable**	40 CFR § 262.11(a) and (b) F.A.C. 62-730.160
	Must determine whether the waste is (characteristic waste) identified in subpart C of 40 CFR part 261 by either: (1) Testing the waste according to the methods set forth in subpart C of 40 CFR part 261, or according to an equivalent method approved by the Administrator under 40 CFR 260.21; or (2) Applying knowledge of the hazard characteristic of the waste in light of the materials or the processes used.	Generation of solid waste which is not excluded under 40 CFR 261.4(a) – **applicable**	40 CFR § 262.11(c) F.A.C. 62-730.160
	Must refer to Parts 261, 262, 264, 265, 266, 268, and 273 of Chapter 40 for possible exclusions or restrictions pertaining to management of the specific waste.	Generation of solid waste which is determined to be hazardous waste – **applicable**	40 CFR § 262.11(d) F.A.C. 62-730.160
Characterization of ***hazardous waste*** (all primary and secondary wastes)	Must obtain a detailed chemical and physical analysis on a representative sample of the waste(s), which at a minimum contains all the information that must be known to treat, store, or dispose of the waste in accordance with pertinent sections of 40 CFR 264 and 268.	Generation of RCRA hazardous waste for storage, treatment or disposal – **applicable**	40 CFR § 264.13(a)(1) F.A.C. 62-730.180(1)
Determinations for management of hazardous waste	Must determine each EPA Hazardous Waste Number (waste code) applicable to the waste in order to determine the applicable treatment standards under 40 CFR 268 et seq. Note: This determination may be made concurrently with the hazardous waste determination required in Sec. 262.11 of this chapter.	Generation of hazardous waste for storage, treatment or disposal – **applicable**	40 CFR § 268.9(a) F.A.C. 62-730.183

Table 16
List of ARARs and TBCs for the Fairfax Street Wood Treaters Site Record of Decision

Action-Specific ARARs and TBC			
Action	**Requirement**	**Prerequisite**	**Citation**
	Must determine the underlying hazardous constituents [as defined in 40 CFR 268.2(i)] in the characteristic waste.	Generation of RCRA characteristic hazardous waste (and is not D001 non –wastewaters treated by CMBST, RORGS, or POLYM of Section 268.42 Table 1) for storage, treatment or disposal – **applicable**	40 CFR § 268.9(a) F.A.C. 62-730.183
Determinations for management of hazardous waste	Must determine if the hazardous waste meets the treatment standards in 40 CFR 268.40, 268.45, or 268.49 by testing in accordance with prescribed methods or use of generator knowledge of waste. Note: This determination can be made concurrently with the hazardous waste determination required in 40 CFR 262.11.	Generation of hazardous waste for storage, treatment or disposal – **applicable**	40 CFR § 268.7(a) F.A.C. 62-730.183
	Must comply with the special requirements of 40 CFR 268.9 in addition to any applicable requirements in CFR 268.7.	Generation of waste or soil that displays a hazardous characteristic of ignitability, corrosivity, reactivity, or toxicity for storage, treatment or disposal – **applicable**	40 CFR § 268.7(a) F.A.C. 62-730.183
Waste Storage – Primary Waste (e.g., excavated soils/sediments, sludge, debris) and Secondary Wastes (e.g., contaminated equipment)			
Temporary on-site storage of hazardous waste in containers	A generator may accumulate hazardous waste at the facility provided that: • waste is placed in containers that comply with 40 CFR 265.171 –173; and • the date upon which accumulation begins is clearly marked and visible for inspection on each container; • container is marked with the words "hazardous waste"; or	Accumulation of RCRA hazardous waste on site as defined in 40 CFR 260.10 – **applicable**	40 CFR § 262.34(a); 40 CFR § 262.34(a)(1)(i); 40 CFR § 262.34(a)(2) and (3) F.A.C. 62-730.160

Table 16
List of ARARs and TBCs for the Fairfax Street Wood Treaters Site Record of Decision

Action-Specific ARARs and TBC			
Action	**Requirement**	**Prerequisite**	**Citation**
Temporary on–site storage of hazardous waste in containers con't	• container may be marked with other words that identify the contents.	Accumulation of 55 gal. or less of RCRA hazardous waste or one quart of acutely hazardous waste listed in 261.33(e) at or near any point of generation – **applicable**	40 CFR § 262.34(c)(1) F.A.C. 62-730.160
Use and management of hazardous waste in containers	If container is not in good condition (e.g. severe rusting, structural defects) or if it begins to leak, must transfer waste from this container to a container that is in good condition.	Storage of RCRA hazardous waste in containers – **applicable**	40 CFR § 265.171 F.A.C. 62-730.180(2)
	Must use container made or lined with materials compatible with waste to be stored so that the ability of the container to contain is not impaired.		40 CFR § 265.172 F.A.C. 62-730.180(2)
	Containers must be closed during storage, except when necessary to add/remove waste. Container must not opened, handled and stored in a manner that may rupture the container or cause it to leak.		40 CFR § 265.173(a) and (b) F.A.C. 62-730.180(2)
Storage of hazardous waste in container area	Area must have a containment system designed and operated in accordance with 40 CFR 264.175(b)	Storage of RCRA hazardous waste in containers with *free liquids* – **applicable**	40 CFR § 264.175(a) F.A.C. 62-730.180(1)
	Area must be sloped or otherwise designed and operated to drain liquid resulting from precipitation, or Containers must be elevated or otherwise protected from contact with accumulated liquid.	Storage of RCRA–hazardous waste in containers that *do not contain free liquids* (other than F020, F021, F022, F023, F026 and F027) – **applicable**	40 CFR 264.175(c)(1) and (2) F.A.C. 62-730.180(1)

Table 16
List of ARARs and TBCs for the Fairfax Street Wood Treaters Site Record of Decision

Action-Specific ARARs and TBC			
Action	**Requirement**	**Prerequisite**	**Citation**
Closure performance standard for RCRA container storage unit	Must close the facility (e.g., container storage unit) in a manner that: • minimizes the need for further maintenance; • controls minimizes or eliminates to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated run-off, or hazardous waste decomposition products to the ground or surface waters or the atmosphere; and • complies with the closure requirements of subpart, but not limited to, the requirements of 40 CFR § 264.178 for containers.	Storage of RCRA hazardous waste in containers – **applicable**	40 CFR § 264.111
Closure of RCRA container storage unit	At closure, all hazardous waste and hazardous waste residues must be removed from the containment system. Remaining containers, liners, bases, and soils containing or contaminated with hazardous waste and hazardous waste residues must be decontaminated or removed. [Comment: At closure, as throughout the operating period, unless the owner or operator can demonstrate in accordance with 40 CFR 261.3(d) of this chapter that the solid waste removed from the containment system is not a hazardous waste, the owner or operator becomes a generator of hazardous waste and must manage it in accordance with all applicable requirements of parts 262 through 266 of this chapter].	Storage of RCRA hazardous waste in containers in a unit with a containment system – **applicable**	40 CFR § 264.178 F.A.C. 62-730.180(1)
Storage and processing of non-hazardous waste	No person shall store, process, or dispose of solid waste except as authorized at a permitted solid waste management facility or a facility exempt from permitting under this chapter. No person shall store, process, or dispose of solid waste in a manner or location that causes air quality standards to be violated or water quality standards or criteria of receiving waters to be violated.	Management and storage of solid waste – **applicable**	F.A.C. 62-701.300(1)(a) and (b)
Temporary on – site storage of remediation waste in staging pile (e.g., excavated soils)	Must be located within the contiguous property under the control of the owner/operator where the wastes are to be managed in the staging pile originated. For purposes of this section, storage includes mixing, sizing, blending or other similar physical operations so long as intended to prepare the wastes for subsequent management or treatment.	Accumulation of ***solid non–flowing hazardous remediation waste*** (or remediation waste otherwise subject to land disposal restrictions) as defined in 40 CFR 260.10 – **applicable**	40 CFR § 264.554(a)(1) F.A.C. 62- 730.180(1)

Table 16
List of ARARs and TBCs for the Fairfax Street Wood Treaters Site Record of Decision

Action-Specific ARARs and TBC			
Action	**Requirement**	**Prerequisite**	**Citation**
Performance criteria for staging pile	Staging pile must: • facilitate a reliable, effective and protective remedy; be designed to prevent or minimize releases of hazardous wastes and constituents into the environment, • and minimize or adequately control cross–media transfer as necessary to protect human health and the environment (e.g. use of liners, covers, run–off/run–on controls).	Storage of remediation waste in a staging pile – **applicable**	40 CFR § 264.554(d)(1)(i) and (ii) F.A.C. 62- 730.180(1)
Operation of a staging pile	Must not operate for more than 2 years, except when an operating term extension under 40 CFR 264.554(i) is granted. *Note:* Must measure the 2-year limit (or other operating term specified) from first time remediation waste placed in staging pile	Storage of remediation waste in a staging pile – **applicable**	40 CFR § 264.554(d)(1)(iii) F.A.C. 62- 730.180(1)
Design criteria for staging pile	In setting standards and design criteria must consider the following factors: • Length of time pile will be in operation; • Volumes of waste you intend to store in the pile; • Physical and chemical characteristics of the wastes to be stored in the unit; • Potential for releases from the unit; • Hydrogeological and other relevant environmental conditions at the facility that may influence the migration of any potential releases; and Potential for human and environmental exposure to potential releases from the unit.	Storage of remediation waste in a staging pile – **applicable**	40 CFR § 264.554(d)(2)(i) – (vi) F.A.C. 62- 730.180(1)
Closure of staging pile of remediation waste	Must be closed within 180 days after the operating term by removing or decontaminating all remediation waste, contaminated containment system components, and structures and equipment contaminated with waste and leachate. Must decontaminate contaminated sub-soils in a manner that EPA determines will protect human and the environment.	Storage of remediation waste in staging pile in ***previously contaminated area*** – **applicable**	40 CFR § 264.554(j)(1) and (2) F.A.C. 62- 730.180(1)

Table 16
List of ARARs and TBCs for the Fairfax Street Wood Treaters Site Record of Decision

Action-Specific ARARs and TBC			
Action	**Requirement**	**Prerequisite**	**Citation**
	Must be closed within 180 days after the operating term according to 40 CFR 264.258(a) and 264.111 or 265.258(a) and 265.111.	Storage of remediation waste in staging pile ***in uncontaminated area*** – **applicable**	40 CFR § 264.554(k) F.A.C. 62- 730.180(1)
Waste Treatment and Disposal – Primary Waste (e.g., excavated soils/sediments, sludge, debris, wastewaters) and Secondary Wastes (e.g., contaminated equipment)			
Disposal of RCRA *hazardous waste* in a land-based unit	May be land disposed if it meets the requirements in the table "Treatment Standards for Hazardous Waste" at 40 CFR 268.40 before land disposal.	Land disposal, as defined in 40 CFR 268.2, of restricted RCRA waste – **applicable**	40 CFR § 268.40(a) F.A.C. 62-730.183
	All underlying hazardous constituents [as defined in 40 CFR 268.2(i)] must meet the UTS, found in 40 CFR 268.48 Table UTS prior to land disposal	Land disposal of restricted RCRA characteristic wastes (D001 –D043) that are not managed in a wastewater treatment system that is regulated under the CWA, that is CWA equivalent, or that is injected into a Class I nonhazardous injection well – **applicable**	40 CFR § 268.40(e) F.A.C. 62-730.183
Disposal of RCRA – *hazardous waste soil* in a land–based unit	Must be treated according to the alternative treatment standards of 40 CFR 268.49(c) <u>or</u> according to the UTSs specified in 40 CFR 268.48 applicable to the listed and/or characteristic waste contaminating the soil prior to land disposal	Land disposal, as defined in 40 CFR 268.2, of restricted hazardous soils – **applicable**	40 CFR § 268.49(b) F.A.C. 62-730.183

Table 16
List of ARARs and TBCs for the Fairfax Street Wood Treaters Site Record of Decision

Action-Specific ARARs and TBC			
Action	**Requirement**	**Prerequisite**	**Citation**
Disposal of RCRA *hazardous waste* in a land-based unit	To determine whether a hazardous waste identified in this section exceeds the applicable treatment standards of 40 CFR 268.40, the initial generator must test a sample of the waste extract or the entire waste, depending on whether the treatment standards are expressed as concentration in the waste extract or waste, or the generator may use knowledge of the waste. If the waste contains constituents (including UHCs in the characteristic wastes) in excess of the applicable UTS levels in 40 CFR 268.48, the waste is prohibited from land disposal, and all requirements of part 268 are applicable, except as otherwise specified.	Land disposal of RCRA toxicity characteristic wastes (D004 –D011) that are newly identified (i.e., wastes, soil, or debris identified by the TCLP but not the Extraction Procedure) – **applicable**	40 CFR § 268.34(f) F.A.C. 62-730.183
Disposal of RCRA *hazardous waste debris* in a land–based unit (i.e., landfill)	Must be treated prior to land disposal as provided in 40 CFR 268.45(a)(1)–(5) unless EPA determines under 40 CFR 261.3(f)(2) that the debris no longer contaminated with hazardous waste or the debris is treated to the waste -specific treatment standard provided in 40 CFR 268.40 for the waste contaminating the debris.	Land disposal, as defined in 40 CFR 268.2, of restricted RCRA–hazardous debris – **applicable**	40 CFR § 268.45(a) F.A.C. 62-730.183
Disposal of *treated hazardous debris*	Debris treated by one of the specified extraction or destruction technologies on Table 1 of 40 CFR 268.45 and which no longer exhibits a characteristic is not a hazardous waste and need not be managed in RCRA Subtitle C facility Hazardous debris contaminated with listed waste that is treated by immobilization technology must be managed in a RCRA Subtitle C facility.	Treated debris contaminated with RCRA listed or characteristic waste – **applicable**	40 CFR § 268.45(c) F.A.C. 62- 730.183
Disposal of *hazardous debris treatment residues*	Except as provided in 268.45(d)(2) and (d)(4), must be separated from debris by simple physical or mechanical means, and such residues are subject to the waste -specific treatment standards for the waste contaminating the debris	Residue from treatment of hazardous debris – **applicable**	40 CFR § 268.45(d)(1) F.A.C. 62- 730.183
Disposal of RCRA characteristic wastewaters in a POTW	Are not prohibited, if wastes are treated for purposes of the pretreatment requirements of Section 307 of the CWA, unless the wastes are subject to a specified method of treatment other than DEACT in 40 CFR 268.40, or are D003 reactive cyanide.	Land disposal of hazardous wastewaters that are hazardous only because they exhibit a characteristic and are not otherwise prohibited under 40 CFR 268 – **applicable**	40 CFR 268.49(b) F.A.C. 62-730.183

Table 16
List of ARARs and TBCs for the Fairfax Street Wood Treaters Site Record of Decision

Action-Specific ARARs and TBC			
Action	**Requirement**	**Prerequisite**	**Citation**
Discharge of wastewater to a Wastewater Facility	An industrial user shall not introduce into a Wastewater Facility (WWF) any pollutant which causes pass through or interference.	Discharge pollutants into a "Wastewater Facility" as defined in F.A.C. 62-625.200(29) by an industrial user (i.e., source of discharge) – **applicable**	F.A.C. 62-625.400(1)(a) General Prohibitions
Discharge of wastewater to a Wastewater Facility	The following pollutants shall not be introduced into a WWF: • Pollutants which create a fire or explosion hazard in the WWF • Pollutants which will cause corrosive structural damage to the WWF, but in no case discharges with pH lower than 5.0, unless the WWF is specifically designed to accommodate such discharges; • Solid or viscous pollutants in amounts which will cause obstruction to the flow in the WWF resulting in interference; • Any pollutant, including oxygen demanding pollutants, released in a discharge at a flow rate or pollutant concentration which will cause interference with the WWF; • Heat in amounts which will inhibit biological activity in the WWF resulting in interference, but in no case heat in such quantities that result in the discharge from the treatment plant having a temperature that exceeds 40° C (104° F) unless the Department, upon request of the control authority, approves alternate temperature limits in accordance with Rule 62-302.520, F.A.C.; • Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through; • Pollutants which result in the presence of toxic gases, vapors, or fumes within the WWF in a quantity that will cause acute worker health and safety problems; or • Any trucked or hauled pollutants, except at discharge points designated by the control authority.	Discharge pollutants into a "Wastewater Facility" as defined in F.A.C. 62-625.200(29) by an industrial user (i.e., source of discharge) – **applicable**	F.A.C. 62-625.400(2)(a)-(h) Specific Prohibitions

Table 16
List of ARARs and TBCs for the Fairfax Street Wood Treaters Site Record of Decision

Action-Specific ARARs and TBC			
Action	**Requirement**	**Prerequisite**	**Citation**
	Local Limits: Where specific prohibitions or limits on pollutants or pollutant parameters are developed by a public utility in accordance with F.A.C. 62-625.400(3), such limits shall be deemed to be pretreetment standards.	Discharge pollutants into a "Wastewater Facility" as defined in F.A.C. 62-625.200(29) by an industrial user (i.e., source of discharge) – **applicable**	F.A.C. 62-625.400(4)
Waste Transportation – Primary and Secondary Wastes			
Transportation of hazardous waste *on–site*	The generator manifesting requirements of 40 CFR 262.20–262.32(b) do not apply. Generator or transporter must comply with the requirements set forth in 40 CFR 263.30 and 263.31 in the event of a discharge of hazardous waste on a private or public right–of–way.	Transportation of hazardous wastes on a public or private right–of–way within or along the border of contiguous property under the control of the same person, even if such contiguous property is divided by a public or private right–of–way – **applicable**	40 CFR § 262.20(f) F.A.C. 62-730.160
Transportation of hazardous waste *off–site*	Must comply with the generator standards of Part 262 including 40 CFR 262.20–23 for manifesting, Sect. 262.30 for packaging, Sect. 262.31 for labeling, Sect. 262.32 for marking, Sect. 262.33 for placarding,	Preparation and initiation of shipment of hazardous waste off–site –**applicable**	40 CFR § 262.10(h); F.A.C. 62-730.160
Transportation of *hazardous materials*	Shall be subject to and must comply with all applicable provisions of the HMTA and HMR at 49 CFR 171–180 related to marking, labeling, placarding, packaging, emergency response, etc.	Any person who, under contract with a department or agency of the federal government, transports "in commerce," or causes to be transported or shipped, a hazardous material – **applicable**	49 CFR § 171.1(c)
Transportation of samples (i.e. contaminated soils and wastewaters)	Are not subject to any requirements of 40 CFR Parts 261 through 268 or 270 when: • the sample is being transported to a laboratory for the purpose of testing; or • the sample is being transported back to the sample collector after testing • the sample is being stored by sample collector before transport to a lab for testing	Samples of solid waste or a sample of water, soil for purpose of conducting testing to determine its characteristics or composition – **applicable**	40 CFR § 261.4(d)(1)(i)–(iii) F.A.C. 62-730.030 40 CFR § 261.4(d)(2)

Table 16
List of ARARs and TBCs for the Fairfax Street Wood Treaters Site Record of Decision

ARAR = applicable *or* relevant and appropriate requirement
CFR = Code of Federal Regulations
CWA = Clean Water Act
F.A.C. = Florida Administrative Code, Chapters as specified
F.S. = Florida Statutes
HAP =hazardous air pollutant
HMTA = Hazardous Materials Transportation Act
HMR = Hazardous Materials Regulations
POTW = publicly owned treatment works
RCRA = Resource Conservation and Recovery Act
TBC = To Be Considered
TCLP = toxicity characteristic leaching procedure
UHCs = underlying hazardous constituents
UTS = Universal Treatment Standards
WWF = Wastewater Facility

APPENDIX C

PROPOSED PLAN AND PUBLIC MEETING NOTICE

(21 Sheets)

U.S. ENVIRONMENTAL PROTECTION AGENCY

PROPOSED PLAN

Fairfax Street Wood Treaters

Jacksonville, Duval County, Florida

This Proposed Plan is not to be considered a technical document. It has been prepared to provide the general public an understanding of the activities that have been occurring at the Fairfax Street Wood Treaters site. For technical information, please review the documents in the information repositories.

The **U.S. Environmental Protection Agency (EPA)*** is issuing this **Proposed Plan** for the environmental **cleanup** of the **Fairfax Street Wood Treaters (FSWT)** site located at 2610 Fairfax Street in Jacksonville, Duval County, Florida. This Proposed Plan summarizes the findings from studies and reports that form the basis for the Agency's preferred cleanup alternative. These reports include the **Remedial Investigation** and **Feasibility Study (RI/FS)** contained in the Administrative Record file for this site, which is available for review at the Information Repository (see text box below). **EPA** is issuing this Proposed Plan as part of its public participation responsibilities under the **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund)** and the **National Oil and Hazardous Substances Pollution Contingency Plan (NCP)** for selecting a **Remedial Action (RA)**.

What is a Proposed Plan?

