

UNION PACIFIC RAILROAD COMPANY

R. M. (Bob) Grimalla
Assistant Vice President
Environmental Management



Mailing Address:
Room 930
1416 Dodge Street
Omaha, Nebraska 68179
Fax (402) 271-4461

July 10, 2000

L. A. (Lanny) Schmid
Director Environmental Field Operations
J. R. (Joel) Strafelda
Program Manager

Directors Environmental Field Operations
R. L. (Rick) Eades – Northern Region
B. A. (Brock) Nelson – Western Region
G. (Glenn) Thomas – Southern Region

Dr. Ata-ur-Rhaman
Manager, Corrective Action Section
Remediation Division (MC-127)
Texas Natural Resource Conservation Commission
P.O. Box 13087
Austin, Texas 78711-3087

Subject: Transmittal, Affected Property Assessment Report; Houston
Wood Preserving Works Site; Houston, Texas

Dear Dr. Rahman:

Enclosed is a copy of the referenced document. As you are aware, this Affected Property Assessment Report (APAR) was prepared in accordance with the requirements of the Texas Risk Reduction Program (TRRP) using on-site data only. A second APAR for areas off site will be prepared pending completion of the on-going RFI/EOC investigations.

Union Pacific Railroad (UPR) has prepared this APAR to meet the requirements of the facility permit, compliance plan and TRRP based on the evolving set of guidance that is currently available. We have elected to prepare and submit this APAR for the on-site property only in order to progress the corrective action process at this site without undue delay and keep the TNRCC informed of our progress.

If you have any questions regarding this APAR, please call me at (402) 271-5979.

Sincerely,

Union Pacific Railroad

A handwritten signature in black ink, appearing to read "E. H. Honig".

E. H. (Ed) Honig, P.E.
Manager, Environmental Site Remediation

EHH/BU051422-G00

cc: Mark Arthur, TNRCC-Austin
Marsha Hill, TNRCC Region 12-Houston
Allyn Davis, EPA Region 6-Dallas
Thomas Pacioni, Environmental Resources Management

Southern Pacific Transportation Company

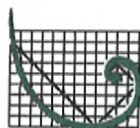
**Affected Property Assessment
Report (APAR)**

*Houston Wood Preserving Works,
Houston, Texas*

July 10, 2000

W.O. #422-009

Environmental Resources Management
16300 Katy Freeway, Suite 300
Houston, Texas 77094-1611
(281) 600-1000

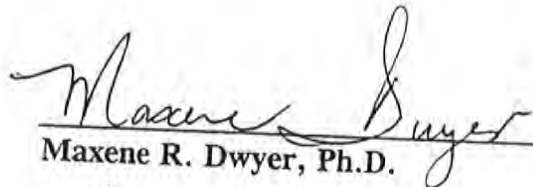


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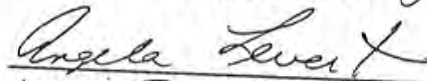
Southern Pacific Transportation Company
Affected Property Assessment
Report (APAR)
*Houston Wood Preserving Works,
Houston, Texas*

July 10, 2000


W.O. #422-009



Maxene R. Dwyer, Ph.D.



Angela M. Levert



Thomas D. Pacioni, P.G.
Associate

Environmental Resources Management
16300 Katy Freeway, Suite 300
Houston, Texas 77094-1611
(281) 600-1000

TABLE OF CONTENTS

EXECUTIVE SUMMARY

vii

1.0	INTRODUCTION	1
	1.1 SITE AND CONTACT INFORMATION	1
	1.2 REGULATORY BACKGROUND	2
	1.3 PERMIT AND COMPLIANCE PLAN RELEVANCE	2
	1.4 APAR SCOPE AND OBJECTIVES	3
	1.5 REPORT ORGANIZATION	4
2.0	ENVIRONMENTAL SETTING	6
	2.1 PHYSICAL SITE DESCRIPTION	6
	2.2 REGIONAL GEOLOGY AND HYDROGEOLOGY	6
	2.2.1 <i>Local Water Resources</i>	6
	2.2.2 <i>Water Well Survey</i>	6
	2.2.3 <i>Area Surface Water</i>	7
	2.3 LAND USE ON SITE AND IN THE SURROUNDING AREA	7
	2.4 ECOLOGICAL EVALUATION	8
3.0	SOURCE AREA EVALUATION	9
	3.1 IDENTIFICATION OF SOURCE AREAS	9
	3.2 DESCRIPTION OF SOURCE AREAS	10
	3.2.1 <i>Former Process Area</i>	10
	3.2.2 <i>Tie Storage Area</i>	10
	3.2.3 <i>Surface Impoundment Area</i>	10
	3.3 SITE HISTORY	10
3.4	CONSTITUENTS OF INTEREST FROM COMPLIANCE PLAN	12
3.5	PREVIOUS ON-SITE REMEDIATION	12
4.0	SITE GEOLOGY, HYDROGEOLOGY AND SITE CONCEPTUAL MODEL	13
	4.1 DATA USED TO CHARACTERIZE THE GEOLOGY AND HYDROGEOLOGY	13
	4.2 SITE GEOLOGY	14

TABLE OF CONTENTS (Cont'd)

4.3	<i>SITE HYDROGEOLOGY</i>	16
4.3.1	<i>Aquifer Slug Test Results</i>	16
4.3.2	<i>Horizontal Ground Water Flow</i>	16
4.3.3	<i>Vertical Ground Water Flow</i>	17
4.4	<i>SHALLOW GROUND WATER CLASSIFICATION</i>	18
4.5	<i>DESCRIPTION OF SITE CONCEPTUAL MODEL</i>	19
5.0	<i>DEVELOPMENT OF PROTECTIVE CONCENTRATION LEVELS</i>	22
5.1	<i>HUMAN HEALTH THREE-TIERED APPROACH</i>	22
5.2	<i>IDENTIFICATION OF COMPLETE EXPOSURE PATHWAYS</i>	23
5.3	<i>IDENTIFICATION OF APPLICABLE TIER 1 PCLs</i>	24
5.3.1	<i>Surface Soil PCLs</i>	24
5.3.2	<i>Subsurface Soil PCLs</i>	25
5.3.3	<i>Ground Water PCLs</i>	25
6.0	<i>SOIL EVALUATION</i>	26
6.1	<i>DATA EVALUATION AND SCREENING</i>	27
6.1.1	<i>Data Evaluation</i>	27
6.1.2	<i>Data Screening</i>	27
6.2	<i>IDENTIFICATION OF SOIL COPCs</i>	28
6.2.1	<i>Surface Soil COPCs</i>	29
6.2.2	<i>Subsurface Soil COPCs</i>	30
6.3	<i>DETERMINATION OF SOIL EPCs</i>	33
6.3.1	<i>Surface and Subsurface Soil EPCs</i>	33
6.3.2	<i>SPLP EPCs</i>	34
6.4	<i>COMPARISON TO SOIL PCLs</i>	34
6.4.1	<i>Former Process Area</i>	34
6.4.2	<i>Tie Storage Area</i>	35
6.4.3	<i>Surface Impoundment Area</i>	36
7.0	<i>GROUND WATER EVALUATION</i>	37
7.1	<i>DATA EVALUATION AND SCREENING</i>	37
7.1.1	<i>Data Evaluation</i>	37
7.1.2	<i>Data Screening</i>	37
7.2	<i>IDENTIFICATION OF GROUND WATER COPCs</i>	38
7.2.1	<i>A-TZ Transmissive Zone</i>	38
7.2.2	<i>B-TZ Transmissive Zone</i>	39
7.2.3	<i>C-TZ Transmissive Zone</i>	40

TABLE OF CONTENTS (Cont'd)

7.3	<i>DETERMINATION OF GROUND WATER EPCs</i>	40
7.4	<i>COMPARISON TO GROUND WATER PCLs</i>	41
7.4.1	<i>A - Transmissive Zone</i>	41
7.4.2	<i>B - Transmissive Zone</i>	42
7.4.3	<i>C - Transmissive Zone</i>	42
8.0	<i>NOTIFICATION AND CERTIFICATION REQUIREMENTS</i>	43
9.0	<i>PATH FORWARD</i>	44
10.0	<i>REFERENCES</i>	46

APPENDICES

<i>A</i>	<i>WATER WELL SURVEY RESULTS</i>
<i>B</i>	<i>EXCLUSION CRITERIA CHECKLIST</i>
<i>C</i>	<i>TRANSMISSIVE ZONE YIELD CALCULATIONS</i>
<i>D</i>	<i>SUMMARY OF ON-SITE INVESTIGATIONS</i>
<i>E</i>	<i>DATA ACQUISITION AND REPORTING CHECKLIST</i>
<i>F</i>	<i>UNCERTAINTY ANALYSIS: EVALUATION OF NON-DETECTED COPCs</i>
<i>G</i>	<i>LOG-PROBIT METHOD</i>
<i>H</i>	<i>DETERMINATION OF EXPOSURE POINT CONCENTRATIONS</i>

TABLE OF CONTENTS (Cont'd)

List of Tables

2-1	<i>Water Well Survey</i>
4-1	<i>Summary of Ground Water Elevation Measurements: January 1997 to September 1999</i>
5-1	<i>Surface Soil Protective Concentration Levels and Critical PCLs</i>
5-2	<i>Subsurface Soil Protective Concentration Levels and Critical PCLs</i>
5-3	<i>Ground Water Protective Concentration Levels and Critical PCLs</i>
6-1	<i>Surface Soil Data Evaluation and Screening Results</i>
6-2	<i>Subsurface Soil Data Evaluation and Screening Results</i>
6-3	<i>Surface Soil Exposure Point Concentrations: Former Process Area</i>
6-4	<i>Surface Soil Exposure Point Concentrations: Tie Storage Area</i>
6-5	<i>Subsurface Soil Exposure Point Concentrations: Former Process Area</i>
6-6	<i>Subsurface Soil Exposure Point Concentrations: Tie Storage Area</i>
6-7	<i>Subsurface Soil Exposure Point Concentrations: Surface Impoundment Area</i>
6-8	<i>Synthetic Precipitation Leachate Procedure Data: Former Process Area</i>
6-9	<i>Synthetic Precipitation Leachate Procedure Data: Tie Storage Area</i>
6-10	<i>Former Process Area Soil Evaluation: Comparison to Applicable Tier 1 Soil PCLs</i>
6-11	<i>Evaluation of Former Process Area SPLP Data: Comparison to Applicable Tier 1 Ground Water PCLs</i>
6-12	<i>Tie Storage Area Soil Evaluation: Comparison to Applicable Tier 1 Soil PCLs</i>
6-13	<i>Evaluation of Tie Storage Area SPLP Data: Comparison to Applicable Tier 1 Ground Water PCLs</i>
6-14	<i>Surface Impoundment Area Soil Evaluation: Comparison to Applicable Tier 1 Soil PCLs</i>
7-1	<i>Ground Water Evaluation and Screening Results</i>
7-2	<i>Ground Water Exposure Point Concentrations - AT-Z</i>
7-3	<i>Ground Water Exposure Point Concentrations - BT-Z</i>
7-4	<i>Ground Water Exposure Point Concentrations - C-TZ</i>
7-5	<i>Evaluation of the A-TZ Ground Water Zone: Comparison to Commercial/Industrial Tier 1 Ground Water PCLs</i>
7-6	<i>Evaluation of the B-TZ Ground Water Zone: Comparison to Commercial/Industrial Tier 1 Ground Water PCLs</i>
7-7	<i>Evaluation of the C-TZ Ground Water Zone: Comparison to Commercial/Industrial Tier 1 Ground Water PCLs</i>

TABLE OF CONTENTS (Cont'd)

List of Figures

- 1-1 *Site Location Map*
- 3-1 *SWMUs and AOCs*
- 3-2 *Four Investigation Areas*
- 4-1 *Cross-Section Locations*
- 4-2 *Cross-Section A-A'*
- 4-3 *Cross-Section B-B'*
- 4-4 *Cross-Section C-C'*
- 4-5 *Cross-Section D-D'*
- 4-6 *Cross-Section E-E'*
- 4-7 *Potentiometric Surface Contour Map - AT-Z - 9/97*
- 4-8 *Potentiometric Surface Contour Map - BT-Z - 9/97*
- 4-9 *Potentiometric Surface Contour Map - CT-Z - 9/97*
- 4-10 *Potentiometric Surface Contour Map - AT-Z - 11/98*
- 4-11 *Potentiometric Surface Contour Map - BT-Z - 11/98*
- 4-12 *Potentiometric Surface Contour Map - CT-Z - 11/98*
- 6-1 *On-Site Protective Concentration Level Exceedance Zone Map - Surface Soil*
- 6-2 *On-Site Protective Concentration Level Exceedance Zone Map - Subsurface Soil*
- 7-1 *On-Site Protective Concentration Level Exceedance Zone Map - A - Transmissive Zone Ground Water*
- 7-2 *On-Site Protective Concentration Level Exceedance Zone Map - B - Transmissive Zone Ground Water*
- 7-3 *On-Site Protective Concentration Level Exceedance Zone Map - C - Transmissive Zone Ground Water*

EXECUTIVE SUMMARY

An assessment the former Houston Wood Preserving Works (HWPW) site located in Houston, Texas was completed in accordance with the requirements of the Texas Risk Reduction Program (TRRP). Pursuant to a RCRA permit and a Compliance Plan, several phases of a RCRA Facility Investigation (RFI) and an Extent of Contamination (EOC) investigation have been conducted on site and off site. This report is intended to be the (summary) RFI/EOC Report and (functionally) a risk assessment report for the HWPW property. This report does not address off-site areas because the investigation of these areas is in progress and an affected property assessment report (APAR) for those areas will be provided under separate cover.

The HWPW site consists of a 33-acre tract of land that was operated as a wood treating facility until 1985. Currently the site is used for railroad storage and other railroad operations. Ground water underlying the site is not used, and is considered Class 2.

As part of the assessment process, the site has been segregated into three exposure areas: Former Process Area (FPA); Tie Storage Area (TSA); and Closed Surface Impoundment Area (SIA). Site conditions in these areas were assessed vertically and horizontally to delineate the extent of affected media of concern (soil and ground water). Based on the on-site investigation results, the constituents of potential concern in soil and ground water are volatile organics, semivolatile organics and total petroleum hydrocarbons.

The on-site RFI/EOC results were compared to TRRP Tier 1 protective concentration limits (PCLs) for applicable soil and ground water human health exposure pathways for each exposure area. The following Tier 1 PCLs are exceeded:

<i>FPA</i>	<i>TSA</i>	<i>SIA</i>
Ground water	Ground water	Ground water
Subsurface soil to ground water	Subsurface soil to ground water	Subsurface soil to ground water
Total soil combined	Total soil combined	
Surface soil to ground water		

Based on the comparisons, PCL exceedance zones were identified. In general, the level of impact to soil in the FPA was greater than that in the other two areas. In the SIA, the surface soil exposure pathway is incomplete because surface soils were previously excavated as part of post-closure care.

Ground water impacts were observed within the two upper-most transmissive zones beneath the three investigation (exposure) areas, except for where the second transmissive zone does not exist in the FPA. Minor ground water impacts were observed within the third transmissive zone, particularly within and near the FPA.

A qualitative evaluation was performed to assess potential impacts to ecological receptors using the Tier 1 Exclusion Criteria Checklist. The results indicated that the on-site property does not require further ecological evaluation.

As a path forward, a Response Action Plan (RAP) will be prepared to design an approach that will address the PCL exceedance zones identified in this report in a manner consistent with the TRRP requirements for Remedy Standard B.

1.0

INTRODUCTION

An affected property assessment report (APAR) was prepared on behalf of Union Pacific Railroad (UPR) for the former Houston Wood Preserving Works (HWPW) site located in Houston, Texas. In 1997, UPR acquired as a subsidiary the Southern Pacific Transportation Company (SPTCo), which had owned the facility. The purpose of this report is to provide the Texas Natural Resource Conservation Commission (TNRCC) with the information required to support an evaluation of risk on site and to ascertain whether corrective measures are warranted to facilitate protection of human health and the environment.

Prior to preparing this report, UPR conducted a review of the TNRCC's Risk Reduction Rules (RRR) of 30 TAC §335 and the Texas Risk Reduction Program (TRRP) Rule of 30 TAC §350. The purpose of this review was to evaluate the content and structure of the programs as they apply to the site, and to facilitate selection of a program for site closure. Based on this review, UPR identified the TRRP Rule as the more appropriate program for the site. Accordingly, an APAR was prepared in accordance with 30 TAC §350.51(a).

1.1

SITE AND CONTACT INFORMATION

Site Contact and Mailing Address

Mr. Ed Honig, P.E.
Environmental Site Remediation Manager
Union Pacific Railroad Company
1416 Dodge Street, Room 930
Omaha, Nebraska 68179
(402) 271-5979

Program and Identification Numbers

<i>TNRCC Program:</i>	Corrective Action
<i>Solid Waste Registration No.:</i>	31547
<i>RCRA Permit No.:</i>	HW-50343-000
<i>Compliance Plan No.:</i>	CP-50343-000

Facility Name and Physical Address

Houston Wood Preserving Works
4910 Liberty Road 77020
Houston, Texas 77020

The site is located in Harris County at Latitude 29° 47' 11" North and Longitude 95° 19' 15.5" West (Figure 1-1), approximately 1.5 miles northeast of the intersection of U.S. Highway 59 and Interstate Highway 10.

1.2

REGULATORY BACKGROUND

The site was operated by SPTCo as a wood treating operation from approximately 1911 until 1985. A surface impoundment at the site was constructed in 1979 and was used to contain creosote-affected materials until 1984 when it was excavated to a depth of approximately seven feet, backfilled, vegetated and closed.

Based on the conclusions of a RCRA Facility Assessment (RFA) completed on behalf of the U.S. EPA (PRC Environmental Management, Inc., 1993), 10 solid waste management units (SWMUs) and six areas of concern (AOCs) were identified as subject to a RCRA Facility Investigation (RFI).

On June 20, 1994, a RCRA Permit (Permit No. HW-50343-000) was issued to SPTCo, requiring completion of an RFI to determine whether constituents of interest (COIs) have been released into the environment from these SWMUs and AOCs. In addition, a Compliance Plan (Compliance Plan No. CP-50343-000) was also issued to SPTCo, requiring completion of an Extent of Contamination (EOC) investigation in the area of a closed permitted surface impoundment. The EOC investigation is part of the post-closure care requirements described in Section VIII of the Compliance Plan.

An EOC Work Plan (Industrial Compliance, 1994a) was submitted to the TNRCC and subsequently approved with modifications on September 29, 1995. An RFI Work Plan (Industrial Compliance, 1994b) was submitted to the TNRCC and subsequently approved with modifications on October 16, 1995. The EOC investigation was conducted concurrent with the RFI. Based on the technical approach described in the RFI Work Plan and in Provision VIII of the RFI permit, 10 SWMUs and two AOCs are subject to investigation at the site.

1.3

PERMIT AND COMPLIANCE PLAN RELEVANCE

The general objective of the RFI/EOC process was to investigate potential impacts and/or releases from waste management units associated with the former wood treating operations. Subsequent to completion of site investigation activities, Provision VIII of the RCRA Permit requires that either a Corrective Measures Study or Risk Reduction Standards Implementation Plan be submitted to the TNRCC.

In order to more-adequately address the Permit and Compliance Plan requirements for investigations, the RFI and EOC investigations have been

implemented utilizing a phased approach. The Phase 1 investigation was approved by the TNRCC on January 13, 1997. The Phase 2 investigation was initiated in 1997, and was subdivided into three phases (i.e., Phases 2-A, 2-B, and 2-C) as additional data needs were identified. A *Phase 2-A RFI/EOC Investigation Report* (ERM, 1998) was completed and submitted to the TNRCC on February 13, 1998, and a *Phase 2-B RFI/EOC Investigation Report* (ERM, 1999) was completed and submitted to the TNRCC on September 10, 1999. A Phase 2-C investigation that is focused off site is currently in progress.

With respect to the three phases of on-site investigation that have been completed to date, the Phase 2-A and Phase 2-B reports are basically data summary reports intended, in part, to keep TNRCC apprised of the progress of the investigations. UPR is taking the opportunity of this APAR to describe how the requirements of the RFI and EOC investigations have been met on site. This approach was discussed with TNRCC prior to proceeding.

Further, this APAR fulfills the requirements of a Risk Reduction Standards Implementation Plan. It summarizes the results of investigations that have been conducted on site including those completed as part of post-closure care for the closed permitted surface impoundment. The data obtained from these investigations are used to describe current on-site conditions, to support an evaluation of on-site risk, and to ascertain whether corrective measures are necessary to facilitate the protection of human health and the environment.

1.4

APAR SCOPE AND OBJECTIVES

In accordance with the RCRA Permit, an RFI/EOC investigation is currently in progress at the site. Investigations completed at the site to date have produced data from on site and from adjacent off-site properties. Based on a review of these data with respect to APAR requirements, the on-site investigation is complete. The most recent data collected from off site indicates that additional investigation is required to fulfill APAR requirements. For this reason, UPR has elected to submit separate APARs for on site and off site.

The objectives of this APAR include the following:

- To satisfy the requirements for RFI and EOC investigations on site, when evaluated in concert with the data presented in the previous Phase 1, Phase 2-A, and Phase 2-B RFI/EOC investigation reports; and
- To satisfy the requirements for an APAR on site pursuant to 30 TAC §350.91.

The scope of this report includes a discussion of the APAR requirements for on site only.

Subchapter C (*Affected Property Assessment*) of the TRRP Rule requires that the results obtained from the assessment(s) of an affected property be documented in an APAR. Generally, the APAR presents affected property information and establishes the next step of corrective measures, if any. Subchapter E (*Reports*) of the TRRP Rule sets forth the information to be included in an APAR. In order to meet the two overarching objectives described above, the following elements were identified as (general) requirements of an APAR:

- provide a characterization of the geology and hydrogeology of the site;
- characterize the nature and extent of affected media at the site;
- present the methods and results of the remedial investigations that have been conducted;
- identify complete and reasonably anticipated to be complete exposure pathways;
- evaluate ecological risk;
- determine protective concentration levels and critical protective concentration levels;
- assess whether affected media require corrective measures; and
- identify notification requirements.

1.5

REPORT ORGANIZATION

The format of this report is based on the requirements listed in 30 TAC §350.91 (a-b). During preparation of this APAR, the TNRCC published *draft* Affected Property Assessment Report guidance dated February 23, 2000 for public comment. While this report does not conform to the draft format (i.e., the worksheets, attachments, and appendices) presented in the referenced guidance document, UPR has largely incorporated the content and organization specified by the guidance.

The following table summarizes the organization of this APAR, together with the sections from 30 TAC §350.91 and the draft APAR guidance that include the information.

<i>Report Section</i>	<i>Content</i>	<i>30 TAC §350.91 Reference</i>	<i>Draft APAR Guidance Reference</i>
1	<i>Introduction</i> - site and contact information, regulatory background, scope and objectives, relevance, and report format	(a)(1-3), (c)	Cover Page
2	<i>Environmental Setting</i> - regional geology and hydrogeology, current and future land use, and assessment of potential ecological receptors	(b)(2,4,7)	Sections 1, 3
3	<i>Source Area Evaluation</i> - history of site activities (chronology of events)	(b)(3)	Section 2
4	<i>Site Geology and Hydrogeology</i> - site geology and hydrogeology, ground water classification, and summary of on-site investigations	(b)(1,4,8)	Sections 2, 4, 7
5	<i>Development of Protective Concentration Levels (PCLs)</i> - description of human health three-tiered approach, identification of complete exposure pathways, and identification of applicable and critical PCLs	(b)(6,10,11)	Section 5
6	<i>Soil Evaluation</i> - data evaluation and screening, identification of soil constituents of potential concern, determination of soil exposure point concentrations, and comparison to PCLs	(b)(12)(A,B,C) (b)(13)	Section 6
7	<i>Ground Water Evaluation</i> - data evaluation and screening, identification of ground water constituents of potential concern, determination of ground water exposure point concentrations, and comparison to PCLs	(b)(12)(A,B,C) (b)(13)	Section 7
8	<i>Notification Requirements</i>	(b)(14)	Appendix 15
9	<i>Path Forward</i>	N/A	N/A
10	<i>References</i>	N/A	Appendix 1

2.0

ENVIRONMENTAL SETTING

This section describes the site and surrounding area characteristics as they pertain to potential human or ecological exposure pathways. Included are a physical site description, regional geology and hydrogeology, ground water and surface water use, a description of current and proposed future on-site land use, and an ecological impact evaluation.

2.1

PHYSICAL SITE DESCRIPTION

The site encompasses approximately 33 acres and is relatively flat. The site consists primarily of disturbed ground (e.g., unvegetated, used for equipment laydown/storage, regularly mowed). Approximately 15% of the site is covered by concrete pavement. The remainder of the site not covered by concrete pavement is covered with caliche gravel or crushed limestone that has been compacted by vehicular traffic. No perennial surface water features are present at the site. The site is triangular in shape, with two sides bounded by a chain-link fence bordering non- UPR property and the third side of the site bordered by UPR railroad tracks. Several railroad tracks and spurs are present on site.

2.2

REGIONAL GEOLOGY AND HYDROGEOLOGY

Based on a review of United States Geological Survey (USGS) information, the subsurface formations that supply water in the Harris County area are, from oldest to youngest: the Goliad Sand of Pliocene Age; the Willis Sand, the Bentley Formation, the Montgomery Formation, and the Beaumont Clay of Pleistocene Age; and Alluvium of Pleistocene and Recent Ages. These formations are grouped into two aquifer subdivisions, which are, from oldest to youngest, the Evangeline Aquifer and the Chicot Aquifer. The Evangeline Aquifer is composed of the Goliad Sand, Willis Sand, and Bentley Formation. The Chicot Aquifer is composed of the Montgomery and Beaumont formations.

2.2.1

Local Water Resources

The site overlies transmissive zones of the Chicot Aquifer. These zones yield small to moderate quantities of fresh water in Harris County. However, based on information from the City of Houston Water Production/Water Quality Division, local drinking water in this area of Harris County is obtained solely from Lake Houston or the Trinity River (communication with Mr. Chris VanWave, October 15, 1997).

2.2.2

Water Well Survey

A water well survey was conducted by Agency Information Consultants (AIC), Inc. in 1995 to identify water wells within one mile of the site. The survey was

completed by searching and reviewing records and maps on file at the Texas Water Development Board (TWDB) and the TNRCC. The results of the water well survey were provided in the Phase 1 RFI/EOC Investigation Report and are included in Appendix A of this APAR for completeness. Note that the magnitude of the water well survey (i.e., 1-mile radius search area) is greater than the ½-mile radius search required by 30 TAC §350.51.

The search indicated that there are no reported water wells within ½-mile of the site. However, between ½-mile and one mile of the site there are nine reported water wells (Table 2-1). Of these nine wells beyond ½-mile of the site, two are owned by the City of Houston (one screened from 1,142 to 1,969 feet below grade and the other screened from 641 to 1,279 feet below grade), six are owned by the Harris-Galveston Coastal Subsidence District for observation (screened from depths ranging from 283 to 2,119 feet below grade), and one was a privately-owned well which has been plugged and abandoned. No currently-used private water wells were noted in the searched area. One of the water wells owned by the City of Houston was identified as constructed for public water supply with no current known use (see Table 2-1). Although Table 2-1 shows this water well as a public supply well, the information obtained from the City of Houston Water Production/Water Quality Division (see Section 2.2.1) suggests that use of this well has been discontinued.

2.2.3 *Area Surface Water*

Based on a review of USGS topographic quadrangle maps and on reconnaissances performed on site and off site, no significant surface water bodies suitable for water supply, recreational, or industrial usage are located within one mile of the site.

2.3 ***LAND USE ON SITE AND IN THE SURROUNDING AREA***

The on-site land use is currently industrial and is anticipated to remain industrial in the future. The site is currently utilized for railroad storage and other railroad operations.

To the north and west the site is bordered by mixed residential and light industrial/commercial land use. UPR owns the adjoining property east and south of the site. This UPR property is used for heavy industrial purposes that include storage, railroad support operations, and an intermodal yard.

Based on the current and anticipated future on-site land use (i.e., primarily railroad support operations), the likely on-site human receptor is a commercial/industrial worker. Accordingly, potential contact with constituents in environmental media on site would be limited primarily to UPR's employees and subcontractors.

ECOLOGICAL EVALUATION

The TRRP Rule gives equal precedence to ecological risk and human health risk in the development of target cleanup levels. Thus, PCLs developed for an affected property are not only required to be protective of human health, but are also required to be protective of ecological receptors, if applicable. Therefore, an ecological evaluation is an important aspect of a property assessment.

An ecological evaluation is included as part of this APAR in accordance with 30 TAC §350.91(b)(7). This requirement states that the APAR should contain a completed Tier 1 Exclusion Criteria Checklist and a justification for terminating further ecological risk assessment, or a completed Tier 2 or 3 ecological risk assessment if such termination cannot be justified. The specific requirements relating to ecological risk assessment are contained in 30 TAC §350.77 (*Ecological Risk Assessment and Development of Ecological Protective Concentration Levels*).

The TRRP Rule's ecological evaluation process follows a three-tiered approach. Tier 1 (the Exclusion Criteria Checklist) is used to identify sites where current conditions preclude the need for a "formal" ecological risk assessment. For those sites meeting the exclusion criteria, it is concluded that incomplete or insignificant ecological exposure pathways exist due to the nature of the property setting and/or the condition of affected media.

Tier 2 is a screening-level ecological risk assessment (SLERA), which generally consists of: a) scientifically eliminating constituents that do not pose an ecological risk by comparing site concentrations to applicable ecological benchmarks; and b) developing ecological PCLs for constituents present at concentrations exceeding applicable ecological benchmarks by utilizing effects level and exposure factors from pertinent literature.

Tier 3 is a site-specific ecological risk assessment (SSERA), which allows for incorporation of data obtained from site-specific studies. This level of ecological risk assessment is designed to provide a more empirical evaluation of ecological risk at an affected property.

The completed Tier 1 Exclusion Criteria Checklist is presented in Appendix B. Based on the results of the Tier 1 evaluation, the exclusion criteria is met on site. Specifically, constituents of potential concern (COPCs) at the site are not an imminent threat to surface waters where ecological receptors could be impacted, and the property is not a valuable foraging area or valuable habitat for wildlife or livestock based on the fact that the property is wholly comprised of disturbed ground.

3.0

SOURCE AREA EVALUATION

This section identifies the on-site source areas investigated, including a description of exposure areas and a summary of site investigation and remediation activities completed to date.

3.1

IDENTIFICATION OF SOURCE AREAS

Based on the technical approach described in the RFI Work Plan and in Provision VIII of the RCRA Permit, the nine SWMUs and one AOC listed below were identified as potential on-site source areas (SWMU 2 and AOC 6 will be addressed in the off-site APAR). The locations of the SWMUs and AOCs are shown in Figure 3-1.

<u>SWMU/AOC No.</u>	<u>Description</u>
SWMU 4	Recent Process Area
SWMU 5	Original Process Area
SWMU 6	Water Treatment and Boiler System
SWMU 7	Tank Car Storage Tank Area
SWMU 8	Above-ground Storage Tank Area
SWMU 9	Location of the Former UST No. 44-023-05
SWMU 10	Location of the Former Sap Water Treatment Tank
SWMU 11	Oil/Water Separators
SWMU 12	Railroad Tie Storage Area
AOC 1	Diesel Storage Tank

For the purpose of RFI/EOC assessments, the site was grouped into the four investigation areas listed below. The locations of these four areas are shown in Figure 3-2.

<u>Area No.</u>	<u>Area Name</u>	<u>SWMU/AOC</u>
Area 1	Off-site Drainage Area	SWMU 2, AOC 6
Area 2	Tie Storage Area	SWMU 12
Area 3	Former Process Area	SWMUs 4 - 11, AOC 1
Area 4	Former Surface Impoundment	Closed Permitted Unit

Area 1 (SWMU 2 and AOC 6) will be addressed in the off-site APAR, which will be submitted under separate cover.

3.2 *DESCRIPTION OF SOURCE AREAS*

Areas 2, 3, and 4 (Section 3.1) represent the likely on-site source and exposure areas based on the current and potential future on-site and off-site land uses. The following sections describe the current characteristics of these areas and the historical operations conducted in these areas.

3.2.1 *Former Process Area*

The Former Process Area (FPA) consists generally of the Original and Recent Process Areas (SWMU 5 and SWMU 4, respectively), and encompasses a total of eight SWMUs and one AOC. In addition to process activities, the FPA housed a number of storage tanks (i.e., tank car storage, a diesel storage tank, an aboveground storage tank, a former underground storage tank, a sap water treatment tank and an oil/water separator unit). The FPA is covered with caliche gravel, crushed limestone and some concrete paved areas. The FPA is currently utilized for railroad storage and other railroad operations.

3.2.2 *Tie Storage Area*

The Tie Storage Area (TSA) contains one of the 10 SWMUs investigated in the RCRA RFI (i.e., SWMU 12). This SWMU was used for staging and storage of railroad ties. Some portions of the TSA have been paved and some areas are covered with caliche gravel and crushed limestone. The TSA is also currently utilized for railroad storage and other railroad operations.

3.2.3 *Surface Impoundment Area*

The Surface Impoundment Area (SIA) contains a closed RCRA-regulated surface impoundment that is approximately 180 feet long and 106 feet wide. The closed surface impoundment is secured with a fence. The SIA is bordered to the east and south by the HWPW site and to the north and west sides by non-UPR property. During closure, affected materials were excavated to an approximate depth of seven feet, the impoundment was backfilled with clean fill, and the backfill surface was vegetated. The SIA is currently a flat, grass-covered, vacant tract of land.

3.3 *SITE HISTORY*

The following table summarizes historical events and submittals relating to the RFI/EOC investigations.

<i>Date</i>	<i>Description</i>
May 13, 1991	RCRA Permit Application submitted
October 1993	RCRA Facility Assessment completed on behalf of U.S. EPA

<i>Date</i>	<i>Description</i>
	EPA
June 20, 1994	Permit No. HW-50343-000 and Compliance Plan CP-50343-000 issued by TNRCC
August 19, 1994	Operation and Maintenance Plan and Compliance Schedule submitted on behalf of SPTCo
September 7, 1994	Revised Compliance Schedule submitted on behalf of SPTCo
September 16, 1994	EOC Work Plan submitted on behalf of SPTCo
October 14, 1994	RFI Work Plan submitted on behalf of SPTCo
November 3, 1994	Revised Compliance Schedule approved by TNRCC
January 10, 1995	Operation and Maintenance Plan approved by TNRCC
September 29, 1995	EOC Work Plan approved by TNRCC
October 16, 1995	RFI Work Plan approved by TNRCC
May 23, 1996	Phase 1 RFI/EOC Report submitted on behalf of SPTCo
November 26, 1996	EOC portion of the Phase 1 RFI/EOC Investigation Report approved by TNRCC
January 13, 1997	RFI portion of the Phase 1 RFI/EOC Investigation Report approved by TNRCC
February 13, 1998	Phase 2-A RFI/EOC Investigation Report submitted to TNRCC on behalf of SPTCo
September 10, 1999	Phase 2-B RFI/EOC Investigation Report submitted to TNRCC on behalf of SPTCo
February 20, 2000	Letter submitted to the TNRCC regarding proposed Phase 2-C investigation for further delineation of off-site areas

NOTE: The above summary does not include routine activities such as Semiannual Ground Water Monitoring Reports.

3.4

CONSTITUENTS OF INTEREST FROM COMPLIANCE PLAN

Soil and ground water samples collected during investigation and/or routine monitoring activities were analyzed for the constituents of interest (COIs) listed in the Compliance Plan (Tables I and II). The COIs include volatile organic compounds (VOCs) analyzed by SW-846 Method 8260 and semivolatile organic compounds (SVOCs) analyzed by SW-846 Method 8270.

3.5

PREVIOUS ON-SITE REMEDIATION

From 1979 to 1984 the surface impoundment at the site received creosote-affected soils, sawdust and tank bottoms. In 1984, 5,065 cubic yards of affected materials were removed when the surface impoundment was excavated to a depth of approximately seven feet. The impoundment was subsequently backfilled with clean fill material, vegetated and closed.

A 3,700-gallon underground storage tank and ancillary was removed from service in January 1998 in accordance with TNRCC Petroleum Storage Tank Division requirements. The tank was filled with inert material and abandoned in-place.

4.0

SITE GEOLOGY, HYDROGEOLOGY AND SITE CONCEPTUAL MODEL

This section presents a discussion of the site geology and hydrogeology, including a summary of the data used to develop related conclusions. The methods and results of site-specific ground water classification are provided also. In addition, the site conceptual model is described herein.

4.1

DATA USED TO CHARACTERIZE THE GEOLOGY AND HYDROGEOLOGY

Data used to develop conclusions regarding site geology and hydrogeology were obtained during three phases of RFI/EOC investigations completed for the site. These investigations were completed using a phased approach. Each successive phase built upon the compendium of data collected during previous phases in order to meet the overall objectives of the RFI/EOC process. In general, each phase was focused to meet specific objectives of the RCRA Permit and Compliance Plan as well as to support future site cleanup decisions and closure.

A narrative from each of the three completed phases (i.e., Phase 1, Phase 2-A, and Phase 2-B) and the comprehensive results are provided in Appendix D. In summary, the following data have been collected and reviewed:

- CPT soundings for lithology and soil properties
- Rapid Optical Screening Tool (ROST) Laser-Induced Fluorescence (LIF) data
- Continuous soil core logging
- Soil screening information with UV light and OVM
- Soil analytical data (surface and subsurface)
- Soil leachate analytical data
- Soil geotechnical data
- Ground water grab samples (with a Hydropunch)
- Ground water samples from monitor wells
- Aquifer tests

The compendium of on-site analytical data used for this assessment include the following (not including QA/QC samples):

- 54 surface soil samples
- 83 subsurface soil samples

- 18 soil leachate samples
- 447 ground water samples, including 373 samples from the impoundment area collected pursuant to the Compliance Plan

4.2

SITE GEOLOGY

Using the results of Cone Penetrometer Testing (CPT) and hollow-stem auger drilling, the subsurface beneath the site has been characterized to a depth of approximately 75 feet below ground surface (bgs). As shown in geologic cross-sections (Figures 4-1 through 4-6), the subsurface is characterized by a series of low-permeability zones (i.e., cohesive soils) and transmissive zones (i.e., sands). The native cohesive and transmissive zones underlying the site have been designated alphabetically from shallowest to deepest. For example, the shallowest or uppermost transmissive zone is referred to as the A-Transmissive Zone or A-TZ.

From shallowest to deepest, the lithologic zones that have been identified under the site include fill material, the A-Cohesive Zone (A-CZ), the A-Transmissive Zone (A-TZ), the B-Cohesive Zone (B-CZ), the B-Transmissive Zone (B-TZ), the C-Cohesive Zone (C-CZ), the C-Transmissive Zone (C-TZ), and the D-Cohesive Zone (D-CZ). The general characteristics of each zone are described below.

Fill Material

Fill material is present from ground surface to an average depth of approximately 3 feet bgs. Visual observations of the fill material indicate that the fill is primarily a mixture of gravel, clay, construction debris, and railroad ties. The fill material is underlain by the A-CZ.

A-Cohesive Zone

The A-CZ ranges in thickness from 8 to 15 feet and was encountered in all the CPT soundings and borings. Based on lithologic descriptions from boring logs for MW-10A, MW-10B, and MW-11A, the A-CZ generally consists of gray silty clay. The silty clay is stiff to very stiff, laminated, moist, and contains indications of plant material, calcium carbonate, iron oxide nodules, roots, and sandy clay lenses. The A-CZ is underlain by the A-TZ.

A-Transmissive Zone

According to CPT soundings and boring log descriptions, the A-TZ is a continuous sandy layer present across the site. The A-TZ is thickest on the eastern portion of the property (approximately 10 feet thick), and gradually thins

from east to west (to less than 4 feet thick). Based on lithologic descriptions from boring logs for MW-10A, MW-10B, and MW-11A, the A-TZ consists of light greenish-gray to light gray sand and silty sand that is very fine-grained, wet, and contains plant material and approximately 10 to 25 percent clay. The A-TZ is underlain by the B-CZ.

B-Cohesive Zone

The B-CZ is a layer of cohesive soils (mostly clays, silty clays, sandy clays, and clayey silts) ranging in thickness from approximately 10 feet beneath the eastern portion of the site to 16 feet beneath the western portion of the site. The B-CZ was encountered in all the CPT soundings and Point of Compliance (POC) well nest borings. Based on the boring logs from the POC well nests (i.e., MW-10A/MW-10B and MW-11A/MW-11B), the B-CZ beneath the site is comprised of clay, silty clay, and sandy clay. It is mottled gray and reddish brown, very stiff to hard, and moist with a high plasticity. The unit also contains lenses of silty sand, and slickensides. The B-CZ is underlain by the B-TZ or the C-CZ (where the B-TZ is absent).

B-Transmissive Zone

The B-TZ is a sandy layer that underlies the B-CZ in the western portion of the site only, and is not present in the eastern portion of the site. Where present, the B-TZ is approximately 7 feet thick and is present at approximately 25 to 35 feet bgs. As shown in the POC boring logs, the B-TZ consists of silty sand and sand that is mottled brown and gray, very fine-grained, and very dense in consistency. Where present, the B-TZ is underlain by the C-CZ.

C-Cohesive Zone

The C-CZ is a layer of cohesive soils (primarily) that underlie the B-TZ to the west and the B-CZ to the east. The C-CZ is approximately 8 feet thick. Based on boring logs from MW-12C and MW-18C, the C-CZ consists of silt and clayey silt that is reddish brown, firm in consistency, has low plasticity, and contains minor amounts of sand. The C-CZ is underlain by the C-TZ.

C-Transmissive Zone

The C-TZ is a silty sand layer 7 feet thick that underlies the C-CZ at an approximate depth of 65 to 66 feet bgs. Based on the boring logs from MW-12C and MW-18C, the C-TZ consists of silty sand that is reddish brown, and very fine-grained. The C-TZ overlies reddish brown clay. The underlying clay has been designated the D-CZ. As of completion of the Phase 2-B activities, only the upper 2 feet of the D-CZ has been characterized.

4.3

SITE HYDROGEOLOGY

4.3.1

Aquifer Slug Test Results

Aquifer slug tests were performed on 10 monitor wells in May 1997. The slug tests data were analyzed using the Bouwer and Rice method (Bouwer and Rice, 1976) and the calculations are included in the Phase 2-A RFI/EOC Investigation Report. The results of the calculations are summarized below.

Monitor Well ID	Transmissive Zone Screened	Hydraulic Conductivity (cm/sec)
MW-10A	A-TZ	4.2×10^{-4}
MW-10B	B-TZ	5.3×10^{-5}
MW-12A	A-TZ	3.1×10^{-3}
MW-12B	B-TZ	3.7×10^{-3}
MW-13	A-TZ	7.9×10^{-4}
MW-14 [B]	B-TZ	1.2×10^{-4}
MW-15	A-TZ	6.9×10^{-4}
MW-16	A-TZ	4.5×10^{-4}
MW-17	A-TZ	2.8×10^{-4}
MW-18	A-TZ	1.3×10^{-3}

Based on the slug test data gathered from seven monitor wells screened in the A-TZ, the hydraulic conductivity of the A-TZ ranges from 2.8×10^{-4} to 3.1×10^{-3} cm/sec, with an average conductivity of 7.0×10^{-3} cm/sec (2.8 ft/day) and a geometric mean of 7.6×10^{-4} cm/sec. Based on the slug test data gathered from three monitor wells screened in the B-TZ, the hydraulic conductivity of the B-TZ ranges from 5.3×10^{-5} to 3.7×10^{-3} cm/sec, with an average conductivity of 1.2×10^{-3} cm/sec (3.7 ft/day) and a geometric mean of 2.8×10^{-4} cm/sec. No slug tests have been performed on the C-TZ.

4.3.2

Horizontal Ground Water Flow

Ground water elevations were measured from each monitor well on September 25, 1997 and November 23, 1998 to help assess ground water flow direction and gradient. Potentiometric surface contour maps for the A-TZ, B-TZ and C-TZ are provided in Figures 4-7 through 4-9 and Figures 4-10 through 4-12 for the 1997 and 1998 events, respectively. Additional ground water elevation measurements for the A-TZ, B-TZ, and C-TZ for January 1997 through December 1999 are summarized in Table 4-1. The potentiometric surface maps show that, in general, there appears to be little seasonal variability in flow direction for the three transmissive zones.

Based on interpretation of the contour maps for both the A-TZ and B-TZ, ground water appears to flow radially away from a relative ground water high in the southwest corner of the TSA. The horizontal hydraulic gradient in this area for both the September 1997 and November 1998 events was approximately 0.001 ft/ft in both the A-TZ and the B-TZ. Based on the horizontal gradient and the hydraulic conductivity described in Section 4.3.1 above, the calculated Darcian ground water velocity is approximately 0.8 ft/yr in the A-TZ and approximately 0.3 ft/yr in the B-TZ.

Based on interpretation of the C-TZ contour map, ground water in this zone flows toward the west-southwest with a horizontal hydraulic gradient of approximately 0.003 ft/ft. The hydraulic conductivity of this zone has not been determined, so no Darcian ground water velocity was calculated.

4.3.3

Vertical Ground Water Flow

Monitor well nests have been constructed at five locations at the site. The well nests consist of two or three monitor wells that are located as near as practical to each other (i.e., less than 10 feet apart) but are screened in separate transmissive zones. The well nest locations, screened intervals, and ground water elevations measured on September 25, 1997 and November 23, 1998 are summarized below:

Tie Storage Area

<i>Monitor Well No.</i>	<i>Transmissive Zone Screened</i>	<i>Ground Water Elevation Data 9/25/97</i>	<i>Ground Water Elevation Data 11/23/98</i>
MW-12A	A-TZ	41.88 ft MSL	43.95 ft MSL
MW-12B	B-TZ	41.70 ft MSL	43.91 ft MSL
MW-12C	C-TZ	13.44 ft MSL	22.03 ft MSL

Closed Surface Impoundment

<i>Monitor Well No.</i>	<i>Transmissive Zone Screened</i>	<i>Ground Water Elevation Data 9/25/97</i>	<i>Ground Water Elevation Data 11/23/98</i>
MW-10A	A-TZ	41.43 ft MSL	43.78 ft MSL
MW-10B	B-TZ	41.28 ft MSL	43.72 ft MSL
MW-11A	A-TZ	41.34 ft MSL	43.63 ft MSL
MW-11B	B-TZ	41.23 ft MSL	43.87 ft MSL

Former Process Areas

Monitor Well No.	Transmissive Zone Screened	Ground Water	Ground Water
		Elevation Data 9/25/97	Elevation Data 11/23/98
MW-15A	A-TZ	40.66 ft MSL	41.95 ft MSL
MW-15C	C-TZ	16.24 ft MSL	23.51 ft MSL
MW-18A	A-TZ	36.42 ft MSL	35.31 ft MSL
MW-18C	C-TZ	19.94 ft MSL	25.26 ft MSL

At each location where the A-TZ and B-TZ are screened, the measured ground water elevations for the two zones are within one foot of each other.

Additionally, the horizontal flow direction and gradient for the two zones are similar. The A-TZ and B-TZ are separated by approximately five feet of clay with interlaminated silty and/or sandy seams. These observations suggest that the A-TZ and B-TZ have substantial hydraulic communication.

Based on the measured ground water elevations, the vertical hydraulic gradient between the A-TZ/B-TZ and the C-TZ appears to be downward. The C-TZ is overlain by 25 to 40 feet of clay, and the potentiometric surface of the C-TZ is an average of 22 feet lower than the A-TZ or B-TZ.

4.4

SHALLOW GROUND WATER CLASSIFICATION

In 30 TAC §350.52, the TRRP Rule sets forth the ground water resource classification system that is used to classify ground water-bearing units at sites that are seeking closure under the TRRP. The classification system is a three-tiered system (i.e., Class 1, 2 and 3), with Class 3 being the least valuable ground water resource of the three classes and Class 1 being the most valuable.

In order to classify a ground water-bearing zone at a site, information on the location and uses of water wells within the vicinity of the site is required. In addition, information regarding the total dissolved solids (TDS) content and ground water production rate (i.e., yield) for the zone is required.

A water well survey (Appendix A) was conducted for the site to investigate the locations and apparent uses of water wells within a one-mile radius of the site. A summary of the results of the water well search was provided in Section 2.2.2 herein. Based on the results of the water well survey, there are no reported wells located within ½ mile of the site which: a) are completed in the shallow ground water-bearing units underlying the site; and b) are used to supply ground water for human consumption, agricultural purposes or any purposes that could result in exposure to human and/or ecological receptors.

The water production rates for the two shallow ground water transmissive zones with hydraulic conductivity data (i.e., the A-TZ and B-TZ) were determined by application of the Theis Method. Individual yield estimates were generated for eight A-TZ wells and three B-TZ wells. The calculations for these estimates are provided in Appendix C. The typical yields for the two zones (based on rounded arithmetic means) are on the order of:

A-TZ	400 gal/day
B-TZ	500 gal/day

A total of 90 total dissolved solids (TDS) analyses have been performed for the three ground water transmissive zones. The range of reported TDS concentrations are as follows:

A-TZ	294 mg/L	-	1,480 mg/L
B-TZ	580 mg/L	-	1,310 mg/L
C-TZ	705 mg/L	-	1,566 mg/L

Based on the information presented above, the shallow ground water transmissive zones beneath the site meet the criteria for class 2 ground water-bearing units. That is, the shallow ground water transmissive zones at the site are capable of producing waters with a naturally occurring TDS content less than 10,000 mg/L, at a sustainable rate between 150 and 14,400 gallons per day, and the ground water-bearing units are neither used as a sole source of public drinking water, nor penetrated by public drinking water supply wells within ½ mile of the site.

4.5

DESCRIPTION OF SITE CONCEPTUAL MODEL

The development of the site conceptual model was based on a review of Figures 4-1 through 4-6 as well as the data presented in the previous RFI/EOC reports.

Former Process Area

An interpretation of the laboratory analytical and ROST data indicate that, in general, the soil in FPA is affected to depths coincident with the C-CZ. In the central portion of the FPA, the soil is affected to a depth of approximately 50 feet bgs. In this portion of the FPA, the reported COI concentrations generally increase with depth to approximately 35-40 feet bgs and then decrease with depth to generally non-detect levels at 50 feet bgs or greater. However, the soil near the northeast portion of the FPA appears to be affected only to approximately 30 feet bgs. Based on a review of the limited soil sample data for samples collected from the D-CZ, it appears that the D-CZ is not impacted by COIs in the FPA.

Several soil samples were collected for analysis by the Synthetic Precipitation Leaching Procedure (SPLP) to assess the potential leachability of constituents in soil. The results of the SPLP analyses indicate that several of the COIs could leach at concentrations greater than default standards under the TRRP Rule. However, a direct correlation between the reported COI concentrations and SPLP concentrations was not observed. The ground water in both the A-TZ and C-TZ is affected in the FPA. However, the reported COI concentrations for ground water samples collected from the C-TZ are generally less than samples collected from the A-TZ. This observed data trend and the non-detect results for soil samples collected from the D-CZ indicate that the extent of affected media has been vertically delineated in the FPA.

Tie Storage Area

A review of the site data indicates that the depth of affected soils in the TSA extends from the surface soil into the B-CZ. There are some ROST data that suggest affected soil may extend into the C-CZ on the eastern portion of the area, near the FPA. The reported soil analytical data from this location indicates that the COIs were not detected at concentrations greater than the limit of quantitation for the sample collected at 49 feet bgs. The soil samples collected from the southeastern portion of the TSA generally have higher reported concentrations of the COIs than the remainder of the TSA, but in general, the reported COI concentrations for soil samples collected in the TSA decrease with depth.

The results of the SPLP analyses indicate that benzene could leach from the soil at a concentration greater than default standards under the TRRP Rule.

Ground water in the A-TZ and B-TZ is affected in the TSA. The reported concentrations for ground water samples collected from these two transmissive zones within the TSA are relatively similar (on an order of magnitude comparison basis).

The general decreasing trend with depth for the reported COI concentrations in soil and ground water and the non-detect results for soil samples collected from the C-CZ indicate that the vertical extent of affected media in the TSA has been delineated.

Surface Impoundment Area

Due to previous remedial efforts in the SIA, the surface soil is not impacted in this area. The subsurface soil samples collected from the B-TZ on the western portion of the SIA indicate reportable concentrations of several constituents. Based on a review of the limited soil sample data for samples collected in the SIA from the C-CZ and the D-CZ, it appears that these two cohesive zones are not impacted by COIs in the SIA.

Ground water in the A-TZ and B-TZ is affected in the SIA. The reported concentrations for ground water samples collected from these two transmissive zones within the SIA are relatively similar (on an order of magnitude comparison basis).

The general decreasing trend with depth for the reported COI concentrations in soil and ground water and the non-detect results for soil samples collected from the C-CZ indicate that the vertical extent of affected media in the SIA has been delineated.

DEVELOPMENT OF PROTECTIVE CONCENTRATION LEVELS

The TRRP Rule utilizes performance-based remedy standards for responding to areas of soil, ground water, and other environmental media containing COPCs exceeding PCLs at an affected property. A PCL is defined as the concentration of a constituent of concern which can remain within a source medium and not result in levels which exceed the applicable human health risk-based exposure limit (RBEL) or ecological PCL at the point of exposure (POE). PCLs are developed based on a consideration of potential human and ecological exposures. The development of PCLs is based on a three-tiered approach (i.e., Tier 1, 2 and 3).

The TRRP Rule requires that COPC concentrations in affected media be compared to critical PCLs. The critical PCL is the lowest derived PCL for a COPC within a source medium determined based on applicable human health and ecological exposure pathways. The lateral and vertical extent of all affected media which contain COPCs above the critical PCL for that medium defines the protective concentration level exceedance (PCLE) zone. In other words, a PCLE zone can be regarded as the volume of affected media that requires corrective action.

HUMAN HEALTH THREE-TIERED APPROACH

For human receptors, Tier 1, which is the most conservative of the three tiers, is a risk-based analysis used to derive *non-site-specific* PCLs for complete or reasonably anticipated to be complete exposure pathways. Tier 1 PCLs are based on default exposure factors and assumptions, which do not take into consideration lateral transport, except for the protection of off-site receptors for on-site commercial/industrial exposure scenarios.

Tier 2 is a risk-based analysis used to derive *site-specific* PCLs for complete or reasonably-anticipated-to-be-complete exposure pathways. Tier 2 utilizes site-specific exposure factors, as allowable, and may also include lateral transport considerations. Tier 2 allows many of the conservative Tier 1 default assumptions to be replaced with site-specific information to derive more appropriate PCLs.

Tier 3 is the least conservative of the three tiers and also utilizes a risk-based approach. Tier 3 provides the flexibility to calculate PCLs based on models or other procedures not included in Tiers 1 or 2. Tier 3 is intended to be more representative of site conditions than Tiers 1 or 2. Measured natural attenuation factors and/or natural attenuation factor models/equations other than those provided for Tiers 1 and 2, site-specific exposure factors, as allowable, and/or affected property parameters may be used in establishing Tier 3 PCLs.

IDENTIFICATION OF COMPLETE EXPOSURE PATHWAYS

Subchapter D, *Development of Protective Concentration Levels*, (30 TAC §350.71-§350.79) of the TRRP Rule states that PCLs shall be developed that are protective of human health and the environment based on the appropriate land use for the affected property. The TRRP Rule also states that the PCLs should be developed based on the assumption that a resident is the human receptor for a residential property and that a commercial/industrial worker is the human receptor for a commercial/industrial property. This section of the TRRP Rule also identifies specific exposure pathways that will be evaluated for an affected property. Based on the site-specific conditions present and environmental media impacted, the following on-site exposure pathways were identified in accordance with TRRP Rule requirements for quantitative evaluation of the site:

- On-site ingestion of Class 2 ground water (commercial/industrial);
- On-site inhalation of volatile emissions in outdoor air from constituents in shallow ground water (commercial/industrial);
- On-site direct contact (i.e., combined ingestion, dermal and inhalation exposures) with surface soil (commercial/industrial);
- On-site inhalation of volatile emissions from constituents in subsurface soil (commercial/industrial);
- Leaching of constituents in surface soil to ground water (commercial/industrial);
- Leaching of constituents in subsurface soil to ground water (commercial/industrial); and
- Inhalation of volatiles and particulate emissions from constituents in surface soil by off-site residents (residential).

In fact, some of these pathways are not complete at the site (e.g., ingestion of ground water), but assessment assuming the complete pathway is performed in accordance with TRRP Rule requirements.

For evaluation of the ground water ingestion pathway, the TRRP Rule (30 TAC §350.37) requires that for commercial/industrial on-site properties an additional on-site point of exposure (POE) be established. The additional POE will be set for ground water for residents unless the residential-based ground water PCLE zone already extends off site. Since the residential-based ground water PCLE zone for HWPW potentially exists off site, the additional on-site POE for residents was not established. The on-site POE for ground water ingestion was

assumed to be throughout the on-site PCLE zone. In addition, an off-site ground water POE for residents was not established since a separate APAR for off-site areas will be completed which will address ingestion of ground water off site assuming residential receptors.

Other pathways for which PCLs were not developed include surface water and ecological receptors. Surface water PCLs were not developed because no surface water bodies were noted to be located in close proximity to the affected property. The surface water pathway was, therefore, considered to be incomplete. No ecological PCLs were developed because the exclusion criteria were met on site.

5.3 *IDENTIFICATION OF APPLICABLE TIER 1 PCLs*

As an initial assessment step, the TRRP Rule's Tier 1 default PCLs for commercial/industrial land use were used. These Tier 1 PCLs should not be considered as the target cleanup levels for the site, but as a means of establishing on-site areas that may require corrective measures. If corrective measure(s) are required for affected media, target cleanup goals will be derived taking into consideration the remedy to be implemented (e.g., plume management zone), and will be provided in a Response Action Plan (RAP).

5.3.1 *Surface Soil PCLs*

For the surface soil evaluation, the TRRP's Tier 1 commercial/industrial PCLs for direct contact ($^{Tot}Soil_{Comb}$) and ground water protection ($^{GW}Soil$) were used to evaluate the on-site direct contact and leaching to shallow ground water exposure pathways, respectively. In addition, Tier 1 residential PCLs for inhalation of volatile and particulate emissions ($^{Air}Soil_{Inh-vp}$) were used to assess potential exposure of nearby off-site residents to volatile constituents in surface soil.

Tier 1 commercial/industrial $^{Tot}Soil_{Comb}$ and $^{GW}Soil$ PCLs are listed in Table 5-1 for each COI. Table 5-1 also includes the critical PCL (i.e., the lowest of the applicable PCLs) for each COI. Note that the Tier 1 residential PCLs used for the evaluation of exposure to off-site residents do not take into consideration lateral transport of constituents in air to downgradient, off-site receptors. Therefore, exceedances of this residential PCL would not necessarily indicate that an actual risk to off-site residents exists (since these PCLs conservatively assume that the residential receptor is located directly above the affected area).

5.3.2 *Subsurface Soil PCLs*

For the subsurface soil evaluation, the Tier 1 commercial/industrial PCLs for ground water protection (^{GW}Soil) were used to assess the potential for constituents in subsurface soil to leach to shallow ground water. In addition, the Tier 1 commercial/industrial subsurface soil-to-air PCLs (^{Air}Soil_{Inh.v}) were used to assess the potential for on-site inhalation of volatile organics contained in subsurface soil. The Tier 1 PCLs for subsurface soil exposure pathways, including critical PCLs, are tabulated in Table 5-2.

5.3.3 *Ground Water PCLs*

For the evaluation of ground water, the Tier 1 ground water PCLs for commercial/industrial exposure were used. The Tier 1 ground water PCLs for ingestion of ground water (^{GW}GW_{Ing}) and inhalation of ground water constituents transported to outdoor air (^{Air}GW_{Inh.v}) are tabulated in Table 5-3. This table also identifies the critical ground water PCLs.

SOIL EVALUATION

This section presents the results of the soil evaluation completed for the three on-site exposure areas, including a comparison to critical PCLs. As previously indicated in Section 3.2 (relating to source areas), three on-site soil exposure areas were identified based upon historical use and surface conditions of the property.

Two of these exposure areas (i.e., the FPA and TSA) exceed the TRRP's default soil exposure size for commercial/industrial properties (i.e., ½ acre). The SIA is approximately 0.44 acre and therefore meets the TNRCC ½ acre default exposure size. According to 30 TAC §350.51(1)(4), the soil exposure area for commercial/ industrial properties shall not exceed ½ acre unless it can be demonstrated that a larger area is appropriate. The TRRP Rule allows a larger exposure area if it can be demonstrated that activity patterns at an active facility support the use of an alternate exposure area based on the smallest area over which an individual is anticipated to move randomly.

In addition, the TRRP Rule allows the use of a larger exposure area when the constituents present at a site are shown to be relatively homogenous over an area larger than ½ acre. If an area larger than ½ acre is approved by the TNRCC based on activity patterns, an institutional control is required to document the assumed exposure area for commercial/industrial workers. However, if a larger area is approved by the TNRCC based on the relative homogeneity of the constituents in soil, an institutional control is not required.

If an exposure area larger than ½ acre is approved by the TNRCC then concentrations for constituents may be averaged over the larger area. Otherwise the maximum concentrations must be used.

A review of the analytical data for these three exposure areas shows that the constituent concentrations present in soil are relatively homogenous within each exposure area. This is likely due to the fact that site historical activities were consistent within each area. Based on these facts, it was concluded that the FPA and TSA meet both of the requirements for use of an exposure area larger than ½ acre (i.e., activity pattern and homogeneity of constituents in soil). Therefore, a larger exposure area (i.e., greater than ½ acre) was assumed for each of these two areas. Note that the third exposure area (SIA) is approximately 0.44 acres and meets the TRRP's ½-acre default exposure area for commercial/industrial properties. Since the FPA and TSA meet the homogeneity TRRP requirement, institutional controls are not proposed for the purpose of exposure in these areas.

6.1 DATA EVALUATION AND SCREENING

6.1.1 Data Evaluation

Prior to characterizing site risk, the available on-site data for soil were reviewed in accordance with the TRRP Rule's data quality and reporting requirements. Data evaluation was performed to identify any significant deficiencies that could impact data usability in characterizing the site, and to support an evaluation of potential risk to human health and the environment.

Data acquisition and reporting requirements are set forth in 30 TAC §350.54 (*Data Acquisition and Reporting Requirements*). This section requires that documentation of the quality of the data be submitted to the TNRCC along with the data. Therefore, a data quality evaluation was performed for the on-site data and the results are summarized in Appendix E.

6.1.2 Data Screening

A data screening process was performed for the available soil data to assess which constituents could be appropriately eliminated from further consideration in the risk evaluation. Data screening was considered applicable in order to distinguish between constituents that are reasonably anticipated to be associated with site activities and those constituents that are not, and to focus the assessment on those constituents that would have the greatest impact on the overall site risk. In 30 TAC §350.71(k)(1-3), the TRRP Rule presents criteria whereby constituents can be eliminated from further evaluation. A number of these data screening techniques were utilized in this assessment to facilitate the identification of soil COPCs for the site.

In order to facilitate the data evaluation and screening process, Tables 6-1 and 6-2 summarize the on-site soil analytical data, including the following:

- the total number of samples collected for each constituent;
- the number of samples in which constituents were detected above quantitation limits;
- the frequency of detection;
- concentration ranges reported above quantitation limits; and
- the location of the maximum concentrations for each detected constituent.

The on-site soil data were divided laterally into the three on-site investigation areas (discussed in Section 3.2), and vertically into two depths: surface and subsurface. Surface soil is defined as the soil zone extending from the ground

surface to 5 feet bgs, and subsurface soil is defined as the portion of the soil zone extending from 5 feet bgs to the top of the C-TZ).

The data screening evaluation was performed separately for detected and non-detected constituents. Constituents that were not detected in any soil samples were evaluated separately in an uncertainty analysis provided in Appendix F. Tables 6-1 and 6-2 identify the soil COPCs that were evaluated in the uncertainty analyses. For constituents that were detected in at least one sample in an environmental medium, the following data screening techniques were considered:

- A constituent was eliminated if all the reported concentrations and sample quantitation limit(s) (SQLs) are less than the residential Tier 1 critical PCL for the environmental medium.
- A constituent was eliminated from further consideration if 20 or more representative samples were analyzed for the constituent in an environmental medium, the constituent was detected in less than 5% of the 20 (or more) samples, and the constituent was considered to be non-site related based on source area information, historical operations, and the characteristics of the constituent with respect to potential companion and daughter product relationships.
- A constituent was eliminated if the constituent is a common laboratory contaminant (e.g., dichloromethane), the concentration reported in each sample does not exceed 10 times the maximum amount detected in any associated blank, and the constituent is not anticipated to be present based on knowledge of historical operations including consideration of companion and daughter products.
- A constituent was eliminated if it is not considered to be a common laboratory contaminant, the concentrations of the constituent in all samples for a particular medium are less than five times the maximum amount detected in any associated blank, and the constituent is not anticipated to be present based on knowledge of historical operations including consideration of companion and daughter products.

Constituents that did not have available Tier 1 residential PCLs were selected for further evaluation. The results of the data screening for soil are presented in Section 6.2.

6.2

IDENTIFICATION OF SOIL COPCs

This section presents the data screening results for site soil based on the three exposure areas.

Surface Soil COPCs

Table 6-1 presents the surface soil data evaluation and screening results for the FPA and TSA, including the rationale for screening constituents in (i.e., retaining them for further evaluation) or out (i.e., excluding them from further evaluation). The surface soil data were compared to two residential PCLs, and the two comparisons are referenced in Table 6-1 as *screen #1* and *screen #2*. Detected constituents were retained as surface soil COPCs if the maximum reported concentration or maximum reporting limit was above either the residential soil ground water protection value ($^{GW}Soil$) or the residential soil protection value for direct contact exposure pathways ($^{Tot}Soil_{Comb}$). The *Final Screen Result* listed in Table 6-1 indicates if a constituent was *screened in* for either exceedance.

Constituents that were not detected in any surface samples were retained as surface soil COPCs for further evaluation in an uncertainty analysis (Appendix F) if the constituent's maximum reporting limit was above either of the Tier 1 residential screening criteria in Table 6-1 ($^{GW}Soil$ or $^{Tot}Soil_{Comb}$). Due to the large database and well-documented analytical data, further evaluation of these non-detect constituents as potential COPCs is warranted before carrying them through the same quantitative risk evaluation as those COPCs actually detected above the screening standards. The elements of the additional evaluation for non-detect constituents are consistent with TRRP Rule guidance and are identified in Appendix F. The *Final Screen Result* listed in Table 6-1 for these constituents is described in the uncertainty analysis.

The following subsections identify the COPCs identified for the exposure areas, distinguishing the detected constituents from the non-detect constituents.

Former Process Area

Of the 34 constituents analyzed in surface samples collected in the FPA, 16 constituents were detected in one or more surface soil samples. The frequency of detection for constituents ranged from 23.1% to 82.6%. Based on the data screening evaluation, the following 12 constituents were identified as surface soil COPCs for quantitative evaluation for the FPA:

2-Methylnaphthalene	Ethylbenzene
Acenaphthene	Fluoranthene
Benzene	Fluorene
Benzo(a)anthracene	Naphthalene
Benzo(a)pyrene	Phenanthrene
Dibenzofuran	Pyrene

The following 15 constituents were not detected in surface soil samples, but were identified for further evaluation as COPCs in an uncertainty analysis due to the reporting limits in excess of screening criteria:

1,2-Dichloroethane	Bis(2-ethylhexyl)phthalate
1,2-Diphenylhydrazine	Chlorobenzene
2,4-Dimethylphenol	Dichloromethane
2,4-Dinitrotoluene	N-Nitrosodiphenylamine
2,6-Dinitrotoluene	Nitrobenzene
4,6-Dinitro-o-cresol	Pentachlorophenol
4-Nitrophenol	Phenol
Bis(2-chloroethoxy)methane	

Tie Storage Area

Of the 34 constituents analyzed for in surface samples collected in the TSA, 16 constituents were detected in one or more samples. The frequency of detection for the detected constituents ranged from 3.2% to 61.3%. Based on the data screening evaluation, the following four constituents were identified as surface soil COPCs for quantitative evaluation for the TSA:

Benzo(a)anthracene	Dibenzofuran
Benzo(a)pyrene	Naphthalene

The following 10 constituents were not detected in surface soil samples, but were identified for further evaluation as COPCs in an uncertainty analysis due to the reporting limits in excess of screening criteria:

1,2-Diphenylhydrazine	4-Nitrophenol
2,4-Dimethylphenol	Bis(2-chloroethoxy)methane
2,4-Dinitrotoluene	N-Nitrosodiphenylamine
2,6-Dinitrotoluene	Nitrobenzene
4,6-Dinitro-o-cresol	Pentachlorophenol

Surface Impoundment Area

No COPCs were identified for the closed surface impoundment surface soils since soils to a depth of approximately seven feet were previously removed as part of the closure of the impoundment.

6.2.2

Subsurface Soil COPCs

Table 6-2 presents the subsurface soil data evaluation and screening results for the three exposure areas. Detected constituents were retained as subsurface soil COPCs for the FPA if the constituent's maximum reported concentration or

maximum reporting limit was above the residential soil ground water protection value (^{GW}Soil).

As previously identified for surface soil, constituents that were not detected in one or more subsurface samples were retained as COPCs for further evaluation in an uncertainty analysis if the constituent's maximum reporting limit was above the Tier 1 residential screening criteria in Table 6-2. The elements of the additional evaluation for non-detect constituents are consistent with TRRP Rule guidance and are identified in Appendix F. The *Final Screen Result* listed in Table 6-2 for these constituents is described in the uncertainty analysis.

The following subsections identify the subsurface soil COPCs identified for the exposure areas, distinguishing the detected constituents from the non-detect constituents.

Former Process Area

Of the 34 constituents analyzed, 21 constituents were detected in one or more subsurface soil samples. The frequency of detection for the constituents ranged from 2.9% to 68.6%. Dichloromethane was detected in three samples ranging from 0.006 mg/kg to 0.011 mg/kg. Dichloromethane is a common laboratory artifact and is neither associated with the historical use of the property nor a companion or daughter product of a parent COPC. In addition, the maximum reported concentration for dichloromethane is less than 10 times its practical quantitation limit (0.005 mg/kg). Therefore, dichloromethane was screened out from further evaluation. In addition, 1,2 -Dichloroethane was screened out based on the detection frequency less than 5% criterion and based on the fact that it is not likely to be present at the site. Based on the data screening evaluation, the following 19 constituents were identified as subsurface soil COPCs for quantitative evaluation for the FPA:

2,4-Dimethylphenol	Ethylbenzene
2-Methylnaphthalene	Fluoranthene
Acenaphthene	Fluorene
Acenaphthylene	Naphthalene
Benzene	Phenanthrene
Benzo(a)anthracene	Phenol
Benzo(a)pyrene	Pyrene
Chrysene	Toluene
Dibenzofuran	Xylenes

The following 13 constituents were not detected in subsurface soil samples, but were identified for further evaluation as COPCs in an uncertainty analysis due to the reporting limits in excess of screening criteria:

1,2-Diphenylhydrazine	Bis(2-ethylhexyl)phthalate
2,4-Dinitrotoluene	Chlorobenzene
2,6-Dinitrotoluene	Di-n-butyl phthalate
2-Chloronaphthalene	Nitrobenzene
4,6-Dinitro-o-cresol	N-Nitrosodiphenylamine
4-Nitrophenol	Pentachlorophenol
Bis(2-chloroethoxy)methane	

Tie Storage Area

Of the 34 constituents analyzed, 15 constituents were reported as detected in one or more subsurface soil samples. The frequency of detections ranged from 3.4% to 17.2 %. Based on the data screening evaluation, the following three constituents were identified as subsurface soil COPCs for quantitative evaluation for the TSA:

Benzo(a)pyrene	Naphthalene
Dibenzofuran	

The following 10 constituents were not detected in one or more subsurface soil samples, but were identified for further evaluation as COPCs in an uncertainty analysis due to the reporting limits in excess of screening criteria:

1,2-Diphenylhydrazine	4-Nitrophenol
2,4-Dimethylphenol	Bis(2-chloroethoxy)methane
2,4-Dinitrotoluene	N-Nitrosodiphenylamine
2,6-Dinitrotoluene	Nitrobenzene
4,6-Dinitro-o-cresol	Pentachlorophenol

Surface Impoundment Area

Eleven constituents were reported as detected above reporting limits in the SIA. The majority of the constituents were only detected in one out of 14 samples collected (i.e., a frequency of 7.1%). Of the 11 constituents detected, only one constituent (toluene) was detected above a frequency of 7.1%. Toluene was reported as detected in 11 out of 14 subsurface samples analyzed, but was screened out from further evaluation due to the fact that all reported concentrations were below applicable Tier 1 PCLs. Based on the data screening evaluation, the following two constituents were identified as subsurface soil COPCs for the quantitative evaluation for the SIA:

Benzene	Dibenzofuran
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The following eight constituents were not detected in any subsurface soil samples, but were identified for further evaluation as COPCs in an uncertainty analysis due to the reporting limits in excess of screening criteria:

1,2-Diphenylhydrazine	4-Nitrophenol
2,4-Dinitrotoluene	Bis(2-chloroethoxy)methane
2,6-Dinitrotoluene	Nitrobenzene
4,6-Dinitro-o-cresol	Pentachlorophenol

6.3 *DETERMINATION OF SOIL EPCs*

Exposure point concentrations (EPCs) for surface and subsurface soil samples were determined for each COPC that remained after the data evaluation and screening process described in Section 6.2.2.

6.3.1 *Surface and Subsurface Soil EPCs*

EPCs for the surface soil samples were determined for two of the three on-site exposure areas: FPA and TSA. No surface soil EPCs were determined for the SIA because soils were previously excavated (as part of the post-closure requirements) to an approximate depth of seven feet bgs. EPCs for the subsurface soil samples were determined for all three on-site exposure areas: FPA, TSA, and SIA.

The following is an outline of the two general approaches for the EPC determinations for surface and subsurface soils:

- The higher of the maximum detected concentration or reporting limit was selected as the EPC when a constituent was detected only once or twice in the samples analyzed within an exposure area.
- If a constituent was detected in three or more samples then the log-probit method was used to estimate replacements for the non-detected values and a one-sided 95% Upper Confidence Limit (UCL) of the mean was used to estimate the EPC. The log-probit method was selected to address non-detected results because the data sets for all COPCs contained more than 15% non-detects. Substitution methods for addressing non-detects are not preferable for such highly censored data sets (U.S. EPA, 1996). Appendix G presents a discussion of the log-probit method used in the calculation of 95% UCLs. Appendices H-1 through H-4 present supporting documentation for EPC calculations by exposure area for surface and subsurface soil COPCs.

The results of the EPC determinations for surface soil are presented in Tables 6-3 and 6-4 and results for subsurface soils are presented in Tables 6-5, 6-6, and 6-7.

6.3.2 *SPLP EPCs*

Exposure point concentrations for SPLP results were determined for each COPC in the FPA and TSA. No SPLP analyses have been performed for samples collected in the SIA. The following is the approach for the EPC determinations for SPLP samples:

- The higher of the maximum detected concentration or reporting limit was selected as the EPC for detected soil COPCs within an exposure area.

A statistical approach was not used for estimating SPLP EPCs. The results of the EPC determinations for SPLP samples are presented in Tables 6-8 and 6-9 for the FPA and TSA, respectively.

6.4 *COMPARISON TO SOIL PCLs*

6.4.1 *Former Process Area*

Table 6-10 presents the comparison of the FPA surface and subsurface soil COPC concentrations to Tier 1 surface and subsurface soil PCLs, respectively. In addition, Table 6-10 presents the comparison of surface soil concentrations to residential Tier 1 inhalation of volatile and particulate emissions from surface soil PCLs. Three COPCs in surface soil (i.e., benzo(a)anthracene, benzo(a)pyrene, and naphthalene) are above their respective direct contact and ground water protection PCLs. Phenanthrene is slightly above its ground water protection PCL only.

The FPA surface soil evaluation results also show that only one detected constituent (naphthalene) exceeds the residential Tier 1 surface soil-to-air PCL. It should be noted that this exceedance does not necessarily mean that an actual risk exists for residential receptors since the PCLs used in this evaluation are based on the assumption that the residential receptor is located directly above the affected area. That is, the PCLs do not take into consideration lateral transport factors from the affected area to downgradient off-site receptors. In addition, the critical PCL for naphthalene is not based on its residential Tier 1 inhalation of volatiles and particulate PCL, but on its ground water protection PCL and, therefore, is not the driving cleanup criteria for the FPA surface soils.

For subsurface soil, eight COPCs have EPCs above their respective ground water protection PCLs. Only one subsurface soil COPC (naphthalene) is above its subsurface soil-to-air PCL. One COPC (dibenzofuran) did not have available ground water protection values.

The potential for leaching of COPCs from soil to ground water was further assessed using the available SPLP data. To further evaluate the soil-to-ground water pathway, SPLP data obtained from soil samples collected in the FPA were compared to commercial/industrial Tier 1 ground water ingestion PCLs (Table 6-11). The results indicate that three COPCs (dibenzofuran, benzene, and naphthalene) have SPLP leachate concentrations above their respective Tier 1 ground water ingestion PCLs. The SPLP comparison results for the FPA confirm the results obtained for comparison of soil concentrations to the ground water protection PCLs (^{GW}Soil).

6.4.2 *Tie Storage Area*

Table 6-12 presents the comparison of soil concentrations for the COPCs in the TSA to applicable Tier 1 surface and subsurface PCLs. In addition, Table 6-12 presents the comparison of surface soil concentrations to residential Tier 1 inhalation of volatile and particulate emissions from surface soil PCLs. Of the four detected COPCs in surface soil, only naphthalene was detected above its ground water protection value. No direct contact exceedances were noted for surface soil detected COPCs in the TSA. Also, surface soil constituent concentrations are below their respective residential Tier 1 inhalation of volatile and particulate PCLs.

Of the three detected COPCs identified for the TSA subsurface soil, only one exceedance of Tier 1 PCLs was observed. The EPC for benzo(a)pyrene is above its commercial/industrial ^{GW}Soil value. The EPC for benzo(a)pyrene is the maximum reporting limit because benzo(a)pyrene was only detected in one subsurface soil sample, and the detected concentration was lower than the reported quantitation limits for benzo(a)pyrene in other subsurface samples. No exceedances of subsurface soil-to-air PCLs were identified.

The potential for leaching of COPCs from soil to ground water was further assessed using the available SPLP data. SPLP leachate data obtained from soil samples collected in the TSA were compared to commercial/industrial Tier 1 ground water ingestion PCLs (Table 6-13). The results indicate that the benzene SPLP value is above its Tier 1 ground water PCL.

6.4.3

Surface Impoundment Area

For the closed SIA, no surface soil evaluation was performed because soils were previously excavated to a depth of seven feet bgs. Therefore only a subsurface soil evaluation was conducted. Table 6-14 presents the subsurface soil evaluation for the SIA. Of the two detected COPCs, only benzene exceeds its ground water protection value. No SPLP analysis was performed for the SIA. No exceedances of subsurface soil-to-air PCLs were identified. Note that the SIA was not included in the evaluation of surface soil exposure to off-site residents since soils were previously removed to a depth of approximately seven feet in the SIA.

7.0 *GROUND WATER EVALUATION*

7.1 *DATA EVALUATION AND SCREENING*

7.1.1 *Data Evaluation*

Prior to characterizing site risk, the available on-site ground water data were reviewed in accordance with the TRRP Rule's data quality and reporting requirements. The results of the data quality evaluation are summarized in Appendix E.

7.1.2 *Data Screening*

The ground water analytical data obtained from the Phase 1, Phase 2-A, and Phase 2-B RCRA RFI/EOC investigations, as well as analytical data collected as part of the ground water monitoring program for the RCRA-regulated units, were utilized in this assessment. The on-site ground water data were divided vertically into the three transmissive zones identified beneath the site.

As in the case of the soil evaluation, a data screening process was performed for the available ground water data to assess which constituents could be appropriately eliminated from further consideration in the risk evaluation. In 30 TAC §350.71(k)(1-3), the TRRP Rule presents criteria whereby constituents can be eliminated from further evaluation. A number of these TRRP data screening techniques were utilized in this assessment to facilitate the identification of ground water COPCs for the site.

In order to facilitate the data evaluation and screening process, Table 7-1 summarizes the on-site ground water analytical data, including the following:

- the total number of samples collected for each constituent;
- the number of samples in which constituents were detected above quantitation limits;
- the frequency of detection;
- concentration ranges reported above quantitation limits; and
- the location of the maximum concentrations for each detected constituent.

The data screening evaluation was performed separately for detected and non-detected constituents. Constituents that were not detected in any ground water samples were evaluated separately in an uncertainty analysis provided in Appendix F. Table 7-1 identifies the constituents that were evaluated in the

uncertainty analyses. For constituents that were detected in at least one sample in an environmental medium, the data screening techniques described in Section 6.1.2 herein were utilized.

Constituents that did not have available Tier 1 residential PCLs were selected for further evaluation. The results of the data screening for ground water are presented Section 7.2.

7.2

IDENTIFICATION OF GROUND WATER COPCs

This section presents the data screening results for ground water based on the three shallow ground water transmissive zones identified on-site. For the selection of ground water COPCs, the ground water monitoring data for the on-site monitoring wells for the last three years (i.e., January 1997 through September 1999) were considered to be representative of current ground water conditions at the site. Hydropunch ground water data were included in the database when there were no associated monitor well data available (i.e., no monitor wells were completed and sampled at a location and zone of a previously collected Hydropunch sample). The Hydropunch locations included in the on-site ground water evaluation are identified in Appendix D (Summary of On-Site Ground Water Sample Locations). Using similar screening techniques as described in Section 6.1.2 for the soil data, the maximum detected concentrations and reporting limits for constituents were compared to the TRRP's residential Tier 1 ground water PCLs.

Constituents with maximum concentrations above residential Tier 1 ground water criteria were *screened in*, and selected as COPCs for further quantitative evaluation for ground water. Constituents that were not detected in ground water samples were retained as COPCs for further evaluation in an *uncertainty analysis* if the constituent's maximum reporting limit was above the Tier 1 screening criterion in Table 7-1 (C^{GW}_{ing}). As with soil data, the particularly large database for ground water and well documented analytical data suggest that further evaluation of these non-detect constituents as COPCs is warranted before carrying them through quantitative risk. The elements of the additional evaluation for non-detect constituents are identified in Appendix F. The *Final Screen Result* listed in Table 7-1, for these constituents is *in: uncertainty analysis*. Table 7-1 presents the data screening evaluation results for the A-TZ, B-TZ, and C-TZ.

7.2.1

A-TZ Transmissive Zone

Of the 34 constituents analyzed in ground water samples, 22 constituents were reported as detected above reporting limits in the A-TZ. The frequency of detections ranged from 1.2% to 43.4%. Three detected constituents (1,2-dichloroethane, 2,4-dinitrotoluene, and 4,6-dinitro-o-cresol) were screened out

on the basis that they were detected in less than 5% of samples and are not associated with the historical activities of the site. Based on the screening evaluation, the following 12 constituents were detected and identified as COPCs for quantitative evaluation of the A-TZ:

2,4-Dimethylphenol	Fluoranthene
2-Methylnaphthalene	Fluorene
Benzene	Naphthalene
Benzo(a)pyrene	Phenanthrene
Dibenzofuran	Phenol
Ethylbenzene	Pyrene

The following 11 constituents were not detected in ground water samples, but were identified for further evaluation as COPCs in an uncertainty analysis due to reporting limits in excess of screening criteria:

1,2-Diphenylhydrazine	Chrysene
2,6-Dinitrotoluene	Dichloromethane
4-Nitrophenol	N-Nitrosodiphenylamine
Benzo(a)anthracene	Nitrobenzene
Bis(2-chloroethoxy)methane	Pentachlorophenol
Bis(2-ethylhexyl)phthalate	

7.2.2

B-TZ Transmissive Zone

Of the 34 constituents analyzed in ground water samples, 25 constituents were reported as detected above reporting limits in the B-TZ. The frequency of detections ranged from 2.4% to 56.1%. Six detected constituents (1,2-dichloroethane, 2,4-dinitrotoluene, 4,6-dinitro-o-cresol, 4-nitrophenol, n-nitrosodiphenylamine, pentachlorophenol) were screened out on the basis that they were detected in less than 5% of samples and are not associated with the historical activities of the site. Based on the screening evaluation, the following 6 constituents were detected and identified as COPCs for quantitative evaluation of the B-TZ:

2-Methylnaphthalene	Chrysene
Benzene	Dibenzofuran
Benzo(a)pyrene	Naphthalene

The following seven constituents were not detected in ground water samples, but were identified for further evaluation as COPCs in an uncertainty analysis due to detection limits in excess of screening criteria:

1,2-Diphenylhydrazine
2,6-Dinitrotoluene
Benzo(a)anthracene
Bis(2-chloroethoxy)methane

Bis(2-ethylhexyl)phthalate
Dichloromethane
Nitrobenzene

7.2.3

C-TZ Transmissive Zone

Of the 34 constituents analyzed in ground water samples, 13 constituents were reported as detected above reporting limits in the C-TZ. The frequency of detections ranged from 10% to 60%. Dichloromethane was detected in one sample (0.013 mg/L). Dichloromethane is a common laboratory contaminant and is not associated with the historical use of the property. It is not a companion or daughter product of a parent COPC. In addition, the maximum reported concentration for dichloromethane is less than 10 times its PQL (0.005 mg/L). Since dichloromethane is a common laboratory contaminant and is not likely to be present at the site based on information concerning the historical use of the site, dichloromethane was screened out from further evaluation. Based on the screening evaluation, the following three constituents were detected and identified as COPCs for quantitative evaluation of the C-TZ:

Benzene
Dibenzofuran

Naphthalene

The following 14 constituents were not detected in ground water samples, but were identified for further evaluation as COPCs in an uncertainty analysis due to detection limits in excess of screening criteria:

1,2-Diphenylhydrazine
1,2-Dichloroethane
2,4-Dinitrotoluene
2,6-Dinitrotoluene
4,6-Dinitro-o-cresol
4-Nitrophenol
Benzo(a)anthracene

Benzo(a)pyrene
Bis(2-chloroethoxy)methane
Bis(2-ethylhexyl)phthalate
Chrysene
N-Nitrosodiphenylamine
Nitrobenzene
Pentachlorophenol

7.3

DETERMINATION OF GROUND WATER EPCs

The EPCs for ground water samples were determined for each constituent that remained after the screening process described in Section 7.1.2. EPCs were determined for each COPC in each of the three shallow ground water transmissive zones (A-TZ, B-TZ, and C-TZ) on a well-by-well basis.

A similar approach as was used for soils was used to determine EPCs for constituents present in shallow ground water. The two general approaches used are outlined below:

- The higher of the maximum detected concentration or reporting limit was selected as the EPC when a COPC was detected only once or twice in the samples analyzed within a well.
- If a COPC was detected in three or more samples then the log-probit method was used to estimate replacements for the non-detected values and a one-sided 95% UCL of the mean was used to estimate the EPC for each COPC on a well-by-well basis. Appendices H-5 and H-6 present supporting documentation for EPC calculations for the ground water transmissive zones by well for each COPC.

The results of the EPC determinations for ground water are presented in Tables 7-2, 7-3, and 7-4, for the A-TZ, B-TZ, and C-TZ ground water transmissive zones, respectively.

7.4

COMPARISON TO GROUND WATER PCLs

For the ground water evaluation, each monitor well was assessed individually for each of the transmissive zones. EPCs for each well completed in the three transmissive zones were compared to their respective commercial/industrial Tier 1 ground water PCLs and method PQLs. Note that if a COPC's reporting limit was above the Tier 1 PCL but at or below its method PQL, an exceedance was not indicated. Benzo(a)pyrene is the only COPC that has a Tier 1 PCL below the Method PQL.

7.4.1

A - Transmissive Zone

Table 7-5 presents the ground water evaluation of the A-TZ. For the A-TZ, 17 monitor wells and 11 Hydropunch points were assessed. For detected COPCs, six monitor wells (MW-01A, MW-12A, MW-15A, MW-17, MW-18A, and MW-20A) and three Hydropunch locations (HP011UTZ, HP013UTZ and HP014UTZ) indicated concentrations for several COPCs above their respective ground water commercial/industrial Tier 1 PCLs and method PQLs. Naphthalene was the most frequently detected COPC above its PCL, followed by benzene and benzo(a)pyrene.

7.4.2

B - Transmissive Zone

Table 7-6 presents the ground water evaluation of the B-TZ. For the BT-Z, seven monitor wells and five Hydropunch points were evaluated. Four monitor wells (MW-10B, MW-11B, MW-12B, and P-10) indicated concentrations for several COPCs above their respective commercial/industrial Tier 1 ground water PCLs and method PQLs. Benzene was the most frequently detected COPC above its PQL, followed by benzo(a)pyrene and naphthalene.

7.4.3

C - Transmissive Zone

Table 7-7 presents the ground water evaluation of the C-TZ. For the CT-Z, six monitor wells and one Hydropunch point were evaluated. For detected COPCs, two monitor wells (MW-18C and MW-23C) indicated concentrations for naphthalene and benzene above their respective commercial/industrial Tier 1 ground water PCLs and PQLs.

NOTIFICATION AND CERTIFICATION REQUIREMENTS

According to 30 TAC §350.91(b)(14) of the TRRP Rule, a description of exposure conditions, which require public notice under 30 TAC §350.55 (e)(relating to notification requirements) and certification as required under 30 TAC §350.55(d) and (e), should be included in the APAR.

Per the TRRP, notification to exposed or potentially exposed individuals, the property owner, and the executive director is required when there is *actual* or *probable* human exposure to a constituent(s) which exceeds the default Tier 1 human health PCL ($^{Tot}Soil_{comb}$, $^{GW}GW_{ing}$, but not $^{GW}Soil$) for the applicable land use and exposure pathways. Based on the property assessment findings, COPCs are present above Tier 1 human health PCLs in the FPA surface soil and three shallow ground water transmissive zones beneath the site. Given these conditions, notification to on-site industrial workers (i.e., railroad workers) and the TNRCC appears to be appropriate.

TNRCC has identified that it expects to provide guidance for “notification of affected persons” later in 2000. UPR, as the property owner, would like to work with TNRCC and receive guidance regarding appropriate notification methods to on site workers. Note that the FPA is not a public access location or a congregation location. The appropriate notification will be developed in cooperation with TNRCC for the FPA soil and ground water.

It is understood that notification shall indicate that information is available regarding sampling and analysis results, that exposure to COPCs is possible for a few areas of the FPA, the critical human health PCLs, how the exposure could be occurring, that more information is available upon request, what that additional information is, and how to obtain the additional information. Information on possible exposure to affected shallow ground water will be in the notification; however, the lack of ground water use will be noted and the local sources of drinking water will be identified.

Comparison of the site COC concentrations to Tier 1 PCLs for surface soil, subsurface soil and ground water samples indicated PCLE zones in each of the three on-site areas (FPA, TSA and SIA). As indicated in Section 5.0, the TRRP Rule provides a three-tiered approach for establishing response actions at a site. An evaluation of the site was completed using Tier 1, which utilizes very conservative assumptions. This section describes how UPR proposes to address the soil and ground water PCLE zones identified based on the Tier 1 evaluation.

Per 350.74(j)(2) of the TRRP Rule, variance is allowed for exposure duration, exposure frequency, and averaging time for non-carcinogens under Tiers 2 and 3 for the standard commercial/industrial worker exposure. This variance is only allowed for facilities that have or will have, as a condition of approval of this variance, restricted property access. In addition, this variance option requires approval from the executive director, public notification, and placement of an institutional control in the county deed records. The public notification requirements include publishing a notice in a newspaper once a week for three weeks, notice to all adjacent landowners, local municipal planning, local taxing authorities, the mayor, county judge, city and county health authorities, TNRCC's Public Interest Council, and to all other persons or organizations specified by the executive director. Other factors that may be varied and require executive director approval are the gastrointestinal absorption factor (ABS_{gi}), dermal absorption fraction (ABS_d) and relative bioavailability (RBAF).

Since direct contact exceedances (i.e., surface soil PCLE zones) were only noted in the FPA and the variance requirements may prolong completion of the APAR, UPR has elected not to pursue Tiers 2 or 3 for direct contact with surficial soil. Therefore, a RAP will be prepared to design an approach that will address the surface soil PCLE zone in the FPA in a manner consistent with the TRRP requirements for Remedy Standard B. The RAP will likely provide a designed approach to address direct contact to affected soils through the use of physical and institutional controls. Existing physical controls including the perimeter fence and concrete pavement may be incorporated into the approach presented in the RAP. Institutional controls including specifying future site land use as industrial and requiring appropriate health and safety procedures for excavation activities will likely be documented in the property deed record.

The RAP will be prepared after the completion of RFI activities to delineate the extent of affected ground water off site. Upon completion of these delineation efforts and the preparation of an APAR for the off-site area, a comprehensive ground water remedy will be proposed that will likely include a Plume Management Zone (PMZ) component. Tier 2 or 3 PCLs will also be developed in the RAP for the ground water protection and ground water PCLE zones

identified in this report taking into consideration the TRRP's requirements for a PMZ. Section 350.75(i)(7) parts ii and iii of the TRRP Rule specifies the ground water protection PCL requirements when a PMZ approach will be implemented. These PCL requirements will be taken into consideration for the development of Tier 2 or 3 ground water protection PCLs and will be presented as part of the PMZ approach in the RAP.

UPR proposes to initiate site-wide semiannual ground water monitoring, in part to assess if the use of a PMZ is applicable. The monitoring activities are intended to assess current ground water conditions and potentially to establish a baseline of concentrations for future reference. In addition, the analytical data from the routine monitoring will be used to assess if there are on going releases from the SWMUs.

In addition, routine recovery of NAPL from impacted monitor wells will be initiated as an interim corrective measure in order to reduce the volume of source material at the site.

It is anticipated that a Phase 2-C RFI/EOC Data Summary Report will be submitted to the TNRCC within 120 days of receipt of final, validated analytical data. If appropriate, based on the results of the Phase 2-C delineation effort, the Data Summary Report may include the off-site APAR described herein.

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Tables

July 10, 2000
W.O. #422-009

Environmental Resources Management
16300 Katy Freeway, Suite 300
Houston, Texas 77094-1611
(281) 600-1000

TABLE 2-1

Water Well Survey

Houston Wood Preserving Works
Houston, Texas

State ID #	Owner	Total Depth		Use	Date Drilled	Screen Interval (ft)	Producing Aquifer	Current Status
		(ft)						
LJ-65-14-406	City of Houston Northeast #3	1993		Public Supply	1944	1142-1969	Unknown	Unknown
LJ-65-14-735	Harris-Galveston Subsidence District	1596		Observation	1980	1567-1577	Evangeline	Unknown
LJ-65-14-738	Harris-Galveston Subsidence District	487		Observation	1980	472-482	Chicot	Unknown
LJ-65-14-742	Harris-Galveston Subsidence District	1035		Observation	1980	1020-1030	Evangeline	Unknown
LJ-65-14-745	Harris-Galveston Subsidence District	298		Observation	1980	283-293	Chicot	Unknown
LJ-65-14-746	Harris-Galveston Subsidence District	2170		Observation	1980	2099-2199	Evangeline	Unknown
LJ-65-14-759	City of Houston	1271		Unused	1938	461-1279	Unknown	Unused
65-14-7	Williams Const.	280		Domestic	1965	Unknown	Unknown	Plugged
65-14-7J	Harris-Galveston Subsidence District	487		Test	1980	472-482	Unknown	Unknown

NOTES:

Water Well Survey was performed by Agency Information Consultants, Inc.

Water wells within a 1-mile radius.

TABLE 5-1

Surface Soil Protective Concentration Levels (PCLs) and Critical PCLs

Houston Wood Preserving Works
Houston, Texas

Constituents of Interest (d)	CAS #	^{GW} Soil (a,b)	^{Tot} Soil _{Comb} (a,b)	^{Air} Soil _{Inh-vp} (a,c)	Critical Surface Soil PCL (mg/kg)
		30-acre source (mg/kg)	30-acre source (mg/kg)	30-acre source (mg/kg)	
<i>Volatile Organics</i>					
1,2-Dichloroethane	107-06-2	0.0069	11	7.1	0.0069
Benzene	71-43-2	0.013	38	24	0.013
Chlorobenzene	108-90-7	0.55	490	360	0.55
Dichloromethane	75-09-2	0.0065	560	390	0.0065
Ethylbenzene	100-41-4	3.8	9900	7900	3.8
Toluene	108-88-3	4.1	4300	3100	4.1
Xylene	1330-20-7	61	4800	3400	61
<i>Semivolatile Organics</i>					
1,2-Diphenylhydrazine	122-66-7	0.036	20	72	0.036
2,4-Dinitrotoluene	121-14-2	0.006	21	15	0.006
2,6-Dinitrotoluene	606-20-2	0.0054	28	22	0.0054
2-Chloronaphthalene	91-58-7	1000	50000	NA	1000
2,4-Dimethylphenol	105-67-9	4.8	2900	2600	4.8
2-Methylnaphthalene	91-57-6	250	25000	NA	250
4,6-Dinitro-o-cresol	534-52-1	NA	1400	NA	1400
4-Nitrophenol	100-02-7	1.4	1400	NA	1.4
Acenaphthene	83-32-9	350	37000	NA	350
Acenaphthylene	208-96-8	610	37000	NA	610
Anthracene	120-12-7	10000	190000	NA	10000
Benzo(a)anthracene	56-55-3	20	24	1900	20
Benzo(a)pyrene	50-32-8	3.8	2.4	420	2.4
Bis (2-chloroethoxy)methane	111-91-1	NA	0.087	NA	0.087
Bis (2-ethylhexyl)phthalate	117-81-7	82	560	NA	82
Chrysene	218-01-9	1700	2400	300000	1700
Di-n-butylphthalate	84-74-2	5000	16000	15000	5000
Dibenzofuran	132-64-9	NA	2700	NA	2700
Fluoranthene	206-44-0	2900	25000	NA	2900
Fluorene	86-73-7	450	25000	NA	450
N-Nitrosodiphenylamine	86-30-6	3.2	1900	NA	3.2
Naphthalene	91-20-3	47	190	140	47
Nitrobenzene	98-95-3	0.13	180	290	0.13
Pentachlorophenol	87-86-5	0.0092	110	230	0.0092
Phenanthrene	85-01-8	620	19000	NA	620
Phenol	108-95-2	57	2400	1700	57
Pyrene	129-00-0	1700	19000	NA	1700

NOTES:

NA = Not Available

^{GW}Soil = Ground water protection value^{Tot}Soil_{Comb} = Soil direct contact protection value^{Air}Soil_{Inh-vp} = Surface soil-to-air protection value

(a) PCLs taken from Texas Risk Reduction Program Rule dated August 24, 1999.

(b) Commercial/Industrial PCLs

(c) Residential PCLs

(d) Constituents of interest list is from Compliance Plan Table I.

TABLE 5-2

Subsurface Soil Protective Concentration Levels (PCLs) and Critical PCLs

Houston Wood Preserving Works
Houston, Texas

Constituents of Interest (c)	CAS #	^{GW} Soil (a,b)	^{Air} Soil _{inh-v} (a,b)	Critical Subsurface
		30-acre source (mg/kg)	30-acre source (mg/kg)	Soil PCL (mg/kg)
<i>Volatile Organics</i>				
1,2-Dichloroethane	107-06-2	0.0069	12	0.0069
Benzene	71-43-2	0.013	40	0.013
Chlorobenzene	108-90-7	0.55	510	0.55
Dichloromethane	75-09-2	0.0065	660	0.0065
Ethylbenzene	100-41-4	3.8	11000	3.8
Toluene	108-88-3	4.1	4400	4.1
Xylene	1330-20-7	61	4800	61
<i>Semivolatile Organics</i>				
1,2-Diphenylhydrazine	122-66-7	0.036	120	0.036
2,4-Dinitrotoluene	121-14-2	0.006	21	0.006
2,6-Dinitrotoluene	606-20-2	0.0054	31	0.0054
2-Chloronaphthalene	91-58-7	1000	NA	1000
2,4-Dimethylphenol	105-67-9	4.8	3600	4.8
2-Methylnaphthalene	91-57-6	250	NA	250
4,6-Dinitro-o-cresol	534-52-1	NA	NA	NA
4-Nitrophenol	100-02-7	1.4	NA	1.4
Acenaphthene	83-32-9	350	NA	350
Acenaphthylene	208-96-8	610	NA	610
Anthracene	120-12-7	10000	NA	10000
Benzo(a)anthracene	56-55-3	20	3200	20
Benzo(a)pyrene	50-32-8	3.8	730	3.8
Bis (2-chloroethoxy)methane	111-91-1	NA	NA	NA
Bis (2-ethylhexyl)phthalate	117-81-7	82	NA	82
Chrysene	218-01-9	1700	510000	1700
Di-n-butylphthalate	84-74-2	5000	21000	5000
Dibenzofuran	132-64-9	NA	NA	NA
Fluoranthene	206-44-0	2900	NA	2900
Fluorene	86-73-7	450	NA	450
N-Nitrosodiphenylamine	86-30-6	3.2	NA	3.2
Naphthalene	91-20-3	47	190	47
Nitrobenzene	98-95-3	0.13	400	0.13
Pentachlorophenol	87-86-5	0.0092	330	0.0092
Phenanthrene	85-01-8	620	NA	620
Phenol	108-95-2	57	2400	57
Pyrene	129-00-0	1700	NA	1700

NOTES:

NA = Not Available

^{GW}Soil = Ground water protection value^{Air}Soil_{inh-v} = Subsurface soil-to-air protection value

(a) PCLs taken from Texas Risk Reduction Program Rule dated August 24, 1999.

(b) Commercial/Industrial PCLs

(c) Constituents of interest list is from Compliance Plan Table I.

TABLE 5-3

Ground Water Protective Concentration Levels (PCLs) and Critical PCLs

Houston Wood Preserving Works
Houston, Texas

Constituents of Interest (c)	CAS #	^{GW} GW _{ing} (a,b) (mg/L)	^{Air} GW _{inh-v} (a,b) (mg/L)	Critical Ground Water PCL (mg/L)
<i>Volatile Organics</i>				
1,2-Dichloroethane	107-06-2	0.005	7.2	0.005
Benzene	71-43-2	0.005	11	0.005
Chlorobenzene	108-90-7	0.1	190	0.1
Dichloromethane	75-09-2	0.005	280	0.005
Ethylbenzene	100-41-4	0.7	2800	0.7
Toluene	108-88-3	1	1100	1
Xylene	1330-20-7	10	1300	10
<i>Semivolatile Organics</i>				
1,2-Diphenylhydrazine	122-66-7	0.0026	830	0.0026
2,4-Dinitrotoluene	121-14-2	0.003	220	0.003
2,6-Dinitrotoluene	606-20-2	0.003	570	0.003
2-Chloronaphthalene	91-58-7	5.8	NA	5.8
2,4-Dimethylphenol	105-67-9	1.5	30000	1.5
2-Methylnaphthalene	91-57-6	2.9	NA	2.9
4,6-Dinitro-o-cresol	534-52-1	0.15	NA	0.15
4-Nitrophenol	100-02-7	0.15	NA	0.15
Acenaphthene	83-32-9	4.4	NA	4.4
Acenaphthylene	208-96-8	4.4	NA	4.4
Anthracene	120-12-7	22	NA	22
Benzo(a)anthracene	56-55-3	0.0028	440	0.0028
Benzo(a)pyrene	50-32-8	0.0002	84	0.0002
Bis (2-Chloroethoxy)methane	111-91-1	0.0000093	NA	0.0000093
Bis (2-ethylhexyl)phthalate	117-81-7	0.006	NA	0.006
Chrysene	218-01-9	0.28	130000	0.28
Di-n-butylphthalate	84-74-2	7.3	13000	7.3
Dibenzofuran	132-64-9	0.29	NA	0.29
Fluoranthene	206-44-0	2.9	NA	2.9
Fluorene	86-73-7	2.9	NA	2.9
N-Nitrosodiphenylamine	86-30-6	0.42	NA	0.42
Naphthalene	91-20-3	1.5	57	1.5
Nitrobenzene	98-95-3	0.037	1100	0.037
Pentachlorophenol	87-86-5	0.001	2400	0.001
Phenanthrene	85-01-8	2.2	NA	2.2
Phenol	108-95-2	44	50000	44
Pyrene	129-00-0	2.2	NA	2.2

NOTES:

NA = Not Available

^{GW}GW_{ing} = Ground water ingestion value^{Air}GW_{inh-v} = Ground water-to-air protection value

(a) PCLs taken from Texas Risk Reduction Program Rule dated August 24, 1999.

(b) Commercial/Industrial PCLs

(c) Constituents of interest list is from Compliance Plan Table I.

TABLE 6-1

Surface Soil Data Evaluation and Screening Results

Houston Wood Preserving Works
Houston, Texas

Exposure Area	DATA SUMMARY										PCLs				SCREEN RESULTS			Final Screen Result
	Count of Detection	Count of Analysis	Frequency of Detection	Minimum Result (mg/kg)	Maximum Result (mg/kg)	Location of Max. Result	Reporting Limit (mg/kg)	Soil ^{GW} (mg/kg)	Soil ^{TS} (mg/kg)	Screen Result #1	Rationale #1	Screen Result #2	Rationale #2	Screen Result #Z	Rationale #Z			
FPA	0	13	---	---	---	---	6.25E-01	6.90E-03	30 acres (mg/kg)	30 acres (mg/kg)	in	in	in	in	in	in: uncertainty analysis		
FPA	0	23	---	---	---	---	1.65E+02	1.60E-02	30 acres (mg/kg)	30 acres (mg/kg)	in	in	in	in	in	in: uncertainty analysis		
FPA	0	23	---	---	---	---	1.65E+02	1.60E+00	30 acres (mg/kg)	30 acres (mg/kg)	in	in	in	in	in	in: uncertainty analysis		
FPA	0	23	---	---	---	---	1.65E+02	2.70E-03	30 acres (mg/kg)	30 acres (mg/kg)	in	in	in	in	in	in: uncertainty analysis		
FPA	0	23	---	---	---	---	1.65E+02	2.40E-03	30 acres (mg/kg)	30 acres (mg/kg)	in	in	in	in	in	in: uncertainty analysis		
FPA	0	23	---	---	---	---	1.65E+02	3.30E+02	30 acres (mg/kg)	30 acres (mg/kg)	out	out	out	out	out	out		
FPA	6	23	26.1%	5.00E+00	1.30E+03	SB-07	5.00E+02	8.50E+01	30 acres (mg/kg)	30 acres (mg/kg)	in	in	in	in	in	in: uncertainty analysis		
FPA	0	23	---	---	---	---	8.00E+02	NTDA	30 acres (mg/kg)	30 acres (mg/kg)	in	in	in	in	in	in: uncertainty analysis		
FPA	0	23	---	---	---	---	8.00E+02	4.70E-01	30 acres (mg/kg)	30 acres (mg/kg)	in	in	in	in	in	in: uncertainty analysis		
FPA	7	23	30.4%	4.30E+00	1.70E+03	SB-07	5.00E+02	1.20E+02	30 acres (mg/kg)	30 acres (mg/kg)	in	in	in	in	in	in: uncertainty analysis		
FPA	0	23	---	---	---	---	1.65E+02	2.00E+02	30 acres (mg/kg)	30 acres (mg/kg)	out	out	out	out	out	out		
FPA	10	23	43.5%	8.60E-03	4.80E+02	SB-08	1.65E+02	3.40E+03	30 acres (mg/kg)	30 acres (mg/kg)	out	out	out	out	out	out		
FPA	3	13	23.1%	7.00E-03	3.30E-02	SB-07	6.25E-01	1.30E-02	30 acres (mg/kg)	30 acres (mg/kg)	in	in	in	in	in	in		
FPA	19	23	82.6%	4.60E-02	2.20E+02	AOC-7	1.65E+02	8.90E+00	30 acres (mg/kg)	30 acres (mg/kg)	in	in	in	in	in	in		
FPA	17	23	73.9%	4.40E-02	7.90E+01	AOC-8	1.65E+02	3.80E+00	30 acres (mg/kg)	30 acres (mg/kg)	in	in	in	in	in	in		
FPA	0	23	---	---	---	---	1.65E+02	NTDA	30 acres (mg/kg)	30 acres (mg/kg)	in	in	in	in	in	in: uncertainty analysis		
FPA	0	23	---	---	---	---	1.65E+02	8.20E+01	30 acres (mg/kg)	30 acres (mg/kg)	in	in	in	in	in	in: uncertainty analysis		
FPA	0	13	---	---	---	---	6.25E-01	5.50E-01	30 acres (mg/kg)	30 acres (mg/kg)	in	in	in	in	in	in: uncertainty analysis		
FPA	19	23	82.6%	8.60E-02	2.10E+02	AOC-9	1.65E+02	7.70E+02	30 acres (mg/kg)	30 acres (mg/kg)	out	out	out	out	out	out		
FPA	0	23	---	---	---	---	1.65E+02	1.70E+03	30 acres (mg/kg)	30 acres (mg/kg)	out	out	out	out	out	out		
FPA	6	23	26.1%	4.00E+00	1.10E+03	SB-07	5.00E+02	NTDA	30 acres (mg/kg)	30 acres (mg/kg)	in	in	in	in	in	in		

TABLE 6-1

Surface Soil Data Evaluation and Screening Results

Houston Wood Preserving Works
Houston, Texas

Exposure Area	Constituents	DATA SUMMARY				PCLs		SCREEN RESULTS						
		Count of Detection	Count of Analysis	Frequency of Detection	Minimum Result (mg/kg)	Maximum Result (mg/kg)	Location of Max. Result	Maximum Reporting Limit (mg/kg)	Screen Result #1	Rationale #1	Screen Result #2	Rationale #2	Final Screen Result	
FPA	Ethylbenzene	5	13	38.5%	2.40E-02	6.30E+00	SB-07	3.80E+00	4.00E+03	in	a	out	f	in
FPA	Fluoranthene	13	23	56.5%	1.33E+00	2.50E+03	SB-07	9.60E+02	2.30E+03	in	a	in	e	in
FPA	Fluorene	7	23	30.4%	4.00E+00	1.60E+03	SB-07	1.50E+02	2.30E+03	in	a	out	f	in
FPA	Dichloromethane	0	13	---	---	---	---	6.50E-03	2.60E+02	in	c	out	h	in: uncertainty analysis
FPA	N-Nitrosodiphenylamine	0	23	---	---	---	---	1.40E+00	5.70E+02	in	d	out	h	in: uncertainty analysis
FPA	Naphthalene	7	23	30.4%	1.20E+00	3.90E+03	SB-07	1.60E+01	1.20E+02	in	a	in	e	in
FPA	Nitrobenzene	0	23	---	---	---	---	4.40E-02	3.00E+01	in	c	in	g	in: uncertainty analysis
FPA	Pentachlorophenol	0	23	---	---	---	---	9.20E-03	2.40E+00	in	c	in	g	in: uncertainty analysis
FPA	Phenanthrene	10	23	43.5%	2.63E+00	4.10E+03	SB-07	2.10E+02	1.70E+03	in	a	in	e	in
FPA	Phenol	0	23	---	---	---	---	1.90E+01	1.60E+03	in	c	out	h	in: uncertainty analysis
FPA	Pyrene	12	23	52.2%	1.51E+00	1.50E+03	SB-07	5.60E+02	1.70E+03	in	a	out	f	in
FPA	Toluene	4	13	30.8%	1.10E-02	1.40E+00	MW-18A	4.10E+00	2.60E+03	out	b	out	f	out
FPA	Xylenes	6	13	46.2%	4.60E-02	4.20E+01	MW-18A	6.10E+01	3.30E+03	out	b	out	f	out
TSA	1,2-Dichloroethane	0	11	---	---	---	---	6.90E-03	6.40E+00	out	d	out	h	out
TSA	1,2-Diphenylhydrazine	0	30	---	---	---	---	1.60E-02	5.40E+00	in	c	in	g	in: uncertainty analysis
TSA	2,4-Dimethylphenol	0	30	---	---	---	---	1.60E+00	8.80E+02	in	c	out	h	in: uncertainty analysis
TSA	2,4-Dinitrotoluene	0	31	---	---	---	---	2.70E-03	6.90E+00	in	c	in	g	in: uncertainty analysis
TSA	2,6-Dinitrotoluene	0	31	---	---	---	---	2.40E-03	6.90E+00	in	c	in	g	in: uncertainty analysis
TSA	2-Chloronaphthalene	0	31	---	---	---	---	3.30E+02	5.00E+03	out	d	out	h	out
TSA	2-Methylnaphthalene	1	31	3.2%	7.20E+01	7.20E+01	SB-06	8.50E+03	2.50E+03	out	b	out	f	out
TSA	4,6-Dinitro-o-cresol	0	31	---	---	---	---	NTDA	1.30E+02	in	i	out	h	in: uncertainty analysis
TSA	4-Nitrophenol	0	31	---	---	---	---	4.70E-01	1.30E+02	in	c	out	h	in: uncertainty analysis

TABLE 6-1

Surface Soil Data Evaluation and Screening Results

Houston Wood Preserving Works
Houston, Texas

Exposure Area	Constituents	DATA SUMMARY				PCLs		SCREEN RESULTS						
		Count of Detection of Analysis	Frequency of Detection	Minimum Result (mg/kg)	Maximum Result (mg/kg)	Location of Max. Result	Maximum Reporting Limit (mg/kg)	Soil ^{GW} (mg/kg)	Soil ^{TS} (mg/kg)	Screen Result #1	Rationale #1	Screen Result #2	Rationale #2	Final Screen Result
TSA	Acenaphthene	1	3.2%	4.60E+01	4.60E+01	SB-06	8.25E+00	1.20E+02	3.00E+03	out	b	out	f	out
TSA	Acenaphthylene	0	---	---	---	---	8.25E+00	2.00E+02	3.80E+03	out	d	out	h	out
TSA	Anthracene	2	6.5%	4.56E-01	2.50E+01	SB-06	8.25E+00	3.40E+03	1.80E+04	out	b	out	f	out
TSA	Benzene	0	---	---	---	---	5.00E-03	1.30E-02	2.10E+01	out	d	out	h	out
TSA	Benzo(a)anthracene	19	61.3%	5.60E-02	8.20E+00	SB-06	8.25E+00	8.90E+00	5.60E+00	out	b	in	c	in
TSA	Benzo(a)pyrene	17	54.8%	6.20E-02	1.51E+00	SSO-C03	8.25E+00	3.80E+00	5.60E-01	in	c	in	e	in
TSA	Bis(2-chloroethoxy)methane	0	---	---	---	---	8.25E+00	NTDA	2.10E-02	in	i	in	g	in: uncertainty analysis
TSA	Bis(2-ethylhexyl)phthalate	0	---	---	---	---	8.25E+00	8.20E+01	4.30E+01	out	d	out	h	out
TSA	Chlorobenzene	0	---	---	---	---	5.00E-03	5.50E-01	3.00E+02	out	d	out	h	out
TSA	Chrysene	18	58.1%	9.80E-02	1.01E+01	SSO-C03	8.25E+00	7.70E+02	5.60E+02	out	b	out	f	out
TSA	Di-n-butyl phthalate	0	---	---	---	---	8.25E+00	1.70E+03	4.40E+03	out	d	out	h	out
TSA	Dibenzofuran	1	3.2%	4.30E+01	4.30E+01	SB-06	8.25E+00	NTDA	2.70E+02	in	i	out	f	in
TSA	Ethylbenzene	1	9.1%	5.50E-02	5.50E-02	SB-06	5.00E-03	3.80E+00	4.00E+03	out	b	out	f	out
TSA	Fluoranthene	11	35.5%	4.00E-01	5.20E+01	SB-06	8.25E+00	9.60E+02	2.30E+03	out	b	out	f	out
TSA	Fluorene	1	3.2%	4.10E+01	4.10E+01	SB-06	8.25E+00	1.50E+02	2.30E+03	out	b	out	f	out
TSA	Dichloromethane	1	9.1%	5.00E-03	5.00E-03	MW-15A	5.00E-03	6.50E-03	2.60E+02	out	b	out	f	out
TSA	N-Nitrosodiphenylamine	0	---	---	---	---	8.25E+00	1.40E+00	5.70E+02	in	c	out	h	in: uncertainty analysis
TSA	Naphthalene	1	3.2%	1.32E+02	1.32E+02	SB-06	8.25E+00	1.60E+01	1.20E+02	in	a	in	c	in
TSA	Nitrobenzene	0	---	---	---	---	8.25E+00	4.40E-02	3.00E+01	in	c	out	h	in: uncertainty analysis
TSA	Pentachlorophenol	0	---	---	---	---	4.00E+01	9.20E-03	2.40E+00	in	c	in	g	in: uncertainty analysis
TSA	Phenanthrene	6	19.4%	4.90E-01	8.20E+01	SB-06	8.25E+00	2.10E+02	1.70E+03	out	b	out	f	out

TABLE 6-1

Surface Soil Data Evaluation and Screening Results

Houston Wood Preserving Works
Houston, Texas

Exposure Area	DATA SUMMARY							PCLs				SCREEN RESULTS			
	Constituents	Count of Detection	Count of Analysis	Frequency of Detection	Minimum Result (mg/kg)	Maximum Result (mg/kg)	Location of Max. Result	Maximum Reporting Limit (mg/kg)	GW Soil (mg/kg)	TW Soil Comb (mg/kg)	Screen Result	Rationale	Screen Result	Rationale	Final Screen Result
											#1	#1	#2	#2	
TSA	Phenol	0	31	---	---	---	---	8.25E+00	1.90E+01	1.60E+03	out	d	out	h	out
TSA	Pyrene	10	31	32.3%	4.63E-01	3.00E+01	SB-06	8.25E+00	5.60E+02	1.70E+03	out	b	out	f	out
TSA	Toluene	1	11	9.1%	5.00E-03	5.00E-03	SB-06	5.00E-03	4.10E+00	2.60E+03	out	b	out	f	out
TSA	Xylenes	1	11	9.1%	1.40E-01	1.40E-01	SB-06	5.00E-03	6.10E+01	3.30E+03	out	b	out	f	out

NOTES:

Parameter names in *italics* did not pass both screens. Parameter remains on COPC list for exposure area

NTDA = No Toxicity Data Available

FPA = Former Process Area

TSA = Tie Storage Area

PCLs = Protective Concentration Levels

Screen #1 is comparison to ^{GW}Soil

Screen #2 is comparison to ^{TW}Soil_{Comb}

Screen result rationale:

- a = Maximum reported result was greater than the ground water protection standard (^{GW}Soil (30 acres)).
- b = Maximum reported result was less than the ground water protection standard (^{GW}Soil (30 acres)).
- c = Maximum reported LOQ was greater than the ground water protection standard (^{GW}Soil (30 acres)).
- d = Maximum reported LOQ was less than the ground water protection standard (^{GW}Soil (30 acres)).
- e = Maximum reported result was greater than the combined soil standard (^{TW}Soil_{Comb} (30 acres)).
- f = Maximum reported result was less than the combined soil standard (^{TW}Soil_{Comb} (30 acres)).
- g = Maximum reported LOQ was greater than the combined soil standard (^{TW}Soil_{Comb} (30 acres)).
- h = Maximum reported LOQ was less than the combined soil standard (^{TW}Soil_{Comb} (30 acres)).
- i = No toxicity data available - No Tier 1 PCLs available.

