Screening Site Inspection Report

Palestine Light, Heat and Power Company Site
Palestine, Anderson County, Texas
TXD981912421

Prepared in cooperation with the

U.S. Environmental Protection Agency

Region VI

Prepared by

Protecting Texas
by Reducing and Preventing Pollution

Texas Commission on Environmental Quality
Superfund Site Discovery and Assessment Program
Austin, Texas

November 2003

The preparation of this report was financed through
grants from the U.S. Environmental Protection Agency.

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NOTES TO THE READER

The following rules were used when citing references in this Screening Site Inspection (SSI) Report:

1. If the reference cited had an original page number, that number is cited.

2. If the reference cited had no original page number, then a designated tracking number is cited.

3. If the reference cited is for analytical data found within a table, the reference document for the data set containing the sample ID will be used.

4. The State predecessor agencies: Texas Water Quality Board (TWQB), Texas Department of Water Resources (TDWR), Texas Water Commission (TWC), Texas Air Control Board (TACB), and Texas Natural Resource Conservation Commission (TNRCC), referred to throughout this report are now known as the Texas Commission on Environmental Quality (TCEQ). The new agency, TCEQ, became effective September 1, 2002, as mandated under the State House Bill 2912 of the 77th Regular Legislative Session.

1.0 INTRODUCTION

The Texas Commission on Environmental Quality (TCEQ) has been tasked by the U.S. Environmental Protection Agency (EPA) Region VI to conduct a Screening Site Inspection (SSI) at the Palestine Light, Heat and Power Company site (EPA Identification No. TXD981912421) located at 614 West Reagan Street, Palestine, Texas, Anderson County. The facility is located within a mixed industrial/residential area within the city limits of Palestine. The property is not maintained by any governmental or outside entities.

1.1 OBJECTIVES OF THE INVESTIGATION

The purpose of this investigation is to document the release(s) or potential release(s) of hazardous substances from identifiable sources which may have migrated off-site. The preremedial stage of the Superfund process involves a preliminary assessment (PA) and a site inspection stage consisting of a SSI and, if necessary, a listing site inspection (LSI). This SSI is being conducted to determine if the Palestine Light, Heat and Power Company site is eligible for proposal to the National Priorities List (NPL) under the Federal Superfund Program. The SSI will concentrate on assessing source areas and evaluating threats along the surface water pathway and the soil exposure pathway; however, all pathways will be reviewed.

1.2 SCOPE OF WORK

An EPA Preliminary Assessment (PA) report was completed in March of 1987 identifying specific areas within the vicinity of the Palestine Light, Heat and Power Company site requiring further investigation. This SSI will build upon existing data by: (1) providing additional background information relevant to the site obtained through a file review and interviews conducted during on- and off-site field reconnaissance efforts and, (2) by the collection of environmental samples to further characterize conditions at or near the site. Sampling conducted during the field work was intended to document hazardous substance migration from identified potential source areas and to look for evidence of actual human and environmental exposure to contaminants.

1.3 PROJECT CONTACTS

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2.0 SITE CHARACTERISTICS

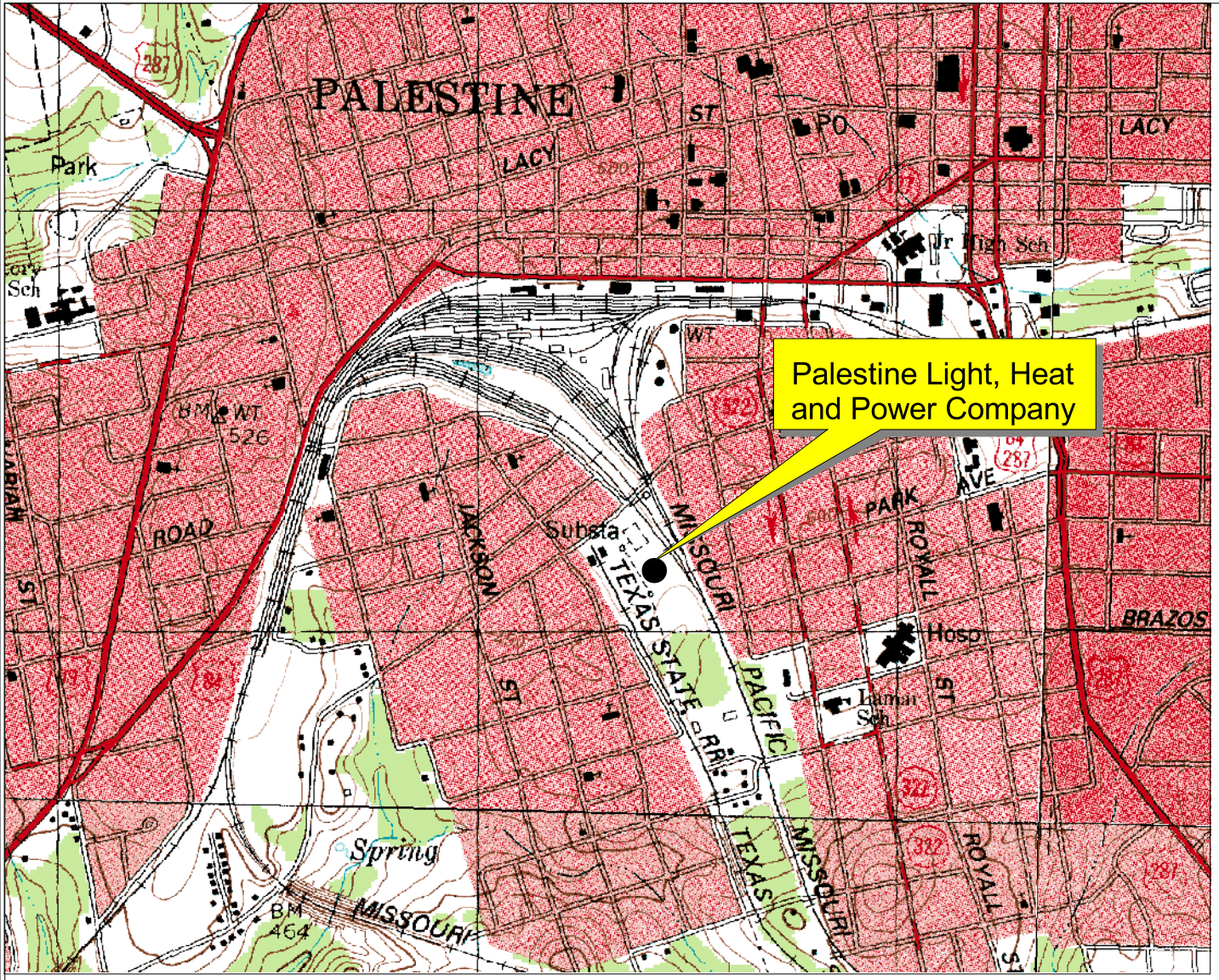
2.1 SITE DESCRIPTION AND BACKGROUND INFORMATION

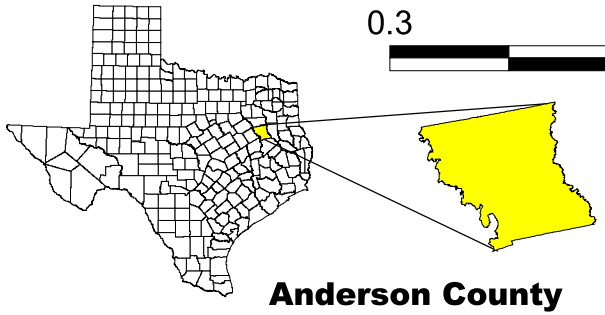
2.1.1 Site Location and Surrounding Land Use

The site is located in a mixed industrial/residential area within the city limits of Palestine, Anderson County, Texas as shown in Figure 1. The facility consists of several waste piles from the nearby railroad system, thick trees, poison ivy and briars. Residential areas are located on the other side of the railroad tracks to the west and east. There are overgrown areas to the south and a transformer substation located north of the site. The nearest adjacent residence is located across the railroad tracks to the east of the site as shown in Figure 1. The entrance of the site is located at Latitude 31° 45' 15.52" North and Longitude 95° 38' 06.77" West (GPS coordinates).

2.1.2 Site Description

The Palestine Light, Heat and Power Company site (the "site") located at 614 West Reagan Street in Palestine, Anderson County, Texas is about a one (1) acre property formerly a town gas operation which consists of several waste piles from the railroad system on the east side of the property. These piles consist of railroad ties, concrete blocks, and rock piles (Photograph #16). The northern, southern and western portion of the site is overgrown with trees, briars, poison ivy, shrubs (see Figure 2).





Anderson County

The base data used is the NW, NE, SW, and SE Palestine Digital Raster Graphics (DRGs) which are scanned images of the U.S. Geological Survey topographic maps. UTM NAD 27 Zone 15

TCEQ

Screening Site Inspection Report
Figure 1

Site Location Map

Palestine Light, Heat and Power Company
TXD981912421
Palestine, Texas
Anderson County

N
W E
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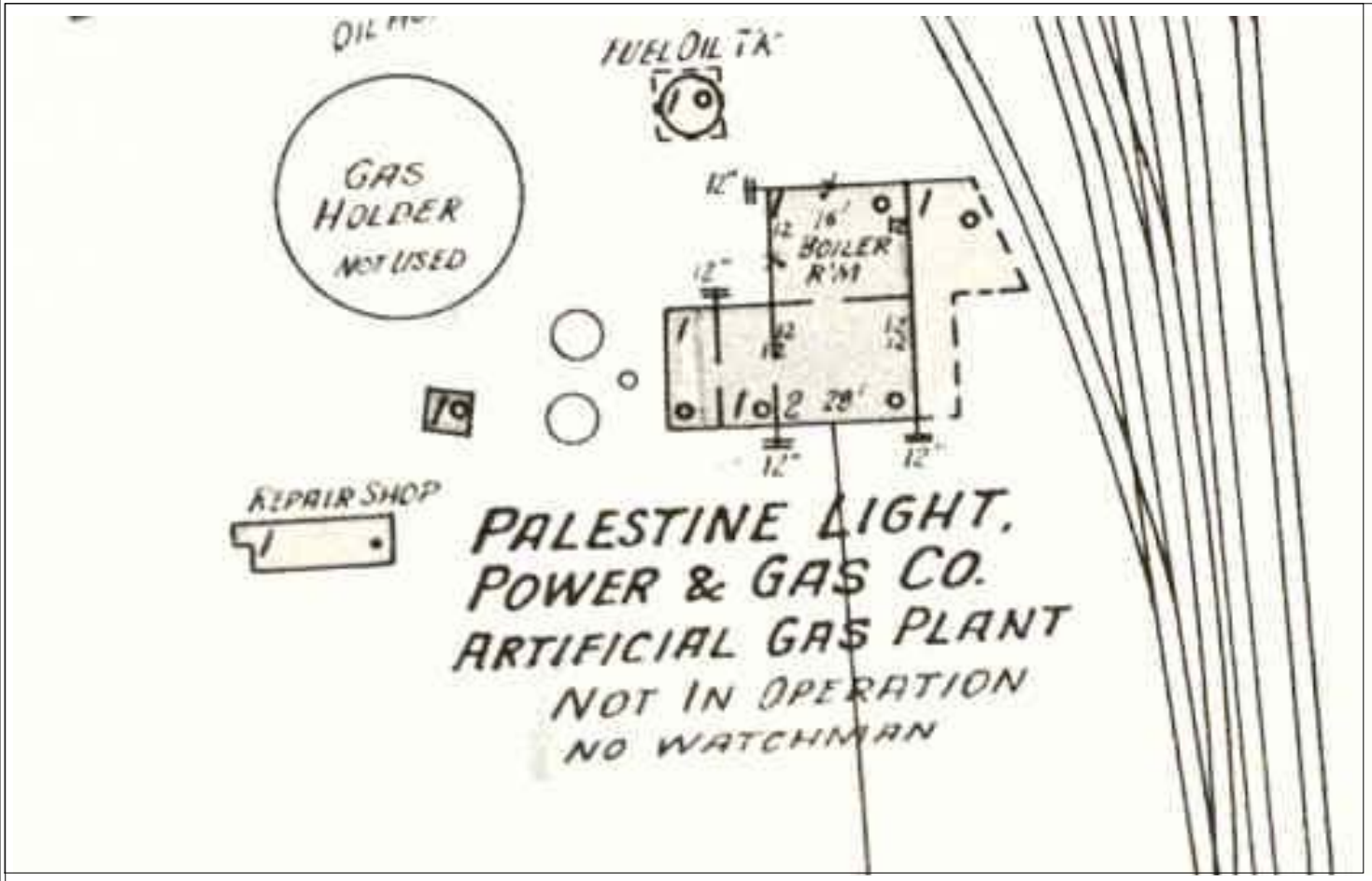
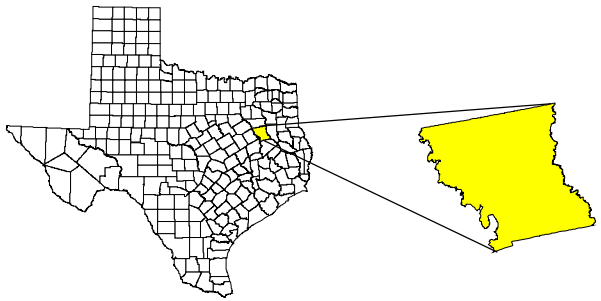