A Proposed Plan is a document to facilitate public involvement in a site's remedy selection process. The Proposed Plan is a document that the lead agency is required to issue to fulfill the requirements of **CERCLA** §117(a) and **NCP** §300.430(f)(2). A Proposed Plan presents EPA's preliminary recommendation on how to best address contamination at a site, describes the alternatives evaluated, and provides EPA's recommended **Preferred Alternative**.

EPA, in consultation with the **Florida Department of Environmental Protection** (**FDEP**), will select a final remedy for the **FSWT** site after all the information submitted during the 30-day public comment period is reviewed and considered (see the text box on the right side of this page). The proposed Preferred Alternative may be modified, or another **RA** presented in this plan may be selected based on new information or public comments. Therefore, the public is encouraged to review and comment on all the alternatives presented in this Proposed Plan. The EPA's final decision will be announced in the **Record of Decision (ROD)** with inclusion of a **Responsiveness Summary** that addresses the public comments received.

EPA's preferred cleanup alternative builds upon previously completed removal actions conducted by EPA at the FSWT site and surrounding properties. The preferred cleanup alternative also considers the reasonably anticipated future land use of the FSWT site (residential) and, therefore, would not interfere with any redevelopment plans for the site. The major components of the preferred cleanup alternative at the FSWT site are: excavation and off-site disposal of on-site contaminated retention pond sediments, on-site and off-site soils; demolition of on-site building slab; removal of piping and residual waste inside of the on-site underground drainage pipes; off-site treatment (when necessary) and disposal of soils, sediments, demolition debris, piping and residual waste at off-site permitted landfills, and site restoration.

30-Day Public Comment Period
May 1, 2017 – May 31, 2017

Public Meeting
Tuesday, May 16, 2017, 7:00 PM
Emmett Reed Community Center
1093 W 6th Street, Jacksonville, FL

As part of public involvement during the 30-day public comment period, the community is invited to a public meeting. EPA will present its understanding of the site, provide its rationale for the Preferred Alternative presented in this Proposed Plan, and answer questions from the community.

Information Repository

The Fairfax Street Information Repository is located at Dallas Graham Branch Library, 2304 N. Myrtle Avenue, Jacksonville, FL 32209.

EPA Contact:
Leigh Lattimore
Remedial Project Manager
U.S. Environmental Protection Agency
(404) 562-8768
E-mail: Lattimore.Leigh@epa.gov

* *Terms first appearing in **bold** are defined in the Glossary of Terms and Acronyms at the end of this document.*

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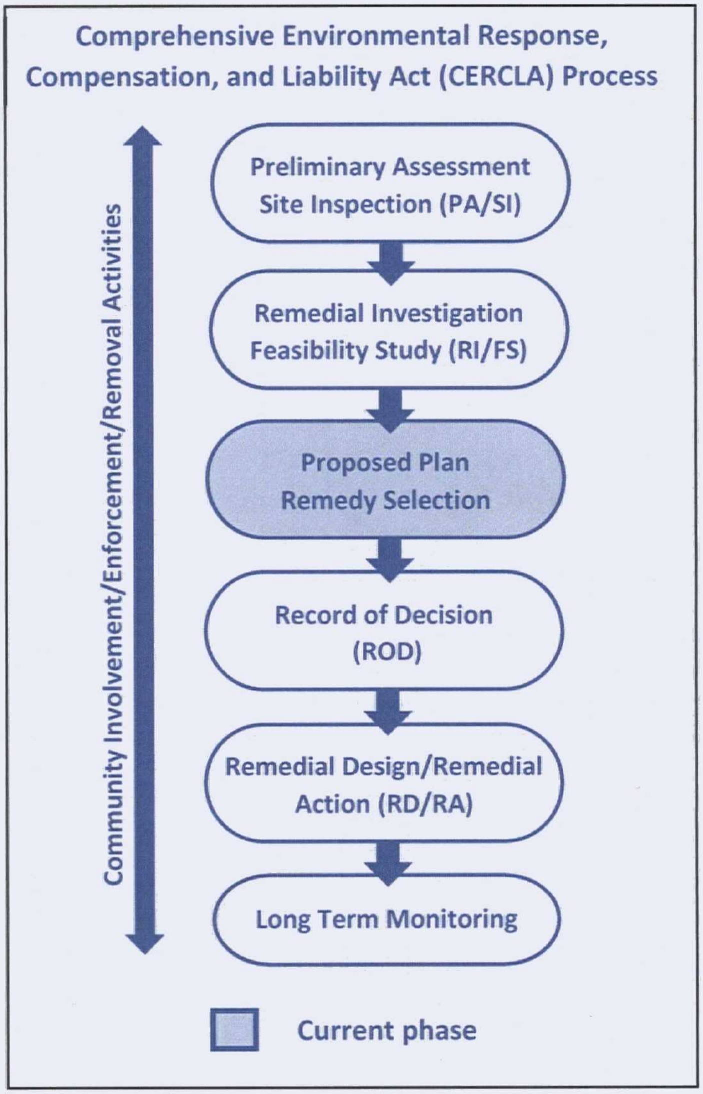


Figure 1: The CERCLA Process

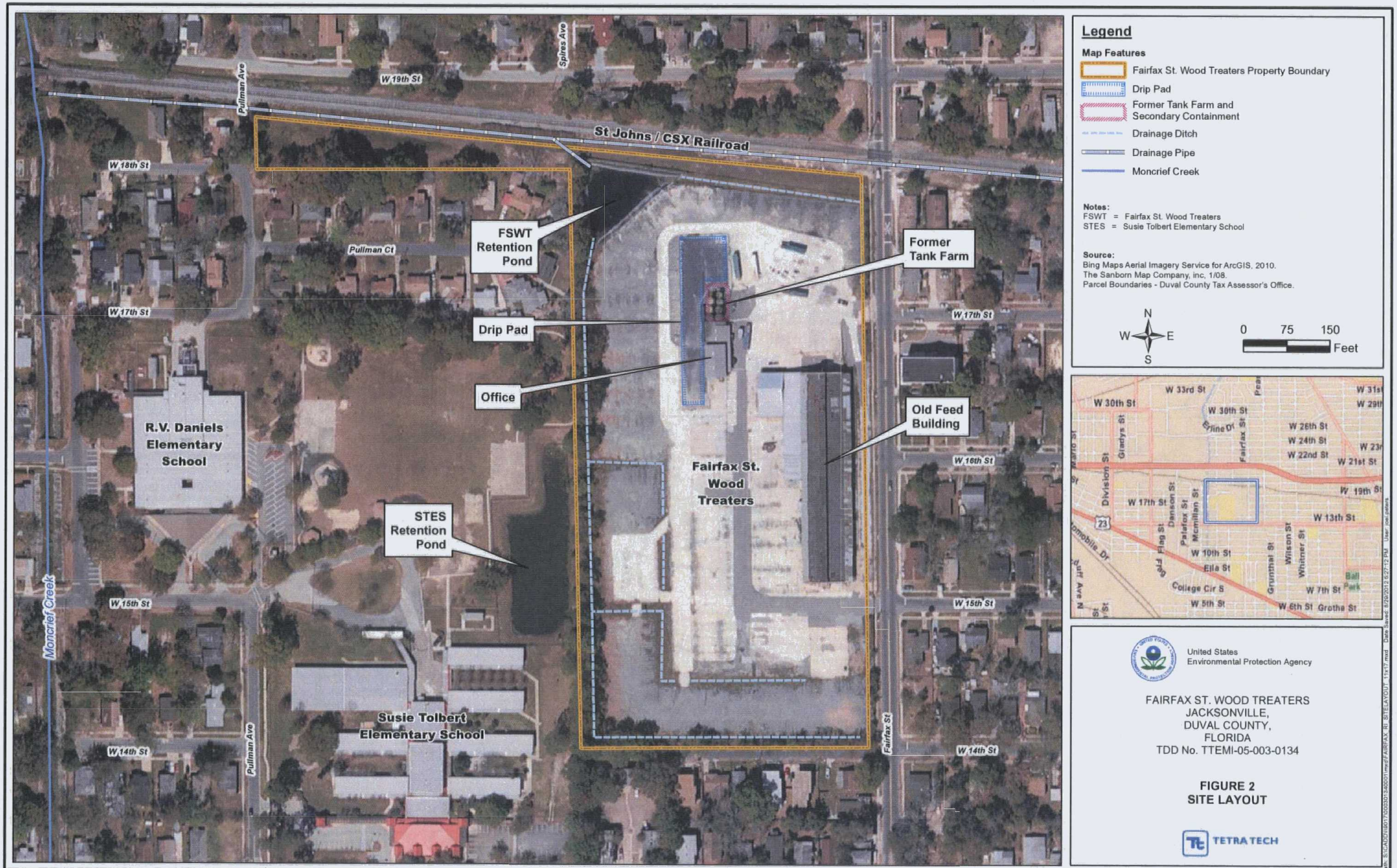
The CERCLA Process

EPA is issuing this Proposed Plan as part of its public participation responsibilities under CERCLA and the NCP. Environmental investigations and cleanup at the FSWT site follow the steps shown in **Figure 1**. The project is currently in Step 3, the Proposed Plan and remedy selection. Remaining activities include EPA issuing the **ROD**, **Remedial Design (RD)**, RA, conducting long-term monitoring (if necessary), and site closure.

Site Background

History

The FSWT site encompasses 12.5 acres in a predominantly residential area of Jacksonville, Florida. The FSWT site is owned by Fairfax Land Management, Inc., and was formerly used as a wood treating facility operated by Wood Treaters, LLC, and its corporate predecessor, Wood Treaters, Inc. (Wood Treaters). Features of the facility include a building slab, a parking lot, process area including pipes and drains, a former tank farm and containment area, and a storm water retention pond. The FSWT site is bordered to the north by St. Johns/CSX railroad tracks, to the east by Fairfax Street and residential properties beyond, to the south by West 14th Street and residential properties beyond, and to the west by Susie E. Tolbert and R.V. Daniels Elementary Schools and by Pullman Court. Moncrief Creek is located about 1,000 feet west of the FSWT property. Overflow from the retention pond on the FSWT site flows into Moncrief Creek via a drainage pipe. A map of the FSWT site is shown below in **Figure 2** on page 3.


Legend
Map Features
Fairfax St. Wood Treaters Property Boundary
Drip Pad
Former Tank Farm and Secondary Containment
Drainage Ditch
Drainage Pipe
Moncrief Creek
Notes:
FSWT = Fairfax St. Wood Treaters
STES = Susie Tolbert Elementary School
Source:
Bing Maps Aerial Imagery Service for ArcGIS, 2010.
The Sanborn Map Company, inc, 1/08.
Parcel Boundaries - Duval County Tax Assessor's Office.
N
W
E
S
0
75
150
Feet
St Johns / CSX Railroad
W 19th St
W 18th St
W 17th St
W 16th St
W 15th St
W 14th St
Pullman Ave
Pullman Ct
Spires Ave
Fairfax St
Moncrief Creek
FSWT Retention Pond
Former Tank Farm
Drip Pad
Office
Old Feed Building
Fairfax St. Wood Treaters
R.V. Daniels Elementary School
STES Retention Pond
Susie Tolbert Elementary School
United States Environmental Protection Agency
FAIRFAX ST. WOOD TREATERS
JACKSONVILLE,
DUVAL COUNTY,
FLORIDA
TDD No. TTEMI-05-003-0134
FIGURE 2
SITE LAYOUT
TETRA TECH

From 1980 to 2010, Wood Treaters operated a wood treating facility that pressure-treated utility poles, pilings, heavy timber, and plywood lumber products using the wood treating preservative **chromated copper arsenate (CCA)**. After drip drying in the process area, the treated wood was stored on the gravel areas along the northern, southern, and western portions of the property. Based on knowledge of the process and the contaminants at the site, some of the **CCA** preservative dripped onto the ground, which resulted in soil and sediment contamination.

The building at the FSWT site, which stored wood treating product, was destroyed in a fire in January 2017. There is still residual waste material in pipes and drains. These wastes are classified as a **Resource Conservation and Recovery Act (RCRA)** hazardous listed waste [F035]. Building and other man-made debris that is contaminated with this waste may be hazardous debris under **RCRA** regulations. It is also anticipated that contaminated soil and sediments around the process area may be classified as RCRA hazardous waste because they contain RCRA listed hazardous wastes or have elevated levels of arsenic and/or chromium that could leach above the toxicity characteristic leaching procedure levels. Under CERCLA Section 121(d)(2) remedial actions must comply with **'applicable or relevant and appropriate requirements' (ARARs)**, which includes RCRA regulations for generation, characterization, storage, treatment and disposal of hazardous waste. The RCRA **Land Disposal Restrictions (LDR)** regulations specify that treatment standards must be met before any hazardous waste is disposed of on land or in permitted landfills. For F035 wastes or soil containing F035, the RCRA regulated constituents that must meet **LDR** treatment standards include arsenic and chromium.

In 1990, FSWT installed a storm water collection and retention system, including site grading and paving for drainage, storm water collection swales, diversion berms, and a polyethylene-lined retention pond. Before 1990, storm water was either directed to a retention pond at the Susie E. Tolbert Elementary School or flowed overland across the property. This uncontrolled storm water, contaminated with the wood treating chemical CCA, is believed to have overflowed onto neighboring properties and into Moncrief Creek and migrated into the soils and sediment. It is believed that after the storm water collection system was installed, contaminated storm water continued to be released from the site.

CERCLA Response Actions

In 2010 and 2011, EPA initiated emergency, short-term cleanup actions that included removing contaminated soil on the Susie E. Tolbert Elementary School playground located near the fence line with the site; removing contaminated water and sediment from the retention pond on the school property; removing contaminated soil from unpaved parts of the former wood-treating facility; treating and disposing of more than 150,000 gallons of contaminated water; cleaning and removing chemical storage tanks, containment areas and piping; removing contaminated soil from three residential properties; covering exposed soils with gravel to prevent the spread of contamination through dust and storm water runoff (the gravel was cleaned by EPA before use); transporting contaminated soil, sludge, and debris off site for proper disposal; and repairing and placing a lock on site fencing. The FSWT site was included on the Superfund **National Priorities List (NPL)** in 2013, and a **RI** to determine the nature and extent of the contamination at the property and nearby residential properties was subsequently conducted.

The neighborhood surrounding the FSWT site is considered a potential **Environmental Justice (EJ)** community. **EJ** is defined as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Further, the Duval County Health Department has divided the city into six (6) health zones with FSWT located in the middle of Health Zone 1. Health Zone 1 has the highest rates of infant mortality, heart disease mortality, asthma-related emergency room visits, and emergency room visits related to uncontrolled diabetes in the city. Health Zone 1 also has the lowest average household income, highest unemployment rate, and lowest education level. See the Environmental Justice Memorandum included in Appendix E of the Final Feasiblity Study for more information.

Public Participation

Following two years of cleanup actions and site investigations, EPA sponsored a reuse planning process to gather community input and identify site stewardship options. This information was memorialized in the Reuse Framework memo dated March 2013 and can be found at the Information Repository. EPA also participated in multiple public meetings conducted in January 2015 and September 2016.

Site Characteristics

From 2012 to 2015, EPA conducted a **RI/FS**. The RI/FS identified the types, quantities, and locations of the contaminants and developed and evaluated ways to address the contamination. As part of the site assessment, RI, and removal action, EPA collected soil samples on the FSWT site, the Susie E. Tolbert Elementary School, and 96 neighboring residential properties. These soil samples were analyzed, and the results were compared with EPA's residential soil **Regional Screening Levels (RSL), FDEP's 2005 Soil Cleanup Target Levels (SCTL),** and site-specific background levels for each of the contaminants detected. Surface water and sediment samples were collected from the FSWT site retention pond and Moncrief Creek. The sediment and surface water samples were analyzed, and the results were compared with 2003 FDEP Sediment Quality Assessment Guidelines for Florida Inland Waters, threshold effect concentrations, and Florida Ambient Water Quality Criteria.

Eight **groundwater** wells were sampled from the FSWT site. These samples were analyzed, and the results were compared with EPA Safe Drinking Water Act **Maximum Contaminant Levels** (**MCLs**).

FSWT Property

The RI indicated that the primary **contaminants of concern (COCs)** at the FSWT site are arsenic, chromium, and copper. Arsenic was detected at concentrations as high as 1,300 parts per million (**ppm**), chromium was detected at concentrations as high as 2,000 ppm, and chromium was detected at concentrations as high as 1,400 ppm in on-site soil samples on the FSWT property. The levels of arsenic, chromium, and copper in soils on the FSWT property exceed both the screening values and site-specific background levels. The SCTL for arsenic in residential soil is 2.1 ppm and the background concentration is 2.36 ppm. The SCTL for chromium in residential soil is 210 ppm, and the background concentration is 7.03 ppm. The SCTL for copper in residential soil is 150 ppm and the background concentration in surface soil is 10.6 ppm. Based on analytical results for soil samples, the extent of on-site **COCs** at the former wood treating facility appears to be primarily within the top 4 feet of soil.

Sludge-like residual waste (contamination source material) was collected from drains and pipes on the FSWT site during the RI and analyzed. Arsenic was detected at concentrations ranging from 150 ppm to 11,000 ppm, total chromium concentrations ranged from 270 ppm to 5,800 ppm, and copper concentrations ranged from 160 ppm to 8,900 ppm.

Subsurface soil (2 to 3 feet and 5 to 6 feet below ground surface [**bgs**]) samples were collected from five locations beneath the concrete floor (building foundation) of the Old Feed Building. Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-c,d)pyrene are carcinogenic polycyclic aromatic hydrocarbons (cPAHs) that were detected in subsurface soil in a limited area. When combined with the risk from other COCs on the property, these contaminants contribute to the overall cumulative cancer risk on site; therefore, they are also considered COCs. The source of the cPAHs is not known; however, the source is likely a historical operation.

The on-site retention pond is lined with high-density polyethylene; however, the liner is breached in many areas. A soil sample was collected from beneath the pond liner. The sample contained arsenic and chromium exceeding their screening values at 94 ppm and 410 ppm, respectively.

The groundwater samples collected from the FSWT site did not contain site COCs above **MCLs**.

Neighboring Properties

The primary COC at the neighboring properties is arsenic. Arsenic was detected at concentrations as high as 110 ppm. Arsenic contamination in residential areas and schools around the FSWT property appears to be primarily within the top foot of soil. The concentrations of arsenic detected in the soil decrease with distance from the FSWT site. Chromium was detected at concentrations as high as 30 ppm, and copper was detected at concentrations as high as 170 ppm on residential properties surrounding the FSWT site.

Moncrief Creek

Sediment

Arsenic was detected at concentrations as high as 55 ppm, chromium was detected at concentrations as high as 190 ppm, and copper was detected at concentrations as high as 110 ppm in sediment samples collected from an area within Moncrief Creek located downstream of the retention pond on the FSWT site. These detections exceed the sediment ecological screening values for arsenic, chromium, and copper of 9.8 ppm, 43 ppm and 32 ppm, respectively.

Surface Water

COCs in Moncrief Creek were all below EPA surface water screening values and FDEP surface water cleanup target levels.

Scope and Role of Response Action

This Proposed Plan presents a site-wide remedy to address the risks due to contaminated media at the FSWT site. The contaminated media include: surface and subsurface soil on the FSWT property and on adjacent residential properties, sediment in the on-site retention pond, residual waste in on-site pipes and drains, and contaminated building debris. Further investigation of sediments in Moncrief Creek located off-site will be undertaken to determine if a response action is warranted to protect the environment.

EPA conducted removal activities at the FSWT property and the adjacent Susie E. Tolbert and R.V. Daniels Elementary Schools' shared playground in 2011. During these removal activities, EPA excavated these areas down to about 1.5 feet bgs and separated the contaminated "fines" material from the gravel. The fines were disposed of and the gravel was then power washed and spread back on top of the excavated surface to control dust and limit exposure to the soil below. The FSWT retention pond water was drained, treated, and disposed of, and the sediments were partially excavated and disposed of.

Water from the Susie E. Tolbert Elementary School retention pond was pumped out and sediments were excavated. The excavated sediments were replaced with clean fill material and the area surrounding the pond was re-sodded. A small area on the Susie E. Tolbert and R.V. Daniels Elementary Schools' shared playground was excavated down to 24 inches bgs. The excavated area was then backfilled with clean fill material and re-sodded.

In 2011, EPA also conducted removal activities at three nearby residential properties where arsenic concentrations were identified near or above the EPA **Removal Management Level** (**RML**) of 39 ppm for residential soil, and where concerns were raised regarding the possibility that children could come into contact with the contaminated soil. Soil was excavated down to 1.5 feet in some areas. Excavated areas were then backfilled with clean fill material and re-sodded or covered with mulch.

The focus of this Proposed Plan is to address the source material remaining on the site (residual material in pipes and drains), building debris, retention pond sediments, and contaminated soils on the FSWT site and residential properties surrounding the FSWT site. The Preferred Alternative in this plan addresses these risks to human health and the environment.