TABLE 6-2

Subsurface Soil Data Evaluation and Screening Results

Houston Wood Preserving Works
Houston, Texas

DATA SUMMARY										SCREEN RESULTS	
Exposure Area	Constituents	Count of Detection	Count of Analysis	Frequency of Detection	Minimum Result (mg/kg)	Maximum Result (mg/kg)	Location of Max. Result	Maximum Reporting Limit (mg/kg)	PCLs ^{GW} Soil (mg/kg)	Screen Result	Rationale
FPA	1,2-Dichloroethane	1	35	2.9%	7.00E-03	7.00E-03	MW-19C	6.25E+00	6.90E-03	out	B
FPA	1,2-Diphenylhydrazine	0	36	---	---	---	---	2.48E+03	1.60E-02	in: uncertainty analysis	C
FPA	2,4-Dimethylphenol	3	36	8.3%	2.30E+00	2.50E+01	SB-08	2.48E+03	1.60E+00	in	A
FPA	2,4-Dinitrotoluene	0	36	---	---	---	---	2.48E+03	2.70E-03	in: uncertainty analysis	C
FPA	2,6-Dinitrotoluene	0	36	---	---	---	---	2.48E+03	2.40E-03	in: uncertainty analysis	C
FPA	2-Chloronaphthalene	0	36	---	---	---	---	2.48E+03	3.30E+02	in: uncertainty analysis	C
FPA	2-Methylnaphthalene	23	36	63.9%	1.10E+00	3.70E+03	SB-07	2.48E+03	8.50E+01	in	A
FPA	4,6-Dinitro-o-cresol	0	36	---	---	---	---	1.20E+04	NTDA	in: uncertainty analysis	E
FPA	4-Nitrophenol	0	36	---	---	---	---	1.20E+04	4.70E-01	in: uncertainty analysis	C
FPA	Acenaphthene	22	36	61.1%	1.10E+00	3.20E+03	SB-07	2.48E+03	1.20E+02	in	A
FPA	Acenaphthylene	2	36	5.6%	6.80E+00	6.80E+00	SB-04	2.48E+03	2.00E+02	in	C
FPA	Anthracene	18	36	50.0%	8.60E-01	5.80E+02	SB-08	2.48E+03	3.40E+03	out	B
FPA	Benzene	12	35	34.3%	9.00E-03	1.10E+00	SB-08	6.25E+00	1.30E-02	in	A
FPA	Benzo(a)anthracene	16	36	44.4%	5.60E-01	5.90E+01	SB-07	2.48E+03	8.90E+00	in	A
FPA	Benzo(a)pyrene	5	36	13.9%	1.00E+00	1.50E+01	SB-08	2.48E+03	3.80E+00	in	A
FPA	Bis(2-chloroethoxy)methane	0	36	---	---	---	---	2.48E+03	NTDA	in: uncertainty analysis	E
FPA	Bis(2-ethylhexyl)phthalate	0	36	---	---	---	---	2.48E+03	8.20E+01	in: uncertainty analysis	C
FPA	Chlorobenzene	0	35	---	---	---	---	6.25E+00	5.50E-01	in: uncertainty analysis	C
FPA	Chrysene	18	36	50.0%	5.60E-01	5.60E+01	SB-07	2.48E+03	7.70E+02	in	C
FPA	Di-n-butyl phthalate	0	36	---	---	---	---	2.48E+03	1.70E+03	in: uncertainty analysis	C
FPA	Dibenzofuran	19	36	52.8%	1.20E+00	2.50E+03	SB-07	2.48E+03	NTDA	in	E
FPA	Ethylbenzene	23	35	65.7%	1.30E-02	4.60E+01	SB-03	6.25E+00	3.80E+00	in	A
FPA	Fluoranthene	20	36	55.6%	1.80E+00	2.50E+03	SB-07	2.48E+03	9.60E+02	in	A

TABLE 6-2

Subsurface Soil Data Evaluation and Screening Results

Houston Wood Preserving Works
Houston, Texas

DATA SUMMARY										SCREEN RESULTS	
Exposure Area	Constituents	Count of Detection	Count of Analysis	Frequency of Detection	Minimum Result (mg/kg)	Maximum Result (mg/kg)	Location of Max. Result	Maximum Reporting Limit (mg/kg)	PCLs ^{GW} Soil (mg/kg)	Screen Result	Rationale
FPA	Fluorene	23	36	63.9%	1.30E+00	2.70E+03	SB-07	2.48E+03	1.50E+02	in	a
FPA	Dichloromethane	3	35	8.6%	6.00E-03	1.10E-02	SB-04	6.25E+00	6.50E-03	out	f
FPA	N-Nitrosodiphenylamine	0	36	---	---	---	---	2.48E+03	1.40E+00	in: uncertainty analysis	c
FPA	Naphthalene	23	36	63.9%	8.20E-01	4.20E+04	SB-07	2.48E+03	1.60E+01	in	a
FPA	Nitrobenzene	0	36	---	---	---	---	2.48E+03	4.40E-02	in: uncertainty analysis	c
FPA	Pentachlorophenol	0	36	---	---	---	---	1.20E+04	9.20E-03	in: uncertainty analysis	c
FPA	Phenanthrene	22	36	61.1%	3.60E+00	6.90E+03	SB-07	2.48E+03	2.10E+02	in	a
FPA	Phenol	3	36	8.3%	6.50E-01	6.79E-01	MW-23C	2.48E+03	1.90E+01	in	c
FPA	Pyrene	18	36	50.0%	1.20E+00	4.30E+02	SB-04	2.48E+03	5.60E+02	in	c
FPA	Toluene	21	35	60.0%	6.00E-03	3.20E+01	SB-03	6.25E+00	4.10E+00	in	a
FPA	Xylenes	24	35	68.6%	6.00E-03	1.70E+02	SB-03	6.25E+00	6.10E+01	in	a
SIA	1,2-Diphenylhydrazine	0	14	---	---	---	---	6.60E-01	1.60E-02	in: uncertainty analysis	c
SIA	2,4-Dimethylphenol	0	14	---	---	---	---	6.60E-01	1.60E+00	out	d
SIA	2,4-Dinitrotoluene	0	14	---	---	---	---	6.60E-01	2.70E-03	in: uncertainty analysis	c
SIA	2,6-Dinitrotoluene	0	14	---	---	---	---	6.60E-01	2.40E-03	in: uncertainty analysis	c
SIA	2-Chloronaphthalene	0	14	---	---	---	---	6.60E-01	3.30E+02	out	d
SIA	2-Methylnaphthalene	0	14	---	---	---	---	6.60E-01	8.50E+01	out	d
SIA	4,6-Dinitro-o-cresol	0	14	---	---	---	---	3.30E+00	NTDA	in: uncertainty analysis	c
SIA	4-Nitrophenol	0	14	---	---	---	---	3.30E+00	4.70E-01	in: uncertainty analysis	c
SIA	Acenaphthene	1	14	7.1%	1.60E+01	1.60E+01	MW-11B	6.60E-01	1.20E+02	out	b
SIA	Acenaphthylene	0	14	---	---	---	---	6.60E-01	2.00E+02	out	d
SIA	Anthracene	1	14	7.1%	8.60E+00	8.60E+00	MW-11B	6.60E-01	3.40E+03	out	b
SIA	Benzene	1	14	7.1%	1.40E-01	1.40E-01	MW-11B	1.00E-01	1.30E-02	in	a

TABLE 6-2

Subsurface Soil Data Evaluation and Screening Results

Houston Wood Preserving Works
Houston, Texas

Exposure Area	DATA SUMMARY										PCLs	SCREEN RESULTS	
	Count of Detection	Count of Analysis	Frequency of Detection	Minimum Result (mg/kg)	Maximum Result (mg/kg)	Location of Max. Result	Reporting Limit (mg/kg)	Screen Result	Rationale				
SIA Benzo(a)anthracene	1	14	7.1%	3.60E+00	3.60E+00	MW-11B	6.60E-01	8.90E+00	out	b			
SIA Benzo(a)pyrene	0	14	---	---	---	---	6.60E-01	3.80E+00	out	d			
SIA Bis(2-chloroethoxy)methane	0	14	---	---	---	---	6.60E-01	NTDA	in: uncertainty analysis	e			
SIA Bis(2-ethylhexyl)phthalate	0	14	---	---	---	---	6.60E-01	8.20E+01	out	d			
SIA Chlorobenzene	0	14	---	---	---	---	1.00E-01	5.50E-01	out	d			
SIA Chrysene	1	14	7.1%	3.20E+00	3.20E+00	MW-11B	6.60E-01	7.70E+02	out	b			
SIA Di-n-butyl phthalate	0	14	---	---	---	---	6.60E-01	1.70E+03	out	d			
SIA Dibenzofuran	1	14	7.1%	1.10E+01	1.10E+01	MW-11B	6.60E-01	NTDA	in	e			
SIA Ethylbenzene	0	14	---	---	---	---	1.00E-01	3.80E+00	out	d			
SIA Fluoranthene	1	14	7.1%	1.30E+01	1.30E+01	MW-11B	6.60E-01	9.60E+02	out	b			
SIA Fluorene	0	14	---	---	---	---	6.60E-01	1.50E+02	out	d			
SIA N-Nitrosodiphenylamine	0	14	---	---	---	---	6.60E-01	1.40E+00	out	d			
SIA Naphthalene	0	14	---	---	---	---	6.60E-01	1.60E+01	out	d			
SIA Nitrobenzene	0	14	---	---	---	---	6.60E-01	4.40E-02	in: uncertainty analysis	c			
SIA Pentachlorophenol	0	14	---	---	---	---	3.30E+00	9.20E-03	in: uncertainty analysis	c			
SIA Phenanthrene	1	14	7.1%	2.20E+01	2.20E+01	MW-11B	6.60E-01	2.10E+02	out	b			
SIA Phenol	0	14	---	---	---	---	6.60E-01	1.90E+01	out	d			
SIA Pyrene	1	14	7.1%	9.10E+00	9.10E+00	MW-11B	6.60E-01	5.60E+02	out	b			
SIA Toluene	11	14	78.6%	2.20E-01	1.80E+00	MW-10B	1.00E-01	4.10E+00	out	b			
SIA Xylenes	1	14	7.1%	2.60E+00	2.60E+00	MW-10B	1.00E-01	6.10E+01	out	b			
TSA 1,2-Dichloroethane	0	29	---	---	---	---	5.00E-03	6.90E-03	out	d			
TSA 1,2-Diphenylhydrazine	0	29	---	---	---	---	6.60E+00	1.60E-02	in: uncertainty analysis	c			
TSA 2,4-Dimethylphenol	0	29	---	---	---	---	6.60E+00	1.60E+00	in: uncertainty analysis	c			

TABLE 6-2

Subsurface Soil Data Evaluation and Screening Results

Houston Wood Preserving Works
Houston, Texas

DATA SUMMARY										SCREEN RESULTS	
Exposure Area	Constituents	Count of Detection	Count of Analysis	Frequency of Detection	Minimum Result (mg/kg)	Maximum Result (mg/kg)	Location of Max. Result	Reporting Limit (mg/kg)	PCLs ^{GW} Soil (mg/kg)	Screen Result	Rationale
TSA	2,4-Dinitrotoluene	0	29	---	---	---	---	6.60E+00	2.70E-03	in: uncertainty analysis	c
TSA	2,6-Dinitrotoluene	0	29	---	---	---	---	6.60E+00	2.40E-03	in: uncertainty analysis	c
TSA	2-Chloronaphthalene	0	29	---	---	---	---	6.60E+00	3.30E+02	out	d
TSA	2-Methylnaphthalene	4	29	13.8%	5.90E-01	2.80E+01	SB-06	6.60E+00	8.50E+01	out	b
TSA	4,6-Dinitro-o-cresol	0	29	---	---	---	---	3.20E+01	NTDA	in: uncertainty analysis	e
TSA	4-Nitrophenol	0	29	---	---	---	---	3.20E+01	4.70E-01	in: uncertainty analysis	c
TSA	Acenaphthene	4	29	13.8%	2.10E+00	1.80E+01	SB-06	6.60E+00	1.20E+02	out	b
TSA	Acenaphthylene	0	29	---	---	---	---	6.60E+00	2.00E+02	out	d
TSA	Anthracene	4	29	13.8%	1.40E+00	1.50E+01	SB-06	6.60E+00	3.40E+03	out	b
TSA	Benzene	0	29	---	---	---	---	5.00E-03	1.30E-02	out	d
TSA	Benzo(a)anthracene	3	29	10.3%	4.00E-01	2.40E+00	SB-06	6.60E+00	8.90E+00	out	b
TSA	Benzo(a)pyrene	1	29	3.4%	1.50E+00	1.50E+00	MW-14	6.60E+00	3.80E+00	in	c
TSA	Bis(2-chloroethoxy)methane	0	29	---	---	---	---	6.60E+00	NTDA	in: uncertainty analysis	e
TSA	Bis(2-ethylhexyl)phthalate	0	29	---	---	---	---	6.60E+00	8.20E+01	out	d
TSA	Chlorobenzene	0	29	---	---	---	---	5.00E-03	5.50E-01	out	d
TSA	Chrysene	2	29	6.9%	4.00E-01	5.30E-01	SB-02	6.60E+00	7.70E+02	out	b
TSA	Di-n-butyl phthalate	0	29	---	---	---	---	6.60E+00	1.70E+03	out	d
TSA	Dibenzofuran	4	29	13.8%	1.70E+00	1.80E+01	SB-06	6.60E+00	NTDA	in	e
TSA	Ethylbenzene	3	29	10.3%	7.00E-03	4.40E-02	SB-06	5.00E-03	3.80E+00	out	b
TSA	Fluoranthene	5	29	17.2%	3.60E-01	2.00E+01	SB-06	6.60E+00	9.60E+02	out	b
TSA	Fluorene	5	29	17.2%	3.60E-01	2.10E+01	SB-06	6.60E+00	1.50E+02	out	b
TSA	Dichloromethane	3	29	10.3%	5.00E-03	6.00E-03	MW-15A	5.00E-03	6.50E-03	out	f
TSA	N-Nitrosodiphenylamine	0	29	---	---	---	---	6.60E+00	1.40E+00	in: uncertainty analysis	c

TABLE 6-2

Subsurface Soil Data Evaluation and Screening Results

Houston Wood Preserving Works
Houston, Texas

DATA SUMMARY										PCLs		SCREEN RESULTS	
Exposure Area	Constituents	Count of Detection	Count of Analysis	Frequency of Detection	Minimum Result (mg/kg)	Maximum Result (mg/kg)	Location of Max. Result	Reporting Limit (mg/kg)	Maximum Result (mg/kg)	Screen Result	Rationale		
TSA	<i>Naphthalene</i>	5	29	17.2%	3.30E-01	6.10E+01	SB-06	6.60E+00	1.60E+01	in	a		
TSA	<i>Nitrobenzene</i>	0	29	---	---	---	---	6.60E+00	4.40E-02	in: uncertainty analysis	c		
TSA	<i>Pentachlorophenol</i>	0	29	---	---	---	---	3.20E+01	9.20E-03	in: uncertainty analysis	c		
TSA	Phenanthrene	4	29	13.8%	1.10E+00	4.40E+01	SB-06	6.60E+00	2.10E+02	out	b		
TSA	Phenol	0	29	---	---	---	---	6.60E+00	1.90E+01	out	d		
TSA	Pyrene	3	29	10.3%	1.20E+00	9.20E+00	SB-06	6.60E+00	5.60E+02	out	b		
TSA	Toluene	0	29	---	---	---	---	5.00E-03	4.10E+00	out	d		
TSA	Xylenes	4	29	13.8%	5.00E-03	7.40E-02	SB-06	5.00E-03	6.10E+01	out	b		

NOTES

- Parameter names in *italics* did not pass data screen. Parameter remains on COPC list for exposure area
- NTDA = No Toxicity Data Available
- FPA = Former Process Area
- TSA = Tie Storage Area
- SIA = Surface Impoundment Area
- PCLs = Protective Concentration Levels

Screen result rationale:

- a = Maximum reported result was greater than the ground water protection standard (^{GW}Soil (30 acres)).
- b = Maximum reported result was less than the ground water protection standard (^{GW}Soil (30 acres)).
- c = Maximum reported LOQ was greater than the ground water protection standard (^{GW}Soil (30 acres)).
- d = Maximum reported LOQ was less than the ground water protection standard (^{GW}Soil (30 acres)).
- e = No toxicity data was available for data screening.
- f = common laboratory contaminant and not site related.
- g = Detected in < 5% of samples and is not site related.

TABLE 6-3

Surface Soil Exposure Point Concentrations: Former Process Area

Houston Wood Preserving Works
Houston, Texas

FPA Surface Soil Detected COPCs	Count	Count of Analysis	Frequency of Detection	Minimum		Maximum		Maximum Reporting Limit (mg/kg)	Exposure Point Concentration (mg/kg)
	of Detection			Result (mg/kg)	Result (mg/kg)				
2-Methylnaphthalene	6	23	26.1%	5	1300	500	191.8	UCL	
Acenaphthene	7	23	30.4%	4.3	1700	500	253.8	UCL	
Benzene	3	13	23.1%	0.007	0.033	0.625	0.011	UCL	
Benzo(a)anthracene	19	23	82.6%	0.046	220	165	54.3	UCL	
Benzo(a)pyrene	17	23	73.9%	0.044	79	165	18.5	UCL	
Dibenzofuran	6	23	26.1%	4	1100	500	189.2	UCL	
Ethylbenzene	5	13	38.5%	0.024	6.3	0.625	2.5	UCL	
Fluoranthene	13	23	56.5%	1.327	2500	500	393.5	UCL	
Fluorene	7	23	30.4%	4	1600	500	246.3	UCL	
Naphthalene	7	23	30.4%	1.2	3900	500	544.1	UCL	
Phenanthrene	10	23	43.5%	2.63	4100	500	665.1	UCL	
Pyrene	12	23	52.2%	1.51	1500	500	245.7	UCL	

NOTE:

UCL = Exposure point concentration is the 95% Upper Confidence Limit of the arithmetic mean.

TABLE 6-4

Surface Soil Exposure Point Concentrations: Tie Storage Area

Houston Wood Preserving Works
Houston, Texas

TSA Surface Soil Detected COPCs	Count	Count	Frequency of Detection	Minimum Result (mg/kg)	Maximum Result (mg/kg)	Maximum Reporting Limit (mg/kg)	Exposure Point Concentration (mg/kg)
	of Detection	of Analysis					
Benzo(a)anthracene	19	34	55.9%	0.056	8.2	8.25	1.07 UCL
Benzo(a)pyrene	17	34	50.0%	0.062	1.51	8.25	0.41 UCL
Dibenzofuran	1	31	3.2%	43.0	43.0	8.25	43 MC
Naphthalene	1	31	3.2%	132.0	132.0	8.25	132 MC

NOTES:

UCL = Exposure point concentration is the 95% Upper Confidence Limit of the arithmetic mean.
MC = Maximum reported concentration.

TABLE 6-5

Subsurface Soil Exposure Point Concentrations: Former Process Area

Houston Wood Preserving Works
Houston, Texas

FPA Subsurface Soil Detected COPCs	Count of Detection	Count of Analysis	Frequency of Detection	Minimum Result (mg/kg)	Maximum Result (mg/kg)	Maximum Reporting Limit (mg/kg)	Exposure Point Concentration (mg/kg)
2,4-Dimethylphenol	3	36	8.3%	2.3	25	2475	2.82 UCL
2-Methylnaphthalene	23	36	63.9%	1.1	3700	2475	539.12 UCL
Acenaphthene	22	36	61.1%	1.1	3200	2475	345.96 UCL
Acenaphthylene	2	36	5.6%	6.8	6.8	2475	2475 MRL
Benzene	12	35	34.3%	0.009	1.1	6.25	0.15 UCL
Benzo(a)anthracene	16	36	44.4%	0.56	59	2475	11.80 UCL
Benzo(a)pyrene	5	36	13.9%	1	15	2475	1.98 UCL
Chrysene	18	36	50.0%	0.56	56	2475	13.09 UCL
Dibenzofuran	19	36	52.8%	1.2	2500	2475	278.74 UCL
Ethylbenzene	23	35	65.7%	0.013	46	6.25	7.13 UCL
Fluoranthene	20	36	55.6%	1.8	2500	2475	266.56 UCL
Fluorene	23	36	63.9%	1.3	2700	2475	306.50 UCL
Naphthalene	23	36	63.9%	0.82	42000	2475	6215.51 UCL
Phenanthrene	22	36	61.1%	3.6	6900	2475	915.90 UCL
Phenol	3	36	8.3%	0.65	0.679	2475	0.37 UCL
Pyrene	18	36	50.0%	1.2	430	2475	66.48 UCL
Toluene	21	35	60.0%	0.006	32	6.25	5.89 UCL
Xylenes	24	35	68.6%	0.006	170	6.25	23.79 UCL

NOTES:

UCL = Exposure point concentration is the 95% Upper Confidence Limit of the arithmetic mean.

MRL = Maximum reporting limit.

TABLE 6-6

Subsurface Soil Exposure Point Concentrations: Tie Storage Area

Houston Wood Preserving Works
Houston, Texas

TSA Subsurface Soil Detected COPCs	Count of Detection	Count of Analysis	Frequency of Detection	Minimum Result (mg/kg)	Maximum Result (mg/kg)	Maximum Reporting Limit (mg/kg)	Exposure Point Concentration (mg/kg)
Benzo(a)pyrene	1	29	3.4%	1.5	1.5	6.6	6.6 MRL
Dibenzofuran	4	29	13.8%	1.7	18	6.6	2.32 UCL
Naphthalene	6	29	20.7%	0.33	61	6.6	6.63 UCL

NOTES:

UCL = Exposure point concentration is the 95% Upper Confidence Limit of the arithmetic mean.

MRL = Maximum reporting limit.

MC = Maximum reported concentration.

TABLE 6-7

Subsurface Soil Exposure Point Concentrations: Surface Impoundment Area

Houston Wood Preserving Works
Houston, Texas

SIA Subsurface Soil Detected COPCs	Count of Detection	Count of Analysis	Frequency of Detection	Minimum Result (mg/kg)	Maximum Result (mg/kg)	Maximum Reporting Limit (mg/kg)	Exposure Point Concentration (mg/kg)
Benzene	1	14	7.1%	0.14	0.14	0.1	0.14 MC
Dibenzofuran	1	14	7.1%	11	11	0.66	11.0 MC

NOTES:

UCL = Exposure point concentration is the 95% Upper Confidence Limit of the arithmetic mean.

MC = Maximum reported concentration.

TABLE 6-8

Synthetic Precipitation Leachate Procedure Data: Former Process Area

Houston Wood Preserving Works
Houston, Texas

Detected Constituents	Count of Detection	Count of Analysis	Maximum		Sample Interval for Maximum Result (ft. bgs)	Sample ID for Maximum Result	SPLP Result (mg/L)
			Result (mg/L)	Reporting Limit (mg/L)			
2-Methylnaphthalene	4	13	1.6	0.25	51-52	HWPW-SB04-S51-L	1.6 MC
Acenaphthene	4	13	0.38	0.25	51-52	HWPW-SB04-S51-L	0.38 MC
Anthracene	1	13	0.031	0.25	24-25	HWPW-SB03-S24-L	0.031 MC
Benzene	1	12	0.024	0.015	24-25	HWPW-SB03-S24-L	0.024 MC
Dibenzofuran	4	13	0.35	0.25	51-52	HWPW-SB04-S51-L	0.35 MC
Ethylbenzene	1	12	0.036	0.015	51-52	HWPW-SB04-S51-L	0.036 MC
Fluoranthene	2	13	0.032	0.25	24-25	HWPW-SB03-S24-L	0.25 MRL
Fluorene	4	13	0.28	0.25	51-52	HWPW-SB04-S51-L	0.28 MC
Naphthalene	5	13	2.2	0.25	51-52	HWPW-SB04-S51-L	2.2 MC
Phenanthrene	4	13	0.82	0.25	51-52	HWPW-SB04-S51-L	0.82 MC
Pyrene	2	13	0.25	0.25	51-52	HWPW-SB04-S51-L	0.25 MC
Toluene	2	13	0.26	0.05	24-25	HWPW-SB03-S24-L	0.26 MC
Xylenes	2	12	0.1	0.015	51-52	HWPW-SB04-S51-L	0.1 MC

NOTES:

MRL = Maximum reporting limit.

MC = Maximum reported concentration

ft. bgs = feet below ground surface.

TABLE 6-9

Synthetic Precipitation Leachate Procedure Data: Tie Storage Area

Houston Wood Preserving Works
Houston, Texas

Detected Constituents	Count of Detection	Count of Analysis	Maximum		Sample Interval for Maximum Result (ft. bgs)	Sample ID for Maximum Result	SPLP Result (mg/L)
			Result (mg/L)	Reporting Limit (mg/L)			
2-Methylnaphthalene	1	5	0.1	0.1	19.5-20.0	SB06-S19-L	0.1 MC
Acenaphthene	1	5	0.1	0.1	19.5-20.0	SB06-S19-L	0.1 MC
Anthracene	1	5	0.026	0.1	19.5-20.0	SB06-S19-L	0.026 MC
Benzene	1	5	0.016	0.015	19.5-20.0	SB06-S19-L	0.016 MC
Dibenzofuran	1	5	0.096	0.1	19.5-20.0	SB06-S19-L	0.096 MC
Fluoranthene	1	5	0.035	0.1	19.5-20.0	SB06-S19-L	0.035 MC
Fluorene	1	5	0.09	0.1	19.5-20.0	SB06-S19-L	0.09 MC
Naphthalene	1	5	0.036	0.1	19.5-20.0	SB06-S19-L	0.036 MC
Phenanthrene	1	5	0.14	0.1	19.5-20.0	SB06-S19-L	0.14 MC
Pyrene	1	4	0.018	0.1	19.5-20.0	SB06-S19-L	0.018 MC

NOTES:

MC = Maximum reported concentration.
ft. bgs = feet below ground surface.

TABLE 6-10

Former Process Area Soil Evaluation: Comparison to Applicable Tier 1 Soil PCLs

Houston Wood Preserving Works
Houston, Texas

Surface Soil Detected COPCs (a)	FPA Surface Soil Evaluation				Subsurface Soil Detected COPCs (a)	FPA Subsurface Soil Evaluation			
	Exposure Point Concentrations (b) (mg/kg)	Com/Ind ^{GW} Soil (c) (mg/kg)	Com/Ind ^{TW} Soil _{C_{comb}} (c) (mg/kg)	Residential ^{Air} Soil _{lab-VP} (c) (mg/kg)		Exposure Point Concentrations (b) (mg/kg)	Com/Ind ^{GW} Soil (c) (mg/kg)	Com/Ind ^{Air} Soil _{lab-V} (c) (mg/kg)	Critical Soil PCL (mg/kg)
2-Methylnaphthalene	191.8	250	25000	NA	2,4-Dimethylphenol	2.82	4.8	3600	4.8
Acenaphthene	253.8	350	37000	NA	2-Methylnaphthalene	539.12	250	NA	250
Benzene	0.01	0.013	38	24	Acenaphthene	345.96	350	NA	350
Benzo(a)anthracene	54.29	20	24	1900	Acenaphthylene	2475.00	610	NA	610
Benzo(a)pyrene	18.52	3.8	2.4	420	Benzene	0.15	0.013	40	0.013
Dibenzofuran	189.24	NA	2700	NA	Benzo(a)anthracene	11.8	20	3200	20
Ethylbenzene	2.51	3.8	9900	7900	Benzo(a)pyrene	1.98	3.8	730	3.8
Fluoranthene	393.48	2900	25000	NA	Chrysene	13.09	1700	510000	1700
Fluorene	246.29	450	25000	NA	Dibenzofuran	278.74	NA	NA	NA
Naphthalene	544.08	47	190	140	Ethylbenzene	7.13	3.8	11000	3.8
Phenanthrene	665.05	620	19000	NA	Fluoranthene	266.56	2900	NA	2900
Pyrene	245.67	1700	19000	NA	Fluorene	306.50	450	NA	450
					Naphthalene	6215.51	47	190	47
					Phenanthrene	915.89	620	NA	620
					Phenol	0.37	44	50000	44
					Pyrene	66.48	1700	NA	1700
					Toluene	5.89	4.1	4400	4.1
					Xylenes	23.79	61	4800	61

NOTES:

☐ Indicates a PCL exceedance; the footnote next to the open box indicates which PCL(s) are exceeded.

(1) = Exposure point concentration exceeds ^{GW}Soil only.

(2) = Surface soil EPC exceeds ^{GW}Soil and ^{TW}Soil_{C_{comb}}.

(3) = Surface soil EPC exceeds ^{GW}Soil, ^{TW}Soil_{C_{comb}}, and ^{Air}Soil_{lab-VP}.

(4) = Subsurface soil EPC exceeds both ^{GW}Soil and ^{Air}Soil_{lab-V}.

NA = Not Available in TRRP PCL Table.

(a) Constituents of potential concern in FPA surface and subsurface soil.

(b) FPA surface and subsurface soil EPCs are determined on Tables 6-3 and 6-5, respectively.

(c) Values taken from the TNRCC TRRP PCL Tables dated August 24, 1999. 30-acre source area values were used.

TABLE 6-11

Evaluation of Former Process Area SPLP Data: Comparison to Applicable Tier 1 Ground Water PCLs

Houston Wood Preserving Works
Houston, Texas

Detected Constituents (a)	Count of Detection	Count of Analysis	Maximum Result (mg/L)	Maximum Reporting Limit (mg/L)	Sample Interval for Maximum Result (ft. bgs)	Sample ID for Maximum Result	SPLP Result (b) (mg/L)	Com/Ind Critical Ground Water PCLs (c) (mg/L)
2-Methylnaphthalene	4	13	1.6	0.25	51-52	HWPW-SB04-S51-L	1.6	2.9
Acenaphthene	4	13	0.38	0.25	51-52	HWPW-SB04-S51-L	0.38	4.4
Anthracene	1	13	0.031	0.25	24-25	HWPW-SB03-S24-L	0.031	22
Benzene	1	12	0.024	0.015	24-25	HWPW-SB03-S24-L	0.024	0.005
Dibenzofuran	4	13	0.35	0.25	51-52	HWPW-SB04-S51-L	0.35	0.29
Ethylbenzene	1	12	0.036	0.015	51-52	HWPW-SB04-S51-L	0.036	0.7
Fluoranthene	2	13	0.032	0.25	24-25	HWPW-SB03-S24-L	0.25	2.9
Fluorene	4	13	0.28	0.25	51-52	HWPW-SB04-S51-L	0.28	2.9
Naphthalene	5	13	2.2	0.25	51-52	HWPW-SB04-S51-L	2.2	1.5
Phenanthrene	4	13	0.82	0.25	51-52	HWPW-SB04-S51-L	0.82	2.2
Pyrene	2	13	0.25	0.25	51-52	HWPW-SB04-S51-L	0.25	2.2
Toluene	2	13	0.26	0.05	24-25	HWPW-SB03-S24-L	0.26	1
Xylenes	2	12	0.1	0.015	51-52	HWPW-SB04-S51-L	0.1	10

NOTES:
 SPLP concentration exceeds critical ground water PCL.
 ft. bgs = feet below ground surface.

(a) Constituents of potential concern.

(b) FPA SPLP EPCs are determined on Table 6-7.

(c) Values taken from the TNRCC TRRP PCL Tables dated August 24, 1999.

TABLE 6-12

Tie Storage Area Soil Evaluation: Comparison to Applicable Tier 1 Soil PCLs

Houston Wood Preserving Works
Houston, Texas

Surface Soil Detected COPCs (a)	TSA Surface Soil Evaluation				TSA Subsurface Soil Evaluation				
	Exposure Point Concentrations (b) (mg/kg)	Com/Ind ^{GW} Soil (c) (mg/kg)	Com/Ind ^{Tot} Soil _{C_{omb} (c) (mg/kg)}	Residential ^{Air} Soil _{Inh-VF} (c) (mg/kg)	Subsurface Soil Detected COPCs (a)	Exposure Point Concentrations (b) (mg/kg)	Com/Ind ^{GW} Soil (c) (mg/kg)	Com/Ind ^{Air} Soil _{Inh-VF} (c) (mg/kg)	Critical Soil PCL (mg/kg)
Benzo(a)anthracene	1.07	20	24	24	Benzo(a)pyrene	6.6	3.8	730	3.8
Benzo(a)pyrene	0.41	3.8	2.4	1900	Dibenzofuran	2.32	NA	NA	NA
Dibenzofuran	43	NA	2700	420	Naphthalene	6.63	47	190	47
Naphthalene	132	47	190	140					

NOTES:

☐ Indicates a PCL exceedance; the footnote next to the open box indicates which PCL(s) are exceeded.

(1) = Exposure point concentration exceeds ^{GW}Soil only.

(2) = Surface soil EPC exceeds ^{GW}Soil and ^{Tot}Soil_{C_{omb}}.

(3) = Surface soil EPC exceeds ^{GW}Soil, ^{Tot}Soil_{C_{omb}}, and ^{Air}Soil_{Inh-VF}.

(4) = Subsurface soil EPC exceeds both ^{GW}Soil and ^{Air}Soil_{Inh-VF}.

NA = Not Available in TRRP PCL Table.

(a) Constituents of potential concern in the TSA surface and subsurface soil.

(b) TSA surface and subsurface soil EPCs are determined on Tables 6-4 and 6-6, respectively.

(c) Values taken from the TNRCC TRRP PCL Tables dated August 24, 1999. 30-acre source area values were used.

TABLE 6-13

Evaluation of Tie Storage Area SPLP Data: Comparison to Applicable Tier 1 Ground Water PCLs

Houston Wood Preserving Works
Houston, Texas

Detected Constituents (a)	Count of Detection	Count of Analysis	Maximum		Sample Interval for Maximum Result (ft. bgs)	Sample ID for Maximum Result	SPLP Result (b) (mg/L)	Critical Ground Water PCLs (c) (mg/L)
			Result (mg/L)	Reporting Limit (mg/L)				
2-Methylnaphthalene	1	5	0.1	0.1	19.5-20.0	SB06-S19-L	0.1	2.9
Acenaphthene	1	5	0.1	0.1	19.5-20.0	SB06-S19-L	0.1	4.4
Anthracene	1	5	0.026	0.1	19.5-20.0	SB06-S19-L	0.026	22
Benzene	1	5	0.016	0.015	19.5-20.0	SB06-S19-L	0.016	0.005
Dibenzofuran	1	5	0.096	0.1	19.5-20.0	SB06-S19-L	0.096	0.29
Fluoranthene	1	5	0.035	0.1	19.5-20.0	SB06-S19-L	0.035	2.9
Fluorene	1	5	0.09	0.1	19.5-20.0	SB06-S19-L	0.09	2.9
Naphthalene	1	5	0.036	0.1	19.5-20.0	SB06-S19-L	0.036	1.5
Phenanthrene	1	5	0.14	0.1	19.5-20.0	SB06-S19-L	0.14	2.2
Pyrene	1	4	0.018	0.1	19.5-20.0	SB06-S19-L	0.018	2.2

NOTES:

0.016 SPLP concentration exceeds critical ground water PCL.

ft. bgs = feet below ground surface.

(a) Constituents of potential concern.

(b) TSA SPLP EPCs are determined on Table 6-9.

(c) Values taken from the TNRCC TRRP PCL Tables dated August 24, 1999.

TABLE 6-14

Surface Impoundment Area Soil Evaluation: Comparison to Applicable Tier 1 Soil PCLs

Houston Wood Preserving Works
Houston, Texas

Subsurface Soil Detected COPCs (a)	Exposure Point Concentrations (b) (mg/kg)	SIA Subsurface Soil Evaluation		
		Com/Ind GW Soil (c) (mg/kg)	Com/Ind Air Soil _{inh-v} (c) (mg/kg)	Com/Ind Critical Soil PCLs (mg/kg)
Benzene	0.14	(1) 0.026	77	0.026
Dibenzofuran	11.0	NA	NA	NA

NOTES:

- (1) = Exposure point concentration exceeds ^{GW}Soil only.
- (2) = Exposure point concentration exceeds both ^{GW}Soil and ^{Air}Soil_{inh-v}.
- NA = Not Available in TRRP PCL Table.
- (a) COPCs in the SIA subsurface soil; no surface soil COPCs were identified because soils were excavated to an approximate depth of seven feet below ground surface in the SIA.
- (b) SIA subsurface soil EPCs are determined on Table 6-7.
- (c) Values taken from the TNRCC TRRP PCL Tables dated August 24, 1999. 0.5-acre source area values were used (the SIA is < 0.5-acre).

TABLE 7-1

Ground Water Data Evaluation and Screening Results

Houston Wood Preserving Works
Houston, Texas

DATA SUMMARY										SCREEN RESULTS			
Transmissive Zone	Constituents	Count of Detection	Count of Analysis	Frequency of Detection	Minimum Result (mg/L)		Maximum Result (mg/L)		Location of Max. Result	Maximum Reporting Limit (mg/L)	PCLs ^{GW} Residential (mg/L)	Screen Result	Rationale
					Result (mg/L)	Result (mg/L)	Result (mg/L)	Result (mg/L)					
A-TZ	1,2-Dichloroethane	1	72	1.4%	1.72E-02	1.72E-02	1.72E-02	5.00E-02	MW-18A	5.00E-02	5.00E-03	out	f
A-TZ	1,2-Diphenylhydrazine	0	82	---	---	---	---	1.00E+00	---	1.00E+00	1.10E-03	in: uncertainty analysis	c
A-TZ	2,4-Dimethylphenol	5	64	7.8%	1.22E-02	9.21E+00	2.50E+00	2.50E+00	MW-18A	2.50E+00	4.90E-01	in	a
A-TZ	2,4-Dinitrotoluene	1	82	1.2%	2.30E-02	2.30E-02	1.00E+00	1.00E+00	MW-11A	1.00E+00	1.30E-03	out	f
A-TZ	2,6-Dinitrotoluene	0	82	---	---	---	1.00E+00	1.00E+00	---	1.00E+00	1.30E-03	in: uncertainty analysis	c
A-TZ	2-Chloronaphthalene	0	82	---	---	---	1.00E+00	1.00E+00	---	1.00E+00	2.00E+00	out	d
A-TZ	2-Methylnaphthalene	21	82	25.6%	1.10E-02	7.11E-01	1.00E+00	1.00E+00	MW-17	1.00E+00	9.80E-01	in	c
A-TZ	4,6-Dinitro-o-cresol	1	82	1.2%	1.10E+00	1.10E+00	5.00E+00	5.00E+00	MW-11A	5.00E+00	4.90E-02	out	f
A-TZ	4-Nitrophenol	0	82	---	---	---	5.00E+00	5.00E+00	---	5.00E+00	4.90E-02	in: uncertainty analysis	c
A-TZ	Acenaphthene	35	82	42.7%	1.00E-02	3.50E-01	1.00E+00	1.00E+00	MW-18A	1.00E+00	1.50E+00	out	b
A-TZ	Acenaphthylene	1	82	1.2%	3.56E-02	3.56E-02	1.00E+00	1.00E+00	MW-15A	1.00E+00	1.50E+00	out	b
A-TZ	Anthracene	4	82	4.9%	1.06E-02	1.63E-02	1.00E+00	1.00E+00	MW-16	1.00E+00	7.30E+00	out	b
A-TZ	Benzene	23	83	27.7%	2.33E-03	7.00E-01	5.00E-02	5.00E-02	MW-18A	5.00E-02	5.00E-03	in	a
A-TZ	Benzo(a)anthracene	0	82	---	---	---	1.00E+00	1.00E+00	---	1.00E+00	1.30E-03	in: uncertainty analysis	c
A-TZ	Benzo(a)pyrene	1	82	1.2%	1.90E-01	1.90E-01	1.00E+00	1.00E+00	MW-11A	1.00E+00	2.00E-04	in	a
A-TZ	Bis(2-chloroethoxy)methane	0	71	---	---	---	1.00E+00	1.00E+00	---	1.00E+00	4.10E-06	in: uncertainty analysis	c
A-TZ	Bis(2-ethylhexyl)phthalate	0	82	---	---	---	1.00E+00	1.00E+00	---	1.00E+00	6.00E-03	in: uncertainty analysis	c
A-TZ	Chlorobenzene	2	83	2.4%	3.97E-03	1.00E-02	5.00E-02	5.00E-02	MW-11A	5.00E-02	1.00E-01	out	b
A-TZ	Chrysene	0	82	---	---	---	1.00E+00	1.00E+00	---	1.00E+00	1.30E-01	in: uncertainty analysis	c

TABLE 7-1

Ground Water Data Evaluation and Screening Results

Houston Wood Preserving Works
Houston, Texas

DATA SUMMARY										SCREEN RESULTS			
Transmissive Zone	Constituents	Count of Detection	Count of Analysis	Frequency of Detection	Minimum Result (mg/L)		Maximum Result (mg/L)		Location of Max. Result	Maximum Reporting Limit (mg/L)	PCLs ^{GW} Residential (mg/L)	Screen Result	Rationale
					Count	Count	Result	Result					
A-TZ	Di-n-butyl phthalate	2	82	2.4%	1.70E-02	1.90E-02	1.90E-02	1.00E+00	HP05UTZ	1.00E+00	2.40E+00	out	b
A-TZ	Dibenzofuran	26	82	31.7%	1.50E-02	1.60E-01	1.60E-01	1.00E+00	MW-01A	1.00E+00	9.80E-02	in	a
A-TZ	Ethylbenzene	28	83	33.7%	4.08E-03	1.10E+00	1.10E+00	5.00E-02	HP11UTZ	5.00E-02	7.00E-01	in	a
A-TZ	Fluoranthene	4	82	4.9%	1.04E-02	2.63E-02	2.63E-02	1.00E+00	MW-16	1.00E+00	9.80E-01	in	c
A-TZ	Fluorene	30	82	36.6%	1.06E-02	1.90E-01	1.90E-01	1.00E+00	MW-08	1.00E+00	9.80E-01	in	c
A-TZ	Dichloromethane	0	83	---	---	---	---	5.00E-02	---	5.00E-02	5.00E-03	in: uncertainty analysis	c
A-TZ	N-Nitrosodiphenylamine	0	71	---	---	---	---	2.00E-01	---	2.00E-01	1.90E-01	in: uncertainty analysis	c
A-TZ	Naphthalene	36	83	43.4%	1.60E-02	1.22E+01	1.22E+01	2.50E+00	MW-17	2.50E+00	4.90E-01	in	a
A-TZ	Nitrobenzene	0	82	---	---	---	---	1.00E+00	---	1.00E+00	1.20E-02	in: uncertainty analysis	c
A-TZ	Pentachlorophenol	0	82	---	---	---	---	5.00E+00	---	5.00E+00	1.00E-03	in: uncertainty analysis	c
A-TZ	Phenanthrene	13	71	18.3%	1.67E-02	1.33E-01	1.33E-01	1.00E+00	MW-01A	1.00E+00	7.30E-01	in	c
A-TZ	Phenol	2	82	2.4%	1.41E+00	2.97E+01	2.97E+01	1.00E+01	MW-17	1.00E+01	1.50E+01	in	a
A-TZ	Pyrene	1	82	1.2%	1.48E-02	1.48E-02	1.48E-02	1.00E+00	MW-16	1.00E+00	7.30E-01	in	c
A-TZ	Toluene	24	83	28.9%	4.82E-03	8.05E-01	8.05E-01	5.00E-02	MW-18A	5.00E-02	1.00E+00	out	b
A-TZ	Xylenes	30	83	36.1%	2.85E-03	9.00E-01	9.00E-01	5.00E-02	HP11UTZ	5.00E-02	1.00E+01	out	b
B-TZ	1,2-Dichloroethane	1	35	2.9%	2.40E-02	2.40E-02	2.40E-02	5.00E-03	P-10	5.00E-03	5.00E-03	out	f
B-TZ	1,2-Diphenylhydrazine	0	41	---	---	---	---	2.00E-01	---	2.00E-01	1.10E-03	in: uncertainty analysis	c
B-TZ	2,4-Dimethylphenol	0	41	---	---	---	---	2.00E-01	---	2.00E-01	4.90E-01	out	d

TABLE 7-1

Ground Water Data Evaluation and Screening Results

Houston Wood Preserving Works
Houston, Texas

DATA SUMMARY										SCREEN RESULTS			
Transmissive Zone	Constituents	Count of Detection	Count of Analysis	Frequency of Detection	Minimum Result (mg/L)		Maximum Result (mg/L)		Location of Max. Result	Maximum Reporting Limit (mg/L)	PCLs GW _{ing} Residential (mg/L)	Screen Result	Rationale
					Result (mg/L)	Result (mg/L)	Result (mg/L)	Result (mg/L)					
B-TZ	2,4-Dinitrotoluene	1	41	2.4%	2.70E-01	2.70E-01	2.70E-01	2.70E-01	MW-11B	2.00E-01	1.30E-03	out	f
B-TZ	2,6-Dinitrotoluene	0	41	---	---	---	---	5.00E-01	---	5.00E-01	1.30E-03	<i>in: uncertainty analysis</i>	c
B-TZ	2-Chloronaphthalene	0	41	---	---	---	---	2.00E-01	---	2.00E-01	2.00E+00	out	d
B-TZ	2-Methylnaphthalene	15	41	36.6%	1.00E-02	1.40E+00	1.40E+00	2.00E-01	MW-11B	2.00E-01	9.80E-01	<i>in</i>	a
B-TZ	4,6-Dinitro-o-cresol	1	41	2.4%	1.90E-02	1.90E-02	1.90E-02	2.00E-01	P-10	2.00E-01	4.90E-02	out	f
B-TZ	4-Nitrophenol	2	41	4.9%	1.50E-01	2.70E-01	2.70E-01	2.00E-01	MW-11B	2.00E-01	4.90E-02	out	f
B-TZ	Acenaphthene	23	41	56.1%	1.80E-02	2.30E-01	2.30E-01	2.00E-01	MW-12B	2.00E-01	1.50E+00	out	b
B-TZ	Acenaphthylene	2	41	4.9%	1.70E-02	2.50E-01	2.50E-01	2.00E-01	MW-11B	2.00E-01	1.50E+00	out	b
B-TZ	Anthracene	4	41	9.8%	1.19E-02	2.80E-02	2.80E-02	2.00E-01	MW-10B	2.00E-01	7.30E+00	out	b
B-TZ	Benzene	8	41	19.5%	1.11E-03	6.96E-03	6.96E-03	5.00E-02	P-10	5.00E-02	5.00E-03	<i>in</i>	a
B-TZ	Benzo(a)anthracene	0	41	---	---	---	---	2.00E-01	---	2.00E-01	1.30E-03	<i>in: uncertainty analysis</i>	c
B-TZ	Benzo(a)pyrene	2	41	4.9%	4.90E-02	1.10E-01	1.10E-01	2.00E-01	MW-11B	2.00E-01	2.00E-04	<i>in</i>	a
B-TZ	Bis(2-chloroethoxy)methane	0	35	---	---	---	---	2.00E-01	---	2.00E-01	4.10E-06	<i>in: uncertainty analysis</i>	c
B-TZ	Bis(2-ethylhexyl)phthalate	0	41	---	---	---	---	2.00E-01	---	2.00E-01	6.00E-03	<i>in: uncertainty analysis</i>	c
B-TZ	Chlorobenzene	2	41	4.9%	3.41E-03	9.00E-03	9.00E-03	5.00E-02	MW-11B	5.00E-02	1.00E-01	out	b
B-TZ	Chrysene	2	41	4.9%	3.40E-02	3.80E-01	3.80E-01	2.00E-01	MW-11B	2.00E-01	1.30E-01	<i>in</i>	a
B-TZ	Di-n-butyl phthalate	3	41	7.3%	1.10E-02	3.40E-02	3.40E-02	5.00E-01	HP06STZ	5.00E-01	2.40E+00	out	b
B-TZ	Dibenzofuran	17	41	41.5%	1.20E-02	2.80E+00	2.80E+00	5.00E-01	P-10	5.00E-01	9.80E-02	<i>in</i>	a

TABLE 7-1

Ground Water Data Evaluation and Screening Results

Houston Wood Preserving Works
Houston, Texas

Transmissive Zone	DATA SUMMARY										PCLs		SCREEN RESULTS	
	Count of Detection	Count of Analysis	Frequency of Detection	Minimum Result (mg/L)	Maximum Result (mg/L)	Location of Max. Result	Maximum Reporting Limit (mg/L)	GW Residential (mg/L)	Screen Result	Rationale				
B-TZ	14	41	34.1%	8.00E-03	4.33E-01	P-10	5.00E-02	7.00E-01	out	b				
B-TZ	2	41	4.9%	2.00E-02	2.22E-02	MW-12B	2.00E-01	9.80E-01	out	b				
B-TZ	22	41	53.7%	1.20E-02	1.54E-01	MW-12B	2.00E-01	9.80E-01	out	b				
B-TZ	0	41	---	---	---	---	5.00E-02	5.00E-03	in: uncertainty analysis	c				
B-TZ	1	36	2.8%	1.00E-02	1.00E-02	P-10	2.00E-01	1.90E-01	out	f				
B-TZ	23	41	56.1%	1.50E-02	7.80E+00	P-10	1.00E+00	4.90E-01	in	a				
B-TZ	0	41	---	---	---	---	2.00E-01	1.20E-02	in: uncertainty analysis	c				
B-TZ	1	41	2.4%	1.10E-02	1.10E-02	P-10	1.00E+00	1.00E-03	out	f				
B-TZ	13	35	37.1%	1.10E-02	1.44E-01	MW-12B	2.00E-01	7.30E-01	out	b				
B-TZ	1	41	2.4%	1.60E-01	1.60E-01	P-10	2.00E-01	1.50E+01	out	b				
B-TZ	2	41	4.9%	1.02E-02	2.60E-01	MW-11B	2.00E-01	7.30E-01	out	b				
B-TZ	7	41	17.1%	2.26E-03	2.00E-02	P-10	5.00E-02	1.00E+00	out	b				
B-TZ	13	41	31.7%	8.00E-03	1.53E-01	P-10	5.00E-02	1.00E+01	out	b				
C-TZ	0	10	---	---	---	---	5.00E-03	5.00E-03	in: uncertainty analysis	c				
C-TZ	0	10	---	---	---	---	2.00E-01	1.10E-03	in: uncertainty analysis	c				
C-TZ	0	4	---	---	---	---	1.00E-02	4.90E-01	out	d				
C-TZ	0	10	---	---	---	---	2.00E-01	1.30E-03	in: uncertainty analysis	c				
C-TZ	0	10	---	---	---	---	2.00E-01	1.30E-03	in: uncertainty analysis	c				
C-TZ	0	10	---	---	---	---	2.00E-01	2.00E+00	out	d				
C-TZ	4	10	40.0%	1.98E-02	2.03E-01	MW-23C	2.00E-01	9.80E-01	out	b				

TABLE 7-1

Ground Water Data Evaluation and Screening Results

Houston Wood Preserving Works
Houston, Texas

DATA SUMMARY										PCPLs		SCREEN RESULTS	
Transmissive Zone	Constituents	Count of Detection	Count of Analysis	Frequency of Detection	Minimum Result (mg/L)	Maximum Result (mg/L)	Location of Max. Result	Maximum Reporting Limit (mg/L)	GW _{log} Residential (mg/L)	Screen Result	Rationale		
C-TZ	4,6-Dinitro-o-cresol	0	10	---	---	---	---	2.00E-01	4.90E-02	in: uncertainty analysis	c		
C-TZ	4-Nitrophenol	0	6	---	---	---	---	2.00E-01	4.90E-02	in: uncertainty analysis	c		
C-TZ	Acenaphthene	4	10	40.0%	2.23E-02	6.91E-02	MW-15C	2.00E-01	1.50E+00	out	b		
C-TZ	Acenaphthylene	0	10	---	---	---	---	2.00E-01	1.50E+00	out	d		
C-TZ	Anthracene	1	10	10.0%	1.10E-02	1.10E-02	MW-19C	2.00E-01	7.30E+00	out	b		
C-TZ	Benzene	6	10	60.0%	2.67E-03	1.44E-01	MW-18C	5.00E-03	5.00E-03	in	a		
C-TZ	Benzo(a)anthracene	0	10	---	---	---	---	2.00E-01	1.30E-03	in: uncertainty analysis	c		
C-TZ	Benzo(a)pyrene	0	10	---	---	---	---	2.00E-01	2.00E-04	in: uncertainty analysis	c		
C-TZ	Bis(2-chloroethoxy)methane	0	10	---	---	---	---	2.00E-01	4.10E-06	in: uncertainty analysis	c		
C-TZ	Bis(2-ethylhexyl)phthalate	0	10	---	---	---	---	2.00E-01	6.00E-03	in: uncertainty analysis	c		
C-TZ	Chlorobenzene	0	10	---	---	---	---	5.00E-03	1.00E-01	out	d		
C-TZ	Chrysene	0	10	---	---	---	---	2.00E-01	1.30E-01	in: uncertainty analysis	c		
C-TZ	Di-n-butyl phthalate	0	10	---	---	---	---	2.00E-01	2.40E+00	out	d		
C-TZ	Dibenzofuran	3	10	30.0%	4.88E-02	1.04E-01	MW-15C	2.00E-01	9.80E-02	in	a		
C-TZ	Ethylbenzene	5	10	50.0%	1.68E-03	1.12E-01	MW-23C	5.00E-03	7.00E-01	out	b		
C-TZ	Fluoranthene	1	10	10.0%	1.13E-02	1.13E-02	MW-19C	2.00E-01	9.80E-01	out	b		
C-TZ	Fluorene	2	10	20.0%	2.11E-02	3.18E-02	MW-18C	2.00E-01	9.80E-01	out	b		
C-TZ	Dichloromethane	1	10	10.0%	1.31E-02	1.31E-02	MW-15C	5.00E-03	5.00E-03	out	c,f		

TABLE 7-1

Ground Water Data Evaluation and Screening Results

Houston Wood Preserving Works
Houston, Texas

Transmissive Zone	Constituents	DATA SUMMARY				PCLs		SCREEN RESULTS			
		Count of Detection	Count of Analysis	Frequency of Detection	Minimum Result (mg/L)	Maximum Result (mg/L)	Location of Max. Result	Maximum Reporting Limit (mg/L)	GW _{ing} Residential (mg/L)	Screen Result	Rationale
C-TZ	<i>N-Nitrosodiphenylamine</i>	0	6	---	---	---	---	2.00E-01	1.90E-01	<i>in: uncertainty analysis</i>	c
C-TZ	<i>Naphthalene</i>	5	10	50.0%	4.09E-02	1.75E+00	MW-23C	2.00E-01	4.90E-01	<i>in</i>	a
C-TZ	<i>Nitrobenzene</i>	0	10	---	---	---	---	2.00E-01	1.20E-02	<i>in: uncertainty analysis</i>	c
C-TZ	<i>Pentachlorophenol</i>	0	10	---	---	---	---	1.00E+00	1.00E-03	<i>in: uncertainty analysis</i>	c
C-TZ	Phenanthrene	4	10	40.0%	1.89E-02	5.30E-02	MW-18C	2.00E-01	7.30E-01	out	b
C-TZ	Phenol	0	10	---	---	---	---	2.00E-01	1.50E+01	out	d
C-TZ	Pyrene	0	10	---	---	---	---	2.00E-01	7.30E-01	out	d
C-TZ	Toluene	3	10	30.0%	4.72E-03	4.03E-02	MW-18C	5.00E-03	1.00E+00	out	b
C-TZ	Xylenes (tot)	6	10	60.0%	1.67E-03	7.29E-02	MW-23C	5.00E-03	1.00E+01	out	b

NOTES

Parameter names in *italics* did not pass screen. Parameter remains on COPC list for exposure area

NTDA = No Toxicity Data Available

A-TZ = A-Transmissive Zone

B-TZ = B-Transmissive Zone

C-TZ = C-Transmissive Zone

PCLs = Protective Concentration Levels

Screen result rationale:

a = Maximum reported result was greater than the ground water standard (GW_{ing}).b = Maximum reported result was less than the ground water standard (GW_{ing}).c = Maximum reported LOQ was greater than the ground water standard (GW_{ing}).d = Maximum reported LOQ was less than the ground water standard (GW_{ing}).

e = Common laboratory contaminant and is not site related.

f = Detected in < 5% of samples and is not site related.

TABLE 7-2

Ground Water Exposure Point Concentrations - A-TZ

Houston Wood Preserving Works
Houston, Texas

A-TZ Ground Water COPCs	Exposure Point Concentration (mg/L)															
	MW-01A	MW-02	MW-03	MW-04	MW-05	MW-07	MW-08	MW-09	MW-10A	MW-11A	MW-12A	MW-13	MW-15A	MW-16		
2,4-Dimethylphenol	0.01	0.016**	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.012**	0.01	0.01	0.029**		
2-Methylnaphthalene	0.21*	0.01	0.01	0.01	0.01	0.01	0.07*	0.01	0.01	0.05*	0.397**	0.01	0.20	0.20		
Benzo(a)pyrene	0.01	0.01	0.010	0.01	0.01	0.01	0.01	0.01	0.01	0.19**	0.01	0.01	0.01	0.01		
Benzene	0.07*	0.001	0.001	0.001	0.002**	0.001	0.004**	0.001	0.001	0.018**	0.003**	0.001	0.01**	0.018**		
Dibenzofuran	0.12*	0.03*	0.081*	0.01	0.01	0.01	0.08*	0.01	0.015**	0.08*	0.148**	0.010	0.042**	0.08**		
Ethylbenzene	0.12*	0.05**	0.001	0.001	0.004**	0.004**	0.008**	0.001	0.001	0.033**	0.022**	0.001	0.023**	0.032**		
Fluoranthene	0.20	0.01	0.01	0.01	0.01	0.01	0.015**	0.01	0.01	0.01	0.20	0.01	0.20	0.20		
Fluorene	0.15*	0.03*	0.085*	0.01	0.013**	0.081**	0.11*	0.01	0.031**	0.063*	0.20	0.01	0.20	0.20		
Naphthalene	1.75*	0.028*	0.34**	0.01	0.023**	0.01	0.64*	0.01	0.063**	0.98*	5.21**	0.01	1.53**	0.889**		
Phenanthrene	0.12*	0.01	0.01	0.01	0.01	0.01	0.051**	0.01	0.01	0.05*	0.20	0.01	0.20	0.20		
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01		
Pyrene	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0148**		

NOTES:

NA = Not Analyzed

* = UCL

** = Maximum Detected Concentration

Values that are not footnoted are either practical quantitation limits (PQLs) or sample quantitation limits (SQLs).

TABLE 7-2

Ground Water Exposure Point Concentrations - AT-Z

Houston Wood Preserving Works
Houston, Texas

A-TZ Ground Water COPCs	Exposure Point Concentration (mg/L)													
	MW-17	MW-18A	MW-20A	HP05UTZ	HP06UTZ	HP07UTZ	HP09UTZ	HP10UTZ	HP11UTZ	HP12UTZ	HP13UTZ	HP14UTZ	HP15UTZ	HP16UTZ
2,4-Dimethylphenol	7.14**	9.21**	0.20	0.01	0.01	0.01	NA	0.01	NA	0.01	0.05	1.0	0.01	0.01
2-Methylnaphthalene	0.711**	0.617**	0.20	0.062**	0.01	0.06**	NA	0.01	NA	0.01	0.05	1.0	0.01	0.01
Benzo(a)pyrene	0.20	0.20	0.20	0.01	0.01	0.01	NA	0.01	NA	0.01	0.05	1.0	0.01	0.01
Benzene	0.58**	0.7**	0.033**	0.005	0.005	NA	0.005	0.005	0.08**	0.005	0.005	0.016**	0.005	0.005
Dibenzofuran	0.20	0.20	0.20	0.058**	0.01	0.028**	NA	0.01	NA	0.01	0.1	1.0	0.01	0.01
Ethylbenzene	0.205**	0.919**	0.046**	0.005	0.005	NA	0.005	0.005	1.1**	0.005	0.033**	0.27**	0.005	0.005
Fluoranthene	0.50	0.20	0.20	0.01	0.01	0.01	NA	0.01	NA	0.01	0.05	1.0	0.01	0.01
Fluorene	0.50	0.20	0.20	0.053**	0.01	0.053**	NA	0.01	NA	0.01	0.05	1.0	0.01	0.01
Naphthalene	12.2**	7.87**	2.34**	0.01	0.01	0.7	0.01	0.01	3.7**	0.01	1.2**	12**	0.01	0.01
Phenanthrene	0.50	0.20	0.20	0.01	0.01	0.012**	NA	0.01	NA	0.01	0.05	1.0	0.01	0.01
Phenol	29.7**	1.41**	0.20	0.01	0.01	0.01	NA	0.01	NA	0.01	0.05	1.0	0.01	0.01
Pyrene	0.20	0.20	0.20	0.01	0.01	0.01	NA	0.01	NA	0.01	0.05	1.0	0.01	0.01

NOTES:

NA = Not Analyzed

* = UCL

** = Maximum Detected Concentration

Values that are not footnoted are either practical quantitation limits (PQLs) or sample quantitation limits (SQLs)

TABLE 7-3

Ground Water Exposure Point Concentrations - B-TZ

Houston Wood Preserving Works
Houston, Texas

B-TZ Ground Water COPCs	Exposure Point Concentration (mg/L)											
	MW-10B	MW-11B	MW-12B	MW-14	P-10	P-11	P-12	HP05STZ	HP06STZ	HP07STZ	HP010STZ	HP015STZ
2-Methylnaphthalene	0.097**	0.72*	0.29**	0.01	0.04*	0.01	0.01	0.01	0.01	0.01	NA	0.01
Benzo(a)pyrene	0.01	0.11**	0.01	0.01	0.049**	0.01	0.01	0.01	0.01	0.01	NA	0.01
Benzene	0.006**	0.003**	0.007**	0.001	0.007**	0.001	0.001	0.005	0.005	0.005	0.005	0.005
Chrysene	0.01	0.38**	0.01	0.01	0.01	0.034**	0.01	0.01	0.01	0.01	NA	0.01
Dibenzofuran	0.09*	0.07*	0.158**	0.01	1.43*	0.01	0.01	0.01	0.01	0.01	NA	0.01
Naphthalene	0.44*	0.56*	2.75**	0.01	4.27*	0.017**	0.01	0.01	0.01	0.01	NA	0.01

NOTES:

NA = Not Analyzed

* = UCL

** = Maximum Detected Concentration

Values that are not footnoted are either practical quantitation limits (PQLs) or sample quantitation limits (SQLs).

TABLE 7-4

Ground Water Exposure Point Concentrations - C-TZ

Houston Wood Preserving Works
Houston, Texas

C-TZ Ground Water COPCs	Exposure Concentration (mg/L)						
	MW-12C	MW-15C	MW-18C	MW-19C	MW-21C	MW-23C	HP-16LTZ
Benzene	0.0046**	0.0044**	0.144**	0.003**	0.005**	0.0456**	0.005
Dibenzofuran	0.01	0.104**	0.049**	0.01	0.01	0.2	0.01
Naphthalene	0.01	0.138**	0.905**	0.01	0.01	1.745**	0.01

NOTES:

NA = Not Analyzed

* = UCL

** = Maximum Detected Concentration

Values that are not footnoted are either practical quantitation limits (PQLs) or sample quantitation limits (SQLs).

TABLE 7-5

Evaluation of the A-TZ Ground Water Zone: Comparison to Tier 1 Commercial/Industrial Ground Water PCLs

Houston Wood Preserving Works
Houston, Texas

A-TZ Ground Water COPCs (a)	Exposure Concentration (mg/L) (b)														Water PCLs (mg/L) (c)	Com/Ind Critical Ground	PQL (mg/L)
	MW-01A	MW-02	MW-03	MW-04	MW-05	MW-07	MW-08	MW-09	MW-10A	MW-11A	MW-12A	MW-13	MW-15A	MW-16			
2,4-Dimethylphenol	0.01	0.016	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.012	0.01	0.01	0.029	1.5	0.01	
2-Methylnaphthalene	0.21	0.01	0.01	0.01	0.01	0.01	0.07	0.01	0.01	0.05	0.397	0.01	0.01	0.20	2.9	0.01	
Benzo(a)pyrene	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.19	0.01	0.01	0.01	0.01	0.0002	0.01	
Benzene	0.068	0.001	0.001	0.001	0.002	0.001	0.004	0.001	0.001	0.018	0.003	0.001	0.01	0.018	0.005	0.005	
Dibenzofuran	0.12	0.03	0.08	0.01	0.01	0.01	0.08	0.01	0.015	0.08	0.148	0.01	0.01	0.080	0.29	0.01	
Ethylbenzene	0.12	0.05	0.001	0.001	0.004	0.004	0.008	0.001	0.001	0.033	0.022	0.001	0.001	0.032	0.7	0.005	
Fluoranthene	0.20	0.01	0.01	0.01	0.01	0.01	0.015	0.01	0.01	0.01	0.20	0.01	0.01	0.20	2.9	0.01	
Fluorene	0.15	0.03	0.09	0.01	0.013	0.081	0.11	0.01	0.031	0.063	0.20	0.01	0.01	0.20	2.9	0.01	
Naphthalene	1.75	0.028	0.34	0.01	0.023	0.01	0.640	0.01	0.063	0.98	5.21	0.01	0.01	0.889	1.5	0.01	
Phenanthrene	0.12	0.01	0.01	0.01	0.01	0.01	0.051	0.01	0.01	0.05	0.20	0.01	0.01	0.20	2.2	0.01	
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	44	0.01	
Pyrene	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.20	2.2	0.01	

NOTES:

NA Not Analyzed

Ground water exposure point concentration exceeds critical ground water PCL

(a) Ground water COPCs in the A-TZ zone.

(b) Ground water A-TZ zone EPCs are determined on Table 7-2.

(c) Values taken from the TNRCC TRRP PCL Tables dated August 24, 1999.

TABLE 7-5

Evaluation of the A-TZ Ground Water Zone: Comparison to Tier 1 Commercial/Industrial Ground Water PCLs

Houston Wood Preserving Works
Houston, Texas

A-TZ Ground Water COPCs (a)	Exposure Point Concentration (mg/L) (b)													Com/Ind Critical Ground	Water PCLs (mg/L) (c)	PQL (mg/L)
	MW-17	MW-18A	MW-20A	HP05UTZ	HP06UTZ	HP07UTZ	HP09UTZ	HP10UTZ	HP11UTZ	HP12UTZ	HP13UTZ	HP14UTZ	HP15UTZ			
2,4-Dimethylphenol	7.14	9.21	0.20	0.01	0.01	0.01	NA	0.01	NA	0.01	0.05	1.00	0.01	0.01	1.5	0.01
2-Methylnaphthalene	0.71	0.617	0.20	0.01	0.01	0.01	NA	0.01	NA	0.01	0.05	1.00	0.01	0.01	2.9	0.01
Benzo(a)pyrene	0.20	0.20	0.20	0.01	0.01	0.01	NA	0.01	NA	0.01	0.05	1.00	0.01	0.01	0.0002	0.01
Benzene	0.58	0.70	0.033	0.005	0.005	0.005	0.005	0.005	0.08	0.005	0.005	0.016	0.005	0.005	0.005	0.005
Dibenzofuran	0.20	0.20	0.20	0.058	0.01	0.028	NA	0.01	NA	0.01	0.10	1.00	0.01	0.01	0.29	0.01
Ethylbenzene	0.205	0.919	0.046	0.005	0.005	NA	0.005	0.005	1.10	0.005	0.033	0.27	0.005	0.005	0.7	0.005
Fluoranthene	0.50	0.20	0.20	0.01	0.01	0.01	NA	0.01	NA	0.01	0.05	1.00	0.01	0.01	2.9	0.01
Fluorene	0.50	0.20	0.20	0.053	0.01	0.053	NA	0.01	NA	0.01	0.05	1.00	0.01	0.01	2.9	0.01
Naphthalene	12.20	7.87	2.34	0.01	0.01	0.70	0.01	0.01	7.30	0.01	1.20	12.00	0.01	0.01	1.5	0.01
Phenanthrene	0.50	0.20	0.20	0.01	0.01	0.012	NA	0.01	NA	0.01	0.05	1.00	0.01	0.01	2.2	0.01
Phenol	29.70	1.41	0.20	0.01	0.01	0.01	NA	0.01	NA	0.01	0.05	1.00	0.01	0.01	44	0.01
Pyrene	0.20	0.20	0.20	0.01	0.01	0.01	NA	0.01	NA	0.01	0.05	1.00	0.01	0.01	2.2	0.01

NOTES:

NA Not Analyzed

Ground water exposure point concentration exceeds critical ground water PCL

(a) Ground water COPCs in the A-TZ zone.

(b) Ground water A-TZ zone EPCs are determined on Table 7-2.

(c) Values taken from the TNRCC TRRP PCL Tables dated August 24, 1999.

TABLE 7-6

Evaluation of the B-TZ Ground Water Zone: Comparison to Commercial/Industrial Tier 1 Ground Water PCLs

Houston Wood Preserving Works
Houston, Texas

BT-Z Ground Water COPCs (a)	Exposure Point Concentration (mg/L) (b)											Water PCLs (mg/L) (c)	Com/Ind Critical Ground	PQL (mg/L)	
	MW-10B	MW-11B	MW-12B	MW-14	P-10	P-11	P-12	HP05STZ	HP06STZ	HP07STZ	HP10STZ				HP015STZ
2-Methylnaphthalene	0.097	0.72	0.29	0.01	0.04	0.01	0.01	0.05	0.05	0.05	0.05	0.05	0.05	2.9	0.01
Benzo(a)pyrene	0.01	0.11	0.01	0.01	0.049	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0002	0.01
Benzene	0.006	0.003	0.007	0.001	0.007	0.001	0.001	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Chrysene	0.01	0.38	0.01	0.01	0.01	0.034	0.01	0.01	0.01	0.01	0.01	0.01	0.01	7.3	0.01
Dibenzofuran	0.09	0.07	0.158	0.01	1.43	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.29	0.01
Naphthalene	0.44	0.56	2.75	0.01	4.27	0.017	0.01	0.01	0.01	0.01	0.01	0.01	0.01	1.5	0.01

NOTES:

A = Not Analyzed

Ground water exposure point concentration exceeds critical ground water PCL

(a) Ground water COPCs in the B-TZ zone.

(b) Ground water B-TZ zone EPCs are determined on Table 7-3.

(c) Values taken from the TNRCC TRRP PCL Tables dated August 24, 1999.

TABLE 7-7

Evaluation of the C-TZ Ground Water Zone: Comparison to Commercial/Industrial Tier 1 Ground Water PCLs

Houston Wood Preserving Works
Houston, Texas

C-TZ Ground Water Detected COPCs (a)	Exposure Point Concentration (mg/L) (b)						Water PCLs (mg/L) (c)	PQL (mg/L)
	MW-12C	MW-15C	MW-18C	MW-19C	MW-21C	MW-23C		
Benzene	0.0046	0.0044	0.144	0.003	0.005	0.0456	0.005	0.005
Dibenzofuran	0.01	0.104	0.049	0.01	0.01	0.20	0.29	0.01
Naphthalene	0.01	0.138	0.905	0.01	0.01	1.745	1.5	0.01

NOTES:

A = Not Analyzed

Ground water exposure point concentration exceeds critical ground water PCL

(a) Ground water COPCs in the C-TZ zone.

(b) Ground water C-TZ zone EPCs are determined on Table 7-4.

(c) Values taken from the TNRCC TRRP PCL Tables dated August 24, 1999.

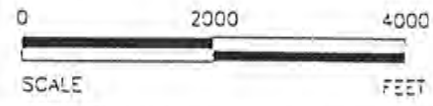
Figures

July 10, 2000
W.O. #422-009

Environmental Resources Management
16300 Katy Freeway, Suite 300
Houston, Texas 77094-1611
(281) 600-1000



Source: U.S.G.S. Quadrangle
 Settegast, Texas
 1982
 7.5 Minute Series (Topographic)

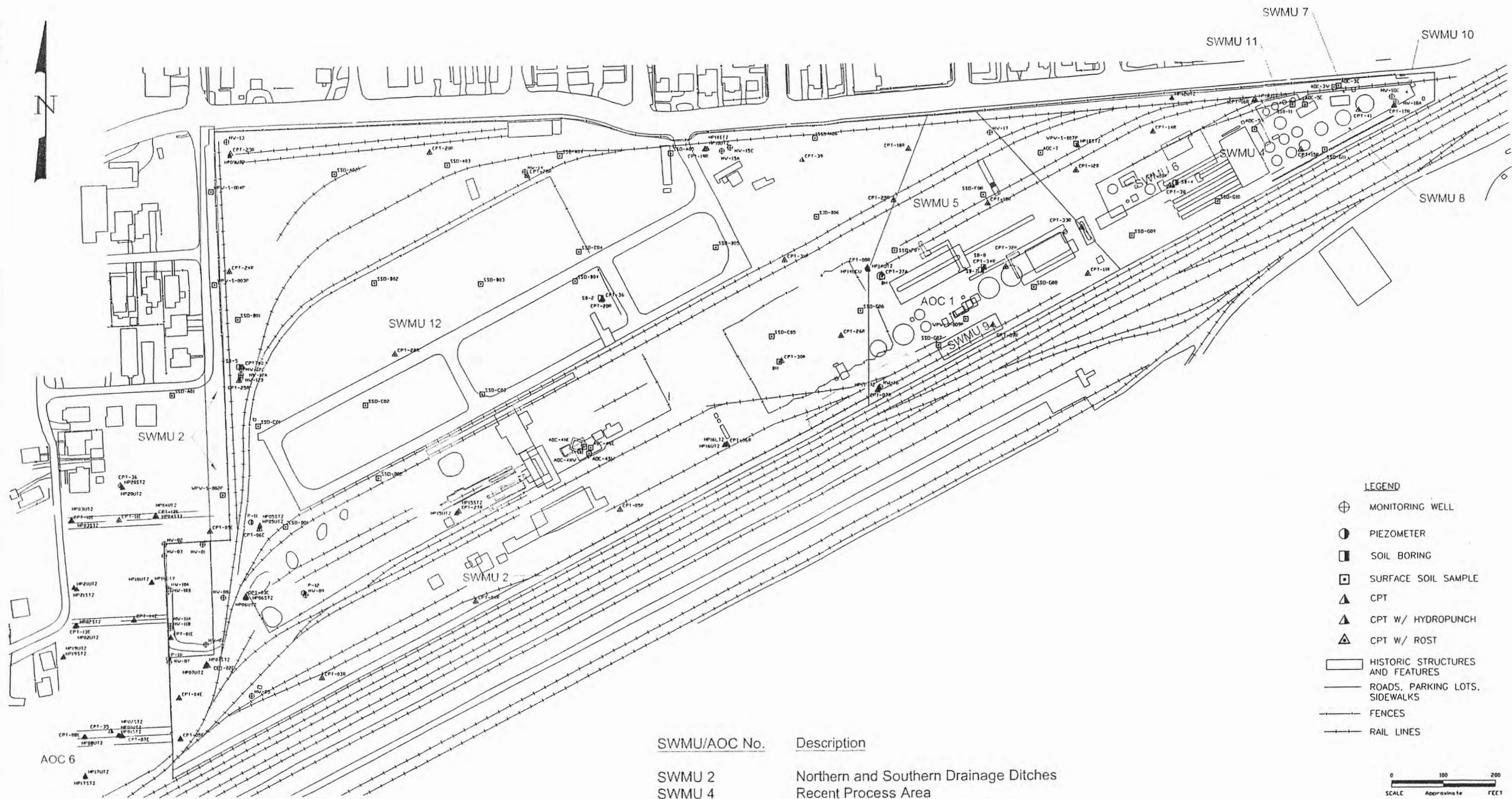


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FIGURE 1-1
 SITE LOCATION MAP
 Houston Wood Preserving Works
 Houston, Texas

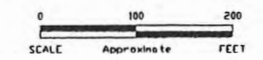
DATE: 11/17/97

W.O.NO.: 42209A17



SWMU/AOC No.	Description
SWMU 2	Northern and Southern Drainage Ditches
SWMU 4	Recent Process Area
SWMU 5	Original Process Area
SWMU 6	Water Treatment and Boiler System
SWMU 7	Tank Car Storage Area
SWMU 8	Aboveground Storage Tank Area
SWMU 9	Location of the Former UST No. 44-023-05
SWMU 10	Location of the Former Sap Water Treatment Tank
SWMU 11	Oil/Water Separators
SWMU 12	Railroad Tie Storage Area
AOC 1	Diesel Storage Tank
AOC 6	Inactive Wastewater Lagoon

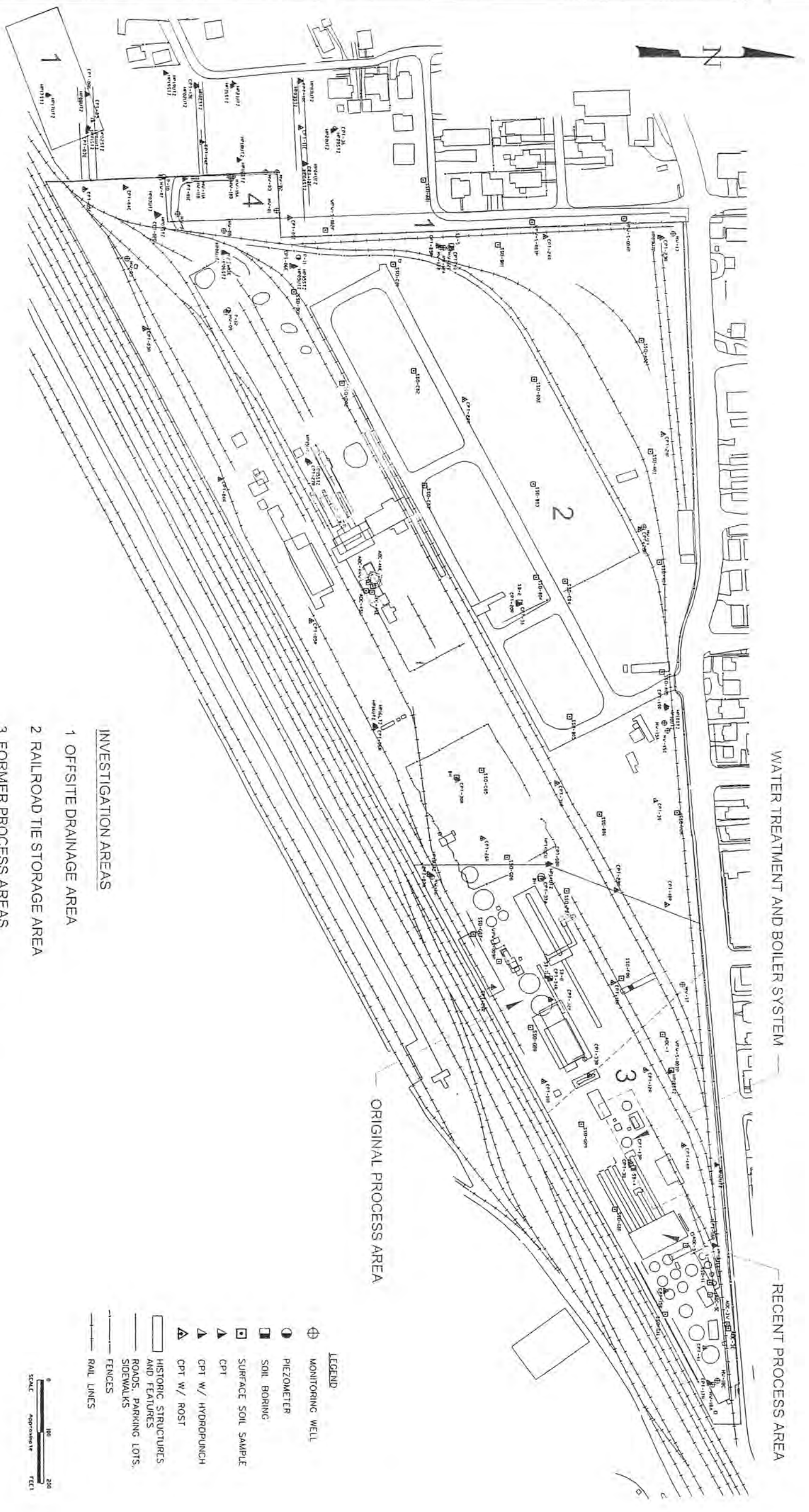
- LEGEND**
- ⊕ MONITORING WELL
 - PIEZOMETER
 - SOIL BORING
 - ▣ SURFACE SOIL SAMPLE
 - ▲ CPT
 - ▲ CPT W/ HYDROPUNCH
 - ▲ CPT W/ ROST
 - ▭ HISTORIC STRUCTURES AND FEATURES
 - ROADS, PARKING LOTS, SIDEWALKS
 - FENCES
 - RAIL LINES



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FIGURE 3-1
SWMUs AND AOCs
Houston Wood Preserving Works
Houston, Texas

DESIGN:	CHKD:	DATE: 02/02/98	REV:	SHEET NO. of
DRAWN: LM/CAK	SCALE: AS SHOWN	W.O.NO.: 42200C41B98		



WATER TREATMENT AND BOILER SYSTEM

RECENT PROCESS AREA

ORIGINAL PROCESS AREA

- INVESTIGATION AREAS**
- 1 OFFSITE DRAINAGE AREA
 - 2 RAILROAD TIE STORAGE AREA
 - 3 FORMER PROCESS AREAS
RECENT PROCESS AREA
ORIGINAL PROCESS AREA
WATER TREATMENT AND BOILER SYSTEM
 - 4 CLOSED SURFACE IMPONDMENT

- LEGEND**
- ⊕ MONITORING WELL
 - PIEZOMETER
 - SOIL BORING
 - ▣ SURFACE SOIL SAMPLE
 - ▲ CPT
 - ▲ CPT w/ HYDROPUNCH
 - ▲ CPT w/ ROST
 - ▭ HISTORIC STRUCTURES AND FEATURES
 - ROADS, PARKING LOTS, SIDEWALKS
 - FENCES
 - RAIL LINES

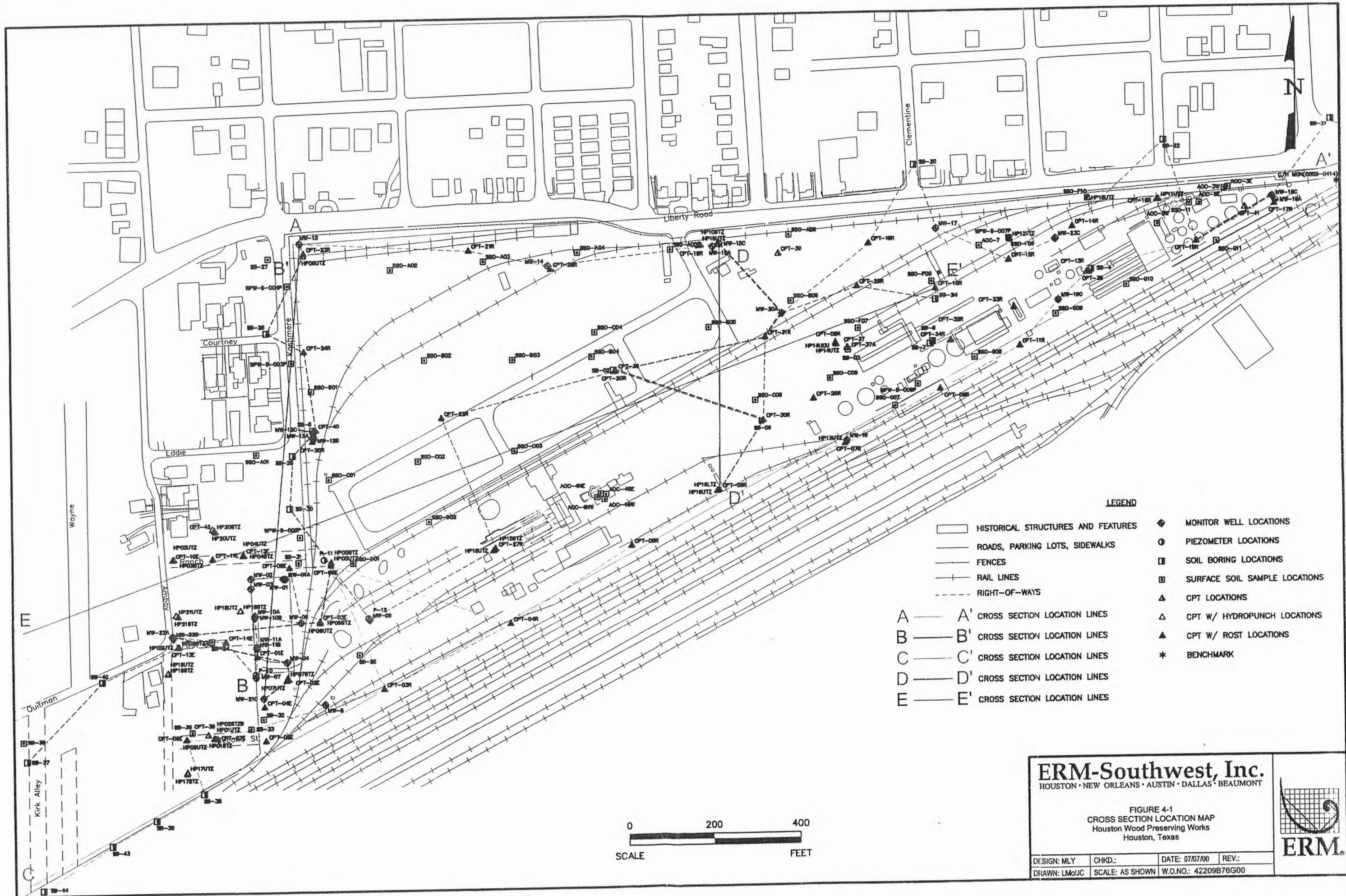


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FIGURE 3-2
FOUR INVESTIGATION AREAS
Houston Wood Preserving Works
Houston, TEXAS

DESIGN:	CHD:	DATE:	REV:
IRAHN: LMDCXK	SCALE: AS SHOWN	02/12/08	
		WORK NO.: 42209C-4289B	

SHEET NO. 4



LEGEND

- HISTORICAL STRUCTURES AND FEATURES
- ROADS, PARKING LOTS, SIDEWALKS
- FENCES
- RAIL LINES
- RIGHT-OF-WAYS
- A — A' CROSS SECTION LOCATION LINES
- B — B' CROSS SECTION LOCATION LINES
- C — C' CROSS SECTION LOCATION LINES
- D — D' CROSS SECTION LOCATION LINES
- E — E' CROSS SECTION LOCATION LINES
- MONITOR WELL LOCATIONS
- PIEZOMETER LOCATIONS
- SOIL BORING LOCATIONS
- SURFACE SOIL SAMPLE LOCATIONS
- CPT LOCATIONS
- CPT W/ HYDROPUNCH LOCATIONS
- CPT W/ ROST LOCATIONS
- * BENCHMARK

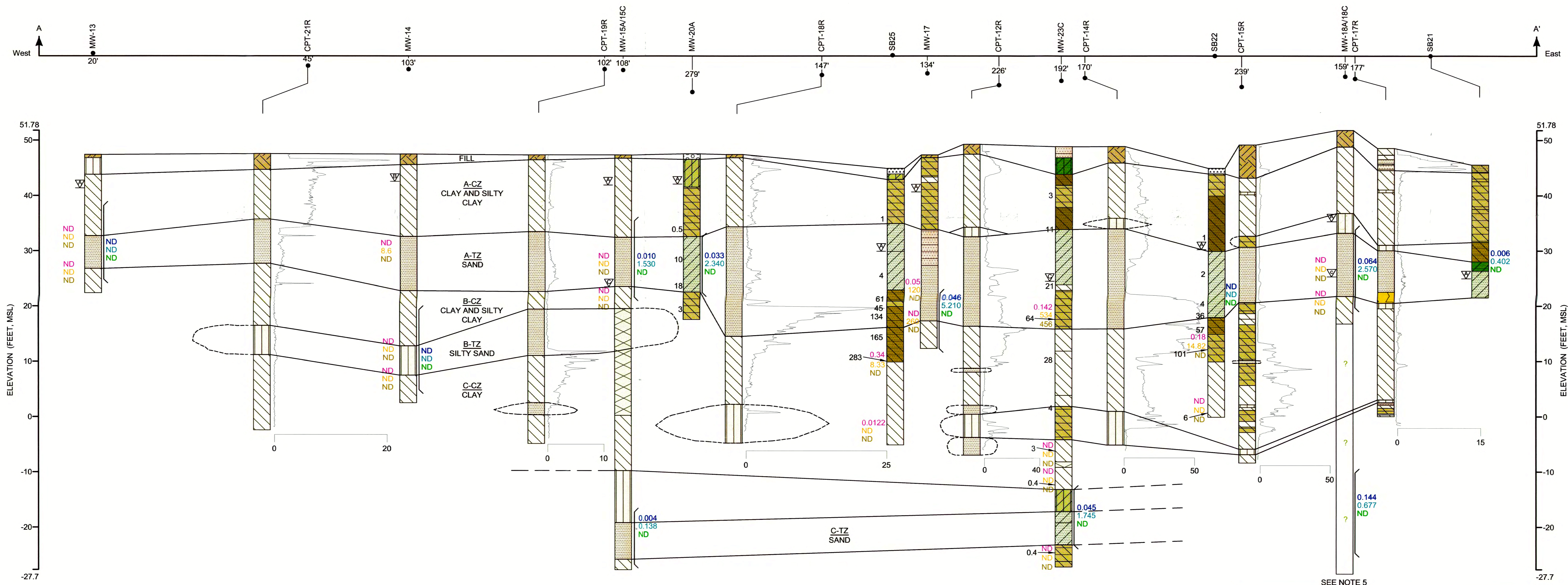
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FIGURE 4-1
CROSS SECTION LOCATION MAP
Houston Wood Preserving Works
Houston, Texas



0 200 400
SCALE FEET

DESIGN: MLY	CHKD.:	DATE: 07/07/00	REV.:
DRAWN: LMC/JC	SCALE: AS SHOWN	W.O.NO.: 42209B76G00	



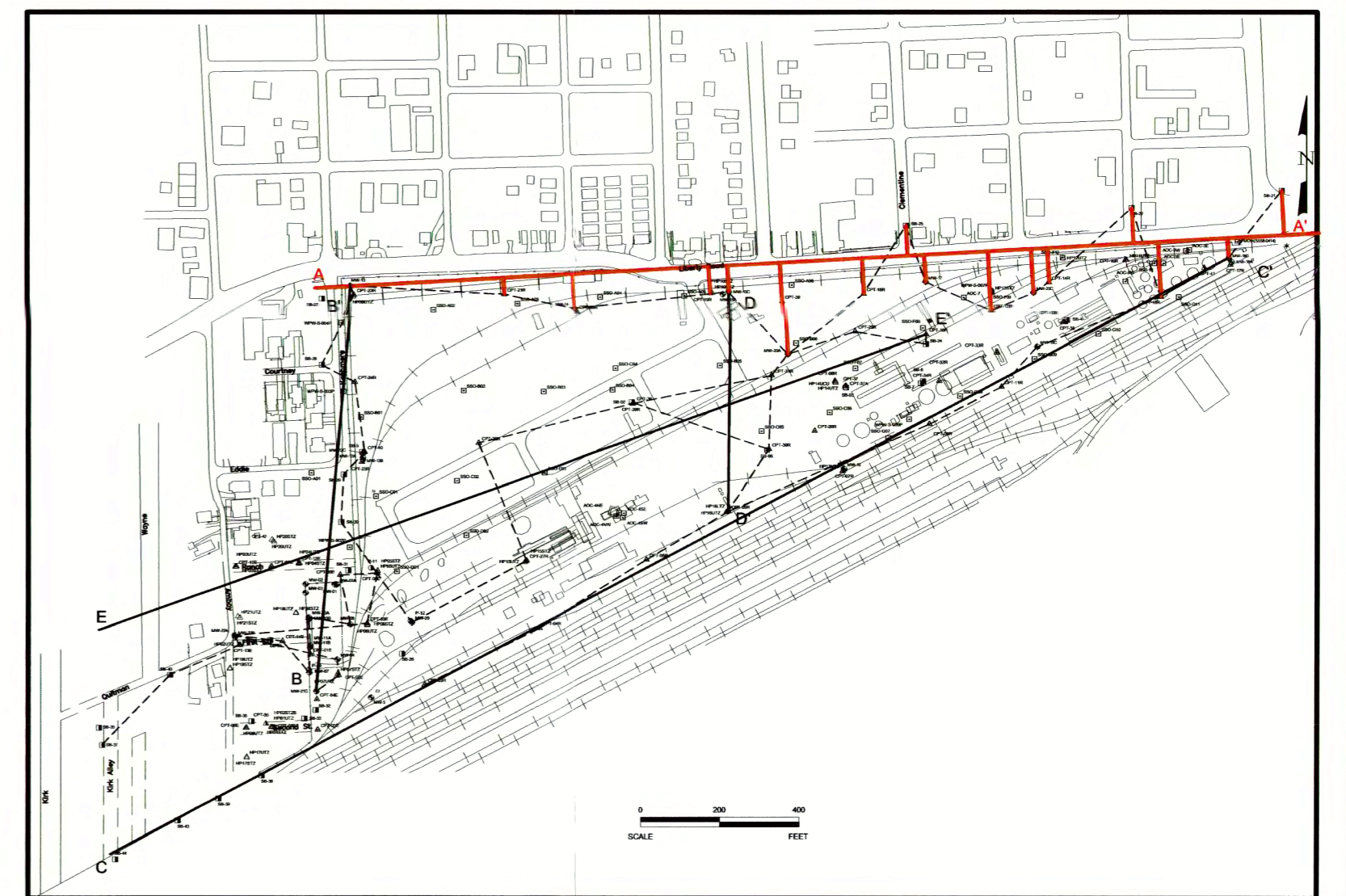
LEGEND

	CLAY		SILTY SAND
	SILT		CLAYEY SAND
	SAND		SILTY CLAYEY SAND
	SANDY CLAY		FILL
	SILTY CLAY		GRAVEL
	SANDY SILTY CLAY		CONCRETE
	CLAYEY SILT		NO RECOVERY
	SANDY CLAYEY SILT		OTHER

	WATER LEVEL A TRANSMISSIVE ZONE
	WATER LEVEL B TRANSMISSIVE ZONE
	WATER LEVEL C TRANSMISSIVE ZONE
	SCREENED INTERVAL
	LASER-INDUCED FLUORESCENCE, RELATIVE INTENSITY
	GROUND WATER ANALYTICAL RESULTS (mg/L)
	BENZENE = 0.010
	NAPHTHALENE = 1.530
	BENZO(a)ANTHRACENE = ND
	SOIL ANALYTICAL RESULTS (mg/kg)
	BENZENE = 0.142
	NAPHTHALENE = 4.56
	BENZO(a)ANTHRACENE = 534

NOTES:

1. A-CZ = UPPER COHESIVE ZONE
A-TZ = UPPER TRANSMISSIVE ZONE
B-CZ = SECOND COHESIVE ZONE
B-TZ = SECOND TRANSMISSIVE ZONE
C-CZ = THIRD COHESIVE ZONE
C-TZ = THIRD TRANSMISSIVE ZONE
2. OVA/OVM = 0.5 (ppm)
ALL READINGS WERE TAKEN FROM AN OVA (MARCH 1991) EXCEPT MW-20A WHICH WAS TAKEN FROM AN OVM (SEPTEMBER 1998).
3. GROUND WATER ANALYTICAL RESULTS FROM RFI PHASE 2B AND SECOND 1998 SEMI-ANNUAL IMPOUNDMENT (9/21/98-11/28/98) SAMPLING EVENT.
4. WATER LEVELS FOR MONITOR WELLS WERE GAUGED ON NOVEMBER 23, 1998. WATER LEVELS FOR SOIL BORINGS WERE TAKEN FROM INSTALLATION LOGS.
5. BORING LOG FOR MONITOR WELL MW-18C COULD NOT BE LOCATED.

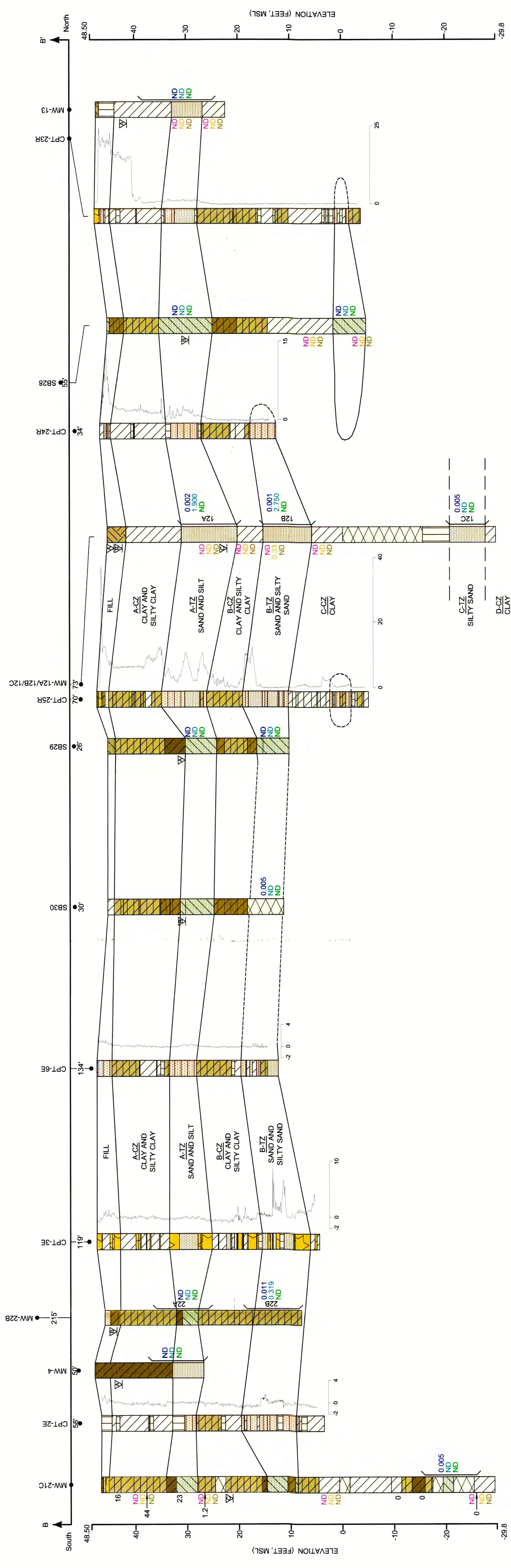
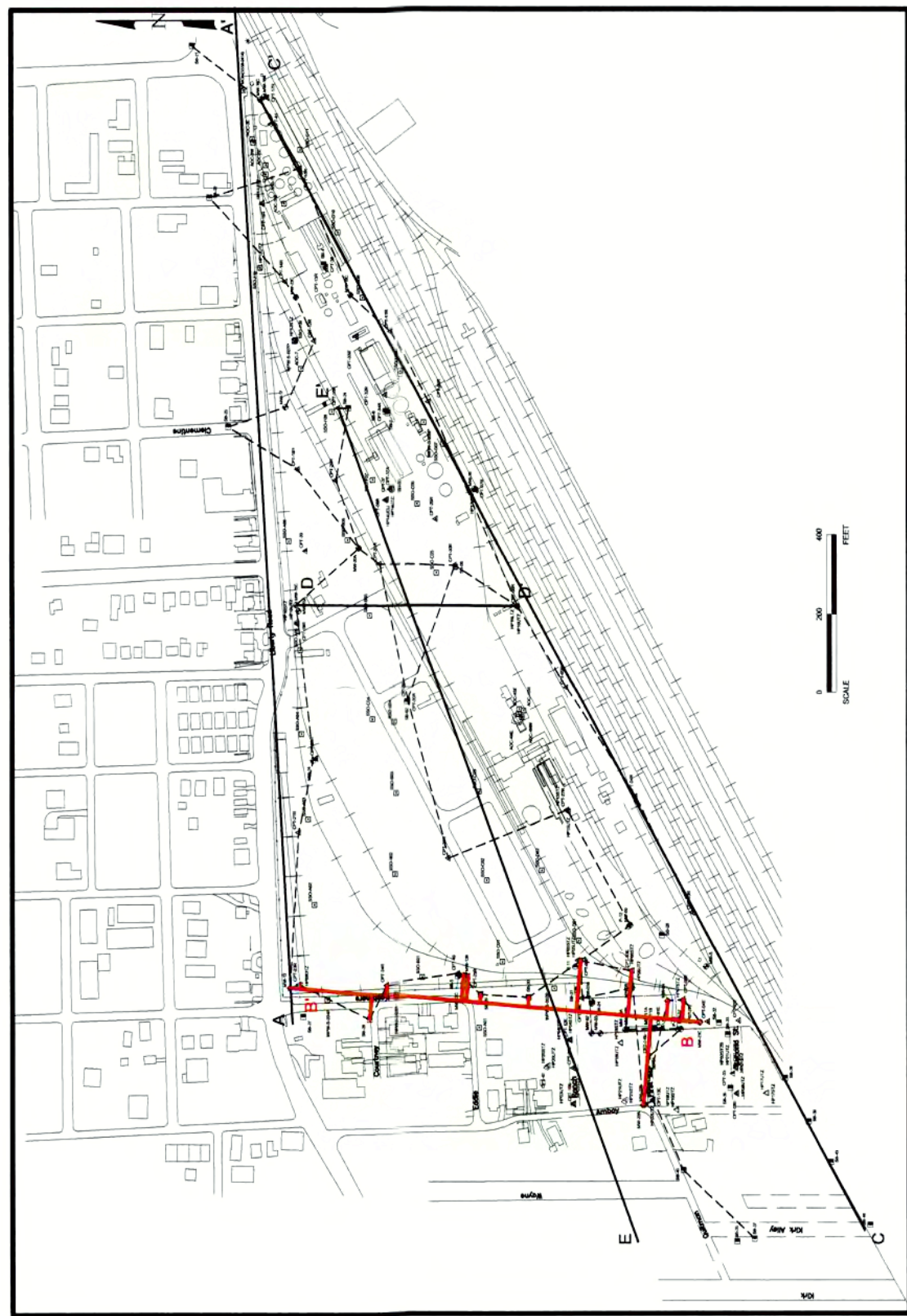


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FIGURE 4-2
CROSS SECTION A-A'
Houston Wood Preserving Works
Houston, Texas

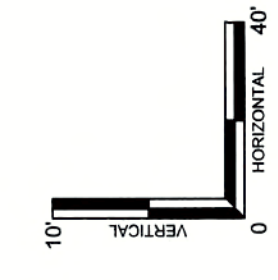
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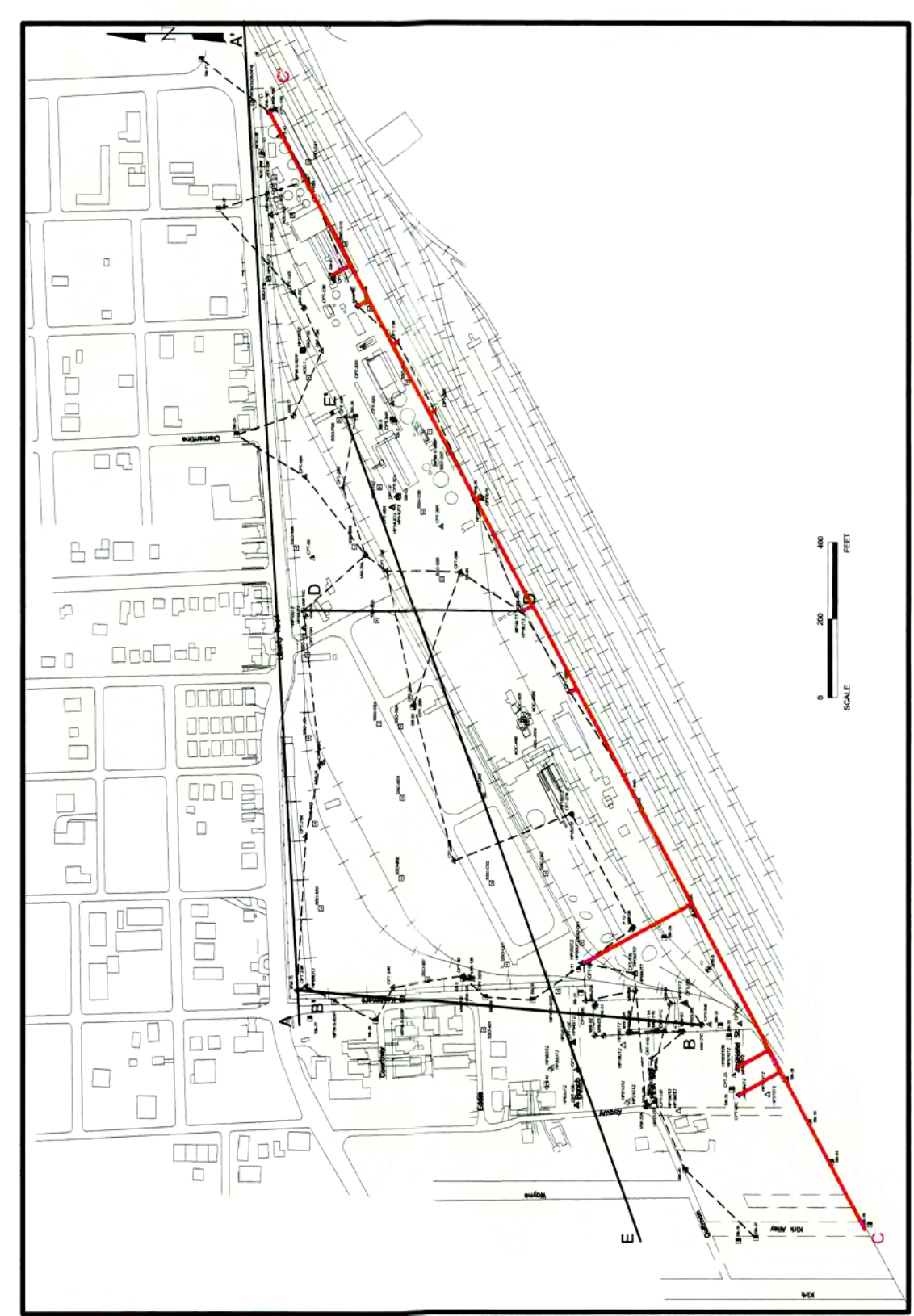
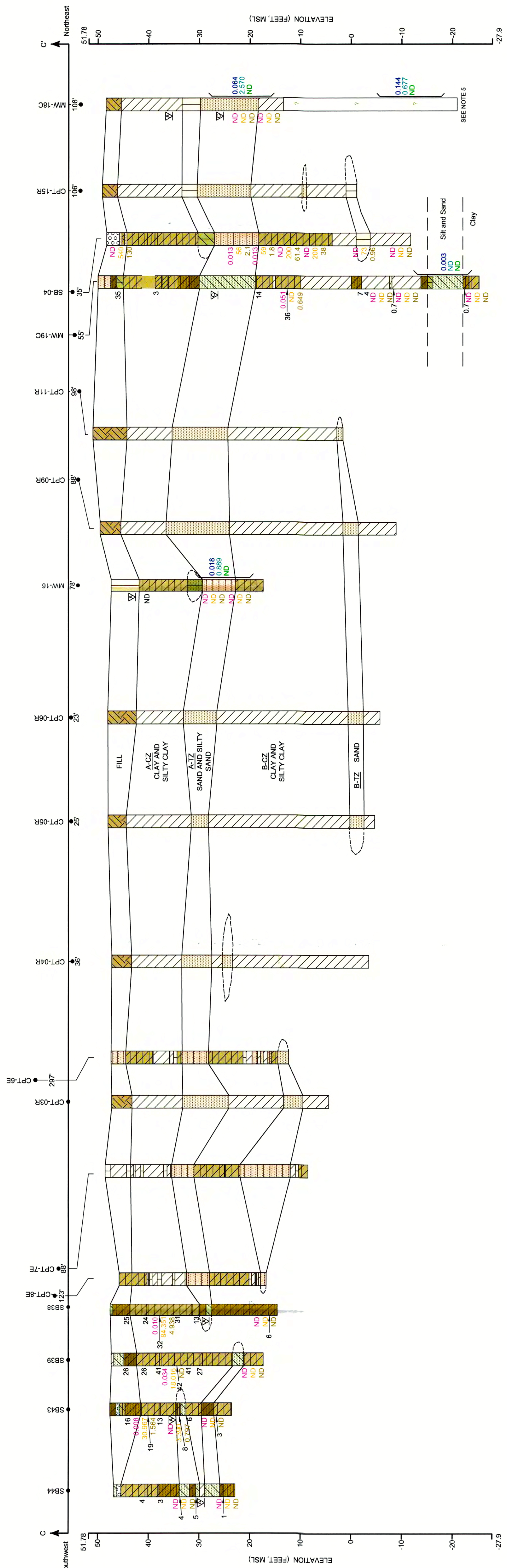


LEGEND

	CLAY		WATER LEVEL A TRANSMISSIVE ZONE
	SILTY		WATER LEVEL B TRANSMISSIVE ZONE
	SAND		WATER LEVEL C TRANSMISSIVE ZONE
	SILTY CLAY		SCREENED INTERVAL
	SILTY SAND		LASER-INDUCED FLUORESCENCE, RELATIVE INTENSITY
	CLAYEY SAND		GROUND WATER ANALYTICAL RESULTS (mg/L)
	SILTY CLAYEY SAND		BENZENE = 0.002
	FILL		NAPHTHALENE = 1.900
	NO RECOVERY		BENZO(a)ANTHRACENE = ND
	OTHER		SOIL ANALYTICAL RESULTS (mg/kg)
	CLAY		BENZENE = ND
	SILTY		NAPHTHALENE = 0.33
	SAND		BENZO(a)ANTHRACENE = ND
	SILTY CLAY		
	SILTY SAND		
	CLAYEY SAND		
	SILTY CLAYEY SAND		
	FILL		
	NO RECOVERY		
	OTHER		

- NOTES:**
- A-CZ = UPPER COHESIVE ZONE
 A-TZ = UPPER TRANSMISSIVE ZONE
 B-CZ = SECOND COHESIVE ZONE
 B-TZ = SECOND TRANSMISSIVE ZONE
 C-CZ = THIRD COHESIVE ZONE
 C-TZ = THIRD TRANSMISSIVE ZONE
 - OVADJWM = 16 (ppm) MW-21C WERE TAKEN DURING MONITOR WELL INSTALLATION BY ERM ON OCTOBER 26, 1998.
 - GROUND WATER ANALYTICAL RESULTS FROM RFI PHASE 2B AND SECOND 1998 SEMIANNUAL IMPOUNDMENT (9/21/98-11/28/98) SAMPLING EVENT.
 - WATER LEVELS FOR MONITOR WELLS WERE GAUGED ON NOVEMBER 23, 1998. WATER LEVELS FOR SOIL BORINGS WERE TAKEN FROM INSTALLATION LOGS.