Screening Site Inspection Report
Figure 2

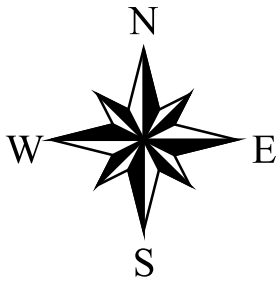
Site Sketch Map

Palestine Light, Heat and Power Company
TXD981912421
Palestine, Texas
Anderson County



Anderson County

The base data used is the Sanborn Fire Insurance Map from January 1935 which was scanned by TCEQ personnel.



2.1.3 Site History/Background

Coal gasification plants, also called “town gas” plants, were used in the United States in the 1800's and early 1900's to manufacture gas for street illumination, heating, manufacturing and residential use by roasting fossil fuels (coal predominantly and later “smokeless” coke) and later in the early 1900's by injecting light petroleum oils (carburretted water gas process) on heated ceramic bench retorts to produce readily combustible fuel gases. There were two primary roasting processes, carbonization and gasification. The two processes differed only in the initial feedstock and type of gas produced. *Carbonization* heated coal in the absence of oxygen producing coal gas, coke, tars and ammonia. *Gasification* passed superheated steam through hot coal or coke producing water gas, coke and a lesser amount of tar and ammonia. Varying arrays of tar extractors, multi-tubular condensers, washer-scrubbers and purifying boxes were used to separate coal tars and ammoniacal liquors by condensation and gravity or mechanical separation and to remove particulate from the generated gases. Commonly used condensing and filtering agents included quenching waters, slaked (white) lime, wood shavings, sawdust and iron oxide. The final stages in the manufacturing process were storage in large above-ground metal storage tanks and distribution through metered underground gas pipes (Ref. 10, p. 2; Ref. 11, p. 3; Ref. 15, pp. 1-2, 6-7, 11-13).

Most of the manufactured coal gas wastes were generally reused (coke from roasted coal, tars re-injected, quenching water recycled). However, a 1984 EPA study that identified large amounts of coal gas wastes typically generated by these facilities, including tars and other complex organic residues, that were often dumped or buried near the sites. There were concerns that persistent organic carcinogenic compounds identified as polycyclic aromatic hydrocarbons (PAHs) including naphthalene, phenol, anthracene, pyridine, chrysene, carbazole, dimethylnaphthalene, acenaphthene, benzo(a)pyrene, benzo(a)anthracene, benzo(k)fluoranthene, fluoranthene, cresols, phenanthrene and pyrene and the volatile organic compounds (VOCs) benzene, toluene and xylene may be impacting local ground water near the sites or at nearby surface water resources. In addition, arsenic naturally occurring in feedstock material and cyanide produced by the combination of hydrogen and nitrogen under heat and pressure were extracted concentrated in the filtering material that was often buried or stored on-site (Ref. 9, p. 5; Ref. 10, p. 2; Ref. 11, pp. 2-4).

The Palestine Light, Heat and Power Company Site (the “site”) is identified as a 1-acre former “town gas” generation facility located at 614 West Reagan Street, Palestine, Anderson County, Texas, as shown in Figure 1. When active, the former town gas plant had several buildings including the former gas holder area, repair shop, fuel oil house, and the fuel oil tank as shown in Figure 2. There was no evidence during the sampling event of May 19-22,2003 of the on-site structures (Ref. 6, p. 51).

The current status of the site is inactive and is covered in thick vegetation. There was no evidence of creosote telephone poles. The former town gas generation plant reportedly ceased operations sometime in the late 1920's when available supplies of natural gas and oil replaced the fuels generated by the majority of Texas “town gas” facilities (Ref. 9, p. 2, 5; Ref. 11, p. 2).

The Palestine Light, Heat and Power Company site is currently inactive with no residents or workers on-site. The site EPA Identification Number is TXD981912421.

2.1.4 Previous Investigations

This site was initially identified by the EPA and in March 1987, a Preliminary Assessment was completed. The PA reported the site was not active and there were no buildings on-site. The property owners at that time, Texas Power and Light, used the site to store creosote telephone poles.

3.0 FIELD ACTIVITIES

3.1 SAMPLING ACTIVITIES

3.1.1 Site Non-Sampling Data Collection and Field Work

The Texas Commission on Environmental Quality (TCEQ) performed the activities described in this section to obtain additional site background information and to collect Contract Laboratory Procedure (CLP) quality analytical data that can be used by the EPA to evaluate the Palestine Light, Heat and Power Company site using the revised Hazard Ranking System (HRS), Final Rule, dated December 14, 1990, and appropriate HRS guidance manuals (Ref. 1; Ref. 2; and Ref. 3). The information obtained during field interviews and from environmental samples collected during the SSI will be presented in this SSI report that includes source characterization, sediment and soil sampling as discussed below.

All field work was conducted as outlined in the Preliminary Assessment/Screening Site Inspection Work Plan for Palestine Light, Heat and Power Company site, the site-specific health and safety plan (HSP) and the TCEQ-approved quality assurance project plan (QAPP) prepared for the SSI sampling event (Ref. 7; Ref. 8).

The TCEQ contracted URS Corporation to conduct the field sampling including sample collection on- and off-site, sample preparation, and other tasks as assigned. Once all contractors and TCEQ personnel were in Palestine, TCEQ members conducted a required facility safety briefing and conducted an on- and off-site reconnaissance and to collect access agreements from area residents to sample soil on their property (Ref. 6, pp. 15, 33). Information obtained during the resident interviews was logged in the field logbook to include names of individuals interviewed, physical and mailing addresses, date and time of the interview and observations noted. Before any sampling activities began, the TCEQ field team project manager conducted a required facility safety briefing. The purpose of the meeting was to conduct an initial safety briefing, review the intended sampling work schedule with contractors. Information concerning past and current site conditions were discussed and verified at the initial meeting.

Proposed on-site and off-site sample locations were confirmed during the site reconnaissance inspection and adjustments noted in the field logbook (Ref. 6, pp. 35-51). A field copy of the work plan was annotated by the TCEQ field team project manager to reflect actual sample locations and identifying sample numbers.

Field work for the SSI was completed from May 19, 2003 through May 22, 2003 All planned on-

site samples were collected as outlined in the work plan and the off-site samples were altered according to residential access.

In order to obtain site characterization data, two laboratories were assigned by the EPA Regional Sample Control Center (RSCC) to perform EPA-stipulated Contract Laboratory Program (CLP) analytical methods on all samples collected from the Palestine Light, Heat and Power Company site to adequately document current site conditions. The specific analytical methods for this sampling event were those listed under the CLP routine analytical services (RAS) contract (Ref. 7, p. 22, Ref 7. Appendix D, pp. 26-28). The assigned organic laboratory was CEIMIC, 10 Dean Knauss Drive, Narragansett, RI 02882 and the assigned inorganic laboratory was BONNER ANALYTICAL TESTING CO., 2703 Oak Grove Road, Hattiesburg, MS 39402.

3.1.2 Source Sampling

During the SSI, a total of five (5) source characterization samples including one duplicate were collected from previously identified on-site sources to characterize remaining wastes. In addition, three (3) soil samples were collected to determine natural occurring background levels of inorganics (metals), organics (volatiles, semi-volatiles, PCBs and pesticides) and cyanide in unaffected off-site locations for attribution of detected contaminants. Selected sample locations are shown in Figure 3. All source and background samples were grab samples collected at depths ranging from 0"-6" deep depending on soil conditions encountered. Sampling conditions, type sample and sampling depth were documented in the field log book at each sample location (Ref. 6, pp. 35-51, Photographs #14, 15, 17, 18).

3.1.3 Surface Water Migration Pathway Sampling

During the SSI, a total of six (6) sediment samples including one duplicate were collected to substantiate the release of on-site contaminants to the surface water drainage pathway. In addition, three (3) background sediment samples were collected at an unaffected up gradient location for site attribution. The background sediment samples were collected for attribution upstream from the other six sediment samples as shown in Figure 4 (Ref. 6, pp. 17-31, Photographs #1-3).

Nine (9) sediment samples including a duplicate were collected from Town Creek to substantiate the release of hazardous substances along the surface water migratory pathway and to assess potential receptor targets. Selected sample locations are shown in Figure 4. All the sediment samples were grab samples and were collected with a clean dedicated stainless steel bowl and spoon. The bowl and spoon were used to carefully extract the accumulated sediments which were placed in a clean dedicated stainless steel bowl. Sampling conditions, sample type collected and sampling depth were documented in the field log book at each sample location (Ref. 6, pp. 17-31, Photographs #1-8).

Screening Site Inspection Report
Figure 3

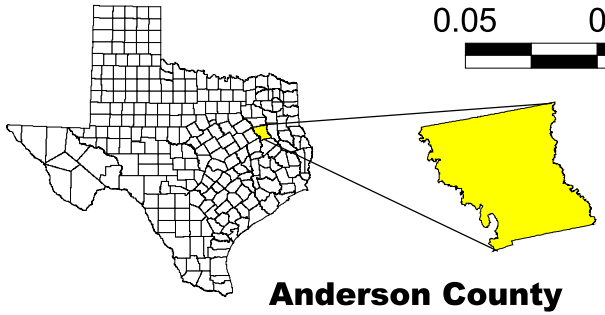
Soil Sample Location Map

Palestine Light, Heat and Power Company
TXD981912421
Palestine, Texas
Anderson County

Residential Property

Non-residential Property

0.05 0 0.05 0.1 0.15 0.2 Miles



Anderson County

The base data used is the NW, NE, SW, and SE Palestine Digital Raster Graphics (DRGs) which are scanned images of the U.S. Geological Survey topographic maps. UTM NAD 27 Zone 15

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Screening Site Inspection Report
Figure 4

Sediment Sample Location Map

Palestine Light, Heat and Power Company
TXD981912421
Palestine, Texas
Anderson County

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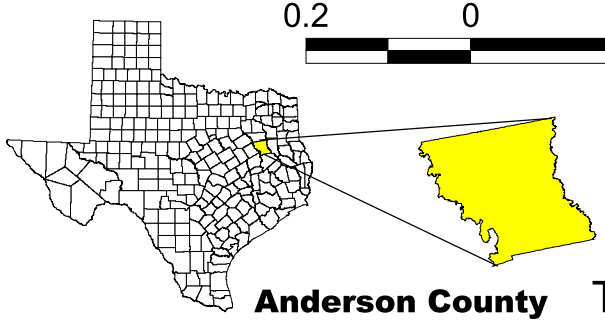

Anderson County

The base data used is the SW NW Palestine and the NW SW Palestine Digital Orthophoto Quadrangles (DOQs) which is a digital version of an aerial photograph. This DOQ was produced by the TCEQ using USGS guidelines. UTM NAD 83 Zone 15

3.1.4 Soil Exposure Pathway Sampling

A total of ten (10) soil samples including one (1) duplicate and three (3) background samples were collected from on-site and off-site locations. Three (3) background soil samples were collected from locations about one-half mile from the site (SO-01 through SO-03). Two (2) residences within one-quarter mile were sampled for potential soil contamination (SO-04 and SO-05). Refer to Figure 3 for soil sample locations.