Summary of Site Risks

As part of the RI/FS, EPA conducted risk assessments to evaluate the current and future effects of site-related contamination to human health and the environment. For detailed information regarding risk, see the text box on page 7, "What is Risk and How is it Calculated?"

EPA worked with the community through interviews, meetings, and a community reuse workshop to identify the reasonably anticipated future use of the site, which is residential, with possible commercial and recreational use components. Residential use or light commercial use of the site is anticipated, and the residential areas around the FSWT site are expected to remain residential.

Based on this information, certain receptors (people or animals that could be exposed to contamination) and future **exposure pathways** were identified. These receptors and pathways include the following:

- **Future Industrial and Commercial Workers:** accidental swallowing of, skin contact with, and inhalation of particles from surface soil.
- **Current and Future Utility and Construction Workers:** accidental swallowing of, skin contact with, and inhalation of particulates from surface and subsurface soil at the site; and incidental

What is Risk and how is it Calculated?

A Superfund human health risk assessment estimates the "baseline risk." This baseline is an estimate of the likelihood that health problems would occur if no cleanup action were taken at a site. To estimate the baseline risk at a Superfund site, EPA undertakes a four-step process:

- **Step 1:** Analyze Contamination
- **Step 2:** Estimate Exposure
- **Step 3:** Assess Potential Health Dangers
- **Step 4:** Characterize Site Risk

In **Step 1**, EPA looks at the concentrations of contaminants found at a site, as well as past scientific studies on the effects that contaminants had on people (or animals, when human studies are unavailable). Comparison between site-specific concentrations and concentrations reported in past studies helps EPA to determine which contaminants are most likely to pose the greatest threat to human health.

In **Step 2**, EPA considers the different ways that people might be exposed to the contaminants identified in Step 1, the concentrations that people might be exposed to, and the potential frequency and duration of exposure. Using this information, EPA calculates a "reasonable maximum exposure (RME)" scenario, which portrays the highest level of human exposure that could reasonably be expected to occur.

In **Step 3**, EPA uses the information from Step 2 combined with information on the toxicity of each chemical to assess potential health risks. EPA considers two types of risk: cancer risk, and non-cancer risk. The likelihood that any kind of cancer would result from a Superfund site is generally expressed as a probability. For non-cancer health effects, EPA calculates a "hazard index." The key concept here is that a "threshold level" (measured usually as a hazard index (HI) of less than 1) exists below which non-cancer health effects are no longer predicted.

In **Step 4**, EPA determines whether the site risks are great enough to cause health problems for people at or near the Superfund site. The results of the three previous steps are combined, evaluated and summarized. EPA adds up the potential risks from the individual contaminants and exposure pathways and calculates a total site risk.

ingestion of and dermal contact with groundwater (if present) at less than 10 feet bgs.

- **Current and Future Trespassers:** accidental swallowing of, skin contact with, and inhalation of particulates from surface soil; incidental ingestion of and dermal contact with sediment and surface water in the on-site retention pond.
- **Future On-Site Recreationalists:** accidental swallowing of, skin contact with, and inhalation of particulates from surface soil.
- **Current and Future Off-Site Recreationalists:** accidental swallowing of and skin contact with sediment and surface water in Moncrief Creek.
- **Future On-Site Residents:** accidental swallowing of, skin contact with, and inhalation of particulates from surface and subsurface soil and ingestion of and dermal contact with groundwater.
- **Current and Future Off-Site Residents:** accidental swallowing of, skin contact with, and inhalation of particulates and produce grown in surface and subsurface soils at the off-site residential areas.
- **Current and Future School Staff and Students:** accidental swallowing of, skin contact with, and inhalation of particulates from surface soil.

Human Health Risk Assessment

EPA completed a **Human Health Risk Assessment** (**HHRA**) for the FSWT site that evaluated the exposure pathways and receptors listed above. The main objective of a **HHRA** is to determine if there are unacceptable risks associated with a site, whether action under CERCLA is warranted, and to help set cleanup levels that are protective. Cancer risks are considered unacceptable if the total cancer risk exceeds 1E-04 (1 in 10,000), and non-cancer hazards are considered unacceptable if the total **hazard index (HI)** exceeds 1 (see "What is Risk and how is it Calculated" to the left). The results of the HHRA for soil indicate that excess lifetime cancer risk levels on the FSWT property exceed 1.0E-04, the upper end of EPA's acceptable risk range, for future residents (7.0E-04), future industrial and commercial workers (1.0E-04), future child recreationalists (2.0E-04), and future utility workers (2.0E-04). The non-cancer risks on the FSWT property exceeded a **HI** of 1 (HI of 8) for future residents (see Table 1 on page 8).

For off-site residential soils, EPA believes that soils immediately adjacent to the FSWT property and nearby residential yards have been contaminated by former wood treating operations conducted at the site. The HHRA determined that several residential yards exceed a HI of 1. It was determined that the site-related contamination migrated due to storm water runoff and spray from the tires of the trucks leaving the site from the south, east, and west. EPA and FDEP decided to address all residential parcels that were impacted by site-related contamination and where arsenic concentrations are above the background concentration of 2.36 ppm. EPA has made the risk management decision to include these additional residential properties in the RA for the site based on the fact that the Mid-Westside Neighborhood community surrounding the site is considered an overburdened community with EJ concerns and suffers from cumulative negative environmental impacts and health-based stressors explained in more detail in Appendix E of the final **FS**.

Table 1: Summary of Reasonable Maximum Exposure Risks and Hazards (bold = unacceptable risk)

Location	Receptor	Maximum Hazard Index	Maximum Cancer Risk
On-Site	Future Industrial and Commercial Workers	0.62	8.0E-05
	Future Utility Workers	0.78	**2.0E-04**
	Future Construction Workers	0.61	2.0E-05
	Current and Future Trespassers	0.28	2.0E-05
	Future Recreationalists	**4.2**	**2.0E-04**
	Future Residents	**8.2**	**7.0E-04**
Off-Site	Current and Future Residents	**1.11**	3.0E-05
	Current and Future Utility Workers	0.0066	1.0E-06
	Current and Future School Students and Staff	0.0093	1.0E-06
	Current and Future Moncrief Creek Recreationalists	0.085	--

For Moncrief Creek, the HHRA assumed that limited exposure to surface water and sediment will occur to adolescents and adult recreationalists. It was determined there was no unacceptable risk.

Ecological Risks

A **Screening Level Ecological Risk Assessment** (**SLERA**) was conducted by EPA to evaluate the potential effects to the environment from the contamination at the FSWT site and within Moncrief Creek. The **SLERA** was developed as part of the RI. The EPA evaluated potential risks to aquatic organisms in Moncrief Creek and the on-site retention pond, and to sensitive terrestrial organisms (mammals and birds), in and around the FSWT site. The SLERA indicated that concentrations of several constituents, primarily metals, in sediments in the on-site retention pond and Moncrief Creek exceed ecological screening values for certain wildlife receptors. Within the creek, the major area of sediment contamination is located about 1,800 feet downstream of the discharge point of storm water from the FSWT site to the creek. However, further investigation of stream sediments in Moncrief Creek located off site will be undertaken to determine if a response action is warranted to protect the environment. Surface water samples in the creek were all below chronic water quality criteria for the protection of aquatic life.

The SLERA also identified a risk for an avian receptor that may use the on-site retention pond as a primary food source. The concentrations of arsenic and copper associated with the surface water in the on-site retention pond were above chronic water quality criteria for the protection of aquatic life.

It is the EPA's current judgment that the Preferred Alternative identified in this Proposed Plan, or one of the other active measures considered in the Proposed Plan, is necessary to protect public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

Remedial Action Objectives

Remedial Action Objectives (RAOs) describe what the proposed site cleanup is expected to accomplish. The **RAOs** for the FSWT site and neighboring properties are as follows:

- Prevent human exposure (direct contact and ingestion) to on-site soil with concentrations of COCs above levels protective of residential use.
- Prevent unacceptable risk to ecological receptors (avian) from contaminated sediments and surface water in the on-site retention pond.
- Prevent direct contact with residual waste and contaminated building structures located on the site, including the drip pad and process containment areas.
- Prevent migration of contaminated storm water runoff from the FSWT site to adjacent properties and Moncrief Creek.
- Prevent off-site residential human exposure (direct contact and ingestion) to soil with concentrations of arsenic above levels protective of residential use.

The proposed cleanup levels or **Preliminary Remediation Goals (PRGs)** for contaminated media at the FSWT site were developed specifically to protect human health and the environment and to address the unacceptable risks. This will be achieved by reducing the concentrations to the following **PRGs**:

Medium	Preliminary Remediation Goals
Soil/Source Material	Arsenic: 2.36 ppm
	Chromium: 210 ppm
	Copper: 150 ppm
	cPAH: 0.1 ppm *
Sediment	Arsenic: 9.8 ppm
	Chromium: 43 ppm
	Copper: 32 ppm

*Benzo(a)pyrene equivalents

With the exception of arsenic, the PRGs (i.e., cleanup levels) for the on-site and off-site contaminated surface soils are based on FDEP's SCTLs for direct exposure and residential use [F.A.C. 62 -777 Table II]. These SCTLs are identified as chemical-specific **ARARs**. However, neither EPA (as a policy matter) nor Florida set PRGs for an individual contaminant that is more stringent than the site-specific background concentration for that contaminant, provided that the background level is protective of human health and the environment. Therefore, EPA will use the site-specific background level of 2.36 ppm for arsenic instead of the SCTL as provided in F.A.C 62-780.650(1)(d).

The PRGs for sediments are based on Florida's sediment quality assessment guidelines for protection of sediment-dwelling organisms.

Summary of Remedial Alternatives

CERCLA § 121(b)(1), 42 U.S.C. § 9621 (b)(1), mandates that RAs be protective of human health and the environment, be cost effective, and use permanent solutions, alternative treatment technologies, and resource recovery alternatives to the maximum extent practicable. Section 121(b)(1) also establishes a preference for RAs which use, as a principal element, treatment to permanently and significantly reduce the volume, toxicity, or mobility of the hazardous substances, pollutants, and contaminants at a site. CERCLA § 121(d), 42 U.S.C. § 9621(d), further specifies that a RA must require a level or standard of control of the hazardous substances, pollutants, and contaminants that at least attains ARARs under federal and state environmental laws unless a waiver can be justified pursuant to CERCLA § 121(d)(4), 42 U.S.C. § 9621(d)(4). RA alternatives for the FSWT site and neighboring properties are presented in the table below. Capital costs are those expenditures that are required to construct a remedial alternative.

Remedial Alternatives – FSWT Soil	
Alternative	**Description**
1	No Action
2	Excavation and Off-site Treatment and Disposal
3	Excavation, Physical Separation, and Off-site Disposal
4	Excavation, Physical Separation, Solidification, and Off-site Disposal
5	Excavation, Solidification, and Off-site Disposal

Alternative 1: No Action *(No Cost)*

The No Action alternative is required by the NCP as a baseline with which to compare other RA alternatives. Alternative 1 is not protective of human health and the environment because it does not meet any of the RAOs. This alternative would leave the FSWT site "as is," with no actions taken beyond what is already in place. In addition, this alternative assumes that existing controls and monitoring will not be maintained.

Alternative 2: Excavation and Off-Site Treatment and Disposal *($7,860,000)*

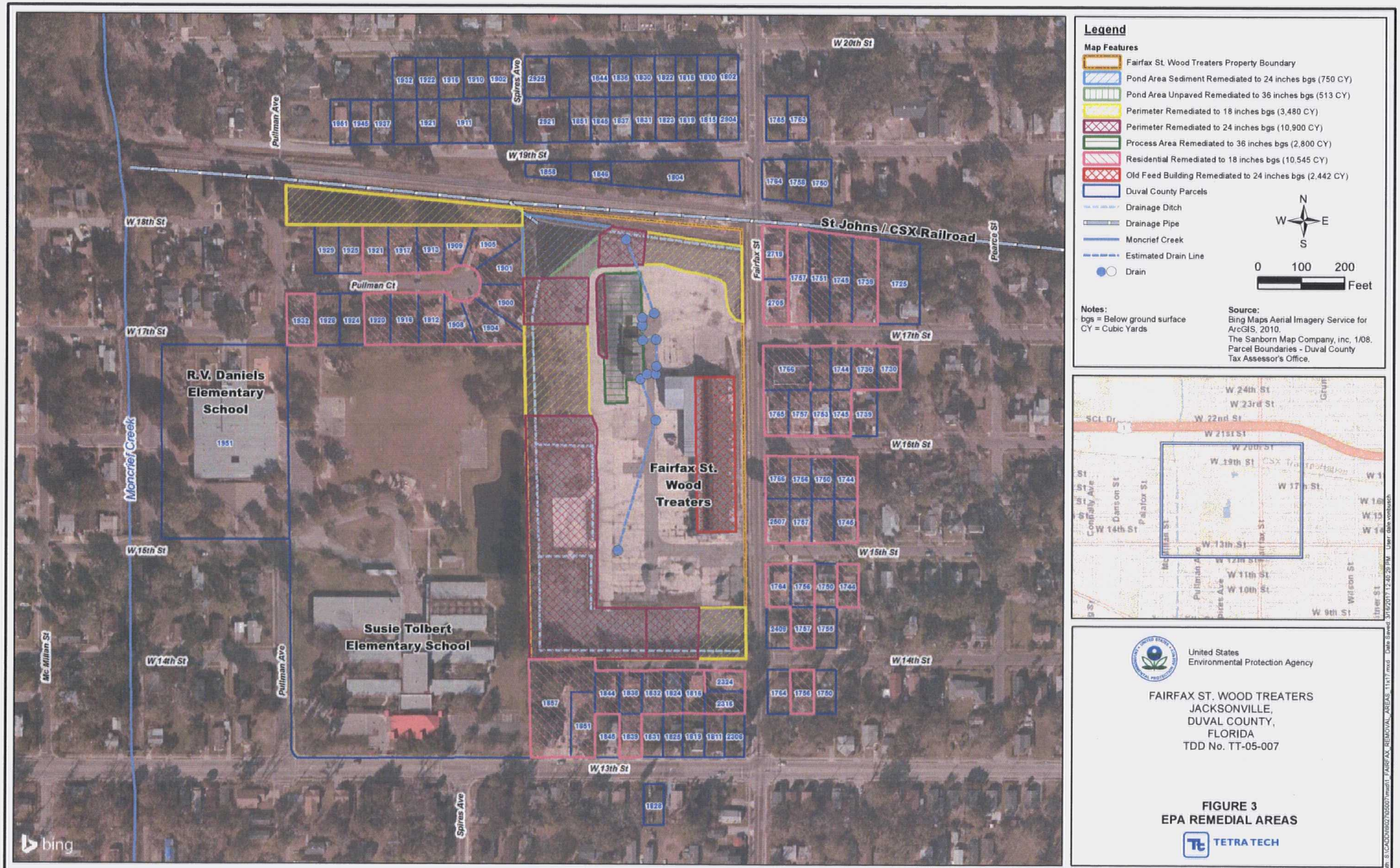
This alternative would apply to all surface soils contaminated with constituents above their respective PRGs, including on the FSWT site, residential properties around the FSWT site, sediments from the on-site retention pond, contaminated demolition debris, and residual waste material in pipes and drains. This alternative would involve physically removing the contaminated soil and waste material, temporary staging, characterization and staging prior to trucking it to an off-site landfill for treatment and disposal. Disposal would occur at an EPA-approved RCRA Subtitle C or D (hazardous or solid waste) facility (e.g., permitted landfill), depending on the waste classification, and hazardous wastes (soil and hazardous debris) would be treated off-site to meet RCRA LDR treatment standards prior to disposal. The proposed excavation areas and depths are shown on **Figure 3** on page 11. A **RD** and RA Work Plan would be developed to outline details about site preparation; the extent of excavation; demolishing structures on the FSWT site; excavation; decontamination; transportation; and off-site disposal of the removed material. The plan would also include developing safety measures for workers, on-site employees, and the public during remedial activities. As part of the RD, additional sampling to delineate potential site-related contamination on the eastern edge of residential neighborhood east of the site and on the eastern boundary of the school will be completed. If the investigation demonstrates contaminant concentrations are above cleanup levels, then the area will be excavated. The RA would follow the procedures and requirements established in the RA Work Plan. After excavation, samples will be collected to confirm whether the COCs have been removed to below PRGs.

Alternative 3: Excavation, Physical Separation, and Off-Site Disposal *($8,753,000)*

This alternative would apply to contaminated on-site soils and off-site surface residential soils. This alternative requires excavating the soil and applying physical separation "ex situ" (literally "out of place," in this case meaning above ground) at the FSWT site. Physical separation uses physical methods to separate the large soil particles (that are more likely to be free of contaminants) from the smaller particles (that are contaminated). The separated soil will then be analyzed at an EPA-approved laboratory to make sure the larger particles are below PRGs (meet cleanup levels) and also no longer contain RCRA hazardous waste or are not considered RCRA characteristic hazardous waste. The advantage of this alternative is that the non-hazardous contaminated soil may be disposed at a RCRA Subtitle D, solid waste disposal facility (e.g., permitted landfill). Physical separation would use either gravity separation or sieving. Gravity separation uses the specific weight of particles to separate them. Sieving is the process of using different-sized sieves and screens to separate smaller particles from larger particles. The RD, additional delineation sampling, and RA Work Plan development, FSWT site facilities demolition, and excavation would be the same as described in Alternative 2. Physical separation cannot be applied to sediments from the on-site retention pond, demolition debris, or residual waste material in pipes and drains. This alternative would be combined with a different alternative to address the remaining contaminated material.

Alternative 4: Excavation, Physical Separation, On-Site Solidification, and Off-Site Disposal *($11,674,000)*

Like Alternative 3, this alternative would apply only to on-site soils and off-site residential surface soils. Excavated off-site residential soils would be transported to the FSWT site and staged separately with on-site soils before characterization and treatment, when necessary due to being considered RCRA hazardous waste. This process involves excavating the soil and using ex situ physical separation, as discussed in Alternative 3, to separate hazardous waste soil particles from non-hazardous waste particles. Before the contaminated soil that is considered RCRA hazardous waste is sent off site for disposal, it will be treated on site using **solidification/stabilization**.


Legend
Map Features
Fairfax St. Wood Treaters Property Boundary
Pond Area Sediment Remediated to 24 inches bgs (750 CY)
Pond Area Unpaved Remediated to 36 inches bgs (513 CY)
Perimeter Remediated to 18 inches bgs (3,480 CY)
Perimeter Remediated to 24 inches bgs (10,900 CY)
Process Area Remediated to 36 inches bgs (2,800 CY)
Residential Remediated to 18 inches bgs (10,545 CY)
Old Feed Building Remediated to 24 inches bgs (2,442 CY)
Duval County Parcels
Drainage Ditch
Drainage Pipe
Moncrief Creek
Estimated Drain Line
Drain
N
W
E
S
0 100 200
Feet
Notes:
bgs = Below ground surface
CY = Cubic Yards
Source:
Bing Maps Aerial Imagery Service for ArcGIS, 2010.
The Sanborn Map Company, inc, 1/08.
Parcel Boundaries - Duval County Tax Assessor's Office.
United States Environmental Protection Agency
FAIRFAX ST. WOOD TREATERS
JACKSONVILLE,
DUVAL COUNTY,
FLORIDA
TDD No. TT-05-007
FIGURE 3
EPA REMEDIAL AREAS
TETRA TECH
W 20th St
W 19th St
W 18th St
W 17th St
W 16th St
W 15th St
W 14th St
W 13th St
St Johns / CSX Railroad
Pullman Ave
Spires Ave
Fairfax St
Pearce St
Mc Millan St
Moncrief Creek
Pullman Ct
R.V. Daniels Elementary School
Susie Tolbert Elementary School
Fairfax St. Wood Treaters
bing

This method physically or chemically reduces or stops the leaching of the contaminants in the treated soil, thus achieving the RCRA LDR treatment standards that are ARARs. Physical solidification involves the addition of cement or a cement-based mixture. The cement physically traps the contaminants, thus reducing their mobility. Chemical solidification involves the addition of chemicals that react with the contaminants. The chemical reaction results in compounds that are much less mobile. A different alternative would be combined with this one to remediate the sediments in the on-site retention pond, demolition debris, and residual waste material in pipes and drains as physical separation cannot be applied to these media.

Alternative 5: Excavation, On-Site Solidification, and Off-Site Disposal *($11,095,000)*

This alternative would apply to all contaminated material, including on-site soils, off-site residential surface soils, on-site retention pond sediments, demolition debris, and residual waste material in pipes and drains. This process involves excavating, segregating and characterizing wastes, and staging and treating the contaminated soils and waste material on site that is considered RCRA hazardous waste with ex situ solidification/stabilization, followed by off-site disposal of the treated waste at an EPA-approved RCRA Subtitle C or D landfill. This alternative is the same as Alternative 4 without the physical separation step. Not including physical separation will decrease the complexity of the remediation and increase the implementability of the alternative. The RD, additional delineation sampling, RA Work Plan, demolition of the FSWT site facilities, site preparation, and excavation process would be the same as described in Alternative 2. Treatment would achieve the RCRA hazardous waste disposal requirements.