LEGEND

	CLAY		SANDY SILT
	SILT		SILTY SAND
	SAND		CLAYEY SAND
	SANDY CLAY		SILTY CLAYEY SAND
	SILTY CLAY		FILL
	SANDY SILTY CLAY		GRAVEL
	CLAYEY SILT		NO RECOVERY
			OTHER

	WATER LEVEL A TRANSMISSIVE ZONE
	WATER LEVEL B TRANSMISSIVE ZONE
	WATER LEVEL C TRANSMISSIVE ZONE
	SCREENED INTERVAL
	LASER-INDUCED FLUORESCENCE, RELATIVE INTENSITY
	GROUNDWATER ANALYTICAL RESULTS (mg/L)
	BENZENE = 0.064
	NAPHTHALENE = 2.570
	BENZ(a)ANTHRACENE = ND
	SOIL ANALYTICAL RESULTS (mg/kg)
	BENZ(a)ANTHRACENE = ND
	BENZO(a)ANTHRACENE = 0.649

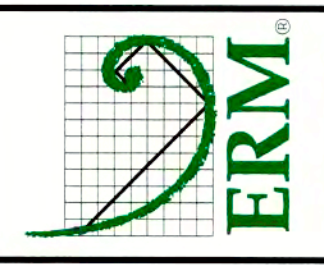
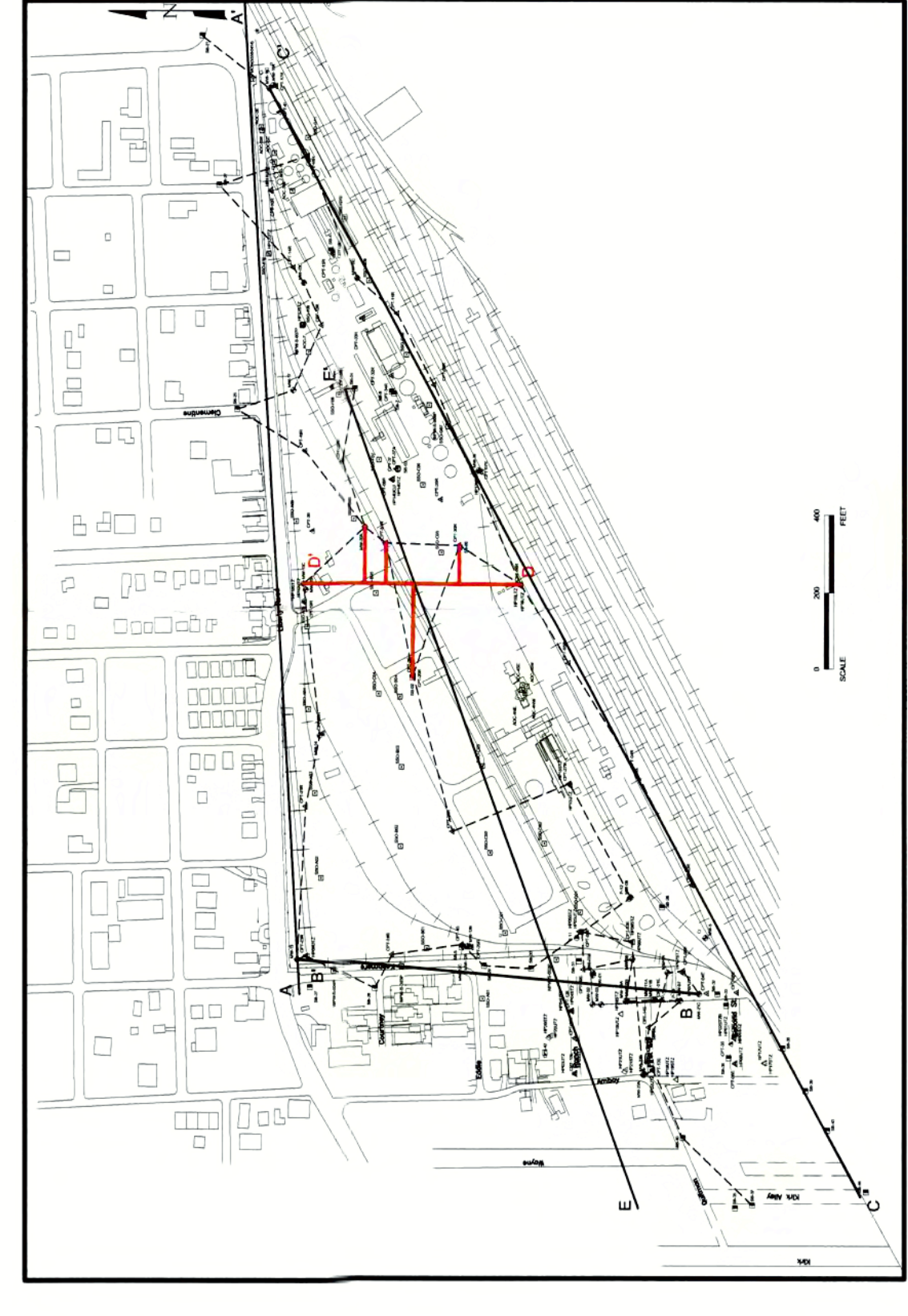
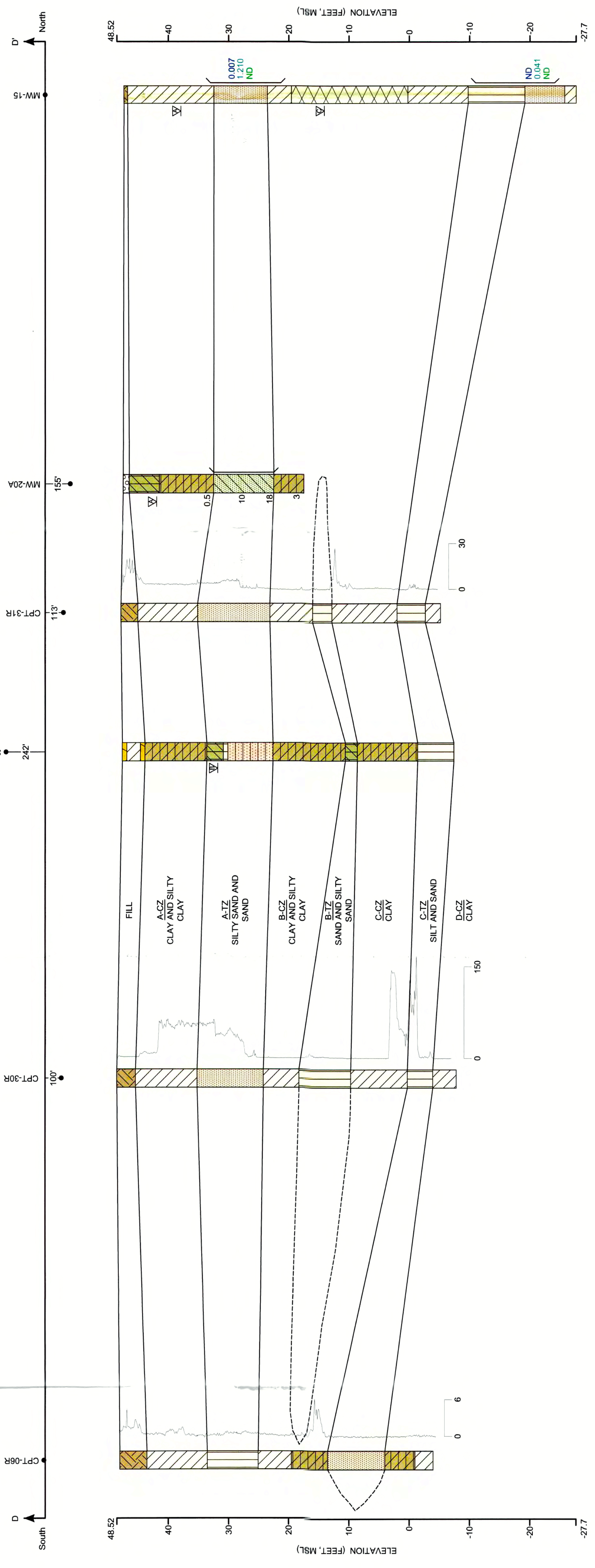
- NOTES:**
- A-CZ = UPPER COHESIVE ZONE
A-TZ = UPPER TRANSMISSIVE ZONE
B-CZ = SECOND COHESIVE ZONE
B-TZ = SECOND TRANSMISSIVE ZONE
C-TZ = THIRD COHESIVE ZONE
C-TZ = THIRD TRANSMISSIVE ZONE
 - OVA READINGS WERE TAKEN DURING SOIL BORING INSTALLATION BY ERM ON OCTOBER 8 AND 12, 1988.
 - GROUND WATER ANALYTICAL RESULTS FROM RFI PHASE 2B AND SECOND 1988 SEMIANNUAL IMPOUNDMENT (9/21/98-11/28/98) SAMPLING EVENT.
 - WATER LEVELS FOR MONITOR WELLS WERE GAUGED ON NOVEMBER 23, 1988. WATER LEVELS FOR SOIL BORINGS WERE TAKEN FROM INSTALLATION LOGS.
 - BORING LOG FOR MONITOR WELL MW-18C COULD NOT BE LOCATED.



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FIGURE 4-4
CROSS SECTION C-C'
Houston Wood Preserving Works
Houston, Texas

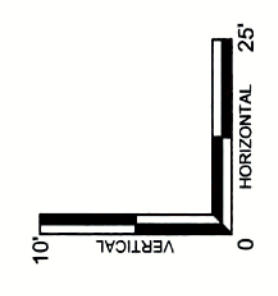
DESIGN: LP	CHKD: MLY	DATE: 03/24/00	REV: 1
DRAWN: CAK	SCALE: AS SHOWN	W.O.NO: 42208C72C00	SHEET NO. of



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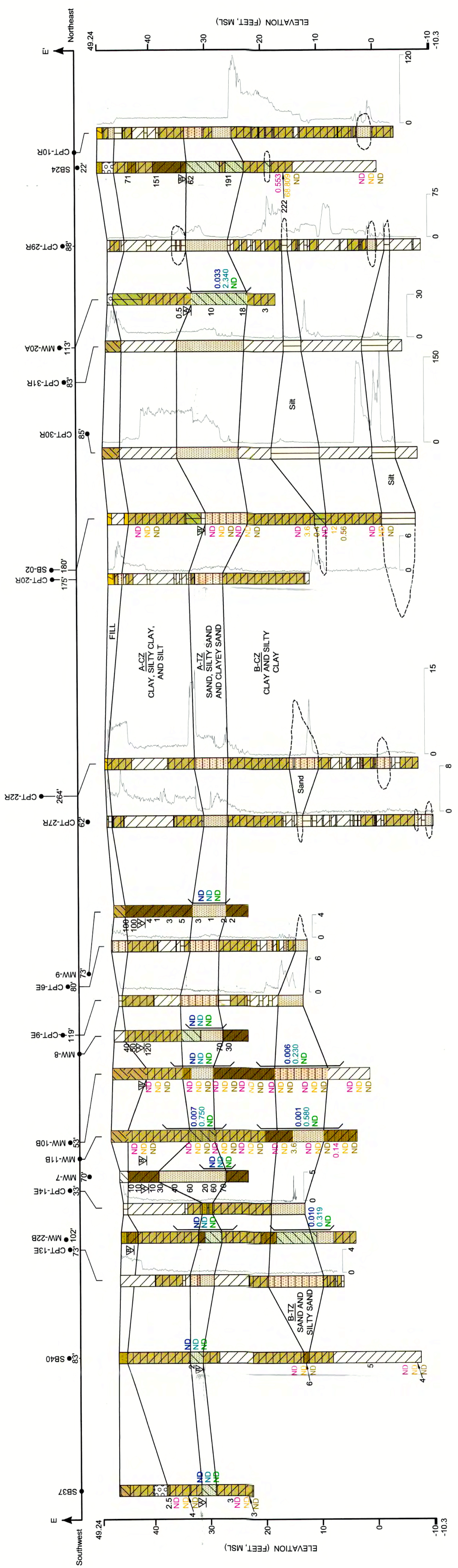
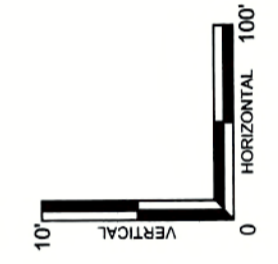
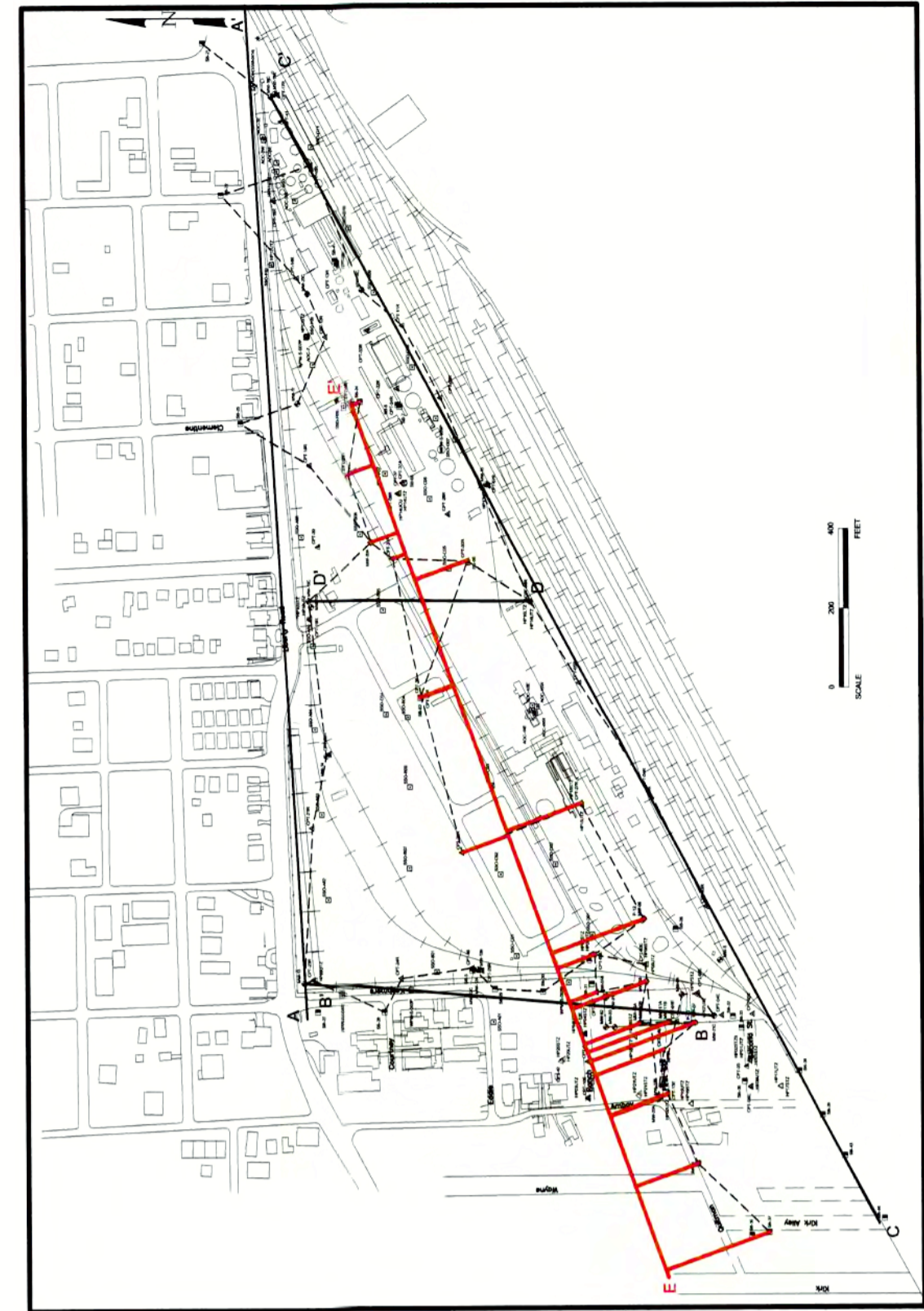
FIGURE 4-5
 GEOLOGIC CROSS SECTION D-D'
 Houston Wood Preserving Works
 Houston, Texas

DESIGN LP	CHKD: MLY	DATE: 03/24/00	REV:
DRAWN: CMK	SCALE: AS SHOWN	W.O.NO.: 42209C102C00	SHEET NO. of



- LEGEND**
- CLAY
 - SILT
 - SAND
 - SILTY CLAY
 - CLAYEY SILT
 - WATER LEVEL A TRANSMISSIVE ZONE
 - WATER LEVEL B TRANSMISSIVE ZONE
 - WATER LEVEL C TRANSMISSIVE ZONE
 - SCREENED INTERVAL
 - LASER INDUCED FLUORESCENCE, RELATIVE INTENSITY
 - GROUND WATER ANALYTICAL RESULTS (mg/L)
 - BENZENE = ND
 - TOXIC SUBSTANCE
 - BENZENE = 41
 - BENZO(a)ANTHRACENE = ND
 - SOIL ANALYTICAL RESULTS (mg/kg)
 - BENZENE = ND
 - PAHTHALENE = ND
 - BENZO(a)ANTHRACENE = ND

- NOTES:**
- A-CZ = UPPER COHESIVE ZONE
 B-CZ = SECOND COHESIVE ZONE
 C-CZ = THIRD COHESIVE ZONE
 D-CZ = FOURTH COHESIVE ZONE
 - OVN = 0.5 (ppm)
 OVM READINGS WERE TAKEN BY ERM ON SEPTEMBER 28, 1998.
 - GROUND WATER ANALYTICAL RESULTS FROM RPI PHASE 2B AND SECOND 1998 SEMIANNUAL IMPOUNDMENT (9/21/98-11/28/98) SAMPLING EVENT.
 - WATER LEVELS FOR MONITOR WELLS WERE CALUSED ON NOVEMBER 23, 1998. WATER LEVELS FOR SOIL BORINGS WERE TAKEN FROM INSTALLATION LOGS.



LEGEND

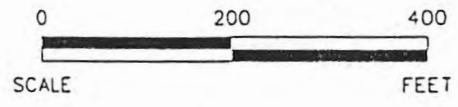
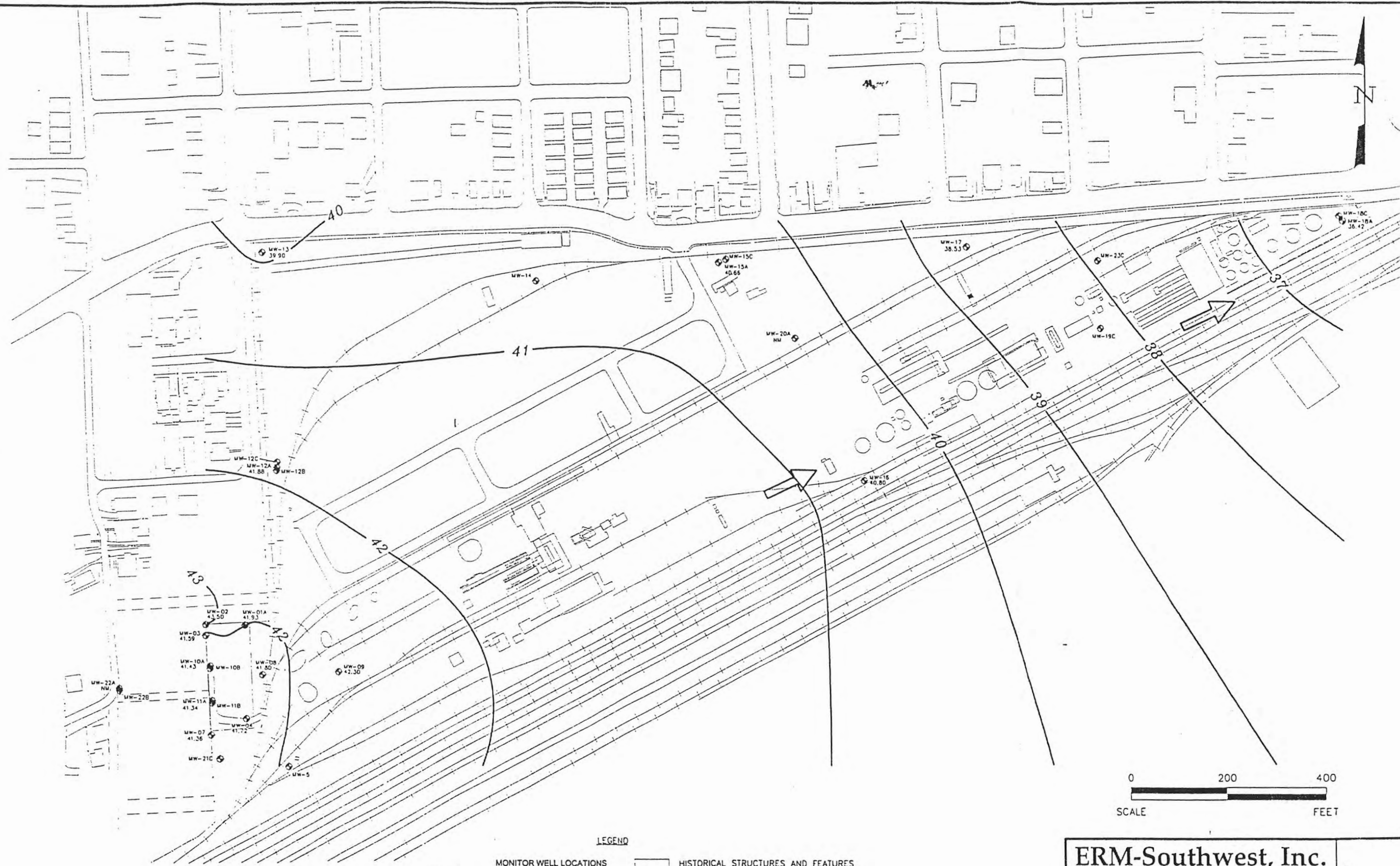
- CLAY
- SILT
- SAND
- COARSE SAND
- SANDY CLAY
- SILTY CLAY
- SANDY SILTY CLAY
- CLAYEY SILT
- SANDY CLAYEY SILT
- SILTY SAND
- CLAYEY SAND
- SILTY CLAYEY SAND
- FILL
- GRAVEL
- CONCRETE
- NO RECOVERY
- OTHER

NOTES:

1. A-CZ = UPPER COHESIVE ZONE
 A-TZ = UPPER TRANSMISSIVE ZONE
 B-CZ = SECOND COHESIVE ZONE
 B-TZ = SECOND TRANSMISSIVE ZONE
 C-CZ = THIRD COHESIVE ZONE
 C-TZ = THIRD TRANSMISSIVE ZONE
2. OVAOVM = 40 (ppm)
 a) OVM READINGS WERE TAKEN AT SOIL BORING LOCATIONS (SB-24, SB-37, AND SB-40) AND DURING THE INSTALLATION OF MONITOR WELL MW-20A BY TERM IN SEPTEMBER 1998.
 b) SEPTICEMETER READINGS WERE TAKEN DURING THE INSTALLATION OF MONITOR WELLS MW-7, MW-8, AND MW-9 BY GEO ASSOCIATES IN APRIL 1991.
3. GROUND WATER ANALYTICAL RESULTS FROM RFI PHASE 2B AND SECOND 1998 SEMIANNUAL IMPOUNDMENT (9/27/98-11/28/98) SAMPLING EVENT.
 SOIL ANALYTICAL RESULTS (mg/kg)
 BENZENE = 0.033
 NAPHTHALENE = 68.809
 BENZO(a)ANTHRACENE = ND
4. WATER LEVELS FOR MONITOR WELLS WERE GAUGED ON NOVEMBER 23, 1998.
 WATER LEVELS FOR SOIL BORINGS WERE TAKEN FROM INSTALLATION LOGS.

LEGEND

- WATER LEVEL A TRANSMISSIVE ZONE
- WATER LEVEL B TRANSMISSIVE ZONE
- WATER LEVEL C TRANSMISSIVE ZONE
- SCREENED INTERVAL
- LASER-INDUCED FLUORESCENCE, RELATIVE INTENSITY
- GROUND WATER ANALYTICAL RESULTS (mg/L)
 BENZENE = 0.033
 NAPHTHALENE = 2.340
 BENZO(a)ANTHRACENE = ND
- SOIL ANALYTICAL RESULTS (mg/kg)
 BENZENE = 0.553
 NAPHTHALENE = 68.809
 BENZO(a)ANTHRACENE = ND



- NOTES:**
1. GROUND WATER ELEVATIONS MEASURED ON 09/25/97.
 2. NM = NOT MEASURED. MONITOR WELL WAS INSTALLED IN 1998.
 3. CONTOUR INTERVAL = 1'.

- LEGEND**
- MW-09 42.30
 - 40
 -
 - MONITOR WELL LOCATIONS WITH GROUND WATER ELEVATIONS (FEET, MSL)
 - GROUND WATER ELEVATION CONTOUR (FEET, MSL)
 - GROUND WATER FLOW DIRECTION
 - HISTORICAL STRUCTURES AND FEATURES
 - ROADS, PARKING LOTS, SIDEWALKS
 - FENCES
 - RAIL LINES
 - RIGHT-OF-WAYS

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FIGURE 4-7
POTENTIOMETRIC SURFACE CONTOUR MAP
A-TZ - SEPTEMBER 1997
Houston Wood Preserving Works
Houston, Texas

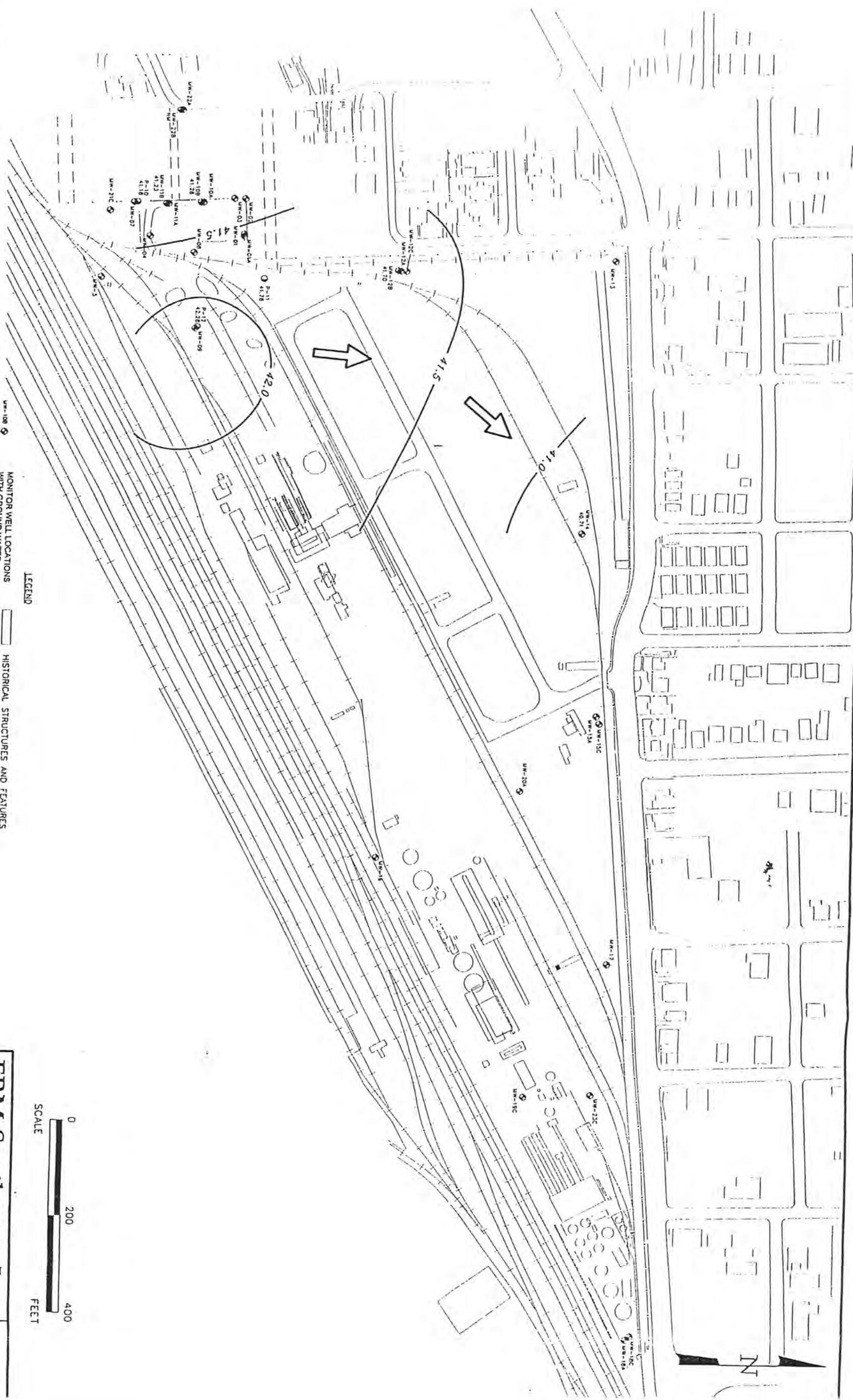


DESIGN: MLY	CHKD:	DATE: 03/22/00	REV.:
DRAWN: LMc	SCALE: AS SHOWN	W.O.NO.: 42209B104C00	

- NOTES:
1. GROUND WATER ELEVATIONS MEASURED ON 09/25/97.
 2. NM = NOT MEASURED. MONITOR WELL WAS INSTALLED IN 1998.
 3. CONTOUR INTERVAL = 0.5'.

LEGEND

- 41.5' — MONITOR WELL LOCATIONS WITH GROUND WATER ELEVATIONS (FEET, MSL)
- 0 — PIEZOMETER
- 41.5' — GROUND WATER ELEVATION CONTOUR (FEET, MSL)
- ⇨ — GROUND WATER FLOW DIRECTION
- ▭ — HISTORICAL STRUCTURES AND FEATURES
- ▭ — ROADS, PARKING LOTS, SIDEWALKS
- — — — — FENCES
- — — — — RAIL LINES
- - - - - RIGHT-OF-WAYS



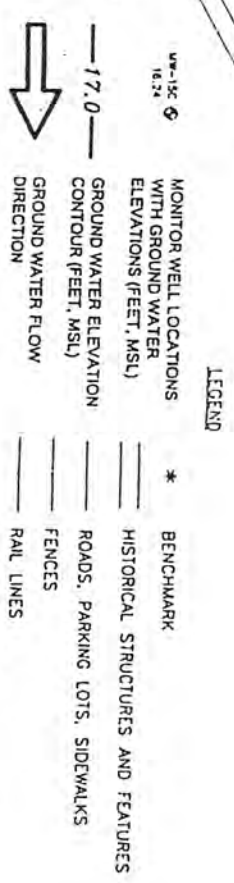
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FIGURE 4-8
POTENTIOMETRIC SURFACE CONTOUR MAP
B-1Z - SEPTEMBER 1997
Houston Wood Preserving Works
Houston, Texas

DESIGN: MLY	CHKD:	DATE: 03/22/00	REV:
DRAWN: LMC	SCALE: AS SHOWN	W.O.N.D.: 422098105C00	



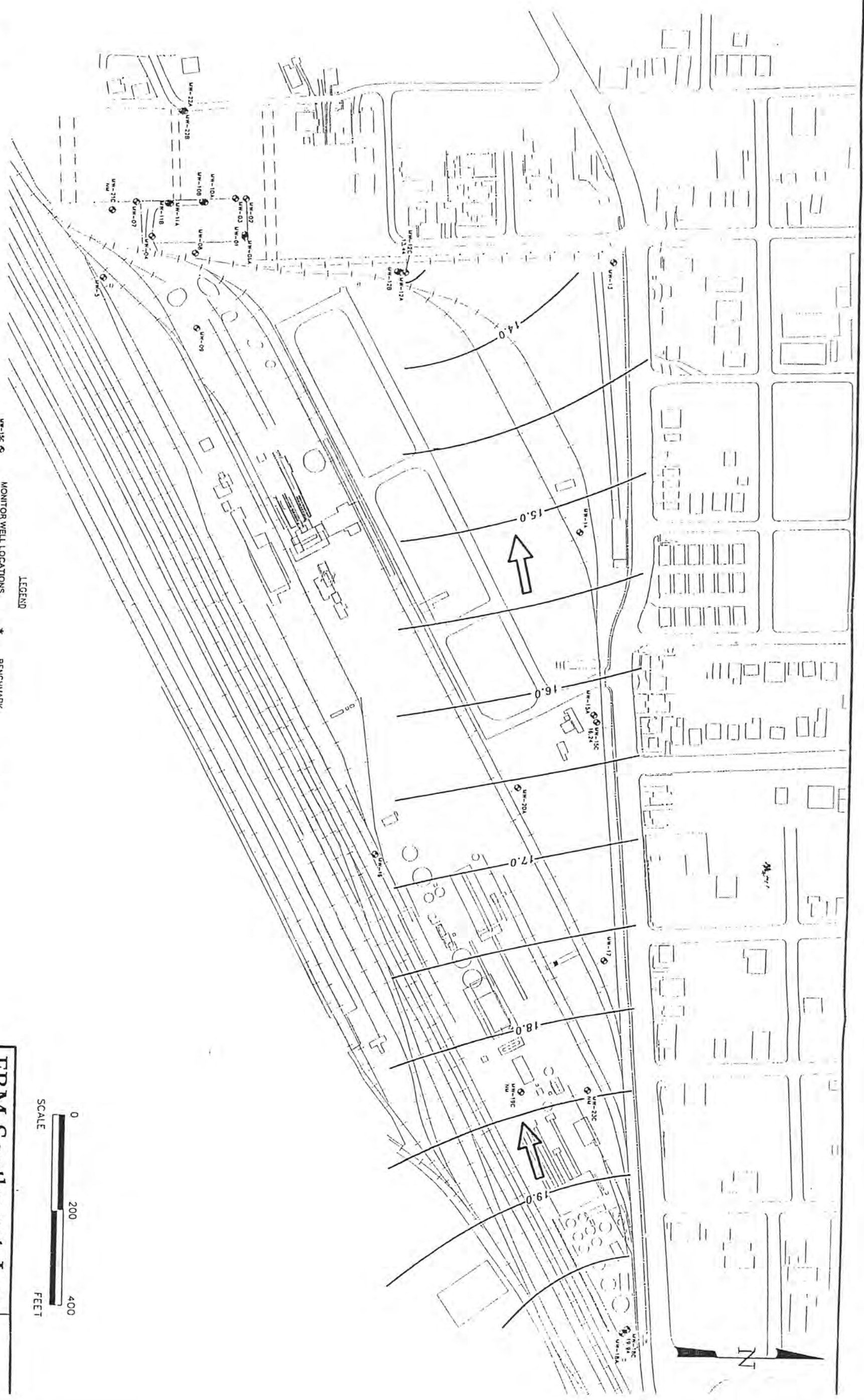
- NOTES:**
1. GROUND WATER ELEVATIONS MEASURED ON 09/25/97.
 2. NM = NOT MEASURED. MONITOR WELL WAS INSTALLED IN 1998.
 3. CONTOUR INTERVAL = 0.5.

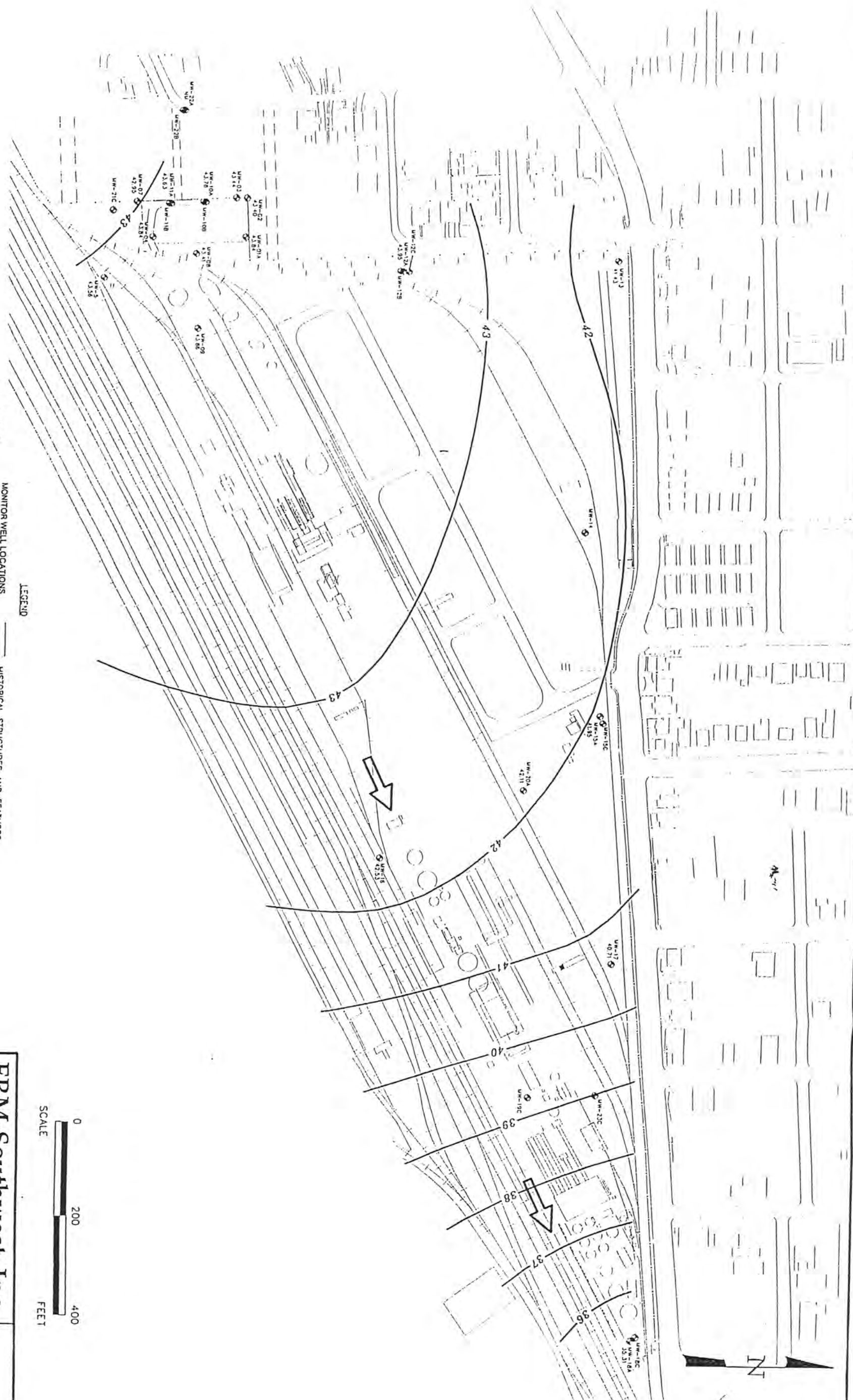


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FIGURE 4.9
 POTENTIOMETRIC SURFACE CONTOUR MAP
 C-17 - SEPTEMBER 1997
 Houston Wood Preserving Works
 Houston, Texas

DESIGN: MLY	CHKD.:	DATE: 03/22/00	REV.:
DRAWN: LMC	SCALE: AS SHOWN	W.O.NO.: 42209B.106C00	





- NOTES:
1. GROUND WATER ELEVATIONS MEASURED ON 11/23/98.
 2. NM = NOT MEASURED
 3. CONTOUR INTERVAL = 1'

LEGEND

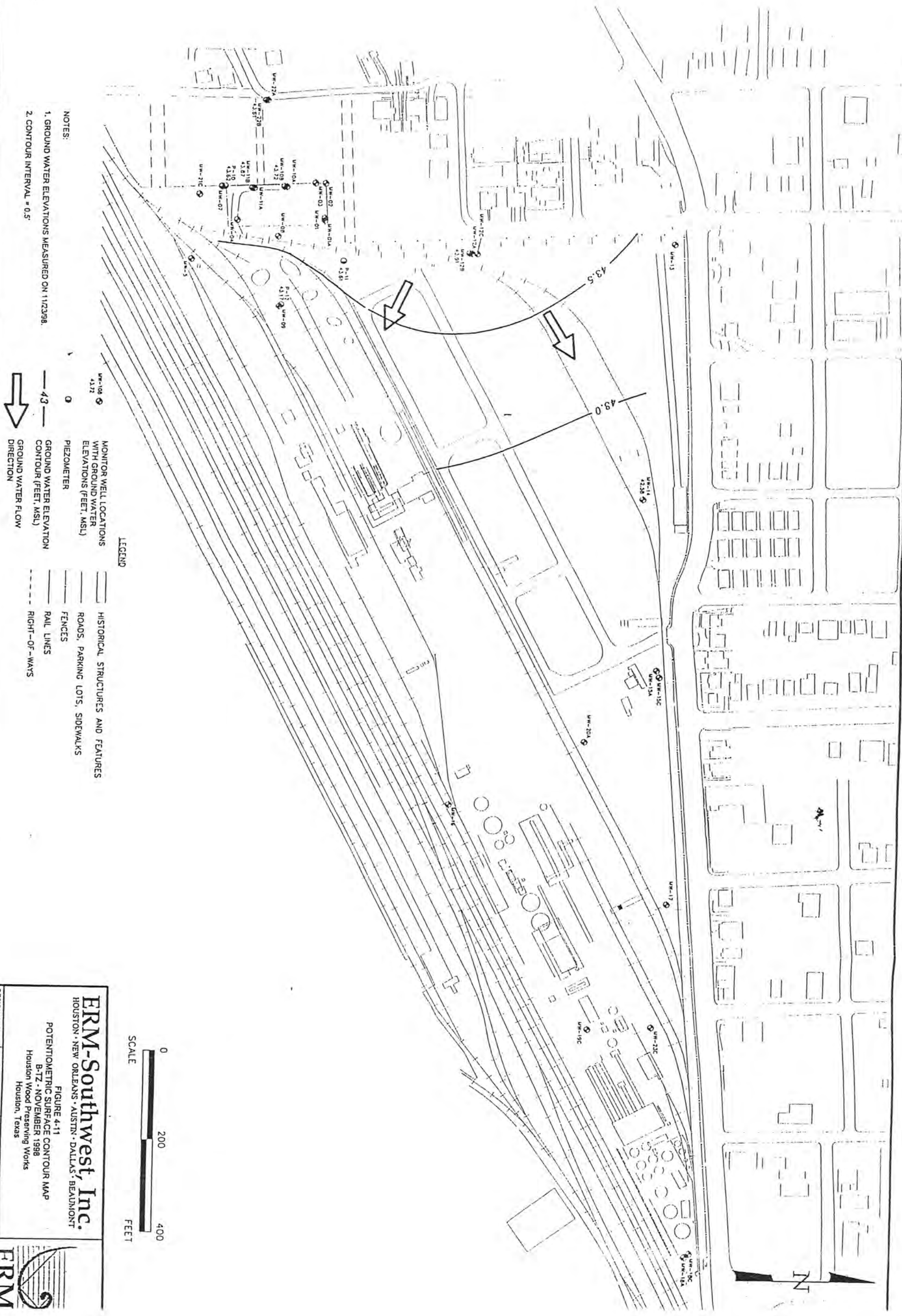
 UM-09 42.84	 HISTORICAL STRUCTURES AND FEATURES
 40	 ROADS, PARKING LOTS, SIDEWALKS
 	 FENCES
	 RAIL LINES
	 RIGHT-OF-WAYS



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FIGURE 4-10
POTENTIOMETRIC SURFACE CONTOUR MAP
A-7Z - NOVEMBER 1998
Houston Wood Preserving Works
Houston, Texas

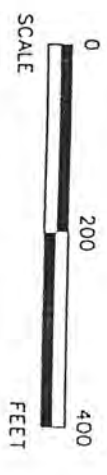
DESIGN: MLV	CHKD:	DATE: 03/22/00	REV:
DRAWN: LMC	SCALE: AS SHOWN	W.O.N.D.: 422088B8C00	



- NOTES:
1. GROUND WATER ELEVATIONS MEASURED ON 11/23/98.
 2. CONTOUR INTERVAL = 0.5'

LEGEND


	MONITOR WELL LOCATIONS WITH GROUND WATER ELEVATIONS (FEET, MSL)		HISTORICAL STRUCTURES AND FEATURES
	PIEZOMETER		ROADS, PARKING LOTS, SIDEWALKS
	GROUND WATER ELEVATION CONTOUR (FEET, MSL)		FENCES
	GROUND WATER FLOW DIRECTION		RAIL LINES
			RIGHT-OF-WAYS

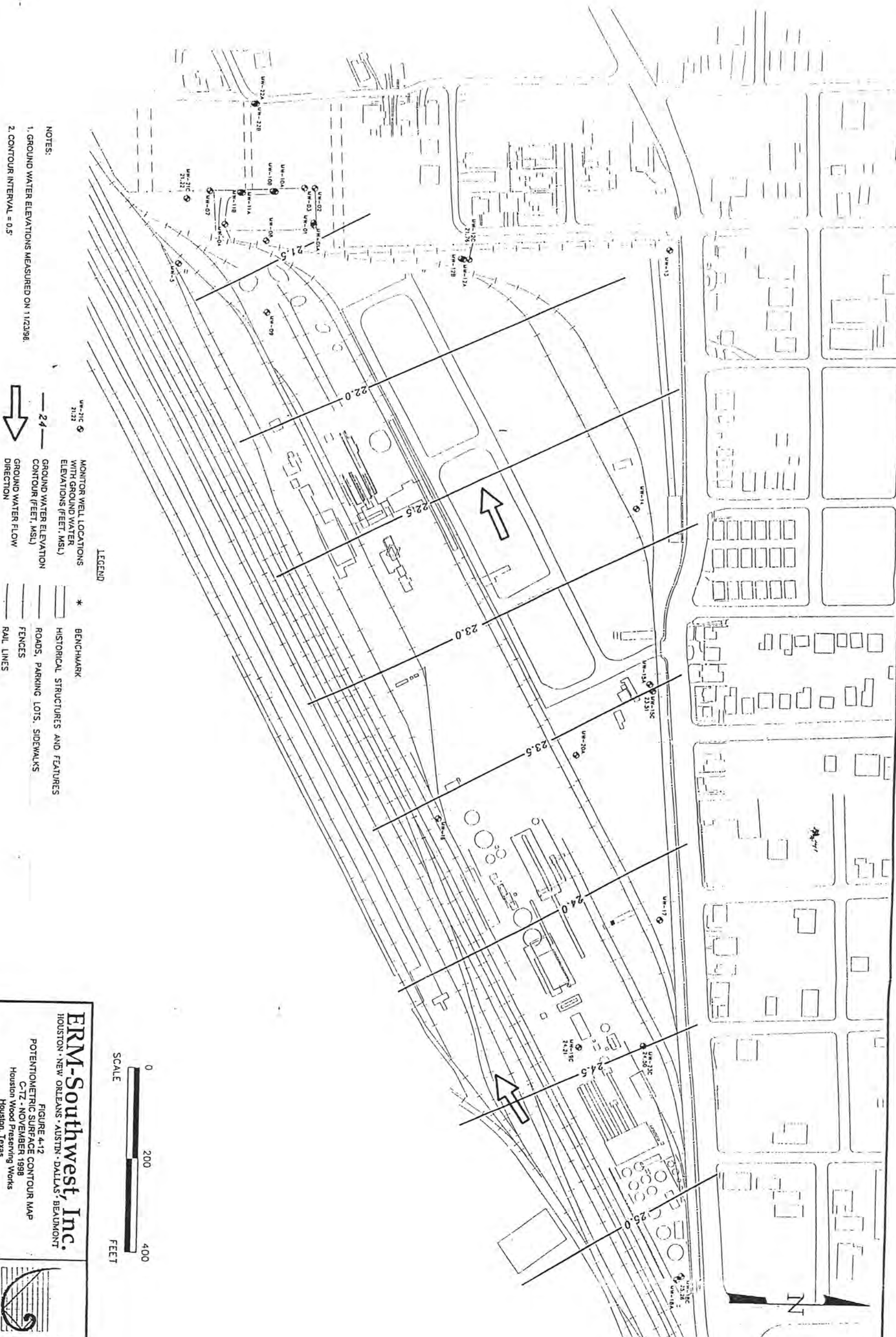


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

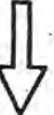
FIGURE 4-11
POTENTIOMETRIC SURFACE CONTOUR MAP
B-TZ - NOVEMBER 1998
Houston Wood Preserving Works
Houston, Texas

DESIGN: MLY	CHD:	DATE: 09/22/00	REV:
DRAWN: LMC	SCALE: AS SHOWN	W.D.NO.: 42209889C00	





NOTES:
 1. GROUND WATER ELEVATIONS MEASURED ON 1/12/2008.
 2. CONTOUR INTERVAL = 0.5'


 * MONITOR WELL LOCATIONS WITH GROUND WATER ELEVATIONS (FEET, MSL)

 24 — GROUND WATER ELEVATION CONTOUR (FEET, MSL)

 GROUND WATER FLOW DIRECTION


LEGEND
 * BENCHMARK
 — HISTORICAL STRUCTURES AND FEATURES
 — ROADS, PARKING LOTS, SIDEWALKS
 — FENCES
 — RAIL LINES
 - - - RIGHT-OF-WAYS

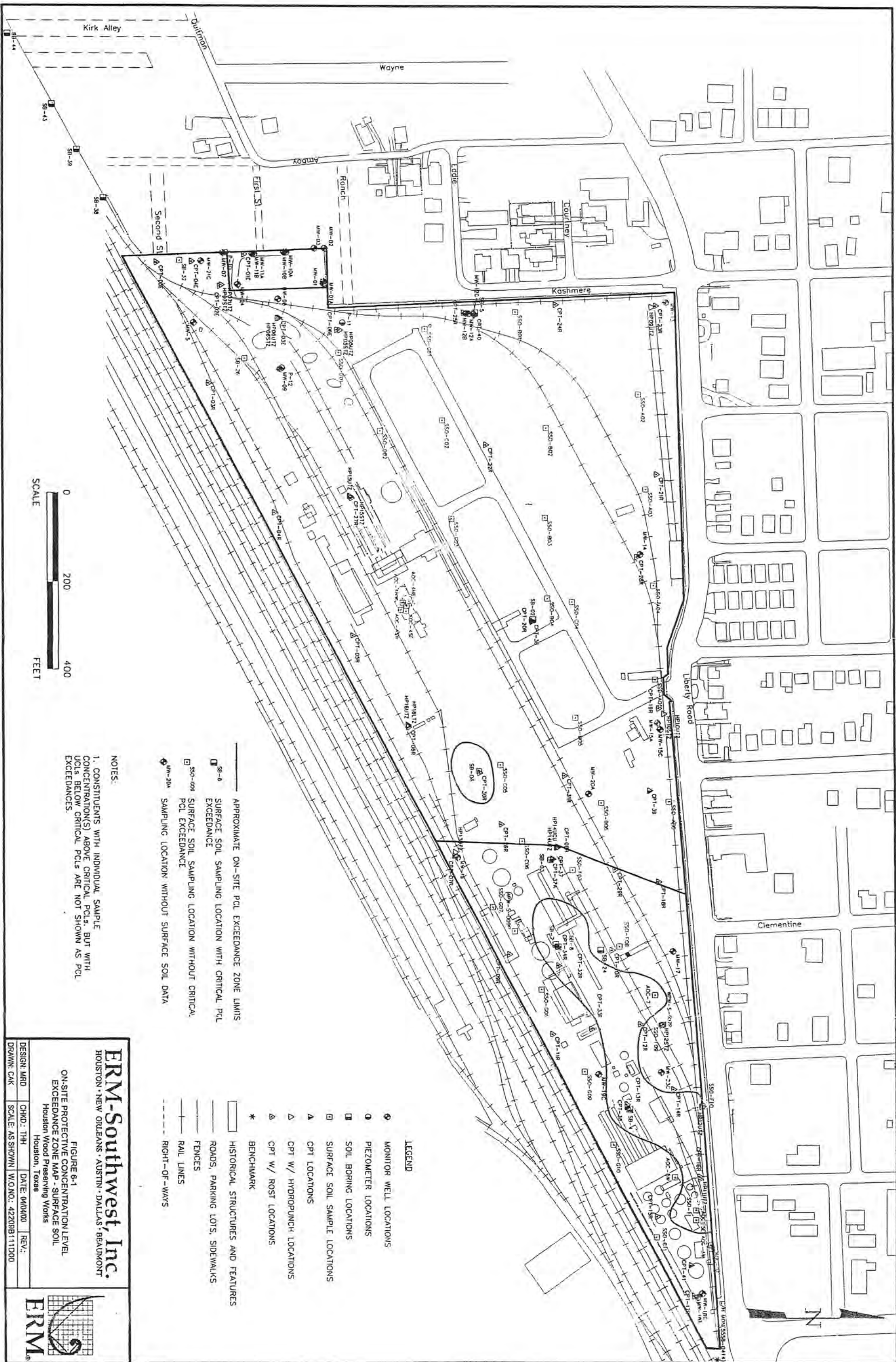


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FIGURE 4-12
 POTENTIOMETRIC SURFACE CONTOUR MAP
 C-TZ · NOVEMBER 1998
 Houston Wood Preserving Works
 Houston, Texas

DESIGN: MLV	CHD:	DATE: 03/22/00	REV:
DRAWN: LMC	SCALE: AS SHOWN	W.O.NO.: 4220989000	





NOTES:
 1. CONSTITUENTS WITH INDIVIDUAL SAMPLE CONCENTRATIONS(S) ABOVE CRITICAL PCLs, BUT WITH UCLs BELOW CRITICAL PCLs ARE NOT SHOWN AS PCL EXCEEDANCES.

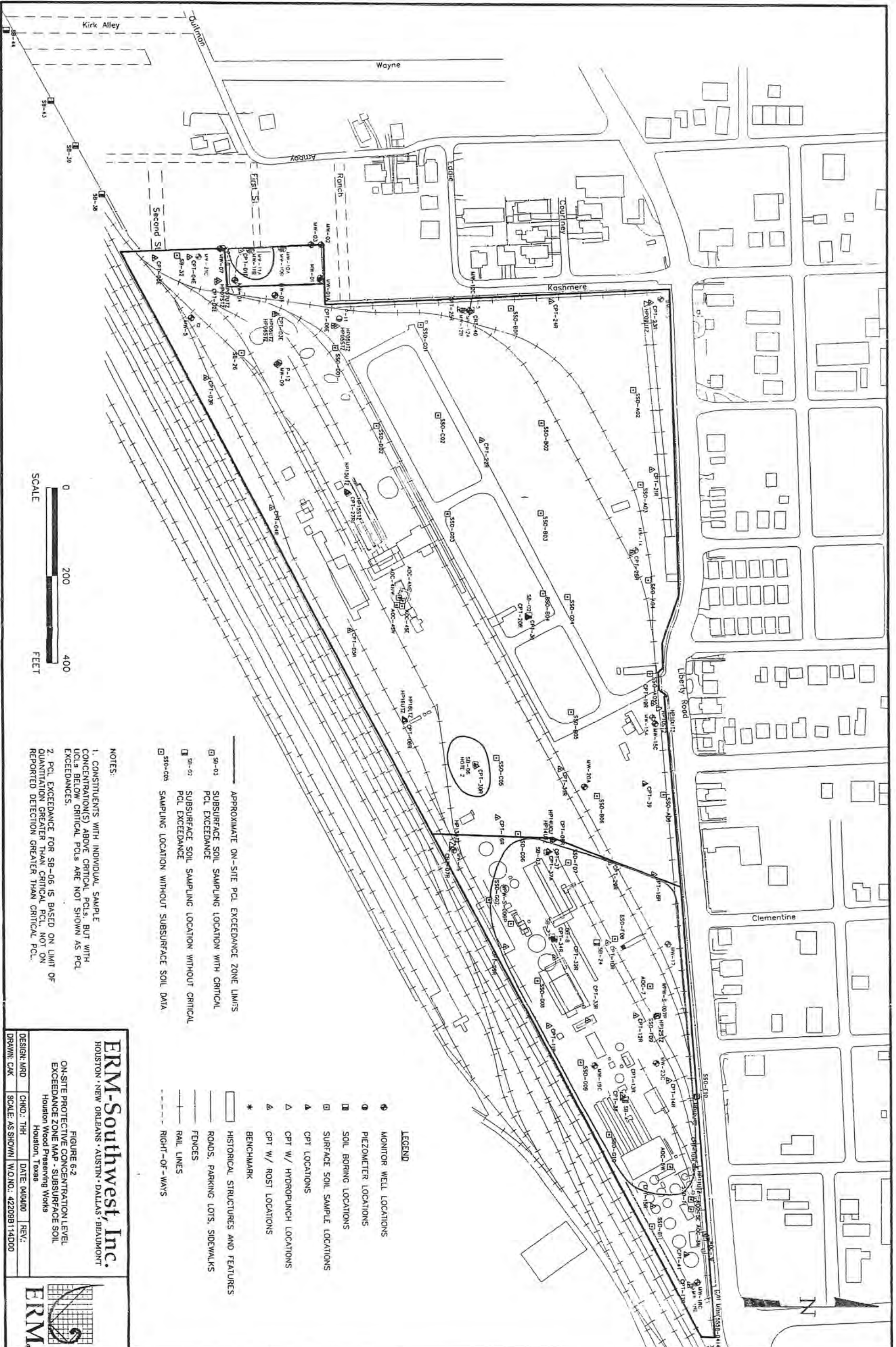
- APPROXIMATE ON-SITE PCL EXCEEDANCE ZONE LIMITS
- SB-0 SURFACE SOIL SAMPLING LOCATION WITH CRITICAL PCL EXCEEDANCE
- S50-009 SURFACE SOIL SAMPLING LOCATION WITHOUT CRITICAL PCL EXCEEDANCE
- MW-20A SAMPLING LOCATION WITHOUT SURFACE SOIL DATA

- LEGEND**
- MONITOR WELL LOCATIONS
 - PIEZOMETER LOCATIONS
 - SOIL BORING LOCATIONS
 - SURFACE SOIL SAMPLE LOCATIONS
 - △ CPT LOCATIONS
 - △ CPT W/ HYDROPLUNCH LOCATIONS
 - △ CPT W/ ROST LOCATIONS
 - * BENCHMARK
 - HISTORICAL STRUCTURES AND FEATURES
 - ROADS, PARKING LOTS, SIDEWALKS
 - FENCES
 - RAIL LINES
 - RIGHT-OF-WAYS

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FIGURE 6-1
 ON-SITE PROTECTIVE CONCENTRATION LEVEL EXCEEDANCE ZONE MAP - SURFACE SOIL
 Houston Wood Preserving Works
 Houston, Texas

DESIGN: MRD	CHKD: THH	DATE: 06/04/00	REV.:
DRAWN: CAK	SCALE: AS SHOWN	W.O.NO.: 42209B111D00	



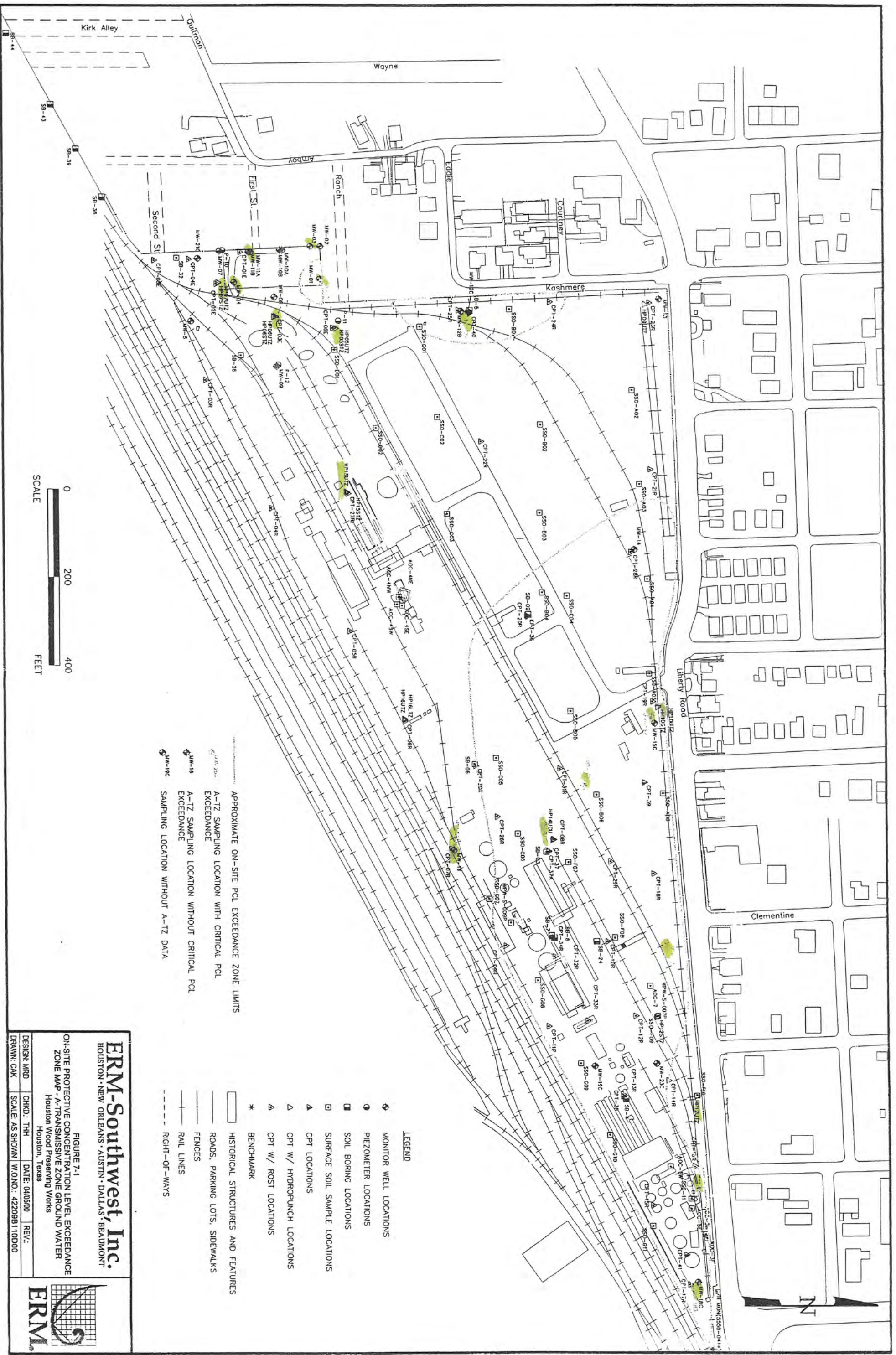
- NOTES:
1. CONSTITUENTS WITH INDIVIDUAL SAMPLE CONCENTRATION(S) ABOVE CRITICAL P.C.L.S. BUT WITH UCLs BELOW CRITICAL P.C.Ls ARE NOT SHOWN AS P.C.L. EXCEEDANCES.
 2. P.C.L. EXCEEDANCE FOR SB-06 IS BASED ON LIMIT OF QUANTITATION GREATER THAN CRITICAL P.C.L. NOT ON REPORTED DETECTION GREATER THAN CRITICAL P.C.L.
- SB-03 APPROXIMATE ON-SITE P.C.L. EXCEEDANCE ZONE LIMITS
 - SB-02 SUBSURFACE SOIL SAMPLING LOCATION WITH CRITICAL P.C.L. EXCEEDANCE
 - SB-01 SUBSURFACE SOIL SAMPLING LOCATION WITHOUT CRITICAL P.C.L. EXCEEDANCE
 - SSO-005 SAMPLING LOCATION WITHOUT SUBSURFACE SOIL DATA

- LEGEND
- MONITOR WELL LOCATIONS
 - PIEZOMETER LOCATIONS
 - SOIL BORING LOCATIONS
 - SURFACE SOIL SAMPLE LOCATIONS
 - △ CPT LOCATIONS
 - △ CPT W/ HYDROPUNCH LOCATIONS
 - △ CPT W/ ROST LOCATIONS
 - * BENCHMARK
 - HISTORICAL STRUCTURES AND FEATURES
 - ROADS, PARKING LOTS, SIDEWALKS
 - FENCES
 - RAIL LINES
 - RIGHT-OF-WAYS

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FIGURE 6-2
ON-SITE PROTECTIVE CONCENTRATION LEVEL EXCEEDANCE ZONE MAP - SUBSURFACE SOIL
Houston Wood Preserving Works
Houston, Texas

DESIGN: MRD	CHKD.: THH	DATE: 04/04/00	REV.:
DRAWN: CMK	SCALE: AS SHOWN	W.O.NO.: 42209B114D00	



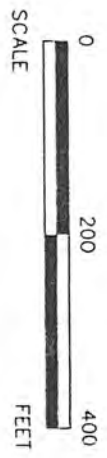
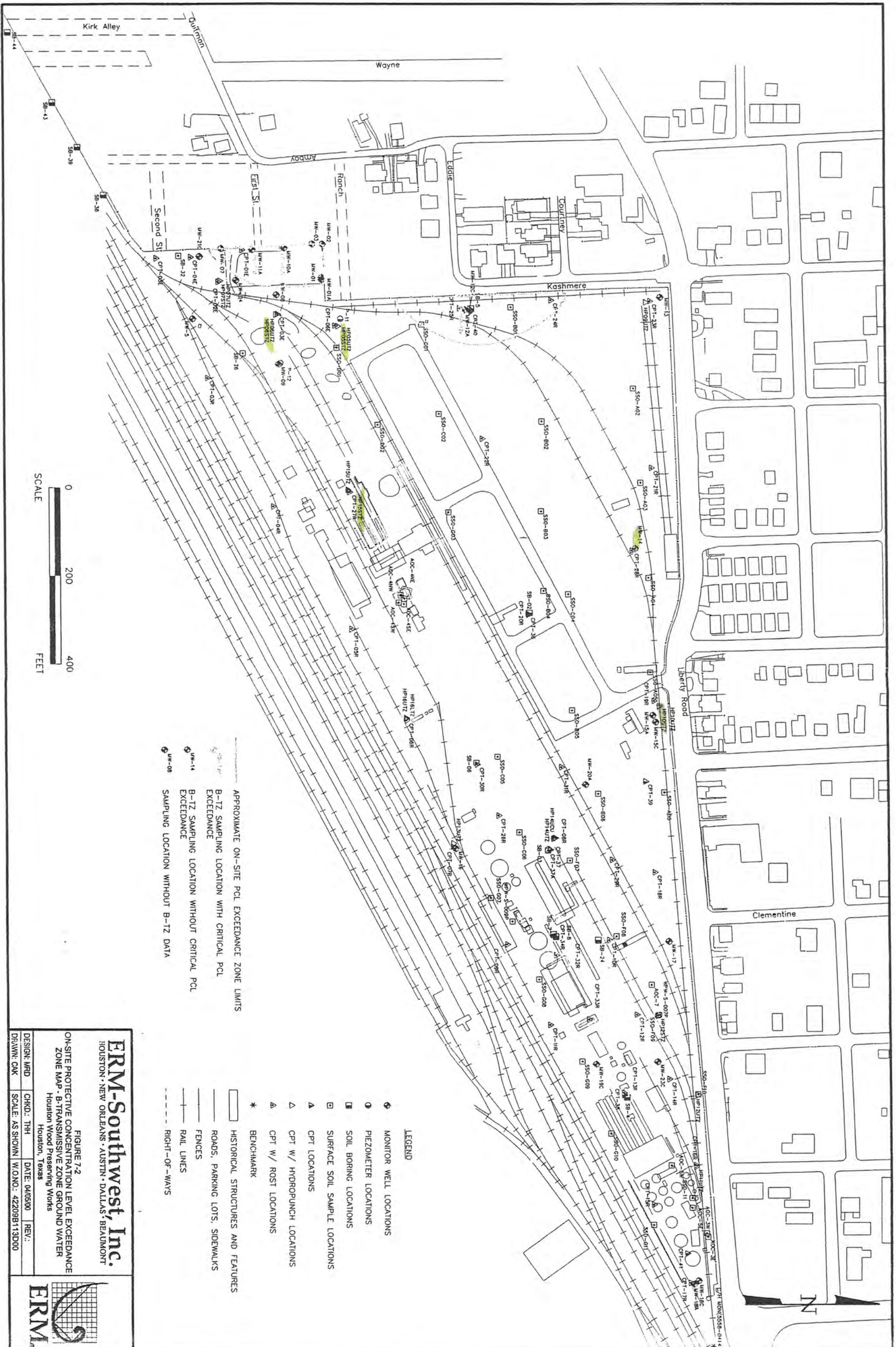
- APPROXIMATE ON-SITE PCL EXCEEDANCE ZONE LIMITS
- A-TZ SAMPLING LOCATION WITH CRITICAL PCL EXCEEDANCE
- A-TZ SAMPLING LOCATION WITHOUT CRITICAL PCL EXCEEDANCE
- SAMPLING LOCATION WITHOUT A-TZ DATA

- LEGEND**
- MONITOR WELL LOCATIONS
 - PIEZOMETER LOCATIONS
 - SOIL BORING LOCATIONS
 - SURFACE SOIL SAMPLE LOCATIONS
 - CPT LOCATIONS
 - CPT W/ HYDROPUNCH LOCATIONS
 - CPT W/ ROST LOCATIONS
 - BENCHMARK
 - HISTORICAL STRUCTURES AND FEATURES
 - ROADS, PARKING LOTS, SIDEWALKS
 - FENCES
 - RAIL LINES
 - RIGHT-OF-WAYS

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FIGURE 7-1
ON-SITE PROTECTIVE CONCENTRATION LEVEL EXCEEDANCE ZONE MAP - A-TZ TRANSMISSIVE ZONE GROUND WATER
Houston Wood Preserving Works
Houston, Texas

DESIGN: MRD
DRAWN: CMK
CHKD: THH
SCALE: AS SHOWN
DATE: 04/05/00
W.O.N.O.: 42209B170D00
REV:



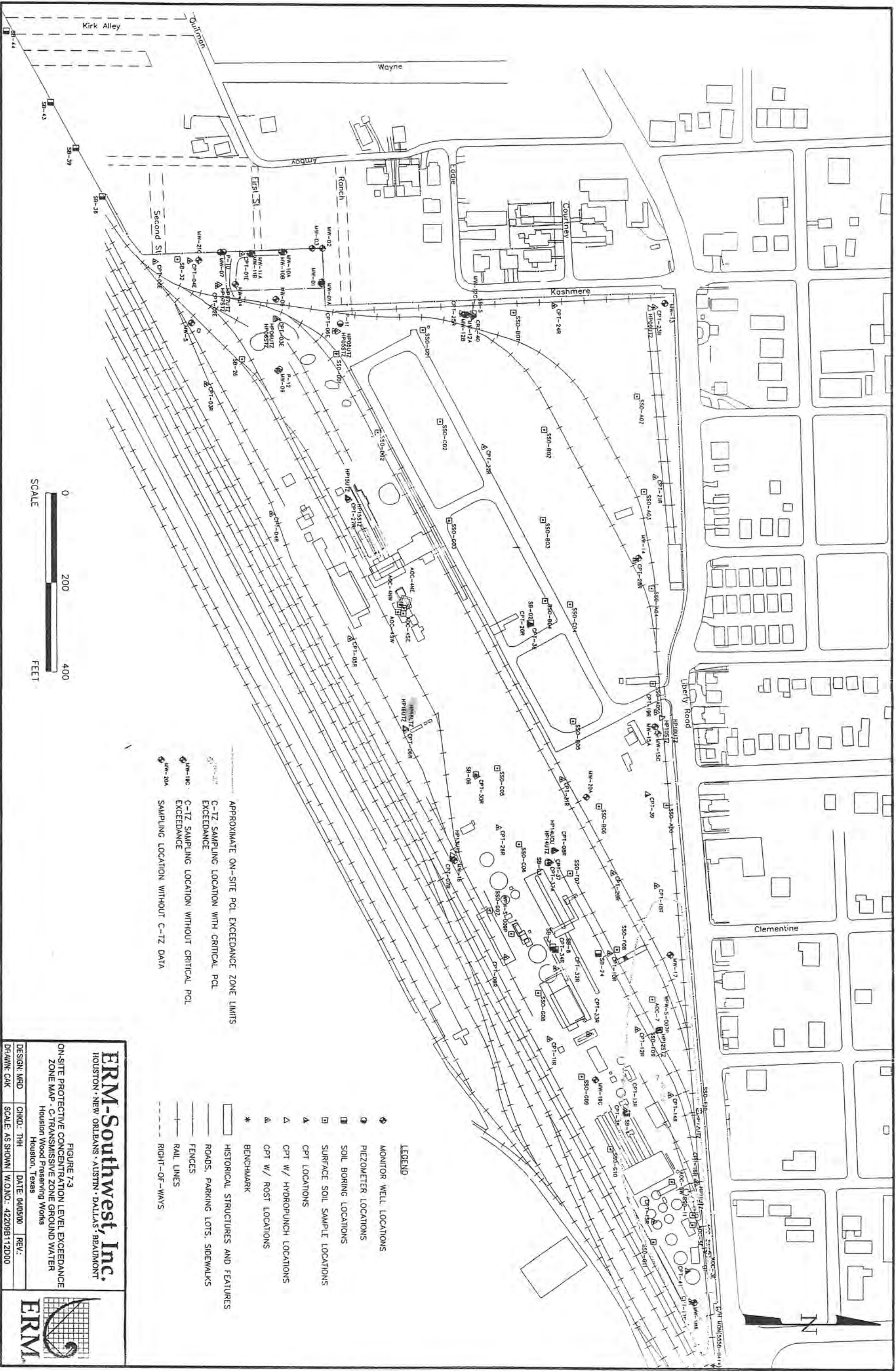
- APPROXIMATE ON-SITE PCL EXCEEDANCE ZONE LIMITS
- B-TZ SAMPLING LOCATION WITH CRITICAL PCL EXCEEDANCE
- B-TZ SAMPLING LOCATION WITHOUT CRITICAL PCL EXCEEDANCE
- SAMPLING LOCATION WITHOUT B-TZ DATA

- LEGEND**
- MONITOR WELL LOCATIONS
 - PIEZOMETER LOCATIONS
 - SOIL BORING LOCATIONS
 - ⊠ SURFACE SOIL SAMPLE LOCATIONS
 - △ CPT LOCATIONS
 - ▽ CPT W/ HYDROPUNCH LOCATIONS
 - ▲ CPT W/ ROST LOCATIONS
 - * BENCHMARK
 - ▭ HISTORICAL STRUCTURES AND FEATURES
 - ROADS, PARKING LOTS, SIDEWALKS
 - FENCES
 - RAIL LINES
 - - - RIGHT-OF-WAYS

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FIGURE 7-2
 ON-SITE PROTECTIVE CONCENTRATION LEVEL EXCEEDANCE
 ZONE MAP - B-TRANSMISSIVE ZONE GROUND WATER
 Houston Wood Preserving Works
 Houston, Texas

DESIGN: MRD	CHKD: THH	DATE: 04/05/00	REV.:
DRAWN: CAK	SCALE: AS SHOWN	W.O.NO.: 42209B113D00	



- APPROXIMATE ON-SITE PCL EXCEEDANCE ZONE LIMITS
- C-TZ SAMPLING LOCATION WITH CRITICAL PCL EXCEEDANCE
- C-TZ SAMPLING LOCATION WITHOUT CRITICAL PCL EXCEEDANCE
- SAMPLING LOCATION WITHOUT C-TZ DATA

- LEGEND**
- MONITOR WELL LOCATIONS
 - PIEZOMETER LOCATIONS
 - SOIL BORING LOCATIONS
 - SURFACE SOIL SAMPLE LOCATIONS
 - CPT LOCATIONS
 - CPT W/ HYDROPUNCH LOCATIONS
 - CPT W/ ROST LOCATIONS
 - BENCHMARK
 - HISTORICAL STRUCTURES AND FEATURES
 - ROADS, PARKING LOTS, SIDEWALKS
 - FENCES
 - RAIL LINES
 - RIGHT-OF-WAYS

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FIGURE 7-3
 ON-SITE PROTECTIVE CONCENTRATION LEVEL EXCEEDANCE
 ZONE MAP - C-TRANSMISSIVE ZONE GROUND WATER
 Houston Wood Preserving Works
 Houston, Texas

DESIGN: MRD	CHKD: THH	DATE: 04/05/00	REV:
DRAWN: CAK	SCALE: AS SHOWN	W.O.N.O.: 42209B112000	



Water Well Survey Results
Appendix A

July 10, 2000
W.O. #422-009

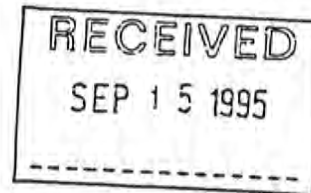
Environmental Resources Management
16300 Katy Freeway, Suite 300
Houston, Texas 77094-1611
(281) 600-1000



Agency Information Consultants, Inc.
Information for a Changing World

September 13, 1995

Bill Goldsby
Industrial Compliance
6200 Rothway, Ste 190
Houston, Texas 77040



Re: AIC Job #02-0045405
Water and Monitor
Well Search
Liberty & Cashmere
Houston, Texas

Dear Mr. Goldsby:

At your request, Agency Information Consultants, Inc. (AIC) has reviewed records and maps on file at the Texas Water Development Board (TWDB) and the Texas Natural Resource Conservation Commission (TNRCC) and has plotted all water wells of record located within the requested Area of Review (AOR) on the enclosed map. AIC does not guarantee the accuracy of the information as provided by the original sources, nor can we guarantee that no plotting errors have occurred. The purpose of these maps is to give the user a "working approximation" of the positions of reported well locations. AIC performs water well research using the following protocol:

1. Transfer all "located" and "plotted" water wells found within the Area of Review (AOR) from TWDB county highway maps onto the enclosed map.
2. Transfer all "located" water wells found within the AOR from TWDB USGS 7.5 minute topographic maps onto the enclosed map.
3. Copy "located" schedules/logs for wells found within the AOR from TWDB files.
4. Examine all "plotted" well files for "partially plotted" well locations found within the AOR, and obtain copies of drillers' logs at the TNRCC.
5. Examine all "unnumbered" well logs and drillers' maps, filed by county, to determine wells located within the AOR. Obtain copies of drillers' logs for wells located within the AOR, from the TNRCC.
6. Examine the "DIM" file for monitor wells within the AOR. Obtain copies of the well logs from the TNRCC.

The following is a brief explanation of terms as used in this letter:

Located water well - Well whose location has been field checked by a TWDB or USGS staff member, spotted on a USGS 7.5' topographic and/or county highway map, and filed at the TWDB.



- Plotted water well - Well whose approximate location is based on information submitted on drillers' logs and spotted on county highway maps by TWDB staff members. NOTE: The TWDB stopped this procedure in June 1986.
- Partially numbered - Any well with records processed from June 1986 through June 1991. Well locations are based on maps submitted with driller's logs. Each well is assigned a State ID Number by the TNRCC, establishing the location to within a 2.5 minute topographic quad.
- Unnumbered well - Any well with records processed since June 1991. Well logs and drillers maps are filed by county at the TNRCC.
- Monitor well - Monitor wells are filed in the DIM (De-watering, Injection, and Monitor) well file. These well logs are filed by county and are kept at the TNRCC.

** Additionally, an unplotted water well file exists that consists of wells predating 1967. These wells are considered "unlocatable" due to inadequate site maps and addresses. Due to the large number of wells found in this file and the lack of adequate location maps, AIC does not examine these files unless a request has been made.

SUMMARY

Our research has identified 28 wells within the area of review. There are 7 located water wells, 3 plotted water wells, 1 partially numbered water well, no unnumbered water wells, and 17 monitor wells. The following is a listing of the wells found. The final digits of each well number correspond to well numbers on the enclosed map.

LOCATED WATER WELLS

65-14-406
 65-14-735 *
 65-14-738 *
 65-14-742 *
 65-14-745 *
 65-14-746 *
 65-14-759 *

* - Note: The above Located Wells with an asterisk are all located in same area according to TWDB maps. They are all located on the enclosed map at the position marked 735.

PLOTTED WATER WELLS

65-14-4F
 65-14-7J (2 wells)

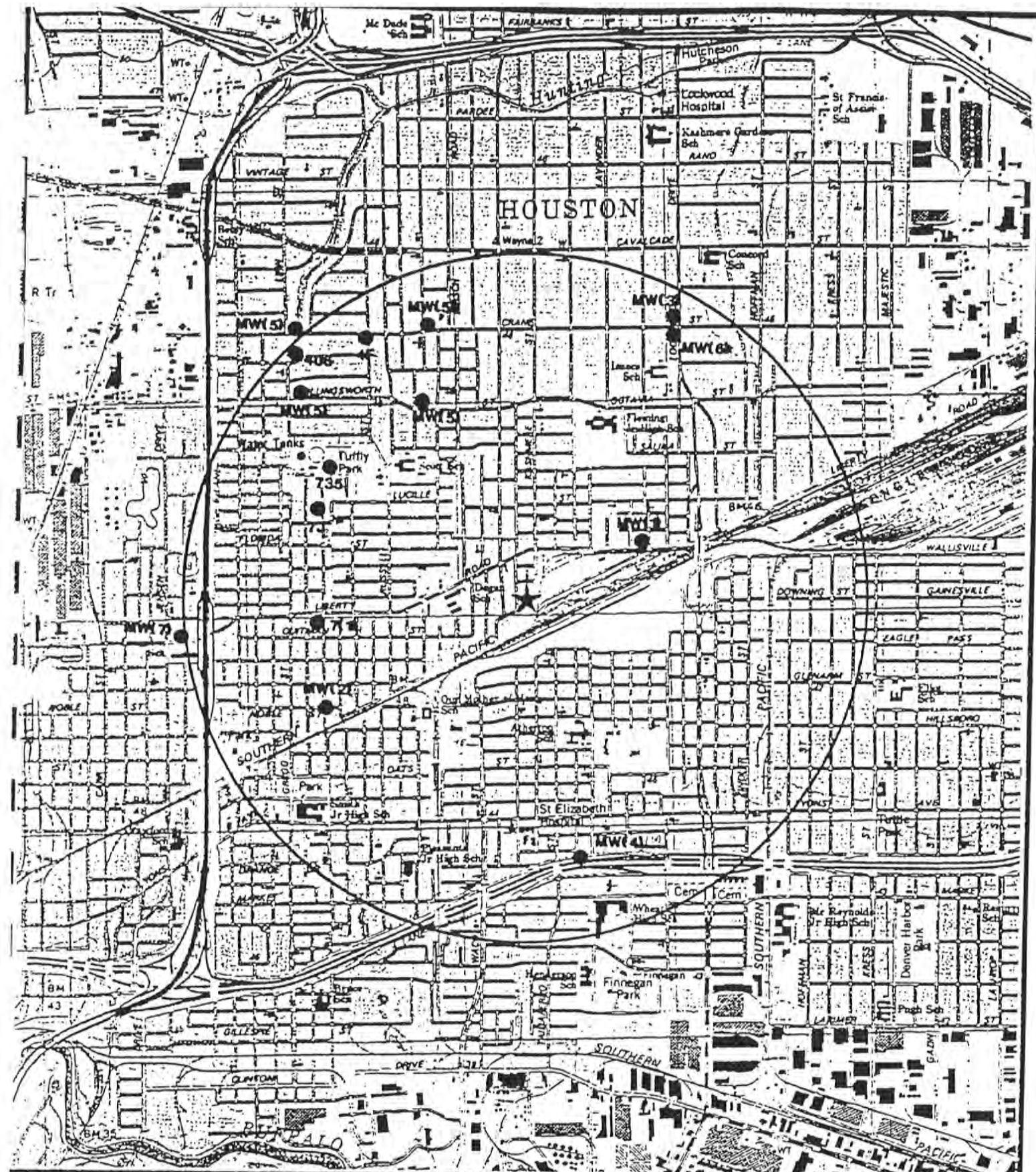
PARTIALLY NUMBERED WATER WELLS
65-14-7(1)

UNNUMBERED WATER WELLS
None Found

MONITOR WELLS
MW(1) (2 wells)
MW(2)
MW(3) (4 wells)
MW(4) (4 wells)
MW(5) (4 wells)
MW(6)
MW(7)

Thank you for using AIC for this research project. If you have any questions regarding this project or any future projects please call me at 512-478-8991.

Diane Barnes
Production Manager



Industrial Compliance

Topographic Map Prepared by Agency Information Consultants, Inc.

AIC #02-0045405

1 Mile Water & Monitor Well Search

Site: Liberty Road & Kashmere
Houston, Texas

Settegast (1982), TX

7.5' USGS Quad, Scale 1:24000

0

MASTER CARD

Source (T. Brown) Record by RBA (S-10-G) of data FILES Date 2-20-68 Map Section 1955 1:2400

State Texas County Harris (or town) L.J.

Latitude: 29° 47' 45" N Longitude: 09° 52' 01" W Sequential number: 1

Local well number: LJ-65-14-406 Other number: Northeast 3

Local use: _____ Owner of name: CITY OF HOUSTON

Ownership: County, Fed Gov't, Corp or Co, Private, State Agency, Water Dist. M

Use of water: (A) Air cond, Bottling, Comm, Dewater, Power, Fire, Dom, Irr, Med, Ind, P S, Rec. (S) Stock, Instit, Unused, Repressure, Recharge, Desal-P S, Desal-other, Other P

Use of well: (A) Anode, Drain, Seismic, Heat Res, Obs, Oil-gas, Recharge, Test, Unused, Withdraw, Waste, Destroyed W

DATA AVAILABLE: Well data 1 Freq. W/L meas.: Annual Field aquifer char. A

Rvd. lab. data: _____

Qual. water data: type: _____

Freq. sampling: 2-22-48 Pumpage inventory: A yes no: period: _____

Aperture cards: _____

Log data: E-LOG 11-25 0-2510 D-LOG E:D

WELL-DESCRIPTION CARD

WELL DRILLED TO 2510' & PLUGGED BACK TO 1993

SAME AS ON MASTER CARD Depth well: 1993 ft 19° 53' Meas. Driller accuracy 3

Depth cased: 1143 ft 11° 43' Casing type: S ; Diam. 21-12 1/2" 2:4

Finish: porous gravel w. concrete, (parf.), (screen), (gallery, end), (C) borix, (O) open parf., (S) screen, sd. pt., shored, open hole, (X) other G

Method Drilled: air bored, cable, dug, hyd, jetted, percuss, rotary (A) (B) (C) (D) (E) (F) (G) (H) (I) (J) (K) (L) (M) (N) (O) (P) (Q) (R) (S) (T) (U) (V) (W) (X) (Y) (Z) other H

Date Drilled: 5-15-44 5:44 Pump intake setting: _____ ft _____

Driller: LAYNE-TEXAS CO., HOUSTON, TEX.

Lift (type): air, bucket, cent, jet, multiple, multiple, nose, piston, rot, submer, turb, other (A) (B) (C) (D) (E) (F) (G) (H) (I) (J) (K) (L) (M) (N) (O) (P) (Q) (R) (S) (T) (U) (V) (W) (X) (Y) (Z) other 7 Deep 0 Shallow

Power (type): diesel, gas, gasoline, hand, gas, wind, H.P. (A) (B) (C) (D) (E) (F) (G) (H) (I) (J) (K) (L) (M) (N) (O) (P) (Q) (R) (S) (T) (U) (V) (W) (X) (Y) (Z) other 5 Trans. or meter no. _____

Descrip. MP _____ ft above LSD. Alt. MP _____

Alt. LSD: 50 ft 5:0 Accuracy: Topo 5' 3

Water Level 111.68 ft above MP. LSD: _____ Accuracy: _____

Date meas: 6-21-44 6:44 Yield: 2525 gpm 2525 Method determined 3

Drawdown: 68 ft 6:8 Accuracy: top WD Pumping period 96 hrs

QUALITY OF WATER DATA: Iron _____ Sulfate _____ Chloride _____ Hard. _____

Sp. Conduct _____ K x 10⁶ Temp. _____ Date sampled _____

Taste, color, etc. _____

PL 179.18
111.68
67.50

WELL NO. LJ-65-14-406

HYDROGEOLOGIC CARD

1 SAME AS ON MASTER CARD 19 Physiographic Province: COASTAL PLAINS 20 Section: 03
 21 Drainage Basin: F 22 Subbasin: 51R 23

Topo of well site: (D) depression, stream channel, dunes, flat, hilltop, sink, swamp, (E) (F) (G) (H) (I) (J) (K) (L) (M) (N) (O) (P) (Q) (R) (S) (T) (U) (V) (W) offshore, pediment, hillside, terrace, undulating, valley flat 24

MAJOR AQUIFER: system _____ series T 25 aquifer, formation, group E 26

Lithology: _____ Origin: _____ Aquifer Thickness: _____ ft
 Length of well open to: 267 ft 27 Depth to top of: _____ ft 28

MINOR AQUIFER: system _____ series _____ 29 aquifer, formation, group _____ 30

Lithology: _____ Origin: _____ Aquifer Thickness: _____ ft
 Length of well open to: _____ ft 31 Depth to top of: _____ ft 32

Intervals Screened: 1,142'11" - 1969'6" 33

Depth to consolidated rock: _____ ft 34 Source of data: _____ 35

Depth to basement: _____ ft 36 Source of data: _____ 37

Surficial material: _____ Infiltration characteristics: _____ 38

Coefficient Trans: _____ spd/ft 39 Coefficient Storage: _____ 40

Coefficient Perm: _____ spd/ft; Spec cap: _____ gpm/ft; Number of geologic cards: _____ 41

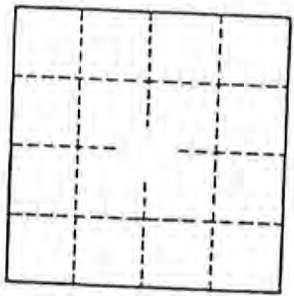
CASING:

558' of 24"
 1554' of 12 3/4"

12 3/4" from 439 to 1993

SURFACE CASING CEMENTED.
HOLE APPARENTLY 24" TO 1995'6" & GRAVEL PACKED.
TOP OF GRAVEL @ 455'
12 SCREENS @

- 1142'11" - 1146'11"
- 1149'5" - 1167'6"
- 1190'11" - 1209'10"
- 1220'3" - 1238'7"
- 1241' - 1259'10"
- 1300'6" - 1319'9"
- 1310'1" - 1354'7"
- 1379'10" - 1388'11"
- 1391'4" - 1409'6"
- 1514'5" - 1533'3"
- 1535'9" - 1553'6"
- 1574'11" - 1583'1"
- 1779'9" - 1799'
- 1801'6" - 1818'
- 1848'6" - 1863'5"
- 1865'10" - 1878'
- 1950'5" - 1969'6"



Well No. LJ-6.5-14-406

Latitude 0 Longitude 0 Seq. No. 1001
9 4 7 4 5 0 9 5 2 0 1 0 0 1
 code 201 County HARRIS
 # LJ-65-14-406
 Project number 7-4648-01000
 Date 2-8-77 Time _____ Temp °C 28.5
 Location CITY OF HOUSTON
 Address NORTHEAST #3
 Well ID 5-15-44 WBF code 21EVL
 Interval: (top) 1142 (bottom) 1969
 Appr Clear Use PS
 Collector Butler Yield _____ GPM
 Depth 1993
 Type of coll tap on discharge
 Field: Cond _____ pH _____ HCO₃ _____ DO _____

Indicate types of analyses
 Uniform _____ Phenols _____ Minors _____
 MBAS _____ BOD _____ TOC _____ DOC _____
 Insecticide _____

Station Identification number
2 9 4 7 4 5 0 9 5 2 0 1 0 0 1
 2 9 16

M _____ D _____
 Begin _____ 22
 Time of measurement
 _____ 29 _____ 32

Parameter code	Value	Exp.	Rmk
72008	199.3	0.4	
00059			
72015	114.2	0.4	
72016	196.9	0.4	
72019			

Sampled after pumping	Parameter code	Value	Exp.	Rmk
	72004			
DO (mg/l)	00300			
DO % Sat.	00301			
Temp °C	00010	28.50	0.2	28.5
pH	00400	7.90	0.1	7.9
Specific conductance	00095	663.0	0.3	663
HCO ₃	00440	317.0	0.3	317
CO ₃	00445	000.0	0.1	0
Chloride (Cl)	00940	57.0	0.2	57
Sulfate (SO ₄)	00945	28.0	0.1	2.8
Color	00080			
Coliform, membrane filter	31501			
Coliform, fecal	31625			
Strep-tococci	31673			
BOD	00310			

10
14)

UNITED STATES DEPARTMENT OF THE INTERIOR
Water Resources Division
Austin, Texas

017564

Latitude 29 45 Longitude 095 20 100 1 Seq. No. 1

City code 201 County Harris

Well # LJ-65-14-406

Well number 4648-01000

Date 2-4-76 Time — Temp °C 29.0

City City of Houston

Address North East #13

Drilled — WBF code 21 EVEL

Interval: (top) 1142 (bottom) 1969

Appr. clear. Use PS

Yield — GPM

Depth —

Method of coll. tap on discharge

Parameters: Cond pH HCO₃ DO

Indicate types of analyses

iform Phenols Minors

MBAS BOD TOC DOC

chem schedule I

Insecticide

Station identification number

29 47 45 09 5 20 10 0 1

M D Time of measurement

6 02 04

Begin 22 29 32

Parameter code	Value	Exp.	Rmk
7 2 0 0 8			
0 0 0 5 9			
7 2 0 1 5	<u>1142</u>	<u>04</u>	
7 2 0 1 6	<u>1969</u>	<u>04</u>	

Sampled after pumping	Parameter code	Value	Exp.	Rmk
	7 2 0 0 4			
DO (mg/l)	0 0 3 0 0			
DO % Sat.	0 0 3 0 1			
Temp °C	0 0 0 1 0	<u>29.0</u>	<u>02</u>	<u>29.0</u>
pH	0 0 4 0 0	<u>8.1</u>	<u>01</u>	<u>8.1</u>
Specific conductance	0 0 0 9 5	<u>69.50</u>	<u>03</u>	<u>69.5</u>
HCO ₃	0 0 4 4 0	<u>32.00</u>	<u>03</u>	<u>32.0</u>
CO ₃	0 0 4 4 5	<u>0.00</u>	<u>01</u>	<u>0</u>
Chloride (Cl)	0 0 9 4 0	<u>63.00</u>	<u>02</u>	<u>63</u>
Sulfate (SO ₄)	0 0 9 4 5	<u>52.00</u>	<u>01</u>	<u>52</u>
Color	0 0 0 8 0			
Coliform, membrane filter	3 1 5 0 1			
Coliform, fecal	3 1 6 1 6			
Strep-tococci	3 1 6 7 9			
BOD	0 0 3 1 0			

Latitude

Longitude

Seq. No.

9 4 7 4 5 0 9 5 2 0 1 0 0 1

code 201 County Harris

Project number 5-4648-01000

Date 2-3-75 Time Temp °C 27.5

City of Houston

Address Northcutt # 3

Well ID 5-15-44 WBF code 121EVCL

Interval: (top) 1142 (bottom) 1969

Sampler level Appr Use PS

Collector Naftel Yield GPM

Depth 1993

Method of coll tap on pipe

Field: Cond pH HCO3 DO

Indicate types of analyses

Coliform Phenols Minors Nutrients MBAS BOD TOC DOC

Rem schedule I + SO4

Other Herbicide Insecticide

Remarks:

Station identification number

2 9 4 7 4 5 0 9 5 2 0 1 0 0 1

Y M D Time of measurement Begin 22 29 32

Depth Parameter code Value Exp. Rmk 7 2 0 0 8 1 9 9 3 0 4

Field (GPM) Parameter code Value Exp. Rmk 0 0 0 5 9

Sample Interval Parameter code Value Exp. Rmk 7 2 0 1 5 1 1 4 2 0 4

Interval Parameter code Value Exp. Rmk 7 2 0 1 6 1 9 6 9 0 4

Water level Parameter code Value Exp. Rmk 7 2 0 1 9

Sampled after pumping Parameter code Value Exp. Rmk 7 2 0 0 4

DO (mg/l) Parameter code Value Exp. Rmk 0 0 3 0 0

DO % Sat. Parameter code Value Exp. Rmk 0 0 3 0 1

Temp °C Parameter code Value Exp. Rmk 0 0 0 1 0 2 9 5 0 0 2 29.0

pH Parameter code Value Exp. Rmk 0 0 4 0 0 7 7 0 0 0 1 7.7

Specific conductance Parameter code Value Exp. Rmk 0 0 0 9 5 7 2 1 0 0 3 72.1

HCO3 Parameter code Value Exp. Rmk 0 0 4 4 0 3 2 9 0 0 3 32.1

CO3 Parameter code Value Exp. Rmk 0 0 4 4 5 0 0 0 0 0 1 0

Chloride (Cl) Parameter code Value Exp. Rmk 0 0 9 4 0 7 3 0 0 0 2 78.1

Sulfate (SO4) Parameter code Value Exp. Rmk 0 0 9 4 5 4 0 0 0 0 1 48.1

Color Parameter code Value Exp. Rmk 0 0 0 8 0

Coliform, membrane filter Parameter code Value Exp. Rmk 3 1 5 0 1

Coliform, fecal Parameter code Value Exp. Rmk 3 1 6 1 6

Strep-tococci Parameter code Value Exp. Rmk 3 1 6 7 9

BOD Parameter code Value Exp. Rmk 0 0 3 1 0

Parameter code Value Exp. Rmk

Parameter code Value Exp. Rmk

Parameter code Value Exp. Rmk

Parameter code Value Exp. Rmk

Parameter code Value Exp. Rmk

Latitude 29 47 45 Longitude 095 20 10 01 Seq. No. 01
 Agency code 101 County HARRIS
 Well # LJ-65-14-406
 Project number T-4648-01000
 Date 9-9-76 Time — Temp °C 20.0
 Owner City of Houston
 Address Northeast # 3
 Core drld — WBF code 121 Evq1
 Sample interval: (top) 114.2 (bottom) 196.9
 Filter — Appr Clear Use PS
 Collector King & Bezzant Yield — GPM
 Depth after pump on arrival Depth —
 Type of coll tap on discharge
 Field: Cond — pH — HCO₃ — DO —

Indicate types of analyses

Coliform	Phenols	Minors
Nutrients	MBAS	BOD
Remediation schedule	TOC	DOC
Antibiotic	Insecticide	

Remediation schedule I

Remarks:

Station identification number
29 47 45 095 20 10 01
 Y M D Time of measurement
6 09 09 29 32
 Begin 22

Parameter code	Value	Exp.	Rmk
72008			
00059			
72015	114.2	0.4	
72016	196.9	0.4	
72019			

Sampled after pumping	Parameter code	Value	Exp.	Rmk
	72004			
DO (mg/l)	00300			
DO % Sat.	00301			
Temp °C	00010	20.0	0.2	20
pH	00400	7.8	0.1	7.8
Specific conductance	00095	658.0	0.3	65
HCO ₃	00440	319.0	0.3	319
CO ₃	00445	0.0	0.1	0
Chloride (Cl)	00940	570.0	0.2	57
Sulfate (SO ₄)	00945	280.0	0.1	28
Color	00080			
Coliform, membrane filter	31501			
Coliform, fecal	31616			
Strep-tococci	31679			
BOD	00310			

MASTER CARD

Record by RS SOWENSHEN Source of data DRILLER'S OBS Date 2-11-80 Map SETTE EAST TX 1767 1-29-80

State TEXAS County HARRIS (or town) L J

Latitude: 29 47 28 W N Longitude: 09 52 00 W Sequential number: 2

Local well number: LJ-65-14-735 Other number: NORTHEAST No. 2

Local set: _____ Owner or name: HARRIS-GALVESTON COASTAL SUBSIDENCE DISTRICT

Owner or name: H.F.C.S.D. Address: 1730 WISA RD 1

Ownership: (C) County, (F) Fed. Gov., (M) City, Corp or Co., (P) Private, (S) State Agency, (W) Water Dist. 5

Use of water: (A) Air cond., (B) Bottling, (C) Com., (D) Dewater., (E) Power, (F) Fire, (G) Dom., (H) Irr., (I) Med., (J) Ind., (K) P.S., (L) Rec., (M) Stock, (N) Inact., (O) Unused, (P) Recharge, (Q) Desal-P.S., (R) Desal-other, (S) Other. 4

Use of well: (A) Anode, (B) Drain, (C) Seismic, (D) Heat Res., (E) Oil-gas, (F) Recharge, (G) Test, (H) Unused, (I) Withdraw, (J) Waste, (K) Destroyed. 0

DATA AVAILABLE: Well data 2 Freq. W/L meas.: MONTHLY Field aquifer char. 1

Qual. water data: type: partial

Freq. sampling: ORIGINAL Pumpage inventory: 110 period: _____

Apert. rec. cards: _____

Log data: DRILLER'S log

WELL-DESCRIPTION CARD

SAME AS ON MASTER CARD Depth well: 1596 Meas. rept. 1596

Depth cased: 1567 Casing type: Steel Dia. 4 1/2 - 2 1/2 in.

Finish: (C) porous concrete, (F) gravel w. screen, (H) horiz. gallery, (O) open end, (P) perfl., (S) screen, (I) sd. pt., (W) shored, (X) open hole, (Z) other. 5

Method: (A) air rot., (B) bored, (C) cable, (D) dug, (H) jetted, (J) air perc., (P) reverse air, (R) trenching, (T) driven, (V) drive wash, (W) other. H

Date Drilled: FEB 1980 9 8 0 Pump intake setting: NONE

Driller: O'DAY DALL Co. PEARLAND, TX

Life (type): (A) air, (B) bucket, (C) cent., (J) jet, (L) multiple, (M) multiple, (N) none, (P) piston, (R) rot., (S) submerg., (T) turb., (Z) other. N Deep 0 Shallow

Power (type): (d) diesel, (e) elec., (g) gas, (o) gasoline, (h) hand, (w) wind; H.P. _____ Trans. or meter no. _____

Descrip. MP top of casing +2.0 (ft. below LSD, Alt. MP)

Alt. LSD: 49 Accuracy: 5' topo

Water Level: 397.55 ft. above below MP; LSD 398 Accuracy: steel tape

Date meas: 4-24-80 4 8 0 Yield: 7.5 gpm Method determined 1

Drawdown: _____ Accuracy: _____ Pumping period: _____ hrs

QUALITY OF WATER DATA: Iron 8.8 ppm Chloride 390 ppm

Sp. conduct 980 x 10⁶ 9 Temp. 77.5 °F 7 8 Date sampled 2-8-80 2 8 0

taste, color, etc.

Well No.

HYDROGEOLOGIC CARD

SAME AS ON MASTER CARD Physiographic Province: COASTAL PLAIN 03 Section: WEST GULF

Drainage Basin: F Subbasin: S I R

Topo of well site: (D) depression, stream channel, dunes, (C) flat, (E) hilltop, sink, swamp, (P) (P) (H) (K) (L) (Q) (R) (S) (T) (U) (V) offshore, pediment, hillside, terrace, undulating, valley flat F

MAJOR AQUIFER: system T.F. series EVANGELINE aquifer, formation, group E.

Lithology: S Origin: 3 Aquifer Thickness: 42 ft

Length of well open to: 42 ft 10 ft 10 ft Depth to top of: 1540 ft 1759

MINOR AQUIFER: system series aquifer, formation, group

Lithology: Origin: Aquifer Thickness: ft

Length of well open to: ft ft Depth to top of: ft

Intervals Screened: 1567-1577 SS WU NO. 10 GAUGES 2 1/2" OD

Depth to consolidated rock: ft Source of data:

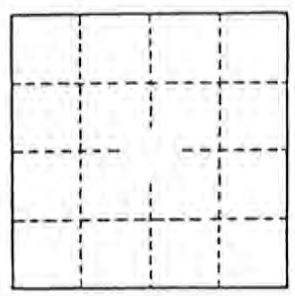
Depth to basement: ft Source of data:

Surficial material: Infiltration characteristics:

Coefficient Trans: 21 gpd/ft 200 Coefficient Storage:

Coefficient Perm: gpd/ft²; Spec cap: gpd/ft; Number of geologic cards:

sample for water quality obtained by setting with air



Well No.

WELL SCHEDULE

U. S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY

WATER RESOURCES DIVISION

MASTER CARD

Record no. RS SONDENSHIN Source of data DRILLER LOGS Date 2-13-80 Map SETTEGAST, TX 1967 1:24,000

State TEXAS County (or town) HARRIS

Latitude: 29° 47' 28" N Longitude: 095° 20' 01" W Sequential number: 3

Local well number: 45-65-1A-738 Other number: NON TITAN No 4

Local use: _____ Owner: HARRIS - GALVESTON CONSTATE
 Owner or name: H.F.C.S.D. Address: 1730 NASA RD 1

Ownership: County, Fed Gov't, City, Corp or Co, Private, State Agency, Water Dist. (S)

Use of water: Air cond, Bottling, Comm, Dewater, Power, Fire, Dom, Irr, Med, Ind, P S, Rec. (U)
 Stock, Inact, Unused, Recharge, Pressure, Desal-P S, Desal-other, Other

Use of well: Anode, Drain, Seismic, Heat Res, Obs, Oil-gas, Recharge, Test, Unused, Withdraw, Waste, Destroyed. (D)

DATA AVAILABLE: Well data (L) Freq. W/L meas.: MONTHLY Field aquifer char. (M)

Hvd. lan. data: _____

Qual. water data: partial

Freq. sampling: ORIGINAL Pumping inventor: _____ period: _____

Aperture cards: _____

Log data: DRILLER'S

WELL-DESCRIPTION CARD

SAME AS ON MASTER CARD Depth well: 437 ft. Meas. rept. (487)

Depth cased: 472 ft. Casing type: steel Diam. 4 1/2 in.

Finish: concrete, gravel w. (perf.), gravel w. (screen), horiz. gallery, and, open end, perf., screen, sd. pl., shored, open hole, other

Method: air bored, cable, dug, rot., jetted, air percussion, rotary, reverse trenching, driven, drive wash, other

Date Drilled: FEB 1980 Pump intake setting: NONE ft.

Driller: DAY DRILL CO, PEARLAND, TX

Lift (type): air, bucket, cent, jet, multiple, multiple, none, piston, rot, submerg, turb, other (N) Deep (W) Shallow (S)

Power (type): diesel, elec, gas, gasoline, hand, gas, wind, H.P., LP, trans. or meter no.

Descrip. MP top of casing +2.0 ft. above/below LSD, Alt. MP _____

Alt. LSD: 49 Accuracy: (49) (source) 5' TOPO

Water Level: 264.69 ft. above/below MP; Ft. below LSD (265) Accuracy: steel tape

Date meas.: 3-18-80 Yield: 3.8 gpm (7.5) Method determined (1)

Drawdown: _____ Accuracy: _____ Pumping period: _____ hrs.

WATER DATA: Iron _____ Chloride _____ HCO₃ 200

Sp. Conduct: 500 x 10⁶ Temp. 73.5 Date sampled 2-15-80

taste, color, etc. _____

Well No.

HYDROGEOLOGIC CARD

SAME AS ON MASTER CARD Physiographic Province: CASCADE PLAIN 03 Section: WEST GULF

F Drainage Basin: SIR Subbasin:

Topo of well site: (D) depression, stream channel, dunes, flat, hilltop, sink, swamp. (E) (F) (N) (K) (L) (O) (P) (S) (T) (U) (V) offshore, pediment, hillside, terrace, undulating, valley flat F

MAJOR AQUIFER: system series Q aquifer, formation, group Chicot C

Lithology: S Origin: 3 Aquifer Thickness: 66 ft

66 Length of well open to: 70 ft 10 Depth to top of: 476 ft 476

MINOR AQUIFER: system series aquifer, formation, group

Lithology: Origin: Aquifer Thickness: ft

 Length of well open to: ft Depth to top of: ft

Intervals Screened: 472-482 SSWW N10 ga 2 1/2" OD

Depth to consolidated rock: ft Source of data:

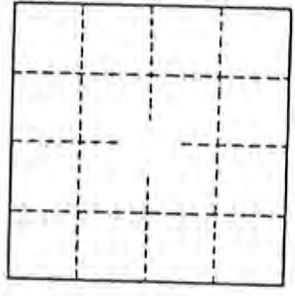
Depth to basement: ft Source of data:

Surficial material: Infiltration characteristics:

Coefficient Trans: 157 gpd/ft 161 Coefficient Storage:

Perm: gpd/ft²; Spec cap: gpm/ft; Number of geologic cards:

sample for water quality obtained by jetting with air



Well No. _____

MASTER CARD

Record No. RS SOWENSHIELD Source of data DRILLER'S OBS Date 2-21-80 Map SETTECAST TX 1967 1-24-80

State TEXAS 48 County (or town) HARRIS LJ

Latitude: 29 47 28 W Longitude: 095 20 01 Sequential number: 4

Local well number: LJ-65-1A-292 Other number: NORTHEAST No. 3

Local set: _____ Owner HARRIS-GALVESTON COASTAL
OR name: SUBSIDENCE DISTRICT

Owner or name: H.G.C.S.D. Address: 1730 NASA RD 1

Ownership: County, Fed Gov't, City, Corp or Co, Private, State Agency, Water Dist _____ S

Use of water: (A) Air cond, Bottling, Comm, Dewater, Power, Fire, Dom, Irr, Med, Ind, P S, Rec, _____
(S) (T) (U) (V) (W) (X) (Y) (Z) U

Use of well: (A) Anode, Drain, Seismic, Heat Res, Obs, Oil-gas, Recharge, Test, Unused, Withdraw, Waste, Destroyed, _____
(B) (C) (D) (E) (F) (G) (H) (I) (J) (K) (L) (M) (N) (O) (P) (Q) (R) (S) (T) (U) (V) (W) (X) (Y) (Z) I

DATA AVAILABLE: Well data 2 Freq. W/L meas.: MONTHLY M Field aquifer char. T

Hvd. lab. data: _____

Qual. water data: type: partial

Freq. sampling: ORIGINAL 0 Pumpage inventor.: 100 period: _____

Apert re cards: _____

Log data: DRILLER'S log D

WELL-DESCRIPTION CARD

SAME AS ON MASTER CARD Depth well: 1035 ft 1035 Meas. rept. accuracy 3

Depth cased: (first perf.) 1020 ft 1020 Casing type: STEEL Diam. 4 1/2 in 4

Finish: porous concrete, gravel w. concrete, (perf.), gravel w. (screen), horlz. gallery, and, (H) (I) (J) (K) (L) (M) (N) (O) (P) (Q) (R) (S) (T) (U) (V) (W) (X) (Y) (Z) S

Method drilled: (A) air bored, cable, dug, rot., (B) (C) (D) (E) (F) (G) (H) (I) (J) (K) (L) (M) (N) (O) (P) (Q) (R) (S) (T) (U) (V) (W) (X) (Y) (Z) H

Date drilled: Feb 1980 9:8:0 Pump intake setting: NONE ft _____

Driller: O'DAY DRILL CO, PEARLAND, TX

Lift (type): (A) air, bucket, cent, jet, (B) (C) (D) (E) (F) (G) (H) (I) (J) (K) (L) (M) (N) (O) (P) (Q) (R) (S) (T) (U) (V) (W) (X) (Y) (Z) N Deep 0 Shallow

Power (type): diesel, elec, gas, gasoline, hand, gas, wind; H.P. _____ Trans. or meter no. _____

Descrip. MP top of csno +2.0 ft above LSD, Alt. MP _____

Alt. LSD: 19 49 Accuracy: (source) 5' TOPO 3

Water Level 326.10 ft above MP; Ft below LSD 326 Accuracy: steel tape A

Date meas: 4-24-80 4:8:0 Yield: 8.5 gpm 9 Method determined 1

Drawdown: _____ Accuracy: _____ Pumping period _____ hrs _____

QUALITY OF WATER DATA: Iron _____ Chloride _____ Hard: 200 _____

Sp. Conduct 500 $\times 10^6$ 3 Temp. 76 76 Date sampled 2-23-80 28:0

✓

Well No.

HYDROGEOLOGIC CARD

SAME AS ON MASTER CARD Physiographic Province: COASTAL PLAIN Section: WEST GULF

F Drainage Basin: S I R Subbasin:

Topo of well site: (D) depression, stream channel, dunes, (E) (F) flat, hilltop, sink, swamp, (R) (K) (L) offshore, pediment, hillside, terrace, undulating, valley flat F

MAJOR AQUIFER: T.F EVANGELINE E

system series aquifer, formation, group

Lithology: S Origin: 3 Aquifer Thickness: 39 ft

3:9 Length of well open to: 10 ft 1:0 Depth to top of: 1010 ft A:01

MINOR AQUIFER:

system series aquifer, formation, group

Lithology: Origin: Aquifer Thickness: ft

 Length of well open to: ft Depth to top of: ft

Intervals Screened: 1020-1030 SSW(W) NO. 10 ga 2 1/2" OD

Depth to consolidated rock: ft Source of data:

Depth to basement: ft Source of data:

Surficial material: Infiltration characteristics:

Coefficient Trans: 326 3:2:1 Coefficient Storage:

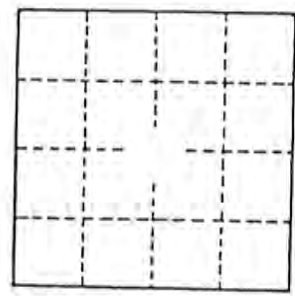
spd/ft

Coefficient Perm:

spd/ft² Spec cap:

gpm/ft; Number of geologic cards:

sample for water quality obtained by jetting with air



Well No.

April 1960

Well No. 4-19-195

WELL SCHEDULE

U. S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY

WATER RESOURCES DIVISION

MASTER CARD

Record no. RS SAMPSONIA Source of data DRILLER'S OBS Date 2-26-80 Map SITIEGAST, TEX 1967 1.24,000

State TEXAS County (or town) HARRIS 4:8 4:5

Latitude: 29 47 28 N Longitude: 09 52 00 W Sequential number: 5

Local well number: 45-65-14-745 Other number: NORTHEAST NO. 5

Local se: _____ Owner or name: H.G.C.S.D. Address: 173- NASA RD 1

Ownership: County, Fed Gov't, City, Corp or Co, Private, State Agency, Water Dist (S)

Use of water: (A) Air cond, (B) Bottling, (C) Comm, (D) Dewater, (E) Power, (F) Fire, (G) Dom, (H) Irr, (I) Med, (J) Ind, (K) P S, (L) Rec, (M) Stock, (N) Inact, (O) Unused, (P) Recharge, (Q) Desal-P S, (R) Desal-other, (S) Other (U)

Use of well: (A) Anode, (B) Drain, (C) Seismic, (D) Heat Res, (E) Oil-gas, (F) Recharge, (G) Test, (H) Unused, (I) Withdraw, (J) Waste, (K) Destroyed (O)

DATA AVAILABLE: Well data (2) Freq. W/L meas.: MONTHLY (M) Field aquifer char. (1)

Qual. water data: type: partial

Freq. sampling: ORIGINAL Pumping inventor: (no) period: _____

App. rec. cards: _____

Log data: DRILLER'S log (D)

WELL-DESCRIPTION CARD

SAME AS ON MASTER CARD Depth well: 298 ft 2:9:8 Meas. rept. (3)

Depth cased: 283 ft 2:8:3 Casing type: steel Diam. 4 1/2 in (4)

Finish: (C) porous concrete, (F) gravel w. (perf.), (G) gravel w. (screen), (H) horiz. gallery, (I) open end, (J) screen, (K) sd. pt., (L) shored, (M) open hole, (N) other (S)

Method drilled: (A) air rot, (B) bored, (C) cable, (D) dug, (E) jetted, (F) air rot., (G) percussion, (H) rotary, (I) reverse, (J) trenching, (K) driven, (L) drive wash, (M) other (H)

Date drilled: Feb 1980 7:8:0 Pump intake setting: NONE ft _____

Driller: D'DAY DALL C PEARLAND, TX

Lift (type): (A) air, (B) bucket, (C) cent, (D) jet, (E) multiple, (F) multiple, (G) perc., (H) piston, (I) rot, (J) submerg, (K) turb, (L) other (N) Deep (N) Shallow (0)

Power (type): diesel, elec, gas, gasoline, hand, gas, wind; H.P. _____ LP _____ Trans. or meter no. _____

Descrip. MP top of casing +2.0 ft (above/below) LSD, Alt. MP _____

Alt. LSD: 49 ft 4:9 Accuracy: (source) 5' TOP (3)

Water Level: -163.4 ft above/below MP; Ft below LSD 1:6:3 Accuracy: steel tape (A)

Date meas: 4-24-80 4:8:0 Yield: 9 gpm 9 Method determined (1)

Drawdown: _____ ft Accuracy: _____ Pumping period: _____ hrs _____

QUALITY OF WATER DATA: Iron _____ ppm pH 8.4 Chloride (8) HCO₃ Hard. 240 (6)

Sp. Conduct 500 $\kappa \times 10^6$ (3) Temp. 71 °F 7:1 Date sampled 2-27-80 2:8:0

lacie, color, etc. _____

Well No.

HYDROGEOLOGIC CARD

SAME AS ON MASTER CARD Physiographic Province: CRISTAL PLAIN 0:3 Section: WEST GULF

F Drainage Basin: S I R Subbasin: []

Topo of well site: (D) depression, stream channel, dunes, flat, hilltop, sink, swamp, (E) (F) (H) (K) (L) (M) (N) (O) (P) (S) (T) (U) (V) offshore, pediment, hillside, terrace, undulating, valley flat [F]

MAJOR AQUIFER: system _____ series Q aquifer, formation, group Chicot [C]

Lithology: S Origin: 3 Aquifer Thickness: 37 ft

3:7 Length of well open to: 10 ft 1:0 Depth to top of: 277 ft 2:7:7

MINOR AQUIFER: system _____ series _____ aquifer, formation, group _____ []

Lithology: _____ Origin: _____ Aquifer Thickness: _____ ft

1:0 Length of well open to: 1:0 ft _____ Depth to top of: _____ ft _____

Intervals Screened: 283 - 293 SSWW No. 10 ga 2K⁴ OD

Depth to consolidated rock: _____ ft _____ Source of data: _____ []

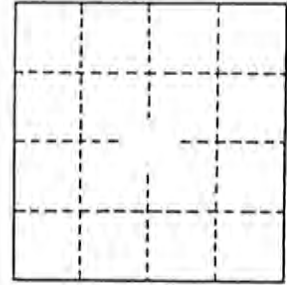
Depth to basement: _____ ft _____ Source of data: _____ []

Surficial material: _____ Infiltration characteristics: _____ []

Coefficient Trans: 53 spd/ft 5:0:0 Coefficient Storage: _____ []

Coefficient Perm: _____ spd/ft²; Spec cap: _____ gpm/ft; Number of geologic cards: _____ []

sample for water quality obtained by jetting with air



Well No. _____

L O G - WELL #5 NORTHEAST PLANT SITE

0	3	Top Soil
3	60	Clay
60	80	Sand
80	100	Clay
100	140	Sand
140	170	Clay
170	175	Sand
175	182	Clay
182	247	Sand
247	286	Clay
286	302	Sand

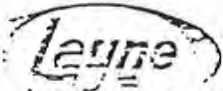


EXHIBIT C

SUBSIDENCE MONITOR/PIEZOMETERS
WELL SYSTEM CONSTRUCTION SITE

NORTHEAST

The construction site is located adjacent to the easterly boundary of the City of Houston Northeast Well Field Plant Yard; said Plant Yard being a tract of land located in the J. S. Collins Survey, Abstract 15, bounded on the north side by Brill Street, on the east side by Tuffly Park, and on the west side by Linn Street.