Five (5) soil samples including a duplicate were collected on-site (SO-06 through SO-10) (Ref. 6, p. 45-51, Photographs #14, 15, 17, 18). These on-site soil sample locations are shown in Figure 3.

3.1.5 Field Quality Assurance (QA) and Quality Control (QC) Sampling

Two types of QA/QC samples were used during the SSI sampling event, duplicate samples and temperature blanks. Duplicate samples were taken at the rate of one (1) duplicate for every ten (10) samples collected. Sufficient volume was collected at the selected location so that a complete duplicate sample could be placed in a set of identical containers. Sample material for volatile organic compound analysis (VOA) was placed unmixed in the first set of jars, aliquots for metals/ cyanide/mercury were selected second after mixing as the primary concern, followed by semivolatiles (BNAs), pesticides and polychlorinated biphenyls (PCBs). In addition, a temperature blank was placed in each ice chest to accompany the packaged samples to their respective laboratory (Ref. 8, pp. 22, 38-39).

Two (2) duplicate samples were collected during the two-day sampling event. At each duplicate sample location, sampling conditions, type sample and sampling depth were documented in the field log book (Ref. 6, pp. 17, 45).

3.2 HEALTH AND SAFETY

3.2.1 Site Health and Safety

A site-specific health and safety plan (HSP) was written prior to beginning any field activities at the Palestine Light, Heat and Power Company site located in Palestine, Anderson County, Texas. The HSP establishes personnel protection standards and mandatory safety practices and describes site-specific work procedures while conducting SSI sampling events as prescribed by the TCEQ PA/SI Program. The HSP defines and assigns site safety responsibilities, establishes standard safety operating procedures while collecting field samples and provides for emergency contingencies that may arise while field work is being conducted (Ref. 8).

All TCEQ personnel who engaged in field project activities at the site became familiar with the HSP plan prior to commencing activities and acknowledged by signing the Plan Acceptance Form (Ref. 7, Appendix A). Health and safety provisions of the plan were mandatory for all TCEQ field personnel assigned to the project (Ref. 7).

A daily Site Safety Briefing was conducted by the site safety officer appointed by the TCEQ field team project manager prior to commencing any sampling activities. Topics covered during the daily briefing included sampling tasks to be performed, required personnel protective equipment (PPE) at each sampling location, physical hazards that may be encountered, safety control methods (i.e., alert notification signals, the buddy system, safe entry and exit corridors, identification of hot/cold zones, evacuation procedures and meeting area, etc.), known chemical hazards, decontamination procedures/tasks, location of the nearest hospital and special topics. All TCEQ personnel who engaged in sampling activities acknowledged by signing the daily Site Safety Briefing Form (Ref. 7, Appendix B).

3.2.2 Investigation Derived Wastes (IDW) Management

Equipment Decontamination

Previously decontaminated sampling equipment was used throughout the SSI event to collect soil and sediment samples, therefore investigation derived equipment decon wastes were not generated between each sampling event. As specified in the QAPP, the prior equipment decontamination event ID Numbers (i.e., DECON No. 27) was noted in the field log book at each sample location for attribution of site contaminants, if required (Ref. 8).

At the completion of the SSI sampling activities, the used sampling equipment, which included stainless steel spoons, bowls and sampling tips, were pre-washed to remove gross (visible) contamination prior to placement in their original bags until final decontamination could be accomplished in accordance with the QAPP (Ref. 8). In addition, all steel-toed boots, waders and the sediment coring tool were pre-washed and rinsed with distilled water to remove gross contamination, which generated a small amount of liquid IDW.

The resulting decontamination fluids used to clean sampling and personnel equipment was collected and disposed within one of the identified waste management area at the site where samples had been collected. The approximate location of the disposed liquid wastes was noted in the field log book in accordance with investigation derived waste (IDW) guidelines outlined in the SSI work plan and TCEQ QAPP (Ref. 6, p. 55, Ref. 7; Ref. 8).

Personnel Decontamination

All used disposable clothing and equipment (i.e., nitrile gloves, glove liners, used plastic sediment extraction tubes, empty plastic distilled water containers and ice bags, etc.) were rendered unusable prior to disposal to prevent inadvertent reuse in accordance with the SSI work plan and HSP guidelines. All solid wastes were collected and placed in disposable plastic trash bags for disposal in accordance with investigation derived waste (IDW) guidelines outlined in the EPA 540/G-91/009, May 1991 handbook (Ref. 7).

SOURCE DESCRIPTION

4.0 SOURCE CHARACTERIZATION

4.1 SOURCE IDENTIFICATION

Potential sources at the site include an area of contaminated soil at least 150 feet by 200 feet. This area is located in the northeast portion of the site in the general vicinity of the former gas holder, fuel oil tank, repair shop and boiler room. The total amount of hazardous substances on-site is or the extent of contamination is not known.

4.2 SOURCE CHARACTERIZATION SAMPLING

4.2.1 Determination of Source Background Concentrations

Three (3) background soil samples were collected during the May 19-22, 2003 SSI at nearby off-site locations for attribution of naturally occurring source contaminants (Ref. 6, p. 35-39; Ref. 7). Table 1 provides a summary of the background soil samples collected at the Palestine Light, Heat and Power Company site.

Table 1–Background Soil Samples

Sample Number	Matrix	Location	Rationale
F0J52 MF0J52 SO-01	Soil	In a vacant lot on the corner of Reagan Street and Grove near the culvert of Town Creek.	Background soil sample for attribution of contaminants to site sources
F0J53 MF07J53 SO-02	Soil	In a vacant lot on the corner of Reagan Street and Grove near the culvert of Town Creek.	Background soil sample for attribution of contaminants to site sources
F0J54 MF0J54 SO-03	Soil	In a vacant lot on the corner of Reagan Street and Grove near the culvert of Town Creek.	Background soil sample for attribution of contaminants to site sources

Background soil sample SO-01 was collected 3"- 6" deep using a clean stainless steel spoon and bowl from undisturbed native soils located in an open naturally vegetated area located approximately one-half mile west of the site. Site Photograph #1 illustrates the sample location and soil conditions encountered.

Background soil sample SO-02 was collected 3"- 6" deep using a clean stainless steel spoon and bowl from undisturbed native soils located in an open naturally vegetated area located approximately

one-half mile west of the site. Site Photograph #2 illustrates the sample location and the soil conditions encountered.

Background soil sample SO-03 was collected 4"- 6" deep using a clean stainless steel spoon and bowl from undisturbed native soils located in an open naturally vegetated area located approximately one-half mile west of the site. Site Photograph #3 illustrates the sample location and the soil conditions encountered.

4.2.2 Source Characterization Sample Results

Source Characterization Samples

A total of five (5) soil samples including one duplicate were collected during the May 19-22, 2003 SSI to identify and characterize the hazardous substances associated with each source, as specified in the HRS Rule, Section 2.2.2 (Ref. 1). These five soil samples were collected on-site from heavily vegetated areas. Table 3 on the following page lists all of the source characterization samples collected during the SSI by sample number, location, depth and date collected.

Source samples SO-6 through SO-10 were all grab samples collected 3"- 6" deep from the soils located adjacent to a potential source area (contaminated soil) using a clean dedicated stainless steel spoon and bowl. Sample locations are shown in Figure 3. A Global Positioning Satellite (GPS) instrument was used to record the geographic coordinates at each sample location. Sample locations were selected at the lowest area visibly observed adjacent to the potential source area where surface water would normally accumulate (Ref. 6, pp. 45-51).

Table 2 lists all of the source samples collected during the SSI by sample number and location (Ref. 13, p. 18). Sample locations are shown in Figure 3.

Table 2–Source Soil Samples

Sample Number	Matrix	Location	Rationale
F0J57 MF0J57 SO-06	Soil	Sample near former boiler room.	Assess on-site contamination.
F0J58 MF0J58 SO-07	Soil	Duplicate of SO-06.	Quality Assurance/Quality Control (QA/QC)
F0J59 MF0J59 SO-08	Soil	Sample near former fuel oil tank.	Assess on-site contamination.

Sample Number	Matrix	Location	Rationale
F0J60 MF0J60 SO-09	Soil	Sample near former gas holder.	Assess on-site contamination.
F0J61 MF0J61 SO-10	Soil	Sample near former repair shop.	Assess on-site contamination.

A Global Positioning Satellite (GPS) instrument was used to record the geographic coordinates at each sample location. Analytical results of the soil source samples are summarized in Tables 3-5 and a complete listing of all source characterization sample results in included as References 20 and 21. No volatiles from the soil samples met the observed release criteria.

All samples were collected according to the EPA approved Quality Assurance Project Plan and sample locations were approved by the EPA prior to sample collection (Ref. 7, pp. 1-31; Ref. 8, pp. 1-59).

Table 3–On-site Soil Semivolatiles Sample Results

Palestine Light, Heat & Power On-site Soil Samples Semivolatiles																
Constituents µg/Kg	SO-01 F0J52 Background		SO-02 F0J53 Background		SO-03 F0J54 Background		Highest Back-ground	SO-06 F0J57		SO-07 F0J58 Dup of SO-06		SO-08 F0J59		SO-09 F0J60		SO-10 F0J61	
SEMIVOLATILES	*SQL*	RESULT	*SQL*	RESULT	*SQL*	RESULT		*SQL*	RESULT	*SQL*	RESULT	*SQL*	RESULT	*SQL*	RESULT	*SQL*	RESULT
bis(2-Ethylhexyl)phthalate	460	47 LJ	410	45 LJ	360	50 LJ	NA	1700	630 LJ	1900	1100 LJ	1700	1200 LJ	430	170 LJ	2000	350 LJ
Phenanthrene	460	120 LJ	410	64 LJ	360	63 LJ	NA	1700	**2500**	1900	**1900**	1700	**2800**	430	370 LJ	6100	**21000**
Fluoranthene	460	250 LJ	410	130 LJ	360	120 LJ	NA	5200	**19000**	1900	**12000**	1700	**6600**	430	**850**	2000	**13000**
Pyrene	460	220 LJ	410	120 LJ	360	120 LJ	NA	5200	**20000**	1900	**14000**	1700	**6100**	430	**1100**	6100	**22000**
Benzo(a)anthracene	460	110 LJ	410	71 LJ	360	63 LJ	NA	1700	**14000**	1900	**12000**	1700	**4600**	430	**610**	2000	**6800**
Chrysene	460	150 LJ	410	92 LJ	360	76 LJ	NA	5200	**17000**	1900	**12000**	1700	**5300**	430	**870**	2000	**9700**
Benzo(b)fluoranthene	460	180 LJ	410	110 LJ	360	64 LJ	NA	5200	**15000**	1900	**13000**	1700	**6500**	430	**930**	2000	**6500**
Benzo(k)fluoranthene	460	100 LJ	410	56 LJ	360	74 LJ	NA	1700	**9600**	1900	**9200**	1700	**4700**	430	**650**	2000	**6700**
Benzo(a)pyrene	460	140 LJ	410	97 LJ	360	69 LJ	NA	5200	**19000**	1900	**13000**	1700	**6000**	430	**740**	2000	**6700**
Indeno(1,2,3-cd) pyrene	460	96 LJ	410	66 LJ	360	54 LJ	NA	1700	**8500**	1900	**7700**	1700	**4200**	430	**510**	2000	**3800**
Dibenzo(a,h) anthracene	460	ND	410	47 LJ	360	ND	NA	1700	**2900**	1900	**2700**	1700	**1700**	430	190 LJ	2000	1500 LJ
Benzo(g,h,i) perylene	460	110 LJ	410	88 LJ	360	66 LJ	NA	1700	**8100**	1900	**7500**	1700	**4500**	430	**570**	2000	**4300**
Reference 20	pp. 18, 19, 124		pp. 20, 21, 127		pp. 20, 21, 130			pp. 20-23, 139, 142		pp. 22, 23, 145		pp. 22, 23, 148		pp. 22, 23, 151		pp. 22-25, 154, 157	

Bold and Shaded - Concentration above background concentration and both (background, source) SQLs.
SQL - Sample quantitation limit.
NA - Not applicable.
ND - Undetected at the laboratory reported detection limit (IDL).
L - Reported concentration is between the IDL and the CRDL.
J - Result is estimated.
^ - High bias. Actual concentration may be lower than the concentration reported.
v - Low bias. Actual concentration may be higher than the concentration reported.