Evaluation of Alternatives

EPA uses nine criteria to assess remedial alternatives individually and compare them in order to select a remedy. The criteria are described in the box on the right. This section of the Proposed Plan profiles the relative performance of each alternative against the nine criteria, noting how it compares to the other options under consideration. A detailed analysis of each of the alternatives is in the FS report. A summary of those analyses follows:

EPA's Nine Criteria for Evaluating Remedial Alternatives

Threshold Criteria

1. **Overall Protection of Human Health and the Environment:** Risks are eliminated, reduced or controlled through treatment, engineering, or institutional controls.
2. **Compliance with Applicable or Relevant and Appropriate Requirements (ARARs):** Federal and state environmental statutes met or grounds for waiver provided.

Primary Balancing Criteria

3. **Long-term Effectiveness and Permanence:** Maintain reliable protection of human health and the environment over time, once cleanup goals are met.
4. **Reduction of Toxicity, Mobility or Volume through Treatment:** Ability of a remedy to reduce the toxicity, mobility, and volume of the hazardous contaminants present at the site.
5. **Short-term Effectiveness:** Protection of human health and the environment during the construction and implementation period.
6. **Implementability:** Technical and administrative feasibility of a remedy, including the availability of materials and services needed to carry it out.
7. **Cost:** Estimated capital, operation, and maintenance costs of each alternative.

Modifying Criteria

8. **State Acceptance:** State concurs with, opposes, or has no comment on the preferred alternative.
9. **Community Acceptance:** Community concerns addressed; community preferences considered.

Overall Protection of Human Health and the Environment

Alternative 1, the no action alternative, would not be protective of human health and the environment beyond what already exists at the FSWT site or neighboring properties and would not achieve RAOs. Alternatives 2, 3, 4, and 5 would provide protection of human health by eliminating or reducing risk through removal of contaminated soil and debris and treated where needed. Prior to disposal, COCs are reduced to cleanup levels by Alternatives 2, 3, 4 and 5. There would be no land use restrictions needed for Alternatives 2, 3, 4, and 5.

Compliance with ARARs

Because no action would be taken under Alternative 1, the presence of unaddressed contaminated media would not meet ARARs. Alternatives 2, 3, 4, and 5 would comply with ARARs because all contaminated soil, sediment, and debris that contains COCs above the cleanup levels would be disposed of off site and hazardous wastes would be treated to meet RCRA LDRs prior to disposal.

Long-Term Effectiveness and Permanence

Alternative 1 would provide no long-term effectiveness or permanence because no action would be taken. Risks from the site contaminants would remain the same. Alternatives 2 through 5 are anticipated to provide both long-term effectiveness and permanence as these alternatives include excavation of contaminated soils and sediments and off-site disposal of contaminated soil, sediments, and demolition debris. These alternatives would result in preventing direct contact exposure and contaminant migration off site.

Reduction of Toxicity, Mobility, or Volume through Treatment

Alternative 1 would provide no reduction of toxicity, mobility, or volume because no action would be taken. Because Alternative 2 will use off-site treatment to meet disposal requirements, it would reduce the toxicity, mobility, or volume of the contaminants through treatment. Alternatives 3, 4, and 5 would effectively reduce the toxicity, mobility, and volume of the contaminants on the FSWT site through on- and off-site treatment.

Short-Term Effectiveness

Alternative 1 would not have any impacts to the community and workers during implementation because no action would be taken. Alternatives 2 and 3 will involve some risk in the short term for exposure, as untreated material would be transported through the community. Alternatives 2 through 5 would result in a temporary increase in nuisance noise and dust. Engineering controls for dust and storm water runoff during excavation would minimize exposure during cleanup.

Implementability

Alternative 1 can be easily implemented as no action would be taken. Alternatives 2 and 5 are expected to be easily implemented. Materials and equipment necessary for these alternatives are readily available, and excavation can be completed using common construction techniques, as well as transportation of material to a disposal facility. Alternatives 3 and 4 are expected to be moderately implementable. Materials and equipment necessary for these alternatives are readily available, but the physical separation process is limited and works best on relatively simple contaminant mixtures.

Cost

Costs associated with Alternative 1, the no action alternative, are minimal. Total estimated capital costs for Alternatives 2 through 5 range from approximately $7.9 million to $11.7 million. Treating the material at an off-site disposal facility is more cost effective than treating the material using on-site solidification.

State Acceptance

FDEP has been involved actively in the process of determining and evaluating the alternatives presented in the Proposed Plan. State acceptance will be described in the ROD.

Community Acceptance

This Proposed Plan provides the opportunity for the public to make comments to EPA on the Preferred Alternative, as well as the other alternatives presented and evaluated in this plan for the FSWT site. Community acceptance of the Preferred Alternative will be evaluated after the public comment period ends and will be described in the ROD, the document in which EPA formally selects the remedy for the site.

EPA's Preferred Alternative

EPA, in consultation with FDEP, selected Alternative 2 (excavation and off-site treatment and disposal) as the Preferred Alternative because it will achieve a substantial risk reduction by excavating the contaminated media and disposing of it off site along with off-site treatment to meet RCRA hazardous waste disposal requirements. Alternative 2 provides protection of human health and the environment, reduction of toxicity/mobility/volume through off-site treatment and short-term effectiveness. Costs associated with this alternative are moderate. All of the alternatives require excavation, with some degree of off-site disposal also involved for each. Appropriately permitted off-site disposal facilities are available for disposal of the contaminated soil, and pretreatment of hazardous waste at the disposal facility, when required to meet the RCRA LDRs, is also available. Alternative 2 is easy to implement, is commonly used at contaminated sites, will meet the RAOs and regulatory requirements, and will likely be the most cost-effective remedy.

Alternative 2, excavation and off-site disposal, involves physically removing the contaminated soil via excavation and transporting it to a hazardous waste disposal facility, where it would be treated and disposed. Disposal would be done at appropriately permitted RCRA solid or hazardous waste facilities, depending on the waste classification, and hazardous wastes would be treated to meet the LDR treatment standards prior to disposal. This alternative would be applicable to all contaminated material, including soils on the FSWT site, residential properties around the FSWT site, sediments in the on-site retention pond, demolition debris, and residual waste material in pipes and drains. The RD and RA Work Plan would be developed to outline details about site preparation; the extent of excavation; demolishing structures on the FSWT site; storage requirements, transportation of contaminated soil; and off-site disposal. Engineering controls for dust and storm water runoff during excavation will minimize exposure during site activities. The plan would also include developing safety measures for workers, on-site employees, and the public during remedial activities. The RA would be performed according to the procedures and requirements of the Work Plan. After excavation, samples would be collected at the FSWT site and surrounding residential properties to confirm that the COCs have been removed or reduced to achieve cleanup levels.

Based on information currently available, EPA believes the Preferred Alternative meets the threshold criteria and provides the best balance of tradeoffs among the other alternatives with respect to the balancing and modifying criteria. EPA expects the Preferred Alternative to satisfy the following statutory requirements of CERCLA 121(b): (1) be protective of human health and the environment; (2) comply with ARARs (or justify a waiver); (3) be cost effective; (4) utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and (5) satisfy the preference for treatment as a principal element. The FDEP has been actively involved in the evaluation of the remedy and state support of the EPA Preferred Alternative is anticipated. The Preferred Alternative is based on current information; therefore, the selected alternative can change in response to public comment or new information. EPA's final decision will be described in the ROD.

How the Public Can Comment

EPA and FDEP provide information regarding the cleanup of the FSWT site to the public through Fact Sheets, public meetings, announcements in The Florida Times-Union, and the Administrative Record file for the site. EPA and the FDEP encourage the public to gain a more comprehensive understanding of the FSWT site and Superfund activities that have been conducted at the FSWT site. Information regarding the public comment period, public meeting and the locations of the Administrative Record files, are provided on the front page of this Proposed Plan.

Submit Comments:

There are two ways to provide comments during this period:

- Offer oral or written comments during the public meeting
- Provide written comments by mail or e-mail

For further information on the FSWT site, please contact:

Leigh Lattimore
Remedial Project Manager
(404) 562-8768
e-mail: Lattimore.leigh@epa.gov

or

Ronald Tolliver
Community Involvement Coordinator
(404) 562-8545
e-mail: Tolliver.Ronald@epa.gov

U.S. EPA, Region 4
61 Forsyth Street, SW
Atlanta, GA 30303-8960

Mailing List Additions:

Anyone wishing to be placed on the mailing list for this site should send his or her request to Leigh Lattimore, EPA Remedial Project Manager or Ronald Tolliver, EPA Community Involvement Coordinator.

Glossary of Terms and Acronyms

Applicable or Relevant and Appropriate Requirements. Federal and state environmental laws or regulations that apply to a specific Superfund site or the contaminants at that site. The RA must meet all of the ARARs.

ARARs. See Applicable or Relevant and Appropriate Requirements

bgs. Below ground surface

CCA. See Chromated Copper Arsenate

CERCLA. See Comprehensive Environmental Response, Compensation, and Liability Act

Chromated Copper Arsenate. The wood treating chemical formerly used by Wood Treaters, LLC at the FSWT site. The chemical contains chromium, copper, and arsenic and is a bright green color.

Cleanup. Actions taken to deal with a release or threatened release of hazardous substances that could affect public health or the environment. The term "cleanup" is sometimes used interchangeably with the terms RA, removal action, response action, or corrective action. The term is often used broadly to describe various response actions or phases of remedial responses, such as the Remedial Investigation/Feasibility Study.

COC. See Contaminant of Concern

Comprehensive Environmental Response, Compensation, and Liability Act. A federal law enacted in 1980 and modified in 1986 by the Superfund Amendments and Reauthorization Act to investigate and clean up abandoned or uncontrolled hazardous waste sites. The law is commonly known as Superfund because it created a special tax that goes into a trust fund. EPA either pays for the site cleanup when the responsible parties cannot be located or are unwilling or unable to perform the RAs, or takes legal action to force responsible parties to clean up the site or reimburse EPA for the cost of the cleanup.

Contaminant of Concern. A chemical contaminant at a Superfund site that has the potential to harm human health or the environment. The contaminants of concern at the FSWT site are arsenic, chromium, copper, and carcinogenic polycyclic aromatic hydrocarbons (cPAHs).

EJ. See Environmental Justice

Environmental Justice. The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. These laws often require the Agency to consider a variety of factors that generally include one or more of following: public health, cumulative impacts, social costs, and welfare impacts.

Environmental Protection Agency. An agency of the federal government of the United States which was created for the purpose of protecting human health and the environment by writing and enforcing regulations based on laws passed by Congress.

EPA. See Environmental Protection Agency

Exposure Pathway. The means by which a person can be exposed to the contaminants at the FSWT site.

Fairfax Street Wood Treaters. The name of the Superfund site located at 2610 Fairfax Street in Jacksonville, Florida. The FSWT site was formerly a wood treating facility operated by Wood Treaters, LLC.

FDEP. See Florida Department of Environmental Protection

Florida Department of Environmental Protection. An agency of the state government of Florida created to protect the environment.

FSWT. See Fairfax Street Wood Treaters

Groundwater. Water found underground that fills pores between materials, such as sand, soil, or gravel. In aquifers, groundwater often occurs in quantities where it can be used for drinking water, irrigation, and other purposes.

Hazard Index. A measurement of probability that non-cancer health effects will be caused by contaminated media. A hazard index less than 1 indicates non-cancer health effects are not predicted.

HHRA. See Human Health Risk Assessment

HI. See Hazard Index

Human Health Risk Assessment. The process of estimating the nature and probability of adverse health effects in humans who may be exposed to chemicals in contaminated environmental media, now or in the future.

Land Disposal Restrictions. A program under RCRA which mandates that certain protective measures be taken before any hazardous waste is disposed of on land.

LDRs. See Land Disposal Restrictions

Maximum Contaminant Levels. The legal threshold limit on the amount of a substance that is allowed in public water systems under the EPA Safe Drinking Water Act.

MCLs. See Maximum Contaminant Levels

National Oil and Hazardous Substances Pollution Contingency Plan. The federal regulation that guides the Superfund program.

National Priorities List. A list generated by EPA for the uncontrolled or abandoned hazardous waste sites that are priorities for long-term remedial investigation and response. The list is based primarily on the score a site receives using the Hazard Ranking System. A non-federal site must be on the NPL to receive money from the Trust Fund (Superfund) for RA. Federal properties listed on the NPL do not receive money from the EPA Trust Fund, but EPA takes a more formal role in the cleanup process. EPA is required to update the NPL at least once a year. The FSWT site was included on the NPL in 2013.

NCP. See National Oil and Hazardous Substances Pollution Contingency Plan

NPL. See National Priorities List

ppm. Parts per million

Preferred Alternative. The cleanup alternative most likely to be used at a Superfund site before public and state comments are considered. This alternative should meet the RAOs and be effective, implementable, and cost effective.

Preliminary Remediation Goals. Initial cleanup goals that are protective of human health and the environment, and comply with ARARs. PRGs are developed as a result of risk assessments and are used during the analysis of remedial alternatives in the RI/FS.

PRGs. See Preliminary Remediation Goals

Proposed Plan. A public document that presents the cleanup alternatives and Preferred Alternative to the community surrounding a Superfund NPL site. This document summarizes the RI/FS and solicits comments from the public.

RA. See Remedial Action

RAO. See Remedial Action Objectives

RCRA. See Resource Conservation and Recovery Act

RD. See Remedial Design

Record of Decision. A legal, technical, and public document that explains which cleanup alternative will be used at a Superfund NPL site. The ROD is based on information and technical analysis generated during the remedial investigation and feasibility study and consideration of public comments and community concerns.

Resource Conservation and Recovery Act. A federal law enacted in 1976 that is the principal federal law in the United States governing the disposal of solid waste and hazardous waste.

Regional Screening Level. The concentration of a specific contaminant used to determine if a site may need further investigation or cleanup. If a contaminant is below its screening level, it is not necessarily safe and may still require cleanup.

Remedial Action. During the remedial action phase, the remedy is implemented generally by a contractor, with oversight and inspection conducted by EPA, the state, or both.

Remedial Action Objectives. Specific objectives the final RA must meet to attain a degree of cleanup that ensures the protection of human health and the environment, is cost effective, and uses permanent solutions and alternative treatment technologies to the maximum extent practicable.

Remedial Design. Remedial Design is a phase in the CERCLA response process when technical drawings are developed for the remedy chosen, costs for implementing the remedy are estimated, and roles and responsibilities of EPA, the state, and contractors are identified.

Remedial Investigation/Feasibility Study. The remedial investigation is a study designed to collect the data necessary to delineate the nature and extent of contamination at a site. The feasibility study is an analysis of the practicality of a proposed remedial solution and evaluates alternatives for their effectiveness in protecting human health and the environment.

Removal Management Level. A chemical-specific concentration for individual contaminants in soil that was used to support the decision for EPA to undertake a removal action.

Responsiveness Summary. A summary of oral and written comments received by EPA during a comment period on key EPA documents and EPA's responses to those comments. The Responsiveness Summary is a key part of the ROD, highlighting community concerns for EPA decision-makers.

RI/FS. See Remedial Investigation/Feasibility Study

RML. See Removal Management Level

ROD. See Record of Decision

RSL. See Regional Screening Level

Screening Level Ecological Risk Assessment. The process of evaluating the likelihood that adverse ecological effects may occur as a result of exposure to chemicals in contaminated environmental media.

SLERA. See Screening Level Ecological Risk Assessment

Solidification/Stabilization. A remediation technology that physically or chemically reduces or stops the mobility of contaminants in soil.

Superfund. The Trust Fund established under CERCLA to pay for cleanup of abandoned hazardous waste sites if potentially responsible parties cannot be identified. Superfund is the common name for CERCLA and is often used as an adjective for hazardous waste sites and the investigation and cleanup process directed by EPA.

USE THIS SPACE TO WRITE YOUR COMMENTS

Your input on the Proposed Plan for the Fairfax Street Wood Treaters Superfund Site is important in helping EPA to select a remedy for the site. Use the space below to write your comments, then fold and mail. A response to your comment will be included in the Responsiveness Summary.

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____

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____

____

Name ____________________

Address ________________________________

City ________ State ______ Zip ________

Place Stamp Here

Leigh Lattimore, Remedial Project Manager
U.S. EPA, Region 4
Superfund Remedial and Site Evaluation Branch
Superfund Division
61 Forsyth St., SW
Atlanta, GA 30303

FAIRFAX STREET WOOD TREATERS SUPERFUND SITE
PUBLIC COMMENT SHEET

U.S. EPA, Region 4
Superfund Remedial Branch
Superfund Division
61 Forsyth St., SW
Atlanta, GA 30303

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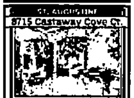

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EPA

The United States Environmental Protection Agency Announces a Public Meeting and Public Comment Period for the Fairfax Street Wood Treaters Site, located in Jacksonville, Duval County, Florida.

The United States Environmental Protection Agency (EPA) has issued a Proposed Plan for the Fairfax Street Superfund Site, located in Jacksonville, Duval County, Florida. **A public meeting to present the details of the Proposed Plan will be held on Tuesday, May 16, 2017, from 7:00pm to 9:00pm at the Emmett Reed Community Center, 1093 W. 6th St., Jacksonville, Fl. 32209.**

EPA will hold a 30-day public comment period from May 1, 2017 to May 31, 2017, to seek public input on the Proposed Plan. During the comment period, the public is encouraged to review and offer comments on all site-related documents housed in the Information Repository located at the Dallas Graham Public Library, 2304 Myrtle Avenue N. in Jacksonville.

EPA, in consultation with FDEP, prefers Alternative 2 which includes excavation and off-site treatment and disposal of the contaminated material.

Written comments on the Proposed Plan should be postmarked/submitted no later than May 31, 2017, to Leigh Latimore, EPA Remedial Project Manager, US-EPA Region 4, Superfund Division, 61 Forsyth Street SW, Atlanta, Georgia 30303, or via email to lattimore.leigh@epa.gov.

For further information please contact Ron Tolliver, EPA Community Involvement Coordinator (404) 562-0591 or via email at Tolliver.Ronald@epa.gov

APPENDIX D

RESPONSIVENESS SUMMARY
(SUMMARY OF QUESTIONS AND ANSWERS FROM THE COMMENT PERIOD AND PUBLIC MEETING, AS WELL AS THE PUBLIC MEETING TRANSCRIPT)

(92 Pages)

RESPONSIVENESS SUMMARY

Regarding the Fairfax Street Wood Treaters Superfund Site (referred to herein as the Fairfax St. site) in Jacksonville, Florida, the following presents a summary of all the questions received either during the public meeting on May 16, 2017 or during the public comment period from May 1, 2017 through May 31, 2017. By the conclusion of the public comment period on May 31, 2017, the U.S. Environmental Protection Agency (EPA) received one letter from a resident that supported EPA's Selected Remedy, and two emails from the Jacksonville Black Chamber of Commerce. One email outlined the Jacksonville Black Chamber of Commerce Advisory Committee's vision for the future use of the Fairfax St. site, the other email listed concerns from the Director of Business Development. Additionally, questions from the transcript from the public meeting were extracted. The questions and answers have been summarized in the following Responsiveness Summary. Questions are organized by subject and are presented in bold text. EPA's responses are in plain text.

QUESTIONS ABOUT FUNDING THE CLEANUP

1. **What are the odds of getting funded since EPA will be competing?**

   EPA is confident that the Fairfax St. site will receive the funding necessary to complete the cleanup.

2. **How much money is EPA trying to get to clean all this up and not come short and say, "This is all we got in the budget," or, you know, "That's all they gave us?"**

   The current estimated cost for the EPA's selected remedy is approximately $8 million. A more accurate cost estimate will be done during the design of the cleanup. If all of the budget is used before the cleanup is finished, EPA will request additional funding to finish the cleanup.

3. **Is the EPA paying for this or is the City?**

4. **When you're looking for funding, wouldn't the City play some role in supplying funding to help with this cleanup, or is all the funding just basically coming from the federal government?**

   Because the Fairfax St. site is on the National Priorities List (NPL), funding for the cleanup will come from a federal trust fund, or Superfund. The Superfund program was established under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) specifically to fund the cleanup of sites on the NPL if the party responsible for the contamination cannot be found or cannot pay for the cleanup.

5. **What's the usual timeframe for every funding request? Will all associated funding processes be completed in 20 years?**

6. **Does EPA have any sense of urgency to move up that pecking order to receive these funds? And where are we located currently in the pecking order to receive the funds?**

7. **What can we do as a community to ensure that you get the money to clean it up?**

Because this site is on the NPL, it will receive funding. There is no typical timeframe for receiving funding, because every site on the NPL is different. After the EPA has completed the remedial design for this site, the site will be evaluated by the National Risk-Based Priority Panel (Priority Panel). The Priority Panel evaluates sites on the NPL and prioritizes each site based on their risk to human health and the environment. Sites with the highest priority will receive funding first.