WELL SCHEDULE

U. S. DEPT. OF THE INTERIOR

GEOLOGICAL SURVEY

WATER RESOURCES DIVISION

MASTER CARD

Record No. SONENSHAW Source of data OBS & DRILLER Date 4-28-80 Map SETTEGAS, TX 1967 1:24,000

State TEXAS County (or town) HARRIS 48 48

Latitude: 29[°] 47' 28" N Longitude: 09[°] 52' 01" W Sequential number: 6

Local well number: 45-65-14-746 Other number: NORTHEAST NO. 1

Local sec: _____ Owner or name: H.F.C.S.D. Address: 1730 NASA RD 1

Ownership: County, Fed Gov't, City, Corp or Co, Private, State Agency, Water Dist (S)

Use of water: Air cond, Bottling, Comm, Devater, Power, Fire, Dom, Irr, Med, Ind, P S, Rec, Stock, Instic, Unused, Repressure, Recharge, Desal-P S, Desal-other, Other (U)

Use of well: Anode, Drain, Seismic, Heat Res, Obs, Oil-gas, Recharge, Test, Unused, Withdraw, Waste, Destroyed (D)

DATA AVAILABLE: Well data (2) Freq. U/L meas.: MONTHLY (M) Field aquifer char. (T)

Qual. water data: type: partial

Freq. sampling: ORIGINAL (O) Pumpage inventory: yes (no) period: _____

Open wire cards: _____

Well data: DILLARS CALIPER, WDVCTION EMIKIN ELECTRIC, SONIC GAMMA NEUTRON DENSITY (Y) (S)

WELL-DESCRIPTION CARD

SAME AS ON MASTER CARD Depth well: 2170 ft 2170 Meas. (4)

Depth cased: 2099 ft 2099 Casing type: steel ; Diam. 5 1/2 in (5)

Finish: porous gravel v. concrete, gravel v. (perf.), (screen), gallery, and, horiz. open perf., screen, sd. pl., shored, open hole, other (S)

Method Drilled: air bored, cable, dug, hyd jetted, rot., percussion, rotary, air reverse trenching, driven, drive wash, other (H)

Date Drilled: APR 1980 980 Pump intake setting: NONE ft _____

Driller: LAYNE-TEXAS Co. Houston, TX

Lift (type): air, bucket, cent. jet, multiple, multiple, (cent.), none, piston, rot, submerg, turb, other (N) Deep (W) Shallow (-)

Power (l.p.e.): diesel, elec, gas, gasoline, hand, gas, wind; H.P. _____ Trans. of meter no. _____

Descrip. WP plug in 5" casing + 2.0 ft above/below LSD, Alt. MP _____

Alt. LSD: 49 ft 49 Accuracy: (source) 5' TOPO (3)

Water Level 394.93 ft above/below LSD 394 Accuracy: steel tape (A)

Date meas: 5-27-80 580 Yield: 185 gpm 19 Method determined (1)

Drawdown: _____ ft Accuracy: _____ Pumping period: _____ hrs _____

QUALITY OF WATER DATA: Iron _____ Chloride _____ HCO₃ Hard. _____

Sp. Conduct _____ x 10⁶ Temp. 79 Date sampled 4-25-80 480

taste, color, etc. _____

Well No.

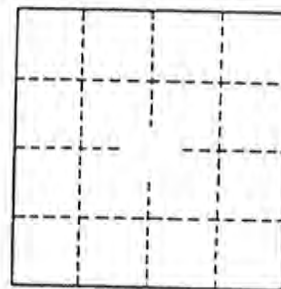
HYDROGEOLOGIC CARD

SAME AS ON MASTER CARD Physiographic Province: _____ Section: 03
Drainage Basin: F Subbasin: S.I.R.
 Topo of well site: (D) depression, stream channel, dunes, etc, hilltop, sink, swamp, (E) hillside, (F) (P) offshore, pediment, hillside, terrace, undulating, valley flat, (H) hilltop, (K) sink, (L) swamp, (M) mesa, (N) north slope, (O) offshore, (P) pediment, (R) ridge, (S) stream channel, (T) terrace, (U) undulating, (V) valley flat, (W) well site, (X) xeric, (Y) yucca, (Z) zone
 MAJOR AQUIFER: system _____ series T.F. EVANGELINE aquifer, formation, group E
 Lithology: _____ Origin: 3 Aquifer Thickness: 121 ft
 Length of well open to: 20 ft Depth to top of: 2035 ft 509
 MINOR AQUIFER: system _____ series _____ aquifer, formation, group _____
 Lithology: _____ Origin: _____ Aquifer Thickness: _____ ft
 Length of well open to: _____ ft Depth to top of: _____ ft
 Intervals Screened: 2099-2119 SSWW No. 12 GAUGE 5 1/2" OD
 Depth to consolidated rock: _____ ft Source of data: _____
 Depth to basement: _____ ft Source of data: _____
 Surficial material: _____ Infiltration characteristics: _____
 Coefficient Trans: 74 spd/ft 740 Coefficient Storage: _____
 Coefficient Perm: _____ gpd/ft^2 ; Spec cap: _____ gpm/ft ; Number of geologic cards: _____

sample for water quality obtained by jetting with air

initial hole drilled to 2250 - filled in bottom hole with cement plug to 2170

5 1/2" casing to 2170 with slip joint from 2141 to 2149.5 ft



Well No.

See original copy by certified mail to the Texas Department of Water Resources P. O. Box 13067 Austin, Texas 78711

State of Texas
WATER WELL REPORT

For TDWR use only
Well No. 65-14-7J
Located on map YES
Received: 7/7

ATTENTION OWNER: Confidentiality Privilege Notice on Reverse Side

1) OWNER Harris-Galveston Coastal Subsidence District (Name) Address P. O. Box 58847 Houston, Texas 77058 (Street or RFD) (City) (State) (Zip)

2) LOCATION OF WELL: County Harris 5 miles in N.E. direction from Houston (N.E., S.W., etc.) (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

Legal description: Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

See attached map.

3) TYPE OF WORK (Check):
 New Well Deepening Reconditioning Plugging

4) PROPOSED USE (Check):
 Domestic Industrial Public Supply Irrigation Test Well Other _____

5) DRILLING METHOD (Check):
 Mud Rotary Air Hammer Driven Bored Air Rotary Cable Tool Jetted Other _____

6) WELL LOG: # 5
Date drilled 3-10-80

DIAMETER OF HOLE		
Dia. (in.)	From (ft.)	To (ft.)
<u>7-7/8</u>	Surface	<u>299</u>

7) BOREHOLE COMPLETION:
 Open Hole Straight Wall Underreamed
 Gravel Packed Other _____
If Gravel Packed give interval ... from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material	Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgt., if commercial	Setting (ft.)		Gage Case Screen
						From	To	
		<u>See Attached</u>	<u>4 1/2</u>	<u>N</u>	<u>Steel</u>	<u>+2</u>	<u>279</u>	<u>21</u>
			<u>2 1/2</u>	<u>N</u>	<u>Steel</u>	<u>269</u>	<u>294</u>	
			<u>2 1/2</u>	<u>N</u>	<u>SST Screen</u>	<u>284</u>	<u>294</u>	
			<u>2 1/2</u>	<u>N</u>	<u>Steel</u>	<u>294</u>	<u>299</u>	

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

CEMENTING DATA
Cemented from 0 ft. to 279 ft.
Method used Pressure
Cemented by O'Day Drilling (Company or individual)

9) WATER LEVEL:
Static level _____ ft. below land surface Date _____
Artesian flow _____ gpm. Date _____

10) PACKERS: Type Lead Depth 269

11) TYPE PUMP:
 Turbine Jet Submersible Cylinder
 Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

12) WELL TESTS:
 Type Test Pump Bailor Jetted Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME James O'Connor Water Well Drillers Registration No. 999
(Type or Print)

ADDRESS 5931 Brittmoore HOUSTON, TEXAS 77041
(Street or RFD) (City) (State) (Zip)

(Signed) James O'Connor LAYNE-WESTERN COMPANY, INC.
(Water Well Driller) (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

WELL SCHEDULE

U. S. DEPT. OF THE INTERIOR

GEOLOGICAL SURVEY

WATER RESOURCES DIVISION



MASTER CARD (T. BROWN)
(7-1241)

127000

Record by N.A.R. WEG Source of data FILES Date 2-20-68 Map Settling out 1955

State Texas 48 County (or town) Harris 48

Latitude: 29 47 28 N Longitude: 09 52 00 1 Sequential number: 1

Lat-long accuracy: 1 T. S. R. Y. Sec. k. l. m. n. Other number: WELL # 2-135 in 559-c

Local well number: 1 J -6 5 -14 -7 59 Owner or name: CITY OF HOUSTON

Local use: _____ Address: NORTHEAST PLANT

Owner or name: CITY OF HOUSTON

Ownership: County, Fed Gov't, City, Corp or Co, Private, State Agency, Water Dist M

Use of water: (A) Air cond, Bottling, Comm, Dewater, Power, Fire, Dom, Irr, Med, Ind, P S, Rec, (S) Stock, Instit, (U) Unused, (V) Repressure, Recharge, Desal-P S, Desal-other, Other abd. 1964 U

Use of well: (A) Anode, Drain, Seismic, Heat Res, Obs, Oil-gas, Recharge, Test, (U) Unused, Withdraw, Waste, Destroyed U

DATA AVAILABLE: Well data 1 Freq. W/L meas.: 1958-1967, 1972 5 Field aquifer char. 72

Hvd. lab. data: _____ 73

Qual. water data; type: _____ 74

Freq. sampling: 8-17-38-63 I Pumpage inventory: yes 76

Aperture cards: _____ 77

Log data: F-LOG U-28 E 78

WELL-DESCRIPTION CARD

SAME AS ON MASTER CARD Depth well: 1291 ft 1 2 9 1 Meas. rept. Driller 3

Depth cased; (first perf.) 461 ft 4 6 1 Casing type: STEEL; Diam 2 1/8-12 1/2 2 1

Finish: porous concrete, gravel v. concrete, (perf.), (screen), (G) gravel, (H) horis. open gallery, end, (P) paraf., (S) screen, (T) sd. pt., (W) bored, (X) open hole, (Z) other G

Method Drilled: (A) air bored, (B) cable, (C) dug, (D) hyd. rot., (E) jetted, (F) air percussion, (G) rotary, (H) reverse trenching, (I) driven, (J) drive wash, (K) other H

Date Drilled: 1938 9 3 8 Pump intake setting: _____ ft 36 38

Driller: LAYNE-TEXAS Co. HOUSTON, TEX.

Lift (type): (A) air, (B) bucket, (C) cent, (D) jet, (E) multiple, (F) multiple, (G) piston, (H) rot, (I) submerg, (J) turb, (K) other N Deep 40 Shallow

Power (type): diesel, elec, gas, gasoline, hand, gas, wind; H.P. FORMERLY 150HP T-E 41 Trans. of meter no. _____

Descrip. MP _____ ft above LSD. Alt. MP _____

Alt. LSD: 49 4 9 Accuracy: (source) 5' TOPO 47 3

Water Level _____ ft above MP; _____ ft below LSD Accuracy: _____ 53

Date meas: Jan, 1942 Yield: 2010 gpm _____ Method determined _____ 51

Drawdown: _____ ft Accuracy: _____ Pumping period _____ 50 52

QUALITY OF WATER DATA: Iron _____ ppm Sulfate _____ ppm Chloride _____ ppm Hard. _____ ppm 73

Sp. Conduct _____ K x 10 6 Temp. _____ °F _____ Data sampled _____ 74 75

Taste, color, etc. _____ 76

Well No. 1J-65-14-759

Latitude-longitude 27 47.28 ^W 5095.20 01

HYDROGEOLOGIC CARD

1 SAME AS ON MASTER CARD

Physiographic Province: COASTAL PLAIN

20 21 Section: 03

19 Drainage Basin: E

22 Subbasin: 51R

26 Topo of well site: (D) depression, stream channel, dunes, flat, hilltop, sink, swamp, (E) offshore, pediment, hillside, terrace, undulating, valley flat

MAJOR AQUIFER:

system

series

T

aquifer, formation, group

E

Lithology:

Length of well open to: 404 ft

Origin: 4:0:4

Depth to top of:

Aquifer Thickness:

ft

MINOR AQUIFER:

system

series

Q

aquifer, formation, group

C:L

Lithology:

Length of well open to:

Origin:

Depth to top of:

Aquifer Thickness:

ft

Intervals Screened:

461-534, 622-884, 1015-1036, 1114-1135, 1245-1279

Depth to consolidated rock:

ft

Source of data:

Depth to basement:

ft

Source of data:

Surficial material:

Infiltration characteristics:

Coefficient Trans:

gpd/ft

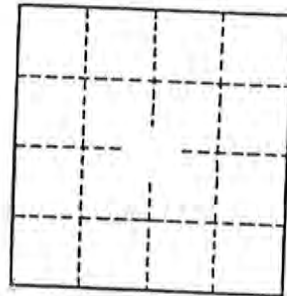
Coefficient Storage:

Coefficient Perm:

gpd/ft²

Number of geologic cards:

375 ft. of 2 1/2" csg.
and 916 ft. 12 3/4 inch
Gravel wall



Well No. LT-65-14-759

DUP

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas WATER WELL REPORT

For TDWR use only Well No. 65-14-7J Located on map YES Received: TH

ATTENTION OWNER: Confidentiality Privilege Notice on Reverse Side

1) OWNER: Harris-Galveston Coastal Subsidence District Address: P. O. Box 58847 Houston, Texas 77058

2) LOCATION OF WELL: Harris County 5 miles in N.E. direction from Houston

3) TYPE OF WORK (Check): New Well, Deepening, Reconditioning, Plugging, Proposed Use (Check): Domestic, Industrial, Public Supply, Irrigation, Test Well, Other, Drilling Method (Check): Mud Rotary, Air Hammer, Driven, Bored, Air Rotary, Cable Tool, Jetted, Other

6) WELL LOG: #4, Date drilled 2-29-80, DIAMETER OF HOLE: 7-7/8 Surface 487, 7) BOREHOLE COMPLETION: Straight Wall, Underreamed

Table with 5 columns: From (ft.), To (ft.), Description and color of formation material, Dia. (in.), New or Used, Steel, Plastic, etc. Part., Slotted, etc. Screen Mfg., if commercial, Setting (ft.) From, To, Gage Casing Screen

8) CASING, BLANK PIPE, AND WELL SCREEN DATA: See Attached

CEMENTING DATA: Cemented from 0 ft. to 467 ft., Method used Pressure, Cemented by Halliburton

9) WATER LEVEL: Static level, Artesian flow, Date

10) PACKERS: Type Lead Depth 457

11) TYPE PUMP: Turbine, Jet, Submersible, Cylinder, Other, Depth to pump bowls, cylinder, jet, etc.

12) WELL TESTS: Type Test, Pump, Bailor, Jetted, Estimated, Yield: gpm with ft. drawdown after hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME: James O'Connor, Water Well Drillers Registration No. 999, ADDRESS: 5931 Brittmoore Houston Texas 77041, (Signed) James O'Connor, LAYNE-WESTERN COMPANY, INC.

Please use black ink.
 File WHITE COPY with:
 TNRCC
 P.O. Box 13087
 Austin, TX 78711-3087
 512-239-0530

State of Texas PLUGGING REPORT

(This form must be completed and filed with the TNRCC
 within 30 days following the date the well is plugged as
 required by current statutory law.)

Texas Water Well Drillers Advisory Council
 P.O. Box 13087
 Austin, TX 78711-3087
 512-239-0530

A. WELL IDENTIFICATION AND LOCATION DATA

1) OWNER Williams Brothers Const. ADDRESS P.O. Box 66428 Houston, TX 77266
 (Name) (Street or RFD) (City) (State) (Zip)

2) ADDRESS OF WELL:
 County Harris Beltway 8 Hwy 90 Houston, TX GRID # _____
 (Street, RFD or other) (City) (State) (Zip)

3) OWNER'S WELL NO: N/A 4) WELL TYPE (Check): Water Monitor Injection De-watering

Driller, Pump Installer, or Landowner performing the plugging operations must locate and identify the location of the well within a specific grid on a full scale-gridded County map available from the TNRCC/Installers Certification Program. The location of the well should be denoted within the grid by placing a corresponding dot in the grid to the right. The legal description section below is optional.

LEGAL DESCRIPTION:

Section No. _____ Block No. _____ Township _____
 Abstract No. _____ Survey Name _____
 Distance and direction from two
 intersecting section lines or survey lines: _____

5) 65-14-7

B. HISTORICAL DATA ON WELL TO BE PLUGGED (If available)

6) Driller Almeda Water Well License No. 843,2703,2843 City Manvel
 7) Drilled 6-5 19 92 8) Diameter of hole 5 1/2 inches; 1995 9) Total depth of well 280 feet

C. CURRENT PLUGGING DATA

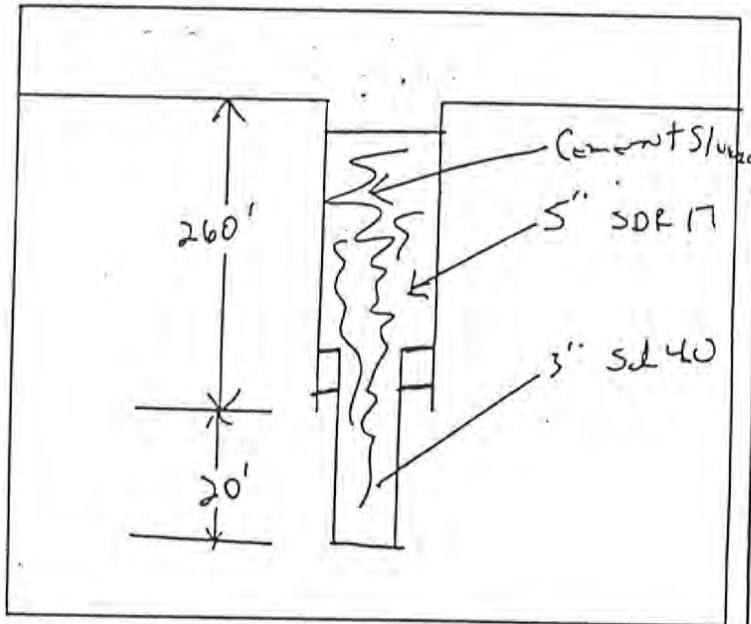
10) Date well plugged 12-30, 19 93

11) Sketch of well: Using space at right, show method of plugging the well including all casing and cemented intervals.

12) Name of Driller/Pump Installer actually performing the plugging operations
Dale Felder
 License number 2440WI

13) Casing and cementing data relative to the plugging operations:

DIAMETER (Inches)	CASING LEFT IN WELL	
	FROM (feet)	TO (feet)
5	-1	260
3	260	280
CEMENT PLUG(S) PLACED IN WELL		SACK(S) OF CEMENT USED
FROM (feet)	TO (feet)	
-1	280	35



D. VALIDATION OF INFORMATION INCLUDED IN FORM

I hereby certify that this well was plugged by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 13 will result in the report(s) being returned for completion and resubmittal.

Company or Individual's Name (type or print) Dale Felder - Felder Water Well & Pump Service
 Address: Street or RFD 200 Henderson City Angleton State TX Zip 77515

Signature: Dale Felder 12-30-93 Williams Brothers Const. 12-30-93
 Licensed/Driller/Pump Installer Date Owner of Well Date
 Trainee/Apprentice _____ Date _____

DUP

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas WATER WELL REPORT

For TDWR use only Well No. 65-14-7J Located on map YES Received: TH

ATTENTION OWNER: Confidentiality Privilege Notice on Reverse Side

1) OWNER: Harris-Galveston Coastal Subsidence District Address: P. O. Box 58847 Houston, Texas 77041
2) LOCATION OF WELL: County Harris 5 miles in N.E. direction from Houston

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines...
Legal description: Section No. Block No. Township
Abstract No. Survey Name
Distance and direction from two intersecting section or survey lines
See attached map.

3) TYPE OF WORK (Check): New Well, Deepening, Reconditioning, Plugging
4) PROPOSED USE (Check): Domestic, Industrial, Public Supply, Irrigation, Test Well, Other
5) DRILLING METHOD (Check): Mud Rotary, Air Hammer, Driven, Bored, Air Rotary, Cable Tool, Jetted, Other

6) WELL LOG: #3, Date drilled 2-15-80
DIAMETER OF HOLE: Dia. (in.) From (ft.) To (ft.)
7-7/8 Surface 1033
7) BOREHOLE COMPLETION: Open Hole, Straight Wall, Underreamed, Gravel Packed, Other

Table with 5 columns: From (ft.), To (ft.), Description and color of formation material, Dia. (in.), New or Used, Steel, Plastic, etc. Part., Slotted, etc. Screen Mgt., if commercial, Setting (ft.) From, To, Gage Casing Screen. Includes entry for 'See Attached' casing.

CEMENTING DATA: Cemented from 0 ft. to 1013 ft. Method used Pressure Cemented by Halliburton

9) WATER LEVEL: Static level ft. below land surface Date Artesian flow gpm. Date

10) PACKERS: Type Lead Depth 1003

11) TYPE PUMP: Turbine, Jet, Submersible, Cylinder, Other
Depth to pump bowls, cylinder, jet, etc., ft.

13) WATER QUALITY: Did you knowingly penetrate any strata which contained undesirable water? Yes No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? Depth of strata
Was a chemical analysis made? Yes No

12) WELL TESTS: Type Test: Pump, Bailer, Jetted, Estimated
Yield: gpm with ft. drawdown after hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME: James O'Connell Water Well Drillers Registration No. 222
ADDRESS: 5931 Brittmoore Houston Texas 77041
(Signed) James O'Connell (Water Well Driller) LAYNE-WESTERN COMPANY, INC. (Company Name)

1) OWNER SP ENVIRONMENTAL SYSTEMS INC ADDRESS 9719 LINCOLN VILLAGE DR #310 SACRAMENTO CA 95827
(Name) (Street or RFD) (City) (State) (Zip)
LOCATION OF WELL: County HARRIS miles in _____ direction from HOUSTON
(NE, SW, etc.) (Town)

Driller must complete the legal description below with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

LEGAL DESCRIPTION:

Section No. _____ Block No. _____ Township _____ Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines 4910 LIBERTY RD, HOUSTON TX

SEE ATTACHED MAP

2) TYPE OF WORK (Check):
 New Well Deepening
 Reconditioning Plugging
3) PROPOSED USE (Check):
 Domestic Industrial Monitor Public Supply
 Irrigation Test Well Injection De-Watering
4) DRILLING METHOD (Check):
 Driven Mud Rotary Air Hammer Jetted Bored
 Air Rotary Cable Tool Other _____

6) WELL LOG: MW1
Date Drilling: _____
Started 11-2 19 90
Completed 11-2 19 90

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
<u>11.75</u>	<u>Surface</u>	<u>26</u>

7) BOREHOLE COMPLETION:
 Open Hole Straight Wall Underreamed
 Gravel Packed Other _____
If Gravel Packed give interval ... from 8 ft. to 25 ft.

From (ft.)	To (ft.)	Description and color of formation material
<u>0</u>	<u>1</u>	<u>CRUSHED LIMESTONE</u>
<u>1</u>	<u>8</u>	<u>CLAY PLASTIC GRAY</u>
<u>8</u>	<u>14</u>	<u>CLAY VERY PLASTIC GRAY</u> <u>W/ TAN MOTTLES</u>
<u>14</u>	<u>15</u>	<u>SANDY CLAY GRAY/WH</u>
<u>15</u>	<u>22</u>	<u>CLAY SAND VERY FINE</u> <u>GRAY</u>
<u>22</u>	<u>26</u>	<u>CLAY GRAY w/ tan mottles</u>

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., If commercial	Setting (ft.)		Gage Casing Screen
			From	To	
<u>2</u>	<u>N</u>	<u>PVC WELL TEC SUPPLY</u>	<u>0</u>	<u>10</u>	<u>BLANK</u>
<u>2</u>	<u>Y</u>	<u>✓</u>	<u>10</u>	<u>25</u>	<u>.010</u>

3) TYPE PUMP:
 Turbine Jet Submersible Cylinder
 Other NA
Depth to pump bowie, cylinder, jet, etc., _____ ft.

9) CEMENTING DATA [Rule 287.44(1)]
Cemented from 0 ft. to 5 ft. No. of Sacks Used 4
_____ ft. to _____ ft. No. of Sacks Used _____
Method used MANUAL
Cemented by DRILLER

WELL TESTS: NA
Type Test: Pump Baller Jetted Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

10) SURFACE COMPLETION
 Specified Surface Slab Installed [Rule 287.44(2)(A)]
 Pileless Adapter Used [Rule 287.44(3)(B)]
 Approved Alternative Procedure Used [Rule 287.71]

WATER QUALITY:
Did the drilling penetrate any strata which contained undesirable constituents?
 Yes No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? FRESH Depth of strata 15
Was a chemical analysis made? Yes No

11) WATER LEVEL: NA
Static level _____ ft. below land surface Date _____
Artesian flow _____ gpm. Date _____

I certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

PANY NAME MASTER MONITORING SERVICES INC WELL DRILLER'S LICENSE NO. 3044M
(Type or print)
ADDRESS P.O. Box 19109 #152 HOUSTON TX 77224-9109
(Street or RFD) (City) (State) (Zip)
d) [Signature] (Signed) _____ (Registered Driller Trainee)

Attach electric log, chemical analysis, and other pertinent information, if available.
For TWC use only: Well No. 6514-5 Located on map _____

ATTENTION OWNER: Confidentiality
Privilege Notice on Reverse Side

State of Texas WELL REPORT

Texas Water Well Drillers Board
P.O. Box 13087
Austin, Texas 78711

1) OWNER SPE Environmental Systems Inc ADDRESS 919 Lincoln Village Dr #310 Sacramento CA 95827
(Name) (Street or RFD) (City) (State) (Zip)

CATION OF WELL: Harris county _____ miles in _____ direction from Houston (Town)

Driller must complete the legal description below with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

LEGAL DESCRIPTION:
Section No. _____ Block No. _____ Township _____ Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines 4910 Liberty Rd, Houston TX
 SEE ATTACHED MAP

2) TYPE OF WORK (Check):
 New Well Deepening Reconditioning Plugging
3) PROPOSED USE (Check):
 Domestic Industrial Monitor Public Supply
 Irrigation Test Well Injection De-Watering
4) DRILLING METHOD (Check):
 Mud Rotary Air Hammer Jetted Bored
 Air Rotary Cable Tool Other _____

WELL LOG: MW 2
Date Drilling:
Started 11-2-90
Completed 11-2-90

DIAMETER OF HOLE		
Dia. (In.)	From (ft.)	To (ft.)
<u>11.25</u>	<u>Surface</u>	<u>26</u>

7) BOREHOLE COMPLETION:
 Open Hole Straight Wall Underreamed
 Gravel Packed Other _____
If Gravel Packed give Interval ... from 8 ft. to 26 ft.

From (ft.)	To (ft.)	Description and color of formation material
<u>0</u>	<u>8</u>	<u>Clay Very Plastic Dark Grey w/ tan MOTTLES</u>
<u>8</u>	<u>12</u>	<u>Clay Green</u>
<u>12</u>	<u>16</u>	<u>Clay Green w/ Red MOTTLES</u>
<u>16</u>	<u>22</u>	<u>Sandy Clay Light Grey</u>
<u>22</u>	<u>26</u>	<u>Clay Green</u>

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:					
Dia. (In.)	New or Used	Steel, Plastic, etc. Perl., Slotted, etc. Screen Mfg., if commercial	Setting (ft.)		Gage Casting Screen
			From	To	
<u>2</u>	<u>N</u>	<u>PVC WELL TECH SURVY</u>	<u>0</u>	<u>10</u>	<u>BLANK</u>
<u>4</u>	<u>V</u>	<u>✓</u>	<u>10</u>	<u>25</u>	<u>010</u>

9) CEMENTING DATA [Rule 287.44(11)]
Cemented from 0 ft. to 5 ft. No. of Sacks Used 4
Method used MANUAL
Cemented by DRILLER

10) SURFACE COMPLETION
 Specified Surface Slab Installed [Rule 287.44(2)(A)]
 Pileless Adapter Used [Rule 287.44(3)(B)]
 Approved Alternative Procedure Used [Rule 287.71]

11) WATER LEVEL: NA
Static level _____ ft. below land surface Date _____
Artesian flow _____ gpm. Date _____

12) PACKERS: NA

I certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

ANY NAME Master Monitoring Services Inc WELL DRILLER'S LICENSE NO. 3044M

P.O. Box 19109 #152 Houston TX 77224-9109
(Street or RFD) (City) (State) (Zip)

[Signature] (Licensed Well Driller) (Signed) _____ (Registered Driller Trainee)

Attach electric log, chemical analysis, and other pertinent information, if available. For TWC use only: Well No. 65-14-5 Located on map _____

OWNER: Confidentially
Notice on Reverse Side

State of Texas WELL REPORT

MW 16

Texas Water Well Drillers Board
P.O. Box 13087
Austin, Texas 78711

OWNER: Circle K Corp. ADDRESS 3920 Lockwood#84721 Houston, Tx.
(Name) (Street or RFD) (City) (State) (Zip)
LOCATION OF WELL: Harris County 0 miles in _____ direction from Houston
(NE, SW, etc.) (Town)

Driller must complete the legal description below with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

LEGAL DESCRIPTION:
Section No. _____ Block No. _____ Township _____ Abstract No. _____ Survey Name D.I.M.
Distance and direction from two intersecting section or survey lines _____
 SEE ATTACHED MAP

1) TYPE OF WORK (Check):
 New Well Deepening
 Reconditioning Plugging
4) PROPOSED USE (Check):
 Domestic Industrial Monitor Public Supply
 Irrigation Test Well Injection De-Watering
5) DRILLING METHOD (Check):
 Mud Rotary Air Hammer Jetted Bored
 Air Rotary Cable Tool Other HSA

WELL LOG:
Drilling: Started 2-03-94
Completed 2-03-94

DIAMETER OF HOLE		
Dia. (in.)	From (ft.)	To (ft.)
11	Surface	25

7) BOREHOLE COMPLETION:
 Open Hole Straight Wall Underreamed
 Gravel Packed Other _____
If Gravel Packed give interval ... from 15 ft. to 25 ft.

From (ft.)	To (ft.)	Description and color of formation material
0-4		Clay, black
4-14		Clay, greenish gray
14-18		Clay, lt gry brwn mottle
18-21		Silty clay, rdbrwn
21-23		Clay, rdbrwn
23-25		Silty sand, rdbrwn

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.)		Gage Casting Screen
			From	To	
4	N	Sch. 40 PVC	0	15	-
	N	Sch. 40 PVC	15	25	0.01

TYPE PUMP: N/A
 Turbine Jet Submersible Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

9) CEMENTING DATA [Rule 287.44(1)]
Cemented from 0 ft. to 11 ft. No. of Sacks Used 6.5
_____ ft. to _____ ft. No. of Sacks Used _____
Method used Tremmie
Cemented by Eddie Kenebrew

WELL TESTS: N/A
Type Test Pump Baller Jetted Estimated
Flow: _____ gpm with _____ ft. drawdown after _____ hrs.

10) SURFACE COMPLETION
 Specified Surface Slab Installed [Rule 287.44(2)(A)]
 Specified Steel Sleeve Installed [Rule 287.44(3)(A)]
 Pitless Adapter Used [Rule 287.44(3)(B)]
 Approved Alternative Procedure Used [Rule 287.71]

WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable constituents?
 Yes No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? Yes No

11) WATER LEVEL:
Static level 19 ft. below land surface Date 2-03-94
Artesian flow _____ gpm. Date _____

12) PACKERS:
Type _____ Depth _____
Bentonite 11 to 13

I certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand and agree to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

DRILLER'S NAME: Best Drilling Services, Inc. WELL DRILLER'S LICENSE NO. 3022M
(Type or print)
Address: P.O. Box 845 Friendswood Texas 77546
(Street or RFD) (City) (State) (Zip)
Eddie Kenebrew (Signed) _____
(Licensed Well Driller) (Registered Driller Trainee)

Attach electric log, chemical analysis, and other pertinent information, if available.
For TNRC use only: Well no. _____ Located on map _____

OWNER: Confidentiality
Judge on Reverse Side

State of Texas WELL REPORT

MW 15

Texas Water Well Drillers Board
P.O. Box 13087
Austin, Texas 78711

OWNER Circle K Corp. (Name) ADDRESS 3920 Lockwood#84721 Houston, Tx.
(Street or RFD) (City) (State) (Zip)
LOCATION OF WELL Harris County 0 miles in _____ direction from Houston (Town)
(NE, SW, etc.)

Driller must complete the legal description below with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

LEGAL DESCRIPTION:

Section No. _____ Block No. _____ Township _____ Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

SEE ATTACHED MAP

D.I.M.

3) TYPE OF WORK (Check): <input checked="" type="checkbox"/> New Well <input type="checkbox"/> Deepening <input type="checkbox"/> Reconditioning <input type="checkbox"/> Plugging	4) PROPOSED USE (Check): <input type="checkbox"/> Domestic <input type="checkbox"/> Industrial <input checked="" type="checkbox"/> Monitor <input type="checkbox"/> Public Supply <input type="checkbox"/> Irrigation <input type="checkbox"/> Test Well <input type="checkbox"/> Injection <input type="checkbox"/> De-Watering	5) DRILLING METHOD (Check): <input type="checkbox"/> Mud Rotary <input type="checkbox"/> Air Hammer <input type="checkbox"/> Jetted <input type="checkbox"/> Bored <input type="checkbox"/> Air Rotary <input type="checkbox"/> Cable Tool <input checked="" type="checkbox"/> Other <u>HSA</u>

5) WELL LOG:

Date Drilling: Started <u>2-02-94</u> Completed <u>2-02-94</u>	DIAMETER OF HOLE		
	Dia. (In.)	From (ft.)	To (ft.)
	11	Surface	25

7) BOREHOLE COMPLETION:
 Open Hole Straight Wall Underreamed
 Gravel Packed Other _____
If Gravel Packed give Interval ... from 15 ft. to 25 ft.

From (ft.)	To (ft.)	Description and color of formation material
0-8		Clay, grey
8-13		Clay, greenish gray
13-18		Clay, lt gry brwn mottle
18-22		Sand, Silty sand, rdbrwn
22-25		Clay, brown

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (In.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.)		Gage Casting Screen
			From	To	
4	N	Sch. 40 PVC	0	15	-
4	N	Sch. 40 PVC	15	25	0.01

9) CEMENTING DATA [Rule 287.44(1)]
Cemented from 0 ft. to 11 ft. No. of Sacks Used 6.5
_____ ft. to _____ ft. No. of Sacks Used _____
Cemented by Tremmie Eddie Kenebrew

10) SURFACE COMPLETION
 Specified Surface Slab Installed [Rule 287.44(2)(A)]
 Specified Steel Sleeve Installed [Rule 287.44(3)(A)]
 Pileas Adapter Used [Rule 287.44(3)(B)]
 Approved Alternative Procedure Used [Rule 287.71]

11) WATER LEVEL: 18
Static level _____ ft. below land surface Date 2-03-94
Artesian flow _____ gpm. Date _____

12) PACKERS: Type _____ Depth 11 to 13

I certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand the failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

DRILLER'S NAME Best Drilling Services, Inc. (Type or print) WELL DRILLER'S LICENSE NO. 3022M
ADDRESS P.O. Box 845 Friendswood Texas 77546
(Street or RFD) (City) (State) (Zip)
Eddie Kenebrew (Signed) _____ (Registered Driller Trainee)
(Licensed Well Driller)

Attach electric log, chemical analysis, and other pertinent information, if available. For TNRCC use only: Well no. _____ Located on map _____

State of Texas WELL REPORT

MW 14

Texas Water Well Drillers Board
P.O. Box 13087
Austin, Texas 78711

OWNER: Confidentiality
Notice on Reverse Side

1) OWNER Circle K Corp ADDRESS 3920 Lockwood #84721 Houston, Tx
 (Name) (Street or RFD) (City) (State) (Zip)
 LOCATION OF WELL: Harris County, 0 miles in _____ direction from Houston
 (NE, SW, etc.) (Town)

Driller must complete the legal description below with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

LEGAL DESCRIPTION:
 Section No. _____ Block No. _____ Township _____ Abstract No. _____ Survey Name D.I.M.
 Distance and direction from two intersecting section or survey lines _____
 SEE ATTACHED MAP

2) TYPE OF WORK (Check):
 New Well Deepening Reconditioning Plugging
 4) PROPOSED USE (Check):
 Domestic Industrial Monitor Public Supply
 Irrigation Test Well Injection De-Watering
 5) DRILLING METHOD (Check):
 Mud Rotary Air Hammer Jetted Bored
 Air Rotary Cable Tool Other HSA

3) WELL LOG:
 Date Drilling:
 Started 2-02-94
 Completed 2-02-94

DIAMETER OF HOLE		
Dia. (In.)	From (ft.)	To (ft.)
11	Surface	25

7) BOREHOLE COMPLETION:
 Open Hole Straight Wall Underreamed
 Gravel Packed Other _____
 If Gravel Packed give Interval ... from 15 ft. to 25 ft.

From (ft.)	To (ft.)	Description and color of formation material
0-3		Clay, black
3-12		Clay, greenish gray
2-18		Clay, lt gry brwn streaks
8-21.5		Sand, lt brwn
21.5-25		Clay, lt gry

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (In.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.)		Gage Casting Screen
			From	To	
4	N	Sch. 40 PVC	0	15	-
4	N	Sch. 40 PVC	15	25	0.01

3) TYPE PUMP: N/A
 Turbine Jet Submersible Other _____
 Depth to pump bowls, cylinder, jet, etc., _____ ft.

9) CEMENTING DATA [Rule 287.44(1)]
 Cemented from 0 ft. to 11 ft. No. of Sacks Used 6.5
 _____ ft. to _____ ft. No. of Sacks Used _____
 Method used Tremmie
 Cemented by Eddie Kenebrew

WELL TESTS: N/A
 Type Test Pump Bailer Jetted Estimated
 Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

10) SURFACE COMPLETION
 Specified Surface Slab Installed [Rule 287.44(2)(A)]
 Specified Steel Sleeve Installed [Rule 287.44(3)(A)]
 Piless Adapter Used [Rule 287.44(3)(B)]
 Approved Alternative Procedure Used [Rule 287.71]

WATER QUALITY:
 Did you knowingly penetrate any strata which contained undesirable constituents?
 Yes No If yes, submit "REPORT OF UNDESIRABLE WATER"
 Type of water? _____ Depth of strata _____
 Was a chemical analysis made? Yes No

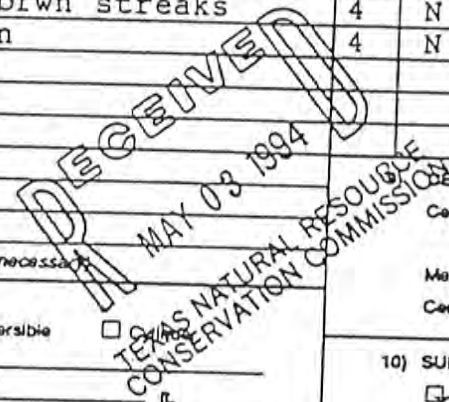
11) WATER LEVEL:
 Static level 19 ft. below land surface Date 2-03-94
 Artesian flow _____ gpm. Date _____

12) PACKERS:
 Type Depth
Bentonite 11 to 13

I certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand and agree to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

DRILLER'S NAME Best Drilling Services, Inc. WELL DRILLER'S LICENSE NO. 3022M
 (Type or print)
 ADDRESS P.O. Box 845 Friendswood Texas 77546
 (Street or RFD) (City) (State) (Zip)
Eddie Kenebrew (Signed) _____ (Registered Driller Trainee)

Attach electric log, chemical analysis, and other pertinent information, if available.
 For TNRC use only: Well no. _____ Located on map _____



ATTENTION OWNER: Confidentiality
Privilege Notice on Reverse Side

State of Texas
WELL REPORT

MW 13

Texas Water Well Drillers Board
P.O. Box 13087
Austin, Texas 78711

OWNER Circle K Corp.
(Name) ADDRESS 3920 Lockwood#84721 Houston, Tx.
(Street or RFD) (City) (State) (Zip)
LOCATION OF WELL Harris County 0 miles in _____ direction from Houston
(Town)

Driller must complete the legal description below with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official quarter- or half-scale Texas County General Highway Map and attach the map to this form.

LEGAL DESCRIPTION:
Section No. _____ Block No. _____ Township _____ Abstract No. _____ Survey Name D.I.M.
Distance and direction from two intersecting section or survey lines _____
 SEE ATTACHED MAP

1) TYPE OF WORK (Check):
 New Well Deepening
 Reconditioning Plugging
4) PROPOSED USE (Check):
 Domestic Industrial Monitor Public Supply
 Irrigation Test Well Injection De-Watering
5) DRILLING METHOD (Check):
 Mud Rotary Air Hammer Jetted Bored
 Air Rotary Cable Tool Other HSA

6) WELL LOG:
Date Drilling:
Started 2-02-94
Completed 2-02-94
DIAMETER OF HOLE
Dia. (In.) From (ft.) To (ft.)
11 Surface 25

7) BOREHOLE COMPLETION:
 Open Hole Straight Wall Underreamed
 Gravel Packed Other _____
If Gravel Packed give interval ... from 15 ft. to 25 ft.

From (ft.) To (ft.) Description and color of formation material
0-7 Sand, lt brwn to lt gry
7-18 Clay, greenish gray to lt gry
18-24 Clayey silt, lt gry
24-25 Clay, lt gry brwn streaks

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (In.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.)		Gage Casting Screen
			From	To	
	N	Sch. 40 PVC	0	15	-
	N	Sch. 40 PVC	15	25	0.01

RECEIVED
MAY 03 1994
TEXAS NATURAL RESOURCES
CONSERVATION COMMISSION

(Use reverse side if necessary)
TYPE PUMP: N/A
 Turbine Jet Submersible Cylinder
Depth to pump bowls, cylinder, jet, etc., _____ ft.

CEMENTING DATA [Rule 287.44(1)]
Cemented from 0 ft. to 11 ft. No. of Sacks Used 6.5
Method used Tremmie
Cemented by Eddie Kenebrew

WELL TESTS: N/A
Type Test Pump Baller Jetted Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

10) SURFACE COMPLETION
 Specified Surface Slab Installed [Rule 287.44(2)(A)]
 Specified Steel Sleeve Installed [Rule 287.44(3)(A)]
 Pitless Adapter Used [Rule 287.44(3)(B)]
 Approved Alternative Procedure Used [Rule 287.71]

WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable constituents?
 Yes No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? Yes No

11) WATER LEVEL: 19
Static level _____ ft. below land surface Date 2-02-94
Artesian flow _____ gpm. Date _____

12) PACKERS: _____ Type _____ Depth _____
Bentonite 11 to 13

I certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand the use to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

DRILLER'S NAME Best Drilling Services, Inc. WELL DRILLER'S LICENSE NO. 3022M
(Type or print) _____
Address P.O. Box 845 Friendswood Texas 77546
(Street or RFD) (City) (State) (Zip)
Eddie Kenebrew (Signed) _____
(Licensed Well Driller) (Registered Driller Trainee)

Attach electric log, chemical analysis, and other pertinent information, if available.
For TNRCC use only: Well no. _____ Located on map _____

State of Texas
WELL REPORT

Texas Water Well Drillers Board
P.O. Box 13087
Austin, TX 78711-3087
512-371-8299

Please use black ink

1) OWNER City of Houston ADDRESS 4300 Staples Houston Tx 77019
(Name) (Street or RFD) (City) (State) (Zip)
LOCATION OF WELL:
County Harris miles in _____ direction from _____
(NE, SW, etc.) (Town)

Driller must complete the legal description below with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

LEGAL DESCRIPTION:

Section No. _____ Block No. _____ Township _____ Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

SEE ATTACHED MAP

D.I.M.

3) TYPE OF WORK (Check):
 New Well Deepening
 Reconditioning Plugging
4) PROPOSED USE (Check):
 Domestic Industrial Monitor Public Supply
 Irrigation Test Well Injection De-Watering
5) DRILLING METHOD (Check): Driven
 Mud Rotary Air Hammer Jetted Bored
 Air Rotary Cable Tool Other Hand

5) WELL LOG:
Date Drilling:
Started 3-17-94 19__
Completed 3-10-94 19__
DIAMETER OF HOLE
Dia. (in.) From (ft.) To (ft.)
10 Surface 11

7) BOREHOLE COMPLETION:
 Open Hole Straight Wall Underreamed
 Gravel Packed Other _____
If Gravel Packed give interval ... from 11 ft. to 1 ft.
Bentonite seal 0 - 1

From (ft.)	To (ft.)	Description and color of formation material
<u>0 - 9.5 ft.</u>		<u>Pea gravel</u>
<u>9.5 ft. - 11 ft.</u>		<u>Tan Clay</u>

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.)		Gage Casting Screen
			From	To	
<u>4</u>	<u>N</u>	<u>PVC Screen</u>	<u>11</u>	<u>1</u>	<u>010</u>
<u>4</u>	<u>N</u>	<u>PVC Pipe</u>	<u>1</u>	<u>+2</u>	

13) TYPE PUMP:
 Turbine Jet Submersible Cylinder
 Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

9) CEMENTING DATA [Rule 287.44(1)]
Cemented from _____ ft. to _____ ft. No. of Sacks Used _____
_____ ft. to _____ ft. No. of Sacks Used _____
Method used 1 1/2
Cemented by _____

1) WELL TESTS:
Type Test Pump Bailer Jetted Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

10) SURFACE COMPLETION
 Specified Surface Slab Installed [Rule 287.44(2)(A)]
 Specified Steel Sleeve Installed [Rule 287.44(3)(A)]
 Pileless Adapter Used [Rule 287.44(3)(B)]
 Approved Alternative Procedure Used [Rule 287.71]

1) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable constituents?
 Yes No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? Yes No

11) WATER LEVEL:
Static level DRY ft. below land surface Date 3-10-94
Artesian flow _____ gpm. Date _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

ANY NAME Jones Environmental Drilling WELL DRILLER'S LICENSE NO. 3150 M
(Type or print)

ADDRESS P.O. Box 270773 Corpus Christi Tx. 78427-0773
(Street or RFD) (City) (State) (Zip)

[Signature] (Licensed Well Driller) (Signed) _____ (Registered Driller Trainee)

Attach electric log, chemical analysis, and other pertinent information, if available.
For TWC use only: Well No. _____ Located on map _____

TWLT

Original copy by certified mail to: Texas Water Commission, P.O. Box 13067, Austin, Texas 78711

Please use black ink.

ATTENTION OWNER: Confidentiality
Privilege Notice on Reverse Side

State of Texas
WELL REPORT Texaco #135

Texas Water Well Drillers Board
P.O. Box 13087
Austin, Texas 78711

for Service Station Construction

OWNER Star Enterprise ADDRESS 5440 East Freeway Houston, Tx. 77020
(Name) (Street or RFD) (City) (State) (Zip)
LOCATION OF WELL: HARRIS County miles in _____ direction from _____ (Town)

Driller must complete the legal description below with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

LEGAL DESCRIPTION:
Section No. _____ Block No. _____ Township _____ Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines

SEE ATTACHED MAP Well # 1 of 4 And # 3 of 4

TYPE OF WORK (Check):
 New Well Deepening Reconditioning Plugging
4) PROPOSED USE (Check):
 Domestic Industrial Monitor Public Supply
 Irrigation Test Well Injection De-Watering
5) DRILLING METHOD (Check):
 Mud Rotary Air Hammer Jetted Bored
 Air Rotary Cable Tool Other _____

WELL LOG:
Time Drilling: 4/16/91 91
Started 4/16 19 91
Completed 4/16 19 91

DIAMETER OF HOLE		
Dia. (in.)	From (ft.)	To (ft.)
<u>6</u>	Surface	<u>13</u>

7) BOREHOLE COMPLETION:
 Open Hole Straight Wall Underreamed
 Gravel Packed Other _____
If Gravel Packed give interval ... from 13' ft. to 2' ft.

From (ft.)	To (ft.)	Description and color of formation material
<u>0</u>	<u>15</u>	<u>CONCRETE</u>
<u>15</u>	<u>13</u>	<u>CLAY (some CRACK)</u>

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.)		Gage Casting Screen
			From	To	
<u>4</u>	<u>N</u>	<u>SCH 40 PVC</u>	<u>13'</u>	<u>3'</u>	<u>1,020</u>
<u>4</u>	<u>N</u>	<u>SCH 40 PVC</u>	<u>3'</u>	<u>0</u>	<u>RUSEC</u>
<u>4</u>	<u>N</u>	<u>END CAP</u>			
<u>4</u>	<u>N</u>	<u>LOCKING CAP</u>			
		<u>BOLT DOWN MH.</u>			

NOTE: THIS LOG IS FOR WELL #1 AND WELL #3 AT THIS LOCATION. BOTH WERE SAME COMPLETION AND ENCOUNTERED SAME STRATA DURING DRILLING. NW #1 IS SOUTHWEST AND NW #3 IS NORTH EAST (OUR WELL). (Use reverse side if necessary)

9) CEMENTING DATA [Rule 287.44(1)]
Cemented from 1 ft. to 0 ft. No. of Sacks Used 3
Method used Hand
Cemented by DRILCO

TYPE PUMP: NA
 Turbine Jet Submersible Cylinder
 Other _____
Depth to pump bowls, cylinder, jet, etc., MAY 21 1991 ft.

10) SURFACE COMPLETION
 Specified Surface Slab Installed [Rule 287.44(2)(A)]
 Specified Steel Sleeve Installed [Rule 287.44(3)(A)]
 Pitless Adapter Used [Rule 287.44(3)(B)]
 Approved Alternative Procedure Used [Rule 287.71] SVC STA.

WELL TESTS: NA
Type Test Pump Baller Jetted Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

11) WATER LEVEL:
Static level DRY ft. below land surface Date 4/16/91
Artesian flow _____ gpm. Date _____

WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable constituents?
 Yes No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? Surface Depth of strata _____
Was a chemical analysis made? Yes No

12) PACKERS:
13' - 2' 10-20 SILICA SAND
2' - 1 BENTONITE 1'-0 CONCRETE

I certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

DRILLER'S NAME Service Station Drillco, Inc. WELL DRILLER'S LICENSE NO. 2959M
(Type or print)
4412 Bluemel Road San Antonio Texas 78240
(Street or RFD) (City) (State) (Zip)
[Signature] (Signed) _____ (Registered Driller Trainee)

Attach electric log, chemical analysis, and other pertinent information, if available.

For TWC use only: Well No. 6514-8 Located on map _____

ATTENTION OWNER: Confidentially
Large Notice on Reverse Side
for Service Station Construction

State of Texas
WELL REPORT
Texaco #135

Texas Water Well Drillers Board
P.O. Box 13087
Austin, Texas 78711

OWNER: Star Enterprise. ADDRESS: 5440 East Freeway Houston, Tx. 77020
(Name) (Street or RFD) (City) (State) (Zip)
LOCATION OF WELL: Harris County miles in direction from (Town)
(NE, SW, etc.)

Driller must complete the legal description below with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

LEGAL DESCRIPTION:
Section No. Block No. Township Abstract No. Survey Name
Distance and direction from two intersecting section or survey lines
SEE ATTACHED MAP Well # 2 of 4

TYPE OF WORK (Check):
New Well Deepening
Reconditioning Plugging
4) PROPOSED USE (Check):
Domestic Industrial Monitor Public Supply
Irrigation Test Well Injection De-Watering
5) DRILLING METHOD (Check):
Mud Rotary Air Hammer Jetted Bored
Air Rotary Cable Tool Other

WELL LOG:
Drilling: 4/16 19 91
Started: 4/16 19 91
Completed: 4/16 19 91
DIAMETER OF HOLE:
Dia. (in.) From (ft.) To (ft.)
6" 0' Surface 12'

7) BOREHOLE COMPLETION:
Open Hole Straight Wall Underreamed
Gravel Packed Other
If Gravel Packed give interval ... from 12' ft. to 2' ft.

From (ft.) To (ft.) Description and color of formation material
0 - 5 CONCRETE
5 - 12' PEA GRAVEL

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:
Dia. (in.) New or Used Steel, Plastic, etc. Perf., Slotted, etc. Screen Mtg., If commercial Setting (ft.) Gage Casting Screen
From To
4 N 5" 40 PVC 12' 2' 020
4 N 5" 40 PVC 2' 0 RISER
4 N Bottom CAP
4 N Locking CAP
13' Bolt Down MH

TYPE PUMP: NA
 Turbine Jet Submersible Cylinder
 Other
Depth to pump bowls, cylinder, jet, etc., MAY 21 1991

9) CEMENTING DATA [Rule 287.44(1)]
Cemented from 1 ft. to 0 ft. No. of Sacks Used 6
ft. to ft. No. of Sacks Used
Method used HAND
Cemented by DRILCO

WELL TESTS: NA
Type Test Pump Bailor Estimated
Yield: gpm with ft. drawdown after hrs.

10) SURFACE COMPLETION
 Specified Surface Slab Installed [Rule 287.44(2)(A)]
 Specified Steel Sleeve Installed [Rule 287.44(3)(A)]
 Pitless Adapter Used [Rule 287.44(3)(B)]
 Approved Alternative Procedure Used [Rule 287.71] SVC STA.

WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable constituents?
 Yes No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? Depth of strata
Was a chemical analysis made? Yes No

11) WATER LEVEL:
Static level 10.6" ft. below land surface Date 4/16/91
Artesian flow gpm. Date
12) PACKERS:
Type Depth
12' - 2' PEA GRAVEL
2' - 1' BENTONITE 10 CONCRETE

I certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand the failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.
DRILLER NAME: Service Station Drillco, Inc. WELL DRILLER'S LICENSE NO. 2959M
4412 Bluemel Road San Antonio Texas 78240
(Type or print) (Street or RFD) (City) (State) (Zip)
(Signed) (Registered Driller Trainee)

Attach electric log, chemical analysis, and other pertinent information, if available.
For TWC use only: Well No. 65-14-8 Located on map

ATTENTION OWNER: Confidentiality
Please Note on Reverse Side

State of Texas
WELL REPORT
Texaco #135

Texas Water Well Drillers Board
P.O. Box 13087
Austin, Texas 78711

OWNER: Star Enterprises
ADDRESS: 5440 East Freeway Houston, Tx. 77020
COUNTY: Harris
Miles in _____ direction from _____ (Town)

Driller must complete the legal description below with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

LEGAL DESCRIPTION:
Section No. _____ Block No. _____ Township _____ Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
SEE ATTACHED MAP Well # 4 of 4

TYPE OF WORK (Check):
New Well Deepening
Reconditioning Plugging
4) PROPOSED USE (Check):
Domestic Industrial Monitor Public Supply
Irrigation Test Well Injection De-Watering
5) DRILLING METHOD (Check):
Mud Rotary Air Hammer Jetted Bored
Air Rotary Cable Tool Other _____

WELL LOG:
Drilling: 4/16 91
Started: 4/16 1991
Completed: 4/16 1991
DIAMETER OF HOLE:
DIA. (IN.) FROM (FT.) TO (FT.)
6 SURFACE 74"

7) BOREHOLE COMPLETION:
Open Hole Straight Wall Underreamed
Gravel Packed Other _____
If Gravel Packed give interval ... from 6'2" ft. to 1' ft.

From (ft.) To (ft.) Description and color of formation material
0 - 6" CONCRETE
6" - 6'2" PEA GRAVEL
VERY HIGH WATER IN TANK HOLES
NO FILL - HAD TO SET SCREEN
1 TO MONITOR TANK PROPERLY

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:
DIA. (IN.) New or Used Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial Setting (ft.) From To Gauge Casing Screen
4 N SCH 40 PIC 6'2" 1' 020
4 N SCH 40 PIC 1' 0 RISER
4 N BOTTOM CAP
4 N LOCKING CAP

TYPE PUMP: NA
Turbine Jet Submersible Cylinder
Other _____
Depth to pump bowls, cylinder, jet, etc., _____
WELL TESTS: NA
Type Test Pump Baller Jet Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

9) CEMENTING DATA [Rule 287.44(1)]
Cemented from .5 ft. to 0 ft. No. of Sacks Used 3
_____ ft. to _____ ft. No. of Sacks Used _____
Method used Hand
Cemented by DRILCO

WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable constituents?
Yes No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water: SURFACE Depth of strata 1
Was a chemical analysis made? Yes No

10) SURFACE COMPLETION
Specified Surface Slab Installed [Rule 287.44(2)(A)]
Specified Steel Sleeve Installed [Rule 287.44(3)(A)]
Pile Adapter Used [Rule 287.44(3)(B)]
Approved Alternative Procedure Used [Rule 287.71] SRC STA.

11) WATER LEVEL:
Static level 12" ft. below land surface Date 4/16/91
Artesian flow _____ gpm. Date _____

12) PACKERS:
Type Depth
6'2" - 1' PEA GRAVEL 1' - .5' BELOW
5 - 0 CONCRETE

I certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that to complete Items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

DRILLER'S NAME: Service Station Drillco, Inc.
WELL DRILLER'S LICENSE NO. 2959M
4412 Bluebell Road San Antonio Texas 78240
(Street or RFD) (City) (State) (Zip)
(Signed) (Registered Driller Trainee)

Attach electric log, chemical analysis, and other pertinent information, if available.
For TWC use only: Well No. 6514-8 Located on map _____

Please use block ink
 Texas Water Well Drillers Board
 P.O. Box 13087
 Austin, Texas 78711

State of Texas
 WELL REPORT

Remon Environmental Serv. ADDRESS 109 Starlite Park Marietta, Ohio 45750
 (Name) (Street or RFD) (City) (State) (Zip)

WELL: Hattie
 (Name)
 mbs in (NE, SW, etc.) direction from HOUSTON (Town)

Section No. _____ Block No. _____ Township _____ Abstract No. _____ Survey Name _____
 Distance and direction from two intersecting section or survey lines

3) TYPE OF WORK (Check):
 New Well Deepening Industrial Monitor Public Supply Drilling Method (Check):
 Rehabilitation Plugging Irrigation Test Well Injection De-Watering Air Rotary Air Hammer Jerked Bored

4) PROPOSED USE (Check):
 Domestic Industrial Irrigation Test Well Injection De-Watering Air Rotary Air Hammer Jerked Bored

5) WELL LOG:
 Date Drilling:
 Started 1-29-1990
 Completed 1-29-1990

DIAMETER OF HOLE	
DIA (in)	From (ft) To (ft)
6	0 1.8

6) BOREHOLE COMPLETION:
 Open Hole Slight Well Underreamed
 Gravel Packed Other
 If Gravel Packed give interval... from _____ ft. to _____ ft.

7) CASINO, BLANK PIPE, AND WELL SCREEN DATA:
 New or Used _____ Steel, Plastic, etc. _____
 Dia. (in) _____ Perf. Spaced, etc. _____
 2" N P.V.C. _____
 2" N RISER _____
 18' 8' _____
 8' .5' _____

8) CEMENTING DATA (Rule 287.4(1))
 Cemented from 6 ft. to 1 ft. No. of Sacks Used _____
 Method used PRESSURE GROUTED
 Cemented by F.L. VAN ANKUM

9) SURFACE COMPLETION
 Specified Surface Sags Installed (Rule 287.4(2)(A))
 Pileless Adapter Used (Rule 287.4(3)(B))
 Approved Alternative Procedure Used (Rule 287.7)

10) WATER LEVEL:
 Static level 71.6" ft. below land surface Date 1-29-90
 Artesian flow _____ gpm. Date _____

11) PACKERS:
 Bentonite Type _____ Depth 8'-6"

12) TYPE PUMP:
 Turbine Jet Submersible Cylinder
 Other Baller
 Depth to pump bowls, cylinder, jet, etc. _____ ft.

13) WELL TESTS:
 Type Test: Pump Baller Jerked Estimated
 Yield: 3 gpm with 8 ft. drawdown after 1 hr.

14) WATER QUALITY:
 Did the drilling penetrate any strata which contained undesirable constituents?
 Yes No If yes, submit REPORT OF UNDESIRABLE WATER
 Type of water? _____ Depth of strata _____
 Was a chemical analysis made? Yes No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.
 COMPANY NAME Van & Sons Drilling Service, Inc WELL DRILLER'S LICENSE NO. 30033
 ADDRESS 319 John Albert Road HOUSTON (City) TEXAS (State) 77076
 (Signed) [Signature] (Typed) [Name] (Signed) [Name] (Typed) [Address]

Emion Environmental Serv., Address 109 Starlette Park Marietta, Ohio 45750
 (Mime) (Street or RFD) (City) (State) (Zip)

Block No. _____ Township _____ Survey Name _____
 Distance and direction from two intersecting section or survey lines

SEE ATTACHED MAP

TYPE OF WORK (Check):
 New Well Deepening Reconditioning Plugging

PROPOSED USE (Check):
 Domestic Industrial Irrigation Test Well Injection Monitor Public Supply De-Watering

DRILLING METHOD (Check):
 Mud Rotary Air Hammer Jelled Bored Air Rotary Cable Tool Other

WELL LOG:
 Date Drilled: _____
 Started: 1-29-1980
 Completed: 19-18

DIAMETER OF HOLE:
 Dia. (in) From (ft.) To (ft.)
 Surface 6 0 18

BOREHOLE COMPLETION:
 Open Hole Straight Wall Underreamed
 Gravel Packed Other

CASINO, BLANK PIPE, AND WELL SCREEN DATA:
 New or Used _____ Setting (ft.) _____
 Dia. (in) _____ From _____ To _____
 Screen Mfg., if Commercial _____

CEMENTING DATA [Rule 287.44(f)]
 Cemented from _____ ft. to _____ ft. No. of Sacks Used _____
 Method used _____ No. of Sacks Used _____
 Cemented by _____

SURFACE COMPLETION
 Specified Surface Slab Installed [Rule 287.44(2)(A)]
 Pileless Adapter Used [Rule 287.44(3)(B)]
 Approved Alternative Procedure Used [Rule 287.71]

WATER LEVEL:
 Static level _____ ft. below land surface Date 1-29-80
 Artesian flow _____ gpm. Date _____

PACKERS:
 Bentonite Type _____ Depth _____ ft. - 6'

WATER QUALITY:
 Did the drilling generate any slits which contained undesirable constituents?
 Yes No If yes, submit "REPORT OF UNDESIRABLE WATER"
 Type of water? _____ Depth of slits _____
 Was a chemical analysis made? Yes No

TYPE PUMP:
 Tubing Jet Submersible Cylinder
 Other: Baller
 Depth to pump bowl, cylinder, jet, etc., _____ ft.

WELL TESTS:
 Type Test Pump Baller Jelled Estimated
 Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

TEXAS WATER COMMISSION
 (Use reverse side if necessary)

DESCRIPTION and color of formation material:
 0 4" Concrete
 4" 3' Blk Sa Cl
 3' 7' Tan Gr Cl
 7' 9' Red Gr Siltstone
 9' 11' Red Siltstone
 11' 13' Sa. He. 12'
 13' 16' Red Cl
 16' 18' Gr Cl
 JUL 6 1980

COMPANY NAME Van & Sons Drilling Service, Inc. [Type or print]
 ADDRESS 319 John Albert Road Houston (City)
 (Street or RFD) (State) (Zip)
 (Signed) *Ed Van Galley* (Registered Driller License No. 30031)

PLEASE ATTACH METRIC LOG, IF AVAILABLE.

For TWC use only: Well No. 65-11-5

State of Texas
WELL REPORT
 AEMION ENVIRONMENTAL SERV. (Name) ADDRESS 109 Starlite Park Marletta, Ohio 45750 (City) (State) (Zip)
 HARRIS (City) (State) (Zip)
 DISTANCE AND DIRECTION FROM TWO INTERSECTING SECTION OR SURVEY LINES: _____ (NE, SW, etc.) _____ (Town)
 DISTANCE AND DIRECTION FROM TWO INTERSECTING SECTION OR SURVEY LINES: _____ (Town) _____ (Town)
 SECTION NO. _____ BLOCK NO. _____ TOWNSHIP _____ ABSTRACT NO. _____ SURVEY NAME _____
 SEE ATTACHED MAP

3) TYPE OF WORK (Check):
 New Well Deepening Reconditioning Plugging
 Domestic Industrial Monitor Public Supply Drilling Method (Check):
 Mud Rotary Air Hammer Jeted Bored
 Air Rotary Cable Tool Other _____
 7) BOREHOLE COMPLETION:
 Open Hole Straight Well Underreamed
 Gravel Packed Other _____
 If Gravel Packed give interval ... from _____ ft. to _____ ft.

4) PROPOSED USE (Check):
 Domestic Industrial Monitor Injection De-Watering
 8) WELL LOG:
 Date Drilled: 1-29 Started 1:00 To (ft.) 19
 Completed 1-29 1:00 Surface 0 To (ft.) 19
 From (ft.) To (ft.) Description and color of formation material
 0 4" Concrete
 4" 4" Bk Sa CI
 4" 9' Tan CI
 9" 10' Red Sa CI
 10" 12' Red Gr CI
 12" 14' Sa Ker @ 11'
 14" 16' Red CI
 16" 19' Gr CI

5) CASING, BLANK PIPE, AND WELL SCREEN DATA:

New or Used	Steel, Plastic, etc. or Perf. Slotted, etc. Screen Mfg. if commercial	Setting (ft.)	Gage Casing Screen
2" N	P.V.C.	From 19' To 9'	
2" N	Riser	9' to 5'	

 13) TYPE PUMP:
 Turbine Jet Submersible Cylinder
 Other: Railer
 Depth to pump bowls, cylinder, pt. etc.: _____ TEXAS WATER COMMISSION (10)
 JUL 6 1960
 RECEIVED
 (Use reverse side if necessary)
 14) WELL TESTS:
 Type Test Pump Baller Jeted Estimated
 Yield: _____ gpm with _____ ft. drawdown after _____ hrs.
 15) WATER QUALITY:
 Did the drilling penetrate any strata which contained undesirable constituents?
 Yes No If yes, submit "REPORT OF UNDESIRABLE WATER"
 Type of water: _____ Depth of strata: _____
 Was a chemical analysis made? Yes No

CEMENTING DATA (Rule 287.44(1))
 Cemented from 6 ft. to 1 ft. No. of Sacks Used 1
 No. Food used _____ No. of Sacks Used _____
 Cemented by E.L. Van Antwerp
 SURFACE COMPLETION
 Specified Surface Slab Installed (Rule 287.44(2)(A))
 Pileas Adapter Used (Rule 287.44(2)(B))
 Approved Alternative Procedure Used (Rule 287.71)
 11) WATER LEVEL:
 Static level 7' 3 1/2" ft. below land surface Date 1-29-90
 Artesian flow _____ gpm. Date _____
 12) PACKERS:
 Bentonite Type Depth
 _____ 8' - 6'

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.
 COMPANY NAME Van & Sons Drilling Service, Inc. WELL DRILLER'S LICENSE NO. 3003H
 ADDRESS 319 John Albert Road HOLLISTON (City) I.O.# 26 (State) 77076 (Zip)
 (Signed) E. L. Van Antwerp (Licensed Well Driller) (Signed) _____ (Mechanical Seal)

Texas use block 14c

Send original copy to: Texas Water Commission, P.O. Box 13087, Austin, Texas 78711

State of Texas
WELL REPORT

OWNER: Circle K Corp/HLA
ADDRESS: 9800 Richmond Ave #150 Houston, TX 77042

LOCATION OF WELL: Harris County, At 3290 Lockwood Dr. in Houston, TX direction from (Town)

Driller must complete the legal description below with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Section Texas County General Highway Map and attach the map to this form.

LEGAL DESCRIPTION:

Section No. _____ Block No. _____ Township _____ Abstract No. _____ Survey Name _____

Distance and direction from two intersecting section or survey lines: SEE ATTACHED MAP

4) PROPOSED USE (Check):
 Domestic Industrial Monitor
 Reconditioning Plugging Test Well Injection De-Watering

5) DRILLING METHOD (Check):
 Mud Rotary Air Hammer Jetted Bored
 Air Rotary Cable Tool Other

6) WELL LOG:
 Date Drilling: Started 10/17/1989 Completed 10/20/1989

7) BOREHOLE COMPLETION:
 Open Hole Straight Wall Underreamed
 Gravel Packed Other

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

From (ft.)	To (ft.)	Description and color of formation material	Dia. (in.)	New or Used	Steel, Plastic, etc. Screen Mfg., if commercial	Sizing (ft.)		Gage Casting Screen
						From	To	
0-2.5	Gr.-Brn. Sandy Lean Clay (CL)							
5-5	Gr. Sandy Lean Clay (CL)							
5-14.5	Lt. gr. & Ylw.-Brn. Sandy clay (CL)							
5-18	Rd.-brn. lt. gr. fat clay (CH)							
8-19	Rd.-brn. lt. gr. very fine (ML)							
9-31	Reddish Brwn Clay & sand (CH)							
	CCI Installed 8 wells at this site.							
	MW-5 through MW-12. MW-7 was used for details in this report.							

9) CEMENTING DATA (Rule 287.44(1))
 Cemented from 0 ft. to 2 ft. No. of Sacks Used 1
 Bent. pellets 2 ft. to 3.5 ft. No. of Sacks Used 1
 Method used: GRAVITY
 Cemented by: CCI

10) SURFACE COMPLETION:
 Specified Surface Slab Installed (Rule 287.44(2)(A))
 Plug Adapter Used (Rule 287.44(3)(B))
 Approved Alternative Procedure Used (Rule 287.71)

11) WATER LEVEL:
 Static level 19 ft. below land surface Date 000
 Artesian flow _____ gpm. Date _____

12) PACKERS:
 Type _____ Depth _____
 N/A

13) TYPE PUMP:
 Turbine Jet N/A Submersible Cylindrical
 Depth to pump bowls, cylinder, jet, etc. _____ ft.
 Date: MAY 23 1990

14) WELL TESTS:
 Type Test: N/A Pump Bailer Filtered Unfiltered
 Yield: _____ gpm with _____ ft. drawdown/ft. per. **WATER COMM**

15) WATER QUALITY:
 Did the drilling penetrate any strata which contained undesirable constituents?
 Yes No If yes, submit REPORT OF UNDESIRABLE WATER
 Type of water? _____ Depth of strata _____
 Was a chemical analysis made? Yes No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmital.

COMPANY NAME: Custom Coring, Inc. WELL DRILLER'S LICENSE NO. 2769 DM
 (Type or print)

ADDRESS: 2032 Karbach Houston, Texas 77092
 (Street or P.O.) (City) (State) (Zip)

(Signed) SCOTT WOLF (Copy to Well Driller) (Registered Driller/Trainer)

Please attach electric log, if available.

Form No. 14c (Rev. 1-1-83)

OWNER: CDI MANAGEMENT SERVICES AS AGENT FOR FDIC (Name) ADDRESS: 2819 QUITMAN, HOUSTON, TX LOCATION OF WELL: HARRIS miles in direction from (NE, SW, etc.) (Town)

Driller must complete the legal description below with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

LEGAL DESCRIPTION: 2819 QUITMAN Section No. Block No. Township Abstract No. Survey Name SEE ATTACHED MAP (FOUR SIMILAR WELLS)

TYPE OF WORK (Check): New Well, Deepening, Reconditioning, Plugging. PROPOSED USE (Check): Domestic, Industrial, Monitor, Public Supply, Irrigation, Test Well, Injection, De-Watering. DRILLING METHOD (Check): Mud Rotary, Air Hammer, Jetted, Bored, Air Rotary, Cable Tool, Other.

WELL LOG: Date Drilling: Started 3-22-90, Completed 3-23-90. DIAMETER OF HOLE: Dia. (In.) 6, From (ft.) Surface, To (ft.) 34.

7) BOREHOLE COMPLETION: Open Hole, Straight Wall, Underreamed, Gravel Packed, Other. If Gravel Packed give interval ... from 33 ft. to 23 ft.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA: Table with columns for From (ft.), To (ft.), Description and color of formation material, Dia. (in.), New or Used, Steel, Plastic, etc., Setting (ft.), Gage Casting Screen.

9) CEMENTING DATA [Rule 287.44(1)]: Cemented from 2 ft. to SURFACE No. of Sacks Used 2. Method used HAND. Cemented by CECT. IRBY.

1) TYPE PUMP: Turbine, Jet, Submersible, Cylinder, Other. Depth to pump bowls, cylinder, jet, etc., ft.

10) SURFACE COMPLETION: Specified Surface Slab Installed [Rule 287.44(2)(A)], Pileless Adapter Used [Rule 287.44(3)(B)], Approved Alternative Procedure Used [Rule 287.71].

1) WELL TESTS: Type Test: Pump, Baller, Jetted, Estimated. Yield: gpm with ft. drawdown after hrs.

11) WATER LEVEL: Static level 6 ft. below land surface Date 3-23-90. Artesian flow gpm. Date

WATER QUALITY: Did the drilling penetrate any strata which contained undesirable constituents? Yes No. If yes, submit "REPORT OF UNDESIRABLE WATER". Type of water? BRACKISH Depth of strata 30'. Was a chemical analysis made? Yes No.

12) PACKERS: Type Depth

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

DRILLER NAME: CTT ENVIRONMENTAL SERVICES WELL DRILLER'S LICENSE NO. 2953M

ADDRESS: 14626 MORALES RD. HOUSTON, TX 77032

DRILLER: Cecil [Signature] (Licensed Well Driller) (Signed) (Registered Driller Trainee)

Attach electric log, chemical analysis, and other pertinent information, if available. For TWC use only: Well No. 6514-7 Located on map

Exclusion Criteria Checklist
Appendix B

July 10, 2000
W.O. #422-009

Environmental Resources Management
16300 Katy Freeway, Suite 300
Houston, Texas 77094-1611
(281) 600-1000

APPENDIX B

TIER 1 ECOLOGICAL EXCLUSION CRITERIA CHECKLIST

Figure : 30 TAC §350.77(b)

TIER 1: Exclusion Criteria Checklist

This exclusion criteria checklist is intended to aid the person and the TNRCC in determining whether or not further ecological evaluation is necessary at an affected property where a response action is being pursued under the Texas Risk Reduction Program (TRRP). Exclusion criteria refer to those conditions at an affected property which preclude the need for a formal ecological risk assessment (ERA) because there are **incomplete or insignificant ecological exposure pathways** due to the nature of the affected property setting and/or the condition of the affected property media. This checklist (and/or a Tier 2 or 3 ERA or the equivalent) must be completed by the person for all affected property subject to the TRRP. The person should be familiar with the affected property but need not be a professional scientist in order to respond, although some questions will likely require contacting a wildlife management agency (i.e., Texas Parks and Wildlife Department or U.S. Fish and Wildlife Service). The checklist is designed for general applicability to all affected property; however, there may be unusual circumstances which require professional judgement in order to determine the need for further ecological evaluation (e.g., cave-dwelling receptors). In these cases, the person is strongly encouraged to contact TNRCC before proceeding.

Besides some preliminary information, the checklist consists of three major parts, **each of which must be completed unless otherwise instructed**. PART I requests affected property identification and background information. PART II contains the actual exclusion criteria and supportive information. PART III is a qualitative summary statement and a certification of the information provided by the person. **Answers should reflect existing conditions and should not consider future remedial actions at the affected property**. Completion of the checklist should lead to a logical conclusion as to whether further evaluation is warranted. Definitions of terms used in the checklist have been provided and users are strongly encouraged to familiarize themselves with these definitions before beginning the checklist.

Name of Facility:

Houston Wood Preserving Works

Affected Property Location:

4910 Liberty Road
Houston, Texas

Mailing Address:

Union Pacific Railroad Company
1416 Dodge Street, Room 930
Omaha, Nebraska 68179

TNRCC Case Tracking #s:

Not Applicable

Solid Waste Registration #s:

31547

Voluntary Cleanup Program #:

Not Applicable

EPA I.D. #s:

TXD0008202669

PART I. Affected Property Identification and Background Information

- 1) Provide a description of the specific area of the response action and the nature of the release. Include estimated acreage of the affected property and the facility property, and a description of the type of facility and/or operation associated with the affected property. Also describe the location of the affected property with respect to the facility property boundaries and public roadways.

The Houston Wood Preserving Works (HWPW) property is located at 4910 Liberty Road in Houston, Harris County, Texas (see Figure 1-1 of the Affect Property Assessment Report). The HWPW property is approximately 1.5 miles northeast of the intersection of U.S. Highway 59 and Interstate Highway 10. The property consists of a 33-acre tract of land that was formerly operated as Southern Pacific Transportation Company's (SPTCo) Houston Wood Preserving Works. It is bordered to the north and west by mixed residential and light commercial, with heavy industrial usage further southwest, and to the east and south by property owned by SPTCo. The property was utilized for wood treating operations until 1985, and is currently used for railroad storage and other railroad operations.

A Resource Conservation Recovery Act (RCRA) Facility Assessment completed on behalf of the U.S. EPA identified ten solid waste management units (SWMUs) and six areas of concern (AOCs) as subject to RCRA Remedial Facility Investigation (RFI) at the HWPW property. A RCRA Permit (Permit No. HW-50343-000) was issued to SPTCo that required conducting a RCRA RFI to determine whether constituents of interest (COIs) have been released into the environment from these SWMUs and AOCs. In addition, a Compliance Plan (CP-50343-000) was issued for the site that required conducting an Extent of Contamination (EOC) investigation in the area of a closed permitted surface impoundment. Three phases of site investigation were completed onsite and are summarized in the Affected Property Assessment Report. The site investigations identified the primary constituents of potential concern in soil and ground water to be volatile organic compounds (VOCs) and creosote-related semivolatle organics compounds (SVOCs), such as naphthalene and chrysene, and carcinogenic polycyclic aromatic compounds (PAHs), such as benzo(a)pyrene.

Attach available USGS topographic maps and/or aerial or other affected property photographs to this form to depict the affected property and surrounding area. Indicate attachments:

- Topo map Aerial photo Other

Provided as Figures 1-1 and 1-2 of the attached Affected Property Assessment Report.

- 2) Identify environmental media known or suspected to contain chemicals of concern (COCs) at the present time. Check all that apply:

<u>Known/Suspected COC Location</u>	<u>Based on sampling data?</u>	
<input checked="" type="checkbox"/> Soil ≤ 5 ft below ground surface	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
<input checked="" type="checkbox"/> Soil > 5 ft below ground surface	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
<input checked="" type="checkbox"/> Groundwater	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Surface Water/Sediments	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

Explain (previously submitted information may be referenced):

Affected media are described in Sections 3.0 of the attached Affected Property Assessment Report.

Figure: 30 TAC §350.77(b) (Cont'd)

- 3) Provide the information below for the nearest surface water body which has become or has the potential to become impacted from migrating COCs via surface water runoff, air deposition, groundwater seepage, etc. Exclude wastewater treatment facilities and stormwater conveyances/impoundments authorized by permit. Also exclude conveyances, decorative ponds, and those portions of process facilities which are:
- a. Not in contact with surface waters of the State or other surface waters which are ultimately in contact with surface waters of the State; and
 - b. Not consistently or routinely utilized as valuable habitat for natural communities including birds, mammals, reptiles, etc.

The nearest surface water body is N/A feet from the affected property and is named N/A. The water body is best described as a:

- freshwater stream: _____ perennial (has water all year)
_____ intermittent (dries up completely for at least 1 week a year)
_____ intermittent with perennial pools
- freshwater swamp/marsh/wetland
- saltwater or brackish marsh/swamp/wetland
- reservoir, lake, or pond; approximate surface acres: _____
- drainage ditch
- tidal stream bay estuary
- other; specify _____

Is the water body listed as a State classified segment in Appendix C of the current Texas Surface Water Quality Standards; §§307.1 - 307.10?

- Yes Segment # N/A Use Classification:
- No

If the water body is not a State classified segment, identify the first downstream classified segment.

Name: N/A

Segment #: N/A

Use Classification: N/A

As necessary, provide further description of surface waters in the vicinity of the affected property:

No surface water bodies are located in close proximity of the Houston Wood Preserving Works property.

PART II. Exclusion Criteria and Supportive Information

Subpart A. Surface Water/Sediment Exposure (Complete in all cases.)

- 1) Regarding the affected property where a response action is being pursued under the TRRP, have COCs migrated and resulted in a release or imminent threat of release to either surface waters or to their associated sediments via surface water runoff, air deposition, ground water seepage, etc.? Exclude wastewater treatment facilities and stormwater conveyances/impoundments authorized by permit. Also exclude conveyances, decorative ponds, and those portions of process facilities which are:
- a. Not in contact with surface waters of the State or other surface waters which are ultimately in contact with surface waters of the State; and
 - b. Not consistently or routinely utilized as valuable habitat for natural communities including birds, mammals, reptiles, etc.

Yes No

Explain:

No surface water bodies are located in close proximity of the Houston Wood Preserving Works property.

If the answer is Yes to Subpart A above, the affected property does not meet the exclusion criteria. However, complete the remainder of Part II to determine if there is a complete and/or significant soil exposure pathway, then complete PART III - Qualitative Summary and Certification. If the answer is No, go to Subpart B.

Subpart B. Affected Property Setting (Complete only if "No" provided in Subpart A.)

In answering "Yes" to the following question, it is understood that the affected property is not attractive to wildlife or livestock, including threatened or endangered species (i.e., the affected property does not serve as valuable habitat, foraging area, or refuge for ecological communities). (May require consultation with wildlife management agencies.)

- 1) Is the affected property wholly contained within contiguous land characterized by: pavement, buildings, landscaped area, functioning cap, roadways, equipment storage area, manufacturing or process area, other surface cover or structure, or otherwise disturbed ground?

Yes No

Explain:

The affected property is wholly contained within contiguous land and is immediately surrounded by SPTCo property which is characterized by pavement, railroads, roadways, equipment storage areas, or otherwise disturbed ground. The site is relatively flat and is covered approximately 15% by concrete pavement. Non-paved areas are covered with caliche gravel or crushed limestone and are unvegetated. Figure 3-1 depicts the affected property location in relation to the surrounding area. The HWPW property can be described as a highly disturbed area due to the nature of the major operational activity of the neighboring SPTCo's property (i.e., active railroad). Active railroad operational areas consisting of tracks, maintained roadways adjacent to the tracks, various equipment storage areas, and loading areas for locomotives are located near the HWPW property. This type of operational activities would not encourage or facilitate the establishment of ecological

communities. The affected property is not likely to serve as a habitat or foraging area for ecological receptors due to the nature of the affected property setting.

Figure: 30 TAC §350.77(b) (Cont'd)

If the answer to Subpart B above is Yes, the affected property meets the exclusion criteria, assuming the answer to Subpart A was No. Skip Subparts C and D and complete PART III - Qualitative Summary and Certification. If the answer to Subpart B above is No, go to Subpart C.

Subpart C. Soil Exposure (Complete only if "No" provided in Subpart B.)

- 1) Are COCs which are in the soil of the affected property solely below the first 5 feet beneath ground surface or does the affected property have a physical barrier present to prevent exposure of receptors to COCs in surface soil?

Yes No

Explain:

This section is not applicable per Part II.B.1

If the answer to Subpart C above is Yes, the affected property meets the exclusion criteria, assuming the answer to Subpart A was No. Skip Subpart D and complete PART III - Qualitative Summary and Certification. If the answer to Subpart C above is No, proceed to Subpart D.

Subpart D. De Minimus Land Area (Complete only if "No" provided in Subpart C.)

In answering "Yes" to the question below, it is understood that all of the following conditions apply:

- The affected property is not known to serve as habitat, foraging area, or refuge to threatened/endangered or otherwise protected species. (Will likely require consultation with wildlife management agencies.)
 - Similar but unimpacted habitat exists within a half-mile radius.
 - The affected property is not known to be located within one-quarter mile of sensitive environmental areas (e.g., rookeries, wildlife management areas, preserves). (Will likely require consultation with wildlife management agencies.)
 - There is no reason to suspect that the COCs associated with the affected property will migrate such that the affected property will become larger than one acre.
- 1) Using human health protective concentration levels as a basis to determine the extent of the COCs, does the affected property consist of one acre or less and does it meet all of the conditions above?

Yes No

Explain how conditions are met/not met:

This section is not applicable per Part II.B.1

If the answer to Subpart D above is Yes, then no further ecological evaluation is needed at this affected property, assuming the answer to Subpart A was No. Complete PART III - Qualitative Summary and Certification. If the answer to Subpart D above is No, proceed to Tier 2 or 3 or comparable ERA.

PART III. Qualitative Summary and Certification (Complete in all cases.)

Attach a brief statement (not to exceed 1 page) summarizing the information you have provided in this form. This summary should include sufficient information to verify that the affected property meets or does not meet the exclusion criteria. The person should make the initial decision regarding the need for further ecological evaluation (i.e., Tier 2 or 3) based upon the results of this checklist. After review, TNRCC will make a final determination on the need for further assessment. **Note that the person has the continuing obligation to re-enter the ERA process if changing circumstances result in the affected property not meeting the Tier 1 exclusion criteria.**

CONCLUSIONS:

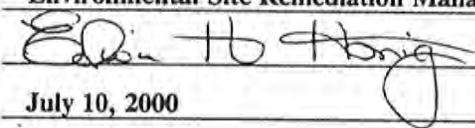
The TRPP's Tier 1 Exclusion Criteria Checklist was used to assess whether a formal ecological evaluation is warranted for the Houston Wood Preserving Works Site located at 4910 Liberty Street, Houston Texas. A detailed description of the affected property, facility background, and the nature of the release are provided in Section 2.0 of the Affected Property Assessment Report, to which this checklist is appended. Section 4.0 of the attached report presents the site's geology and hydrogeology, and Section 2.0 presents the environmental setting, including the characteristics of the surrounding areas as they pertain to land uses.

The 33-acre HWPW property is wholly contained within contiguous land that is characterized by pavement, railroads, roadways, equipment storage areas, or otherwise disturbed ground. The HWPW property can be described as a highly disturbed area due to the nature of the SPTCo's major operational activity (i.e., active railroad) on the adjacent neighboring property. This type of activity would not encourage or facilitate the establishment of ecological communities.

The evaluation concludes that the constituents of potential concern at the HWPW property are not an imminent threat to surface waters because no surface waters are located within close proximity of the affected property, and that the HWPW property is not likely to be a foraging area or habitat for wildlife or livestock. The HWPW property meets the exclusion criteria and, therefore, no further ecological evaluation is considered necessary for this on-site affected property.

Completed by: Maxene R. Dwyer (Typed/Printed Name of Person)
Toxicologist, Ph.D. (Title of Person)
July 10, 2000 (Date Signed)

I believe that the information submitted is true, accurate, and complete, to the best of my knowledge.

Person) E. H. (Ed) Honig, P.E. (Typed/Printed Name of
Environmental Site Remediation Manager (Title of Person)
 (Signature of Person)
July 10, 2000 (Date Signed)

Transmissive Zone Yield Calculations
Appendix C

July 10, 2000
W.O. #422-009

Environmental Resources Management
16300 Katy Freeway, Suite 300
Houston, Texas 77094-1611
(281) 600-1000

APPENDIX C

HOUSTON WOOD PRESERVING WORKS
TRANSMISSIVE ZONE - YIELD CALCULATIONS

Transmissive Zone	Monitor Well	K cm/sec	K ft/day	b ft	u unitless	T ft ² /day	W(u) unitless	Theis for 4" well			
								s ft	Q ft ³ /day	Q gal/day	
A-TZ	MW-10A	4.217E-04	1.1955	10	1.59E-09	11.955	19.45	3.33	25.73	192.49	
	MW-12A	3.127E-03	8.8650	8.5	2.52E-10	75.353	21.35	2.83	125.60	939.49	
	MW-13	7.992E-04	2.2657	6	1.40E-09	13.594	20.15	2.00	16.95	126.77	
	MW-15	6.912E-04	1.9596	9	1.08E-09	17.636	20.15	3.00	32.98	246.68	
	MW-16	4.564E-04	1.2939	6.5	2.26E-09	8.410	19.45	2.17	11.77	88.02	
	MW-17	2.886E-04	0.8182	16.5	1.41E-09	13.500	20.15	5.50	46.28	346.19	
	MW-18	1.387E-03	3.9321	11	4.40E-10	43.254	21.06	3.67	94.59	707.50	
	A-TZ Average:		1.024E-03	2.9043			26.243			50.56	378.16
	Min	2.886E-04	0.8182			8.410			11.77	88.02	
	Max	3.127E-03	8.8650			75.353			125.60	939.49	
B-TZ	MW-10B	5.261E-05	0.1491	10	1.28E-08	1.491	17.84	3.33	3.50	26.18	
	MW-12B	3.770E-03	10.6880	10	1.78E-10	106.880	21.76	3.33	205.64	1538.17	
	MW-14	1.210E-04	0.3430	5	1.11E-08	1.715	17.84	1.67	2.01	15.05	
	B-TZ Average:		1.315E-03	3.7267			36.695			70.38	526.47
		Min	5.261E-05	0.1491			1.491			2.01	15.05
		Max	3.770E-03	10.6880			106.880			205.64	1538.17

Where:

$$u = r^2 S / 4 T t$$

$$Q = 4 \pi r^2 T s / W(u)$$

$$T = Kb \text{ (ft}^2/\text{day)}$$

$$s = b/3 \text{ (ft)}$$

$$b = \text{(ft)}$$

$$t = 365 \text{ day}$$

$$S = 0.001$$

$$r = 2/12 \text{ feet (4" well)}$$

Summary of On-Site Investigations
Appendix D

July 10, 2000
W.O. #422-009

Environmental Resources Management
16300 Katy Freeway, Suite 300
Houston, Texas 77094-1611
(281) 600-1000

APPENDIX D

SUMMARY OF ON-SITE INVESTIGATIONS

Three phases of on-site RFI/EOC investigations have been completed. The specific objectives and results of each of these three phases (i.e., Phase 1, Phase 2-A, and Phase 2-B) are summarized in the following sections.

Phase 1 Investigation

Terranext conducted the Phase 1 RFI/EOC investigation during November and December of 1995, and the results were provided in a previous submittal to the TNRCC entitled *Phase 1 RFI/Extent of Contamination Investigation Report* dated May 23, 1996. The investigation consisted of the characterization of the site's geology and hydrogeology, an assessment of the subsurface distribution of creosote material, and the collection and analysis of surface soil and ground water samples. Cone Penetrometer Testing (CPT) was used to characterize the geology and hydrogeology. A Laser-Induced Fluorescence (LIF) tool known as Rapid Optical Screening Tool (ROST™) was used in combination with CPT to provide real-time soil assessment data. Ground water samples were collected using Hydropunch™ techniques. Surface soil samples were collected only in the FPA.

46 CPT/ROST™ characterizations, 31 Hydropunch ground water samples, and two surface soil samples were collected in the Phase 1 investigation. Soil and ground water samples were analyzed for the COIs listed in the Compliance Plan. The COIs are listed in Table D-1 herein, and include volatile organics compounds (VOCs) analyzed by SW-846 method 8260 and semivolatile organics compounds (SVOCs) analyzed by SW-846 Method 8270. The Phase 1 RFI/EOC analytical data that are applicable to the on-site property are presented in Attachment D-1 through D-5 (comprehensive on-site analytical data). For ease of review, the soil sampling program for the phases of on-site investigation have been further summarized in Tables D-2 to D-4, which identify the samples collected by exposure area (e.g., TSA and the type and location of samples collected). Table D-5 summarizes the ground water sampling program, including the ground water transmissive zone (e.g., A-TZ). Figure D-1 depicts the hydropunch and surficial soil sample locations for the Phase 1 investigation.

The Phase 1 investigation identified impacted media, the relative distribution of creosote in subsurface soil, and the nature of the COPCs at the site. The COPCs for the site were identified to be VOCs and creosote-related SVOCs, such as naphthalene and chrysene, and carcinogenic polycyclic aromatic compounds (PAHs), such as benzo(a)pyrene.

CPT/ROST™ sounding results indicated that creosote had migrated to varying degrees vertically in the soil column to a depth of approximately 60 feet, with decreasing fluorescence below a depth of 50 feet. As expected, the FPA showed the highest fluorescence values and thickest intervals of above-background fluorescence. Hydropunch ground water sample results also indicated that the FPA was the most affected on-site area.

For the TSA, CPT/ROST™ results indicated that, except for the western boundary of the TSA, the TSA was not as impacted as the FPA. Fluorescence above background was indicated in the upper six feet of soils (predominantly surficial soils) in the TSA. This finding correlates with the historical usage (i.e., staging and storage of treated rail ties) in the TSA.

Since the SIA was excavated to a depth of approximately seven feet as part of the closure requirements, no surface soil samples were collected in the SIA area. CPT/ROST™ and Hydropunch data indicate that the shallow ground water transmissive zones in the SIA have been impacted by the creosote-related constituents.

Based on the results of the Phase 1 RFI/EOC investigation, a Phase 2 Work Plan was developed and presented in the Phase 1 RFI/EOC report, which was approved by the TNRCC on January 13, 1997. The Phase 2 on-site investigation was completed in two phases (2-A and 2-B).

Phase 2-A Investigation

Terranext conducted the Phase 2-A investigation and Environmental Resources Management (ERM), Inc. prepared the *Phase 2-A RFI/EOC Investigation Report* dated February 13, 1998. The on-site investigation consisted of the collection and analysis of surface and subsurface soil samples, and ground water samples. Surface soil samples were either collected from a preset grid in accordance with U.S. EPA guidance (U.S. EPA, 1989) or during completion of soil borings and/or monitor wells. Discrete subsurface soil samples were collected from locations that had been characterized using CPT/ROST™ during the Phase 1 investigation. Site conditions were assessed relative to PQLs in order to delineate the lateral and vertical extent of affected media at the site. The method PQLs for COIs are provided on Table D-1.

The scope of the on-site Phase 2-A investigation included the following:

- completion of seven deep soil borings, 11 monitor wells, and eight CPT soundings;
- collection of 45 surface soil samples, 68 subsurface soil samples, and 19 ground water samples;
- leachability and geotechnical analyses of soil samples; and
- aquifer slug tests to measure hydraulic conductivity.

Detailed descriptions of the soil and ground water sampling objectives, design, methodology and procedures for the Phase 2-A investigation were previously presented in a submittal, entitled *Phase 2-A Report, RCRA Facility Investigation and Extent of Contamination Investigation* dated February 13, 1998, and therefore, are not presented herein. Soil boring logs and monitor well diagrams for the Phase 2-A investigation can be found in the same report.

In addition to the COIs listed in Table D-1, discrete subsurface samples were analyzed for Total Petroleum Hydrocarbons (TPH) by U.S. EPA Method 418.1. A bench scale ROST™ study was completed to evaluate the relationship between TPH concentrations and fluorescence data obtained during Phase 1. Five subsurface soil samples that were collected in the FPA (the most heavily impacted of the three on-site areas) were submitted for Synthetic Precipitation Leaching Procedure (SPLP) testing by SW-846 Method 1312. A total of 10 soil samples were submitted for geotechnical analysis, including the following: dry density, moisture content, specific gravity, fraction organic carbon, and pH.

Tables D-2 to D-4 summarize the soil sampling program for the Phase 2-A investigation, including the sample location, sample ID, sample interval, and type of sample collected (surface or subsurface). The ground water sampling program is summarized in Table D-5, including the sample location, sample ID, the transmissive zone sampled, and the type of sample technique used (i.e., Hydropunch or monitor well). Figure D-1 depicts the soil and ground water locations for the Phase 2-A investigation. The geotechnical results are provided in Table D-6.

Based on the Phase 2-A investigation results, COIs are present from ground surface to approximately 7 feet below ground surface (bgs) in the TSA. In addition, COIs have been detected within the A-TZ and B-TZ soil matrix at depths of approximately 20 and 35 feet below grade. However, soil impacts are limited to a small area in the southeastern portion of the TSA. The evaluation of ground water impacts in the TSA indicated that the A-TZ and B-TZ transmissive zones appear to be impacted in the southwest portion of the TSA near MW-05 and in the center of the western boundary near MW-12. The A-TZ and C-TZ transmissive zones also appear to be impacted in the northeast portion of the area at MW-15; whereas the B-TZ is not present in the northeast.

Based on the subsurface analytical results, as well as the fluorescence intensities recorded, COIs are present in the FPA from ground surface to approximately 60 feet bgs. COIs were detected in each sample collected from the soil borings and well borings located in the FPA. The A-TZ and C-TZ transmissive zones appear to be impacted in the FPA. The B-TZ is not present in this area of the site.

No subsurface soil samples were collected in the closed SIA. The A-TZ and B-TZ transmissive zones appear to be impacted in the SIA. For the Phase 2-A investigation, no data were available for the C-TZ in the SIA.

Based on the geotechnical data, several general trends were observed. First, the transmissive zones have lower dry densities and lower specific gravity than the cohesive zones, which is a result of differing mineral content, and to a lesser degree, packing and relatively larger grain size.

During the Phase 1 investigation, a substantial set of soil fluorescence data was collected using CPT/ROST™ technology. Because the ROST™ tool was used *in situ* and adjacent soil samples were not collected, direct comparison to constituent concentrations could not be made. In

order to assess the relative sensitivity of the ROST™ data to soil constituent concentrations, soil samples were collected during Phase 2-A and analyzed concurrently for TPH and fluorescence. Based on the Phase 2-A report, soil fluorescence appeared to be directly proportional to soil TPH (and presumably to COI) concentrations.

Phase 2-B Investigation

ERM conducted the Phase 2-B field investigations from September to November 1998, and the results are documented in a report entitled, *Phase 2-B Report, RCRA Facility Investigation and Extent of Contamination Investigation* dated September 10, 1999. The on-site investigation consisted of the collection of soil and ground water samples to further delineate the lateral and vertical extent of affected media in the FPA and TSA. No soil samples were collected from within the SIA. The scope of the Phase 2-B on-site investigation included the following:

- collection and analysis of 6 surface soil samples;
- collection of 18 subsurface soil samples;
- SPLP testing of 14 soil samples; and
- collection and analysis of 18 ground water samples.

Soil borings were completed to evaluate soil type, assess potential soil impacts visually and with field screening methods, and collect soil samples. The borings were completed using hand augering, direct-push coring, hollow-stem auger drilling, and wet rotary drilling. A description of the soil sampling program, including sampling objectives, methods, and QC sampling procedures used in the Phase 2-B investigation were detailed in the Phase 2-B report and, therefore, are not presented herein.

A ground water assessment was completed to evaluate site hydrogeology, collect ground water samples, and assess whether nonaqueous phase liquids (NAPLs), if present, would accumulate in wells completed in discrete transmissive zones. The ground water assessment included installation of monitor wells, collection of fluid level measurements, and ground water sampling. In addition to the collection of ground water grab samples, ground water samples were collected from site monitor wells. Samples were collected from wells completed during Phase 2-B and from monitor wells completed during previous investigation phases. Monitor wells were sampled in accordance with EPA-recommended low-flow sampling techniques detailed in the Phase 2-B Report. Soil boring logs and monitor well completion details and diagrams for the Phase 2-B investigation were previously submitted in the Phase 2-B report and are not included herein.

Each sample was analyzed for the volatile and semivolatile COIs listed in Table D-1 by SW-846 Methods 8260 and 8270, respectively. Leachate was analyzed using the SPLP methodology (SW-846 Method 1312) and analyzed for the same constituent list as the soil samples. A list of each boring completed as part of Phase 2-B investigation, including sample location, sample ID, sample interval, and type of samples collected is included in Tables D-2 to D-4 by exposure area. Table D-5 presents a summary of the ground water sampling

program for the Phase 2-B investigation, including sample location, sample ID, transmissive zone, and sample procedures used.

As in the Phase 2-A report, site conditions were assessed relative to PQLs in order to delineate the lateral and vertical extent of affected media at the site. The results obtained for the Phase 2-B investigation corroborate the Phase 2-A findings. Soil impacts were observed in portions of the soil column in the TSA and FPA. Ground water impacts were observed within the A-TZ and B-TZ near the TSA, FPA, and SIA, and minor ground water impacts were observed within the C-TZ near the FPA.

Dense NAPL (heavier than water) was apparent in three wells (i.e., MW-12B, MW-17, and MW-18C). These three monitor wells were pumped and redeveloped after the initial detection of DNAPL and were monitored monthly during January 1999 to December 1999. Measurable amounts of NAPL were documented for MW-12B, with measurements ranging from 2.3 feet to 9 feet.

In order to provide a conceptual model of soil and ground water impacts on-site, the data for select indicator compounds were utilized in the Phase 2-B report to illustrate the lateral and vertical distribution of COPCs in soil and ground water. These illustrations are helpful in identifying general constituent distribution, and potential hotspot areas. The figures are reproduced herein. A "bubble plot" was developed to illustrate reported concentrations of chrysene from the compendium (i.e., Phase 1, Phase 2-A and Phase 2-B) of surface soil results. Chrysene was selected because its distribution and range of detected concentrations are representative of the SVOCs reported in surface soil samples. The relative distribution of chrysene in surface soil samples is provided in Figure D-2.

Similarly, bubble plots were developed to illustrate reported concentrations of benzo(a)anthracene and naphthalene in subsurface soil (Figures D-3 and D-4). Benzo(a)anthracene and naphthalene were selected as representative of the SVOCs reported in subsurface soil samples. Figure D-5 is a bubble plot illustrating reported concentrations of naphthalene from the deepest soil samples collected at each location. This figure illustrates that vertical delineation has been achieved for nearly all of the site. At locations where impacts are indicated in Figure D-5, note that the extent of affected soil at a sampling location may be understood based on other data and observations.

Bubble plots illustrating reported concentrations of naphthalene were also developed from the compendium (i.e., Phase 1, Phase 2-A and Phase 2-B) of ground water results for A-TZ, B-TZ, and C-TZ (Figures D-6, D-7, and D-8, respectively). The figures illustrate the relative distribution of naphthalene in ground water samples from each transmissive zone. Naphthalene was selected because its distribution and range of detected concentrations are representative of the SVOCs reported in ground water samples.

Appendix D Tables

July 10, 2000
W.O. #422-009

Environmental Resources Management
16300 Katy Freeway, Suite 300
Houston, Texas 77094-1611
(281) 600-1000

TABLE D-1

Constituents of Interest

Houston Wood Preserving Works
Houston, Texas

Constituent	Practical Quantitation Limits		SW-846 Method
	Soil (mg/kg)	Ground Water (mg/L)	
Acenaphthene	0.66	0.01	8270B
Acenaphthylene	0.66	0.01	8270B
Anthracene	0.66	0.01	8270B
Benzene	0.005	0.005	8260A
Benzo(a)anthracene	0.66	0.01	8270B
Benzo(a)pyrene	0.66	0.01	8270B
Bis(2-ethylhexyl)phthalate	0.66	0.01	8270B
Bis(2-chloroethoxy)methane	0.66	0.01	8270B
Chlorobenzene	0.005	0.005	8260A
2-Chloronaphthalene	0.66	0.01	8270B
Chrysene	0.66	0.01	8270B
Dibenzofuran	0.66	0.01	8270B
1,2-Dichloroethane	0.005	0.005	8260A
Dichloromethane	0.005	0.005	8260A
2,4-Dimethylphenol	0.66	0.01	8270B
Di-n-butyl phthalate	0.66	0.01	8270B
4,6-Dinitro-o-cresol	3.3	0.05	8270B
2,4-Dinitrotoluene	0.66	0.01	8270B
2,6-Dinitrotoluene	0.66	0.01	8270B
1,2-Diphenylhydrazine	0.66	0.01	8270B
Ethylbenzene	0.005	0.005	8260A
Fluoranthene	0.66	0.01	8270B
Fluorene	0.66	0.01	8270B
2-Methylnaphthalene	0.66	0.01	8270B
Naphthalene	0.66	0.01	8270B
Nitrobenzene	0.66	0.01	8270B
4-Nitrophenol	3.3	0.05	8270B
N-Nitrosodiphenylamine	0.66	0.01	8270B
Pentachlorophenol	3.3	0.05	8270B
Phenanthrene	0.66	0.01	8270B
Phenol	0.66	0.01	8270B
Pyrene	0.66	0.01	8270B
Toluene	0.005	0.005	8260A
Xylenes	0.005	0.005	8260A

NOTE:

Modified from Compliance Plan CP-50343 Table I.

TABLE D-2

Summary of Soil Sample Locations: Former Process Area

Houston Wood Preserving Works
Houston, Texas

Sample Location	Sample ID	Installation Event	Sample Interval (ft. bgs)	Former Process Area	
				Surface Soil	Subsurface Soil
AOC-3E	HWPW-AOC3E-S00	Phase 2-A RFI/EOC	0-5	X	
AOC-3W	HWPW-AOC3W-S00	Phase 2-A RFI/EOC	0-5	X	
AOC-5E	HWPW-AOC5E-S00	Phase 2-A RFI/EOC		X	
AOC-5W	HWPW-AOC5W-S00	Phase 2-A RFI/EOC	0-5	X	
AOC-7	HWPW-AOC7-S00	Phase 2-A RFI/EOC	0-5; 5-10	X	
MW-16	HWPW-MW16-S00	Phase 2-A RFI/EOC	0-1	X	
	HWPW-MW16-S020	Phase 2-A RFI/EOC	20-21		X
	HWPW-MW16-S025	Phase 2-A RFI/EOC	25-26		X
MW-17	HWPW-MW17-S025	Phase 2-A RFI/EOC	25-26		X
	HWPW-MW17-S030	Phase 2-A RFI/EOC	30-31		X
MW-18A	HWPW-MW18-S00	Phase 2-A RFI/EOC	0-1	X	
	HWPW-MW18-S025	Phase 2-A RFI/EOC	25-26		X
	HWPW-MW18-S030	Phase 2-A RFI/EOC	30-31		X
MW-19C	MW19C-38	Phase 2-B RFI/EOC	38-40		X,S
	MW19C-55	Phase 2-B RFI/EOC	55-57		X,S
	MW19C-60	Phase 2-B RFI/EOC	60-62		X,S
	MW19C-73	Phase 2-B RFI/EOC	73-75		X,S
MW-23C	SB23-00	Phase 2-B RFI/EOC	0-1	X	
	SB23-31	Phase 2-B RFI/EOC	31-33		X,S
	SB23-55	Phase 2-B RFI/EOC	55-57		X,S
	SB23-60	Phase 2-B RFI/EOC	60-62		X,S
	SB23-73	Phase 2-B RFI/EOC	73-75		X,S
SB-03	HWPW-SB03-S5; RELOG H446423	Phase 2-A RFI/EOC	5-6		X,S
	HWPW-SB03-S19	Phase 2-A RFI/EOC	19-20		X,S
	HWPW-SB03-S24	Phase 2-A RFI/EOC	24-25		X,S
	HWPW-SB03-S34	Phase 2-A RFI/EOC	34		X
	HWPW-SB03-S52	Phase 2-A RFI/EOC	52-52.5		X
	HWPW-SB03-S54	Phase 2-A RFI/EOC	54-54.5		X
SB-04	HWPW-SB04-S2.5	Phase 2-A RFI/EOC	2-3	X	
	HWPW-SB04-S27	Phase 2-A RFI/EOC	27-30		X
	HWPW-SB04-S29	Phase 2-A RFI/EOC	29-30		X
	HWPW-SB04-S31	Phase 2-A RFI/EOC	31-32		X
	HWPW-SB04-S39	Phase 2-A RFI/EOC	39.5 - 40		X
	HWPW-SB04-S51	Phase 2-A RFI/EOC	51-52		X
	HWPW-SB04-S59	Phase 2-A RFI/EOC	58-60		X

TABLE D-2

Summary of Soil Sample Locations: Former Process Area

Houston Wood Preserving Works
Houston, Texas

Sample Location	Sample ID	Installation Event	Sample Interval (ft. bgs)	Former Process Area	
				Surface Soil	Subsurface Soil
SB-07	HWPW-SB07-S2.5	Phase 2-A RFI/EOC	2.5-3	X	
	HWPW-SB07-S19	Phase 2-A RFI/EOC	19-20		X
	HWPW-SB07-S21	Phase 2-A RFI/EOC	21-22		X
	HWPW-SB07-S22	Phase 2-A RFI/EOC	22-23		X
	HWPW-SB07-S24	Phase 2-A RFI/EOC	24-25		X
SB-08	HWPW-SB08-S4	Phase 2-A RFI/EOC	4-5	X	
	HWPW-SB08-S14	Phase 2-A RFI/EOC	14-15		X
	HWPW-SB08-S18	Phase 2-A RFI/EOC	18-19		X
	HWPW-SB08-S21	Phase 2-A RFI/EOC	21-22		X
	HWPW-SB08-S22	Phase 2-A RFI/EOC	22-23		X
SB-24	SB24-34	Phase 2-B RFI/EOC	34-36		X
	SB24-49	Phase 2-B RFI/EOC	49-50		X
SSO-11	HWPW-11-SSO	Phase 2-A RFI/EOC	0-2	X	
SSO-F07	HWPW-7F-SSO	Phase 2-A RFI/EOC	0-2	X	
SSO-F08	HWPW-8F-SSO	Phase 2-A RFI/EOC	0-2	X	
SSO-F09	HWPW-9F-SSO	Phase 2-A RFI/EOC	0-2	X	
SSO-F10	HWPW-10F-SSO	Phase 2-A RFI/EOC	0-2	X	
SSO-G07	HWPW-7G-SSO	Phase 2-A RFI/EOC	0-2	X	
SSO-G08	HWPW-8G-SSO	Phase 2-A RFI/EOC	0-2	X	
SSO-G09	HWPW-9G-SSO	Phase 2-A RFI/EOC	0-2	X	
SSO-G10	HWPW-10G-SSO	Phase 2-A RFI/EOC	0-2	X	
SSO-G11	HWPW-11G-SSO	Phase 2-A RFI/EOC	0-2	X	
WPW-S-007P	WPW-S-007-P	Phase 1 RFI/EOC	0-0.5	X	
WPW-S-009P	WPW-S-009-P	Phase 1 RFI/EOC	0-0.5	X	
PRIMARY SAMPLE SUBTOTAL:				23	36
SPLP SAMPLE SUBTOTAL:				0	11
DUPLICATE SAMPLE SUBTOTAL:				0	0
TOTAL:				23	47

NOTES:

X = Primary Sample

D = Duplicate Sample

S = SPLP Analysis

ft. bgs = feet below ground surface

TABLE D-3

Summary of Soil Sample Locations: Tie Storage Area

Houston Wood Preserving Works
Houston, Texas

Sample Location	Sample ID	Installation Event	Sample Interval (ft. bgs)	Tie Storage Area	
				Surface Soil	Subsurface Soil
AOC-4NE	HWPW-AOC4-NE-S00	Phase 2-A RFI/EOC	0-5	X	
AOC-4NW	HWPW-AOC4-NW-S00	Phase 2-A RFI/EOC	0-5	X	
AOC-4SE	HWPW-AOC4-SE-S00	Phase 2-A RFI/EOC	0-5	X	
AOC-4SW	HWPW-AOC4-SW-S00	Phase 2-A RFI/EOC	0-5	X	
MW-12A	HWPW-MW12A-S00	Phase 2-A RFI/EOC	0-1	X	
	HWPW-MW12A-S020	Phase 2-A RFI/EOC	20-21		X
	HWPW-MW12A-S025	Phase 2-A RFI/EOC	25-26		X
MW-12B	HWPW-MW12B-S030	Phase 2-A RFI/EOC	30-31		X
	HWPW-MW12B-S040	Phase 2-A RFI/EOC	40-41		X
MW-13	HWPW-MW13-S00	Phase 2-A RFI/EOC	0-1	X	
	HWPW-MW13-S015	Phase 2-A RFI/EOC	15-16		X
	HWPW-MW13-S021	Phase 2-A RFI/EOC	21-22		X
MW-14	HWPW-MW14-S017	Phase 2-A RFI/EOC	17-18		X
	HWPW-MW14-S035	Phase 2-A RFI/EOC	35-36		X
	HWPW-MW14-S040	Phase 2-A RFI/EOC	40-41		X
MW-15A	HWPW-MW15-S00	Phase 2-A RFI/EOC	1-2	X	
	HWPW-MW15-S020	Phase 2-A RFI/EOC	20-21		X
	HWPW-MW15-S025	Phase 2-A RFI/EOC	25-26		X
MW-21C	MW21C-00	Phase 2-B RFI/EOC	0-1	X, S	
	MW21C-08	Phase 2-B RFI/EOC	8-10		X, S
	MW21C-20	Phase 2-B RFI/EOC	20-22		X
	MW21C-44	Phase 2-B RFI/EOC	44-46		X,D
	MW21C-72	Phase 2-B RFI/EOC	72-74		X,D
SB-02	HWPW-SB02-S7	Phase 2-A RFI/EOC	7-8		X
	HWPW-SB02-S21	Phase 2-A RFI/EOC	21-21.5		X
	HWPW-SB02-S24	Phase 2-A RFI/EOC	24-24.5		X
	HWPW-SB02-S37.5	Phase 2-A RFI/EOC	37.5-38		X
	HWPW-SB02-S38.5	Phase 2-A RFI/EOC	38.5-39		X
	HWPW-SB02-S49	Phase 2-A RFI/EOC	49-49.5		X
SB-05	HWPW-SB05-S19.5	Phase 2-A RFI/EOC	19.5-20		X
	HWPW-SB05-S24	Phase 2-A RFI/EOC	24-24.5		X
	HWPW-SB05-S34.5	Phase 2-A RFI/EOC	34.5-35		X
	HWPW-SB05-S39	Phase 2-A RFI/EOC	39-40		X
	HWPW-SB05-S54	Phase 2-A RFI/EOC	54-55		X
SB-06	HWPW-SB06-S4	Phase 2-A RFI/EOC	4-5	X	
	HWPW-SB06-S19	Phase 2-A RFI/EOC	19.5-20		X, S
	HWPW-SB06-S24	Phase 2-A RFI/EOC	24-25		X
	HWPW-SB06-S49	Phase 2-A RFI/EOC	49-50		X
SB-26	SB26-00	Phase 2-B RFI/EOC	0-1	X, S	

TABLE D-3

Summary of Soil Sample Locations: Tie Storage Area

Houston Wood Preserving Works
Houston, Texas

Sample Location	Sample ID	Installation Event	Sample Interval (ft. bgs)	Tie Storage Area	
				Surface Soil	Subsurface Soil
SB-32	SB32-00	Phase 2-B RFI/EOC	0-1	X, S	
SSO-A01	HWPW-A1-SSO	Phase 2-A RFI/EOC	0-2	X	
SSO-A02	HWPW-A2-SSO	Phase 2-A RFI/EOC	0-2	X	
SSO-A03	HWPW-A3-SSO	Phase 2-A RFI/EOC	0-2	X	
SSO-A04	HWPW-A4-SSO	Phase 2-A RFI/EOC	0-2	X	
SSO-A05	HWPW-A5-SSO	Phase 2-A RFI/EOC	0-2	X	
SSO-A06	HWPW-A6-SSO	Phase 2-A RFI/EOC	0-2	X	
SSO-B01	HWPW-B1-SSO	Phase 2-A RFI/EOC	0-2	X	
SSO-B02	HWPW-B2-SSO	Phase 2-A RFI/EOC	0-2	X	
SSO-B03	HWPW-B3-SSO	Phase 2-A RFI/EOC	0-2	X	
SSO-B04	HWPW-B4-SSO	Phase 2-A RFI/EOC	0-2	X	
SSO-B05	HWPW-B5-SSO	Phase 2-A RFI/EOC	0-2	X	
SSO-B06	HWPW-B6-SSO	Phase 2-A RFI/EOC	0-2	X	
SSO-C01	HWPW-C1-SSO	Phase 2-A RFI/EOC	0-2	X	
SSO-C02	HWPW-C2-SSO	Phase 2-A RFI/EOC	0-2	X	
SSO-C03	HWPW-C3-SSO	Phase 2-A RFI/EOC	0-2	X	
SSO-C04	HWPW-C4-SSO	Phase 2-A RFI/EOC	0-2	X	
SSO-C05	HWPW-C5-SSO	Phase 2-A RFI/EOC	0-2	X	
SSO-C06	HWPW-C6-SSO	Phase 2-A RFI/EOC	0-2	X	
SSO-D01	HWPW-D1-SSO	Phase 2-A RFI/EOC	0-2	X	
SSO-D02	HWPW-D2-SSO	Phase 2-A RFI/EOC	0-2	X	
PRIMARY SAMPLE SUBTOTAL:				31	29
SPLP SAMPLE SUBTOTAL:				3	2
DUPLICATE SAMPLE SUBTOTAL:				0	2
TOTAL:				34	33

NOTE:

X = Primary Sample

D = Duplicate Sample

S = SPLP Analysis

ft. bgs = feet below ground surface

TABLE D-4

Summary of Soil Sample Locations: Surface Impoundment Area

Houston Wood Preserving Works
Houston, Texas

Sample Location	Sample ID	Installation Event	Sample Interval (ft. bgs)	Surface Impoundment Area	
				Surface Soil (a)	Subsurface Soil
MW-10A	MW-10A, 8-10'	Phase 1 RFI/EOC	8-10		X
	MW-10A, 16-18'	Phase 1 RFI/EOC	16-18		X
	MW-10A, 20-22'	Phase 1 RFI/EOC	20-22		X
MW-10B	MW-10B, 24-26'	Phase 1 RFI/EOC	24-26		X
	MW-10B, 30-32'	Phase 1 RFI/EOC	30-32		X
	MW-10B, 36-38'	Phase 1 RFI/EOC	36-38		X
	MW-10B, 44-66'	Phase 1 RFI/EOC	44-66		X
MW-11A	MW-11A, 6-8'	Phase 1 RFI/EOC	6-8		X
	MW-11A, 16-18'	Phase 1 RFI/EOC	16-18		X
	MW-11A, 20-22'	Phase 1 RFI/EOC	20-22		X
MW-11B	MW-11B, 26-28'	Phase 1 RFI/EOC	26-28		X
	MW-11B, 32-34'	Phase 1 RFI/EOC	32-34		X
	MW-11B, 38-40'	Phase 1 RFI/EOC	38-40		X
	MW-11B, 42-44'	Phase 1 RFI/EOC	42-44		X
PRIMARY SAMPLE SUBTOTAL:				---	14
SPLP SAMPLE SUBTOTAL:				---	0
DUPLICATE SAMPLE SUBTOTAL:				---	0
TOTAL:				---	14

NOTE:

X = Primary Sample

D = Duplicate Sample

S = SPLP Analysis

ft. bgs = feet below ground surface

(a) Surface soil samples were not collected because the surface impoundment was excavated to a depth of seven feet and backfilled with clean fill during closure.