Table 4–On-site Soil Pesticides/PCBs Sample Results

Palestine Light, Heat & Power On-site Soil Samples Pesticides / PCBs																	
Constituents µg/Kg	SO-01 F0J52 Background		SO-02 F0J53 Background		SO-03 F0J54 Background		Highest Back-ground	SO-06 F0J57		SO-07 F0J58 Dup of SO-06		SO-08 F0J59		SO-09 F0J60		SO-10 F0J61	
PESTICIDES	*SQL*	RESULT	*SQL*	RESULT	*SQL*	RESULT		*SQL*	RESULT	*SQL*	RESULT	*SQL*	RESULT	*SQL*	RESULT	*SQL*	RESULT
beta-BHC	2.4	ND	2.1	ND	1.9	ND	NA	1.8	ND	1.9	**2.8 J**	1.8	ND	2.2	ND	2.1	ND
Heptachlor epoxide	2.4	ND	2.1	ND	1.9	ND	NA	1.8	ND	1.9	ND	1.8	**1.9 J**	2.2	ND	2.1	ND
Aldrin	2.4	ND	2.1	ND	1.9	ND	NA	1.8	ND	1.9	**6.3 J^**	1.8	ND	2.2	ND	2.1	ND
Dieldrin	4.6	ND	4.1	ND	3.6	ND	NA	3.5	ND	3.6	ND	3.5	**12 J^**	4.3	ND	4.1	ND
4,4'-DDE	4.6	ND	4.1	ND	3.6	ND	NA	3.5	**9.4 J^**	3.6	**6.1 J^**	3.5	**18 J^**	4.3	ND	4.1	ND
4,4'-DDD	4.6	ND	4.1	ND	3.6	ND	NA	3.5	ND	3.6	ND	3.5	ND	4.3	ND	4.1	ND
4,4'-DDT	4.6	ND	4.1	ND	3.6	ND	NA	3.5	**40 J^**	36	**120 J^**	3.5	**30 J^**	4.3	ND	4.1	**5.0 J**
alpha-Chlordane	2.4	ND	2.1	ND	1.9	ND	NA	1.8	ND	1.9	ND	1.8	ND	2.2	ND	2.1	**4.7**
gamma-Chlordane	2.4	ND	2.1	ND	1.9	ND	NA	1.8	ND	1.9	**7.3 J^**	1.8	**11 J^**	2.2	ND	2.1	ND
Endrin	4.6	ND	4.1	ND	3.6	ND	NA	3.5	ND	3.6	ND	3.5	**6.1 J^**	4.3	ND	4.1	ND
Endrin ketone	4.6	ND	4.1	ND	3.6	ND	NA	3.5	**30 J**	3.6	**13 J^**	3.5	ND	4.3	**5.7 Jv**	4.1	**11 J**
Endrin aldehyde	4.6	ND	4.1	ND	3.6	ND	NA	3.5	**7.5 J^**	3.6	**14 J**	3.5	**12 J**	4.3	ND	4.1	ND
Endosulfan I	2.4	ND	2.1	ND	1.9	ND	NA	1.8	ND	1.9	ND	1.8	**3.4 JT**	2.2	ND	2.1	ND
Aroclor-1254	46	ND	41	ND	36	ND	NA	35	ND	36	**350 J^**	35	ND	43	ND	41	ND
Aroclor-1260	46	ND	41	ND	36	ND	NA	35	**330**	36	**320 J^**	35	**210 J**	43	ND	41	ND
Reference 20	pp. 27, 168		pp. 28, 169		pp. 28, 170			pp. 28, 173		pp. 29, 174, 175		pp. 29, 176, 177		pp. 29, 178		pp. 30, 179	

Bold and Shaded - Concentration above background concentration and both (background, source) SQLs.
SQL - Sample quantitation limit.
NA - Not applicable.
ND - Undetected at the laboratory reported detection limit (IDL).
L - Reported concentration is between the IDL and the CRDL.
J - Result is estimated.
^ - High bias. Actual concentration may be lower than the concentration reported.

v - Low bias. Actual concentration may be higher than the concentration reported.

Table 5–On-site Soil Inorganic Sample Results

Palestine Light, Heat, & Power On-site Soil Samples Inorganic																	
Constituents mg/Kg	SO-01 MF0J52 Background		SO-02 MF0J53 Background		SO-03 MF0J54 Background		Highest Back-ground	SO-06 MF0J57		SO-07 MF0J58 Dup of SO-06		SO-08 MF0J59		SO-09 MF0J60		SO-10 MF0J61	
INORGANICS	*SQL*	RESULT	*SQL*	RESULT	*SQL*	RESULT		*SQL*	RESULT	*SQL*	RESULT	*SQL*	RESULT	*SQL*	RESULT	*SQL*	RESULT
Aluminum	52.7	20000	48.6	19500	44.6	14300	20000	38.9	8650	39.6	9120	39.9	5080	45.6	**23000**	44.2	19100
Arsenic	4	54.3 J	3.6	58 J	3.3	56.1 J	58	2.9	28.2 J	3	22.1 J	3	18.7 J	3.4	**94.2 J**	3.3	**62.8 J**
Barium	52.7	203	48.6	182	44.6	193	203	38.9	**245**	39.6	**235**	39.9	**591**	45.6	**311**	44.2	200
Berylium	1.3	1.4	1.2	1.5	1.1	1.4	1.5	0.97	0.56 LJ	0.99	0.53 LJ	1	0.36 LJ	1.1	**2.5**	1.1	**1.5**
Cadmium	1.3	ND	1.2	0.63 LJ^	1.1	ND	NA	0.97	**1.7**	0.99	0.88 LJ	1	**3.6**	9.1	ND	5.5	ND
Chromium	2.6	45.3 J^	2.4	49.9 J^	2.2	51.4 J^	51.4	1.9	**76.6 J^**	2	**82.5 J^**	2	41.9 J^	2.3	**144 J^**	2.2	**117 J^**
Cobalt	13.2	21.3	12.1	18.8	11.2	19	21.3	9.7	10.6	9.9	9.7 LJ	10	7.4 LJ	11.4	**46.5**	11	**26.7**
Copper	6.6	15.6	6.1	18.3	5.6	13.4	18.3	4.9	**42.9**	5	**39.8**	5	**309**	5.7	**31.4**	5.5	**19.8**
Iron	79	82200	72.8	91200	67	81400	91200	38.9	37700	42.8	34700	39.9	38700	182	**190000**	110	**113000**
Lead	2.6	88.2 J	2.4	77.3 J	2.2	70.8 J	88.2	1.9	**328 J**	2	**337 J**	2	**615 J**	2.3	**171 J**	2.2	**104 J**
Magnesium	1320	1890	1210	1650	1120	1310	1890	971	1680	990	**1950**	997	**6050**	1140	**1980**	1100	1800
Manganese	4	483 J	3.6	707 J	3.3	473 J	707	2.9	209 J	3	215 J	3	463 J	10.3	**2920 J**	3.3	**936 J**
Nickel	10.5	46.3 J	9.7	44.9 J	8.9	39.6 J	46.3	7.8	22.8 J	7.9	20.1	8	27.9 J	9.1	**115 J**	8.8	**62.7 J**
Thallium	6.6	2.9 LJ	6.1	3.3 LJ	5.6	2.8 LJ	NA	4.9	1.2 LJ	5	1.1 LJ	5	1.6 LJ	5.7	**9.3**	5.5	4.5 LJ
Vanadium	13.2	154 Jv	12.1	155 Jv	11.2	146 Jv	155	9.7	58.7 Jv	9.9	52.3 Jv	10	21.1 Jv	11.4	**228 Jv**	11	98.4 Jv
Zinc	15.8	149	14.6	112	13.4	90.2	149	11.7	**272**	11.9	**246**	12	**808**	109	**262**	66.2	**186**
Reference 21	pp. 10, 27		pp. 11, 28		pp. 11, 29			pp. 11, 32		pp. 12, 33		pp. 12, 34		pp. 12, 35		pp. 12, 36	

Bold and Shaded - Concentration above background concentration and both (background, source) SQLs.

SQL - Sample quantitation limit.

NA - Not applicable.

ND - Undetected at the laboratory reported detection limit (IDL).

L - Reported concentration is between the IDL and the CRDL.

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v - Low bias. Actual concentration may be higher than the concentration reported.

5.0 GROUND WATER PATHWAY AND TARGETS

5.1 GENERAL CONSIDERATIONS

No ground water samples were collected during the Palestine Light, Heat and Power Company SSI. However, the following information concerning the ground water pathway was evaluated based on the potential ground water use.

5.1.1 Hydrologic Setting

Anderson County, Texas is located in the rolling hills and forests of East Texas. The area is comprised of overlapping Cretaceous-aged formations that tend to increase in thickness toward the coast. The depth of the first ground water zone is less than 100 feet. The most important water-bearing formations are listed below from youngest to oldest.

Sparta Sand
Queen City Sand
Carrizo Sand
Wilcox Group

The aquifers associated with the above formations have the same names and are the principal water-bearing units in the area.

Sparta Aquifer
Queen City Aquifer
Carrizo Aquifer
Wilcox Aquifer

The Sparta Sand is generally composed of very fine- to fine grained quartz sand, clay and silty clay containing some lignitic beds. This formation yields small quantities of fresh water and is approximately 60 feet thick in the area of the site (Ref. 5).

Underlying the Sparta Sand is the Queen City Sand, consisting of alternating beds of very fine- to fine-grained quartz sand and clay. This aquifer yields very small quantities of fresh water and in the site area, this formation is about 450 feet thick (Ref. 5).

The Carrizo Sand is typically a white, massive, fine- to medium grained quartz sand and often contains a few this clay lenses. The Carrizo Aquifer yields small to large quantities of fresh water and is around 100 feet thick in the Palestine area (Ref. 5).

Underlying the Carrizo Sand is the Wilcox Group which consists of mainly interbedded sand, silt and clay with minor amounts of lignite. The Wilcox Aquifer contains mostly brackish water in the southern third of Anderson County and is approximately 1,550 feet thick (Ref. 5).

The Carrizo and Wilcox Aquifers are used extensively in the area for drinking water supply wells.

5.1.2 Ground Water Targets

The Ground Water Pathway for the Palestine Light, Heat and Power Company site was evaluated to have several public supply drinking water wells located within a 4-mile radius of the site (Ref. 10, pp. 5, 8). Most public water supply wells are completed in the Carrizo and Wilcox Aquifers and range from 1300-2200 feet deep (Ref. 5). Based upon review of state records, the following public water supply (PWS) wells were defined.

0-1/4 mile	No PWS wells
1/4-1/2 mile	No PWS wells
1/2-1 mile	No PWS wells
1-2 miles	3 PWS wells (one active and two used in emergencies)
2-3 miles	3 PWS wells
3-4 miles	2 PWS wells

All of the above PWS wells are also connected to the main drinking water source of the City of Palestine, a surface water intake from Lake Palestine/Neches River over 30 miles to the north (Ref. 12). Information obtained from TCEQ Region 5 staff indicated that any residential domestic wells within one-quarter mile of the site are used for irrigation purposes only and not for drinking water (Ref. 12).