8. **Post-cleanup, would the budget allow for continual testing just to make sure that the stabilization levels are still adequate?**

The EPA's selected remedy is excavation of contaminated soil for disposal off-site. The EPA will take additional soil samples during the design of the cleanup. These samples will be used to delineate any additional contamination and to determine the depth of excavation on each property to ensure that all contaminated soil is removed. Long term continual monitoring of the site will not be necessary.

QUESTIONS ON EPA'S RESPONSIBILITIES AND COMPENSATION

9. **Is the EPA responsible for cleaning up the site? I'd like to know who was responsible for allowing a wood treatment plant to open up in a residential neighborhood knowing that they were going to be using contaminated chemicals. Is EPA responsible for that?**

The EPA is responsible for the cleanup of the site under CERCLA. The EPA is not responsible for the location of the former wood treatment plant, nor the actions of the plant that resulted in contamination of the site.

10. **As we proceed with remedial action to clean up the site we should with the assistance of EPA and our tax dollars help the residents locate all responsible parties. Those parties should include the owners of the Wood Treaters site, the City of Jacksonville (for issuing permits and inspecting or not inspecting the site until it was too late), the State of Florida (for issuing the permits and inspecting or not inspecting the site until it was too late). We need to enable the stakeholders to better understand this entire process.**

EPA has identified Wood Treaters, LLC as the primary responsible party for the contamination of this site. The former facility was listed as a small-quantity generator of hazardous waste under the Resource Conservation and Recovery Act (RCRA), and the site was inspected by the Florida Department of Environmental Protection (FDEP) periodically while it was in operation. Wood Treaters, LLC received several notices of violation following some of these inspections.

11. **I'm concerned about the contamination and the damage control. You know that families have buried their loved ones because of this contamination? Where are we going to be compensated?**

12. **I'm one of the workers that actually worked on that site. As my sister said, I have physical problems. I have health issues. Because my understanding, there was asbestos and arsenic in the building that I cleaned. I want to know, the superfund money, is that just for the cleanup? So it has nothing to do with compensating people that actually got damages from this site?**

13. **Since you are not responsible for any compensation, is that something that's going to eventually come down the pike? Or you don't know about it? Or is that completely off the table?**

Funding for the cleanup of this site cannot by law be used to compensate residents who have been negatively affected by the contaminants on the site. The EPA is not liable to provide compensation to residents for this purpose.

QUESTIONS ABOUT THE FAIRFAX ST. SITE

14. **The last letter that you sent states that you checked 96 properties, how many of them showed contamination and are you going to do anything about the properties that are contaminated?**

The EPA has determined that 50 residential properties have been impacted by site related contamination with arsenic at levels higher than the soil cleanup levels. In EPA's cleanup alternative, these 50 residential properties will be excavated down to approximately 18 inches below the ground surface level. Excavated soil will be disposed of off-site, and the excavated properties will be backfilled with clean soil.

15. **How serious, from a national perspective, is our issue compared to other issues going on?**

This site was added to the NPL in 2012. Sites on the NPL are considered the worst cases of contamination nationally because of their high risk to human health and the environment.

16. **Who owns the land now and who will own the land after it's cleaned up?**

Currently the site is owned by Fairfax Land Management.

17. **When the EPA got involved with this site, were there records from the City that showed periodic inspections of the site? Because my understanding is this site was a large-quantity generator of toxic waste. Was the City annually inspecting this site?**

This site was listed as a small-quantity generator of hazardous waste under RCRA. FDEP inspected the former wood treating facility periodically while it was operating. The site received notices of violation in 1986, 1996, and 2009.

QUESTIONS AND CONCERNS ABOUT EPA'S CLEANUP PROCESS

18. **My major concern is, although we're not living in the property, we are still on it and paying taxes on the property. Now that we have signed this paper, will these papers be combined so that you now can contact us as needed or are there further steps that I need to take to make sure that my family and I are never left out again from what's going on in this settling of how we're doing this?**

The EPA will communicate with the community with updates and throughout the cleanup process. The Community Involvement Coordinator for this site is Ronald Tolliver. You can call Mr. Tolliver at 404-562-9591. Please call to let us know if we don't already have your contact information on file.

19. **How are you going to decide which of the 50 properties you're going to work on out of the 96?**

Where EPA has determined there was site related contamination that migrated from the site, the EPA has set cleanup levels for each contaminant. These cleanup levels are listed in the table below:

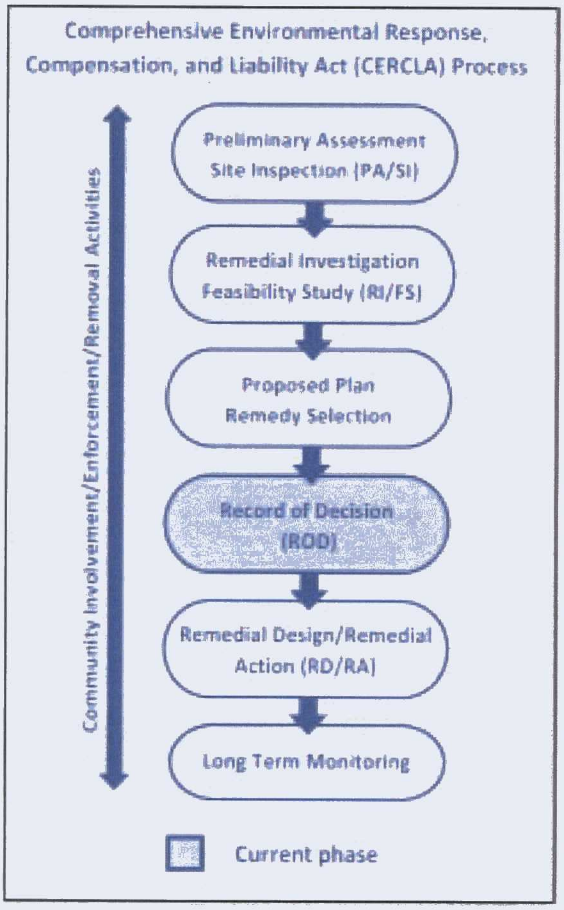
Medium	Cleanup Level
Soil	Arsenic: 2.36 ppm
	Chromium: 210 ppm
	Copper: 150 ppm
	cPAH: 0.1 ppm

Notes:
cPAH = Benzo(a)pyrene equivalents
ppm = parts per million

Properties that have any of these chemicals above the cleanup levels will be cleaned up. Except for arsenic, these cleanup levels are based on the FDEP's 2005 Soil Cleanup Target Levels. Arsenic occurs naturally in the soil. Both the EPA and the FDEP can't set a cleanup level that is less than the background level for that chemical, as long as the background level is protective of human health and the environment. Therefore, arsenic's cleanup level for this site is its naturally occurring background level of 2.36 ppm.

20. **The EPA, we have been working with you all basically around four years where you've been coming up, but we're not seeing the process. The paper's telling us, but we don't see nothing, and that's not right.**

EPA is required to take specific steps under CERCLA to clean up a site. The process can take several years before clean up starts. This is because investigations, studies, and design work must be done before the cleanup can start. This is why EPA is allowed to take emergency actions to remove contamination that is an immediate threat to human health. In 2010 and 2011, the EPA removed contaminated soil from the Susie E. Tolbert Elementary School playground, from parts of the former wood-treating facility, and from three residential properties. The EPA also removed contaminated water and sediment from the retention pond on the school property. The removals in 2010 and 2011 were part of an emergency cleanup action to stabilize the site and remove immediate risks. After the site was added to the NPL in 2012, EPA began the CERCLA process. The steps of this process are shown in the graphic to the right.



21. **Does the Remedial Action Plan contemplate any plan(s) to evacuate the surrounding schools during the cleanup? If it doesn't it should. Just because these children are African American does not mean they're not worthy of protection. Your action plan should include closing any and all the schools surrounding this site down for the duration of the cleanup. Have you discussed the action plan selected with the Duval County School District? These children and their parents deserve the respect that comes with having a plan that protects their well-being. This should include all of the community and the area surrounding the site. We need to enable the stakeholders to better understand this entire process.**

The EPA's remedial design will include engineering controls such as air monitoring and dust control to ensure the safety of the community during the cleanup. The EPA will coordinate with the Duval County school district, City of Jacksonville, and the community to schedule the cleanup.

22. **Accessible decision-making. By that I mean there should be a daily update of the work status for the site posted on a dedicated website. I want all interested parties to be able to monitor the progress of the work being done at and around the Fairfax St. site. I also recommend quarterly update meetings to begin with the update on what remedy is selected to the Design Remedy and so on. This should include all of the community and the area surrounding the site. We need to enable the stakeholders to better understand this entire process. The community needs a timeline for any and all**

work contemplated for the site. This will promote transparency ... There needs to be a 5 year campaign of education/outreach using Black Owned Media Outlets.

The EPA is conducting a range of community involvement activities to make sure the public remains informed about site activities throughout the cleanup process. Outreach efforts include public notices and information meetings on cleanup progress and activities. The EPA has worked closely with the Florida Department of Health and the Duval County Health Department. The Florida Department of Health worked with city council members and the community to help them understand site conditions and risks. The departments have also educated local residents about ways to reduce exposure to arsenic in the soil.

Information on this site can be accessed online here:
https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0410582

Additional information and documents can be accessed at the site repository, located at the Dallas Graham Public Library, 2304 Myrtle Avenue.

23. **What is the emergency preparedness plan for the community? This should include all of the community and the area surrounding the site ... Please provide us with the stormwater and hurricane control plan.**

The EPA will include the appropriate plans in the remedial design for this site.

24. **What's the average timeframe for a project like the Fairfax St. site Remedial Action cleanup?**

Because sites on the NPL are very different from each other, an average timeframe would not be accurate for estimating how long the cleanup will take for this site.

25. **When you mentioned the stabilization of the site during EPA's emergency response actions, I wondered what that entailed. Is it to a certain level? Or is it all right to just, you know, be exposed to it?**

During the emergency response actions EPA removed contaminated soil from the Susie E. Tolbert Elementary School playground, from parts of the former wood-treating facility, and from three residential properties. EPA also removed contaminated water and sediment from the retention pond on the school property. No more action is needed on the elementary school property pending additional sampling. The remaining contaminated soil from the site and surrounding residential properties will be removed during the cleanup.

26. **Is this the standard operating procedure for any place in Jacksonville or is it just relegated to this area? In other words, would you guys be moving this slow and moving in this fashion if it was in Jacksonville Beach or in the mandarin area?**

Because CERCLA is a federal program, the process is the same for every site on the NPL, regardless of location.

27. **When you get the $8 million, how much of that money is going to go to black contractors to clean that area up? Because we're the ones who've been impacted the most.**

EPA will make every effort to solicit and contract minority owned businesses to work on the cleanup of this site. The goal of EPA's minority business enterprises (MBE) and woman business enterprises (WBE) programs is to assure that minority and women owned businesses are given the opportunity to participate.

28. **My concern is this: Okay, you found out the land is contaminated. So what we need to do is tear down all the houses and relocate everybody, the schools, everything. That's what we need to do. Once we found out the land is contaminated, you have to relocate these people and these schools.**

It is not necessary to relocate residents or tear down houses as a result of this contamination. The EPA's remedial design will include engineering controls such as air monitoring and dust control to ensure the safety of the community during the cleanup. The EPA will coordinate with the Duval County School District and the community to schedule the cleanup so that cleanup activities won't interfere with students getting to school safely. The cleanup standards that the EPA will use to remediate the site will allow for unrestricted use of the land. The site and surrounding area will be safe enough to be used as residential housing.

29. **My concern right now is that you're right in the heart of those two school districts, Susie Tolbert and R.V. Daniels. That water has been running through schools for years. Schools are still open. The students are still attending school. My concern is what in the world are you doing or plan to do with these students in the meantime?**

The EPA removed contaminated soil and water from the Susie Tolbert Elementary School during the emergency cleanup in 2010. The EPA will include protective measures in the design of the cleanup. These will include using a hose to water down the soil during excavation to minimize dust, and leaving the work site clean and fenced off at the end of each day. The EPA will coordinate with the Duval County School District and the community to schedule the cleanup so that cleanup activities won't interfere with students getting to school safely.

30. **My question is: Like I said earlier about the water, that waterline has gone by the reservoir over into the College Garden area and all back over there in 5th, 6th, and all of those streets. But I see you stopped in this little central area where you feel the contamination is. Are you going to test later on in those areas? Are you going further for the testing than just that area?**

The cleanup effort for this site will only address contamination from the former wood treating facility. The EPA will do more sampling during the remedial design to better define the boundaries of the contamination.

CONCERNS ABOUT DRINKING WATER

31. **What's going to happen to our drinking water that we drink every day?**

32. **I want to ask, because EPA says the soil was contaminated. Is EPA worried about the water? Less than two blocks away is the water treatment plant. Is EPA going to go in there and inspect that and make sure that none of the contaminated water goes into the water treatment plant? Because the water treatment plant is the one that supplies the water to all the residents in that area.**

33. **I suggest all the residents of Fairfax community be provided free water service starting now and continuing through the completion of the remediation of the site.**

During the Remedial Investigation, the EPA sampled groundwater under the site and surrounding areas. The levels of contaminants were below the EPA's and FDEP's cleanup levels for groundwater. In addition, groundwater is not being used in this area as drinking water. Drinking water is treated before it is piped to houses.

QUESTIONS ON THE NATURE AND TOXICITY OF THE CONTAMINANTS

34. **What is the toxic agent you're primarily concerned about and what are the primary health effects?**

35. **We're talking about the soil, what about the human effects? What effect did it have on the kids? Birth defects? Anything of that nature?**

36. **What type of diseases, if you know any, that could possibly be caused by the contaminations?**

37. **And, also, with the contaminations, you know, of course they spread. So I know you don't know exactly when you are going to get the funding. But do you have any kind of verifiable way between the time to get the funding and now how much contamination could possibly spread more while waiting? Do you have any way of figuring that out?**

The primary chemical of concern at this site is arsenic. According to the World Health Organization, long-term exposure to arsenic can cause several types of cancer. It has also been associated with developmental effects, cardiovascular disease, neurotoxicity, and diabetes. The EPA does not expect the arsenic to spread much between now and when the cleanup starts. The EPA plans to do additional sampling during the remedial design.

38. **Cancer survivors and Health outcomes should be studies. Suggest the EPA partner with Edward Waters College and Florida A&M University to institute/initiate the studies. If EPA can't do it they owe it to the community to connect them with the proper sources/resources.**

The Florida Department of Health, in cooperating with the Agency for Toxic Substances and Disease Registry has prepared a Public Health Assessment for the Fairfax St. site. This Public Health Assessment is available online here:

https://www.atsdr.cdc.gov/HAC/pha/FairfaxStreetWoodTreatersSite/Fairfax_Street_Wood_Treaters_PHA_09-16-16_508.pdf

The Public Health Assessment is also available to view as part of the information repository for this site, located at the Dallas Graham Public Library, 2304 Myrtle Avenue.

The Florida Department of health can be reached toll-free at 877-798-2772. Residents may also contact the Duval County Health department by calling 904-253-1000.

COMMENTS ON THE FUTURE USE OF THE SITE

39. I attended school at Susie Tolbert when Howard Feed Mills was there. I think we should bring in our congressman, Al Lawson, because I'm sure he would do everything he can to get this thing done. Because I hate to see things like this just go to waste. We should make it into an athletic field for Edward Waters College to play their games there. We don't want to see another dump.

40. What can we do as a community to make sure no one ever profits from that but the people who have suffered in the community? Because I don't want developers coming in there building houses and making money. You know, it should be something that's dedicated to the people who have lost their lives, who have gone through sicknesses and illnesses.

41. Once the EPA restores the Fairfax St. site, the property should be placed under the ownership and authority of an appointed community advisory committee. The committee should be comprised of representatives from the affected community to determine and provide oversight of the property's future mixed reuse while improving the residents' quality of life in the following areas:

a. Health and Human Services – Develop integrated health/continuum of care facilities with professional and material resources that empower residents to determine health and human services priority needs and outcomes.

b. Economic Development – Develop facilities with professional and material resources, through an entrepreneur/employment readiness focused business incubator, that enables residents to determine and achieve increased economic values and employment outcomes.

c. Literacy and Vocational Training – Develop a customized regional literacy/GED center that includes a focus on preparing and training non-college bound residents to receive credentials for skilled labor employment and a college prep program for aspiring residents.

d. Health, Nutrition and Fitness – Develop a health and nutrition market place with a co-op grocery store, evidence based programs and services aimed at identifying and resolving community health and nutrition needs; including prevention and intervention programs and services.

e. Children, Family and Safety – Develop a community improvement center that provides programs and services to address child/family safety and welfare issues, property improvement programs and a community policing program."

The EPA will clean up the site to standards that will allow unrestricted use of the site. The EPA is working with city, county, and state officials to make sure the site will be used in a way that will align with the community's wishes.

COMMENTS APPROVING OF EPA'S SELECTED REMEDY

42. **I am writing this letter referring to the cleanup of the Fairfax St. site. Cleaning up the site is the best thing to do. I can't attend the meeting, but this is the right thing to do.**

43. **The cleanup plan suggested by the EPA is in my estimation the best option. Selecting Remedial Action 2 will allow the Fairfax community to begin the long overdue healing process.**

The EPA appreciates your comments and support.

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 4

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TRANSCRIPT OF PUBLIC MEETING

FAIRFAX STREET WOOD TREATERS SITE
JACKSONVILLE, FLORIDA

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May 16, 2017

7:06 p.m. to 8:25 p.m.

Emmett Reed Community Center
1093 West 6th Street
Jacksonville, Florida

Yolanda R. Narcisse, CCR-B-2445

A P P E A R A N C E S

Leigh Lattimore
Remedial Project Manager

Timothy Frederick
Human Health Risk Assessment

L'Tonya Spencer
Senior Community Involvement Coordinator

Ronald Tolliver
Community Involvement Coordinator

Environmental Protection Agency
Region 4
Sam Nunn Federal Building
61 Forsyth Street SW
11th Floor
Atlanta, Georgia 30303
(404) 562-9900

P R O C E E D I N G S

MR. TOLLIVER: Hello, Jacksonville, how are you all? Are you doing okay? Okay, great. My name is Ron Tolliver. I'm the community involvement coordinator. And so I'm going to kind of go over the meeting now and how we're going to set it up.

But first of all, I want to tell you the purpose of this meeting. So the purpose of this meeting, we know, most of you are familiar with the wood treater site. So what we want to do is, here at the Environmental Protection Agency, we're here to protect your health and the environment.

That's our mission. So what we're going to do here is we'll talk about a proposed plan for cleaning up the wood treater site. That's what this meeting is about. We want to make sure that you all know the purpose of the meeting is to get your input on our plan for the cleanup of this site. Okay?

Now, and we really want you all to make sure that you all keep that in mind, keep it in the forefront, that once we clean it up, then we want to make sure to let you know, you know, we'll definitely be engaged. We have a process that we're doing to make sure that our remedy and everything is in place and is protective of your health and environment.

Okay?

And I'm also your contact. If you have questions or issues, please let me know. And, also, make sure everyone signs in. I want to make sure everybody signs in so we have a record of that. And make sure you keep a sign-in sheet.

So if y'all have any questions, let's stay in contact. I'm your community involvement coordinator. I'm the liaison for this particular site. Okay?

So I know that you all have plenty of -- lots of questions. Lots of things have happened from the past and I really, really, really, really, really have had a really impactful discussion with some of you in here.

And going through the community, I just want to let you know that I've heard a lot of -- some of the things that have been going on. But at the Environmental Protection Agency, we want to make sure that we address the cleaning up of the site and getting it clean.

So Leigh has some very important people here today that have come a long way and have spent a lot of time in putting together this plan of cleaning up the site.

So the questions and comments at the end of her presentation, okay, directed at cleaning up the site and any issues or anything that you see dealing with that, we can address those. And then at the end, after the meeting, we can kind of break off and have people over here kind of talk about any other concerns that you have. We can kind of talk about those and we can kind of direct you -- put you in the right direction to get answers for any of those other questions.

But, for now, we're going to talk about the proposed plan and the cleanup of the site. So we're going to think about the future of this area and to improve this area. So we want to get you guys on a clean start. Okay? That's what we really want to do. All right? So the bathrooms, the restrooms, are outside. Okay?

And without further ado, I want to turn it over to Leigh Lattimore. She's our project manager. She's going to go over the presentation of the remedy and what we propose to clean the site up. And then at the end, I'll kind of field the questions. If you all have any questions about anything you don't understand, please let us know you don't understand. We can address that question right there toward the end.

So we're going to give her our undivided attention, if you don't mind, and we'll get started with our presentation. Thank you.