TABLE D-5

Summary of On-Site Ground Water Sample Locations

Houston Wood Preserving Works
Houston, Texas

Sample Location	Sample ID	Transmissive Zone		
		A-TZ	B-TZ	C-TZ
HP05UTZ	HP05UTZ	HP		
HP06UTZ	HP06UTZ	HP		
HP07UTZ	HP07UTZ	HP		
HP09UTZ	HP09UTZ	HP		
HP10UTZ	HP10UTZ	HP		
HP11UTZ	HP11UTZ	HP		
HP12UTZ	HP12UTZ	HP		
HP13UTZ	HP13UTZ	HP		
HP14UTZ	HP14UTZ	HP		
HP15UTZ	HP15UTZ	HP		
HP16UTZ	HP16UTZ	HP		
MW-01A	MW1A-1SA97-P	MW		
	MW1A-2SA97	MW		
	MW1A-1SA98	MW		
	MW1A-2SA98	MW		
	MW1A-1SA99	MW		
	MW1A-2SA99	MW		
MW-02	MW02-1SA97-P	MW		
	MW02-2SA97	MW		
	MW02-1SA98	MW		
	MW02-2SA98	MW		
	MW02-1SA99	MW		
	MW02-2SA99	MW		
MW-03	MW03-1SA97-P	MW		
	MW03-2SA97	MW		
	MW03-1SA98	MW		
	MW03-2SA98	MW		
	MW03-1SA99	MW		
	MW03-2SA99	MW		
MW-04	MW04-1SA97-P	MW		
	MW04-2SA97-P	MW		
	MW04-1SA98	MW		
	MW04-2SA98	MW		
	MW04-1SA99	MW		
	MW04-2SA99	MW		
MW-05	MW05-1SA97-P	MW		
	MW05-2SA97	MW		
	MW05-1SA98	MW		
	MW05-2SA98	MW		
	MW05-1SA99	MW		
	MW05-2SA99	MW		

TABLE D-5

Summary of On-Site Ground Water Sample Locations

Houston Wood Preserving Works
Houston, Texas

Sample Location	Sample ID	Transmissive Zone		
		A-TZ	B-TZ	C-TZ
MW-07	MW07-1SA97-P	MW		
	MW07-2SA97	MW		
	MW07-1SA98	MW		
	MW07-2SA98	MW		
	MW07-1SA99	MW		
	MW07-2SA99	MW		
MW-08	MW08-1SA97	MW, D		
	MW08-2SA97	MW		
	MW08-1SA98	MW		
	MW08-2SA98	MW		
	MW08-1SA99	MW, D		
	MW08-2SA99	MW, D		
MW-09	MW09-1SA97-P	MW		
	MW09-2SA97	MW		
	MW09-1SA98	MW		
	MW09-2SA98	MW		
	MW09-1SA99	MW		
	MW09-2SA99	MW		
MW-10A	MW10A-1SA97-P	MW		
	MW10A-2SA97	MW		
	MW10A-1SA98	MW		
	MW10A-2SA98	MW		
	MW10A-1SA99	MW		
	MW10A-2SA99	MW		
MW-11A	MW11A-1SA97-P	MW		
	MW11A-2SA97	MW		
	MW11A-1SA98	MW		
	MW11A-2SA98	MW		
	MW11A-1SA99	MW		
	MW11A-2SA99	MW		
MW-12A	MW12A-RFI2A	MW		
	MW12A-RFI2B	MW		
MW-13	MW13-RFI2A	MW		
	MW13-RFI2B	MW		
MW-15A	MW15A-RFI2A	MW		
	MW15A-RFI2B	MW, D		
MW-16	MW16-RFI2A	MW		
	MW16-RFI2B	MW		
MW-17	MW17-RFI2A	MW		
	MW17-RFI2B	MW		
MW-18A	MW18A-RFI2A	MW		
	MW18A-RFI2B	MW		
MW-20A	MW20A-RFI2B	MW		

TABLE D-5

Summary of On-Site Ground Water Sample Locations

Houston Wood Preserving Works
Houston, Texas

Sample Location	Sample ID	Transmissive Zone		
		A-TZ	B-TZ	C-TZ
HP05STZ	HP05STZ		HP	
HP06STZ	HP06STZ		HP	
HP07STZ	HP07STZ		HP	
HP10STZ	HP10STZ		HP	
HP15STZ	HP15STZ		HP	
MW-10B	MW10B-1SA97-P		MW	
	MW10B-2SA97		MW	
	MW10B-1SA98		MW	
	MW10B-2SA98		MW	
	MW10B-1SA99		MW	
	MW10B-2SA99		MW	
MW-11B	MW11B-1SA97-P		MW	
	MW11B-2SA97		MW, D	
	MW11B-1SA98		MW	
	MW11B-2SA98		MW	
	MW11B-1SA99		MW, D	
	MW11B-2SA99		MW	
MW-12B	MW12B-RF12A		MW	
	MW12B-RF12B		MW	
MW-14	MW14-RF12A		MW	
	MW14-RF12B		MW	
P-10	P10-1SA97-P		MW	
	P10-2SA97		MW	
	P10-1SA98		MW	
	MW999-1SA98-D		D	
	P10-2SA98		MW	
	P10-1SA99		MW	
P-11	P10-2SA99		MW	
	P11-1SA97-P		MW	
	P11-2SA97		MW	
	P11-1SA98		MW	
	P11-2SA98		MW	
	P11-1SA99		MW	
P-12	P11-2SA99		MW	
	P12-1SA97-P		MW	
	P12-2SA97		MW	
	P12-1SA98		MW	
	P12-2SA98		MW	
	P12-1SA99		MW	
HP16LTZ	P12-2SA99		MW	
	HP16LTZ			MW

TABLE D-5

Summary of On-Site Ground Water Sample Locations

Houston Wood Preserving Works
Houston, Texas

Sample Location	Sample ID	Transmissive Zone		
		A-TZ	B-TZ	C-TZ
MW-12C	MW12C-RF12A MW12C-RF12B			MW MW
MW-15C	MW15C-RF12A MW15C-RF12B			MW MW
MW-18C	MW18C-RF12A MW18C-RF12B			MW MW
MW-19C	MW19C-RF12B			MW
MW-21C	MW21C-RF12B			MW
MW-23C	MW23C-RF12B			MW
	PRIMARY SAMPLE SUBTOTAL:	84	39	10
	DUPLICATE SAMPLE SUBTOTAL:	4	3	0
	TOTAL:	88	42	10

MW = ground water sample collected from monitor well

HP = ground water sample collected via hydropunch

D = Duplicate Sample

TABLE D-6

Geotechnical Soil Sample Results

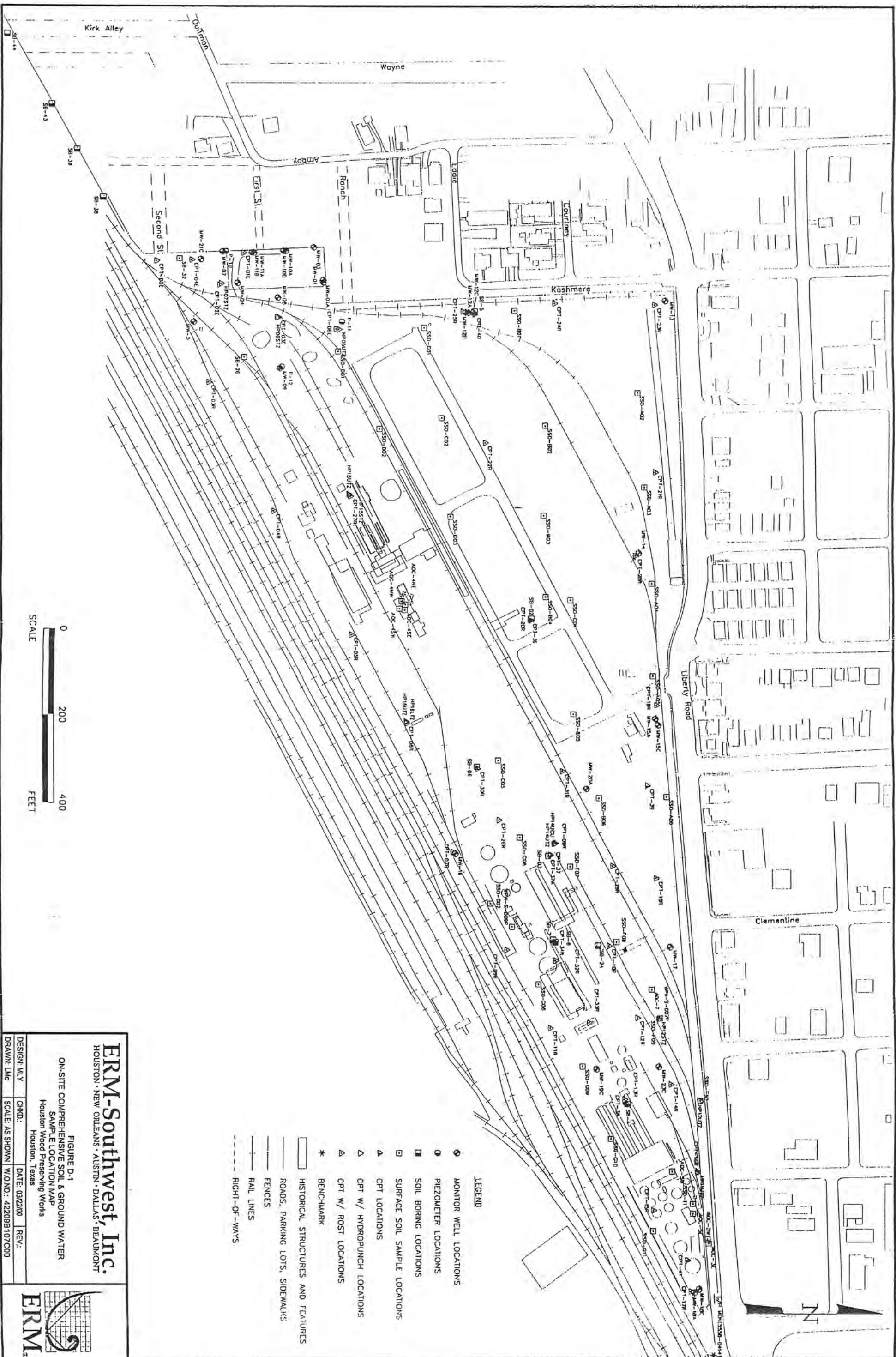
Houston Wood Preserving Works
Houston, Texas

Lithologic Unit	Sample Location	Sample Depth (ft. bgs)	Dry Density (lb/ft ³)	Moisture Content (%)	Specific Gravity (g/cm ³)	Fraction Organic Carbon (%)	pH (unitless)
A-CZ	MW-14[B]	5	115	15.6	2.67	3.0	7.3
A-TZ	MW-14[B]	15	105.8	20.4	2.67	0.4	7.5
	SB02	21	97.4	25.9	2.65	0.3	7.8
	Average A-TZ	---	101.6	23.15	2.66	0.35	7.7
B-CZ	MW12B	30	102.6	19.7	2.68	0.6	7.7
	MW-14	28	109.9	18.6	2.69	1.7	7.3
	SB06	55	99.3	25.3	2.78	2.1	7.5
	SB02	38	96.9	25.9	2.70	1.9	7.9
	Average B-CZ	---	102.2	22.4	2.71	1.6	7.6
B-TZ	MW-14	35	99.2	23.4	2.68	0.6	7.8
C-CZ	MW-12B	43	102.7	23	2.75	2.5	7.3
	MW-14	43.5	101.8	24.4	2.76	2.6	7.5
	Average C-CZ	---	102.3	23.7	2.75	2.55	7.4

Appendix D Figures

July 10, 2000
W.O. #422-009

Environmental Resources Management
16300 Katy Freeway, Suite 300
Houston, Texas 77094-1611
(281) 600-1000



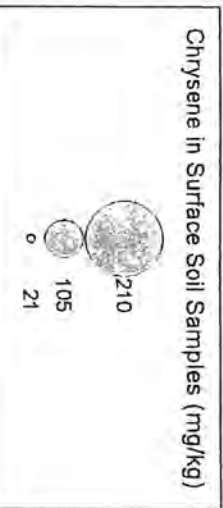
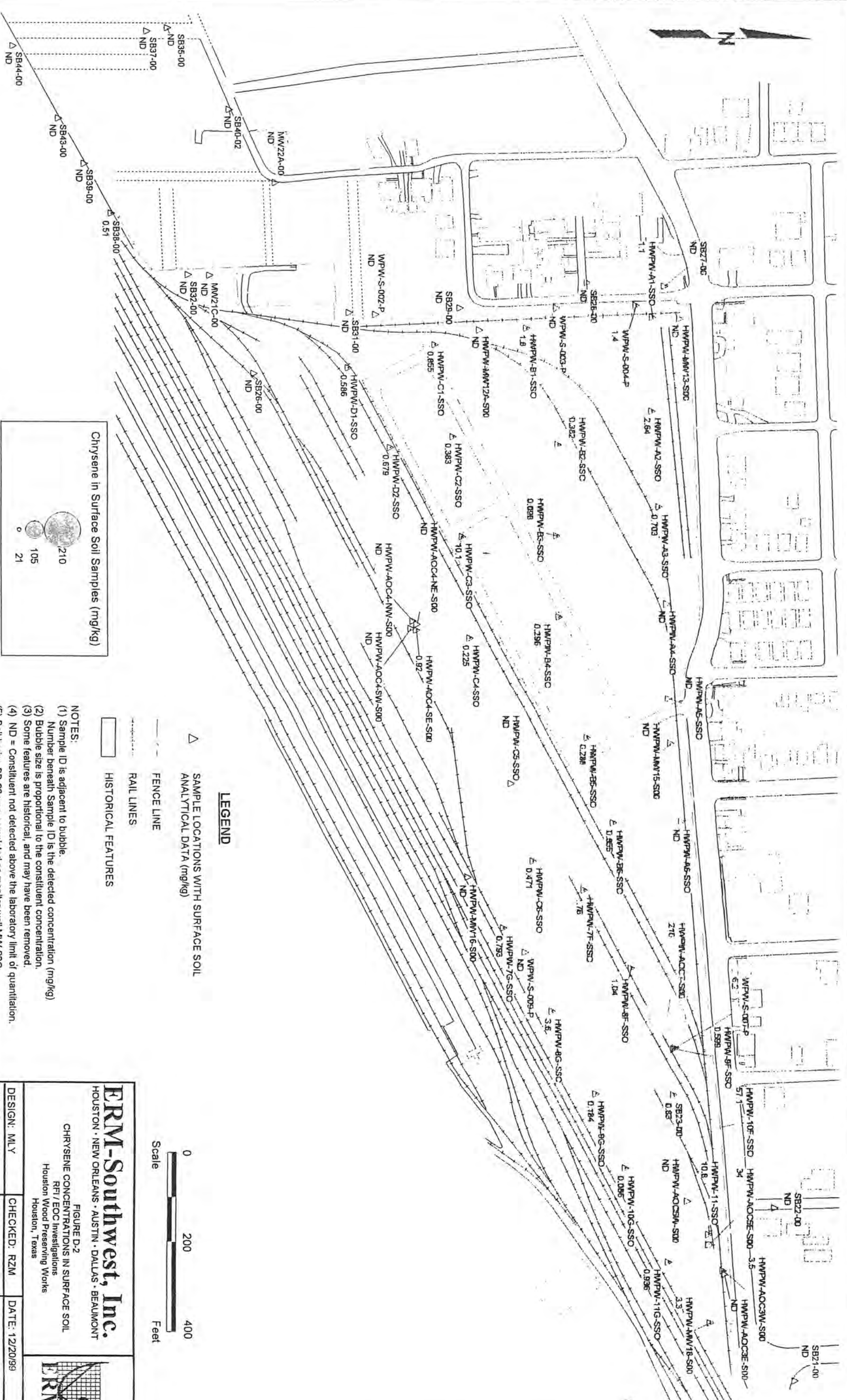
- LEGEND**
- MONITOR WELL LOCATIONS
 - PIEZOMETER LOCATIONS
 - SOIL BORING LOCATIONS
 - SURFACE SOIL SAMPLE LOCATIONS
 - △ CPT LOCATIONS
 - △ CPT W/ HYDROPUNCH LOCATIONS
 - △ CPT W/ ROST LOCATIONS
 - * BENCHMARK
 - ▭ HISTORICAL STRUCTURES AND FEATURES
 - ROADS, PARKING LOTS, SIDEWALKS
 - FENCES
 - RAIL LINES
 - - - RIGHT-OF-WAYS

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FIGURE D-1
 ON-SITE COMPREHENSIVE SOIL & GROUND WATER
 SAMPLE LOCATION MAP
 Houston Wood Preserving Works
 Houston, Texas

DESIGN: MLY	CHKD.:	DATE: 03/22/00	REV.:
DRAWN: LMC	SCALE: AS SHOWN	W.O.NO.: 42209B107C00	





- LEGEND**
- △ SAMPLE LOCATIONS WITH SURFACE SOIL ANALYTICAL DATA (mg/kg)
 - FENCE LINE
 - RAIL LINES
 - HISTORICAL FEATURES

- NOTES:**
- (1) Sample ID is adjacent to bubble. Number beneath Sample ID is the detected concentration (mg/kg)
 - (2) Bubble size is proportional to the constituent concentration.
 - (3) Some features are historical, and may have been removed.
 - (4) ND = Constituent not detected above the laboratory limit of quantitation.
 - (5) Soil boring SB-23 was completed as monitor well MW-23C.

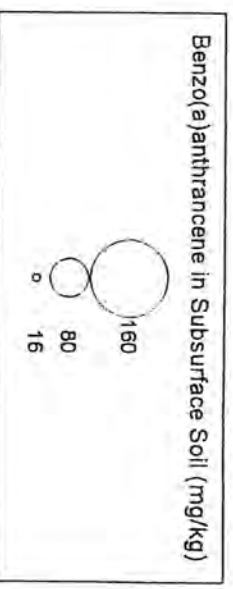
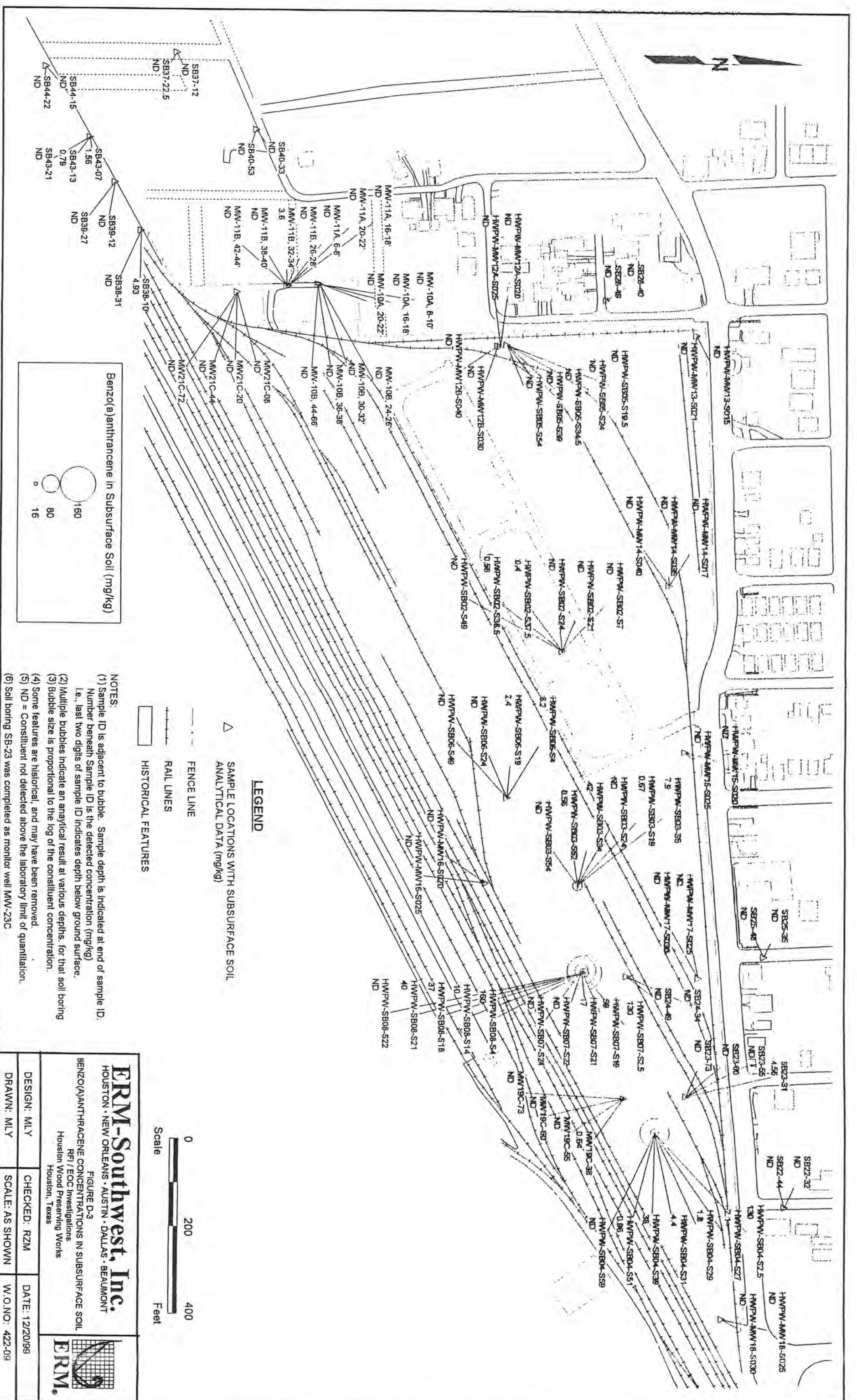


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FIGURE D-2
 CHRYSENE CONCENTRATIONS IN SURFACE SOIL
 RFI / EOC Investigations
 Houston Wood Preserving Works
 Houston, Texas

DESIGN: MLY	CHECKED: RZM	DATE: 12/20/99
DRAWN: MLY	SCALE: AS SHOWN	W.C.NO: 422-09





- LEGEND**
- ▲ SAMPLE LOCATIONS WITH SUBSURFACE SOIL ANALYTICAL DATA (mg/kg)
 - FENCE LINE
 - RAIL LINES
 - HISTORICAL FEATURES

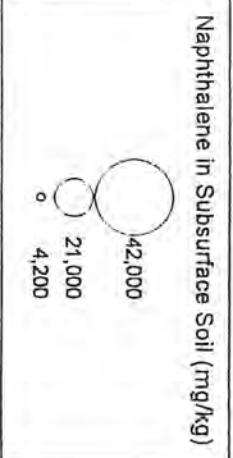
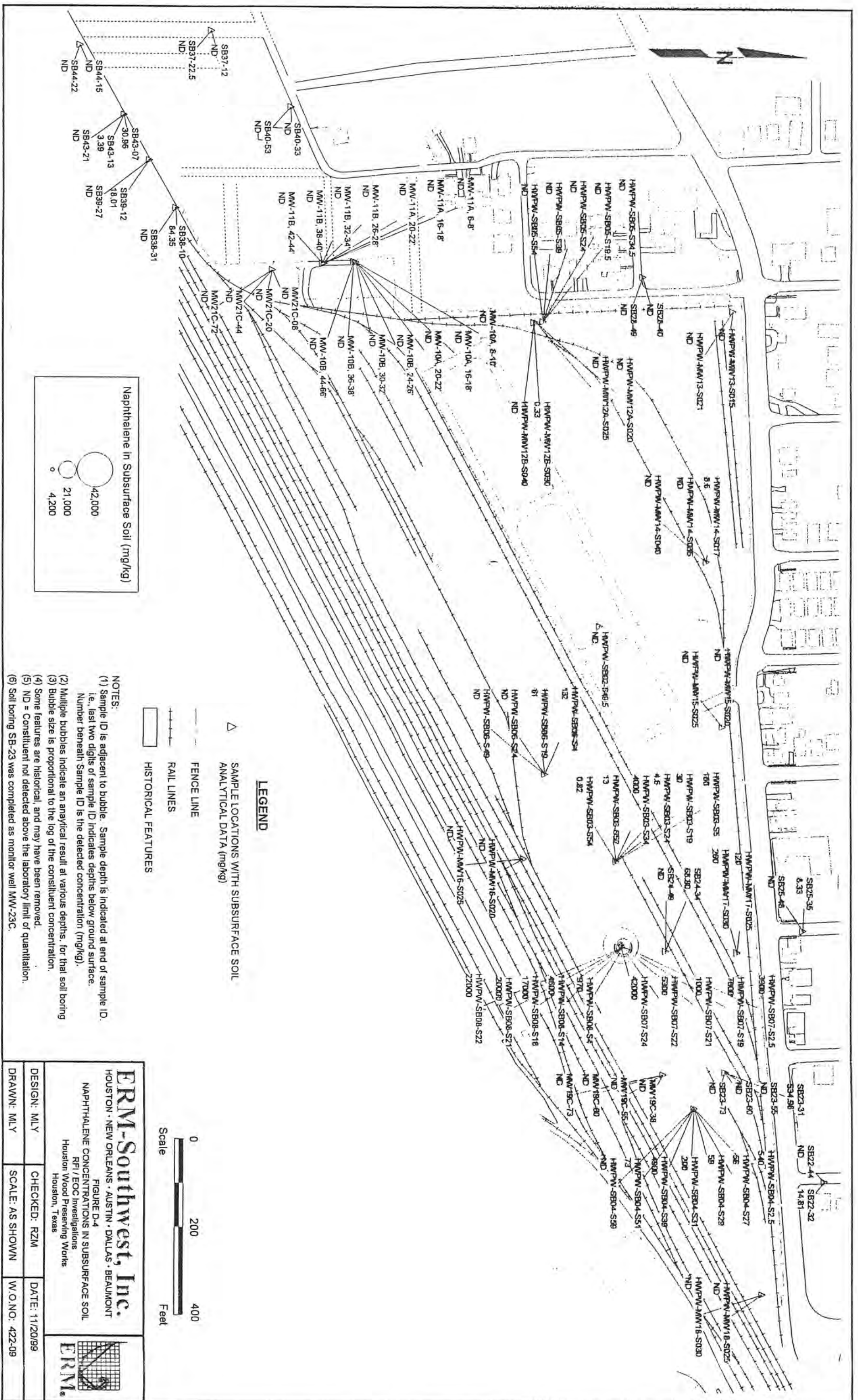
- NOTES:**
- (1) Sample ID is adjacent to bubble. Sample depth is indicated at end of sample ID. Number beneath Sample ID is the detected concentration (mg/kg) i.e., last two digits of sample ID indicates depth below ground surface.
 - (2) Multiple bubbles indicate an analytical result at various depths. For that soil boring.
 - (3) Bubble size is proportional to the log of the constituent concentration.
 - (4) Some features are historical, and may have been removed.
 - (5) ND = Constituent not detected above the laboratory limit of quantitation.
 - (6) Soil boring SB-23 was completed as monitor well MW-23C



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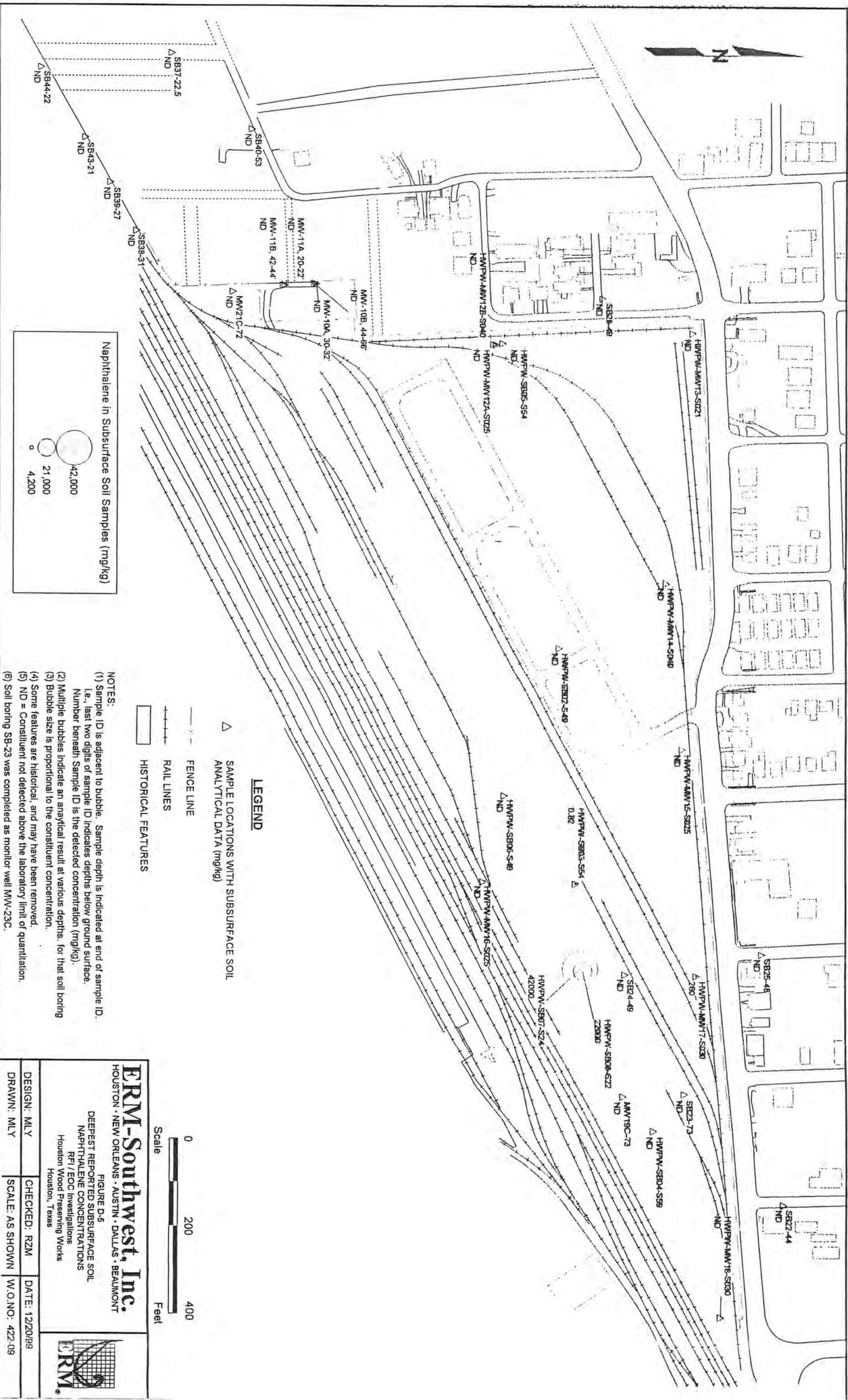
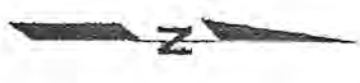
FIGURE D-3
BENZO(A)ANTHRACENE CONCENTRATIONS IN SUBSURFACE SOIL
RFI / EOC Investigations
Houston Wood Preserving Works
Houston, Texas

DESIGN: MLY	CHECKED: RZM	DATE: 12/20/99
DRAWN: MLY	SCALE: AS SHOWN	W.O.NO: 422-09

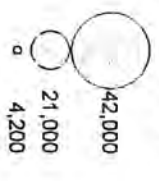


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 NAPHTHALENE CONCENTRATIONS IN SUBSURFACE SOIL
 RPI/EOC Investigations
 Houston Wood Preserving Works
 Houston, Texas

DESIGN: MLY	CHECKED: RZM	DATE: 11/20/99
DRAWN: MLY	SCALE: AS SHOWN	W.O.NO: 422-09



Naphthalene in Subsurface Soil Samples (mg/kg)



- LEGEND**
- △ SAMPLE LOCATIONS WITH SUBSURFACE SOIL ANALYTICAL DATA (mg/kg)
 - FENCE LINE
 - RAIL LINES
 - HISTORICAL FEATURES

- NOTES:**
- (1) Sample ID is adjacent to bubble. Sample depth is indicated at end of sample ID. I.e., last two digits of sample ID indicates depths below ground surface. Number beneath Sample ID is the detected concentration (mg/kg).
 - (2) Multiple bubbles indicate an analytical result at various depths. For that soil boring.
 - (3) Bubble size is proportional to the constituent concentration.
 - (4) Some features are historical, and may have been removed.
 - (5) ND = Constituent not detected above the laboratory limit of quantitation.
 - (6) Soil boring SB-23 was completed as monitor well MMV-23C.

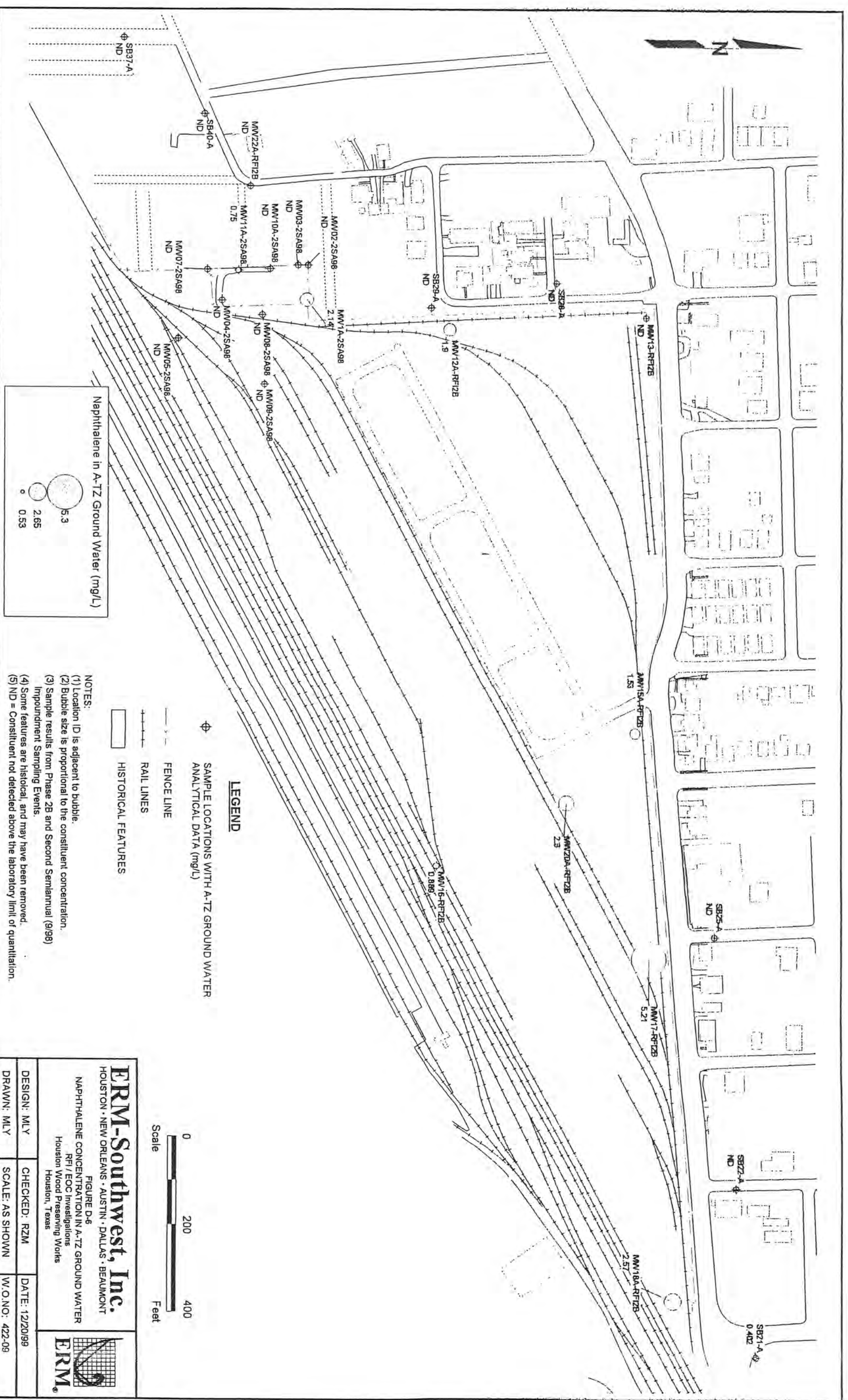


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FIGURE D-5
 DEEPEST REPORTED SUBSURFACE SOIL
 NAPHTHALENE CONCENTRATIONS
 RFI / EOC Investigations
 Houston Wood Preserving Works
 Houston, Texas



DESIGN: MLY	CHECKED: RZM	DATE: 12/20/09
DRAWN: MLY	SCALE: AS SHOWN	W.O.NO: 422-09



LEGEND

- ⊕ SAMPLE LOCATIONS WITH A-TZ GROUND WATER ANALYTICAL DATA (mg/L)
- FENCE LINE
- RAIL LINES
- ▭ HISTORICAL FEATURES

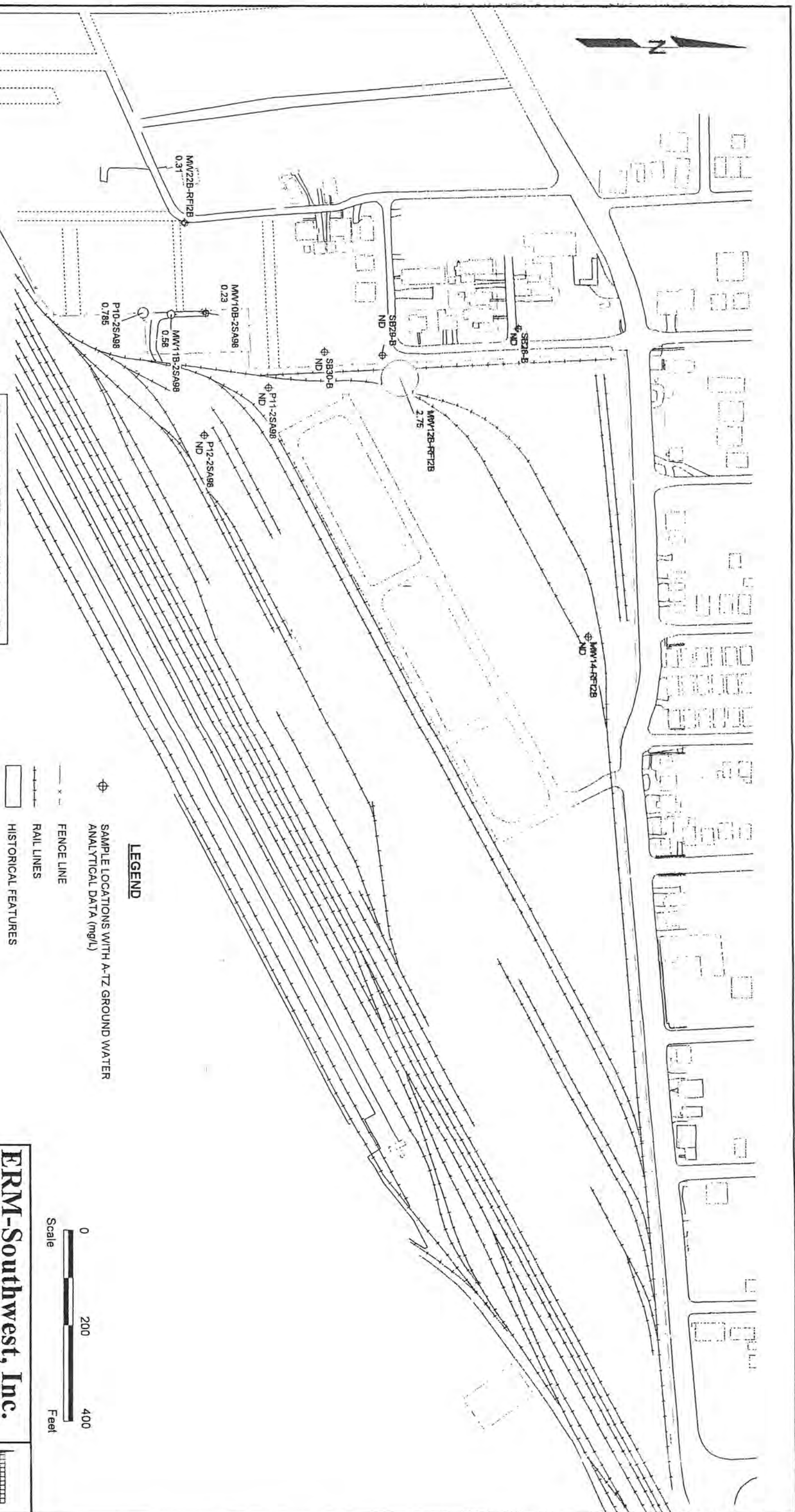
- NOTES:**
- (1) Location (ID) is adjacent to bubble.
 - (2) Bubble size is proportional to the constituent concentration.
 - (3) Sample results from Phase 2B and Second Semiannual (9/98) Impoundment Sampling Events.
 - (4) Some features are historical, and may have been removed.
 - (5) ND = Constituent not detected above the laboratory limit of quantitation.



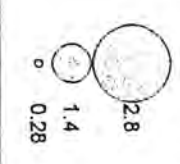
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FIGURE D-6
NAPHTHALENE CONCENTRATION IN A-TZ GROUND WATER
RFI/EOC Investigations
Houston Wood Preserving Works
Houston, Texas

DESIGN: MLY	CHECKED: RZM	DATE: 12/20/99
DRAWN: MLY	SCALE: AS SHOWN	W.O.NO: 422-09



Naphthalene in B-TZ Ground Water (mg/L)



LEGEND

- ⊕ SAMPLE LOCATIONS WITH A-TZ GROUND WATER ANALYTICAL DATA (mg/L)
- x — FENCE LINE
- +—+— RAIL LINES
- ▭ HISTORICAL FEATURES

NOTES:

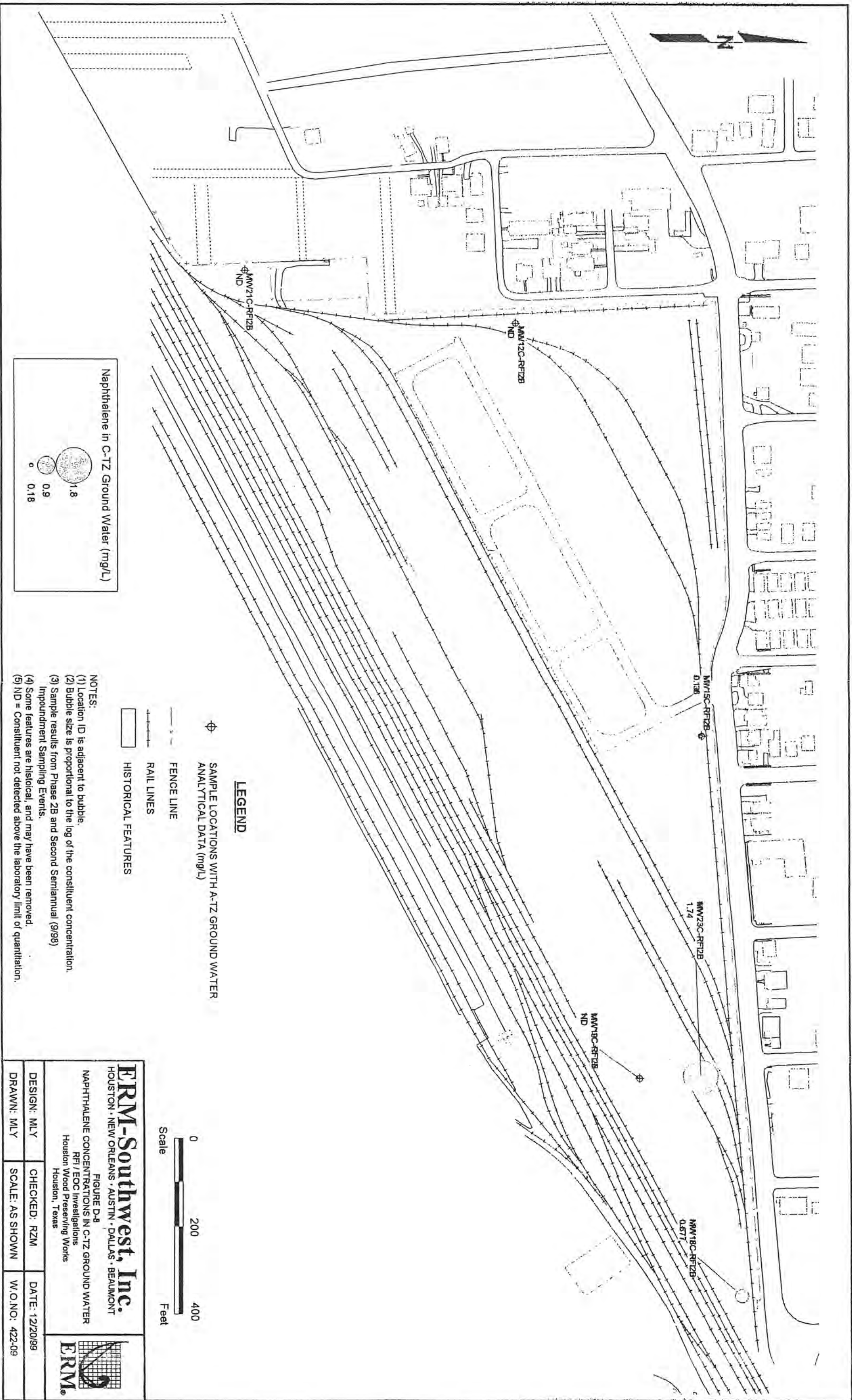
- (1) Location ID is adjacent to bubble.
- (2) Bubble size is proportional to the log of the constituent concentration.
- (3) Sample results from Phase 2B and Second Semiannual (9/98) Impoundment Sampling Events.
- (4) Some features are historical, and may have been removed.
- (5) ND = Constituent not detected above the laboratory limit of quantitation.



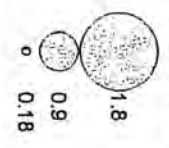
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 FIGURE D-7
 NAPHTHALENE CONCENTRATIONS IN B-TZ GROUND WATER
 RFI / EOC Investigations
 Houston Wood Preserving Works
 Houston, Texas



DESIGN: MLY	CHECKED: RZM	DATE: 12/20/99
DRAWN: MLY	SCALE: AS SHOWN	W.O.NO: 422-09



Naphthalene in C-TZ Ground Water (mg/L)

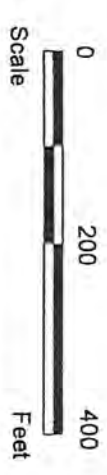


LEGEND

- ⊕ SAMPLE LOCATIONS WITH A-TZ GROUND WATER ANALYTICAL DATA (mg/L)
- FENCE LINE
- RAIL LINES
- ▭ HISTORICAL FEATURES

NOTES:

- (1) Location ID is adjacent to bubble.
- (2) Bubble size is proportional to the log of the constituent concentration.
- (3) Sample results from Phase 2B and Second Semiannual (9/98) Impoundment Sampling Events.
- (4) Some features are historical, and may have been removed.
- (5) ND = Constituent not detected above the laboratory limit of quantitation.



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FIGURE D-8
 NAPHTHALENE CONCENTRATIONS IN C-TZ GROUND WATER
 RFI / EOC Investigations
 Houston Wood Preserving Works
 Houston, Texas

DESIGN: MLY	CHECKED: RZM	DATE: 12/20/99
DRAWN: MLY	SCALE: AS SHOWN	W.O.NO: 422-09

On-Site Comprehensive Surface Soil Analytical Data
Attachment D-1

July 10, 2000
W.O. #422-009

Environmental Resources Management
16300 Katy Freeway, Suite 300
Houston, Texas 77094-1611
(281) 600-1000

On-Site Comprehensive Surface Soil Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID SAMPLE DEPTH (ft) SAMPLE DATE ANALYTICAL RESULT (mg/kg)	MW-11A HWPW-MW11A-500 0-1 3/27/97		MW-13 HWPW-MW13-500 0-1 3/25/97		MW-15A HWPW-MW15-500 0-1 3/25/97		MW-16 HWPW-MW16-500 0-1 2/26/97		MW-18A HWPW-MW18-500 0-1 2/26/97		MW-21C MW21C-00 0-1 10/26/98	
	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatiles Compounds												
TOTAL PETROLEUM HYDROCARBONS												
1,2-DICHLOROETHANE	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.001
BENZENE	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.001
CHLOROBENZENE	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.001
DICHLOROMETHANE	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.001
ETHYLBENZENE	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.001
TOLUENE	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.001
XYLENES	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.001
Semivolatile Compounds												
1,2-DIPHENYLHYDRAZINE	ND (R)	0.33	ND (R)	0.33	ND	0.33	ND	0.33	ND	0.33	ND	3.8
2,4-DIMETHYLPHENOL	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	3.8
2,4-DINITROTOLUENE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	3.8
2,6-DINITROTOLUENE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	3.8
2-CHLORONAPHTHALENE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	3.8
2-METHYLNAPHTHALENE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	3.8
4,6-DINITRO-O-CRESOL	ND (R)	1.6	ND (R)	1.6	ND	1.6	ND	1.6	ND	1.6	ND	3.8
4-NITROPHENOL	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	3.8
ACENAPHTHENE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	3.8
ACENAPHTHYLENE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	3.8
ANTHRACENE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	3.8
BENZO(A)ANTHRACENE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	3.8
BENZO(A)PYRENE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	3.8
BIS(2-CHLOROETHOXY)METHANE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	3.8
BIS(2-ETHYL HEXYL)PHTHALATE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	3.8
CHRYSENE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	3.8
DI-N-BUTYL PHTHALATE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	3.8
DIBENZOFURAN	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	3.8
FLUORANTHENE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	3.8
FLUORENE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	3.8
N-NITROSDIPHENYLAMINE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	3.8
NAPHTHALENE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	3.8
NITROBENZENE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	3.8
PENTACHLOROPHENOL	ND (R)	1.6	ND (R)	1.6	ND	1.6	ND	1.6	ND	1.6	ND	19
PHENANTHRENE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	3.8
PHENOL	ND (R)	0.49 J	ND (R)	0.49 J	ND	0.33	ND	0.33	ND	0.33	ND	3.8
PYRENE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	3.8

NOTES:
 (a) Volatile Compounds analyzed by Method SW846-8160A and Semivolatile
 Compounds analyzed by Method SW846-8270B unless otherwise noted.
 Conc. = Reported Concentration
 LOQ = Limit of Quantitation
 ND = Not Detected above the laboratory LOQ
 NA = Not Analyzed
 R = Unusable Data
 J = Estimated result
 UJ = Estimated non direct
 DJ = Dilution/estimated result

On-Site Comprehensive Surface Soil Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID SAMPLE DEPTH (feet) SAMPLE DATE ANALYTICAL RESULT (mg/kg)	MW-22A MW22A-00 0-1 10/1/98		MW-22C SB23-00 0-1 10/14/98		SB-04 HWPW-SB04-S1.5 2-3 3/5/97		SB-06 HWPW-SB06-S4 4-5 3/4/97		SB-07 HWPW-SB07-S2.5 2.5-3 3/6/97		SB-08 HWPW-SB08-S4 4-5 3/6/97	
	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
Volatile Compounds												
TOTAL PETROLEUM HYDROCARBONS												
1,2-DICHLOROETHANE	NA	NA	NA	NA	19000	1000	690	20	6300	500	2600	500
BENZENE	ND	0.0011	ND	0.001	ND	0.025	ND	0.005	ND	0.025	ND	0.005
CHLOROBENZENE	ND	0.0011	ND	0.001	ND	0.025	ND	0.005	ND	0.025	ND	0.005
DICHLOROMETHANE	ND	0.0011	ND	0.001	ND	0.025	ND	0.005	ND	0.025	ND	0.005
ETHYLBENZENE	ND	0.0011	ND	0.001	ND	0.025	ND	0.005	ND	0.025	ND	0.005
TOLUENE	ND	0.0011	ND	0.001	ND	0.025	0.055	0.005	6.3	0.625	0.024	0.005
XYLENES	ND	0.0011	ND	0.001	ND	0.025	0.005	0.005	0.36	0.625	ND	0.005
	ND	0.0011	ND	0.001	0.07	0.025	0.14	0.005	22	0.625	0.046	0.005
Semivolatile Compounds												
1,2-DIPHENYLDIAZINE	ND	3.6	ND	0.34	ND	24.75	ND	8.25	ND	3.3	ND	33
2,4-DIMETHYLPHENOL	ND	3.6	ND	0.34	ND	24.75	ND	8.25	ND	3.3	ND	33
2,4-DINITROTOLUENE	ND	3.6	ND	0.34	ND	24.75	ND	8.25	ND	3.3	ND	33
2,6-DINITROTOLUENE	ND	3.6	ND	0.34	ND	24.75	ND	8.25	ND	3.3	ND	33
2-CHLORONAPHTHALENE	ND	3.6	ND	0.34	ND	24.75	ND	8.25	ND	3.3	ND	33
2-METHYLNAPHTHALENE	ND	3.6	ND	0.34	320 (DI)	247.5	72	8.25	1300 (DI)	165	420	33
4,6-DINITRO-O-CRESOL	ND	3.6	ND	0.34	ND	120	ND	* 40	ND	16	ND	160
4-NITROPHENOL	ND	3.6	ND	0.34	ND	120	ND	40	ND	16	ND	160
ACENAPHTHENE	ND	3.6	ND	0.34	370 (DI)	24.75	46	8.25	1700 (DI)	66	450	330
ACENAPHTHYLENE	ND	3.6	ND	0.34	ND	24.75	ND	8.25	ND	3.3	ND	33
ANTHRACENE	ND	3.6	0.553	0.34	290 (DI)	24.75	25	8.25	400 (DI)	3.3	480	33
BENZO(A)ANTHRACENE	ND	3.6	0.498	0.34	130 (DI)	24.75	8.2	8.25	130 (DI)	3.3	160	33
BIS(2-CHLOROETHOXY)METHANE	ND	3.6	ND	0.34	44 (DI)	24.75	ND	8.25	27 (DI)	3.3	62	33
BIS(2-ETHYLHEXYL)PHTHALATE	ND	3.6	ND	0.34	ND	24.75	ND	8.25	ND	3.3	ND	33
CHRYSENE	ND	3.6	0.836	0.34	130 (DI)	24.75	9.9	8.25	130 (DI)	3.3	180	33
DI-N-BUTYL PHTHALATE	ND	3.6	ND	0.34	ND	24.75	ND	8.25	ND	3.3	ND	33
DIBENZOFURAN	ND	3.6	ND	0.34	300 (DI)	24.75	ND	8.25	1100 (DI)	66	600	33
FLUORANTHENE	ND	3.6	1.327	0.34	370 (DI)	24.75	52	8.25	2500 (DI)	3.3	430	330
FLUORENE	ND	3.6	ND	0.34	ND	24.75	41	8.25	1600 (DI)	66	460	330
N-NITROSDIPHENYLAMINE	ND	3.6	ND	0.34	ND	24.75	ND	8.25	ND	3.3	ND	33
NAFTHALENE	ND	3.6	ND	0.34	540 (DI)	24.75	132	8.25	3900 (DI)	165	970	33
NITROBENZENE	ND	3.6	ND	0.34	ND	24.75	ND	8.25	ND	3.3	ND	33
PENTACHLOROPHENOL	ND	18	ND	1.7	ND	120	ND	40	ND	3.3	ND	33
PHENANTHRENE	ND	3.6	ND	0.34	1600 (DI)	250	82	8.25	4100 (DI)	66	930	330
PHENOL	ND	3.6	ND	0.34	ND	24.75	ND	8.25	ND	3.3	ND	33
PYRENE	ND	3.6	1.689	0.34	ND	24.75	30	8.25	1500 (DI)	3.3	ND	33

NOTES:
 (a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.
 Conc. = Reported Concentration
 LOQ = Limit of Quantitation
 ND = Not Detected above the Laboratory LOQ
 NA = Not Analyzed
 R = Unusable data
 J = Estimated result
 UJ = Estimated non detect
 DI = Dilution/estimated result

On-Site Comprehensive Surface Soil Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID SAMPLE DEPTH (feet) SAMPLE DATE ANALYTICAL RESULT (mg/kg)	SB-21		SB-22		SB-26		SB-27		SB-28		SB-29	
	SB21-00		SB22-00		SB26-00		SB27-00		SB28-00		SB29-00	
	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
Volatile Compounds												
TOTAL PETROLEUM HYDROCARBONS												
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	ND	0.0011	ND	0.0012	ND	0.001	ND	0.001	ND	0.0011	ND	0.0012
CHLOROBENZENE	ND	0.0011	0.0003 J	0.0012	ND	0.001	ND	0.001	0.00115	ND	0.0012	0.0012
DICHLOROMETHANE	ND	0.0011	ND	0.0012	ND	0.001	ND	0.001	ND	0.0011	ND	0.0012
ETHYLBENZENE	ND	0.0011	ND	0.0012	ND	0.001	ND	0.001	ND	0.0011	ND	0.0012
TOLUENE	ND	0.0011	ND	0.0012	ND	0.001	ND	0.001	ND	0.0011	ND	0.0012
XYLENES	ND	0.0011	ND	0.0012	ND	0.001	ND	0.001	0.00036	0.0011	ND	0.0012
	ND	0.0011	ND	0.0012	ND	0.001	ND	0.001	ND	0.0011	0.00183	0.0012
Semivolatile Compounds												
1,2-DIPHENYLDIAZINE	ND	3.7	ND	0.39	ND	3.5	ND	0.36	ND	3.7	ND	3.9
2,4-DIMETHYLPHENOL	ND	3.7	ND	0.39	ND	3.5	ND	0.36	ND	3.7	ND	3.9
2,4-DINITROTOLUENE	ND	3.7	ND	0.39	ND	3.5	ND	0.36	ND	3.7	ND	3.9
2,6-DINITROTOLUENE	ND	3.7	ND	0.39	ND	3.5	ND	0.36	ND	3.7	ND	3.9
2-CHLORONAPHTHALENE	ND	3.7	ND	0.39	ND	3.5	ND	0.36	ND	3.7	ND	3.9
2-METHYLNAPHTHALENE	ND	3.7	ND	0.39	ND	3.5	ND	0.36	ND	3.7	ND	3.9
4,6-DINITRO-O-CRESOL	ND	3.7	ND	0.39	ND	3.5	ND	0.36	ND	3.7	ND	3.9
4-NITROPHENOL	ND	3.7	ND	0.39	ND	3.5	ND	0.36	ND	3.7	ND	3.9
ACENAPHTHENE	ND	3.7	ND	0.39	ND	3.5	ND	0.36	ND	3.7	ND	3.9
ACENAPHTHYLENE	ND	3.7	ND	0.39	ND	3.5	ND	0.36	ND	3.7	ND	3.9
ANTHRACENE	ND	3.7	ND	0.39	ND	3.5	ND	0.36	ND	3.7	ND	3.9
BENZO(A)ANTHRACENE	ND	3.7	ND	0.39	ND	3.5	ND	0.36	ND	3.7	ND	3.9
BENZO(A)PYRENE	ND	3.7	ND	0.39	ND	3.5	ND	0.36	ND	3.7	ND	3.9
BIS(2-CHLOROETHOXY)METHANE	ND	3.7	ND	0.39	ND	3.5	ND	0.36	ND	3.7	ND	3.9
BIS(2-ETHYL HEXYL)PHTHALATE	ND	3.7	ND	0.39	ND	3.5	ND	0.36	ND	3.7	ND	3.9
CHRYSENE	ND	3.7	ND	0.39	ND	3.5	ND	0.36	ND	3.7	ND	3.9
DI-N-BUTYL PHTHALATE	ND	3.7	ND	0.39	ND	3.5	ND	0.36	ND	3.7	ND	3.9
DIBENZOFURAN	ND	3.7	ND	0.39	ND	3.5	ND	0.36	ND	3.7	ND	3.9
FLUORANTHENE	ND	3.7	ND	0.39	ND	3.5	ND	0.36	ND	3.7	ND	3.9
FLUORENE	ND	3.7	ND	0.39	ND	3.5	ND	0.36	ND	3.7	ND	3.9
N-NITROSODIPHENYLAMINE	ND	3.7	ND	0.39	ND	3.5	ND	0.36	ND	3.7	ND	3.9
NAPHTHALENE	ND	3.7	ND	0.39	ND	3.5	ND	0.36	ND	3.7	ND	3.9
NITROBENZENE	ND	3.7	ND	0.39	ND	3.5	ND	0.36	ND	3.7	ND	3.9
PENTACHLOROPHENOL	ND	18	ND	1.9	ND	17	ND	1.8	ND	19	ND	20
PHENANTHRENE	ND	3.7	ND	0.39	ND	3.5	ND	0.36	ND	3.7	ND	3.9
PHENOL	ND	3.7	ND	0.39	ND	3.5	ND	0.36	ND	3.7	ND	3.9
PYRENE	ND	3.7	ND	0.39	ND	3.5	ND	0.36	ND	3.7	ND	3.9

NOTES:
(a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8708 unless otherwise noted.
Conc. = Reported Concentration
LOQ = Limit of Quantitation
ND = Not Detected above the laboratory LOQ
NA = Not Analyzed
R = Unusable data
J = Estimated result
UJ = Estimated non direct
Df = Dilution/estimated result

On-Site Comprehensive Surface Soil Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

Sample Location	SB-31		SB-32		SB-33		SB-34		SB-35		SB-36	
	SB31-00	SB32-00	SB33-00	SB34-00	SB35-00	SB36-00	SB36-00	SB36-00-D	SB36-00	SB36-00-D	SB36-00	SB36-00-D
	0-1 10/29/98	0-1 10/26/98	0-1 10/27/98	0-1 10/27/98	0-1 10/9/98	0-1 10/27/98	0-1 10/27/98	0-1 10/27/98	0-1 10/27/98	0-1 10/27/98	0-1 10/27/98	0-1 10/27/98
ANALYTICAL RESULT (mg/kg)												
	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
Volatiles Compounds												
TOTAL PETROLEUM HYDROCARBONS												
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001
CHLOROBENZENE	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001
DICHLOROMETHANE	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001
ETHYLBENZENE	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001
TOLUENE	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001
XYLENES	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001
Semivolatile Compounds												
1,2-DIPHENYLHYDRAZINE	ND	0.4	ND	0.37	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	ND	0.14	ND	0.37	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	ND	0.4	ND	0.37	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	ND	0.4	ND	0.37	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	ND	0.4	ND	0.37	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	ND	0.4	ND	0.37	NA	NA	NA	NA	NA	NA	NA	NA
4,6-DINITRO-O-CRESOL	ND	0.4	ND	0.37	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	ND	0.4	ND	0.37	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	ND	0.4	ND	0.37	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	ND	0.4	ND	0.37	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	ND	0.4	ND	0.37	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	ND	0.4	ND	0.37	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	ND	0.4	ND	0.37	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	ND	0.4	ND	0.37	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYL HEXYL)PHTHALATE	ND	0.4	ND	0.37	NA	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	ND	0.4	ND	0.37	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-BUTYL PHTHALATE	ND	0.4	ND	0.37	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	ND	0.4	ND	0.37	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	ND	0.4	ND	0.37	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	ND	0.4	ND	0.37	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	ND	0.4	ND	0.37	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	ND	0.4	ND	0.37	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	ND	0.4	ND	0.37	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	ND	0.4	ND	0.37	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	ND	2	ND	1.8	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	ND	0.4	ND	0.37	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	ND	0.4	ND	0.37	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:

(g) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.

Conc. = Reported Concentration

LOQ = Limit of Quantitation

ND = Not Detected above the laboratory LOQ

NA = Not Analyzed

R = Unusable data

J = Estimated result

UJ = Estimated non-detect

D) = Diluted/estimated result

On-Site Comprehensive Surface Soil Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID SAMPLE DEPTH (feet) SAMPLE DATE ANALYTICAL RESULT (mg/kg)	SB-44		SSO-A01		SSO-A02		SSO-A03		SSO-A04		SSO-A05	
	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
Volatile Compounds												
TOTAL PETROLEUM HYDROCARBONS												
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	ND	0.0011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	ND	0.0011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DICHLOROMETHANE	ND	0.0011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	ND	0.0011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOLUENE	ND	0.0011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
XYLENES	ND	0.0011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Compounds												
1,2-DIBENZYLHYDRAZINE	ND	0.37	ND	2.64	ND	2.64	ND	1.32	ND	6.6	ND	0.33
2,4-DIMETHYLPHENOL	ND	0.37	ND	2.64	ND	2.64	ND	1.32	ND	6.6	ND	0.33
2,4-DINITROTOLUENE	ND	0.37	ND	2.64	ND	2.64	ND	1.32	ND	6.6	ND	0.33
2,6-DINITROTOLUENE	ND	0.37	ND	2.64	ND	2.64	ND	1.32	ND	6.6	ND	0.33
2-CHLORONAPHTHALENE	ND	0.37	ND	2.64	ND	2.64	ND	1.32	ND	6.6	ND	0.33
2-METHYLNAPHTHALENE	ND	0.37	ND	2.64	ND	2.64	ND	1.32	ND	6.6	ND	0.33
4,6-DINITRO-O-CRESOL	ND	0.37	ND	12.8	ND	12.8	ND	6.4	ND	32	ND	1.6
4-NITROPHENOL	ND	0.37	ND	12.8	ND	12.8	ND	6.4	ND	32	ND	1.6
ACENAPHTHENE	ND	0.37	ND	2.64	ND	2.64	ND	1.32	ND	6.6	ND	0.33
ACENAPHTHYLENE	ND	0.37	ND	2.64	ND	2.64	ND	1.32	ND	6.6	ND	0.33
ANTHRACENE	ND	0.37	ND	2.64	ND	2.64	ND	1.32	ND	6.6	ND	0.33
BENZO(A)ANTHRACENE	ND	0.37	0.397	2.64	1.64	2.64	0.671	1.32	ND	6.6	ND	0.33
BENZO(A)PYRENE	ND	0.37	0.517	2.64	0.783	2.64	0.665	1.32	ND	6.6	ND	0.33
BIS(2-CHLOROETHOXY)METHANE	ND	0.37	ND	2.64	ND	2.64	ND	1.32	ND	6.6	ND	0.33
BIS(2-ETHYL HEXYL)PHTHALATE	ND	0.37	ND	2.64	ND	2.64	ND	1.32	ND	6.6	ND	0.33
CHRYSENE	ND	0.37	1.1	2.64	2.64	2.64	0.703	1.32	ND	6.6	ND	0.33
DIBENZOFURAN	ND	0.37	ND	2.64	ND	2.64	ND	1.32	ND	6.6	ND	0.33
FLUORANTHENE	ND	0.37	ND	2.64	ND	2.64	ND	1.32	ND	6.6	ND	0.33
FLOURENE	ND	0.37	ND	2.64	ND	2.64	ND	1.32	ND	6.6	ND	0.33
N-NITROSODIPHENYLAMINE	ND	0.37	ND	2.64	ND	2.64	ND	1.32	ND	6.6	ND	0.33
NAPHTHALENE	ND	0.37	ND	2.64	ND	2.64	ND	1.32	ND	6.6	ND	0.33
NITROBENZENE	ND	0.37	ND	2.64	ND	2.64	ND	1.32	ND	6.6	ND	0.33
PENTACHLOROPHENOL	ND	1.9	ND	12.8	ND	12.8	ND	6.4	ND	32	ND	1.6
PHENANTHRENE	ND	0.37	ND	2.64	6.12	2.64	ND	1.32	ND	6.6	ND	0.33
PHENOL	ND	0.37	ND	2.64	ND	2.64	ND	1.32	ND	6.6	ND	0.33
PYRENE	ND	0.37	ND	2.64	8.16	2.64	ND	1.32	ND	6.6	ND	0.33

NOTES:

- (a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.
- Conc. = Reported Concentration
- LOQ = Limit of Quantitation
- ND = Not Detected above the laboratory LOQ
- NA = Not Analyzed
- R = Unusable data
- J = Estimated result
- U = Estimated non detect
- D) = Dilution/estimated result

On-Site Comprehensive Surface Soil Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

Sample Location Sample ID Sample Depth (feet) Sample Date Analytical Result (mg/kg)	SSO-A06		SSO-C01		SSO-C02		SSO-C03		SSO-C04		SSO-C05	
	HWPW-A6-SSO		HWPW-C1-SSO		HWPW-C2-SSO		HWPW-C3-SSO		HWPW-C4-SSO		HWPW-C5-SSO	
	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
Volatile Compounds												
TOTAL PETROLEUM HYDROCARBONS												
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DICHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
XYLENES	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Compounds												
1,2-DIPHENYLDIOXAZINE	ND	1.32	ND	2.64	ND	0.33	ND	6.6	ND	0.33	ND	0.33
2,4-DIMETHYLPHENOL	ND	1.32	ND	2.64	ND	0.33	ND	6.6	ND	0.33	ND	0.33
2,4-DINITROTOLUENE	ND	1.32	ND	2.64	ND	0.33	ND	6.6	ND	0.33	ND	0.33
2,6-DINITROTOLUENE	ND	1.32	ND	2.64	ND	0.33	ND	6.6	ND	0.33	ND	0.33
2-CHLORONAPHTHALENE	ND	1.32	ND	2.64	ND	0.33	ND	6.6	ND	0.33	ND	0.33
2-METHYLNAPHTHALENE	ND	1.32	ND	2.64	ND	0.33	ND	6.6	ND	0.33	ND	0.33
4,6-DINITRO-O-CRESOL	ND	6.4	ND	12.8	ND	1.6	ND	32	ND	1.6	ND	1.6
4-NITROPHENOL	ND	6.4	ND	12.8	ND	1.6	ND	32	ND	1.6	ND	1.6
ACENAPHTHENE	ND	1.32	ND	2.64	ND	0.33	ND	6.6	ND	0.33	ND	0.33
ACENAPHTHYLENE	ND	1.32	ND	2.64	ND	0.33	ND	6.6	ND	0.33	ND	0.33
ANTHRACENE	ND	1.32	ND	2.64	ND	0.33	ND	6.6	ND	0.33	ND	0.33
BENZOXANTHRACENE	ND	1.32	ND	2.64	ND	0.33	ND	6.6	ND	0.33	ND	0.33
BENZO(A)PYRENE	ND	1.32	ND	2.64	0.117	0.33	2.85	6.6	0.145	0.33	ND	0.33
BIS(2-CHLOROETHOXY)METHANE	ND	1.32	0.997	2.64	0.119	0.33	1.51	6.6	0.166	0.33	ND	0.33
BIS(2-ETHYL HEXYL)PHTHALATE	ND	1.32	ND	2.64	ND	0.33	ND	6.6	ND	0.33	ND	0.33
CHRYSENE	ND	1.32	ND	2.64	ND	0.33	ND	6.6	ND	0.33	ND	0.33
DI-N-BUTYL PHTHALATE	ND	1.32	0.855	2.64	0.383	0.33	10.1	6.6	0.225	0.33	ND	0.33
DIBENZOFURAN	ND	1.32	ND	2.64	ND	0.33	ND	6.6	ND	0.33	ND	0.33
FLUORANTHENE	ND	1.32	ND	2.64	ND	0.33	ND	6.6	ND	0.33	ND	0.33
FLUORENE	ND	1.32	ND	2.64	0.537	0.33	35.2	6.6	ND	0.33	ND	0.33
N-NITROSODIPHENYLAMINE	ND	1.32	ND	2.64	ND	0.33	ND	6.6	ND	0.33	ND	0.33
NAFTHALENE	ND	1.32	ND	2.64	ND	0.33	ND	6.6	ND	0.33	ND	0.33
NITROBENZENE	ND	1.32	ND	2.64	ND	0.33	ND	6.6	ND	0.33	ND	0.33
PENTACHLOROPHENOL	ND	1.32	ND	2.64	ND	0.33	ND	6.6	ND	0.33	ND	0.33
PHENANTHRENE	ND	6.4	ND	12.8	ND	1.6	ND	32	ND	1.6	ND	1.6
PHENOL	ND	1.32	ND	2.64	ND	0.33	12.8	6.6	ND	0.33	ND	0.33
PYRENE	ND	1.32	ND	2.64	ND	0.33	6.6	6.6	ND	0.33	ND	0.33
	ND	1.32	ND	2.64	0.47	0.33	20.9	6.6	ND	0.33	ND	0.33

NOTES:

(a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.

Conc. = Reported Concentration

LOQ = Limit of Quantitation

ND = Not Detected above the Laboratory LOQ

NA = Not Analyzed

R = Unusable data

J = Estimated result

UJ = Estimated non detect

DI = Dilution/estimated result

On-Site Comprehensive Surface Soil Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID SAMPLE DEPTH (feet) SAMPLE DATE ANALYTICAL RESULT (mg/kg)	SSO-C06		SSO-D01		SSO-D02		SSO-B01		SSO-B02		SSO-B03	
	HWPW-C6-SSO		HWPW-D1-SSO		HWPW-D2-SSO		HWPW-B1-SSO		HWPW-B2-SSO		HWPW-B3-SSO	
	0-2 4/8/97	LOQ	0-2 4/8/97	LOQ	0-2 4/8/97	LOQ	0-2 4/8/97	LOQ	0-2 4/8/97	LOQ	0-2 4/8/97	LOQ
Volatile Compounds												
TOTAL PETROLEUM HYDROCARBONS												
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DICHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
XYLENES	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Compounds												
1,2-DIPHENYLDIAZINE	ND	0.33	ND	0.33	ND	0.33	ND	1.32	NA	NA	ND	0.33
2,4-DIMETHYLPHENOL	ND	1.32	ND	0.33	ND	0.33	ND	1.32	NA	NA	ND	0.33
2,4-DINITROTOLUENE	ND	1.32	ND	0.33	ND	0.33	ND	1.32	NA	NA	ND	0.33
2,6-DINITROTOLUENE	ND	1.32	ND	0.33	ND	0.33	ND	1.32	NA	NA	ND	0.33
2-CHLORONAPHTHALENE	ND	1.32	ND	0.33	ND	0.33	ND	1.32	NA	NA	ND	0.33
2-METHYLNAPHTHALENE	ND	1.32	ND	0.33	ND	0.33	ND	1.32	NA	NA	ND	0.33
4,6-DINITRO-O-CRESOL	ND	6.4	ND	1.6	ND	1.6	ND	6.4	ND	1.6	ND	1.6
4-NITROPHENOL	ND	6.4	ND	1.6	ND	1.6	ND	6.4	ND	1.6	ND	1.6
ACENAPHTHENE	ND	1.32	ND	0.33	ND	0.33	ND	1.32	NA	NA	ND	0.33
ACENAPHTHYLENE	ND	1.32	ND	0.33	ND	0.33	ND	1.32	NA	NA	ND	0.33
ANTHRACENE	ND	1.32	ND	0.456	ND	0.33	ND	1.32	NA	NA	ND	0.33
BENZO(A)ANTHRACENE	0.46	1.32	0.385	0.33	0.373	0.33	0.618	1.32	0.176	0.33	0.056	0.33
BENZO(A)PYRENE	0.509	1.32	ND	0.33	0.353	0.33	0.582	1.32	0.217	0.33	0.062	0.33
BIS(2-CHLOROETHOXY)METHANE	ND	1.32	ND	0.33	ND	0.33	ND	1.32	ND	0.33	ND	0.33
BIS(2-ETHYL HEXYL)PHTHALATE	ND	1.32	ND	0.33	ND	0.33	ND	1.32	ND	0.33	ND	0.33
CHRYSENE	0.471	1.32	ND	0.33	0.586	0.33	0.679	1.32	0.382	0.33	0.098	0.33
DI-N-BUTYL PHTHALATE	ND	1.32	ND	0.33	ND	0.33	ND	1.32	ND	0.33	ND	0.33
DIBENZOFURAN	ND	1.32	ND	0.33	ND	0.33	ND	1.32	ND	0.33	ND	0.33
FLUORANTHENE	ND	1.32	1.06	0.33	ND	0.33	2.54	1.32	0.501	0.33	ND	0.33
FLUORENE	ND	1.32	ND	0.33	ND	0.33	ND	1.32	ND	0.33	ND	0.33
N-NITROSODIPHENYLAMINE	ND	1.32	ND	0.33	ND	0.33	ND	1.32	ND	0.33	ND	0.33
NAPHTHALENE	ND	1.32	ND	0.33	ND	0.33	ND	1.32	ND	0.33	ND	0.33
NITROBENZENE	ND	1.32	ND	0.33	ND	0.33	ND	1.32	ND	0.33	ND	0.33
PENTACHLOROPHENOL	ND	6.4	ND	1.6	ND	1.6	ND	6.4	ND	1.6	ND	1.6
PHENANTHRENE	ND	1.32	0.493	0.33	ND	0.33	ND	1.32	ND	0.33	ND	0.33
PHENOL	ND	1.32	ND	0.33	ND	0.33	ND	1.32	ND	0.33	ND	0.33
PYRENE	ND	1.32	0.832	0.33	ND	0.33	2.09	1.32	0.463	0.33	ND	0.33

NOTES:

- (a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.
- Conc. = Reported Concentration
- LOQ = Limit of Quantitation
- ND = Not Detected above the laboratory LOQ
- NA = Not Analyzed
- R = Unusable data
- J = Estimated result
- UJ = Estimated from detect
- DJ = Dilution/estimated result

On-Site Comprehensive Surface Soil Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID SAMPLE DEPTH (feet) SAMPLE DATE ANALYTICAL RESULT (mg/m ³)	SSO-304 HWPW-B4-SSO 0-2 4/8/97		SSO-305 HWPW-B5-SSO 0-2 4/8/97		SSO-306 HWPW-B6-SSO 0-2 4/8/97		SSO-11 HWPW-11-SSO 0-2 4/9/97		SSO-F07 HWPW-7F-SSO 0-2 4/9/97		SSO-F08 HWPW-8F-SSO 0-2 4/9/97	
	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
Volatile Compounds												
TOTAL PETROLEUM HYDROCARBONS												
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DICHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
XYLENES	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Compounds												
1,2-DIPHENYLHYDRAZINE	ND	0.33	ND	1.32	ND	1.32	ND	8.25	ND	6.6	ND	1.32
2,4-DIMETHYLPHENOL	ND	0.33	ND	1.32	ND	1.32	ND	8.25	ND	6.6	ND	1.32
2,4-DINITROTOLUENE	ND	0.33	ND	1.32	ND	1.32	ND	8.25	ND	6.6	ND	1.32
2,6-DINITROTOLUENE	ND	0.33	ND	1.32	ND	1.32	ND	8.25	ND	6.6	ND	1.32
2-CHLORONAPHTHALENE	ND	0.33	ND	1.32	ND	1.32	ND	8.25	ND	6.6	ND	1.32
2-METHYLNAPHTHALENE	ND	0.33	ND	1.32	ND	1.32	ND	8.25	ND	6.6	ND	1.32
4,6-DINITRO-CRESOL	ND	1.6	ND	6.4	ND	6.4	ND	40	ND	32	ND	6.4
4-NITROPHENOL	ND	1.6	ND	6.4	ND	6.4	ND	40	ND	32	ND	6.4
ACENAPHTHENE	ND	0.33	ND	1.32	ND	1.32	ND	8.25	ND	6.6	ND	1.32
ACENAPHTHYLENE	ND	0.33	ND	1.32	ND	1.32	ND	8.25	ND	6.6	ND	1.32
ANTHRACENE	ND	0.33	ND	1.32	ND	1.32	ND	8.25	ND	6.6	ND	1.32
BENZO(A)ANTHRACENE	0.23	0.33	0.161	1.32	0.359	1.32	10.8	8.25	0.799	6.6	0.514	1.32
BENZO(A)PYRENE	0.197	0.33	0.394	1.32	0.615	1.32	5.92	8.25	ND	6.6	0.63	1.32
BIS(2-CHLOROETHOXY)METHANE	ND	0.33	ND	1.32	ND	1.32	ND	8.25	ND	6.6	ND	1.32
BIS(2-ETHYL HEXYL)PHTHALATE	ND	0.33	ND	1.32	ND	1.32	ND	8.25	ND	6.6	ND	1.32
CHRYSENE	0.296	0.33	0.288	1.32	0.855	1.32	10.8	8.25	1.76	6.6	1.04	1.32
DI-N-BUTYL PHTHALATE	ND	0.33	ND	1.32	ND	1.32	ND	8.25	ND	6.6	ND	1.32
DIBENZOFURAN	ND	0.33	ND	1.32	ND	1.32	ND	8.25	ND	6.6	ND	1.32
FLUORANTHENE	0.671	0.33	ND	1.32	1.37	1.32	57.8	8.25	ND	6.6	1.46	1.32
FLOURENE	ND	0.33	ND	1.32	ND	1.32	ND	8.25	ND	6.6	ND	1.32
N-NITROSODIPHENYLAMINE	ND	0.33	ND	1.32	ND	1.32	ND	8.25	ND	6.6	ND	1.32
NAPHTHALENE	ND	0.33	ND	1.32	ND	1.32	ND	8.25	ND	6.6	ND	1.32
NITROBENZENE	ND	0.33	ND	1.32	ND	1.32	ND	8.25	ND	6.6	ND	1.32
PENTACHLOROPHENOL	ND	1.6	ND	6.4	ND	6.4	ND	40	ND	32	ND	6.4
PHENANTHRENE	ND	0.33	ND	1.32	ND	1.32	60.2	8.25	ND	6.6	ND	1.32
PHENOL	ND	0.33	ND	1.32	ND	1.32	ND	8.25	ND	6.6	ND	1.32
PYRENE	0.622	0.33	ND	1.32	1.34	1.32	40	8.25	ND	6.6	ND	1.32

NOTES:
 (a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.
 Conc. = Reported Concentration
 LOQ = Limit of Quantitation
 ND = Not Detected above the laboratory LOQ
 NA = Not Analyzed
 R = Unusable data
 E = Estimated result
 UJ = Estimated non detect
 DJ = Dilution/estimated result

On-Site Comprehensive Surface Soil Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID SAMPLE DEPTH (feet) SAMPLE DATE ANALYTICAL RESULT (mg/kg)	SSO-F09 IHPW-9F-SSO 0-2 4/9/97		SSO-F10 IHPW-10F-SSO 0-2 4/9/97		SSO-G07 IHPW-7G-SSO 0-2 4/9/97		SSO-G08 IHPW-8G-SSO 0-2 4/9/97		SSO-C09 IHPW-9G-SSO 0-2 4/9/97		SSO-G10 IHPW-10G-SSO 0-2 4/9/97	
	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
Volatile Compounds												
TOTAL PETROLEUM HYDROCARBONS												
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DICHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
XYLENES	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Compounds												
1,2-DIPHENYLDIAZINE	ND	1.32	ND	33	ND	1.32	ND	1.65	ND	0.33	ND	0.33
2,4-DIMETHYLPHENOL	ND	1.32	ND	33	ND	1.32	ND	1.65	ND	0.33	ND	0.33
2,4-DINITROTOLUENE	ND	1.32	ND	33	ND	1.32	ND	1.65	ND	0.33	ND	0.33
2,6-DINITROTOLUENE	ND	1.32	ND	33	ND	1.32	ND	1.65	ND	0.33	ND	0.33
2-CHLORONAPHTHALENE	ND	1.32	ND	33	ND	1.32	ND	1.65	ND	0.33	ND	0.33
2-METHYLNAPHTHALENE	ND	1.32	ND	33	ND	1.32	ND	1.65	ND	0.33	ND	0.33
4,6-DINITRO-O-CRESOL	ND	6.4	ND	160	ND	6.4	ND	8	ND	1.6	ND	1.6
4-NITROPHENOL	ND	6.4	ND	160	ND	6.4	ND	8	ND	1.6	ND	1.6
ACENAPHTHENE	ND	1.32	ND	33	ND	1.32	ND	1.65	ND	0.33	ND	0.33
ACENAPHTHYLENE	ND	1.32	ND	33	ND	1.32	ND	1.65	ND	0.33	ND	0.33
ANTHRACENE	ND	1.32	ND	33	ND	1.32	ND	1.65	ND	0.33	ND	0.33
BENZO(A)ANTHRACENE	0.305	1.32	44.6	33	0.742	1.32	2.72	1.65	0.118	0.33	0.046	0.33
BENZO(A)PYRENE	0.349	1.32	2.76	33	0.839	1.32	1.69	1.65	0.128	0.33	0.044	0.33
BIS(2-CHLOROETHOXY)METHANE	ND	1.32	ND	33	ND	1.32	ND	1.65	ND	0.33	ND	0.33
BIS(2-ETHYL HEXYL)PHTHALATE	ND	1.32	ND	33	ND	1.32	ND	1.65	ND	0.33	ND	0.33
CHRYSENE	0.599	1.32	57.1	33	0.793	1.32	3.6	1.65	0.184	0.33	0.086	0.33
DI-N-BUTYL PHTHALATE	ND	1.32	ND	33	ND	1.32	ND	1.65	ND	0.33	ND	0.33
DIBENZOFURAN	ND	1.32	ND	33	ND	1.32	ND	1.65	ND	0.33	ND	0.33
FLUORANTHENE	ND	1.32	ND	33	ND	1.32	ND	1.65	ND	0.33	ND	0.33
FLUORENE	ND	1.32	ND	33	ND	1.32	ND	1.65	ND	0.33	ND	0.33
N-NITROSODIPHENYLAMINE	ND	1.32	ND	33	ND	1.32	ND	1.65	ND	0.33	ND	0.33
NAPHTHALENE	ND	1.32	ND	33	ND	1.32	ND	1.65	ND	0.33	ND	0.33
NITROBENZENE	ND	1.32	ND	33	ND	1.32	ND	1.65	ND	0.33	ND	0.33
PENTACHLOROPHENOL	ND	1.32	ND	33	ND	1.32	ND	1.65	ND	0.33	ND	0.33
PHENANTHRENE	ND	6.4	ND	160	ND	6.4	ND	8	ND	1.6	ND	1.6
PHENOL	ND	1.32	ND	33	ND	1.32	2.63	1.65	ND	0.33	ND	0.33
PYRENE	ND	1.32	204	33	ND	1.32	8.93	1.65	ND	0.33	ND	0.33

NOTES:
 (a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile
 Compounds analyzed by Method SW846-8270B unless otherwise noted.
 Conc. = Reported Concentration
 LOQ = Limit of Quantitation
 ND = Not Detected above the Laboratory LOQ
 NA = Not Analyzed
 R = Unusable data
 J = Estimated result
 UJ = Estimated non detect
 DI = Dilution/estimated result

On-Site Comprehensive Surface Soil Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID SAMPLE DEPTH (feet) SAMPLE DATE ANALYTICAL RESULT (mg/kg)	SSD-G11		WFW-S-007P WFW-S-007P		WFW-S-009P WFW-S-009P		AOC-3E		AOC-5E	
	HWPW-11G-550		WFW-S-007P		WFW-S-009P		HWPW-AOC3E-500		HWPW-AOC5E-500	
	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
Volatile Compounds										
TOTAL PETROLEUM HYDROCARBONS										
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	NA	NA	ND	0.005	ND	0.005	ND	0.005	ND	0.005
CHLOROBENZENE	NA	NA	ND	0.005	ND	0.005	ND	0.005	ND	0.005
DICHLOROMETHANE	NA	NA	ND	0.005	ND	0.005	ND	0.005	ND	0.005
ETHYLBENZENE	NA	NA	ND	0.005	ND	0.005	ND	0.005	ND	0.005
TOLUENE	NA	NA	ND	0.005	ND	0.005	ND	0.005	ND	0.005
XYLENES	NA	NA	ND	0.005	ND	0.005	ND	0.005	ND	0.005
Semivolatile Compounds										
1,2-DIPHENYLDIOXAZINE	ND	1.32	ND	0.66	ND	0.66	ND	0.33	ND	3.3
2,4-DIMETHYLPHEIENOL	ND	1.32	ND	0.66	ND	0.66	ND	0.33	ND	3.3
2,4-DINITROTOLUENE	ND	1.32	ND	0.66	ND	0.66	ND	0.33	ND	3.3
2,6-DINITROTOLUENE	ND	1.32	ND	0.66	ND	0.66	ND	0.33	ND	3.3
2-CHLORONAPHTHALENE	ND	1.32	ND	0.66	ND	0.66	ND	0.33	ND	3.3
2-METHYLNAPHTHALENE	ND	1.32	ND	0.66	ND	0.66	ND	0.33	ND	3.3
4,6-DINITRO-O-CRESOL	ND	6.4	ND	3.3	ND	3.3	ND	1.6	ND	16
4-NITROPHENOL	ND	6.4	ND	3.3	ND	3.3	ND	1.6	ND	16
ACENAPHTHENE	ND	1.32	ND	0.66	ND	0.66	ND	0.33	ND	3.3
ACENAPHTHYLENE	ND	1.32	ND	0.66	ND	0.66	ND	0.33	ND	3.3
ANTHRACENE	ND	1.32	ND	0.66	ND	0.66	ND	0.33	ND	3.3
BENZO(A)ANTHRACENE	0.85	1.32	ND	0.66	ND	0.66	ND	0.33	ND	3.3
BENZO(A)PYRENE	0.804	1.32	0.67	0.66	0.16	0.66	ND	0.33	ND	3.3
BIS(2-ETHYLHEXYL)PHTHALATE	ND	1.32	ND	0.66	ND	0.66	ND	0.33	ND	3.3
CHRYSENE	0.916	1.32	ND	0.66	6.2	0.66	ND	0.33	ND	3.3
DI-N-BUTYL PHTHALATE	ND	1.32	ND	0.66	ND	0.66	ND	0.33	ND	3.3
DIBENZOFURAN	ND	1.32	ND	0.66	ND	0.66	ND	0.33	ND	3.3
FLUORANTHENE	ND	1.32	ND	0.66	ND	0.66	ND	0.33	ND	3.3
FLUORENE	ND	1.32	ND	0.66	ND	0.66	ND	0.33	ND	3.3
N-NITROSODIPHENYLAMINE	ND	1.32	ND	0.66	ND	0.66	ND	0.33	ND	3.3
NAPHTHALENE	ND	1.32	ND	0.66	ND	0.66	ND	0.33	ND	3.3
NITROBENZENE	ND	1.32	ND	0.66	ND	0.66	ND	0.33	ND	3.3
PENTACHLOROPHENOL	ND	6.4	ND	3.3	ND	3.3	ND	1.6	ND	16
PHENANTHRENE	ND	1.32	ND	0.66	ND	0.66	ND	0.33	ND	3.3
PHENOL	ND	1.32	ND	0.66	ND	0.66	ND	0.33	ND	3.3
PYRENE	1.51	1.32	15	0.66	ND	0.66	ND	0.33	ND	3.3

NOTES:

(a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.

Conc. = Reported Concentration

LOQ = Limit of Quantitation

ND = Not Detected above the laboratory LOQ

NA = Not Analyzed

R = Unusable data

J = Estimated result

UI = Estimated non detect

DJ = Dilution/estimated result

On-Site Comprehensive Surface Soil Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID SAMPLE DEPTH (feet) SAMPLE DATE ANALYTICAL RESULT (mg/kg)	AOC-SW		AOC-7		AOC-4NE		AOC-4NW		AOC-4SE		AOC-4SW	
	HWPW-AOC3W-500		HWPW-AOC7-500		HWPW-AOC4-NE-500		HWPW-AOC4-NW-500		HWPW-AOC4-SE-500		HWPW-AOC4-SW-500	
	0-5	3/4/97	0-5	3/3/97	0-5	3/3/97	0-5	3/3/97	0-5	3/3/97	0-5	3/3/97
	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
Volatile Compounds												
TOTAL PETROLEIUM HYDROCARBONS												
1,2-DICHLOROETHANE	NA	NA	21000	1000	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005
CHLOROBENZENE	0.02	0.005	0.007	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005
DICHLOROMETHANE	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005
ETHYLBENZENE	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005
TOLUENE	6.1	0.005	0.046	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005
XYLENES	0.085	0.005	0.011	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005
	26	0.005	0.082	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005
Semivolatile Compounds												
1,2-DIPHENYLHYDRAZINE	ND	3.3	ND	165	ND	0.33	ND	0.66	ND	0.66	ND	0.33
2,4-DIMETHYLPHENOL	ND	3.3	ND	165	ND (R)	0.33	ND	0.66	ND	0.66	ND	0.33
2,4-DINITROTOLUENE	ND	3.3	ND	165	ND	0.33	ND	0.66	ND	0.66	ND	0.33
2,6-DINITROTOLUENE	ND	3.3	ND	165	ND	0.33	ND	0.66	ND	0.66	ND	0.33
2-CHLORONAPHTHALENE	ND	3.3	ND	165	ND	0.33	ND	0.66	ND	0.66	ND	0.33
2-METHYLNAPHTHALENE	9.2 (DI)	3.3	ND	165	ND	0.33	ND	0.66	ND	0.66	ND	0.33
4,6-DINITRO-O-CRESOL	ND	16	ND	800	ND	1.6	ND	3.2	ND	3.2	ND	1.6
4-NITROPHENOL	ND	16	ND	800	ND (R)	1.6	ND	3.2	ND	3.2	ND	1.6
ACENAPHTHENE	4.3 (DI)	3.3	270 (DI)	165	ND	0.33	ND	0.66	ND	0.66	ND	0.33
ACENAPHTHYLENE	ND	3.3	ND	165	ND	0.33	ND	0.66	ND	0.66	ND	0.33
ANTHRACENE	ND	3.3	460 (DI)	165	ND	0.33	ND	0.66	ND	0.66	ND	0.33
BENZO(A)ANTHRACENE	ND	3.3	220 (DI)	165	ND	0.33	ND	0.66	ND	0.66	ND	0.33
BENZO(A)PYRENE	ND	3.3	79 (DI)	165	ND	0.33	0.14	0.66	0.59	0.66	ND	0.33
BIS(2-CHLOROETHOXY)METHANE	ND	3.3	ND	165	ND	0.33	0.24	0.66	0.49	0.66	ND	0.33
BIS(2-ETHYL HEXYL)PHTHALATE	ND	3.3	ND	165	ND	0.33	ND	0.66	ND	0.66	ND	0.33
CHRYSENE	ND	3.3	ND	165	ND	0.33	ND	0.66	ND	0.66	ND	0.33
DI-N-BUTYL PHTHALATE	ND	3.3	210 (DI)	165	ND	0.33	ND	0.66	ND	0.66	ND	0.33
DIBENZOFURAN	ND	3.3	ND	165	ND	0.33	ND	0.66	ND	0.66	ND	0.33
FLUORANTHENE	ND	3.3	190 (DI)	165	ND	0.33	ND	0.66	ND	0.66	ND	0.33
FLUORENE	5.3 (DI)	3.3	1100 (DI)	165	ND	0.33	ND	0.66	ND	0.66	ND	0.33
	4 (DI)	3.3	330 (DI)	165	ND	0.33	ND	0.66	2.8	0.66	ND	0.33
N-NITROSODIPHENYLAMINE	ND	3.3	ND	165	ND	0.33	ND	0.66	ND	0.66	ND	0.33
NAPHTHALENE	11 (DI)	3.3	220 (DI)	165	ND	0.33	ND	0.66	ND	0.66	ND	0.33
NITROBENZENE	ND	3.3	ND	165	ND	0.33	ND	0.66	ND	0.66	ND	0.33
PENTACHLOROPHENOL	ND	16	ND	800	ND (R)	1.6	ND	3.2	ND	3.2	ND	1.6
PHENANTHRENE	12 (DI)	3.3	990 (DI)	165	ND	0.33	ND	0.66	1.1	0.66	ND	0.33
PHENOL	ND	3.3	ND	165	ND (R)	0.33	ND	0.66	ND	0.66	ND	0.33
PYRENE	3.9 (DI)	3.3	880 (DI)	165	ND	0.33	ND	0.66	3.6	0.66	ND	0.33

NOTES:

(a) Volatile Compounds analyzed by Method SW846-8209A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.

Conc. = Reported Concentration

LOQ = Limit of Quantitation

ND = Not Detected above the laboratory LOQ

NA = Not Analyzed

R = Unusable data

J = Estimated result

UI = Estimated non detect

DI = Dilution/estimated result

On-Site Comprehensive Subsurface Soil Analytical Data
Attachment D-2

July 10, 2000
W.O. #422-009

Environmental Resources Management
16300 Katy Freeway, Suite 300
Houston, Texas 77094-1611
(281) 600-1000

On-Site Comprehensive Subsurface Soil Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID SAMPLE DEPTH (feet) SAMPLE DATE ANALYTICAL RESULT (mg/kg)	MW-10A, 8-10'		MW-10A, 20-22'		MW-10B, 24-26'		MW-10B, 30-32'		MW-10B, 36-38'		MW-10B, 44-66'	
	8-10		20-22		24-26		30-32		36-38		44-66	
	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
Volatilitie Compounds												
TOTAL PETROLEUM HYDROCARBONS												
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1
DICHLOROMETHANE (METHYLENE CHLORIDE)	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1
ETHYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOLUENE	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1
XYLENES	0.72	0.1	1.3	0.1	0.58	0.1	1.7	0.1	1.8	0.1	1.8	0.1
ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND
Semivolatile Compounds												
1,2-DIPHENYLHYDRAZINE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
2,4-DIMETHYLPHENOL	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
2,4-DINITROTOLUENE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
2,6-DINITROTOLUENE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
2-CHLORONAPHTHALENE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
2-METHYLNAPHTHALENE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
4,6-DINITRO-O-CRESOL	ND	3.3	ND	3.3	ND	3.3	ND	3.3	ND	3.3	ND	3.3
4-NITROPHENOL	ND	3.3	ND	3.3	ND	3.3	ND	3.3	ND	3.3	ND	3.3
ACENAPHTHENE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
ACENAPHTHYLENE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
ANTHRACENE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
BENZO(A)ANTHRACENE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
BENZO(A)PYRENE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
BIS(2-CHLOROETHOXY)METHANE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
BIS(2-ETHYL HEXYL)PHTHALATE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
CHRYSENE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
DI-N-BUTYL PHTHALATE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
DIBENZOFURAN	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
FLUORANTHENE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
FLUORENE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
N-NITROSODIPHENYLAMINE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
NAPHTHALENE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
NITROBENZENE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
PENTACHLOROPHENOL	ND	3.3	ND	3.3	ND	3.3	ND	3.3	ND	3.3	ND	3.3
PHENANTHRENE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
PHENOL	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
PYRENE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66

NOTES:

(a) Volatile Compounds analyzed by Method SW846-8250A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.

Conc. = Reported Concentration

LOQ = Limit of Quantitation

ND = Not detected above the laboratory LOQ

NA = Not Analyzed

R = Unusable data

J = Estimated result

UI = Estimated non detect

DJ = Dilution/estimated result

On-Site Comprehensive Subsurface Soil Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID SAMPLE DEPTH (feet) SAMPLE DATE ANALYTICAL RESULT (mg/kg)	MW-11A, 6-8'		MW-11A, 16-18'		MW-11A, 20-22'		MW-11B, 26-28'		MW-11B, 32-34'		MW-11B, 38-40'		MW-11B, 42-44'	
	9/15/94		9/15/94		9/15/94		9/19/94		9/19/94		9/19/94		9/19/94	
	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
Volatile Compounds														
TOTAL PETROLEUM HYDROCARBONS														
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1
CHLOROBENZENE	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1
DICHLOROMETHANE (METHYLENE CHLORIDE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1
TOLUENE	1.5	0.1	1.6	0.1	1	0.1	1	0.1	ND	0.1	ND	0.1	0.22	0.1
XYLENES	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1
Semivolatile Compounds														
1,2-DIPHENYLHYDRAZINE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
2,4-DIMETHYLPHENOL	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
2,4-DINITROTOLUENE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
2,6-DINITROTOLUENE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
2-CHLORONAPHTHALENE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
2-METHYLNAPHTHALENE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
4,6-DINITRO-O-CRESOL	ND	3.3	ND	3.3	ND	3.3	ND	3.3	ND	3.3	ND	3.3	ND	3.3
4-NITROPHENOL	ND	3.3	ND	3.3	ND	3.3	ND	3.3	ND	3.3	ND	3.3	ND	3.3
ACENAPHTHENE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
ACENAPHTHYLENE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
ANTHRACENE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
BENZO(A)ANTHRACENE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
BENZO(A)PYRENE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
BIS(2-CHLOROETHOXY)METHANE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
BIS(2-ETHYL HEXYL)PHTHALATE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
CHRYSENE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
DI-N-BUTYL PHTHALATE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
DIBENZOFURAN	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
FLUORENE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
N-NITROSODIPHENYLAMINE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
NAPHTHALENE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
NITROBENZENE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
PENTACHLOROPHENOL	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
PHENANTHRENE	ND	3.3	ND	3.3	ND	3.3	ND	3.3	ND	3.3	ND	3.3	ND	3.3
PHENOL	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66
PYRENE	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66	ND	0.66

NOTES:

(a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.

Conc. = Reported Concentration

LOQ = Limit of Quantitation

ND = Not detected above the laboratory LOQ

NA = Not Analyzed

R = Unusable data

J = Estimated result

UJ = Estimated non detect

DJ = Dilution/estimated result

On-Site Comprehensive Subsurface Soil Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID SAMPLE DEPTH (feet) SAMPLE DATE ANALYTICAL RESULT (mg/kg)	MW-12A		MW-12B		MW-13	
	HWPW-MW12A-S020	HWPW-MW12A-S025	HWPW-MW12B-S030	HWPW-MW12B-S040	HWPW-MW13-S015	HWPW-MW13-S021
	20-21 2/27/97	25-26 2/27/97	30-31 2/27/97	40-41 2/27/97	15-16 2/25/97	21-22 2/25/97
Volatiles Compounds	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
Semivolatile Compounds	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
TOTAL PETROLEUM HYDROCARBONS						
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA
BENZENE	ND	0.005	ND	0.005	ND	0.005
CHLOROBENZENE	ND	0.005	ND	0.005	ND	0.005
DICHLOROMETHANE (METHYLENE CHLORIDE)	ND	0.005	ND	0.005	ND	0.005
ETHYLBENZENE	ND	0.005	ND	0.005	ND	0.005
TOLUENE	ND	0.005	ND	0.005	ND	0.005
XYLENES	ND	0.005	ND	0.005	ND	0.005
1,2-DIPHENYLHYDRAZINE	ND	0.33	ND	0.33	ND	0.33
2,4-DIMETHYLPHENOL	ND	0.33	ND	0.33	ND	0.33
2,4-DINITROTOLUENE	ND	0.33	ND	0.33	ND	0.33
2,6-DINITROTOLUENE	ND	0.33	ND	0.33	ND	0.33
2-CHLORONAPHTHALENE	ND	0.33	ND	0.33	ND	0.33
2-METHYLNAPHTHALENE	ND	0.33	ND	0.33	ND	0.33
4,6-DINITRO-O-CRESOL	ND	1.6	ND	1.6	ND	1.6
4-NITROPHENOL	ND	1.6	ND	1.6	ND	1.6
ACENAPHTHENE	ND	0.33	ND	0.33	ND	0.33
ACENAPHTHYLENE	ND	0.33	ND	0.33	ND	0.33
ANTHRACENE	ND	0.33	ND	0.33	ND	0.33
BENZO(A)ANTHRACENE	ND	0.33	ND	0.33	ND	0.33
BENZO(A)PYRENE	ND	0.33	ND	0.33	ND	0.33
BIS(2-CHLOROETHOXY)METHANE	ND	0.33	ND	0.33	ND	0.33
BIS(2-ETHYL HEXYL)PHTHALATE	ND	0.33	ND	0.33	ND	0.33
CHRYSENE	ND	0.33	ND	0.33	ND	0.33
DI-N-BUTYL PHTHALATE	ND	0.33	ND	0.33	ND	0.33
DIBENZOFURAN	ND	0.33	ND	0.33	ND	0.33
FLUORANTHENE	ND	0.33	ND	0.33	ND	0.33
FLUORENE	ND	0.33	ND	0.33	ND	0.33
N-NITROSODIPHENYLAMINE	ND	0.33	ND	0.33	ND	0.33
NAPHTHALENE	ND	0.33	ND	0.33	ND	0.33
NITROBENZENE	ND	0.33	ND	0.33	ND	0.33
PENTACHLOROPHENOL	ND	1.6	ND	1.6	ND	1.6
PHENANTHRENE	ND	0.33	ND	0.33	ND	0.33
PHENOL	ND	0.33	ND	0.33	ND	0.33
PYRENE	ND	0.33	ND	0.33	ND	0.33

NOTES:

(a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.

Conc. = Reported Concentration

LOQ = Limit of Quantitation

ND = Not detected above the laboratory LOQ

R = Unusable data

NA = Not Analyzed

UJ = Estimated result

DI = Estimated non detect

DI = Dilution/estimated result

On-Site Comprehensive Subsurface Soil Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID SAMPLE DEPTH (feet) SAMPLE DATE ANALYTICAL RESULT (mg/kg)	MW-17		MW-18		MW-19C		MW-19C-55		MW-19C-60		MW-19C-73	
	HWPW-MW17-S25		HWPW-MW18-S25		HWPW-MW18-S030		MW19C-38		MW19C-60		MW19C-73	
	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
Volatile Compounds												
TOTAL PETROLEUM HYDROCARBONS												
1,2-DICHLOROETHANE	NA	0.025	NA	0.025	NA	0.005	NA	0.005	NA	0.007	NA	NA
BENZENE	ND	0.025	ND	0.025	ND	0.005	ND	0.005	ND	0.0012	ND	NA
CHLOROBENZENE	0.05	0.025	ND	0.025	0.009	0.005	0.0508	0.0012	ND	0.0013	ND	0.0013
DICHLOROMETHANE (METHYLENE CHLORIDE)	ND	0.025	ND	0.025	ND	0.005	ND	0.0012	ND	0.0013	ND	0.0013
ETHYLBENZENE	ND	0.025	ND	0.025	ND	0.005	ND	0.0012	ND	0.0012	ND	0.0013
TOLUENE	1.2	0.625	0.7	0.025	0.013	0.005	0.133	0.0012	ND	0.0012	ND	0.0013
XYLENES	1	0.625	0.46	0.025	0.006	0.005	0.175	0.0012	ND	0.0012	ND	0.0013
	3.5	0.625	2.4	0.025	0.039	0.005	0.448	0.0012	ND	0.0012	ND	0.0013
Semivolatile Compounds												
1,2-DIPHENYLHYDRAZINE	ND	3.3	ND	9.9	ND	0.33	ND	0.33	ND	0.41	ND	0.42
2,4-DIMETHYLPHENOL	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND	0.41	ND	0.42
2,4-DINITROTOLUENE	ND	3.3	ND	9.9	ND	0.33	ND	0.33	ND	0.41	ND	0.42
2,6-DINITROTOLUENE	ND	3.3	ND	9.9	ND	0.33	ND	0.33	ND	0.41	ND	0.42
2-CHLORONAPHTHALENE	ND	3.3	ND	9.9	ND	0.33	ND	0.33	ND	0.41	ND	0.42
2-METHYLNAPHTHALENE	32 (DJ)	3.3	76 (DJ)	9.9	ND	0.33	6.463	0.41	ND	0.41	ND	0.42
4,6-DINITRO-O-CRESOL	ND	16	ND	48	ND	1.6	ND	0.41	ND	0.41	ND	0.42
4-NITROPHENOL	ND	1.6	ND	48	ND	1.6	ND	0.41	ND	0.41	ND	0.42
ACENAPHTHENE	27 (DJ)	3.3	26 (DJ)	9.9	ND	0.33	1.56	0.41	ND	0.41	ND	0.42
ACENAPHTHYLENE	ND	3.3	ND	9.9	ND	0.33	ND	0.41	ND	0.41	ND	0.42
ANTHRACENE	17 (DJ)	3.3	21 (DJ)	9.9	ND	0.33	2.299	0.41	ND	0.41	ND	0.42
BENZO(A)ANTHRACENE	ND	3.3	ND	9.9	ND	0.33	0.649	0.41	ND	0.41	ND	0.42
BENZO(A)PYRENE	ND	3.3	ND	9.9	ND	0.33	ND	0.41	ND	0.41	ND	0.42
BIS(2-CHLOROETHOXY)METHANE	ND	3.3	ND	9.9	ND	0.33	ND	0.41	ND	0.41	ND	0.42
BIS(2-ETHYL HEXYL)PHTHALATE	ND	3.3	ND	9.9	ND	0.33	ND	0.41	ND	0.41	ND	0.42
CHRYSENE	3.3 (DJ)	3.3	4 (DJ)	9.9	ND	0.33	0.601	0.41	ND	0.41	ND	0.42
DI-N-BUTYL PHTHALATE	ND	3.3	ND	9.9	ND	0.33	ND	0.41	ND	0.41	ND	0.42
DIBENZOFURAN	24 (DJ)	3.3	39 (DJ)	9.9	ND	0.33	ND	0.41	ND	0.41	ND	0.42
FLUORANTHENE	23 (DJ)	3.3	30 (DJ)	9.9	ND	0.33	4.975	0.41	ND	0.41	ND	0.42
FLUORENE	28 (DJ)	3.3	24 (DJ)	9.9	ND	0.33	1.397	0.41	ND	0.41	ND	0.42
N-NITROSODIPHENYLAMINE	ND	3.3	ND	9.9	ND	0.33	ND	0.41	ND	0.41	ND	0.42
NAPHTHALENE	120 (DJ)	8.25	260 (DJ)	16.5	ND	0.33	ND	0.41	ND	0.41	ND	0.42
NITROBENZENE	ND	3.3	ND	9.9	ND	0.33	ND	0.41	ND	0.41	ND	0.42
PENTACHLOROPHENOL	ND	16	ND	48	ND	1.6	ND	0.41	ND	0.41	ND	0.42
PHENANTHRENE	69 (DJ)	8.25	92 (DJ)	9.9	ND	0.33	ND	0.41	ND	0.41	ND	0.42
PHENOL	ND	3.3	ND	9.9	ND	0.33	0.65	0.41	ND	0.41	ND	0.42
PYRENE	14 (DJ)	3.3	17 (DJ)	9.9	ND	0.33	3.682	0.41	ND	0.41	ND	0.42

NOTES:

(a) Volatile Compounds analyzed by Method SW846-8160A and Semivolatile Compounds analyzed by Method SW846-8170B unless otherwise noted.

Conc. = Reported Concentration

LOQ = Limit of Quantitation

ND = Not detected above the laboratory LOQ

NA = Not Analyzed

R = Unusable data

J = Estimated result

UJ = Estimated non detect

DJ = Dimer/estimated result

On-Site Comprehensive Subsurface Soil Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID SAMPLE DEPTH (feet) SAMPLE DATE ANALYTICAL RESULT (mg/kg)	MW21C-08 8 - 10 10/26/98		MW21C-20 20 - 22 10/26/98		MW21C-44 44 - 46 10/27/98		MW21C-44-D 44 - 46 10/27/98		MW21C-72 72 - 74 10/29/98		MW21C-72-D 72 - 74 10/29/98		MW22B-22 22 - 24 10/27/98		MW22B-22-D 22 - 24 10/27/98	
	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Compounds																
TOTAL PETROLEUM HYDROCARBONS																
1,2-DICHLOROETHANE	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001
BENZENE	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001
CHLOROBENZENE	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001
DICHLOROMETHANE (METHYLENE CHLORIDE)	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001
ETHYLBENZENE	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001
TOLUENE	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001
XYLENES	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001
Semivolatile Compounds																
1,2-DIPHENYLHYDRAZINE	ND	0.4	ND	0.38	ND	0.41	ND	0.41	ND	0.41	ND	0.41	ND	0.44	ND	0.44
2,4-DIMETHYLPHENOL	ND	0.4	ND	0.38	ND	0.41	ND	0.41	ND	0.41	ND	0.41	ND	0.44	ND	0.44
2,4-DINITROTOLUENE	ND	0.4	ND	0.38	ND	0.41	ND	0.41	ND	0.41	ND	0.41	ND	0.44	ND	0.44
2,6-DINITROTOLUENE	ND	0.4	ND	0.38	ND	0.41	ND	0.41	ND	0.41	ND	0.41	ND	0.44	ND	0.44
2-CHLORONAPHTHALENE	ND	0.4	ND	0.38	ND	0.41	ND	0.41	ND	0.41	ND	0.41	ND	0.44	ND	0.44
2-METHYLNAPHTHALENE	ND	0.4	ND	0.38	ND	0.41	ND	0.41	ND	0.41	ND	0.41	ND	0.44	ND	0.44
4,6-DINITRO-O-CRESOL	ND	0.4	ND	0.38	ND	0.41	ND	0.41	ND	0.41	ND	0.41	ND	0.44	ND	0.44
4-NITROPHENOL	ND	0.4	ND	0.38	ND	0.41	ND	0.41	ND	0.41	ND	0.41	ND	0.44	ND	0.44
ACENAPHTHENE	ND	0.4	ND	0.38	ND	0.41	ND	0.41	ND	0.41	ND	0.41	ND	0.44	ND	0.44
ACENAPHTHYLENE	ND	0.4	ND	0.38	ND	0.41	ND	0.41	ND	0.41	ND	0.41	ND	0.44	ND	0.44
ANTHRACENE	ND	0.4	ND	0.38	ND	0.41	ND	0.41	ND	0.41	ND	0.41	ND	0.44	ND	0.44
BENZO(A)ANTHRACENE	ND	0.4	ND	0.38	ND	0.41	ND	0.41	ND	0.41	ND	0.41	ND	0.44	ND	0.44
BENZO(A)PYRENE	ND	0.4	ND	0.38	ND	0.41	ND	0.41	ND	0.41	ND	0.41	ND	0.44	ND	0.44
BIS(2-CHLOROETHOXY)METHANE	ND	0.4	ND	0.38	ND	0.41	ND	0.41	ND	0.41	ND	0.41	ND	0.44	ND	0.44
BIS(2-ETHYL HEXYL)PHTHALATE	ND	0.4	ND	0.38	ND	0.41	ND	0.41	ND	0.41	ND	0.41	ND	0.44	ND	0.44
CHRYSENE	ND	0.4	ND	0.38	ND	0.41	ND	0.41	ND	0.41	ND	0.41	ND	0.44	ND	0.44
DI-N-BUTYL PHTHALATE	ND	0.4	ND	0.38	ND	0.41	ND	0.41	ND	0.41	ND	0.41	ND	0.44	ND	0.44
DIBENZOFURAN	ND	0.4	ND	0.38	ND	0.41	ND	0.41	ND	0.41	ND	0.41	ND	0.44	ND	0.44
FLUORANTHENE	ND	0.4	ND	0.38	ND	0.41	ND	0.41	ND	0.41	ND	0.41	ND	0.44	ND	0.44
FLUORENE	ND	0.4	ND	0.38	ND	0.41	ND	0.41	ND	0.41	ND	0.41	ND	0.44	ND	0.44
N-NITROSODIPHENYLAMINE	ND	0.4	ND	0.38	ND	0.41	ND	0.41	ND	0.41	ND	0.41	ND	0.44	ND	0.44
NAPHTHALENE	ND	0.4	ND	0.38	ND	0.41	ND	0.41	ND	0.41	ND	0.41	ND	0.44	ND	0.44
NITROBENZENE	ND	0.4	ND	0.38	ND	0.41	ND	0.41	ND	0.41	ND	0.41	ND	0.44	ND	0.44
PENTACHLOROPHENOL	ND	0.4	ND	0.38	ND	0.41	ND	0.41	ND	0.41	ND	0.41	ND	0.44	ND	0.44
PHENANTHRENE	ND	2	ND	1.9	ND	2	ND	2.1	ND	2.2	ND	2.2	ND	2.2	ND	2.2
PHENOL	ND	0.4	ND	0.38	ND	0.41	ND	0.41	ND	0.41	ND	0.41	ND	0.44	ND	0.44
PYRENE	ND	0.4	ND	0.38	ND	0.41	ND	0.41	ND	0.41	ND	0.41	ND	0.44	ND	0.44

NOTES:

(a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.