6.0 SURFACE WATER MIGRATION PATHWAY AND TARGETS

6.1 GENERAL CONSIDERATIONS

6.1.1 Surface Water Drainage Pathways/Watersheds

Characteristics

The Texas Surface Water Quality Standards (Title 30, Chapter 307 of the Texas Administrative Code) establishes explicit water quality goals throughout the State. Regional hydrologic and geologic diversity is given consideration by dividing major river basins, bay and estuaries into defined segments (referred to as classified and designated segments). Palestine Light, Heat and Power Company is located approximately 0.65 miles northeast of Town Creek which ultimately flows into the Trinity River Segment 0804 (Ref. 15). Anderson County Flood Insurance Rate Map Panel 10 of 10 indicates that the site does not lie within the 100 or 500 year flood plain (Ref. 19). The average annual rainfall in the area of the Palestine Light, Heat and Power Company site is estimated as 42 inches (Ref. 17, p. 18). Figure 5 depicts the 15 mile target distance limit (TDL) or surface water pathway from the Palestine Light, Heat and Power Company site.

6.1.2 Description of the In-Water Segments and Target Distance Limit

For this SSI, there was only one (1) surface water category identified within the in-water segment of the HRS-defined target distance limit for the overland/flood migration component. This category was classified based on differing types of surface water bodies and/or stream flow characteristics, as outlined in HRS Rule Section 4.0.2, and discussed below (Ref. 1):

(1) In-Water Segment No. 1 (Town Creek to the Trinity River): approximately 15 miles of Town Creek to the Trinity River. The creek's width is estimated to range from 2-10 feet and from 1-4 feet deep. There are several wetlands that meet the HRS wetland definition in this segment. There are no known drinking water intakes or other known surface water permits located with this in-water segment.

6.2 LIKELIHOOD OF RELEASE

6.2.1 Distance to Surface Water

The overland drainage pathway extends from the site to Town Creek approximately 0.65 miles southwest. The shortest distance to perennial surface water was determined by measuring from the southwest portion of the site to Town Creek. The estimated distance was from0.4 miles to 0.65 miles based on measurements taken from available aerial photographs (Figure 4). Since the distance to surface water was between 2,500 feet and 1.5 miles, a Distance to Surface Water Factor Value of 6 was selected from HRS Rule Table 4-7, as specified in HRS Rule Section 4.1.2.1.2.1.3 (Ref. 1).

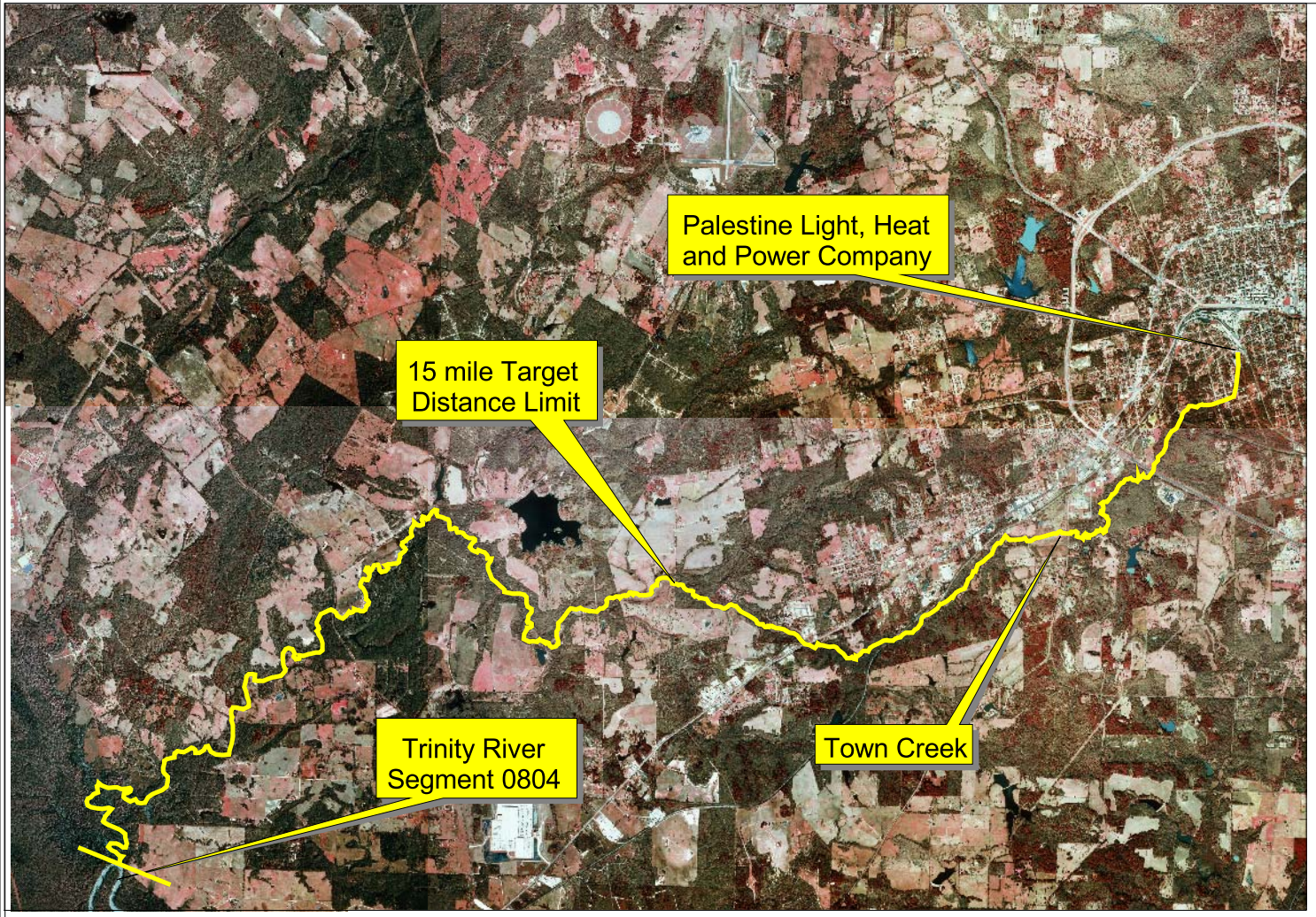
6.2.2 Containment and Flood Frequency

During the SSI on-site reconnaissance, there were no observed flood control measures (i.e., containment dikes or berms) noted around any of the identified on-site waste management areas (Ref. 6, p. 51). Therefore, a Containment (Flood) Factor Value of 10 was assigned to the floodplain category applicable to each source from HRS Rule Table 4-8, as specified in HRS Rule Section 4.1.2.1.2.2.1 (Ref. 1).

Based on prior investigations and floodplain maps, the site is located outside of the 500-year flood zone (Ref. 19). A Flood Frequency Factor Value for a source located outside a 500-year floodplain of 0 was assigned from HRS Rule Table 4-9, as specified in HRS Rule Section 4.1.2.1.2.2.2.

6.2.3 2-Year 24-Hour Rainfall

Based on rainfall frequency maps, the two-year, 24 hour rainfall for this area is 4.0 inches (Ref. 17).



TCEQ

Screening Site Inspection Report
Figure 5

Surface Water Pathway Map

Palestine Light, Heat and Power Company
TXD981912421
Palestine, Texas
Anderson County

2 0 2 4 Miles

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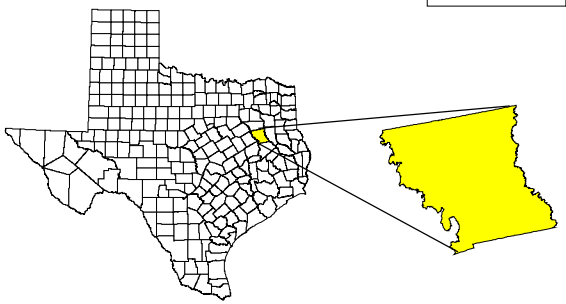


Anderson County

The base data used is the NW and NE SW Palestine, the SW and SE NW Palestine, SE Tennessee Colony, and the NE Long Lake Digital Orthophoto Quadrangles (DOQs) which is a digital version of an aerial photograph. This DOQ was produced by the TCEQ using USGS guidelines. UTM NAD 83 Zone 15

6.2.4 Determination of Background Concentrations

Background Sediment Samples

Three (3) background sediment samples were collected during the May 19-22, 2003 SSI at a portion of Town Creek approximately 0.5 miles west and up gradient from the site for attribution of site contaminants (Ref. 13, pp. 19, 22; Ref. 6, pp. 27-31, Photographs #1-3). Sample locations are shown in Figure 4. Table 6 provides a summary of the background sediment samples collected.

Table 6–Background Sediment Samples

Sample Number	Matrix	Location	Rationale
MF0J43 F0J43 SE-01	Sediment	In Town Creek on the corner of Reagan Street and Grove.	Background sediment sample for attribution of contaminants to site sources
MF0J44 F07J44 SE-02	Sediment	In Town Creek on the corner of Reagan Street and Grove.	Background sediment sample for attribution of contaminants to site sources
MF0J45 F0J45 SE-03	Sediment	In Town Creek on the corner of Reagan Street and Grove.	Background sediment sample for attribution of contaminants to site sources

Background sediment sample SE-01 was collected from 3" to 5" using a clean, dedicated stainless steel bowl and spoon to capture fine sediments located within undisturbed shallow areas in Town Creek located approximately 0.5 miles west of the site. Roots, leaves and other organic material were removed before placing the sample into the jars (Ref. 6, p. 31).

Background sediment sample SE-02 was collected from 4" to 6" using a clean, dedicated stainless steel bowl and spoon to capture fine sediments located within undisturbed shallow areas in Town Creek located approximately 0.5 miles west of the site. Roots, leaves and other organic material were removed before placing the sample into the jars (Ref. 6, p. 29).

Background sediment sample SE-03 was collected from 4" to 6" using a clean, dedicated stainless steel bowl and spoon to capture fine sediments located within undisturbed shallow areas in Town Creek located approximately 0.5 miles west of the site. Roots, leaves and other organic material were removed before placing the sample into the jars (Ref. 6, p. 27).

6.2.5 Sediment Sample Results

Releases of hazardous substances to a pathway can be documented in the HRS system by two methods: (a) direct observation and (b) chemical analysis (Ref. 1, Section 4.1.2.1.1). The chemical analysis method was used during the SSI to substantiate releases to the surface water migratory pathway.

Chemical Analysis

Establishing a release by chemical analysis requires detailed analytical documentation of constituent concentrations in the specified media of concern, i.e., soil, water or air. First, naturally occurring background concentrations of the hazardous substances must be determined. Second, it must be demonstrated that the concentrations of the hazardous substances in a release sample are significantly above the appropriate background level. In order to document a significant increase above the background levels, the hazardous substances must be present in concentrations of at least three times (3x) above the highest identified background level present in the background sample. Or, if the hazardous substances have not been detected in the background samples, then the hazardous substances must be present at concentrations both above the release's and the highest background samples' laboratory Sample Quantitation Limit (SQL), as specified in the HRS Rule, Section 2.3 and Table 2-3 (Ref. 1).

Sediment Samples

A total of six (6) sediment samples including one duplicate were collected during the May 19-22, 2003 SSI to document the release of hazardous substances, as outlined in the HRS Rule, Section 4.1.2.1.1 (Ref. 1). All six (6) sediment samples (SE-04 through SE-09) including one duplicate were collected from Town Creek located west of the site. Table 7 lists all of the sediment samples collected by sample number and location collected.

Table 7–Source Sediment Samples

Sample Number	Matrix	Location	Rationale
F0J46 MF0J46 SE-04	Sediment	South of Highway 256 on Town Creek.	Assess constituents for attribution from upstream contributions.
F0J47 MF0J47 SE-05	Sediment	Duplicate of SE-04	Quality Assurance/Quality Control (QA/QC)

Sample Number	Matrix	Location	Rationale
F0J48 MF0J48 SE-06	Sediment	Town Creek, approximately 0.1 miles downstream of the beginning of the PFO1A, just north of culvert at Highway 256.	Assess constituents for attribution from upstream contributions.
F0J49 MF0J49 SE-07	Sediment	Approximately 0.75 miles downstream of the site in Town Creek at the PPE to the PFO1A wetland	Assess constituents for attribution from upstream contributions.
F0J50 MF0J50 SE-08	Sediment	Approximately 0.65 miles downstream of the site in Town Creek at the PPE to the PFO1A wetland	Assess constituents for attribution from upstream contributions.
F0J51 MF0J51 SE-09	Sediment	Town Creek prior to the PFO1A wetland	Assess constituents for attribution from upstream contributions.