Also, at the end with the questions, would you please stand up and state your name for our reporter here so she can get your name and record everything that's being said.

MS. LATTIMORE: Can you hear me okay?

(Audience members respond no in unison.)

MS. LATTIMORE: No. Okay. Is this okay?

(Audience members respond yes/yeah in unison.)

MS. LATTIMORE: Wonderful. Okay. As Ron said, my name is Leigh Lattimore. I'm the remedial project manager for this site. We're here to talk about the proposed plan to clean up the Fairfax Street Wood Treater Site. We are here to listen to you, to get your comments on the proposed plan and about what we're doing and how we're cleaning it up.

So tonight I will introduce you to some of our team members. We will go over a short site history as well as the superfund process, and we will talk about key components of the proposed plan. And we will also answer questions that you may have at the end of this.

So you've had the honor of meeting Ron. He's our community involvement coordinator. If you have any questions, you can always reach out to Ron. His contact information is here. You can also contact me directly. We have Tim Frederick, the site risk assessor. He is our guru.

And then we have Miranda from the Florida Department of Environmental Protection. She's the remedial project manager that's transitioning and taking over Kelsey Helton's duties who is retiring this year.

So, as you know -- you may know or you may not know -- but the sites that are listed on the national priority list, the NPL, are the worst of the worst across the nation. And there are certain criteria that we have to meet in order to put the site on the NPL.

Listing a site on the NPL allows federal dollars to go towards the clean up. Sometimes we have responsible parties. And if that's the case, the responsible party can pay for the cleanup or conduct a cleanup with oversight. EPA will help --

AUDIENCE MEMBER: We can't hear you back here.

MS. LATTIMORE: Okay. I hope this is better. But in this case, we don't have a responsible party. So EPA will be cleaning up the site.

Fairfax Wood Treaters Site was listed on the NPL in 2012. The wood treating facility was in operation starting in 1980 and closed in 2010. The company went bankrupt and left the entire operation, basically, running.

At this point, Florida DEP contacted EPA, and EPA came in and did an emergency response stabilizing the site. The emergency response transitioned into a time critical removal action. There, we removed the highest risk areas. And I'll share more information about that in a minute.

But before I do that, I wanted to go over the superfund site process. So when the emergency response started, that's when the site was discovered. And as that transitioned into the time critical removal action, the remedial program completed the site evaluation. So it decided if it was -- it needed to go on the national priority list, and it was. And it was listed in 2012.

At that point, we go into the remedial investigation. The remedial investigation is intended to capture where the contamination is, where it's gone, how deep it is. We've collected over 700 samples -- soil, subsurface soil, surface water sediments onsite and offsite -- during the remedial action. And it also determines if we need to take action or if action is warranted.

Once we know that action is warranted, we go into the feasibility study. Right here (indicating). The feasibility study evaluates different remedial alteratives. So how are we going to clean this up? In what ways could we clean it up? And which way do we think is the best way to do that cleanup.

Once we've identified our preferred remedy, we go into the proposed plan, which is where we are today. So the proposed plan is intended for you. It's intended to inform you and get your feedback and buy-in on the remedy that EPA prefers.

There's a 30-day public comment period. It started on May 1st. I think most of you, hopefully, received the fact sheets in the mail on May 1st. You can email your concerns or comments on the proposed plan to me or Ron. You can send them in the mail and we can, you know, hear them tonight.

Once we respond to your comments through the responsiveness summary, which is documented in what's called our record of decision, the record of decision selects the remedy. Once we have the record of the decision signed off, we go into design.

So we go into the remedial design. This is the blueprint of how we're going to implement the cleanup. This is where we're going to come back to the community and talk to you about how you think or just hear your concerns.

We know that during the removal action, there were some concerns about truck trafficking coming in and picking up the contaminated soil and trucking out. So, you know, we'll talk about best management practices and hear your concerns maybe about, you know, some routes so they don't interfere with school or kids getting out of school. That sort of thing. So we're really going to need some feedback in working together during the design.

Once we complete the remedial design, we go into the remedial action. But before we do that, we need to compete nationally for funding. So once we get funding, then we go into the remedial action.

At some sites you need operation and maintenance time period. And this site, we plan on cleaning everything up. So there is going to be no lag time. Once we clean up, we plan to delist the site. So the site will not be on the national priority list.

So, again, you know, we are here to educate you, to answer questions you have, and to just hear your concerns about the proposed plan and about the remedy that EPA is proposing. As I mentioned, we have a 30-day comment period that's going on right now and ends at the end of the month.

Our key documents are part of the administrative record and they are documents that are there to help answer questions you have over why we chose the remedy that we're -- or why we're proposing the remedy that we feel is the best fit for the cleanup, and that's located at your local library.

So here's an overview of your site. As you know, this is a wood treater facility. Here is the treatment area. When we came, there are tanks here. The chamber, right here. The untreated lumber would go into the chamber, be pressure treated, and then would be put all along the perimeter of the site to drip dry.

We've completed a number of actions. As I've already mentioned, the emergency response started in 2010. It transitioned into the time critical removal action and that ended in 2012. It was put on the NPL in 2012. We completed the remedial investigation in 2014. And the feasibility study was completed in 2017.

So this just shows most of the locations of soil excavation. The different colors are noted for how deep the excavation went. There were a couple of residential properties that there was also action taken on, and they're not shown in this diagram.

So here are EPA contractors excavating some soil on the school. And here's what it looks like after. Here we're excavating sediment from the school retention pond. And here's what it looks like after. This is soil excavation on site.

The water in the retention pond was drained and disposed of and the sediment in the retention pond was removed from the retention pond. We treated and disposed more than 250,000 gallons of contaminated waste water. And, as I mentioned, we cleaned and removed tanks and piping associated with some of the treatment.

We also pressure washed the treatment pad and expoxied it to ensure that contamination wasn't migrating from that until we could come back for the remedial action.

As I've mentioned, we've collected and

analyzed over 700 samples of soil, surface and subsurface, sedimentation samples, water throughout the entire process.

And this diagram -- it's hard to see on here, I apologize -- it captures where we collected samples during the remedial investigation.

The remedial investigation concluded that action was warranted. With that, we came up with remedial action objectives or goals that we would like to accomplish through our remedial action.

Our goals are up here. Basically, it's preventing an exposure to contaminated soil onsite and offsite, prevent ecological exposure to contaminated sediments and surface water in the retention pond onsite, address building structures that are onsite as well as prevent migration of contaminated storm water offsite.

Again, this figure doesn't translate well up here, but we do have four different versions of this that you can see after the meeting. But this diagram, this figure, illustrates where we'll be taking action.

So we are planning on cleaning up to unrestricted use, which means this 12-acre property can be used however the community feels fit it wants to be used. So there will be no land-use controls on it. So that property will be clean enough for residents to live on when we're done.

So as I mentioned, the purpose of the feasibility study is to evaluate different remedial alternatives. With every one of these alternatives, minus the no-action -- and we'll get there in a second -- they involve excavation.

The difference between Alternatives 2, 3, 4, and 5, are basically what we're going to do with the excavated soil once we've excavated it. The no-action alternative is something that we have to include as part of the evaluation. It is not an option on the table. We just want to make sure everyone knows that. So hopefully you can see this table.

We, EPA, have to evaluate the different alteratives against criteria. So the criteria, the alteratives that have to be protected are human health in the environment. They have to attain or meet the environmental laws that EPA has and regulations.

So, for example, we're going to be digging up hazardous soil. So we, EPA -- me -- will have to ensure that we are meeting the RCRA rules of how to store the hazardous waste, dispose of the hazardous waste. So I just want to make sure that it's going to be addressed properly.

Long-term effectiveness is about how is this remedy going to be effective in the long-term. Can something bad happen, say, 20 years from now? But because we're removing all the waste, all of these alteratives will be long-term effective.

These alternatives are also evaluated; if they reduce mobility of the contamination, toxicity of the contamination, volume of the contamination. The short-term effectiveness is about is there a remedy that could be the most effective in the short term. So, say, exposure to the EPA worker that's dealing with the excavated soil.

So that's, you know, is there a risk associated with that action. And implementability is how easily is the remedy to be implemented, and then cost.

There are two other criteria that are included, but are not on this list. One of them is State concurrence; does Florida DEP concur with the remedy. And the other one is you, the public, which is why we're here.

So EPA's preferred alterative is excavation with offsite treatment and disposal. EPA prefers this one because it's the most effective short term. So we won't be treating onsite. These other alternatives include other heavy equipment coming in, different studies that we have to do to ensure that the other alternatives can meet the standards that we would like to meet. With Alternative 2, we don't have to do any studies. We're going to dig it up and haul it off.

So, as I mentioned, Alternative 2 is our preferred remedy. We're estimating excavating over 35,000 cubic yards of contaminated soil. Sediment on site, the demolition debris, more than 2,000 tons of. And then the residual waste underneath the ground and the pipes that were used in the treatment process.

So what happens next? I'm sure you're eager to hear that. So we will select the remedy this year. Hopefully, the end of June/the beginning of July. Once we select the remedy, we're going to go into the remedial design.

So that is going to entail designing. As I mentioned, designing the remedy, hearing feedback from you all about truck routes, concerns. We'll, you know, think about where we would set up our air monitors, how we're going to control dust. We're also going to do some sampling in the yards to identify how deep we're going to go in each yard. So we're going to have to work with you on that.

Once the design is done, as I mentioned, we need funding. And funding is prioritized nationally. So we will go to DC and compete nationally for funding. Once we do receive funding, we're going to be here implementing the cleanup.

So, again, my name is Leigh Lattimore. I'm the remedial project manager. I'm here to answer any of your questions. I appreciate your time and your patience with us, and I look forward to working with you all.

MR. TOLLIVER: All right. I know you all are anxious to ask your questions, and this is the time now to ask your questions. And anything that you have, any concerns you have about, you know, her presentation and the things that she went over as far as cleaning up the site, please ask, and we'll address those now.

So if you have a question, raise your hands, stand up, and state your name so that our court reporter can hear you. Yes, sir?

MR. HARRELL: John Harrell. My address is 1637 West 20th Street. I don't see my address on the design. But, like I said, I went to James Weldon School there and walked down that street and went to school there and everything. My house is still located by the railroad tracks over there.

MR. TOLLIVER: Okay.

MR. HARRELL: And I want to know why it's not included there. Are you going so far on this or what's the area?

MR. TOLLIVER: We can take a look at it. After the meeting, we can take a look at that. Okay?

MR. HARRELL: Okay.

MR. TOLLIVER: State your name, please.

MS. GROVER: My name is Sandy Grover, and my question is: What are the odds of getting funded since you'll be competing?

MR. TOLLIVER: That's a good question.

MS. LATTIMORE: We will be getting funding. It's just the timing. I can't tell you the timing, but I know we will be getting funding. There's no doubt. We're going to be here cleaning up. And first comes the design, and we will be here throughout the design, too.

So we're not going anywhere. We can, you know, have quarterly meetings or, you know, biannual meetings, too, while we do the design for any questions that you have.

MR. TOLLIVER: Yeah, I like her optimism.

So we're going to really push hard for this so we can get that funding for y'all. Yes, ma'am?

MS. GOLDEN: Good evening. I'm Gwendolyn Golden. I lived at 1581 West 19th Street. That's between Wilson and Grunthal.

My major concern is, although we're not living in the property, we are still on it and paying taxes on the property. Now that we have signed this paper, because from what the agricultural company from Tallahassee related to me when I finally found out about this and the fact that they've known for years and I've only known for about six months -- anyway, now that these papers are signed, will these papers be combined so that you now can contact us as needed or are there further steps that I need to take to make sure that my family and I are never left out again from what's going on in this settling of how we're doing this?

Because my family got a lot going on and a lot happening based on this contamination. We don't want to be left behind again. So will those papers be combined?

MR. TOLLIVER: (Nods head.)

MS. GOLDEN: Okay. Thank you very much.

MR. TOLLIVER: Yes, ma'am, we'll definitely put you on our contact list and we'll just -- and like Leigh said, we're going to stay in touch with you all. We're going to be here through the process. If y'all have any questions, feel free. Come see me after, I'll give you my contact information, and we'll definitely stay in touch. Okay?

MS. GOLDEN: Okay.

MR. TOLLIVER: Yes, ma'am. Yes, sir?

MR. DAVIS: Hi. My name is Lorenzo Davis and I work at Fairfax. My question to you is: How much money are y'all trying to get to clean all this up and not come short and say, This is all we got in the budget, or, you know, That's all they gave us?

And then when you do that, you leave some stuff out. You know, what I'm saying? You say, We don't have enough money to dig farther, so we just dig so far.

I was wondering how much we got in the budget. Okay? You need to let us know how much money y'all going for to make sure everything is clear.

MS. LATTIMORE: Thank you, Lorenzo, for your comment. So our estimate is close to $8 million. As I mentioned, we're going to be back here. We're going to -- that's an estimate. We're going to be back here.

We're going to be sampling yards again so we know how deep we need to go. Okay? Then we're going to go to the priority panel and we're going to compete nationally for funding. So my goal is not to have to ask for any more money after we've completed our design and have asked for the money.

MR. TOLLIVER: Appreciate it. Yes, sir?

MR. FLO: My name is Aerial Flo, F-l-o. I live on West 15th Street. I haven't been able to really understand what you've been saying. The last letter here that you sent states that you checked 96 properties.

Out of that 96 properties, how many of them showed contamination and are you going to do anything about the properties that are contaminated?

MS. LATTIMORE: Thank you again for your question. We are going to clean up 50 residential properties.

AUDIENCE MEMBER: 50?

AUDIENCE MEMBER: Did she say 50?

MS. LATTIMORE: 50.

(Audience members speak in unison.)

MS. LATTIMORE: Again, we are going to be addressing site contamination from the site and we're going to do additional samplings. Right now it's 50 properties.

MR. TOLLIVER: So we'll talk to you all about that. And after the meeting, if you have some concern about properties, we can kind of talk to you all individually about the properties to see if your property is in that 50.

MR. FLO: How are you going to decide which of the 50 properties you're going to work on out of the 96?

MR. TOLLIVER: Do you want to tell him how we decide?

MR. FLO: Is the EPA paying for this or is the City and --

MS. LATTIMORE: (Shakes head.)

MR. FLO: So the City don't have anything to do with it?

MS. LATTIMORE: (Shakes head.)

MR. FLO: So why don't you go and get some of that $750,000 they've been using downtown to help you?

MR. TOLLIVER: She'll tell you. She'll tell you.

MS. LATTIMORE: So we have clean-up values. And those residential parcels that are above our clean-up values that have site-related contamination on them are the ones that are targeted for clean up. Federal funding will pay for the clean up

MR. TOLLIVER: Yes, federal dollars. Okay. Okay, in the back. Okay. Can you come up here and state your name.

MS. FORD: My name is Brenda Ford and I'm from New Town, Success Zone. And I have several questions, but I'm not going to take up a lot of time.

My concern right now is that you're right in the heart of those two school districts, Susie Tolbert and R.V. Daniels. That water has been running through schools for years.

Schools are still open. The students are still attending school. And, yet, you're now going to dig into that soil, which means that they're not closing the schools. They're not doing anything as far as protecting.

I was looking at your objectives. I was writing down the things that you said; prevent human exposure, sediment, and water migration. You can't really control where water goes, really.

But having been there all these years, my concern is what in the world are you doing or plan to do with these students in the meantime?

You talk about the dust and everything

that's going to be. Those kids are still going to be out there playing on the playground, still walking in the front door, still going, you know, in and out of the school. That really bothers me that those students have been doing that for years.

MR. TOLLIVER: That's a great question about addressing that.

MS. LATTIMORE: Thank you for your comments. EPA was notified of the site in 2010. We came in and we did the emergency response to stabilize it. It then transitioned into the time critical removal action. We addressed this contamination onsite at the school.

However, we are continuing to do -- we're going to do some sampling on the school to ensure we've gotten everything.

With that said, the implementation part and the concerns about the children and the scheduling, that is something that we want to discuss and talk about during the remedial design. I'm with you. I have children of my own and would not want my children to be exposed to that.

I am devastated that these children were potentially exposed to that before we got involved. But we're here now and we're going to do everything we can to address it to ensure that there are no children exposed.

MR. TOLLIVER: All right. So we definitely want to let you know that we're here and we're not going anywhere. So we're definitely going to be addressing those issues. Okay?

So like she said, during the remedial design part, we're going to address that as far as with the children. We're going to address it. Okay?

We have him. You're next.

MR. SHAFTER: My name is Walter Shafter. I've lived at 1918 West 20th Street for many years. The EPA, are y'all responsible for cleaning it up?

MR. TOLLIVER: (Nods head.)

MR. SHAFTER: I'd like to know who was responsible for allowing a wood treatment plant to open up in a residential neighborhood knowing that they were going to be using contaminated chemicals.

Well, are y'all responsible for that? I just want an answer.

MR. TOLLIVER: All right. Okay. So, of course --

MR. SHAFTER: (Inaudible.)

MR. TOLLIVER: Right. Right. So we're here. And, like she said, in 2010, that's when --

MR. SHAFTER: (Inaudible.)

COURT REPORTER: I can't hear him.

MR. TOLLIVER: Right. Right. Right. So we have an investigative process where we go out and search for people who have, you know, done any type of contamination. We have a process for it.

COURT REPORTER: I cannot hear him. I'm sorry.

MR. TOLLIVER: Can you hear me?

COURT REPORTER: I can hear you. I cannot hear him.

MR. TOLLIVER: Okay. Okay. I was just addressing his question. Okay. Next question. Yes, you're next.

MR. LUNDY: Yes. My name is Ernest Lundy. I worked at Wood Treaters. The EPA, we have been working with you all basically around four years where you've been coming up, but we're not seeing no process. The paper's telling us, but we don't see nothing, and that's not right. And that's my main question.

MR. TOLLIVER: Okay. Right. So this is actually our official meeting to start this process. Okay? So it's a process. And then like she said, she explained that we're going to go through -- we're going to compete for funding. And then once we get the funding, then we're going to start.

But we're going to stay here until we get that funding. That's what we're determined to do. Okay? Okay. We'll come back to you.

MR. ROBINSON: My name is John Robinson. My question is: We're talking about the soil, what about the human effects?

AUDIENCE MEMBER: That's what I'm saying.

MR. ROBINSON: You're talking about you're going to clean up some soil. What effect is that?

I've been here for 63 years. What effect did it have on the kids? Birth defects? Anything of of nature? Y'all talk about the soil. What about the human contamination? That's my major concern right there.

MR. TOLLIVER: Okay. So you want to say anything about it? Okay. Well, again, what we're here to do is to clean it up.

The soil impacts human health, right? So they're being exposed to things. That's why we want to get rid of that contamination, so it won't impact anyone's health anymore.

Now, that was before we got here, right? Remember, it was 2010. And so what we're doing is we're addressing what we see now so it doesn't prolong or exacerbate that problem, make it worse. Okay? So we want to stop it right here and we want to clean it up so you all can move forward and have a fresh new start.

We didn't have anything to do with what's in the past, what happened in the past. We hear your concerns. We want to hear that and we'll kind of put you on the right path to getting those addressed. Okay?

But from right now -- from 2010 is when we started addressing the site and when we got that initial problem. Okay? Okay. All right. And in the back, sir?

DR. POLITE: Good afternoon, my name is Dr. Leroy Polite. The picture up there, I grew up in the third house on the -- well, I grew up right here (indicating), 1912.

In our household are eight people, six children, a mother and a father. All eight of us have had cancer. We've had some very successful lives, but all of us have cancer. All my -- my mother and all of my sisters, breast cancer. Myself, my brothers, my father; prostate cancer. I don't have -- I'm standing here without a bladder.

And in the neighborhood that's right here, so many of us are cancer survivors, those that haven't died. So, please -- you know, spilled milk and broken eggs, you can't do anything about that. But, please, let's do a thorough job in cleaning it up, please. Thank you.

MR. TOLLIVER: Thank you, sir, for speaking on that. And we definitely will -- we've heard so many of your stories and we definitely take that into consideration. We will do our very, very best job in cleaning this up. Okay?

And someone over here, right here.

MR. BURNELL: Good evening. I'm Jeff Burnell, and I live at 1587 West 14th Street. I've lived here since 1965, but this site was not known as Wood Treaters. It was known as the old Howard Feed Mills. How many remember that?

(Audience members talk in unison.)

MR. BURNELL: I attended school at Susie Tolbert when Howard Feed Mills was there. I think we should bring in our congressman, Al Lawson, because I'm sure he would do everything he can to get this thing done.

Because I hate to see things like this just go to waste. We should make it into an athletic field for Edward Waters College to play their games there. We don't want see to another dump.

That's my opinion, and that's all I got to say.

MR. TOLLIVER: Appreciate it. Appreciate it. And that's exactly the sentiment that we want. We want you all to have a fresh start so we can keep that or any of this stuff from happening again. Okay?

MR. BURNELL: Okay.