Conc. = Reported Concentration

LOQ = Limit of Quantitation

ND = Not detected above the laboratory LOQ

NA = Not Analyzed

R = Unusable data

J = Estimated result

UJ = Estimated non detect

DI = Dilution/estimated result

On-Site Comprehensive Subsurface Soil Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE ID	SAMPLE DEPTH (feet)	SAMPLE DATE	SB-22		SB23-31		SB23-55		SB23-60		SB23-73			
			SB22-32		SB22-44		31-33		55 - 57		60 - 62		73 - 75	
			Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
ANALYTICAL RESULT (mg/kg)														
Volatile Compounds														
TOTAL PETROLEUM HYDROCARBONS														
1,2-DICHLOROETHANE	ND	0.0058	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
BENZENE	0.18	0.0058	ND	0.0013	ND	0.0012	ND	0.0013	ND	0.001	ND	0.0013		
CHLOROBENZENE	ND	0.0058	ND	0.0013	ND	0.0012	ND	0.0013	ND	0.001	ND	0.0013		
DICHLOROMETHANE (METHYLENE CHLORIDE)	0.148	0.0058	ND	0.0013	ND	0.0012	ND	0.0013	ND	0.001	ND	0.0013		
ETHYLBENZENE	0.164	0.0058	ND	0.0013	0.357	0.0012	ND	0.0013	ND	0.001	ND	0.0013		
TOLUENE	0.417	0.0058	ND	0.0013	0.942	0.0012	ND	0.0013	ND	0.001	ND	0.0013		
XYLENES														
Semivolatile Compounds														
1,2-DIPHENYLDIAZINE	ND	0.38	ND	0.42	ND	0.39	ND	0.42	ND	0.42	ND	0.43		
2,4-DIMETHYLPHENOL	ND	0.38	ND	0.42	ND	0.39	ND	0.42	ND	0.42	ND	0.43		
2,4-DINITROTOLUENE	ND	0.38	ND	0.42	ND	0.39	ND	0.42	ND	0.42	ND	0.43		
2,6-DINITROTOLUENE	ND	0.38	ND	0.42	ND	0.39	ND	0.42	ND	0.42	ND	0.43		
2-CHLORONAPHTHALENE	ND	0.38	ND	0.42	ND	0.39	ND	0.42	ND	0.42	ND	0.43		
2-METHYLNAPHTHALENE	3.98	0.38	ND	0.42	45.132	0.39	ND	0.42	ND	0.42	ND	0.43		
4,6-DINITRO-O-CRESOL	ND	0.38	ND	0.42	ND	0.39	ND	0.42	ND	0.42	ND	0.43		
4-NITROPHENOL	ND	0.38	ND	0.42	ND	0.39	ND	0.42	ND	0.42	ND	0.43		
ACENAPHTHENE	3.569	0.38	ND	0.42	37.454	0.39	ND	0.42	ND	0.42	ND	0.43		
ACENAPHTHYLENE	ND	0.38	ND	0.42	ND	0.39	ND	0.42	ND	0.42	ND	0.43		
BENZO(A)ANTHRACENE	2.16	0.38	ND	0.42	40.95	0.39	ND	0.42	ND	0.42	ND	0.43		
BENZO(A)PYRENE	ND	0.38	ND	0.42	4.562	0.39	ND	0.42	ND	0.42	ND	0.43		
BIS(2-CHLOROETHOXY)METHANE	ND	0.38	ND	0.42	ND	0.39	ND	0.42	ND	0.42	ND	0.43		
BIS(2-ETHYL HEXYL)PHTHALATE	ND	0.38	ND	0.42	ND	0.39	ND	0.42	ND	0.42	ND	0.43		
CHRYSENE	ND	0.38	ND	0.42	4.547	0.39	ND	0.42	ND	0.42	ND	0.43		
DI-N-BUTYL PHTHALATE	ND	0.38	ND	0.42	ND	0.39	ND	0.42	ND	0.42	ND	0.43		
DIBENZOFURAN	ND	0.38	ND	0.42	ND	0.39	ND	0.42	ND	0.42	ND	0.43		
FLUORANTHENE	3.588	0.38	ND	0.42	37.346	0.39	ND	0.42	ND	0.42	ND	0.43		
FLUORENE	3.085	0.38	ND	0.42	37.587	0.39	ND	0.42	ND	0.42	ND	0.43		
N-NITROSODIPIENYLAMINE	14.819	0.38	ND	0.42	534.989	0.39	ND	0.42	ND	0.42	ND	0.43		
NAPHTHALENE	ND	0.38	ND	0.42	ND	0.39	ND	0.42	ND	0.42	ND	0.43		
NITROBENZENE	ND	0.38	ND	0.42	ND	0.39	ND	0.42	ND	0.42	ND	0.43		
PENTACHLOROPHENOL	8.699	0.38	ND	0.42	117.949	0.39	ND	0.42	ND	0.42	ND	0.43		
PHENANTHRENE	ND	0.38	ND	0.42	2.1	0.39	ND	0.42	ND	0.42	ND	0.43		
PHENOL	ND	0.38	ND	0.42	0.679	0.39	ND	0.42	ND	0.42	ND	0.43		
PYRENE	2.739	0.38	ND	0.42	26.778	0.39	ND	0.42	ND	0.42	ND	0.43		

NOTES:
 (a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.
 Conc. = Reported Concentration
 LOQ = Limit of Quantization
 ND = Not detected above the laboratory LOQ
 N/A = Not Analyzed
 R = Unusable data
 J = Estimated result
 U = Estimated non detect
 D1 = Dilution/estimated result

On-Site Comprehensive Subsurface Soil Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE ID SAMPLE DEPTH (feet) SAMPLE DATE ANALYTICAL RESULT (mg/kg)	HWPW-SB02-S21		HWPW-SB02-S24		HWPW-SB02-S37.5		HWPW-SB02-S38.5		HWPW-SB02-S49		HWPW-SB02-S7	
	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
70	20	0.005	ND	20	ND	20	130	20	ND	20	20	20
ND	0.005	ND	0.005	ND	ND	0.005	ND	0.005	ND	0.005	ND	0.005
ND	0.005	ND	0.005	ND	0.005	ND	ND	0.005	ND	0.005	ND	0.005
ND	0.005	ND	0.005	ND	0.005	ND	ND	0.005	ND	0.005	ND	0.005
ND	0.005	ND	0.005	ND	0.005	ND	ND	0.005	ND	0.005	ND	0.005
ND	0.005	ND	0.005	ND	0.005	ND	0.007	0.005	ND	0.005	ND	0.005
ND	0.005	ND	0.005	ND	0.005	ND	0.006	0.005	ND	0.005	ND	0.005
ND	0.005	ND	0.005	ND	0.005	0.005	0.006	0.005	ND	0.005	ND	0.005
ND	0.33	ND	0.33	ND	0.33	ND	ND	0.33	ND	0.33	ND	0.33
ND	0.33	ND	0.33	ND	0.33	ND	ND	0.33	ND	0.33	ND	0.33
ND	0.33	ND	0.33	ND	0.33	ND	ND	0.33	ND	0.33	ND	0.33
ND	0.33	ND	0.33	ND	0.33	ND	ND	0.33	ND	0.33	ND	0.33
ND	0.33	ND	0.33	ND	0.33	ND	ND	0.33	ND	0.33	ND	0.33
ND	0.33	ND	0.33	ND	0.33	ND	ND	0.33	ND	0.33	ND	0.33
ND	0.33	ND	0.33	ND	0.33	ND	ND	0.33	ND	0.33	ND	0.33
ND	0.33	ND	0.33	ND	0.33	ND	0.59	0.33	ND	0.33	ND	0.33
ND	1.6	ND	1.6	ND	1.6	ND	ND	1.6	ND	1.6	ND	1.6
ND	1.6	ND	1.6	ND	1.6	ND	ND	1.6	ND	1.6	ND	1.6
ND	0.33	ND	0.33	ND	0.33	ND	3.1	0.33	ND	0.33	ND	0.33
ND	0.33	ND	0.33	ND	0.33	ND	ND	0.33	ND	0.33	ND	0.33
ND	0.33	ND	0.33	ND	0.33	ND	2	0.33	ND	0.33	ND	0.33
ND	0.33	ND	0.33	ND	0.33	ND	0.56	0.33	ND	0.33	ND	0.33
ND	0.33	ND	0.33	ND	0.33	ND	ND	0.33	ND	0.33	ND	0.33
ND	0.33	ND	0.33	ND	0.33	ND	ND	0.33	ND	0.33	ND	0.33
ND	0.33	ND	0.33	ND	0.33	ND	ND	0.33	ND	0.33	ND	0.33
ND	0.33	ND	0.33	ND	0.33	ND	0.4	0.33	ND	0.33	ND	0.33
ND	0.33	ND	0.33	ND	0.33	ND	0.4	0.33	ND	0.33	ND	0.33
ND	0.33	ND	0.33	ND	0.33	ND	0.53	0.33	ND	0.33	ND	0.33
ND	0.33	ND	0.33	ND	0.33	ND	ND	0.33	ND	0.33	ND	0.33
ND	0.33	ND	0.33	ND	0.33	ND	2.6	0.33	ND	0.33	ND	0.33
ND	0.33	ND	0.33	ND	0.33	ND	4	0.33	ND	0.33	ND	0.33
ND	0.33	ND	0.33	ND	0.33	ND	3.1	0.33	ND	0.33	ND	0.33
ND	0.33	ND	0.33	ND	0.33	ND	ND	0.33	ND	0.33	ND	0.33
ND	0.33	ND	0.33	ND	0.33	ND	12	0.33	ND	0.33	ND	0.33
ND	1.6	ND	1.6	ND	1.6	ND	ND	1.6	ND	1.6	ND	1.6
ND	0.33	ND	0.33	ND	0.33	ND	17	0.33	ND	0.33	ND	0.33
ND	0.33	ND	0.33	ND	0.33	ND	ND	0.33	ND	0.33	ND	0.33
ND	0.33	ND	0.33	ND	0.33	ND	1.8	0.33	ND	0.33	ND	0.33

NOTES:

(a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8710B unless otherwise noted.

Conc. = Reported Concentration

LOQ = Limit of Quantization

ND = Not detected above the laboratory LOQ

NA = Not Analyzed

R = Unusable data

E = Estimated result

UJ = Estimated non-detect

D1 = Dilution/estimated result

On-Site Comprehensive Subsurface Soil Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION	SB-03			
	HWPW-SB03-S5	HWPW-SB03-S19	HWPW-SB03-S24	HWPW-SB03-S34
	5-6 3/5/97 Conc. LOQ	19-20 3/5/97 Conc. LOQ	24-25 3/5/97 Conc. LOQ	34 3/5/97 Conc. LOQ
Volatile Compounds				
TOTAL PETROLEUM HYDROCARBONS	670	70	20	1000
1,2-DICHLOROETHANE	ND	ND	ND	ND
BENZENE	ND	ND	ND	ND
CHLOROBENZENE	ND	ND	ND	ND
DICHLOROMETHANE (METHYLENE CHLORIDE)	ND	ND	ND	ND
ETHYLBENZENE	0.031	0.038	0.016	46
TOLUENE	ND	ND	0.029	32
XYLENES	0.089	0.099	0.051	170
Semivolatile Compounds				
1,2-DIPHENYLHYDRAZINE	ND	ND (R)	1.65	ND
2,4-DIMETHYLPHENOL	ND	ND (R)	1.65	ND
2,4-DINITROTOLUENE	ND	ND (R)	1.65	ND
2,6-DINITROTOLUENE	ND	ND (R)	1.65	ND
2-CHLORONAPHTHALENE	ND	ND (R)	1.65	ND
2-METHYLNAPHTHALENE	78 (DJ)	11 (J)	1.65	2200
4,6-DINITRO-O-CRESOL	ND	ND (R)	8	120
4-NITROPHENOL	ND	ND (R)	1.65	120
ACENAPHTHENE	50 (DJ)	6.1 (J)	1.65	270
ACENAPHTHYLENE	ND	ND (R)	1.65	ND
ANTHRACENE	24 (DJ)	3.5 (J)	1.65	160
BENZO(A)ANTHRACENE	7.9 (DJ)	0.67 (J)	1.65	42
BENZO(A)PYRENE	2.5 (DJ)	ND (R)	1.65	ND
BIS(2-CHLOROETHOXY)METHANE	ND	ND (R)	1.65	ND
BIS(2-ETHYL HEXYL)PHTHALATE	ND	ND (R)	1.65	ND
CHRYSENE	8.6 (DJ)	0.832 (J)	1.65	42
DI-N-BUTYL PHTHALATE	ND	ND (R)	1.65	ND
DIBENZOFURAN	40 (DJ)	6.4 (J)	1.65	240
FLUORANTHENE	84 (DJ)	7.9 (J)	1.65	210
FLUORENE	46 (DJ)	5.6 (J)	1.65	250
N-NITROSODIPHENYLAMINE	180 (DJ)	30 (J)	1.65	4000
NAPHTHALENE	ND	ND (R)	1.65	ND
NITROBENZENE	ND	ND (R)	1.65	ND
PENTACHLOROPHENOL	160 (DJ)	16 (J)	1.65	120
PHENANTHRENE	ND	ND (R)	1.65	2500
PHENOL	ND	ND (R)	1.65	ND
PYRENE	40 (DJ)	4.3 (J)	1.65	190

NOTES:

- (a) Volatile Compounds analyzed by Method SW846-8150A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.
- Conc. = Reported Concentration
- LOQ = Limit of Quantitation
- ND = Not detected above the laboratory LOQ
- NA = Not Analyzed
- R = Unusable data
- J = Estimated result
- IJ = Estimated non detect
- DI = Dilution/estimated result

On-Site Comprehensive Subsurface Soil Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION	SB-04									
	HWPW-SB04-S27	HWPW-SB04-S29	HWPW-SB04-S31	HWPW-SB04-S39						
	27-30 3/5/97	29-30 3/5/97	31-32 3/5/97	39.5-40 3/5/97						
ANALYTICAL RESULT (mg/kg)										
	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
Volatiles Compounds										
TOTAL PETROLEUM HYDROCARBONS										
1,2-DICHLOROETHANE	130 (J)	20	70	20	120	20	NA	NA	40	20
BENZENE	ND (DJ)	0.005	ND	0.005	ND	0.625	NA	0.025	ND	0.025
CHLOROBENZENE	0.013 (J)	0.005	0.013	0.005	ND	0.625	NA	0.025	ND	0.025
DICHLOROMETHANE (METHYLENE CHLORIDE)	ND (DJ)	0.005	ND	0.005	ND	0.625	NA	0.025	ND	0.025
ETHYLBENZENE	0.064 (J)	0.005	0.031	0.005	1.7	0.625	NA	0.025	0.62	0.025
TOLUENE	0.028 (J)	0.005	0.021	0.005	1.4	0.625	NA	0.025	0.2	0.025
XYLENES	0.18 (J)	0.005	0.088	0.005	6.1	0.625	NA	0.025	1.9	0.025
Semivolatile Compounds										
1,2-DIPHENYLHYDRAZINE	ND	1.65	ND	1.65	ND	1.65	ND	3.3	ND	8.25
2,4-DIMETHYLPHENOL	ND	1.65	ND	1.65	ND	1.65	ND	3.3	ND	8.25
2,4-DINITROTOLUENE	ND	1.65	ND	1.65	ND	1.65	ND	3.3	ND	8.25
2,6-DINITROTOLUENE	ND	1.65	ND	1.65	ND	1.65	ND	3.3	ND	8.25
2-CHLORONAPHTHALENE	ND	1.65	ND	1.65	ND	1.65	ND	3.3	ND	8.25
2-METHYLNAPHTHALENE	53 (DJ)	8.25	17 (DJ)	8.25	29 (DJ)	3.3	1100	660	51 (DJ)	8.25
4,6-DINITRO-O-CRESOL	ND	8	ND	8	ND	8	ND	16	ND	40
4-NITROPHENOL	ND	8	ND	8	ND	8	ND	16	ND	40
ACENAPHTHENE	16 (DJ)	1.65	13 (DJ)	1.65	23 (DJ)	3.3	750	660	12 (DJ)	8.25
ACENAPHTHYLENE	ND	1.65	ND	1.65	ND	1.65	ND	3.3	ND	8.25
ANTHRACENE	9.7 (DJ)	1.65	14 (DJ)	1.65	18 (DJ)	1.65	470	33	ND	8.25
BENZO(A)ANTHRACENE	2.1 (DJ)	1.65	1.8 (DJ)	1.65	4.4 (DJ)	1.65	38	3.3	0.96 (DJ)	8.25
BIS(2-CHLOROETHOXY)METHANE	ND	1.65	ND	1.65	1 (DJ)	1.65	11	3.3	ND	8.25
BIS(2-ETHYL-HEXYL)PHTHALATE	ND	1.65	ND	1.65	ND	1.65	ND	3.3	ND	8.25
CHRYSENE	2.1 (DJ)	1.65	1.7 (DJ)	1.65	4.4 (DJ)	1.65	38	3.3	1.2 (DJ)	8.25
DI-N-BUTYL PHTHALATE	ND	1.65	ND	1.65	ND	1.65	ND	3.3	ND	8.25
DIBENZOFURAN	14 (DJ)	1.65	12 (DJ)	1.65	25 (DJ)	3.3	750	660	12 (DJ)	8.25
FLUORANTHENE	13 (DJ)	1.65	11 (DJ)	1.65	20 (DJ)	1.65	590	660	ND	8.25
FLUORENE	16 (DJ)	1.65	14 (DJ)	1.65	20 (DJ)	3.3	620	33	9 (DJ)	8.25
N-NITROSODIPHENYLAMINE	ND	1.65	ND	1.65	ND	1.65	ND	3.3	ND	8.25
NAPHTHALENE	56 (DJ)	8.25	59 (DJ)	8.25	200 (DJ)	16.5	4900	660	73 (DJ)	8.25
NITROBENZENE	ND	1.65	ND	1.65	ND	1.65	ND	3.3	ND	8.25
PENTACHLOROPHENOL	ND	8	ND	8	ND	8	ND	16	ND	40
PHENANTHRENE	47 (DJ)	8.25	46 (DJ)	8.25	56 (DJ)	3.3	1800	3.3	27 (DJ)	8.25
PHENOL	ND	1.65	ND	1.65	ND	1.65	ND	3.3	ND	8.25
PYRENE	10 (DJ)	1.65	9.8 (DJ)	1.65	23 (DJ)	1.65	430	33	8.2 (DJ)	8.25

NOTES:

(a) Volatile Compounds analyzed by Method SW846-8360A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.

Conc. = Reported Concentration

LOQ = Limit of Quantization

ND = Not detected above the laboratory LOQ

NA = Not Analyzed

R = Unusable data

J = Estimated result

UJ = Estimated non detect

DJ = Dilution/estimated result

On-Site Comprehensive Subsurface Soil Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

Analytical Result (mg/kg)	SB-05				SB-06					
	HWPW-SB05-S19.5		HWPW-SB05-S24		HWPW-SB05-S34.5		HWPW-SB05-S39		HWPW-SB06-S19	
	Sample ID 19.5-20	Sample Depth (feet) 3/4/97	Sample ID 24-24.5	Sample Depth (feet) 3/4/97	Sample ID 34.5-35	Sample Depth (feet) 3/4/97	Sample ID 39-40	Sample Depth (feet) 3/4/97	Sample ID 19.5-20	Sample Depth (feet) 3/4/97
Volatiles Compounds	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
TOTAL PETROLEUM HYDROCARBONS	ND	20	ND	20	ND	20	ND	20	370	20
1,2-DICHLOROETHANE	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005
BENZENE	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005
CHLOROBENZENE	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005
DICHLOROMETHANE (METHYLENE CHLORIDE)	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005
ETHYLBENZENE	ND	0.005	ND	0.005	ND	0.005	ND	0.005	0.044	0.005
TOLUENE	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005
XYLENES	ND	0.005	ND	0.005	ND	0.005	ND	0.005	0.074	0.005
Semivolatile Compounds										
1,2-DIPHENYLHYDRAZINE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND (R)	6.6
2,4-DIMETHYLPHENOL	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND (R)	6.6
2,4-DINITROTOLUENE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND (R)	6.6
2,6-DINITROTOLUENE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND (R)	6.6
2-CHLORONAPHTHALENE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND (R)	6.6
2-METHYLNAPHTHALENE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND (R)	6.6
4,6-DINITRO-O-CRESOL	ND	1.6	ND	1.6	ND	1.6	ND	1.6	28 (U)	6.6
4-NITROPHENOL	ND	1.6	ND	1.6	ND	1.6	ND	1.6	ND (R)	32
ACENAPHTHENE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND (R)	32
ACENAPHTHYLENE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	18 (U)	6.6
ANTHRACENE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND (R)	6.6
BENZO(A)ANTHRACENE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND (R)	6.6
BENZO(A)PYRENE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	15 (U)	6.6
BIS(2-CHLOROETHOXY)METHANE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	2.4 (U)	6.6
BIS(2-ETHYL HEXYL)PHTHALATE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND (R)	6.6
CHRYSENE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND (R)	6.6
DI-N-BUTYL PHTHALATE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND (R)	6.6
DIBENZOFURAN	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND (R)	6.6
FLUORANTHENE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND (R)	6.6
FLUORENE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	18 (U)	6.6
N-NITROSODIPHENYLAMINE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	20 (U)	6.6
NAPHTHALENE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	21 (U)	6.6
NITROBENZENE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND (R)	6.6
PENTACHLOROPHENOL	ND	1.6	ND	1.6	ND	1.6	ND	1.6	61 (U)	6.6
PHENANTHRENE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND (R)	32
PHENOL	ND	0.33	ND	0.33	ND	0.33	ND	0.33	44 (U)	6.6
PYRENE	ND	0.33	ND	0.33	ND	0.33	ND	0.33	ND (R)	6.6
	ND	0.33	ND	0.33	ND	0.33	ND	0.33	9.2 (U)	6.6

NOTES:

(a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.

Conc. = Reported Concentration

LOQ = Limit of Quantitation

ND = Not detected above the laboratory LOQ

NA = Not Analyzed

R = Unusable data

J = Estimated result

UI = Estimated non detect

DI = Dilution/estimated result

On-Site Comprehensive Subsurface Soil Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION	SB-06			SB-07			LOQ
	HWPW-SB06-S24	HWPW-SB06-S49	HWPW-SB07-S19	HWPW-SB07-S21	HWPW-SB07-S22	HWPW-SB07-S24	
	24-25 3/4/97	49-50 3/4/97	19-20 3/6/97	21-22 3/6/97	22-23 3/6/97	24-25 3/6/97	
ANALYTICAL RESULT (mg/kg)	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.
Volatile Compounds							
TOTAL PETROLEUM HYDROCARBONS	ND	NA	1900	1200	1100	20	9200
1,2-DICHLOROETHANE	ND	ND	ND	ND	ND	0.625	ND
BENZENE	ND	0.005	0.025	0.025	ND	0.625	6.25
CHLOROBENZENE	ND	0.005	0.23	0.67	ND	0.625	6.25
DICHLOROMETHANE (METHYLENE CHLORIDE)	ND	0.005	ND	0.025	ND	0.625	6.25
ETHYLBENZENE	ND	0.005	ND	0.025	ND	0.625	6.25
TOLUENE	ND	0.005	12	12	9.1	0.625	31
XYLENES	ND	0.005	12	13	9.8	0.625	31
	ND	0.005	40	38	28	0.625	90
Semivolatile Compounds							
1,2-DIPHENYLDRAZINE	ND	0.33	ND	ND	ND	3.3	ND
2,4-DIMETHYLPHENOL	ND	0.33	ND	ND	ND	3.3	ND
2,4-DINITROTOLUENE	ND	0.33	ND	ND	ND	3.3	25 (DJ)
2,6-DINITROTOLUENE	ND	0.33	ND	ND	ND	3.3	ND
2-CHLORONAPHTHALENE	ND	0.33	ND	ND	ND	3.3	ND
2-METHYLNAPHTHALENE	ND	0.33	ND	ND	ND	3.3	ND
4,6-DINITRO-O-CRESOL	ND	0.33	1700 (DJ)	260 (DJ)	790 (DJ)	165	3700 (DJ)
4-NITROPHENOL	ND	1.6	ND	ND	ND	16	1600
ACENAPHTHENE	ND	1.6	ND	ND	ND	16	1600
ACENAPHTHYLENE	ND	0.33	460 (DJ)	400	630 (DJ)	66	3200 (DJ)
ANTHRACENE	ND	0.33	ND	ND	ND	3.3	ND
BENZO(A)ANTHRACENE	ND	0.33	280 (DJ)	220 (DJ)	ND	3.3	ND
BENZO(A)PYRENE	ND	0.33	59 (DJ)	17 (DJ)	ND	3.3	ND
BIS(2-CHLOROETHOXY)METHANE	ND	0.33	ND	5 (DJ)	ND	3.3	ND
BIS(2-ETHYL HEXYL)PHTHALATE	ND	0.33	ND	ND	ND	3.3	ND
CHRYSENE	ND	0.33	ND	ND	ND	3.3	ND
DI-N-BUTYL PHTHALATE	ND	0.33	56 (DJ)	17 (DJ)	ND	3.3	ND
DIBENZOFURAN	ND	0.33	ND	ND	ND	3.3	ND
FLUORANTHENE	ND	0.33	360 (DJ)	300 (DJ)	470 (DJ)	66	2500 (DJ)
FLUORENE	0.36	0.33 (DJ)	330 (DJ)	240 (DJ)	380 (DJ)	3.3	2500 (DJ)
N-NITROSODIPHENYLAMINE	ND	0.33	430 (DJ)	360 (DJ)	560 (DJ)	66	2700 (DJ)
NAPHTHALENE	ND	0.33	ND	ND	ND	3.3	ND
NITROBENZENE	ND	0.33	7600 (DJ)	1000 (DJ)	5300 (DJ)	165	42000 (DJ)
PENTACHLOROPHENOL	ND	0.33	ND	ND	ND	3.3	ND
PHENANTHRENE	ND	1.6	160	ND	ND	16	1600
PHENOL	ND	0.33	2600 (DJ)	730 (DJ)	1200 (DJ)	66	6900 (DJ)
PYRENE	ND	0.33	ND	ND	ND	3.3	ND
	ND	0.33	280	200 (DJ)	ND	3.3	ND

NOTES:

- (a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.
- Conc. = Reported Concentration
- LOQ = Limit of Quantitation
- ND = Not detected above the laboratory LOQ
- NA = Not Analyzed
- R = Unusable data
- J = Estimated result
- UJ = Estimated non detect
- DJ = Dilution/estimated result

On-Site Comprehensive Subsurface Soil Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID SAMPLE DEPTH (feet) SAMPLE DATE ANALYTICAL RESULT (mg/kg)	SB-08			SB-24		
	HWPW-SB08-S14	HWPW-SB08-S18	HWPW-SB08-S21	HWPW-SB08-S22	SB24-34	SB24-49
	14-15 3/6/97 Conc. LOQ	18-19 3/6/97 Conc. LOQ	21-22 3/6/97 Conc. LOQ	22-23 3/6/97 LOQ	34 - 36 9/28/98 Conc. LOQ	49 - 50 9/28/98 Conc. LOQ
Volatile Compounds						
TOTAL PETROLEUM HYDROCARBONS	850	8900 (I)	4500	12000	NA	NA
1,2-DICHLOROETHANE	ND	ND (UJ)	ND	ND	ND	NA
BENZENE	0.071	1.1 (I)	0.625	0.005	0.553	0.006
CHLOROBENZENE	ND	ND (UJ)	ND	0.005	0.006	0.0007 J
DICHLOROMETHANE (METHYLENE CHLORIDE)	ND	ND (UJ)	ND	ND	ND	ND
ETHYLBENZENE	3.4	19 (I)	0.074	ND	0.025 U	0.006 J
TOLUENE	2.6	13 (I)	0.625	12	1.128	0.006
XYLENES	11	55 (I)	0.23	7.5	1.488	0.002
				43	3.158 E	0.001
						0.0012
Semivolatile Compounds						
1,2-DIPHENYLHYDRAZINE	ND	ND	ND	ND	ND	ND
2,4-DIMETHYLPHENOL	ND	ND	ND	ND	ND	ND
2,4-DINITROTOLUENE	ND	ND	ND	ND	ND	ND
2,6-DINITROTOLUENE	ND	ND	ND	ND	ND	ND
2-CHLORONAPHTHALENE	ND	ND	ND	ND	ND	ND
2-METHYLNAPHTHALENE	360 (DJ)	400 (DJ)	350 (DJ)	ND	ND	ND
4,6-DINITRO-O-CRESOL	ND	ND	ND	420 (DJ)	12.511	ND
4-NITROPHENOL	ND	ND	ND	ND	ND	ND
ACENAPHTHENE	ND	ND	ND	ND	ND	ND
ACENAPHTHYLENE	ND	320 (DJ)	200 (DJ)	ND	8.608	ND
ANTHRACENE	ND	ND	ND	400 (DJ)	ND	ND
BENZO(A)ANTHRACENE	ND	24.75	ND	165	ND	ND
BENZO(A)PYRENE	10 (DJ)	24.75	580 (DJ)	165	ND	ND
BIS(2-CHLOROETHOXY)METHANE	ND	24.75	40 (DJ)	165	8.861	ND
BIS(2-ETHYL HEXYL)PHTHALATE	ND	24.75	15 (DJ)	165	5.753	ND
CHRYSENE	ND	ND	ND	165	ND	ND
DI-N-BUTYL PHTHALATE	43 (DJ)	24.75	ND	165	ND	ND
DIBENZOFURAN	ND	24.75	40 (DJ)	165	ND	ND
FLUORANTHENE	ND	24.75	230 (DJ)	165	ND	ND
FLUORENE	ND	24.75	ND	165	ND	ND
N-NITROSODIPHENYLAMINE	330 (DJ)	300 (DJ)	180 (DJ)	165	8.632	ND
NAPHTHALENE	ND	24.75	ND	165	7.493	ND
NITROBENZENE	4600 (DJ)	17000 (DJ)	20000 (DJ)	1650	ND	ND
PENTACHLOROPHENOL	ND	ND	ND	1650	68.809	ND
PHENANTHRENE	ND	24.75	ND	ND	ND	ND
PHENOL	590 (DJ)	120	ND	800	ND	ND
PYRENE	ND	99	610 (DJ)	165	29.489	ND
	ND	24.75	ND	165	4.055	ND
	ND	160 (DJ)	ND	165	6.346	ND
	330	24.75	ND	165	247.5	247.5

NOTES:

- (A) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.
- Conc. = Reported Concentration
- LOQ = Limit of Quantitation
- ND = Not detected above the laboratory LOQ
- NA = Not Analyzed
- R = Unusable data
- U = Estimated result
- J = Estimated non detect
- DJ = Dilution/estimated result

On-Site Comprehensive Subsurface Soil Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION	SB-25		SB-28		SB-37		SB-37-22.5		SB-37-22.5-D		
	SB25-35	SB25-48	SB28-40	SB28-49	SB37-12	SB37-22.5	SB37-22.5	SB37-22.5	SB37-22.5-D	SB37-22.5-D	
	35-36 9/29/98	48-50 9/29/98	40-42 9/30/98	49-50 9/30/98	12-14 10/9/98	22.5-24 10/9/98	22.5-24 10/9/98	22.5-24 10/9/98	22.5-24 10/9/98	22.5-24 10/9/98	
ANALYTICAL RESULT (mg/kg)		Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
Volatile Compounds											
TOTAL PETROLEUM HYDROCARBONS											
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	ND	0.0061	ND	0.0013	ND	0.0012	ND	0.0014	ND	0.0012	ND
CHLOROBENZENE	ND	0.0061	ND	0.0013	ND	0.0012	ND	0.0014	ND	0.0012	ND
DICHLOROMETHANE (METHYLENE CHLORIDE)	0.026	U	ND	0.0013	ND	0.0012	ND	0.0014	ND	0.0012	ND
ETHYLBENZENE	0.412	0.0061	ND	0.0013	ND	0.0012	ND	0.0014	ND	0.0012	ND
TOLUENE	0.7	0.0061	0.0352	0.0061	ND	0.0012	ND	0.0014	ND	0.0012	ND
XYLENES	1.161	0.0061	0.0879	0.0061	ND	0.0012	ND	0.0014	ND	0.0012	ND
Semivolatile Compounds											
1,2-DIPHENYLHYDRAZINE	ND	0.41	ND	0.42	ND	0.4	ND	0.44	ND	0.4	ND
2,4-DIMETHYLPHENOL	ND	0.41	ND	0.42	ND	0.4	ND	0.44	ND	0.4	ND
2,4-DINITROTOLUENE	ND	0.41	ND	0.42	ND	0.4	ND	0.44	ND	0.4	ND
2,6-DINITROTOLUENE	ND	0.41	ND	0.42	ND	0.4	ND	0.44	ND	0.4	ND
2-CHLORONAPHTHALENE	ND	0.41	ND	0.42	ND	0.4	ND	0.44	ND	0.4	ND
2-METHYLNAPHTHALENE	1.681	0.41	ND	0.42	ND	0.4	ND	0.44	ND	0.4	ND
4,6-DINITRO-O-CRESOL	ND	0.41	ND	0.42	ND	0.4	ND	0.44	ND	0.4	ND
4-NITROPHENOL	ND	0.41	ND	0.42	ND	0.4	ND	0.44	ND	0.4	ND
ACENAPHTHENE	0.606	0.41	ND	0.42	ND	0.4	ND	0.44	ND	0.4	ND
ACENAPHTHYLENE	ND	0.41	ND	0.42	ND	0.4	ND	0.44	ND	0.4	ND
ANTHRACENE	0.488	0.41	ND	0.42	ND	0.4	ND	0.44	ND	0.4	ND
BENZO(A)ANTHRACENE	ND	0.41	ND	0.42	ND	0.4	ND	0.44	ND	0.4	ND
BENZO(A)PYRENE	ND	0.41	ND	0.42	ND	0.4	ND	0.44	ND	0.4	ND
BIS(2-CHLOROETHOXY)METHANE	ND	0.41	ND	0.42	ND	0.4	ND	0.44	ND	0.4	ND
BIS(2-ETHYL HEXYL)PHTHALATE	ND	0.41	ND	0.42	ND	0.4	ND	0.44	ND	0.4	ND
CHRYSENE	ND	0.41	ND	0.42	ND	0.4	ND	0.44	ND	0.4	ND
DI-N-BUTYL-PHTHALATE	ND	0.41	ND	0.42	ND	0.4	ND	0.44	ND	0.4	ND
DIBENZOFURAN	ND	0.41	ND	0.42	ND	0.4	ND	0.44	ND	0.4	ND
FLUORANTHENE	0.643	0.41	ND	0.42	ND	0.4	ND	0.44	ND	0.4	ND
FLUORENE	0.49	0.41	ND	0.42	ND	0.4	ND	0.44	ND	0.4	ND
N-NITROSODIPHENYLAMINE	ND	0.41	ND	0.42	ND	0.4	ND	0.44	ND	0.4	ND
NAPHTHALENE	8.33	0.41	ND	0.42	ND	0.4	ND	0.44	ND	0.4	ND
NITROBENZENE	ND	0.41	ND	0.42	ND	0.4	ND	0.44	ND	0.4	ND
PENTACHLOROPHENOL	ND	2	ND	2.1	ND	2	ND	2.2	ND	2	ND
PHENANTHRENE	2.41	0.41	ND	0.42	ND	0.4	ND	0.44	ND	0.4	ND
PHENOL	ND	0.41	ND	0.42	ND	0.4	ND	0.44	ND	0.4	ND
PYRENE	0.468	0.41	ND	0.42	ND	0.4	ND	0.44	ND	0.4	ND

NOTES:

- (a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.
- Conc. = Reported Concentration
- LOQ = Limit of Quantitation
- NA = Not Analyzed
- R = Unusable data
- U = Estimated result
- UJ = Estimated non detect
- DI = Division/estimated result

On-Site Comprehensive Subsurface Soil Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID SAMPLE DEPTH (feet) SAMPLE DATE ANALYTICAL RESULT (mg/kg)	SB-40		SB-43		SB-44	
	SB40-33D	SB40-53	SB43-07	SB43-13	SB43-21	SB44-22
	33 - 34 10/1/98 Conc. LOQ	53 - 54 10/1/98 Conc. LOQ	7 - 9 10/12/98 Conc. LOQ	13 - 15 10/12/98 Conc. LOQ	21 - 24 10/12/98 Conc. LOQ	15 - 17 10/12/98 Conc. LOQ
Volatile Compounds						
TOTAL PETROLEUM HYDROCARBONS						
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA
BENZENE	ND 0.0012	ND 0.0013	ND 0.0012	ND 0.0012	ND 0.0012	ND 0.0012
CHLOROBENZENE	ND 0.0012	ND 0.0013	0.00821	ND 0.0012	ND 0.0012	ND 0.0012
DICHLOROMETHANE (METHYLENE CHLORIDE)	ND 0.0012	ND 0.0013	ND 0.0012	ND 0.0012	ND 0.0012	ND 0.0012
ETHYLBENZENE	ND 0.0012	ND 0.0013	0.0828	ND 0.0012	ND 0.0012	ND 0.0012
TOLUENE	ND 0.0012	ND 0.0013	0.0361	ND 0.0012	ND 0.0012	ND 0.0012
XYLENES	ND 0.0012	ND 0.0013	0.217	ND 0.0012	ND 0.0012	ND 0.0012
Semivolatile Compounds						
1,2-DIPHENYLHYDRAZINE	ND 0.41	ND 0.43	ND 0.4	ND 0.39	ND 0.39	ND 0.39
2,4-DIMETHYLPHENOL	ND 0.41	ND 0.43	ND 0.4	ND 0.39	ND 0.39	ND 0.39
2,4-DINITROTOLUENE	ND 0.41	ND 0.43	ND 0.4	ND 0.39	ND 0.39	ND 0.39
2,6-DINITROTOLUENE	ND 0.41	ND 0.43	ND 0.4	ND 0.39	ND 0.39	ND 0.39
2-CHLORONAPHTHALENE	ND 0.41	ND 0.43	ND 0.4	ND 0.39	ND 0.39	ND 0.39
2-METHYLNAPHTHALENE	ND 0.41	ND 0.43	7.897	1.679	ND 0.39	ND 0.39
4,6-DINITRO-O-CRESOL	ND 0.41	ND 0.43	ND 0.4	ND 0.39	ND 0.39	ND 0.39
4-NITROPHENOL	ND 0.41	ND 0.43	ND 0.4	ND 0.39	ND 0.39	ND 0.39
ACENAPHTHENE	ND 0.41	ND 0.43	8.811	3.105	ND 0.39	ND 0.39
ACENAPHTHYLENE	ND 0.41	ND 0.43	ND 0.4	ND 0.39	ND 0.39	ND 0.39
ANTHRACENE	ND 0.41	ND 0.43	4.811	2.166	ND 0.39	ND 0.39
BENZO(A)ANTHRACENE	ND 0.41	ND 0.43	1.564	0.797	ND 0.39	ND 0.39
BENZO(A)PYRENE	ND 0.41	ND 0.43	ND 0.4	ND 0.39	ND 0.39	ND 0.39
BIS(2-CHLOROETHOXYMETHANE	ND 0.41	ND 0.43	ND 0.4	ND 0.39	ND 0.39	ND 0.39
BIS(2-ETHYL HEXYL)PHTHALATE	ND 0.41	ND 0.43	ND 0.4	ND 0.39	ND 0.39	ND 0.39
CHRYSENE	ND 0.41	ND 0.43	1.377	0.734	ND 0.39	ND 0.39
DI-N-BUTYL PHTHALATE	ND 0.41	ND 0.43	ND 0.4	ND 0.39	ND 0.39	ND 0.39
DIBENZOFURAN	ND 0.41	ND 0.43	ND 0.4	ND 0.39	ND 0.39	ND 0.39
FLUORANTHENE	ND 0.41	ND 0.43	10.164	4.402	ND 0.39	ND 0.39
FLUORENE	ND 0.41	ND 0.43	9.262	3.98	ND 0.39	ND 0.39
N-NITROSODIPHENYLAMINE	ND 0.41	ND 0.43	30.967	3.39	ND 0.39	ND 0.39
NAPHTHALENE	ND 0.41	ND 0.43	ND 0.4	ND 0.39	ND 0.39	ND 0.39
NITROBENZENE	ND 0.41	ND 0.43	ND 0.4	ND 0.39	ND 0.39	ND 0.39
PENTACHLOROPHENOL	ND 2.1	ND 2.2	ND 2	ND 2	ND 2	ND 2
PHENANTHRENE	ND 0.41	ND 0.43	32.069	10.243	ND 0.39	ND 0.39
PHENOL	ND 0.41	ND 0.43	ND 0.4	ND 0.39	ND 0.39	ND 0.39
PYRENE	ND 0.41	ND 0.43	7.052	3.335	ND 0.39	ND 0.39

NOTES:

(a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.

- Conc. = Reported Concentration
- LOQ = Limit of Quantitation
- ND = Not detected above the laboratory LOQ
- NA = Not Analyzed
- R = Unstable data
- I = Estimated result
- UI = Estimated non detect
- DI = Dimer/estimated result

On-Site Comprehensive Ground Water Analytical Data
Attachment D-3

July 10, 2000
W.O. #422-009

Environmental Resources Management
16300 Katy Freeway, Suite 300
Houston, Texas 77094-1611
(281) 600-1000

On-Site Ground Water Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID TRANSMISSIVE ZONE SAMPLE DATE ANALYTICAL RESULT (mg/L)	HP05UTZ		HP06UTZ		HP07UTZ		HP09UTZ		HP10UTZ		HP11UTZ		HP12UTZ	
	A-TZ		A-TZ		A-TZ		A-TZ		A-TZ		A-TZ		A-TZ	
	12/6/95	LOQ	12/6/95	LOQ	12/5/95	LOQ	12/6/95	LOQ	12/6/95	LOQ	12/6/95	LOQ	12/6/95	LOQ
Volatile Compounds														
1,2-DICHLOROETHANE	ND	0.005	ND	0.005	NA	NA	ND	0.005	ND	0.005	ND	0.005	ND	0.005
BENZENE	ND	0.005	ND	0.005	NA	NA	ND	0.005	ND	0.005	ND	0.08	ND	0.005
CHLOROBENZENE	ND	0.005	ND	0.005	NA	NA	ND	0.005	ND	0.005	ND	0.005	ND	0.005
DICHLOROMETHANE	ND	0.005	ND	0.005	NA	NA	ND	0.005	ND	0.005	ND	0.005	ND	0.005
ETHYLBENZENE	ND	0.005	ND	0.005	NA	NA	ND	0.005	ND	0.005	ND	1.1	ND	0.005
TOLUENE	ND	0.005	ND	0.005	NA	NA	ND	0.005	ND	0.005	ND	0.01	ND	0.005
XYLENES	ND	0.005	ND	0.005	NA	NA	ND	0.005	ND	0.005	ND	0.9	ND	0.005
Semivolatile Compounds														
1,2-DIPHENYLHYDRAZINE	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	NA	NA	ND	0.01
2,4-DIMETHYLPHENOL	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	NA	NA	ND	0.01
2,4-DINITROTOLUENE	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	NA	NA	ND	0.01
2,6-DINITROTOLUENE	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	NA	NA	ND	0.01
2-CHLORONAPHTHALENE	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	NA	NA	ND	0.01
2-METHYLNAPHTHALENE	0.062	0.01	ND	0.01	0.06	0.01	NA	NA	ND	0.01	NA	NA	ND	0.01
4,6-DINITRO-O-CRESOL	ND	0.05	ND	0.05	ND	0.05	NA	NA	ND	0.05	NA	NA	ND	0.05
4-NITROPHENOL	ND	0.05	ND	0.05	ND	0.05	NA	NA	ND	0.05	NA	NA	ND	0.05
ACENAPHTHENE	0.108	0.01	ND	0.01	0.089	0.01	NA	NA	0.011	0.01	NA	NA	NA	NA
ACENAPHTHYLENE	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	NA	NA	ND	0.01
ANTHRACENE	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	NA	NA	ND	0.01
BENZO(A)ANTHRACENE	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	NA	NA	ND	0.01
BENZO(A)PYRENE	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	NA	NA	ND	0.01
BIS(2-CHLOROETHOXY)METHANE	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	NA	NA	ND	0.01
BIS(2-ETHYL HEXYL)PHTHALATE	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	NA	NA	ND	0.01
CHRYSENE	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	NA	NA	ND	0.01
DI-N-BUTYL PHTHALATE	0.019	0.01	0.019	0.01	0.017	0.01	NA	NA	ND	0.01	NA	NA	ND	0.01
DIBENZOFURAN	0.058	0.01	ND	0.01	0.028	0.01	NA	NA	0.02	0.01	NA	NA	ND	0.01
FLUORANTHENE	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	NA	NA	ND	0.01
FLUORENE	0.053	0.01	ND	0.01	0.053	0.01	NA	NA	ND	0.01	NA	NA	ND	0.01
N-NITROSODIPHENYLAMINE	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	NA	NA	ND	0.01
NAPHTHALENE	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	NA	NA	ND	0.01
NITROBENZENE	ND	0.01	ND	0.01	0.7	0.01	ND	0.01	ND	0.01	3.7	0.01	ND	0.01
PENTACHLOROPHENOL	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	NA	NA	ND	0.01
PHENANTHRENE	ND	0.05	ND	0.05	ND	0.05	NA	NA	ND	0.05	NA	NA	ND	0.05
PHENOL	ND	0.01	ND	0.01	0.012	0.01	NA	NA	ND	0.01	NA	NA	ND	0.01
PYRENE	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	NA	NA	ND	0.01

NOTES:
 (a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile
 Compounds analyzed by Method SW846-8270B unless otherwise noted.
 Conc. = Reported Concentration
 LOQ = Limit of Quantitation
 ND = Not detected above the laboratory LOQ
 NA = Not Analyzed
 R = Unusable data
 J = Estimated result
 UJ = Estimated non detect
 DJ = Dilution/estimated result

On-Site Ground Water Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID TRANSMISSIVE ZONE SAMPLE DATE ANALYTICAL RESULT (mg/L)	HP013UTZ		HP014UTZ		HP015UTZ		HP016UTZ		HP055STZ		HP065STZ	
	HP013UTZ A-TZ 12/7/95		HP014UTZ A-TZ 12/7/95		HP015UTZ A-TZ 12/6/95		HP016UTZ A-TZ 12/7/95		HP055STZ B-TZ 12/6/95		HP065STZ B-TZ 12/6/95	
	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
Volatiles Compounds												
1,2-DICHLOROETHANE	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005
BENZENE	ND	0.005	0.016	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005
CHLOROBENZENE	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005
DICHLOROMETHANE	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005
ETHYLBENZENE	0.033	0.005	0.27	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005
TOLUENE	0.03	0.005	0.41	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005
XYLENES	0.03	0.005	0.85	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005
Semivolatile Compounds												
1,2-DIPHENYLHYDRAZINE	ND	0.05	ND	1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01
2,4-DIMETHYLPHENOL	ND	0.05	ND	1	ND (R)	0.01	ND	0.01	ND	0.01	ND	0.01
2,4-DINITROTOLUENE	ND	0.05	ND	1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01
2,6-DINITROTOLUENE	ND	0.05	ND	1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01
2-CHLORONAPHTHALENE	ND	0.05	ND	1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01
2-METHYLNAPHTHALENE	0.21	0.05	ND	1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01
4,6-DINITRO-O-CRESOL	ND	0.25	ND	5	ND (UJ)	0.05	ND	0.05	ND	0.05	ND	0.05
4-NITROPHENOL	ND	0.25	ND	5	ND (R)	0.05	ND	0.05	ND	0.05	ND	0.05
ACENAPHTHENE	0.21	0.05	ND	1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01
ACENAPHTHYLENE	ND	0.05	ND	1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01
ANTHRACENE	ND	0.05	ND	1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01
BENZO(A)ANTHRACENE	ND	0.05	ND	1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01
BENZO(A)PYRENE	ND	0.05	ND	1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01
BIS(2-CHLOROETHOXY)METHANE	ND	0.05	ND	1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01
BIS(2-ETHYL HEXYL)PHTHALATE	ND	0.05	ND	1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01
CHRYSENE	ND	0.05	ND	1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01
DI-N-BUTYL PHTHALATE	ND	0.05	ND	1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01
DIBENZOFURAN	0.1	0.05	ND	1	0.017 (J)	0.01	ND	0.01	0.017	0.01	0.034	0.01
FLUORANTHENE	ND	0.05	ND	1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01
FLUORENE	0.11	0.05	ND	1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01
N-NITROSODIPHENYLAMINE	ND	0.05	ND	1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01
NAPHTHALENE	1.2	0.05	12 (DJ)	1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01
NITROBENZENE	ND	0.05	ND	1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01
PENTACHLOROPHENOL	ND	0.25	ND	5	ND (R)	0.05	ND	0.05	ND	0.05	ND	0.05
PHENANTHRENE	ND	0.05	ND	1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01
PHENOL	ND	0.05	ND	1	ND (R)	0.01	ND	0.01	ND	0.01	ND	0.01
PYRENE	ND	0.05	ND	1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01

NOTES:

(a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.

Conc. = Reported Concentration

LOQ = Limit of Quantization

ND = Not detected above the laboratory LOQ

NA = Not Analyzed

R = Unusable data

J = Estimated result

UJ = Estimated non detect

DJ = Dilution/estimated result

On-Site Ground Water Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID TRANSMISSIVE ZONE SAMPLE DATE ANALYTICAL RESULT (mg/L)	HP07STZ HP07STZ B-TZ 12/5/95		HP010STZ HP010STZ B-TZ 12/6/95		HP015STZ HP015STZ B-TZ 12/6/95		HP16LTZ HP16LTZ C-TZ 12/7/95		MW1A-ISA97-P A-TZ 3/25/97		MW1A-2SA97 A-TZ 9/25/97	
	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
Volatile Compounds												
1,2-DICHLOROETHANE	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005
BENZENE	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005
CHLOROBENZENE	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005
DICHLOROMETHANE	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005
ETHYLBENZENE	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005
TOLUENE	ND	0.005	ND	0.005	ND	0.005	ND	0.005	0.028	0.005	0.038	0.005
XYLENES	ND	0.005	ND	0.005	ND	0.005	ND	0.005	0.005	0.005	0.011	0.005
ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	0.042	0.005	0.005
Semivolatile Compounds												
1,2-DIPHENYLHYDRAZINE	ND	0.01	NA	NA	ND	0.01	ND	0.01	ND	0.1	ND (R)	0.2
2,4-DIMETHYLPHENOL	ND	0.01	NA	NA	ND	0.01	ND	0.01	ND	0.1	ND (R)	0.2
2,4-DINITROTOLUENE	ND	0.01	NA	NA	ND	0.01	ND	0.01	ND	0.1	ND (R)	0.2
2,6-DINITROTOLUENE	ND	0.01	NA	NA	ND	0.01	ND	0.01	ND	0.1	ND (R)	0.2
2-CHLORONAPHTHALENE	ND	0.01	NA	NA	ND	0.01	ND	0.01	ND	0.1	ND (R)	0.2
2-METHYLNAPHTHALENE	ND	0.01	NA	NA	ND	0.01	ND	0.01	ND	0.1	ND (R)	0.2
4,6-DINITRO-O-CRESOL	ND	0.05	NA	NA	ND	0.05	ND	0.05	0.27 (DJ)	0.1	ND (R)	0.2
4-NITROPHENOL	ND	0.05	NA	NA	ND	0.05	ND	0.05	ND	0.5	ND (R)	1
ACENAPHTHENE	ND	0.01	NA	NA	ND	0.01	ND	0.01	ND	0.5	ND (R)	1
ACENAPHTHYLENE	ND	0.01	NA	NA	ND	0.01	ND	0.01	0.26 (DJ)	0.1	ND (R)	0.2
ANTHRACENE	ND	0.01	NA	NA	ND	0.01	ND	0.01	ND	0.1	ND (R)	0.2
BENZO(A)ANTHRACENE	ND	0.01	NA	NA	ND	0.01	ND	0.01	ND	0.1	ND (R)	0.2
BENZO(A)PYRENE	ND	0.01	NA	NA	ND	0.01	ND	0.01	ND	0.1	ND (R)	0.2
BIS(2-CHLOROETHOXY)METHANE	ND	0.01	NA	NA	ND	0.01	ND	0.01	ND	0.1	ND (R)	0.2
BIS(2-ETHYL HEXYL)PHTHALATE	ND	0.01	NA	NA	ND	0.01	ND	0.01	ND	0.1	ND (R)	0.2
CHRYSENE	ND	0.01	NA	NA	ND	0.01	ND	0.01	ND	0.1	ND (R)	0.2
DI-N-BUTYL PHTHALATE	0.018	0.01	NA	NA	0.011	0.01	ND	0.01	ND	0.1	ND (R)	0.2
DIBENZOFURAN	ND	0.01	NA	NA	ND	0.01	ND	0.01	0.16 (DJ)	0.1	ND (R)	0.2
FLUORANTHENE	ND	0.01	NA	NA	ND	0.01	ND	0.01	ND	0.1	ND (R)	0.2
FLUORENE	ND	0.01	NA	NA	ND	0.01	ND	0.01	ND	0.1	ND (R)	0.2
N-NITROSODIPHENYLAMINE	ND	0.01	NA	NA	ND	0.01	ND	0.01	0.17 (DJ)	0.1	ND (R)	0.2
NAPHTHALENE	ND	0.01	NA	NA	ND	0.01	ND	0.01	ND	0.1	ND (R)	0.2
NITROBENZENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	1.6 (DJ)	0.1	1.7 (J)	0.2
PENTACHLOROPHENOL	ND	0.01	NA	NA	ND	0.01	ND	0.01	ND	0.1	ND (R)	0.2
PHENANTHRENE	ND	0.05	NA	NA	ND	0.05	ND	0.05	ND	0.1	ND (R)	1
PHENOL	ND	0.01	NA	NA	ND	0.01	ND	0.01	0.13 (DJ)	0.1	ND (R)	0.2
PYRENE	ND	0.01	NA	NA	ND	0.01	ND	0.01	ND	0.1	ND (R)	0.2
ND	0.01	NA	NA	ND	0.01	ND	0.01	ND	ND	0.1	ND (R)	0.2

NOTES:
 (a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.
 Conc. = Reported Concentration
 LOQ = Limit of Quantization
 ND = Not detected above the laboratory LOQ
 NA = Not Analyzed
 R = Unusable data
 J = Estimated result
 UJ = Estimated non detect
 DJ = Dilution/Estimated result

On-Site Ground Water Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID TRANSMISSIVE ZONE SAMPLE DATE ANALYTICAL RESULT (mg/L)	MW1A-1SA98		MW1A-2SA98		MW1A-1SA99		MW1A-2SA99		MW02-1SA97-P		MW02-2SA97		MW02-1SA98 (b)	
	A-TZ		A-TZ		A-TZ		A-TZ		A-TZ		A-TZ		A-TZ	
	3/3/98 (b)	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
Volatile Compounds														
1,2-DICHLOROETHANE	ND	0.005	ND	0.001	0.0325 (J)	0.001	ND	0.05	ND	0.005	ND	0.005	ND	0.005
BENZENE	0.011	0.005	0.0168	0.001	0.124 (J)	0.001	ND	0.05	ND	0.005	ND	0.005	ND	0.005
CHLOROBENZENE	ND	0.005	ND	0.001	0.0325 (J)	0.001	ND	0.05	ND	0.005	ND	0.005	ND	0.005
DICHLOROMETHANE	ND	0.005	ND	0.001	0.0325 (J)	0.001	ND	0.05	ND	0.005	ND	0.005	ND	0.005
ETHYLBENZENE	0.0096	0.005	0.0325	0.001	0.222 (J)	0.001	ND	0.05	0.01	0.005	ND	0.005	ND	0.005
TOLUENE	ND	0.005	ND	0.001	0.0372 (J)	0.001	ND	0.05	0.007	0.005	ND	0.005	ND	0.005
XYLENES	0.024	0.005	0.051	0.001	0.27 (J)	0.001	ND	0.05	0.016	0.005	ND	0.005	ND	0.005
Semivolatile Compounds														
1,2-DIPHENYLHYDRAZINE	ND	0.01	ND	0.1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
2,4-DIMETHYLPHENOL	ND	0.01	NA	NA	ND	0.01	ND	0.01	0.016	0.01	ND	0.01	ND	0.01
2,4-DINITROTOLUENE	ND	0.01	ND	0.1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
2,6-DINITROTOLUENE	ND	0.01	ND	0.1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
2-CHLORONAPHTHALENE	ND	0.01	ND	0.1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
2-METHYLNAPHTHALENE	0.041	0.01	0.212 (DJ)	0.1	0.0281 (J)	0.01	0.156	0.1	ND	0.01	ND	0.01	ND	0.01
4,6-DINITRO-O-CRESOL	ND	0.05	ND	0.1	ND (UJ)	0.01	ND	0.01	ND	0.05	ND	0.05	NA	NA
4-NITROPHENOL	ND	0.05	ND	0.1	ND (UJ)	0.01	ND	0.01	NA	NA	ND	0.05	ND	0.05
ACENAPHTHENE	0.094	0.01	0.199 (DJ)	0.1	0.141 (J)	0.01	0.193	0.1	0.075	0.01	ND	0.01	0.026	0.01
ACENAPHTHYLENE	ND	0.01	ND	0.1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
ANTHRACENE	ND	0.01	ND	0.1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
BENZO(A)ANTHRACENE	ND	0.01	ND	0.1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
BENZO(A)PYRENE	ND	0.01	ND	0.1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
BIS(2-CHLOROETHOXY)METHANE	ND	0.01	ND	0.1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
BIS(2-ETHYL HEXYL)PHTHALATE	ND	0.01	ND	0.1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
CHRYSENE	ND	0.01	ND	0.1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
DI-N-BUTYL PHTHALATE	ND	0.01	ND	0.1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
DIBENZOFURAN	0.059	0.01	ND	0.1	ND (UJ)	0.01	0.134	0.1	0.05	0.01	ND	0.01	ND	0.01
FLUORANTHENE	ND	0.01	ND	0.1	ND (UJ)	0.01	0.104	0.1	ND	0.01	ND	0.01	ND	0.01
FLUORENE	0.068	0.01	0.133 (DJ)	0.1	0.0833 (J)	0.01	0.144	0.1	0.044	0.01	ND	0.01	0.02	0.01
N-NITROSODIPHENYLAMINE	ND	0.01	ND	0.1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
NAPHTHALENE	0.32	0.02	2.14 (DJ)	0.1	0.228 (J)	0.01	0.256	0.1	ND	0.01	ND	0.01	0.031	0.01
NITROBENZENE	ND	0.01	ND	0.1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
PENTACHLOROPHENOL	ND	0.05	ND	0.5	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05
PHENANTHRENE	0.028	0.01	0.103 (DJ)	0.1	0.0338 (J)	0.01	0.134	0.01	ND	0.01	ND	0.01	ND	0.01
PHENOL	ND	0.01	ND	0.1	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
PYRENE	ND	0.01	ND	0.1	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01

NOTES:

(a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.

Conc. = Reported Concentration

LOQ = Limit of Quantitation

ND = Not detected above the laboratory LOQ

NA = Not Analyzed

R = Unusable data

J = Estimated result

UJ = Estimated non detect

DJ = Dilution/estimated result

On-Site Ground Water Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION
SAMPLE ID
TRANSMISSIVE ZONE
SAMPLE DATE
ANALYTICAL RESULT (mg/L)

	MW02-2SA98		MW02-1SA99		MW02-2SA99		MW03-1SA97-P		MW03-2SA97		MW03-1SA98 (b)	
	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
Volatile Compounds												
1,2-DICHLOROETHANE	ND	0.001	ND (UJ)	0.001	ND	0.05	ND	0.005	ND	0.005	ND	0.005
BENZENE	ND	0.001	ND (UJ)	0.001	ND	0.05	ND	0.005	ND	0.005	ND	0.005
CHLOROBENZENE	ND	0.001	ND (UJ)	0.001	ND	0.05	ND	0.005	ND	0.005	ND	0.005
DICHLOROMETHANE	ND	0.001	ND (UJ)	0.001	ND	0.05	ND	0.005	ND	0.005	ND	0.005
ETHYLBENZENE	ND	0.001	ND (UJ)	0.001	ND	0.05	ND	0.005	ND	0.005	ND	0.005
TOLUENE	ND	0.001	ND (UJ)	0.001	ND	0.05	ND	0.005	ND	0.005	ND	0.005
XYLENES	ND	0.001	ND (UJ)	0.001	ND	0.05	ND	0.005	ND	0.005	ND	0.005
Semivolatile Compounds												
1,2-DIPHENYLHYDRAZINE	ND	0.01	ND (UJ)	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01
2,4-DIMETHYLPHENOL	ND	0.01	ND	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01
2,4-DINITROTOLUENE	ND	0.01	ND (UJ)	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01
2,6-DINITROTOLUENE	ND	0.01	ND (UJ)	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01
2-CHLORONAPHTHALENE	ND	0.01	ND (UJ)	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01
2-METHYLNAPHTHALENE	ND	0.01	ND (UJ)	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01
4,6-DINITRO-O-CRESOL	ND	0.01	ND (UJ)	0.01	ND	0.01	ND	0.5	ND	0.05	NA	NA
4-NITROPHENOL	ND	0.01	ND	0.01	ND	0.01	ND	0.5	ND	0.05	ND	0.05
ACENAPHTHENE	ND	0.01	0.0114 (J)	0.01	0.0302	0.01	0.18 (DJ)	0.1	0.02	0.01	0.06	0.01
ACENAPHTHYLENE	ND	0.01	ND (UJ)	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01
ANTHRACENE	ND	0.01	ND (UJ)	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01
BENZO(A)ANTHRACENE	ND	0.01	ND (UJ)	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01
BENZO(A)PYRENE	ND	0.01	ND (UJ)	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01
BIS(2-CHLOROETHOXY)METHANE	ND	0.01	ND (UJ)	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01
BIS(2-ETHYL HEXYL)PHTHALATE	ND	0.01	ND (UJ)	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01
CHRYSENE	ND	0.01	ND (UJ)	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01
DIBENZOFURAN	ND	0.01	ND (UJ)	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01
DIBENZOTHIENE	ND	0.01	ND (UJ)	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01
FLUORENE	ND	0.01	ND (UJ)	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01
N-NITROSODIPHENYLAMINE	ND	0.01	ND (UJ)	0.01	ND	0.01	0.12 (DJ)	0.1	0.015	0.01	0.044	0.01
NAPHTHALENE	ND	0.01	ND (UJ)	0.01	ND	0.01	0.12 (DJ)	0.1	0.015	0.01	0.052	0.01
NITROBENZENE	ND	0.01	ND (UJ)	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01
PENTACHLOROPHENOL	ND	0.01	ND (UJ)	0.01	ND	0.01	0.34 (DJ)	0.1	ND	0.01	ND	0.01
PHENANTHRENE	ND	0.05	ND	0.05	ND	0.05	ND	0.5	ND	0.05	ND	0.05
PHENOL	ND	0.01	ND (UJ)	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01
PYRENE	ND	0.01	ND (UJ)	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01

NOTES:

(a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8170B unless otherwise noted.

Conc. = Reported Concentration

LOQ = Limit of Quantization

ND = Not detected above the laboratory LOQ

NA = Not Analyzed

R = Unusable data

J = Estimated result

UJ = Estimated non detect

DJ = Dilution/estimated result

On-Site Ground Water Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID TRANSMISSIVE ZONE SAMPLE DATE ANALYTICAL RESULT (mg/L)	MW-03				MW-04											
	MW03-2SA98		MW03-1SA99		MW03-2SA99		MW04-2SA97-P		MW04-1SA98 (b)							
	A-TZ 9/23/98	LOQ	Conc.	A-TZ 3/17/99	LOQ	Conc.	A-TZ 9/28/99	LOQ	Conc.	A-TZ 3/3/98	LOQ	Conc.	A-TZ 9/22/98	LOQ	Conc.	
Volatile Compounds																
1,2-DICHLOROETHANE	ND	0.001	ND (UJ)	0.001	ND	0.01	ND	0.01	ND	0.005	ND	0.005	ND	0.005	ND	0.001
BENZENE	ND	0.001	ND (UJ)	0.001	ND	0.01	ND	0.01	ND	0.005	ND	0.005	ND	0.005	ND	0.001
CHLOROBENZENE	ND	0.001	ND (UJ)	0.001	ND	0.01	ND	0.01	ND	0.005	ND	0.005	ND	0.005	ND	0.001
DICHLOROMETHANE	ND	0.001	ND (UJ)	0.001	ND	0.01	ND	0.01	ND	0.005	ND	0.005	ND	0.005	ND	0.001
ETHYLBENZENE	ND	0.001	ND (UJ)	0.001	ND	0.01	ND	0.01	ND	0.005	ND	0.005	ND	0.005	ND	0.001
TOLUENE	ND	0.001	ND (UJ)	0.001	ND	0.01	ND	0.01	ND	0.005	ND	0.005	ND	0.005	ND	0.001
XYLENES	ND	0.001	ND (UJ)	0.001	ND	0.01	ND	0.01	ND	0.005	ND	0.005	ND	0.005	ND	0.001
Semivolatile Compounds																
1,2-DIPHENYLHYDRAZINE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
2,4-DIMETHYLPHENOL	ND (R)	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND (R)	0.01	ND	0.01
2,4-DINITROTOLUENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
2,6-DINITROTOLUENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
2-CHLORONAPHTHALENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
2-METHYLNAPHTHALENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
4,6-DINITRO-O-CRESOL	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.05	ND	0.05	ND	0.01	ND	0.01
4-NITROPHENOL	ND (R)	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.05	ND	0.05	ND (R)	0.05	NA	NA
ACENAPHTHENE	0.0462	0.01	0.01	0.01	0.01	0.01	0.0736	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
ACENAPHTHYLENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
ANTHRACENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
BENZO(A)ANTHRACENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
BENZO(A)PYRENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
BIS(2-CHLOROETHOXY)METHANE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
BIS(2-ETHYL HEXYL)PHTHALATE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
CHRYSENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
DI-N-BUTYL PHTHALATE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
DIBENZOFURAN	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
FLUORANTHENE	ND	0.01	0.0544	0.01	ND	0.01	0.0494	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
FLUORENE	0.0304	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
N-NITROSODIPHENYLAMINE	ND	0.01	0.0631	0.01	ND	0.01	0.0494	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
NAPHTHALENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
NITROBENZENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
PENTACHLOROPHENOL	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND (R)	0.05	ND	0.05
PHENANTHRENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
PHENOL	ND (R)	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND (R)	0.01	ND	0.01
PYRENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01

NOTES:

(a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.

Conc. = Reported Concentration

LOQ = Limit of Quantitation

ND = Not detected above the laboratory LOQ

NA = Not Analyzed

R = Unusable data

I = Estimated result

UJ = Estimated non detect

DI = Dilution/estimated result

On-Site Ground Water Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID TRANSMISSIVE ZONE SAMPLE DATE ANALYTICAL RESULT (mg/L)	MW-04		MW-05		MW-05		MW-05	
	MW04-ISA99	MW04-2SA99	MW05-ISA97-P	MW05-2SA97-P	MW05-ISA98 (b)	MW05-2SA98	MW05-ISA98 (b)	MW05-2SA98
	A-TZ 3/17/99	A-TZ 9/28/99	A-TZ 3/26/97	A-TZ 9/25/97	A-TZ 3/4/98	A-TZ 9/21/98	A-TZ 3/4/98	A-TZ 9/21/98
Volatile Compounds	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
1,2-DICHLOROETHANE	ND (UJ)	0.001	ND	0.005	ND	0.005	ND	0.005
BENZENE	ND (UJ)	0.001	ND	0.005	ND	0.005	ND (UJ)	0.001
CHLOROBENZENE	ND (UJ)	0.001	ND	0.005	ND	0.005	0.00233 (J)	0.001
DICHLOROMETHANE	ND (UJ)	0.001	ND	0.005	ND	0.005	ND (UJ)	0.001
ETHYLBENZENE	ND (UJ)	0.001	ND	0.005	ND	0.005	ND (UJ)	0.001
TOLUENE	ND (UJ)	0.001	ND	0.005	ND	0.005	0.00408 (J)	0.001
XYLENES	ND (UJ)	0.001	ND	0.005	ND	0.005	0.0231 (J)	0.001
ND (UJ)	ND (UJ)	0.001	ND	0.005	ND	0.005	0.0225 (J)	0.001
Semivolatile Compounds								
1,2-DIPHENYLDRAZINE	ND	0.01	ND	0.01	ND	0.01	ND	0.01
2,4-DIMETHYLPHENOL	ND	0.01	ND	0.01	ND	0.01	ND (R)	0.01
2,4-DINITROTOLUENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01
2,6-DINITROTOLUENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01
2-CHLORONAPHTHALENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01
2-METHYLNAPHTHALENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01
4,6-DINITRO-O-CRESOL	ND	0.01	ND	0.05	ND	0.05	NA	NA
4-NITROPHENOL	ND	0.01	ND	0.05	ND	0.05	ND (R)	0.01
ACENAPHTHENE	ND	0.01	ND	0.026	ND	0.01	ND	0.01
ACENAPHTHYLENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01
ANTHRACENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01
BENZO(A)ANTHRACENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01
BENZO(A)PYRENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01
BIS(2-CHLOROETHOXY)METHANE	ND	0.01	ND	0.01	ND	0.01	ND	0.01
BIS(2-ETHYL HEXYL)PHTHALATE	ND	0.01	ND	0.01	ND	0.01	ND	0.01
CHRYSENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01
Di-N-BUTYL PHTHALATE	ND	0.01	ND	0.01	ND	0.01	ND	0.01
DIBENZOFURAN	ND	0.01	ND	0.01	ND	0.01	ND	0.01
FLUORANTHENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01
FLUORENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01
N-NITROSODIPHENYLAMINE	ND	0.01	ND	0.013	ND	0.01	ND	0.01
NAPHTHALENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01
NITROBENZENE	ND	0.01	ND	0.023	ND	0.01	ND	0.01
PENTACHLOROPHENOL	ND	0.01	ND	0.01	ND	0.01	ND	0.01
PHENANTHRENE	ND	0.05	ND	0.05	ND	0.05	ND (R)	0.05
PHENOL	ND	0.01	ND	0.01	ND	0.01	ND	0.01
PYRENE	ND	0.01	ND	0.01	ND	0.01	ND (R)	0.01
ND	ND	0.01	ND	0.01	ND	0.01	ND	0.01

NOTES:

(a) Volatile Compounds analyzed by Method SW846-8160A and Semivolatile Compounds analyzed by Method SW846-8170B unless otherwise noted.

Conc. = Reported Concentration

LOQ = Limit of Quantitation

ND = Not detected above the laboratory LOQ

NA = Not Analyzed

R = Unusable data

J = Estimated result

UI = Estimated non detect

DJ = Dilution/estimated result

On-Site Ground Water Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION
SAMPLE ID
TRANSMISSIVE ZONE
SAMPLE DATE
ANALYTICAL RESULT (mg/L)

Volatile Compounds	MW05-ISA99		MW05-2SA99		MW07-ISA97-P		MW07-2SA97		MW07-ISA98 (b)		MW07-2SA98	
	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
1,2-DICHLOROETHANE	ND	0.001	ND	0.01	ND	0.005	ND	0.005	ND	0.005	ND	0.001
BENZENE	ND	0.001	ND	0.01	ND	0.005	ND	0.005	ND	0.005	ND	0.001
CHLOROBENZENE	ND	0.001	ND	0.01	ND	0.005	ND	0.005	ND	0.005	ND	0.001
DICHLOROMETHANE	ND	0.001	ND	0.01	ND	0.005	ND	0.005	ND	0.005	ND	0.001
ETHYLBENZENE	ND	0.001	ND	0.01	ND	0.005	ND	0.005	ND	0.005	ND	0.001
TOLUENE	ND	0.001	ND	0.01	ND	0.005	ND	0.005	ND	0.005	0.00427	0.001
XYLENES	ND	0.001	ND	0.01	ND	0.005	ND	0.005	ND	0.005	ND	0.001
	ND	0.001	ND	0.01	ND	0.005	ND	0.005	ND	0.005	0.00285	0.001
Semivolatile Compounds												
1,2-DIPHENYLHYDRAZINE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
2,4-DIMETHYLPHENOL	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
2,4-DINITROTOLUENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
2,6-DINITROTOLUENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
2-CHLORONAPHTHALENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
2-METHYLNAPHTHALENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
4,6-DINITRO-O-CRESOL	ND	0.01	ND	0.01	ND	0.05	ND	0.05	NA	NA	ND	0.01
4-NITROPHENOL	ND	0.01	ND	0.01	ND	0.05	ND	0.05	ND	0.05	ND	0.01
ACENAPHTHENE	ND	0.01	ND	0.01	ND	0.11	ND	0.01	ND	0.01	ND	0.01
ACENAPHTHYLENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
ANTHRACENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
BENZO(A)ANTHRACENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
BENZO(A)PYRENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
BIS(2-CHLOROETHOXY)METHANE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
BIS(2-ETHYL HEXYL)PHTHALATE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
CHRYSENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
DI-N-BUTYL PHTHALATE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
DIBENZOFURAN	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
FLUORANTHENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
FLUORENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
N-NITROSODIPHENYLAMINE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
NAPHTHALENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
NITROBENZENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
PENTACHLOROPHENOL	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05
PHENANTHRENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
PHENOL	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
PYRENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01

NOTES:
 (a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.
 Conc. = Reported Concentration
 LOQ = Limit of Quantitation
 ND = Not detected above the laboratory LOQ
 NA = Not Analyzed
 R = Unusable data
 J = Estimated result
 UJ = Estimated non-detect
 DJ = Distortion/estimated result

On-Site Ground Water Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

Sample Location Sample ID Transmissive Zone Sample Date Analytical Result (mg/L)	MW-07		MW-08		MW-08		MW-08	
	MW07-1SA99		MW08-1SA97		MW08-1SA97-D		MW08-1SA98	
	A-TZ 3/17/99	A-TZ 9/28/99	A-TZ 3/26/97	A-TZ 3/26/97	A-TZ 3/26/97	A-TZ 9/25/97	A-TZ 3/4/1998 (b)	A-TZ 9/22/98
	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
Volatile Compounds								
1,2-DICHLOROETHANE	ND (R)	0.001	ND	0.005	ND	0.005	ND	0.005
BENZENE	ND (R)	0.001	ND	0.005	ND	0.005	ND	0.005
CHLOROBENZENE	ND (R)	0.001	ND	0.005	ND	0.005	ND	0.005
DICHLOROMETHANE	ND (R)	0.001	ND	0.005	ND	0.005	ND	0.005
ETHYLBENZENE	ND (R)	0.001	ND	0.005	ND	0.005	ND	0.005
TOLUENE	ND (R)	0.001	ND	0.005	ND	0.005	ND	0.005
XYLENES	ND (R)	0.001	ND	0.005	ND	0.005	ND	0.005
Semi-volatile Compounds								
1,2-DIPHENYLHYDRAZINE	ND	0.01	ND	0.04	ND (R)	0.04	ND	0.01
2,4-DIMETHYLPHENOL	ND	0.01	ND	0.04	ND (R)	0.04	ND	0.01
2,4-DINITROTOLUENE	ND	0.01	ND	0.04	ND (R)	0.04	ND	0.01
2,6-DINITROTOLUENE	ND	0.01	ND	0.04	ND (R)	0.04	ND	0.01
2-CHLORONAPHTHALENE	ND	0.01	ND	0.04	ND (R)	0.04	ND	0.01
2-METHYLNAPHTHALENE	ND	0.01	ND	0.04	ND (R)	0.04	ND	0.01
4,6-DINITRO-O-CRESOL	ND	0.01	ND	0.04	0.11 (J)	0.04	0.071	0.01
4-NITROPHENOL	ND	0.01	ND	0.04	ND (R)	0.2	ND	0.05
ACENAPHTHENE	ND	0.01	ND	0.04	ND (R)	0.2	ND	0.05
ACENAPHTHYLENE	ND	0.01	ND	0.04	0.17 (J)	0.04	0.14	0.01
ANTHRACENE	ND	0.01	ND	0.04	ND (R)	0.04	ND	0.01
BENZO(A)ANTHRACENE	ND	0.01	ND	0.04	ND (R)	0.04	0.016	0.01
BENZO(A)PYRENE	ND	0.01	ND	0.04	ND (R)	0.04	ND	0.01
BIS(2-CHLOROETHOXY)METHANE	ND	0.01	ND	0.04	ND (R)	0.04	ND	0.01
BIS(2-ETHYL HEXYL)PHTHALATE	ND	0.01	ND	0.04	ND (R)	0.04	ND	0.01
CHRYSENE	ND	0.01	ND	0.04	ND (R)	0.04	ND	0.01
DI-N-BUTYL PHTHALATE	ND	0.01	ND	0.04	ND (R)	0.04	ND	0.01
DIBENZOFURAN	ND	0.01	ND	0.04	ND (R)	0.04	ND	0.01
FLUORANTHENE	ND	0.01	ND	0.04	ND (R)	0.04	ND	0.01
FLUORENE	ND	0.01	ND	0.04	0.14 (J)	0.04	0.12	0.01
N-NITROSODIPHENYLAMINE	ND	0.01	ND	0.04	ND (R)	0.04	0.015	0.01
NAPHTHALENE	ND	0.01	ND	0.04	0.19 (J)	0.04	0.12	0.01
NITROBENZENE	ND	0.01	ND	0.04	ND (R)	0.04	ND	0.01
PENTACHLOROPHENOL	ND	0.01	ND	0.04	0.64 (J)	0.04	0.97	0.01
PHENANTHRENE	ND	0.05	ND	0.04	ND (R)	0.04	0.5	0.01
PHENOL	ND	0.01	ND	0.04	ND (R)	0.2	ND	0.05
PYRENE	ND	0.01	ND	0.04	0.051 (J)	0.04	0.047	0.01
	ND	0.01	ND	0.04	ND (R)	0.04	ND	0.01
	ND	0.01	ND	0.04	ND (R)	0.04	ND	0.01

NOTES:

(a) Volatile Compounds analyzed by Method SW846-8260A and Semi-volatile Compounds analyzed by Method SW846-8270B unless otherwise noted.

Conc. = Reported Concentration

LOQ = Limit of Quantitation

ND = Not detected above the laboratory LOQ

NA = Not Analyzed

R = Unusable data

J = Estimated result

UI = Estimated non detect

DJ = Dilution/estimated result

On-Site Ground Water Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION
SAMPLE ID
TRANSMISSIVE ZONE
SAMPLE DATE
ANALYTICAL RESULT (mg/L)

	MW08-1SA99 A-TZ 3/16/99		MW08-1SA99-D A-TZ 3/16/99		MW08-2SA99 A-TZ 9/27/99		MW08-2SA99-D A-TZ 9/27/99		MW09-1SA97-P A-TZ 3/26/97		MW09-2SA97 A-TZ 9/25/97	
	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
Volatile Compounds												
1,2-DICHLOROETHANE	ND (U)	0.001	ND (U)	0.001	ND	0.01	ND	0.01	ND	0.005	ND	0.005
BENZENE	0.00385 (J)	0.001	0.00391 (J)	0.001	ND	0.01	ND	0.01	ND	0.005	ND	0.005
CHLOROBENZENE	ND (U)	0.001	ND (U)	0.001	ND	0.01	ND	0.01	ND	0.005	ND	0.005
DICHLOROMETHANE	ND (U)	0.001	ND (U)	0.001	ND	0.001	ND	0.01	ND	0.005	ND	0.005
ETHYLBENZENE	0.00768 (J)	0.001	0.00775 (J)	0.001	ND	0.01	ND	0.01	ND	0.005	ND	0.005
TOLUENE	0.00482 (J)	0.001	0.00491 (J)	0.001	ND	0.01	ND	0.01	ND	0.005	ND	0.005
XYLENES	0.00999 (J)	0.001	0.00981 (J)	0.001	ND	0.01	ND	0.01	ND	0.005	ND	0.005
Semivolatile Compounds												
1,2-DIPHENYLHYDRAZINE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
2,4-DIMETHYLPHENOL	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
2,4-DINITROTOLUENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
2,6-DINITROTOLUENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
2-CHLORONAPHTHALENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
2-METHYLNAPHTHALENE	0.0418	0.01	0.0404	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
4,6-DINITRO-O-CRESOL	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.05	ND	0.05
4-NITROPHENOL	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.05	ND	0.05
ACENAPHTHENE	0.0859	0.01	0.0804	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
ACENAPHTHYLENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
ANTHRACENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
BENZO(A)ANTHRACENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
BENZO(A)PYRENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
BIS(2-CHLOROETHOXY)METHANE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
BIS(2-ETHYL HEXYL)PHTHALATE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
CHRYSENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
DI-N-BUTYL PHTHALATE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
DIBENZOFURAN	0.0473	0.01	0.0446	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
FLUORANTHENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
FLUORENE	0.0563	0.01	0.0539	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
N-NITROSODIPHENYLAMINE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
NAPHTHALENE	0.526	0.01	0.534	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
NITROBENZENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
PENTACHLOROPHENOL	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05
PHENANTHRENE	0.0171	0.01	0.0167	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
PHENOL	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
PYRENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01

NOTES:

(a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.

Conc. = Reported Concentration

LOQ = Limit of Quantitation

ND = Not detected above the laboratory LOQ

NA = Not Analyzed

R = Unusable data

J = Estimated result

UJ = Estimated non-detect

DJ = Dilution/estimated result

On-Site Ground Water Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID TRANSMISSIVE ZONE SAMPLE DATE ANALYTICAL RESULT (mg/L)	MW-09					
	MW09-1SA98 A-TZ 3/4/1998 (b)	MW09-2SA98 A-TZ 9/21/98	MW09-1SA99 A-TZ 3/16/99	MW09-2SA99 A-TZ 9/27/99	LOQ	LOQ
	Conc.	Conc.	Conc.	Conc.	Conc.	Conc.
Volatile Compounds						
1,2-DICHLOROETHANE	ND	0.005	ND	0.001	ND (UJ)	0.01
BENZENE	ND	0.005	ND	0.001	ND (UJ)	0.01
CHLOROBENZENE	ND	0.005	ND	0.001	ND (UJ)	0.01
DICHLOROMETHANE	ND	0.005	ND	0.001	ND (UJ)	0.01
ETHYLBENZENE	ND	0.005	ND	0.001	ND (UJ)	0.01
TOLUENE	ND	0.005	ND	0.001	ND (UJ)	0.01
XYLENES	ND	0.005	ND	0.001	ND (UJ)	0.01
Semivolatile Compounds						
1,2-DIPHENYLHYDRAZINE	ND	0.01	ND	0.01	ND	0.01
2,4-DIMETHYLPHENOL	ND	0.01	ND	0.01	ND	0.01
2,4-DINITROTOLUENE	ND	0.01	ND	0.01	ND	0.01
2,6-DINITROTOLUENE	ND	0.01	ND	0.01	ND	0.01
2-CHLORONAPHTHALENE	ND	0.01	ND	0.01	ND	0.01
2-METHYLNAPHTHALENE	ND	0.01	ND	0.01	ND	0.01
4,6-DINITRO-O-CRESOL	NA	NA	ND (R)	0.01	ND	0.01
4-NITROPHENOL	ND	0.05	ND (R)	0.01	ND	0.01
ACENAPHTHENE	ND	0.01	ND	0.01	ND	0.01
ACENAPHTHYLENE	ND	0.01	ND	0.01	ND	0.01
ANTHRACENE	ND	0.01	ND	0.01	ND	0.01
BENZO(A)ANTHRACENE	ND	0.01	ND	0.01	ND	0.01
BENZO(A)PYRENE	ND	0.01	ND	0.01	ND	0.01
BIS(2-CHLOROETHOXY)METHANE	ND	0.01	ND	0.01	ND	0.01
BIS(2-ETHYL HEXYL)PHTHALATE	ND	0.01	ND	0.01	ND	0.01
CHRYSENE	ND	0.01	ND	0.01	ND	0.01
DI-N-BUTYL PHTHALATE	ND	0.01	ND	0.01	ND	0.01
DIBENZOFURAN	ND	0.01	ND	0.01	ND	0.01
FLUORANTHENE	ND	0.01	ND	0.01	ND	0.01
FLUORENE	ND	0.01	ND	0.01	ND	0.01
N-NITROSODIPHENYLAMINE	ND	0.01	ND	0.01	ND	0.01
NAPHTHALENE	ND	0.01	ND	0.01	ND	0.01
NITROBENZENE	ND	0.01	ND	0.01	ND	0.01
PENTACHLOROPHENOL	ND	0.05	ND (R)	0.05	ND	0.05
PHENANTHRENE	ND	0.01	ND	0.01	ND	0.01
PHENOL	ND	0.01	ND (R)	0.01	ND	0.01
PYRENE	ND	0.01	ND	0.01	ND	0.01

NOTES:

(a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile
Compounds analyzed by Method SW846-8270B unless otherwise noted.

Conc. = Reported Concentration

LOQ = Limit of Quantitation

ND = Not detected above the laboratory LOQ

NA = Not Analyzed

R = Unusable data

F = Estimated result

UJ = Estimated non detect

DI = Dilution/estimated result

On-Site Ground Water Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID TRANSMISSIVE ZONE SAMPLE DATE ANALYTICAL RESULT (mg/L)	MW-10A							
	MW10A-ISA97-P		MW10A-ISA98 (b)		MW10A-2SA98		MW10A-ISA99	
	A-TZ 3/26/97	A-TZ 9/25/97	A-TZ 3/3/98	A-TZ 9/23/98	A-TZ 3/17/99	A-TZ 9/28/99	Conc.	LOQ
Volatile Compounds								
1,2-DICHLOROETHANE	ND	0.005	ND	0.005	ND	0.001	ND (UJ)	0.001
BENZENE	ND	0.005	ND	0.005	ND	0.001	ND (UJ)	0.001
CHLOROBENZENE	ND	0.005	ND	0.005	ND	0.001	ND (UJ)	0.001
DICHLOROMETHANE	ND	0.005	ND	0.005	ND	0.001	ND (UJ)	0.001
ETHYLBENZENE	ND	0.005	ND	0.005	ND	0.001	ND (UJ)	0.001
TOLUENE	ND	0.005	ND	0.005	ND	0.001	ND (UJ)	0.001
XYLENES	ND	0.005	ND	0.005	ND	0.001	ND (UJ)	0.001
	ND	0.005	ND	0.005	ND	0.001	ND (UJ)	0.001
Semivolatile Compounds								
1,2-DIPHENYLHYDRAZINE	ND (R)	0.01	ND	0.01	ND (R)	0.01	ND	0.01
2,4-DIMETHYLPHENOL	ND (R)	0.01	ND	0.01	ND (R)	0.01	ND	0.01
2,4-DINITROTOLUENE	ND (R)	0.01	ND	0.01	ND (R)	0.01	ND	0.01
2,6-DINITROTOLUENE	ND (R)	0.01	ND	0.01	ND (R)	0.01	ND	0.01
2-CHLORONAPHTHALENE	ND (R)	0.01	ND	0.01	ND (R)	0.01	ND	0.01
2-METHYLNAPHTHALENE	ND (R)	0.01	ND	0.01	ND (R)	0.01	ND	0.01
4,6-DINITRO-O-CRESOL	ND (R)	0.05	ND	0.05	NA	NA	ND	0.01
4-NITROPHENOL	0.15	0.5	ND	0.05	ND (R)	0.01	ND	0.01
ACENAPHTHENE	0.064 (J)	0.01	ND	0.01	ND (R)	0.01	ND	0.01
ACENAPHTHYLENE	ND (R)	0.01	ND	0.01	ND (R)	0.01	ND	0.01
ANTHRACENE	ND (R)	0.01	ND	0.01	ND (R)	0.01	ND	0.01
BENZO(A)ANTHRACENE	ND (R)	0.01	ND	0.01	ND (R)	0.01	ND	0.01
BENZO(A)PYRENE	ND (R)	0.01	ND	0.01	ND (R)	0.01	ND	0.01
BIS(2-CHLOROETHOXY)METHANE	ND (R)	0.01	ND	0.01	ND (R)	0.01	ND	0.01
BIS(2-ETHYL HEXYL)PHTHALATE	ND (R)	0.01	ND	0.01	ND (R)	0.01	ND	0.01
CHRYSENE	ND (R)	0.01	ND	0.01	ND (R)	0.01	ND	0.01
DI-N-BUTYL PHTHALATE	ND (R)	0.01	ND	0.01	ND (R)	0.01	ND	0.01
DIBENZOFURAN	ND (R)	0.01	ND	0.01	ND (R)	0.01	ND	0.01
FLUORANTHENE	0.015 (J)	0.01	ND	0.01	ND (R)	0.01	ND	0.01
FLUORENE	ND (R)	0.01	ND	0.01	ND (R)	0.01	ND	0.01
N-NITROSODIPHENYLAMINE	0.031 (J)	0.01	ND	0.01	ND (R)	0.01	ND	0.01
NAPHTHALENE	0.063 (J)	0.01	ND	0.01	ND (R)	0.01	ND	0.01
NITROBENZENE	ND (R)	0.01	ND	0.01	ND (R)	0.01	ND	0.01
PENTACHLOROPHENOL	ND (R)	0.05	ND	0.05	ND (R)	0.05	ND	0.05
PHENANTHRENE	ND (R)	0.01	ND	0.01	ND (R)	0.01	ND	0.01
PHENOL	ND (R)	0.01	ND	0.01	ND (R)	0.01	ND	0.01
PYRENE	ND (R)	0.01	ND	0.01	ND (R)	0.01	ND	0.01

NOTES:

(a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.

Conc. = Reported Concentration

LOQ = Limit of Quantization

ND = Not detected above the laboratory LOQ

NA = Not Analyzed

R = Unusable data

J = Estimated result

UJ = Estimated non-direct

DI = Dilution/estimated result

On-Site Ground Water Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION
SAMPLE ID
TRANSMISSIVE ZONE
SAMPLE DATE
ANALYTICAL RESULT (mg/L)

Sample ID	Transmissive Zone	Sample Date	MW10B-15A97				MW10B-15A98 (b)				MW10B-15A98				MW10B-15A99				MW10B-25A99					
			Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ		
1,2-DICHLOROETHANE			ND	0.005	ND	0.005	ND	0.005	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001		
BENZENE			ND	0.005	ND	0.005	ND	0.005	ND	0.00574	0.00493 (DJ)	0.001	0.001	ND	0.001	ND	0.001	ND	0.001	ND	0.001	ND		
CHLOROBENZENE			ND	0.005	ND	0.005	ND	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
DICHLOROMETHANE			ND	0.005	ND	0.005	ND	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
ETHYLBENZENE			0.009	0.005	0.015	0.005	0.005	0.0127	0.001	0.0276 (DJ)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001		
TOLUENE			ND	0.005	ND	0.005	ND	0.005	ND	0.005	0.00563 (J)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001		
XYLENES			0.015	0.005	0.016	0.005	0.005	0.00872	0.001	0.014 (J)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001		
Semivolatile Compounds																								
1,2-DIPHENYLHYDRAZINE			ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01		
2,4-DIMETHYLPHENOL			ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01		
2,4-DINITROTOLUENE			ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01		
2,6-DINITROTOLUENE			ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01		
2-CHLORONAPHTHALENE			ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01		
2-METHYLNAPHTHALENE			0.097	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01		
4,6-DINITRO-O-CRESOL			ND	0.05	ND	0.05	NA	NA	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01		
4-NITROPHENOL			ND	0.05	ND	0.05	NA	NA	ND	0.05	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01		
ACENAPHTHENE			0.23	0.05	0.066	0.01	0.018	0.01	0.01	0.0836	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01		
ACENAPHTHYLENE			ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01		
ANTHRACENE			0.028	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01		
BENZO(A)ANTHRACENE			ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01		
BENZO(A)PYRENE			ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01		
BIS(2-CHLOROETHOXY)METHANE			ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01		
BIS(2-ETHYL HEXYL)PHTHALATE			ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01		
CHRYSENE			ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01		
DI-N-BUTYL PHTHALATE			ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01		
DIBENZOFURAN			0.13	0.05	0.041	0.01	0.01	0.01	0.01	0.0335	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01		
FLUORANTHENE			0.02	0.01	ND	0.01	0.012	0.01	0.01	0.0532	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01		
FLUORENE			0.15	0.05	0.043	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01		
N-NITROSODIPHENYLAMINE			ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01		
NAPHTHALENE			0.65	0.05	0.23	0.05	0.01	0.01	0.01	0.23	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01		
NITROBENZENE			ND	0.05	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01		
PENTACHLOROPHENOL			ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05		
PHENANTHRENE			0.14	0.05	0.034	0.01	0.01	0.01	0.01	0.0442	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01		
PHENOL			ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01		
PYRENE			ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01		

NOTES:
 (a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.
 Conc. = Reported Concentration
 LOQ = Limit of Quantitation
 ND = Not detected above the laboratory LOQ
 NA = Not Analyzed
 R = Unusable data
 J = Estimated result
 UJ = Estimated non detect
 DI = Dilution/estimated result

On-Site Ground Water Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID TRANSMISSIVE ZONE SAMPLE DATE ANALYTICAL RESULT (mg/L)	MW11A-ISA97-P A-TZ 3/26/97		MW11A-2SA97 A-TZ 9/25/97		MW11A-ISA98 (b) A-TZ 3/3/98		MW11A-2SA98 A-TZ 9/23/98		MW11A-ISA99 A-TZ 3/17/99		MW11A-2SA99 A-TZ 9/28/99	
	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
Volatile Compounds												
1,2-DICHLOROETHANE	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND (U)	0.001	ND	0.05
BENZENE	ND	0.005	ND	0.005	ND	0.005	0.00711	0.005	0.0179 (DJ)	0.001	ND	0.05
CHLOROBENZENE	0.01	0.005	ND	0.005	ND	0.005	ND	0.005	ND (U)	0.001	ND	0.05
DICHLOROMETHANE	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND (U)	0.001	ND	0.05
ETHYLBENZENE	ND	0.005	ND	0.005	ND	0.005	0.00653	0.005	0.0329 (J)	0.001	ND	0.05
TOLUENE	0.007	0.005	ND	0.005	ND	0.005	ND	0.005	0.0159 (J)	0.001	ND	0.05
XYLENES	ND	0.005	0.007	0.005	0.006	0.005	0.0138	0.005	0.0314 (J)	0.001	ND	0.05
Semivolatile Compounds												
1,2-DIPHENYLDRAZINE	ND	0.1	ND	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01
2,4-DIMETHYLPHENOL	ND	0.1	ND	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01
2,4-DINITROTOLUENE	ND	0.1	ND	0.01	0.023	0.01	ND	0.1	ND	0.01	ND	0.01
2,6-DINITROTOLUENE	ND	0.1	ND	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01
2-CHLORONAPHTHALENE	ND	0.5	ND	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01
2-METHYLNAPHTHALENE	ND	0.1	0.011	0.01	ND	0.01	ND	0.1	0.0173	0.01	0.0816	0.01
4,6-DINITRO-O-CRESOL	1.1 (DJ)	0.1	ND	0.05	NA	NA	ND	0.1	ND	0.01	ND	0.01
4-NITROPHENOL	ND	0.1	ND	0.05	ND	0.05	ND	0.1	ND	0.01	ND	0.01
ACENAPHTHENE	ND	0.1	0.083	0.01	0.063	0.01	0.117 (DJ)	0.1	0.185	0.01	0.16	0.1
ACENAPHTHYLENE	ND	0.1	ND	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01
ANTHRACENE	ND	0.1	ND	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01
BENZO(A)ANTHRACENE	ND	0.1	ND	0.01	ND	0.01	ND	0.1	0.0106	0.01	ND	0.01
BENZO(A)PYRENE	ND	0.1	ND	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01
BIS(2-CHLOROETHOXY)METHANE	0.19 (DJ)	0.1	ND	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01
BIS(2-ETHYL HEXYL)PHTHALATE	ND	0.1	ND	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01
CHRYSENE	ND	0.1	ND	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01
DI-N-BUTYL PHTHALATE	ND	0.1	ND	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01
DIBENZOFURAN	ND	0.5	ND	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01
DIBENZOFURAN	ND	0.5	ND	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01
FLUORANTHENE	ND	0.1	0.037	0.01	0.017	0.01	ND	0.1	0.0785	0.01	0.112	0.01
FLUORENE	ND	0.1	ND	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01
N-NITROSODIPHENYLAMINE	ND	0.1	0.047	0.01	0.023	0.01	ND	0.1	0.101	0.01	0.0106	0.01
NAPHTHALENE	ND	0.1	ND	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01
NITROBENZENE	ND	0.1	0.34	0.05	ND	0.01	0.75 (DJ)	0.1	0.572	0.01	1.47	0.1
PENTACHLOROPHENOL	ND	0.1	ND	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01
PHENANTHRENE	ND	0.1	ND	0.05	ND	0.05	ND	0.5	ND	0.05	ND	0.05
PHENOL	ND	0.1	0.018	0.01	ND	0.01	ND	0.1	0.0618	0.01	0.0631	0.01
PYRENE	ND	0.1	ND	0.01	ND	0.01	ND	0.1	ND	0.01	ND	0.01

NOTES:

(a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.

Conc. = Reported Concentration

LOQ = Limit of Quantitation

ND = Not detected above the laboratory LOQ

NA = Not Analyzed

R = Unusable data

J = Estimated result

UJ = Estimated non-detect

DI = Dilution/estimated result

On-Site Ground Water Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID TRANSMISSIVE ZONE SAMPLE DATE	MW11B-1SA97-P				MW11B-2SA97-D				MW11B-1SA98 (b)				MW11B-2SA98				MW11B-1SA99				
	B-TZ		B-TZ		B-TZ		B-TZ		B-TZ		B-TZ		B-TZ		B-TZ		B-TZ		B-TZ		
	3/26/97	9/25/97	3/26/97	9/25/97	3/26/97	9/25/97	3/26/97	9/25/97	3/26/97	9/25/97	3/26/97	9/25/97	3/26/97	9/25/97	3/26/97	9/25/97	3/26/97	9/25/97	3/26/97	9/25/97	
ANALYTICAL RESULT (mg/L)	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	
Volatile Compounds																					
1,2-DICHLOROETHANE	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	
BENZENE	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	
CHLOROBENZENE	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	
DICHLOROMETHANE	0.009	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	
ETHYLBENZENE	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	ND	0.005	
TOLUENE	0.01	0.005	0.009	0.005	0.008	0.005	0.005	0.005	0.008	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	
XYLENES	ND	0.005	ND	0.005	0.008	0.005	0.005	0.008	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	
Semivolatile Compounds																					
1,2-DIPHENYLDRAZINE	ND	0.1	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	
2,4-DIMETHYLPHENOL	ND	0.1	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	
2,4-DINITROTOLUENE	0.27 (DJ)	0.1	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	
2,6-DINITROTOLUENE	ND	0.5	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	
2-CHLORONAPHTHALENE	ND	0.1	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	
2-METHYLNAPHTHALENE	1.4 (DJ)	0.1	0.019	0.01	0.031	0.01	0.01	0.01	0.031	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
4,6-DINITRO-O-CRESOL	ND	0.1	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05	
4-NITROPHENOL	0.27 (DJ)	0.1	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05	
ACENAPHTHENE	ND	0.1	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	
ACENAPHTHYLENE	0.25 (DJ)	0.1	ND	0.01	0.084	0.01	0.01	0.01	0.084	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
ANTHRACENE	ND	0.1	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	
BENZO(A)ANTHRACENE	ND	0.1	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	
BENZO(A)PYRENE	0.11 (DJ)	0.1	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	
BIS(2-CHLOROETHOXY)METHANE	ND	0.1	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	
BIS(2-ETHYL HEXYL)PHTHALATE	ND	0.1	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	
CHRYSENE	0.38 (DJ)	0.1	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	
DI-N-BUTYL PHTHALATE	ND	0.5	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	
DIBENZOFURAN	ND	0.5	ND	0.01	0.057	0.01	0.01	0.01	0.057	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
FLUORANTHENE	ND	0.1	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	
FLUORENE	ND	0.1	ND	0.01	0.061	0.01	0.01	0.01	0.061	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
N-NITROSODIPHENYLAMINE	ND	0.1	ND	0.01	0.046	0.01	0.01	0.01	0.046	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
NAPHTHALENE	ND	0.1	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	
NITROBENZENE	ND	0.1	0.32	0.05	0.42	0.05	0.05	0.05	0.42	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
PENTACHLOROPHENOL	ND	0.1	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	
PHENANTHRENE	ND	0.1	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05	
PHENOL	ND	0.1	0.049	0.01	0.066	0.01	0.01	0.01	0.066	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
PYRENE	ND	0.1	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	
	0.26 (DJ)	0.1	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	

NOTES:
 (a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile
 Compounds analyzed by Method SW846-8270B unless otherwise noted.
 Conc. = Reported Concentration
 LOQ = Limit of Quantitation
 ND = Not detected above the laboratory LOQ
 NA = Not Analyzed
 R = Unusable data
 J = Estimated result
 UI = Estimated non detect
 DJ = Dilution/estimated result

On-Site Ground Water Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID TRANSMISSIVE ZONE SAMPLE DATE ANALYTICAL RESULT (mg/L)	MW11B-ISA99-D B-TZ 3/17/99		MW11B-2SA99 B-TZ 9/28/99		MW11B-2SA99-D B-TZ 9/28/99		MW12A-RF12A A-TZ 5/13/97		MW12A-RF12B A-TZ 11/17/98		MW-12B MW12B-RF12A B-TZ 5/13/97	
	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
	Volatile Compounds											
1,2-DICHLOROETHANE	ND	0.001	ND	0.01	ND	0.01	ND	0.005	ND	0.001	ND	0.005
BENZENE	0.0025	0.001	ND	0.01	ND	0.01	ND	0.005	ND	0.001	ND	0.005
CHLOROBENZENE	ND	0.001	ND	0.01	ND	0.01	ND	0.005	0.00282	0.001	0.00654	0.005
DICHLOROMETHANE	ND (UJ)	0.001	ND	0.01	ND	0.01	ND	0.005	ND	0.001	ND	0.005
ETHYLBENZENE	0.0193	0.001	ND	0.01	ND	0.01	ND	0.005	0.0215	0.001	0.0276	0.005
TOLUENE	0.00248	0.001	ND	0.01	ND	0.01	0.00846	0.005	0.00821	0.001	0.00648	0.005
XYLENES	0.0105	0.001	ND	0.01	ND	0.01	0.0281	0.005	ND	0.001	0.0287	0.005
Semivolatile Compounds												
1,2-DIPHENYLHYDRAZINE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND (R)	0.2	ND (J)	0.01
2,4-DIMETHYLPHENOL	ND	0.01	ND	0.01	ND	0.01	0.0122	0.01	ND	0.2	ND (J)	0.01
2,4-DINITROTOLUENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND (R)	0.2	ND (J)	0.01
2,6-DINITROTOLUENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND (R)	0.2	ND (J)	0.01
2-CHLORONAPHTHALENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND (R)	0.2	ND (J)	0.01
2-METHYLNAPHTHALENE	0.0455	0.01	0.0346	0.01	0.0378	0.01	0.397	0.1	ND (R)	0.2	0.233 (J)	0.1
4,6-DINITRO-O-CRESOL	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND (R)	0.2	ND (R)	0.05
4-NITROPHENOL	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND (R)	0.2	ND (R)	0.05
ACENAPHTHENE	0.0865	0.01	0.13	0.01	0.14	0.01	0.186	0.1	ND (R)	0.2	0.216 (J)	0.1
ACENAPHTHYLENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND (R)	0.2	ND (R)	0.01
ANTHRACENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND (R)	0.2	ND (R)	0.01
BENZO(A)ANTHRACENE	ND	0.01	ND	0.01	ND	0.01	0.0159	0.01	ND (R)	0.2	0.0197 (J)	0.01
BENZO(A)PYRENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND (R)	0.2	ND (R)	0.01
BIS(2-CHLOROETHOXY)METHANE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND (R)	0.2	ND (R)	0.01
BIS(2-ETHYL HEXYL)PHTHALATE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND (R)	0.2	ND (R)	0.01
CHRYSENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND (R)	0.2	ND (R)	0.01
DI-N-BUTYL PHTHALATE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND (R)	0.2	ND (R)	0.01
DIBENZOFURAN	0.0482	0.01	0.0792	0.01	0.0852	0.01	0.148	0.1	ND (R)	0.2	0.158 (J)	0.1
FLUORANTHENE	ND	0.01	ND	0.01	ND	0.01	0.0177	0.01	ND (R)	0.2	0.0222 (J)	0.01
FLUORENE	0.047	0.01	0.0782	0.01	0.083	0.01	0.125	0.1	ND (R)	0.2	0.154 (J)	0.1
N-NITROSODIPHENYLAMINE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND (R)	0.2	ND (R)	0.01
NAPHTHALENE	0.537	0.01	0.409	0.1	0.495	0.1	5.21	2	ND (R)	0.2	2.44 (J)	1
NITROBENZENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND (R)	0.2	ND (R)	0.01
PENTACHLOROPHENOL	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND (R)	1	ND (R)	0.05
PHENANTHRENE	0.0432	0.01	0.0598	0.01	0.0718	0.01	0.133	0.1	ND (R)	0.2	0.144 (J)	0.1
PHENOL	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND (R)	0.2	ND (R)	0.01
PYRENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND (R)	0.2	0.0102 (J)	0.01

NOTES:

(a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile
Compounds analyzed by Method SW846-8270B unless otherwise noted.

Conc. = Reported Concentration

LOQ = Limit of Quantitation

ND = Not detected above the laboratory LOQ

NA = Not Analyzed

R = Unusable data

J = Estimated result

UJ = Estimated non detect

D1 = Dilution/estimated result

On-Site Ground Water Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID TRANSMISSIVE ZONE SAMPLE DATE ANALYTICAL RESULT (mg/L)	MW-12B		MW-12C		MW-13		MW-14			
	MW12B-RF12B B-TZ 11/17/98	LOQ	MW12C-RF12A C-TZ 5/14/97	LOQ	MW13-RF12A A-TZ 11/16/98	LOQ	MW14-RF12A B-TZ 5/14/97	LOQ	MW14-RF12B B-TZ 11/16/98	
	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	
Volatiles Compounds										
1,2-DICHLOROETHANE	ND	0.001	ND	0.005	ND	0.005	ND	0.005	ND	0.001
BENZENE	0.00111	0.001	ND	0.005	0.00456	0.001	ND	0.005	ND	0.001
CHLOROBENZENE	ND	0.001	ND	0.005	ND	0.001	ND	0.005	ND	0.001
DICHLOROMETHANE	ND	0.001	ND	0.005	ND	0.001	ND	0.005	ND	0.001
ETHYLBENZENE	0.018	0.001	ND	0.005	ND	0.001	ND	0.005	ND	0.001
TOLUENE	0.00279	0.001	ND	0.005	ND	0.001	ND	0.005	ND	0.001
XYLENES	0.0331	0.001	ND	0.005	ND	0.001	ND	0.005	ND	0.001
Semivolatile Compounds										
1,2-DIPHENYLDRAZINE	ND (R)	0.2	ND	0.01	ND	0.01	ND	0.01	ND	0.01
2,4-DIMETHYLPHENOL	ND	0.2	ND	0.01	ND	0.01	ND	0.01	ND	0.01
2,4-DINITROTOLUENE	ND (R)	0.2	ND	0.01	ND	0.01	ND	0.01	ND	0.01
2,6-DINITROTOLUENE	ND (R)	0.2	ND	0.01	ND	0.01	ND	0.01	ND	0.01
2-CHLORONAPHTHALENE	ND (R)	0.2	ND	0.01	ND	0.01	ND	0.01	ND	0.01
2-METHYLNAPHTHALENE	0.29 (J)	0.2	ND	0.01	ND	0.01	ND	0.01	ND	0.01
4,6-DINITRO-O-CRESOL	ND (R)	0.2	ND	0.05	ND	0.01	ND	0.05	ND	0.01
4-NITROPHENOL	ND (R)	0.2	ND	0.05	ND	0.01	ND	0.05	ND	0.01
ACENAPHTHENE	0.23 (J)	0.2	ND	0.01	ND	0.01	ND	0.01	ND	0.01
ACENAPHTHYLENE	ND (R)	0.2	ND	0.01	ND	0.01	ND	0.01	ND	0.01
ANTHRACENE	ND (R)	0.2	ND	0.01	ND	0.01	ND	0.01	ND	0.01
BENZO(A)ANTHRACENE	ND (R)	0.2	ND	0.01	ND	0.01	ND	0.01	ND	0.01
BENZO(A)PYRENE	ND (R)	0.2	ND	0.01	ND	0.01	ND	0.01	ND	0.01
BIS(2-CHLOROETHOXY)METHANE	ND (R)	0.2	ND	0.01	ND	0.01	ND	0.01	ND	0.01
BIS(2-ETHYL HEXYL)PHTHALATE	ND (R)	0.2	ND	0.01	ND	0.01	ND	0.01	ND	0.01
CHRYSENE	ND (R)	0.2	ND	0.01	ND	0.01	ND	0.01	ND	0.01
DI-N-BUTYL PHTHALATE	ND (R)	0.2	ND	0.01	ND	0.01	ND	0.01	ND	0.01
DIHENZOFURAN	ND (R)	0.2	ND	0.01	ND	0.01	ND	0.01	ND	0.01
FLUORANTHENE	ND (R)	0.2	ND	0.01	ND	0.01	ND	0.01	ND	0.01
FLUORENE	ND (R)	0.2	ND	0.01	ND	0.01	ND	0.01	ND	0.01
N-NITROSODIPHENYLAMINE	ND (R)	0.2	ND	0.01	ND	0.01	ND	0.01	ND	0.01
NAPHTHALENE	2.75 (J)	0.2	ND	0.01	ND	0.01	ND	0.01	ND	0.01
NITROBENZENE	ND (R)	0.2	ND	0.01	ND	0.01	ND	0.01	ND	0.01
PENTACHLOROPHENOL	ND (R)	1	ND	0.01	ND	0.01	ND	0.01	ND	0.01
PHENANTHRENE	ND (R)	0.2	ND	0.05	ND	0.05	ND	0.05	ND	0.05
PHENOL	ND (R)	0.2	ND	0.01	ND	0.01	ND	0.01	ND	0.01
PYRENE	ND (R)	0.2	ND	0.01	ND	0.01	ND	0.01	ND	0.01

NOTES:
(a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile
Compounds analyzed by Method SW846-8270B unless otherwise noted.
Conc. = Reported Concentration
LOQ = Limit of Quantitation
ND = Not detected above the laboratory LOQ
NA = Not Analyzed
R = Unusable data
J = Estimated result
UI = Estimated non direct
DI = Dilution/estimated result

On-Site Ground Water Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID TRANSMISSIVE ZONE SAMPLE DATE ANALYTICAL RESULT (mg/L)	MW15A-RF12A		MW15A-RF12B		MW15A-RF12B-D		MW15C-RF12A		MW15C-RF12B		MW-16		
	A-TZ		A-TZ		A-TZ		C-TZ		C-TZ		A-TZ		
	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	
5/14/97					11/16/98			5/14/97			11/11/98		5/14/97
0.0238	0.005	0.005	0.0102	0.001	0.0104	0.001	0.005	0.005	0.005	0.005	0.00167	0.005	0.005
0.00681	0.005	0.0102	0.001	0.001	0.0104	0.001	0.005	0.005	0.005	0.005	0.00167	0.005	0.005
ND	0.005	0.0102	0.001	0.001	0.0104	0.001	0.005	0.005	0.005	0.005	0.00167	0.005	0.005
0.0151	0.005	0.0222	0.001	0.001	0.0227	0.001	0.005	0.005	0.005	0.005	0.00167	0.005	0.005
ND	0.005	0.00648	0.001	0.001	0.00819	0.001	0.005	0.005	0.005	0.005	0.00167	0.005	0.005
0.0238	0.005	0.0402	0.001	0.001	0.0447	0.001	0.0199	0.005	0.005	0.005	0.00167	0.005	0.005
ND	0.01	ND	0.2	0.2	ND	0.2	ND	0.01	ND	ND	0.01	ND	0.01
ND	0.01	ND	0.2	0.2	ND	0.2	ND	0.01	ND	ND	0.01	ND	0.01
ND	0.01	ND	0.2	0.2	ND	0.2	ND	0.01	ND	ND	0.01	ND	0.01
ND	0.01	ND	0.2	0.2	ND	0.2	ND	0.01	ND	ND	0.01	ND	0.01
ND	0.01	ND	0.2	0.2	ND	0.2	ND	0.01	ND	ND	0.01	ND	0.01
0.138	0.1	0.145	0.2	0.2	ND	0.2	0.0198	0.01	0.06	0.0393	0.01	0.01	0.01
ND	0.05	ND	0.2	0.2	ND	0.2	ND	0.05	ND	ND	0.01	ND	0.05
ND	0.05	ND	0.2	0.2	ND	0.2	ND	0.05	ND	ND	0.01	ND	0.05
0.142	0.1	0.115	0.2	0.2	ND	0.2	0.0377	0.01	0.0691	0.139	0.01	0.139	0.05
ND	0.01	0.0356	0.2	0.2	ND	0.2	ND	0.01	ND	ND	0.01	ND	0.01
ND	0.01	ND	0.2	0.2	ND	0.2	ND	0.01	ND	0.0163	0.01	0.0163	0.01
ND	0.01	ND	0.2	0.2	ND	0.2	ND	0.01	ND	ND	0.01	ND	0.01
ND	0.01	ND	0.2	0.2	ND	0.2	ND	0.01	ND	ND	0.01	ND	0.01
ND	0.01	ND	0.2	0.2	ND	0.2	ND	0.01	ND	ND	0.01	ND	0.01
ND	0.01	ND	0.2	0.2	ND	0.2	ND	0.01	ND	ND	0.01	ND	0.01
0.0423	0.01	ND	0.2	0.2	ND	0.2	0.104	0.02	0.0589	0.08819	0.01	0.08819	0.01
ND	0.01	ND	0.2	0.2	ND	0.2	ND	0.01	ND	0.0263	0.01	0.0263	0.01
0.0428	0.01	ND	0.2	0.2	ND	0.2	ND	0.01	ND	0.0827	0.01	0.0827	0.01
1.21	0.5	1.53	0.2	0.2	1	0.2	0.0409	0.01	0.138	0.472	0.01	0.472	0.1
ND	0.01	ND	0.2	0.2	ND	0.2	ND	0.01	ND	0.472	0.01	0.472	0.1
ND	0.01	ND	0.2	0.2	ND	0.2	ND	0.01	ND	0.472	0.01	0.472	0.1
0.0189	0.01	ND	0.2	0.2	ND	0.2	0.0189	0.01	0.0384	0.0968	0.01	0.0968	0.05
ND	0.01	ND	0.2	0.2	ND	0.2	ND	0.01	ND	0.0968	0.01	0.0968	0.05
ND	0.01	ND	0.2	0.2	ND	0.2	ND	0.01	ND	0.0148	0.01	0.0148	0.01

NOTE:
 (a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile
 Compounds analyzed by Method SW846-8270B unless otherwise noted.
 Conc. = Reported Concentration
 LOQ = Limit of Quantitation
 ND = Not detected above the laboratory LOQ
 NA = Not Analyzed
 R = Unusable data
 J = Estimated result
 UJ = Estimated non detect
 DJ = Dilution/estimated result

On-Site Ground Water Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID TRANSMISSIVE ZONE SAMPLE DATE ANALYTICAL RESULT (mg/L)	MW-16		MW-17		MW-18A		MW-18C	
	MW16-RF12B A-TZ 11/16/98	MW17A-RF12A A-TZ 5/14/97	MW17-RF12B A-TZ 11/17/98	MW18A-RF12A A-TZ 5/14/97	MW18A-RF12B A-TZ 11/17/98	MW18C-RF12A C-TZ 5/14/97		
	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
Volatile Compounds								
1,2-DICHLOROETHANE	ND	0.001	ND	0.025	ND	0.001	ND	0.005
BENZENE	0.018	0.001	0.58	0.025	0.0456	0.001	0.7	0.005
CHLOROBENZENE	ND	0.001	ND	0.025	ND	0.001	ND	0.005
DICHLOROMETHANE	ND	0.001	ND	0.025	ND	0.001	ND	0.005
ETHYLBENZENE	0.0274	0.001	0.205	0.025	0.0522	0.001	0.919	0.005
TOLUENE	0.0226	0.001	0.78	0.025	0.124	0.001	0.805	0.005
XYLENES	0.0617	0.001	0.105	0.025	0.236	0.001	0.218	0.005
Semivolatile Compounds								
1,2-DIPHENYLHYDRAZINE	ND (R)	0.2	ND	0.5	ND (R)	0.2	ND	0.01
2,4-DIMETHYLPHENOL	ND (R)	0.2	7.14	2.5	ND (R)	0.2	9.21	0.01
2,4-DINITROTOLUENE	ND (R)	0.2	ND	0.5	ND (R)	0.2	ND	0.01
2,6-DINITROTOLUENE	ND (R)	0.2	ND	0.5	ND (R)	0.2	ND	0.01
2-CHLORONAPHTHALENE	ND (R)	0.2	ND	0.5	ND (R)	0.2	ND	0.01
2-METHYLNAPHTHALENE	ND (R)	0.2	0.711	0.5	0.268 (I)	0.2	0.617	0.01
4,6-DINITRO-O-CRESOL	ND (R)	0.2	ND	2.5	ND (R)	0.2	ND	0.1
4-NITROPHENOL	ND (R)	0.2	ND	2.5	ND (R)	0.2	ND	0.05
ACENAPHTHENE	ND (R)	0.2	ND	2.5	ND (R)	0.2	ND	0.05
ACENAPHTHYLENE	ND (R)	0.2	ND	0.5	ND (R)	0.2	0.35	0.05
ANTHRACENE	ND (R)	0.2	ND	0.5	ND (R)	0.2	ND	0.01
BENZO(A)ANTHRACENE	ND (R)	0.2	ND	0.5	ND (R)	0.2	ND	0.01
BENZO(A)PYRENE	ND (R)	0.2	ND	0.5	ND (R)	0.2	ND	0.01
BIS(2-CHLOROETHOXY)METHANE	ND (R)	0.2	ND	0.5	ND (R)	0.2	ND	0.01
BIS(2-ETHYL HEXYL)PHTHALATE	ND (R)	0.2	ND	0.5	ND (R)	0.2	ND	0.01
CHRYSENE	ND (R)	0.2	ND	0.5	ND (R)	0.2	ND	0.01
DI-N-BUTYL PHTHALATE	ND (R)	0.2	ND	0.5	ND (R)	0.2	ND	0.01
DIBENZOFURAN	ND (R)	0.2	ND	0.5	ND (R)	0.2	ND	0.01
FLUORANTHENE	ND (R)	0.2	ND	0.5	ND (R)	0.2	ND	0.01
FLUORENE	ND (R)	0.2	ND	0.5	ND (R)	0.2	ND	0.01
N-NITROSODIPHENYLAMINE	ND (R)	0.2	ND	0.5	ND (R)	0.2	ND	0.01
NAPHTHALENE	ND (R)	0.2	ND	0.5	ND (R)	0.2	ND	0.01
NITROBENZENE	0.889 (I)	0.2	12.2	2.5	5.21 (I)	0.2	7.87	0.01
PENTACHLOROPHENOL	ND (R)	0.2	ND	0.5	ND (R)	0.2	ND	0.01
PHENANTHRENE	ND (R)	1	ND	2.5	ND (R)	0.2	ND	0.01
PHENOL	ND (R)	0.2	ND	0.5	ND (R)	0.2	ND	0.01
PYRENE	ND (R)	0.2	29.7	10	ND (R)	0.2	1.41	0.01
	ND (R)	0.2	ND	0.5	ND (R)	0.2	ND	0.01

NOTES:

(a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.