Sediment samples SE-04 and SE-05 (duplicate sample) were grab samples collected from 3"-5" deep from the most downstream location, south of Highway 256 using a clean, dedicated stainless steel bowl and spoon. Sample locations are shown in Figure 4. Sampling conditions encountered and sample depth were documented in the Field Log Book at each sample location (Ref. 6, p. 17).

Sediment sample SE-06 was a grab sample collected from 4"-6" deep from a location just north of the culvert at Highway 256, approximately 0.1 miles downstream of the beginning of the PFO1A wetland using a clean, dedicated stainless steel bowl and spoon. Sample locations are shown in Figure 4. Sampling conditions encountered and depth were documented in the Field Log Book at each sample location (Ref. 6, p. 19).

Sediment sample SE-07 was a grab sample collected at 4"-6" deep along Town Creek at the PPE to the PFO1A wetland using a clean, dedicated stainless steel bowl and spoon. Sample locations are shown in Figure 4. Sampling conditions encountered and depth were documented in the Field Log Book at each sample location (Ref. 6, p. 21).

Sediment sample SE-08 was a grab sample collected at 6"-8" deep along Town Creek at the PPE to the PFO1A wetland using a clean, dedicated stainless steel bowl and spoon. Sample locations are shown in Figure 4. Sampling conditions encountered and depth were documented in the Field Log Book at each sample location (Ref. 6, p. 23).

Sediment sample SE-09 was a grab sample collected at 4"-6" deep along Town Creek prior to the

PFO1A wetland using a clean, dedicated stainless steel bowl and spoon. Sample locations are shown in Figure 4. Sampling conditions encountered and depth were documented in the Field Log Book at each sample location (Ref. 6, p. 25).

Analytical results of the SSI sediment samples are summarized in Table 8 on the following pages. The following results identify hazardous substances that met release criteria by chemical analysis in accordance with the guidelines outlined in the HRS Rule, Section 2.3 (Ref. 1).

A complete listing of all sediment release sample results are included in References 20 and 21. No volatiles, semivolaitles, or pesticides/PCBs from the sediment samples met the observed release criteria.

All samples were collected according to the EPA approved Quality Assurance Project Plan and sample locations were approved by the EPA prior to sample collection (Ref. 8, pp. 1-59; Ref. 7, pp 1-31).

Table 8–Off-site Sediment Inorganic Sample Results

Palestine Light, Heat & Power Sediment Samples Inorganic																	
Constituents mg/Kg	SE-01 MF0J43 Background		SE-02 MF0J44 Background		SE-03 MF0J45 Background		3X Highest Back-ground	SE-04 MF0J46		SE-05 MF0J47 Dup of SE-04		SE-06 MF0J48		SE-07 MF0J49		SE-08 MF0J50	
INORGANICS	*SQL*	RESULT	*SQL*	RESULT	*SQL*	RESULT		*SQL*	RESULT	*SQL*	RESULT	*SQL*	RESULT	*SQL*	RESULT	*SQL*	RESULT
Aluminum	54.9	4420	56.3	7520	53.7	15200	45600	43.4	4600	43.8	3650	42.8	9560	45.1	10000	46.4	9400
Arsenic	4.1	1.5 LJv	4.2	22.8 J	4	43.2 J	130	2.2	15.2 J	3.3	16 J	3.2	79.3 J	3.4	79.2 J	3.5	72.5 J
Barium	54.9	74.8	56.3	95.4	53.7	189	567	43.4	30.8 LJ	43.8	27.8	42.8	38.8 LJ	45.1	61	46.4	54.2
Berylium	1.4	0.30 LJ	1.4	0.93 LJ	1.3	1.3 LJ	NA	1.1	0.62 LJ	1.1	0.62 LJ	1.1	**1.6**	1.1	**2.1**	1.2	**1.6**
Chromium	2.7	5.9 J^	2.8	25 J^	2.7	38 J^	114	2.2	13.7 J^	2.2	15.8 J^	2.1	107 J^	2.3	**127 J^**	2.3	103 J^
Cobalt	13.7	4.8 LJ	14.1	11.5 LJ	13.4	18.8	56.4	10.8	5.1 LJ	11	5 LJ	10.7	14.9	11.3	17.6	11.6	17.8
Copper	6.9	8.6	7	10.4	6.7	7.6	31.2	5.4	5.4 LJ	5.5	6.6	5.3	7	5.6	9.1	5.8	10.8
Iron	27.4	5620	56.3	44100	53.7	59300	177900	21.7	21000	21.9	25000	107	114000	113	146000	116	116000
Lead	2.7	7.2 J	2.8	23.4 J	2.7	28 J	84	0.65	13.8 J	2.2	14.3 J	2.1	44.2 J	2.3	80.3 J	2.3	48.2 J
Magnesium	1370	911 LJ	1410	1450	1340	1330 LJ	4350	1080	749 LJ	1100	668 LJ	1070	793 LJ	1130	684 LJ	1160	1100 LJ
Manganese	4.1	14.9 J	4.2	85.8 J	4	530 J	1590	3.3	56.3 J	3.3	63.4 J	3.2	194 J	3.4	198 J	3.5	357 J
Nickel	11	8.0 LJ	11.3	20.2 J	10.7	43.6 J	131	8.7	10.5 J	8.8	11.2 J	8.6	36.4 J	9	43.3 J	9.3	43.2 J
Vanadium	13.7	15.1 Jv	14.1	47.9 Jv	13.4	128 Jv	384	10.8	30.1 Jv	11	45.5 Jv	10.7	46.1 Jv	11.3	80.2 Jv	11.6	60.4 Jv
Zinc	16.5	22.2	16.9	85.2	16.1	87.8	263.4	13	45.3	13.1	39.8	64.2	103	67.7	128	69.6	121
Reference 21	pp. 9, 18		pp. 9, 19		pp. 9, 20			pp. 9, 21		pp. 9, 22		pp. 10, 23		pp. 10, 24		pp. 10, 25	

Bold and Shaded - Concentration above three-times background concentration and both (background, release) SQLs.
SQL - Sample quantitation limit.
NA - Not applicable.
ND - Undetected at the laboratory reported detection limit (IDL).
L - Reported concentration is between the IDL and the CRDL.
J - Result is estimated.
^ - High bias. Actual concentration may be lower than the concentration reported.
v - Low bias. Actual concentration may be higher than the concentration reported.

Table 8, continued

Palestine Light, Heat, & Power Sediment Samples Inorganic									
Constituents mg/Kg	SE-01 MF0J43 Background		SE-02 MF0J44 Background		SE-03 MF0J45 Background		3X Highest Back-ground	SE-09 MF0J51	
INORGANICS	*SQL*	RESULT	*SQL*	RESULT	*SQL*	RESULT		*SQL*	RESULT
Aluminum	54.9	4420	56.3	7520	53.7	15200	45600	38.2	8030
Arsenic	4.1	1.5 LJv	4.2	22.8 J	4	43.2 J	130	2.9	54.2 J
Barium	54.9	74.8	56.3	95.4	53.7	189	567	38.2	67.7
Berylium	1.4	0.30 LJ	1.4	0.93 LJ	1.3	1.3 LJ	NA	0.96	1.0
Chromium	2.7	5.9 J^	2.8	25 J^	2.7	38 J^	114	1.9	52.8 J^
Cobalt	13.7	4.8 LJ	14.1	11.5 LJ	13.4	18.8	56.4	9.6	11.5
Copper	6.9	8.6	7	10.4	6.7	7.6	31.2	4.8	8.6
Iron	27.4	5620	56.3	44100	53.7	59300	177900	57.3	80400
Lead	2.7	7.2 J	2.8	23.4 J	2.7	28 J	84	1.9	40.4 J
Magnesium	1370	911 LJ	1410	1450	1340	1330 LJ	4350	956	705 LJ
Manganese	4.1	14.9 J	4.2	85.8 J	4	530 J	1590	2.9	197 J
Nickel	11	8.0 LJ	11.3	20.2 J	10.7	43.6 J	131	7.6	27.9 J
Vanadium	13.7	15.1 Jv	14.1	47.9 Jv	13.4	128 Jv	384	9.6	126 Jv
Zinc	16.5	22.2	16.9	85.2	16.1	87.8	263.4	11.5	80.2
Reference 21	pp. 9, 18		pp. 9, 19		pp. 9, 20			pp. 10, 26	

Bold and Shaded - Concentration above three-times background concentration and both (background, release) SQLs.
SQL - Sample quantitation limit.
NA - Not applicable.
ND - Undetected at the laboratory reported detection limit (IDL).
L - Reported concentration is between the IDL and the CRDL.
J - Result is estimated.
^ - High bias. Actual concentration may be lower than the concentration reported.
v - Low bias. Actual concentration may be higher than the concentration reported.

6.3 SURFACE WATER PATHWAY TARGETS

6.3.1 Surface Water Use Permits and Drinking Water Intakes

Based on prior investigations, there were no surface water use permits found to be located within the 15-mile target distance limit (Ref. 12).

Based on prior investigations and a file review, there are currently no in-use or standby drinking water intakes located within the 15-mile target distance limit for the site (Ref. 12).

6.3.2 Resources

Based on a file review and interviews conducted during the SSI investigation, there are no designated water-use public recreation areas identified within a watershed that qualify as resources as defined in Section 4.1.2.3.3 of the HRS Rule (Ref. 1).

6.3.3 Fisheries and Estimated Annual Production

There are no fisheries within the 15 mile target distance limit, according to US Fish and Wildlife research (Ref. 6, p. 55).

6.3.4 Wetlands and Other Sensitive Environments

Based on a review of Fish and Wildlife Service topographic wetland maps in the vicinity of the site, the following sensitive environment, as defined in Section 4.1.4.3.1.1 of the HRS Rule and the Hazard Ranking System Guidance Manual, was identified located within the watershed. According to the Palestine Southwest Quadrangle wetland map, a Palustrine/Forested/Broad-leaved Deciduous/Temporary (PFO1A) wetland is located approximately 0.75 miles downstream of the site and extends approximately 0.4 miles (Ref. 18).

Results of the SSI indicate releases of hazardous substances to HRS qualifying wetlands. Sediment sample SE-06 was collected approximately 1.0 miles downstream of the site and 0.1 miles downstream of the beginning of the PFO1A wetland. SE-07 and SE-08 were collected at the PPE to the PFO1A wetland in Town Creek and SE-09 was collected south of the site, prior to the PFO1A wetland. Analytical results indicated concentrations greater than three times (3x) the highest identified background level or at concentrations both above the releases's and the highest background sample's Sample Quantitation Limit (SQL).

A list of state and federal endangered and/or threatened species that may occur within the 15-mile target distance limit was provided by the Texas Parks and Wildlife Department, Natural Heritage Program. The list includes the following for Anderson County (Ref. 16, p. 1):

✔ Federal Listed Threatened or Endangered Species: Birds: *Haliaeetus leucocephalus*, Bald Eagle; Mammals: *Ursus americanus luteolus*, Louisiana Black Bear; and

✔ State Listed Threatened or Endangered Species: Birds: *Falco peregrinus tundris*, Arctic Peregrine Falcon; *Aimophila aestivalis*, Bachman's Sparrow; *Haliaeetus leucocephalus*, Bald Eagle; *Mycteria americana*, Wood Stork; Mammals: *Ursus americanus*, Black Bear; *Ursus americanus luteolus*, Louisana Black Bear; Reptiles: *Macrochelys temminckii*, Alligator Snapping Turtle; *Pituophis ruthveni*, Louisiana Pine Snake; *Phrynosoma cornutum*, Texas Horned Lizard; and *Crotalus horridus*, Timber/Canebrake Rattlesnake.