MR. TOLLIVER: So I'm glad that y'all are -- I appreciate it.

MS. LATTIMORE: Thank you for your comment. I just want you to know that we are cleaning up to a level that this property will be able to be used. There will be no land-use restrictions on it as far as how it is to be used. So we just wanted you to know.

MR. TOLLIVER: Yes, sir.

MR. LEWIS: Good evening. My name is Freddi L. Lewis. I live at 1714 Fairfax Street and I've been out here ever since 1957. And it used to be Howard Feed Mills before it was a chemical plant.

Now, I got one big question. What's going to happen to our drinking water that we drink every day? I need an answer for that. And that is very, very important; our drinking water at our residence.

MR. TOLLIVER: Definitely. Okay. Leigh, you want to take that?

MS. LATTIMORE: As far as I know, you're on City water. You are not drinking contaminated water. We did extensive groundwater samplings.

(Audience members speak in unison.)

MS. LATTIMORE: No -- okay. Okay. Okay. We did sampling of groundwater. We didn't find anything above our levels that deemed the water not drinkable. But we can, okay?

MR. TOLLIVER: So we're getting ready to -- in that remedial design process, we can look at those things. Okay? So we can look at those things and we can address them. Okay?

And I think we have -- oh, yeah. I'm going to go over here and then I'll be back to you.

MS. GOLDEN: My name is Gwendolyn Golden. I'm going to ask you -- because you're saying you came in in 2010, and that's good, and the soil and the water and the treatment and the moving, all that sounds real good.

But with your knowledge, based on what Dr. Polite brought in, I'm concerned about the contamination and the damage control. What happened to what you all know, although you wasn't involved, but you know that you know, that families have buried their loved ones because of this contamination? Where are we going to be compensated?

Nobody don't want to say it, but I want to know: Where is the compensation for our loved ones that are at Edgewood resting and wherever else where we got a whole street of people that from out of every house one, two to three people have been buried?

The book that was sent from Tallahassee listed several cancers including melanoma cancer, which is one of the greatest skin cancers. The footprints and handprints on the house that we live in says 1951. The bus stop was at 17th and Fairfax on the side of the railroad track right there in the sand.

The cancer has started in the -- please, let's stop tiptoeing around this dirt and this water, and we moving it. And we thank you, but what about our family members when you didn't move it?

Now, I know that you know who's got to be responsible for this. And it's time for somebody to step up and say, How can they make them accountable and a rectifiable situation?

Please don't tap dance on this. I rather you just say, There ain't nothing we can do; and do what you do. But don't tap dance on it. Please give us something else.

MR. TOLLIVER: Okay. Thank you for your concern. We'll definitely address that. We look forward to that. Yes?

AUDIENCE MEMBER: (Inaudible.)

MR. TOLLIVER: You'll see me after the meeting. Okay?

MS. GOLDEN: Okay.

MS. BAILEY: Hi. My name is Tamiko Bailey and I have two questions. One was, when you mentioned the stabilization, I wondered what that entailed. Like, is it to a certain level?

MS. LATTIMORE: (Nods head.)

MS. BAILEY: Or it's, you know, all right to just, you know, be exposed to it? And then, also, I have a follow-up question.

Post-cleanup, would the budget allow for, like, continual testing just to make sure that the stabilization levels are still adequate?

MS. LATTIMORE: So the stabilization that you're referring to is part of a remedial alterative. That is not our preferred remedial alterative.

So if we were not to go with that one, it would be an issue. The point of stabilization is that we would take the hazardous waste and we would mix it with a chemical so it can't leach out. So there's different ways to do that.

You would mix it with the contaminated soil so it wouldn't be considered hazardous and then it would be disposed offsite. So nothing would stay onsite. And there would be testing to ensure it meets the standards to dispose of it properly.

But, again, that is not our preferred remedial alternative. Our preferred remedial alternative is excavation with offsite treatment and disposal. Thank you.

MR. TOLLIVER: Thank you.

MS. SMITH: Hi. My name is Loameshia Smith. I'm one of the workers that actually worked on that site. As my sister Gwendolyn said, I have physical problems. I have health issues. Because my understanding, there was asbestos and arsenic in the building that I cleaned.

I want to know, the superfund money, is that just for the clean up? So it has nothing to do with compensating people that actually got damages from this site? So nobody is going to do nothing to help pay no doctor bills? Do no research? Help us do nothing? No responsible party?

But what about the City that allowed that to be there? What I can't understand is why would they put a toxic plant in a residential -- well, my understanding years ago, we found out that they rezoned that area for commercial.

We couldn't figure out why would they rezone it until we found out about this plant. So somebody has to be accountable for that somewhere, somewhere, somehow. Okay?

MS. SPENCER: Good evening, everybody. I'm L'Tonya Spencer. I used to be the community involvement coordinator for this site. I am the community involvement coordinator for the Kerr-McGee site over on the river. I am also the community involvement coordinator for the Jacksonville Ash and the Brown's Dump sites. I turned this site over to Ron.

I'm just going to dispel the elephant in the room. As she said, the money that we have available comes from Washington, D.C. It's only available for clean up of the site.

EPA cannot hold property and we are not responsible for the contamination. We're just here to clean it up, so that moving forward nobody is in contact with the contamination and that nobody is affected by it.

Now, why it was put there, we don't know. We don't know who's responsible for it. We don't know who could be accountable for it because that's not what we do.

When we find out about a contaminated site, we come in and try to clean it up and make sure that nobody is affected for future use. We will try to work to see that it's cleaned up to the point that it could be developed.

Now, the last thing I want to say is that this particular meeting is being transcribed so that all of your comments can be taken into consideration. So if you guys can respect each other and not talk over each other so that our transcriber can get all the information that we can take back to the office, so if there are questions that we cannot answer tonight, we need to be able to have them on transcription so that we can address them.

MR. BROWN: My name is Anthony Brown, and I've got three questions. My first question is: On you guys part, do you have any sense of urgency to move up that pecking order to receive these funds? And where are we located currently in the pecking order to receive the funds? That would be my first question

My second question is: Since you are not responsible for any compensation, is that something that's going to eventually come down the pike? Or you don't know about it? Or is that completely off the table?

And my third question is: Is this the standard operating procedure for any place in Jacksonville or is it just relegated to this area? In other words, would you guys be moving this slow and moving in this fashion if it was in Jacksonville Beach or in the mandarin area?

MR. TOLLIVER: Great questions. Great questions. This is a process that we go through. This is, as she said, a national priorities list which is a national list. So we have to go through this process with any site that we come in contact with. Okay? And we also have to compete for funding.

Like you said, this has been here for a long time. I know you all have dealt with this for a long time. So we are definitely using a sense of urgency and really, really pushing to get funding for the site. So, definitely, we want to put it in -- what?

AUDIENCE MEMBER: Sense of urgency? What

does that mean?

MR. TOLLIVER: Right. So, I mean, we're doing all that we can, you know, as far as we're competing with the whole nation. So we're doing all that we can to really get that funding.

But, like Leigh said, we're going to get that funding. It's just about when; when we get it. So we can't really say that because we have to go to DC to get it. Okay?

AUDIENCE MEMBER: How serious, from a national perspective, is our issue compared to other issues going on? That's my question.

MR. TOLLIVER: You want to tell them about the EPA?

MS. LATTIMORE: This cleanup is serious and we're taking it seriously. I can't stress that enough. I understand your frustration. We're working as hard as we can to get the cleanup. I don't know the other sites that are going to be competing nationally with this site once we bring it to what we call the priority panel.

I believe that this will rise to the level that we will hopefully get funding as fast as we can. I will fight. I'm fighting as hard as I can to get the funding that we need to do the clean up. I can't tell you when. I know that's frustrating, and I'm really sorry.

The EPA does not compensate for health effects. EPA will not compensate. We will clean it up, and that's what we have the authority to do is clean up the site.

MS. SIMPSON: My name is Cynthia Simpson. For years I lived directly across the street at 1502 Fairfax Avenue and my mom lives right there at 1742 West 21st Street. So I grew up in the neighborhood and lived directly across the street from the plant.

And I understand where you all are. That's not your issue as far as compensation. But I want to know two things: What can we do as a community to ensure that you get the money to clean it up? And then, what can we do as a community to make sure no one -- no one -- ever profits from that but the people who have suffered through in the community?

Because I don't want developers coming in there building houses and making money. You know, it should be something that's dedicated to the people who have lost their lives who have gone through sicknesses and illnesses.

We're speaking to you from a heart of hurt. We feel abandoned because it's been going on and they've been knowing for years. It's like you're saying, You're not important.

But you're using my tax dollars to clean up everybody else's. Use my dollars to help me. That's where I am.

MR. TOLLIVER: Thank you. Thank you. That's exactly what we're trying to do. We definitely want to do the clean up. Thank you. Anybody else?

MS. SPENCER: I think you asked another question concerning whether or not the money was coming down the pike.

There is no funding coming down the pike for compensation or reparation. The almost-8 million that she's going to be asking for will all go to clean up.

MS. HUNT: I'm Denise Hunt and I'm with the Northside Coalition of Jacksonville. We're very concerned about what's going on because this issue is not just in Fairfax. This is in Fairway Oaks. This is all over this city.

My question is: When you get the $8 million, how much of that money is going to go to black contractors to clean that area up?

See, that's the problem. You get federal dollars, but none of that money trickles down to the people who have suffered. And I want to know, you know, is there any set-aside dollars to make sure black -- did I say that right? -- black contractors get access to some of that $8 million to clean it up? Because we're the ones that's been impacted the most.

MS. SPENCER: Who gets the jobs for the cleanup will depend on who owns the property at the time. We are responsible for contractors to do the cleanup.

We have the oversight and we make the final decisions. We are admonished by our management to use small businesses here in the local area, small minority businesses.

So just as we did over in the Ash site and on Brown's Dump, we had to admonish them to use small business, small local minority business in the area. So I'm pretty sure that won't change. We're a long way from that, but that is what we've been trying to do.

As you mentioned, they have to do the remedial design, which is going to take some time because they're going to do some additional sampling. So when they get to the remedial action, it is our management's desire that we do hire small minority businesses from the local community as much as possible.

MR. TOLLIVER: And, also, I want you, before you all leave, we're going to have a list of some of the properties that we need to get access agreements so we can sample. So please see us at the end at the back of the table so we could see if your property is on the list.

MR. MALCOLM: My name is Malcolm (inaudible). My question is: Who owns the land now and who will own the land after it's cleaned up?

MS. LATTIMORE: EPA does not own the land. My understanding is Fairfax Management owns the land. However, they haven't been paying taxes.

AUDIENCE MEMBER: Fairfax --

MS. LATTIMORE: Land Management.

MR. TOLLIVER: Okay. Yes, sir.

MR. SHAFTER: Okay. I want to ask, because y'all say the soil was contaminated, y'all worried about the water. Less thank two blocks away is the water treatment plant.

Are y'all going to go in there and inspect that and make sure that none of the contaminated water goes into the water treatment plant? Because the water treatment plant is the one that supplies the water to all the residents in that area.

So if the soil is contaminated, then it's got to be contaminated there. And if they want to uncontaminate it, they've got to use more chlorophyl -- chlor -- whatever they've got to treat it with. Because their water is coming out contaminated because they're using more chlorophyl to sterilize the water.

MR. TOLLIVER: What was your name again, sir?

MR. SHAFTER: Walter Shafter.

MR. TOLLIVER: Yes, ma'am?

MS. SWAIN: Am I understanding it correctly, you have got to get this money?

MS. LATTIMORE: (Nods head.)

MS. SWAIN: Really? So why are we here? You don't have the money now? How long will it take to get the money?

MR. TOLLIVER: So that's what we're going through, Ms. Swain. We're going through this process so we can present it to Washington to get the money. But we have to take your comments on it.

As she goes through the design, she's got to design that. And then she takes your comments into consideration. So how that design or how whatever she's doing to clean it up, how it's going to impact you and your family, she wants to take that into consideration.

So if she needs to tweak something or change something, she can do that before they actually start spending the money and start cleaning it up. Because we don't want to do anything that's going to impact your lives or make it worse.

We want to make sure we take your inputs. So that's why this meeting is here, so we can take your input on her design and what she's doing to help clean that up. So that's why we're having this meeting.

MS. SWAIN: What's the design?

MR. TOLLIVER: That's what was in the presentation we just had.

MS. SWAIN: (Inaudible.)

MR. TOLLIVER: Well, the design is excavating. She says she's going to complete -- you want to go to that slide and show her.

MS. LATTIMORE: (Complies.)

MR. TOLLIVER: She's going to complete that. You want to tell her about it?

MS. LATTIMORE: These areas, (indicating) -- if you take a look at one of these posters, you can see more detail -- but these areas are where we're going to be excavating the soil.

And we don't have the money now, but we're going to get the money and we're going to be back here cleaning it up.

AUDIENCE MEMBER: When? We don't have the money?

MS. LATTIMORE: I can't tell you when. I'm sorry. So --

(Audience members speak in unison.)

MS. LATTIMORE: So we'll work as a community.

MR. TOLLIVER: So, yes, it's up to getting funding from Congress. So this is why it's important that you all, you know, stay in touch and be engaged in this process, you know, with your congressmen as well. And let them know your concerns. Okay?

Yes, sir?

MR. ENNIS: Hi, my name is Andre Ennis. My concern is this: Okay, you done found out the land is contaminated, right? You done found out the land is contaminated, which is on this slide, right? You know it's contaminated, right?

So what we need to do, right, is tear down all the houses and relocate everybody, the schools, everything. That's what we need to do. Once we done found out the land is contaminated, you have to relocate these people and these schools.

MR. TOLLIVER: Now, we're going to do an investigation to find out what we're needing to do. So that's part of this process. Okay? Yes?

MR. EDWARDS: My name is Doug Edwards. I work for a local pediatrician, Dr. Assi. And my question is: What is the toxic agent you're primarily concerned about and what are the primary health effects?

MR. TOLLIVER: He wants to know the contaminates and the effects.

MR. FREDERICK: Hi. Can we hear me okay? As well as we can with this mike? Okay. My name is Tim Frederick. I'm the risk assessor. My job is to take the data that comes in and figure out what the risk is to the community.

So if you've got questions about that and you don't want to ask them right now, come see me afterwards. But the question was: What are the contaminates that are of concern here.

This was a CCA plant. So it's chromium, copper, arsenic, which is driving the risk where we're seeing the -- what's having the biggest impact on where we clean up is for arsenic. So arsenic is the contaminate of concern.

There was a question earlier about how do sites come in, how do we decide where to draw those boundaries. When we're sampling, my job is to look at the risks of the long-term exposure to those concentrations.

So we draw a line of where the statute, what the law, tells us is acceptable risk; and so where we could figure out the cleanup level, where it's okay, and where it's not. And so if you're in one of those yards where you're above the clean-up level, that's how your house ends up on this map. Okay?

So you may have -- the problem here is that arsenic is naturally occurring too. It happens everywhere. So one of the problems that we have here is determining, you know, the background contamination that exists in nature from just, you know, geology of the whole area and what's from the site.

The State of Florida has a really low clean-up number. And when Leigh was talking about making sure that we follow all applicable laws when we're cleaning this up, one of the things we have to do is look at what the Florida clean-up numbers are. And the Florida clean-up numbers are lower than EPA's.

They're more protective.

So we are cleaning up more yards than we would if this site was in another state because of Florida's protective clean-up numbers. So thank your Florida DEP folks on the way out because we're doing more here than we would if the site was in Georgia or in Alabama. So that's more yards. We're doing, you know, really, as much as we can here.

So, anyway, arsenic, we have clean-up levels that we use to figure out how to get you on the map. And if anybody's got any other questions, catch me.

MR. TOLLIVER: Yes, ma'am?

MS. HARRIS: My name is Lawanta Harris. I look at the crowd this afternoon, and we have such a large crowd here, but it don't stop at the EPA. It starts with our council.

You know, if we don't get out to our city council and listen to what's going on, we can see the results. But I think three, four folks are in here tonight that are sick from one way or the other with cancer, arthritis, you name it.

So the same way we are supporting this group tonight, let's talk to -- our councilman is here. We have went through two councilmen before we got to Mr. Dennis, and that was Denise Lee and Warren Jones, and they did absolutely nothing for the community.

So we need to stand up to our communities and do something about it. And until we can do something about our communities, how can EPA step in? The damage is already done. But if we go downtown to those city council meetings some nights, you'll understand what's going on.

And I do understand because I've lost a husband with cancer. And it's all in our bodies; my grandchildren, my great grandchildren. So it's time for us to fight the right people.

MR. LANG: Hi, my name is Benjamin Lang. I've got a couple questions. My first question is: What type of diseases, if you know any, that could possibly be caused by the contaminations?

And, also, with the contaminations, you know, of course they spread. So I know y'all don't know exactly when y'all are going to get the funding. But do y'all have any kind of verifiable way between the time to get the funding and now to how much contamination could possibly spread more while waiting? Do y'all have any way of figuring that out? That's my question.

MR. FREDERICK: Okay. So the first question was what are some of the diseases that arsenic causes. There's a variety. If you'd like to talk about specific ones, I'm here and the Department of Health is here as well to answer some of those specific questions.

But, generally, arsenic causes problems with the liver, the kidneys, it causes skin problems. It's a carcinogen. The cancers, the primary known cancers that are associated with arsenic is skin cancer -- it's the most predominant one -- and then cancer to the liver and the kidneys as well.

That's not an exhaustive list, but those are the main cancers.

MR. LANG: (Inaudible.)

MR. FREDERICK: Yeah, I'm not sure about that one specifically. But, again, the specifics, if one of the -- now, this comes up. People are concerned about illnesses that they have. Take those questions to your doctor. Tell them that you have been exposed or potentially been exposed to arsenic. You can talk with myself or the Department of Health afterwards about any specific questions about it.

And your second question was about spreading. The good thing about this kind of contamination is it binds with the soil. So it should stay where it is.

MR. TOLLIVER: Can everyone hear? Can y'all please keep it down so people can hear answers to their questions, please. Thank you.

MR. FREDERICK: All right. So the second question was about this contamination spreading while we're figuring out what we're going to do.

Arsenic, lead, and copper, they kind of stay where they are for the most part. They can be carried as that soil would move from rain or being washed away, but that sort of happened already where it is. So we expect the contamination to stay where it is.

Leigh, during the design, is going to have to do some more sampling to figure out how deep and we may, you know, kind of go around the edges to make sure we have a good handle on where that is.

So those lines may move in or out as she figures out the design, but we expect things to kind of stay where they are for the most part.

MR. TOLLIVER: Okay. Let me come over here. We have a question over here. Yes, ma'am?

MS. FORD: I have a question. Brenda Ford. My question -- again, I go to that area up there where that line is drawn. So sort of that might be that blue line right there.

My question is: Like I said earlier about the water, that waterline has gone by the reservoir over into the College Garden area and all back over there in 5th, 6th, and all of those streets. But I see you stopped in this little central area where you feel the contamination is. Am I right?

MS. LATTIMORE: (Nods head.)

MS. FORD: Okay. Are you going to test, later on, those areas that are in those areas? Because like the young lady said, like the gentleman said, and like I'm saying now, my husband died of non-Hodgkin's lymphoma with kidney failure; my mother-in-law with breast cancer; my sister-in-law with a big tumor in her stomach, cancerous. All -- everybody here just about has had to fight with some type of disease or whatever.

But to stop it right there with the testing, I'm asking: Are you going further for the testing than just that area?

MR. TOLLIVER: The only thing we can do is what's related to this site. That's how we get money; based on the tests that we do that's related to the site.

MS. FORD: What can we do as residents? Because we have had to bury, too, that have lost and suffered and are going through the same process, but it's almost like just this small group here, and the rest of us are left to fend for ourselves; and that shouldn't be.

MR. TOLLIVER: Okay. Well, the rest of the --

MS. FORD: We're all in this together.

MR. TOLLIVER: Okay. Come see us and we'll kind of look at you after the meeting. Come see us.

MR. FREDERICK: And, again, you know, how these lines are drawn right now is based on the data that we have. So we know that things happened in the past, but where we're seeing arsenic today at concentrations that are elevated are kind of drawn here.

So, again, we will do some additional sampling to pin that down a little better; but where these lines are drawn is where we're seeing the arsenic today. And so it may have gone through the past, but we're not seeing it today when we take samples. I mean, we're basing it on the samples that we've collected.

MS. FORD: And then can I ask another

question?

MR. TOLLIVER: Okay. We have someone over here and then we'll come back.

MS. FORD: So is that where you're -- how you got --

COURT REPORTER: I didn't hear her question.

MR. TOLLIVER: Ma'am, we'll come back. We'll come back to you.

MS. ROBINSON: Hi. My name is Michelle Robinson. I've got a question. I know the site's being cleaned out, but what about the people and what the people went through and what they're going through now? You said the site need to clean up, but what about the people? The people need cleaning too.

MR. TOLLIVER: Right. So earlier we said, we stated about, you know, the time when we got here and what we're doing and the purpose of the EPA.