Conc. = Reported Concentration

LOQ = Limit of Quantitation

ND = Not detected above the laboratory LOQ

NA = Not Analyzed

R = Unstable data

I = Estimated result

UI = Estimated non detect

DI = Dilution/estimated result

On-Site Ground Water Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID TRANSMISSIVE ZONE SAMPLE DATE ANALYTICAL RESULT (mg/L)	MW-18C		MW-19C		MW-20A		MW-21C		MW-22A	
	MW18C-RF12B C-TZ 11/11/98 Conc.	LOQ	MW19C-RF12B C-TZ 11/10/98 Conc.	LOQ	MW20A-RF12B A-TZ 11/16/98 Conc.	LOQ	MW21C-RF12B C-TZ 11/11/98 Conc.	LOQ	MW22A-RF12B A-TZ 11/10/98 Conc.	LOQ
Volatile Compounds										
1,2-DICHLOROETHANE	ND	0.005	ND	0.001	ND	0.001	ND	0.001	ND	0.001
BENZENE	0.144	0.005	0.00267	0.001	0.0334	0.001	0.00467	0.001	ND	0.001
CHLOROBENZENE	ND	0.005	ND	0.001	ND	0.001	ND	0.001	ND	0.001
DICHLOROMETHANE	ND	0.005	ND	0.001	ND	0.001	ND	0.001	ND	0.001
ETHYLBENZENE	0.0622	0.005	0.00367	0.001	0.0456	0.001	ND	0.001	ND	0.001
TOLUENE	0.0403	0.005	0.00472	0.001	0.067	0.001	ND	0.001	ND	0.001
XYLENES	0.0714	0.005	0.0122	0.001	0.196	0.001	ND	0.001	ND	0.001
Semivolatile Compounds										
1,2-DIPHENYLHYDRAZINE	ND (R)	0.2	ND	0.01	ND (R)	0.2	ND	0.01	ND	0.33
2,4-DIMETHYLPHENOL	ND (R)	0.2	ND	0.01	ND (R)	0.2	ND	0.01	ND	0.33
2,4-DINITROTOLUENE	ND (R)	0.2	ND	0.01	ND (R)	0.2	ND	0.01	ND	0.33
2,6-DINITROTOLUENE	ND (R)	0.2	ND	0.01	ND (R)	0.2	ND	0.01	ND	0.33
2-CHLORONAPHTHALENE	ND (R)	0.2	ND	0.01	ND (R)	0.2	ND	0.01	ND	0.33
2-METHYLNAPHTHALENE	ND (R)	0.2	ND	0.01	ND (R)	0.2	ND	0.01	ND	0.33
4,6-DINITRO-O-CRESOL	ND (R)	0.2	ND	0.01	ND (R)	0.2	ND	0.01	ND	0.33
4-NITROPHENOL	ND (R)	0.2	ND	0.01	ND (R)	0.2	ND	0.01	ND	0.33
ACENAPHTHENE	ND (R)	0.2	0.0223	0.01	ND (R)	0.2	ND	0.01	ND	0.33
ACENAPHTHYLENE	ND (R)	0.2	ND	0.01	ND (R)	0.2	ND	0.01	ND	0.33
ANTHRACENE	ND (R)	0.2	0.011	0.01	ND (R)	0.2	ND	0.01	ND	0.33
BENZO(A)ANTHRACENE	ND (R)	0.2	ND	0.01	ND (R)	0.2	ND	0.01	ND	0.33
BENZO(A)PYRENE	ND (R)	0.2	ND	0.01	ND (R)	0.2	ND	0.01	ND	0.33
BIS(2-CHLOROETHOXY)METHANE	ND (R)	0.2	ND	0.01	ND (R)	0.2	ND	0.01	ND	0.33
BIS(2-ETHYL HEXYL)PHTHALATE	ND (R)	0.2	ND	0.01	ND (R)	0.2	ND	0.01	ND	0.33
CHRYSENE	ND (R)	0.2	ND	0.01	ND (R)	0.2	ND	0.01	ND	0.33
DI-N-BUTYL PHTHALATE	ND (R)	0.2	ND	0.01	ND (R)	0.2	ND	0.01	ND	0.33
DIBENZOFURAN	ND (R)	0.2	ND	0.01	ND (R)	0.2	ND	0.01	ND	0.33
FLUORANTHENE	ND (R)	0.2	0.0113	0.01	ND (R)	0.2	ND	0.01	ND	0.33
FLUORENE	ND (R)	0.2	0.0211	0.01	ND (R)	0.2	ND	0.01	ND	0.33
N-NITROSODIPHENYLAMINE	ND (R)	0.2	ND	0.01	ND (R)	0.2	ND	0.01	ND	0.33
NAPHTHALENE	0.677 (J)	0.2	ND	0.01	ND (R)	0.2	ND	0.01	ND	0.33
NITROBENZENE	ND (R)	0.2	ND	0.01	2.34 (J)	0.2	ND	0.01	ND	0.33
PENTACHLOROPHENOL	ND (R)	0.2	ND	0.01	ND (R)	0.2	ND	0.01	ND	0.33
PHENANTHRENE	1	0.05	ND	0.05	ND (R)	1	ND	0.05	ND	1.7
PHENOL	ND (R)	0.2	0.0485	0.01	ND (R)	0.2	ND	0.01	ND	0.33
PYRENE	ND (R)	0.2	ND	0.01	ND (R)	0.2	ND	0.01	ND	0.33

NOTES:

(a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8708 unless otherwise noted.

Conc. = Reported Concentration

LOQ = Limit of Quantitation

ND = Not detected above the laboratory LOQ

NA = Not Analyzed

R = Unusable data

J = Estimated result

UJ = Estimated non-detect

DJ = Dilution/estimated result

On-Site Ground Water Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID TRANSMISSIVE ZONE SAMPLE DATE ANALYTICAL RESULT (mg/L)	MW-22B		MW-23C	
	MW22B-RF12B B-TZ 11/10/98	MW22B-RF12B-D B-TZ 11/10/98	MW23C-RF12B C-TZ 11/11/98	MW23C-RF12B C-TZ 11/11/98
	Conc.	LOQ	Conc.	LOQ
Volatile Compounds				
1,2-DICHLOROETHANE	ND	0.001	ND	0.005
BENZENE	0.0107	0.001	0.00274	0.005
CHLOROBENZENE	ND	0.001	ND	0.005
DICHLOROMETHANE	ND	0.001	ND	0.005
ETHYLBENZENE	0.0166	0.001	0.0192	0.112
TOLUENE	0.00544	0.001	0.00613	0.005
XYLENES	0.0271	0.001	0.0288	0.0729
Semivolatile Compounds				
1,2-DIPHENYLHYDRAZINE	ND	0.2	ND	0.2
2,4-DIMETHYLPHENOL	ND	0.2	ND	0.2
2,4-DINITROTOLUENE	ND	0.2	ND	0.2
2,6-DINITROTOLUENE	ND	0.2	ND	0.2
2-CHLORONAPHTHALENE	ND	0.2	ND	0.2
2-METHYLNAPHTHALENE	ND	0.2	ND	0.2
4,6-DINITRO-O-CRESOL	ND	0.2	ND	0.203
4-NITROPHENOL	ND	0.2	ND	0.2
ACENAPHTHENE	ND	0.2	ND	0.2
ACENAPHTHYLENE	ND	0.2	ND	0.2
ANTHRACENE	ND	0.2	ND	0.2
BENZO(A)ANTHRACENE	ND	0.2	ND	0.2
BENZO(A)PYRENE	ND	0.2	ND	0.2
BIS(2-CHLOROETHOXY)METHANE	ND	0.2	ND	0.2
BIS(2-ETHYL HEXYL)PHTHALATE	ND	0.2	ND	0.2
CHRYSENE	ND	0.2	ND	0.2
DI-N-BUTYL PHTHALATE	ND	0.2	ND	0.2
DIBENZOFURAN	ND	0.2	ND	0.2
FLUORANTHENE	ND	0.2	ND	0.2
FLUORENE	ND	0.2	ND	0.2
N-NITROSODIPHENYLAMINE	ND	0.2	ND	0.2
NAPHTHALENE	0.319	1	0.507	1.745
NITROBENZENE	ND	0.2	ND	0.2
PENTACHLOROPHENOL	ND	0.2	ND	0.2
PHENANTHRENE	ND	0.2	ND	1
PHENOL	ND	0.2	ND	0.2
PYRENE	ND	0.2	ND	0.2

NOTES:

(a) Volatile Compounds analyzed by Method SW846-8160A and Semivolatile
Compounds analyzed by Method SW846-8170B unless otherwise noted.

Conc. = Reported Concentration

LOQ = Limit of Quantitation

ND = Not detected above the laboratory LOQ

NA = Not Analyzed

K = Unusable data

J = Estimated result

UJ = Estimated non detect

DJ = Diluted/estimated result

On-Site Ground Water Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION
SAMPLE ID
TRANSMISSIVE ZONE
SAMPLE DATE
ANALYTICAL RESULT (mg/L)

	P-11									
	P11-ISA97-P B-TZ 3/26/97	P11-2SA97 B-TZ 9/25/97	P11-ISA98 (b) B-TZ 3/4/98	P11-2SA98 B-TZ 9/22/98	P11-ISA99 B-TZ 3/16/99	P11-2SA99 B-TZ				
	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
Volatiles Compounds										
1,2-DICHLOROETHANE	ND	0.005	ND	0.005	ND	0.001	ND (UJ)	0.001	ND	0.01
BENZENE	ND	0.005	ND	0.005	ND	0.001	ND (UJ)	0.001	ND	0.01
CHLOROBENZENE	ND	0.005	ND	0.005	ND	0.001	ND (UJ)	0.001	ND	0.01
DICHLOROMETHANE	ND	0.005	ND	0.005	ND	0.001	ND (UJ)	0.001	ND	0.01
ETHYLBENZENE	ND	0.005	ND	0.005	ND	0.001	ND (UJ)	0.001	ND	0.01
TOLUENE	ND	0.005	ND	0.005	ND	0.001	ND (UJ)	0.001	ND	0.01
XYLENES	ND	0.005	ND	0.005	ND	0.001	ND (UJ)	0.001	ND	0.01
Semivolatile Compounds										
1,2-DIPHENYLHYDRAZINE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
2,4-DIMETHYLPHENOL	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
2,4-DINITROTOLUENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
2,6-DINITROTOLUENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
2-CHLORONAPHTHALENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
2-METHYLNAPHTHALENE	ND	0.05	ND	0.01	ND	0.01	ND	0.01	ND	0.01
4,6-DINITRO-O-CRESOL	ND	0.01	ND	0.05	NA	NA	ND	0.01	ND	0.01
4-NITROPHENOL	ND	0.01	ND	0.05	ND	0.05	ND	0.01	ND	0.01
ACENAPHTHENE	ND	0.017	ND (UJ)	0.01	0.023	0.01	0.0265	0.0187	ND	0.0265
ACENAPHTHYLENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
ANTHRACENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
BENZO(A)ANTHRACENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
BENZO(A)PYRENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
BIS(2-CHLOROETHOXY)METHANE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
BIS(2-ETHYL HEXYL)PHTHALATE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
CHRYSENE	0.034	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
DI-N-BUTYL PHTHALATE	ND	0.05	ND	0.01	ND	0.01	ND	0.01	ND	0.01
DIBENZOFURAN	ND	0.05	ND	0.01	ND	0.01	ND	0.01	ND	0.01
FLUORANTHENE	ND	0.05	ND	0.01	ND	0.01	ND	0.01	ND	0.01
FLUORENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
N-NITROSODIPHENYLAMINE	ND	0.01	0.016	0.01	0.014	0.01	ND	0.01	ND	0.01
NAPHTHALENE	ND	0.01	ND (UJ)	0.01	ND	0.01	ND	0.01	ND	0.01
NITROBENZENE	ND	0.01	0.015	0.01	ND	0.01	ND	0.01	ND	0.01
PENTACHLOROPHENOL	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
PHENANTHRENE	ND	0.01	ND	0.05	ND	0.05	ND	0.05	ND	0.05
PHENOL	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01
PYRENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01

NOTES:

(a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.

Conc. = Reported Concentration

LOQ = Limit of Quantitation

ND = Not detected above the laboratory LOQ

NA = Not Analyzed

R = Unusable data

J = Estimated result

UJ = Estimated from detect

DI = Dilution/estimated result

On-Site Ground Water Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID TRANSMISSIVE ZONE SAMPLE DATE ANALYTICAL RESULT (mg/L)	F-12													
	P12-1SA97-P B-TZ 3/26/97		P12-2SA97 B-TZ 9/25/97		P12-1SA98 (b) B-TZ 3/4/98		P12-2SA98 B-TZ 9/21/98		P12-1SA99 B-TZ 3/16/99		P12-1SA99-R B-TZ 3/26/99		P12-2SA99 B-TZ	
	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
Volatiles Compounds														
1,2-DICHLOROETHANE	ND	0.005	ND	0.005	ND	0.005	ND	0.001	ND (UJ)	0.001	NA	NA	ND	0.01
BENZENE	ND	0.005	ND	0.005	ND	0.005	ND	0.001	ND (UJ)	0.001	NA	NA	ND	0.01
CHLOROBENZENE	ND	0.005	ND	0.005	ND	0.005	ND	0.001	ND (UJ)	0.001	NA	NA	ND	0.01
DICHLOROMETHANE	ND	0.005	ND	0.005	ND	0.005	ND	0.001	ND (UJ)	0.001	NA	NA	ND	0.01
ETHYLBENZENE	ND	0.005	ND	0.005	ND	0.005	ND	0.001	ND (UJ)	0.001	NA	NA	ND	0.01
TOLUENE	ND	0.005	ND	0.005	ND	0.005	ND	0.001	ND (UJ)	0.001	NA	NA	ND	0.01
XYLENES	ND	0.005	ND	0.005	ND	0.005	ND	0.001	ND (UJ)	0.001	NA	NA	ND	0.01
Semivolatile Compounds														
1,2-DIPHENYLHYDRAZINE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	ND	0.01
2,4-DIMETHYLPHENOL	ND	0.01	ND	0.01	ND (R)	0.01	ND	0.01	NA	NA	ND	0.01	ND	0.01
2,4-DINITROTOLUENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	ND	0.01
2,6-DINITROTOLUENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	ND	0.01
2-CHLORONAPHTHALENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	ND	0.01
2-METHYLNAPHTHALENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	ND	0.01
4,6-DINITRO-O-CRESOL	ND	0.05	ND	0.05	ND	0.05	ND	0.01	NA	NA	ND	0.01	ND	0.01
4-NITROPHENOL	ND	0.01	ND	0.05	ND (R)	0.05	ND	0.01	NA	NA	ND	0.01	ND	0.01
ACENAPHTHENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	ND	0.01
ACENAPHTHYLENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	ND	0.01
ANTHRACENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	ND	0.01
BENZO(A)ANTHRACENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	ND	0.01
BENZO(A)PYRENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	ND	0.01
BIS(2-CHLOROETHOXY)METHANE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	ND	0.01
BIS(2-ETHYL HEXYL)PHTHALATE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	ND	0.01
CHRYSENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	ND	0.01
DI-N-BUTYL PHTHALATE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	ND	0.01
DIBENZOFURAN	ND	0.05	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	ND	0.01
FLUORANTHENE	ND	0.05	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	ND	0.01
FLUORENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	ND	0.01
N-NITROSODIPHENYLAMINE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	ND	0.01
NAPHTHALENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	ND	0.01
NITROBENZENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	ND	0.01
PENTACHLOROPHENOL	ND	0.01	ND	0.05	ND (R)	0.05	ND	0.05	NA	NA	ND	0.05	ND	0.05
PHENANTHRENE	ND	0.01	ND	0.01	ND	0.01	ND	0.01	NA	NA	ND	0.01	ND	0.01
PHENOL	ND	0.01	ND	0.01	ND (R)	0.01	ND	0.01	NA	NA	ND	0.01	ND	0.01
PYRENE	ND	0.01	ND	0.01	ND (R)	0.01	ND	0.01	NA	NA	ND	0.01	ND	0.01

NOTES:

(a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.

Conc. = Reported Concentration

LOQ = Limit of Quantitation

ND = Not Detected above the laboratory LOQ

NA = Not Analyzed

R = Unusable data

J = Estimated result

UJ = Estimated non-detect

DI = Dilution/estimated result

On-site Comprehensive SPLP Analytical Data
Attachment D-4

July 10, 2000
W.O. #422-009

Environmental Resources Management
16300 Katy Freeway, Suite 300
Houston, Texas 77094-1611
(281) 600-1000

On-Site Comprehensive SPLP Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID SAMPLE DEPTH (feet) SAMPLE DATE ANALYTICAL RESULT (mg/L)	MW19C-38		MW19C-55		MW19C-60		MW19C-73		MW21C-00		MW21C-08	
	38 - 40		55 - 57		60 - 62		73 - 75		0 - 1		8 - 10	
	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
Volatile Compounds												
1,2-DICHLOROETHANE	ND	0.015	ND	0.015	ND	0.015	ND	0.015	ND	0.015	ND	0.015
BENZENE	ND	0.015	ND	0.015	ND	0.015	ND	0.015	ND	0.015	ND	0.015
CHLOROBENZENE	ND	0.015	ND	0.015	ND	0.015	ND	0.015	ND	0.015	ND	0.015
DICHLOROMETHANE	ND	0.015	ND	0.015	ND	0.015	ND	0.015	ND	0.015	ND	0.015
ETHYLBENZENE	ND	0.015	ND	0.015	3.15	0.015	1.19	0.015	ND	0.015	ND	0.015
TOLUENE	ND	0.015	ND	0.015	ND	0.015	ND	0.015	ND	0.015	ND	0.015
XYLENES	ND	0.015	ND	0.015	ND	0.015	ND	0.015	ND	0.015	ND	0.015
Semivolatile Compounds												
1,2-DIPHENYLHYDRAZINE	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1
2,4-DIMETHYLPHENOL	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1
2,4-DINITROTOLUENE	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1
2,6-DINITROTOLUENE	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1
2-CHLORONAPHTHALENE	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1
2-METHYLNAPHTHALENE	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1
4,6-DINITRO-O-CRESOL	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1
4-NITROPHENOL	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1
ACENAPHTHENE	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1
ACENAPHTHYLENE	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1
ANTHRACENE	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1
BENZO(A)ANTHRACENE	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1
BENZO(A)PYRENE	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1
BIS(2-CHLOROETHOXY)METHANE	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1
BIS(2-ETHYL HEXYL)PHTHALATE	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1
CHRYSENE	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1
DI-N-BUTYL PHTHALATE	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1
DIBENZOFURAN	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1
FLUORANTHENE	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1
FLUORENE	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1
N-NITROSODIPHENYLAMINE	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1
NAPHTHALENE	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1
NITROBENZENE	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1
PENTACHLOROPHENOL	ND	0.1	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
PHENANTHRENE	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1
PHENOL	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1
PYRENE	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1

NOTES:

(a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.

Conc. = Reported Concentration

LOQ = Limit of Quantitation

ND = Not detected above the laboratory LOQ

NA = Not Analyzed

R = Unusable data

UJ = Estimated non detect

J = Estimated result

D) = Dilution/estimated result

On-Site Comprehensive SPLP Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID SAMPLE DEPTH (feet) SAMPLE DATE ANALYTICAL RESULT (mg/L)	SB03		SB03-S5 RELOG H446423		SB03-S5		SB-04	
	HWPW-SB03-S19	HWPW-SB03-S24	HWPW-SB03-S5	HWPW-SB03-S5	HWPW-SB04-S51	HWPW-SB04-S51	HWPW-SB04-S51	HWPW-SB04-S51
	19-20 3/5/97	24-25 3/5/97	5-6 3/5/97	5-6 3/5/97	51-52 3/5/97	51-52 3/5/97	51-52 3/5/97	51-52 3/5/97
	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
Volatile Compounds								
1,2-DICHLOROETHANE	ND	0.005	NA	NA	ND	0.005	ND	0.005
BENZENE	ND	0.005	0.024	NA	ND	0.005	ND	0.005
CHLOROBENZENE	ND	0.005	0.005	NA	ND	0.005	ND	0.005
DICHLOROMETHANE	ND	0.005	0.03	NA	ND	0.005	0.086	0.005
ETHYLBENZENE	ND	0.005	0.005	NA	ND	0.005	0.036	0.005
TOLUENE	ND	0.05	0.26	NA	ND	0.005	0.12	0.05
XYLENES	ND	0.005	0.011	NA	ND	0.005	0.1	0.005
Semivolatile Compounds								
1,2-DIPHENYLHYDRAZINE	ND	0.01	0.01	0.01	ND	0.01	ND	0.25
2,4-DIMETHYLPHENOL	ND	0.01	0.01	0.01	ND	0.01	ND	0.25
2,4-DINITROTOLUENE	ND	0.01	0.01	0.01	ND	0.01	ND	0.25
2,6-DINITROTOLUENE	ND	0.01	0.01	0.01	ND	0.01	ND	0.25
2-CHLORONAPHTHALENE	ND	0.01	0.01	0.01	ND	0.01	ND	0.25
2-METHYLNAPHTHALENE	0.041	0.01	0.044	0.01	0.037	0.01	1.6	0.25
4,6-DINITRO-O-CRESOL	ND	0.05	ND	0.05	ND	0.05	ND	1.25
4-NITROPHENOL	ND	0.05	0.05	0.05	ND	0.05	ND	1.25
ACENAPHTHENE	0.04	0.01	0.085	0.01	0.038	0.01	0.38	0.25
ACENAPHTHYLENE	ND	0.01	ND	0.01	ND	0.01	ND	0.25
ANTHRACENE	ND	0.01	0.031	0.01	ND	0.01	ND	0.25
BENZO(A)ANTHRACENE	ND	0.01	ND	0.01	ND	0.01	ND	0.25
BENZO(A)PYRENE	ND	0.01	ND	0.01	ND	0.01	ND	0.25
BIS(O-CHLOROETHOXY)METHANE	ND	0.01	ND	0.01	ND	0.01	ND	0.25
BIS(O-ETHYL HEXYL)PHTHALATE	ND	0.01	ND	0.01	ND	0.01	ND	0.25
CHRYSENE	ND	0.01	ND	0.01	ND	0.01	ND	0.25
DI-N-BUTYL PHTHALATE	ND	0.01	ND	0.01	ND	0.01	ND	0.25
DIBENZOFURAN	0.035	0.01	0.06	0.01	0.029	0.01	0.35	0.25
FLUORANTHENE	0.01	0.01	0.032	0.01	ND	0.01	ND	0.25
FLUORENE	0.028	0.01	0.088	0.01	0.036	0.01	0.28	0.25
N-NITROSODIPHENYLAMINE	ND	0.01	ND	0.01	ND	0.01	ND	0.25
NAPHTHALENE	0.075	0.01	ND	0.01	ND	0.01	ND	0.25
NITROBENZENE	ND	0.01	ND	0.01	0.05	0.01	2.2	0.25
PENTACHLOROPHENOL	ND	0.05	ND	0.01	ND	0.01	ND	0.25
PHENANTHRENE	0.054	0.01	0.17	0.01	0.035	0.01	0.82	0.25
PHENOL	ND	0.01	ND	0.01	ND	0.01	ND	0.25
PYRENE	ND	0.01	0.015	0.01	ND	0.01	0.25	0.25

NOTES:
(a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.
Conc. = Reported Concentration
LOQ = Limit of Quantitation
ND = Not detected above the laboratory LOQ
NA = Not Analyzed
R = Unusable data
UJ = Estimated non detect
J = Estimated result
DJ = Dilution/estimated result

On-Site Comprehensive SPLP Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

Analytical Result (mg/L)	SB-06		SB-21		SSB-22		SB-23	
	HWPW-SB06-S19		SB21-00		SB22-44		SB23-00	
	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
1,2-DICHLOROETHANE	ND	0.005	ND	0.015	ND	0.015	ND	0.015
BENZENE	0.016	0.005	ND	0.015	ND	0.015	ND	0.015
CHLOROBENZENE	ND	0.005	ND	0.015	ND	0.015	ND	0.015
DICHLOROMETHANE	ND	0.005	ND	0.015	ND	0.015	ND	0.015
ETHYLBENZENE	ND	0.005	ND	0.015	ND	0.015	ND	0.015
TOLUENE	ND	0.005	ND	0.015	ND	0.015	ND	0.015
XYLENES	ND	0.005	ND	0.015	0.018	0.015	ND	0.015
					0.021	0.015	ND	0.015
Semivolatile Compounds								
1,2-DIPHENYLHYDRAZINE	ND	0.01	ND	0.02	ND	0.017	ND	0.02
2,4-DIMETHYLPHENOL	ND	0.01	ND	0.02	ND	0.017	ND	0.02 (R)
2,4-DINITROTOLUENE	ND	0.01	ND	0.02	ND	0.017	ND	0.02
2,6-DINITROTOLUENE	ND	0.01	ND	0.02	ND	0.017	ND	0.02
2-CHLORONAPHTHALENE	ND	0.01	ND	0.02	ND	0.017	ND	0.02
2-METHYLNAPHTHALENE	0.1	0.01	ND	0.02	ND	0.017	ND	0.02
4,6-DINITRO-O-CRESOL	ND	0.05	ND	0.02	ND	0.017	ND	0.02
4-NITROPHENOL	ND	0.05	ND	0.02	ND	0.017	ND	0.02 (R)
ACENAPHTHENE	0.1	0.01	ND	0.02	ND	0.017	ND	0.02
ACENAPHTHYLENE	ND	0.01	ND	0.02	ND	0.017	ND	0.02
ANTHRACENE	0.026	0.01	ND	0.02	ND	0.017	ND	0.02
BENZO(A)ANTHRACENE	ND	0.01	ND	0.02	ND	0.017	ND	0.02
BENZO(A)PYRENE	ND	0.01	ND	0.02	ND	0.017	ND	0.02
BIS(2-CHLOROETHOXY)METHANE	ND	0.01	ND	0.02	ND	0.017	ND	0.02
BIS(2-ETHYL HEXYL)PHTHALATE	ND	0.01	ND	0.02	ND	0.017	ND	0.02
CHRYSENE	ND	0.01	ND	0.02	ND	0.017	ND	0.02
DI-N-BUTYL PHTHALATE	ND	0.01	ND	0.02	ND	0.017	ND	0.02
DIBENZOFURAN	0.096	0.01	ND	0.02	ND	0.017	ND	0.02
FLUORANTHENE	0.035	0.01	ND	0.02	ND	0.017	ND	0.02
FLUORENE	0.09	0.01	ND	0.02	ND	0.017	ND	0.02
N-NITROSODIPHENYLAMINE	ND	0.01	ND	0.02	ND	0.017	ND	0.02
NAPHTHALENE	0.36	0.05	ND	0.02	ND	0.017	ND	0.02
NITROBENZENE	ND	0.01	ND	0.02	ND	0.017	ND	0.02
PENTACHLOROPHENOL	ND	0.05	ND	0.02	ND	0.017	ND	0.02
PHENANTHRENE	0.14	0.01	ND	0.02	ND	0.085	ND	0.1 (R)
PHENOL	ND	0.01	ND	0.02	ND	0.017	ND	0.02
PYRENE	0.018	0.01	ND	0.02	ND	0.017	ND	0.02 (R)

NOTES:

(a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.

Conc. = Reported Concentration

LOQ = Limit of Quantization

ND = Not detected above the laboratory LOQ

NA = Not Analyzed

R = Unusable data

UF = Estimated non detect

J = Estimated result

DJ = Dilution/estimated result

On-Site Comprehensive SPLP Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID SAMPLE DEPTH (feet) SAMPLE DATE ANALYTICAL RESULT (mg/L)	SB-06		SB-21		SSB-22		SB-23	
	HWPW-SB06-S19		SB21-00		SB22-44		SB23-00	
	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
Volatile Compounds								
1,2-DICHLOROETHANE	ND	0.005	ND	0.015	ND	0.015	ND	0.015
BENZENE	0.016	0.005	ND	0.015	ND	0.015	ND	0.015
CHLOROBENZENE	ND	0.005	ND	0.015	ND	0.015	ND	0.015
DICHLOROMETHANE	ND	0.005	ND	0.015	ND	0.015	ND	0.015
ETHYLBENZENE	ND	0.005	ND	0.015	ND	0.015	ND	0.015
TOLUENE	ND	0.005	ND	0.015	ND	0.015	ND	0.015
XYLENES	ND	0.005	ND	0.015	0.018	0.015	ND	0.015
					0.021	0.015	ND	0.015
Semivolatile Compounds								
1,2-DIPHENYLDIAZINE	ND	0.01	ND	0.02	ND	0.017	ND	0.02
2,4-DIMETHYLPHENOL	ND	0.01	ND	0.02	ND	0.017	ND	0.02 (R)
2,4-DINITROTOLUENE	ND	0.01	ND	0.02	ND	0.017	ND	0.02
2,6-DINITROTOLUENE	ND	0.01	ND	0.02	ND	0.017	ND	0.02
2-CHLORONAPHTHALENE	ND	0.01	ND	0.02	ND	0.017	ND	0.02
2-METHYLNAPHTHALENE	0.1	0.01	ND	0.02	ND	0.017	ND	0.02
4,6-DINITRO-O-CRESOL	ND	0.05	ND	0.02	ND	0.017	ND	0.02
4-NITROPHENOL	ND	0.05	ND	0.02	ND	0.017	ND	0.02
ACENAPHTHENE	0.1	0.01	ND	0.02	ND	0.017	ND	0.02 (R)
ACENAPHTHYLENE	ND	0.01	ND	0.02	ND	0.017	ND	0.02
ANTHRACENE	0.026	0.01	ND	0.02	ND	0.017	ND	0.02
BENZO(A)ANTHRACENE	ND	0.01	ND	0.02	ND	0.017	ND	0.02
BENZO(A)PYRENE	ND	0.01	ND	0.02	ND	0.017	ND	0.02
BIS(2-CHLOROETHOXY)METHANE	ND	0.01	ND	0.02	ND	0.017	ND	0.02
BIS(2-ETHYL HEXYL)PHTHALATE	ND	0.01	ND	0.02	ND	0.017	ND	0.02
CHRYSENE	ND	0.01	ND	0.02	ND	0.017	ND	0.02
DI-N-BUTYL PHTHALATE	ND	0.01	ND	0.02	ND	0.017	ND	0.02
DIBENZOFURAN	0.096	0.01	ND	0.02	ND	0.017	ND	0.02
FLUORANTHENE	0.035	0.01	ND	0.02	ND	0.017	ND	0.02
FLUORENE	0.09	0.01	ND	0.02	ND	0.017	ND	0.02
N-NITROSODIPHENYLAMINE	ND	0.01	ND	0.02	ND	0.017	ND	0.02
NAPHTHALENE	0.36	0.05	ND	0.02	ND	0.017	ND	0.02
NITROBENZENE	ND	0.01	ND	0.02	ND	0.017	ND	0.02
PENTACHLOROPHENOL	ND	0.01	ND	0.02	ND	0.017	ND	0.02
PHENANTHRENE	0.14	0.05	ND	0.02	ND	0.085	ND	0.1 (R)
PHENOL	ND	0.01	ND	0.02	ND	0.017	ND	0.02
PYRENE	0.018	0.01	ND	0.02	ND	0.017	ND	0.02 (R)

NOTES:

(a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile Compounds analyzed by Method SW846-8270B unless otherwise noted.

Conc. = Reported Concentration

LOQ = Limit of Quantitation

ND = Not detected above the laboratory LOQ

NA = Not Analyzed

R = Unusable data

UJ = Estimated non direct

J = Estimated result

DJ = Dilution/estimated result

On-Site Comprehensive SPLP Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION
SAMPLE ID
SAMPLE DEPTH (feet)
SAMPLE DATE
ANALYTICAL RESULT (mg/L)

	SB23-31		SB-23		SB23-73		SB-26		SB-32		SB-33	
	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ	Conc.	LOQ
Volatile Compounds												
1,2-DICHLOROETHANE	ND	0.015	ND	0.015	ND	0.015	ND	0.015	ND	0.015	ND	0.015
BENZENE	ND	0.015	ND	0.015	ND	0.015	ND	0.015	ND	0.015	ND	0.015
CHLOROBENZENE	ND	0.015	ND	0.015	ND	0.015	ND	0.015	ND	0.015	ND	0.015
DICHLOROMETHANE	ND	0.015	ND	0.015	0.243	0.015	ND	0.015	ND	0.015	ND	0.015
ETHYLBENZENE	ND	0.015	ND	0.015	ND	0.015	ND	0.015	ND	0.015	ND	0.015
TOLUENE	ND	0.015	ND	0.015	ND	0.015	ND	0.015	ND	0.015	ND	0.015
XYLENES	ND	0.015	ND	0.015	ND	0.015	ND	0.015	ND	0.015	ND	0.015
Semivolatile Compounds												
1,2-DIPHENYLHYDRAZINE	ND	0.02	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	NA
2,4-DIMETHYLPHENOL	ND	0.02	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	NA
2,4-DINITROTOLUENE	ND	0.02	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	NA
2,6-DINITROTOLUENE	ND	0.02	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	NA
2-CHLORONAPHTHALENE	ND	0.02	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	NA
2-METHYLNAPHTHALENE	ND	0.02	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	NA
4,6-DINITRO-O-CRESOL	ND	0.02	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	NA
4-NITROPHENOL	ND	0.02	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	NA
ACENAPHTHENE	ND	0.02	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	NA
ACENAPHTHYLENE	ND	0.02	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	NA
ANTHRACENE	ND	0.02	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	NA
BENZO(A)ANTHRACENE	ND	0.02	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	NA
BENZO(A)PYRENE	ND	0.02	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	NA
BIS(2-CHLOROETHOXY)METHANE	ND	0.02	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	NA
BIS(2-ETHYL HEXYL)PHTHALATE	ND	0.02	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	NA
CHRYSENE	ND	0.02	ND	0.02	ND	0.1	0.119	0.1	0.087	0.1	ND	NA
DI-N-BUTYL PHTHALATE	ND	0.02	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	NA
DIBENZOFURAN	ND	0.02	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	NA
FLUORANTHENE	ND	0.02	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	NA
FLUORENE	ND	0.02	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	NA
N-NITROSODIPHENYLAMINE	ND	0.02	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	NA
NAPHTHALENE	0.0856	0.02	0.0235	0.02	ND	0.1	ND	0.1	ND	0.1	ND	NA
NITROBENZENE	ND	0.02	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	NA
PENTACHLOROPHENOL	ND	0.1	ND	0.1	ND	0.5	ND	0.5	ND	0.5	ND	NA
PHENANTHRENE	ND	0.02	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	NA
PHENOL	ND	0.02	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	NA
PYRENE	ND	0.02	ND	0.02	ND	0.1	ND	0.1	ND	0.1	ND	NA

NOTES:

(a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile

Compounds analyzed by Method SW846-8270B unless otherwise noted.

Conc. = Reported Concentration

LOQ = Limit of Quantitation

ND = Not detected above the laboratory LOQ

NA = Not Analyzed

R = Unusable data

UJ = Estimated non detect

J = Estimated result

DJ = Dilution/estimated result

On-Site Comprehensive SPLP Analytical Data (a)

Houston Wood Preserving Works
Houston, Texas

SAMPLE LOCATION SAMPLE ID SAMPLE DEPTH (feet) SAMPLE DATE ANALYTICAL RESULT (mg/L)	SB-43		SB-44		SB-44-15	
	SB43-00	SB43-21	SB44-00	SB44-15	SB44-15	SB44-15
	0-1 10/12/98 Conc. LOQ	21 - 24 10/12/98 Conc. LOQ	0-1 10/12/98 Conc. LOQ	15 - 17 10/12/98 Conc. LOQ	15 - 17 10/12/98 Conc. LOQ	15 - 17 10/12/98 Conc. LOQ
Volatile Compounds						
1,2-DICHLOROETHANE	ND	0.015	ND	0.015	ND	0.015
BENZENE	ND	0.015	ND	0.015	ND	0.015
CHLOROBENZENE	ND	0.015	ND	0.015	ND	0.015
DICHLOROMETHANE	ND	0.015	ND	0.015	ND	0.015
ETHYLBENZENE	ND	0.015	ND	0.015	ND	0.015
TOLUENE	ND	0.015	ND	0.015	ND	0.015
XYLENES	ND	0.015	ND	0.015	ND	0.015
Semivolatile Compounds						
1,2-DIPHENYLHYDRAZINE	ND	0.02	ND	0.02	ND	0.02
2,4-DIMETHYLPHENOL	ND	0.02	ND	0.02	ND	0.02
2,4-DINITROTOLUENE	ND	0.02	ND	0.02	ND	0.02
2,6-DINITROTOLUENE	ND	0.02	ND	0.02	ND	0.02
2-CHLORONAPHTHALENE	ND	0.02	ND	0.02	ND	0.02
2-METHYLNAPHTHALENE	ND	0.02	ND	0.02	ND	0.02
4,6-DINITRO-O-CRESOL	ND	0.02	ND	0.02	ND	0.02
4-NITROPHENOL	ND	0.02	ND	0.02	ND	0.02
ACENAPHTHENE	ND	0.02	ND	0.02	ND	0.02
ACENAPHTHYLENE	ND	0.02	ND	0.02	ND	0.02
ANTHRACENE	ND	0.02	ND	0.02	ND	0.02
BENZO(A)ANTHRACENE	ND	0.02	ND	0.02	ND	0.02
BENZO(A)PYRENE	ND	0.02	ND	0.02	ND	0.02
BIS(2-CHLOROETHOXY)METHANE	ND	0.02	ND	0.02	ND	0.02
BIS(2-ETHYL HEXYL)PHTHALATE	ND	0.02	ND	0.02	ND	0.02
CHRYSENE	ND	0.02	ND	0.02	ND	0.02
DI-N-BUTYL PHTHALATE	ND	0.02	ND	0.02	ND	0.02
DIBENZOFURAN	ND	0.02	ND	0.02	ND	0.02
FLUORANTHENE	ND	0.02	ND	0.02	ND	0.02
FLUORENE	ND	0.02	ND	0.02	ND	0.02
N-NITROSODIPHENYLAMINE	ND	0.02	ND	0.02	ND	0.02
NAPHTHALENE	ND	0.02	ND	0.02	ND	0.02
NITROBENZENE	ND	0.02	ND	0.02	ND	0.02
PENTACHLOROPHENOL	ND	0.1	ND	0.1	ND	0.1
PHENANTHRENE	ND	0.02	ND	0.02	ND	0.02
PHENOL	ND	0.02	ND	0.02	ND	0.02
PYRENE	ND	0.02	ND	0.02	ND	0.02

NOTES:

(a) Volatile Compounds analyzed by Method SW846-8260A and Semivolatile
Compounds analyzed by Method SW846-8270B unless otherwise noted.

Conc. = Reported Concentration

LOQ = Limit of Quantitation

ND = Not detected above the laboratory LOQ

NA = Not Analyzed

R = Unusable data

UJ = Estimated non detect

J = Estimated result

DJ = Dilution/estimated result

Data Acquisition and Reporting Checklist
Appendix E

July 10, 2000
W.O. #422-009

Environmental Resources Management
16300 Katy Freeway, Suite 300
Houston, Texas 77094-1611
(281) 600-1000

APPENDIX E

Data Acquisition and Reporting Checklist

Laboratory reported ground water and soil sample results from the HWPW on-site property were reviewed to evaluate the suitability of results and provide data qualification as appropriate for use in the property assessment process. The ground water and soil samples were analyzed for volatile and semivolatile organics using the analytical procedures specified in the U. S. EPA guidance document *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846*. As previously identified, volatile organics were measured using SW-846 Method 8260 and semivolatile organics were measured using U.S. EPA SW-846 Method 8270. A small subset of subsurface samples was also analyzed for TPH by U.S. EPA Method 418.1 for the purpose of correlation with ROST results. The analyses were performed by Pace Analytical Services, Inc. and Q.W.A.L. Laboratory, Inc.

A checklist was developed to provide a standardized procedure for data validation of both the volatile and semivolatile organic results. The checklist was developed based on EPA Region II guidance for the review of SW-846 data. EPA Region II checklists for the review of SW-846 8000B/8260B (volatile organics) and SW-846 8000A/8270B (semivolatile organics) were modified to limit the data review to those quality control (QC) data typically provided by the laboratories for this project. The EPA Region II checklist did not include review of semivolatile laboratory control sample (LCS) data so review criteria for semivolatile LCS data was added patterned after volatile criteria. The checklist allows assessment of laboratory compliance relative to the technical analytical requirements and QC acceptance criteria specified in SW-846. The data review included consideration of the following items:

- Laboratory report format,
- Sample holding time and temperature,
- Surrogate spike recovery,
- Matrix spike and matrix spike duplicate (MS/MSD) frequency and recovery,
- LCS frequency and recovery,
- Method blank and trip blank results, and
- Field duplicate results.

As a result of a review, qualifying codes have been placed next to certain results to indicate qualitative or quantitative reliability. The qualifier or flag implies that a lower confidence is associated with the qualified values than with unqualified values. Qualifiers were applied when the QC data suggested matrix interference and when recoveries were low due to dilution effects. The following is a list of the flags applied to the data:

- "R" unusable data
- "J" estimated result
- "UJ" estimated non-detect
- "DJ" dilution/estimated result

The completed checklists for the HWPW on-site data can be found in Attachment E-1. A review was carried out for the following groups of data: the Surface Impoundment Semiannual Monitoring Reports (1997-1999), the Phase 1 RFI/EOC, the Phase 2A RFI/EOC, and the Phase 2B RFI/EOC. The validator-applied qualifiers are identified with the data in the comprehensive data tables in Appendix D.

Based upon the data evaluation completed to date much of the data are suitable for use in characterizing the site and assessing potential risk to human health and the environment. The data excluded from use are analytical results identified with an R-flag, which suggests the associated value is not usable. The quality assurance (QA) review of the QC data generated by Pace Laboratory is complete. However, as discussed below, validation of the data is not complete for the data generated by Q.W.A.L., and additional data quality questions have been identified. Qualifiers have not been applied to the data where either additional QC data or follow-up conversations with the laboratory are necessary to assess potential impact on the data. As additional QA/QC data are collected, the need for qualification will be further evaluated. Likewise, the impact on conclusions of risk evaluation completed with these data will be evaluated.

Phase 1 RFI/EOC Data

Phase 1 data was analyzed by Pace Laboratories. Data were reported in seven analytical reports, and data QA review is complete. The reported data generally met QC limits. Three samples had some semivolatile data flagged as estimated due to matrix interference or low surrogate recoveries.

Phase 2A RFI/EOC Data

Phase 2A data was analyzed by Pace Laboratories, and no further data QA review is planned. Data were reported in six analytical reports. For three of the laboratory reports, no semivolatile QC data were provided and for two of the same three reports, no volatile QC data were provided. For the three of the laboratory reports where QC data were provided, results were typically within method specified limits except were noted on the completed checklist. As indicated on the completed checklist, SV-LCS results were typically below the 70% recovery level recommended by method SW-846 8000B. However, because the data was analyzed following Method 8000A/8270B and other QC data were generally within method specified limits, these data on the summary tables were not qualified for LCS recoveries below 70%. While the absence of QC data for some Sample Data Groups (SDGs) (identified above) imparts uncertainty in the data, laboratory performance on similar site samples on the same

instrumentation and during the same time period was acceptable. Acceptable performance has been inferred for the data lacking QC information.

Phase 2B RFI/EOC Data

Phase 2B data were analyzed by Q.W.A.L. Laboratories, and data QA review is incomplete at this time. Data were reported in 12 analytical reports. Analytical results are summarized in Appendix D from Q.W.A.L.'s standard reporting format for SW-846 data. CLP-style data packages were also prepared for all 12 reports. Checklists were completed initially by reviewing QC data provided in Q.W.A.L.'s standard SW-846 reports and where QC data were missing, the CLP packets were reviewed to complete the forms. CLP data packets typically were reviewed to assess MS/MSD and LCS recovery data.

Quality control limits for surrogate recoveries in Q.W.A.L.'s standard reports were listed as 75-125% (volatiles by 8260A) and 10-150% (semivolatiles by 8270B). Analytical data as summarized in Appendix D were qualified based on the laboratory specified control limits. However, these laboratory-specified control limits for surrogate recoveries were wider than specified by either Method 8260A or 8270B. The source of the laboratory-specified limits and the impact of using non-method specified control limits on data quality is undergoing further assessment. The differences are under review with the laboratory.

Some volatile and semivolatile sample results appear to have been reported at levels exceeding the calibration range but were not flagged on the laboratory report or discussed in laboratory case narratives. Additional data review and conversations with Q.W.A.L. are necessary to assess what data may need to be flagged as estimated for exceeding the calibration range.

Spot check comparisons of several data quality indicators (e.g., surrogate recoveries, reported sample results, calibrations) between the standard reports and the CLP reports were conducted during the data QA review. In general, the CLP packets are not complete and CLP-reported results occasionally do not match the standard SW-846 report results, as indicated below.

- Soil surrogate recoveries as reported in the CLP reports do not match recoveries stated in the standard reports and appear to have been *dry weight corrected* (i.e., surrogate recoveries from the standard report have been divided by the percentage of solids to get the CLP-reported recoveries). Sample quantification reports are not present in the CLP packets to further assess the surrogate recoveries.
- Some reported sample results do not appear to agree between the standard and CLP reports. Volatile results in the CLP packets consistently reported the presence of methylene chloride above the quantification limit, including in the method blank, while methylene chloride was consistently reported as non-detected in the standard SW-846 reports. In addition, the CLP sample results are not flagged with a *b*. Analysis dates for some sample results reported in the standard report format and the CLP format do not match for the same sample. CLP format results occasionally report positive results for target analytes that are not reported as detections in the SW-846 format; this difference in

data occurs even when data appears to be generated from the same sample with the same analysis date.

- Q.W.A.L.'s standard SW-846 reporting format did not report constituents detected below the quantitation limit but above the method detection limit, whereas the CLP format reported J flagged results. The summary tables in Appendix D were prepared based upon the standard SW-846 reports and do not, therefore, include J-qualified values from the CLP reports.
- Spot checks of results for initial and continuing calibrations and internal standard recovery indicated results outside method-specified limits for some volatile and semivolatile data. In additions, the continuing calibration control limits for percent difference (%D) utilized by Q.W.A.L. were 25% and 40% for volatile and semivolatile analysis, respectively, rather than 20% as specified by the methods. The source of the laboratory-specified limits and the impact of using non-method-specified control limits on data quality is undergoing further assessment. The differences are under review with the laboratory.

The issues identified above were not explained in the laboratory case narratives and documentation has not been located to identify how these issues have been addressed by Q.W.A.L.. ERM is conducting follow-up conversations with Q.W.A.L. and additional QC data are necessary to complete review of the Phase 2A RFI/EOC data.

As the additional QC data are gathered and outstanding questions are resolved, impacts (if any) to the conclusions of the APAR (e.g., COC selection) will be identified in separate correspondence to TNRCC.

Uncertainty Analysis: Evaluation of Non-Detected COPCs
Appendix F

July 10, 2000
W.O. #422-009

Environmental Resources Management
16300 Katy Freeway, Suite 300
Houston, Texas 77094-1611
(281) 600-1000

UNCERTAINTY ANALYSIS: EVALUATION OF NON-DETECTED COPCS

For soil and ground water, a relatively large number of non-detect results were *screened in* for risk evaluation following the TRRP initial screen criteria due to elevated reporting limits. It should be clarified that one of the data quality objectives for the RFI/EOC investigations and the SIA post-closure ground water monitoring was to achieve quantitation limits less than or equivalent to the PQLs (a.k.a. EQLs) in SW-846 for Methods 8260 and 8270. Further, the performance standards for constituent-specific quantitation limits are provided in the Compliance Plan. *The RFI/EOC data quality objectives and Compliance Plan-required PQL performance standards were achieved for the data described herein.* However, with the advent of the TRRP Rule, new more-conservative criteria for determining non-quantifiable concentrations are being applied. As a result, reported results heretofore believed to be non-detect have been re-evaluated even though the data in question were generated before the TRRP Rule was promulgated.

The initial screen simply selects constituents as COPCs if the maximum reporting limit in the data set exceeds the critical residential Tier 1 PCL. In accordance with TRRP guidance, the following additional screening criteria were considered for non-detect constituents with one or more reporting limits in excess of PCLs.

A constituent was eliminated if the SQL(s) are greater than the residential Tier 1 critical PCL, but meet all the following conditions:

- an appropriate analytical method was used;
- the constituent is not anticipated to be present in the environmental medium based on source area information and knowledge of historical operations;
- the SQL(s) of the constituents in critical samples are less than the method quantitation limit of the analytical method used;
- the constituent is not a companion or daughter product of another parent constituent;
- no companion or daughter products for this constituent are detected; and
- without the consideration of any physical control or institutional controls, the exposure potential is low based on the nature of the affected property and the site-specific factors affecting potential exposure to the constituent should it be present at the SQL.

Table F-1 summarizes the non-detect soil constituents identified as COPCs in Tables 6-1 and 6-2 for surface and subsurface soil, respectively. An analogous table (Table F-2) is provided for the non-detect constituents identified as COPCs for ground water in Table 7-1. The screening criteria described above were used to determine which non-detected constituents required further evaluation and which ones could be screened out. A final screen result is provided based upon this qualitative evaluation. The process for elimination of non-detected constituents based on the above-mentioned criteria is noted in Tables F-2 and F-3 in the footnotes.

For soil, three constituents (2,4-dimethylphenol, bis(2-chloroethoxy)methane, phenol) were screened in the final evaluation of non-detected COPCs. 2,4-dimethylphenol and phenol were screened in based on the historical use of the property and the possibility that they could be present at the site. Bis(2-chloroethoxymethane) was screened in the final results because all the reporting limits were above the total soil combined PCL. It should be noted that the Tier 1 PCL for this constituent is well below its PQL and is likely that this Tier 1 human health criterion is not achievable.

The further risk evaluation of screened in non-detected soil COPCs is provided in Table F-3. The results indicate exceedances of soil-to-ground water PCLs for 2,4-dimethylphenol and phenol, and direct contact exceedance for bis(2-chloroethoxy)-methane. No Tier 1 soil-to-ground water PCL was available for bis(2-chloroethoxy)-methane.

For ground water, three constituents (benzo(a)anthracene, benzo(a)pyrene, and chrysene) were screened in the final results. These constituents were screened in because they are anticipated to be present based on historical operations at the site and their detection in soil. The evaluation of screened in non-detected ground water COPCs is provided in Table F-4. The results indicate exceedances of ground water PCLs for benzo(a) pyrene and benzo(a)anthracene.

Appendix F Tables

July 10, 2000
W.O. #422-009

Environmental Resources Management
16300 Katy Freeway, Suite 300
Houston, Texas 77094-1611
(281) 600-1000

TABLE F-1

Evaluation of Soil Non-Detected COPCs

Houston Wood Preserving Works
Houston, Texas

Non-Detected COPCs (a)	Appropriate Analytical Method (b) (Yes/No?)	Anticipated to be Present (c) (Yes/No?)	Critical Samples in (Yes/No?)	Companion or Daughter Product (Yes/No?)	Frequency of SQL > Com/Ind Direct Contact PCL (e)	Exposure Potential (f) (High/Low?)	Final Screen Result (in/out?)
2-Chloronaphthalene	Yes	No	60/133 45%	No	0/133 0%	Low	out
1,2-Dichloroethane	Yes	No	18/88 20%	No	0/88 0%	Low	out
1,2-Diphenylhydrazine	Yes	No	60/132 45%	No	8/132 6%	Low	out
2,4-Dimethylphenol	Yes	Yes	NA	NA	NA	NA	in
2,4-Dinitrotoluene	Yes	No	60/133 45%	No	8/133 6%	Low	out
2,6-Dinitrotoluene	Yes	No	60/133 45%	No	8/133 6%	Low	out
4,6-Dinitro-o-cresol	Yes	No	60/133 45%	No	3/133 2%	Low	out
4-Nitrophenol	Yes	No	60/133 45%	No	3/133 2%	Low	out
Bis(2-chloroethoxy)methane	Yes	No	60/133 45%	No	133/133 100%	High	in
Bis(2-ethylhexyl)phthalate	Yes	No	60/133 45%	No	1/133 0.8%	Low	out
Chlorobenzene	Yes	No	32/102 31%	No	0/102 0%	Low	out
Dichloromethane	Yes	No	18/88 20%	No	0/88 0%	Low	out
Di-n-butylphthalate	Yes	No	60/133 45%	No	1/133 0.8%	Low	out
N-Nitrosodiphenylamine	Yes	No	60/133 45%	No	0/133 0%	Low	out
Nitrobenzene	Yes	No	60/133 45%	No	4/133 3%	Low	out
Pentachlorophenol	Yes	No	60/133 45%	No	8/133 6%	Low	out
Phenol	Yes	Yes	NA	NA	NA	NA	in

NOTES:

NA = Not Applicable; constituent already meets one of the screened in criteria.

* Tier 1 PCL for 1,2-bis(2-Chloroethoxyethane) is significantly below the method PQL. Note that this constituent is not likely to be present at the site.

(a) Constituents that were reported as non-detect in soil samples (FPA, TSA and SIA).

(b) The analytical methods used for COIs are test methods promulgated by the EPA and were pre-approved by the TNRCC in the Work Plans for the Phase I and II RFI's.

(c) Based on the historical use of the property and literature search on constituents commonly found in creosote and/or associated with its use.

(d) Based on frequency of samples above PQLs. If < 50% of samples reported limits above PQLs, the constituent was considered to meet the PQL in majority (i.e., critical number) of samples.

(e) Based on the frequency of reported limits above direct contact PCL. Exposure potential was assumed to be direct contact only.

(f) Based on the frequency of elevated limits above direct contact PCL. If < 10% of samples reported limits above PCLs, the constituent was considered to have a low potential for exposure.

TABLE F-2

Evaluation of Ground Water Non-Detected COPCs

Houston Wood Preserving Works
Houston, Texas

Non-Detected COPCs (a)	Appropriate Analytical Method (b) (Yes/No?)	Anticipated to be Present (c) (Yes/No?)	Critical Samples (d) (Yes/No?)	SQLs in Critical Samples (d) (Yes/No?)	Companion or Daughter Product (Yes/No?)	Exposure Potential (e) (High/Low?)	Final Screen Result (in/out?)
1,2-Dichloroethane	Yes	No	18/117	15%	No	Low	out
1,2-Diphenylhydrazine	Yes	No	27/133	20%	No	Low	out
2,4-Dinitrotoluene	Yes	No	27/133	20%	No	Low	out
2,6-Dinitrotoluene	Yes	No	27/133	20%	No	Low	out
4,6-Dinitro-o-cresol	Yes	No	27/133	20%	No	Low	out
4-Nitrophenol	Yes	No	27/129	21%	No	Low	out
<i>Benzo(a)anthracene</i>	Yes	Yes	NA	NA	NA	NA	in
<i>Benzo(a)pyrene</i>	Yes	Yes	NA	NA	NA	NA	in
Bis(2-chloroethoxy)methane	Yes	No	27/133	20%	No	Low	out
Bis(2-ethylhexyl)phthalate	Yes	No	27/133	20%	No	Low	out
<i>Chrysene</i>	Yes	Yes	NA	NA	NA	NA	in
Dichloromethane	Yes	No	18/117	15%	No	Low	out
N-Nitrosodiphenylamine	Yes	No	27/113	24%	No	Low	out
Nitrobenzene	Yes	No	27/133	20%	No	Low	out
Pentachlorophenol	Yes	No	27/133	20%	No	Low	out

NOTES:

NA = Not Applicable; constituent already meets one of the screened in criteria.

(a) Constituents that were reported as non-detect in shallow ground water samples (A-TZ, B-TZ, and C-TZ).

(b) The analytical methods used for COIs are test methods promulgated by the EPA and were pre-approved by the TNRCC in the Work Plans for the Phase I and II RFLs.

(c) Based on the historical use of the property and literature search on constituents commonly found in creosote and/or associated with its use.

(d) Based on frequency of SQLs above PQLs. If < 50% of SQLs above PQLs, the constituent was considered to meet the PQL in majority (i.e., critical number) of samples.

(e) Shallow ground waters are not used and have very low potential to be drinking water sources in the future.

TABLE F-3

Evaluation of Soil Non-Detected COPCs: Comparison to Applicable Tier 1 Soil PCLs

Houston Wood Preserving Works
Houston, Texas

Non-Detected COPCs (a)	Maximum Reporting Limit (mg/kg)	Com/Ind		Residential Air Soil _{Inh-VP} (b) (mg/kg)	Critical Soil PCLs (mg/kg)
		GW Soil (b) (mg/kg)	Tot Soil _{Comb} (b) (mg/kg)		
2,4-Dimethylphenol	165 (1)	4.8	2900	2600	4.8
Bis(2-chloroethoxy)methane	165 (2)	NA	0.087	NA	0.087
Phenol	165 (1)	57	2400	1700	57

NOTES:

☐ Indicates a PCL exceedance; the footnote next to the open box indicates which PCL(s) are exceeded.

(1) = Maximum reporting limit exceeds ^{GW} Soil only.

(2) = Maximum reporting limit exceeds both GWSoil and TotSoilComb

(3) = Maximum reporting limit exceeds GWSoil, TotSoilComb, and AirSoilInh-VP

NA = Not Available in TRRP PCL Table.

(a) Non-detected constituents of potential concern in soil.

(b) Values taken from the TNRCC TRRP PCL Tables dated August 24, 1999. 30-acre source area values were used.

TABLE F-4

Evaluation of Ground Water Non-Detected COPCs: Comparison to Applicable Tier 1 Ground Water PCLs

Houston Wood Preserving Works
Houston, Texas

Non-Detected COPCs (a)	Maximum	Critical		PQL (mg/L)
	Reporting Limit (mg/L)	Ground Water PCLs (b)		
Benzo(a)anthracene	1.0	0.0028		0.01
Benzo(a)pyrene	0.2	0.0002		0.01
Chrysene	1.0	7.3		0.01

NOTES:

☐ = Maximum reporting limit exceeds ground water ingestion PCL.

NA = Not Available in TRRP PCL Table.

(a) Non-detected constituents of potential concern in ground water.

(b) Values taken from the TNRCC TRRP PCL Tables dated August 24, 1999.

Log-Probit Method
Appendix G

July 10, 2000
W.O. #422-009

Environmental Resources Management
16300 Katy Freeway, Suite 300
Houston, Texas 77094-1611
(281) 600-1000

APPENDIX G

LOG-PROBIT METHOD

Statistical evaluation of environmental data sets is often complicated by the presence of results that are below analytical detection/quantification limits (i.e., non-detects). Traditionally non-detect (ND) results have been handled assigning a proxy value such as $\frac{1}{2}$ the reporting limit. Guidance from the U.S. EPA indicates that it may be inappropriate to use such substitution for data sets that contain greater than 15% ND results. The analytical data for COPCs for the on-site property contain greater than 15% ND results. In order to address significant percentages of ND results in the analytical data sets, the log-probit procedure (Travis and Land, 1990) was used to estimate the mean of data sets with non-detectable values.

The log-probit procedure was used to estimate one-sided 95% UCL concentrations (on the arithmetic mean) for censored data sets. This method is consistent with the 1992 Federal Register notice that recommends the use of distributional or robust methods when the percentage of non-detect values in a data set is greater than 15%. This procedure is based upon the assumption that both the detected and non-detected data represent samples from a log-normal probability. EPA's experience shows that most large environmental sample data sets are log-normally distributed rather than normally distributed (U.S. EPA, 1992). This method was selected because it assigns variability to the non-detect data while traditional methods (i.e., replacing ND with $\frac{1}{2}$ the detection limit) fix the variability at zero.

What follows is a step-by-step description of the methodology used to calculate the 95% UCLs for the data in Table G-1 using the log-probit method:

- Column 1 presents the rearranged raw data, listed from lowest to highest reported concentrations. The ranks listed in column 2 apply to this rearranged set of data.
- The logarithms (base 10) of the ranked data are presented in column 3.
- The log-scale probability (also called the percentile, p_i) is calculated for each data point, detected or nondetected, using the rank as follows (Helsel and Hirsch, 1991): $p_i = (i - 0.4)/(n + 0.2)$, where i is the numerical rank and n is the number of data points. The calculated percentile values are presented in column 4.
- The Z-score (presented in column 5) corresponding to the calculated probability is identified from the Unit Normal Table, which is also referred to as the "area under the normal curve" in many statistical texts.
- The logarithms of the concentration above the detection limit (y) presented in column 3 are plotted vs. the Z-scores (x) presented in column 5. A regression line is fit through the actual detected data points using the least squares method. Descriptive statistics (e.g. slope, y -intercept, and R-squared value) are presented at the end of each page.

TABLE G-1

Description of the Log-Probit Method

Houston Wood Preserving Works
Houston, Texas

1	2	3	4	5	6	7
Result (mg/kg)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/kg)
ND	1	ND	0.03	-1.95	-5.13	0.00001
ND	2	ND	0.07	-1.48	-4.04	0.00009
ND	3	ND	0.11	-1.22	-3.41	0.00039
ND	4	ND	0.16	-1.01	-2.94	0.0011
ND	5	ND	0.20	-0.85	-2.55	0.0028
ND	6	ND	0.24	-0.70	-2.20	0.0062
ND	7	ND	0.28	-0.57	-1.89	0.013
ND	8	ND	0.33	-0.45	-1.60	0.025
ND	9	ND	0.37	-0.33	-1.33	0.047
ND	10	ND	0.41	-0.22	-1.07	0.086
ND	11	ND	0.46	-0.11	-0.81	0.156
ND	12	ND	0.50	0	-0.55	0.28
ND	13	ND	0.54	0.11	-0.30	0.50
ND	14	ND	0.59	0.22	-0.04	0.91
ND	15	ND	0.63	0.33	0.22	1.67
ND	16	ND	0.67	0.45	0.50	3.15
1.2	17	0.08	0.72	0.57	0.08	1.20
11	18	1.04	0.76	0.70	1.04	11.00
46	19	1.66	0.80	0.85	1.66	46.00
220	20	2.34	0.84	1.01	2.34	220.00
540	21	2.73	0.89	1.22	2.73	540.00
970	22	2.99	0.93	1.48	2.99	970.00
3900	23	3.59	0.97	1.95	3.59	3900.00

Regression Statistics

n	23
df = n-1	22
R Squared	0.87
Slope	2.35
Intercept	-0.55

95% UCL Calculation per Student's t-Distribution

Average	247.61
Std Dev	828.00
t-stat	1.72
One-Sided Upper 95% Confidence Limit	544.08

- The regression equation is then used to impute logarithmic concentration values (x) from Z-scores (y) for ND data, i.e., the regression line is extrapolated back through the percentile ranks which represent the ND data using the equation $y = mx + b$ [imputed values = (slope) (Z-score) + intercept]. The imputed values presented in column 6 are not considered as estimates for specific samples, but are used collectively to estimate summary statistics (e.g., average concentration and standard deviation).
- Column 7 presents the values from Column 6 (detected and imputed concentrations) transformed out of log space. The mean and standard deviation of the data set are calculated using both the observed and imputed values presented in column 7. The one-sided 95% upper confidence limit on the mean is then estimated as follows:

$$UCL = \mu + t\text{-stat} (s/\text{square root } n)$$

where,

μ is the mean of the data, t-stat is the Student-t statistic for (n-1) degrees of freedom, and s is the standard deviation.

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Determination of Exposure Point Concentrations
Appendix H

July 10, 2000
W.O. #422-009

Environmental Resources Management
16300 Katy Freeway, Suite 300
Houston, Texas 77094-1611
(281) 600-1000

Supporting Documentation for FPA Surface Soil COPCs
Appendix H-1

July 10, 2000
W.O. #422-009

Environmental Resources Management
16300 Katy Freeway, Suite 300
Houston, Texas 77094-1611
(281) 600-1000

TABLE H-1

Exposure Point Concentration Calculations: FPA Surface Soil

Houston Wood Preserving Works
Houston, Texas

2-Methylnaphthalene

Exposure Area	Sample ID	Parameter	Result (mg/kg)	Reporting Limit (mg/kg)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/kg)
FPA	HWPW-AOC3E-S00	2-Methylnaphthalene	ND	0.33	1	ND	0.03	-1.95	-5.05	0.00001
FPA	HWPW-AOC3E-S00	2-Methylnaphthalene	ND	13.2	2	ND	0.07	-1.48	-4.04	0.0001
FPA	HWPW-AOC7-S00	2-Methylnaphthalene	ND	165	3	ND	0.11	-1.22	-3.46	0.0003
FPA	HWPW-MW16-S00	2-Methylnaphthalene	ND	3.3	4	ND	0.16	-1.01	-3.02	0.001
FPA	SB23-00	2-Methylnaphthalene	ND	0.34	5	ND	0.20	-0.85	-2.66	0.002
FPA	HWPW-11-SSO	2-Methylnaphthalene	ND	8.25	6	ND	0.24	-0.70	-2.35	0.005
FPA	HWPW-7F-SSO	2-Methylnaphthalene	ND	6.6	7	ND	0.28	-0.57	-2.06	0.01
FPA	HWPW-8F-SSO	2-Methylnaphthalene	ND	1.32	8	ND	0.33	-0.45	-1.79	0.02
FPA	HWPW-9F-SSO	2-Methylnaphthalene	ND	1.32	9	ND	0.37	-0.33	-1.54	0.03
FPA	HWPW-10F-SSO	2-Methylnaphthalene	ND	33	10	ND	0.41	-0.22	-1.29	0.05
FPA	HWPW-7G-SSO	2-Methylnaphthalene	ND	1.32	11	ND	0.46	-0.11	-1.06	0.09
FPA	HWPW-8G-SSO	2-Methylnaphthalene	ND	1.65	12	ND	0.50	0.00	-0.82	0.15
FPA	HWPW-9G-SSO	2-Methylnaphthalene	ND	0.33	13	ND	0.54	0.11	-0.58	0.26
FPA	HWPW-10G-SSO	2-Methylnaphthalene	ND	0.33	14	ND	0.59	0.22	-0.35	0.45
FPA	HWPW-11G-SSO	2-Methylnaphthalene	ND	1.32	15	ND	0.63	0.33	-0.10	0.79
FPA	WPW-S-007-P	2-Methylnaphthalene	ND	0.66	16	ND	0.67	0.45	0.15	1.41
FPA	WPW-S-009-P	2-Methylnaphthalene	ND	0.66	17	ND	0.72	0.57	0.42	2.62
FPA	HWPW-AOC3W-S00	2-Methylnaphthalene	5	3.3	18	0.70	0.76	0.70	0.70	5.00
FPA	HWPW-MW18-S00	2-Methylnaphthalene	6.9	3.3	19	0.84	0.80	0.85	0.84	6.90
FPA	HWPW-AOC5W-S00	2-Methylnaphthalene	9.2	3.3	20	0.96	0.84	1.01	0.96	9.20
FPA	HWPW-SB04-S2.5	2-Methylnaphthalene	320	247.5	21	2.51	0.89	1.22	2.51	320.00
FPA	HWPW-SB08-S4	2-Methylnaphthalene	420	33	22	2.62	0.93	1.48	2.62	420.00
FPA	HWPW-SB07-S2.5	2-Methylnaphthalene	1300	500	23	3.11	0.97	1.95	3.11	1300.00

Regression Statistics

n	23
df = n-1	22
R Squared	0.86
Slope	2.17
Intercept	-0.82

95% UCL Calculation per Student's t-Distribution

Average	89.87
Std Dev	284.70
t-stat	1.72
One-Sided Upper 95% Confidence Limit	191.81

TABLE H-1

Exposure Point Concentration Calculations: FPA Surface Soil

Houston Wood-Preserving Works
Houston, Texas

Acenaphthene

Exposure Area	Sample ID	Parameter	Result (mg/kg)	Reporting Limit (mg/kg)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/kg)
FPA	HWPW-AOC3E-S00	Acenaphthene	ND	0.33	1	ND	0.03	-1.95	-4.28	0.0001
FPA	HWPW-AOC5E-S00	Acenaphthene	ND	13.2	2	ND	0.07	-1.48	-3.35	0.0005
FPA	HWPW-MW16-S00	Acenaphthene	ND	3.3	3	ND	0.11	-1.22	-2.80	0.0002
FPA	SB23-00	Acenaphthene	ND	0.34	4	ND	0.16	-1.01	-2.40	0.0004
FPA	HWPW-11-SSO	Acenaphthene	ND	8.25	5	ND	0.20	-0.85	-2.06	0.01
FPA	HWPW-7F-SSO	Acenaphthene	ND	6.6	6	ND	0.24	-0.70	-1.77	0.02
FPA	HWPW-8F-SSO	Acenaphthene	ND	1.32	7	ND	0.28	-0.57	-1.50	0.03
FPA	HWPW-9F-SSO	Acenaphthene	ND	1.32	8	ND	0.33	-0.45	-1.25	0.06
FPA	HWPW-10F-SSO	Acenaphthene	ND	33	9	ND	0.37	-0.33	-1.02	0.10
FPA	HWPW-7G-SSO	Acenaphthene	ND	1.32	10	ND	0.41	-0.22	-0.79	0.16
FPA	HWPW-8G-SSO	Acenaphthene	ND	1.65	11	ND	0.46	-0.11	-0.57	0.27
FPA	HWPW-9G-SSO	Acenaphthene	ND	0.33	12	ND	0.50	0.00	-0.35	0.45
FPA	HWPW-10G-SSO	Acenaphthene	ND	0.33	13	ND	0.54	0.11	-0.13	0.74
FPA	HWPW-11G-SSO	Acenaphthene	ND	1.32	14	ND	0.59	0.22	0.09	1.23
FPA	WPW-S-007-P	Acenaphthene	ND	0.66	15	ND	0.63	0.33	0.32	2.07
FPA	WPW-S-009-P	Acenaphthene	ND	0.66	16	ND	0.67	0.45	0.55	3.57
FPA	HWPW-AOC5W-S00	Acenaphthene	ND	0.66	17	ND	0.72	0.57	0.63	4.30
FPA	HWPW-MW18-S00	Acenaphthene	4.3	3.3	18	0.63	0.76	0.70	0.80	6.30
FPA	HWPW-AOC3W-S00	Acenaphthene	6.3	3.3	19	0.80	0.80	0.85	0.94	8.80
FPA	HWPW-AOC7-S00	Acenaphthene	8.8	3.3	20	0.94	0.84	1.01	2.43	270.00
FPA	HWPW-SB04-S2.5	Acenaphthene	270	165	21	2.43	0.89	1.22	2.57	370.00
FPA	HWPW-SB08-S4	Acenaphthene	370	24.75	22	2.57	0.93	1.48	2.65	450.00
FPA	HWPW-SB07-S2.5	Acenaphthene	450	330	23	2.65	0.97	1.95	3.23	1700.00
FPA	HWPW-SB07-S2.5	Acenaphthene	1700	500		3.23				

Regression Statistics

n	23
df = n-1	22
R Squared	0.83
Slope	2.02
Intercept	-0.35

95% UCL Calculation per Student's t-Distribution

Average	122.53
Std Dev	366.63
t-stat	1.72
One-Sided Upper 95% Confidence Limit	253.80

TABLE H-1

Exposure Point Concentration Calculations: FPA Surface Soil

Houston Wood-Preserving Works
Houston, Texas

Benzene

Exposure Area	Sample ID	Parameter	Result (mg/kg)	Reporting Limit (mg/kg)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/kg)
FPA	HWPW-AOC3E-S00	Benzene	ND	0.005	1	ND	0.05	-1.69	-4.02	0.0001
FPA	HWPW-AOC3W-S00	Benzene	ND	0.005	2	ND	0.12	-1.17	-3.62	0.0002
FPA	HWPW-AOC5E-S00	Benzene	ND	0.005	3	ND	0.20	-0.85	-3.38	0.0004
FPA	HWPW-MW16-S00	Benzene	ND	0.005	4	ND	0.27	-0.60	-3.19	0.001
FPA	HWPW-MW18-S00	Benzene	ND	0.625	5	ND	0.35	-0.39	-3.02	0.001
FPA	SB23-00	Benzene	ND	0.001	6	ND	0.42	-0.19	-2.87	0.001
FPA	HWPW-SB04-S2.5	Benzene	ND	0.025	7	ND	0.50	0.00	-2.72	0.002
FPA	HWPW-SB08-S4	Benzene	ND	0.005	8	ND	0.58	0.19	-2.58	0.003
FPA	WPW-S-007-P	Benzene	ND	0.005	9	ND	0.65	0.39	-2.43	0.004
FPA	WPW-S-009-P	Benzene	ND	0.005	10	ND	0.73	0.60	-2.26	0.01
FPA	HWPW-AOC7-S00	Benzene	0.007	0.005	11	-2.15	0.80	0.85	-2.15	0.01
FPA	HWPW-AOC5W-S00	Benzene	0.02	0.005	12	-1.70	0.88	1.17	-1.70	0.02
FPA	HWPW-SB07-S2.5	Benzene	0.033	0.025	13	-1.48	0.95	1.69	-1.48	0.03

Regression Statistics

n	13
df = n-1	12
R Squared	0.89
Slope	0.76
Intercept	-2.72

95% UCL Calculation per Student's t-Distribution

Average	0.01
Std Dev	0.01
t-stat	1.78
<i>One-Sided Upper 95% Confidence Limit</i>	0.01

TABLE H-1

Exposure Point Concentration Calculations: FPA Surface Soil

Houston Wood Preserving Works
Houston, Texas

Benzo(a)anthracene

Exposure Area	Sample ID	Parameter	Result (mg/kg)	Reporting Limit (mg/kg)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/kg)
FPA	HWPW-AOC3E-S00	Benzo(a)anthracene	ND	0.33	1	ND	0.03	-1.95	-2.79	0.002
FPA	HWPW-AOC5W-S00	Benzo(a)anthracene	ND	3.3	2	ND	0.07	-1.48	-2.11	0.01
FPA	HWPW-MW16-S00	Benzo(a)anthracene	ND	3.3	3	ND	0.11	-1.22	-1.71	0.02
FPA	WPW-S-007-P	Benzo(a)anthracene	ND	0.66	4	ND	0.16	-1.01	-1.42	0.04
FPA	HWPW-10G-SSO	Benzo(a)anthracene	0.046	0.33	5	-1.34	0.20	-0.85	-1.34	0.05
FPA	HWPW-9G-SSO	Benzo(a)anthracene	0.118	0.33	6	-0.93	0.24	-0.70	-0.93	0.12
FPA	WPW-S-009-P	Benzo(a)anthracene	0.2	0.66	7	-0.70	0.28	-0.57	-0.70	0.20
FPA	HWPW-9F-SSO	Benzo(a)anthracene	0.305	1.32	8	-0.52	0.33	-0.45	-0.52	0.31
FPA	SB23-00	Benzo(a)anthracene	0.498	0.34	9	-0.30	0.37	-0.33	-0.30	0.50
FPA	HWPW-8F-SSO	Benzo(a)anthracene	0.514	1.32	10	-0.29	0.41	-0.22	-0.29	0.51
FPA	HWPW-11G-SSO	Benzo(a)anthracene	0.685	1.32	11	-0.16	0.46	-0.11	-0.16	0.69
FPA	HWPW-7G-SSO	Benzo(a)anthracene	0.742	1.32	12	-0.13	0.50	0.00	-0.13	0.74
FPA	HWPW-7F-SSO	Benzo(a)anthracene	0.799	6.6	13	-0.10	0.54	0.11	-0.10	0.80
FPA	HWPW-8G-SSO	Benzo(a)anthracene	2.72	1.65	14	0.43	0.59	0.22	0.43	2.72
FPA	HWPW-MW18-S00	Benzo(a)anthracene	3	3.3	15	0.48	0.63	0.33	0.48	3.00
FPA	HWPW-AOC3W-S00	Benzo(a)anthracene	3.6	3.3	16	0.56	0.67	0.45	0.56	3.60
FPA	HWPW-11-SSO	Benzo(a)anthracene	10.8	8.25	17	1.03	0.72	0.57	1.03	10.80
FPA	HWPW-AOC5E-S00	Benzo(a)anthracene	21.5	13.2	18	1.33	0.76	0.70	1.33	21.50
FPA	HWPW-10F-SSO	Benzo(a)anthracene	44.6	33	19	1.65	0.80	0.85	1.65	44.60
FPA	HWPW-SB04-S2.5	Benzo(a)anthracene	130	24.75	20	2.11	0.84	1.01	2.11	130.00
FPA	HWPW-SB07-S2.5	Benzo(a)anthracene	130	24.75	21	2.11	0.89	1.22	2.11	130.00
FPA	HWPW-SB08-S4	Benzo(a)anthracene	160	33	22	2.20	0.93	1.48	2.20	160.00
FPA	HWPW-AOC7-S00	Benzo(a)anthracene	220	165	23	2.34	0.97	1.95	2.34	220.00

Regression Statistics

n	23
df = n-1	22
R Squared	0.95
Slope	1.47
Intercept	0.08

95% UCL Calculation per Student's t-Distribution

Average	31.75
Std Dev	62.96
t-stat	1.72
<i>One-Sided Upper 95% Confidence Limit</i>	54.29

TABLE H-1

Exposure Point Concentration Calculations: FPA Surface Soil

Houston Wood-Preserving Works
Houston, Texas

Benzo(a)pyrene

Exposure Area	Sample ID	Parameter	Result (mg/kg)	Reporting Limit (mg/kg)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/kg)
FPA	HWPW-AOC3E-S00	Benzo(a)pyrene	ND	0.33	1	ND	0.03	-1.95	-2.90	0.001
FPA	HWPW-AOC3W-S00	Benzo(a)pyrene	ND	3.3	2	ND	0.07	-1.48	-2.27	0.01
FPA	HWPW-AOC5W-S00	Benzo(a)pyrene	ND	3.3	3	ND	0.11	-1.22	-1.90	0.01
FPA	HWPW-MW16-S00	Benzo(a)pyrene	ND	3.3	4	ND	0.16	-1.01	-1.63	0.02
FPA	SB23-00	Benzo(a)pyrene	ND	0.34	5	ND	0.20	-0.85	-1.40	0.04
FPA	HWPW-7F-SSO	Benzo(a)pyrene	ND	6.6	6	ND	0.24	-0.70	-1.20	0.06
FPA	HWPW-10G-SSO	Benzo(a)pyrene	0.044	0.33	7	-1.36	0.28	-0.57	-1.36	0.04
FPA	HWPW-9G-SSO	Benzo(a)pyrene	0.128	0.33	8	-0.89	0.33	-0.45	-0.89	0.13
FPA	WPW-S-009-P	Benzo(a)pyrene	0.16	0.66	9	-0.80	0.37	-0.33	-0.80	0.16
FPA	HWPW-9F-SSO	Benzo(a)pyrene	0.349	1.32	10	-0.46	0.41	-0.22	-0.46	0.35
FPA	HWPW-8F-SSO	Benzo(a)pyrene	0.63	1.32	11	-0.20	0.46	-0.11	-0.20	0.63
FPA	WPW-S-007-P	Benzo(a)pyrene	0.67	0.66	12	-0.17	0.50	0.00	-0.17	0.67
FPA	HWPW-11G-SSO	Benzo(a)pyrene	0.804	1.32	13	-0.09	0.54	0.11	-0.09	0.80
FPA	HWPW-7G-SSO	Benzo(a)pyrene	0.839	1.32	14	-0.08	0.59	0.22	-0.08	0.84
FPA	HWPW-8G-SSO	Benzo(a)pyrene	1.69	1.65	15	0.23	0.63	0.33	0.23	1.69
FPA	HWPW-MW18-S00	Benzo(a)pyrene	2.3	3.3	16	0.36	0.67	0.45	0.36	2.30
FPA	HWPW-10F-SSO	Benzo(a)pyrene	2.76	3.3	17	0.44	0.72	0.57	0.44	2.76
FPA	HWPW-11-SSO	Benzo(a)pyrene	5.92	33	18	0.77	0.76	0.70	0.77	5.92
FPA	HWPW-AOC5E-S00	Benzo(a)pyrene	17.8	8.25	19	1.25	0.80	0.85	1.25	17.80
FPA	HWPW-SB07-S2.5	Benzo(a)pyrene	27	13.2	20	1.43	0.84	1.01	1.43	27.00
FPA	HWPW-SB04-S2.5	Benzo(a)pyrene	44	24.75	21	1.64	0.89	1.22	1.64	44.00
FPA	HWPW-SB08-S4	Benzo(a)pyrene	62	24.75	22	1.79	0.93	1.48	1.79	62.00
FPA	HWPW-AOC7-S00	Benzo(a)pyrene	79	165	23	1.90	0.97	1.95	1.90	79.00

Regression Statistics

n	23
df= n-1	22
R Squared	0.95
Slope	1.37
Intercept	-0.24

95% UCL Calculation per Student's t-Distribution

Average	10.71
Std Dev	21.83
t-stat	1.72
<i>One-Sided Upper 95% Confidence Limit</i>	18.52

TABLE H-1

Exposure Point Concentration Calculations: FPA Surface Soil

Houston Wood Preserving Works
Houston, Texas

Exposure Area	Sample ID	Parameter	Result (mg/kg)	Reporting Limit (mg/kg)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/kg)
Dibenzofuran	FPA	HWPW-AOC3E-S00	ND	0.33	1	ND	0.03	-1.95	-4.22	0.0001
FPA	HWPW-AOC5E-S00	Dibenzofuran	ND	13.2	2	ND	0.07	-1.48	-3.31	0.0005
FPA	HWPW-AOC5W-S00	Dibenzofuran	ND	3.3	3	ND	0.11	-1.22	-2.78	0.002
FPA	HWPW-MW16-S00	Dibenzofuran	ND	3.3	4	ND	0.16	-1.01	-2.38	0.004
FPA	SB23-00	Dibenzofuran	ND	0.34	5	ND	0.20	-0.85	-2.05	0.01
FPA	HWPW-11-SSO	Dibenzofuran	ND	8.25	6	ND	0.24	-0.70	-1.76	0.02
FPA	HWPW-7F-SSO	Dibenzofuran	ND	6.6	7	ND	0.28	-0.57	-1.50	0.03
FPA	HWPW-8F-SSO	Dibenzofuran	ND	1.32	8	ND	0.33	-0.45	-1.26	0.06
FPA	HWPW-9F-SSO	Dibenzofuran	ND	1.32	9	ND	0.37	-0.33	-1.03	0.09
FPA	HWPW-10F-SSO	Dibenzofuran	ND	33	10	ND	0.41	-0.22	-0.81	0.16
FPA	HWPW-7G-SSO	Dibenzofuran	ND	1.32	11	ND	0.46	-0.11	-0.59	0.26
FPA	HWPW-8G-SSO	Dibenzofuran	ND	1.65	12	ND	0.50	0.00	-0.38	0.42
FPA	HWPW-9G-SSO	Dibenzofuran	ND	0.33	13	ND	0.54	0.11	-0.16	0.69
FPA	HWPW-10G-SSO	Dibenzofuran	ND	0.33	14	ND	0.59	0.22	0.06	1.14
FPA	HWPW-11G-SSO	Dibenzofuran	ND	1.32	15	ND	0.63	0.33	0.28	1.89
FPA	WPW-S-007-P	Dibenzofuran	ND	0.66	16	ND	0.67	0.45	0.51	3.22
FPA	WPW-S-009-P	Dibenzofuran	ND	0.33	17	ND	0.72	0.57	0.75	5.64
FPA	HWPW-MW18-S00	Dibenzofuran	4	3.3	18	0.60	0.76	0.70	0.60	4.00
FPA	HWPW-AOC3W-S00	Dibenzofuran	6.7	3.3	19	0.83	0.80	0.85	0.83	6.70
FPA	HWPW-AOC7-S00	Dibenzofuran	190	165	20	2.28	0.84	1.01	2.28	190.00
FPA	HWPW-SB04-S2.5	Dibenzofuran	300	24.75	21	2.48	0.89	1.22	2.48	300.00
FPA	HWPW-SB08-S4	Dibenzofuran	600	33	22	2.78	0.93	1.48	2.78	600.00
FPA	HWPW-SB07-S2.5	Dibenzofuran	1100	500	23	3.04	0.97	1.95	3.04	1100.00

Regression Statistics

n	23
df = n - 1	22
R Squared	0.77
Slope	1.98
Intercept	-0.38

95% UCL Calculation per Student's t-Distribution

Average	96.27
Std Dev	259.63
t-stat	1.72
One-Sided Upper 95% Confidence Limit	189.24

TABLE H-1

Exposure Point Concentration Calculations: FPA Surface Soil

Houston Wood Preserving Works
Houston, Texas

Exposure Area	Sample ID	Parameter	Result (mg/kg)	Reporting Limit (mg/kg)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/kg)
FPA	HWPW-AOC3E-S00	Ethylbenzene	ND	0.005	1	ND	0.05	-1.69	-5.38	0.000004
FPA	HWPW-AOC3W-S00	Ethylbenzene	ND	0.005	2	ND	0.12	-1.17	-4.35	0.00005
FPA	HWPW-AOC5E-S00	Ethylbenzene	ND	0.005	3	ND	0.20	-0.85	-3.72	0.0002
FPA	HWPW-MW16-S00	Ethylbenzene	ND	0.005	4	ND	0.27	-0.60	-3.22	0.0006
FPA	SB23-00	Ethylbenzene	ND	0.001	5	ND	0.35	-0.39	-2.80	0.0016
FPA	HWPW-SB04-S2.5	Ethylbenzene	ND	0.025	6	ND	0.42	-0.19	-2.40	0.004
FPA	WPW-S-007-P	Ethylbenzene	ND	0.005	7	ND	0.50	0.00	-2.02	0.01
FPA	WPW-S-009-P	Ethylbenzene	ND	0.005	8	ND	0.58	0.19	-1.64	0.02
FPA	HWPW-SB08-S4	Ethylbenzene	0.024	0.005	9	-1.62	0.65	0.39	-1.62	0.02
FPA	HWPW-AOC7-S00	Ethylbenzene	0.046	0.005	10	-1.34	0.73	0.60	-1.34	0.05
FPA	HWPW-MW18-S00	Ethylbenzene	4.2	0.625	11	0.62	0.80	0.85	0.62	4.20
FPA	HWPW-AOC5W-S00	Ethylbenzene	6.1	0.625	12	0.79	0.88	1.17	0.79	6.10
FPA	HWPW-SB07-S2.5	Ethylbenzene	6.3	0.625	13	0.80	0.95	1.69	0.80	6.30

Regression Statistics

n	13
df = n-1	12
R Squared	0.69
Slope	1.99
Intercept	-2.02

95% UCL Calculation per Student's t-Distribution

Average	1.29
Std Dev	2.47
t-stat	1.78
One-Sided Upper 95% Confidence Limit	2.51

TABLE H-1

Exposure Point Concentration Calculations: FPA Surface Soil

Houston Wood Preserving Works
Houston, Texas

Exposure Area	Sample ID	Parameter	Result (mg/kg)	Reporting Limit (mg/kg)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/kg)
FPA	HWPW-AOC3E-S00	Fluoranthene	ND	0.33	1	ND	0.03	-1.95	-2.73	0.002
FPA	HWPW-MW16-S00	Fluoranthene	ND	3.3	2	ND	0.07	-1.48	-1.96	0.01
FPA	HWPW-SB04-S2.5	Fluoranthene	ND	24.75	3	ND	0.11	-1.22	-1.52	0.03
FPA	HWPW-7F-SSO	Fluoranthene	ND	6.6	4	ND	0.16	-1.01	-1.19	0.06
FPA	HWPW-9F-SSO	Fluoranthene	ND	1.32	5	ND	0.20	-0.85	-0.91	0.12
FPA	HWPW-7G-SSO	Fluoranthene	ND	1.32	6	ND	0.24	-0.70	-0.67	0.21
FPA	HWPW-9G-SSO	Fluoranthene	ND	0.33	7	ND	0.28	-0.57	-0.45	0.35
FPA	HWPW-10G-SSO	Fluoranthene	ND	0.33	8	ND	0.33	-0.45	-0.25	0.56
FPA	HWPW-11G-SSO	Fluoranthene	ND	1.32	9	ND	0.37	-0.33	-0.06	0.88
FPA	WPW-S-009-P	Fluoranthene	ND	0.66	10	ND	0.41	-0.22	0.13	1.34
FPA	SB23-00	Fluoranthene	1.327	0.34	11	0.12	0.46	-0.11	0.12	1.33
FPA	HWPW-8F-SSO	Fluoranthene	1.46	1.32	12	0.16	0.50	0.00	0.16	1.46
FPA	HWPW-AOC5W-S00	Fluoranthene	5.3	3.3	13	0.72	0.54	0.11	0.72	5.30
FPA	HWPW-8G-SSO	Fluoranthene	11.1	1.65	14	1.05	0.59	0.22	1.05	11.10
FPA	HWPW-MW18-S00	Fluoranthene	16	3.3	15	1.20	0.63	0.33	1.20	16.00
FPA	HWPW-AOC3W-S00	Fluoranthene	20	3.3	16	1.30	0.67	0.45	1.30	20.00
FPA	WPW-S-007-P	Fluoranthene	22	0.66	17	1.34	0.72	0.57	1.34	22.00
FPA	HWPW-AOC5E-S00	Fluoranthene	50.9	13.2	18	1.71	0.76	0.70	1.71	50.90
FPA	HWPW-11-SSO	Fluoranthene	57.8	8.25	19	1.76	0.80	0.85	1.76	57.80
FPA	HWPW-10F-SSO	Fluoranthene	237	33	20	2.37	0.84	1.01	2.37	237.00
FPA	HWPW-SB08-S4	Fluoranthene	430	330	21	2.63	0.89	1.22	2.63	430.00
FPA	HWPW-AOC7-S00	Fluoranthene	1100	165	22	3.04	0.93	1.48	3.04	1100.00
FPA	HWPW-SB07-S2.5	Fluoranthene	2500	500	23	3.40	0.97	1.95	3.40	2500.00

Regression Statistics

n	23
df = n-1	22
R Squared	0.97
Slope	1.65
Intercept	0.49

95% UCL Calculation per Student's t-Distribution

Average	193.76
Std Dev	557.79
t-stat	1.72
One-Sided Upper 95% Confidence Limit	393.48

TABLE H-1

Exposure Point Concentration Calculations: FPA Surface Soil

Houston Wood Preserving Works
Houston, Texas

Exposure Area	Sample ID	Parameter	Result (mg/kg)	Reporting Limit (mg/kg)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/kg)
FPA	HWPW-AOC3E-S00	Fluorene	ND	0.33	1	ND	0.03	-1.95	-4.21	0.00
FPA	HWPW-AOC3E-S00	Fluorene	ND	13.2	2	ND	0.07	-1.48	-3.28	0.00
FPA	HWPW-MW16-S00	Fluorene	ND	3.3	3	ND	0.11	-1.22	-2.75	0.00
FPA	SB23-00	Fluorene	ND	0.34	4	ND	0.16	-1.01	-2.34	0.00
FPA	HWPW-11-SSO	Fluorene	ND	8.25	5	ND	0.20	-0.85	-2.01	0.01
FPA	HWPW-7F-SSO	Fluorene	ND	6.6	6	ND	0.24	-0.70	-1.72	0.02
FPA	HWPW-8F-SSO	Fluorene	ND	1.32	7	ND	0.28	-0.57	-1.45	0.04
FPA	HWPW-9F-SSO	Fluorene	ND	1.32	8	ND	0.33	-0.45	-1.21	0.06
FPA	HWPW-10F-SSO	Fluorene	ND	33	9	ND	0.37	-0.33	-0.97	0.11
FPA	HWPW-7G-SSO	Fluorene	ND	1.32	10	ND	0.41	-0.22	-0.75	0.18
FPA	HWPW-8G-SSO	Fluorene	ND	1.65	11	ND	0.46	-0.11	-0.53	0.30
FPA	HWPW-9G-SSO	Fluorene	ND	0.33	12	ND	0.50	0.00	-0.31	0.49
FPA	HWPW-10G-SSO	Fluorene	ND	0.33	13	ND	0.54	0.11	-0.10	0.80
FPA	HWPW-11G-SSO	Fluorene	ND	1.32	14	ND	0.59	0.22	0.12	1.33
FPA	WPW-S-007-P	Fluorene	ND	0.66	15	ND	0.63	0.33	0.35	2.23
FPA	WPW-S-009-P	Fluorene	ND	0.66	16	ND	0.67	0.45	0.58	3.82
FPA	HWPW-AOC3W-S00	Fluorene	4	3.3	17	0.60	0.72	0.57	0.60	4.00
FPA	HWPW-MW18-S00	Fluorene	5.6	3.3	18	0.75	0.76	0.70	0.75	5.60
FPA	HWPW-AOC3W-S00	Fluorene	12	3.3	19	1.08	0.80	0.85	1.08	12.00
FPA	HWPW-AOC7-S00	Fluorene	330	165	20	2.52	0.84	1.01	2.52	330.00
FPA	HWPW-SB04-S2.5	Fluorene	370	24.75	21	2.57	0.89	1.22	2.57	370.00
FPA	HWPW-SB08-S4	Fluorene	460	330	22	2.66	0.93	1.48	2.66	460.00
FPA	HWPW-SB07-S2.5	Fluorene	1600	500	23	3.20	0.97	1.95	3.20	1600.00

Regression Statistics

n	23
df = n-1	22
R Squared	0.82
Slope	2.00
Intercept	-0.31

95% UCL Calculation per Student's t-Distribution

Average	121.35
Std Dev	348.96
t-stat	1.72
One-Sided Upper 95% Confidence Limit	246.29

TABLE H-1

Exposure Point Concentration Calculations: FPA Surface Soil
Houston Wood Preserving Works
Houston, Texas

Naphthalene

Exposure Area	Sample ID	Parameter	Result (mg/kg)	Reporting Limit (mg/kg)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/kg)
FPA	HWPW-AOC3E-S00	Naphthalene	ND	0.33	1	ND	0.03	-1.95	-5.13	0.00001
FPA	HWPW-AOC3W-S00	Naphthalene	ND	3.3	2	ND	0.07	-1.48	-4.04	0.0001
FPA	HWPW-AOC5E-S00	Naphthalene	ND	13.2	3	ND	0.11	-1.22	-3.41	0.0004
FPA	HWPW-MW16-S00	Naphthalene	ND	3.3	4	ND	0.16	-1.01	-2.94	0.001
FPA	SB23-00	Naphthalene	ND	0.34	5	ND	0.20	-0.85	-2.55	0.003
FPA	HWPW-11-SSO	Naphthalene	ND	8.25	6	ND	0.24	-0.70	-2.20	0.01
FPA	HWPW-7F-SSO	Naphthalene	ND	6.6	7	ND	0.28	-0.57	-1.89	0.01
FPA	HWPW-8F-SSO	Naphthalene	ND	1.32	8	ND	0.33	-0.45	-1.60	0.02
FPA	HWPW-9F-SSO	Naphthalene	ND	1.32	9	ND	0.37	-0.33	-1.33	0.05
FPA	HWPW-10F-SSO	Naphthalene	ND	33	10	ND	0.41	-0.22	-1.07	0.09
FPA	HWPW-7G-SSO	Naphthalene	ND	1.32	11	ND	0.46	-0.11	-0.81	0.16
FPA	HWPW-8G-SSO	Naphthalene	ND	1.65	12	ND	0.50	0.00	-0.55	0.28
FPA	HWPW-9G-SSO	Naphthalene	ND	0.33	13	ND	0.54	0.11	-0.30	0.50
FPA	HWPW-10G-SSO	Naphthalene	ND	0.33	14	ND	0.59	0.22	-0.04	0.91
FPA	HWPW-11G-SSO	Naphthalene	ND	1.32	15	ND	0.63	0.33	0.22	1.67
FPA	WPW-S-009-P	Naphthalene	ND	0.66	16	ND	0.67	0.45	0.50	3.15
FPA	WPW-S-007-P	Naphthalene	1.2	0.66	17	0.08	0.72	0.57	0.08	1.20
FPA	HWPW-AOC5W-S00	Naphthalene	11	3.3	18	1.04	0.76	0.70	1.04	11.00
FPA	HWPW-MW18-S00	Naphthalene	46	3.3	19	1.66	0.80	0.85	1.66	46.00
FPA	HWPW-AOC7-S00	Naphthalene	220	165	20	2.34	0.84	1.01	2.34	220.00
FPA	HWPW-SB04-S2.5	Naphthalene	540	247.5	21	2.73	0.89	1.22	2.73	540.00
FPA	HWPW-SB08-S4	Naphthalene	970	33	22	2.99	0.93	1.48	2.99	970.00
FPA	HWPW-SB07-S2.5	Naphthalene	3900	500	23	3.59	0.97	1.95	3.59	3900.00

Regression Statistics

n	23
df = n-1	22
R Squared	0.87
Slope	2.35
Intercept	-0.55

95 % UCL Calculation per Student's t-Distribution

Average	247.61
Std Dev	828.00
t-stat	1.72
<i>One-Sided Upper 95 % Confidence Limit</i>	544.08

TABLE H-1

Exposure Point Concentration Calculations: FPA Surface Soil

Houston Wood Preserving Works
Houston, Texas

Exposure Area	Sample ID	Parameter	Result (mg/kg)	Reporting Limit (mg/kg)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/kg)
FPA	HWPW-AOC3E-S00	Phenanthrene	ND	0.33	1	ND	0.03	-1.95	-3.34	0.0005
FPA	HWPW-AOC5E-S00	Phenanthrene	ND	13.2	2	ND	0.07	-1.48	-2.47	0.003
FPA	HWPW-MW16-S00	Phenanthrene	ND	3.3	3	ND	0.11	-1.22	-1.96	0.01
FPA	SB23-00	Phenanthrene	ND	0.34	4	ND	0.16	-1.01	-1.58	0.03
FPA	HWPW-7F-SSO	Phenanthrene	ND	6.6	5	ND	0.20	-0.85	-1.26	0.05
FPA	HWPW-8F-SSO	Phenanthrene	ND	1.32	6	ND	0.24	-0.70	-0.99	0.10
FPA	HWPW-9F-SSO	Phenanthrene	ND	1.32	7	ND	0.28	-0.57	-0.73	0.18
FPA	HWPW-10F-SSO	Phenanthrene	ND	33	8	ND	0.33	-0.45	-0.50	0.32
FPA	HWPW-7G-SSO	Phenanthrene	ND	1.32	9	ND	0.37	-0.33	-0.28	0.52
FPA	HWPW-9G-SSO	Phenanthrene	ND	0.33	10	ND	0.41	-0.22	-0.07	0.86
FPA	HWPW-10G-SSO	Phenanthrene	ND	0.33	11	ND	0.46	-0.11	0.14	1.38
FPA	HWPW-11G-SSO	Phenanthrene	ND	1.32	12	ND	0.50	0.00	0.35	2.22
FPA	WPW-S-009-P	Phenanthrene	ND	0.66	13	ND	0.54	0.11	0.55	3.56
FPA	HWPW-8G-SSO	Phenanthrene	2.63	1.65	14	0.42	0.59	0.22	0.42	2.63
FPA	HWPW-AOC5W-S00	Phenanthrene	12	3.3	15	1.08	0.63	0.33	1.08	12.00
FPA	HWPW-MW18-S00	Phenanthrene	17	3.3	16	1.23	0.67	0.45	1.23	17.00
FPA	WPW-S-007-P	Phenanthrene	19	0.66	17	1.28	0.72	0.57	1.28	19.00
FPA	HWPW-AOC3W-S00	Phenanthrene	36	3.3	18	1.56	0.76	0.70	1.56	36.00
FPA	HWPW-11-SSO	Phenanthrene	60.2	8.25	19	1.78	0.80	0.85	1.78	60.20
FPA	HWPW-SB08-S4	Phenanthrene	930	330	20	2.97	0.84	1.01	2.97	930.00
FPA	HWPW-AOC7-S00	Phenanthrene	950	165	21	2.98	0.89	1.22	2.98	950.00
FPA	HWPW-SB04-S2.5	Phenanthrene	1600	250	22	3.20	0.93	1.48	3.20	1600.00
FPA	HWPW-SB07-S2.5	Phenanthrene	4100	500	23	3.61	0.97	1.95	3.61	4100.00

Regression Statistics

n	23
df = n-1	22
R Squared	0.91
Slope	1.90
Intercept	0.35

95% UCL Calculation per Student's t-Distribution

Average	336.35
Std Dev	918.03
t-stat	1.72
One-Sided Upper 95% Confidence Limit	665.05

TABLE H-1

Exposure Point Concentration Calculations: FPA Surface Soil

Houston Wood Preserving Works
Houston, Texas

Exposure Area	Sample ID	Parameter	Result (mg/kg)	Reporting Limit (mg/kg)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (mg/kg)
Pyrene	FPA	HWPW-AOC3E-S00	ND	0.33	1	ND	0.03	-1.95	-2.90	0.001
FPA	HWPW-MW16-S00	Pyrene	ND	3.3	2	ND	0.07	-1.48	-2.16	0.01
FPA	HWPW-SB04-S2.5	Pyrene	ND	24.75	3	ND	0.11	-1.22	-1.73	0.02
FPA	HWPW-SB08-S4	Pyrene	ND	33	4	ND	0.16	-1.01	-1.40	0.04
FPA	HWPW-7F-SSO	Pyrene	ND	6.6	5	ND	0.20	-0.85	-1.13	0.07
FPA	HWPW-8F-SSO	Pyrene	ND	1.32	6	ND	0.24	-0.70	-0.90	0.13
FPA	HWPW-9F-SSO	Pyrene	ND	1.32	7	ND	0.28	-0.57	-0.68	0.21
FPA	HWPW-7G-SSO	Pyrene	ND	1.32	8	ND	0.33	-0.45	-0.48	0.33
FPA	HWPW-9G-SSO	Pyrene	ND	0.33	9	ND	0.37	-0.33	-0.29	0.51
FPA	HWPW-10G-SSO	Pyrene	ND	0.33	10	ND	0.41	-0.22	-0.11	0.77
FPA	WPW-S-009-P	Pyrene	ND	0.66	11	ND	0.46	-0.11	0.06	1.16
FPA	HWPW-11G-SSO	Pyrene	1.51	1.32	12	0.18	0.50	0.00	0.18	1.51
FPA	SB23-00	Pyrene	1.689	0.34	13	0.23	0.54	0.11	0.23	1.69
FPA	HWPW-AOC5W-S00	Pyrene	5.9	3.3	14	0.77	0.59	0.22	0.77	5.90
FPA	HWPW-8G-SSO	Pyrene	8.93	1.65	15	0.95	0.63	0.33	0.95	8.93
FPA	HWPW-MW18-S00	Pyrene	9.9	3.3	16	1.00	0.67	0.45	1.00	9.90
FPA	HWPW-AOC3W-S00	Pyrene	13	3.3	17	1.11	0.72	0.57	1.11	13.00
FPA	WPW-S-007-P	Pyrene	15	0.66	18	1.18	0.76	0.70	1.18	15.00
FPA	HWPW-11-SSO	Pyrene	40	8.25	19	1.60	0.80	0.85	1.60	40.00
FPA	HWPW-AOC5E-S00	Pyrene	58.3	13.2	20	1.77	0.84	1.01	1.77	58.30
FPA	HWPW-10F-SSO	Pyrene	204	33	21	2.31	0.89	1.22	2.31	204.00
FPA	HWPW-AOC7-S00	Pyrene	880	165	22	2.94	0.93	1.48	2.94	880.00
FPA	HWPW-SB07-S2.5	Pyrene	1500	500	23	3.18	0.97	1.95	3.18	1500.00

Regression Statistics

n	23
df = n - 1	22
R Squared	0.97
Slope	1.62
Intercept	0.24

95% UCL Calculation per Student's t-Distribution

Average	119.19
Std Dev	353.22
t-stat	1.72
One-Sided Upper 95% Confidence Limit	245.67

Supporting Documentation for TSA Surface Soil COPCs
Appendix H-2

July 10, 2000
W.O. #422-009

Environmental Resources Management
16300 Katy Freeway, Suite 300
Houston, Texas 77094-1611
(281) 600-1000

TABLE H-2

Exposure Point Concentration Calculations: TSA Surface Soil

Houston Wood Preserving Works
Houston, Texas

Exposure Area	Sample ID	Parameter	Result (mg/kg)	Reporting Limit (mg/kg)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/kg)
TSA	HWPW-AOC4-NE-S00	Benzo(a)anthracene	ND	0.33	1	ND	0.02	-2.07	-2.48	0.00
TSA	HWPW-AOC4-SW-S00	Benzo(a)anthracene	ND	0.33	2	ND	0.05	-1.63	-2.13	0.01
TSA	HWPW-MW12A-S00	Benzo(a)anthracene	ND	0.33	3	ND	0.08	-1.38	-1.94	0.01
TSA	HWPW-MW13-S00	Benzo(a)anthracene	ND	0.33	4	ND	0.12	-1.20	-1.79	0.02
TSA	HWPW-MW15-S00	Benzo(a)anthracene	ND	0.33	5	ND	0.15	-1.05	-1.67	0.02
TSA	MW21C-00	Benzo(a)anthracene	ND	3.8	6	ND	0.18	-0.92	-1.57	0.03
TSA	SB26-00	Benzo(a)anthracene	ND	3.5	7	ND	0.21	-0.80	-1.48	0.03
TSA	SB32-00	Benzo(a)anthracene	ND	0.37	8	ND	0.24	-0.69	-1.40	0.04
TSA	HWPW-A4-SSO	Benzo(a)anthracene	ND	6.6	9	ND	0.28	-0.60	-1.32	0.05
TSA	HWPW-A5-SSO	Benzo(a)anthracene	ND	0.33	10	ND	0.31	-0.50	-1.25	0.06
TSA	HWPW-A6-SSO	Benzo(a)anthracene	ND	1.32	11	ND	0.34	-0.41	-1.18	0.07
TSA	HWPW-C5-SSO	Benzo(a)anthracene	ND	0.33	12	ND	0.37	-0.33	-1.11	0.08
TSA	HWPW-B3-SSO	Benzo(a)anthracene	0.056	0.33	13	-1.25	0.40	-0.24	-1.25	0.06
TSA	HWPW-C2-SSO	Benzo(a)anthracene	0.117	0.33	14	-0.93	0.44	-0.16	-0.93	0.12
TSA	HWPW-AOC4-NW-S00	Benzo(a)anthracene	0.14	0.66	15	-0.85	0.47	-0.08	-0.85	0.14
TSA	HWPW-C4-SSO	Benzo(a)anthracene	0.145	0.33	16	-0.84	0.50	0.00	-0.84	0.15
TSA	HWPW-B5-SSO	Benzo(a)anthracene	0.161	1.32	17	-0.79	0.53	0.08	-0.79	0.16
TSA	HWPW-B2-SSO	Benzo(a)anthracene	0.176	0.33	18	-0.75	0.56	0.16	-0.75	0.18
TSA	HWPW-B4-SSO	Benzo(a)anthracene	0.23	0.33	19	-0.64	0.60	0.24	-0.64	0.23
TSA	HWPW-D2-SSO	Benzo(a)anthracene	0.373	0.33	20	-0.43	0.63	0.33	-0.43	0.37
TSA	HWPW-D1-SSO	Benzo(a)anthracene	0.385	0.33	21	-0.41	0.66	0.41	-0.41	0.39
TSA	HWPW-A1-SSO	Benzo(a)anthracene	0.397	2.64	22	-0.40	0.69	0.50	-0.40	0.40
TSA	HWPW-C6-SSO	Benzo(a)anthracene	0.46	1.32	23	-0.34	0.72	0.60	-0.34	0.46
TSA	HWPW-B6-SSO	Benzo(a)anthracene	0.559	1.32	24	-0.25	0.76	0.69	-0.25	0.56
TSA	HWPW-AOC4-SE-S00	Benzo(a)anthracene	0.59	0.66	25	-0.23	0.79	0.80	-0.23	0.59
TSA	HWPW-B1-SSO	Benzo(a)anthracene	0.618	1.32	26	-0.21	0.82	0.92	-0.21	0.62
TSA	HWPW-C1-SSO	Benzo(a)anthracene	0.655	2.64	27	-0.18	0.85	1.05	-0.18	0.66
TSA	HWPW-A3-SSO	Benzo(a)anthracene	0.671	1.32	28	-0.17	0.88	1.20	-0.17	0.67
TSA	HWPW-A2-SSO	Benzo(a)anthracene	1.64	2.64	29	0.21	0.92	1.38	0.21	1.64
TSA	HWPW-C3-SSO	Benzo(a)anthracene	2.85	6.6	30	0.45	0.95	1.63	0.45	2.85
TSA	HWPW-SB06-S4	Benzo(a)anthracene	8.2	8.25	31	0.91	0.98	2.07	0.91	8.20

Regression Statistics

n	31
df=n-1	30
R Squared	0.95
Slope	0.78
Intercept	-0.85

95% UCL Calculation per Student's t-Distribution

Average	0.61
Std Dev	1.52
t-stat	1.70
One-Sided Upper 95% Confidence Limit	1.07

TABLE H-2
Exposure Point Concentration Calculations: TSA Surface Soil
Houston Wood Preserving Works
Houston, Texas

Exposure Area	Sample ID	Parameter	Result (mg/kg)	Reporting Limit (mg/kg)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/kg)
TSA	HWPW-AOC4-NE-S00	Benzo(a)pyrene	ND	0.33	1	ND	0.02	-2.07	-1.93	0.01
TSA	HWPW-AOC4-SW-S00	Benzo(a)pyrene	ND	0.33	2	ND	0.05	-1.63	-1.69	0.02
TSA	HWPW-MW12A-S00	Benzo(a)pyrene	ND	0.33	3	ND	0.08	-1.38	-1.56	0.03
TSA	HWPW-MW13-S00	Benzo(a)pyrene	ND	0.33	4	ND	0.12	-1.20	-1.46	0.03
TSA	HWPW-MW15-S00	Benzo(a)pyrene	ND	0.33	5	ND	0.15	-1.05	-1.37	0.04
TSA	MW21C-00	Benzo(a)pyrene	ND	3.8	6	ND	0.18	-0.92	-1.30	0.05
TSA	HWPW-SB06-S4	Benzo(a)pyrene	ND	8.25	7	ND	0.21	-0.80	-1.24	0.06
TSA	SB26-00	Benzo(a)pyrene	ND	3.5	8	ND	0.24	-0.69	-1.18	0.07
TSA	SB32-00	Benzo(a)pyrene	ND	0.37	9	ND	0.28	-0.60	-1.13	0.07
TSA	HWPW-A4-SSO	Benzo(a)pyrene	ND	6.6	10	ND	0.31	-0.50	-1.08	0.08
TSA	HWPW-A5-SSO	Benzo(a)pyrene	ND	0.33	11	ND	0.34	-0.41	-1.03	0.09
TSA	HWPW-A6-SSO	Benzo(a)pyrene	ND	1.32	12	ND	0.37	-0.33	-0.98	0.10
TSA	HWPW-C3-SSO	Benzo(a)pyrene	ND	0.33	13	ND	0.40	-0.24	-0.94	0.12
TSA	HWPW-D1-SSO	Benzo(a)pyrene	ND	0.33	14	ND	0.44	-0.16	-0.89	0.13
TSA	HWPW-B3-SSO	Benzo(a)pyrene	0.062	0.33	15	ND	0.47	-0.08	-1.21	0.06
TSA	HWPW-C2-SSO	Benzo(a)pyrene	0.119	0.33	16	-1.21	0.50	0.00	-0.92	0.12
TSA	HWPW-C4-SSO	Benzo(a)pyrene	0.166	0.33	17	-0.92	0.53	0.08	-0.78	0.17
TSA	HWPW-B4-SSO	Benzo(a)pyrene	0.197	0.33	18	-0.71	0.56	0.16	-0.71	0.20
TSA	HWPW-B2-SSO	Benzo(a)pyrene	0.217	0.33	19	-0.66	0.60	0.24	-0.66	0.22
TSA	HWPW-AOC4-NW-S00	Benzo(a)pyrene	0.24	0.66	20	-0.62	0.63	0.33	-0.62	0.24
TSA	HWPW-D2-SSO	Benzo(a)pyrene	0.353	0.33	21	-0.45	0.66	0.41	-0.45	0.35
TSA	HWPW-B5-SSO	Benzo(a)pyrene	0.394	1.32	22	-0.40	0.69	0.50	-0.40	0.39
TSA	HWPW-AOC4-SE-S00	Benzo(a)pyrene	0.49	0.66	23	-0.31	0.72	0.60	-0.31	0.49
TSA	HWPW-C6-SSO	Benzo(a)pyrene	0.509	1.32	24	-0.29	0.76	0.69	-0.29	0.51
TSA	HWPW-A1-SSO	Benzo(a)pyrene	0.517	2.64	25	-0.29	0.79	0.80	-0.29	0.52
TSA	HWPW-B1-SSO	Benzo(a)pyrene	0.582	1.32	26	-0.24	0.82	0.92	-0.24	0.58
TSA	HWPW-B6-SSO	Benzo(a)pyrene	0.615	1.32	27	-0.21	0.85	1.05	-0.21	0.62
TSA	HWPW-A3-SSO	Benzo(a)pyrene	0.665	1.32	28	-0.18	0.88	1.20	-0.18	0.67
TSA	HWPW-A2-SSO	Benzo(a)pyrene	0.783	2.64	29	-0.11	0.92	1.38	-0.11	0.78
TSA	HWPW-C1-SSO	Benzo(a)pyrene	0.997	2.64	30	0.00	0.95	1.63	0.00	1.00
TSA	HWPW-C3-SSO	Benzo(a)pyrene	1.51	6.6	31	0.18	0.98	2.07	0.18	1.51