7.0 SOIL EXPOSURE PATHWAY AND TARGETS

7.1 GENERAL CONSIDERATIONS

The soil exposure pathway was evaluated during the May 19-22, 2003 SSI and soil samples were collected based on potential exposure to remaining wastes at the site. The Palestine Light, Heat and Power Company site is overgrown with vegetation, trees, briars, and poison ivy. There are several piles of waste located near the railroad tracks on the northeast side of the property (Ref.6, p.51). This includes concrete slabs used where railroad crossings intersect with roads, railroad ties, rock piles, and other miscellaneous trash. On the north side of the property is a small clearing covered in concrete. From the power lines, which is concluded to be the northern property boundary, south is completely covered with thick vegetation.

7.2 LIKELIHOOD OF EXPOSURE

7.2.1 Attractiveness/Accessibility of the Site

Section 5.2.1.1 of the HRS Rule qualifies site attractiveness for an area of observed contamination based on the degree of accessibility and whether the area has been designated for recreational use or is regularly used for public recreation, excluding residences (Ref. 1). During the SSI site reconnaissance, there were no on-site recreational areas identified as regularly used for public recreation, however, waste piles at the site indicate possible pedestrian use (Ref 6, p. 51). The Palestine Light, Heat and Power Company site is not fenced (Ref. 6, p. 7).

7.2.2 Determination of Background Concentrations

Background Soil Exposure Samples

Three (3) background soil samples were collected to evaluate the soil exposure pathway during the May 19-22, 2003 SSI sampling event. Samples were collected from nearby off-site locations for attribution of naturally occurring source contaminants (Ref. 6, pp. 35, 37, 39; Ref. 13, pp. 18, 23). Table 1 of this SSI report provides a summary of the background soil samples collected at the Palestine Light, Heat and Power Company site.

7.2.3 Soil Sample Results

Soil Exposure Samples

A total of two (2) soil samples were collected during the May 19-22, 2003 SSI sampling event to document the release of hazardous substances and evaluate the resident population threat, as outlined in the HRS Rule, Section 5.1.3 (Ref. 1). Both soil samples SO-04 and SO-05 were collected off-site in residential yards located near the site. Tables 10-12 on the following pages lists all of the soil samples collected by sample number.

Table 9–Soil Exposure Samples

Sample Number	Matrix	Location	Rationale
F0J55 MF0J55 SO-04	Soil	Eastern residential property located at 629 South May	Assess off-site contamination.
F0J56 MF0J56 SO-05	Soil	Western residential property located at 616 South Dorrance	Assess off-site contamination.

Soil samples SO-04 and SO-05 were grab samples collected from 3"-6" deep in low areas at two residential yards. Clean dedicated stainless steel spoons and bowls were used to collect the samples after the top 1" layer of grass, roots, leaves and other organic material was scraped away. Sample locations are shown in Figure 3. Sampling conditions encountered and sample depth were documented in the Field Log Book at each sample location (Ref. 6, pp. 41, 43).

No volatiles from the offsite soil samples met the observed release criteria. A complete listing of all soil exposure sample results is included as References 20 and 21.

Table 10–Off-site Soil Semivolatiles Sample Results

Palestine Light, Heat & Power Off-site Soil Samples Semivolatiles											
Constituents µg/Kg	SO-01 F0J52 Background		SO-02 F0J53 Background		SO-03 F0J54 Background		3x Highest Back-ground	SO-04 F0J55		SO-05 F0J56	
SEMIVOLATILES	*SQL*	RESULT	*SQL*	RESULT	*SQL*	RESULT		*SQL*	RESULT	*SQL*	RESULT
bis(2-Ethylhexyl)phthalate	460	47 LJ	410	45 LJ	360	50 LJ	NA	390	**2100**	2000	320 LJ
Phenanthrene	460	120 LJ	410	64 LJ	360	63 LJ	NA	390	160 LJ	2000	580 LJ
Fluoranthene	460	250 LJ	410	130 LJ	360	120 LJ	NA	390	**500**	2000	370 LJ
Pyrene	460	220 LJ	410	120 LJ	360	120 LJ	NA	390	**740**	2000	970 LJ
Benzo(a)anthracene	460	110 LJ	410	71 LJ	360	63 LJ	NA	390	310 LJ	2000	**3900**
Chrysene	460	150 LJ	410	92 LJ	360	76 LJ	NA	390	**460**	2000	**5700**
Benzo(b)fluoranthene	460	180 LJ	410	110 LJ	360	64 LJ	NA	390	**470**	2000	**4500**
Benzo(k)fluoranthene	460	100 LJ	410	56 LJ	360	74 LJ	NA	390	200 LJ	2000	1300 LJ
Benzo(a)pyrene	460	140 LJ	410	97 LJ	360	69 LJ	NA	390	330 LJ	2000	**4900**
Indeno(1,2,3-cd) pyrene	460	96 LJ	410	66 LJ	360	54 LJ	NA	390	290 LJ	2000	1600 LJ
Dibenzo(a,h) anthracene	460	ND	410	47 LJ	360	ND	NA	390	98 LJ	2000	**2800**
Benzo(g,h,i) perylene	460	110 LJ	410	88 LJ	360	66 LJ	NA	390	**390**	2000	1800 LJ
Reference 20	pp. 18, 19, 124		pp. 20, 21, 127		pp. 20, 21, 130			pp. 20, 21, 133		pp. 20, 21, 136	

Bold and Shaded - Concentration above three-times background concentration and both (background, release) SQLs.
SQL - Sample quantitation limit.
NA - Not applicable.
ND - Undetected at the laboratory reported detection limit (IDL).
L - Reported concentration is between the IDL and the CRDL.
J - Result is estimated.
^ - High bias. Actual concentration may be lower than the concentration reported.
v - Low bias. Actual concentration may be higher than the concentration reported.

Table 11–Off-site Soil Pesticides/PCBs Sample Results

Palestine Light, Heat & Power Off-site Soil Samples Pesticides/PCBs											
Constituents µg/Kg	SO-01 F0J52 Background		SO-02 F0J53 Background		SO-03 F0J54 Background		3x Highest Back-ground	SO-04 F0J55		SO-05 F0J56	
PESTICIDES	*SQL*	RESULT	*SQL*	RESULT	*SQL*	RESULT		*SQL*	RESULT	*SQL*	RESULT
beta-BHC	2.4	ND	2.1	ND	1.9	ND	NA	2	**2.6 J**	2	ND
Heptachlor epoxide	2.4	ND	2.1	ND	1.9	ND	NA	2	ND	2	**3.5 J**
Aldrin	2.4	ND	2.1	ND	1.9	ND	NA	2	ND	2	ND
Dieldrin	4.6	ND	4.1	ND	3.6	ND	NA	3.9	ND	3.9	ND
4,4'-DDE	4.6	ND	4.1	ND	3.6	ND	NA	3.9	**6.2 J**	3.9	ND
4,4'-DDD	4.6	ND	4.1	ND	3.6	ND	NA	3.9	ND	3.9	ND
4,4'-DDT	4.6	ND	4.1	ND	3.6	ND	NA	3.9	**13**	3.9	ND
alpha-Chlordane	2.4	ND	2.1	ND	1.9	ND	NA	2	**9.2 J**	2	ND
gamma-Chlordane	2.4	ND	2.1	ND	1.9	ND	NA	2	**4.9 J**	2	ND
Endrin	4.6	ND	4.1	ND	3.6	ND	NA	3.9	ND	3.9	ND
Endrin ketone	4.6	ND	4.1	ND	3.6	ND	NA	3.9	**7.6 J**	3.9	**34 Jv**
Endrin aldehyde	4.6	ND	4.1	ND	3.6	ND	NA	3.9	ND	3.9	ND
Endosulfan I	2.4	ND	2.1	ND	1.9	ND	NA	2	ND	2	ND
Aroclor-1254	46	ND	41	ND	36	ND	NA	39	ND	39	ND
Aroclor-1260	46	ND	41	ND	36	ND	NA	39	ND	39	ND
Reference 20	pp. 27, 168		pp. 28, 169		pp. 28, 170			pp. 28, 171		pp. 28, 172	

Bold and Shaded - Concentration above three-times background concentration and both (background, release) SQLs.
SQL - Sample quantitation limit.
NA - Not applicable.
ND - Undetected at the laboratory reported detection limit (IDL).
L - Reported concentration is between the IDL and the CRDL.
J - Result is estimated.
^ - High bias. Actual concentration may be lower than the concentration reported.
v - Low bias. Actual concentration may be higher than the concentration reported.

Table 12–Off-site Soil Inorganic Sample Results

Palestine Light, Heat, & Power Off-site Soil Samples Inorganic											
Constituents mg/Kg	SO-01 MF0J52 Background		SO-02 MF0J53 Background		SO-03 MF0J54 Background		3X Highest Back-ground	SO-04 MF0J55		SO-05 MF0J56	
INORGANICS	*SQL*	RESULT	*SQL*	RESULT	*SQL*	RESULT		*SQL*	RESULT	*SQL*	RESULT
Aluminum	52.7	20000	48.6	19500	44.6	14300	60000	47.8	18600	44.9	20400
Arsenic	4	54.3 J	3.6	58 J	3.3	56.1 J	174	3.6	66.5 J	3.4	47.9 J
Barium	52.7	203	48.6	182	44.6	193	609	47.8	206	44.9	428
Berylium	1.3	1.4	1.2	1.5	1.1	1.4	4.5	1.2	2	1.1	1.3
Cadmium	1.3	ND	1.2	0.63 LJ^	1.1	ND	NA	1.2	**1.6**	1.1	0.77 LJ
Chromium	2.6	45.3 J^	2.4	49.9 J^	2.2	51.4 J^	154.2	2.4	56.8 J^	2.2	46.6 J^
Cobalt	13.2	21.3	12.1	18.8	11.2	19	63.9	12	24.3	11.2	17.1
Copper	6.6	15.6	6.1	18.3	5.6	13.4	54.9	6	33.5	5.6	24
Iron	79	82200	72.8	91200	67	81400	273600	95.7	109000	67.3	80100
Lead	2.6	88.2 J	2.4	77.3 J	2.2	70.8 J	265	2.4	224 J	2.2	102 J
Magnesium	1320	1890	1210	1650	1120	1310	5670	1200	2790	1120	2210
Manganese	4	483 J	3.6	707 J	3.3	473 J	2121	3.6	896 J	3.4	479 J
Nickel	10.5	46.3 J	9.7	44.9 J	8.9	39.6 J	139	9.6	53.3 J	9	36.1 J
Vanadium	13.2	154 Jv	12.1	155 Jv	11.2	146 Jv	465	12	185 Jv	11.2	173 Jv
Zinc	15.8	149	14.6	112	13.4	90.2	447	14.3	373	13.5	268
Reference 21	pp. 10, 27		pp. 11, 28		pp. 11, 29			pp. 11, 30		pp. 11, 31	

Bold and Shaded - Concentration above three-times background concentration and both (background, release) SQLs.
SQL - Sample quantitation limit.
NA - Not applicable.
ND - Undetected at the laboratory reported detection limit (IDL).
L - Reported concentration is between the IDL and the CRDL.
J - Result is estimated.
^ - High bias. Actual concentration may be lower than the concentration reported.
v - Low bias. Actual concentration may be higher than the concentration reported.