So we want to start with cleaning it up and making sure that nothing, from this point on, happens. So we want to make sure that it's protected. Okay? So we're not -- we haven't been responsible for the contamination, but we're being responsible for cleaning it up. So that's how that works.

MS. ROBINSON: I know that you are

responsible for cleaning, but who is responsible for the people? Here it is y'all getting money for the site, but what about the people?

MR. TOLLIVER: This money is to protect the people. That's why we're getting this money, so that we can clean up any of that contamination that has a potential of harming someone else; so we can clean up and protect the people. So that's why we're having this meeting and that's why we're doing it. Okay?

MS. ROBINSON: So you're saying what's damaged is damaged. And the people, here it is you're cleaning something out, but we're already damaged. We're already messed up.

MR. TOLLIVER: Okay. Those individuals can come see me and I can kind of direct you to, you know, the people that you need to talk to if you have any health issues. Yeah, I understand.

MS. ROBINSON: But the people are saying, Hey, what about us?

MR. TOLLIVER: Right. Right. Right.

MS. ROBINSON: (Inaudible.)

MR. TOLLIVER: Right. Right. But we have to start. We have to start somewhere. And we want --

MS. ROBINSON: (Inaudible.)

MR. TOLLIVER: Okay. See me afterwards and we'll talk about it. We'll talk about it. Yes?

MR. PHILLIPS: My name is Juan Phillips and I'm at 1920 West 21st Street.

MR. TOLLIVER: Hey, y'all, can we respect Juan here at the mike so we can hear his question. Can he get his question out? Thank you.

MR. PHILLIPS: The question that I have is: When the EPA got involved with this site, were there records from the City that showed periodic inspections of the site? Because my understanding is this site was a large-quantity generator of toxic waste. Was the City annually inspecting this site?

And, two: When you're looking for funding, wouldn't the City play some role in supplying funding to help with this cleanup or is all the funding just basically coming from the federal government?

The City was making -- inspecting the site, they should also play a part in helping cleaning it up.

MR. TOLLIVER: Now, this is a superfund site. So we take the lead on cleaning up. So we have to -- we take the lead, so we go and get the funding for the site. Okay? So we don't deal with them. We don't have any --

AUDIENCE MEMBER: So the City has a free

pass?

MR. TOLLIVER: We don't have any dealings with that. So we're taking responsibility for cleaning it up. Okay? So we can make sure all of you are protected. Okay?

All right. Any other questions? Sir, you want to come up?

I appreciate that you all are faithful, too. I know it's been a long meeting.

MR. BORDEN: How y'all doing? My name is Nathaniel Borden and I'm the president of Fairway Oaks Homeowners Association. And I just want -- I really don't have a question. But I just want to let y'all know that for, like, the last four or five years, we've basically been trying to get the EPA out to actually come out and try to test our soil because it's known that it was a part of the Doeboy dump site and part of the Castellano Dump.

I don't know if none of y'all are familiar with the area, but it's on 45th and Moncrief. But, basically, all of you know that basically a lot of this land from here to probably all the way up to Tutall [phonetic] all the way up to Pinckney was all dump, you know.

And I just want to let y'all know that this is a blessing. It is a blessing that EPA is out here. It's a blessing that they are fighting to get the money to actually clean up Fairfax.

And I know everybody is basically concerned with everybody being compensated and everything, but this is a start. This is a start to clean up. It's just like the main start -- the main thing with the clean up is for our kids, that our kids don't have to go through living in the toxins.

And so I just want to let everybody know that this is a great start with EPA coming out here to clean up. And I just want y'all to stay encouraged and keep following what's going on. You know, even with y'all getting the health with everybody -- I understand y'all lost a lot of loved ones and a lot of y'all got cancer, a lot of your kids.

I feel your pain. My community is almost in the same situation. And I say we've been fighting for the last ten years to try to get the City and basically HabiJax to actually do something. But when I tell y'all this is the best start, and it's actually to get the cleanup, it really is. It really is. Thank you.

MR. TOLLIVER: Appreciate that. Because that's what it's all about. We want you all to have a fresh, a clean start. And that's what it's about. So you guys can look forward to the future, to your family, to your children, your children's children so they can have a good start.

And so I can connect you all to some other organizations if you're concerned about, you know, what's going to be there after the cleanup, I can connect y'all. Y'all can see me after the meeting or stay in touch. I'll give you my card and I'll connect you with some other organizations.

Ms. Iris Hinton is also one of the ones that's really been fighting for the site and getting some redevelopment and things like that going. So we'll talk about that if you want, if you have any concerns about that. Okay?

All right. All hearts and mind are clear? I really appreciate you all coming out tonight. Thank you so much. And, like I said, please see me at the end table back here. We'll be around for answering any questions you have, personal questions, anything dealing with that.

All right. Thank you all. Have a good night.

(Meeting concluded at 8:25 p.m.)

C E R T I F I C A T E

STATE OF FLORIDA:
COUNTY OF DUVAL:

I hereby certify that the foregoing proceedings were taken down, as stated in the caption, and reduced to typewriting under my direction, and that the foregoing pages 1 through 59 represent a true, complete, and correct transcript of said proceedings.

This, the 16th day of May 2017.

Yolanda R Narcisse

YOLANDA R. NARCISSE, CCR-B-2445
Notary Public
State of Florida
Commission No. FF907274
Expires: August 5, 2019

APPENDIX E

STATE CORRESPONDENCE

(Nine Sheets)

Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Noah Valenstein
Secretary

July 18, 2017

U.S. EPA, Region IV
Superfund Division
Attn: Ms. Leigh Lattimore
61 Forsyth Street, SW
Atlanta, GA 30303

Subject: DEP Review of Draft Record of Decision
Fairfax Street Wood Treaters Superfund Site
Jacksonville, Duval County, Florida

Dear Ms. Lattimore:

The draft Record of Decision (ROD)/Summary of Remedial Alternative Selection for the Fairfax Street Wood Treaters Superfund Site dated June 2017 has been reviewed by DEP.

EPA has proposed Alternative 2 for the site remedy. The proposed site remedy consists of removal of onsite as well as offsite contaminated surface and subsurface vadose zone soils where contamination exceeds health-based soil cleanup target levels for arsenic, chromium, copper and cPAHs, consistent with an unrestricted residential land use scenario and Chapter 62-777, F.A.C. The soil cleanup level for arsenic is based on the site-specific background concentration of 2.36 mg/kg. Onsite sediments will also be removed from the onsite retention pond. Sediment cleanup criteria are based on the DEP Sediment Quality Assessment Guidelines (SQAGs). Excavated soils and sediments will be disposed offsite at an EPA-approved and permitted RCRA solid waste (Subtitle D) or hazardous waste (Subtitle C) facility, depending on waste characterization. Removal of contaminated soils and sediments, including residual waste material remaining in underground drains and piping in the former process area, will require the demolition and disposal of overlying pavement, foundations and buildings remaining onsite. The remedy will allow for unlimited use/unlimited exposure (UU/UE), on both onsite and offsite properties.

Groundwater does not exceed MCLs or groundwater cleanup target levels (GCTLs); therefore, groundwater remediation is not anticipated. Offsite sediment contamination in Moncrief Creek will be evaluated and remediated as necessary as a separate operable unit (OU).

The estimated extent of onsite and offsite soil removal is shown on Figures 15 through 20 in the ROD. We understand that additional lateral and vertical delineation of offsite soil contamination will be conducted during design in the residential neighborhood east of the site and immediately west of the site on the Suzie Tolbert Elementary School (STES) property to ensure that soils exceeding the arsenic cleanup criteria are addressed by the remedy to allow unrestricted use. Additional contaminant delineation and waste characterization will also be conducted onsite during design. According to the ROD, EPA will determine during design the "contained in" criteria that will govern offsite treatment and disposal of some contaminated material as "listed" waste.

DEP understands that based on the Conceptual Site Model and projected offsite contaminant migration pathways, arsenic in offsite soils north of the R/R is not considered site related and will not be addressed by the Superfund remedy.

The estimated cost of the Superfund remedy is $7,860,000.

We offer the following comments below. We request a redline copy of the final ROD prior to EPA signature to confirm comments are addressed.

Part 1: Declaration

1. Pg. vii--At the end of the paragraph under "Statement of Basis and Purpose", please replace the sentence "The State of Florida concurs..." with "The State has worked closely with EPA in the evaluation and selection of the site remedy." Please note that DEP does not normally issue a formal concurrence letter prior to EPA execution of the ROD.
2. Pg. viii—We recommend the third bullet be replaced with the following, "Transport of excavated soil and demolition debris to an off-site RCRA permitted Subtitle C or D treatment and disposal facility."
3. Pg. x—Under "Authorizing signature", please replace "concurrence" with "support" or "input", so that the sentence reads "The remedy was selected with DEP support."

Part 2: Decision Summary

1. DEP understands that EPA will further evaluate contamination in offsite creek sediments as part of an operable unit (OU 2). The ROD proposes to look at only ecological risk during that evaluation. The risk assessment concluded that incidental exposure of recreationalists to sediment and surface water in the Creek was below an HI of 1 and within the acceptable EPA risk range (1 X10-5). EPA also postulated that the human health risk based on bioavailability via fish ingestion is low due the likelihood that bioavailable arsenic will primarily consist of the less toxic organic (vs inorganic) form of arsenic. To provide greater certainty, FDEP recommends that human exposure to arsenic via fish ingestion be further evaluated as part of OU 2.

2. Groundwater monitoring to date has confirmed that the groundwater meets MCLS and GCTLs for the contaminants of concern (COCs). No groundwater remediation is proposed. Current site conditions (with pavement, foundations and building covers over contaminated soils) may have also served to mitigate existing sources of

groundwater contamination. DEP recommends that groundwater sampling be conducted after completion of the soil remedy to confirm the effectiveness of the health based soil cleanup criteria in mitigating source to groundwater and that groundwater continues to meet MCLs and GCTLs in the absence of these historic engineering controls.

3. In the 2011 EPA Removal action, soils along the perimeter of the Fairfax property were excavated, the contaminated fine material separated out and disposed offsite, and the coarser material power washed and redeposited onsite in those same areas for dust control. Figure 15 indicates that additional soil removal is proposed in some of those perimeter areas. DEP recommends that confirmatory sampling be conducted in those areas *not* being excavated during this final remedial action, to ensure that the areas where the coarser materials were previously redeposited meet the soil cleanup goals for unrestricted use.

4. Section 6.0- Nature and Extent of Contamination- It appears that the maximum soil concentrations cited in the summary reflect only the more recent Remedial Investigation (RI) data and do not include previous sampling data collected as part of the EPA's removal action. The discussion of maximum concentrations in onsite and offsite areas should reflect all the soil data where contamination remains. For example, the maximum soil concentration to the South of West 14th Street appears to be 20 ppm for arsenic, and not 3.1 ppm as cited. As well, the maximum arsenic concentration in soil on Pullman Court was 30.4 ppm and not 2.6 ppm as cited.

5. Section 9.0- Remedial Action Objectives (RAO)- Please clarify that the RAO for the ecological receptors include both benthic organisms and avian receptors in the on-site retention pond.

6. Section 10- Description of Alternatives- Under Alternative 2, page 29, the text indicates that "Site preparation would include removing the office building debris and building slab, the former Feed Building slab, treatment areas, piping and drying areas, and paved areas *within the proposed excavation areas*". Please clarify in the ROD that additional soil sampling will be conducted onsite outside of the proposed areas of excavation to confirm that vadose zone soils and overlying pavement allowed to remain onsite after remediation meet soil cleanup levels consistent with UU/UE

7. Please clarify in the ROD and correct Remedial Action Figure 15 in Appendix A to show that soil excavation to 18" bls will be conducted in the Outfall Area located on the Fairfax property immediately west of the onsite retention pond and north of the Pullman Court residences, as previously recommended by DEP and included in Figure 3 of the EPA proposed plan. Soil sampling in that area has confirmed arsenic at levels up to 36 mg/kg.

8. Appendix B- We recommend that the soil data summary tables include all data points used in the evaluation and selection of the remedy as shown in Figures 15-20 of the draft ROD. A cursory review suggests the tables are incomplete.

9. Appendix B, Table 16, Chemical-Specific ARARs- Please include a reference to the Florida Sediment Quality Assessment Guidelines (SQAGs) as To Be Considered (TBCs). The SQAG Threshold Effect Concentrations (TECs) are cited in the ROD as the basis for sediment remediation.

10. Appendix B, Table 4- Sample WT-RP-96-SF-BY with a 2.1 mg/kg arsenic value was mistakenly highlighted.

Thank you for consideration of these review comments. Please let us know if you have any questions or would like to discuss the comments further.

We look forward to execution of the ROD and future site remediation.

Sincerely,

Miranda McClure
Project Manager
Waste Cleanup

Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Noah Valenstein
Secretary

August 15, 2017

U.S. EPA, Region IV
Superfund Division
Attn: Ms. Leigh Lattimore
61 Forsyth Street, SW
Atlanta, GA 30303

Subject: EPA-DEP Responses to DEP Comments, Draft Record of Decision, June 2017
Fairfax Street Wood Treaters Superfund Site
Jacksonville, Duval County, Florida

Dear Ms. Lattimore:

Thank you for the EPA July 26, 2017 responses to DEP comments (RTCs) on the draft Record of Decision (ROD). DEP review of the revised ROD including Appendices and Figures confirms that our comments have been addressed as discussed. This is to acknowledge EPA's RTCs and document DEP's understanding of those responses. We appreciate EPA's consideration and look forward to design and implementation of the site remedy.

We have retained the same format, with EPA's responses in **bold** following each original DEP comment and DEP's subsequent response in *italics*. We understand that EPA will include this August 15, 2017 correspondence as well as the original and more lengthy DEP review comments dated July 18, 2017 (attached) in Appendix E, State Correspondence.

Part 1: Declaration

1. Pg. vii--At the end of the paragraph under "Statement of Basis and Purpose", please replace the sentence "The State of Florida concurs... " with "The State has worked closely with EPA in the evaluation and selection of the site remedy." Please note that DEP does not normally issue a formal concurrence letter prior to EPA execution of the ROD.

   The EPA changed the sentence from "The State of Florida concurs with the Selected Remedy." to "The State of Florida has worked closely with the EPA in the evaluation and selection of the Site remedy and has expressed

its support for the Selected Remedy."

Thank you for the amended ROD language stating "The State of Florida has worked closely with the EPA in the evaluation and selection of the Site remedy."

2. Pg. viii- We recommend the third bullet be replaced with the following, "Transport of excavated soil and demolition debris to an off-site RCRA permitted Subtitle C or D treatment and disposal facility."

   The EPA made the requested change.

   Thank you.

3. Pg. x- Under "Authorizing signature", please replace "concurrence" with "support" or "input", so that the sentence reads "The remedy was selected with DEP support."

   The EPA made the requested change.

   Thank you.

Part 2: Decision Summary

1. DEP understands that EPA will further evaluate contamination in offsite creek sediments as part of an operable unit (OU 2). The ROD proposes to look at only ecological risk during that evaluation. The risk assessment concluded that incidental exposure of recreationalists to sediment and surface water in the Creek was below an HI of l and within the acceptable EPA risk range (1 X10-5). EPA also postulated that the human health risk based on bioavailability via fish ingestion is low due the likelihood that bioavailable arsenic will primarily consist of the less toxic organic (vs inorganic) form of arsenic. To provide greater certainty, FDEP recommends that human exposure to arsenic via fish ingestion be further evaluated as part of OU 2.

   The EPA will review the risk assessment and work with the risk assessor to determine if the EPA needs to further assess this exposure scenario.

   DEP's review indicates that the exposure scenario of arsenic via fish ingestion was not a pathway evaluated in the Risk Assessment. As discussed with EPA and outlined in Section 4.0 of the ROD, DEP understands that this exposure scenario as well as further evaluation of ecological risk will be considered in the additional investigation of offsite sediments in Moncrief Creek as a second operable unit.

2. Groundwater monitoring to date has confirmed that the groundwater meets

MCLS and GCTLs for the contaminants of concern (COCs). No groundwater remediation is proposed. Current site conditions (with pavement, foundations and building covers over contaminated soils) may have also served to mitigate existing sources of groundwater contamination. DEP recommends that groundwater sampling be conducted after completion of the soil remedy to confirm the effectiveness of the health based soil cleanup criteria in mitigating source to groundwater and that groundwater continues to meet MCLs and GCTLs in the absence of these historic engineering controls.

The EPA will review the groundwater data and work with the hydrogeologist to determine if an additional round of groundwater monitoring is necessary once the remedial action has been implemented.

As discussed with EPA, DEP understands that during the remedial design, a scope of work will be developed to confirm the effectiveness of the soil remedy in mitigating contaminant sources such that groundwater remains below EPA MCLS and DEP GCTLs following the proposed remedial action.

3. In the 2011 EPA Removal action, soils along the perimeter of the Fairfax property were excavated, the contaminated fine material separated out and disposed offsite, and the coarser material power washed and redeposited onsite in those same areas for dust control. Figure 15 indicates that additional soil removal is proposed in some of those perimeter areas. DEP recommends that confirmatory sampling be conducted in those areas *not* being excavated during this final remedial action, to ensure that the areas where the coarser materials were previously redeposited meet the soil cleanup goals for unrestricted use.

   The EPA will collect additional delineation samples and can include these areas not being excavated to ensure the areas where coarser materials that were previously redeposited meet the soil cleanup levels for unrestricted use.

   Thank you.

4. Section 6.0- Nature and Extent of Contamination- It appears that the maximum soil concentrations cited in the summary reflect only the more recent Remedial Investigation (RI) data and do not include previous sampling data collected as part of the EPA's removal action. The discussion of maximum concentrations in onsite and offsite areas should reflect all the soil data where contamination remains. For example, the maximum soil concentration to the South of West 14th Street appears to be 20 ppm for arsenic, and not 3.1 ppm as cited. As

well, the maximum arsenic concentration in soil on Pullman Court was 30.4 ppm and not 2.6 ppm as cited.

The EPA made the requested change.

Thank you for the edits to Section 6.0 describing both pre- and post-RI data used to document the current extent of soil contamination on and offsite.

5. Section 9.0- Remedial Action Objectives (RAO)- Please clarify that the RAO for the ecological receptors include both benthic organisms and avian receptors in the on-site retention pond.

The EPA made the requested change.

Thank you.

4. Section 10- Description of Alternatives- Under Alternative 2, page 29, the text indicates that "Site preparation would include removing the office building debris and building slab, the former Feed Building slab, treatment areas, piping and drying areas, and paved areas *within the proposed excavation areas"*. Please clarify in the ROD that additional soil sampling will be conducted onsite outside of the proposed areas of excavation to confirm that vadose zone soils and overlying pavement allowed to remain onsite after remediation meet soil cleanup levels consistent with UU/UE.
The ROD specifies that additional sampling will be conducted during the Remedial Design (RD) to ensure the extent of contamination has been defined. The EPA will work with FDEP during RD the to ensure the areas of concern have been addressed adequately.

Thank you.

6. Please clarify in the ROD and correct Remedial Action Figure 15 in Appendix A to show that soil excavation to 18" bls will be conducted in the Outfall Area located on the Fairfax property immediately west of the onsite retention pond and north of the Pullman Court residences, as previously recommended by DEP and included in Figure 3 of the EPA proposed plan. Soil sampling in that area has confirmed arsenic at levels up to 36 mg/kg.

The EPA made the requested change.

Thank you for the corrected Figure 15, showing the proposed areas for remedial action based on existing data including the onsite Outfall Area west of the retention pond.

7. Appendix B- We recommend that the soil data summary tables include all data points used in the evaluation and selection of the remedy as shown in Figures 15-20 of the draft ROD. A cursory review suggests the tables are incomplete.

The EPA made the requested change.

Thank you for the revised Appendix B to include the pre- and post-RI data.

5. Appendix B, Table 16, Chemical-Specific ARARs- Please include a reference to the Florida Sediment Quality Assessment Guidelines (SQAGs) as To Be Considered (TBCs). The SQAG Threshold Effect Concentrations (TECs) are cited in the ROD as the basis for sediment remediation.

Consistent with the NCP and EPA guidance on TBCs, the FL SQAGs can be added to the ARARsffBC table as a TBC that was the basis for establishing eco risk cleanup levels for sediment in the stromwater retention basin.

Thank you for the updated ARARs table now referencing the SQAGs as a TBC. The proposed language captures the intent and application of this guidance at this site.

8. Appendix B, Table 4- Sample WT-RP-96-SF-BY with a 2.1 mg/kg arsenic value was mistakenly highlighted.

The EPA updated the table to address the comment.

Thank you for the revised Appendix B to also include all pre- and post-ROD data.

Please let us know if you have any questions.

Sincerely,

Miranda McClure

Miranda McClure
Project Manager
Waste Cleanup

Attachment- DEP July 18, 2017 Review Comments on Draft ROD