Regression Statistics	
n	31
df=n-1	30
R Squared	0.87
Slope	0.54
Intercept	-0.81

95% UCL Calculation per Student's t-Distribution

Average	0.30
Std Dev	0.34
t-stat	1.70
One-Sided Upper 95% Confidence Limit	0.41

Supporting Documentation for FPA Subsurface Soil COPCs
Appendix H-3

July 10, 2000
W.O. #422-009

Environmental Resources Management
16300 Katy Freeway, Suite 300
Houston, Texas 77094-1611
(281) 600-1000

TABLE H-3
Exposure Point Concentration Calculations: FPA Subsurface Soil

Houston Wood Preserving Works
Houston, Texas

Exposure Area	Sample ID	Parameter	Result (mg/kg)	Reporting Limit (mg/kg)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/kg)
FPA	HWPW-MW16-S020	Phenol	ND	0.33	1	ND	0.02	-2.13	-4.83	0.00001
FPA	HWPW-MW16-S025	Phenol	ND	0.33	2	ND	0.04	-1.70	-4.30	0.0001
FPA	HWPW-MW17-S025	Phenol	ND	3.3	3	ND	0.07	-1.46	-3.99	0.0001
FPA	HWPW-MW17-S030	Phenol	ND	9.9	4	ND	0.10	-1.28	-3.77	0.0002
FPA	HWPW-MW18-S025	Phenol	ND	0.33	5	ND	0.13	-1.14	-3.58	0.0003
FPA	HWPW-MW18-S030	Phenol	ND	0.33	6	ND	0.15	-1.02	-3.43	0.0004
FPA	MW19C-55	Phenol	ND	0.42	7	ND	0.18	-0.91	-3.29	0.001
FPA	MW19C-60	Phenol	ND	0.41	8	ND	0.21	-0.81	-3.16	0.001
FPA	MW19C-73	Phenol	ND	0.42	9	ND	0.24	-0.71	-3.05	0.001
FPA	SB23-55	Phenol	ND	0.42	10	ND	0.27	-0.63	-2.94	0.001
FPA	SB23-60	Phenol	ND	0.42	11	ND	0.29	-0.55	-2.83	0.001
FPA	SB23-73	Phenol	ND	0.43	12	ND	0.32	-0.47	-2.73	0.002
FPA	HWPW-SB03-S19	Phenol	ND	1.65	13	ND	0.35	-0.39	-2.64	0.002
FPA	HWPW-SB03-S24	Phenol	ND	0.33	14	ND	0.38	-0.32	-2.55	0.003
FPA	HWPW-SB03-S34	Phenol	ND	0.33	15	ND	0.40	-0.24	-2.45	0.004
FPA	HWPW-SB03-S5	Phenol	ND	24.75	16	ND	0.43	-0.17	-2.36	0.004
FPA	HWPW-SB03-S52	Phenol	ND	0.33	17	ND	0.46	-0.10	-2.28	0.01
FPA	HWPW-SB03-S54	Phenol	ND	0.33	18	ND	0.49	-0.03	-2.19	0.01
FPA	HWPW-SB04-S27	Phenol	ND	1.65	19	ND	0.51	0.03	-2.10	0.01
FPA	HWPW-SB04-S29	Phenol	ND	1.65	20	ND	0.54	0.10	-2.01	0.01
FPA	HWPW-SB04-S31	Phenol	ND	1.65	21	ND	0.57	0.17	-1.93	0.01
FPA	HWPW-SB04-S39	Phenol	ND	3.3	22	ND	0.60	0.24	-1.84	0.01
FPA	HWPW-SB04-S51	Phenol	ND	8.25	23	ND	0.62	0.32	-1.74	0.02
FPA	HWPW-SB04-S59	Phenol	ND	0.33	24	ND	0.65	0.39	-1.65	0.02
FPA	HWPW-SB07-S19	Phenol	ND	33	25	ND	0.68	0.47	-1.56	0.03
FPA	HWPW-SB07-S21	Phenol	ND	330	26	ND	0.71	0.55	-1.46	0.03
FPA	HWPW-SB07-S22	Phenol	ND	330	27	ND	0.73	0.63	-1.35	0.04
FPA	HWPW-SB07-S24	Phenol	ND	2475	28	ND	0.76	0.71	-1.24	0.06
FPA	HWPW-SB08-S14	Phenol	ND	330	29	ND	0.79	0.81	-1.13	0.07
FPA	HWPW-SB08-S18	Phenol	ND	24.75	30	ND	0.82	0.91	-1.00	0.10
FPA	HWPW-SB08-S21	Phenol	ND	165	31	ND	0.85	1.02	-0.86	0.14
FPA	HWPW-SB08-S22	Phenol	ND	247.5	32	ND	0.87	1.14	-0.71	0.20
FPA	SB24-49	Phenol	ND	0.39	33	ND	0.90	1.28	-0.52	0.30
FPA	MW19C-38	Phenol	0.65	0.41	34	ND	0.93	1.46	-0.19	0.65
FPA	SB23-31	Phenol	0.679	0.39	35	-0.17	0.96	1.70	-0.17	0.68
FPA	SB24-34	Phenol	4.055	4	36	0.61	0.98	2.13	0.61	4.06

Regression Statistics

n	36
df = n-1	35
R Squared	0.89
Slope	1.26
Intercept	-2.15

95% UCL Calculation per Student's t-Distribution

Average	0.18
Std Dev	0.68
t-stat	1.69
One-Sided Upper 95% Confidence Limit	0.37

TABLE II-3

Exposure Point Concentration Calculations: FPA Subsurface Soil

Houston Wood Preserving Works
Houston, Texas

2,4-Dimethylphenol

Exposure Area	Sample ID	Parameter	Result (mg/kg)	Reporting Limit (mg/kg)	Rank	Ranked Log Data	Percentile	Z Score	Imputed or Detected (Log space)	Imputed or Detected (mg/kg)
FPA	HWPW-MW16-S020	2,4-Dimethylphenol	ND	0.33	1	ND	0.02	-2.03	-4.62	0.00002
FPA	HWPW-MW16-S025	2,4-Dimethylphenol	ND	0.33	2	ND	0.06	-1.58	-3.96	0.0001
FPA	HWPW-MW17-S025	2,4-Dimethylphenol	ND	3.3	3	ND	0.09	-1.33	-3.58	0.0003
FPA	HWPW-MW17-S030	2,4-Dimethylphenol	ND	9.9	4	ND	0.13	-1.14	-3.30	0.001
FPA	HWPW-MW18-S025	2,4-Dimethylphenol	ND	0.33	5	ND	0.16	-0.98	-3.07	0.001
FPA	HWPW-MW18-S030	2,4-Dimethylphenol	ND	0.33	6	ND	0.20	-0.85	-2.87	0.001
FPA	HWPW-SB03-S19	2,4-Dimethylphenol	ND	1.65	7	ND	0.23	-0.73	-2.69	0.002
FPA	HWPW-SB03-S24	2,4-Dimethylphenol	ND	0.33	8	ND	0.27	-0.61	-2.52	0.003
FPA	HWPW-SB03-S34	2,4-Dimethylphenol	ND	24.75	9	ND	0.30	-0.51	-2.37	0.004
FPA	HWPW-SB03-S5	2,4-Dimethylphenol	ND	3.3	10	ND	0.34	-0.41	-2.22	0.01
FPA	HWPW-SB03-S52	2,4-Dimethylphenol	ND	0.33	11	ND	0.38	-0.32	-2.08	0.01
FPA	HWPW-SB03-S54	2,4-Dimethylphenol	ND	0.33	12	ND	0.41	-0.22	-1.94	0.01
FPA	HWPW-SB04-S31	2,4-Dimethylphenol	ND	1.65	13	ND	0.45	-0.13	-1.81	0.02
FPA	HWPW-SB04-S39	2,4-Dimethylphenol	ND	3.3	14	ND	0.48	-0.04	-1.68	0.02
FPA	HWPW-SB04-S51	2,4-Dimethylphenol	ND	8.25	15	ND	0.52	0.04	-1.55	0.03
FPA	HWPW-SB04-S59	2,4-Dimethylphenol	ND	0.33	16	ND	0.55	0.13	-1.41	0.04
FPA	HWPW-SB07-S19	2,4-Dimethylphenol	ND	33	17	ND	0.59	0.22	-1.28	0.05
FPA	HWPW-SB07-S21	2,4-Dimethylphenol	ND	3.3	18	ND	0.62	0.32	-1.14	0.07
FPA	HWPW-SB07-S22	2,4-Dimethylphenol	ND	330	19	ND	0.66	0.41	-1.00	0.10
FPA	HWPW-SB07-S24	2,4-Dimethylphenol	ND	2475	20	ND	0.70	0.51	-0.86	0.14
FPA	HWPW-SB08-S14	2,4-Dimethylphenol	ND	330	21	ND	0.73	0.61	-0.70	0.20
FPA	HWPW-SB08-S21	2,4-Dimethylphenol	ND	165	22	ND	0.77	0.73	-0.54	0.29
FPA	SB24-34	2,4-Dimethylphenol	ND	4	23	ND	0.80	0.85	-0.36	0.44
FPA	SB24-49	2,4-Dimethylphenol	ND	0.39	24	ND	0.84	0.98	-0.16	0.70
FPA	HWPW-SB08-S22	2,4-Dimethylphenol	ND	247.5	25	ND	0.87	1.14	0.07	1.19
FPA	HWPW-SB04-S27	2,4-Dimethylphenol	2.3	1.65	26	0.36	0.91	1.33	0.36	2.30
FPA	HWPW-SB04-S29	2,4-Dimethylphenol	5.3	1.65	27	0.72	0.94	1.58	0.72	5.30
FPA	HWPW-SB08-S18	2,4-Dimethylphenol	75	24.75	28	1.40	0.98	2.03	1.40	25.00

Regression Statistics

n	28
df = n-1	27
R Squared	1.00
Slope	1.48
Intercept	-1.61

95% UCL Calculation per Student's t-Distribution

Average	1.28
Std Dev	4.77
t-stat	1.70
One-Sided Upper 95% Confidence Limit	2.82

TABLE H-3

Exposure Point Concentration Calculations: FPA Subsurface Soil

Houston Wood Preserving Works
Houston, Texas

2-Methylnaphthalene

Exposure Area	Sample ID	Parameter	Result (mg/kg)	Reporting Limit (mg/kg)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/kg)
FPA	HWPW-MW16-S020	2-Methylnaphthalene	ND	0.33	1	ND	0.02	-2.13	-1.66	0.02
FPA	HWPW-MW16-S025	2-Methylnaphthalene	ND	0.33	2	ND	0.04	-1.70	-1.08	0.08
FPA	HWPW-MW18-S025	2-Methylnaphthalene	ND	0.33	3	ND	0.07	-1.46	-0.76	0.18
FPA	HWPW-MW18-S030	2-Methylnaphthalene	ND	0.33	4	ND	0.10	-1.28	-0.52	0.31
FPA	MW19C-55	2-Methylnaphthalene	ND	0.42	5	ND	0.13	-1.14	-0.32	0.48
FPA	MW19C-60	2-Methylnaphthalene	ND	0.41	6	ND	0.15	-1.02	-0.15	0.70
FPA	MW19C-73	2-Methylnaphthalene	ND	0.42	7	ND	0.18	-0.91	0.00	0.99
FPA	SB23-55	2-Methylnaphthalene	ND	0.42	8	ND	0.21	-0.81	0.13	1.35
FPA	SB23-60	2-Methylnaphthalene	ND	0.42	9	ND	0.24	-0.71	0.26	1.80
FPA	SB23-73	2-Methylnaphthalene	ND	0.43	10	ND	0.27	-0.63	0.37	2.36
FPA	HWPW-SB03-S54	2-Methylnaphthalene	ND	0.33	11	ND	0.29	-0.55	0.48	3.05
FPA	HWPW-SB04-S59	2-Methylnaphthalene	ND	0.33	12	ND	0.32	-0.47	0.59	3.90
FPA	SB24-49	2-Methylnaphthalene	ND	0.39	13	ND	0.35	-0.39	0.69	4.93
FPA	HWPW-SB03-S24	2-Methylnaphthalene	1.1	0.33	14	0.04	0.38	-0.32	1.10	1.10
FPA	MW19C-38	2-Methylnaphthalene	6.463	0.41	15	0.81	0.40	-0.24	0.81	6.46
FPA	HWPW-SB03-S19	2-Methylnaphthalene	11	1.65	16	1.04	0.43	-0.17	1.04	11.00
FPA	HWPW-SB03-S52	2-Methylnaphthalene	11	1.32	17	1.04	0.46	-0.10	1.04	11.00
FPA	SB24-34	2-Methylnaphthalene	12.511	4	18	1.10	0.49	-0.03	1.10	12.51
FPA	HWPW-SB04-S29	2-Methylnaphthalene	17	8.25	19	1.23	0.51	0.03	1.23	17.00
FPA	HWPW-SB04-S31	2-Methylnaphthalene	29	3.3	20	1.46	0.54	0.10	1.46	29.00
FPA	HWPW-MW17-S025	2-Methylnaphthalene	32	3.3	21	1.51	0.57	0.17	1.51	32.00
FPA	SB23-31	2-Methylnaphthalene	45.132	0.39	22	1.65	0.60	0.24	1.65	45.13
FPA	HWPW-SB04-S51	2-Methylnaphthalene	51	8.25	23	1.71	0.62	0.32	1.71	51.00
FPA	HWPW-SB04-S27	2-Methylnaphthalene	53	8.25	24	1.72	0.65	0.39	1.72	53.00
FPA	HWPW-MW17-S030	2-Methylnaphthalene	76	9.9	25	1.88	0.68	0.47	1.88	76.00
FPA	HWPW-SB03-S5	2-Methylnaphthalene	78	16.5	26	1.89	0.71	0.55	1.89	78.00
FPA	HWPW-SB07-S21	2-Methylnaphthalene	260	165	27	2.41	0.73	0.63	2.41	260.00
FPA	HWPW-SB08-S21	2-Methylnaphthalene	330	165	28	2.54	0.76	0.71	2.54	330.00
FPA	HWPW-SB08-S14	2-Methylnaphthalene	360	330	29	2.56	0.79	0.81	2.56	360.00
FPA	HWPW-SB08-S18	2-Methylnaphthalene	400	24.75	30	2.60	0.82	0.91	2.60	400.00
FPA	HWPW-SB08-S22	2-Methylnaphthalene	420	247.5	31	2.62	0.85	1.02	2.62	420.00
FPA	HWPW-SB07-S22	2-Methylnaphthalene	790	330	32	2.90	0.87	1.14	2.90	790.00
FPA	HWPW-SB04-S39	2-Methylnaphthalene	1100	660	33	3.04	0.90	1.28	3.04	1100.00
FPA	HWPW-SB07-S19	2-Methylnaphthalene	1700	330	34	3.23	0.93	1.46	3.23	1700.00
FPA	HWPW-SB03-S34	2-Methylnaphthalene	2200	500	35	3.34	0.96	1.70	3.34	2200.00
FPA	HWPW-SB07-S24	2-Methylnaphthalene	3700	2475	36	3.57	0.98	2.13	3.57	3700.00

Regression Statistics

n	36
df = n-1	35
R Squared	0.93
Slope	1.35
Intercept	1.22

95% UCL Calculation per Student's t-Distribution

Average	325.65
Std Dev	758.09
t-stat	1.69
One-Sided Upper 95% Confidence Limit	539.12

TABLE H-3
Exposure Point Concentration Calculations: FPA Subsurface Soil

Houston Wood Preserving Works
Houston, Texas

Exposure Area	Sample ID	Parameter	Result (mg/kg)	Reporting Limit (mg/kg)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/kg)
Acenaphthene	FPA	Acenaphthene	ND	0.33	1	ND	0.02	-2.13	-2.24	0.01
FPA	HWPW-MW16-S020	Acenaphthene	ND	0.33	2	ND	0.04	-1.70	-1.62	0.02
FPA	HWPW-MW16-S025	Acenaphthene	ND	0.33	3	ND	0.07	-1.46	-1.28	0.05
FPA	HWPW-MW18-S025	Acenaphthene	ND	0.33	4	ND	0.10	-1.28	-1.02	0.10
FPA	HWPW-MW18-S030	Acenaphthene	ND	0.42	5	ND	0.13	-1.14	-0.81	0.15
FPA	MW19C-55	Acenaphthene	ND	0.41	6	ND	0.15	-1.02	-0.64	0.23
FPA	MW19C-60	Acenaphthene	ND	0.42	7	ND	0.18	-0.91	-0.48	0.33
FPA	MW19C-73	Acenaphthene	ND	0.42	8	ND	0.21	-0.81	-0.33	0.46
FPA	SB23-55	Acenaphthene	ND	0.42	9	ND	0.24	-0.71	-0.20	0.63
FPA	SB23-60	Acenaphthene	ND	0.43	10	ND	0.27	-0.63	-0.08	0.84
FPA	SB23-73	Acenaphthene	ND	0.33	11	ND	0.29	-0.55	0.04	1.10
FPA	HWPW-SB03-S54	Acenaphthene	ND	0.33	12	ND	0.32	-0.47	0.16	1.43
FPA	HWPW-SB04-S59	Acenaphthene	ND	0.33	13	ND	0.35	-0.39	0.26	1.84
FPA	HWPW-SB08-S14	Acenaphthene	ND	330	14	ND	0.38	-0.32	0.37	2.35
FPA	SB24-49	Acenaphthene	ND	0.39	15	ND	0.40	-0.24	0.46	2.90
FPA	HWPW-SB03-S74	Acenaphthene	1.1	0.33	16	0.04	0.43	-0.17	0.19	1.56
FPA	MW19C-38	Acenaphthene	1.56	0.41	17	0.19	0.46	-0.10	0.46	2.90
FPA	HWPW-SB03-S52	Acenaphthene	2.9	0.33	18	0.46	0.49	-0.03	0.79	6.10
FPA	HWPW-SB03-S19	Acenaphthene	6.1	1.65	19	0.79	0.51	0.03	0.93	8.61
FPA	SB24-34	Acenaphthene	8.608	4	20	0.93	0.51	0.03	0.93	8.61
FPA	HWPW-SB04-S51	Acenaphthene	12	8.25	21	1.08	0.54	0.10	1.08	12.00
FPA	HWPW-SB04-S29	Acenaphthene	13	1.65	22	1.11	0.57	0.17	1.11	13.00
FPA	HWPW-SB04-S27	Acenaphthene	16	1.65	23	1.20	0.60	0.24	1.20	16.00
FPA	HWPW-SB04-S31	Acenaphthene	23	3.3	24	1.36	0.62	0.32	1.36	23.00
FPA	HWPW-MW17-S030	Acenaphthene	26	9.9	25	1.41	0.65	0.39	1.41	26.00
FPA	HWPW-MW17-S025	Acenaphthene	27	3.3	26	1.43	0.68	0.47	1.43	27.00
FPA	SB23-31	Acenaphthene	37.454	0.39	27	1.57	0.71	0.55	1.57	37.45
FPA	HWPW-SB03-S5	Acenaphthene	50	3.3	28	1.70	0.73	0.63	1.70	50.00
FPA	HWPW-SB08-S21	Acenaphthene	200	165	29	2.30	0.76	0.71	2.30	200.00
FPA	HWPW-SB03-S34	Acenaphthene	270	24.75	30	2.43	0.79	0.81	2.43	270.00
FPA	HWPW-SB08-S18	Acenaphthene	320	24.75	31	2.51	0.82	0.91	2.51	320.00
FPA	HWPW-SB07-S21	Acenaphthene	400	66	32	2.60	0.85	1.02	2.60	400.00
FPA	HWPW-SB08-S22	Acenaphthene	400	247.5	33	2.66	0.87	1.14	2.60	400.00
FPA	HWPW-SB07-S19	Acenaphthene	460	33	34	2.80	0.90	1.28	2.66	460.00
FPA	HWPW-SB07-S22	Acenaphthene	630	330	35	2.88	0.93	1.46	2.80	630.00
FPA	HWPW-SB04-S39	Acenaphthene	750	660	36	3.51	0.96	1.70	2.88	750.00
FPA	HWPW-SB07-S24	Acenaphthene	3200	2475			0.98	2.13	3.51	3200.00

Regression Statistics

n	36
df = n-1	35
R Squared	0.93
Slope	1.44
Intercept	0.83

95% UCL Calculation per Student's t-Distribution

Average	190.67
Std Dev	551.47
t-stat	1.69
One-Sided Upper 95% Confidence Limit	345.96

TABLE H-3

Exposure Point Concentration Calculations: FPA, Subsurface Soil

Houston Wood Preserving Works
Houston, Texas

Exposure Area	Sample ID	Parameter	Result (mg/kg)	Reporting Limit (mg/kg)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/kg)
FPA	HWPW-MW16-S020	Benzene	ND	0.005	1	ND	0.02	-2.12	-5.25	0.00001
FPA	HWPW-MW16-S025	Benzene	ND	0.005	2	ND	0.05	-1.69	-4.68	0.00002
FPA	HWPW-MW17-S030	Benzene	ND	0.025	3	ND	0.07	-1.45	-4.36	0.00004
FPA	HWPW-MW18-S030	Benzene	ND	0.005	4	ND	0.10	-1.27	-4.12	0.0001
FPA	MW19C-55	Benzene	ND	0.0013	5	ND	0.13	-1.12	-3.93	0.0001
FPA	MW19C-60	Benzene	ND	0.0012	6	ND	0.16	-1.00	-3.77	0.0002
FPA	MW19C-73	Benzene	ND	0.0013	7	ND	0.19	-0.89	-3.62	0.0002
FPA	SB23-55	Benzene	ND	0.0013	8	ND	0.22	-0.79	-3.49	0.0003
FPA	SB23-60	Benzene	ND	0.001	9	ND	0.24	-0.69	-3.36	0.0004
FPA	SB23-73	Benzene	ND	0.0013	10	ND	0.27	-0.60	-3.25	0.001
FPA	HWPW-SB03-S19	Benzene	ND	0.0013	11	ND	0.30	-0.52	-3.13	0.001
FPA	HWPW-SB03-S24	Benzene	ND	0.005	12	ND	0.33	-0.44	-3.03	0.001
FPA	HWPW-SB03-S34	Benzene	ND	3.125	13	ND	0.36	-0.36	-2.93	0.001
FPA	HWPW-SB03-S5	Benzene	ND	0.025	14	ND	0.39	-0.29	-2.83	0.001
FPA	HWPW-SB03-S52	Benzene	ND	0.005	15	ND	0.41	-0.22	-2.73	0.002
FPA	HWPW-SB03-S54	Benzene	ND	0.005	16	ND	0.44	-0.14	-2.63	0.002
FPA	HWPW-SB04-S31	Benzene	ND	0.005	17	ND	0.47	-0.07	-2.54	0.003
FPA	HWPW-SB04-S51	Benzene	ND	0.625	18	ND	0.50	0.00	-2.44	0.004
FPA	HWPW-SB04-S59	Benzene	ND	0.005	19	ND	0.53	0.07	-2.35	0.004
FPA	HWPW-SB07-S22	Benzene	ND	0.625	20	ND	0.56	0.14	-2.26	0.01
FPA	HWPW-SB07-S24	Benzene	ND	0.625	21	ND	0.59	0.22	-2.16	0.01
FPA	HWPW-SB08-S21	Benzene	ND	6.25	22	ND	0.61	0.29	-2.06	0.01
FPA	SB24-49	Benzene	ND	0.005	23	ND	0.64	0.36	-1.96	0.01
FPA	HWPW-MW18-S025	Benzene	0.009	0.005	24	-2.05	0.67	0.44	-2.05	0.01
FPA	HWPW-SB04-S27	Benzene	0.013	0.005	25	-1.89	0.70	0.52	-1.89	0.01
FPA	HWPW-SB04-S29	Benzene	0.013	0.005	26	-1.89	0.73	0.60	-1.89	0.01
FPA	HWPW-MW17-S025	Benzene	0.05	0.025	27	-1.30	0.76	0.69	-1.30	0.01
FPA	MW19C-38	Benzene	0.0508	0.0012	28	-1.29	0.78	0.79	-1.29	0.05
FPA	HWPW-SB08-S22	Benzene	0.057	0.005	29	-1.24	0.81	0.89	-1.24	0.06
FPA	HWPW-SB08-S14	Benzene	0.071	0.005	30	-1.15	0.84	1.00	-1.15	0.07
FPA	SB23-31	Benzene	0.142	0.0012	31	-0.85	0.87	1.12	-0.85	0.14
FPA	HWPW-SB07-S19	Benzene	0.23	0.025	32	-0.64	0.90	1.27	-0.64	0.23
FPA	SB24-34	Benzene	0.553	0.006	33	-0.26	0.93	1.45	-0.26	0.55
FPA	HWPW-SB07-S21	Benzene	0.67	0.025	34	-0.17	0.95	1.69	-0.17	0.67
FPA	HWPW-SB08-S18	Benzene	1.1	0.625	35	0.04	0.98	2.12	0.04	1.10

Regression Statistics

n	35
df = n-1	34
R Squared	0.93
Slope	1.32
Intercept	-2.44

95% UCL Calculation per Student's t-Distribution

Average	0.09
Std Dev	0.21
t-stat	1.69
One-Sided Upper 95% Confidence Limit	0.15

TABLE II-3
Exposure Point Concentration Calculations: FPA Subsurface Soil
Houston Wood Preserving Works
Houston, Texas

Exposure Area	Sample ID	Parameter	Result (mg/kg)	Reporting Limit (mg/kg)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/kg)
FPA	HWPW-MW16-S020	Benzo(a)anthracene	ND	0.33	1	ND	0.02	-2.13	-2.88	0.001
FPA	HWPW-MW16-S025	Benzo(a)anthracene	ND	0.33	2	ND	0.04	-1.70	-2.36	0.004
FPA	HWPW-MW17-S025	Benzo(a)anthracene	ND	3.3	3	ND	0.07	-1.46	-2.06	0.01
FPA	HWPW-MW17-S030	Benzo(a)anthracene	ND	9.9	4	ND	0.10	-1.28	-1.85	0.01
FPA	HWPW-MW18-S025	Benzo(a)anthracene	ND	0.33	5	ND	0.13	-1.14	-1.67	0.02
FPA	HWPW-MW18-S030	Benzo(a)anthracene	ND	0.33	6	ND	0.15	-1.02	-1.52	0.03
FPA	MW19C-55	Benzo(a)anthracene	ND	0.42	7	ND	0.18	-0.91	-1.39	0.04
FPA	MW19C-60	Benzo(a)anthracene	ND	0.41	8	ND	0.21	-0.81	-1.26	0.05
FPA	MW19C-73	Benzo(a)anthracene	ND	0.42	9	ND	0.24	-0.71	-1.15	0.07
FPA	SB23-55	Benzo(a)anthracene	ND	0.42	10	ND	0.27	-0.63	-1.04	0.09
FPA	SB23-60	Benzo(a)anthracene	ND	0.42	11	ND	0.29	-0.55	-0.94	0.11
FPA	SB23-73	Benzo(a)anthracene	ND	0.43	12	ND	0.32	-0.47	-0.85	0.14
FPA	HWPW-SB03-S24	Benzo(a)anthracene	ND	0.33	13	ND	0.35	-0.39	-0.76	0.18
FPA	HWPW-SB03-S34	Benzo(a)anthracene	ND	0.33	14	ND	0.38	-0.32	-0.67	0.22
FPA	HWPW-SB04-S39	Benzo(a)anthracene	ND	0.33	15	ND	0.40	-0.24	-0.58	0.26
FPA	HWPW-SB07-S22	Benzo(a)anthracene	ND	330	16	ND	0.43	-0.17	-0.49	0.32
FPA	HWPW-SB07-S24	Benzo(a)anthracene	ND	2475	17	ND	0.46	-0.10	-0.41	0.39
FPA	HWPW-SB08-S22	Benzo(a)anthracene	ND	247.5	18	ND	0.49	-0.03	-0.32	0.48
FPA	SB24-34	Benzo(a)anthracene	ND	4	19	ND	0.51	0.03	-0.24	0.58
FPA	SB24-49	Benzo(a)anthracene	ND	0.39	20	ND	0.54	0.10	-0.15	0.70
FPA	HWPW-SB03-S32	Benzo(a)anthracene	0.56	0.33	21	-0.25	0.57	0.17	-0.25	0.56
FPA	MW19C-38	Benzo(a)anthracene	0.649	0.41	22	-0.19	0.60	0.24	-0.19	0.65
FPA	HWPW-SB03-S19	Benzo(a)anthracene	0.67	1.65	23	-0.17	0.62	0.32	-0.17	0.67
FPA	HWPW-SB04-S31	Benzo(a)anthracene	0.96	8.25	24	-0.02	0.65	0.39	-0.02	0.96
FPA	HWPW-SB04-S29	Benzo(a)anthracene	1.8	1.65	25	0.26	0.68	0.47	0.26	1.80
FPA	HWPW-SB04-S27	Benzo(a)anthracene	2.1	1.65	26	0.32	0.71	0.55	0.32	2.10
FPA	HWPW-SB04-S31	Benzo(a)anthracene	4.4	1.65	27	0.64	0.73	0.63	0.64	4.40
FPA	SB23-31	Benzo(a)anthracene	4.562	0.39	28	0.66	0.76	0.71	0.66	4.56
FPA	HWPW-SB03-S5	Benzo(a)anthracene	7.9	3.3	29	0.90	0.79	0.81	0.90	7.90
FPA	HWPW-SB08-S14	Benzo(a)anthracene	10	330	30	1.00	0.82	0.91	1.00	10.00
FPA	HWPW-SB07-S21	Benzo(a)anthracene	17	3.3	31	1.23	0.85	1.02	1.23	17.00
FPA	HWPW-SB08-S18	Benzo(a)anthracene	37	24.75	32	1.57	0.87	1.14	1.57	37.00
FPA	HWPW-SB04-S39	Benzo(a)anthracene	38	3.3	33	1.58	0.90	1.28	1.58	38.00
FPA	HWPW-SB08-S21	Benzo(a)anthracene	40	165	34	1.60	0.93	1.46	1.60	40.00
FPA	HWPW-SB03-S34	Benzo(a)anthracene	42	24.75	35	1.62	0.96	1.70	1.62	42.00
FPA	HWPW-SB07-S19	Benzo(a)anthracene	59	33	36	1.77	0.98	2.13	1.77	59.00

Regression Statistics

n	36
df = n - 1	35
R Squared	0.873
Slope	1.220
Intercept	-0.280

95% UCL Calculation per Student's t-Distribution

Average	7.51
Std Dev	15.24
t-stat	1.69
One-Sided Upper 95% Confidence Limit	11.80

TABLE H-3

Exposure Point Concentration Calculations: FPA Subsurface Soil
Houston Wood Preserving Works
Houston, Texas

Exposure Area	Sample ID	Parameter	Result (mg/kg)	Reporting Limit (mg/kg)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/kg)
FPA	HWPW-MW16-S020	Benzo(a)pyrene	ND	0.33	1	ND	0.02	-2.13	-3.55	0.0003
FPA	HWPW-MW16-S025	Benzo(a)pyrene	ND	0.33	2	ND	0.04	-1.70	-3.06	0.001
FPA	HWPW-MW17-S025	Benzo(a)pyrene	ND	3.3	3	ND	0.07	-1.46	-2.78	0.002
FPA	HWPW-MW17-S030	Benzo(a)pyrene	ND	9.9	4	ND	0.10	-1.28	-2.58	0.003
FPA	HWPW-MW18-S025	Benzo(a)pyrene	ND	0.33	5	ND	0.13	-1.14	-2.41	0.004
FPA	HWPW-MW18-S030	Benzo(a)pyrene	ND	0.33	6	ND	0.15	-1.02	-2.27	0.005
FPA	MW19C-38	Benzo(a)pyrene	ND	0.41	7	ND	0.18	-0.91	-2.15	0.007
FPA	MW19C-55	Benzo(a)pyrene	ND	0.42	8	ND	0.21	-0.81	-2.03	0.009
FPA	MW19C-60	Benzo(a)pyrene	ND	0.41	9	ND	0.24	-0.71	-1.93	0.01
FPA	MW19C-73	Benzo(a)pyrene	ND	0.42	10	ND	0.27	-0.63	-1.83	0.01
FPA	SB23-31	Benzo(a)pyrene	ND	0.39	11	ND	0.29	-0.55	-1.73	0.02
FPA	SB23-55	Benzo(a)pyrene	ND	0.42	12	ND	0.32	-0.47	-1.64	0.02
FPA	SB23-60	Benzo(a)pyrene	ND	0.42	13	ND	0.35	-0.39	-1.55	0.03
FPA	SB23-73	Benzo(a)pyrene	ND	0.43	14	ND	0.38	-0.32	-1.47	0.03
FPA	HWPW-SB03-S19	Benzo(a)pyrene	ND	1.65	15	ND	0.40	-0.24	-1.39	0.04
FPA	HWPW-SB03-S24	Benzo(a)pyrene	ND	0.33	16	ND	0.43	-0.17	-1.31	0.05
FPA	HWPW-SB03-S34	Benzo(a)pyrene	ND	24.75	17	ND	0.46	-0.10	-1.23	0.06
FPA	HWPW-SB03-S54	Benzo(a)pyrene	ND	0.33	18	ND	0.49	-0.03	-1.15	0.07
FPA	HWPW-SB04-S27	Benzo(a)pyrene	ND	0.33	19	ND	0.51	0.03	-1.07	0.09
FPA	HWPW-SB04-S29	Benzo(a)pyrene	ND	1.65	20	ND	0.54	0.10	-0.99	0.10
FPA	HWPW-SB04-S51	Benzo(a)pyrene	ND	1.65	21	ND	0.57	0.17	-0.91	0.12
FPA	HWPW-SB04-S59	Benzo(a)pyrene	ND	8.25	22	ND	0.62	0.24	-0.83	0.15
FPA	HWPW-SB07-S19	Benzo(a)pyrene	ND	0.33	23	ND	0.62	0.32	-0.74	0.18
FPA	HWPW-SB07-S24	Benzo(a)pyrene	ND	33	24	ND	0.65	0.39	-0.66	0.22
FPA	HWPW-SB07-S22	Benzo(a)pyrene	ND	330	25	ND	0.68	0.47	-0.57	0.27
FPA	HWPW-SB07-S24	Benzo(a)pyrene	ND	2475	26	ND	0.71	0.55	-0.48	0.33
FPA	HWPW-SB08-S14	Benzo(a)pyrene	ND	330	27	ND	0.73	0.63	-0.39	0.41
FPA	SB24-34	Benzo(a)pyrene	ND	4	28	ND	0.76	0.71	-0.29	0.51
FPA	SB24-49	Benzo(a)pyrene	ND	0.39	29	ND	0.79	0.81	-0.18	0.66
FPA	HWPW-SB08-S18	Benzo(a)pyrene	ND	24.75	30	ND	0.82	0.91	-0.07	0.85
FPA	HWPW-SB08-S22	Benzo(a)pyrene	ND	247.5	31	ND	0.85	1.02	0.06	1.14
FPA	HWPW-SB04-S31	Benzo(a)pyrene	1	1.65	32	0	0.87	1.14	0.00	1.00
FPA	HWPW-SB03-S5	Benzo(a)pyrene	2.5	3.3	33	0.40	0.90	1.28	0.40	2.50
FPA	HWPW-SB07-S21	Benzo(a)pyrene	5	3.3	34	0.70	0.93	1.46	0.70	5.00
FPA	HWPW-SB04-S39	Benzo(a)pyrene	11	3.3	35	1.04	0.96	1.70	1.04	11.00
FPA	HWPW-SB08-S21	Benzo(a)pyrene	15	165	36	1.18	0.98	2.13	1.18	15.00

Regression Statistics

n	36
df = n-1	35
R Squared	0.87
Slope	1.15
Intercept	-1.11

95% UCL Calculation per Student's t-Distribution

Average	1.11
Std Dev	3.10
t-stat	1.69
One-Sided Upper 95% Confidence Limit	1.98

TABLE II-3
Exposure Point Concentration Calculations: FPA, Subsurface Soil

Houston Wood Preserving Works
Houston, Texas

Exposure Area	Sample ID	Parameter	Result (mg/kg)	Reporting Limit (mg/kg)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/kg)
FPA	HWPW-MW16-S020	Chrysene	ND	0.33	1	ND	0.02	-2.13	-2.48	0.003
FPA	HWPW-MW16-S025	Chrysene	ND	0.33	2	ND	0.04	-1.70	-2.00	0.01
FPA	HWPW-MW18-S025	Chrysene	ND	0.33	3	ND	0.07	-1.46	-1.73	0.02
FPA	HWPW-MW18-S030	Chrysene	ND	0.33	4	ND	0.10	-1.28	-1.53	0.03
FPA	MW19C-55	Chrysene	ND	0.42	5	ND	0.13	-1.14	-1.36	0.04
FPA	MW19C-60	Chrysene	ND	0.41	6	ND	0.15	-1.02	-1.22	0.06
FPA	MW19C-73	Chrysene	ND	0.42	7	ND	0.18	-0.91	-1.10	0.08
FPA	SB23-55	Chrysene	ND	0.42	8	ND	0.21	-0.81	-0.99	0.10
FPA	SB23-60	Chrysene	ND	0.42	9	ND	0.24	-0.71	-0.88	0.13
FPA	SB23-73	Chrysene	ND	0.43	10	ND	0.27	-0.63	-0.79	0.16
FPA	HWPW-SB03-S24	Chrysene	ND	0.33	11	ND	0.29	-0.55	-0.69	0.20
FPA	HWPW-SB03-S54	Chrysene	ND	0.33	12	ND	0.32	-0.47	-0.60	0.25
FPA	HWPW-SB04-S59	Chrysene	ND	0.33	13	ND	0.35	-0.39	-0.52	0.30
FPA	HWPW-SB07-S22	Chrysene	ND	330	14	ND	0.38	-0.32	-0.44	0.37
FPA	HWPW-SB07-S24	Chrysene	ND	247.5	15	ND	0.40	-0.24	-0.36	0.44
FPA	HWPW-SB08-S22	Chrysene	ND	247.5	16	ND	0.43	-0.17	-0.28	0.53
FPA	SB24-34	Chrysene	ND	4	17	ND	0.46	-0.10	-0.20	0.64
FPA	SB24-49	Chrysene	ND	0.39	18	ND	0.49	-0.03	-0.12	0.76
FPA	HWPW-SB03-S52	Chrysene	0.56	0.33	19	ND	0.51	0.03	-0.25	0.56
FPA	MW19C-38	Chrysene	0.601	0.41	20	-0.25	0.54	0.10	-0.22	0.60
FPA	HWPW-SB03-S19	Chrysene	0.832	1.65	21	-0.08	0.57	0.17	-0.08	0.83
FPA	HWPW-SB04-S51	Chrysene	1.2	8.25	22	0.08	0.60	0.24	0.08	1.20
FPA	HWPW-SB04-S29	Chrysene	1.7	1.65	23	0.32	0.62	0.32	0.23	1.70
FPA	HWPW-SB04-S27	Chrysene	2.1	1.65	24	0.32	0.65	0.39	0.32	2.10
FPA	HWPW-MW17-S025	Chrysene	3.3	3.3	25	0.52	0.68	0.47	0.52	3.30
FPA	HWPW-MW17-S030	Chrysene	4	9.9	26	0.60	0.71	0.55	0.60	4.00
FPA	HWPW-SB04-S31	Chrysene	4.4	1.65	27	0.64	0.73	0.63	0.64	4.40
FPA	SB23-31	Chrysene	4.547	0.39	28	0.66	0.76	0.71	0.66	4.55
FPA	HWPW-SB03-S5	Chrysene	8.6	3.3	29	0.93	0.79	0.81	0.93	8.60
FPA	HWPW-SB07-S21	Chrysene	17	3.3	30	1.23	0.82	0.91	1.23	17.00
FPA	HWPW-SB08-S18	Chrysene	37	24.75	31	1.57	0.85	1.02	1.57	37.00
FPA	HWPW-SB04-S39	Chrysene	38	3.3	32	1.58	0.87	1.14	1.58	38.00
FPA	HWPW-SB08-S21	Chrysene	40	165	33	1.60	0.90	1.28	1.60	40.00
FPA	HWPW-SB03-S34	Chrysene	42	24.75	34	1.62	0.93	1.46	1.62	42.00
FPA	HWPW-SB08-S14	Chrysene	43	330	35	1.63	0.96	1.70	1.63	43.00
FPA	HWPW-SB07-S19	Chrysene	56	33	36	1.75	0.98	2.13	1.75	56.00

Regression Statistics

n	36
df = n-1	35
R Squared	0.86
Slope	1.13
Intercept	-0.08

95% UCL Calculation per Student's t-Distribution

Average	8.58
Std Dev	15.99
t-stat	1.69
One-Sided Upper 95% Confidence Limit	13.09

TABLE H-3
Exposure Point Concentration Calculations: FPA Subsurface Soil
Houston Wood Preserving Works
Houston, Texas

Exposure Area	Sample ID	Parameter	Result (mg/kg)	Reporting Limit (mg/kg)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/kg)
Dibenzofuran	FPA	HWPW-MW16-S020	ND	0.33	1	ND	0.02	-2.13	-2.29	0.01
FPA	HWPW-MW16-S025	Dibenzofuran	ND	0.33	2	ND	0.04	-1.70	-1.68	0.02
FPA	HWPW-MW18-S025	Dibenzofuran	ND	0.33	3	ND	0.07	-1.46	-1.34	0.05
FPA	HWPW-MW18-S030	Dibenzofuran	ND	0.33	4	ND	0.10	-1.28	-1.09	0.08
FPA	MW19C-38	Dibenzofuran	ND	0.41	5	ND	0.13	-1.14	-0.88	0.13
FPA	MW19C-55	Dibenzofuran	ND	0.42	6	ND	0.15	-1.02	-0.70	0.20
FPA	MW19C-60	Dibenzofuran	ND	0.41	7	ND	0.18	-0.91	-0.55	0.28
FPA	MW19C-73	Dibenzofuran	ND	0.42	8	ND	0.21	-0.81	-0.40	0.39
FPA	SB23-31	Dibenzofuran	ND	0.39	9	ND	0.24	-0.71	-0.27	0.53
FPA	SB23-55	Dibenzofuran	ND	0.42	10	ND	0.27	-0.63	-0.15	0.71
FPA	SB23-60	Dibenzofuran	ND	0.42	11	ND	0.29	-0.55	-0.03	0.93
FPA	SB23-73	Dibenzofuran	ND	0.43	12	ND	0.32	-0.47	0.08	1.21
FPA	HWPW-SB03-S54	Dibenzofuran	ND	0.33	13	ND	0.35	-0.39	0.19	1.55
FPA	HWPW-SB04-S59	Dibenzofuran	ND	0.33	14	ND	0.38	-0.32	0.29	1.97
FPA	HWPW-SB08-S14	Dibenzofuran	ND	330	15	ND	0.40	-0.24	0.40	2.50
FPA	SB24-34	Dibenzofuran	ND	4	16	ND	0.43	-0.17	0.50	3.15
FPA	SB24-49	Dibenzofuran	ND	0.39	17	ND	0.46	-0.10	0.60	3.97
FPA	HWPW-SB03-S24	Dibenzofuran	1.2	0.33	18	0.08	0.49	-0.03	0.08	1.20
FPA	HWPW-SB03-S52	Dibenzofuran	2.6	0.33	19	0.41	0.51	0.03	0.41	2.60
FPA	HWPW-SB03-S19	Dibenzofuran	6.4	1.65	20	0.81	0.54	0.10	0.81	6.40
FPA	HWPW-SB04-S29	Dibenzofuran	12	1.65	21	1.08	0.57	0.17	1.08	12.00
FPA	HWPW-SB04-S51	Dibenzofuran	12	8.25	22	1.08	0.60	0.24	1.08	12.00
FPA	HWPW-SB04-S27	Dibenzofuran	14	1.65	23	1.15	0.62	0.32	1.15	14.00
FPA	HWPW-MW17-S025	Dibenzofuran	24	3.3	24	1.38	0.65	0.39	1.38	24.00
FPA	HWPW-SB04-S31	Dibenzofuran	25	3.3	25	1.40	0.68	0.47	1.40	25.00
FPA	HWPW-MW17-S030	Dibenzofuran	39	9.9	26	1.59	0.71	0.55	1.59	39.00
FPA	HWPW-SB03-S5	Dibenzofuran	40	3.3	27	1.60	0.73	0.63	1.60	40.00
FPA	HWPW-SB08-S21	Dibenzofuran	230	165	28	2.36	0.76	0.71	2.36	230.00
FPA	HWPW-SB03-S34	Dibenzofuran	240	24.75	29	2.38	0.79	0.81	2.38	240.00
FPA	HWPW-SB08-S18	Dibenzofuran	270	24.75	30	2.43	0.82	0.91	2.43	270.00
FPA	HWPW-SB07-S21	Dibenzofuran	300	66	31	2.48	0.85	1.02	2.48	300.00
FPA	HWPW-SB08-S22	Dibenzofuran	300	247.5	32	2.48	0.87	1.14	2.48	300.00
FPA	HWPW-SB07-S19	Dibenzofuran	360	33	33	2.56	0.90	1.28	2.56	360.00
FPA	HWPW-SB07-S22	Dibenzofuran	470	330	34	2.67	0.93	1.46	2.67	470.00
FPA	HWPW-SB04-S39	Dibenzofuran	750	660	35	2.88	0.96	1.70	2.88	750.00
FPA	HWPW-SB07-S24	Dibenzofuran	2500	2475	36	3.40	0.98	2.13	3.40	2500.00

Regression Statistics

n	36
df = n-1	35
R Squared	0.89
Slope	1.43
Intercept	0.75

95% UCL Calculation per Student's t-Distribution

Average	155.94
Std Dev	436.08
t-stat	1.69
One-Sided Upper 95% Confidence Limit	278.74

TABLE H-3

Exposure Point Concentration Calculations: FPA Subsurface Soil

Houston Wood Preserving Works
Houston, Texas

Exposure Area	Sample ID	Parameter	Result (mg/kg)	Reporting Limit (mg/kg)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/kg)
FPA	HWPW-MW16-S020	Ethylbenzene	ND	0.005	1	ND	0.02	-2.12	-4.76	0.00002
FPA	HWPW-MW16-S025	Ethylbenzene	ND	0.005	2	ND	0.05	-1.69	-4.03	0.0001
FPA	HWPW-MW18-S030	Ethylbenzene	ND	0.005	3	ND	0.07	-1.45	-3.61	0.0002
FPA	MW19C-55	Ethylbenzene	ND	0.0013	4	ND	0.10	-1.27	-3.30	0.001
FPA	MW19C-60	Ethylbenzene	ND	0.0012	5	ND	0.13	-1.12	-3.05	0.001
FPA	MW19C-73	Ethylbenzene	ND	0.0013	6	ND	0.16	-1.00	-2.83	0.001
FPA	SB23-55	Ethylbenzene	ND	0.0013	7	ND	0.19	-0.89	-2.64	0.002
FPA	SB23-60	Ethylbenzene	ND	0.0013	8	ND	0.22	-0.79	-2.47	0.003
FPA	SB23-73	Ethylbenzene	ND	0.0013	9	ND	0.24	-0.69	-2.30	0.005
FPA	HWPW-SB03-S54	Ethylbenzene	ND	0.005	10	ND	0.27	-0.60	-2.15	0.01
FPA	HWPW-SB04-S59	Ethylbenzene	ND	0.005	11	ND	0.30	-0.52	-2.01	0.01
FPA	SB24-49	Ethylbenzene	ND	0.0012	12	ND	0.33	-0.44	-1.87	0.01
FPA	HWPW-MW18-S025	Ethylbenzene	0.013	0.005	13	-1.89	0.36	-0.36	-1.89	0.01
FPA	HWPW-SB03-S24	Ethylbenzene	0.016	0.005	14	-1.80	0.39	-0.29	-1.80	0.02
FPA	HWPW-SB03-S52	Ethylbenzene	0.025	0.005	15	-1.60	0.41	-0.22	-1.60	0.03
FPA	HWPW-SB03-S5	Ethylbenzene	0.031	0.025	16	-1.51	0.44	-0.14	-1.51	0.03
FPA	HWPW-SB04-S29	Ethylbenzene	0.031	0.005	17	-1.51	0.47	-0.07	-1.51	0.03
FPA	HWPW-SB03-S19	Ethylbenzene	0.038	0.005	18	-1.42	0.50	0.00	-1.42	0.04
FPA	HWPW-SB04-S27	Ethylbenzene	0.064	0.005	19	-1.19	0.53	0.07	-1.19	0.06
FPA	HWPW-SB08-S21	Ethylbenzene	0.074	0.005	20	-1.13	0.56	0.14	-1.13	0.07
FPA	MW19C-38	Ethylbenzene	0.133	0.0012	21	-0.88	0.59	0.22	-0.88	0.13
FPA	SB23-31	Ethylbenzene	0.357	0.0012	22	-0.45	0.61	0.29	-0.45	0.36
FPA	HWPW-SB04-S51	Ethylbenzene	0.62	0.025	23	-0.21	0.64	0.36	-0.21	0.62
FPA	HWPW-MW17-S030	Ethylbenzene	0.7	0.025	24	-0.15	0.67	0.44	-0.15	0.70
FPA	SB24-34	Ethylbenzene	1.128	0.006	25	0.05	0.70	0.52	0.05	1.13
FPA	HWPW-MW17-S025	Ethylbenzene	1.2	0.625	26	0.08	0.73	0.60	0.08	1.20
FPA	HWPW-SB04-S31	Ethylbenzene	1.7	0.625	27	0.23	0.78	0.69	0.23	1.70
FPA	HWPW-SB08-S14	Ethylbenzene	3.4	0.625	28	0.53	0.81	0.79	0.53	3.40
FPA	HWPW-SB07-S22	Ethylbenzene	9.1	0.625	29	0.96	0.84	0.89	0.96	9.10
FPA	HWPW-SB07-S19	Ethylbenzene	12	0.625	30	1.08	0.87	1.00	1.08	12.00
FPA	HWPW-SB07-S21	Ethylbenzene	12	0.625	31	1.08	0.90	1.12	1.08	12.00
FPA	HWPW-SB08-S22	Ethylbenzene	12	0.625	32	1.08	0.93	1.27	1.08	12.00
FPA	HWPW-SB08-S18	Ethylbenzene	19	0.625	33	1.28	0.95	1.45	1.28	19.00
FPA	HWPW-SB07-S24	Ethylbenzene	31	6.25	34	1.49	0.98	1.69	1.49	31.00
FPA	HWPW-SB03-S34	Ethylbenzene	46	3.125	35	1.66	0.98	2.12	1.66	46.00

Regression Statistics	
n	35
df = n-1	34
R Squared	0.93
Slope	1.72
Intercept	-1.11

95% UCL Calculation per Student's t-Distribution

Average	4.30
Std Dev	9.89
t-stat	1.69
One-Sided Upper 95% Confidence Limit	7.13

TABLE H-3

Exposure Point Concentration Calculations: FPA Subsurface Soil

Houston Wood Preserving Works
Houston, Texas

Exposure Area	Sample ID	Parameter	Result (mg/kg)	Reporting Limit (mg/kg)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/kg)
FPA	HWPW-MW16-S020	Fluoranthene	ND	0.33	1	ND	0.02	-2.13	-2.20	0.01
FPA	HWPW-MW16-S025	Fluoranthene	ND	0.33	2	ND	0.04	-1.70	-1.62	0.02
FPA	HWPW-MW18-S025	Fluoranthene	ND	0.33	3	ND	0.07	-1.46	-1.28	0.05
FPA	HWPW-MW18-S030	Fluoranthene	ND	0.33	4	ND	0.10	-1.28	-1.04	0.09
FPA	MW19C-55	Fluoranthene	ND	0.42	5	ND	0.13	-1.14	-0.84	0.15
FPA	MW19C-60	Fluoranthene	ND	0.41	6	ND	0.15	-1.02	-0.67	0.22
FPA	MW19C-73	Fluoranthene	ND	0.42	7	ND	0.18	-0.91	-0.52	0.30
FPA	SB23-55	Fluoranthene	ND	0.42	8	ND	0.21	-0.81	-0.38	0.42
FPA	SB23-60	Fluoranthene	ND	0.42	9	ND	0.24	-0.71	-0.25	0.56
FPA	SB23-73	Fluoranthene	ND	0.43	10	ND	0.27	-0.63	-0.13	0.74
FPA	HWPW-SB03-S54	Fluoranthene	ND	0.33	11	ND	0.29	-0.55	-0.02	0.96
FPA	HWPW-SB04-S51	Fluoranthene	ND	8.25	12	ND	0.32	-0.47	0.09	1.23
FPA	HWPW-SB04-S59	Fluoranthene	ND	0.33	13	ND	0.35	-0.39	0.20	1.57
FPA	HWPW-SB08-S14	Fluoranthene	ND	330	14	ND	0.38	-0.32	0.30	1.98
FPA	HWPW-SB08-S21	Fluoranthene	ND	165	15	ND	0.40	-0.24	0.40	2.49
FPA	SB24-49	Fluoranthene	ND	0.39	16	ND	0.43	-0.17	0.49	3.12
FPA	HWPW-SB03-S24	Fluoranthene	1.8	0.33	17	0.26	0.46	0.26	0.26	1.80
FPA	HWPW-SB03-S52	Fluoranthene	2.9	0.33	18	0.46	0.49	-0.03	0.46	2.90
FPA	MW19C-38	Fluoranthene	4.975	0.41	19	0.70	0.51	0.03	0.70	4.98
FPA	HWPW-SB03-S19	Fluoranthene	7.9	1.65	20	0.90	0.57	0.10	0.90	7.90
FPA	SB24-34	Fluoranthene	8.632	4	21	0.94	0.57	0.17	0.94	8.63
FPA	HWPW-SB04-S29	Fluoranthene	11	1.65	22	1.04	0.60	0.24	1.04	11.00
FPA	HWPW-SB04-S27	Fluoranthene	13	1.65	23	1.11	0.62	0.32	1.11	13.00
FPA	HWPW-SB04-S31	Fluoranthene	20	1.65	24	1.30	0.65	0.39	1.30	20.00
FPA	HWPW-MW17-S025	Fluoranthene	23	3.3	25	1.36	0.68	0.47	1.36	23.00
FPA	HWPW-MW17-S030	Fluoranthene	30	9.9	26	1.48	0.71	0.55	1.48	30.00
FPA	SB23-31	Fluoranthene	37.346	0.39	27	1.57	0.73	0.63	1.57	37.35
FPA	HWPW-SB03-S5	Fluoranthene	84	16.5	28	1.92	0.76	0.71	1.92	84.00
FPA	HWPW-SB03-S34	Fluoranthene	210	24.75	29	2.32	0.79	0.81	2.32	210.00
FPA	HWPW-SB07-S21	Fluoranthene	240	3.3	30	2.38	0.82	0.91	2.38	240.00
FPA	HWPW-SB08-S18	Fluoranthene	250	24.75	31	2.40	0.85	1.02	2.40	250.00
FPA	HWPW-SB08-S22	Fluoranthene	300	247.5	32	2.48	0.87	1.14	2.48	300.00
FPA	HWPW-SB07-S19	Fluoranthene	330	33	33	2.52	0.90	1.28	2.52	330.00
FPA	HWPW-SB07-S22	Fluoranthene	380	330	34	2.58	0.93	1.46	2.58	380.00
FPA	HWPW-SB04-S39	Fluoranthene	590	660	35	2.77	0.96	1.70	2.77	590.00
FPA	HWPW-SB07-S24	Fluoranthene	2500	2475	36	3.40	0.98	2.13	3.40	2500.00

Regression Statistics

n	36
df = n - 1	35
R Squared	0.94
Slope	1.38
Intercept	0.73

95% UCL Calculation per Student's t-Distribution

Average	144.53
Std Dev	433.36
t-stat	1.69
One-Sided Upper 95% Confidence Limit	266.56

TABLE H-3
 Exposure Point Concentration Calculations: FPA Subsurface Soil
 Houston Wood Preserving Works
 Houston, Texas

Exposure Area	Sample ID	Parameter	Result (mg/kg)	Reporting Limit (mg/kg)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/kg)
FPA	HWPW-MW16-S020	Fluorene	ND	0.33	1	ND	0.02	-2.13	-1.96	0.01
FPA	HWPW-MW16-S025	Fluorene	ND	0.33	2	ND	0.04	-1.70	-1.38	0.04
FPA	HWPW-MW18-S025	Fluorene	ND	0.33	3	ND	0.07	-1.46	-1.05	0.09
FPA	HWPW-MW18-S030	Fluorene	ND	0.33	4	ND	0.10	-1.28	-0.81	0.15
FPA	MW19C-55	Fluorene	ND	0.42	5	ND	0.13	-1.14	-0.62	0.24
FPA	MW19C-60	Fluorene	ND	0.41	6	ND	0.15	-1.02	-0.45	0.36
FPA	MW19C-73	Fluorene	ND	0.42	7	ND	0.18	-0.91	-0.30	0.50
FPA	SB23-55	Fluorene	ND	0.42	8	ND	0.21	-0.81	-0.16	0.69
FPA	SB23-60	Fluorene	ND	0.42	9	ND	0.24	-0.71	-0.04	0.92
FPA	SB23-73	Fluorene	ND	0.43	10	ND	0.27	-0.63	0.08	1.20
FPA	HWPW-SB03-S54	Fluorene	ND	0.33	11	ND	0.29	-0.55	0.19	1.56
FPA	HWPW-SB04-S59	Fluorene	ND	0.33	12	ND	0.32	-0.47	0.30	1.99
FPA	SB24-49	Fluorene	ND	0.39	13	ND	0.35	-0.39	0.40	2.53
FPA	HWPW-SB03-S24	Fluorene	1.3	0.33	14	0.11	0.38	-0.32	0.11	1.30
FPA	MW19C-38	Fluorene	1.397	0.41	15	0.15	0.40	-0.24	0.15	1.40
FPA	HWPW-SB03-S52	Fluorene	3.1	0.33	16	0.49	0.43	-0.17	0.49	3.10
FPA	HWPW-SB03-S19	Fluorene	5.6	1.65	17	0.75	0.46	-0.10	0.75	5.60
FPA	SB24-34	Fluorene	7.493	4	18	0.87	0.49	-0.03	0.87	7.49
FPA	HWPW-SB04-S51	Fluorene	9	8.25	19	0.95	0.51	0.03	0.95	9.00
FPA	HWPW-SB04-S29	Fluorene	14	1.65	20	1.15	0.54	0.10	1.15	14.00
FPA	HWPW-SB04-S27	Fluorene	16	1.65	21	1.20	0.57	0.17	1.20	16.00
FPA	HWPW-SB04-S31	Fluorene	20	3.3	22	1.30	0.60	0.24	1.30	20.00
FPA	HWPW-MW17-S030	Fluorene	24	9.9	23	1.38	0.62	0.32	1.38	24.00
FPA	HWPW-MW17-S025	Fluorene	28	3.3	24	1.45	0.65	0.39	1.45	28.00
FPA	SB23-31	Fluorene	37.587	0.39	25	1.58	0.68	0.47	1.58	37.59
FPA	HWPW-SB03-S5	Fluorene	46	3.3	26	1.66	0.71	0.55	1.66	46.00
FPA	HWPW-SB08-S21	Fluorene	180	165	27	2.26	0.73	0.63	2.26	180.00
FPA	HWPW-SB03-S34	Fluorene	250	24.75	28	2.40	0.76	0.71	2.40	250.00
FPA	HWPW-SB08-S18	Fluorene	300	24.75	29	2.48	0.79	0.81	2.48	300.00
FPA	HWPW-SB08-S14	Fluorene	330	330	30	2.52	0.82	0.91	2.52	330.00
FPA	HWPW-SB08-S22	Fluorene	350	247.5	31	2.54	0.85	1.02	2.54	350.00
FPA	HWPW-SB07-S21	Fluorene	360	66	32	2.56	0.87	1.14	2.56	360.00
FPA	HWPW-SB07-S19	Fluorene	430	33	33	2.63	0.90	1.28	2.63	430.00
FPA	HWPW-SB07-S22	Fluorene	560	330	34	2.75	0.93	1.46	2.75	560.00
FPA	HWPW-SB04-S39	Fluorene	620	33	35	2.79	0.96	1.70	2.79	620.00
FPA	HWPW-SB07-S24	Fluorene	2700	2475	36	3.43	0.98	2.13	3.43	2700.00

Regression Statistics

n	36
df = n - 1	35
R Squared	0.91
Slope	1.36
Intercept	0.93

95% UCL Calculation per Student's t-Distribution

Average	175.10
Std Dev	466.63
t-stat	1.69
One-Sided Upper 95% Confidence Limit	306.50

TABLE II-3

Exposure Point Concentration Calculations: FPA Subsurface Soil

Houston Wood Preserving Works
Houston, Texas

Exposure Area	Sample ID	Parameter	Result (mg/kg)	Reporting Limit (mg/kg)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/kg)
Naphthalene										
FPA	HWPW-MW16-S025	Naphthalene	ND	0.33	1	ND	0.02	-2.12	-2.24	0.01
FPA	HWPW-MW18-S025	Naphthalene	ND	0.33	2	ND	0.05	-1.69	-1.45	0.04
FPA	HWPW-MW18-S030	Naphthalene	ND	0.33	3	ND	0.07	-1.45	-1.00	0.10
FPA	MW19C-38	Naphthalene	ND	0.41	4	ND	0.10	-1.27	-0.67	0.21
FPA	MW19C-55	Naphthalene	ND	0.42	5	ND	0.13	-1.12	-0.41	0.39
FPA	MW19C-60	Naphthalene	ND	0.41	6	ND	0.16	-1.00	-0.18	0.66
FPA	MW19C-73	Naphthalene	ND	0.42	7	ND	0.19	-0.89	0.03	1.06
FPA	SB23-55	Naphthalene	ND	0.42	8	ND	0.22	-0.79	0.21	1.63
FPA	SB23-60	Naphthalene	ND	0.42	9	ND	0.24	-0.69	0.38	2.42
FPA	SB23-73	Naphthalene	ND	0.43	10	ND	0.27	-0.60	0.53	3.51
FPA	HWPW-SB04-S59	Naphthalene	ND	0.33	11	ND	0.30	-0.52	0.70	5.00
FPA	SB24-49	Naphthalene	ND	0.39	12	ND	0.33	-0.44	0.85	7.01
FPA	HWPW-SB03-S54	Naphthalene	0.82	0.33	13	-0.09	0.36	-0.36	-0.09	0.82
FPA	HWPW-SB03-S24	Naphthalene	4.6	0.33	14	0.66	0.39	-0.29	0.66	4.60
FPA	HWPW-SB03-S52	Naphthalene	13	1.32	15	1.11	0.41	-0.22	1.11	13.00
FPA	HWPW-SB03-S19	Naphthalene	30	1.65	16	1.48	0.44	-0.14	1.48	30.00
FPA	HWPW-SB04-S27	Naphthalene	56	8.25	17	1.75	0.47	-0.07	1.75	56.00
FPA	HWPW-SB04-S29	Naphthalene	59	8.25	18	1.77	0.50	0.00	1.77	59.00
FPA	SB24-34	Naphthalene	68.809	4	19	1.84	0.53	0.07	1.84	68.81
FPA	HWPW-SB04-S51	Naphthalene	73	8.25	20	1.86	0.56	0.14	1.86	73.00
FPA	HWPW-MW17-S025	Naphthalene	120	8.25	21	2.08	0.59	0.22	2.08	120.00
FPA	HWPW-SB03-S5	Naphthalene	180	16.5	22	2.26	0.61	0.29	2.26	180.00
FPA	HWPW-SB04-S31	Naphthalene	200	16.5	23	2.30	0.64	0.36	2.30	200.00
FPA	HWPW-MW17-S030	Naphthalene	260	16.5	24	2.41	0.67	0.44	2.41	260.00
FPA	SB23-31	Naphthalene	534.989	0.39	25	2.73	0.70	0.52	2.73	534.99
FPA	HWPW-SB07-S21	Naphthalene	1000	165	26	3.00	0.73	0.60	3.00	1000.00
FPA	HWPW-SB03-S34	Naphthalene	4000	500	27	3.60	0.76	0.69	3.60	4000.00
FPA	HWPW-SB08-S14	Naphthalene	4600	330	28	3.66	0.78	0.79	3.66	4600.00
FPA	HWPW-SB04-S19	Naphthalene	4900	660	29	3.69	0.81	0.89	3.69	4900.00
FPA	HWPW-SB07-S22	Naphthalene	5300	330	30	3.72	0.84	1.00	3.72	5300.00
FPA	HWPW-SB07-S19	Naphthalene	7600	1650	31	3.88	0.87	1.12	3.88	7600.00
FPA	HWPW-SB08-S18	Naphthalene	17000	990	32	4.23	0.90	1.27	4.23	17000.00
FPA	HWPW-SB08-S21	Naphthalene	20000	1650	33	4.30	0.93	1.45	4.30	20000.00
FPA	HWPW-SB08-S22	Naphthalene	22000	1320	34	4.34	0.95	1.69	4.34	22000.00
FPA	HWPW-SB07-S24	Naphthalene	42000	2475	35	4.62	0.98	2.12	4.62	42000.00

Regression Statistics	
n	35
df = n-1	34
R-Squared	0.90
Slope	1.84
Intercept	1.66

95% UCL Calculation per Student's t-Distribution

Average	3714.92
Std Dev	8748.88
t-stat	1.69
One-Sided Upper 95% Confidence Limit	6215.51

TABLE H-3
 Exposure Point Concentration Calculations: FPA Subsurface Soil
 Houston Wood Preserving Works
 Houston, Texas

Exposure Area	Sample ID	Parameter	Result (mg/kg)	Reporting Limit (mg/kg)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/kg)
FPA	HWPW-MW16-S020	Phenanthrene	ND	0.33	1	ND	0.02	-2.13	-1.42	0.04
FPA	HWPW-MW16-S025	Phenanthrene	ND	0.33	2	ND	0.04	-1.70	-0.85	0.14
FPA	HWPW-MW18-S025	Phenanthrene	ND	0.33	3	ND	0.07	-1.46	-0.52	0.30
FPA	HWPW-MW18-S030	Phenanthrene	ND	0.33	4	ND	0.10	*-1.28	-0.28	0.53
FPA	MW19C-38	Phenanthrene	ND	0.41	5	ND	0.13	-1.14	-0.08	0.82
FPA	MW19C-55	Phenanthrene	ND	0.42	6	ND	0.15	-1.02	0.08	1.21
FPA	MW19C-60	Phenanthrene	ND	0.41	7	ND	0.18	-0.91	0.23	1.71
FPA	MW19C-73	Phenanthrene	ND	0.42	8	ND	0.21	-0.81	0.37	2.33
FPA	SB23-55	Phenanthrene	ND	0.42	9	ND	0.24	-0.71	0.49	3.10
FPA	SB23-60	Phenanthrene	ND	0.42	10	ND	0.27	-0.63	0.61	4.06
FPA	SB23-73	Phenanthrene	ND	0.43	11	ND	0.29	-0.55	0.72	5.25
FPA	HWPW-SB03-S54	Phenanthrene	ND	0.33	12	ND	0.32	-0.47	0.83	6.71
FPA	HWPW-SB04-S59	Phenanthrene	ND	0.33	13	ND	0.35	-0.39	0.93	8.49
FPA	SB24-49	Phenanthrene	ND	0.39	14	ND	0.38	-0.32	1.03	10.68
FPA	HWPW-SB03-S24	Phenanthrene	3.6	0.33	15	0.56	0.40	-0.24	0.56	3.60
FPA	HWPW-SB03-S52	Phenanthrene	10	1.32	16	1.00	0.43	-0.17	1.00	10.00
FPA	HWPW-SB03-S19	Phenanthrene	16	1.65	17	1.20	0.46	-0.10	1.20	16.00
FPA	HWPW-SB04-S51	Phenanthrene	27	8.25	18	1.43	0.49	-0.03	1.43	27.00
FPA	SB24-34	Phenanthrene	29,489	4	19	1.47	0.51	0.03	1.47	29.49
FPA	HWPW-SB04-S29	Phenanthrene	46	8.25	20	1.66	0.54	0.10	1.66	46.00
FPA	HWPW-SB04-S27	Phenanthrene	47	8.25	21	1.67	0.57	0.17	1.67	47.00
FPA	HWPW-SB04-S31	Phenanthrene	56	3.3	22	1.75	0.60	0.24	1.75	56.00
FPA	HWPW-MW17-S025	Phenanthrene	69	8.25	23	1.84	0.62	0.32	1.84	69.00
FPA	HWPW-MW17-S030	Phenanthrene	92	9.9	24	1.96	0.65	0.39	1.96	92.00
FPA	SB23-31	Phenanthrene	117,949	0.39	25	2.07	0.68	0.47	2.07	117.95
FPA	HWPW-SB03-S5	Phenanthrene	160	16.5	26	2.20	0.71	0.55	2.20	160.00
FPA	HWPW-SB08-S14	Phenanthrene	590	330	27	2.77	0.73	0.63	2.77	590.00
FPA	HWPW-SB08-S21	Phenanthrene	610	165	28	2.79	0.76	0.71	2.79	610.00
FPA	HWPW-SB07-S21	Phenanthrene	730	66	29	2.86	0.79	0.81	2.86	730.00
FPA	HWPW-SB08-S22	Phenanthrene	840	247.5	30	2.92	0.82	0.91	2.92	840.00
FPA	HWPW-SB08-S18	Phenanthrene	1200	330	31	3.08	0.85	1.02	3.08	1200.00
FPA	HWPW-SB04-S39	Phenanthrene	1400	99	32	3.15	0.87	1.14	3.15	1400.00
FPA	HWPW-SB03-S34	Phenanthrene	1800	3.3	33	3.26	0.90	1.28	3.26	1800.00
FPA	HWPW-SB07-S19	Phenanthrene	2500	500	34	3.40	0.93	1.46	3.40	2500.00
FPA	HWPW-SB07-S19	Phenanthrene	2600	330	35	3.41	0.96	1.70	3.41	2600.00
FPA	HWPW-SB07-S24	Phenanthrene	6900	2475	36	3.84	0.98	2.13	3.84	6900.00

Regression Statistics

n	36
df = n - 1	35
R Squared	0.92
Slope	1.35
Intercept	1.46

95% UCL Calculation per Student's t-Distribution.

Average	552.48
Std Dev	1290.54
t-stat	1.69
One-Sided Upper 95% Confidence Limit	915.89

TABLE H-3

Exposure Point Concentration Calculations: FPA Subsurface Soil

Houston Wood Preserving Works
Houston, Texas

Exposure Area	Sample ID	Parameter	Result (mg/kg)	Reporting Limit (mg/kg)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/kg)
FPA	HWPW-MW16-S020	Toluene	ND	0.005	1	ND	0.02	-2.12	-5.12	0.00001
FPA	HWPW-MW16-S025	Toluene	ND	0.005	2	ND	0.05	-1.69	-4.35	0.00004
FPA	HWPW-MW18-S030	Toluene	ND	0.005	3	ND	0.07	-1.45	-3.91	0.0001
FPA	MW19C-55	Toluene	ND	0.0013	4	ND	0.10	-1.27	-3.59	0.0003
FPA	MW19C-60	Toluene	ND	0.0012	5	ND	0.13	-1.12	-3.33	0.0005
FPA	MW19C-73	Toluene	ND	0.0013	6	ND	0.16	-1.00	-3.10	0.001
FPA	SB23-55	Toluene	ND	0.0013	7	ND	0.19	-0.89	-2.90	0.001
FPA	SB23-60	Toluene	ND	0.001	8	ND	0.22	-0.79	-2.72	0.002
FPA	SB23-73	Toluene	ND	0.0013	9	ND	0.24	-0.69	-2.55	0.003
FPA	HWPW-SB03-S19	Toluene	ND	0.005	10	ND	0.27	-0.60	-2.39	0.004
FPA	HWPW-SB03-S5	Toluene	ND	0.025	11	ND	0.30	-0.52	-2.24	0.01
FPA	HWPW-SB03-S54	Toluene	ND	0.005	12	ND	0.33	-0.44	-2.09	0.01
FPA	HWPW-SB04-S59	Toluene	ND	0.005	13	ND	0.36	-0.36	-1.95	0.01
FPA	SB24-49	Toluene	ND	0.0012	14	ND	0.39	-0.29	-1.82	0.01
FPA	HWPW-MW18-S025	Toluene	0.006	0.005	15	-2.22	0.41	-0.22	-1.82	0.01
FPA	HWPW-SB03-S52	Toluene	0.02	0.005	16	-1.70	0.44	-0.14	-1.70	0.02
FPA	HWPW-SB04-S29	Toluene	0.021	0.005	17	-1.68	0.47	-0.07	-1.68	0.02
FPA	HWPW-SB03-S24	Toluene	0.028	0.005	18	-1.54	0.50	0.00	-1.55	0.03
FPA	HWPW-SB08-S21	Toluene	0.029	0.005	19	-1.54	0.53	0.07	-1.54	0.03
FPA	MW19C-38	Toluene	0.036	0.005	20	-1.44	0.56	0.14	-1.44	0.04
FPA	HWPW-SB04-S51	Toluene	0.175	0.0012	21	-0.76	0.59	0.22	-0.76	0.18
FPA	HWPW-MW17-S030	Toluene	0.2	0.025	22	-0.70	0.61	0.29	-0.70	0.20
FPA	SB23-31	Toluene	0.46	0.025	23	-0.34	0.64	0.36	-0.34	0.46
FPA	HWPW-MW17-S025	Toluene	0.472	0.0012	24	-0.33	0.67	0.44	-0.33	0.47
FPA	HWPW-SB04-S31	Toluene	1	0.625	25	0.00	0.70	0.52	0.00	1.00
FPA	SB24-34	Toluene	1.4	0.625	26	0.15	0.73	0.60	0.15	1.40
FPA	HWPW-SB08-S14	Toluene	1.488	0.006	27	0.17	0.76	0.69	0.17	1.49
FPA	HWPW-SB08-S22	Toluene	2.6	0.625	28	0.41	0.78	0.79	0.41	2.60
FPA	HWPW-SB07-S22	Toluene	7.5	0.625	29	0.88	0.81	0.89	0.88	7.50
FPA	HWPW-SB07-S19	Toluene	9.8	0.625	30	0.99	0.84	1.00	0.99	9.80
FPA	HWPW-SB07-S21	Toluene	12	0.625	31	1.08	0.87	1.12	1.08	12.00
FPA	HWPW-SB08-S18	Toluene	13	0.625	32	1.11	0.90	1.27	1.11	13.00
FPA	HWPW-SB07-S24	Toluene	31	6.25	33	1.11	0.93	1.45	1.11	13.00
FPA	HWPW-SB03-S34	Toluene	32	3.125	34	1.49	0.95	1.69	1.49	31.00
FPA					35	1.51	0.98	2.12	1.51	32.00

Regression Statistics	
n	35
df = n-1	34
R Squared	0.89
Slope	1.81
Intercept	-1.30

95% UCL Calculation per Student's t-Distribution

Average	3.61
Std Dev	8.00
t-stat	1.69
One-Sided Upper 95% Confidence Limit	5.89

TABLE H-3

Exposure Point Concentration Calculations: FTPA Subsurface Soil

Houston Wood Preserving Works
Houston, Texas

Pyrene

Exposure Area	Sample ID	Parameter	Result (mg/kg)	Reporting Limit (mg/kg)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/kg)
FPA	HWPW-MW16-S020	Pyrene	ND	0.33	1	ND	0.02	-2.13	-2.33	0.005
FPA	HWPW-MW16-S025	Pyrene	ND	0.33	2	ND	0.04	-1.70	-1.80	0.02
FPA	HWPW-MW18-S025	Pyrene	ND	0.33	3	ND	0.07	-1.46	-1.49	0.03
FPA	HWPW-MW18-S030	Pyrene	ND	0.33	4	ND	0.10	-1.28	-1.27	0.05
FPA	MW19C-55	Pyrene	ND	0.42	5	ND	0.13	-1.14	-1.09	0.08
FPA	MW19C-60	Pyrene	ND	0.41	6	ND	0.15	-1.02	-0.93	0.12
FPA	MW19C-73	Pyrene	ND	0.42	7	ND	0.18	-0.91	-0.79	0.16
FPA	SB23-55	Pyrene	ND	0.42	8	ND	0.21	-0.81	-0.67	0.22
FPA	SB23-60	Pyrene	ND	0.42	9	ND	0.24	-0.71	-0.55	0.28
FPA	SB23-73	Pyrene	ND	0.43	10	ND	0.27	-0.63	-0.44	0.36
FPA	HWPW-SB03-S54	Pyrene	ND	0.33	11	ND	0.29	-0.55	-0.34	0.46
FPA	HWPW-SB04-S59	Pyrene	ND	0.33	12	ND	0.32	-0.47	-0.24	0.58
FPA	HWPW-SB07-S22	Pyrene	ND	330	13	ND	0.35	-0.39	-0.14	0.72
FPA	HWPW-SB07-S24	Pyrene	ND	330	14	ND	0.38	-0.32	-0.05	0.89
FPA	HWPW-SB08-S14	Pyrene	ND	2475	15	ND	0.40	-0.24	0.04	1.10
FPA	HWPW-SB08-S21	Pyrene	ND	330	16	ND	0.43	-0.17	0.13	1.35
FPA	HWPW-SB08-S22	Pyrene	ND	165	17	ND	0.46	-0.10	0.22	1.66
FPA	SB24-49	Pyrene	ND	247.5	18	ND	0.49	-0.03	0.31	2.03
FPA	HWPW-SB03-S24	Pyrene	ND	0.39	19	0.08	0.51	0.03	0.08	1.20
FPA	HWPW-SB03-S52	Pyrene	1.2	0.33	20	0.43	0.54	0.10	0.43	2.70
FPA	MW19C-38	Pyrene	2.7	0.33	21	0.57	0.57	0.17	0.57	3.68
FPA	HWPW-SB03-S19	Pyrene	3.682	0.41	22	0.63	0.60	0.24	0.63	4.30
FPA	SB24-34	Pyrene	4.3	1.65	23	0.80	0.62	0.32	0.80	6.35
FPA	HWPW-SB04-S51	Pyrene	6.346	4	24	0.91	0.65	0.39	0.91	8.20
FPA	HWPW-SB04-S29	Pyrene	8.2	8.25	25	0.99	0.68	0.47	0.99	9.80
FPA	HWPW-SB04-S27	Pyrene	9.8	1.65	26	1.00	0.71	0.55	1.00	10.00
FPA	HWPW-MW17-S025	Pyrene	14	3.3	27	1.15	0.73	0.63	1.15	14.00
FPA	HWPW-MW17-S030	Pyrene	17	9.9	28	1.23	0.76	0.71	1.23	17.00
FPA	HWPW-SB04-S31	Pyrene	23	1.65	29	1.36	0.79	0.81	1.36	23.00
FPA	SB23-31	Pyrene	26.778	0.39	30	1.43	0.82	0.91	1.43	26.78
FPA	HWPW-SB03-S5	Pyrene	40	3.3	31	1.60	0.85	1.02	1.60	40.00
FPA	HWPW-SB08-S18	Pyrene	160	24.75	32	2.20	0.87	1.14	2.20	160.00
FPA	HWPW-SB03-S34	Pyrene	190	24.75	33	2.28	0.90	1.28	2.28	190.00
FPA	HWPW-SB07-S21	Pyrene	200	3.3	34	2.30	0.93	1.46	2.30	200.00
FPA	HWPW-SB07-S19	Pyrene	280	33	35	2.45	0.96	1.70	2.45	280.00
FPA	HWPW-SB04-S39	Pyrene	430	33	36	2.63	0.98	2.13	2.63	430.00

Regression Statistics

n	36
df=n-1	35
R Squared	0.94
Slope	1.26
Intercept	0.35

95% UCL Calculation per Student's t-Distribution

Average	40
Std Dev	94.31
t-stat	1.69
One-Sided Upper 95% Confidence Limit	66.48

TABLE H-3
 Exposure Point Concentration Calculations: FPA Subsurface Soils
 Houston Wood Preserving Works
 Houston, Texas

Exposure Area	Sample ID	Parameter	Result (mg/kg)	Reporting Limit (mg/kg)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/kg)
FPA	HWPW-MW16-S020	Xylenes	ND	0.005	1	ND	0.02	-2.10	-4.83	0.00001
FPA	HWPW-MW18-S030	Xylenes	ND	0.005	2	ND	0.05	-1.66	-4.01	0.0001
FPA	MW19C-55	Xylenes	ND	0.0013	3	ND	0.08	-1.42	-3.54	0.0003
FPA	MW19C-60	Xylenes	ND	0.0012	4	ND	0.11	-1.23	-3.20	0.001
FPA	MW19C-73	Xylenes	ND	0.0013	5	ND	0.14	-1.09	-2.92	0.001
FPA	SB23-55	Xylenes	ND	0.0013	6	ND	0.17	-0.96	-2.67	0.002
FPA	SB23-60	Xylenes	ND	0.001	7	ND	0.20	-0.85	-2.46	0.003
FPA	SB23-73	Xylenes	ND	0.0013	8	ND	0.23	-0.74	-2.26	0.01
FPA	HWPW-SB03-S54	Xylenes	ND	0.005	9	ND	0.26	-0.65	-2.08	0.01
FPA	HWPW-SB04-S59	Xylenes	ND	0.005	10	ND	0.29	-0.56	-1.91	0.01
FPA	SB24-49	Xylenes	ND	0.0012	11	ND	0.32	-0.47	-1.74	0.02
FPA	HWPW-MW16-S025	Xylenes	0.006	0.005	12	-2.22	0.35	-0.39	-2.22	0.01
FPA	HWPW-MW18-S025	Xylenes	0.039	0.005	13	-1.41	0.38	-0.31	-1.41	0.04
FPA	HWPW-SB03-S24	Xylenes	0.051	0.005	14	-1.29	0.41	-0.23	-1.29	0.05
FPA	HWPW-SB03-S52	Xylenes	0.075	0.005	15	-1.12	0.44	-0.15	-1.12	0.08
FPA	HWPW-SB04-S29	Xylenes	0.088	0.005	16	-1.06	0.47	-0.08	-1.06	0.09
FPA	HWPW-SB03-S5	Xylenes	0.089	0.025	17	-1.05	0.50	0.00	-1.05	0.09
FPA	HWPW-SB03-S19	Xylenes	0.18	0.005	18	-1.00	0.53	0.08	-1.00	0.10
FPA	HWPW-SB04-S27	Xylenes	0.23	0.005	19	-0.74	0.56	0.15	-0.74	0.18
FPA	HWPW-SB08-S21	Xylenes	0.448	0.005	20	-0.64	0.59	0.23	-0.64	0.23
FPA	MW19C-38	Xylenes	0.942	0.0012	21	-0.35	0.62	0.31	-0.35	0.45
FPA	SB23-31	Xylenes	1.9	0.0012	22	-0.03	0.65	0.39	-0.03	0.94
FPA	HWPW-SB04-S51	Xylenes	2.4	0.025	23	0.28	0.68	0.47	0.28	1.90
FPA	HWPW-MW17-S030	Xylenes	3.158	0.025	24	0.38	0.71	0.56	0.38	2.40
FPA	SB24-34	Xylenes	3.5	0.006	25	0.50	0.74	0.65	0.50	3.16
FPA	HWPW-MW17-S025	Xylenes	6.1	0.625	26	0.54	0.77	0.74	0.54	3.50
FPA	HWPW-SB04-S31	Xylenes	11	0.625	27	0.79	0.80	0.85	0.79	6.10
FPA	HWPW-SB08-S14	Xylenes	28	0.625	28	1.04	0.77	0.74	1.04	11.00
FPA	HWPW-SB07-S22	Xylenes	38	0.625	29	1.45	0.80	0.85	1.45	28.00
FPA	HWPW-SB07-S21	Xylenes	40	0.625	30	1.58	0.83	0.96	1.58	38.00
FPA	HWPW-SB07-S19	Xylenes	43	0.625	31	1.60	0.86	1.09	1.60	40.00
FPA	HWPW-SB08-S22	Xylenes	55	0.625	32	1.63	0.89	1.23	1.63	43.00
FPA	HWPW-SB08-S18	Xylenes	90	0.625	33	1.74	0.92	1.42	1.74	55.00
FPA	HWPW-SB07-S24	Xylenes	170	6.25	34	1.95	0.95	1.66	1.95	90.00
FPA	HWPW-SB03-S34	Xylenes	170	3.125	35	-2.23	0.98	2.10	2.23	170.00

Regression Statistics

n	35
df = n-1	34
R Squared	0.92
Slope	1.90
Intercept	-0.85

95% UCL Calculation per Student's t-Distribution

Average	14.12
Std Dev	33.83
t-stat	1.69
One-Sided Upper 95% Confidence Limit	23.79

Supporting Documentation for TSA Subsurface Soil COPCs
Appendix H-4

July 10, 2000
W.O. #422-009

Environmental Resources Management
16300 Katy Freeway, Suite 300
Houston, Texas 77094-1611
(281) 600-1000

TABLE H-4

Exposure Point Concentration Calculations: TSA Subsurface Soil
Houston Wood Preserving Works
Houston, Texas

Exposure Area	Sample ID	Parameter	Result (mg/kg)	Reporting Limit (mg/kg)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/kg)
TSA	HWPW-MW12A-S020	Dibenzofuran	ND	0.33	1	ND	0.02	-2.04	-3.58	0.0003
TSA	HWPW-MW12A-S025	Dibenzofuran	ND	0.33	2	ND	0.05	-1.60	-3.05	0.001
TSA	HWPW-MW12B-S030	Dibenzofuran	ND	0.33	3	ND	0.09	-1.35	-2.75	0.002
TSA	HWPW-MW12B-S040	Dibenzofuran	ND	0.33	4	ND	0.12	-1.16	-2.52	0.003
TSA	HWPW-MW13-S015	Dibenzofuran	ND	0.33	5	ND	0.16	-1.00	-2.34	0.005
TSA	HWPW-MW13-S021	Dibenzofuran	ND	0.33	6	ND	0.19	-0.87	-2.18	0.01
TSA	HWPW-MW14-S035	Dibenzofuran	ND	0.33	7	ND	0.23	-0.75	-2.04	0.01
TSA	HWPW-MW14-S040	Dibenzofuran	ND	0.33	8	ND	0.26	-0.64	-1.91	0.01
TSA	HWPW-MW15-S020	Dibenzofuran	ND	0.33	9	ND	0.29	-0.54	-1.79	0.02
TSA	HWPW-MW15-S025	Dibenzofuran	ND	0.33	10	ND	0.33	-0.44	-1.67	0.02
TSA	MW21C-08	Dibenzofuran	ND	0.4	11	ND	0.36	-0.35	-1.56	0.03
TSA	MW21C-20	Dibenzofuran	ND	0.38	12	ND	0.40	-0.26	-1.45	0.04
TSA	MW21C-44	Dibenzofuran	ND	0.41	13	ND	0.43	-0.17	-1.35	0.05
TSA	MW21C-72	Dibenzofuran	ND	0.44	14	ND	0.47	-0.09	-1.24	0.06
TSA	HWPW-SB02-S21	Dibenzofuran	ND	0.33	15	ND	0.50	0.00	-1.14	0.07
TSA	HWPW-SB02-S24	Dibenzofuran	ND	0.33	16	ND	0.53	0.09	-1.04	0.09
TSA	HWPW-SB02-S49	Dibenzofuran	ND	0.33	17	ND	0.57	0.17	-0.93	0.12
TSA	HWPW-SB02-S7	Dibenzofuran	ND	0.33	18	ND	0.60	0.26	-0.83	0.15
TSA	HWPW-SB05-S19.5	Dibenzofuran	ND	0.33	19	ND	0.64	0.35	-0.72	0.19
TSA	HWPW-SB05-S24	Dibenzofuran	ND	0.33	20	ND	0.67	0.44	-0.61	0.25
TSA	HWPW-SB05-S34.5	Dibenzofuran	ND	0.33	21	ND	0.71	0.54	-0.49	0.32
TSA	HWPW-SB05-S39	Dibenzofuran	ND	0.33	22	ND	0.74	0.64	-0.37	0.43
TSA	HWPW-SB05-S54	Dibenzofuran	ND	0.33	23	ND	0.77	0.75	-0.24	0.58
TSA	HWPW-SB06-S24	Dibenzofuran	ND	0.33	24	ND	0.81	0.87	-0.10	0.80
TSA	HWPW-SB06-S49	Dibenzofuran	ND	0.33	25	ND	0.84	1.00	0.06	1.15
TSA	HWPW-SB02-S37.5	Dibenzofuran	1.7	0.33	26	0.23	0.88	1.16	0.23	1.70
TSA	HWPW-SB02-S38.5	Dibenzofuran	2.6	0.33	27	0.41	0.91	1.35	0.41	2.60
TSA	HWPW-MW14-S017	Dibenzofuran	7.8	1.65	28	0.89	0.95	1.60	0.89	7.80
TSA	HWPW-SB06-S19	Dibenzofuran	18	6.6	29	1.26	0.98	2.04	1.26	18.00

Regression Statistics

n	29
df = n-1	28
R Squared	0.97
Slope	1.20
Intercept	-1.14

95% UCL Calculation per Student's t-Distribution

Average	1.19
Std Dev	3.57
t-stat	1.70
One-Sided Upper 95% Confidence Limit	2.32

TABLE H-4
 Exposure Point Concentration Calculations: TSA Subsurface Soil
 Houston Wood Preserving Works
 Houston, Texas

Exposure Area	Sample ID	Parameter	Result (mg/kg)	Reporting Limit (mg/kg)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/kg)
TSA	HWPW-MW12A-S020	Naphthalene	ND	0.33	1	ND	0.02	-2.04	-5.75	0.000002
TSA	HWPW-MW12A-S025	Naphthalene	ND	0.33	2	ND	0.05	-1.60	-4.92	0.000001
TSA	HWPW-MW12B-S040	Naphthalene	ND	0.33	3	ND	0.09	-1.35	-4.45	0.000004
TSA	HWPW-MW13-S015	Naphthalene	ND	0.33	4	ND	0.12	-1.16	-4.09	0.00001
TSA	HWPW-MW13-S021	Naphthalene	ND	0.33	5	ND	0.16	-1.00	-3.80	0.00002
TSA	HWPW-MW14-S035	Naphthalene	ND	0.33	6	ND	0.19	-0.87	-3.55	0.00003
TSA	HWPW-MW14-S040	Naphthalene	ND	0.33	7	ND	0.23	-0.75	-3.33	0.00005
TSA	HWPW-MW15-S020	Naphthalene	ND	0.33	8	ND	0.26	-0.64	-3.12	0.0001
TSA	HWPW-MW15-S025	Naphthalene	ND	0.33	9	ND	0.29	-0.54	-2.93	0.001
TSA	MW21C-08	Naphthalene	ND	0.4	10	ND	0.33	-0.44	-2.75	0.002
TSA	MW21C-20	Naphthalene	ND	0.38	11	ND	0.36	-0.35	-2.57	0.003
TSA	MW21C-44	Naphthalene	ND	0.41	12	ND	0.40	-0.26	-2.40	0.004
TSA	MW21C-72	Naphthalene	ND	0.44	13	ND	0.43	-0.17	-2.24	0.01
TSA	HWPW-SB02-S21	Naphthalene	ND	0.33	14	ND	0.47	-0.09	-2.08	0.01
TSA	HWPW-SB02-S24	Naphthalene	ND	0.33	15	ND	0.50	0.00	-1.91	0.01
TSA	HWPW-SB02-S49	Naphthalene	ND	0.33	16	ND	0.53	0.09	-1.75	0.02
TSA	HWPW-SB02-S7	Naphthalene	ND	0.33	17	ND	0.57	0.17	-1.59	0.03
TSA	HWPW-SB05-S19.5	Naphthalene	ND	0.33	18	ND	0.60	0.26	-1.42	0.04
TSA	HWPW-SB05-S24	Naphthalene	ND	0.33	19	ND	0.64	0.35	-1.26	0.06
TSA	HWPW-SB05-S34.5	Naphthalene	ND	0.33	20	ND	0.67	0.44	-1.08	0.08
TSA	HWPW-SB05-S39	Naphthalene	ND	0.33	21	ND	0.71	0.54	-0.90	0.13
TSA	HWPW-SB05-S54	Naphthalene	ND	0.33	22	ND	0.74	0.64	-0.71	0.20
TSA	HWPW-SB06-S24	Naphthalene	ND	0.33	23	ND	0.77	0.75	-0.50	0.32
TSA	HWPW-SB06-S49	Naphthalene	ND	0.33	24	ND	0.81	0.87	-0.28	0.53
TSA	HWPW-MW12B-S030	Naphthalene	ND	0.33	25	-0.48	0.84	1.00	-0.48	0.33
TSA	HWPW-SB02-S37.5	Naphthalene	0.33	0.33	26	0.56	0.88	1.16	0.56	3.60
TSA	HWPW-MW14-S017	Naphthalene	3.6	0.33	27	0.93	0.91	1.35	0.93	8.60
TSA	HWPW-SB02-S38.5	Naphthalene	8.6	1.65	28	1.08	0.95	1.60	1.08	12.00
TSA	HWPW-SB06-S19	Naphthalene	61	6.6	29	1.79	0.98	2.04	1.79	61.00

Regression Statistics

n	29
df = n-1	28
R Squared	0.85
Slope	1.88
Intercept	-1.91

95% UCL Calculation per Student's t-Distribution

Average	3.00
Std Dev	11.48
t-stat	1.70
One-Sided Upper 95% Confidence Limit	6.63

Supporting Documentation for AT-Z Ground Water Zone COPCs
Appendix H-5

July 10, 2000
W.O. #422-009

Environmental Resources Management
16300 Katy Freeway, Suite 300
Houston, Texas 77094-1611
(281) 600-1000

Houston Wood Preserving Works
Houston, Texas

Benzene

Result (mg/L)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/L)
ND	1	ND	0.10	-1.30	-2.48	0.003
0.011	2	-1.96	0.26	-0.65	-1.96	0.01
0.011	3	-1.96	0.42	-0.20	-1.96	0.01
0.015	4	-1.82	0.58	0.20	-1.82	0.02
0.0168	5	-1.77	0.74	0.65	-1.77	0.02
0.124	6	-0.91	0.90	1.30	-0.91	0.12

95% UCL Calculation per Student's t-Distribution

Average	0.03
Std Dev	0.05
t-stat	2.02
One-Sided Upper 95% Confidence Limit	0.07

Dibenzofuran

Result (mg/L)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/L)
ND	1	ND	0.10	-1.30	-1.66	0.02
ND	2	ND	0.26	-0.65	-1.43	0.04
0.0549	3	-1.26	0.42	-0.20	-1.26	0.05
0.059	4	-1.23	0.58	0.20	-1.23	0.06
0.134	5	-0.87	0.74	0.65	-0.87	0.13
0.16	6	-0.80	0.90	1.30	-0.80	0.16

95% UCL Calculation per Student's t-Distribution

Average	0.08
Std Dev	0.06
t-stat	2.02
One-Sided Upper 95% Confidence Limit	0.12

Ethylbenzene

Result (mg/L)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/L)
ND	1	ND	0.10	-1.30	-2.39	0.004
0.0096	2	-2.02	0.26	-0.65	-2.02	0.01
0.028	3	-1.55	0.42	-0.20	-1.55	0.03
0.0325	4	-1.49	0.58	0.20	-1.49	0.03
0.038	5	-1.42	0.74	0.65	-1.42	0.04
0.222	6	-0.65	0.90	1.30	-0.65	0.22

95% UCL Calculation per Student's t-Distribution

Average	0.06
Std Dev	0.08
t-stat	2.02
One-Sided Upper 95% Confidence Limit	0.12

Naphthalene

Result (mg/L)
1.6
1.7
0.32
2.14
0.228
0.256

95% UCL Calculation per Student's t-Distribution

Average	1.041
Std Dev	0.87
t-stat	2.02
One-Sided Upper 95% Confidence Limit	1.75

TABLE H-5
Exposure Point Concentration Calculations: MW-01A
AT-Z

Houston Wood Preserving Works
Houston, Texas

2-Methylnaphthalene

Result (mg/L)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/L)
ND	1	ND	0.10	-1.30	-1.85	0.014
0.0281	2	-1.55	0.26	-0.65	-1.55	0.028
0.041	3	-1.39	0.42	-0.20	-1.39	0.041
0.156	4	-0.81	0.58	0.20	-0.81	0.156
0.212	5	-0.67	0.74	0.65	-0.67	0.212
0.27	6	-0.57	0.90	1.30	-0.57	0.270

Regression Statistics	
n	6
df = n - 1	5
R Squared	0.87
Slope	0.55
Intercept	-1.14

95% UCL Calculation per Student's t-Distribution	
Average	0.12
Std Dev	0.11
t-stat	2.02
One-Sided Upper 95% Confidence Limit	0.21

Fluorene

Result (mg/L)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/L)
ND	1	ND	0.10	-1.30	-1.28	0.053
0.068	2	-1.17	0.26	-0.65	-1.17	0.068
0.0833	3	-1.08	0.42	-0.20	-1.08	0.083
0.133	4	-0.88	0.58	0.20	-0.88	0.133
0.144	5	-0.84	0.74	0.65	-0.84	0.144
0.17	6	-0.77	0.90	1.30	-0.77	0.170

Regression Statistics	
n	6
df = n - 1	5
R Squared	0.90
Slope	0.21
Intercept	-1.00

95% UCL Calculation per Student's t-Distribution	
Average	0.11
Std Dev	0.05
t-stat	2.02
One-Sided Upper 95% Confidence Limit	0.15

Phenanthrene

Result (mg/L)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/L)
ND	1	ND	0.10	-1.30	-1.77	0.017
0.028	2	-1.55	0.26	-0.65	-1.55	0.028
0.0358	3	-1.47	0.42	-0.20	-1.47	0.034
0.103	4	-0.99	0.58	0.20	-0.99	0.103
0.13	5	-0.89	0.74	0.65	-0.89	0.130
0.134	6	-0.87	0.90	1.30	-0.87	0.134

Regression Statistics	
n	6
df = n - 1	5
R Squared	0.81
Slope	0.39
Intercept	-1.26

95% UCL Calculation per Student's t-Distribution	
Average	0.074
Std Dev	0.05
t-stat	2.02
One-Sided Upper 95% Confidence Limit	0.12

TABLE H-5
Exposure Point Concentration Calculations: MW-02
AT-Z

Houston Wood Preserving Works
Houston, Texas

95% UCL Calculation per Student's t-Distribution

Average	0.02
Std Dev	0.02
t-stat	2.02
One-Sided Upper 95% Confidence Limit	0.03

Regression Statistics

n	6
df=n-1	5
R Squared	0.87
Slope	0.38
Intercept	-1.83

Result (mg/L)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/L)
ND	1	ND	0.10	-1.30	-2.32	0.005
ND	2	ND	0.26	-0.65	-2.08	0.01
ND	3	ND	0.42	-0.20	-1.91	0.01
0.02	4	-1.70	0.58	0.20	-1.70	0.02
0.021	5	-1.68	0.74	0.65	-1.68	0.02
0.05	6	-1.30	0.90	1.30	-1.30	0.05

95% UCL Calculation per Student's t-Distribution

Average	0.10
Std Dev	0.21
t-stat	2.02
One-Sided Upper 95% Confidence Limit	0.28

Regression Statistics

n	6
df=n-1	5
R Squared	0.85
Slope	1.18
Intercept	-1.93

Naphthalene

Result (mg/L)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/L)
ND	1	ND	0.10	-1.30	-2.32	0.005
ND	2	ND	0.26	-0.65	-2.08	0.01
ND	3	ND	0.42	-0.20	-1.91	0.01
0.031	4	-1.51	0.58	0.20	-1.51	0.03
0.033	5	-1.48	0.74	0.65	-1.48	0.03
0.53	6	-0.28	0.90	1.30	-0.28	0.53

95% UCL Calculation per Student's t-Distribution

Average	0.020
Std Dev	0.014
t-stat	2.015
One-Sided Upper 95% Confidence Limit	0.031

Regression Statistics

n	6
df=n-1	5
R Squared	0.96
Slope	0.32
Intercept	-1.79

Fluorene

Result (mg/L)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/L)
ND	1	ND	0.10	-1.30	-2.20	0.006
ND	2	ND	0.26	-0.65	-2.00	0.010
ND	3	ND	0.42	-0.20	-1.85	0.014
0.02	4	-1.70	0.58	0.20	-1.70	0.020
0.0238	5	-1.62	0.74	0.65	-1.62	0.024
0.044	6	-1.36	0.90	1.30	-1.36	0.044

TABLE H-5
Exposure Point Concentration Calculations: MW-03
AT-Z

Houston Wood Preserving Works
Houston, Texas

Dibenzofuran

Result (mg/L)	Rank	Ranked Log Data	Percentile	Z-Score	Impured or Detected (Log space)	Impured or Detected (Regular space) (mg/L)
ND	1	ND	0.10	-1.30	-2.58	0.003
0.015	2	-1.82	0.26	-0.65	-1.82	0.02
0.044	3	-1.36	0.42	-0.20	-1.36	0.04
0.0494	4	-1.31	0.58	0.20	-1.31	0.05
0.0544	5	-1.26	0.74	0.65	-1.26	0.05
0.12	6	-0.92	0.90	1.30	-0.92	0.12

Regression Statistics

n	6
df = n-1	5
R Squared	0.87
Slope	0.40
Intercept	-1.44

95% UCL Calculation per Student's t-Distribution

Average	0.05
Std Dev	0.04
t-stat	2.02
One-Sided Upper 95% Confidence Limit	0.08

Fluorene

Result (mg/L)
0.015
0.0304
0.0494
0.052
0.0631
0.12

95% UCL Calculation per Student's t-Distribution

Average	0.055
Std Dev	0.036
t-stat	2.015
One-Sided Upper 95% Confidence Limit	0.085

TABLE H-5
Exposure Point Concentration Calculations: MW-08
AT-Z

Houston Wood Preserving Works
Houston, Texas

Dibenzofuran

Result (mg/L)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/L)
ND	1	ND	0.10	-1.30	-2.76	0.002
ND	2	ND	0.26	-0.65	-2.28	0.01
ND	3	ND	0.42	-0.20	-1.95	0.01
0.022	4	-1.66	0.58	0.20	-1.66	0.02
0.0473	5	-1.33	0.74	0.65	-1.33	0.05
0.14	6	-0.85	0.90	1.30	-0.85	0.14

Regression Statistics

n	6
df = n-1	5
R Squared	1.00
Slope	0.73
Intercept	-1.80

95% UCL Calculation per Student's t-Distribution

Average	0.04
Std Dev	0.05
t-stat	2.02
One-Sided Upper 95% Confidence Limit	0.08

Naphthalene

Result (mg/L)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/L)
ND	1	ND	0.10	-1.30	-1.20	0.06
ND	2	ND	0.26	-0.65	-0.90	0.13
ND	3	ND	0.42	-0.20	-0.69	0.20
0.3	4	-0.52	0.58	0.20	-0.52	0.30
0.534	5	-0.27	0.74	0.65	-0.27	0.53
0.97	6	-0.01	0.90	1.30	-0.01	0.97

Regression Statistics

n	6
df = n-1	5
R Squared	0.99
Slope	0.46
Intercept	-0.60

95% UCL Calculation per Student's t-Distribution

Average	0.37
Std Dev	0.34
t-stat	2.02
One-Sided Upper 95% Confidence Limit	0.64

2-Methylnaphthalene

Result (mg/L)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/L)
ND	1	ND	0.10	-1.30	-2.90	0.001
ND	2	ND	0.26	-0.65	-2.41	0.004
ND	3	ND	0.42	-0.20	-2.07	0.008
0.016	4	-1.80	0.58	0.20	-1.80	0.016
0.0418	5	-1.38	0.74	0.65	-1.38	0.042
0.11	6	-0.96	0.90	1.30	-0.96	0.110

Regression Statistics

n	6
df = n-1	5
R Squared	0.99
Slope	0.75
Intercept	-1.92

95% UCL Calculation per Student's t-Distribution

Average	0.03
Std Dev	0.042
t-stat	2.02
One-Sided Upper 95% Confidence Limit	0.065

Fluorene

Result (mg/L)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/L)
ND	1	ND	0.10	-1.30	-2.89	0.0013
ND	2	ND	0.26	-0.65	-2.34	0.0045
ND	3	ND	0.42	-0.20	-1.97	0.0107
0.023	4	-1.64	0.58	0.20	-1.64	0.0230
0.0563	5	-1.25	0.74	0.65	-1.25	0.0563
0.19	6	-0.72	0.90	1.30	-0.72	0.19

Regression Statistics

n	6
df = n-1	5
R Squared	1.00
Slope	0.83
Intercept	-1.80

95% UCL Calculation per Student's t-Distribution

Average	0.048
Std Dev	0.073
t-stat	2.02
One-Sided Upper 95% Confidence Limit	0.11

TABLE II-5
Exposure Point Concentration Calculations: MW-11A
AT-Z

Houston Wood Preserving Works
Houston, Texas

Dibenzofuran

Result (mg/L)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/L)
ND	1	ND	0.10	-1.30	-2.29	0.01
ND	2	ND	0.26	-0.65	-1.93	0.01
0.017	3	-1.77	0.42	-0.20	-1.77	0.02
0.037	4	-1.43	0.58	0.20	-1.43	0.04
0.0785	5	-1.11	0.74	0.65	-1.11	0.08
0.112	6	-0.95	0.90	1.30	-0.95	0.11

95% UCL Calculation per Student's t-Distribution

Average	0.04
Std Dev	0.04
t-stat	2.02
One-Sided Upper 95% Confidence Limit	0.08

Regression Statistics

n	6
df=n-1	5
R Squared	0.93
Slope	0.54
Intercept	-1.58

Naphthalene

Result (mg/L)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/L)
ND	1	ND	0.10	-1.30	-2.29	0.01
ND	2	ND	0.26	-0.65	-1.93	0.01
0.34	3	-0.47	0.42	-0.20	-0.47	0.34
0.572	4	-0.24	0.58	0.20	-0.24	0.57
0.75	5	-0.12	0.74	0.65	-0.12	0.75
1.47	6	0.17	0.90	1.30	0.17	1.47

95% UCL Calculation per Student's t-Distribution

Average	0.52
Std Dev	0.55
t-stat	2.02
One-Sided Upper 95% Confidence Limit	0.98

Regression Statistics

n	6
df=n-1	5
R Squared	0.99
Slope	0.41
Intercept	-0.37

2-Methylnaphthalene

Result (mg/L)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/L)
ND	1	ND	0.10	-1.30	-5.24	0.0006
ND	2	ND	0.26	-0.65	-2.71	0.002
ND	3	ND	0.42	-0.20	-2.35	0.004
0.011	4	-1.96	0.58	0.20	-1.96	0.011
0.0173	5	-1.76	0.74	0.65	-1.76	0.017
0.0816	6	-1.09	0.90	1.30	-1.09	0.082

95% UCL Calculation per Student's t-Distribution

Average	0.019
Std Dev	0.031
t-stat	2.02
One-Sided Upper 95% Confidence Limit	0.045

Regression Statistics

n	6
df=n-1	5
R Squared	0.960949
Slope	0.811282
Intercept	-2.185193

TABLE II-5
Exposure Point Concentration Calculations: MW-11A
AT-Z

Houston Wood Preserving Works
Houston, Texas

Fluorene	Result (mg/L)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/L)
	ND	1	ND	0.10	-1.30	-2.64	0.002
	ND	2	ND	0.26	-0.65	-2.22	0.006
	0.0106	3	-1.97	0.42	-0.20	-1.97	0.0106
	0.023	4	-1.64	0.58	0.20	-1.64	0.023
	0.047	5	-1.33	0.74	0.65	-1.33	0.047
	0.101	6	-1.00	0.90	1.30	-1.00	0.101

Regression Statistics	
n	6
df = n-1	5
R Squared	0.99
Slope	0.65
Intercept	-1.80

95% UCL Calculation per Student's t-Distribution	
Average	0.032
Std Dev	0.04
t-stat	2.02
One-Sided Upper 95% Confidence Limit	0.06

Phenanthrene	Result (mg/L)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/L)
	ND	1	ND	0.0968	-1.30	-2.34	0.005
	ND	2	ND	0.2581	-0.65	-2.03	0.009
	ND	3	ND	0.4194	-0.20	-1.82	0.015
	0.018	4	-1.74	0.5806	0.20	-1.74	0.018
	0.0618	5	-1.21	0.7419	0.65	-1.21	0.062
	0.0651	6	-1.19	0.9032	1.30	-1.19	0.065

Regression Statistics	
n	6
df = n-1	5
R Squared	0.69
Slope	0.47
Intercept	-1.72

95% UCL Calculation per Student's t-Distribution	
Average	0.029
Std Dev	0.027
t-stat	2.02
One-Sided Upper 95% Confidence Limit	0.051

Supporting Documentation for B-TZ Ground Water Zone COPCs
Appendix H-6

July 10, 2000
W.O. #422-009

Environmental Resources Management
16300 Katy Freeway, Suite 300
Houston, Texas 77094-1611
(281) 600-1000

TABLE H-6

Exposure Point Concentration Calculations: MW-10B
BT-Z

Houston Wood Preserving Works
Houston, Texas

Result (mg/L)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/L)
ND	1	ND	0.10	-1.30	-1.95	0.01
ND	2	ND	0.26	-0.65	-1.68	0.02
0.0335	3	-1.47	0.42	-0.20	-1.47	0.03
0.041	4	-1.39	0.58	0.20	-1.39	0.04
0.0825	5	-1.08	0.74	0.65	-1.08	0.08
0.13	6	-0.89	0.90	1.30	-0.89	0.13

Regression Statistics	
n	6
df = n-1	5
R Squared	0.97
Slope	0.42
Intercept	-1.41

95% UCL Calculation per Student's t-Distribution	
Average	0.05
Std Dev	0.04
t-stat	2.02
One-Sided Upper 95% Confidence Limit	0.09

Result (mg/L)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/L)
ND	1	ND	0.10	-1.30	-0.87	0.14
0.23	2	-0.64	0.26	-0.65	-1.68	0.02
0.23	3	-0.64	0.42	-0.20	-0.64	0.23
0.249	4	-0.60	0.58	0.20	-0.60	0.25
0.285	5	-0.55	0.74	0.65	-0.55	0.29
0.65	6	-0.19	0.90	1.30	-0.19	0.65

Regression Statistics	
n	6
df = n-1	5
R Squared	0.76
Slope	0.22
Intercept	-0.58

95% UCL Calculation per Student's t-Distribution	
Average	0.26
Std Dev	0.21
t-stat	2.02
One-Sided Upper 95% Confidence Limit	0.44

TABLE H-6
Exposure Point Concentration Calculations: MW-11B
BT-Z

Houston Wood Preserving Works
Houston, Texas

2-Methylnaphthalene

Result (mg/L)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/L)
ND	1	ND	0.10	-1.30	-1.67	0.02
ND	2	ND	0.26	-0.65	-1.52	0.03
0.031	3	-1.51	0.42	-0.20	-1.51	0.03
0.0378	4	-1.42	0.58	0.20	-1.42	0.04
0.0455	5	-1.34	0.74	0.65	-1.34	0.05
1.4	6	0.15	0.90	1.30	0.15	1.40

95% UCL Calculation per Student's t-Distribution:						
Average						0.26
Std Dev						0.56
t-stat						2.02
One-Sided Upper 95% Confidence Limit						
						0.72

Regression Statistics						
n						6
df=n-1						5
R Squared						0.98
Slope						0.23
Intercept						-1.37

Dibenzofuran

Result (mg/L)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/L)
ND	1	ND	0.10	-1.30	-1.67	0.021
ND	2	ND	0.26	-0.65	-1.52	0.030
ND	3	ND	0.42	-0.20	-1.42	0.038
0.0482	4	-1.32	0.58	0.20	-1.32	0.048
0.057	5	-1.24	0.74	0.65	-1.24	0.057
0.0852	6	-1.07	0.90	1.30	-1.07	0.085

95% UCL Calculation per Student's t-Distribution						
Average						0.047
Std Dev						0.023
t-stat						2.02
One-Sided Upper 95% Confidence Limit						
						0.065

Regression Statistics						
n						6
df=n-1						5
R Squared						0.98
Slope						0.23
Intercept						-1.37

Naphthalene

Result (mg/L)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/L)
ND	1	ND	0.10	-1.30	-0.47	0.34
ND	2	ND	0.26	-0.65	-0.41	0.39
0.42	3	-0.38	0.42	-0.20	-0.38	0.42
0.495	4	-0.31	0.58	0.20	-0.31	0.50
0.58	5	-0.24	0.74	0.65	-0.24	0.58
0.608	6	-0.22	0.90	1.30	-0.22	0.61

95% UCL Calculation per Student's t-Distribution						
Average						0.472
Std Dev						0.11
t-stat						2.02
One-Sided Upper 95% Confidence Limit						
						0.56

Regression Statistics						
n						6
df=n-1						5
R Squared						0.893
Slope						0.107
Intercept						-0.336

TABLE H-6

Exposure Point Concentration Calculations: MW-P10
BT-Z

Houston Wood Preserving Works
Houston, Texas

2-Methylnaphthalene

Result (mg/L)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/L)
ND	1	ND	0.10	-1.30	-2.00	0.01
ND	2	ND	0.26	-0.65	-1.83	0.01
ND	3	ND	0.42	-0.20	-1.71	0.02
0.025	4	-1.60	0.58	0.20	-1.60	0.03
0.032	5	-1.49	0.74	0.65	-1.49	0.03
0.0484	6	-1.32	0.90	1.30	-1.32	0.05

Regression Statistics

n	6
df = n-1	5
R Squared	1.00
Slope	0.26
Intercept	-1.66

95% UCL Calculation per Student's t-Distribution

Average	0.02
Std Dev	0.01
t-stat	2.02
One-Sided Upper 95% Confidence Limit	0.04

Dibenzofuran

Result (mg/L)	Rank	Ranked Log Data	Percentile	Z-Score	Imputed or Detected (Log space)	Imputed or Detected (Regular space) (mg/L)
ND	1	ND	0.10	-1.30	-2.75	0.00
0.012	2	-1.92	0.26	-0.65	-1.92	0.01
0.0435	3	-1.36	0.42	-0.20	-1.36	0.04
0.05	4	-1.30	0.58	0.20	-1.30	0.05
0.0795	5	-1.10	0.74	0.65	-1.10	0.08
2.8	6	0.45	0.90	1.30	0.45	2.80

Regression Statistics

n	6
df = n-1	5
R Squared	0.86
Slope	1.09
Intercept	-1.33

95% UCL Calculation per Student's t-Distribution

Average	0.50
Std Dev	1.13
t-stat	2.02
One-Sided Upper 95% Confidence Limit	1.43

Naphthalene

Result (mg/L)	
0.04	
0.23	
7.8	
0.785	
0.902	
1.26	

95% UCL Calculation per Student's t-Distribution

n	6
df = n-1	5
Average	1.84
Std Dev	2.96
t-stat	2.02
One-Sided Upper 95% Confidence Limit	4.27