7.3 SOIL EXPOSURE TARGETS

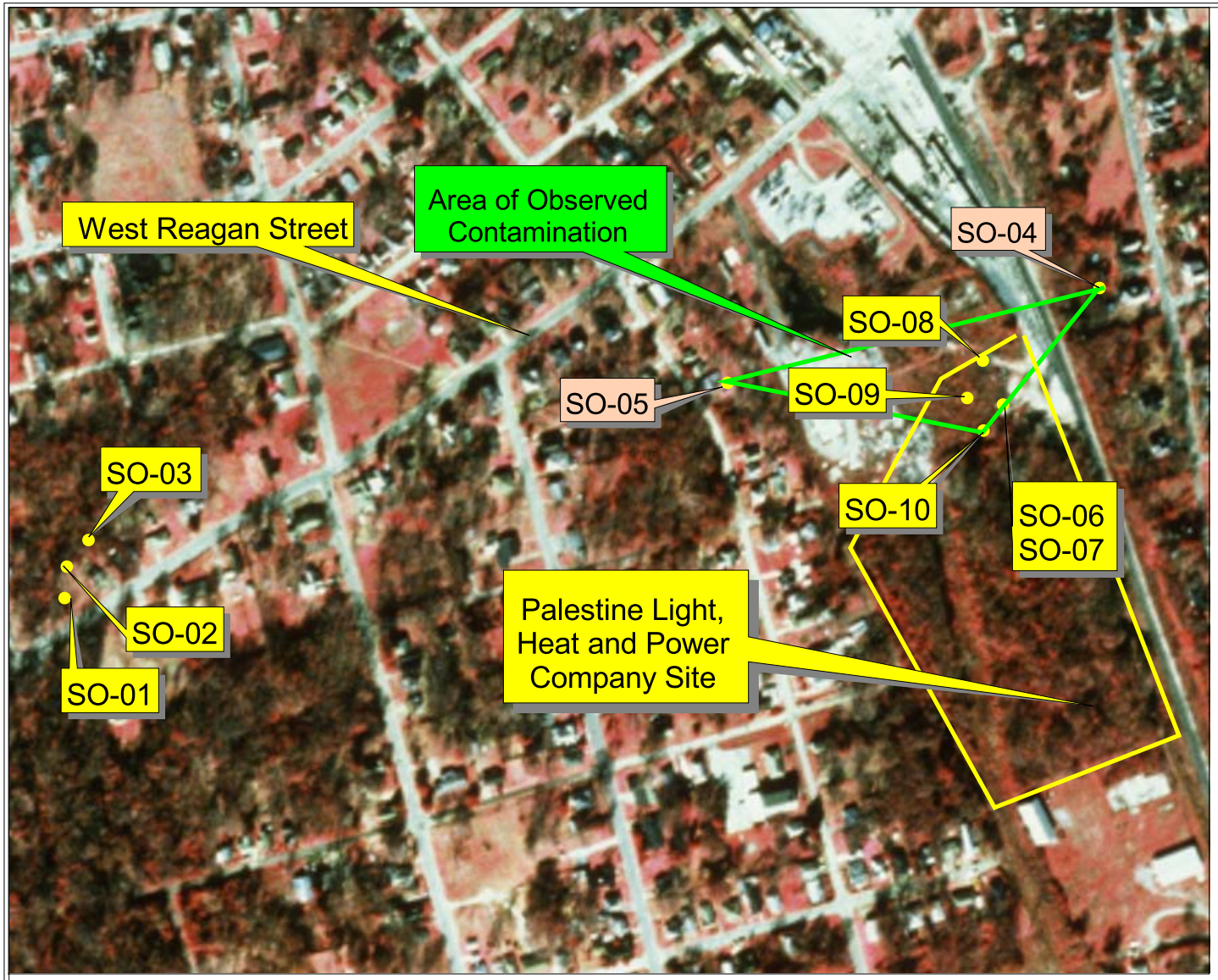
7.3.1 Resident Individual and Resident Population

According to the HRS Rule, Section 5.1.3, a resident individual is a person living or attending school or day care on a property with an area of observed contamination and whose residence, school, or day care center, respectively, is on or within 200 feet of the area of observed contamination (Ref. 1).

The results from soil samples SO-04 and SO-05, collected from two residential properties in the surrounding area (see Figure 6), indicate an observed release of hazardous substances to surface soils (Ref. 6, pp 45-51). Analytical results indicate release concentrations greater than three times (3x) the highest identified background level and above the background sample's Sample Quantitation Limit (SQL). Soil sample SO-05 also exceeded health-based benchmarks for hazardous substances in soil and is subject to Level I concentrations as specified by the HRS Rule, Section 5.1.3.2, Table 5-3 (Ref. 1).

The resident individual is assigned a value of 50 since there is at least one resident individual in the area of observed contamination that is subject to Level I concentrations. Figure 6 illustrates where the area of observed contamination is located.

Using 2.58 as the average number of persons per household for Anderson County, the resident population subject to Level I concentrations is approximately 2.58 people. This sum (2.58) is multiplied by 10 for Level I concentrations resulting in a Level I factor Value of 25.8 (Ref. 1 Section 5.1.3.2.1). The resident population subject to Level II concentrations is approximately 2.58 people. This sum (2.58) is assigned as the Level II Factor Value of 2.58 (Ref. 1, Section 5.1.3.2.2).



TCEQ

Screening Site Inspection Report
Figure 6

Area of Observed Contamination Map

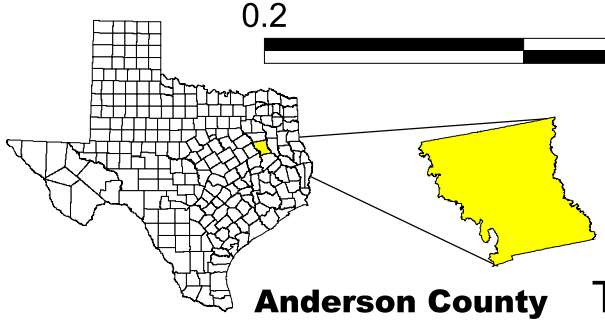
Palestine Light, Heat and Power Company
TXD981912421
Palestine, Texas
Anderson County

Residential Property

Non-residential Property

Area of Observed Contamination

0.2 0 0.2 Miles



Anderson County

The base data used is the SW NW Palestine and the NW SW Palestine Digital Orthophoto Quadrangles (DOQs) which is a digital version of an aerial photograph. This DOQ was produced by the TCEQ using USGS guidelines. UTM NAD 83 Zone 15

N W E S

According to the HRS Rule, Section 5.1.3.2, the resident population is the number of persons living or attending school or day care on a property with an area of observed contamination and whose residence, school, or day care center, respectively, is on or within 200 feet of the area of observed contamination (Ref. 1). A summary of the hazardous substances detected and the total resident population is as follows:

Resident Property	Contaminant Location (Sample Number)	Total Resident Population	Level of Hazardous Substances Released	Reference(s)
629 South May	Residence (SO-04)	2.58	Benzo (g,h,i) perylene - Level II	Ref. 20, pp. 21, 133
			Fluoranthene- Level II	Ref. 20, pp. 20, 133
			Bis (2-Ethylhexyl) phthalate - Level II	Ref. 20, pp. 21, 133
			Chrysene - Level II	Ref. 20, pp. 21, 133
			Pyrene - Level II	Ref. 20, pp. 21, 133
616 South Dorrance	Residence (SO-05)	2.58	Benzo (a) anthracene - Level I	Ref. 20, pp. 21, 136
			Benzo (b) fluoranthene - Level I	Ref. 20, pp. 21, 136
			Benzo (a) pyrene - Level I	Ref. 20, pp. 21, 136
			Dibenzo (a,h) anthracene - Level I	Ref. 20, pp. 21, 136
			Chrysene - Level II	Ref. 20, pp. 21, 136

Arsenic levels were widespread and exceeded health-based levels. Further investigation is needed to determine background levels of arsenic and potential sources.

7.3.2 Workers

There were workers observed on the railroad tracks adjacent to the site from the east. However, the exact number of workers nearby is unknown. There are no workers present on-site (Ref. 6, p. 51).

7.3.3 Resources

According to the HRS Rule, Section 5.1.3.4 and the HRS Guidance Manual, a resource use includes commercial agriculture, silviculture (forestry), commercial livestock production or grazing activities conducted within the boundary of an area of observed contamination (Ref. 1; Ref. 2, p. 373). Based on SSI site reconnaissance, there were no resource use areas identified within the boundary of an area of observed contamination for the soil exposure pathway (Ref. 6).

7.3.4 Terrestrial Sensitive Environments

Based on a file review and results of the SSI site reconnaissance, there were no terrestrial sensitive environments, as defined in Table 5.5 of the HRS Rule, Section 5.1.3.5, identified on or partially on an area of observed contamination for the soil exposure pathway (Ref. 1; Ref. 2, p. 375-381; Ref. 6, p. 59).

8.0 AIR MIGRATION PATHWAY AND TARGETS

The Air Migration Pathway was researched, but not evaluated since inclusion of this pathway would not significantly affect the site score.

REFERENCES

Reference Number	Description of the Reference
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2.	U.S. Environmental Protection Agency, *Hazard Ranking System Guidance Manual*, EPA 540-R-92-026, OSWER Directive 9345.1-07, November 1992. 431 pages plus appendices.
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14.	U. S. Geological Survey, Northwest Palestine and Southwest Palestine Quadrangle, Texas, 7.5 Minute Series, Topographic Map. Provisional Edition 1982. 2 pages.
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19.	Federal Emergency Management Agency Federal Insurance Administration, Flood Insurance Rate Map - City of Palestine, Texas, Anderson County, Panel 10 of 10, February 18, 1981. 3 pages.
20.	U.S. Environmental Protection Agency, Region 6, Houston Branch, *Case Number 31732, Sample Designation Group F0J43, CLP Data Review and Organic Regional Data Assessment Package.* From: Marvelyn Humphrey, ESAT Regional PO, 6MD-H, To: B. Rhotenberry, 6SF-RA. July 16, 2003. 179 pages.

REFERENCES (continued)

Reference Number	Description of the Reference
21.	U.S. Environmental Protection Agency, Region 6, Houston Branch, *Case Number 31732, Sample Designation Group MF0J43, CLP Data Review and Inorganic Regional Data Assessment Package.* From: Marvelyn Humphrey, ESAT Regional PO, 6MD-H, To: B. Rhotenberry, 6SF-RA. July 16, 2003. 36 pages.

Reference 1
(Not Included)

Federal Register - 40 CFR
Part 300 Hazard Ranking System:
Final Rule

Reference 2
(Not Included)

Hazard Ranking System
Guidance Manual

Reference 3
(Not Included)

Guidance for Performing Site Inspections Under CERCLA

Reference 4
(Not Included)

Superfund Chemical Data Matrix (SCDM)

Reference 5

Texas Water Development Board Report 150 Groundwater Conditions in Anderson, Cherokee, Freestone, and Henderson Counties, Texas

Reference 6

Screening Site Inspection Field Log Book Notes and Site Photographs

Reference 7
(Not Included)

Health and Safety Plan for Screening Site Inspection Field Work
Palestine Light, Heat and Power Company Site
May 2003

Reference 8
(Not Included)

Texas Commission on Environmental Quality Quality Assurance Project Plan for Texas Commission on Environmental Quality Preliminary Assessment/Site Inspection Program (FY 2002 and 2003)

Reference 9

Environmental Protection Agency Potential Hazardous Waste Site Identification and Preliminary Assessment
Palestine Light, Heat & Power Company

Reference 10

Ecology and Environment, Inc. Coal Gas Manufacturing Sites in Louisiana and Texas

Reference 11

Interoffice Memorandum to District Managers
Texas Water Commission
Subj: Town Gas Project

Reference 12

Texas Commission on Environmental Quality, Telephone Memo to File Robert Reagins, Tyler-Region 5

Reference 13
(Not Included)

Preliminary Assessment/Screening Site Inspection Work Plan for Palestine Light, Heat and Power Company Site

Reference 14

U. S. Geological Survey
Palestine NW Quadrangle and SW Quadrangle
Topographic Maps

Reference 15

Texas Water Quality Inventory Trinity River Above Lake Livingston, Segment: 0804, Trinity River Basin

Reference 16

Texas Parks and Wildlife Department
Annotated County Lists of Texas' Special Species, Anderson County

Reference 17
(Not Included)

Texas Department of Water Resources
Climatic Atlas of Texas LP-192

Reference 18

Northwest Palestine and Southwest Palestine, Texas National Wetlands Inventory Maps

Reference 19

Flood Insurance Rate Map - City of Palestine, Texas, Anderson County, Panel 10 of 10

Reference 20

Case Number 31732, Sample Designation Group F0J43

CLP Data Review and Organic Regional Data Assessment Package

Reference 21

Case Number 31732, Sample Designation Group MF0J43

CLP Data Review and Inorganic Regional Data Assessment Package